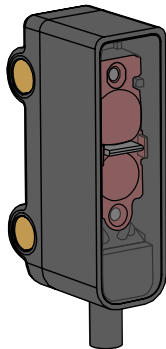


Q2XABFF Fixed Field Sensor with Background Suppression



Q2XABFF 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.

Q2XABFF Models

Model Number	Range	Connection	Output
Q2XABFF15-2M	15 mm (0.6 in) cutoff	2 m (6.5 ft) unterminated 4-wire cable	Bipolar LO
Q2XABFF30-2M	30 mm (1.2 in) cutoff		
Q2XABFF50-2M	50 mm (2 in) cutoff		

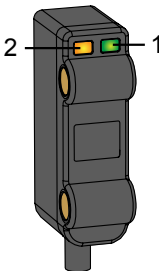
To order the sensor model with a 150 mm (6 in) PVC cable and a 4-pin M8 quick disconnect connector, replace "2M" with "Q".

To order the sensor model with a 150 mm (6 in) PVC cable and a 4-pin M12 quick disconnect connector, replace "2M" with "Q5".

Q2XABFF Overview

The Q2XABFF Fixed Field with Background Suppression Sensor ignores objects beyond the set cutoff distance. Background suppression mode can be used in most situations with varying object color and position or with varying background conditions.

Sensor features



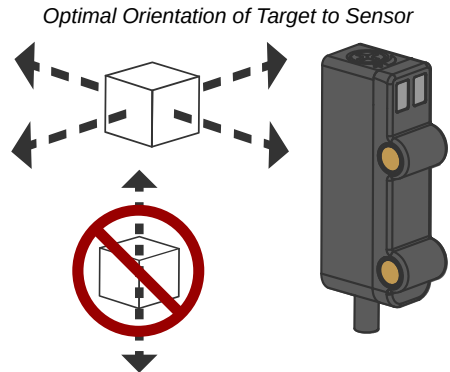
1. Green: Power indicator
2. Amber: Light sensed indicator (flashes for marginal conditions)



Installation

Sensor Orientation

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



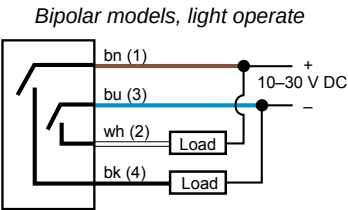
Mount the Device

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.

Q2XABFF 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

Q2XABFF 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.

Certifications

Banner Engineering BV
 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
 LISTED 3TJJ

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

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

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.

Industry Canada ICES-003(B)

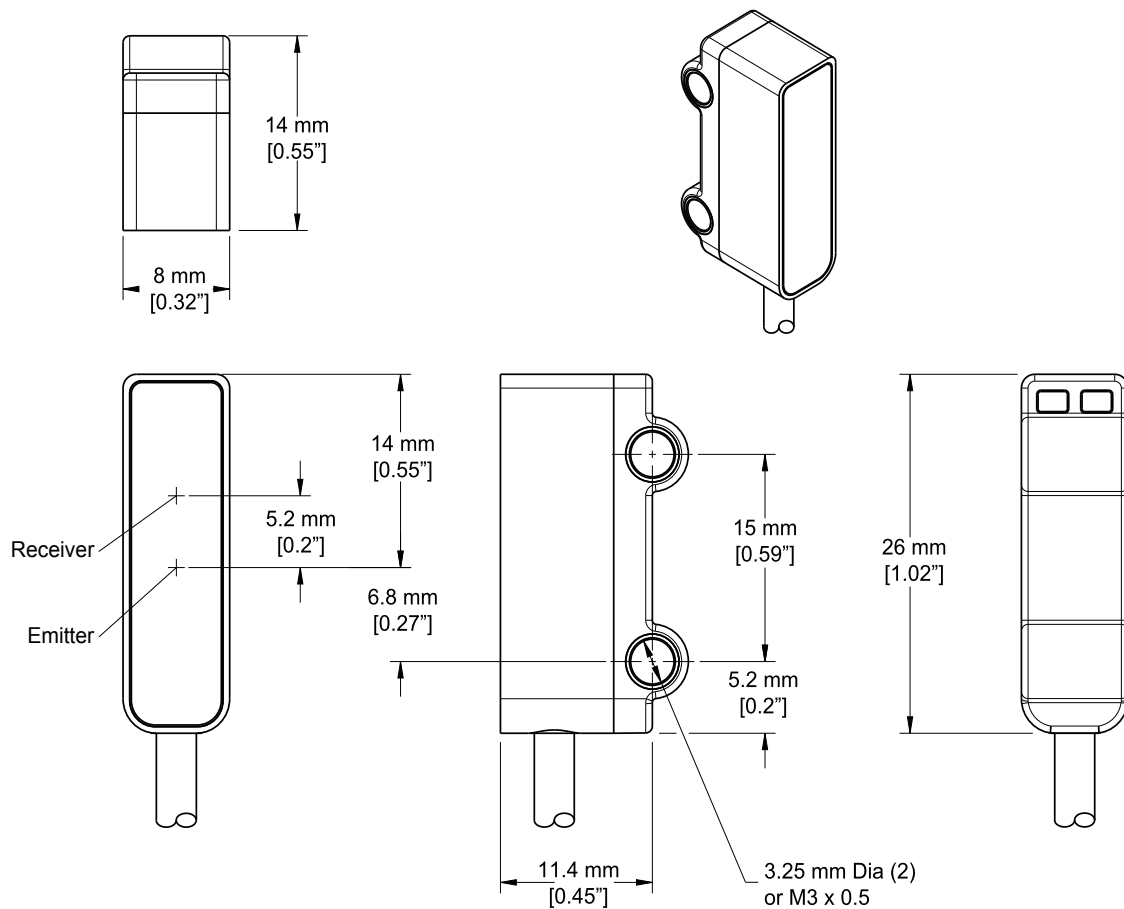
This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

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.

Q2XABFF Dimensions

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

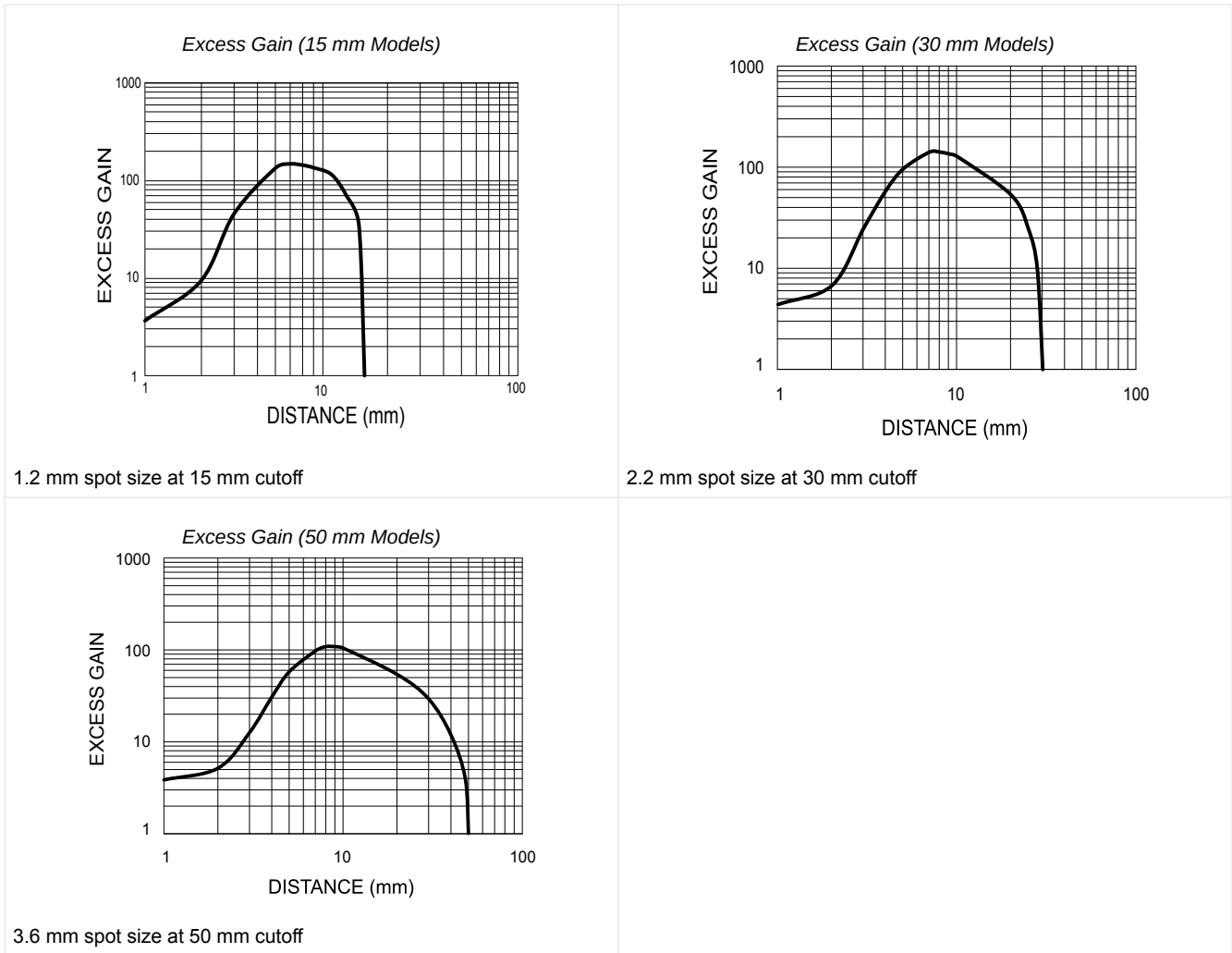
Dimensions



Maximum torque 0.9 Nm (8 in-lbf)

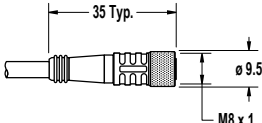
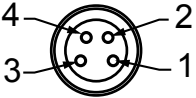
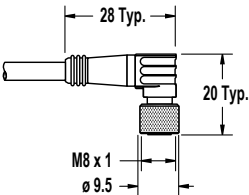
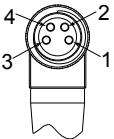
Q2XABFF Performance Curves

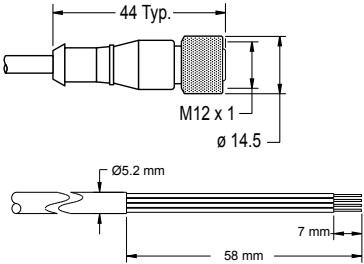
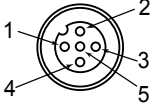
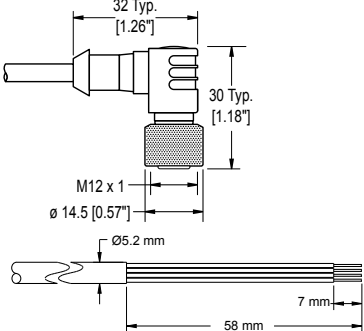
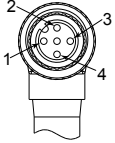
No appreciable difference in cutoff distance between a 90% white, 15% gray, or 6% black test card.



Accessories

Cordsets - 4-pin M8 and M12

4-Pin Threaded M8 Cordsets—Single Ended					
Model	Length	Style	Dimensions	Pinout (Female)	
PKG4M-2	2.04 m (6.68 ft)	Straight			1 = Brown 2 = White 3 = Blue 4 = Black
PKG4M-5	5 m (16.4 ft)				
PKG4M-9	9.04 m (29.6 ft)				
PKW4M-2	2 m (6.56 ft)	Right Angle			
PKW4M-5	5 m (16.4 ft)				
PKW4M-9	9 m (29.5 ft)				

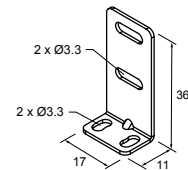
4-Pin Threaded M12 Cordsets—Single Ended					
Model	Length	Style	Dimensions	Pinout (Female)	
MQDC-406	2 m (6.56 ft)	Straight			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused
MQDC-415	5 m (16.4 ft)				
MQDC-430	9 m (29.5 ft)				
MQDC-450	15 m (49.2 ft)				
MQDC-406RA	2 m (6.56 ft)	Right-Angle			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused
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.

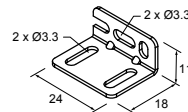
SMBQ2XA

- Vertical L-shaped bracket
- 20-ga stainless steel



SMBQ2XB

- Rear L-shaped bracket
- 20-ga stainless steel



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