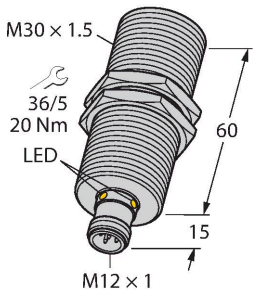
RU300U-M30M-2AP8X2-H1151
Ultrasonic Sensor – Diffuse Mode Sensor



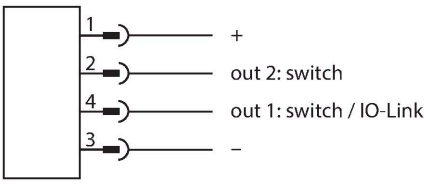
Technical data

Type	RU300U-M30M-2AP8X2-H1151
ID no.	100004866
Ultrasonic data	
Function	Proximity
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	15…30 VDC
Residual ripple	10 % U_{ss}
DC rated operational current	≤ 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

Features

- Smooth sonic transducer face
- Cylindrical housing M30, potted
- Connection via M12 × 1 male connector
- Measuring range adjustable via Easy-Teach
- Temperature compensation
- Blind zone: 30 cm
- Range: 300 cm
- Resolution: 1 mm
- Sonic cone angle: 15°
- 2 × switching outputs, PNP
- NO/NC programmable
- IO-Link communication

Wiring diagram



Functional principle

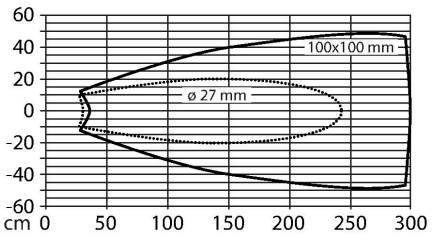
Ultrasonic sensors capture a multitude of objects contactlessly and wear-free with ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or non-metallic, firm, liquid or powdery. Even environmental conditions such as spray, dust or rain hardly affect their function.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

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Technical data

Communication protocol	IO-Link
Output function	NO/NC, PNP
Output 1	Switching output or IO-Link mode
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 IO-Link
IO-Link	
IO-Link specification	V 1.1
IO-Link port type	Class A
Communication mode	COM 2 (38.4 kBaud)
Process data width	16 bit
Measured value information	15 bit
Switchpoint information	1 bit
Frame type	2.2
Minimum cycle time	2 ms
Function Pin 4	IO-Link
Function Pin 2	DI
Maximum cable length	20 m
Profile support	Smart Sensor Profil
Included in the SIDI GSDML	Yes
Mechanical data	
Design	Threaded barrel, M30
Radiation direction	straight
Dimensions	Ø 30 x 75 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
Protection class	IP67
Switching state	LED, Yellow

Sonic Cone



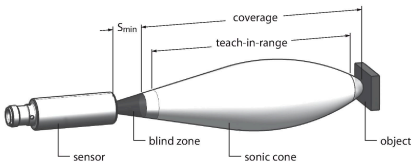
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Technical data

Object detected	LED, Green
Tests/approvals	
MTTF	acc. to SN 29500 (Ed. 99) 40 °C
Declaration of conformity EN ISO/IEC	EN 60947-5-2
Vibration resistance	IEC 60068-2

Mounting instructions

Mounting instructions/Description



Setting the limits
The ultrasonic sensor features two switching outputs with teachable switching range. The adjustments can either be made via Easy-Teach adapter or via buttons (please note, only the RU…U-M…E-2UP8X2T-H1151 types have buttons!). The green and yellow LED indicate whether the sensor has detected an object.

Various functions such as single switchpoint, window mode or reflection mode to a fixed target can be taught. Further information is described in the operating instructions. How to set the window mode is described below. The limits of the window may be selected freely within the detection range.

Easy-Teach
•Connect the teach adapter TX1-Q20L60 between sensor and connection cable
•For the first limit value, place object accordingly
• Press and hold the select button for output 1 or 2 for 2 or 8 s against Gnd
• Press and hold the select button for 8 s against Gnd to teach the first limit value.
•For the second limit value, place object accordingly
•Press and hold button for at least 2 s against Gnd

Teach button (only RU…U-M…E-2UP8X2T-H1151 types have buttons)
•For the first limit value, place object accordingly
• Press and hold button 1 to select output 1 or 2 for 2 or 8 s against Gnd
• Press and hold button 1 for at least 8 s
•For the second limit value, place object accordingly
• Press and hold button 1 for at least 2 s

After successful teaching, the sensor automatically runs in normal operating mode. Unsuccessful teach-in is signaled by the LED flashing slowly at a frequency of 5Hz.

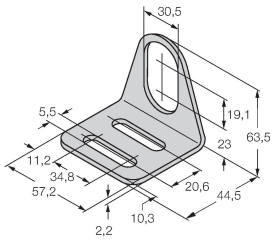
LED response
Successful teaching is indicated by a fast flashing green LED. Thereafter, the sensor automatically runs in normal operating mode.

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Unsuccessful teaching is indicated by the LED flashing alternately green and yellow.
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 detection range

Accessories

MW-30	6945005

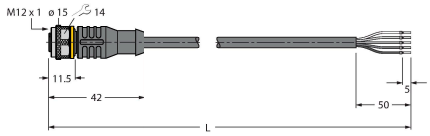


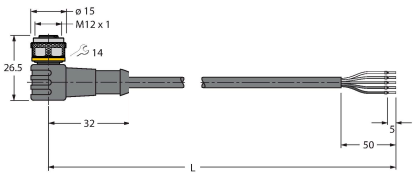
Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

Accessories

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
	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

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