Vibration sensor

VIM32PL-E1AC8-0RE-IO-1V1401

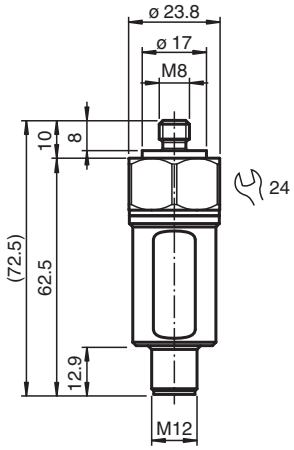
- Vibration velocity in mm/s (rms) acc. to DIN ISO 10816/20816
- Vibration acceleration in g (rms) acc. to DIN ISO 10816/20816
- IO-Link Interface for process data, parameterization and diagnosis
- Switching output and current output parameterizable
- Additional temperature value output
- Rugged stainless 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 meas 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 adaption 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
Measurement range		
Vibration velocity	v-rms	0 ... 128 mm/s
Vibration acceleration	a-rms	0 ... 10 g rms
Temperature		-40 ... 85 °C (-40 ... 185 °F)

Release date: 2024-05-03 Date of issue: 2024-05-03 Filename: 70140695-100001_eng.pdf

Technical Data

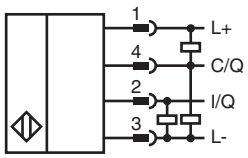
Measurement accuracy		Vibration velocity: ± 0.1 mm/s (calibration point: 90% of the measuring range; 159.2 Hz) Complies with the tolerance requirements of DIN ISO 2954 for measurement range greater than 8 mm/s Vibration acceleration: ± 0.01 g (calibration point: 90% of the measuring range; 159.2 Hz) 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
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. 700 mA
Power consumption	P_0	max. 21 W
Time delay before availability	t_v	≤ 1 s
Surge protection		up to 2 kV
Interface		
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)
Output 1		
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
Output 2		
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

Release date: 2024-05-03 Date of issue: 2024-05-03 Filename: 70140695-100001_eng.pdf

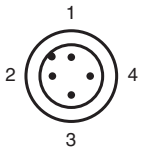
Technical Data

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.

Release date: 2024-05-03 Date of issue: 2024-05-03 Filename: 70140695-100001_eng.pdf

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.

Release date: 2024-05-03 Date of issue: 2024-05-03 Filename: 70140695-100001_eng.pdf