

Distance Sensor

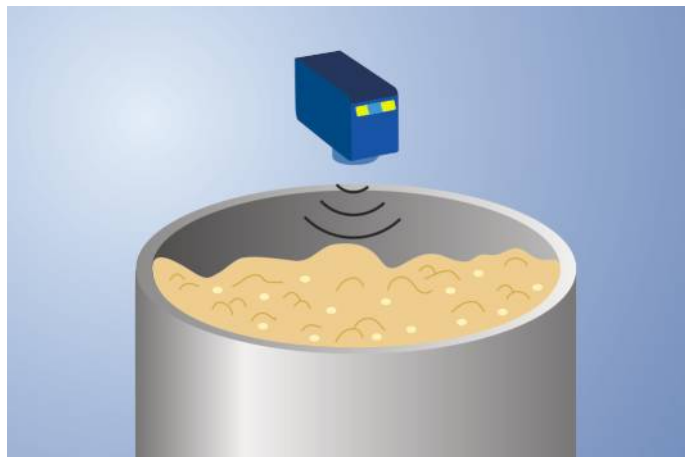
U1KT003

Part Number



- 2 mutually independent switching outputs
- Miniature design
- Ready for Industrie 4.0 with IO-Link version 1.1
- Reflex and through-beam operation mode are possible

These ultrasonic sensors evaluate the sound reflected from the object. They detect almost any object regardless of the material and its condition. They are therefore especially well suited for monitoring fill levels of liquids and bulk goods and for detecting transparent objects. The measured value can be read out via IO-Link, and the sensor can be optimally adapted to the application. The sensor can be used in reflex mode operation and as an ultrasonic through-beam sensor.



Technical Data

Ultrasonic Data

| | |
|------------------------------------|-------------|
| Working range, reflex sensor | 30...400 mm |
| Working range, through-beam sensor | 1...800 mm |
| Setting Range | 30...400 mm |
| Reproducibility maximum | 4 mm |
| Linearity Deviation | 4 mm |
| Resolution | 0,5 mm |
| Ultrasonic Frequency | 325 kHz |
| Opening Angle | < 12 ° |
| Service Life (T = +25 °C) | 100000 h |
| Switching Hysteresis | 2 mm |
| Switching Hysteresis | 1 % * |

Electrical Data

| | |
|---|------------------|
| Supply Voltage | 18...30 V DC |
| Current Consumption (U _b = 24 V) | < 20 mA |
| Switching frequency, reflex sensor | 30 Hz |
| Switching frequency, through-beam sensor | 70 Hz |
| Response time, reflex sensor | 17 ms |
| Response time, through-beam sensor | 8 ms |
| Temperature Range | -30...60 °C |
| Number of Switching Outputs | 2 |
| Switching Output Voltage Drop | < 2,5 V |
| Switching Output/Switching Current | 100 mA |
| Synchronous Mode | up to 40 sensors |
| Short Circuit Protection | yes |
| Reverse Polarity Protection | yes |
| Overload Protection | yes |
| Lockable | yes |
| Interface | IO-Link V1.1 |
| Data Storage | yes |
| Protection Class | III |

Mechanical Data

| | |
|----------------------|----------------|
| Setting Method | Teach-In |
| Housing Material | Plastic |
| Degree of Protection | IP68 |
| Connection | M12 × 1; 4-pin |
| Cable Length | 20 cm |

Safety-relevant Data

| | |
|------------------------|-----------|
| MTTFd (EN ISO 13849-1) | 1106,71 a |
|------------------------|-----------|

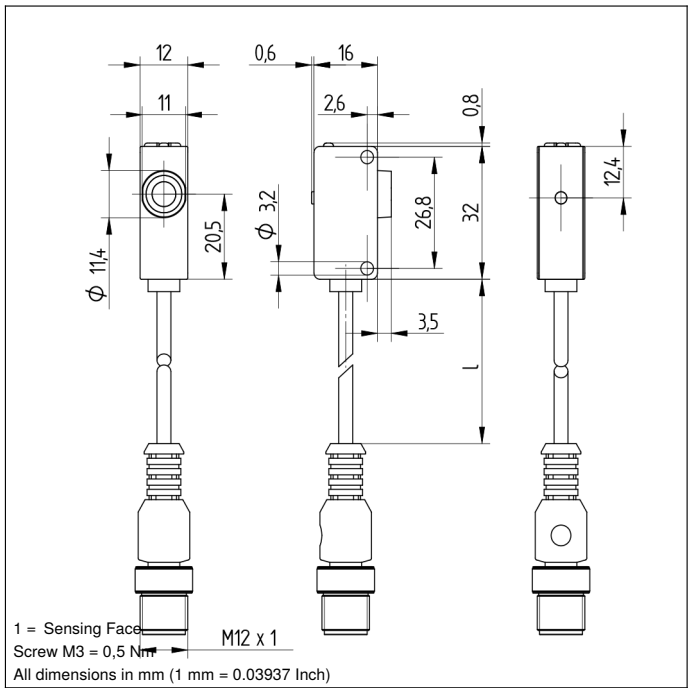
| | |
|---------------------------|---|
| PNP NO | ● |
| Programmable error output | ● |
| IO-Link | ● |

| | |
|-----------------------------------|-----|
| Connection Diagram No. | 259 |
| Control Panel No. | A23 |
| Suitable Connection Equipment No. | 2 |
| Suitable Mounting Technology No. | 400 |

* Referring to the switching distance, at least 2 mm.

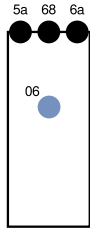
Complementary Products

| |
|----------------|
| IO-Link Master |
| Software |

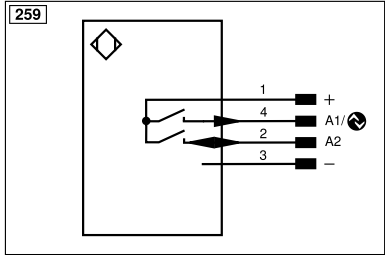


Ctrl. Panel

A 23



06 = Teach Button
5a = Switching Status Display, O1
68 = supply voltage indicator
6a = Switching Status Display, O2

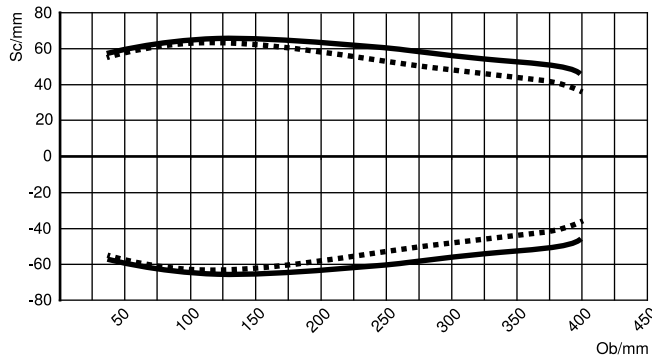


| Legend | | | |
|-----------|--|--|--------------------------------|
| + | Supply Voltage + | nc | Not connected |
| - | Supply Voltage 0 V | U | Test Input |
| ~ | Supply Voltage (AC Voltage) | Ū | Test Input inverted |
| A | Switching Output (NO) | W | Trigger Input |
| Ā | Switching Output (NC) | W- | Ground for the Trigger Input |
| V | Contamination/Error Output (NO) | O | Analog Output |
| Ȳ | Contamination/Error Output (NC) | O- | Ground for the Analog Output |
| E | Input (analog or digital) | BZ | Block Discharge |
| T | Teach Input | Amv | Valve Output |
| Z | Time Delay (activation) | a | Valve Control Output + |
| S | Shielding | b | Valve Control Output 0 V |
| RxD | Interface Receive Path | SY | Synchronization |
| TxD | Interface Send Path | SY- | Ground for the Synchronization |
| RDY | Ready | E+ | Receiver-Line |
| GND | Ground | S+ | Emitter-Line |
| CL | Clock | ± | Grounding |
| E/A | Output/Input programmable | SnR | Switching Distance Reduction |
| IO-Link | IO-Link | Rx+/- | Ethernet Receive Path |
| PoE | Power over Ethernet | Tx+/- | Ethernet Send Path |
| IN | Safety Input | Bus | Interfaces-Bus A(+)/B(-) |
| OSSD | Safety Output | La | Emitted Light disengageable |
| Signal | Signal Output | Mag | Magnet activation |
| BI_D+/- | Ethernet Gigabit bidirect. data line (A-D) | RES | Input confirmation |
| ENo RS422 | Encoder 0-pulse 0/0 (TTL) | EDM | Contact Monitoring |
| PT | Platinum measuring resistor | ENARs422 | Encoder A/Ā (TTL) |
| | | ENBrs422 | Encoder B/B̄ (TTL) |
| | | ENA | Encoder A |
| | | ENb | Encoder B |
| | | AMIN | Digital output MIN |
| | | AMAX | Digital output MAX |
| | | AOK | Digital output OK |
| | | SY In | Synchronization In |
| | | SY OUT | Synchronization OUT |
| | | OLT | Brightness output |
| | | M | Maintenance |
| | | rsv | Reserved |
| | | Wire Colors according to DIN IEC 60757 | |
| | | BK | Black |
| | | BN | Brown |
| | | RD | Red |
| | | OG | Orange |
| | | YE | Yellow |
| | | GN | Green |
| | | BU | Blue |
| | | VT | Violet |
| | | GY | Grey |
| | | WH | White |
| | | PK | Pink |
| | | GNYE | Green/Yellow |

Characteristic response curve

Characteristic curves show the position of the center of the measured object (100 × 100 mm plate) at the time of switching.

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Ob = Object
Sc = Sonic cone width

