



Safety Specifications

- No safety component in accordance with EU machine guidelines.
- Read the operating instructions before starting operation.
- Connection, assembly, and settings only by competent technicians.
- Protect the device against moisture and soiling when operating.

Proper Use

The UM 18-1111\_ is an ultrasonic sensor and is used for non-contact detection of objects, animals, and people.

Starting Operation

A 1 Teach-in window limits  
(4 mA, 20 mA or 0 V, 10 V)

- Place the object for window distance near the sensor in front of the sensor: LED1 lights (in window) or is off (outside of window)
  - connect L+ at the control input until: LED2 blinks, LED1 retains its state
  - until both LEDs blink simultaneously (after approx. 3 s)
  - remove L+ from the control input: both LEDs blink alternately
  - place the object for window distance far from the sensor in front of the sensor:
  - connect L+ at the control input again: LED1 blinks, LED2 is off
  - remove L+ from the control input after approx. 1 s: LED1 lights (in window) or is off (outside of window).
- The window with the window limit near the sensor and far from it is stored permanently, and the sensor is ready to operate.

If the limit far from the sensor is first taught and then the sensor near the limit, the limits are exchanged internally. If the window width < 5 mm is taught, both LEDs blink simultaneously fast for 3 seconds (error display). The old window limits are maintained.

A 2 Teach-in maximum window width

- Do not place any object in front of the sensor: LED1 lights (in window) or is off (outside of window)
  - connect L+ at the control input until: LED2 blinks, LED1 retains its state
  - until both LEDs blink simultaneously (after approx. 3 s)
  - remove L+ from the control input: both LEDs blink alternately
  - connect L+ at the control input again: LED1 blinks, LED2 is off
  - remove L+ from the control input after approx. 1 s: LED1 lights (in window) or is off (outside of window).
- The window with the minimum window limit near the sensor and the maximum limit far from it is stored permanently, and the sensor is ready to operate.

A 3 Teach-in output characteristics  
(rising/falling)

- Connect L+ at the control input until: LED1 blinks, LED2 retains its state. Both LEDs blink simultaneously after 3 s
- until both LEDs blink alternately fast (approx. 13 s)
- remove L+ from the control input: LED2 blinks fast, LED1 displays the output characteristic
- LED1 on = rising
- LED1 off = falling
- while the LED2 blinks fast, the output characteristic is inverted each time L+ is connected.
- LED1 on = rising
- LED2 off = falling

If L+ is not connected for 10 s, the set output characteristic remains active; the sensor is ready to operate.

A 4 Switch between teach-in and synchronization

Self-synchronization: Connect sensors via PIN 5 (max. 10 can be switched parallel). As a result, the "detection range" is increased. When there is parallel operation of the sensors, the installation distance sideways must be smaller than 10 cm. A type of "grid operation" is achieved via the synchronization.

- Switch off the power to the sensor (switch off the operating voltage)
- connect M to the control input, switch on the operating voltage, keep M connected to the control input
- LED2 blinks fast, LED1 displays the state of the switching output
- until both LEDs blink simultaneously (after approx. 3 s)
- remove M from the control input: LED1 blinks fast, LED2 displays the operating mode:
- LED2 on = Teach-in mode
- LED2 off = Synchronization mode
- while the LED1 blinks fast, the scanner function is inverted each time M is connected.
- LED2 on = Teach-in mode
- LED2 off = Synchronization mode

If M is not connected for 10 s, the set output function is adopted; the sensor is ready to operate.

A 5 Ex-works setting

- Switch off the power to the sensor (switch off the operating voltage)
  - connect M to the control input, switch on the operating voltage, keep M connected to the control input
  - LED2 blinks fast, LED1 displays the state of the switching output. Both LEDs blink simultaneously after 3 s.
  - until both LEDs display the switching state (after approx. 13 s)
  - remove M from the control input.
- The sensor has its ex-works setting.

Maintenance

SICK sensors do not require any maintenance. We recommend that you clean the external lens surfaces and check the screw connections and plug-in connections at regular intervals.



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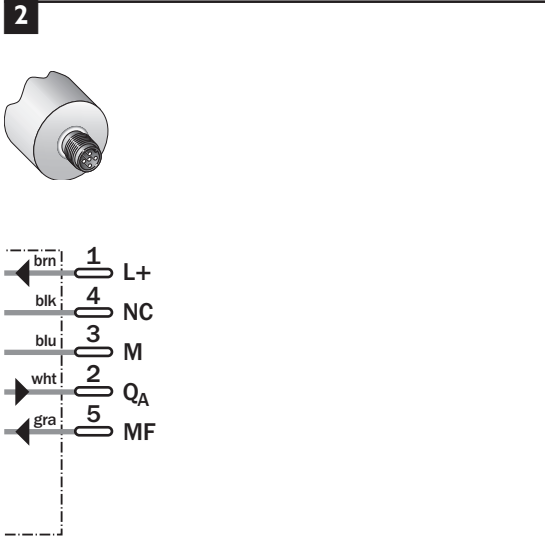
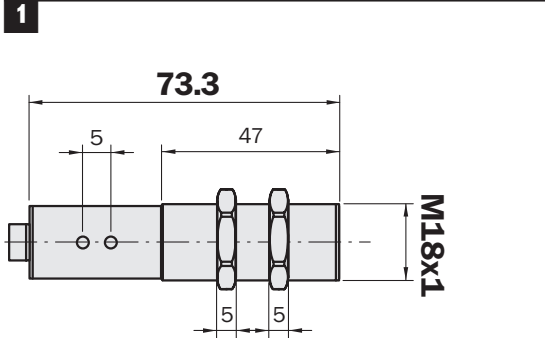
# UM 18-11116

# UM 18-11117

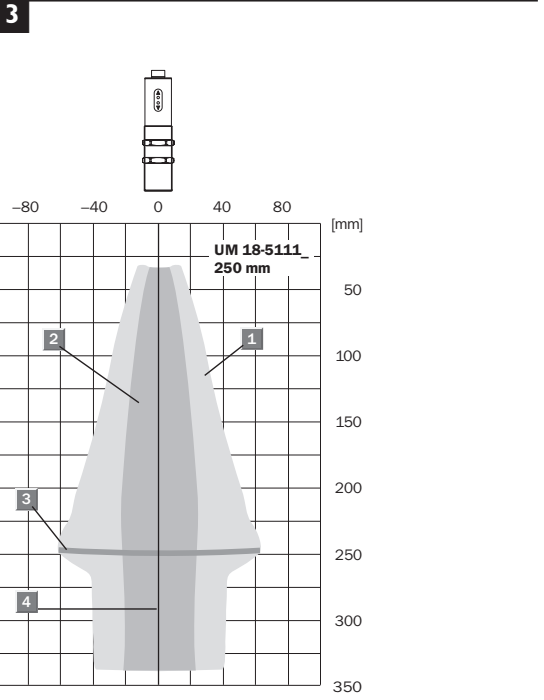
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Please find detailed addresses and further locations in all major industrial nations at [www.sick.com](http://www.sick.com)

We reserve the right to make changes without prior notification



EZ int4S



- 1 Aligned plate 500 x 500 mm<sup>2</sup>
- 2 Tube diameter 10 mm
- 3 Operating distance
- 4 Maximum scanning distance

| UM 18-                                                    | 11116                                                                   | 11117                                            |
|-----------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------|
| <b>Operating distance<br/>(maximum scanning distance)</b> | 30 mm ... 250 mm (< 350 mm)                                             |                                                  |
| Ultrasonic frequency                                      | 320 kHz                                                                 |                                                  |
| Resolution                                                | 0.36 mm                                                                 |                                                  |
| Reproducibility                                           | typ. ±0.15 % of final value                                             |                                                  |
| Accuracy                                                  | ≤ 2 % of final value                                                    |                                                  |
| <b>Operating voltage</b>                                  | V <sub>s</sub> = DC 10 ... 30 V                                         |                                                  |
| Residual ripple                                           | 10 %                                                                    |                                                  |
| Idle current consumption                                  | ≤ 40 mA                                                                 |                                                  |
| Housing material                                          | Brass tube, nickel plated                                               |                                                  |
|                                                           | Plastic parts: PBT                                                      |                                                  |
|                                                           | Ultrasonic converter: polyurethane foam, epoxy resin with glass content |                                                  |
| Enclosure rating to EN 60529                              | IP 67                                                                   |                                                  |
| Connection type                                           | Plug M12, 5-pin                                                         |                                                  |
| Display elements                                          | 2 LEDs                                                                  |                                                  |
| Ambient temperature                                       | Operating: –25 °C ... +70 °C<br>Storage: –40 °C ... +85 °C              |                                                  |
| Weight                                                    | 65 g approx. (with 2 nuts)                                              |                                                  |
| Control input MF                                          | Teach-in                                                                |                                                  |
| Analogue output 4 ... 20 mA                               | R <sub>L</sub> ≤ 100 Ω at 10 V ≤ V <sub>S</sub> ≤ 20 V                  |                                                  |
|                                                           | R <sub>L</sub> ≤ 500 Ω at V <sub>S</sub> ≥ 20 V                         |                                                  |
| 0 ... 10 V                                                |                                                                         | R <sub>L</sub> ≥ 100 kΩ at V <sub>S</sub> ≥ 15 V |
| Temperature compensation                                  | yes                                                                     |                                                  |
| Synchronisation option                                    | yes                                                                     |                                                  |
| Functional display                                        | yes                                                                     |                                                  |
| Scanning Mode                                             | yes                                                                     |                                                  |
| Switching hysteresis                                      | 2.0 mm ±10 %                                                            |                                                  |
| Response time                                             | 32 ms                                                                   |                                                  |
| Standby delay                                             | < 300 ms                                                                |                                                  |