

# WORLD-BEAM® QS30 Series Sensor (DC Voltage)



## Datasheet

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



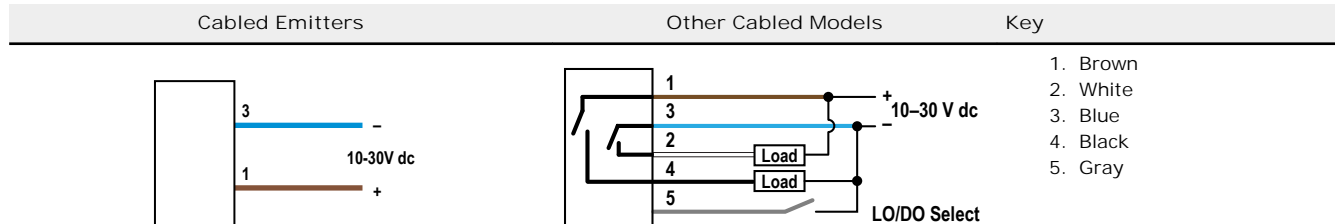
| Model <sup>1</sup> | Sensing Mode              | Beam                           | Range <sup>2</sup> | Output          |
|--------------------|---------------------------|--------------------------------|--------------------|-----------------|
| QS30E (emitter)    | Opposed                   | 875 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)     |                 |



### 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.

## Wiring Diagrams



Cabled wiring diagrams are shown. Quick disconnect (QD) wiring diagrams are functionally identical.

## 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:  $\pm 5\%$  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 cable; 9 m (30 ft) unterminated 5-wire PVC cable ; or Integral 5-pin M12/Euro-style male quick disconnect (QD)

### Application Tip for the QS30LV Model

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

<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/Euro-style 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.



**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 200 µA  
   PNP: less than 10 µA  
 ON-state saturation voltage:  
   NPN: less than 1.6 V at 100 mA  
   PNP: less than 2.0 V at 100 mA

Protected against false pulse on power-up and continuous overload or short circuit of outputs

**Indicators**

2 LEDs on sensor top:

|          | Green                                | Yellow                                    |
|----------|--------------------------------------|---|
| On       | Power on                             | Light sensed                              |
| Flashing | Output overloaded (except receivers) | Marginal excess gain (1–1.5× excess gain) |

Large oval LED on sensor back (except emitters): Yellow on indicates the output is conducting

**Adjustments**

Selectable Light/Dark Operate is achieved via the gray wire.  
 Opposed, Retroreflective, and Polarized Retroreflective models:  
   Light Operate - Low (0 to 3 V)\*  
   Dark Operate - High (open or 5 to 30 V)\*

Diffuse and Fixed-Field models:  
   Light Operate - High (open or 5 to 30 V)\*  
   Dark Operate - Low (0 to 3 V)\*

Diffuse, Retroreflective, and Polarized Retroreflective mode models (only):  
   Single-turn Sensitivity (Gain) adjustment potentiometer

\* Input impedance 10 kΩ

**Operating Conditions**

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

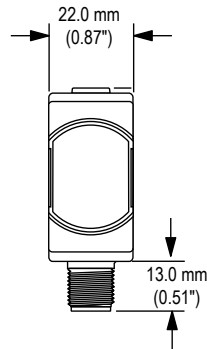
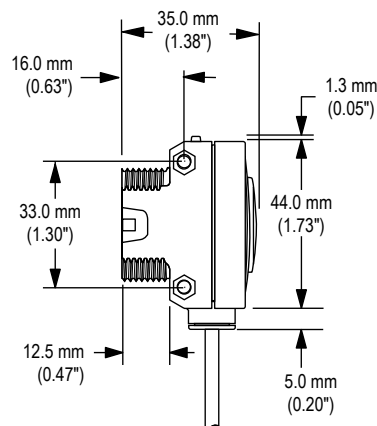
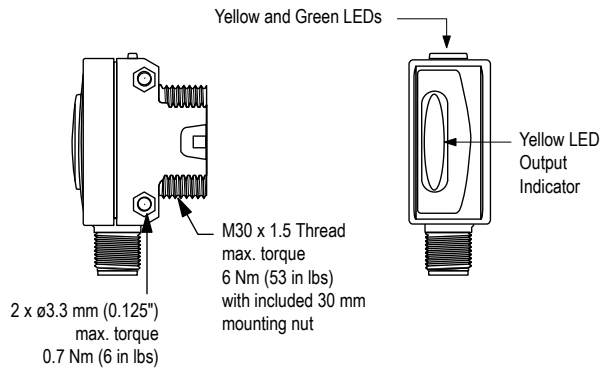
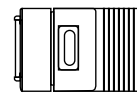
**Vibration and Mechanical Shock**

All models meet Mil Std. 202F requirements. Method 201A (vibration: 10 Hz to 60 Hz max., double amplitude 0.06 inch, maximum acceleration 10G). Also meets IEC 947-5-2 requirements: 30G 11 ms duration, half sine wave.

**Certifications**

Pending

## Dimensions

**Cabled Models****QD Models**

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

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