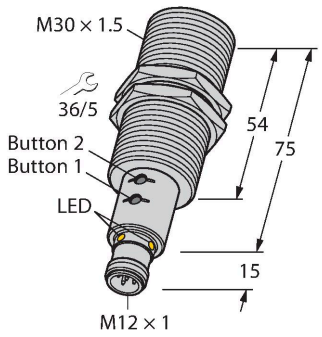
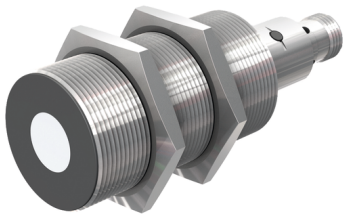
RU300U-M30E-2UP8X2T-H1151/S1331
Ultrasonic Sensor – Diffuse Mode Sensor





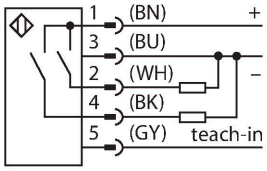
Technical data

Type	RU300U-M30E-2UP8X2T-H1151/S1331
ID	1610042
Special version	S1331 Corresponds to:Customized teaching procedure
Ultrasonic data	
Function	Proximity switch
Range	300…3000 mm
Resolution	1 mm
Minimum switching range	25 mm
Ultrasound frequency	120 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	≤ 11 m/s
Pass speed	≤ 4.2 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	< 190 ms
Readiness delay	≤ 300 ms
Output function	PNP
Output 1	Switching output

Features

- Smooth sonic transducer face
- Cylindrical housing M30, potted
- Connection via M12 x 1 male
- Measuring range adjustable via teach button/Easy-Teach
- Temperature compensation
- Blind zone: 30 cm
- Range: 300 cm
- Resolution: 1 mm
- Aperture angle of sonic cone: ±15 °
- Approval: cULus
- UL cond.: amb. air temp. 85 °C, encl. type 1, input: 30 VDC, 150 mA; class 2, binary OUT: 30 VDC, 150 mA each output, max. 2 A; use same supply source for all circuits

Wiring diagram



Functional principle

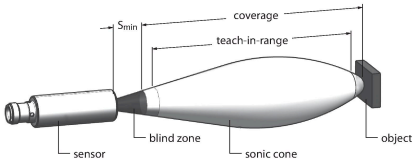
Ultrasonic sensors capture a multitude of objects contactlessly and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or non-metallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.
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

Technical data

Output 2	Switching output
Switching frequency	≤ 3.3 Hz
Hysteresis	≤ 25 mm
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, M30
Radiation direction	straight
Dimensions	Ø 30 x 89 mm
Housing material	Metal, CuZn, Nickel Plated
Max. tightening torque of housing nut	75 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	232 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/ax-is 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

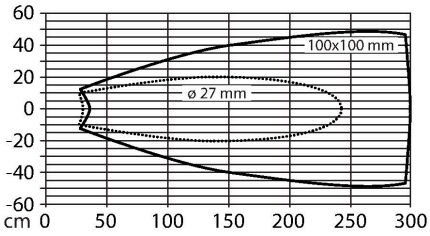
Mounting instructions

Mounting instructions/Description



targets due to the different reflection properties and geometries.

Sonic Cone



Setting the limits
The ultrasonic sensor features two switching outputs with teachable switching range. The range is either set via Easy-Teach or via the buttons in the teach back-end. The green and yellow LED indicate whether the sensor has detected an object.
How to set the window mode for switching output 1 using two limits is described below. The limits of the window may be selected

freely within the detection range. Like output 1, switching output 2 is taught independently either via a button on the teach adapter pressed against Ub or button 2 on the sensor and the teaching status is indicated via the green LED

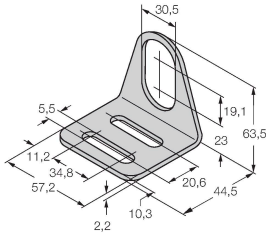
Easy-Teach
•Connect teach adapter TX1-Q20L60 between sensor and connection cable
• Output 1, remote limit: Place object accordingly
• Press button for 2 to 7 s to GND, yellow LED flashes with 2 Hz
• Output 1, near limit: Place object accordingly
• Press button again for 2 to 7 s to GND, yellow LED flashes with 5 Hz

Teach-Button
• Output 1, remote limit: Place object accordingly
• Press button 1 for 2 to 7 s, yellow LED flashes with 2 Hz
• Output 1, near limit: Place object accordingly
• Press button 1 again for 2 to 7 s, yellow LED flashes with 5 Hz

After successful teaching, the sensor automatically runs in normal operating mode. Unsuccessful teaching is indicated with rapid alternating green and yellow LED.
LED response
Successful teaching is indicated by a fast flashing green LED. Thereafter, the sensor automatically runs in normal operating mode. In normal operating mode both LEDs signal the switching state of output 1.
•green: object is in the detection range but not in the switching range
• yellow: object is in the switching range
•off: object is outside the switching range

Accessories

MW30	6945005



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

Accessories

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