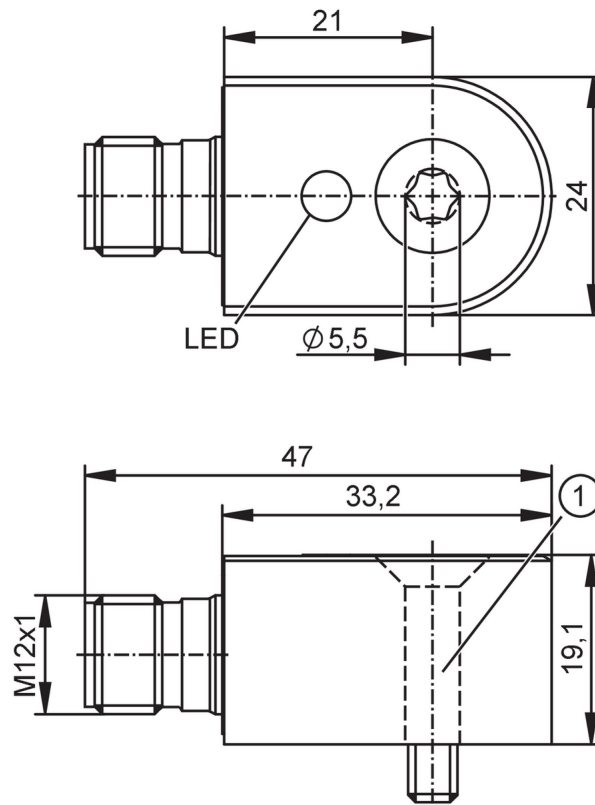


# VVB301



## 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
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### 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/s <sup>2</sup> ]	0...156.91
Resolution [m/s <sup>2</sup> ]	0.01
Set point SP [m/s <sup>2</sup> ]	2...156.91
Reset point rP [m/s <sup>2</sup> ]	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
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### Y axis

Accuracy	2-5000Hz +/- 10%, 5000...5600Hz -3dB
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### z-axis

Accuracy	2-5000Hz +/- 10%, 5000...5600Hz -3dB
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### Software / programming

Parameter setting options	IO-Link
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Diagnostic functions	self-test		
<b>Interfaces</b>			
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)	<b>Function</b>	<b>bit length</b>	
	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	<b>Type of operation</b>	<b>DeviceID</b>
default		1703	
Note	For further information please see the IODD PDF file at "Downloads"		
<b>Operating conditions</b>			
Ambient temperature [°C]	-30...80		
Storage temperature [°C]	-30...80		
Protection	IP 67; IP 68; IP 69		
<b>Tests / approvals</b>			
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.

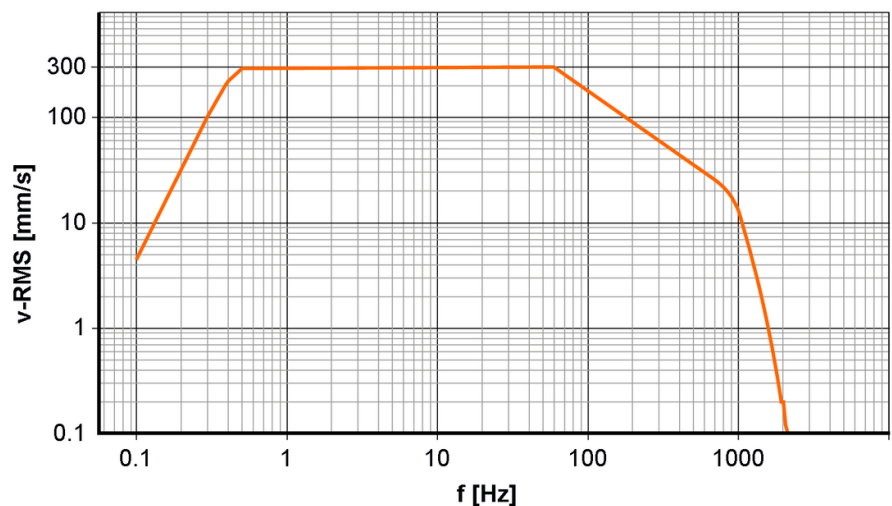
### Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4; 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