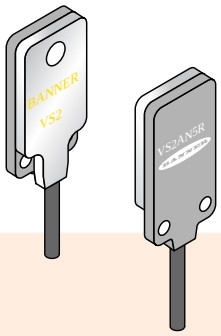
VS2 Opposed-Mode Sensors

Features

- Self-contained miniature sensors
- 10 V DC to 30 V DC operation
- Visible red or infrared sensing beam, depending on model
- Up to 3 m (118 in) sensing range (see Range specifications)
- Selectable between dark or light operate models
- Models are available with either NPN or PNP output
- Two-wire and three-wire connection; output load capacity to 50 mA
- Choice of integral cable or quick-disconnect
- Sensors may be purchased in pairs, or individually



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

Component	Cabled Models[1]	QD Models [2]	Sensing Beam/ Range	Output Type	Supply Voltage
Emitter	VS25EV	VS25EVQ	Visible red, 660 nm 1.2 m (47 in)	NPN/Light Operate	10–30 V DC
Receiver	VS2AN5R	VS2AN5RQ			
Sensor Pair	VS2KAN5V	VS2KAN5VQ			
Emitter	VS25EV	VS25EVQ		PNP/Light Operate	
Receiver	VS2AP5R	VS2AP5RQ			
Sensor Pair	VS2KAP5V	VS2KAP5VQ			
Emitter	VS25EV	VS25EVQ		NPN/Dark Operate	
Receiver	VS2RN5R	VS2RN5RQ			
Sensor Pair	VS2KRN5V	VS2KRN5VQ			
Emitter	VS25EV	VS25EVQ		PNP/Dark Operate	
Receiver	VS2RP5R	VS2RP5RQ			
Sensor Pair	VS2KRP5V	VS2KRP5VQ			
Emitter	VS25E	VS25EQ	Infrared, 940 nm 3.0 m (118 in)	NPN/Light Operate	
Receiver	VS2AN5R	VS2AN5RQ			
Sensor Pair	VS2KAN5				
Emitter	VS25E	VS25EQ		PNP/Light Operate	
Receiver	VS2AP5R	VS2AP5RQ			
Sensor Pair	VS2KAP5	VS2KAP5Q			
Emitter	VS25E	VS25EQ		NPN/Dark Operate	
Receiver	VS2RN5R	VS2RN5RQ			
Emitter	VS25E	VS25EQ		PNP/Dark Operate	
Receiver	VS2RP5R	VS2RP5RQ			

In light operate (LO) mode, the output is ON when the target returns the same or more light to the sensor and OFF when the sensor detects less light than the configured/taught target. In dark operate (DO) mode, the output is ON when the target returns less light to the sensor than the configured target and OFF when the sensor detects more light than the configured/taught target. In **opposed** sensing modes, light operate means the output is on when the beam is unblocked and dark operate means the output is on when the beam is blocked.

The following models are no longer available for order but are still covered by the information in this document.

[1] Cabled models have 2 m (6.5 ft) integral cable; 2-wire for emitters, 3-wire for receivers.
[2] QD models have 3-pin 150 mm (6.5 in) M8 QD. QD models require mating corset.

Original Instructions
12-Aug-26

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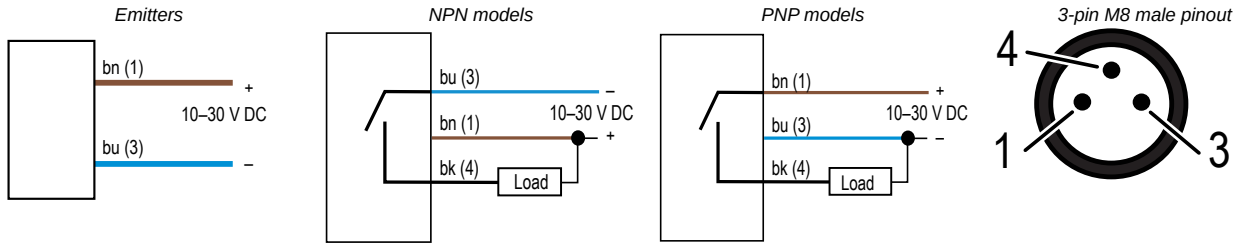
57248
p/n: 57248 Rev G

VS2KAN5Q (NPN/LO Sensor Pair) VS2KRN5 and VS2KRN5Q (NPN/DO Sensor Pairs) VS2KRP5 and VS2KRP5Q (PNP/DO Sensor Pairs)

Overview

VS2 Series miniature self-contained sensors are designed for precision sensing in small areas previously accessible only to remote or fiber optic models. Typical applications include mounting inside vibrating feeders and electronic component handling equipment.

Wiring



Specifications

Supply Voltage and Current

10 V DC to 30 V DC (10% maximum ripple)
Emitter: 25 mA (visible beam); 30 mA (infrared beam)
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) models
Choose light operate (N.O.) or dark operate (N.C.) models

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 output short-circuit, continuous overload, and false pulse on power-up
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

Indicators

Two LEDs: Green and Amber
Green ON = power to sensor is ON
Green flashing = output overload
Amber ON = light is sensed
Amber flashing = marginal excess gain (1–1.5×) in light condition

Construction

Black ABS housing with clear MABS lens

Connections

2 m (6.5 ft) attached cable: three #28 ga stranded conductors with PE insulation; PVC outer cable jacket; or a 150 mm (6.5 in) cable with a 3-pin M8 quick-disconnect fitting. QD cables are ordered separately.

Environmental Rating

IP67, NEMA 6

Operating Conditions

–20 °C to +55 °C (–4 °F to +131°F)
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 (Vibration: 10 Hz to 60 Hz, 0.5 mm peak-to-peak)
Shock: All models meet IEC 60068-2-27, IEC 60947-5-2 (Shock: 30G peak acceleration, 11 ms pulse duration, half sine wave pulse shape)

Application Notes

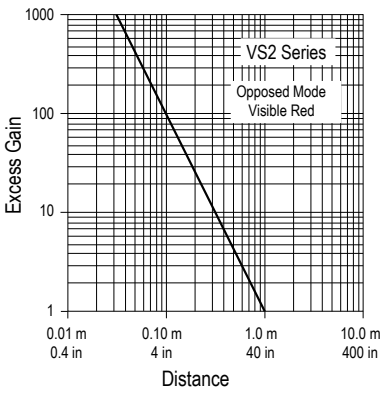
M2 stainless steel mounting hardware included. Optional mounting brackets are available

Certifications

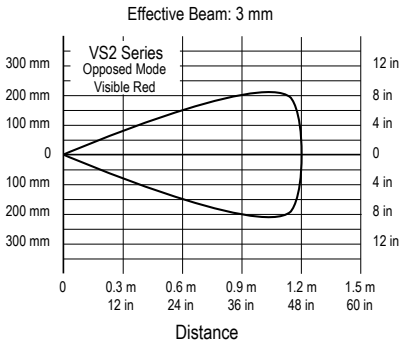
CE

Performance Curves

Excess gain



Beam pattern

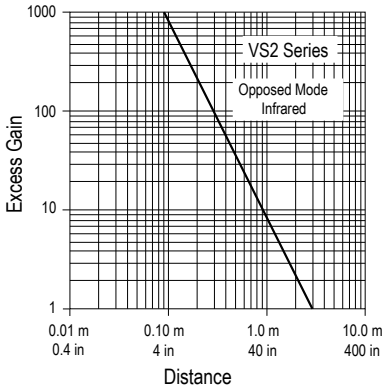


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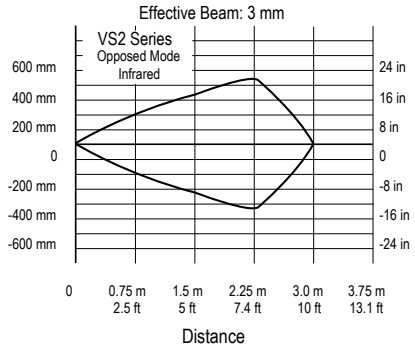
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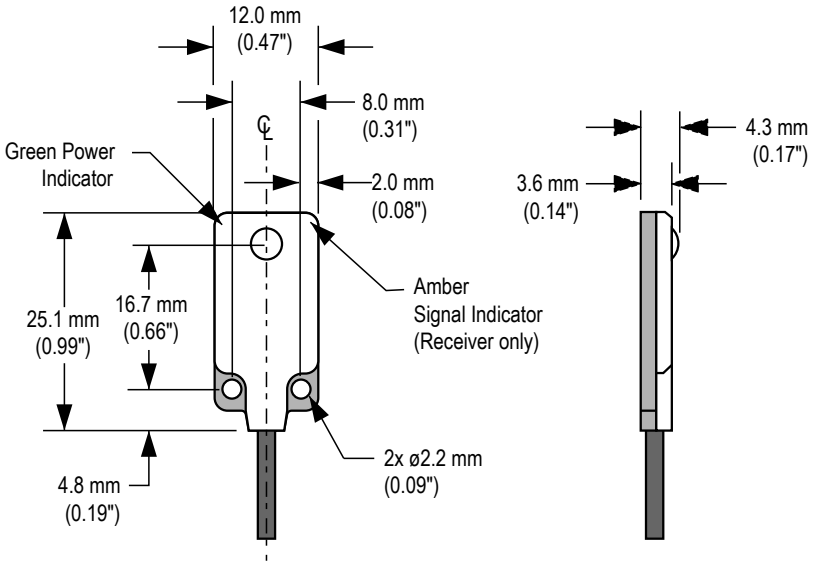
Excess gain



Beam pattern

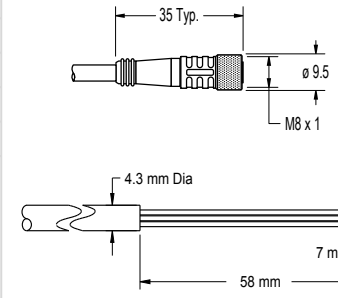


Dimensions



Accessories

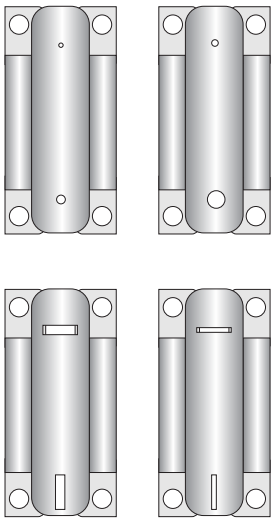
Quick-Disconnect Cables

3-Pin Single-Ended M8 Female Cordsets			
Model	**Length**	**Dimensions**	**Pinout (Female)**
PKG3M-2	2 m (6.56 ft)		 1 = Brown 3 = Blue 4 = Black
PKG3M-4	4 m (13.12 ft)		
PKG3M-5	5 m (16.4 ft)		
PKG3M-7	7 m (22.96 ft)		
PKG3M-9	9 m (29.52 ft)		
PKG3M-10	10 m (32.81 ft)		

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VS2 Apertures

All models are 0.1 mm 300 series stainless steel.

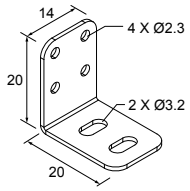
Model	Description	
Circular		
APVS2-0204	Two openings, 0.5 mm (0.02 in) and 1 mm (0.04 in) diameter	
APVS2-0608	Two openings, 1.5 mm (0.06 in) and 2 mm (0.08 in) diameter	
Horizontal and Vertical Slot		
APVS2-02R	One each, 0.5 mm (0.02 in) wide	
APVS2-04R	One each, 1.0 mm (0.04 in) wide	

VS2 Brackets

SMBVS2RA

- Right-angle bracket
- Stainless steel
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: A = 80.0
Hole size: A = 3.2 x 6.0



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