

## Datasheet



To view or download the latest technical information about this product, including specifications, dimensions, accessories, and wiring, go to [www.bannerengineering.com](http://www.bannerengineering.com). Search for Instruction Manual p/n 119165.



### WARNING:

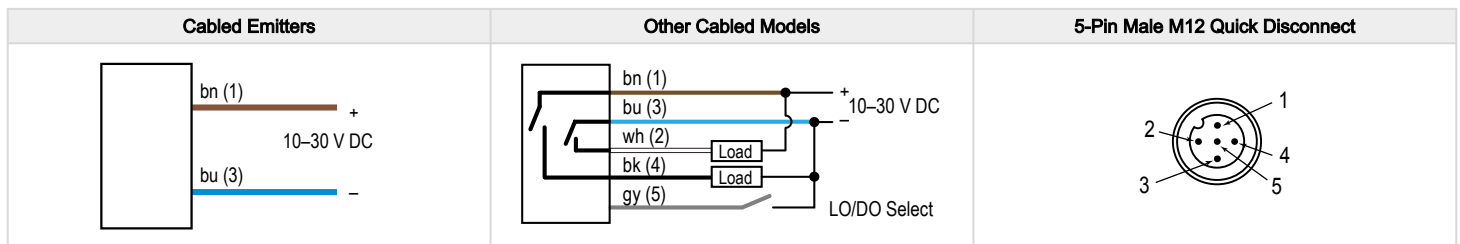
- Do not use this device for personnel protection
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can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

## QS30 Standard (DC) Models

Model <sup>(1)</sup>	Sensing Mode	Beam	Range <sup>(2)</sup>	Output
QS30E (emitter)	Opposed	875 nm Infrared	60 m (200 ft)	N/A
QS30R (receiver)		Effective Beam: 18 mm (0.7 in)		
QS30LP	Polarized Retroreflective	630 nm Visible Red	8 m (26 ft)	Bipolar NPN/PNP
QS30LV	Retroreflective		12 m (40 ft)	
QS30D	Diffuse	940 nm Infrared	1 m (3.3 ft)	
QS30FF200	Fixed Field	680 nm Visible Red	200 mm (8 in)	
QS30FF400			400 mm (16 in)	
QS30FF600			600 mm (24 in)	

## QS30 (DC) Wiring Diagrams

Cabled wiring diagrams are shown. Quick disconnect wiring diagrams are functionally identical.



## QS30 Standard (DC) Specifications

### Supply Voltage

10 V DC to 30 V DC (10% max. ripple) at less than 40 mA, exclusive of load  
Protected against reverse polarity and transient voltages

### Output Response

Opposed Mode: 5 milliseconds ON and OFF  
All others: 2 milliseconds  
NOTE: 100 millisecond delay on power-up; outputs do not conduct during this time

### Repeatability

Opposed Mode: not applicable  
All others: 500 microseconds

### Cutoff Point Tolerance

Fixed-Field only: ± 5% of nominal cutoff distance

### Construction and Mounting

ABS housing, rated IEC IP67; NEMA 6; Acrylic lens cover  
3 mm mounting hardware included

### Connections

2 m (6.5 ft) unterminated 5-wire PVC-jacketed cable; 9 m (30 ft) unterminated 5-wire PVC-jacketed cable; or Integral 5-pin M12 male quick-disconnect connector

### Application Tip for the QS30LV Model

For best sensing reliability, targets should be a minimum of 0.5m from the sensor

### Output Configuration

Bipolar: One current sourcing and one current sinking  
Rating: 100 mA maximum each output at 25 °C  
Off-state leakage current:  
NPN: less than 50 µA  
PNP: less than 40 µA  
ON-state saturation voltage:  
NPN: less than 3 V at 100 mA  
PNP: less than 3 V at 100 mA  
Protected against false pulse on power-up and continuous overload or short circuit of outputs

<sup>(1)</sup>

Only standard 2 m (6.5 ft) cabled models are listed.

- To order the 9 m (30 ft) integral cable model, add suffix "W/30" to the model number (for example, QS30E W/30).
- To order the 5-pin integral M12 quick disconnect (QD), add suffix "Q" (for example, QS30EQ).

<sup>(2)</sup> Polarized Retroreflective and Retroreflective ranges are specified using a model BRT-84 retroreflector.

**Adjustments**

Selectable Light/Dark Operate is achieved via the gray wire.  
 Opposed, Retroreflective, and Polarized Retroreflective models:  
 Light Operate - Low (0 V to 3 V)\*  
 Dark Operate - High (open or 5 V to 30 V)\*  
 Diffuse and Fixed-Field models:  
 Light Operate - High (open or 5 V to 30 V)\*  
 Dark Operate - Low (0 V to 3 V)\*  
 Diffuse, Retroreflective, and Polarized Retroreflective mode models (only):  
 Single-turn Sensitivity (Gain) adjustment potentiometer  
 \* Input impedance 10 kΩ

**Indicators**

2 LEDs on sensor top:  
 Green on: Power on  
 Green flashing: Output overloaded (except receivers)  
 Amber on: Light sensed  
 Amber flashing: Marginal excess gain (1–1.5× excess gain)  
 Large oval LED on sensor back (except emitters): Yellow on indicates the output is conducting

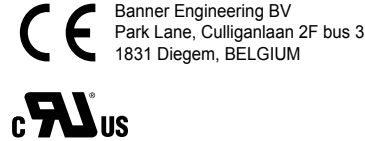
**Operating Conditions**

–20 °C to +70 °C (–4 °F to +158 °F)  
 95% at +50 °C maximum relative humidity (non-condensing)

**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.

**Certifications**



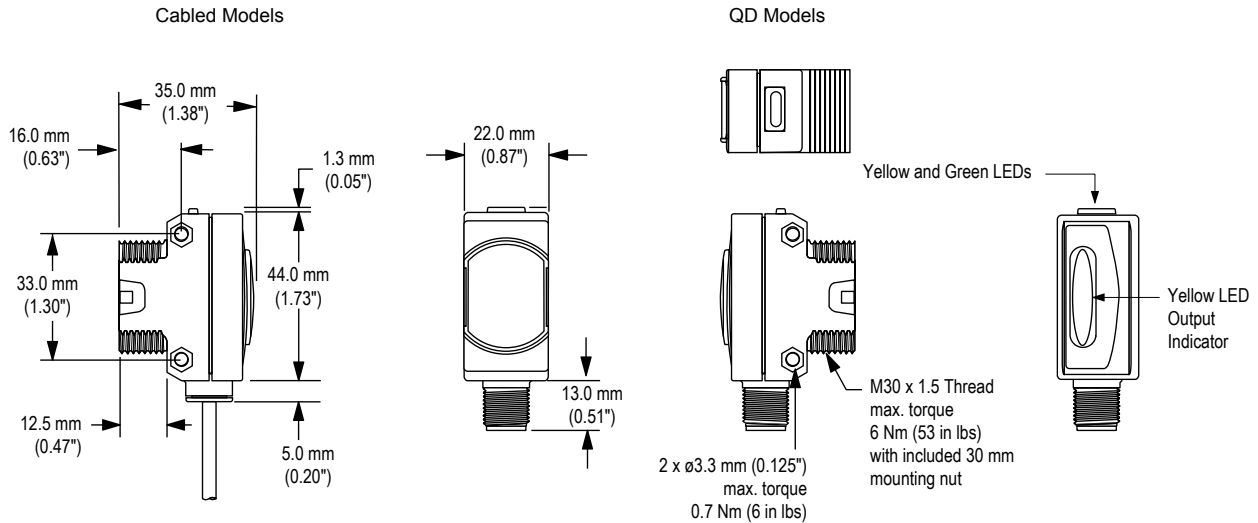
**Required Overcurrent Protection**

**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 Key definition for "(keyrefName)" not found in the DITA map..

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	1.0	30	0.5

**QS30 Standard (DC) Dimensions**



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

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For patent information, see [www.bannerengineering.com/patents](http://www.bannerengineering.com/patents).

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 Original Instructions  
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