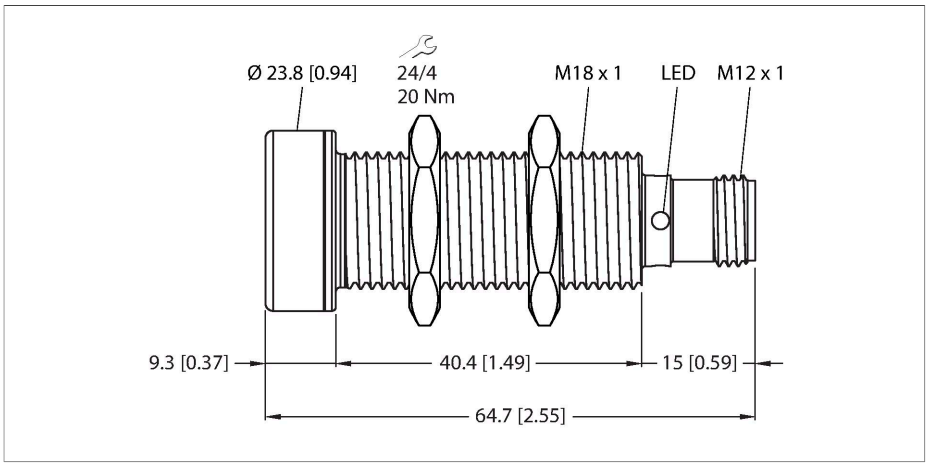
RU100U-EMT18M-UP8X2-H1151
Ultrasonic Sensor – Diffuse Mode Sensor



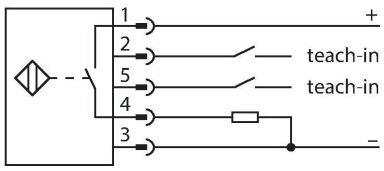
Technical data

Type	RU100U-EMT18M-UP8X2-H1151
ID	1610115
Ultrasonic data	
Function	Proximity switch
Range	150…1000 mm
Resolution	1 mm
Minimum switching range	10 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 U_B	15…30 VDC
Residual ripple	10 % U_{ss}
DC rated operating current I_e	≤ 150 mA
No-load current	≤ 50 mA
Load resistance	≤ 1000 Ω
Residual current	≤ 0.1 mA
Response time typical	< 90 ms
Readiness delay	≤ 300 ms
Output function	NO/NC, PNP
Output 1	Switching output
Switching frequency	≤ 6.9 Hz
Hysteresis	≤ 10 mm

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 × switching output, PNP
- Teachable settings
- NO/NC programmable

Wiring diagram



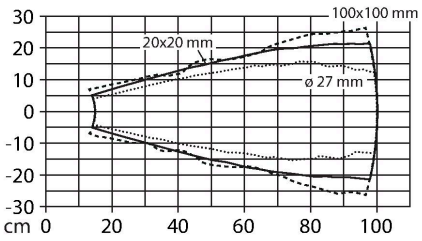
Functional principle

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

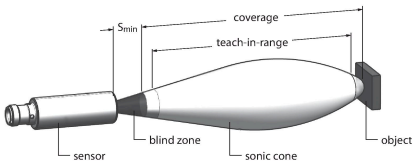
Voltage drop at I_e	≤ 2.5 V
Short-circuit protection	yes/Cyclic
Reverse polarity protection	yes
Wire breakage protection	yes
Setting option	Remote Teach
Mechanical data	
Design	Threaded barrel, M18
Radiation direction	straight
Dimensions	Ø 18 x 63 mm
Housing material	Stainless steel, 1.4404 (AISI 316L), 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
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

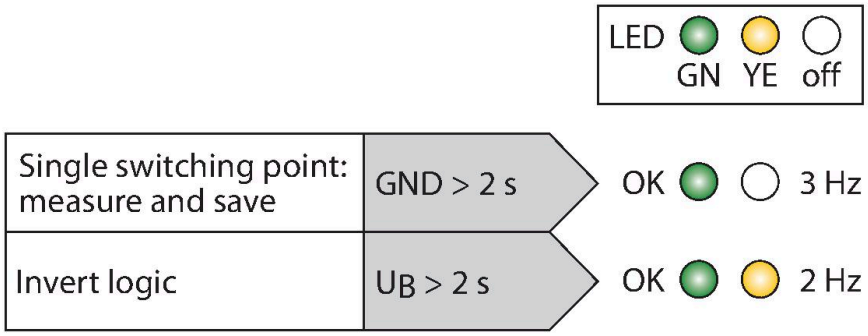
Mounting instructions/Description



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.

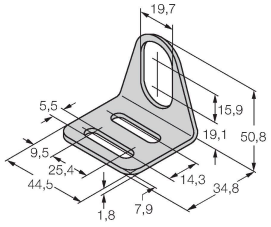
Easy-Teach
Connect the TX1-Q20L60 teach adapter between the sensor and connection cable
Place object at the end of the switching range



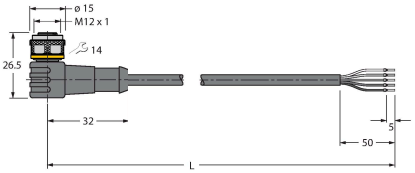
Press and hold button for at least 2 s against Gnd
After a successful teach-in, the green LED flashes at 3 Hz and the sensor runs automatically in normal mode.
To invert the output function, press and hold the button against the Ub for 2…7s

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

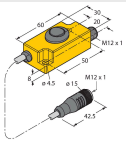
Accessories

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