



# WORLD-BEAM® QS30 Series

High-power opposed-mode sensors

## Features



- Infrared beam with high excess gain — range over 213 m (700')
- Excellent noise immunity and crosstalk avoidance
- Excellent optical performance throughout the sensing range
- Easy-to-read operating status indicators, with bargraph display
- Bipolar discrete outputs, PNP and NPN
- Light Operate and Dark Operate models available
- Models available with 2 m or 9 m (6.5' or 30') cable, or quick-disconnect fitting
- Tough ABS/polycarbonate-blend housing rated IEC IP67; NEMA 6P; QD models are wash down-tested to DIN 40050-9 (IP69K)
- Unique water/debris-shedding lens design reduces lens contamination; lens material survives impact, washdown and cleaning chemicals
- Encapsulated electronics
- Compact housing, mounting versatility — popular 30 mm threaded barrel or side-mount



Excellent for applications where high sensing power is required due to long sensing range or contamination on lenses.

Infrared, 875 nm

## Models

Model	Cable*	Supply Voltage	Output Type	Beam Pattern	Excess Gain		
<b>Emitters</b>							
QS30EX	2 m (6.5') 5-wire Cable	10V dc to 30V dc	—				
QS30EXQ	5-pin Euro-style QD						
<b>Receivers</b>							
QS30ARX	2 m (6.5') 5-wire Cable	10V dc to 30V dc	Bipolar NPN/PNP Light Operate				
QS30ARXQ	5-pin Euro-style QD						
QS30RRX	2 m (6.5') 5-wire Cable		Bipolar NPN/PNP Dark Operate				
QS30RRXQ	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., QS30EX W/30).

A model with a QD connector requires a mating cable (see page 4).



### 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 – High-Power Opposed-Mode Sensors

## Overview

Banner QS30 Series high-power opposed-mode sensors are extremely rugged, powerful and leakproof. They are designed to withstand the most demanding industrial applications, including high-pressure washdown areas. They are powerful enough to burn through heavy fog, dust, and most types of industrial and process contamination.

The sensor's electronics are epoxy-encapsulated for maximum resistance to mechanical shock and vibration. The popular WORLD-BEAM-style housing provides multiple mounting configurations in a minimum of space.

The innovative circuitry used in these sensors provides the best EMI/RFI noise immunity of any non-synchronized emitter/receiver pair. For applications where optical crosstalk between multiple sensor pairs may be a problem, the sensors provide a choice between two modulation frequencies (A and B). (Each emitter must be set to the same frequency as its receiver.)

Light Operate and Dark Operate outputs are available, depending on the model. Each model has two outputs that switch simultaneously: one each NPN (sinking) and PNP (sourcing).

Additional configuration options are available; contact the factory for information about the following options:

- Additional modulation frequency choices (up to four)
- Modified sensor gain
- ON-delay or OFF-delay settings
- Fixed modulation frequency models

Each sensor has a green Power ON/OFF indicator and yellow indicators for the selected modulation frequency. In addition, receivers have a yellow LED that lights when the outputs are conducting, plus a 4-element light bar that indicates signal strength, relative to the switch point (the higher the number lit, the more light is received).

## Sensor Configuration

The modulation frequency (A or B) is selected by the state of the gray wire (on cabled models; pin 5 on QD models – see hookups, page 4). A “+” voltage or no connection selects frequency A; connecting it to “-” selects frequency B.

To disable (or inhibit) the emitter LED for testing the receiver, attach the white wire to “-” voltage.

## Sensor Alignment

Adjust the emitter first, then the receiver. Verify that both sensors are wired for the same modulation frequency, then adjust the emitter's position until the receiver signal strength light bar indicates its highest amount of signal received (the highest number lit). Tighten the emitter mounting hardware, then repeat the process for the receiver.



Figure 1. Emitter indicators

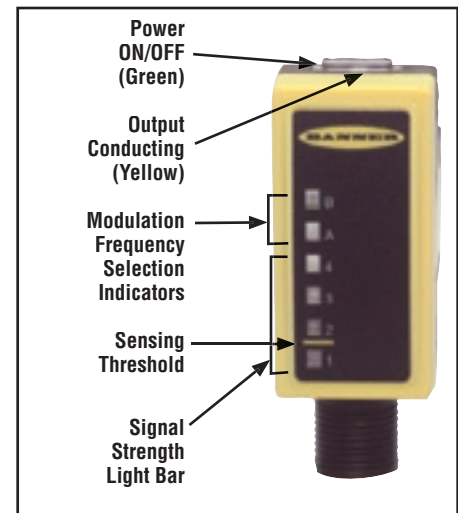


Figure 2. Receiver indicators

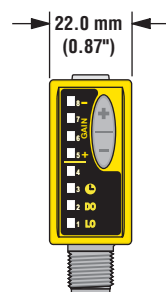
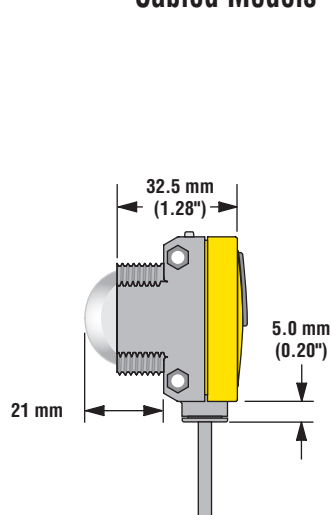
# WORLD-BEAM® QS30 Series – High-Power Opposed-Mode Sensors

## Specifications

<b>Supply Voltage</b>	<b>Emitter:</b> 10 to 30V dc (10% maximum ripple) at less than 70 mA <b>Receiver:</b> 10 to 30V dc (10% maximum ripple) at less than 22 mA (exclusive of load)
<b>Beam</b>	875 nm, infrared
<b>Sensing Range</b>	Excess gain of 2 at 213 m (700')
<b>Output Configuration</b>	Bi-polar current sinking (NPN) white wire; current sourcing (PNP) black wire
<b>Output Rating</b>	100 mA maximum load <b>OFF-state leakage current:</b> less than 200 µA <b>ON-state saturation voltage:</b> less than 1.5V at 100 mA, less than 900 millivolts at 10 mA Protected against false power up and continuous overload or short circuit
<b>Output Response</b>	30 milliseconds ON and 30 milliseconds OFF; 5 ms repeatability
<b>Adjustments</b>	<b>Light Operate/Dark Operate</b> – dependent on model selected <b>Frequency via gray wire</b> A: Gray (+) B: Gray (-) <b>Emitter only: LED inhibit, via white wire</b> White (-) turns emitter LED OFF (to allow verification of sensor operation)
<b>Indicators</b>	<b>Green LED:</b> Power ON Frequency Indicator (A or B) <b>Receiver only:</b> <b>Yellow LED:</b> Output conducting 4-LED Signal Strength light bar
<b>Environmental Rating</b>	<b>Cabled models:</b> IP67, NEMA 6P <b>QD models:</b> IP69K per DIN 40050-9
<b>Construction</b>	PC/ABS blend plastic housing; impact-resistant lens material
<b>Connection</b>	5-wire cable (2 m or 9 m) or 5-pin integral Euro-style quick-disconnect fitting
<b>Operating Conditions</b>	<b>Temperature:</b> -20° to +60°C (-4° to +140°F) <b>Relative Humidity:</b> 90%; non-condensing

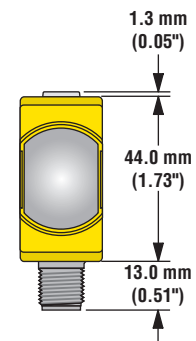
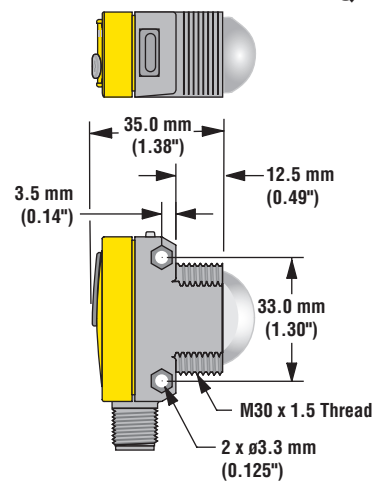
## Dimensions

### Cabled Models



Bracket dimensions are shown on page 5.

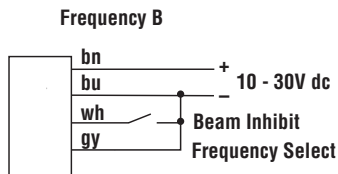
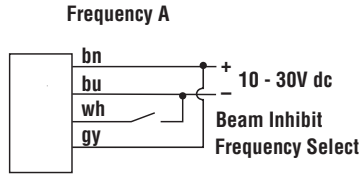
### QD Models



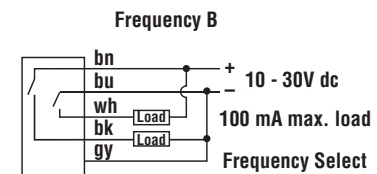
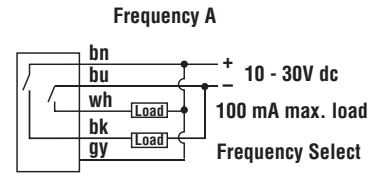
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## Hookups

### Emitter



### Receiver



NOTE: Cabled and QD hookups are identical

## Accessories

### Quick-Disconnect Cables

Style	Model	Length	Dimensions	Pin-out
5-pin Euro-style straight	<b>MQDC1-506</b> <b>MQDC1-515</b> <b>MQDC1-530</b>	2 m (6.5') 5 m (15') 9 m (30')		
5-pin Euro-style right-angle	<b>MQDC1-506RA</b> <b>MQDC1-515RA</b> <b>MQDC1-530RA</b>	2 m (6.5') 5 m (15') 9 m (30')		

# WORLD-BEAM® QS30 Series – High-Power Opposed-Mode Sensors

## Brackets

<b>SMBQS30L</b>	<ul style="list-style-type: none"> <li>• 14-gauge, stainless steel right-angle bracket for cable models</li> <li>• Clearance for M4 (#8) hardware</li> <li>• ± 12° tilt adjustment</li> </ul>	<b>SMBQS30LT</b>	<ul style="list-style-type: none"> <li>• 14-gauge stainless steel for QD models with right-angle cables</li> <li>• Tall right-angle mounting bracket</li> <li>• ± 8° Tilt adjustment</li> </ul>
<b>SMBQS30Y</b>	<ul style="list-style-type: none"> <li>• Heavy-duty die-cast bracket</li> <li>• M18 vertical mounting option</li> <li>• ± 8° tilt adjustment with cabled units</li> <li>• Nuts and lockwasher included</li> </ul>	<b>SMB30SC</b>	<ul style="list-style-type: none"> <li>• 30 mm swivel bracket, barrel mount</li> <li>• Black reinforced thermoplastic polyester</li> <li>• Includes stainless steel mounting and swivel locking hardware</li> </ul>
<p><b>Other Compatible Mounting Brackets (see Banner Photoelectric catalog or website for more information):</b></p> <ul style="list-style-type: none"> <li>• SMB30MM</li> <li>• SMB30A</li> </ul>			

# WORLD-BEAM<sup>®</sup> QS30 Series – High-Power Opposed-Mode Sensors

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more sensors, more solutions

**WARRANTY:** Banner Engineering Corp. warrants its products to be free from defects for one year. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture found to be defective at the time it is returned to the factory during the warranty period. This warranty does not cover damage or liability for the improper application of Banner products. This warranty is in lieu of any other warranty either expressed or implied.