

Vibration sensor

VIM82PL-S1V16-2CE-I422C28



- Suitable for SIL2/PId applications
- Rugged stainless steel housing
- Vibration velocity in mm/s via root mean square formation (rms)
- Suitable for use in hazardous area up to Zone 2/21 with type of protection increased safety and for Class I/II and Division 2

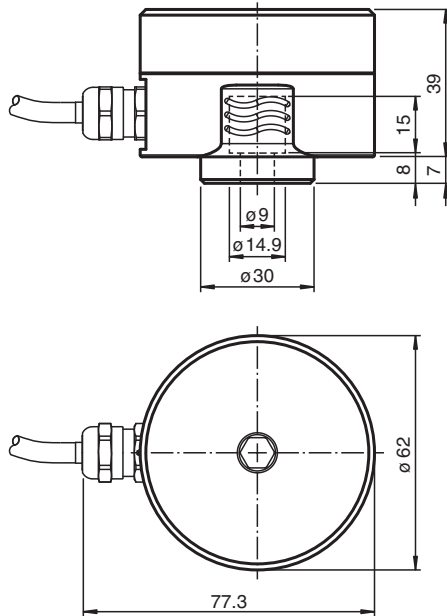
Vibration sensor with safety function both for the analog current output and for the 2 relay outputs with adjustable switching thresholds



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. Furthermore there is an approval for the use of the sensor in hazardous areas.

Dimensions



Technical Data

General specifications

Type	Vibration sensor
Measuring technology	MEMS

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

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Technical Data

Series	Performance Line	
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	
Functional safety related parameters		
Safety Integrity Level (SIL)	SIL 2	
Performance level (PL)	PL d	
Category	Cat. 2	
MTTF _d	329 a	
Mission Time (T _M)	10 a	
Diagnostic Coverage (DC)	min. 90 %	
Indicators/operating means		
Status indicator	6 LEDs for operating states	
Control elements	4 rotary switches and 1 push button for programming	
Electrical specifications		
Fusing	external fuse is required: 3 A , semi-time-lag , 30 V DC	
Operating voltage	U _B	24 V DC + 7 % / - 10 %
Current consumption	max. 100 mA	
Power consumption	P ₀	2.6 W
Time delay before availability	t _v	15 s (initially self-test functions are executed before safe measured values are available at the output)
Surge protection	up to 2 kV	
Output 1		
Output type	relay	
Switching function	Normally open (NO)	
Switching voltage	max. 30 V DC	
Switching current	max. 1 A	
Output 2		
Output type	relay	
Switching function	Normally open (NO)	
Switching voltage	max. 30 V DC	
Switching current	max. 1 A	
Output 3		
Output type	analog output, current output of the vibration variable	
Output rated operating current	4 ... 20 mA	
Load resistor	≤ 500 Ω	
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	
Functional safety	DIN EN IEC 61508 , SIL 2 EN ISO 13849 , PL d	
Approvals and certificates		
IECEx approval		
Equipment protection level Gc	IECEx ULD 22.0031X	
Equipment protection level Dc	IECEx ULD 22.0031X	
ATEX approval		

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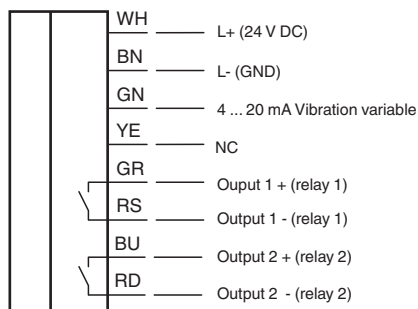
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Technical Data

Equipment protection level Gc		UL 22 ATEX 2870 X
Equipment protection level Dc		UL 22 ATEX 2870 X
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
Hazardous Location		E106378
Maximum permissible ambient temperature		max. 60 °C (max. 140 °F)
Control drawing		116-0493
Ambient conditions		
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)
Mechanical specifications		
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
Mass		880 g
General information		
Scope of delivery		1 x allen head screw M8 x 20 1 x spring washer M8 1 x seal label
Use in the hazardous area		see instruction manuals Only use accessories specified by the manufacturer.

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.

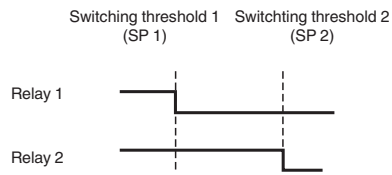
You can access the manual via the product detail page at www.pepperl-fuchs.com.

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

	RSL8-CS-SC-M55P200	Protective rubber sleeve for VIM8* vibration sensors against ingress of moisture and mechanical effects
	MONAD-M08-1,25-M08-1,25K/368	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
	MONAD-M08-1,25-M30-3,5/368	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
	MONAD-M08-1,25-M20-2,5/368	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
	MONAD-M08-1,25-M10-1,5/8	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
	MONAD-M08-1,25-M12-1,75/8	Mounting adapter for VIM8* vibration sensors, internal thread M8 x 1.25 x 10, external thread M12 x 1.75, screw-in depth 21
	MONAD-M08-1,25-M16-2,0/368	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
	MONAD-M08-1,25-M24-3,0/368	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

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