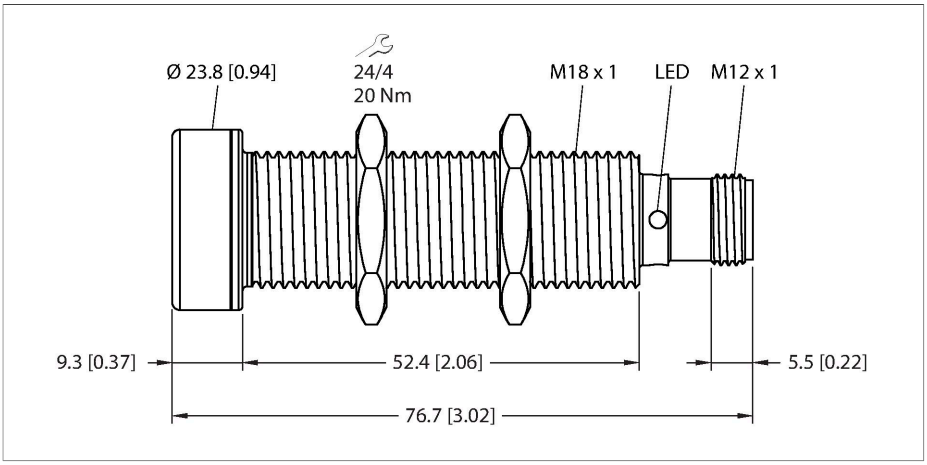
RU100U-EMT18E-LU8X2-H1151
Ultrasonic Sensor – Diffuse Mode Sensor



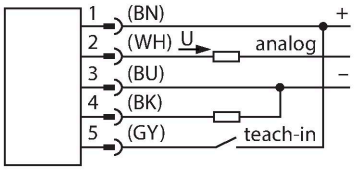
Technical data

Type	RU100U-EMT18E-LU8X2-H1151
ID	100004305
Ultrasonic data	
Function	Proximity switch
Range	150…1000 mm
Resolution	1 mm
Minimum measuring range	100 mm
Minimum switching range	100 mm
Ultrasound frequency	200 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	100 mm
Approach speed	≤ 8 m/s
Pass speed	≤ 2 m/s
Electrical data	
Operating voltage	15…30 VDC
Residual ripple	10 % U_{ss}
DC rated operational current	≤ 150 mA
No-load current	≤ 50 mA
Load resistance	≤ 1000 Ω
Response time typical	< 90 ms
Readiness delay	≤ 300 ms
Output function	Analog output
Output 1	Analog output
Voltage output	0…10 V

Features

- Sonic transducer face with PTFE layer
- • Stainless steel front attachment
- Cylindrical housing M18, potted
- Connection via M12 × 1 male connector
- Temperature compensation
- Blind zone: 15 cm
- Range: 100 cm
- Resolution: 1 mm
- Aperture angle of sonic cone: ±16 °
- 1 × analog output, 0…10 V/additional switching output, PNP

Wiring diagram



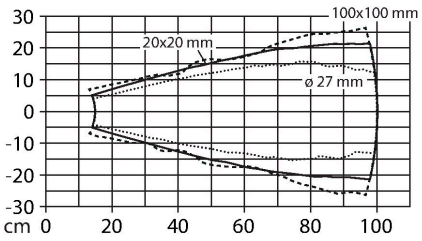
Functional principle

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

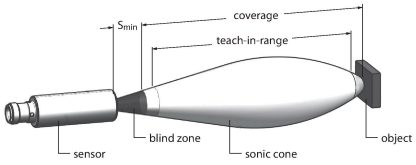
Load resistance voltage output	≥ 1 kΩ
Switching frequency	≤ 6.9 Hz
Short-circuit protection	yes / Cyclic
Reverse polarity protection	yes
Wire breakage protection	yes
Setting option	Remote Teach
Mechanical data	
Design	Threaded barrel, M18
Radiation direction	straight
Dimensions	Ø 18 x 75 mm
Housing material	Stainless steel, 1.4404 (AISI 316L), PTFE-coated
Max. tightening torque of housing nut	20 Nm
Transducer material	Plastic, Epoxy resin and PU foam with PTFE coating
Electrical connection	Connector, M12 × 1, 5-wire
Ambient temperature	-5…+50 °C
Storage temperature	-40…+50 °C
Protection class	IP67
Switching state	LED, Yellow
Object detected	LED, Green
Tests/approvals	
MTTF	acc. to SN 29500 (Ed. 99) 40 °C
Declaration of conformity EN ISO/IEC	EN 60947-5-7
Vibration resistance	IEC 60068-2
Approvals	CE cULus

Sonic Cone



Mounting instructions

Mounting instructions/Description



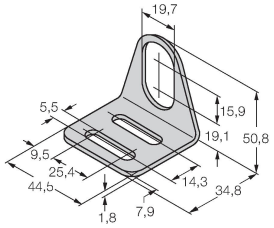
Setting the limit values
The ultrasonic sensor has an analog output with teachable measuring range. Teaching is implemented via the teach adapter. The green and yellow LEDs indicate whether the sensor has detected the object.

Teach
Connect the TX1-Q20L60 teach adapter between the sensor and connection cable
• Position object for remote limit value
• Press the button against Ub for 2 - 7 seconds
• Position object for close limit value
• Press the button against Ub for 8 - 11 seconds
Optional: Inversion of analog output
• Press the button for 12 - 17 seconds

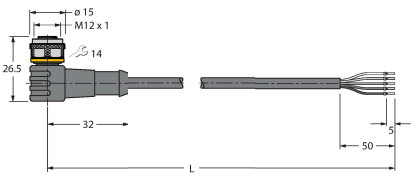
LED response

Successful teaching is displayed with a fast flashing LED. Thereafter, the sensor automatically runs in normal operating mode. Unsuccessful teaching 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 outside the detection range or signal loss

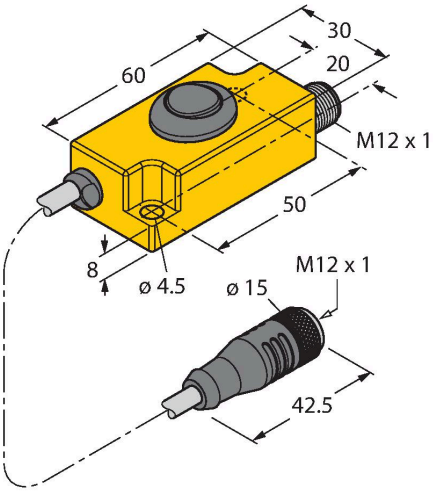
Accessories

MW-18	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, 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
	WKC4.5T-2/TEL	6625028	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

Accessories

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