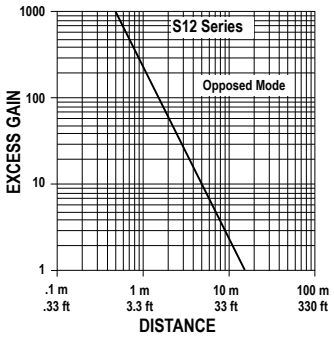
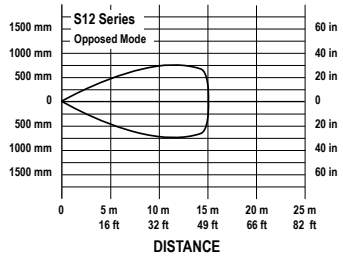
EZ-BEAM S12 Series Opposed-Mode Sensor Pairs

Datasheet



- Economical opposed-mode (beam-break) sensor pairs in 12-millimeter diameter barrel-style housings
- Sensing range of 15 meters (50 feet)
- Totally self-contained; 10 to 30 V dc operation
- Complementary outputs: one normally open, one normally closed; choice of NPN (sinking) or PNP (sourcing) configuration, 100 mA max. (continuous)
- One output may be used as a marginal signal alarm
- LED status indicators for Power On, Output Overload, Object Sensed, and Low Gain conditions

Visible Red, 680 nm				
Models	Cable	Output Type	Excess Gain	Beam Pattern (Effective beam: 8.1 mm)
S126E Emitter	2 m (6.5 ft)	-		
S126EQP Emitter	4-Pin Pico QD			
S12SN6R Receiver	2 m (6.5 ft)	NPN		
S12SN6RQP Receiver	4-Pin Pico QD			
S12SP6R Receiver	2 m (6.5 ft)	PNP		
S12SP6RQP Receiver	4-Pin Pico QD			

To order 9 m (30 ft) cable models, add the suffix “W/30” to the model number of any cabled sensor (e.g. - S12SN6R W/30). Models with a QD connector requires an accessory mating cable.

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.

Specifications

Supply Voltage and Current
10 to 30 V dc (10% maximum ripple)
Supply current (exclusive of load current): Opposed Mode Emitters: 25 mA; Opposed Mode Receivers: 20 mA

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Output Configuration
SPDT (complementary) solid-state dc switch; choose NPN (current sinking) or PNP (current sourcing) models.
Light operate: N.O. output conducts when the sensor sees the emitter's modulated light
Dark operate: N.C. output conducts when the sensor sees dark; The N.C. (normally closed) output may be wired as a normally open marginal signal alarm output, depending upon hookup to the power supply (U.S. patent 5087838)

Output Rating
100 mA maximum (each) in standard hookup; when wired for alarm output, the total load may not exceed 100 mA
Off-state leakage current < 1 microamp at 30 V dc
On-state saturation voltage < 1 V at 10 mA dc and < 1.5 V at 150 mA dc

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

Output Response Time
3 milliseconds ON, 1.5 milliseconds OFF
100 millisecond delay on power-up; outputs are non-conducting during this time

Repeatability
375 microseconds; repeatability and response are independent of signal strength

Indicators
Receivers have two LEDs: green and amber
Green solid: power to sensor is "on"
Green flashing: output is overloaded (dc models only)
Amber solid: normally open output is conducting
Amber flashing: excess gain marginal (1–1.5x) in light condition

Construction
reinforced thermoplastic polyester housings; polycarbonate lenses; polyurethane end cap

Environmental Rating
Leakproof design rated NEMA 6P (IEC IP67)

Connections
2 m (6.5 ft) or 9 m (30 ft) attached PVC-covered 4-wire cable, or a 4-pin Pico-style QD

Operating Conditions
Temperature: –40 °C to 70 °C (–40 °F to 158 °F)
Maximum relative humidity: 90% at 50 °C (non-condensing)

Vibration and Mechanical Shock
Meets Mil. Std. 202F requirements.
Method 201A (Vibration: frequency 10 to 60 Hz, max., double amplitude 0.06-inch acceleration 10G).
Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation).

Certifications

Dimensions

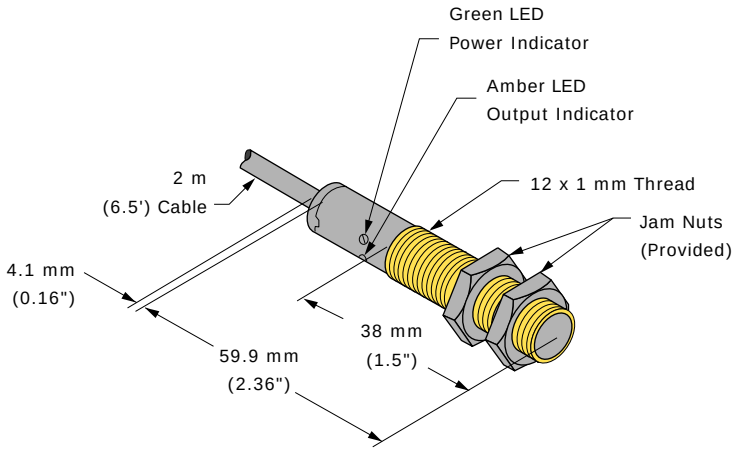


Figure 1. Cabled Models

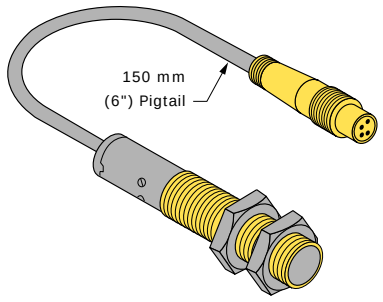
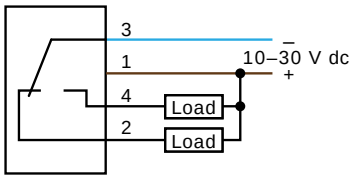


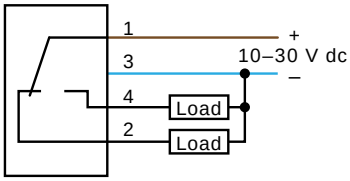
Figure 2. Pigtail Quick Disconnect Models

Wiring Diagrams

Receivers with NPN Outputs (Standard)



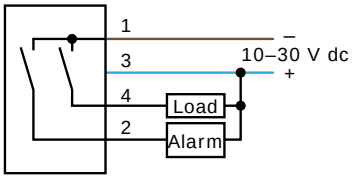
Receivers with PNP Outputs (Standard)



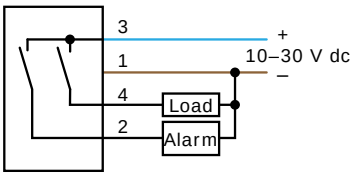
Key

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

Receivers with NPN Outputs (Alarm)



Receivers with PNP Outputs (Alarm)



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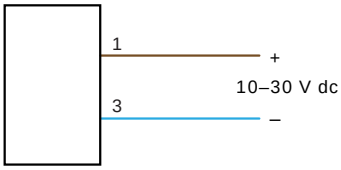
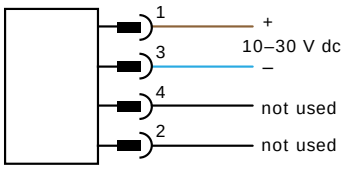
Emitters with Attached Cable



Emitters with Quick Disconnect



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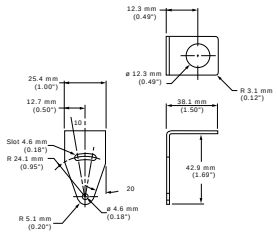
Accessories

Brackets

SMB12MM

- 12-gauge, stainless steel, right-angle mounting bracket for barrel-style sensors with 12 mm threads
- Curved mounting slot allows the bracket ±10° of lateral movement
- Mounting holes accommodate #8 hardware

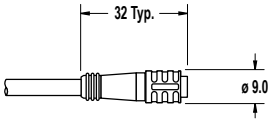
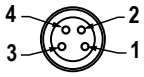
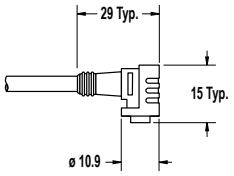


Hole center spacing: A to B = 26.0

Hole size: A = ø 4.6, B = 12.8 x 4.6, C= ø 12.3

Aperture Kits. SP12 sensors may be fitted with apertures that narrow or shape the effective beam of the sensor and protect the sensor's lens. These apertures are rectangular or circular thread-on water-tight parts. Use of apertures with SP12 high-gain sensors makes it possible to create very narrow, concentrated sensing beams for precision sensing applications.

Model	Description	Dimensions
AP12SC	Includes lens, o-ring, thread-on housing, and 3 circular apertures with openings of: • 0.5 mm (0.02 inch) diameter • 1.0 mm (0.04 inch) diameter • 2.5 mm (0.10 inch) diameter	
AP12SR	Includes lens, o-ring, thread-on housing, and 3 rectangular apertures with openings of: • 0.5 mm (0.02 inch) wide • 1.0 mm (0.04 inch) wide • 2.5 mm (0.10 inch) wide	

4-Pin Snap-on M8/Pico-Style Cordsets				
Model	Length	Style	Dimensions	Pinout
PKG4-2	2.00 m (6.56 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black
PKW4Z-2	2.00 m (6.56 ft)	Right-Angle		

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