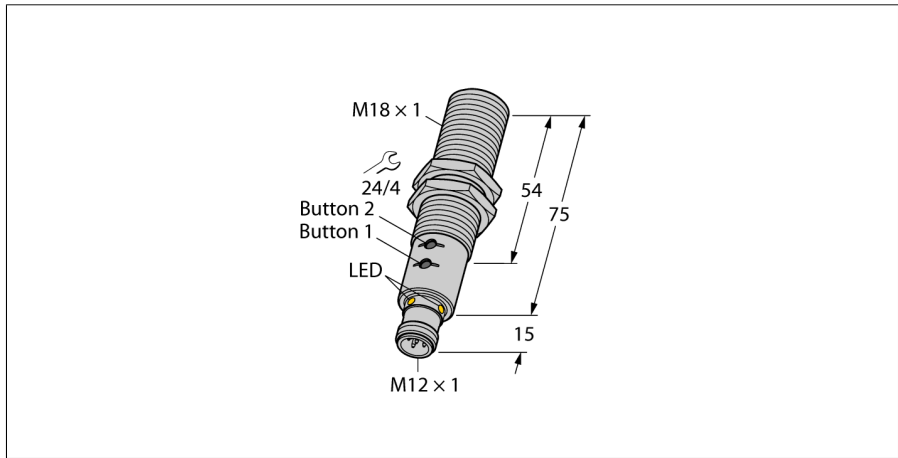


**Ultrasonic sensor
diffuse mode sensor
RU40U-M18E-LIU2PN8X2T-H1151**



- Smooth sonic transducer face
- Cylindrical housing M18, potted
- Connection via M12 x 1 male
- Teach range adjustable via pushbutton or adapter
- Temperature compensation
- Blind zone: 2.5 cm
- Range: 40 cm
- Resolution: 0.5 mm
- Sonic cone angle: 9°
- 1 x switching output, PNP/NPN
- 1 x analog output, 4...20 mA / 0...10V / additional switching output, PNP/NPN
- NO/NC programmable
- Transmission of process value and parametrization via IO-link

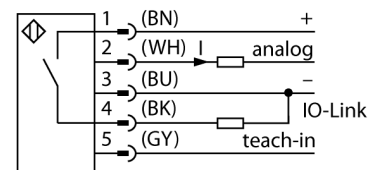
Type designation	RU40U-M18E-LIU2PN8X2T-H1151
Ident no.	1610024

Operating mode	Ultrasonic diffuse mode sensor
Range	2.5...40cm
Resolution	0.5 mm
minimum measuring range	50 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	≤ 4 m/s
Pass speed	≤ 1.5 m/s

Operating voltage	15...30 VDC
Residual ripple	10 % U _n
DC rated operational current	≤ 150 mA
No-load current I ₀	≤ 50 mA
Load resistance	≤ 1000 Ω
Residual current	≤ 0.1 mA
Response time typical	75 ms
Readiness delay	300 ms
Output function	NO/NC, PNP/NPN, analog output, IO-Link
Output 1	Switching output or IO-Link mode
Output 2	Analog output
Current output	4...20 mA
Voltage output	0...10V
Switching frequency	7 Hz
Hysteresis	≤ 5 mm
Voltage drop at I ₀	≤ 2.5 V
Short-circuit protection	yes/ Cyclic
Reverse polarity protection	yes
Wire breakage protection	yes

IO-Link	
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
Profilunterstützung	Smart Sensor Profil

Wiring Diagram



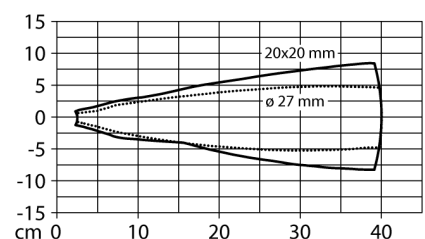
Functional principle

Ultrasonic sensors capture a multitude of objects in a contactless and wear-free process using ultrasonic waves. It does not matter whether the object is transparent or opaque, metallic or non-metallic, firm, liquid or powdery. Environmental conditions such as spray, dust or rain also hardly affect the functioning of the sensors.

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



**Ultrasonic sensor
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RU40U-M18E-LIU2PN8X2T-H1151**

Design	Threaded barrel, M18
Radiation direction	straight
Dimensions	90 x Ø18 mm
Housing material	Metal, CuZn, Nickel-plated
max. tightening torque right	20 Nm
Transducer material	Plastic, Epoxyd resin and PU foam
Electrical connection	Connector, M12 × 1, 5-wire
Protection class	IP67
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Declaration of conformity EN ISO/IEC	EN 60947-5-2
Vibration resistance	IEC 60068-2
MTTF	202 years
MTTF note	acc. to SN 29500 (Ed. 99) 40 °C

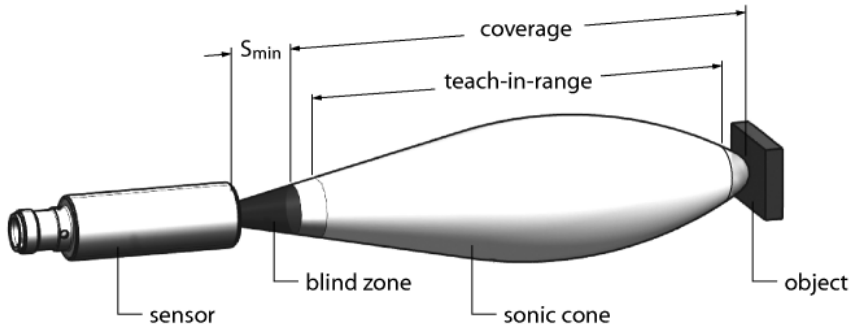
Switching state	LED yellow
Object detected	LED, green

**Ultrasonic sensor
diffuse mode sensor
RU40U-M18E-LIU2PN8X2T-H1151**

TURCK

Industrial
Automation

Mounting instructions/Description



Settings

The ultrasonic sensor can be parametrized in such a way that you can either set a measuring range via an analog and a switching output, or a switching range via two switching outputs. These settings are done with the Easy-Teach adapter or with the buttons at the sensor. Object presence is signalled by the green and yellow LED.

Two limiting values are taught. They mark the end-points of a measuring window and may be selected freely within the overall detection range.

Via Easy-Teach adapter

- Connect the teach adapter TX1-Q20L60 between sensor and connection cable
- For the first limit value, place object accordingly
- Press and hold button for at least 2 to 7 s against Ub
- For the second limit value, place object accordingly
- Press and hold button for at least 2 to 7 s against Gnd

Via buttons

- For the first limit value, place object accordingly
- Press and hold button 1 for at least 2 to 7 s
- For the second limit value, place object accordingly
- Press and hold button 2 for at least 2 to 7 s

After successful teach-in the sensor starts running automatically in standard operating mode. Unsuccessful teach-in is signalled by the LED flashing slowly at a frequency of 5 Hz.

LED response

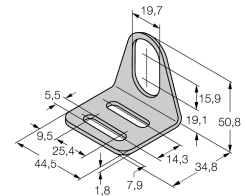
In standard operating mode both LEDs signal the switching states of the sensor.

- green: Object is in the detection range but not in the measuring range
- yellow: Object is in the measuring range
- off: Object is outside the detection range

**Ultrasonic sensor
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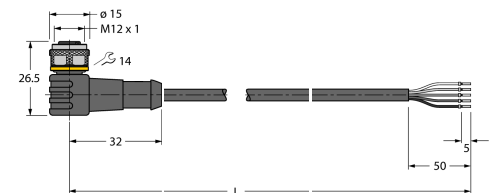
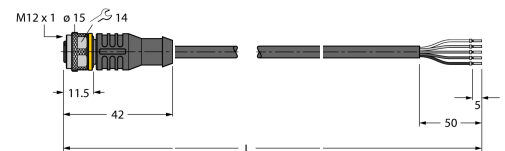
Accessories

Type code	Ident no.	Description
MW-18	6945004	Mounting bracket for threaded barrel devices; material: Stainless steel A2 1.4301 (AISI 304)



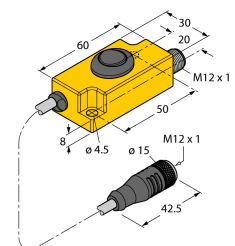
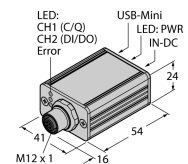
Wiring accessories

Type code	Ident no.	Description
RKC4.5T-2/TEL	6625016	Connection cable, female M12, straight, 5-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com
WKC4.5T-2/TEL	6625028	Connection cable, female M12, angled, 5-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see www.turck.com



Function accessories

Type code	Ident no.	Description
USB-2-IOL-0002	6825482	IO-Link Master with integrated USB port
TX1-Q20L60	6967114	Teach adapter for inductive encoders, linear position, angle, ultrasonic and capacitive sensors



**Ultrasonic sensor
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Function accessories

Type code	Ident no.	Description	
BL67-4IOL	6827386	4-channel IO-Link Master module for the modular BL67 I/O-system	
BL20-E-4IOL	6827385	IO-Link master module for the modular BL20 I/O system, 4-channel	
TBEN-S2-4IOL	Start1_6814024	Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A	