

SM6100 VIBRATION INPUT MONITOR

Datasheet

OVERVIEW

This single channel vibration monitor is a versatile instrument for protection against excessive vibration. In its standard configuration, the SM6100 is an economical single set point vibration monitor loaded with standard features and packaged in an industrial grade housing.

Fully configured, the SM6100 provides dual setpoint for machine protection with optional LCD readout, real time remote operator interface via 4-20 mA and an external BNC (weather-proof only) for easy analyst access to the buffered dynamic vibration signal. Optional hazardous area certifications.



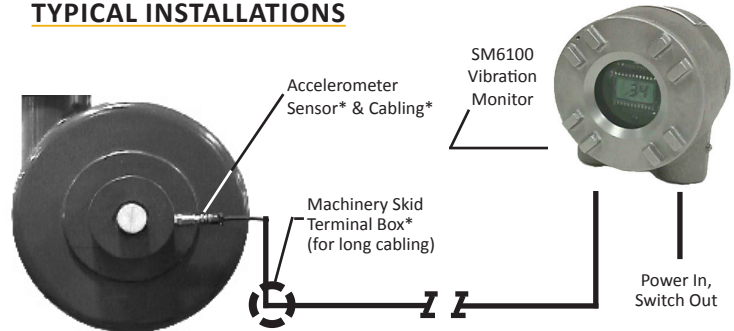
FEATURES

- Low cost protection system
- Weatherproof/optional explosion-proof rated
- Single or optional dual setpoint
- Velocity or displacement units
- Adjustable trip delay
- Setpoint test feature
- Buffered, dynamic vibration signal output for analysis option

APPLICATIONS

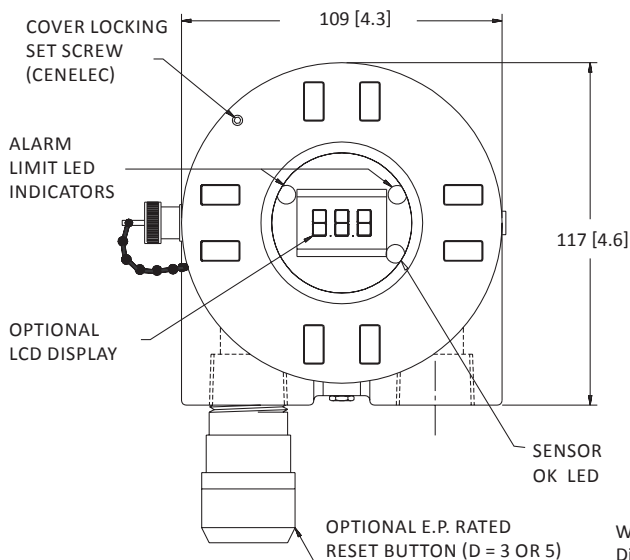
- Centrifugal Pumps
- Reciprocating Compressors
- Centrifuges
- Cooling Towers
- Gas Turbines
- Electric Motors
- Natural Gas/Diesel Engines

TYPICAL INSTALLATIONS

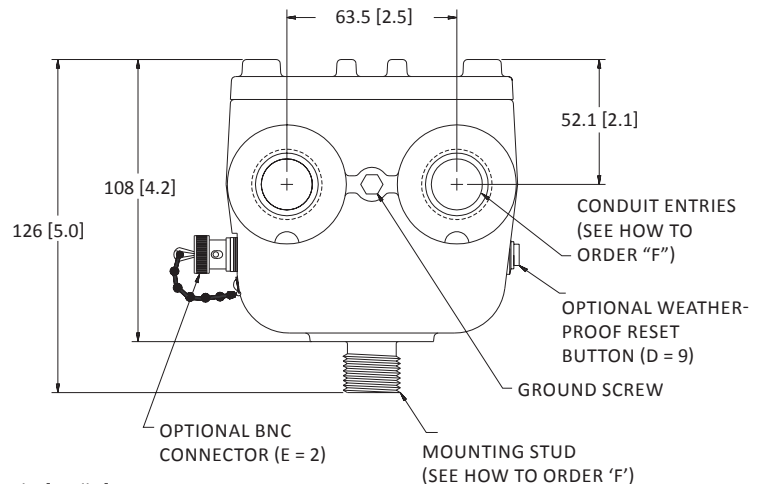


*Order separately

WEIGHT & DIMENSIONS



Weight: 2.2 kg [4.4 lbs]
Dimensions in mm [inches]



SPECIFICATIONS

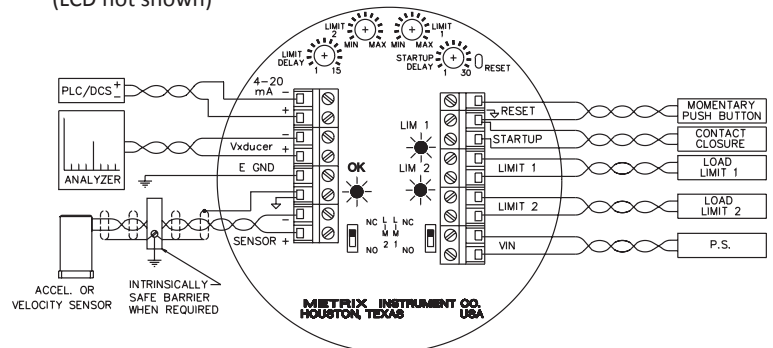
Sensor	External accelerometer, velometer or velocity transducer. See option 'G' in SM6100 Datasheet (doc # 1009514).
Signal Conditioner	Amplifier/ integrator to obtain velocity or displacement response. True RMS detection.
Maximum Vibration Limit	50 g, peak; 4 ips, peak. See option "B" for vibration ranges in SM6100 Datasheet (doc # 1009514).
Buffered Dynamic Signal	(Vxducer) (gain X1) 2 Hz to 3000 Hz (-3 dB). Capable of driving 300 meters (1000 feet) of shielded cable (0.03uF max).
Sensor OK Indicator	A green LED when illuminated indicates that the external sensor is connected.
Alarm Limit(s)	Single limit standard, second limit optional, Adjustable from -10% to 110% of range, 2% repeatability.
Trip Indicators	Limit 1, amber LED; Limit 2, red LED
Limit Trip Delay	Fully adjustable time delay of 1 - 15 seconds

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Triac Outputs	250 VAC, 1A, optically isolated, field selectable N.O. or N.C. Factory set @ N.C. position. Holding current 35 mA maximum at 25°C (60 mA at -40°C).

Optional FET Output	50 VDC, 0.5A, Field Selectable N.O. or N.C. Factory set @ N.C.
Startup Trip Delay	Standard delay is fixed at 30 seconds. Optional remotely retriggerable startup delay adjustable from 1 - 30 seconds.
Optional 4-20 mA Source Output	4-20 mA proportional to velocity or displacement. See option "B" in SM6100 Datasheet (doc # 1009514). Zero and Span calibrated $\pm 2\%$. Non-linearity less than 2%. 600 ohms max. load resistance.
Weight	2 Kg, (4.4 lbs).
Housing	Cast aluminum: Explosion-proof / weather proof. Stud mount: 1/2-14 NPT standard or optional M20 X 1.5 straight thread with jam nut. Other mountings available.
Conduit connections	3/4-14 NPT or M20 X 1.5 straight thread.
Input power	95 to 125 VAC, 190 to 250 VAC, 50/60 Hz, 5W max. or 20 to 28 VDC, 7W max. Power isolated from circuits.
Frequency Response	(vel) ± 3.0 dB 2 Hz to 3000 Hz (disp) ± 3.0 dB 2 Hz to 200 Hz
Temperature Limits	No Display: -40°C to +85°C, -20°C to +85°C (ATEX) w/Display: -10°C to +70°C
Output Sensitivity vs Temperature	Less than .05%/°C (calibrated at 25°C)
Alarm Test	Alarm limit adjustment to below 0% of range causes triac/FET actuation.
Field Wiring	Wire clamp type screw terminal block. Max. wire gauge: 14 AWG. 500 Vrms, circuit to case.
Hazard Rating	See option "D" in SM6100 Datasheet (doc # 1009514)
Environmental Rating	NEMA 4/4X, IP 65
Electromagnetic Compatibility	CE tested to EN61326-1:2006.
Optional Display	2 1/2 digit LCD. Window provided only with display version.
Reset	Standard internal switch, remote N.O. contacts or optional external switch.

USER WIRING DIAGRAMS

Fully Optioned
(LCD not shown)



ORDERING INFORMATION

A B B C - D E F G - H H H
SM6100-□□□□-□□□□-□□□□

A Limits and Displays	
Without Display	
1	one limit, triac
2	two limit, triacs
3	one limit, FET
4	two limits, FETs
With Display	
5	one limit, triac
6	two limit, triacs
7	one limit, FET
8	two limits, FETs

Note: Use triacs in motor starter circuits. FET transistor output(s) recommended for PLC DC inputs.

B	B	Full Scale Range
Velocity Response		
0	1	1 ips, pk
0	2	2 ips, pk
0	3	20 mm/sec, pk
0	4	50 mm/sec, pk
3	1	1.0 in/sec (25.4 mm/sec) true RMS
3	2	2.0 in/sec (50.8 mm/sec) true RMS
3	3	20 mm/sec (0.79 in/sec) true RMS
3	4	50 mm/sec (1.97 in/sec) true RMS
Displacement Response		
5	1	20 mils, (508 microns) peak
5	2	50 mils, (1270 microns) peak
6	1	200 microns, (7.87 mils) peak
6	2	500 microns, (19.69 mils) peak

C Input Power	
1	115 VAC, single phase, 50/60 Hz
2	230 VAC, single phase, 50/60 Hz
3	20 - 28 VDC

ACCESORIES

Part Number	7084-001
Name	Flange Mounting Adapter
Description	Stainless Steel adapter for surface mount the SW6000. 1/2" NPT center hole. Three equally spaced 6.6 (.26) diameter mount holes on 38 (1.50) diameter circle

D Certifications Local Reset Options	
2	CSA, US/C, Class I, Div 1, Groups B, C & D, T4A, NEMA 4/4X
3	CSA, US/C, Class I, Div 1, Groups B, C & D, T4A, NEMA 4/4X w/ external reset
4	ATEX/IECEX Ex d IIB + H ₂ T4 Gb
5	ATEX/IECEX Ex d IIB + H ₂ T4 Gb with external reset
8	Non-agency approved locations
9	Non-agency approved locations with external reset

E Input/Output Options	
0	No options
1	4-20 mA proportional to full scale range
2	External BNC for dynamic signal access*
3	Separate startup and monitor time delays
4	Options 1 & 2
5	Options 1 & 3
6	Options 2 & 3
7	Options 1, 2 & 3

* D= 8 or 9 only

F Mounting/Conduit Entries	
0	1/2" NPT stud mount/3/4" NPT conduit entry
1	M20 x 1.5 stud mount/M20 x 1.5 conduit entry

G Remote Sensor Type	
1	Accelerometer
2	Electro-mechanical velocity sensor
3	Piezo-electric velocity sensor

H	H	H	Input (mV) Sensor Sensitivity
For an Accelerometer (G=1)			
0	1	0	10 mV/g
1	0	0	100 mV/g
For a Velocity Sensor (G=2 or 3)			
1	0	0	100 mV/ips
1	0	5	105 mV/ips
1	4	5	145 mV/ips
1	5	0	150 mV/ips
2	0	0	200 mV/ips
5	0	0	500 mV/ips