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*. Search for Instruction Manual p/n *119165*.

WARNING: Not To Be Used for Personnel Protection

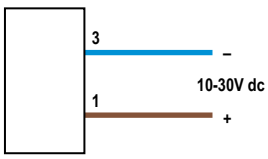
Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized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

Models

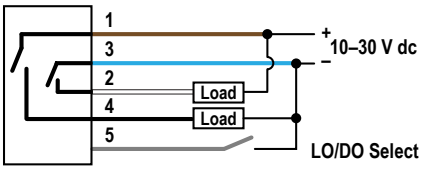
Model [1]	Sensing Mode	Beam	Range [2]	Output
QS30E (emitter)	Opposed	875 nm Infrared	60 m (200 ft)	N/A
QS30R (receiver)		Effective Beam: 18 mm (0.7 in)		Bipolar NPN/PNP
QS30LP	Polarized Retroreflective	630 nm Visible Red	8 m (26 ft)	
QS30LV	Retroreflective		12 m (40 ft)	
QS30D	Diffuse	940 nm Infrared	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)	

Wiring Diagrams

Cabled Emitters



Other Cabled Models



Key

1. Brown
2. White
3. Blue
4. Black
5. Gray

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

[1] 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).

[2] Polarized Retroreflective and Retroreflective ranges are specified using a model BRT-84 retroreflector.

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

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

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 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

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

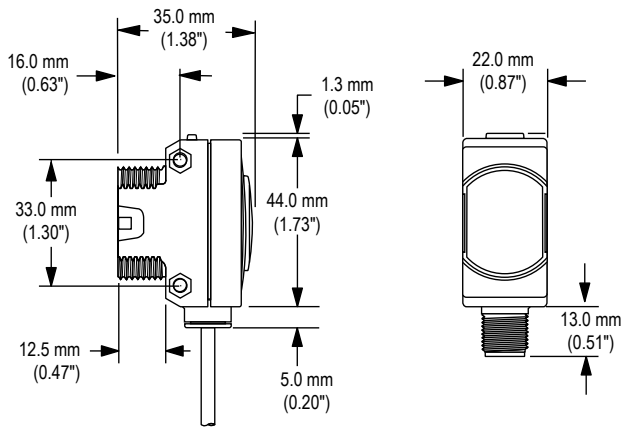
Operating Conditions
–20 °C to +70 °C (–4 °F to +158 °F)
95% at +50 °C maximum relative humidity (non-condensing)

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.

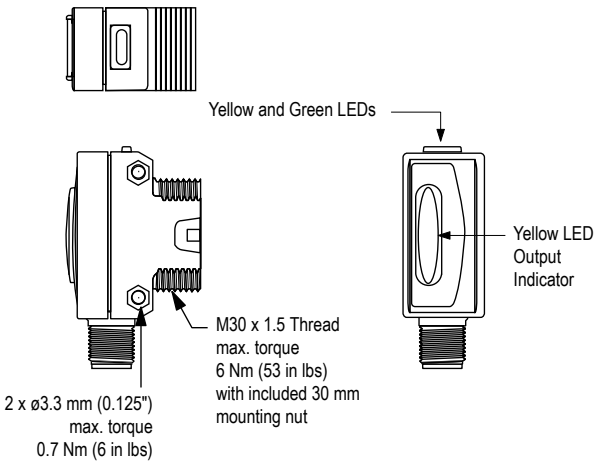
Certifications
Pending

Dimensions

Cabled Models



QD Models



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

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