



Ultrasonic sensors  
UM30, UM30-2

UM30-212112



**Model Name** > [UM30-212112](#)  
**Part No.** > [6037665](#)

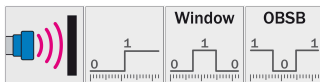


**At a glance**

- Integrated time-of-flight technology detects objects such as glass, liquids and transparent foils, independent of color
- Range up to 8,000 mm
- Display enables fast and flexible sensor adjustment
- Immune to dust, dirt and fog
- Available with combined analog and digital outputs
- Synchronization and multiplexing
- Adjustable sensitivity
- Three operation modes: Distance to Object (DtO), Window (Wnd) or Object between sensor and background (ObSB)

**Your benefits**

- Easy machine integration due to compact size
- Various setup options ensure flexible adaptation to applications
- Multiplex mode eliminates crosstalk interference for consistent and reliable detection and high measurement reliability
- Synchronization mode allows multiple sensors to work as one large sensor, providing a low-cost solution for area detection
- Display enables setup prior to installation, reducing on-site installation time
- Integrated temperature compensation and time-of-flight technology ensure high measurement accuracy
- ObSB-mode enables detection of any object between the sensor and a taught background



**Performance**

|                                 |                          |
|---------------------------------|--------------------------|
| Resolution:                     | ≤ 0.18 mm                |
| Working range, limiting range:  | 65 mm ... 350 mm, 600 mm |
| Repeatability <sup>1)</sup> :   | ± 0.15 %                 |
| Accuracy <sup>2), 3)</sup> :    | ± 1 %                    |
| Response time:                  | 70 ms                    |
| Switching frequency:            | 8 Hz                     |
| Ultrasonic frequency (typical): | 400 kHz                  |
| Detection area (typical):       | See diagrams             |
| Temperature compensation:       | ✓                        |

|                      |   |
|----------------------|---|
| Additional function: | Set switching mode: Distance to object (DtO)/switching window (Wnd)/<br>Object Between Sensor and Background (ObSB)<br>Teach-in of switching output<br>Set levels of switching outputs<br>Set on delay switching output<br>Temperature compensation<br>Synchronization of up to 10 sensors<br>Multiplexing: no cross talk of up to 10 sensors<br>Set measurement filters: value filter, filter strength, adjustable sensitivity,<br>foreground suppression and detection area<br>Reset to factory default<br>Switch-off display<br>Switching output invertible<br>Functions may vary depending on sensor type |
| Output time:         | 16 ms   |

<sup>1) 2)</sup> Referring to current measurement value <sup>3)</sup> Temperature compensation can be switched off, without temperature compensation: 0.17 %/K

### Interfaces

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|                                 |                  |
|---------------------------------|------------------|
| Output type <sup>1), 2)</sup> : | 2 x PNP (200 mA) |
| Hysteresis:                     | 5 mm             |
| Multifunctional input (MF):     | 1 x MF           |

<sup>1)</sup> Output Q short-circuit protected <sup>2)</sup> PNP: HIGH =  $V_S$  - (< 2 V)/LOW = 0 V

### Mechanics/electronics

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|  |   |
|--|---|
| Sending axis:                            | Straight  |
| Supply voltage $V_S$ <sup>1), 2)</sup> : | DC 9 V ... 30 V   |
| Power consumption <sup>3)</sup> :        | ≤ 2.4 W   |
| Initialization time:                     | < 300 ms  |
| Design:                                  | Cylindrical   |
| Housing material:                        | Nickel-plated brass, PBT<br>display: TPU<br>ultrasonic transducer: polyurethane foam, glass epoxy resin |
| Electrical connection:                   | Male connector, M12, 5-pin  |
| Indication:                              | LED display, 2 x LED  |
| Weight:                                  | 150 g   |

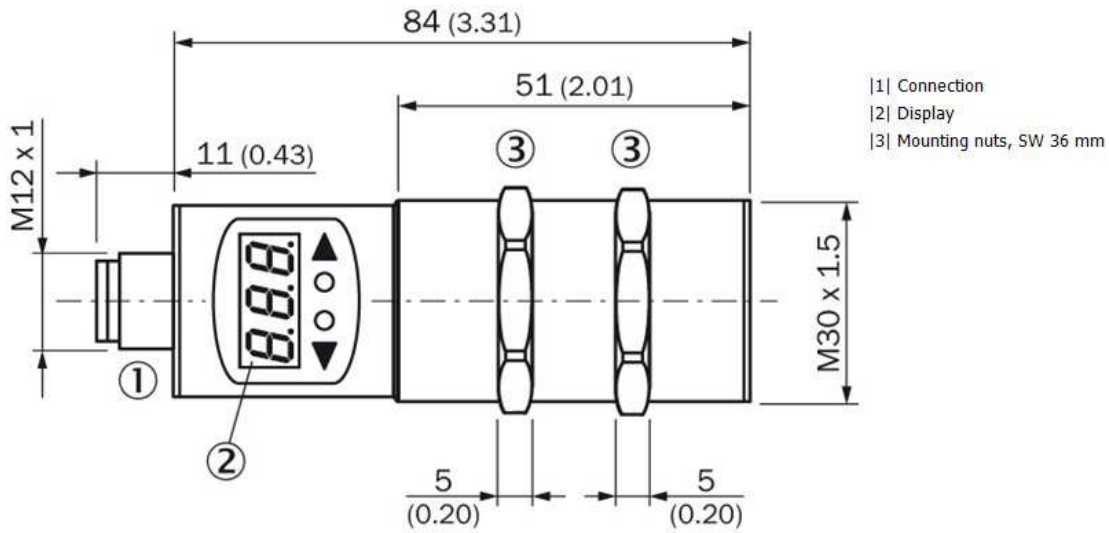
<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A <sup>2)</sup> 15 V ... 30 V when using analog voltage output <sup>3)</sup> Without load

### Ambient data

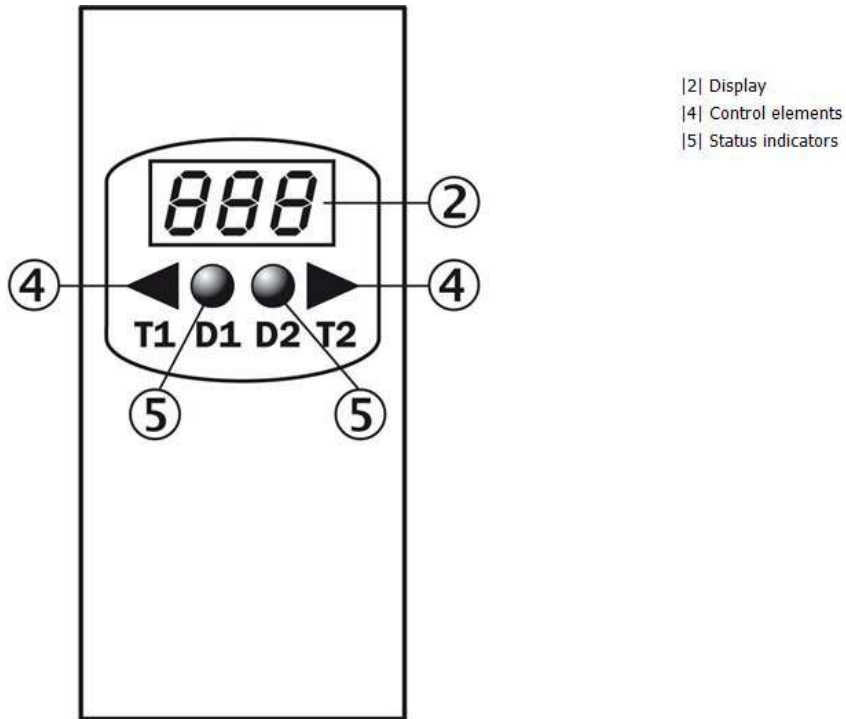
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|                      |  |
|----------------------|--|
| Enclosure rating:    | IP 67  |
| Protection class:    | III  |
| Ambient temperature: | Operation: -25 ... +70 °C<br>Storage: -40 ... +85 °C |

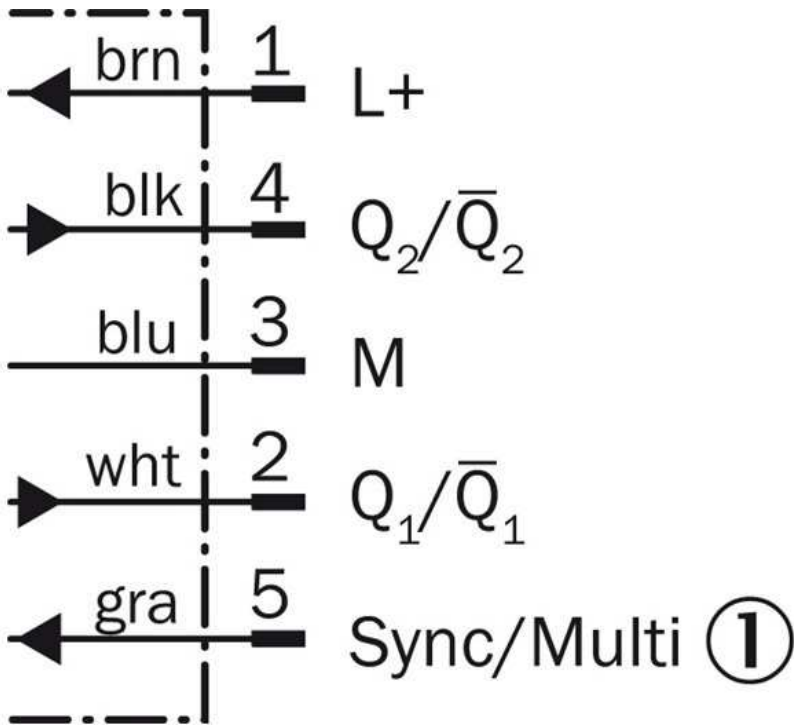
## Dimensional drawing



## Adjustments

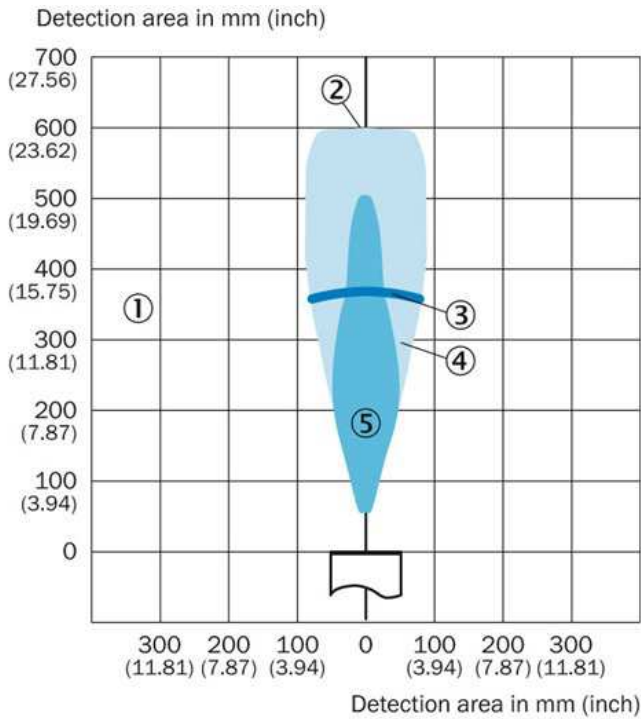


Connection diagram



[1] Synchronization and multiplex operation/communication Connect+

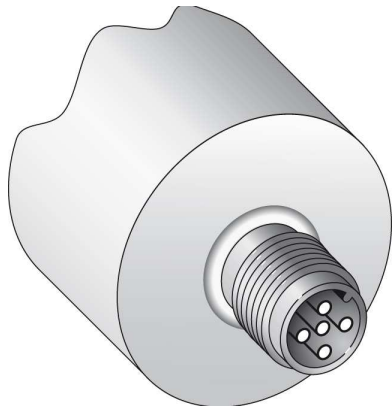
Detection area



- [1] Sensing range dependent on reflection properties, size and orientation of the object
- [2] Limiting range
- [3] Working range
- [4] example object: aligned plate 500 mm x 500 mm
- [5] example object: pipe with 27 mm diameter

**Connection type**

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