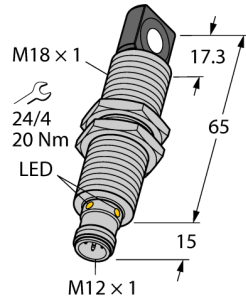# Ultrasonic sensor
diffuse mode sensor
RU100U-M18MS-LFX-H1151

- **Rectangular transducer front**
- **Cylindrical housing M18, potted**
- **Connection via M12 x 1 male**
- **Temperature compensation**
- **Blind zone: 15 cm**
- **Range: 100 cm**
- **Resolution: 1 mm**
- **Sonic cone angle: 16°**
- **Frequency output 300…2000 Hz (150…1000 Hz)**
- **Frequency range selectable via FS control line (see functional principle)**

Type code	RU100U-M18MS-LFX-H1151
Ident-No.	1610020

Operating mode	Diffuse mode ultrasonic sensor
Range	15…100cm
Resolution	1 mm
Ultrasound frequency	200 kHz
Repeatability	0.15 % of full scale
Temperature drift	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	$\leq$ 1.5 m/s

Operating voltage	15… 30VDC
Residual ripple	10 % U_{ss}
DC rated operational current	$\leq$ 150 mA
Response time	65 ms
Readiness delay	300 ms
Switching frequency	8 Hz
Voltage drop at I_e	$\leq$ 2.5 V
Short-circuit protection	yes/ cyclic
Reverse polarity protection	yes
Wire breakage protection	yes

Construction	Threaded barrel, M18
Radiation direction	side
Dimensions	80 x Ø18 mm
Housing material	Metal, CuZn, nickel-plated
max. tightening torque right	20 Nm
Transducer material	Plastic, Epoxyd resin and PU foam
Connection	Flange connector, M12 x 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	195 years
MTTF note	acc. to SN 29500 (Ed. 99) 40 °C

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Switching state	LED yellow
Object detected	LED, green

Wiring Diagram
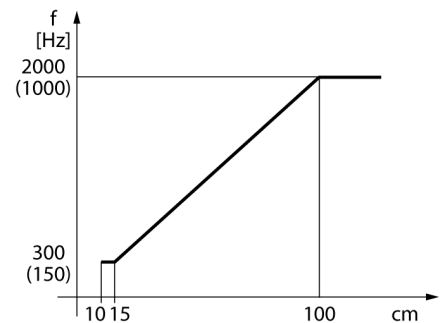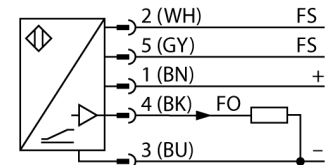
Functional principle

Ultrasonic sensors capture a multitude of objects contactless 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.
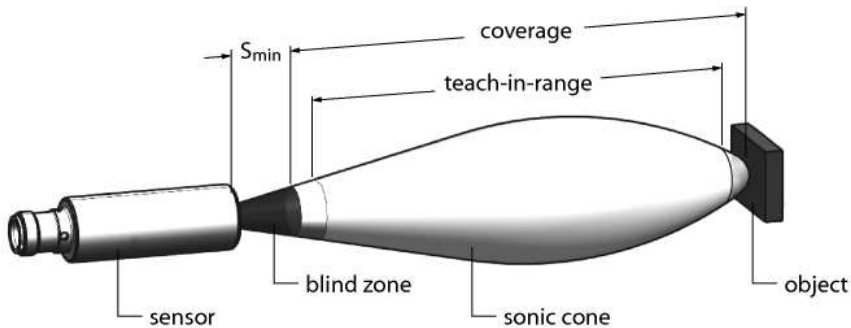
The frequency range can be selected via the control input. If this is connected to ground (-), the lower frequency range is selected. If it is not connected to ground or connected to the supply voltage, the output works in the higher frequency range.

Sonic cone
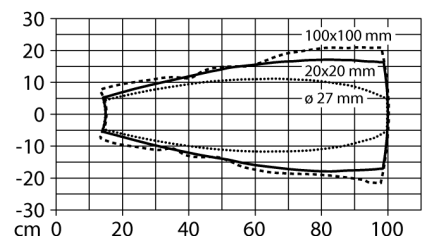
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Mounting instructions / Description

Setting the switchpoint

The ultrasonic sensor features a switching output with adjustable switchpoint. Object presence is signalled by the green and yellow LED.

One switchpoint is taught. This must be within the sensing range. In this operating mode the background is suppressed.

Via Easy-Teach adapter
● Connect the teach adapter TX1-Q20L60 between sensor and connection cable
● Place object at the end of the switching range
● Press and hold button for at least 2 s against Gnd

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

LED response

In standard operating mode both LEDs signal the switching state of the sensor.
● green: object is in the coverage but not in the switching range
● yellow: object is in the switching range
● off: object outside the coverage or signal loss

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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	
IM21-14-CDTRI	7505650	Rotation speed monitor with display indication, freely parametrizable monitoring functions, start-up bypass, interlock function, pulse output, current output	