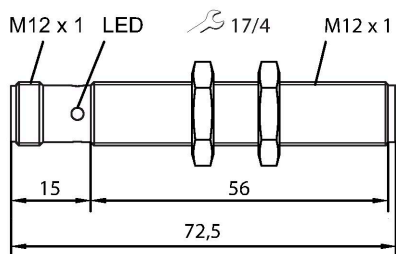


RU40U-M12-LI8X2-H1141

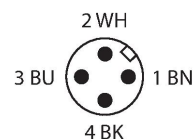
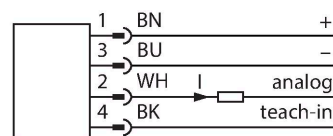
Ultrasonic Sensor – Diffuse Mode Sensor



Features

- Smooth sonic transducer face
- Cylindrical housing M12, potted
- Connection via M12 × 1 male connector
- Teach range adjustable via connection cable
- Blind zone: 4 cm
- Range: 40 cm
- Resolution: 0.5 mm
- Aperture angle of sonic cone: $\pm 15^\circ$
- Analog output, 4...20 mA

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 60947-5-7, 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.

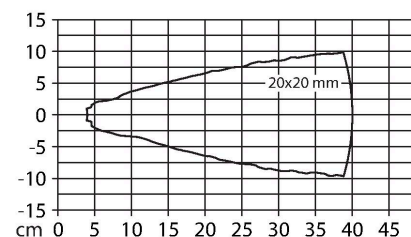
Technical data

Type	RU40U-M12-LI8X2-H1141
ID no.	100000281
Ultrasonic data	
Function	Proximity
Range	40...400 mm
Resolution	0.5 mm
Minimum measuring range	30 mm
Ultrasound frequency	300 kHz
Repeat accuracy	$\leq 0.15\%$ of full scale
Linearity error	$\leq \pm 0.5\%$
Edge lengths of the nominal actuator	20 mm
Approach speed	≤ 5 m/s
Pass speed	≤ 2.9 m/s
Electrical data	
Operating voltage	15...30 VDC
Residual ripple	10 % U_{ss}
No-load current	≤ 50 mA
Response time typical	< 60 ms
Readiness delay	≤ 300 ms
Output function	Analog output
Current output	4...20 mA
Load resistance current output	≤ 0.5 k Ω
Short-circuit protection	yes

Technical data

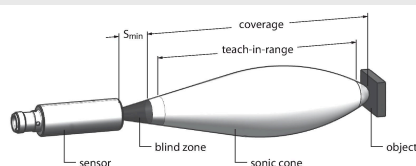
Reverse polarity protection	yes
Wire breakage protection	yes
Setting option	Remote Teach
Mechanical data	
Design	Threaded barrel, M12
Radiation direction	straight
Dimensions	Ø 12 x 72.5 mm
Housing material	Metal, CuZn, Chrome-plated
Max. tightening torque of housing nut	20 Nm
Transducer material	Plastic, Epoxyd resin and PU foam
Electrical connection	Connector, M12 × 1, 4-wire
Ambient temperature	-10...+60 °C
Storage temperature	-40...+80 °C
Protection class	IP67
Object detected	LED, Green
Tests/approvals	
MTTF	304 years acc. to SN 29500 (Ed. 99) 40 °C
Declaration of conformity EN ISO/IEC	EN 60947-5-7
Vibration resistance	IEC 60068-2

Sonic Cone



Mounting instructions

Mounting instructions/Description



Setting the limit values

The ultrasonic sensor has an analog output with a teachable measuring range. The green and yellow LEDs indicate whether the sensor has detected the object.

Teach

- Position object for remote limit value
- Short-circuit pin 4 (BK) against Ub for 2–7 seconds
- Position object for close limit value
- Short-circuit pin 4 (BK) against Ub for 8–11 seconds
- Optional: Short-circuit pin 4 (BK) against Ub for 12–17 seconds to invert the analog output (no object required)
- Return to normal operating mode after 17 s or more.

LED response

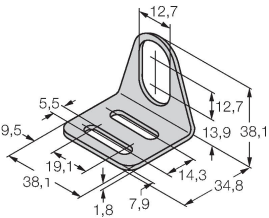
Successful teach-in is displayed with a fast flashing LED. The sensor then automatically runs in normal operating mode. Unsuccessful teach-in is indicated by the LED flashing alternately green and yellow.

In normal operation, the two LEDs indicate the status of the sensor.

- Green: Object within the detection range, but not in the measuring range
- Yellow: Object is within the measuring range
- Off: Object is outside the detection range or signal loss

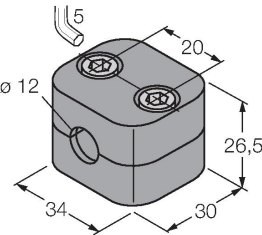
Accessories

MW-12 6945003



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

BSS-12 6901321



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

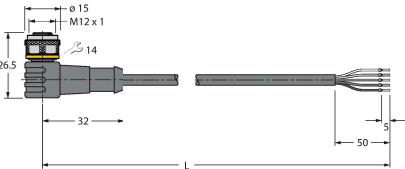
Wiring accessories

Dimension drawing	Type	ID no.
	RKC4.5T-2/TEL	6625016



Connection cable, female M12, straight, 5-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com

WK4.5T-2/TEL	6625028
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Connection cable, female M12, angled, 5-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com