

Reflex Sensor with Analog Output

UMD402U035

Part Number



- Digital and analog output
- Stainless steel housing
- Synchronous mode
- Temperature drift eliminable

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. Convenient programming and quick diagnosis is possible via the IO-Link interface.



Technical Data

| Ultrasonic Data | |
|---------------------------|-------------|
| Working Range | 50...400 mm |
| Measuring Range | 350 mm |
| Reproducibility maximum | 1 mm |
| Linearity Deviation | 5 mm |
| Resolution | 0,1 mm |
| Ultrasonic Frequency | 300 kHz |
| Opening Angle | < 12 ° |
| Service Life (T = +25 °C) | 100000 h |
| Switching Hysteresis | 2 mm |

| Electrical Data | |
|---|------------------|
| Supply Voltage | 18...30 V DC |
| Current Consumption (U _b = 24 V) | < 30 mA |
| Switching Frequency | 20 Hz |
| Response Time | 25 ms |
| Temperature Range | -25...60 °C |
| Switching Outputs | 1 |
| Switching Output Voltage Drop | < 2,5 V |
| PNP Switching Output/Switching Current | 100 mA |
| Analog Output | 0...10 V |
| Synchronous Mode | up to 40 sensors |
| Short Circuit Protection | yes |
| Reverse Polarity Protection | yes |
| Overload Protection | yes |
| Lockable | yes |
| Interface | IO-Link V1.0 |
| Protection Class | III |

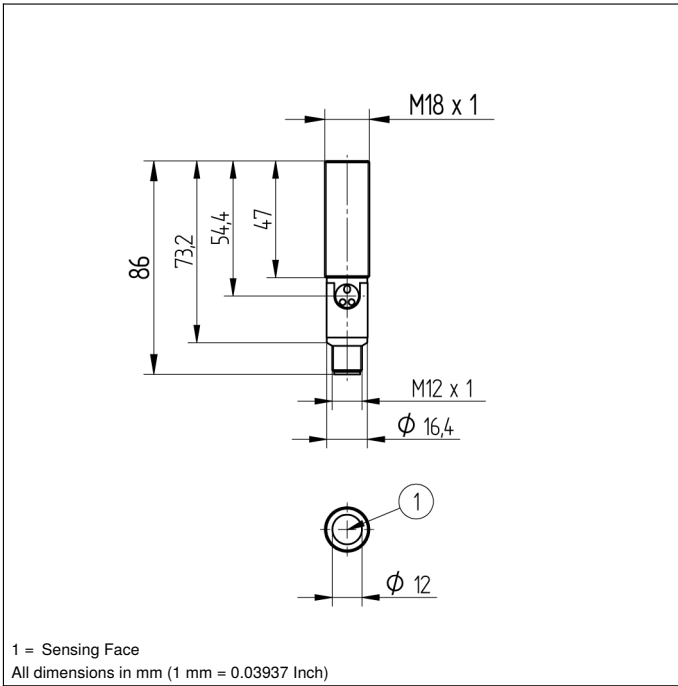
| Mechanical Data | |
|----------------------|------------------|
| Setting Method | Teach-In |
| Housing Material | Stainless Steel |
| Full Encapsulation | yes |
| Degree of Protection | IP67 |
| Connection | M12 × 1; 4/5-pin |

| Safety-relevant Data | |
|------------------------|----------|
| MTTFd (EN ISO 13849-1) | 828,67 a |
| PNP NO/NC switchable | ● |
| Analog Output | ● |
| IO-Link | ● |

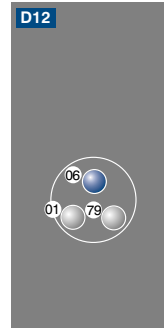
| | |
|------------------------------------|--------|
| Connection Diagram No. | 182 |
| Control Panel No. | D12 |
| Suitable Connection Technology No. | 2 35 |
| Suitable Mounting Technology No. | 150 |

Complementary Products

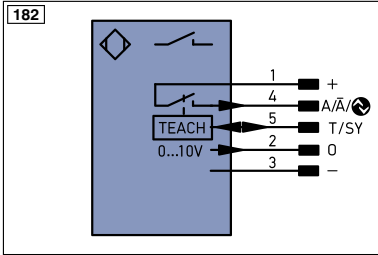
| |
|-------------------------------|
| Analog Evaluation Unit AW02 |
| Baffle Plate Z0021, Z0022 |
| IO-Link Master |
| PNP-NPN Converter BG2V1P-N-2M |
| Software |



Ctrl. Panel



01 = Switching Status Indicator
06 = Teach Button
79 = Run/Error Indicator



| Legend | |
|----------|--|
| + | Supply Voltage + |
| - | Supply Voltage 0 V |
| ~ | Supply Voltage (AC Voltage) |
| A | Switching Output (NO) |
| Ā | Switching Output (NC) |
| V | Contamination/Error Output (NO) |
| ṽ | Contamination/Error Output (NC) |
| E | Input (analog or digital) |
| T | Teach Input |
| Z | Time Delay (activation) |
| S | Shielding |
| RxD | Interface Receive Path |
| TxD | Interface Send Path |
| RDY | Ready |
| GND | Ground |
| CL | Clock |
| E/A | Output/Input programmable |
| | IO-Link |
| PoE | Power over Ethernet |
| IN | Safety Input |
| OSSD | Safety Output |
| Signal | Signal Output |
| Bl..D+/- | Ethernet Gigabit bidirect. data line (A-D) |
| EN0RS42Z | Encoder 0-pulse 0-0 (TTL) |
| PT | Platinum measuring resistor |
| nc | not connected |
| U | Test Input |
| Ū | Test Input inverted |
| W | Trigger Input |
| O | Analog Output |
| O- | Ground for the Analog Output |
| BZ | Block Discharge |
| AWV | Valve Output |
| a | Valve Control Output + |
| b | Valve Control Output 0 V |
| SY | Synchronization |
| E+ | Receiver-Line |
| S+ | Emitter-Line |
| ≡ | Grounding |
| SnR | Switching Distance Reduction |
| Rx+/- | Ethernet Receive Path |
| Tx+/- | Ethernet Send Path |
| Bus | Interfaces-Bus A(+)/B(-) |
| La | Emitted Light disengageable |
| Mag | Magnet activation |
| RES | Input confirmation |
| EDM | Contactur Monitoring |
| ENAR542Z | Encoder A/Ā (TTL) |
| ENBR542Z | 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 |
| Out | Brightness output |
| M | Maintenance |

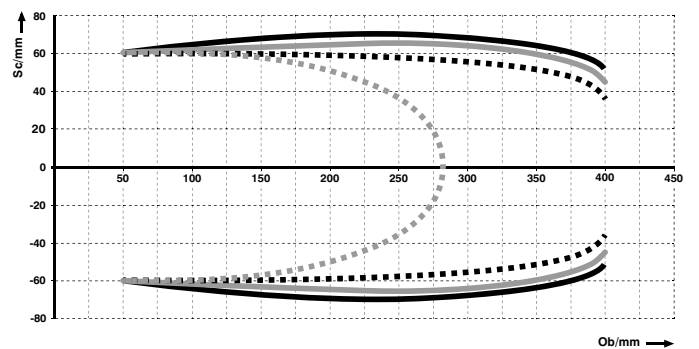
Wire Colors according to DIN IEC 757

| | |
|------|--------------|
| 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

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

UMD402U035



Ob = Object
Sc = Sonic cone width

- Standard
- Medium-width
- - - Narrow
- · · Extra-narrow

