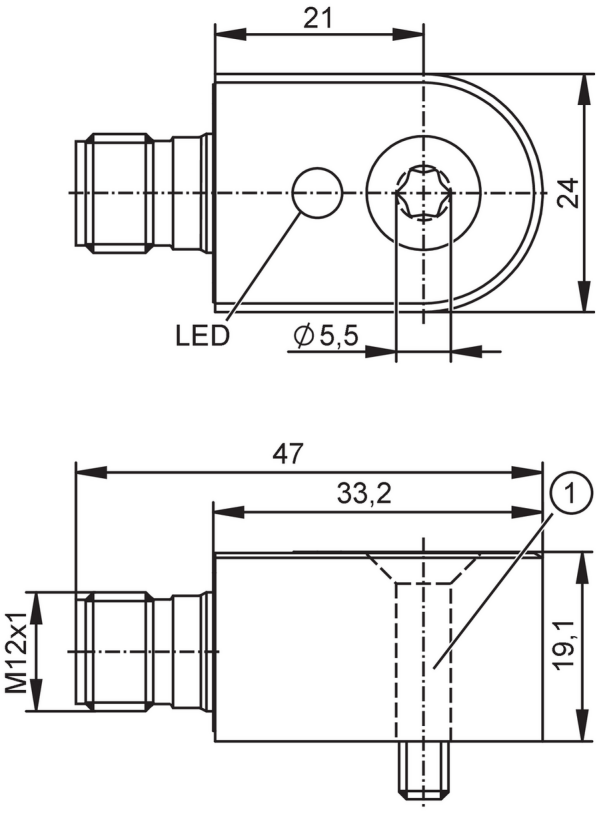
VVB301

Vibration sensor

VIBRATION IO-LINK SWITCH



1 Mounting screw M5

Product characteristics		
Frequency range	[Hz]	2...5600
Measuring principle		capacitive
Application		
Design		Basic condition monitoring
Application		industrial machines
Electrical data		
Operating voltage	[V]	18...30 DC
Current consumption	[mA]	< 50
Min. insulation resistance	[MΩ]	100; (500 V DC)
Protection class		III
Reverse polarity protection		yes
Type of sensor		Microelectromechanical system (MEMS)
Inputs / outputs		
Number of inputs and outputs		Number of digital outputs: 2
Outputs		
Output signal		switching signal; IO-Link
Electrical design		PNP/NPN; (configurable)
Number of digital outputs		2
Output function		normally open / closed

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Max. voltage drop switching output DC	[V]	2
Max. current load per output	[mA]	100
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
Overload protection		yes
Measuring/setting range		
Note on setpoint SP		configurable
Frequency range	[Hz]	2...5600
Measuring principle		capacitive
Number of measurement axes		3
v-RMS (x-y-z)		
Measuring range of vibration	[m/s]	0...0.3
Resolution	[m/s]	0.0001
Set point SP	[m/s]	0.0002...0.3
Reset point rP	[m/s]	0...0.2998
a-Peak / a-RMS (x-y-z)		
Measuring range of vibration	[m/s²]	0...156.91
Resolution	[m/s²]	0.01
Set point SP	[m/s²]	2...156.91
Reset point rP	[m/s²]	0...154.91
Crest (x-y-z)		
Measuring range of vibration		1...50
Resolution		0.1
Set point SP		2...50
Reset point rP		1...49
Temperature measurement		
Measuring range	[°C]	-30...80
Resolution	[°C]	0.1
Set point SP	[°C]	-28...80
Reset point rP	[°C]	-30...78
Accuracy / deviations		
Accuracy	[K]	± 5
Linearity deviation		2; (% of the final value)
X axis		
Accuracy		2-4000Hz +/- 10%, 4000..5600Hz -3dB
Y axis		
Accuracy		2-5000Hz +/- 10%, 5000...5600Hz -3dB
z-axis		
Accuracy		2-5000Hz +/- 10%, 5000...5600Hz -3dB
Software / programming		
Parameter setting options		IO-Link

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Diagnostic functions		self-test	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM3 (230,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9: 2013-07	
Profiles		BLOB	Binary Large Object transfer
		Common - I&D	Identification and Diagnosis
		Function	Locator
		Function	ProductURI
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	3.3	
IO-Link process data (cyclical)		**Function**	**bit length**
		v-RMS (x-y-z)	16
		velocity scaling	8
		velocity measurement axis	4
		a-Peak (x-y-z)	16
		a-RMS (x-y-z)	16
		scaling acceleration	8
		measurement axis acceleration	4
		Crest (x-y-z)	16
		temperature	16
		scaling Crest + temperature	8
		device status	4
		unbalance event	1
		virtual switching output (v-ou1)	1
		binary switching information	2
IO-Link functions (acyclical)		filter for vibration velocity (v); filter for vibration acceleration (a); Hysteresis; window; Switch points; switching logic; unbalance measurement; machine operating hours counter	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1703
Note		For further information please see the IODD PDF file at "Downloads"	
Operating conditions			
Ambient temperature	[°C]	-30...80	
Storage temperature	[°C]	-30...80	
Protection		IP 67; IP 68; IP 69	
Tests / approvals			
EMC		EN IEC 61000-6-2	noise immunity / industrial environments
		EN IEC 61000-6-4	noise emission
Shock resistance		DIN EN 60068-2-27	50 g 11 ms
			500 g 1 ms
Vibration resistance		DIN EN 60068-2-6	20 g / 10...3000 Hz
MTTF	[years]	480	
UL approval		UL approval number	L006
		File number UL	E251902
Standard		mechanical vibration; ISO 10816-3; ISO 2954; ISO 20816-3	

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Mechanical data		
Weight	[g]	98.2
Type of mounting		mounting screw
Material		housing: stainless steel (1.4404 / 316L)
Tightening torque	[Nm]	4.6

Displays / operating elements		
Display	Power	1 LED, green
	fault	1 LED, red

Accessories	
Items supplied	mounting screw: 1 x (M5 x 25 mm)

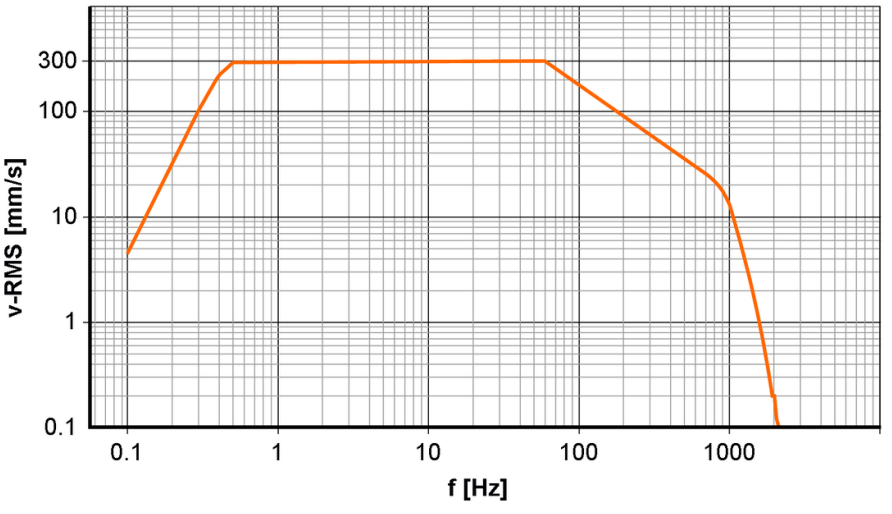
Remarks	
Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Maximum cable length: 20 m

1	L+
2	OUT2 Switching output
3	L-
4	OUT1 switching output or IO-Link

Diagrams and graphs



v-RMS [mm/s] vibration velocity

f [Hz] Frequency