more sensors, more solutions

WORLD-BEAM® QS30 Series

Polarized Retroreflective Laser Sensors

Features

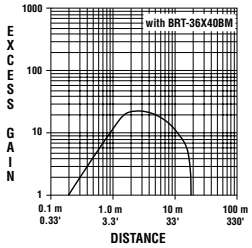
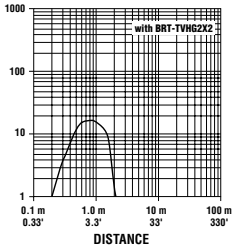
- Visible class 1 laser with small, effective beam size
- Excellent optical performance throughout sensing range, even close up
- Easy push-button SET options: Maximum Excess Gain or Low-Contrast SET, depending on model, plus Manual Adjust
- Easy-to-read operating status indicators, with 8-segment bargraph display
- Bipolar discrete outputs, PNP and NPN
- Selectable 30 millisecond OFF-delay
- Models available with 2 m or 9 m (6.5' or 30') cable or integral quick-disconnect
- Tough ABS housing rated IEC IP67; NEMA 6
- Compact housing, mounting versatility – popular 30 mm threaded nose or side-mount

Excellent for applications where high sensing power and small beam size are important. Operates over sensing ranges typically accomplished only by conventional opposed-mode photoelectrics; uses a special filter to polarize the emitted light, filtering out unwanted reflections from shiny objects.

P

Visible Red, Class 1 laser; 650 nm

Models

Model	Range and Use	Spot Size at Focus	Cable*	Supply	Output Type	Excess Gain	
						With Supplied Target BRT-36X40BM	With Supplied Target BRT-TVHG-2X2
QS30LLP	0.2 to 18 m (0.67' to 60') Maximum Excess Gain SET for Long-Range Applications	Approx. 4 mm at 10 m (0.16" at 33')	2 m (6.5') 5-wire Cable	10 to 30V dc	Bipolar NPN/PNP		
QS30LLPQ			Integral 5-pin Euro-style QD				
QS30LLPC	0.2 to 18 m (0.67' to 60') Low-Contrast SET for Small Object Detection		2 m (6.5') 5-wire Cable				
QS30LLPCQ			Integral 5-pin Euro-style QD				

*9 m (30') cables are available by adding suffix "**W/30**" to the model number of any cabled sensor (e.g., **QS30LLP W/30**).
A model with a QD connector requires a mating cable (see page 10).

WARNING . . . Not To Be Used for Personnel Protection

Never use this product as a sensing device for personnel protection. Doing so could lead to serious injury or death.

This product 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. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.

WORLD-BEAM® QS30 Series – Polarized Retroreflective Laser Sensors

Overview

QS30LLP and QS30LLPC Series sensors are easy-to-use, high-performance laser sensors whose many configuration options make them suitable for demanding applications. Each sensor features two identically configured outputs, one each NPN and PNP.

The compact housing has a large, easy-to-see bargraph display plus bright LEDs for easy configuration and status monitoring during operation. The sensor can be side-mounted, using integral mounting holes, or front-mounted, via the 30 mm threaded barrel.

Model QS30LLP(Q) is configured using the Maximum Excess Gain SET procedure. It is useful for long-range applications and high variations in contrast, such as beam-break applications where the target objects are larger than the beam. See page 4 for more information.

Model QS30LLPC(Q) is configured using the Low-Contrast SET procedure. It is useful for small object detection and other applications with small variations in contrast, such as yarn- or thread-break applications. See page 5 for more information.

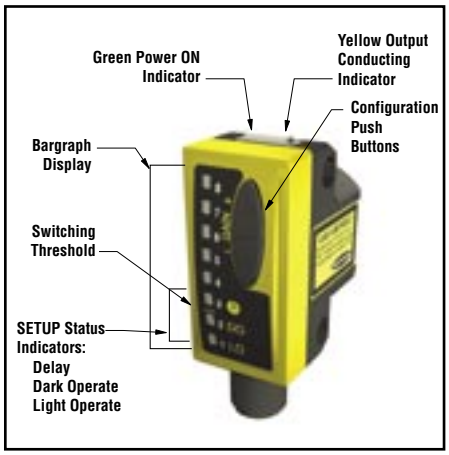


Figure 1. Model QS30LLP features

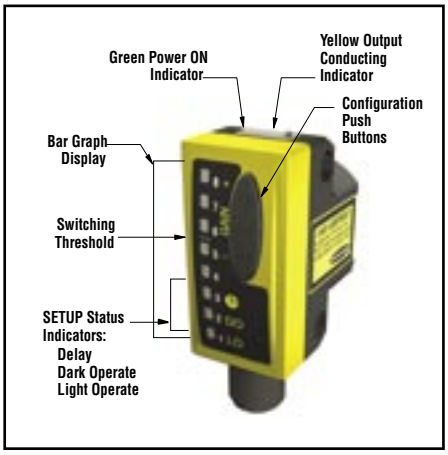


Figure 2. Model QS30LLPC features

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Specifications

Supply Beam	650 nm visible red
Beam Size at Aperture	Approx. 3 mm
Laser Classification	Class 1
Supply Voltage	10 to 30V dc (10% max. ripple @ 10% duty cycle) @ 35 mA max current, exclusive of load
Supply Protection Circuitry	Protected against reverse polarity, over voltage, and transient voltages
Delay at Power-Up	1 second max.; outputs do not conduct during this time
Output Configuration	**Bipolar:** 1 current sourcing (PNP) and 1 current sinking (NPN)
Output Rating	150 mA maximum load **OFF-state leakage current:** < 10 µA at 30V dc **ON-state saturation voltage:** **NPN:** < 1.0V @ 150 mA load **PNP:** < 2.0V @ 150 mA load
Output Protection	Protected against output short-circuit, continuous overload, transient over-voltages, and false pulse on power-up
Output Response Time	500 microseconds
Repeatability	70 microseconds
Adjustments	2 push buttons and remote wire • Easy push-button configuration • Manually adjust (+/–) thresholds (push buttons only) • LO/DO and OFF-delay configuration options • Push-button lockout (from remote wire only) **Factory Defaults:** • No Delay • Dark Operate • Push buttons enabled
Indicators	**Green LED:** Power ON **Yellow LED:** Output conducting **8-Segment Red Bargraph** **SETUP mode:** LED 3 : Flashes Red when delay is selected LED 2 (DO): Flashes Red when Dark Operate is selected LED 1 (LO): Flashes Red when Light Operate is selected **RUN mode:** Signal strength (excess gain), relative to switchpoint **Model QS30LLP**: LED 8: >6X; LED 7: 5-6X; LED 6: 4-5X; LED 5: 3-4X; LED 4: 2-3X; LED 3: 1-2X; LED 2: 0.5-1X; LED 1: 0-0.5X **Model QS30LLPC**: LED 8: >2X; LED 7: 1.5-2X; LED 6: 1-1.5X; LED 5: 0.8X; LED 4: 0.6X; LED 3: 0.4X; LED 2: 0.2X; LED 1: 0X **Sensor calibration failure:** Alternating even-numbered and odd-numbered LEDs flash
Construction	ABS plastic housing; acrylic lens cover
Environmental Rating	IP67, NEMA 6
Connections	5-conductor 2 m (6.5') PVC cable, 9 m (30') PVC cable, or 5-pin integral Euro-style quick-disconnect fitting
Operating Conditions	**Temperature:** -10° to +50°C (+14° to 122°F) **Max. relative Humidity:** 90% @ 50°C (non-condensing)
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements. Method 201A (Vibration: 10 to 60Hz max. double amplitude 0.06", maximum acceleration 10G). Also meets IEC 947-5-2 requirements: 30G, 11 ms duration, half sine wave.
Certifications	CE

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CAUTION ... Do not Disassemble for Repair

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure; per EN 60825. **Do NOT attempt to disassemble this sensor for repair.** A defective unit must be returned to the manufacturer.

Description of Laser Class

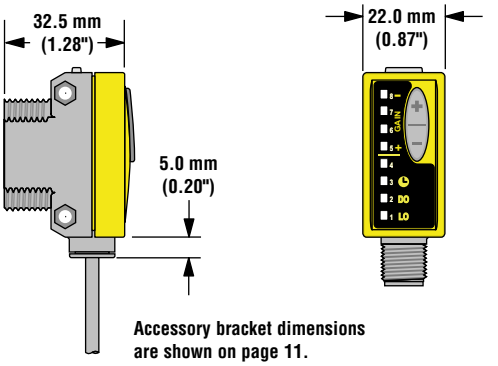
Class 1
Lasers that are safe under reasonably foreseeable conditions of operation, including the use of optical instruments for intrabeam viewing.

Reference 60825-1 Amend. 2 © IEC:2001(E), section 8.2.

For Safe Laser Use
- Do not permit a person to stare at the laser from within the beam.
- Do not point the laser at a person's eye at close range.
- Locate open laser beam paths either above or below eye level, where practical

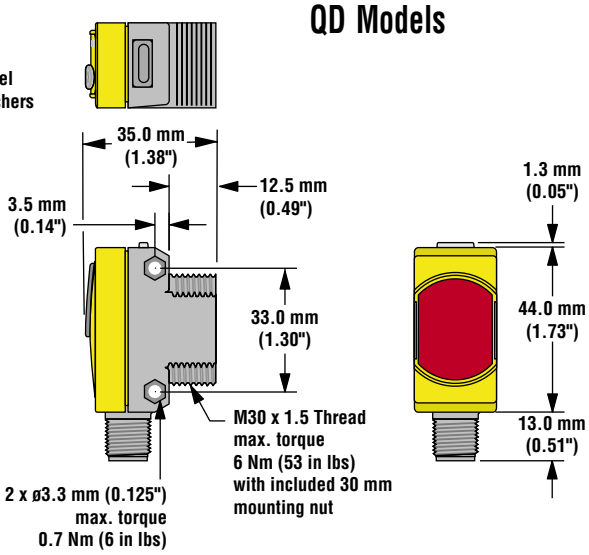
Dimensions

Cabled Models



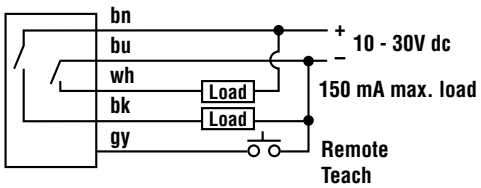
Hardware Included:
(2) M3 x 0.5 x 28 stainless steel machine screws, nuts and washers

QD Models



Hookups

Cabled Models



QD Models