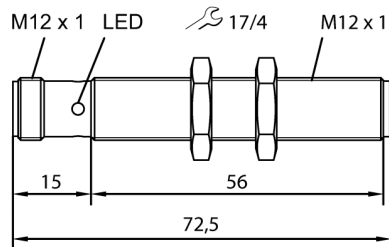


Ultrasonic Sensor

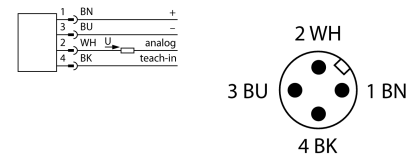
Diffuse Mode Sensor

RU20U-M12-LU8X2-H1141



- Smooth sonic transducer face
- Cylindrical housing M12, potted
- Connection via M12 × 1 male connector
- Teach range adjustable via connection cable
- Blind zone: 2.5cm
- Range: 20cm
- Resolution: 0.5mm
- Aperture angle of sonic cone: 9°
- Analog output, 0...10 V

Wiring Diagram



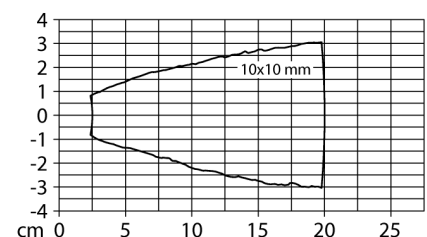
Functional principle

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 x 20 mm, 100 x 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.

Sonic Cone



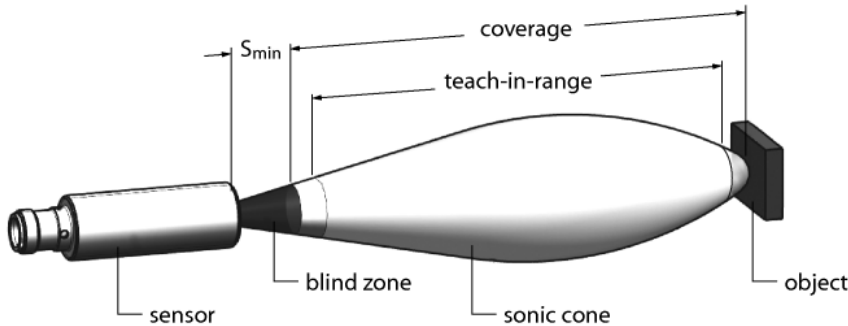
Type designation	RU20U-M12-LU8X2-H1141
Ident-No.	100000282
Function	Ultrasonic diffuse mode sensor
Range	25...200 mm
Resolution	0.5 mm
minimum measuring range	30 mm
minimum switching range	3 mm
Ultrasound frequency	400 kHz
Repeat accuracy	0.15 % of full scale
Linearity error	≤ ± 0.5 %
Edge lengths of the nominal actuator	10 mm
Approach speed	≤ 3 m/s
Pass speed	≤ 1.1 m/s
Operating voltage	15...30 VDC
Residual ripple	10 % U _{ss}
No-load current I ₀	≤ 50 mA
Response time typical	50 ms
Readiness delay	300 ms
Voltage output	0...10V
Load resistance voltage output	≥ 1 kΩ
Short-circuit protection	yes
Reverse polarity protection	yes
Wire breakage protection	yes
Design	Threaded barrel, M12
Radiation direction	straight
Dimensions	72.5 x Ø 12 mm
Housing material	Metal, CuZn, Chrome-plated
Transducer material	Plastic, Epoxyd resin and PU foam
Electrical connection	Connector, M12 × 1, 4-wire
Protection class	IP67
Ambient temperature	-10...+60 °C
Storage temperature	-40...+80 °C
Declaration of conformity EN ISO/IEC	EN 60947-5-7
Vibration resistance	IEC 60068-2
MTTF	304 years
MTTF note	acc. to SN 29500 (Ed. 99) 40 °C
Object detected	LED, Green

Ultrasonic Sensor

Diffuse Mode Sensor

RU20U-M12-LU8X2-H1141

Mounting instructions/Description



Setting the limit values

The ultrasonic sensor has an analog output with a teachable measuring range. The green and yellow LEDs indicate whether the sensor has detected the object.

Teach

- Position object for remote limit value
- Short-circuit pin 4 (BK) against Ub for 2–7 seconds
- Position object for close limit value
- Short-circuit pin 4 (BK) against Ub for 8–11 seconds
- Optional: Short-circuit pin 4 (BK) against Ub for 12–17 seconds to invert the analog output (no object required)
- Return to normal operating mode after 17 s or more.

LED response

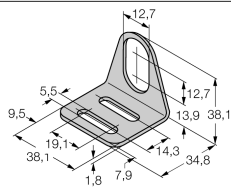
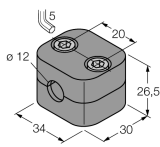
Successful teach-in is displayed with a fast flashing LED. The sensor then automatically runs in normal operating mode. Unsuccessful teach-in is indicated by the LED flashing alternately green and yellow.

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 is outside the detection range or signal loss

Ultrasonic Sensor Diffuse Mode Sensor RU20U-M12-LU8X2-H1141

Accessories

Type code	Ident-No.	Description	Dimension drawing
MW-12	6945003	Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)	 Technical drawing of the MW-12 mounting bracket. Dimensions (mm): 12.7 (height of mounting loop), 12.7 (width of mounting loop), 13.9 (width of base), 38.1 (depth of base), 14.3 (width of base), 34.8 (width of base), 7.9 (width of base), 1.8 (width of base), 38.1 (depth of base), 19.1 (width of base), 9.5 (width of base), 5.5 (width of base).
BSS-12	6901321	Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene	 Technical drawing of the BSS-12 mounting clamp. Dimensions (mm): 20 (width of top flange), 26.5 (height of top flange), 30 (width of bottom flange), 34 (width of bottom flange), 12 (diameter of mounting hole), 5 (width of mounting hole).