

## Specifications

### Supply Voltage and Current

10 to 30 V dc (10% maximum ripple) at 20 mA maximum current

### Sensing Beam

Visible red, 645 nm

### Supply Protection Circuitry

Protected against reverse polarity and transient voltages

### Output Protection Circuitry

Protected against false pulse on power-up, short-circuit protected

### Output Response Time

Opposed Mode: 1.3 ms ON; 900  $\mu$ s OFF

All Other Modes: 850  $\mu$ s ON/OFF

120 ms delay on power-up; outputs do not conduct during this time

### Construction

Polarized Retro Models: Polyamide housing with glass lens

All Other Models: Polyamide housing with polycarbonate lens

### Output Configuration

Bipolar (1 NPN and 1 PNP) solid-state output or single output (PNP or NPN), light operate (LO) or dark operate (DO), depending on model

### Repeatability

125 microseconds

### Switching Frequency

Opposed Mode: 385 Hz

All Other Modes: 590 Hz

### Output Ratings

OFF-state leakage current:

NPN: 10  $\mu$ A

PNP: 10  $\mu$ A

ON-state saturation voltage:

NPN: 2 V at 50 mA

PNP: 2 V at 50 mA

### 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 maximum acceleration) requirements. Also meets IEC 60947-5-2 (Shock: 30G 11 ms duration, half sine wave) requirements.

**Connections**

Standard Models: 2 m (6.5 ft) or 9 m (30 ft) attached PVC cable, or 150 mm (6 in) cable with M8 or M12 threaded connection, depending on the model ordered

**Environmental Rating**

Standard Models: IEC IP67

**Conditions**

Operating Temperature: -20 °C to +55 °C (-4 °F to +131°F)  
 Storage Temperature: -30 °C to +75 °C (-22 °F to +167 °F)  
 95% at +50 °C maximum relative humidity (non-condensing)

**Certifications**



**Required Overcurrent Protection**

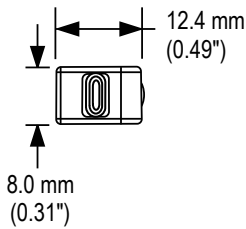


**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

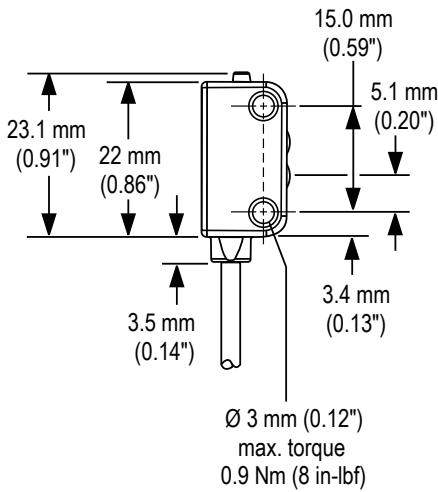
Overcurrent protection is required to be provided by end product application per the supplied table.  
 Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.  
 Supply wiring leads < 24 AWG shall not be spliced.  
 For additional product support, go to [www.bannerengineering.com](http://www.bannerengineering.com).

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

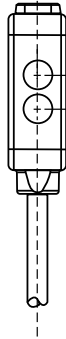
**Dimensions**



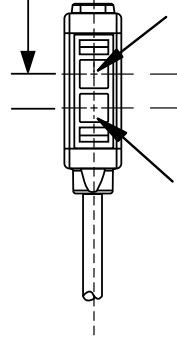
M3 mounting screws included



Polarized Retro Models



4.7 mm (0.19 inch)



Emitter (opposed mode models)

Emitter (all other models)