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

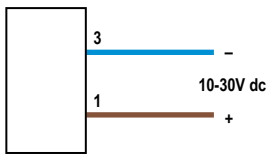
Model[1]	Range	Supply Voltage	Output Type
SB12TE1	1.5 m (59 in)	10 V dc to 30 V dc	—
SB12TANR			NPN/LO
SB12TRNR			NPN/DO
SB12TAPR			PNP/LO
SB12TRPR			PNP/DO

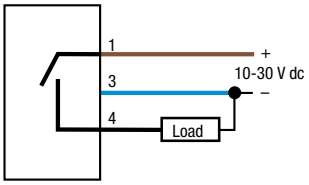
Overview

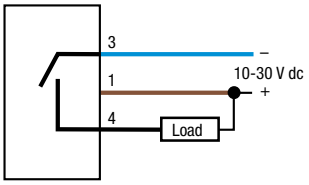
The SB12T Emitter/Receiver pair is a cost effective sensor for large volume OEM applications. The threaded mounting system works with any material with a thickness of 0.5 mm to 10 mm (0.02 in to 0.393 in). Simply drill or punch a hole with a diameter of 12.2 mm to 13.2 mm (0.48 in to 0.52 in). Insert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

Wiring Diagrams

Emitter	PNP Receiver	NPN Receiver







[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 µA
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 µs

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× excess gain)

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

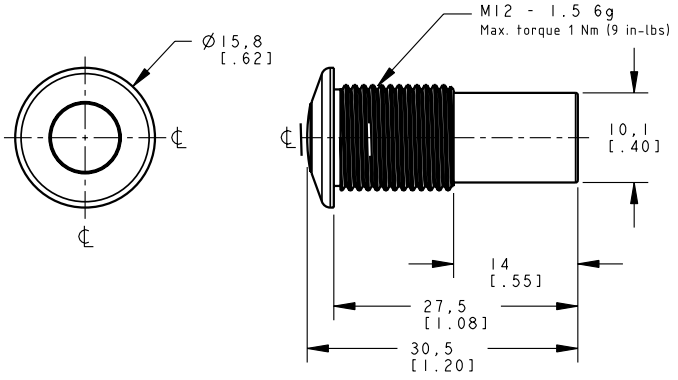
Environmental rating
IEC IP67

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

Operating Conditions
–20 °C to +50 °C (–4 °F to +122 °F)

Certifications

Dimensions



Beam Pattern

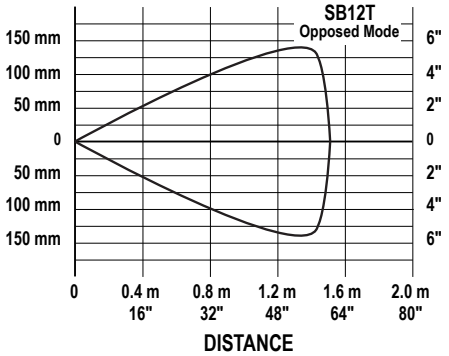
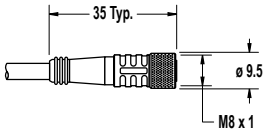
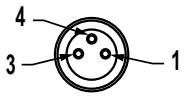
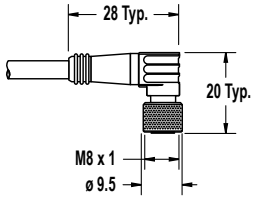


Figure 1. Effective Beam Ø: 8.3 mm

Accessories

Cordsets

3-Pin Threaded M8/Pico-Style Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
PKG3M-2	2 m (6.56 ft)	Straight		 1 = Brown 3 = Blue 4 = Black
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)			

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