- Settable trip-point in RMS vibration velocity units (in/s)
- Settable over/under alarm function
- 2 output options: SPDT relay and isolated transistor
- Both output options are failsafe
- Settable alarm delay suppresses nuisance alarms
- At-a-glance power, vibration and output status
- 24 VDC powere
- 2 housing options: compact NEMA 4X and XP (explosion proof)

Description

VS1 and VS2 monitor the machine surface to which they are attached and alarm when vibration either exceeds or falls below the trippoint setting, according to the alarm over/under switch setting. Each have three LED indicators providing power, vibration and alarm status. The isolated transistor or relay output may be wired for machine shutdown or as part of an early warning system. The adjustable alarm delay prevents false alarms by allowing the user to set the minimum continuous fault condition time for alarm, thus preventing needless system shutdowns during operation or startup.

Principle of Operation

The VS1 is a low-level vibration switch optimized to monitor non-intentionally vibrating machinery for the effects of imbalance, misalignment, looseness or wear (e.g. bearings). The trip-point setting range is 0.1→2.2 in/s. The VS1 is designed per ISO 10816-1 Mechanical Vibration - Evaluation of machine Vibration by measurements on nonrotating parts.
The VS2 is a high-level vibration switch optimized to monitor intentionally vibrating machinery (e.g. vibratory conveyors, hammer-mills) for the effects of imbalance, excessive load, mechanical failure or unintended machine shutdown and alarm when vibration exceeds or falls below the trip-point setting. The trip-point setting range is 2.0→26 in/s.

Installation VS1 and VS2 (NEMA 4X and XP Versions)

Orientation IMPORTANT: VS-Series vibration monitors sense vibration along the axis indicated by the SENSING DIRECTION arrow. Orient the vibration monitor with the arrow parallel to the vibration axis to be monitored.

Mounting: Rigid, tight attachment is necessary for any vibration-sensing device. For this reason, the VS-Series must be attached to a smooth, flat surface. Any looseness or rocking will permit error-causing resonance. Therefore, the VS-Series must be tightly and securely bolted to the measurement surface using ALL mounting tabs/holes.

VS1/VS2 Specifications (NEMA 4X & XP)

	VS1	VS2
Power	Green	
Vibration	Green - indicates vibration above min. detectable level	
	0.1 in/s rms	2 in/s rms
Alarm	Red - output in alarm state	
Settings/Ranges		
Alarm Trip Point	0 - 2.2 in/s rms 2 - 55 mm/s	2 - 26 in/s rms 51 - 660 mm/s
Alarm Delay	1 - 10 seconds	
Alarm	Over/under select switch	
Operational Limits (Vibration)		
Min. Frequency (-3db)	10 Hz	1 Hz
Max. Acceleration	± 12 g peak (Relay Option) ± 50 g peak (NPN Option)	
Power Requirements		
Voltage	24 VDC (18 - 30 VDC)	
Current Max.	30 mA @ 24 VDC	
Optional	24 VDC/130 mA	
Relay		
Type	SPDT	
DC Rating	5 A @ 30 VDC	
AC Rating	5 A @ 250 VAC	
Failsafe	Relay energized when powered and not alarmed	
Isolated NPN Output (NPN output option)		
Current	50 mA	
V_{CE} (max @ 50 mA)	1.0 V	
BV_{CEo} (breakdown volts)	100 V	
P_D (max power overtemp)	100 m@W	
1_{CEo} (max leakage overtemp)	100 µA	
Failsafe	Transistor ON when powered and not alarmed	
Terminals/Connections		
VS-Series NEMA 4X	10 Feet of 6 conductor, unshielded cable, 22 AWG	
VS-Series XP	(2) 3 position screw-type terminal blocks	

Specifications subject to change without notice.

Enclosure	
VS-Series NEMA 4X	Cast Aluminum. NEMA 4X
VS-Series XP	Cast Aluminum, CSA approved, UL Rated: Class I - Group C, D; Class II - Group E, F, G; Class III; NEMA 4X
AC Rating	5 A @ 250 VAC
Failsafe	Relay energized when powered and not alarmed
Operating Temperature	
NPN Option	-40 °C to 85 °C (-40 °F to 185 °F)
Relay Option	-40 °C to 65 °C (-40 °F to 149 °F)
Weight	
VS-Series NEMA 4X	0.75 lb (0.34 kg)
VS-Series XP	5.70 lb (2.59 kg)
VS-Series XP (w/Window)	5.90 lb (2.68 kg)

Ordering

Model Description	Part Number
VS1 NPN Output (NEMA 4X)	800-096001
VS1 Relay Output (NEMA 4X)	800-096000
VS1 NPN Output (XP Housing)	800-096101
VS1 NPN Output (XP Housing w/Window)	800-096121
VS1 Relay Output (XP Housing)	800-096100
VS1 Relay Output (XP Housing w/Window)	800-096120
VS2 NPN Output (NEMA 4X)	800-096011
VS2 Relay Output (NEMA 4X)	800-096010
VS2 NPN Output (XP Housing)	800-096111
VS2 NPN Output (XP Housing w/Window)	800-096131
VS2 Relay Output (XP Housing)	800-096110
VS2 Relay Output (XP Housing w/Window)	800-096130

Customization

If one of our standard products does not meet your specifications, please call one of our applications specialists. Many of our products can be customized to fit specific needs.

Additional Information

See VS1/VS2/VS1 XP/VS2 XP Installation and Operating Manual for complete details, specifications, and programming instructions.