Vibration sensor

VIM32PL-E1AC8-0RE-IO-1V1401

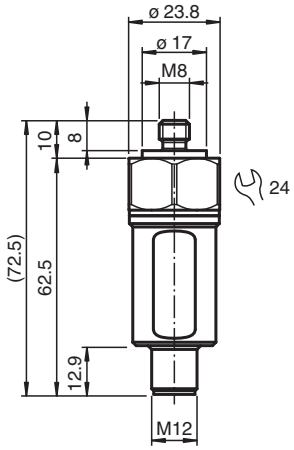
- Vibration velocity in mm/s via root mean square formation (rms)
- Vibration acceleration in g via root mean square formation (rms)
- IO-Link Interface for process data, parameterization and diagnosis
- Switching output and current output parameterizable
- Additional temperature value output
- Rugged 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
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)

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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
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 rated operating current		4 ... 20 mA at analog output
Load resistor		≤ 500 Ω at analog output
Short-circuit protection		yes
Standard conformity		

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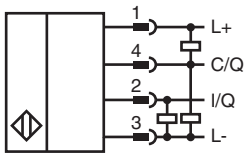
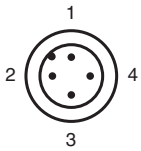
Degree of protection	DIN EN 60529, IP66, IP67
Shock resistance	DIN EN 60068-2-27, 60 *g*, 6 ms
Vibration resistance	DIN EN 60068-2-6, 16.5 g, 10 ... 1000 Hz
Approvals and certificates	
UL approval	
Ordinary Location	E468231 cULus Listed, Class III Power Source and limited energy , if UL marking is marked 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 ... 60 °C (-40 ... 140 °F)
Mechanical specifications	
Connection type	plug
Housing material	Stainless steel 1.4305 / AISI 303
Housing length	72.5 mm
Housing diameter	23.8 mm
Degree of protection	IP66 / IP67 only in connected state
Connector	
Threading	M12
Number of pins	4
Mass	approx. 100 g

Connection



Connection Assignment



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.

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Matching System Components

	**BTC12-CBL-DC-JACK-2100**	Connecting cable for BTC12 and BTC14

Accessories

	**EMCAD-M08-1,25-M08-1,25/36**	EMC adapter for VIM3*/VIM6* vibration sensors, internal thread M8 x 1.25 x 10, external thread M8 x 1.25, screw-in depth 8
	**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-M10-1,5/36**	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-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
	**RSL3-CS-SC-M55P200**	Protective rubber sleeve for VIM3* vibration sensors against ingress of moisture and mechanical effects
	**MONAD-M08-1,25-1,2Z-BSPT/36**	Mounting adapter for VIM3*/VIM6* vibration sensors, internal thread M8 x 1.25 x 10, external thread NPT1/2", screw-in depth 24
	**V1-G-BK2M-PUR-U-V1-G**	Cordset M12 socket straight to M12 plug straight A-coded, 4-pin, PUR cable black, UL-approved, drag chain suitable, torsion resistant
	**V1-G-BK5M-PUR-U-V1-G**	Cordset M12 socket straight to M12 plug straight A-coded, 4-pin, PUR cable black, UL-approved, drag chain suitable, torsion resistant
	**V1-G-BK10M-PUR-U-V1-G**	Cordset M12 socket straight to M12 plug straight A-coded, 4-pin, PUR cable black, UL-approved, drag chain suitable, torsion resistant
	**V1-G-0,6M-PUR-V1-G**	Cordset M12 socket straight to M12 plug straight A-coded, 4-pin, PUR cable grey
	**IO-Link-Master02-USB**	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection
	**ICE1-8IOL-G60L-V1D**	Ethernet IO-Link module with 8 inputs/outputs
	**ICE1-8IOL-G30L-V1D**	Ethernet IO-Link module with 8 inputs/outputs
	**ICE2-8IOL-G65L-V1D**	EtherNet/IP IO-Link master with 8 inputs/outputs
	**ICE3-8IOL-G65L-V1D**	PROFINET IO IO-Link master with 8 inputs/outputs
	**ICE2-8IOL-K45S-RJ45**	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	**ICE3-8IOL-K45P-RJ45**	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals
	**ICE3-8IOL-K45S-RJ45**	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal

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Accessories

	**ICE2-8IOL-K45P-RJ45**	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors
	**V1-G-BK0,6M-PUR-U-V1-G**	Cordset M12 socket straight to M12 plug straight A-coded, 4-pin, PUR cable black, UL-approved, drag chain suitable, torsion resistant
	**MONAD-M08-1,25-M06-1,0/36**	Mounting adapter for VIM3*/VIM6* vibration sensors, internal thread M8 x 1.25 x 10, external thread M6 x 1.0, screw-in depth 10
	**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-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-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-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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