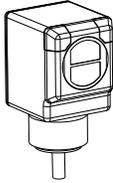


Quick Start Guide

Self-contained, ac-operated sensors



WARNING: Not To Be Used for Personnel Protection

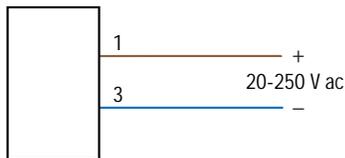
Never use this device as a sensing device for personnel **protection**. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Models

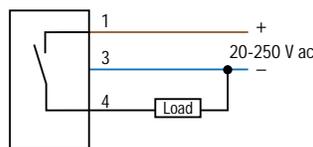
Model ¹	Sensing Mode	Range	LED	Output
Q403E	 OPPOSED	60 m (200 ft)	Infrared, 950 nm	-
Q40AW3R				LO
Q40RW3R				DO
Q40AW3LP	 POLAR RETRO	6 m (20 ft)	Visible red, 680 nm	LO
Q40RW3LP				DO
Q40AW3FF200	 FIXED-FIELD	200 mm (8 in) cutoff	Infrared, 880 nm	LO
Q40RW3FF200				DO
Q40AW3FF400		400 mm (16 in) cutoff		LO
Q40RW3FF400				DO
Q40AW3FF600		600 mm (24 in) cutoff		LO
Q40RW3FF600				DO

Wiring Diagrams

Cabled Emitters



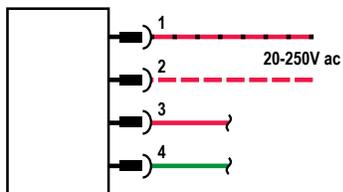
All Other Cabled Models



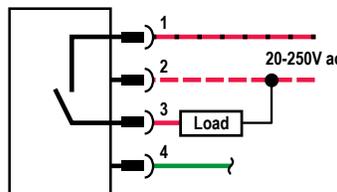
Key

- 1 = Brown
- 3 = Blue
- 4 = Black

QD Emitters (4-pin Micro-Style)



All Other QD Models (4-pin Micro-Style)



Key

- 1 = Red/Black
- 2 = Red/White
- 3 = Red
- 4 = Green

¹ Standard 2 m (6.5 ft) cable models are listed.

- To order 9 m (30 ft) cable: add suffix "W/30" (for example, Q403E W/30).
- To order 4-pin Euro-style QD models: add suffix "Q1" (for example, Q403EQ1). A model with a QD connector requires a mating cable.



Specifications

Supply Voltage and Current

20 V ac to 250 V ac (50/60 Hz).
Average current: 20 mA
Peak current: 200 mA at 20 V ac, 500 mA at 120 V ac, 750 mA at 250 V ac

Supply Protection Circuitry

Protected against transient voltages

Output Configuration

SPST solid-state ac switch; Three-wire hookup; Choose light operate or dark operate models
Light Operate: N.O. output conducts when sensor sees its own (or the emitter's) modulated light
Dark Operate: Output conducts when the sensor sees dark

Output Rating

300 mA maximum (continuous)
Fixed-Field models: derate 5 mA/°C above +50°C (122°F)
Inrush Capability: 1 amp for 20 milliseconds, non-repetitive
OFF-state leakage current: < 100 microamps
ON-state **saturation** voltage: 3 V at 300 mA ac; 2 V at 15 mA ac

Required Overcurrent Protection



WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Output Protection Circuitry

Protected against false pulse on power-up

Output Response Time

Opposed mode: 16 milliseconds ON, 8 milliseconds OFF
Other models: 16 milliseconds ON and OFF



Note: 100 ms delay on power-up

Repeatability

Opposed mode: 2 milliseconds
Other modes: 4 milliseconds
Repeatability and response are independent of signal strength

Indicators

Two LEDs (Green and Amber)
Green ON steady: power to sensor is ON
Amber ON steady: sensor sees light
Amber **flashing:** excess gain marginal (1 to 1.5x) in light condition

Construction

PBT polyester housing; polycarbonate (opposed mode) or acrylic lens

Environmental Rating

Leakproof design rated NEMA 6P, DIN 40050 (IEC IP69K)

Connections

2 m (6.5 ft) or 9 m (30 ft) attached cable, or 4-pin Micro-style quick-disconnect fitting

Operating Conditions

Temperature: -40 °C to +70 °C (-40 °F to +158 °F)
90% at +50 °C maximum relative humidity (non-condensing)

Vibration and Mechanical Shock

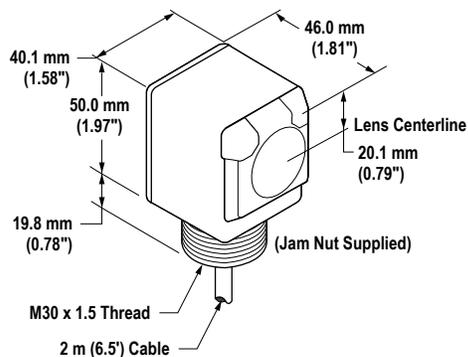
All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 Hz to 60 Hz, max. double amplitude 0.06 inch acceleration 10G). Method 213B conditions H&I. Shock: 75G with unit operating; 100G for non-operation

Certifications

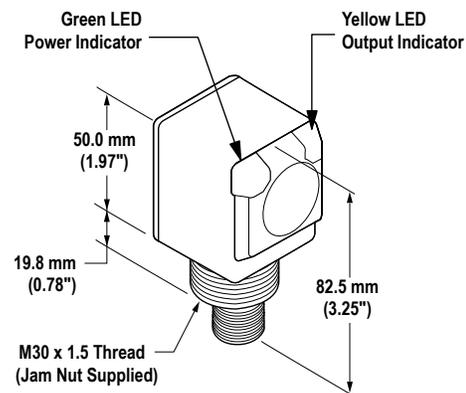


Dimensions

Cabled Models

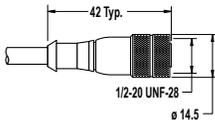
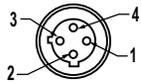
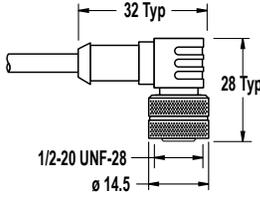


QD Models



All measurements are listed in millimeters [inches], unless noted otherwise.

Quick-Disconnect (QD) Cables

4-Pin Micro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MOAC-406	1.83 m (6 ft)	Straight		 <p>1 = Red/Black 2 = Red/White 3 = Red 4 = Green</p>
MOAC-415	4.57 m (15 ft)			
MOAC-430	9.14 m (30 ft)			
MOAC-406RA	1.83 m (6 ft)	Right-Angle		
MOAC-415RA	4.57 m (15 ft)			
MOAC-430RA	9.14 m (30 ft)			

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