Q26 Series Sensors

Datasheet

Coaxial polarized retroreflective sensor for clear object detection

- Reliable detection of clear, translucent, or opaque objects—including PET and glass containers, transparent films, and mirror-like surfaces
- Coaxial optics enable reliable detection of targets to the face of the sensor
- Simple set-up and adjustment with a single turn sensitivity adjuster potentiometer
- Light Operate and Dark Operate selection by rotary switch
- Compact sensor housing size of 14 x 25 x 42 mm

WARNING: Not To Be Used for Personnel Protection

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

Models

Model	Mode	Range	Output	Connector
Q26PXLPQ7	 Coaxial polarized retro-reflective	5 to 800 mm sensor to reflector distance on BRT-60x40C	PNP	4-pin Threaded/Snap M8/Pico-Style QD connector
Q26PXLPQ5				4-pin 150 mm (6 in) Euro-style pigtail QD with PVC cable jacket
Q26NXLPQ7			NPN	4-pin Threaded/Snap M8/Pico-Style QD connector
Q26NXLPQ5				4-pin 150 mm (6 in) Euro-style pigtail QD with PVC cable jacket

Overview

The Banner Q26 sensor is a high performance clear object sensor. The polarized coaxial optical design ensures reliable detection of transparent, opaque, or reflective targets at any distance between the sensor and the reflector. Sensitivity adjustment of the sensor is done with a single turn potentiometer. Light Operate and Dark Operate selection is made by a sealed rotary switch.

Set-Up Procedure for Maximum Sensitivity

1. Mount and align the Q26 sensor and the reflector.
2. Turn the sensitivity adjustment potentiometer (C) fully clockwise.
3. Select light operate (LO) or dark operate (DO).
    - If an output is desired when the reflector is blocked, turn the LO / DO rotary switch (D) fully clockwise to select dark operate (DO).
    - If an output is desired when the reflector is not blocked, turn the LO / DO rotary switch (D) fully counterclockwise to select light operate (LO).
4. With no target present, turn the sensitivity adjustment potentiometer counterclockwise until the yellow output LED (B) changes state.
5. With no target present, slowly turn the sensitivity adjustment potentiometer clockwise until the output changes state again.

6. Place the transparent target between the sensor and the reflector.
7. Adjust the potentiometer as necessary to achieve reliable detection of the transparent target.

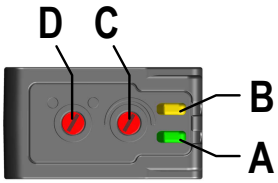


Figure 1. Sensor Top View

A. Green LED Power ON
B. Yellow LED Output Conducting
C. Sensitivity Adjustment Potentiometer
D. LO / DO Rotary Selection Switch (DO = fully clockwise, LO = fully counter clockwise)

Health Mode Output Overview

Health Mode communicates to the user that there is adequate or inadequate excess gain for reliable sensor operation. It provides a continuous signal that the sensor is operating normally and is connected properly. When the Q26 sensor is set-up for maximum sensitivity, the excess gain will often be between 1.0 and 1.5 excess gain with no target present and the Health output will be OFF. This is normal operation for clear object sensing.

In Health Mode, the Health output is ON when the excess gain of the sensor is greater than 1.5X threshold or less than 1X threshold. The Health Mode output provides a signal to the customer's PLC that the sensor is operating with adequate excess gain, or the beam is blocked.

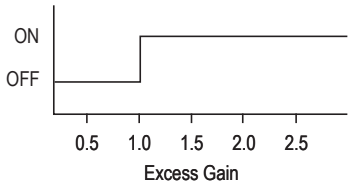


Figure 2. Primary Output (Light Operate)

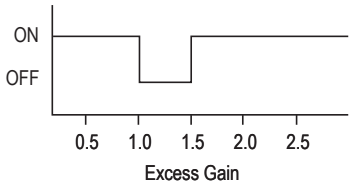


Figure 3. Secondary Health Output

Specifications

Supply Voltage and Current
12 to 30 V dc (10% maximum ripple within specified limits)
Supply Current (exclusive of load current): 15 mA

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Output Configuration
Primary output (pin 4) NPN or PNP (current sinking or sourcing), depending on model; secondary output (pin 2) is a Health mode output.

Output Rating
100 mA max
OFF-state leakage current: less than 1 microamp at 30 V dc
ON-state saturation voltage: less than 1 V at 10 mA dc; less than 1.5 V at 150 mA dc

Output Protection Circuitry
Protected against false power-up and continuous overload or short circuit of outputs

Emitter LED Wavelength
660 nm

Emitter Beam Diameter
See *Figure 6* on page 4

Output Response Time
250 µS ON and OFF

Repeatability
50 microseconds

Construction
ABS plastic housing; glass window

Indicators
Green steady: Power ON
Yellow steady: Output conducting

Connection
4-pin Threaded/Snap M8/Pico-Style QD connector or 4-pin 150 mm (6 in) Euro-style pigtail QD with PVC cable jacket

Environmental Rating
Leakproof design rated IP67

Operating Conditions
Temperature: –10 °C to +55 °C (+14 °F to +131 °F)
Humidity: 90% at +50 °C maximum relative humidity (non-condensing)

Vibration and Shock
EN60068-2-6
EN60068-2-27

Certifications

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 *http://www.bannerengineering.com*.

Supply Wiring	Required Overcurrent Protection
20	5.0 Amps
22	3.0 Amps
24	2.0 Amps
26	1.0 Amps
28	0.8 Amps
30	0.5 Amps

Beam Pattern and Spot Diameter Diagram

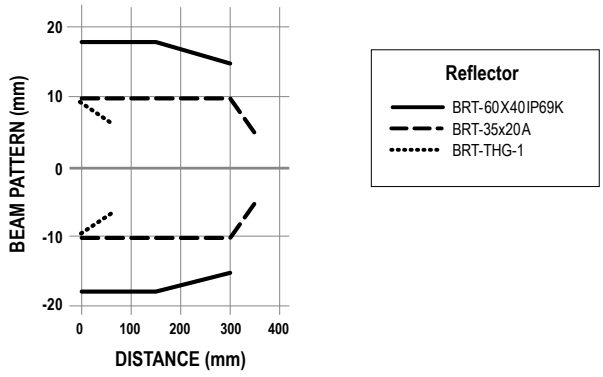


Figure 4. Beam Pattern

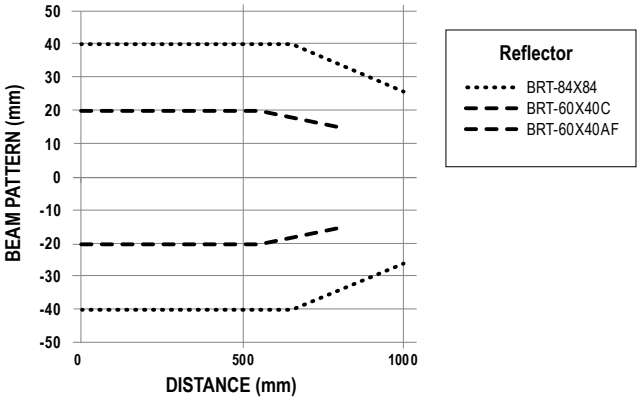


Figure 5. Beam Pattern

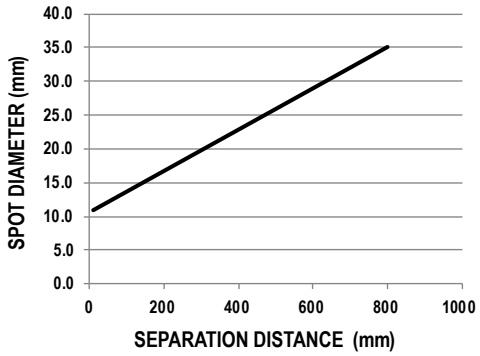
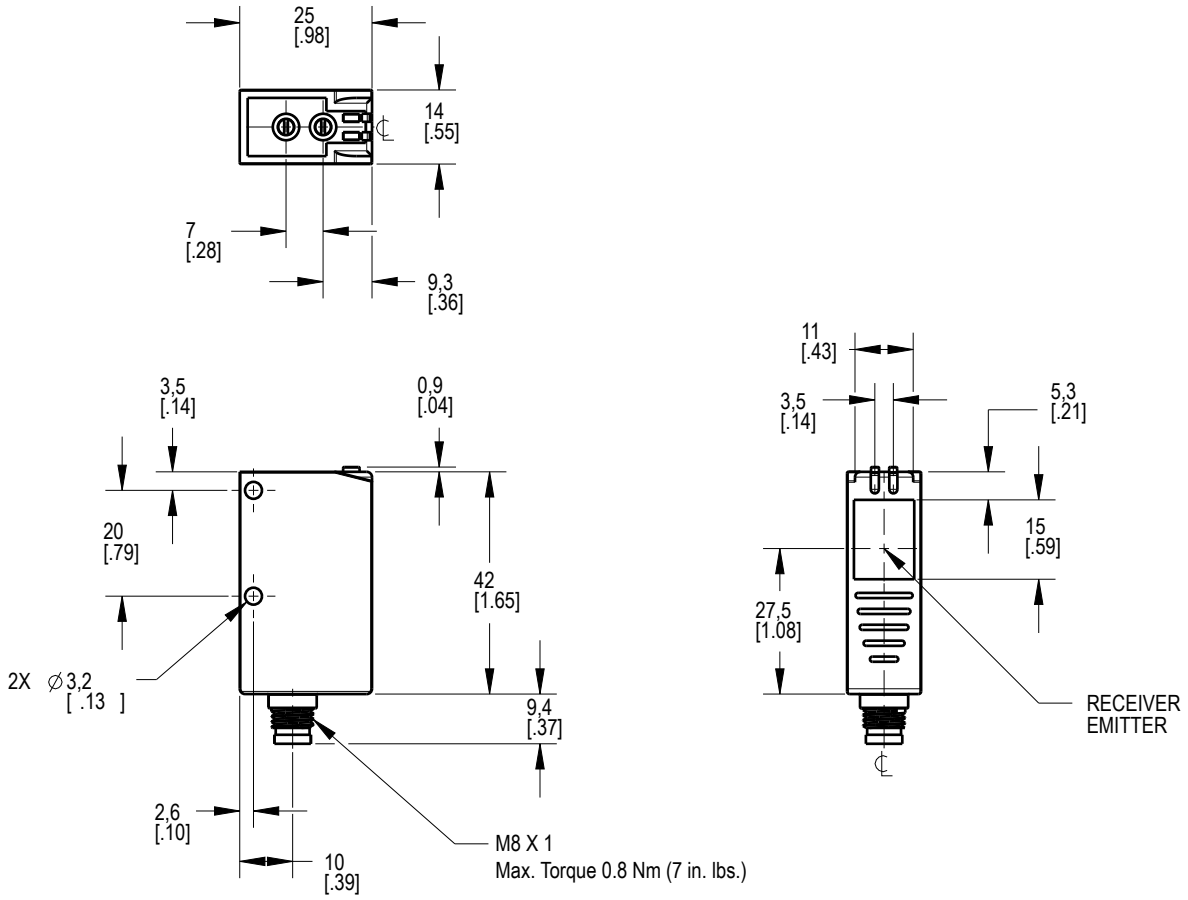


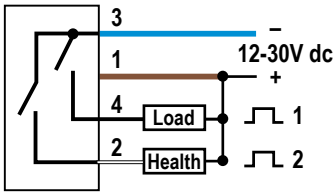
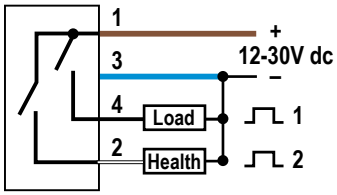
Figure 6. Spot Diameter Diagram

Dimensions



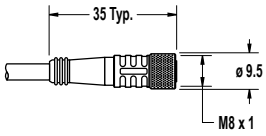
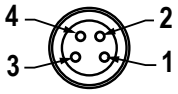
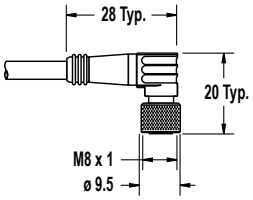
All measurements are listed in millimeters (inches), unless noted otherwise.

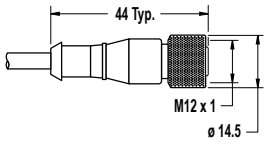
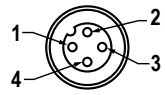
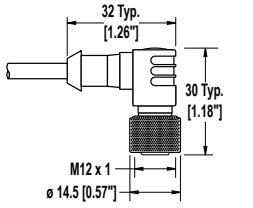
Wiring

NPN	PNP
	

Accessories

Cordsets

4-Pin Threaded M8/Pico-Style Cordsets				
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 (29.5 ft)			
PKW4M-2	2 m (6.56 ft)	Right Angle		1 = Brown 2 = White 3 = Blue 4 = Black
PKW4M-5	5 m (16.4 ft)			
PKW4M-9	9 m (29.5 ft)			

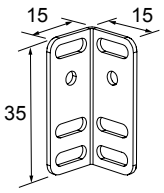
4-Pin Threaded M12/Euro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	1.83 m (6 ft)	Straight		
MQDC-415	4.57 m (15 ft)			
MQDC-430	9.14 m (30 ft)			
MQDC-450	15.2 m (50 ft)			
MQDC-406RA	1.83 m (6 ft)	Right-Angle		1 = Brown 2 = White 3 = Blue 4 = Black
MQDC-415RA	4.57 m (15 ft)			
MQDC-430RA	9.14 m (30 ft)			
MQDC-450RA	15.2 m (50 ft)			

Brackets

All measurements are listed in millimeters, unless noted otherwise.

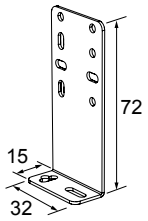
SMBLSTDLQ26

- Adjustable right-angle metal bracket
- 304 stainless steel



SMBLSTQ26

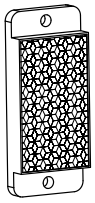
- Right-angle bracket
- 304 stainless steel



Reflectors

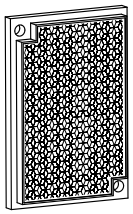
BRT-35X20A, BRT-35X20AB

- Rectangular, acrylic target
- Reflectivity Factor: 1.4
- Temperature: −20 °C to +60 °C (−4 °F to +140 °F)
- Mounting base available in white (BRT-35X20A) or black (BRT-35X20AB)
- Approximate size: 23 mm × 40 mm



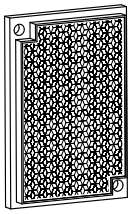
BRT-60X40C

- Rectangular, acrylic target
- Reflectivity Factor: 1.4
- Temperature: −20 °C to +60 °C (−4 °F to +140 °F)
- Optional brackets are available
- Approximate size: 40 mm × 60 mm



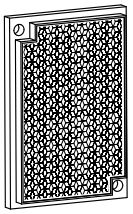
BRT-60X40AF

- Rectangular, acrylic target
- Reflectivity Factor: 1.4
- Temperature: −20 °C to +60 °C (−4 °F to +140 °F)
- Anti-fogging coating for use around steam
- Optional brackets are available
- Approximate size: 40 mm × 60 mm



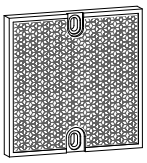
BRT-60X40IP69K

- Rectangular, acrylic target (color is amber)
- Reflectivity Factor: 0.7
- Temperature: –20 °C to +140 °C (–4 °F to +284 °F)
- Chemically resistant
- IP69K washdown rated
- Optional brackets are available
- Approximate size: 40 mm × 60 mm



BRT-84X84A

- Square, acrylic target
- Reflectivity Factor: 2.0
- Temperature: −20 °C to +60 °C (−4 °F to +140 °F)
- Approximate size: 84 mm × 84 mm



Reflective Tape

Model	Reflectivity Factor	Maximum Temperature	Size
BRT-THG-1-100	0.7	+60 °C (+140 °F)	25 mm (1 in) wide, 2.5 m (100 in) long

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