



VSW160

Vibration Switch

Switch - Indicator - Transmitter



VSW160 Electronic Vibration Switch provides essential protection for critical equipments like fans, pumps, motors, compressors, etc. It measures the vibration with inbuilt ICP accelerometer when Switch is mounted on the machine and generates relay output for Alarm or shutdown when vibration levels exceed the preset threshold value. VSW160 has rugged design suitable for harsh environments and hazardous areas of Zone 1 & 2, Gas Groups: IIA/ IIB & IIC.

VSW160 Electronic Vibration Switch is available in two options 1) with built in piezoelectric ICP 100mV/g Sensor or 2) With Remote piezoelectric ICP 100mV/g Sensor.

VSW160 has bright 3½ digit display and touch Sense Keys for Set point display & manual reset. Optional isolated 4-20mA analog output proportional to Acceleration or Velocity range is available to interface with PLC/DCS/RTU for centralized monitoring and protection.

VSW160 has two independent set points adjustable throughout the range by means of internal multi-turn potentiometers, Relay outputs driven by the set point comparators can be used for Alarm and Trip purpose, the relays are DIP switch configurable for normal or Fail safe Logic, the relays are latching type and resettable by the manual reset key on front or by remote contact closure.

VSW160 is a much more accurate and reliable replacement for the Mechanical vibration switches.

Features

- Switch-Indicator-Transmitter functionality
- Remote sensor or inbuilt sensor option
- Bright 3½ digit, 7 segment LED display
- Touch Sense Keys for Set point display & manual reset
- Measurement Parameters: Velocity, Acceleration
- Unit: RMS, Peak-to-Peak or Peak⁽¹⁾ (factory set)
- Precise isolated analog output 4-20mA (optional) for interfacing further to PLC, SCADA System or other instrumentation
- Relay output
- Protection: IP66, Flameproof (Explosion Proof) EX-d
- Area Classification: Zone 1 & 2, Gas Groups: IIA/ IIB & IIC
- Mounting: Machine mount or wall mount with remote sensor

Applications

- Protection of Fans, Pumps, Motors, Blowers etc
- Reliable Replacement of Mechanical type Vibration switches
- Ideal for CTID fan monitoring
- Gear boxes
- Blowers
- Compressors
- Pulp and paper machinery
- Conveyors

TECHNICAL SPECIFICATIONS

Input		Physical																																																			
Input Type	Inbuilt ICP Accelerometer 100mV/g Option: Remote ICP piezoelectric Accelerometer	Dimension (mm)	120(W) x 116 (D) x 120 (L)																																																		
	Sensitivity: 100 mV/g±10% Dynamic range: 80 g pk	Mounting	Machine mount Stud/Pad mount in case of Remote sensor																																																		
Sensor excitation current	4 mA Approx.	Type of Protection	IP66; Flameproof (Explosive Proof) Ex-d																																																		
Frequency range	2.5Hz, 5 Hz or 10Hz (Internal Switch selectable) to 1KHz, 2.5KHz or 10KHz (Internal Switch selectable)	Area Classification	Zone 1 & 2																																																		
I/P to Display Accuracy	±1.0% of Full Scale	Gas Group	IIA/IIIB & IIC																																																		
		Enclosure Material	Cast Aluminum Alloy LM-6																																																		
		Cable entry size/ No	M20 glands – 2 Nos																																																		
		Weight	1.2 Kg approx																																																		
		Dimension Drawing																																																			
<table><tr><th colspan="3">Measuring Parameter & Range</th></tr><tr><th>Parameter</th><th>Range</th><th>Resolution</th></tr><tr><td>Acceleration</td><td>0 to 5.0/ 10.0/ 15.0 / 20.0/ 30.0 (g) RMS/peak⁽¹⁾</td><td>0.1g</td></tr><tr><td>Velocity</td><td>0 to 12.5/ 25.0/ 50.0 / 100.0 (mm/sec) RMS/peak⁽¹⁾ or peak-peak⁽¹⁾</td><td>0.1mm/sec</td></tr></table> (1) Derived peak <table><tr><th colspan="2">Display & Keys</th></tr><tr><td>Display</td><td>0.3" - 3½ digit seven segment Red LED</td></tr><tr><td>Status</td><td>Power On (Red LED), Relay1 On (Red LED), Relay2 On (Red LED)</td></tr><tr><td>Keys</td><td>Touch sense keys: Reset, Set1, Set2</td></tr></table> <table><tr><th colspan="2">Output</th></tr><tr><td colspan="2">Relay Output</td></tr><tr><td>No of Relays</td><td>2 Nos.</td></tr><tr><td>Set point settings</td><td>Via trim pot inside the instrument</td></tr><tr><td>Relay contact Rating</td><td>5A @ 250VAC/30VDC</td></tr><tr><td colspan="2">Retransmission Output (Optional)</td></tr><tr><td>Retransmission Output</td><td>4-20 mA DC@ 500Ω Max.</td></tr><tr><td>Accuracy</td><td>±0.25% of Full Scale (Display to output)</td></tr></table> <table><tr><th colspan="2">Power Supply</th></tr><tr><td>Supply Voltage</td><td>85-265VAC, 50/60Hz/ 110VDC-300VDC Optional: 18-36 VDC</td></tr><tr><td>Power Consumption</td><td>5 VA max</td></tr></table> Isolation (Withstanding voltage) Between primary terminals* and secondary terminals**: At least 1500 V AC for 1 minute Between secondary terminals**: At least 500 V AC for 1 minute * Primary terminals indicate power terminals and relay output terminals. ** Secondary terminals indicate analog I/O Signal. Insulation resistance: 50MΩ or more @ 500 V DC between All terminals and grounding terminal <table><tr><th colspan="2">Environmental</th></tr><tr><td>Ambient Temperature</td><td>0 to 60 °C</td></tr><tr><td>Storage Temperature</td><td>0 to 85 °C</td></tr><tr><td>Operating Humidity Range</td><td>30 to 95% RH non-condensing</td></tr></table>				Measuring Parameter & Range			Parameter	Range	Resolution	Acceleration	0 to 5.0/ 10.0/ 15.0 / 20.0/ 30.0 (g) RMS/peak ⁽¹⁾	0.1g	Velocity	0 to 12.5/ 25.0/ 50.0 / 100.0 (mm/sec) RMS/peak ⁽¹⁾ or peak-peak ⁽¹⁾	0.1mm/sec	Display & Keys		Display	0.3" - 3½ digit seven segment Red LED	Status	Power On (Red LED), Relay1 On (Red LED), Relay2 On (Red LED)	Keys	Touch sense keys: Reset, Set1, Set2	Output		Relay Output		No of Relays	2 Nos.	Set point settings	Via trim pot inside the instrument	Relay contact Rating	5A @ 250VAC/30VDC	Retransmission Output (Optional)		Retransmission Output	4-20 mA DC@ 500Ω Max.	Accuracy	±0.25% of Full Scale (Display to output)	Power Supply		Supply Voltage	85-265VAC, 50/60Hz/ 110VDC-300VDC Optional: 18-36 VDC	Power Consumption	5 VA max	Environmental		Ambient Temperature	0 to 60 °C	Storage Temperature	0 to 85 °C	Operating Humidity Range	30 to 95% RH non-condensing
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		The technical drawing consists of two views: a Front View and a Bottom View. The Front View shows a circular instrument face with a diameter of 120 mm. It features two M20 cable glands for cable entry, each with a 10 mm diameter. There are two M6 mounting holes and two M20 plug-in terminals. The bottom view shows the base plate with a diameter of 120 mm and a thickness of 6.0 mm. It includes two earthing bolts and two M20 plug-in terminals. The overall dimensions are 120 mm (width) x 116 mm (depth) x 120 mm (height).																																																			

Ordering code												
Model	Sensor type		Vibration Range		Measurement Unit		Power supply		Retransmission o/p		Sensor Cable length ⁽⁴⁾	
VSW160	XX		XX		XX		XX		X		X	
	IN	Built in Sensor	1V	0-12.5 mm/sec	OR	RMS	U1	85-265 VAC/	Y	Yes	NA	Not applicable ⁽³⁾
	RM	Remote Sensor ⁽²⁾	2V	0-25 mm/sec	OP	Peak ⁽¹⁾		110-300 VDC	N	No	L1	5 meters unarmoured cable
			3V	0-50 mm/sec	PP	Peak to Peak ⁽¹⁾	U2	18-36 VDC			L2	10 meters unarmoured cable
			4V	0-100 mm/sec							L3	5 meters armoured cable
			1A	0-5 g							L4	10 meters armoured cable
			2A	0-10 g								
			3A	0-15 g								
			4A	0-20 g								
			5A	0-30 g								
			S	Special Range*								

* Consult factory

x Specify from Table

(2) To be ordered separately if required

(3) Not applicable in case of Built in sensor

(4) Applicable only if Remote Sensor ordered

Compatible Remote Sensor (Optional-On request)	
Sensor Mounting:	Stud/ Pad mounting
Sensor Type:	ICP
Sensor Output:	100mV/g