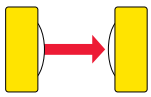
SureCross® WORLD-BEAM® QS30 Emitter and Receiver

A photoelectric emitter and receiver pair designed to work with the Flex*Power® Nodes with 1-Wire Serial Interface*

The SureCross WORLD-BEAM QS30 works in a variety of environments to provide object obstruction measurements.

- Advanced photoelectric sensors with exceptional long-range optical performance
- Compact housing with mounting versatility, via its popular 30 mm threaded barrel or side-mount holes
- Emitter operates with the 3.6 to 5.5V dc required for low current use in long-life battery applications
- Receiver operates with 3.6 to 30V dc or 3.6 to 5.5V for low current use in long-life battery applications
- Selectable Light or Dark Operate, depending on the model configuration
- Tough ABS/polycarbonate blend housing is rated to IEC IP67; NEMA 6

For additional information please refer to Banner Engineering's website, www.bannerengineering.com/surecross.

Sensing Mode	Model	Range	Cable and Connector	Output
 Infrared Opposed	**QS30WEQ emitter**	Max Range: 100 feet 10x Excess Gain at 50 feet	6 inch cable with male 5-pin Euro-style connector	–
	QS30WRQ receiver			NMOS Sinking

⚠ WARNING . . . Not To Be Used for Personnel Protection

Never use these products for personnel protection. Doing so could lead to serious injury or death.

These products do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A failure or malfunction can cause either an energized or de-energized output condition. Consult your current Banner Safety Products catalog for safety products that meet OSHA, ANSI, and IEC standards for personnel protection.

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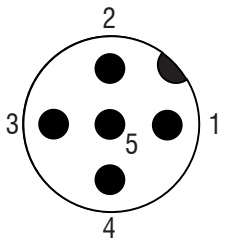
Wiring

	Wire Color	Emitter	Receiver
1	Brown	Power In (+), 3.6 to 5.5V dc	Power In (+), 3.6 to 30V dc
2	White	Serial device select (sinking input to sensing device)	Serial device select (sinking input to sensing device)
3	Blue	Ground (–)	Ground (–)
4	Black	1-Wire serial communication	Sinking NMOS output (sinking output to sensing device)
5	Gray	Power In (+), 3.6 to 5.5V dc	1-Wire serial communication

Emitter

Continuous power is supplied to the brown or gray wires (+) and blue wire (-). The black wire handles the serial communications between the host and the serial sensing device. The white wire is an input where the low active signal is used to enable communications with the sensing device.



Receiver

Continuous power is supplied to the brown wire (+) and blue wire (-). The gray wire handles the serial communications between the host and the serial sensing device. The white wire is an input where the low active signal is used to enable communications with the sensing device. The black wire is a sinking output.

The serial interface is used for device configuration and is not required for installation.

Input	Input Definition	Description
Primary Input 1	0h00	Edge count, high word
Primary Input 2	0h01	Edge counter, low word
Primary Input 3	0h02	Sensing state
Secondary Input 1	0h03	(None defined)
Secondary Input 2	0h04	(None defined)
Secondary Input 3	0h05	(None defined)
Custom	0hXX	(None defined)

Outputs	Input Definition	Description
Primary Output 1	0h00	(None defined)
Primary Output 2	0h01	(None defined)
Primary Output 3	0h02	(None defined)
Secondary Output 1	0h03	(None defined)
Secondary Output 2	0h04	(None defined)
Secondary Output 3	0h05	(None defined)
Custom	0hXX	(None defined)

Specifications

General

Power (Receiver). +3.6 to 30V dc (3.6 to 5.5V dc low power option)

Power (Emitter). 3.6 to 5.5V dc low power option

Current*

Default sensing receiver: 200 µA; emitter: 400 µA
Default non-sensing receiver: 140 µA
Disabled sensing receiver: 140 µA; emitter: 60 µA
Active comms: 3.3 mA

Battery Life Estimate. Six to 12 months, depending on use.

Indicators

Two LED indicators on sensor top:
Green flashing: power ON
Yellow flashing: light sensed

Construction

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

Connections. 6-inch cable with 5-pin Euro-style QD connector

Mounting Threads. M30 x 1.5

*The current values given are for 3.6 to 5.5V dc. When operating at 5.5 to 30V dc, add (Vdd-5.5V)/8 kΩ to each value listed.

Discrete Inputs

One Sinking

Discrete Input Rating. 3 mA max current at 30V dc

Discrete Input ON Condition. Less than 0.7V

Discrete Input OFF Condition. Greater than 2V or Open

Discrete Outputs

One NMOS Sinking

Discrete Output Rating

Less than 10 mA max current at 30V
ON-State Saturation: Less than 0.7V at 20 mA

Discrete Output ON Condition. Less than 0.7V

Discrete Output OFF Condition. Open

Output Response. 30 milliseconds ON and OFF (programmable)

Performance

Rated Range

Max Range: 100 feet
10x Excess Gain at 50 feet

Communications

Interface. 1-Wire serial interface

Baud Rates. 9.6k, 19.2k (default), or 38.4k

Data Format. 8 data bits, No parity (default), even parity, or odd parity, 1 stop bit

Protocol. SureCross DX80 *Flex*Power Node with 1-Wire Serial Interface

Communications Line

Level Receive ON: Greater than 2V
Level Receive OFF: Less than 0.7V
Level Transmit ON: 2.7 to 3V
Level Transmit OFF: 0V (pulldown resistor of 10 kOhm)

Environmental

Environmental Rating. IEC IP67; NEMA 6 (Electronics)

Operating Conditions

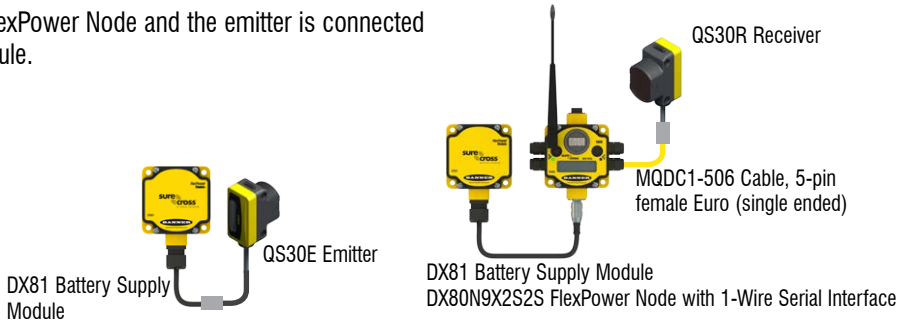
Temperature: −20 to +70 °C (−4 to +158 °F)
Relative Humidity: 90% @ 50 °C (non-condensing)

Shock and Vibration

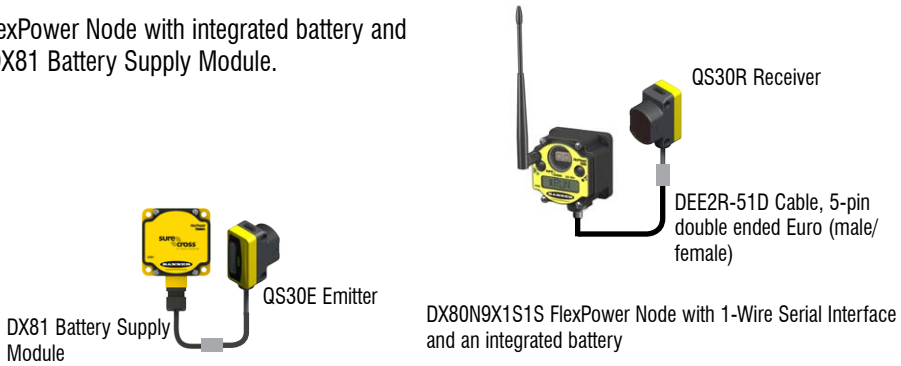
All models meet Mil. Std. 202F requirements method 201A (vibration: 10 to 60 Hz max., double amplitude 0.06", maximum acceleration 10G). Also meets IEC 947-5-2; 30G 11 ms duration, half sine wave.

Example Installations

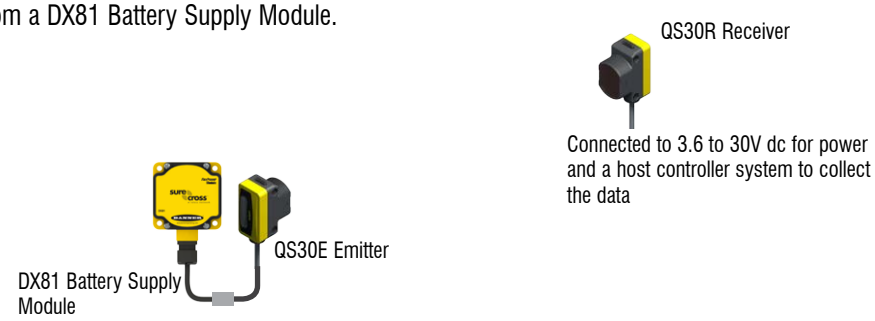
Configuration 1. The receiver is connected to a FlexPower Node and the emitter is connected to and powered from a DX81 Battery Supply Module.



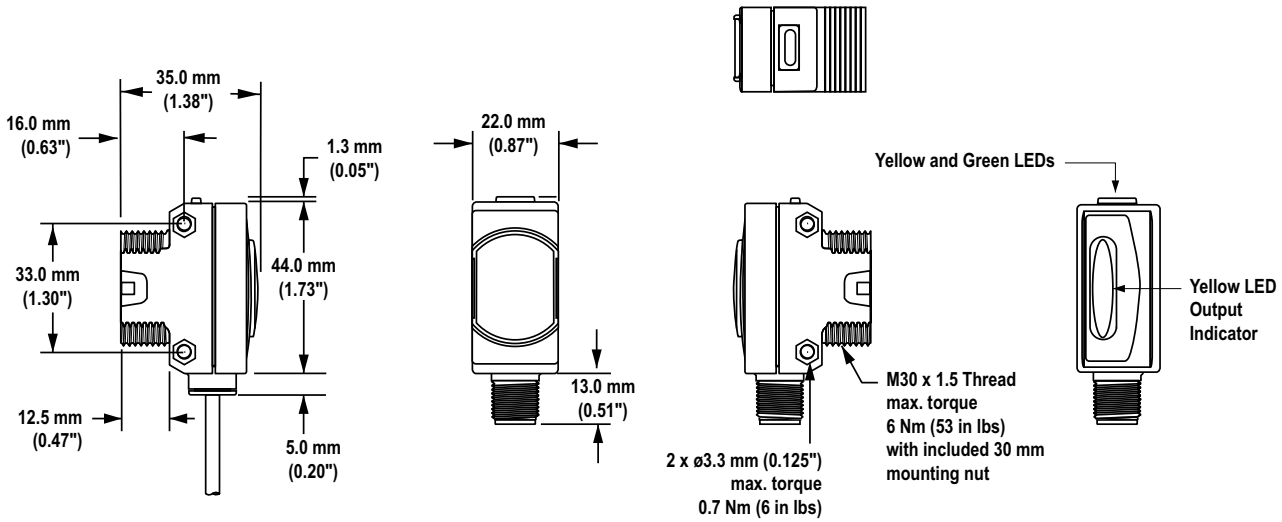
Configuration 2. The receiver is connected to a FlexPower Node with integrated battery and the emitter is connected to and powered from a DX81 Battery Supply Module.



Configuration 3. The receiver is powered from 3.6 to 30V dc and is connected to a host system. The emitter is connected to and powered from a DX81 Battery Supply Module.

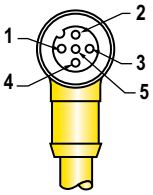


Dimensions



Accessories

Cables	
DEE2R-51D	5-pin Euro-style, Double Ended (Male/Female), 0.3 m
DEE2R-53D	5-pin Euro-style, Double Ended (Male/Female), 1 m
DEE2R-58D	5-pin Euro-style, Double Ended (Male/Female), 2.4 m
MQDC1-501.5	5-pin Euro-style, Single Ended, 0.5 m
MQDC1-506	5-pin Euro-style, Single Ended, 2 m
MQDC1-515	5-pin Euro-style, Single Ended, 5 m
MQDC1-530	5-pin Euro-style, Single Ended, 9 m
MQDC1-506RA	5-pin Euro-style, Single Ended, Right Angle, 2 m
MQDC1-515RA	5-pin Euro-style, Single Ended, Right Angle, 5 m
MQDC1-530RA	5-pin Euro-style, Single Ended, Right Angle, 9 m



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

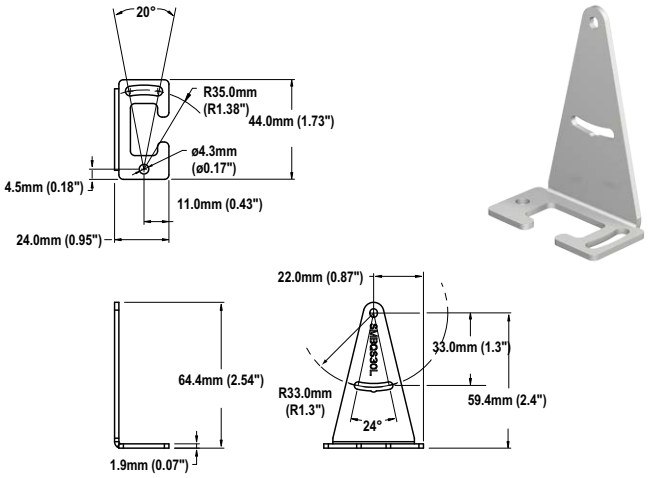
* If using the communication lines, the cable length cannot exceed 3 meters, or 10 feet.

When using the FlexPower 1-Wire Serial Node with integrated battery, use the double ended cables. For a FlexPower 1-Wire Serial Node with external power supply, use the single ended cable.

Accessory Brackets

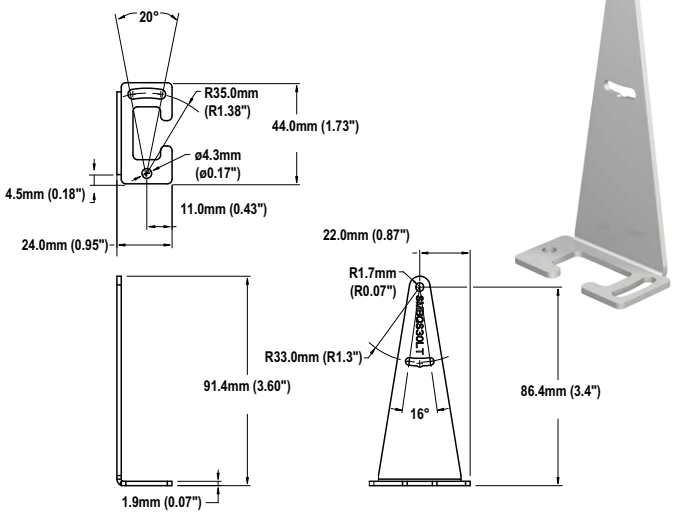
SMBQS30L

- 14-gauge, stainless steel right-angle bracket for cable models
- Clearance for M4 (#8) hardware
- ± 12° tilt adjustment



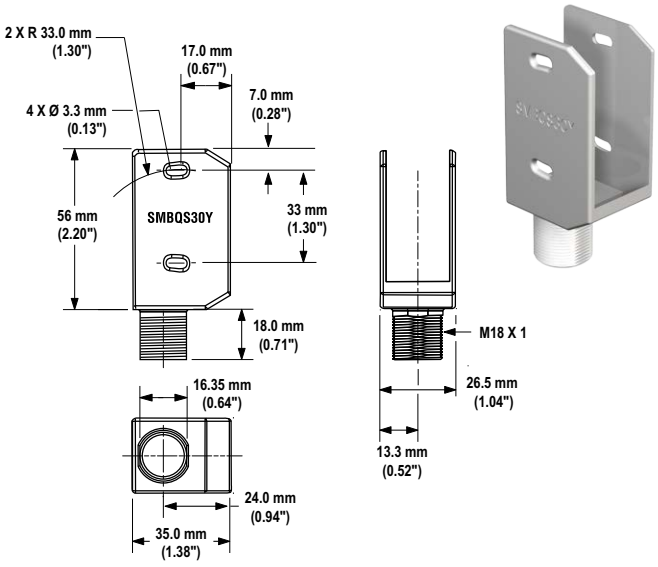
SMBQS30LT

- 14-gauge stainless steel for QD models with right-angle cables
- Tall right-angle mounting bracket
- ± 8° tilt adjustment



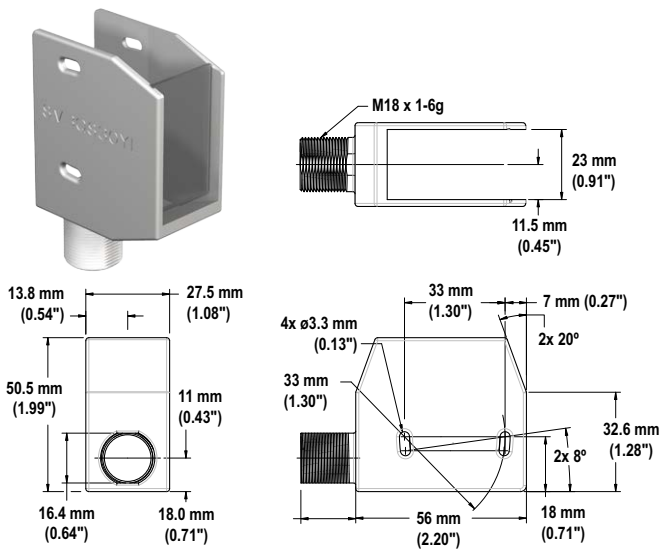
SMBQS30Y

- Heavy-duty die-cast bracket
- M18 vertical mounting option
- ± 8° tilt adjustment with cabled units
- Nuts and lockwasher included

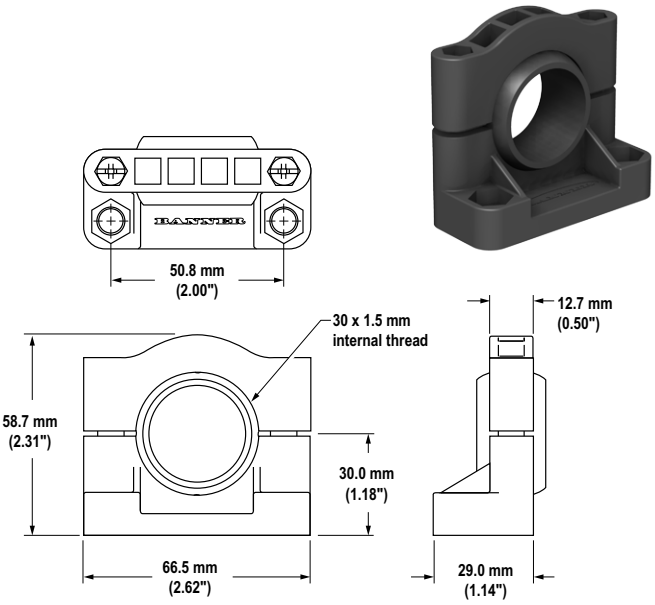


SMBQS30YL

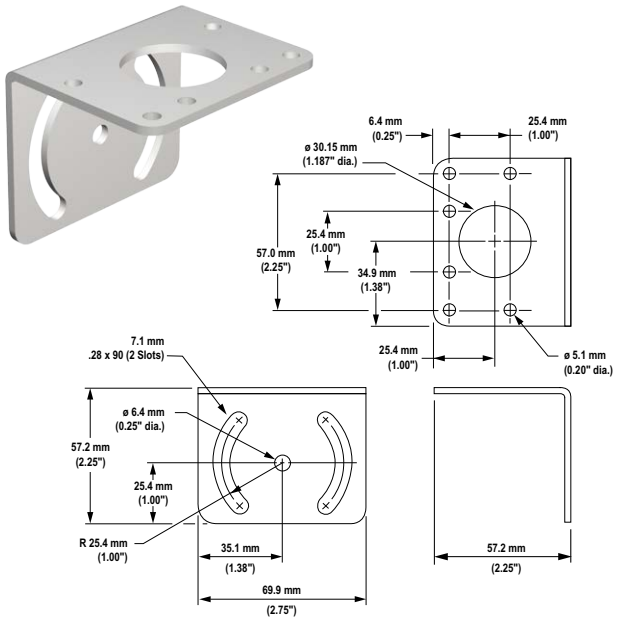
- Die-cast bracket with replaceable acrylic window to protect sensor from weld flash
- Designed for use with long-range opposed-mode (EX/RX) sensors
- Not recommended for diffuse-mode sensors; call factory for suitability with other models



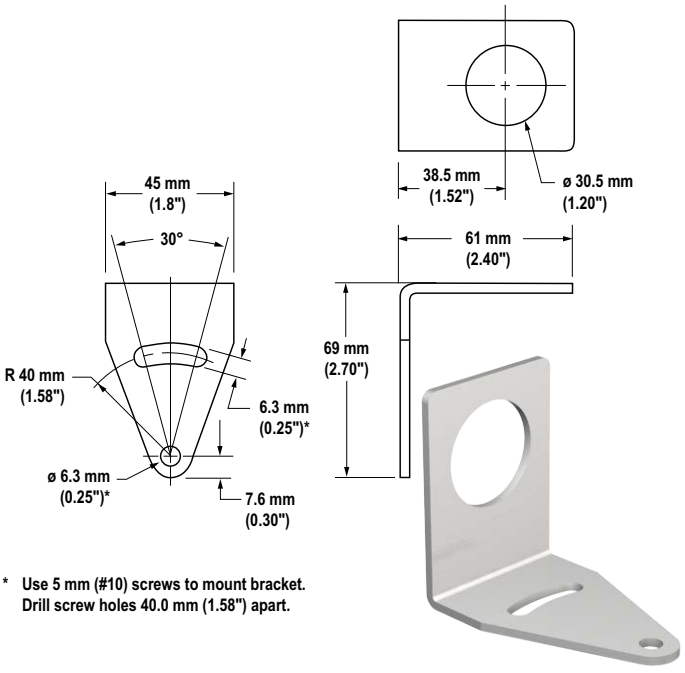
SMB30SC	• 30 mm split clamp with swivel, black reinforced thermoplastic polyester • Stainless steel hardware included



SMB30MM	• 30 mm, 11-gauge, stainless steel bracket with curved mounting slots for versatility and orientation • Clearance for M6 (1/4") hardware



SMB30A	• 30 mm 12-gauge, 304 stainless steel, right-angle mounting bracket with a curved mounting slot for versatility and orientation • Clearance for M6 (1/4") hardware



* Use 5 mm (#10) screws to mount bracket. Drill screw holes 40.0 mm (1.58") apart.

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