

# Vibration sensor

## VIM82PU-S1V16-2AE-I422M28



- Suitable for SIL2/PLd applications
- Rugged stainless steel housing
- Vibration velocity in mm/s via root mean square formation (rms)
- 2 relay outputs for safety functions with adjustable switching thresholds, allowing pre- and main alarm

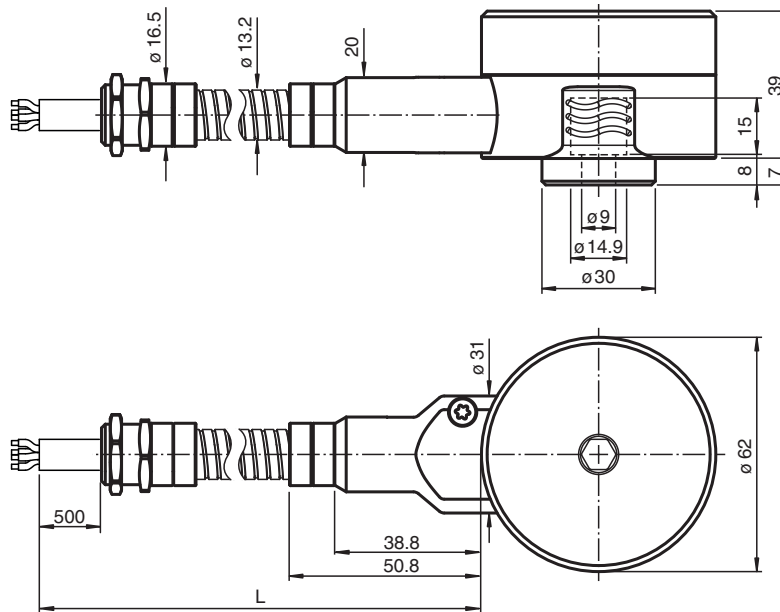
Vibration sensor with safety function both for the analog current output and for the 2 relay outputs with adjustable switching thresholds



### 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 vibration sensor has a safety integrity level (SIL 2) for usage in functional safety applications. For monitoring tasks within the scope of functional safety, 2 relay outputs with adjustable switching thresholds are available. With simultaneous evaluation of both relay outputs by a controller, monitoring of a pre-alarm and main alarm thus is possible, e.g. as part of Condition Monitoring.

### Dimensions



### Technical Data

#### General specifications

Type	Vibration sensor
Measuring technology	MEMS
Series	Pure Line

Release date: 2023-08-03 Date of issue: 2023-08-03 Filename: 70141684-100000\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**PF** PEPPERL+FUCHS

## Technical Data

Measured variable		Vibration velocity
Measurement range		
Vibration velocity	v-rms	0 ... 16 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
Frequency range		10 ... 1000 Hz
Averaging time		for v-rms: 2 s
<b>Functional safety related parameters</b>		
Safety Integrity Level (SIL)		SIL 2
Performance level (PL)		PL d
Category		Cat. 2
MTTF <sub>d</sub>		329 a
Mission Time (T <sub>M</sub> )		10 a
Diagnostic Coverage (DC)		min. 90 %
<b>Indicators/operating means</b>		
Status indicator		6 LEDs for operating states
Control elements		4 rotary switches and 1 push button for programming
<b>Electrical specifications</b>		
Fusing		external fuse is required: 3 A , semi-time-lag , 30 V DC
Operating voltage	U <sub>B</sub>	24 V DC + 7 % / - 10 %
Current consumption		max. 100 mA
Power consumption	P <sub>0</sub>	2.6 W
Time delay before availability	t <sub>v</sub>	15 s (initially self-test functions are executed before safe measured values are available at the output)
Surge protection		up to 2 kV
<b>Output 1</b>		
Output type		relay
Switching function		Normally open (NO)
Switching voltage		max. 30 V DC
Switching current		max. 1 A
<b>Output 2</b>		
Output type		relay
Switching function		Normally open (NO)
Switching voltage		max. 30 V DC
Switching current		max. 1 A
<b>Output 3</b>		
Output type		analog output, current output of the vibration variable
Output rated operating current		4 ... 20 mA
Load resistor		≤ 500 Ω
<b>Standard conformity</b>		
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
Functional safety		DIN EN IEC 61508 , SIL 2 EN ISO 13849 , PL d
<b>Approvals and certificates</b>		
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. 60 °C (max. 140 °F)
<b>Ambient conditions</b>		

Release date: 2023-08-03 Date of issue: 2023-08-03 Filename: 70141684-100000\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

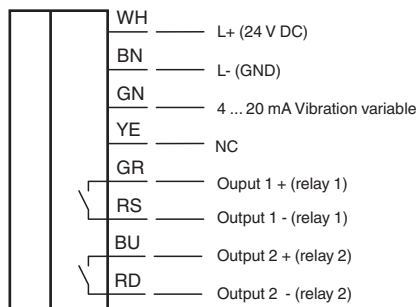
Pepperl+Fuchs Group  
www.pepperl-fuchs.comUSA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.comGermany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.comSingapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**PEPPERL+FUCHS**

## Technical Data

Ambient temperature		-35 ... 60 °C (-31 ... 140 °F)
Measuring head temperature		-35 ... 125 °C (-31 ... 257 °F) directly at the mounting point
Storage temperature		-35 ... 60 °C (-31 ... 140 °F)
<b>Mechanical specifications</b>		
Connection type		cable
Housing material		Stainless steel 1.4305 / AISI 303
Housing length		77.3 mm
Housing width		62 mm
Housing height		46 mm
Degree of protection		IP66 / IP67 only in connected state and correctly mounted housing cover
Cable		
Number of cores		8
Length	L	2 m
Cable protection		Flexible metal conduit
Mass		1280 g
<b>General information</b>		
Scope of delivery		1 x allen head screw M8 x 20 1 x spring washer M8 1 x seal label

## Connection



## 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.

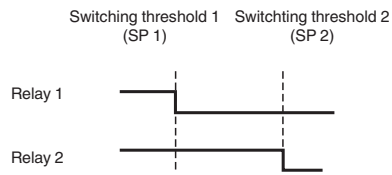
You can access the manual via the product detail page at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

### 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.









## Programming

### Adjustable relay outputs



critical state = pre-alarm from SP1/main alarm from SP2 = relay is open = like de-energized state

## Accessories

	<b>RSL8-CS-SC-M55P200</b>	Protective rubber sleeve for VIM8* vibration sensors against ingress of moisture and mechanical effects
	<b>MONAD-M08-1,25-M08-1,25K/368</b>	Mounting adapter for VIM3*/VIM6*/VIM8* vibration sensors, internal thread M8 x 1.25 x 10, external thread M8 x 1.25, screw-in depth 19.5
	<b>MONAD-M08-1,25-M30-3,5/368</b>	Mounting adapter for VIM3*/VIM6*/VIM8* vibration sensors, internal thread M8 x 1.25 x 10, external thread M30 x 3.5, screw-in depth 45
	<b>MONAD-M08-1,25-M20-2,5/368</b>	Mounting adapter for VIM3*/VIM6*/VIM8* vibration sensors, internal thread M8 x 1.25 x 10, external thread M20 x 2.5, screw-in depth 34
	<b>MONAD-M08-1,25-M10-1,5/8</b>	Mounting adapter for VIM3*/VIM6* vibration sensors, internal thread M8 x 1.25 x 10, external thread M10 x 1.5, screw-in depth 18
	<b>MONAD-M08-1,25-M12-1,75/8</b>	Mounting adapter for VIM8* vibration sensors, internal thread M8 x 1.25 x 10, external thread M12 x 1.75, screw-in depth 21
	<b>MONAD-M08-1,25-M16-2,0/368</b>	Mounting adapter for VIM3*/VIM6*/VIM8* vibration sensors, internal thread M8 x 1.25 x 10, external thread M16 x 2.0, screw-in depth 27
	<b>MONAD-M08-1,25-M24-3,0/368</b>	Mounting adapter for VIM3*/VIM6*/VIM8* vibration sensors, internal thread M8 x 1.25 x 10, external thread M24 x 3.0, screw-in depth 40

Release date: 2023-08-03 Date of issue: 2023-08-03 Filename: 70141684-100000\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

 **PEPPERL+FUCHS**