

# Vibration sensor

## VIM32PL-E1AC8-0RE-IO-1V1401



- Vibration velocity in mm/s (rms) acc. to DIN ISO 10816/20816
- Vibration acceleration in g (rms) acc. to DIN ISO 10816/20816
- IO-Link Interface for process data, parameterization and diagnosis
- Switching output and current output parameterizable
- Additional temperature value output
- Rugged stainless steel housing

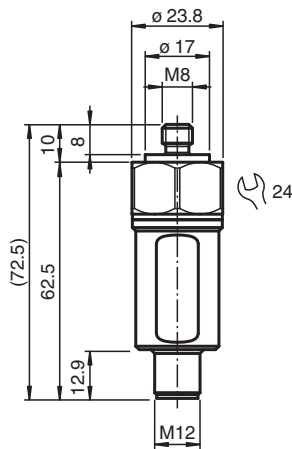
Vibration sensor with IO-Link and programmable switching output or analog current output



### Function

The vibration sensor determines the vibration quantity using rms (root mean square) averaging. This form of quadratic averaging or pre-filtering enables precise trend statements about the condition of the application. The integrated IO-Link interface provides an optimal adaptation to different applications through parameterization and process data transmission for condition monitoring. The simple mounting allows for commissioning in any application.

### Dimensions



### Technical Data

General specifications		
Type	Vibration sensor	
Measuring technology	MEMS capacitive	
Series	Performance Line	
Measured variable	Vibration velocity Vibration acceleration Temperature	
Measuring range		
Vibration velocity	v-rms	0 ... 128 mm/s
Vibration acceleration	a-rms	0 ... 10 g rms
Temperature		-40 ... 85 °C (-40 ... 185 °F)

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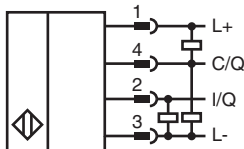
## Technical Data

Measurement accuracy		Vibration velocity: $\pm 0.1$ mm/s (calibration point: 90% of the measuring range; 159.2 Hz) Complies with the tolerance requirements of DIN ISO 2954 for measuring range greater than 8 mm/s Vibration acceleration: $\pm 0.01$ g (calibration point: 90% of the measuring range; 159.2 Hz) Complies with the tolerance requirements of DIN ISO 2954
Cross-sensitivity		< 5 % of the partial lateral acceleration, which acts exactly 90° to the measuring axis
Resolution		Vibration velocity: 0.01 mm/s Vibration acceleration: 0.01 g
Frequency range		10 ... 1000 Hz
Averaging time		for v-rms: 2 s for a-rms: 2 s
Sampling rate		8 kHz
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		329 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
<b>Electrical specifications</b>		
Fusing		external fuse is required: 1 A , fast acting , 30 V DC
Operating voltage	U <sub>B</sub>	18 ... 30 V DC
Current consumption		max. 700 mA
Power consumption	P <sub>0</sub>	max. 21 W
Time delay before availability	t <sub>v</sub>	≤ 1 s
Surge protection		up to 2 kV
<b>Interface</b>		
Interface type		IO-Link (via C/Q = Pin 4)
IO-Link revision		1.1
Device profile		Identification and Diagnosis - I&D
Process data		Input 16 Byte measurement channels: - rms value velocity - peak value acceleration - rms value acceleration - temperature per measurement channel: - measurement value 2 Byte - scaling 8 Bit - switching signals 2 Bit status data
Vendor ID		1 (0x0001)
Device ID		5308417 (0x510001)
Transfer rate		COM2 (38.4 kBit/s)
Min. cycle time		5 ms
SIO mode support		yes
Compatible master port type		Class A Class B (use 3-pole adapter or 3-wire cable)
<b>Output 1</b>		
Output type		C/Q - Pin 4 in SIO mode (switching signal of the measured variable is programmable)
Switching function		Normally open/closed (NO/NC)
Operating current		≤ 100 mA
Short-circuit protection		yes
<b>Output 2</b>		
Output type		I/Q - pin 2 (parameterizable as analog current output or switching signal) - I: analog output for the measured variable, current 4 ... 20 mA - Q: switching signal of the measured variable is parameterizable, PNP normally open
Switching function		Normally open/closed (NO/NC)
Operating current		≤ 120 mA for switching signal
Voltage drop		< 2 V
Output current		4 ... 20 mA at analog output
Load resistor		≤ 500 Ω at analog output
Short-circuit protection		yes

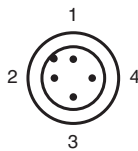
## Technical Data

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
Vibration evaluation	DIN ISO 10816/20816
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

## Connection



## Connection Assignment



## Accessories

Accessories for this product can be found on the internet at [www.pepperl-fuchs.com](http://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](http://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.