

Compact Sensors for Retro-reflective Applications

Presence sensing is particularly difficult when a target absorbs sound or is an odd or irregular shape. Turck's compact ultrasonic sensors for retro-reflective applications pair the sensor with a reflector to detect a target; so as objects pass between the sensor and reflection the echo is broken. Like Turck's other compact sensors, these feature simple programming via teach by wire. Sensing ranges available are 40cm and 1 meter.

Please see the following pages for the data sheets for the product included in this extension.

Part Number	ID Number	Compact	Teach By Wire	Teach by Button	Teach via IO-Link	Sensing Range	Housing	Output
RU40L-M18M-UP8X2-H1151	M1610076	X	X			40cm	18mm Barrel	PNP
RU100L-M18M-UP8X2-H1151	M1610077	X	X			100cm	18mm Barrel	PNP
RU40L-M18M-UN8X2-H1151	M1610084	X	X			40cm	18mm Barrel	NPN
RU100L-M18M-UN8X2-H1151	M1610085	X	X			100cm	18mm Barrel	NPN

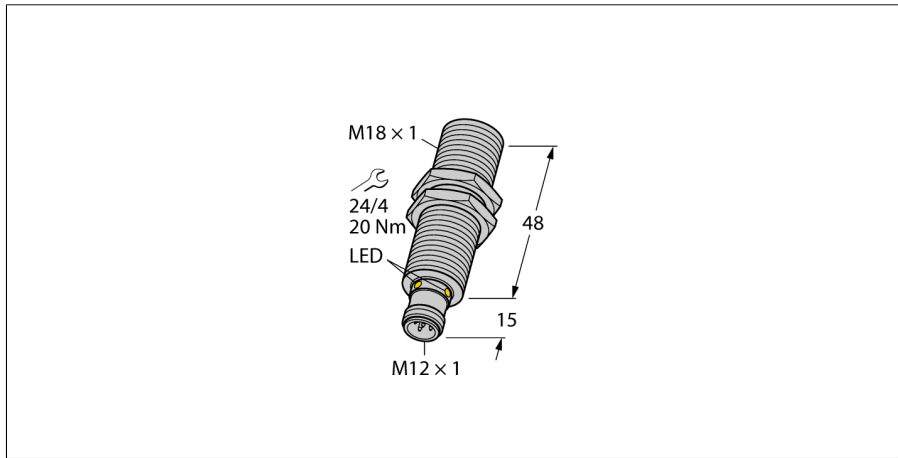
PRESS CONTACT

Paul Gilbertson
 Web & Technical Content Administrator
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CONTACT

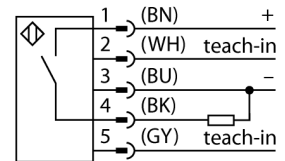
Turck Inc.
 3000 Campus Drive
 Minneapolis, MN 55441
 Mail: info@turck.com
 Web: www.turck.us

Ultrasonic sensor
Retroreflective Sensor
RU40L-M18M-UP8X2-H1151



- Smooth sonic transducer face
- Cylindrical housing M18, potted
- Connection via M12 x 1 male
- Temperature compensation
- Teaching range 2.5...39cm
- Sonic cone angle: 9°
- 1 x switching output, PNP
- Teachable settings
- NO/NC programmable

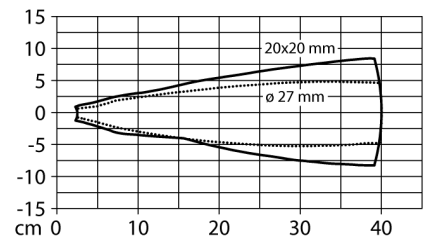
Wiring Diagram



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.

Sonic Cone



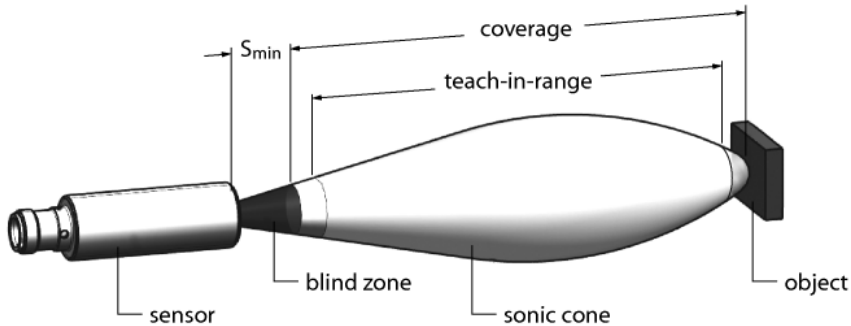
Type code	RU40L-M18M-UP8X2-H1151
Ident-No.	1610076
Repeatability	≤ 0.15 % of full scale
Edge lengths of the nominal actuator	20 mm
Hysteresis	≤ 5 mm
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Operating voltage	15... 30VDC
Residual ripple	≤ 10 % U _{ss}
DC rated operational current	≤ 150 mA
No-load current I ₀	≤ 50 mA
Short-circuit protection	yes/ cyclic
Voltage drop at I ₀	≤ 2.5 V
Wire breakage / Reverse polarity protection	yes/ yes
Output function	5-wire, NO/NC , PNP
Output 1	Switching output
Readiness delay	≤ 300 ms
Construction	Threaded barrel, M18
Dimensions	63 mm
Housing material	Metal, CuZn, nickel-plated
Electrical connection	Flange connector, M12 x 1
Protection class	IP67
MTTF	281 years acc. to SN 29500 (Ed. 99) 40 °C
Switching state	LED yellow

Ultrasonic sensor

Retroreflective Sensor

RU40L-M18M-UP8X2-H1151

Mounting instructions / Description



Teaching the reflector position

The ultrasonic sensor features a switching output with adjustable window. The green and yellow LED indicate whether the sensor has detected an object.

Teach the window limits. The limits must be within the detection range. In this operating mode, the taught reflector position is detected permanently without an object.

Easy-Teach

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

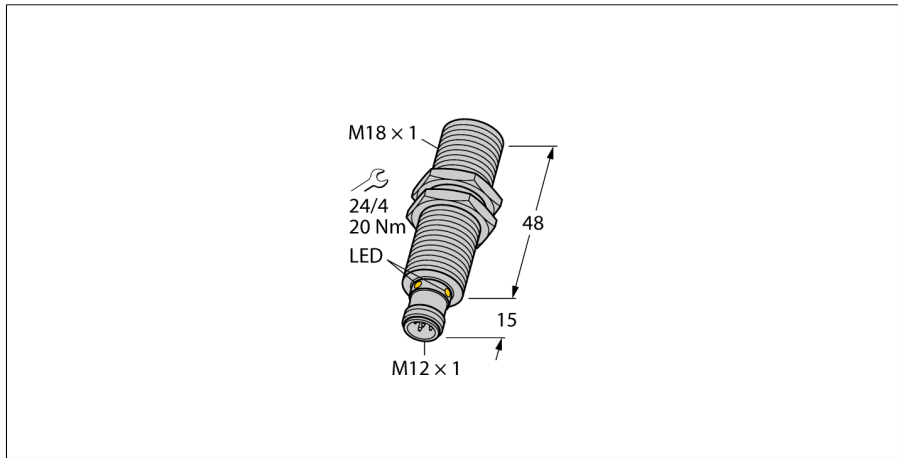
After successful teaching, the green LED flashes at 3 Hz and the sensor runs automatically in normal mode.

LED response

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

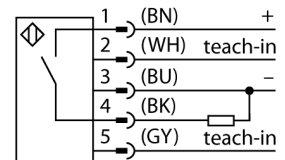
- green: reflector within the detection range
- yellow: object between the sensor and reflector

Ultrasonic sensor
Retroreflective Sensor
RU100L-M18M-UP8X2-H1151



- Smooth sonic transducer face
- Cylindrical housing M18, potted
- Connection via M12 x 1 male
- Temperature compensation
- Teaching range 15...98cm
- Resolution: 1 mm
- Sonic cone angle: 16°
- 1 x switching output, PNP
- Teachable settings
- NO/NC programmable

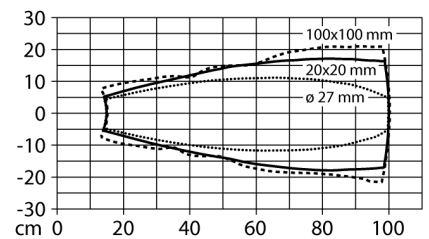
Wiring Diagram



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.

Sonic Cone



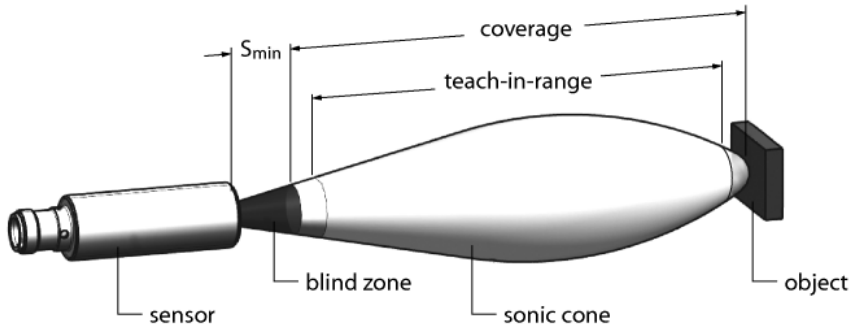
Type code	RU100L-M18M-UP8X2-H1151
Ident-No.	1610077
Repeatability	≤ 0.15 % of full scale
Edge lengths of the nominal actuator	100 mm
Hysteresis	≤ 10 mm
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Operating voltage	15... 30VDC
Residual ripple	≤ 10 % U _{ss}
DC rated operational current	≤ 150 mA
No-load current I ₀	≤ 50 mA
Short-circuit protection	yes/ cyclic
Voltage drop at I ₀	≤ 2.5 V
Wire breakage / Reverse polarity protection	yes/ yes
Output function	5-wire, NO/NC , PNP
Output 1	Switching output
Readiness delay	≤ 300 ms
Construction	Threaded barrel, M18
Dimensions	63 mm
Housing material	Metal, CuZn, nickel-plated
Electrical connection	Flange connector, M12 x 1
Protection class	IP67
MTTF	281 years acc. to SN 29500 (Ed. 99) 40 °C
Switching state	LED yellow

Ultrasonic sensor

Retroreflective Sensor

RU100L-M18M-UP8X2-H1151

Mounting instructions / Description



Teaching the reflector position

The ultrasonic sensor features a switching output with adjustable window. The green and yellow LED indicate whether the sensor has detected an object.

Teach the window limits. The limits must be within the detection range. In this operating mode, the taught reflector position is detected permanently without an object.

Easy-Teach

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

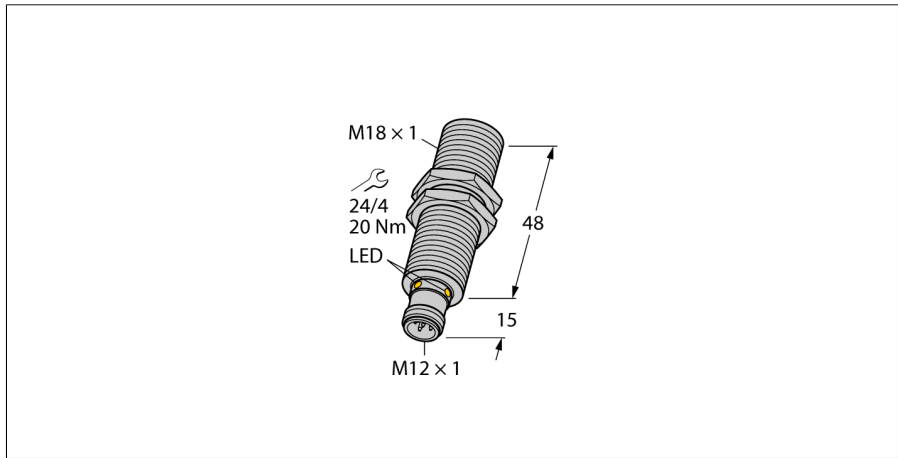
After successful teaching, the green LED flashes at 3 Hz and the sensor runs automatically in normal mode.

LED response

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

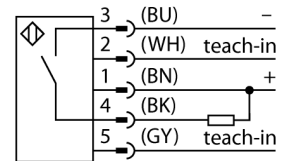
- green: reflector within the detection range
- yellow: object between the sensor and reflector

Ultrasonic sensor
Retroreflective Sensor
RU40L-M18M-UN8X2-H1151



- Smooth sonic transducer face
- Cylindrical housing M18, potted
- Connection via M12 x 1 male
- Temperature compensation
- Teaching range 2.5...39cm
- Sonic cone angle: 9°
- 1 x switching output, NPN
- Teachable settings
- NO/NC programmable

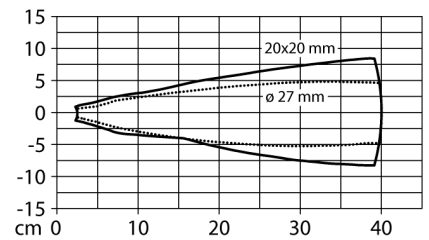
Wiring Diagram



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Sonic Cone



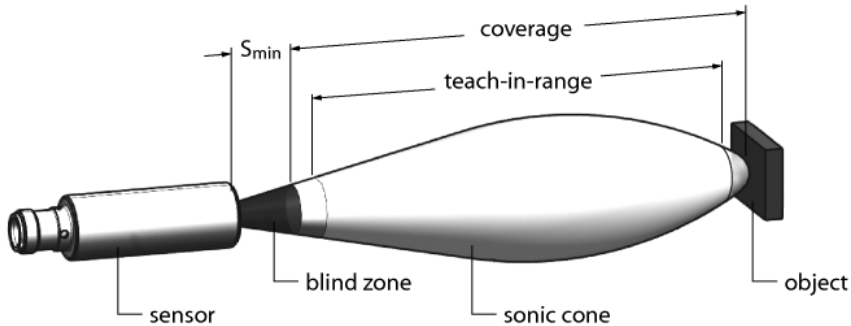
Type code	RU40L-M18M-UN8X2-H1151
Ident-No.	1610084
Repeatability	≤ 0.15 % of full scale
Edge lengths of the nominal actuator	20 mm
Hysteresis	≤ 5 mm
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Operating voltage	15... 30VDC
Residual ripple	≤ 10 % U _{ss}
DC rated operational current	≤ 150 mA
No-load current I ₀	≤ 50 mA
Short-circuit protection	yes/ cyclic
Voltage drop at I ₀	≤ 2.5 V
Wire breakage / Reverse polarity protection	yes/ yes
Output function	5-wire, NO/NC , NPN
Output 1	Switching output
Readiness delay	≤ 300 ms
Construction	Threaded barrel, M18
Dimensions	63 mm
Housing material	Metal, CuZn, nickel-plated
Electrical connection	Flange connector, M12 x 1
Protection class	IP67
MTTF	281 years acc. to SN 29500 (Ed. 99) 40 °C
Switching state	LED yellow

Ultrasonic sensor

Retroreflective Sensor

RU40L-M18M-UN8X2-H1151

Mounting instructions / Description



Teaching the reflector position

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Easy-Teach

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

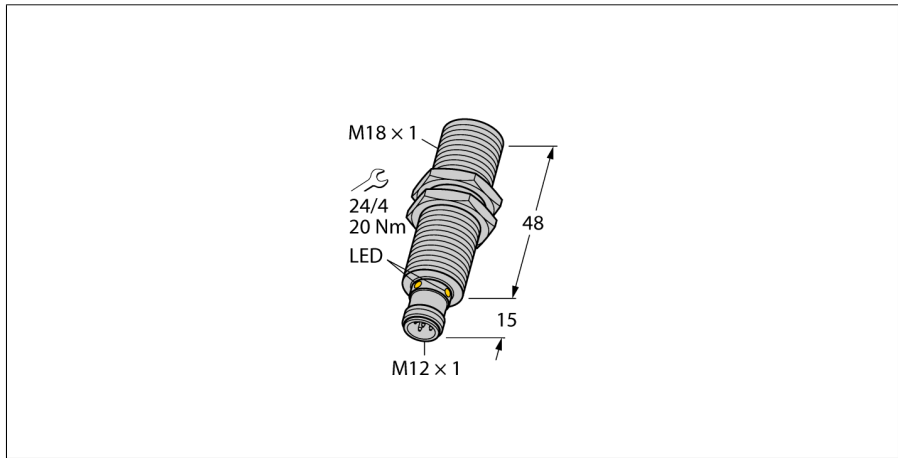
After successful teaching, the green LED flashes at 3 Hz and the sensor runs automatically in normal mode.

LED response

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

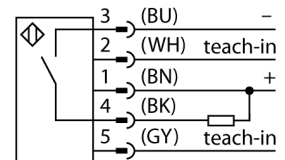
- green: reflector within the detection range
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Ultrasonic sensor
Retroreflective Sensor
RU100L-M18M-UN8X2-H1151



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- Teachable settings
- NO/NC programmable

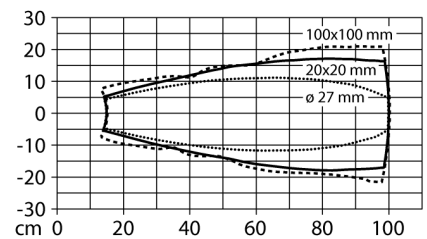
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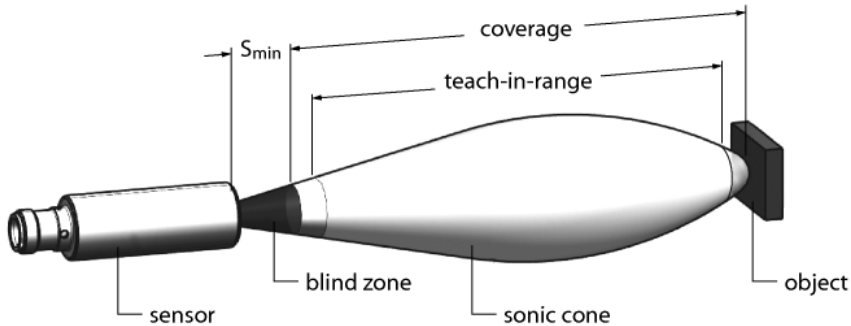
Type code	RU100L-M18M-UN8X2-H1151
Ident-No.	1610085
Repeatability	≤ 0.15 % of full scale
Edge lengths of the nominal actuator	100 mm
Hysteresis	≤ 10 mm
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Operating voltage	15... 30VDC
Residual ripple	≤ 10 % U _s
DC rated operational current	≤ 150 mA
No-load current I ₀	≤ 50 mA
Short-circuit protection	yes/ cyclic
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Wire breakage / Reverse polarity protection	yes/ yes
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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: reflector within the detection range
- yellow: object between the sensor and reflector