

Key Features

- 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 powered
- 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 trip-point setting, according to the alarm over/under switch setting. Each has 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.

Two rugged cast aluminum housing options are available for the VS1 and VS2: the compact NEMA 4X and the Class I and II rated explosion proof (XP). A separate 24 VDC power supply is also available.

Principle of Operation

VS1

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 non-rotating parts.

VS2

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 | 0.1 - 2.2 in/s rms 2.5 - 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 | |
| I _{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.

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| 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.