

SB12T Series Sensor



Datasheet

Emitter/receiver pair with a threaded barrel



- Flange-mounted, small 12 mm (0.47 in) diameter tubular opposed mode sensor pair
- Easy-to-mount; no brackets required—panel mount sensors in the pre-drilled hole and tighten single retaining nut, resulting in reduced installation costs
- Narrow effective beam allows for multiple sensors in close proximity
- LED status indicators for Power ON, Output Overload, Signal Received, and Marginal Signal
- 10 V dc to 30 V dc supply voltage with single NPN or PNP output, depending on model
- Light Operate (LO) or Dark Operate (DO), depending on model



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.

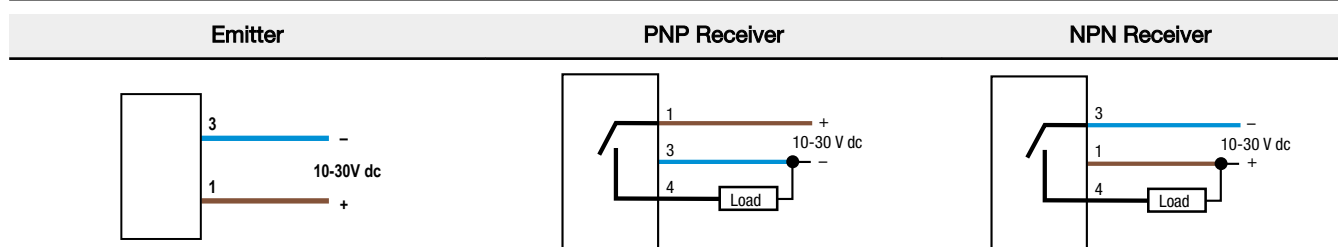
Models

Model ¹	Range	Supply Voltage	Output Type
SB12TE1	1.5 m (59 in)	10 V dc to 30 V dc	—
SB12TANR			NPN/LO
SB12TRNR			NPN/DO
SB12TAPR			PNP/LO
SB12TRPR			PNP/DO

Overview

The SB12T Emitter/Receiver pair is a cost effective sensor for large volume OEM applications. The threaded mounting system works with any material with a thickness of 0.5 mm to 10 mm (0.02 in to 0.393 in). Simply drill or punch a hole with a diameter of 12.2 mm to 13.2 mm (0.48 in to 0.52 in). Insert the cable and sensor into the hole and tighten the retaining nut.

Wiring Diagrams



¹ Only standard 2 m (6.5 ft) cable models are listed. To order a 150 mm (6 in) cable with a 3-pin threaded Pico-style M8 connector, add the suffix "Q3" to the model number (for example **SB12TE1Q3**).



Specifications

Sensing Beam

880 nm Invisible IR beam

Sensing Range

1.5 m (59 in)

Supply Voltage

10 V dc to 30 V dc; less than 15 mA exclusive of load

Supply Protection Circuitry

Protected against reverse polarity and transient over voltages

Delay at Power-up

Less than 1 second

Output Configuration

One solid state output, NPN or PNP, depending on model

Output Rating

100 mA
 OFF-state leakage current: < 10 μ A
 ON-state saturation voltage: < 0.2 V at 10 mA; < 0.6 V at 100 mA

Output Protection Circuitry

Protected against output short circuit, continuous overload, and transient over voltages

Output Response Time

2.5 ms ON, 1.75 ms OFF

Repeatability

350 μ s

Switching Frequency

235 Hz

Indicators

Green Power LED (emitter and receiver):

- On indicates power on
- Flashing indicates output short circuited (receiver only)

Amber Output LED (receiver only):

- On indicates light sensed
- Flashing indicates marginal excess gain (1.0 to 1.5 \times excess gain)

Construction

ABS housing; polycarbonate lens; epoxy encapsulant, PVC jacketed cable

Environmental rating

IEC IP67

Connections

2 m (6.5 ft) cable or 150 mm (6 in) cable with M8 threaded connection

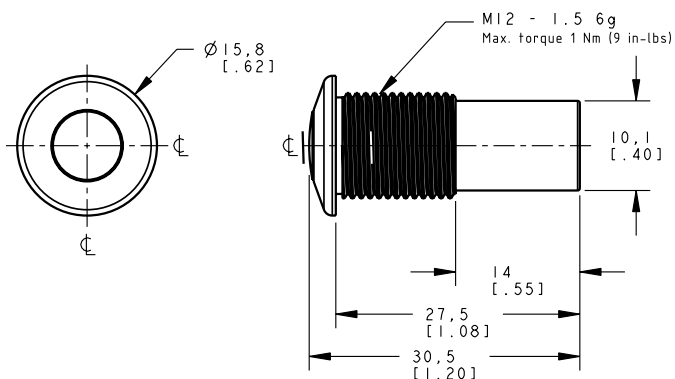
Operating Conditions

-20 $^{\circ}$ C to +50 $^{\circ}$ C (-4 $^{\circ}$ F to +122 $^{\circ}$ F)

Certifications



Dimensions



Beam Pattern

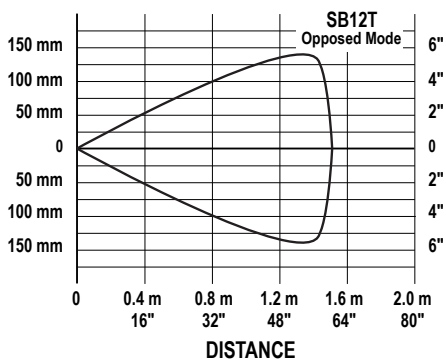
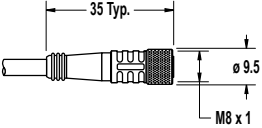
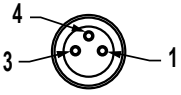
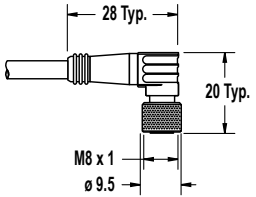


Figure 1. Effective Beam \varnothing : 8.3 mm

Accessories

Cordsets

3-Pin Threaded M8/Pico-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
PKG3M-2	2 m (6.56 ft)	Straight		 <p>1 = Brown 3 = Blue 4 = Black</p>
PKG3M-5	5 m (16.40 ft)			
PKG3M-7	7 m (22.97 ft)			
PKG3M-9	9 m (29.53 ft)			
PKG3M-10	10 m (32.81 ft)			
PKW3M-2	2 m (6.56 ft)	Right-Angle		
PKW3M-5	5 m (16.40 ft)			
PKW3M-9	9 m (29.53 ft)			

Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: www.bannerengineering.com.

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