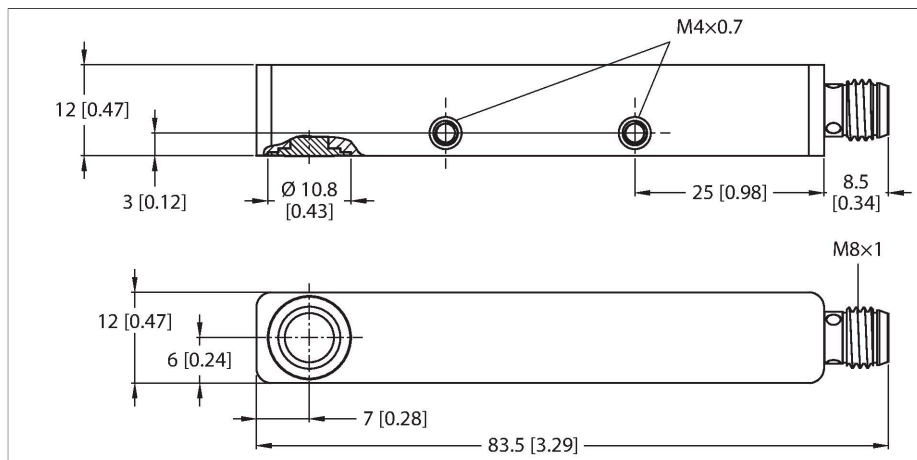


# RU20L-Q12S-UN8X-V1141

## Ultrasonic Sensor – Retroreflective Sensor



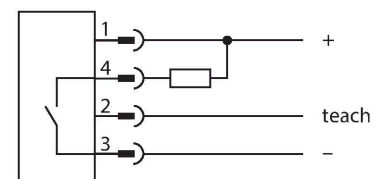
### Technical data

Type	RU20L-Q12S-UN8X-V1141
ID	100005609
<b>Ultrasonic data</b>	
Function	Retroreflective Sensor
Range	20...200 mm
Resolution	1 mm
Minimum switching range	5 mm
Ultrasound frequency	300 kHz
Repeat accuracy	≤ 0.25 % of full scale
Temperature drift	± 1 % of full scale
Linearity error	≤ ± 0.8 %
Approach speed	≤ 3 m/s
Pass speed	≤ 0.6 m/s
<b>Electrical data</b>	
Operating voltage	18...30 VDC
Residual ripple	10 % U <sub>ss</sub>
No-load current	≤ 40 mA
Load resistance	≤ 1000 Ω
Residual current	≤ 0.1 mA
Response time typical	< 100 ms
Readiness delay	≤ 300 ms
Communication protocol	IO-Link
Output function	NO/NC, NPN
Output 1	Switching output
Switching frequency	≤ 20 Hz
Hysteresis	≤ 2 mm
Voltage drop at I <sub>a</sub>	≤ 2 V

### Features

- Smooth sonic transducer face
- Rectangular housing Q12S, potted
- Lateral light emission
- Connection via M8 × 1 male connector
- Teach range adjustable via connection cable or via IO-Link
- Blind zone: 2 cm
- Range: 20 cm
- Resolution: 1 mm
- Aperture angle of sonic cone: ±9 °
- Switching output, NPN
- NO/NC programmable
- IO-Link

### 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.

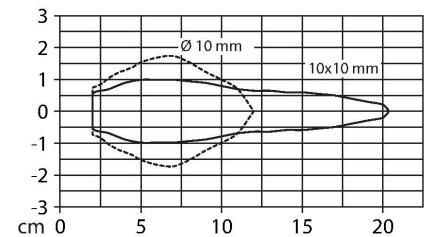
## Technical data

Short-circuit protection	yes
Reverse polarity protection	yes
Setting option	Remote Teach IO-Link
<b>IO-Link</b>	
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 Profile
Included in the SIDI GSDML	Yes
<b>Mechanical data</b>	
Design	Rectangular, Q12
Radiation direction	side
Dimensions	82 x 12 x 12 mm
Housing material	Metal, AL, Anodized
Transducer material	Plastic, Epoxyd resin and PU foam
Electrical connection	Connector, M8 × 1, 4-wire
Ambient temperature	-25...+70 °C
Storage temperature	-25...+70 °C
Pressure resistance	0.5...5 bar
Protection class	IP67
Switching state	LED, Yellow
<b>Tests/approvals</b>	
MTTF	578 years acc. to SN 29500 (Ed. 99) 40 °C
Declaration of conformity EN ISO/IEC	EN 60947-5-2
Shock test	Shock/vibration according to EN 60947-5-230 g, 11 ms/10...55 Hz, 1.0 mm
Approvals	CE cULus

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.

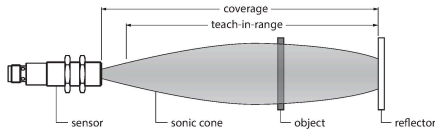
Important: The detection ranges for other targets may differ from those for standard targets due to the different reflection properties and geometries.

## Sonic Cone



## Mounting instructions

### Mounting instructions/Description



#### Teaching the reflector position

The ultrasonic sensor features a switching output with a teachable switching range. The yellow LED indicates whether the sensor has detected the object.

A switching range is taught in. This must be within the detection range. In this operating mode, the taught reflector position is detected permanently without an object.

#### Easy-Teach



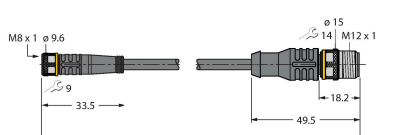
- Stationary reflector within the detection range
- Bridge pin 2 (BK) with the Ub for 2 seconds  
After a successful teach-in, the yellow LED flashes at 3 Hz and the sensor runs automatically in normal mode.
- To invert the output function, bridge pin 2 against Ub for 2...7 seconds

#### LED response


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

- Yellow: object between the sensor and reflector

## Accessories

Dimension drawing	Type	ID	
	PKG4M-2/TEL	6625061	Connection cable, M8 female connector, straight, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval
	PKW4M-2/TEL	6625067	Connection cable, M8 female connector, angled, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval
	PKG4M-2-RSC4.4T/TXL	6627063	Extension cable, M8 female connector, straight, 4-pin to M12 male connector, straight, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval

## Accessories

Dimension drawing	Type	ID	
	TBEN-S2-4IOL	6814024	Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A

Dimension drawing	Type	ID	
	USB-2-IOL-0002	6825482	IO-Link Master with integrated USB port

