# EuroSwitch - Vibration Sensor

# VS-V1-WL Series Overview

## VS-V1-WL: Velocity 4-20mA ¦ Wireable Connection Head - Side Entry

The VS series of vibration sensors provide measurement of overall vibration levels being generated by all types of rotating machinery in Hazardous Areas, and can be directly connected to PLC, DCS and other industrial controllers.

The VS-V1-WL type are loop powered, 4-20mA output vibration sensors configured with a full scale velocity (RMS or Peak) of between 10 mm/s to 100mm/s (or 0.5 ips to 2 ips). This type has a 316 Stainless Steel Wireable Connection Head with a side entry for an M20 or 1/2" NPT conduit gland. This enables the field wiring connection to be made directly at the sensor in the hazardous area, thereby negating the requirement for a separate junction box, bracketry and additional glands. Secure cable connection is provisioned for with spring type anti vibration terminals for conductors upto 2.5mm².

Benefiting from state-of-the-art annular shear design, our VS series sensors provide better frequency response, improved base strain, lower noise, and an insensitivity to cable motion compared to the market competition.

It is available certified for Hazardous Area use including ATEX / IECEx / UL / CSA / TRCU & INMETRO.

## Physical Properties

| | |
|---|---|
| Body Style | Wireable (WL Series) |
| Body Material | 316 Stainless Steel |
| Connection | M20 x 1.5 or 1/2" NPT Conduit Entry |
| Mounting | Stud Mount - Options available |
| Sensing Element Type | Piezoelectric Shear |

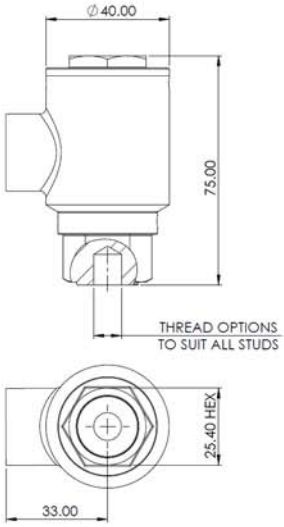
## Dynamic Specifications

| | |
|---|---|
| Output | Velocity |
| Output Type | 4-20mA (4mA = no vibration, 20mA = full scale) |
| Sensitivity | 10 mm/s - 100 mm/s or 0.5 ips - 2 ips (RMS or Peak) |
| Frequency Response | 3Hz to 1KHz ±10% |
| Accuracy (Repeatability) | 2% |

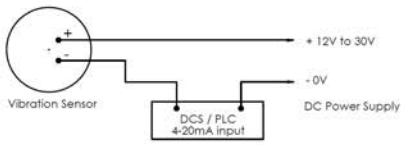
## Environmental & Certification

| | |
|---|---|
| Operating Temperature | -55°C to +90°C |
| Temperature Class (T Rating) | T4/T6 (Can also be used in T5 and T3) |
| Vibration Limit (Continous) | 250g |
| Shock Limit | 2500g peak |
| ESD Protection | > 40V |
| Environmental Protection | IP 66 / 67 ¦ NEMA 4X / 6P |
| Gas Group | IIC (Can also be used in IIA and IIB) |
| Dust Group | IIIC (Can also be used in IIIA and IIIB) |
| Hazardous Location | Zones 1, 2, 21 and 22 ¦ Class I & II Div 1 & 2 |

## Dimensions




## Connection




## Electrical

| | |
|---|---|
| Power Requirements | +10 to +30 VDC |
| Max Loop Resistance, RL | See note below |
| Turn on Time, 4-20mA loop | <15 sec |
| Grounding | Internally isolated from machine ground |
| Shielding | Internal Faraday shielding |
| Maximum Cable Length | 15 000 m |
| Protection | Overvoltage and Reverse Polarity |

| DC Supply Voltage | RL (Max Resistance)* | RL (Max Wattage Capability)** |
|---|---|---|
| 12 VDC | 100 Ω | 1/8 Watt |
| 24 VDC | 700 Ω | 1/2 Watt |
| 30 VDC | 1000 Ω | 1/2 Watt |

Max. Loop Resistance Calculation:

$$R_L\,(max) = \frac{(VDC\ supply - 10\,V) \times 1000}{20\ mA}$$

* Lower resistance is allowed, ≥ 10Ω recommended.
** Minimum RL wattage determined by: 0.0004 x RL