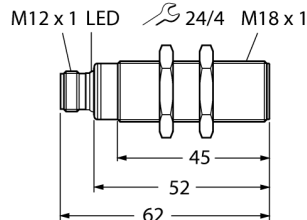
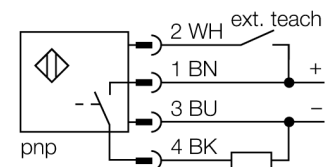


# Ultrasonic Sensor Diffuse Mode Sensor RU50U-S18-AP8X-H1141



- Smooth sonic transducer face
- Cylindrical housing S18, potted
- Connection via M12 × 1 male connector
- Teach range adjustable via adapter
- Temperature compensation
- Blind zone: 5 cm
- Range: 50 cm
- Aperture angle of sonic cone: 20°
- PNP switching output, NO contact
- Switching range adjustable

## Wiring Diagram



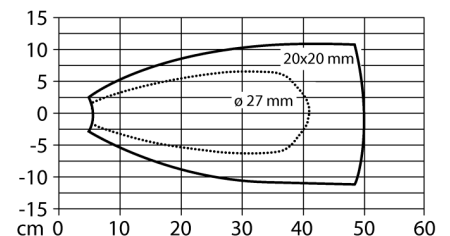
## Functional principle

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.

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.

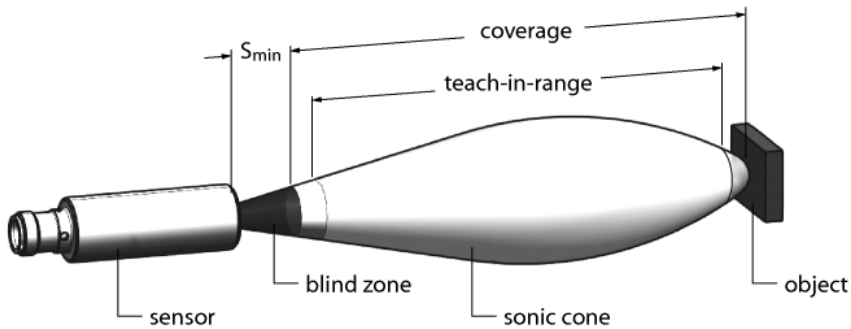
Important: The detection ranges for other targets may differ from those for standard targets due to the different reflection properties and geometries.

## Sonic Cone



|                                      |                                   |
|--------------------------------------|-----------------------------------|
| <b>Type designation</b>              | RU50U-S18-AP8X-H1141              |
| Ident-No.                            | 100000746                         |
| <b>Function</b>                      | Ultrasonic diffuse mode sensor    |
| Range                                | 50...500 mm                       |
| Resolution                           | 0.2 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                       | ≤ 5 m/s                           |
| Pass speed                           | ≤ 3 m/s                           |
| <b>Operating voltage</b>             | 15...30 VDC                       |
| DC rated operational current         | ≤ 150 mA                          |
| No-load current I <sub>0</sub>       | ≤ 50 mA                           |
| Residual current                     | ≤ 0.1 mA                          |
| Response time typical                | 65 ms                             |
| Readiness delay                      | 300 ms                            |
| Output function                      | NO contact, PNP                   |
| Output 1                             | Switching output                  |
| Switching frequency                  | 9.6 Hz                            |
| Hysteresis                           | ≤ 5 mm                            |
| Voltage drop at I <sub>0</sub>       | ≤ 2.5 V                           |
| Short-circuit protection             | yes/ Cyclic                       |
| Reverse polarity protection          | yes                               |
| Wire breakage protection             | yes                               |
| <b>Design</b>                        | Threaded barrel, S18              |
| Radiation direction                  | straight                          |
| Dimensions                           | 62 x Ø 18 mm                      |
| Housing material                     | Plastic, LCP, Yellow              |
| Transducer material                  | Plastic, Epoxyd resin and PU foam |
| Electrical connection                | Connector, M12 × 1, 4-wire        |
| Protection class                     | IP67                              |
| Ambient temperature                  | -20...+50 °C                      |
| Storage temperature                  | -40...+80 °C                      |
| Declaration of conformity EN ISO/IEC | EN 60947-5-2                      |
| Vibration resistance                 | IEC 60068-2-6                     |
| MTTF                                 | 293 years                         |
| MTTF note                            | acc. to SN 29500 (Ed. 99) 40 °C   |
| <b>Switching state</b>               | LED, Yellow                       |

**Ultrasonic Sensor**  
**Diffuse Mode Sensor**  
**RU50U-S18-AP8X-H1141**



**Setting the switching point**

The ultrasonic sensor features a switching output with a teachable switching point. The yellow LED indicates whether the object is within the switching range of the sensor.

One switching point is taught. This must be within the detection range. In this operating mode the background is suppressed.

**Simple Teach-In**

Place object at the end of the switching range

Pin 2/seal the white core against Ub for 2...7 s

- Return to normal operating mode after 17 s or more.

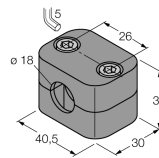
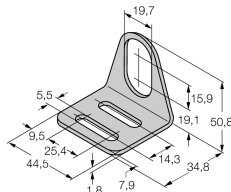
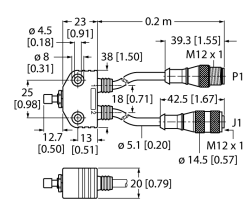
After a successful teach-in, the yellow LED flashes 3 times and the sensor runs automatically in normal operating mode.

**LED response**

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

**Ultrasonic Sensor**  
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**Accessories**

| Type code | Ident-No. | Description  | Dimension drawing   |
|-----------|-----------|--|---|
| BSS-18    | 6901320   | Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene               |    |
| MW-18     | 6945004   | Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304) |    |
| VB2-SP1   | A3501-29  | Teach adapter  |  |