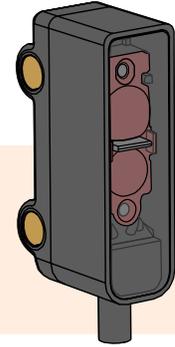


Q2X Fixed Field Features

- Miniature sensor for installation in the smallest of spaces
- Background suppression models for reliable detection of objects when the background condition is not controlled or fixed
- Enhanced immunity to fluorescent lights
- Crosstalk immunity algorithm allows two sensors to be used in close proximity
- Small visible red LED



WARNING:



- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Q2X Fixed Field Models

Model Number	Range	Connection	Output
Q2XABFF15-Q	15 mm (0.6 in) cutoff	150 mm (6 in) PVC-jacketed cable with a 4-pin M8 male quick-disconnect connector	Bipolar LO
Q2XABFF30-Q	30 mm (1.2 in) cutoff		
Q2XABFF50-Q	50 mm (2 in) cutoff		

To order the sensor model with a 2 m (6.6 ft) cable and flying leads, replace **Q** with **2M**.

To order the sensor model with a 150 mm (6 in) PVC cable and a 4-pin M12 quick disconnect connector, replace **Q** with **Q5**.

Q2X Fixed Field Overview

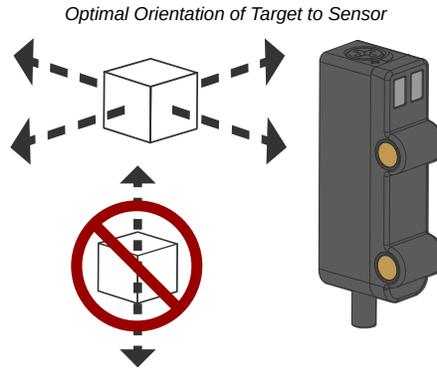
The Q2X Fixed Field Sensor ignores objects beyond the set cutoff distance. This sensor can be used in most situations with varying object color and position or with varying background conditions.

<p>Sensor features</p>	<ol style="list-style-type: none"> 1. Green: Power indicator 2. Amber: Light-sensed indicator (flashes for marginal conditions)
------------------------	---

Installation

Sensor Orientation

To ensure reliable detection, orient the sensor as shown in relation to the target to be detected.



Mount the Device

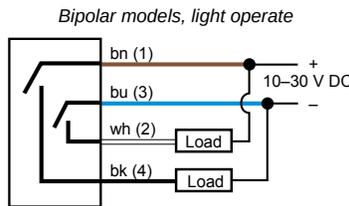
1. If a bracket is needed, mount the device onto the bracket.
2. Mount the device (or the device and the bracket) to the machine or equipment at the desired location. Do not tighten the mounting screws at this time.
3. Check the device alignment.
4. Tighten the mounting screws to secure the device (or the device and the bracket) in the aligned position.

Q2X Fixed Field Wiring Diagrams

Cabled wiring diagrams are shown. Quick disconnect wiring diagrams are functionally identical.



CAUTION: Observe proper ESD precautions (grounding) when connecting quick disconnect models.



4-pin M8 Male Quick Disconnect	4-pin M12 Male Quick Disconnect	Key
		1 = Brown 2 = White 3 = Blue 4 = Black

Q2X Fixed Field Specifications

Supply Voltage

10 V DC to 30 V DC (10% maximum ripple within specified limits) at less than 16 mA, exclusive of load

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Sensing Beam

Visible red LED, 645 nm

Output Configuration

Bipolar (1 NPN and 1 PNP)

Rating: 50 mA total output current

Off-state leakage current: < 10 μ A at 30 V DC

ON-state saturation voltage: < 2 V at 50 mA

Protected against output short-circuit, continuous overload, and false pulse on power-up

Output Response

850 microseconds, OFF to ON and ON to OFF

Note: 120-millisecond delay on power-up; outputs do not conduct during this time

Repeatability

125 μ s

Adjustments

None

Connections

2 m (6.5 ft) unterminated 3-wire PVC-jacketed cable, 150 mm (6 in) PVC-jacketed cable with a 4-pin M8 male quick-disconnect connector, or 150 mm (6 in) PVC-jacketed cable with a 4-pin M12 male quick-disconnect connector, depending on model.

Construction

PC/ABS housing, acrylic lens cover; PVC cable

Indicators

2 LED indicators on sensor top:

Green solid: Power on

Amber solid: Light sensed

Amber flashing: Marginal sensing condition

Environmental Rating

IP65, IP67

Operating Conditions

95% at +50 °C maximum relative humidity (non-condensing)

Temperature: -25 °C to +50 °C (-13 °F to +122 °F)

Application Notes

For mirror-like objects, minimize the sensor-to-object mounting distance and tilt the sensor so reflected light is directed away from the sensor when the object is present

Certifications



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Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM



Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN



Industrial
Control
Equipment
3TJJ

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	1.0	30	0.5

FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Industry Canada ICES-003(B)

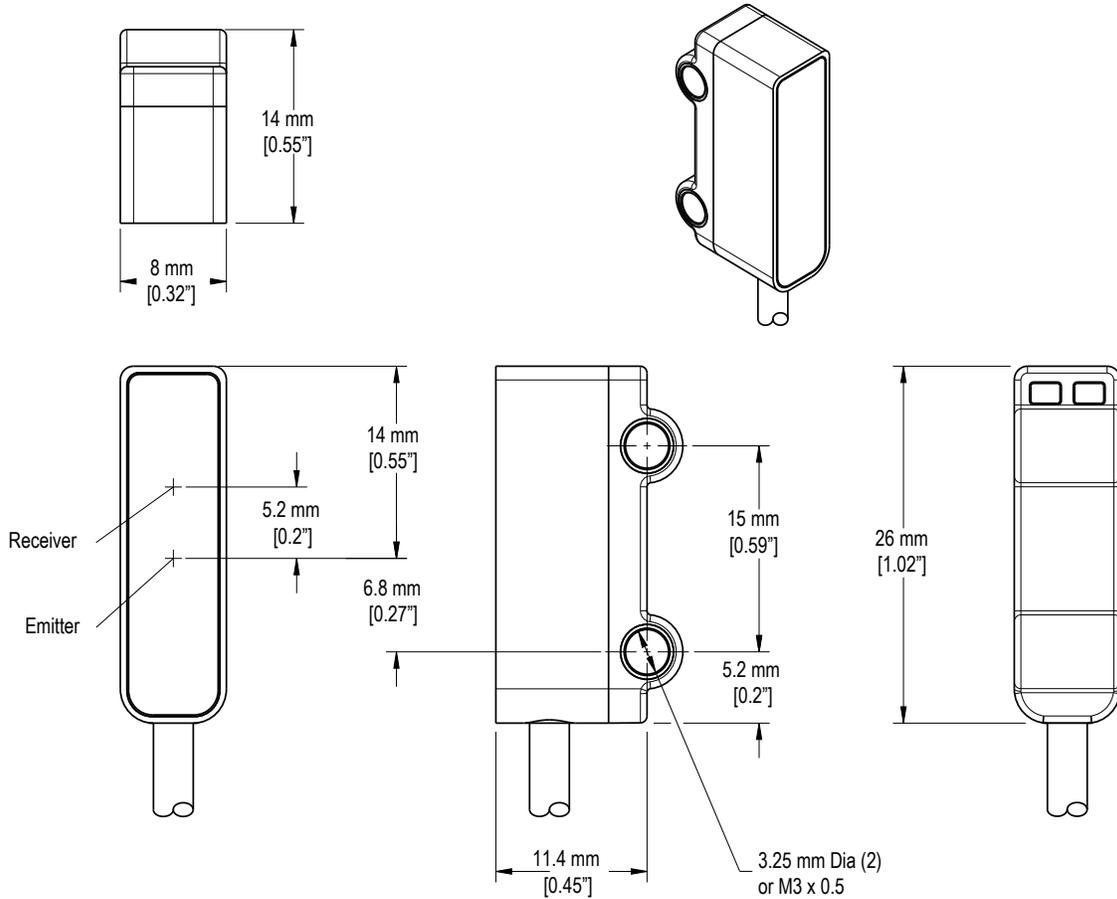
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

Q2X Fixed Field Dimensions

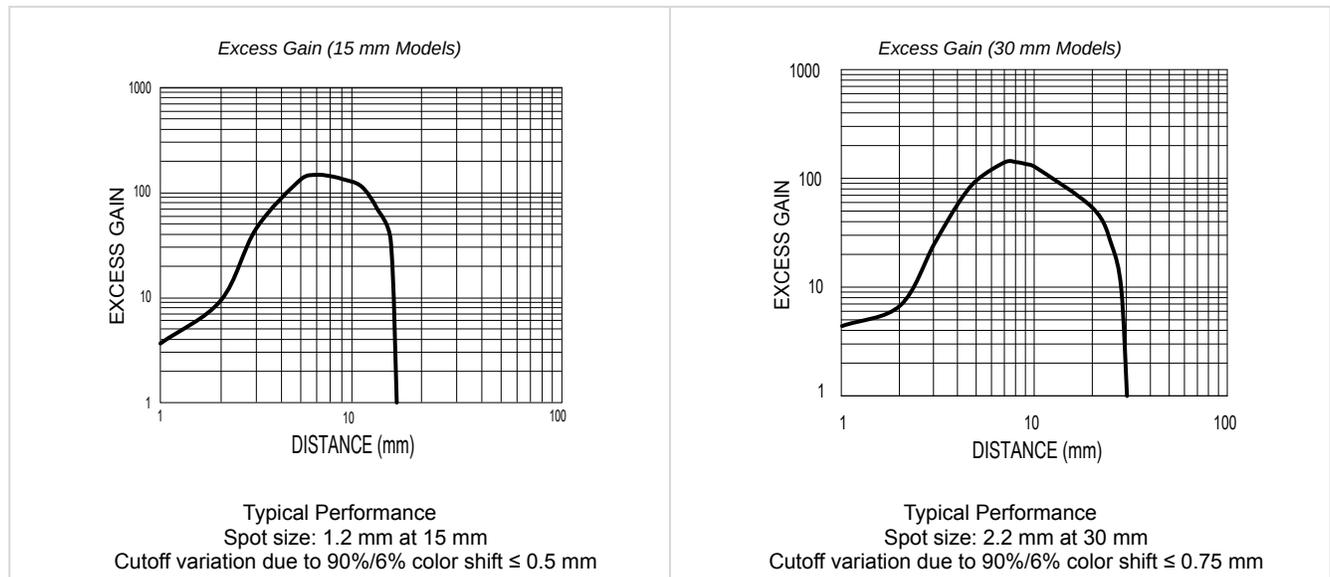
All measurements are listed in millimeters [inches], unless noted otherwise.

Dimensions



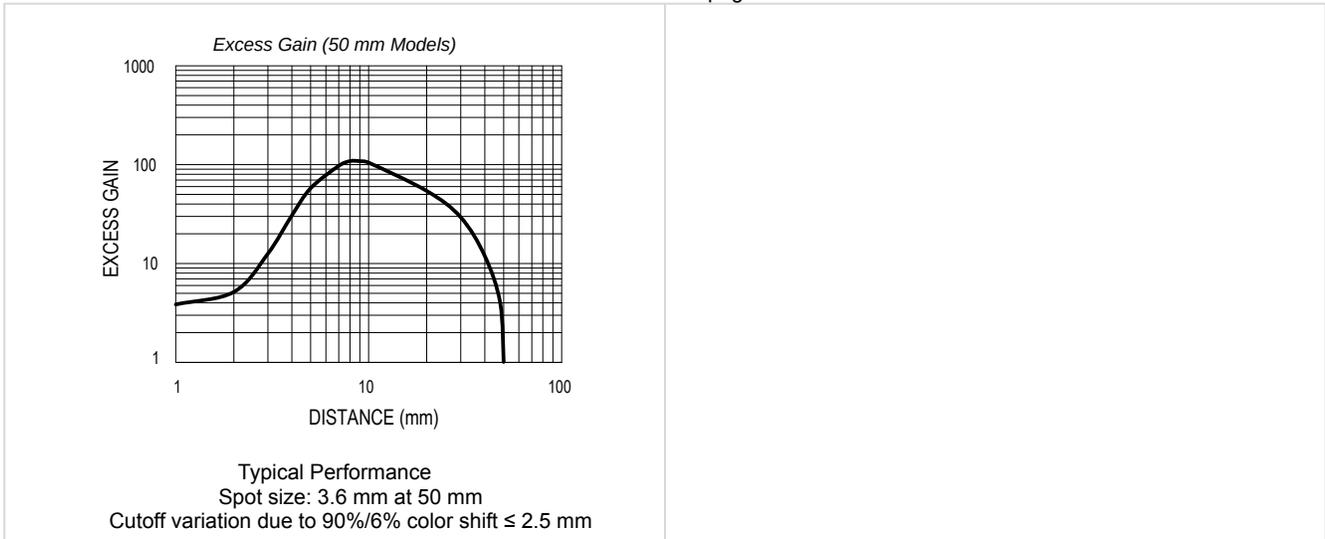
Maximum torque 0.9 Nm (8 in-lbf)

Q2X Fixed Field Performance Curves



Continued on page 5

Continued from page 4



Accessories

Cordsets - 4-pin M8 and M12

4-Pin M8 Cordsets—Single-Ended				
Model	Length	Style	Dimensions	Pinout (Female)
PKG4M-2	2 m (6.56 ft)	Straight		
PKG4M-5	5 m (16.4 ft)			
PKG4M-9	9 m (29.52 ft)			
PKW4M-2	2 m (6.56 ft)	Right Angle		
PKW4M-5	5 m (16.4 ft)			
PKW4M-9	9 m (29.5 ft)			

1 = Brown
2 = White
3 = Blue
4 = Black

4-Pin Threaded M12 Cordsets—Single Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	2 m (6.56 ft)	Straight		
MQDC-415	5 m (16.4 ft)			
MQDC-430	9 m (29.5 ft)			
MQDC-450	15 m (49.2 ft)			

1 = Brown
2 = White
3 = Blue
4 = Black
5 = Unused

Continued on page 6

Continued from page 5

4-Pin Threaded M12 Cordsets—Single Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406RA	2 m (6.56 ft)	Right-Angle		
MQDC-415RA	5 m (16.4 ft)			
MQDC-430RA	9 m (29.5 ft)			
MQDC-450RA	15 m (49.2 ft)			

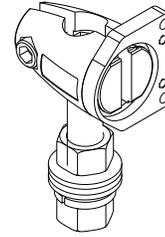
Brackets

All measurements are listed in millimeters, unless noted otherwise.

<p>SMBQ2XA</p> <ul style="list-style-type: none"> Vertical L-shaped bracket 20-ga stainless steel 	
<p>SMBQ2XB</p> <ul style="list-style-type: none"> Rear L-shaped bracket 20-ga stainless steel 	
<p>SMBQ20FA</p> <ul style="list-style-type: none"> Includes 3/8-16 x 2 in socket head cap screw (SHCS) 304 stainless steel 	
<p>SMBQ20FAM10</p> <ul style="list-style-type: none"> Kit for 10 mm (3/8 in) Rod Bracket Systems for Q2X, Q20, Q12, VS1, VS3, VS8 Includes M10-1.5 x 50 mm Socket Head Cap Screw (SHCS) 	

SMBQ20FAM12

- Kit for 12 mm (1/2 in) Rod Bracket Systems for Q2X, Q20, Q12, VS1, VS3, VS8
- No socket head cap screw (SHCS) included



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For patent information, see www.bannerengineering.com/patents.

Document title: Q2XABFF Fixed Field Sensor
 Part number: 235660
 Revision: B
 Original Instructions
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