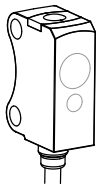
VS8 Series Background Suppression Sensor

Datasheet

Sub-Miniature Photoelectric Proximity Sensor with Background Suppression

This guide is designed to help you set up and install the VS8. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Instruction Manual at *www.bannerengineering.com*. Search for p/n 201958 to view the Instruction Manual. Use of this document assumes familiarity with pertinent industry standards and practices.



- Miniature sensor with precise adjustable background suppression
- Precise and reliable switching behavior even with varying object surfaces and colors
- Reliable operation even with highly reflective machine parts in the background
- Fixed range models ensure easy and consistent operation
- Adjustable range models cover a wide variety of applications with a single model
- Red laser, Red LED, and Blue LED types available to match sensing beam to application
- Robust, glass-fiber-reinforced plastic housing
- PNP or NPN output, depending on model

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.

AVERTISSEMENT: Ne pas utiliser pour la protection de personnes

Ces produits ne doivent pas être utilisés comme systèmes de détection pour la protection de personnes. Une utilisation dans de telles conditions pourrait entraîner des dommages corporels graves, voire mortels. Ce produit n'est pas équipé du circuit redondant d'autodiagnostic nécessaire pour être utilisé dans des applications de protection personnelle. Une panne du capteur ou un mauvais fonctionnement peut entraîner l'activation ou la désactivation de la sortie.

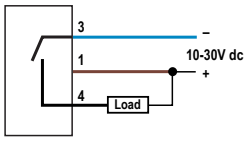
Models

Model [1]	Sensing Mode	Range	Output
VS8EAPAF70	Red LED, Adjustable Background Suppression	5 mm to 70 mm (0.2 in to 2.8 in)	PNP
VS8EANAF70			NPN
VS8EAPLAF70	Red Laser, Adjustable Background Suppression	6 mm to 70 mm (0.24 in to 2.8 in)	PNP
VS8EANLAF70			NPN
VS8APFF30B	Blue LED, Fixed 30 mm Background Suppression	2 mm to 30 mm (0.08 in to 1.18 in)	PNP
VS8ANFF30B			NPN
VS8APFF50B	Blue LED, Fixed 50 mm Background Suppression	2 mm to 50 mm (0.08 in to 1.97 in)	PNP
VS8ANFF50B			NPN

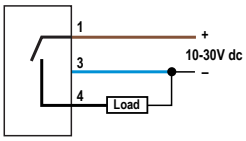
Model [1]	Sensing Mode	Range	Output
VS8APFF15	Red LED, Fixed 15 mm Background Suppression	2 mm to 15 mm (0.08 in to 0.59 in)	PNP
VS8ANFF15			NPN
VS8APFF30	Red LED, Fixed 30 mm Background Suppression	2 mm to 30 mm (0.08 in to 1.18 in)	PNP
VS8ANFF30			NPN
VS8APFF50	Red LED, Fixed 50 mm Background Suppression	2 mm to 50 mm (0.08 in to 1.97 in)	PNP
VS8ANFF50			NPN

Wiring Diagrams

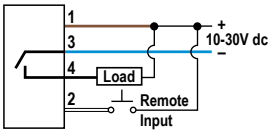
3-Pin NPN Models



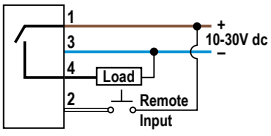
3-Pin PNP Models



4-Pin NPN Models



4-Pin PNP Models



Key

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

[1] Integral 2 m (6.5 ft) unterminated PUR cable models are listed.

- To order the 200 mm (7.8 in) PUR cable model with a 4-pin M8/Pico quick disconnect, add suffix "Q" to the model number. AF and LAF models only.
- To order the 200 mm (7.8 in) PUR cable model with a 3-pin M8/Pico quick disconnect, add suffix "Q3" to the model number. FF models only.
- To order the 200 mm (7.8 in) PUR cable model with a 4-pin M12/Euro quick disconnect, add suffix "Q5" to the model number. AF and LAF models only.

Specifications

Supply Voltage and Current
LED models: 10 V dc to 30 V dc (10% max. ripple) at less than 20 mA, exclusive of load
Laser models: 10 V dc to 30 V dc (10% max. ripple) at less than 12 mA, exclusive of load

Connections
2 m (6.5 ft) unterminated 4-wire PUR cable or 200 mm (7.8 in) PUR cable with a 3- or 4-pin M8/Pico-style or 4-pin M12/Euro-style male quick disconnect, depending on model
Models ending in suffix "Q", "Q3", or "Q5" must be used with a UL recognized cordset R/C (CYJV2)
Search p/n 201958 at *www.bannerengineering.com* to view the Instruction Manual for more information on cordsets

Operating Conditions
Red LED models: –20 °C to +60 °C (–4 °F to +140 °F)
Blue LED models: –20 °C to +50 °C (–4 °F to +122 °F)
Laser models: –20 °C to +50 °C (–4 °F to +122 °F)
Storage Temperature: –20 °C to +80 °C (–4 °F to +176 °F)
UL Operating Temperature: –20 °C to +30 °C (–4 °F to +86 °F)

Laser Classifications
All Models: Class 1; wavelength: 655 nm; frequency: 5 kHz; pulse duration: 3.2 µs; limit value pulse: ≤ 2.3 mW. Reference IEC 60825-1:2001, Section 8.2.
All Models: Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to laser Notice No. 50 dated June 24, 2007.
Blue LED Models: Risk Group 2; possibly hazardous optical radiation emitted from this product. Do not stare at the operating lamp. May be harmful to the eyes. (EN62471)

Supply Protection Circuitry
Protected against reverse polarity and short-circuit

Output Configuration
Single PNP or NPN on pin 4 (black wire) with remote input on pin 2 (white wire)

Delay Before Power-Up
< 300 ms

Output Protection Circuitry
Protected against output short-circuit, continuous overload, and false pulse on power-up

Output Rating
50 mA

Output Response Time
500 µs

Construction
Housing, cable: PUR
Front screen: PMMA

Indicators
2 LED indicators on sensor top
Green on: Power on
Amber on: Output conducting

Emitter LED Wavelength
Red LED models: 650 nm
Blue LED models: 450 nm
Laser models: 655 nm

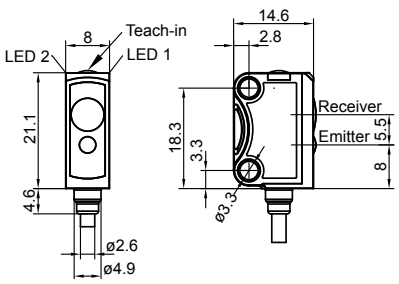
Switching Frequency
≤ 1000 Hz

Chemical Compatibility
ECOLAB® certified (2 m cabled models only)

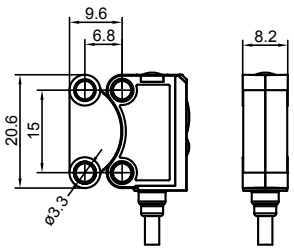
Environmental Rating
IEC IP67

Certifications

Dimensions



Sensor with Bracket (SMBVS8DT)



Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to *www.bannerengineering.com*.

Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Protection contre la surintensité requise

AVERTISSEMENT: Les raccordements électriques doivent être effectués par du personnel qualifié conformément aux réglementations et codes électriques nationaux et locaux.

Une protection de surintensité doit être fournie par l'installation du produit final, conformément au tableau fourni.
Vous pouvez utiliser un fusible externe ou la limitation de courant pour offrir une protection contre la surtension dans le cas d'une source d'alimentation de classe 2.
Les fils d'alimentation < 24 AWG ne peuvent pas être raccordés.
Pour obtenir un support produit supplémentaire, rendez-vous sur le site *www.bannerengineering.com*.

Câblage d'alimentation (AWG)	Protection contre la surtension requise (ampères)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

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