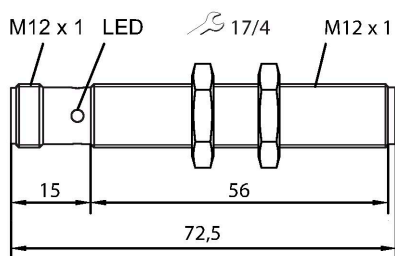


# RU40U-M12-LI8X2-H1141

## Ultrasonic Sensor – Diffuse Mode Sensor



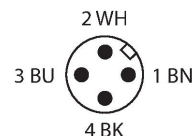
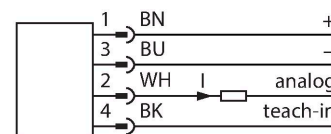
### Technical data

Type	RU40U-M12-LI8X2-H1141
ID	100000281
<b>Ultrasonic data</b>	
Function	Proximity
Range	40...400 mm
Resolution	0.5 mm
Minimum measuring range	30 mm
Ultrasound frequency	300 kHz
Repeat accuracy	≤ 0.15 % of full scale
Linearity error	≤ ± 0.5 %
Edge lengths of the nominal actuator	20 mm
Approach speed	≤ 5 m/s
Pass speed	≤ 2.9 m/s
<b>Electrical data</b>	
Operating voltage $U_b$	15...30 VDC
Residual ripple	10 % $U_{ss}$
No-load current	≤ 50 mA
Response time typical	< 60 ms
Readiness delay	≤ 300 ms
Output function	Analog output
Current output	4...20 mA
Load resistance current output	≤ 0.5 kΩ
Short-circuit protection	yes

### Features

- Smooth sonic transducer face
- Cylindrical housing M12, potted
- Connection via M12 × 1 male connector
- Teach range adjustable via connection cable
- Blind zone: 4 cm
- Range: 40 cm
- Resolution: 0.5 mm
- Aperture angle of sonic cone: ±15 °
- Analog output, 4...20 mA

### 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.

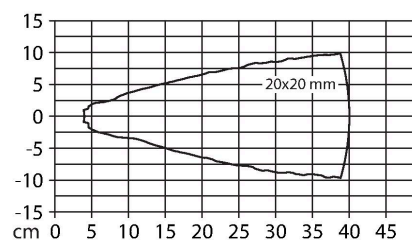
## Technical data

Reverse polarity protection	yes
Wire breakage protection	yes
Setting option	Remote Teach
<b>Mechanical data</b>	
Design	Threaded barrel, M12
Radiation direction	straight
Dimensions	Ø 12 x 72.5 mm
Housing material	Metal, CuZn, Chrome-plated
Max. tightening torque of housing nut	20 Nm
Transducer material	Plastic, Epoxyd resin and PU foam
Electrical connection	Connector, M12 × 1, 4-wire
Ambient temperature	-10...+60 °C
Storage temperature	-40...+80 °C
Pressure resistance	0.5...5 bar
Protection class	IP67
Object detected	LED, Green
<b>Tests/approvals</b>	
MTTF	304 years acc. to SN 29500 (Ed. 99) 40 °C
Declaration of conformity EN ISO/IEC	EN 60947-5-7
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

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 × 20 mm, 100 × 100 mm) and a round rod with a diameter of 27 mm are used.

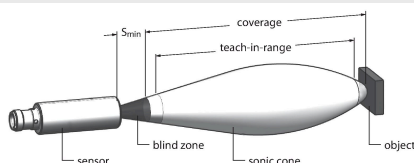
Important: The detection ranges for other targets may differ from those for standard targets due to the different reflection properties and geometries.

## Sonic Cone



## Mounting instructions

### 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

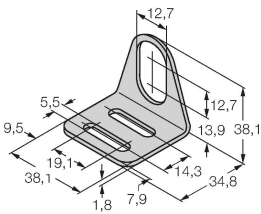
Successful teach-in is displayed with a fast flashing LED. The sensor then automatically runs in normal operating mode. Unsuccessful teach-in is indicated by the LED flashing alternately green and yellow.

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

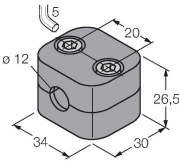
Accessories

MW12	6945003
------	---------



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

BSS-12	6901321
--------	---------



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

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