



VS2 Series Features

- Totally self-contained miniature sensors
- 10 to 30V dc operation
- Visible red or infrared sensing beam, depending on model
- Up to 3 m (118") sensing range (see Range specifications below)
- 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
- Sensors may be purchased in pairs, or individually



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.



VS2 Series Opposed-Mode Sensors

Component	Cabled Models*	QD Models**	Sensing Beam/Range	Supply Voltage	Output Type	Excess Gain	Beam Pattern
Emitter Receiver Sensor Pair	VS25EV VS2AN5R VS2KAN5V	VS25EVQ VS2AN5RQ VS2KAN5VQ	Visible Red, 660 nm 1.2 m (47")	10 to 30V dc	NPN/ Light Operate		
Emitter Receiver Sensor Pair	VS25EV VS2AP5R VS2KAP5V	VS25EVQ VS2AP5RQ VS2KAP5VQ			PNP/ Light Operate		
Emitter Receiver Sensor Pair	VS25EV VS2RN5R VS2KRN5V	VS25EVQ VS2RN5RQ VS2KRN5VQ			NPN/ Dark Operate		
Emitter Receiver Sensor Pair	VS25EV VS2RP5R VS2KRP5V	VS25EVQ VS2RP5RQ VS2KRP5VQ			PNP/ Dark Operate		
Emitter Receiver Sensor Pair	VS25E VS2AN5R VS2KAN5	VS25EQ VS2AN5RQ VS2KAN5Q	Infrared, 940 nm 3.0 m (118")		NPN/ Light Operate		
Emitter Receiver Sensor Pair	VS25E VS2AP5R VS2KAP5	VS25EQ VS2AP5RQ VS2KAP5Q			PNP/ Light Operate		
Emitter Receiver Sensor Pair	VS25E VS2RN5R VS2KRN5	VS25EQ VS2RN5RQ VS2KRN5Q			NPN/ Dark Operate		
Emitter Receiver Sensor Pair	VS25E VS2RP5R VS2KRP5	VS25EQ VS2RP5RQ VS2KRP5Q			PNP/ Dark Operate		

* Cabled models have 2 m (6.5') integral cable; 2-wire for emitters, 3-wire for receivers.

** QD models have 3-pin 150 mm (6.5") Pico-style QD pigtail. QD models require mating cable; see page 4.

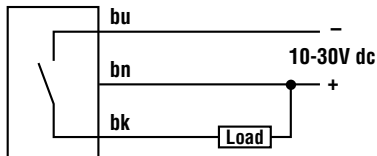
VS2 Series – Opposed Mode

VS2 Series Opposed-Mode Sensor Specifications

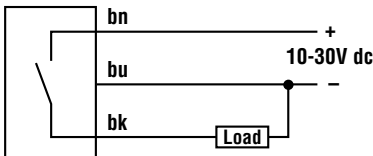
Supply Voltage and Current	10 to 30V dc (10% maximum ripple) Emitter: 25 mA (visible beam); 30 mA (infrared beam) Receiver: 25 mA (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	SPST solid-state switch Choose NPN (current 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 false pulse on power-up and continuous overload or short circuit of outputs Overload trip point \geq 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 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 clear MABS lens
Environmental Rating	IP67; NEMA 6
Connections	2 m (6.5') 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° 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	M2 stainless steel mounting hardware included. Optional mounting brackets are available (page 4).
Certifications	CE

VS2 Series Sensor Hookups

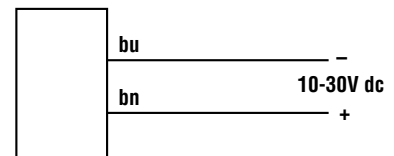
**Sensors with NPN Outputs
Cabled hookup**



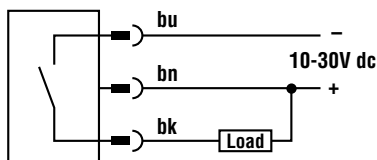
**Sensors with PNP Outputs
Cabled hookup**



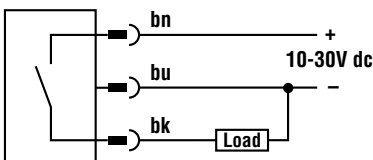
**Emitters
Cabled hookup**



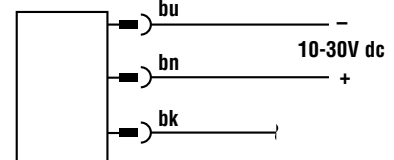
Quick-Disconnect hookup



Quick-Disconnect hookup

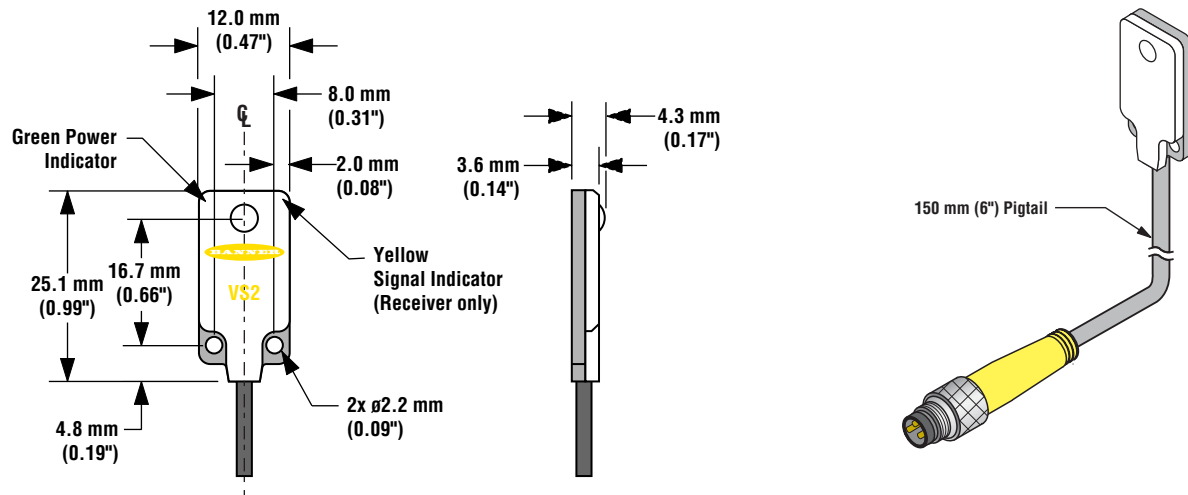


Quick-Disconnect hookup



VS2 Series – Opposed Mode

VS2 Series Opposed-Mode Sensor Dimensions



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 VS2 Series sensors with model suffix "Q".		



WARNING . . . Not To Be Used for Personnel Protection

Never use this product as a sensing device for personnel protection. Doing so could lead to serious injury or death.

This product 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. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.

VS2 Series – Opposed Mode

Accessories

VS2 Apertures

APVS2-0204	<ul style="list-style-type: none"> • 0.5 mm and 1.0 mm apertures • 0.1 mm 300 series stainless steel 	APVS2-0608	<ul style="list-style-type: none"> • 1.5 mm and 2.0 mm apertures • 0.1 mm 300 series stainless steel
APVS2-02R	<ul style="list-style-type: none"> • 0.5 mm wide aperture • 0.1 mm 300 series stainless steel 	APVS2-04R	<ul style="list-style-type: none"> • 1 mm wide aperture • 0.1 mm 300 series stainless steel

VS2 Series Mounting Brackets

SMBVS2RA	<ul style="list-style-type: none"> • Right-angle bracket • 300 series stainless steel



WARRANTY: Banner Engineering Corp. warrants its products to be free from defects for one year. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture found to be defective at the time it is returned to the factory during the warranty period. This warranty does not cover damage or liability for the improper application of Banner products. This warranty is in lieu of any other warranty either expressed or implied.

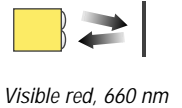
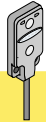


VS2 Series Convergent Mode Sensor Features

- Extremely low profile self-contained miniature sensors
- 10 to 30V dc operation
- Visible red sensing beam
- Choose models with 15 mm or 30 mm convergent point
- Choose dark or light operate models
- Choose models with NPN (sinking) or PNP (sourcing) output
- 3-wire hookup; output load capacity to 50 mA
- Choice of integral cable or quick-disconnect connector

VS2 Series 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, where larger sensors will not fit.



VS2 Series Convergent-Mode Sensors

Models*	Range	Cable	Supply Voltage	Output Type	Excess Gain	Beam Pattern
VS2AN5CV15 VS2AN5CV15Q	15 mm (0.6") ±5 mm	2 m (6.5') 3-Pin Pico QD	10 to 30V dc	NPN Light Operate		
VS2RN5CV15 VS2RN5CV15Q		2 m (6.5') 3-Pin Pico QD		NPN Dark Operate		
VS2AP5CV15 VS2AP5CV15Q		2 m (6.5') 3-Pin Pico QD		PNP Light Operate		
VS2RP5CV15 VS2RP5CV15Q		2 m (6.5') 3-Pin Pico QD		PNP Dark Operate		
VS2AN5CV30 VS2AN5CV30Q	30 mm (1.2") ±10 mm	2 m (6.5') 3-Pin Pico QD		NPN Light Operate		
VS2RN5CV30 VS2RN5CV30Q		2 m (6.5') 3-Pin Pico QD		NPN Dark Operate		
VS2AP5CV30 VS2AP5CV30Q		2 m (6.5') 3-Pin Pico QD		PNP Light Operate		
VS2RP5CV30 VS2RP5CV30Q		2 m (6.5') 3-Pin Pico QD		PNP Dark Operate		

See Safety Use Warning on Back Page.

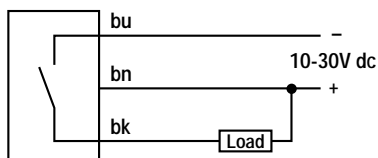
VS2 Series Convergent Mode

VS2 Series Specifications

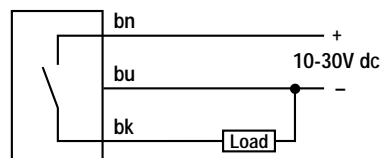
Supply Voltage and Current	10 to 30V dc (10% maximum ripple) at less than 25 mA (exclusive of load)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	SPST solid-state switch Choose NPN (current sinking) or PNP (current sourcing) models Choose light 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 \geq 100 mA
Output Response Time	1 millisecond ON and OFF (NOTE: 150 millisecond delay maximum on power-up: output does not conduct during this time)
Repeatability	160 microseconds
Indicators	Two LEDs: Green and Yellow GREEN ON steadily = power to sensor is ON GREEN flashing = output overload YELLOW ON steadily = light is sensed
Construction	Black ABS housing with acrylic lens
Environmental Rating	IEC IP67; NEMA 6
Connections	2 m (6.5') 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° 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	M2 stainless steel mounting hardware included. Optional mounting brackets are available (page 4).
Certifications	CE

VS2 Series Sensor Hookups

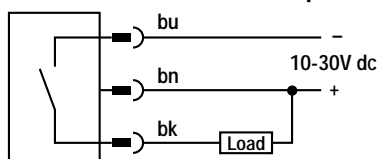
Sensors with NPN Outputs
Cabled hookup



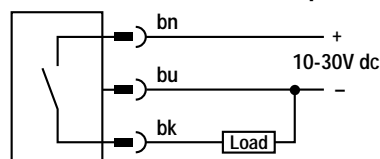
Sensors with PNP Outputs
Cabled hookup



Quick-Disconnect hookup

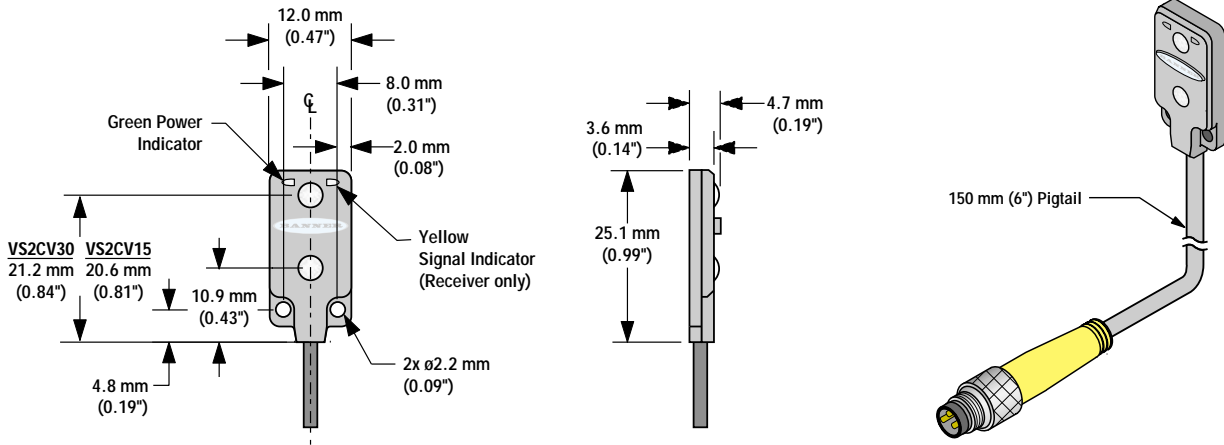


Quick-Disconnect hookup



VS2 Series Convergent Mode

VS2 Series Convergent Mode Sensor Dimensions



Accessories

Quick-Disconnect (QD) Cables

Style	Models	Length	For Use With	Dimensions	Pinout
3-pin Pico Style Straight	PKG3M-2	2 m (6.5')	All VS2 Series sensors with model suffix "Q".		
	PKG3M-9	9 m (30')			

VS2 Series Mounting Brackets

SMBVS2RA

- Right-angle bracket
- 300 series stainless steel