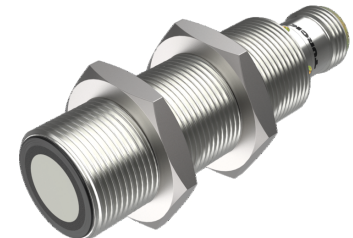
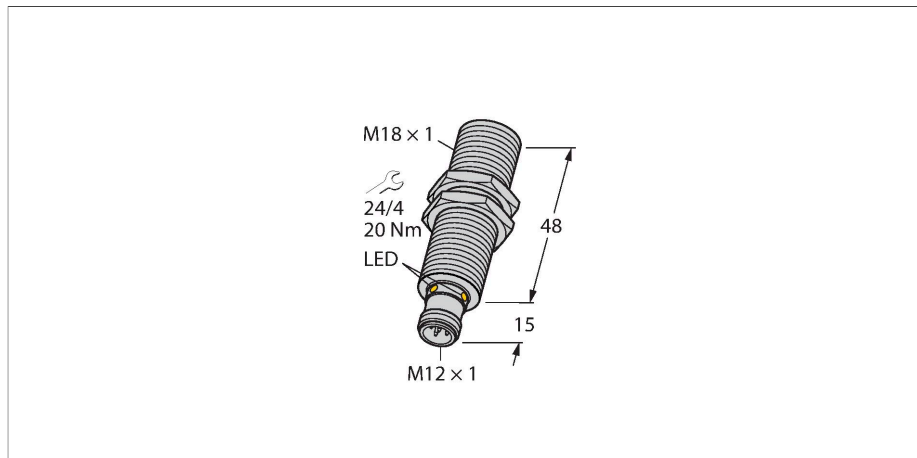


RU40U-M18M-UP8X2-H1151

Ultrasonic Sensor – Diffuse Mode Sensor



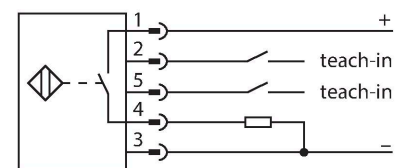
Technical data

| | |
|--------------------------------------|------------------------|
| Type | RU40U-M18M-UP8X2-H1151 |
| ID | 1610008 |
| Ultrasonic data | |
| Function | Proximity switch |
| Range | 25...400 mm |
| Resolution | 0.5 mm |
| Minimum switching range | 5 mm |
| Ultrasound frequency | 300 kHz |
| Repeat accuracy | ≤ 0.15 % of full scale |
| Temperature drift | ± 1.5 % of full scale |
| Linearity error | ≤ ± 0.5 % |
| Edge lengths of the nominal actuator | 20 mm |
| Approach speed | ≤ 3 m/s |
| Pass speed | ≤ 1.3 m/s |
| Electrical data | |
| Operating voltage U_B | 15...30 VDC |
| Residual ripple | 10 % U_{ss} |
| DC rated operating current I_o | ≤ 150 mA |
| No-load current | ≤ 50 mA |
| Load resistance | ≤ 1000 Ω |
| Residual current | ≤ 0.1 mA |
| Response time typical | < 60 ms |
| Readiness delay | ≤ 300 ms |
| Output function | NO/NC, PNP |
| Output 1 | Switching output |
| Switching frequency | ≤ 10.4 Hz |
| Hysteresis | ≤ 5 mm |

Features

- Smooth sonic transducer face
- Cylindrical housing M18, potted
- Connection via M12 x 1 male
- Temperature compensation
- Blind zone: 2.5 cm
- Range: 40 cm
- Resolution: 0.5 mm
- Aperture angle of sonic cone: ±15 °
- 1 × switching output, PNP
- Teachable settings
- NO/NC programmable

Wiring diagram



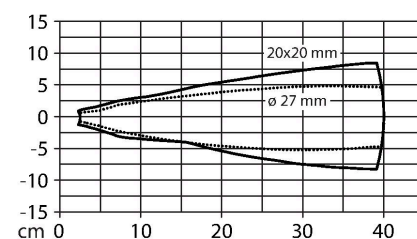
Functional principle

Ultrasonic sensors capture a multitude of objects contactlessly and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or non-metallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function. The sonic cone diagram indicates the detection range of the sensor. In accordance with standard EN 60947-5-2, quadratic targets in a range of sizes (20 × 20 mm, 100 × 100 mm) and a round rod with a diameter of 27 mm are used. Important: The detection ranges for other targets may differ from those for standard targets due to the different reflection properties and geometries.

Technical data

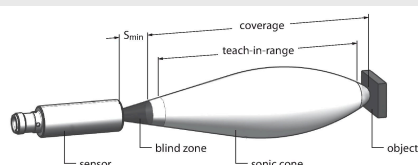
| | |
|---------------------------------------|--|
| Voltage drop at I _e | ≤ 2.5 V |
| Short-circuit protection | yes/Cyclic |
| Reverse polarity protection | yes |
| Wire breakage protection | yes |
| Setting option | Remote Teach |
| Mechanical data | |
| Design | Threaded barrel, M18 |
| Radiation direction | straight |
| Dimensions | Ø 18 x 63 mm |
| Housing material | Metal, CuZn, Nickel Plated |
| Max. tightening torque of housing nut | 20 Nm |
| Transducer material | Plastic, Epoxyd resin and PU foam |
| Electrical connection | Connector, M12 × 1, 5-wire |
| Ambient temperature | -25...+70 °C |
| Storage temperature | -40...+80 °C |
| Pressure resistance | 0.5...5 bar |
| Protection class | IP67 |
| Switching state | LED, Yellow |
| Object detected | LED, Green |
| Tests/approvals | |
| MTTF | 281 years acc. to SN 29500 (Ed. 99) 40 °C |
| Declaration of conformity EN ISO/IEC | EN 60947-5-2 |
| Vibration resistance | 20 g, 10...55 Hz, sine, 3 axes, 30 min/axis according to IEC 60068-2-6 |
| Shock test | 30 g, 11 ms, half sine, 3 axes according to IEC 60068-2-27 |
| Approvals | CE cULus |

Sonic Cone



Mounting instructions

Mounting instructions/Description



Setting the switching point

The ultrasonic sensor features a switching output with a teachable switching point. The green and yellow LEDs indicate whether the sensor has detected the object.

One switching point is taught. This must be within the detection range. In this operating mode the background is suppressed.

Easy-Teach

Connect the TX1-Q20L60 teach adapter between the sensor and connection cable. Place object at the end of the switching range. Press and hold button for at least 2 s against Gnd.



| | | | | | |
|---|-----------|----|--|--|------|
| Single switching point: measure and save | GND > 2 s | OK | | | 3 Hz |
| Invert logic | UB > 2 s | OK | | | 2 Hz |

After a successful teach-in, the green LED flashes at 3 Hz and the sensor runs automatically in normal mode. To invert the output function, press and hold the button against the Ub for 2...7s

LED response
In standard operating mode, the two LEDs indicate the switching state of the sensor.
Green: Object within the detection range but not in switching range
Yellow: Object is within the switching range
Off: Object is outside the detection range or signal loss

Accessories

MW18 6945004

Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

Accessories

| Dimension drawing | Type | ID | |
|-------------------|---------------|---------|---|
| | RKC4.5T-2/TEL | 6625016 | Connection cable, M12 female connector, straight, 5-pin, cable length: 2 m, jacket material: PVC, black; cULus approval |
| | WKC4.5T-2/TEL | 6625028 | Connection cable, M12 female connector, angled, 5-pin, cable length: 2 m, jacket material: PVC, black; cULus approval |

Accessories

| Dimension drawing | Type | ID | |
|-------------------|------------|---------|---|
| | TX1-Q20L60 | 6967114 | Teach adapter for inductive encoders, linear position, angle, ultrasonic and capacitive sensors |