

## Features

For complete technical information about this product, including installation instructions, application requirements and guidelines, technical specifications, and accessories, go to [www.bannerengineering.com](http://www.bannerengineering.com) and search for instruction manual part number 121521.



**WARNING:**

- Do not use this device for personnel protection
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

## Models

Sensing Mode	Range	LED	Output	Model
<p>OPPOSED</p>	20 m (66 ft)	Infrared 950 nm	-	<b>S183E</b> Emitter
			LO	<b>S18AW3R</b> Receiver
			DO	<b>S18RW3R</b> Receiver
<p>RETRO</p>	2 m (79 in)	Infrared 950 nm	LO	<b>S18AW3L</b>
			DO	<b>S18RW3L</b>
<p>POLAR RETRO (1)</p>	2 m (79 in)	Visible Red 680 nm	LO	<b>S18AW3LP</b>
<p>DIFFUSE</p>	100 mm (4 in)	Infrared 880 nm	LO	<b>S18AW3D</b>
	300 mm (12 in)		DO	<b>S18RW3D</b>
			LO	<b>S18AW3DL</b>
			DO	<b>S18RW3DL</b>
<p>FIXED-FIELD</p>	25 mm (1 in) cutoff	Infrared 880 nm	LO	<b>S18AW3FF25</b>
	50 mm (2 in) cutoff		DO	<b>S18RW3FF25</b>
			LO	<b>S18AW3FF50</b>
	100 mm (4 in) cutoff		DO	<b>S18RW3FF50</b>
			LO	<b>S18AW3FF100</b>
	DO		<b>S18RW3FF100</b>	

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

- To order the 9 m (30 ft) cable models, add suffix **W/30** (for example, **S183E W/30**).
- To order the 4-pin 1/2"-20UNF QD models, add suffix **Q1** (for example, **S183EQ1**). A model with a QD connector requires a mating cable.
- To order the 5-pin 1/2"-20UNF QD models, add suffix **Q** (for example, **S183EQ**). A model with a QD connector requires a mating cable.

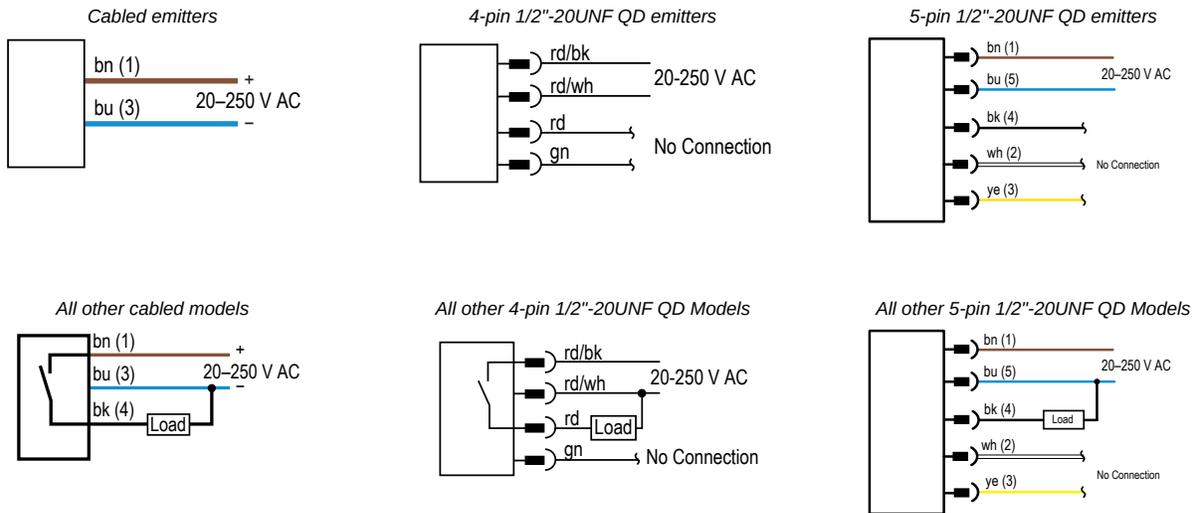
In light operate (LO) mode, the output is ON when the target returns the same or more light to the sensor and OFF when the sensor detects less light than the configured/taught target. In **opposed and retroreflective sensing modes**, light operate is active when the beam is unblocked. In **diffuse, fixed field, and adjustable field sensor modes**, light operate is active when the target is present.

In dark operate (DO) mode, the output is ON when the target returns less light to the sensor than the configured target and OFF when the sensor detects more light than the configured/taught target. In **opposed and retroreflective sensing modes**, dark operate is active when the beam is blocked. In **diffuse, fixed field, and adjustable field sensor modes**, dark operate is active when the target is absent.

(1) Use polarized models when shiny objects will be sensed.



## Wiring



## Specifications

### Supply Voltage and Current

20 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

### Indicators

Two LEDs (green and amber)  
 Green on: power to sensor is on  
 Amber on: sensor sees light  
 Amber flashing: excess gain marginal (1 to 1.5×) in light condition

### Construction

Housing: PBT polyester housing  
 Lens: polycarbonate (opposed-mode) or acrylic (other models)

### Connections

2 m (6.5 ft) integral cable; 9 m (30 ft) integral cable; 4-pin 1/2"-20UNF quick-disconnect fitting; or 5-pin 1/2"-20UNF quick-disconnect fitting

### Output Protection Circuitry

Protected against false pulse on power-up

### Output Configuration

SPST solid-state AC switch; Three-wire connections; Choose light operate or dark operate models  
 Light Operate: Output conducts when the 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

### Output Response Time

Opposed mode models: 16 ms ON, 8 ms OFF  
 Other models: 16 ms ON and OFF  
 NOTE: 100 ms delay on power-up

### Repeatability

Opposed mode models: 2 ms  
 Other models: 4 ms  
 Repeatability and response are independent of signal strength.

### Operating Conditions

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

### Environmental Rating

Leakproof design rated NEMA 6P and IEC IP67 per IEC 60529  
 IP69K per DIN40050 for quick disconnect and cable models when the cables are protected from direct spray

### Vibration and Mechanical Shock

All models meet MIL-STD-202F, Method 201A (Vibration: 10 Hz to 60 Hz maximum, 0.06 inch (1.52 mm) double amplitude, 10G acceleration) requirements.  
 Method 213B conditions H&I.  
 Shock: 75G with device operating; 100G for non-operation

**Certifications**

**CE** Banner Engineering BV  
Park Lane, Culliganlaan 2F bus 3  
1831 Diegem, BELGIUM

**UK CA** Turck Banner LTD Blenheim House  
Blenheim Court  
Wickford, Essex SS11 8YT  
GREAT BRITAIN

**UL** US LISTED

**SP**

**CCC** GB/T 14048.10

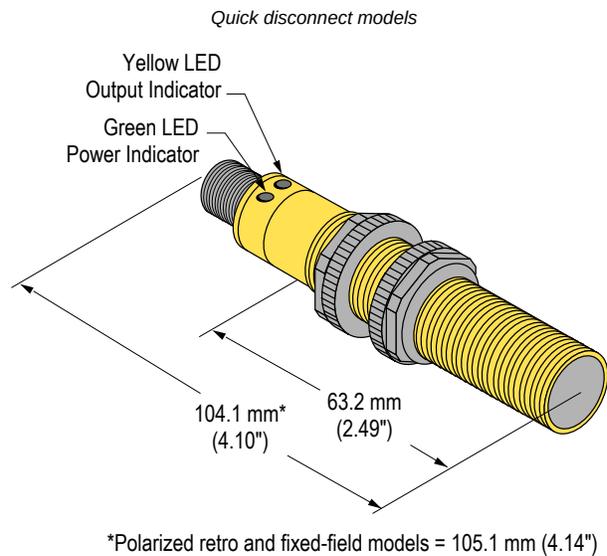
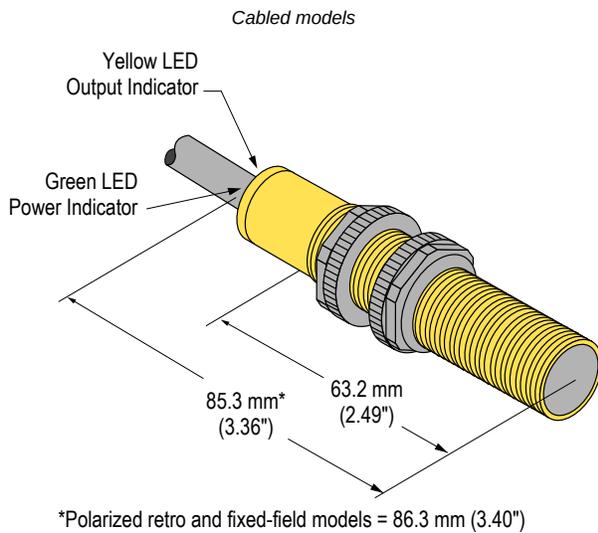
**Required Overcurrent Protection**

 **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](http://www.bannerengineering.com).

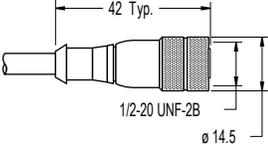
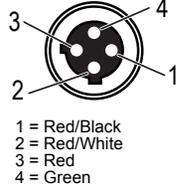
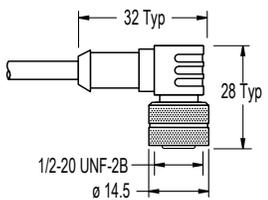
Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

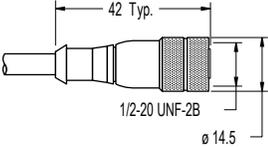
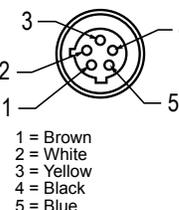
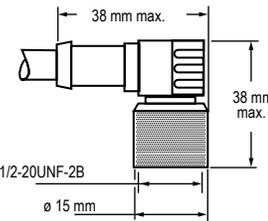
**Dimensions**



# Accessories

## Cordsets

4-Pin Single-Ended 1/2-in Dual Key Female Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQAC-406	2 m (6.56 ft)	Straight		 <p>1 = Red/Black 2 = Red/White 3 = Red 4 = Green</p>
MQAC-415	5 m (16.4 ft)			
MQAC-430	9.14 m (30 ft)			
MQAC-406RA	1.83 m (6 ft)	Right-Angle		
MQAC-415RA	5 m (16.4 ft)			
MQAC-430RA	9.14 m (30 ft)			

5-Pin Single-Ended 1/2-in Dual Key Female Shielded Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQVR3S-506	2 m (6.56 ft)	Straight		 <p>1 = Brown 2 = White 3 = Yellow 4 = Black 5 = Blue</p>
MQVR3S-515	5 m (16.4 ft)			
MQVR3S-530	10 m (32.8 ft)			
MQVR3S-506RA	2 m (6.56 ft)	Right Angle		
MQVR3S-515RA	5 m (16.4 ft)			
MQVR3S-530RA	10 m (32.8 ft)			

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