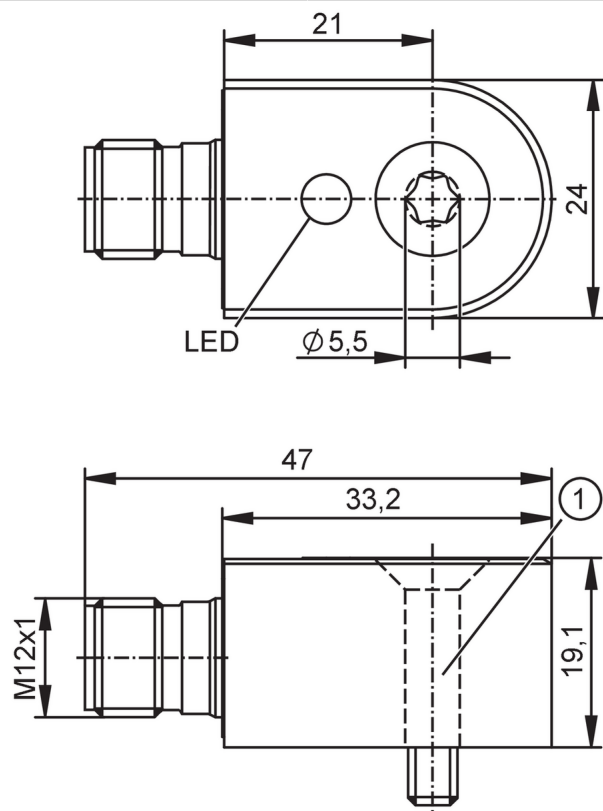


VVB301



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
Sensor type		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 / normally 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		pulsed
Overload protection		yes

Measuring/setting range

Note on setpoint SP		parameterisable
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
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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	
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 type	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 under "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	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 no.	L006
	File number UL	E251902
Standard	mechanical vibration; ISO 10816-3; ISO 2954; ISO 20816-3	

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Vibration sensor

VIBRATION IO-LINK SWITCH

Mechanical data		
Weight	[g]	98.2
Type of mounting		mounting screw
Materials		housing: stainless steel (316L/1.4404)
Tightening torque	[Nm]	4.6
Displays / operating elements		
Display	operation	1 LED, green
	fault	1 LED, red
Accessories		
Items supplied		mounting screw: 1 x (M5 x 25 mm)
Remarks		
Pack quantity		1 pcs.

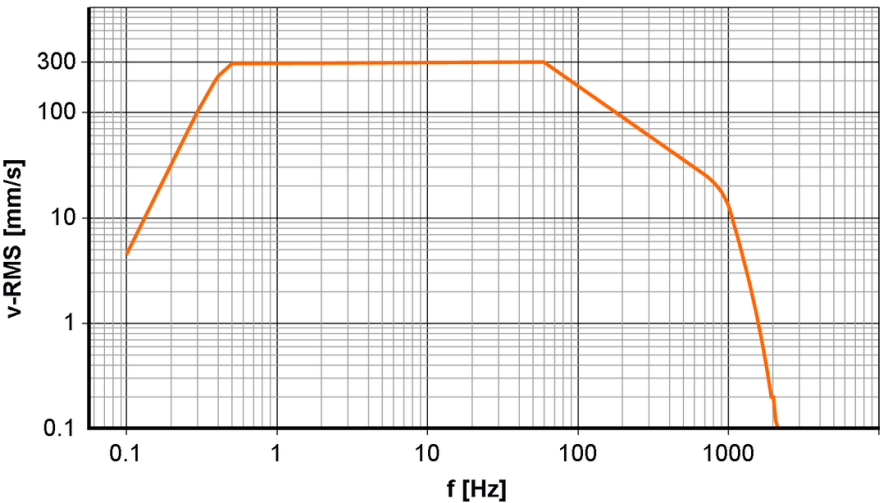
Electrical connection

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