

Quick Start Guide

Self-Contained, AC-Operated Sensors

For additional technical information about this product, including complete instructions, dimensions, accessories, and specifications, see <http://www.bannerengineering.com> and search 121517.



WARNING: Not To Be Used for Personnel Protection

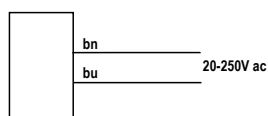
Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized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

Models

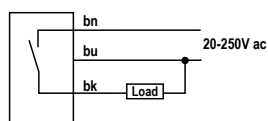
Sensing Mode	Model ¹	Output	Range	LED
 OPPOSED	Q253E	—	20 m (65.6 ft)	Infrared, 950 nm
	Q25AW3R	LO		
	Q25RW3R	DO		
 POLAR RETRO	Q25AW3LP	LO	2 m (6.6 ft)	Visible red, 680 nm
	Q25RW3LP	DO		
 FIXED-FIELD	Q25AW3FF25	LO	25 mm (0.9 in) cutoff	Infrared, 880 nm
	Q25RW3FF25	DO		
	Q25AW3FF50	LO	50 mm (1.9 in) cutoff	
	Q25RW3FF50	DO		
	Q25AW3FF100	LO	100 mm (3.9 in) cutoff	
	Q25RW3FF100	DO		

Wiring Diagrams

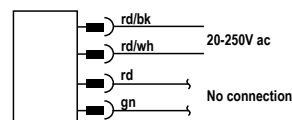
Cabled Emitters



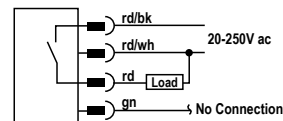
All Other Cabled Models



QD Emitters (4-pin Micro-Style)



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



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

- 9 m (30 ft) cable: add suffix "W/30" (for example, Q253E W/30).
- 4-pin Micro-style QD models: add suffix "Q1" (for example, Q253EQ1). A model with a QD connector requires a mating cable.



Specifications

Supply Voltage and Current

20 V to 250 V ac (50 Hz/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; light operate or dark operate, depending on model

Light Operate: Output conducts when sensor sees its own (or the emitter's) modulated light

Dark Operate: Output conducts when the sensor sees dark

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 <http://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 Rating

300 mA maximum (continuous)

Fixed-Field models: derate 5 mA/°C above +50° C (+122° F)

Inrush capability: 1 amp for 20 ms, non-repetitive

OFF-state leakage current: < 100 µA

ON-state saturation voltage: 3 V at 300 mA ac; 2 V at 15 mA ac

Output Protection Circuitry

Protected against false pulse on power-up

Output Response

Time Opposed mode: 16 ms ON, 8 ms OFF

Other models: 16 ms ON and OFF



NOTE: 100 ms delay on power-up; outputs do not conduct during this time

Repeatability

Opposed mode: 2 ms

Other models: 4 ms

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 1.5 times) 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) attached cable, or 4-pin Micro-style quick-disconnect fitting

Operating Conditions

Temperature: -40 °C to +70 °C (-40 °F to +158 °F)

Humidity: 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



Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

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