

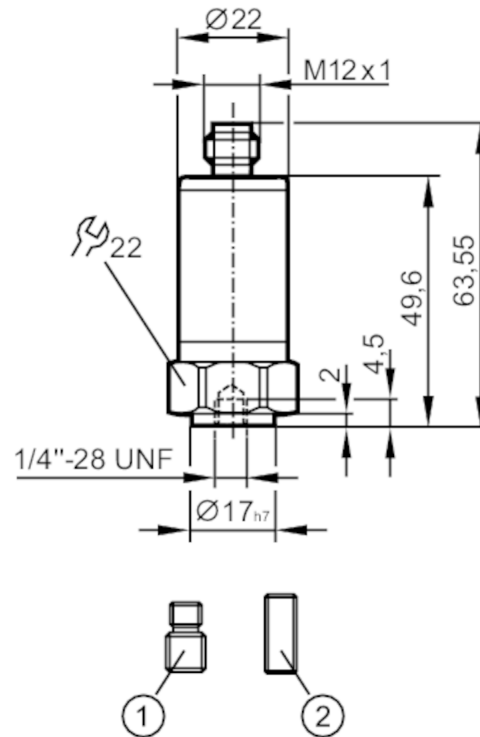
# VVB020



## Vibration sensor

VIBRATION IO-LINK SWITCH

the hardware version BC has a temporarily changed ambient temperature range



- 1 set screw 1/4"-28 UNF / M8  
2 set screw 1/4"-28 UNF



### Product characteristics

|                              |          |                            |
|------------------------------|----------|----------------------------|
| Frequency range              | [Hz]     | 2...10000                  |
| Measuring principle          |          | capacitive                 |
| v-RMS                        |          |                            |
| Measuring range of vibration | [mm/s]   | 0...45                     |
| a-Peak / a-RMS               |          |                            |
| Measuring range of vibration | 0...50 g | 0...490.3 m/s <sup>2</sup> |

### Application

|             |   |
|-------------|---|
| Application | medium-sized machines, power < 300 kW, rotational speed > 600 rpm |
|-------------|---|

### 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   |                            |
| 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...10000  |                            |
| Measuring principle                       | capacitive   |                            |
| Number of measurement axes                | 1  |                            |
| v-RMS                                     |  |                            |
| Measuring range of vibration [mm/s]       | 0...45   |                            |
| Set point SP [mm/s]                       | 0.2...45   |                            |
| Reset point rP [mm/s]                     | 0...44.8   |                            |
| In steps of [mm/s]                        | 0.2  |                            |
| a-Peak / a-RMS                            |  |                            |
| Measuring range of vibration              | 0...50 g   | 0...490.3 m/s <sup>2</sup> |
| Set point SP                              | 0.2...50 g   | 2...490.3 m/s <sup>2</sup> |
| Reset point rP                            | 0...49.8 g   | 0...488.3 m/s <sup>2</sup> |
| In steps of                               | 0.2 g  | 2 m/s <sup>2</sup>         |
| Crest                                     |  |                            |
| Measuring range of vibration              | 1...50   |                            |
| Set point SP                              | 2...50   |                            |
| Reset point rP                            | 1...49   |                            |
| In steps of                               | 1  |                            |
| Temperature measurement                   |  |                            |
| Measuring range [°C]                      | -30...80   |                            |
| Resolution [°C]                           | 0.1  |                            |
| Set point SP [°C]                         | -28...80   |                            |
| Reset point rP [°C]                       | -30...78   |                            |
| In steps of [°C]                          | 2  |                            |
| Accuracy / deviations                     |  |                            |
| Accuracy                                  | $\leq 4 \text{ kHz} \pm 10 \%$ ;<br>$\geq 4...10 \text{ kHz}: < 3 \text{ dB}$                  |                            |
| Accuracy [K]                              | $\pm 2,5 \text{ K} + (0,2 \times (\text{Umgebungstemperatur} - \text{Oberflächentemperatur}))$ |                            |
| Linearity deviation                       | 2 %  |                            |

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| Software / programming        |   |   |
|-------------------------------|---|---|
| Parameter setting options     |   | Software  |
| Diagnostic functions          |   | self-test   |
| Interfaces                    |   |   |
| Communication interface       |   | IO-Link   |
| Transmission type             |   | COM2 (38,4 kBaud); COM3 (230,4 kBaud)   |
| IO-Link revision              |   | 1.1   |
| SDCI standard                 |   | IEC 61131-9: 2013-07  |
| Profiles                      |   | Blob (0x0030); Measuring sensor (0x800A); Common Profile (0x4000)                   |
| SIO mode                      |   | yes   |
| Required master port class    |   | A   |
| Process data analog           |   | 10  |
| Process data binary           |   | 2   |
| Min. process cycle time [ms]  |   | 3.6   |
| IO-Link functions (acyclical) |   | filter for v-RMS, a-RMS, a-Peak; Hysteresis; window; Switch points; switching logic |
| Supported DeviceIDs           | <b>Type of operation</b>  | <b>DeviceID</b>   |
|                               | Status A (COM2)   | 1257  |
|                               | Status B (COM2 / COM3)  | 1369  |
| Note                          | For further information please see the IODD PDF file at "Downloads"         |   |
| Operating conditions          |   |   |
| Ambient temperature [°C]      |   | -30...60  |
| Storage temperature [°C]      |   | -30...80  |
| Protection                    |   | IP 67; IP 68; IP 69K  |
| Tests / approvals             |   |   |
| EMC                           | 2014/30/EU  |   |
|                               | DIN EN 61000-6-2  |   |
|                               | DIN EN 61000-6-3  |   |
| 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]                  |   | 299   |
| UL approval                   | Ta  | -30...60 °C   |
|                               | UL approval number  | L002  |
| Mechanical data               |   |   |
| Weight [g]                    |   | 116.5   |
| Type of mounting              |   | set screw   |
| Material                      |   | housing: stainless steel (1.4404 / 316L)  |
| Tightening torque [Nm]        |   | 8   |
| Accessories                   |   |   |
| Items supplied                |   | set screw: 1 x 1/4" 28 UNF / M8   |
|                               |   | set screw: 1 x 1/4"28 UNF x 5/8" DIN916   |
| Remarks                       |   |   |
| Notes                         | the hardware version BC has a temporarily changed ambient temperature range |   |
| Pack quantity                 | 1 pcs.  |   |

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### Electrical connection

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



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