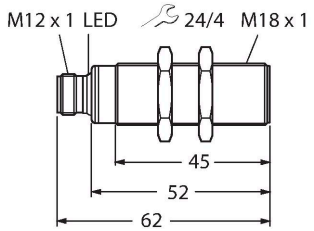
RU50U-S18-AN8X-H1141
Ultrasonic Sensor – Diffuse Mode Sensor





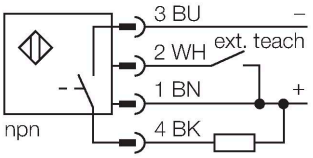
Technical data

Type	RU50U-S18-AN8X-H1141
ID	100000983
Ultrasonic data	
Function	Proximity
Range	50…500 mm
Resolution	0.2 mm
Minimum switching range	5 mm
Ultrasound frequency	300 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	20 mm
Approach speed	≤ 5 m/s
Pass speed	≤ 3 m/s
Electrical data	
Operating voltage U_B	15…30 VDC
DC rated operating current I_e	≤ 150 mA
No-load current	≤ 50 mA
Residual current	≤ 0.1 mA
Response time typical	< 65 ms
Readiness delay	≤ 300 ms
Output function	NO contact, NPN
Output 1	Switching output

Features

- Smooth sonic transducer face
- Cylindrical housing S18, potted
- Connection via M12 × 1 male connector
- Teach range adjustable via adapter
- Temperature compensation
- Blind zone: 5 cm
- Range: 50 cm
- Aperture angle of sonic cone: ±20 °
- NPN switching output, NO contact
- Switching range adjustable

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

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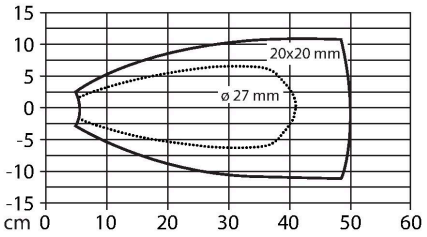
Technical data

Switching frequency	≤ 9.6 Hz
Hysteresis	≤ 5 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, S18
Radiation direction	straight
Dimensions	Ø 18 x 62 mm
Housing material	Plastic, LCP, Yellow
Transducer material	Plastic, Epoxyd resin and PU foam
Electrical connection	Connector, M12 × 1, 4-wire
Ambient temperature	-20…+50 °C
Storage temperature	-40…+80 °C
Pressure resistance	0.5…5 bar
Protection class	IP67
Switching state	LED, Yellow
Tests/approvals	
MTTF	293 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

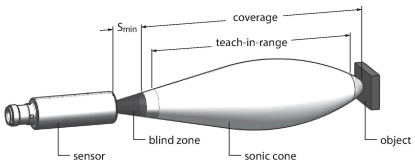
targets due to the different reflection properties and geometries.

Sonic Cone



Mounting instructions

Mounting instructions/Description



Setting the switching point
The ultrasonic sensor features a switching output with a teachable switching point. The yellow LED indicates whether the object is within the switching range of the sensor.

One switching point is taught. This must be within the detection range. In this operating mode the background is suppressed.

Simple Teach-In

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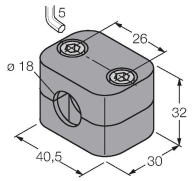
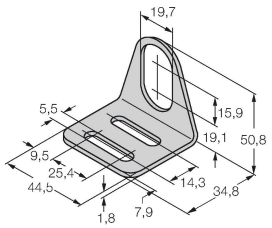
Place object at the end of the switching range
Pin 2/seal the white core against Ub for 2…7 s
• Return to normal operating mode after 17 s or more.

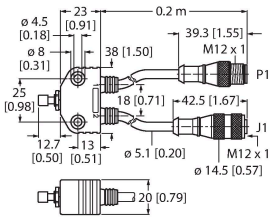
After a successful teach-in, the yellow LED flashes 3 times and the sensor runs automatically in normal operating mode.

LED response
In normal operating mode, the LED signals the switching state of the sensor.

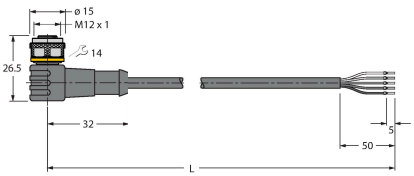
Accessories

BSS-18	6901320
	Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

MW18	6945004
	Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

VB2-SP1	A3501-29
	Teach adapter

Wiring 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

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