Vibration sensor

VIM32PL-E1V64-0RE-I421V14

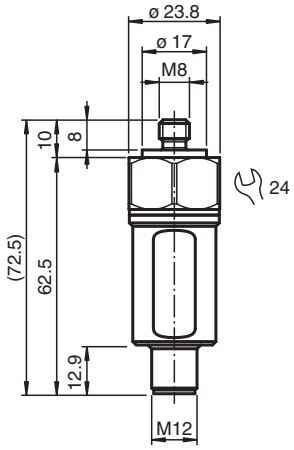
- Analog current output
- Screw-in thread for simple installation
- Simple electrical commissioning
- Rugged stainless steel housing
- Vibration velocity in mm/s via root mean square formation (rms)
- Switching output

Vibration sensor with switching output and analog current output

Function

The vibration sensor determines the vibration quantity using rms (root meas square) averaging. This form of quadratic averaging or pre-filtering enables precise trend statements about the condition of the application.
In addition, a switching output with preset switching characteristics is included. This means a permanent monitoring of the vibration measured value is not required, because a necessary maintenance of the plant is signalized directly. The switching characteristics are provided with a preset response time. Thus, the output is only set if the vibration event lasts longer than this time. Short-time vibration events are hence filtered out.
The simple mounting allows for commissioning in any application.

Dimensions



Technical Data

General specifications		
Type		Vibration sensor
Measuring technology		MEMS
Series		Performance Line
Measured variable		Vibration velocity
Measurement range		
Vibration velocity	v-rms	0 ... 64 mm/s
Measurement accuracy		± 0.1 mm/s (calibration point: 90% of the measuring range; 159.2 Hz) Complies with the tolerance requirements of DIN ISO 2954 for measurement range greater than 8 mm/s
Cross-sensitivity		< 5 % of the partial lateral acceleration, which acts exactly 90° to the measuring axis

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Technical Data

Frequency range		10 ... 1000 Hz
Averaging time		for v-rms: 2 s
Functional safety related parameters		
$MTTF_d$		329 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Electrical specifications		
Fusing		external fuse is required: 1 A , fast acting , 30 V DC
Operating voltage	U_B	18 ... 30 V DC
Current consumption		max. 220 mA
Power consumption	P_0	max. 6.6 W
Time delay before availability	t_v	2 s (rms filter is calculated intially with measurement data before they are available at the output)
Surge protection		up to 2 kV
Output 1		
Output type		analog output, current output of the vibration variable
Output current		4 ... 20 mA
Load resistor		≤ 500 Ω
Output 2		
Output type		PNP
Switching function		Normally closed (NC)
Operating current		≤ 100 mA
Voltage drop		< 2 V
Switching threshold		6.4 mm/s (10 % of the measuring range)
Preset response time		2 s (minimum time for a vibration event above the switching threshold so that the output switches)
Short-circuit protection		yes
Standard conformity		
Degree of protection		DIN EN 60529, IP66, IP67
Shock resistance		DIN EN 60068-2-27, 60 *g*, 6 ms
Vibration resistance		DIN EN 60068-2-6, 16.5 g, 10 ... 1000 Hz
Approvals and certificates		
UL approval		
Ordinary Location		E468231 cULus Listed, Class III Power Source and limited energy , if UL marking is marked on the product. For use in NFPA 70 Applications only. adapters providing field wiring on request
Maximum permissible ambient temperature		max. 80 °C (max. 176 °F)
Ambient conditions		
Ambient temperature		-40 ... 85 °C (-40 ... 185 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Connection type		plug
Housing material		Stainless steel 1.4305 / AISI 303
Degree of protection		IP66 / IP67 only in connected state
Connector		
Threading		M12
Number of pins		4
Mass		approx. 100 g
Dimensions		
Length		72.5 mm
Diameter		23.8 mm

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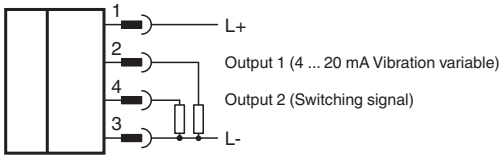
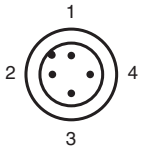
Connection



Connection Assignment



Accessories

Accessories for this product can be found on the internet at www.pepperl-fuchs.com.

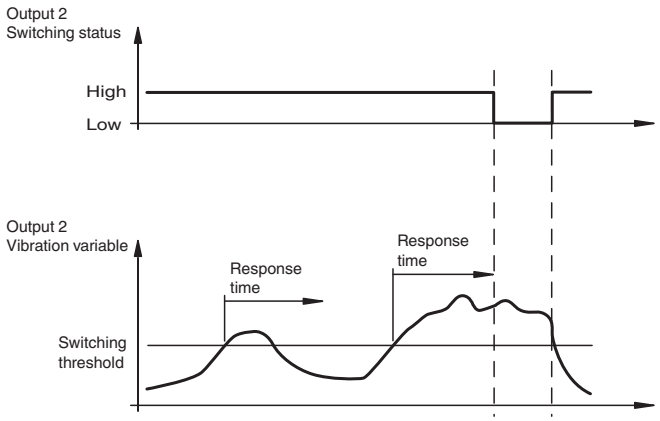
Installation

Further Documentation
The sensor manual is also available as detailed overall documentation. Among other things, installation, grounding concepts and mounting are described there in detail.
You can access the manual via the product detail page at www.pepperl-fuchs.com.

Note
The correct electrical connection and the selection of the appropriate grounding concept are crucial for malfunction-free operation of the sensor. For detailed information you may refer to the manual of the sensor.

Operation

Switching Characteristics



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