

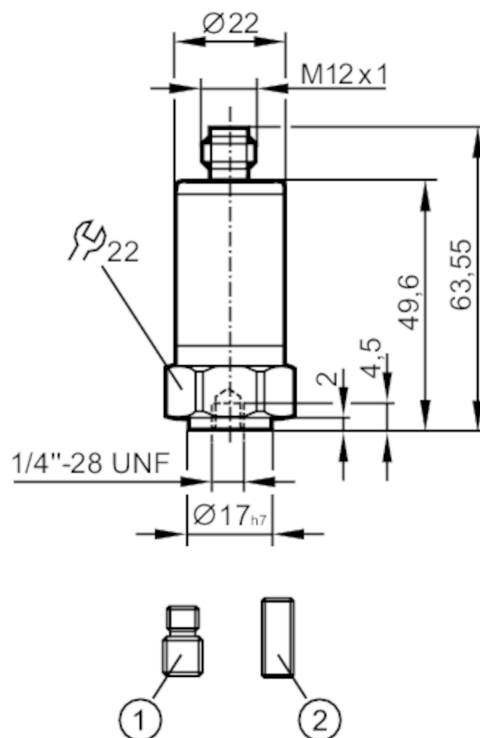
# VVB020



## 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                                  |
| Sensor type                 |      | microelectromechanical system (MEMS) |

### Inputs / outputs

|                              |                              |
|------------------------------|------------------------------|
| Number of inputs and outputs | Number of digital outputs: 2 |
|------------------------------|------------------------------|



## Vibration sensor

VIBRATION IO-LINK SWITCH

| Outputs                                   |                                                                 |                |
|-------------------------------------------|-----------------------------------------------------------------|----------------|
| Output signal                             | switching signal; IO-Link                                       |                |
| Electrical design                         | PNP/NPN; (configurable)                                         |                |
| Number of digital outputs                 | 2                                                               |                |
| Output function                           | normally open / normally 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          | pulsed                                                          |                |
| Overload protection                       | yes                                                             |                |
| Measuring/setting range                   |                                                                 |                |
| Note on setpoint SP                       | parameterisable                                                 |                |
| 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/s² |
| Set point SP                              | 0.2...50 g                                                      | 2...490.3 m/s² |
| Reset point rP                            | 0...49.8 g                                                      | 0...488.3 m/s² |
| In steps of                               | 0.2 g                                                           | 2 m/s²         |
| 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                                  | ≤ 4 kHz +/-10 %;<br>≥ 4...10 kHz: < 3 dB                        |                |
| Accuracy [K]                              | ± 2,5 K + (0,2 x (Umgebungstemperatur - Oberflächentemperatur)) |                |
| Linearity deviation                       | 2 %                                                             |                |



## Vibration sensor

VIBRATION IO-LINK SWITCH

| 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 type     | A                                                                                   |                     |
| Process data analogue         | 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           | Type of operation                                                                   | DeviceID            |
|                               | Status A (COM2)                                                                     | 1257                |
|                               | Status B (COM2 / COM3)                                                              | 1369                |
| Note                          | For further information please see the IODD PDF file under "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 no.                                                                     | L002                |
| Mechanical data               |                                                                                     |                     |
| Weight [g]                    | 116.5                                                                               |                     |
| Type of mounting              | set screw                                                                           |                     |
| Materials                     | housing: stainless steel (316L/1.4404)                                              |                     |
| 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.                                                                              |                     |

# VVB020



## Vibration sensor

VIBRATION IO-LINK SWITCH

### 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 |