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# Vibration sensor





- Suitable for SIL2/Pld applications
- Rugged stainless steel housing
- Vibration velocity in mm/s via root mean square formation (rms)
- Suitable for use in harzadous 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 swichting thresholds

















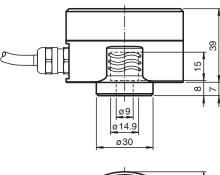
### **Function**

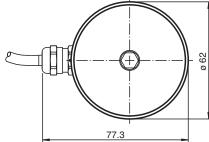
The vibration sensor determines the vibration quantity using rms (root meas square) averaging. This form of quadratic averaging or pre-filtering enables precise trend statements about the condition of the application.

The 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**

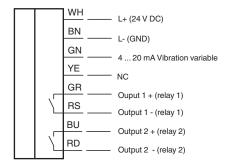
General specifications	
Туре	Vibration sensor
Measuring technology	MEMS

Greater than 8 mm/s	Technical Data		
Measured variable         Vibration velocity           Measurement range         Vibration velocity         Vmms         0 16 mm/s           Measurement accuracy         0 16 mm/s         0 16 mm/s           Measurement accuracy         2 .0.1 mm/s (calibration point: 90% of the measuring range; 159.2 Hz) Complies with the tolerance requirements of DNI SIO 2984 for measurement range greater than 8 mm/s mm/s and requirements of DNI SIO 2984 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			
Measurement range Vibration velocity  Measurement accuracy  Measurement accuracy  Cross-sensitivity  Cross-			
Weature velocity	Measured variable		Vibration velocity
ms	Measurement range		
Conglies with the tolerance requirements of DIN ISO 2954 for measurement range greater than 8 min's Cross-sensitivity	Vibration velocity		0 16 mm/s
Frequency range         101000 Hz           Averaging time         for v-ms: 2 s           For found a stety related parameters         For the property of the parameters           Safety Integrity Level (SIL)         SIL 2           Performance level (PL)         PL d           Cata 2         MTFF,         329 a           Mission Time (T <sub>N</sub> )         10 a           Diagnostic Coverage (DC)         min. 90 %           Indicators/operating means         5 LEDs for operating states           Control elements         4 rolary switches and 1 push button for programming           Electrical specifications         external fuse is required; 3 A, semi-time-lag, 30 V DC           Operating voltage         Ug         24 V DC + 7 % / - 10 %           Operating voltage         Ug         24 V DC + 7 % / - 10 %           Ourset consumption         Pa         2.6 W           Time delay before availability         tg         15 s (initially self-lest functions are executed before safe measured values are available at the output)           Surge protection         pa         2.6 W           Switching function         Normally open (NO)           Switching function         Normally open (NO)           Switching function         Normally open (NO)           Switching function         Norm	Measurement accuracy		Complies with the tolerance requirements of DIN ISO 2954 for measurement range
Averaging time   for v-rms: 2 s	Cross-sensitivity		$<\!5\%$ of the partial lateral acceleration, which acts exactly 90° to the measuring axis
Safety Integrity Level (SIL)   SIL 2	Frequency range		10 1000 Hz
Safety Integrity Level (SIL)         SIL 2           Performance level (PL)         Pt d           Cataegory         Cat. 2           MTTFa         329 a           Mission Time (Ta)         10 a           Diagnostic Coverage (DC)         min. 90 %           Indicators/operating means         Status indicator           Status indicator         6 LEDs for operating states           Control elements         4 rotary switches and 1 push button for programming           Electrical specifications         washer of the size required: 3 A, semi-time-lag, 30 V DC           Operating voltage         Ua         24 V Dc + 7 % / - 10 %           Current consumption         max. 100 mA           Power consumption         Po         2.6 W           Surge protection         up to 2 kV           Usual type         relay           Switching function         Normally open (NO)           Switching function         max. 30 V DC           Switching current         max. 30 V DC           Switching function         Normally open (NO)           Switching function         Normally open (NO)           Switching function         Normally open (NO)           Switching current         max. 1 A           Output type         relay	Averaging time		for v-rms: 2 s
Performance level (PL)         PL d           Category         Cat. 2           MTTF₀         329 a           Mission Time (T₂)         10 a           Diagnostic Coverage (DC)         min. 90 %           midicators/operating means         6 LEDs for operating states           Status indicator         6 LEDs for operating states           Control elements         4 rotary switches and 1 push button for programming           Electrical specifications         external fuse is required: 3 A , semi-time-lag , 30 V DC           Operating voltage         Ua         24 V DC + 7 % / - 10 %           Current consumption         max. 100 mA           Power consumption         Po         2.6 W           Time delay before availability         t, 5 c (initially self-tast functions are executed before safe measured values are available if the output)           Surge protection         up to 2 kV           Dutput 1         velay           Switching voltage         max. 30 V DC           Switching current         max. 1 A           Dutput type         relay           Switching function         Normally open (NO)           Switching current         max. 1 A           Dutput type         relay           Switching function         none controlled to the vibrat	Functional safety related parameters		
Cate gory         Cat. 2           MTTF <sub>4</sub> 329 a           Mission Time (T <sub>M</sub> )         10 a           Diagnostic Coverage (DC)         min. 90 %           ndicators/operating means         Status indicator           Control elements         4 rotary switches and 1 push button for programming           Electrical specifications         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>1</sub> 15 s (initially self-test functions are executed before safe measured values are available at the output)           Surge protection         up to 2 kV           Dutput 1         1           Output type         relay           Switching function         Normally open (NO)           Switching ourset         max. 3 V DC           Switching urgent         max. 30 V DC           Switching voltage         max. 30 V DC           Switching urgent         analog output, current           Outpu	Safety Integrity Level (SIL)		SIL 2
MTTF <sub>4</sub> 329 a  Mission Time (T <sub>bb</sub> )   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 <sub>B</sub> 24 V DC + 7 % / 1 0 %  Current consumption   max. 100 mA  Power consumption   P <sub>0</sub> 2.6 W  Time delay before availability   U <sub>s</sub> 15 s (initially self-test functions are executed before safe measured values are available at the output)  Output 1  Output 1  Output 1  Output 1  Output 10  Switching function   Normally open (NO)  Switching voltage   max. 30 V DC  Switching outrent   max. 1 A  Dutput 2  Output 1ype   relay  Switching function   Normally open (NO)  Switching current   max. 1 A  Dutput 3  Output 3  Output 13  Output 13  Output 14  Output 2  Output 15  Output 15  Output 15  Output 16  Output 17  Output 17  Output 17  Output 17  Output 18  Output 3  Output 3  Output 3  Output 3  Output 3  Output 10  Output 10	Performance level (PL)		PL d
Mission Time (T <sub>IN</sub> )         10 a           Diagnostic Coverage (DC)         min. 90 %           midicators/operating means         6 LEDs for operating states           Status indicator         6 LEDs for operating states           Control elements         4 rotary switches and 1 push button for programming           Electrical specifications         Fusing           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         po 2.6 W           Power consumption         P <sub>0</sub> 2.6 W           Furner consumption         po 2.6 W           Surge protection         up to 2 kV           Surge protection         up to 2 kV           Output type         relay           Switching function         Mormally open (NO)           Switching voltage         max. 30 V DC           Switching current         max. 1 A           Output type         relay           Switching function         Normally open (NO)           Switching current         max. 1 A           Dutput type         relay           Switching current         max. 1 A           Dutput type         analog output, current output of the vibration variable <td>Category</td> <td></td> <td>Cat. 2</td>	Category		Cat. 2
Diagnostic Coverage (DC)   min. 90 %	MTTF <sub>d</sub>		329 a
Indicators/operating means           Status indicator         6 LEDs for operating states           Control elements         4 rotary switches and 1 push button for programming           Electrical specifications         external fuse is required: 3 A , semi-time-lag , 30 V DC           Operating voltage         Up         24 V DC + 7 % / - 10 %           Current consumption         max. 100 mA           Power consumption         Po         2.6 W           Time delay before availability         t, a signification availability available at the output)         15 s (initially self-test functions are executed before safe measured values are available at the output)           Surge protection         up to 2 kV           Dutput 1         relay           Switching function         Normally open (NO)           Switching voltage         max. 30 V DC           Switching gurrent         max. 1 A           Dutput 1 ype         relay           Switching function         Normally open (NO)           Switching function         Normally open (NO)           Switching gurrent         max. 30 V DC           Switching output of yee         analog output, current           Dutput type         output type           Output type         analog output, current           Output current	Mission Time (T <sub>M</sub> )		10 a
Status indicator         6 LEDs for operating states           Control elements         4 rotary switches and 1 push button for programming           Electrical specifications         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         P <sub>O</sub> 2.6 W           Power consumption         P <sub>O</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           Dutput 1         Telay           Switching function         Normally open (NO)           Switching ourent         max. 30 V DC           Switching current         max. 30 V DC           Switching function         Normally open (NO)           Switching function         Normally open (NO)           Switching current         max. 30 V DC           Standard conformity         Soo Ω           Degree of protection         Din En 6052	Diagnostic Coverage (DC)		min. 90 %
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 <sub>B</sub> 24 V DC + 7 % / - 10 %  Current consumption max. 100 mA  Power consumption P <sub>O</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  Dutput 1  Output type relay  Switching function Normally open (NO)  Switching current max. 30 V DC  Switching function Normally open (NO)  Switching function Normally open (NO)  Switching function Normally open (NO)  Switching voltage max. 30 V DC  Switching function Normally open (NO)  Switching function Normally open (NO)  Switching unrent max. 1 A  Dutput 2  Output type anal. 1 A  Dutput 3  Output type anal. 2 A  Switching voltage anal. 3 O V DC  Switching voltage anal. 3 O V DC  Switching voltage anal. 1 A  Dutput 3  Output type anal. 1 A  Dutput 3  Output type anal. 1 A  Dutput 5  Switching current output of the vibration variable  Output current 1 4 20 mA  Load resistor \$ 500 Ω  Standard conformity  Degree of protection DIN EN 60529, IP66, IP67  Shock resistance DIN EN 60582-27, 60 g, 6 ms  Vibration resistance DIN EN 6068-2-67, 60 g, 6 ms  DIN EN 6058-2-67,	ndicators/operating means		
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 <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>1</sub> a 15 s (initially self-test functions are executed before safe measured values are available at the output)  Surge protection up to 2 kV  Dutput 1  Output type relay Switching function Normally open (NO) Switching ourrent max. 1 A  Output 1  Output type Output 1  Output 19  Output 19  Output 2  Output 19  Output 19  Output 19  Output 19  Output 19  Output 2  Output 19  Output 19  Output 19  Output 19  Output 19  Output 19  Output 2  Output 19  Output 2  Output 19  Output 19  Output 19  Output 2  Output 19  Output 19  Output 2  Output 19  Output 2  Output 19  Output 19  Output 2  Output 19  Output 3  Output 2  Output 19  Output 2  Output 3  Output 3  Output 3  Output 19  Output 19  Output 19  Output 19  Output 19  Output 19  Output 2  Output 19  Output 19  Output 2  Output 19  Output 19  Output 2  Output 2  Output 2  Output 3  Output 3  Output 3  Output 3  Output 3  Output 4  Output 19  Output 5  Output 19  Output 19  Output 19  Output 19  Output 19  Output 19  Output 2  Output 2  Output 19  Output 2  Output 2  Output 2  Output 3  Output 3  Output 3  Output 4  Output 19  Output 5  Output 5  Output 19  Output	Status indicator		6 LEDs for operating states
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 P <sub>O</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  Dutput 1  Output type relay Switching function Normally open (NO) Switching current max. 1 A  Dutput 2  Output 1  Output type relay Switching function Normally open (NO) Switching function Normally open (NO) Switching current max. 1 A  Dutput 2  Output type switching function Normally open (NO) Switching outrage max. 30 V DC Switching current max. 1 A  Dutput 3  Output type analog output, current output of the vibration variable  Output current A 20 mA  Load resistor ≤ 500 Ω  Standard conformity  Degree of protection Din En 60529, IP66, IP67  Shock resistance Din En 60568-2-27, 60 g, 6 ms  Din En 615508, Sill. 2  En Iso 13849, PL d  ECEx approval  ECEX approval  ECEX poproval	Control elements		4 rotary switches and 1 push button for programming
Fusing         external fuse is required: 3 A , semi-time-lag , 30 V DC           Operating voltage         U <sub>B</sub> 24 V DC + 7 % / - 10 % max. 100 mA           Power consumption         P <sub>O</sub> 2.6 W           Time delay before availability         I <sub>V</sub> 35 (initially self-test functions are executed before safe measured values are available at the output)           Surge protection         up to 2 kV           Output type         relay           Switching function         Normally open (NO)           Switching current         max. 30 V DC           Switching current         max. 1 A           Output type         relay           Switching function         Normally open (NO)           Switching current         max. 30 V DC           Switching function         Normally open (NO)           Switching current         max. 30 V DC           Output type         analog output, current           Output durrent         a. 20 mA           Load resistor         ≤ 500 Ω           Standard conformity           Degree of protection         DIN EN 60529, IP66, IP67           Shock resistance         DIN EN 600	Electrical specifications		
Operating voltage         UB max. 100 mA           Power consumption         Po         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           Doutput 1         Up to 2 kV           Output type         relay           Switching function         Normally open (NO)           Switching voltage         max. 30 V DC           Switching current         max. 1 A           Output type         relay           Switching function         Normally open (NO)           Switching function         Normally open (NO)           Switching outrent         Normally open (NO)           Switching current         max. 30 V DC           Switching current         output output, current output of the vibration variable           Output type         analog output, current output of the vibration variable           Output current         ≤ 500 Ω           Standard conformity         Since resistance         DIN EN 60529, IP66, IP67           Shock resi	·		external fuse is required: 3 A . semi-time-lag . 30 V DC
Current consumption         max. 100 mA           Power consumption         P₀         2.6 W           Time delay before availability         t₀         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         Power consumption         Image: power consumption output output)           Surge protection         up to 2 kV           Output 1         Power consumption         Image: power consumption output outpu	•	$U_{R}$	
Power consumption       P₀       2.6 W         Time delay before availability       t,       15 s (initially self-test functions are executed before safe measured values are available at the output)         Surge protection       up 2 kV         Output 1       relay         Switching function       Normally open (NO)         Switching outrage       max. 30 V DC         Switching current       max. 1 A         Output by P       relay         Switching function       Normally open (NO)         Switching voltage       max. 30 V DC         Switching ourrent       max. 30 V DC         Switching current       max. 1 A         Output 3       analog output, current output of the vibration variable         Output type       analog output, current output of the vibration variable         Output current       4 20 mA         Load resistor       ≤ 500 Ω         Standard conformity         Degree of protection       DIN EN 60529, IP66, IP67         Shock resistance       DIN EN 6068-2-27, 60 g, 6 ms         Vibration resistance       DIN EN 60068-2-26, 16.5 g, 10 1000 Hz         Functional safety       DIN EN IEC 61508, SIL 2 EN IEC 61508, SI	, , ,	- 5	
Time delay before availability  Surge protection  Urbupt 1  Output type  relay Switching function Switching outrant Switching outrant  Output 2  Output 2  Output ype  relay Switching outrant Switching outrant Switching outrant  Output 3  Output 3  Output 3  Output 49e  Switching ourrent Surden availabile at the output)  Switching outlage  switching outrant Switching o	,	Po	
Dutput 1         Coutput type         relay           Switching function         Normally open (NO)           Switching voltage         max. 30 V DC           Switching current         max. 1 A           Dutput 2         Telay           Output type         relay           Switching function         Normally open (NO)           Switching voltage         max. 30 V DC           Switching current         max. 1 A           Dutput 3         analog output, current output of the vibration variable           Output type         analog output, current output of the vibration variable           Output 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 60068-2-27, 60 g, 6 ms           Vibration asafety         DIN EN 601508, SIL 2 EN ISO 13849, PL d           EN ISO 13849, PL d         EN ISO 13849, PL d           Approvals and certificates         IECEx ULD 22.0031X	·		15 s (initially self-test functions are executed before safe measured values are
Output type         relay           Switching function         Normally open (NO)           Switching voltage         max. 30 V DC           Switching current         max. 1 A           Output 2         Voltput 2           Output type         relay           Switching function         Normally open (NO)           Switching voltage         max. 30 V DC           Switching current         max. 1 A           Output 3         analog output, current output of the vibration variable           Output type         analog output, current output of the vibration variable           Output 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 60068-2-27, 60 g, 6 ms           Vibrational safety         DIN EN 60068-2, 61.6.5 g, 10 1000 Hz           En ISO 13849 , PL d           Approvals and certificates           IECEx approval           Equipment protection level Gc         IECEx ULD 22.0031X	Surge protection		up to 2 kV
Switching function Normally open (NO)   Switching current max. 30 V DC   Switching current max. 1 A   Output 2 relay   Switching function Normally open (NO)   Switching outgage max. 30 V DC   Switching current max. 1 A   Output 3 max. 1 A   Output type analog output, current output of the vibration variable   Output current 4 20 mA   Load resistor ≤ 500 Ω   Standard conformity Shock resistance   Din En 60529, IP66, IP67   Shock resistance DIn En 60529, IP66, IP67   Shock resistance DIN En 60068-2-27, 60 g, 6 ms   Vibration resistance DIN En 60068-2-27, 60 g, 6 ms   Vibration a safety DIN En 60068-2-6, 16.5 g, 10 1000 Hz   Enctional safety DIN En 100 En 65008, SIL 2 En ISO 13849, PL d   Approvals and certificates EECEx upproval   IECEx approval IECEx approval   Equipment protection level Gc IECEx ULD 22.0031X	Output 1		
Switching voltage max. 30 V DC   Switching current max. 1 A   Output 2 relay   Output type relay   Switching function Normally open (NO)   Switching voltage max. 30 V DC   Switching current max. 1 A   Output 3 max. 1 A   Output type analog output, current output of the vibration variable   Output 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	Output type		relay
Switching voltage max. 30 V DC   Switching current max. 1 A   Output 2 relay   Output type relay   Switching function Normally open (NO)   Switching voltage max. 30 V DC   Switching current max. 1 A   Output 3 max. 1 A   Output type analog output, current output of the vibration variable   Output 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	Switching function		Normally open (NO)
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 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 ull D 22.0031X	_		
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 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 ull D 22.0031X	ů ů		max. 1 A
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 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 60068-2 on 13849 , PL d         Approvals and certificates       IECEx approval         Equipment protection level Gc       IECEx ULD 22.0031X			
Switching function Normally open (NO)   Switching voltage max. 30 V DC   Switching current max. 1 A   Output 3 analog output, current output of the vibration variable   Output current 4 20 mA   Load resistor ≤ 500 Ω   Standard conformity 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 60068-2. 6, 16.50 g, 10 1000 Hz   Approvals and certificates ECEx approval   Equipment protection level Gc IECEx ULD 22.0031X			relav
Switching voltage max. 30 V DC   Switching current max. 1 A   Dutput 3 analog output, current output of the vibration variable   Output current 4 20 mA   Load resistor ≤ 500 Ω   Standard conformity 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	. ,,		-
Switching current  Dutput 3  Output type  analog output, current output of the vibration variable  Output current  Load resistor  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			
Dutput 3         Output type       analog output, current output of the vibration variable         Output 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	* *		
Output type       analog output, current output of the vibration variable         Output 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	•		IIIda. 171
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			
Load resistor ≤ 500 Ω   Standard conformity 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	Output current		4 20 mA
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			≤ 500 Ω
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	Standard conformity		
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 1EC 61508 , SIL 2 EN ISO 13849 , PL d  Approvals and certificates  IECEx approval  Equipment protection level Gc  IECEx ULD 22.0031X	·		DIN EN 60529, IP66, IP67
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			
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			-
Approvals and certificates  IECEx approval  Equipment protection level Gc IECEx ULD 22.0031X			DIN EN IEC 61508, SIL 2
Equipment protection level Gc IECEx ULD 22.0031X	Approvals and certificates		
Equipment protection level Dc IECEx ULD 22.0031X			
ATEX approval			IECEx ULD 22.0031X

2

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



### **Accessories**

Accessories for this product can be found on the internet at www.pepperl-fuchs.com.

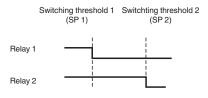
Further Documentation
The sensor manual is also available as detailed overall documentation. Among other things, installation, grounding concepts and mounting are described there in detail.

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

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