

Reflex Sensor

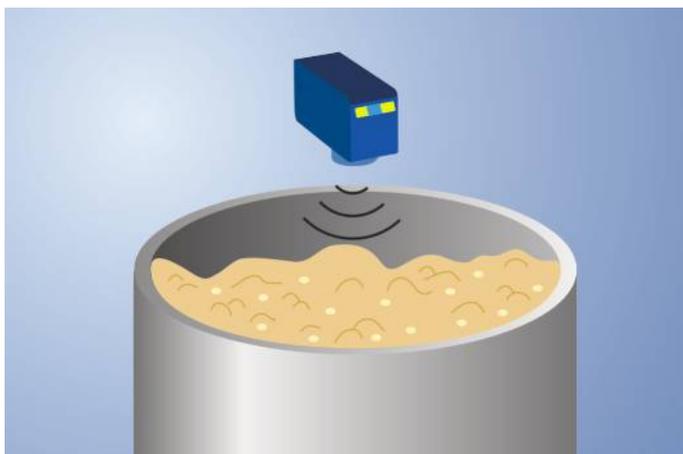
U1KT001

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 by the object. They detect almost every object and are suited especially for the filling level monitoring of fluids or bulk material or the detection of transparent objects. The sensor detects objects independent from their material, aggregate state, color or transparency. The IO-Link interface can be used to configure the reflex sensors (PNP/NPN, NC/NO, switching distance), as well as for reading out switching statuses and distance values.



Technical Data

| Ultrasonic Data | |
|------------------------------------|-------------|
| Working range, reflex sensor | 30...400 mm |
| Working range, through-beam sensor | 1...800 mm |
| Resolution | 0,5 mm |
| Ultrasonic Frequency | 325 kHz |
| Opening Angle | < 12 ° |
| Service Life (T = +25 °C) | 100000 h |
| 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 | M8 × 1; 4-pin |

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

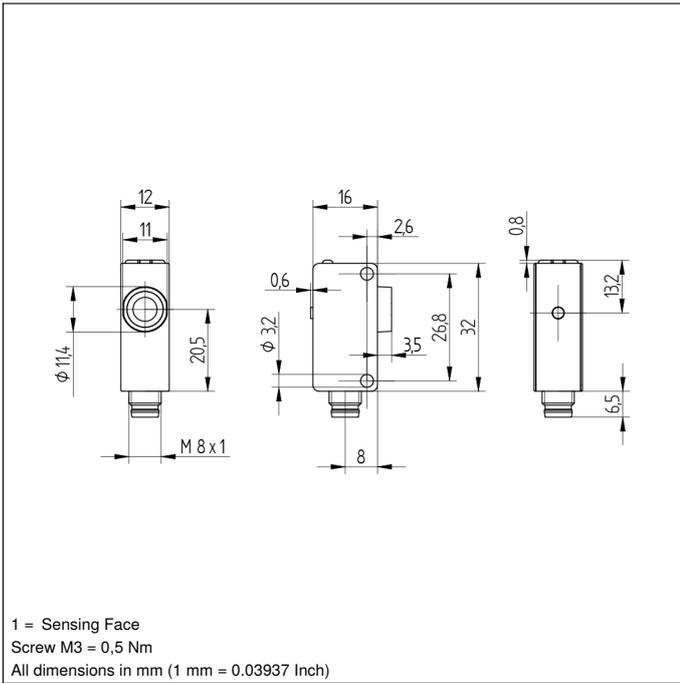
| | |
|---------------------------|---|
| PNP NO | ● |
| Programmable error output | ● |
| IO-Link | ● |

| | |
|-----------------------------------|-----|
| Connection Diagram No. | 259 |
| Control Panel No. | A23 |
| Suitable Connection Equipment No. | 7 |
| Suitable Mounting Technology No. | 400 |

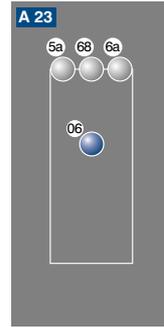
* Referring to the switching distance, at least 2 mm.

Complementary Products

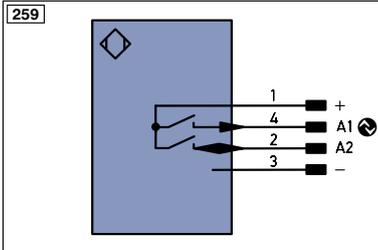
| |
|-------------------------|
| IO-Link Master Software |
|-------------------------|



Ctrl. Panel



- 06 = Teach Button
- 5a = Switching Status Display, O1
- 68 = Supply Voltage Indicator
- 6a = Switching Status Display, O2

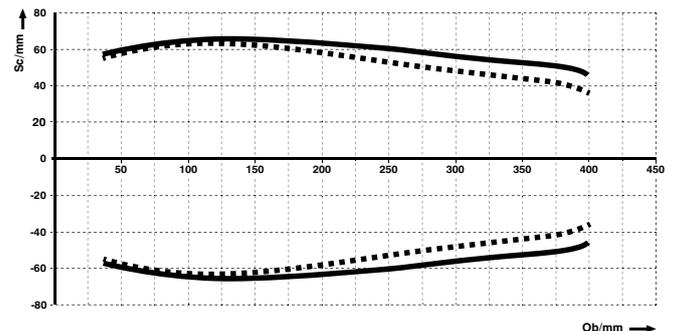


| Legend | | Legend | | Legend | |
|-----------------------|--|-----------------|--------------------------------|--------------------------------------|---------------------|
| + | Supply Voltage + | PT | Platinum measuring resistor | EN ^{A/RS422} | Encoder A/Ā (TTL) |
| - | Supply Voltage 0 V | nc | not connected | EN ^{B/RS422} | Encoder B/B̄ (TTL) |
| ~ | Supply Voltage (AC Voltage) | U | Test Input | EN ^A | Encoder A |
| A | Switching Output (NO) | Ū | Test Input inverted | EN ^B | Encoder B |
| Ā | Switching Output (NC) | W | Trigger Input | A _{MIN} | Digital output MIN |
| V | Contamination/Error Output (NO) | W- | Ground for the Trigger Input | A _{MAX} | Digital output MAX |
| Ṽ | Contamination/Error Output (NC) | O | Analog Output | A _{OK} | Digital output OK |
| E | Input (analog or digital) | O- | Ground for the Analog Output | SY _{in} | Synchronization In |
| T | Teach Input | BZ | Block Discharge | SY _{OUT} | Synchronization OUT |
| Z | Time Delay (activation) | A _{WV} | Valve Output | OL _T | Brightness output |
| S | Shielding | a | Valve Control Output + | M | Maintenance |
| RxD | Interface Receive Path | b | Valve Control Output 0 V | rsv | reserved |
| TxD | Interface Send Path | SY | Synchronization | Wire Colors according to DIN IEC 757 | |
| RDY | Ready | SY- | Ground for the Synchronization | BK | Black |
| GND | Ground | E+ | Receiver-Line | BN | Brown |
| CL | Clock | S+ | Emitter-Line | RD | Red |
| E/A | Output/Input programmable | ± | Grounding | OG | Orange |
| | IO-Link | S _{nR} | Switching Distance Reduction | YE | Yellow |
| PoE | Power over Ethernet | Rx+/- | Ethernet Receive Path | GN | Green |
| IN | Safety Input | Tx+/- | Ethernet Send Path | BU | Blue |
| OSSD | Safety Output | Bus | Interfaces-Bus A(+)/B(-) | VT | Violet |
| Signal | Signal Output | L _a | Emitted Light disengageable | GY | Grey |
| Bl..D+/- | Ethernet Gigabit bidirect. data line (A-D) | Mag | Magnet activation | WH | White |
| EN ^{0/RS422} | Encoder 0-pulse 0-0̄ (TTL) | RES | Input confirmation | PK | Pink |
| | | EDM | Contactur Monitoring | GNYE | Green/Yellow |

Characteristic response curve

Measurement of the sonic cone on a 100 × 100 mm plate

U1KT001



Ob = Object
 Sc = Sonic cone width

— Standard
 - - - Narrow

