

VS4 Series Opposed-Mode Sensors



Datasheet

Miniature Self-Contained Sensors



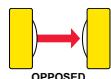
- 10 to 30V dc operation
- Visible red, 660 nm sensing beam
- Up to 1.0 m (39 in) sensing range
- Choose dark or light operate models
- Choose models with NPN (sinking) or PNP (sourcing) output
- 2-wire and 3-wire hookup; output load capacity to 50 mA
- Choice of integral cable or quick-disconnect pigtail



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

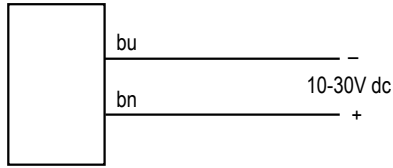


Model Number	Sensing Range	Cable	Supply Voltage	Output Type
VS4 EV	1.0 m (39 in)	2 m (6.5 ft) 2 wire	10 to 30V dc	-
VS4 EVQ		3-pin pico Pigtail QD		
VS4 AN5R		2 m (6.5 ft) 3 wire		NPN/LO
VS4 AN5RQ		3-pin pico Pigtail QD		
VS4 RN5R		2 m (6.5 ft) 3 wire		NPN/DO
VS4 RN5RQ		3-pin pico Pigtail QD		
VS4 AP5R		2 m (6.5 ft) 3 wire		PNP/LO
VS4 AP5RQ		3-pin pico Pigtail QD		
VS4 RP5R		2 m (6.5 ft) 3 wire		PNP/DO
VS4 RP5RQ		3-pin pico Pigtail QD		

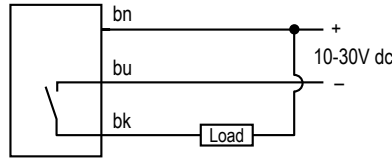


Wiring Diagrams

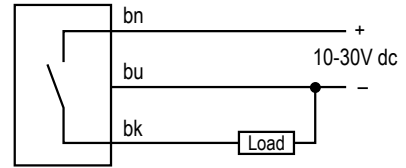
Emitters with Cable



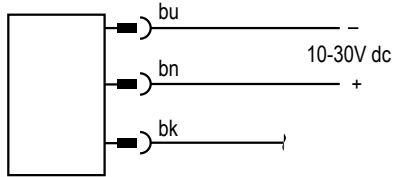
NPN Models with Cable



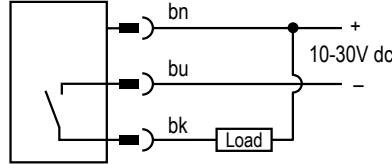
PNP Models with Cable



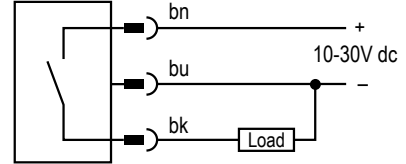
Emitters with Quick-Disconnect



NPN Models with Quick-Disconnect



PNP Models with Quick-Disconnect



Specifications

Supply Voltage and Current

- 10 to 30V dc (10% maximum ripple)
- Emitter: 25 mA
- Receiver: 25 mA (exclusive of load)

Supply Protection Circuitry

- Protected against reverse polarity and transient voltages

Output Configuration

- SPST solid-state switch
- Choose NPN (current sinking) or PNP (current sourcing), depending on model
- Choose light operate (N.O.) or dark operate (N.C.), depending on model

Output Rating

- 50 mA maximum
- Off-state leakage current: < 1 microamp at 24V dc
- On-state saturation voltage: < 0.25V at 10 mA dc; < 0.5V at 50 mA dc

Output Protection Circuitry

- Protected against false pulse on power-up -and continuous overload or short circuit of outputs
- Overload trip point ≥ 100 mA

Output Response Time

- 1 millisecond ON and 0.5 milliseconds OFF
- NOTE: 100 millisecond delay on power-up: output is non-conducting during this time

Repeatability

- 100 microseconds

Environmental Rating

- IEC IP67; NEMA 6

Indicators

- Two LEDs: Green and Yellow
- Green ON steady: power to sensor is ON
- Green flashing: output overload
- Yellow ON steady: light is sensed
- Yellow flashing: marginal excess gain (1 to 1.5x) in light condition

Construction

- Polycarbonate mounting holes and lens
- Low pressure molded thermoplastic housing (UL 94-V0)

Connections

- 2 m (6.5 ft) attached cable: three # 28 ga stranded conductors with PE insulation; PVC outer cable jacket; or 3-pin Pico-style pigtail quick-disconnect fitting. QD cables are ordered separately.

Operating Conditions

- Temperature: -20 °C to $+55$ °C (-4 °F to $+131$ °F)
- Humidity: 80% at $+50$ °C maximum relative humidity (non-condensing)

Vibration and Mechanical Shock

- Vibration: All models meet IEC 60068-2-6, IEC 60947-5-2, UL491 Section 40, MIL-STD-202F Method 201A; 10 to 60 Hz, 0.5 mm peak to peak
- Shock: All models meet IEC 60068-2-27, IEC 60947-5-2; 30g peak acceleration, 11 millisecond pulse duration, half-sine wave pulse shape

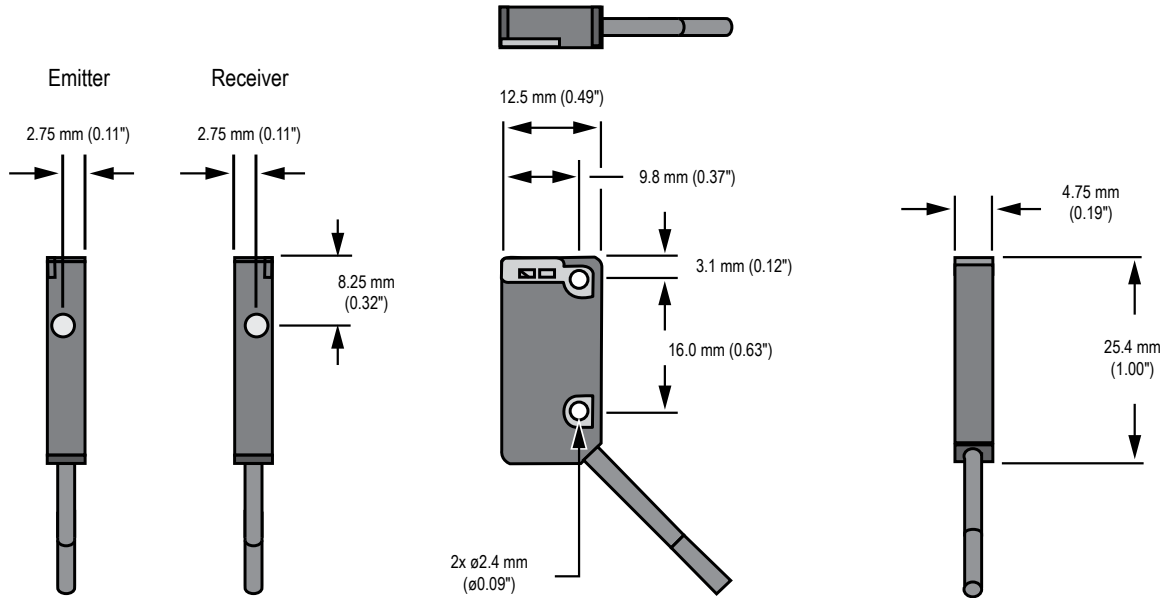
Application Notes

- M2 stainless steel mounting hardware included. Optional mounting bracket available.

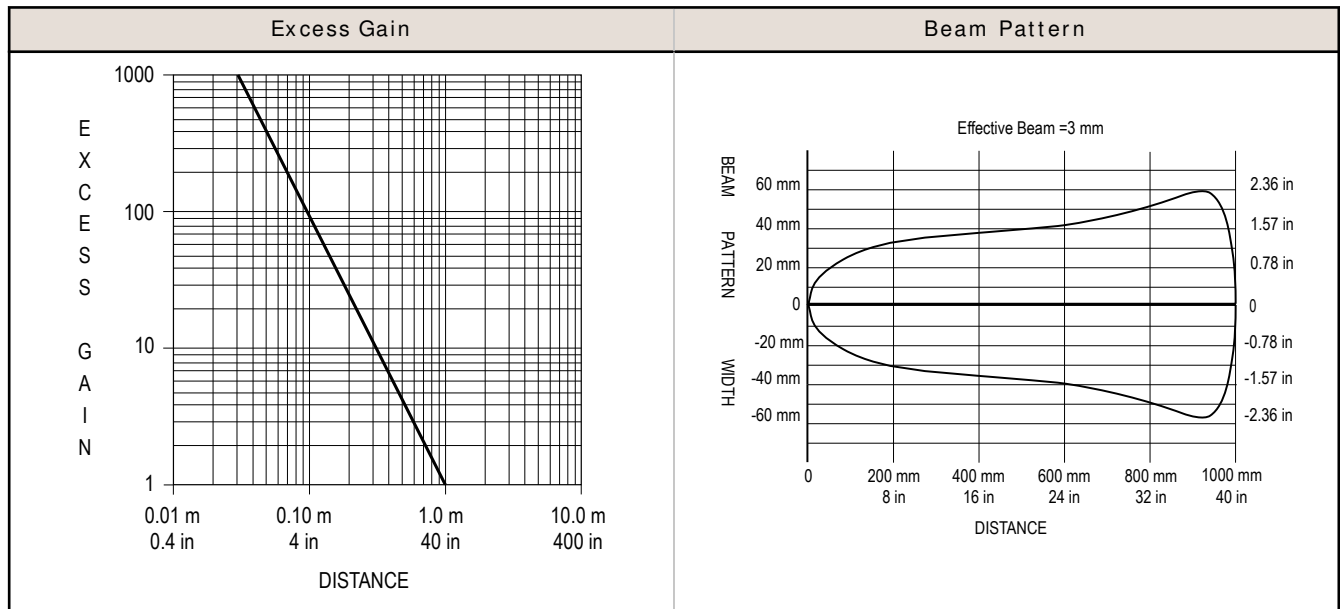
Certifications



Dimensions



Performance Curves



Accessories

Quick-Disconnect Cables

3-Pin Threaded M8/ Pico-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
PKG3M-2	2 m (6.56 ft)	Straight		
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)			

Apertures

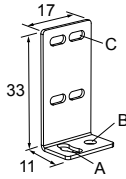
Model	Description	Dimensions
APVS4-0206	<ul style="list-style-type: none"> 2-holed aperture 0.020 in and 0.060 in diameter holes 	
APVS4-0408	<ul style="list-style-type: none"> 2-holed aperture 0.040 in and 0.080 in diameter holes 	

Brackets

SMBVS4SRA

- Right-angle bracket
- 300 series stainless steel

A = 3 x R1.6, B = \varnothing 3.2,
C = R1.2



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