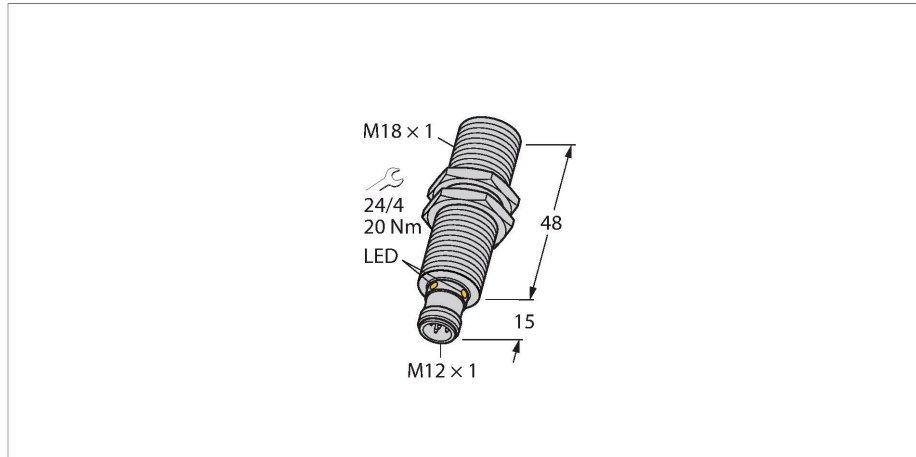


# RU100L-M18M-UP8X2-H1151

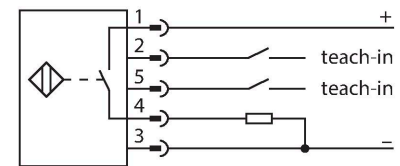
## Ultrasonic Sensor – Retroreflective Sensor



### Features

- Smooth sonic transducer face
- Cylindrical housing M18, potted
- Connection via M12 x 1 male
- Temperature compensation
- Teach-in range: 15...98 cm
- Resolution: 1 mm
- Aperture angle of sonic cone:  $\pm 16^\circ$
- 1 x switching output, PNP
- Configurable via Teach-In
- Parameterizable NO/NC

### Wiring diagram



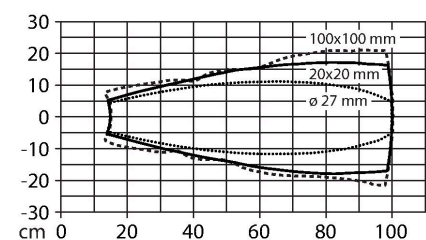
### Technical data

Type	RU100L-M18M-UP8X2-H1151
ID	1610077
<b>Ultrasonic data</b>	
Function	Retroreflective
Range	150...1000 mm
Minimum switching range	10 mm
Ultrasound frequency	200 kHz
Repeat accuracy	$\leq 0.15\%$ of full scale
Temperature drift	$\pm 1.5\%$ of full scale
Linearity error	$\leq \pm 0.5\%$
Edge lengths of the nominal actuator	100 mm
Approach speed	$\leq 8$ m/s
Pass speed	$\leq 2$ m/s
<b>Electrical data</b>	
Operating voltage	15...30 VDC
Residual ripple	10 % $U_{ss}$
DC rated operational current	$\leq 150$ mA
No-load current	$\leq 50$ mA
Load resistance	$\leq 1000 \Omega$
Residual current	$\leq 0.1$ mA
Response time typical	$< 90$ ms
Readiness delay	$\leq 300$ ms
Output function	NO/NC, PNP

### 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 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

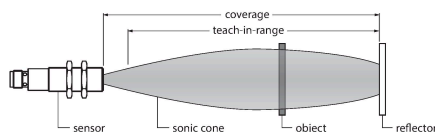


## Technical data

Output 1	Switching output
Switching frequency	≤ 6.9 Hz
Hysteresis	≤ 10 mm
Voltage drop at I <sub>o</sub>	≤ 2.5 V
Short-circuit protection	yes / Cyclic
Reverse polarity protection	yes
Wire breakage protection	yes
Setting option	Remote Teach
<b>Mechanical data</b>	
Design	Threaded barrel, M18
Radiation direction	straight
Dimensions	Ø 18 x 63 mm
Housing material	Metal, CuZn, Nickel Plated
Max. tightening torque of housing nut	20 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
Pressure resistance	0.5...5 bar
Protection class	IP67
Switching state	LED, Yellow
Object detected	LED, Green
<b>Tests/approvals</b>	
MTTF	281 years acc. to SN 29500 (Ed. 99) 40 °C
Declaration of conformity EN ISO/IEC	EN 60947-5-2
Vibration resistance	IEC 60068-2
Approvals	CE cULus

## Mounting instructions

### Mounting instructions/Description



**Teaching the reflector position**  
 The ultrasonic sensor features a switching output with a teachable switching range. The green and yellow LEDs indicate 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

- Connect the teach adapter TX1-Q20L60 between the sensor and connection cable
- Stationary reflector within the detection range
- Press and hold button for at least 2 s against Gnd

After a successful teach-in, the green LED flashes at 3 Hz and the sensor runs automatically in normal mode.

- To invert the output function, press and hold the button against the Ub for 2...7s

### LED response

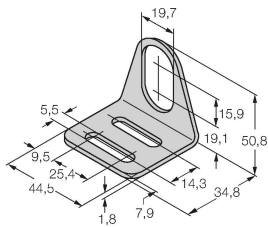
In standard operating mode, the two LEDs indicate the switching state of the sensor.

- Green: reflector within the detection range
- Yellow: object between the sensor and reflector

## Accessories

MW-18	6945004
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Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)



## 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

Accessories

Dimension drawing

Type  
TX1-Q20L60

ID  
6967114

Teach adapter for inductive encoders,  
linear position, angle, ultrasonic and  
capacitive sensors

