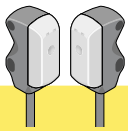
VS3 Opposed-Mode Sensors

Miniature Self-Contained Emitters and Receivers

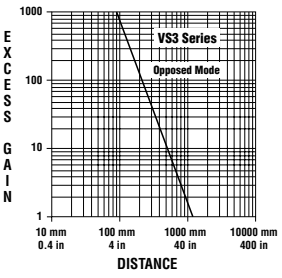
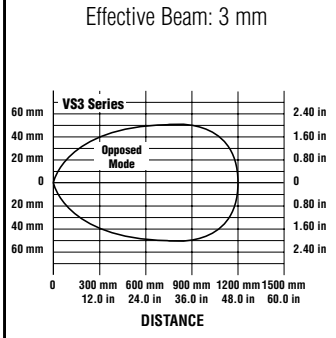
VS3 Opposed-Mode Sensor Features

- Extremely compact self-contained miniature sensor
- 10 to 30V dc operation
- Visible red sensing beam
- Choose dark- or light-operate models
- Choose models with NPN (sinking) or PNP (sourcing) output
- 2-wire (emitter) or 3-wire (receiver) hookup; output load capacity to 50 mA
- Choice of integral cable or quick-disconnect connector



Visible red, 660 nm

VS3 Series Opposed Mode Emitter (E) and Receiver (R) Models

Models*	Range	Cable	Supply Voltage	Output Type	Excess Gain	Beam Pattern
VS3KAN5V Sensor Pair **VS35EV** Emitter **VS3AN5R** Receiver	1.2 m (3.96')	2 m (6.5') 2 wires 3 wires	10 to 30V dc	NPN/ Light Operate		
VS3KAN5VQ Sensor Pair **VS35EVQ** Emitter **VS3AN5RQ** Receiver		3-Pin Pico QD		NPN/ Light Operate		
VS3KRN5V Sensor Pair **VS35EV** Emitter **VS3RN5R** Receiver		2 m (6.5') 2 wires 3 wires		NPN/ Dark Operate		
VS3KRN5VQ Sensor Pair **VS35EVQ** Emitter **VS3RN5RQ** Receiver		3-Pin Pico QD		NPN/ Dark Operate		
VS3KAP5V Sensor Pair **VS35EV** Emitter **VS3AP5R** Receiver		2 m (6.5') 2 wires 3 wires		PNP/ Light Operate		
VS3KAP5VQ Sensor Pair **VS35EVQ** Emitter **VS3AP5RQ** Receiver		3-Pin Pico QD		PNP/ Light Operate		
VS3KRP5V Sensor Pair **VS35EV** Emitter **VS3RP5R** Receiver		2 m (6.5') 2 wires 3 wires		PNP/ Dark Operate		
VS3KRP5VQ Sensor Pair **VS35EVQ** Emitter **VS3RP5RQ** Receiver		3-Pin Pico QD		PNP/ Dark Operate		

Effective Beam: 3 mm

*NOTE: Sensors may be purchased in pairs, or individually.

WARNING . . . Not To Be Used for Personnel Protection

Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.

These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.

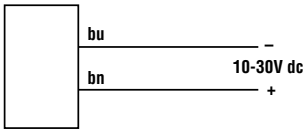
VS3 Opposed-Mode Sensors

VS3 Opposed-Mode Sensor Specifications

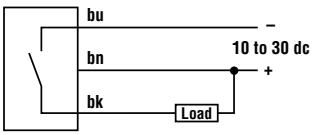
Supply Voltage and Current	10 to 30V dc (10% maximum ripple) at less than 25 mA (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	SPST solid-state switch Choose NPN (current sinking) or PNP (current sourcing) models Choose light 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 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 millisecond OFF (NOTE: 100 microsecond delay maximum on power-up; output does not conduct during this time)
Repeatability	100 microseconds
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 (1-1.5x) in light condition
Construction	Black ABS housing with acrylic lens
Environmental Rating	IEC IP67; NEMA 6
Connections	2 m (6.5') attached cable: #28 ga stranded conductors with PE insulation; PVC outer cable jacket; or 3-pin Pico-style threaded quick-disconnect fitting. QD cables are ordered separately (see page 3).
Operating Conditions	**Temperature:** -20° to +55°C (-4° to +131°F) **Maximum Relative Humidity:** 80% at 50°C (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	M3 stainless steel mounting hardware included. Optional mounting brackets are available (page 4).
Certifications	Approvals in process.

VS3 Opposed-Mode Sensor Hookups

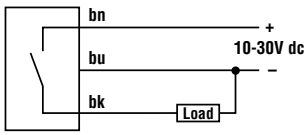
Emitters Cabled Hookup



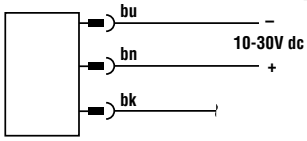
Receivers with NPN Outputs Cabled Hookup



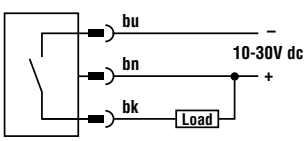
Receivers with PNP Outputs Cabled Hookup



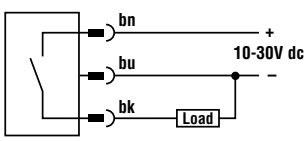
Quick-Disconnect Hookup



Quick-Disconnect Hookup



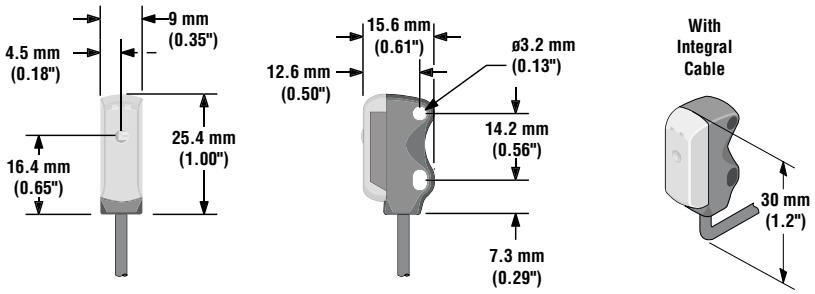
Quick-Disconnect Hookup



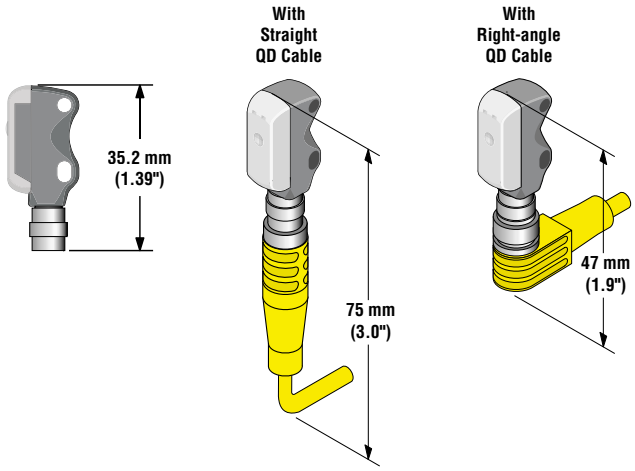
Banner Engineering Corp. • Minneapolis, U.S.A.
www.bannerengineering.com • Tel: 763.544.3164

VS3 Opposed-Mode Dimensions

Cabled Models

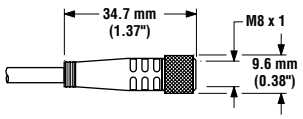
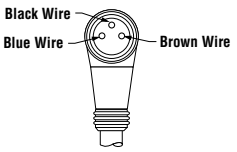
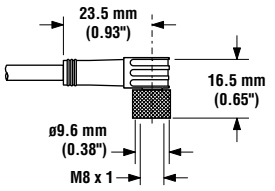


Quick-Disconnect Models



Accessories

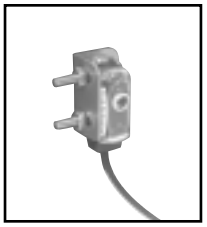
Quick-Disconnect (QD) Cables

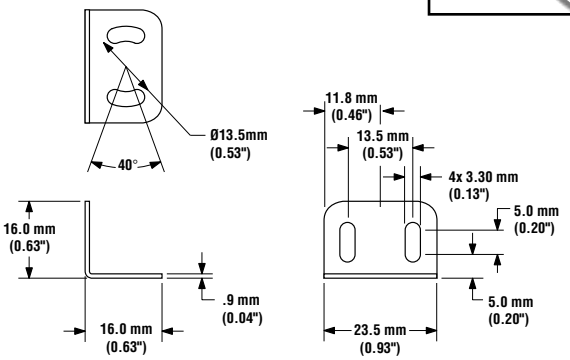
Style	Models	Length	For Use With	Dimensions	Pinout
3-pin Pico-Style Straight	**PKG3M-2** **PKG3M-9**	2 m (6.5') 9 m (30')	All VS3 Series sensors with model suffix "Q".		
3-pin Pico-Style Right-Angle	**PKW3M-2** **PKW3M-9**	2 m (6.5') 9 m (30')			

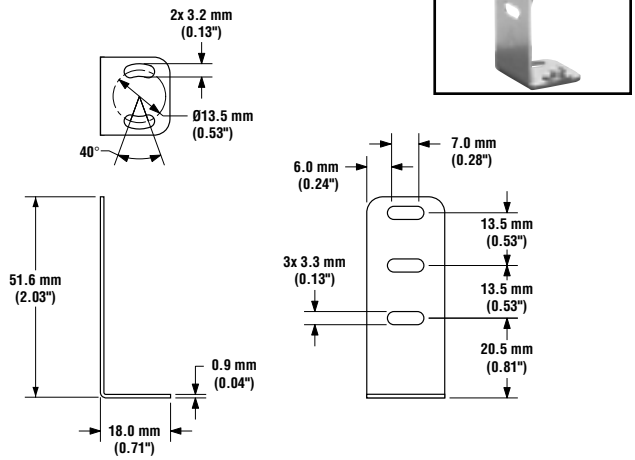
VS3 Opposed-Mode Sensors

VS3 Mounting Brackets

SMBVS3S	• Right-angle bracket • 300 series stainless steel	**SMBVS3T**	• Right-angle tall bracket • 300 series stainless steel







BANNER®

the photoelectric specialist