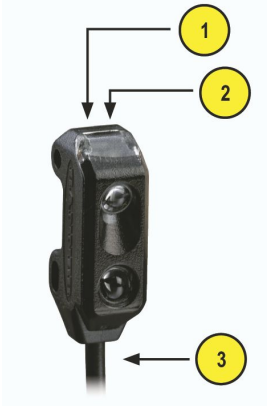
Features and Models



1. Power ON Indicator
2. Received Signal Indicator
3. 2 m Cable or 150 mm (6 inch) Quick-Disconnect

- Self-contained miniature sensor
- 10 V to 30 V DC operation
- Visible red or infrared sensing beam, depending on model
- 10 mm (0.4 in) or 15 mm (0.6 in) convergent point, depending on model
- NPN (sinking) or PNP (sourcing) output, and dark or light operate, depending on model
- 3-wire connection; output load capacity to 50 mA
- Choice of integral cable or quick-disconnect connector

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.

Convergent Visible Red Models	Convergent Infrared Models	Focus	Output Type	Cable
VS1AN5CV10	VS1AN5C10	10 mm (0.4 in)	NPN/LO	2 m (6.5 ft)
VS1AN5CV10Q	VS1AN5C10Q		NPN/LO	150 mm cable with a 3-pin M8 QD
	VS1RN5C10		NPN/DO	2 m (6.5 ft)
VS1AP5CV10	VS1AP5C10		PNP/LO	2 m (6.5 ft)
VS1AP5CV10Q	VS1AP5C10Q		PNP/LO	150 mm cable with a 3-pin M8 QD
VS1RP5CV10	VS1RP5C10		PNP/DO	2 m (6.5 ft)
VS1AN5CV20	VS1AN5C20	15 mm (0.6 in)	NPN/LO	2 m (6.5 ft)
VS1AN5CV20Q			NPN/LO	150 mm cable with a 3-pin M8 QD
VS1RN5CV20			NPN/DO	2 m (6.5 ft)
VS1RN5CV20Q			NPN/DO	150 mm cable with a 3-pin M8 QD
VS1AP5CV20	VS1AP5C20		PNP/LO	2 m (6.5 ft)
VS1AP5CV20Q	VS1AP5C20Q		PNP/LO	150 mm cable with a 3-pin M8 QD
VS1RP5CV20	VS1RP5C20		PNP/DO	2 m (6.5 ft)

A model with a QD connector requires a mating cable; see "Accessories" on page 4.

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

- VS1AN5C10 W/30 and VS1AN5C10 W/30 (9 m cable models)
- VS1RN5CV10 (all models) and VS1RN5C10Q
- VS1AP5CV10 W/30 and VS1AP5C10 W/30
- VS1RP5CV10 W/30, VS1RP5CV10Q, and VS1RP5C10Q
- VS1AN5CV20 W/30 and VS1AN5C20Q
- VS1RN5C20 (all models)
- VS1AP5CV20 W/30
- VS1RP5CV20 W/30, VS1RP5CV20Q, VS1RP5C20Q

Original Instructions
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56465
p/n: 56465 Rev F

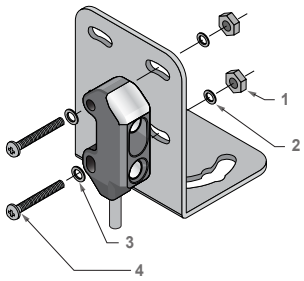
ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Overview

VS1 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, where larger sensors will not fit.

The sensing energy of a convergent-mode sensor is concentrated at the specified focus point. Convergent-mode sensors are less sensitive to background reflections, compared with diffuse-mode sensors. Contact the factory if background reflections are a problem.

VS1 Installation Notes



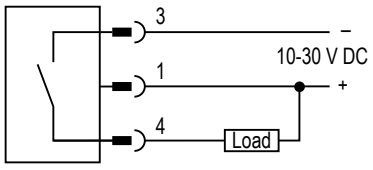
Included with each sensor is a hardware packet containing two stainless steel M2 × 0.4 × 16 mm Phillips pan-head machine screws, flat washers, lock washers, and hex nuts. To mount the sensor, use the supplied flat washer against the front surface of the sensor housing, between it and the screw head. If mounting to one of the optional brackets, place the lock washer against the back of the bracket, followed by the nut. If mounting directly to a threaded hole, place the lock washer between the screw head and the flat washer.

For best results, mount the VS1 where it is protected from moisture, high humidity and dirt.

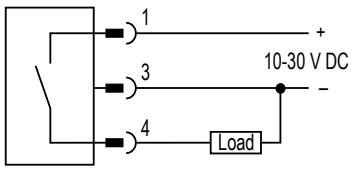
1. Hex Nut (2)
2. Lock Washer (2)
3. Washer (2)
4. M2 × 0.4 × 16 mm Phillips Pan-head Machine Screw (2)

Wiring Diagrams

NPN outputs



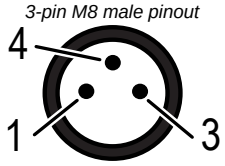
PNP outputs



Key:

1 = Brown
3 = Blue
4 = Black
X = Load

3-pin M8 male pinout



Specifications

Supply Voltage and Current

10 V to 30 V DC (10% maximum ripple) at less than 25 mA (exclusive of load)

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Output Protection Circuitry

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

Output Configuration

SPST solid-state switch

NPN (current sinking) or PNP (current sourcing), depending on model

Light operate (N.O.) or dark operate (N.C.), depending on model

Beams

Visible red: 860 nm

Infrared: 865 nm

Output Rating

50 mA maximum

OFF-state leakage current: < 1 microamp at 24 V DC

ON-state saturation voltage: < 0.25 V at 10 mA DC; < 0.5 V at 50 mA DC

Output Response Time

1 millisecond ON and OFF

Repeatability

250 microseconds

Indicators

Green ON: sensor power ON

Green flashing: output overload

Amber ON: light is sensed

Amber flashing: marginal excess gain (1 to 1.5 times) in light condition

Construction

Black ABS/polycarbonate housing with clear acrylic lens

Environmental Rating

IP54; NEMA 3

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Connections

2 m (6.5 ft) attached cable: three #28 ga stranded conductors with PE insulation; PVC outer cable jacket; or 150 mm (6 inch) cable with 3-pin M8 quick-disconnect fitting. QD cables are ordered separately.

Operating Conditions

–20 °C to +55 °C (–4 °F to +131°F)

80% at +50 °C maximum relative humidity (non-condensing)

Application Notes

M2 stainless steel mounting hardware included (see Installation Notes). Optional mounting brackets are available (see Accessories list).

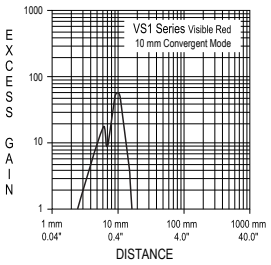
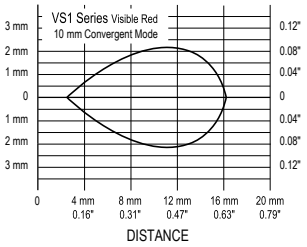
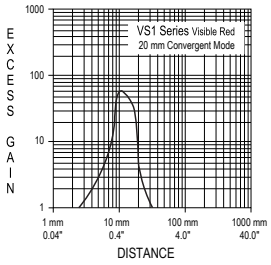
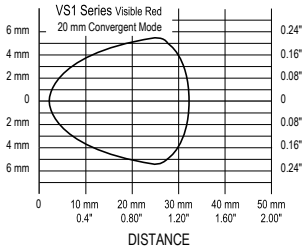
Certifications

CE

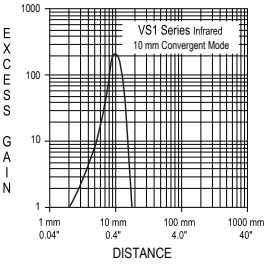
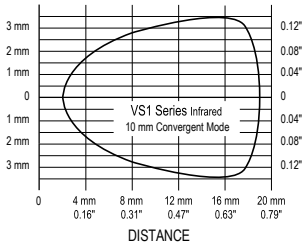
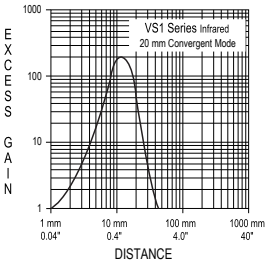
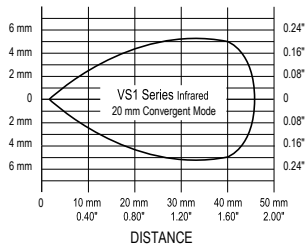
Performance Curves

Performance is based on 90% reflectance white card test.

Visible Red Beam Models

	Excess Gain	Beam Pattern
VS1...CV10		
VS1...CV20		

Infrared Beam Models

	Excess Gain	Beam Pattern
VS1...C10		
VS1...C20		

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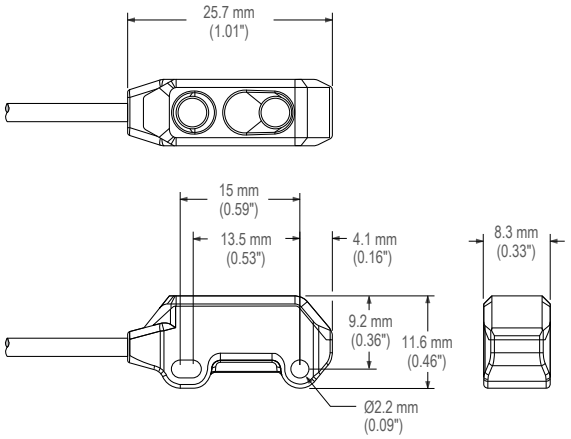
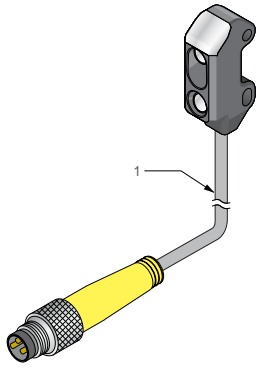
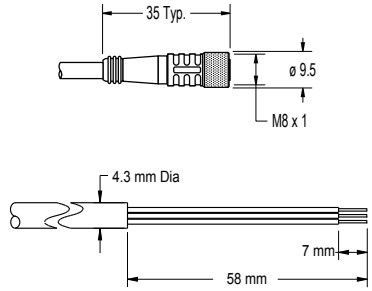
Dimensions





1. 150 mm (6 in) Cable

Accessories

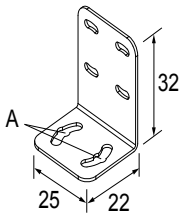
3-Pin Single-Ended M8 Female Cordsets			
Model	**Length**	**Dimensions**	**Pinout (Female)**
PKG3M-2	2 m (6.56 ft)		
PKG3M-4	4 m (13.12 ft)		
PKG3M-5	5 m (16.4 ft)		
PKG3M-7	7 m (22.96 ft)		
PKG3M-9	9 m (29.52 ft)		
PKG3M-10	10 m (32.81 ft)		

1 = Brown
3 = Blue
4 = Black

Brackets

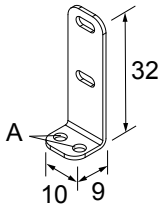
SMBVS1T
- Tall right-angle bracket
- Stainless steel
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: A = 16.8
Hole size: A = 3.5 x 12.3



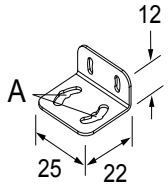
SMBVS1TC
- Tall right-angle compact bracket
- 300 stainless steel
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: A = 5.5
Hole size: A = ø 2.8



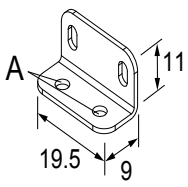
SMBVS1S
- Short right-angle bracket
- 18-ga. stainless steel
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: A = 16.8
Hole size: A = 3.5 x 12.3



SMBVS1SC
- Short right-angle bracket
- 18-ga. stainless steel
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: A = 10.0
Hole size: A = ø 2.8



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