



## Ultrasonic sensors UM30, UM30-2

UM30-213114



**Model Name** > [UM30-213114](#)  
**Part No.** > [6037676](#)

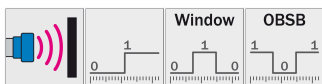


#### At a glance

- 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:  | 200 mm ... 1,300 mm, 2,000 mm |
| Repeatability <sup>1)</sup> :   | ± 0.15 %                      |
| Accuracy <sup>2), 3)</sup> :    | ± 1 %                         |
| Response time:                  | 110 ms                        |
| Switching frequency:            | 6 Hz                          |
| Ultrasonic frequency (typical): | 200 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:         | 23 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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

## Interfaces

|                                             |                  |
|---------------------------------------------|------------------|
| Output type <sup>1)</sup> , <sup>2)</sup> : | 2 x NPN (200 mA) |
| Hysteresis:                                 | 20 mm            |
| Multifunctional input (MF):                 | 1 x MF           |

1) Output Q short-circuit protected 2) NPN: HIGH  $\leq 2\text{ V}$  / LOW =  $V_S$

## Mechanics/electronics

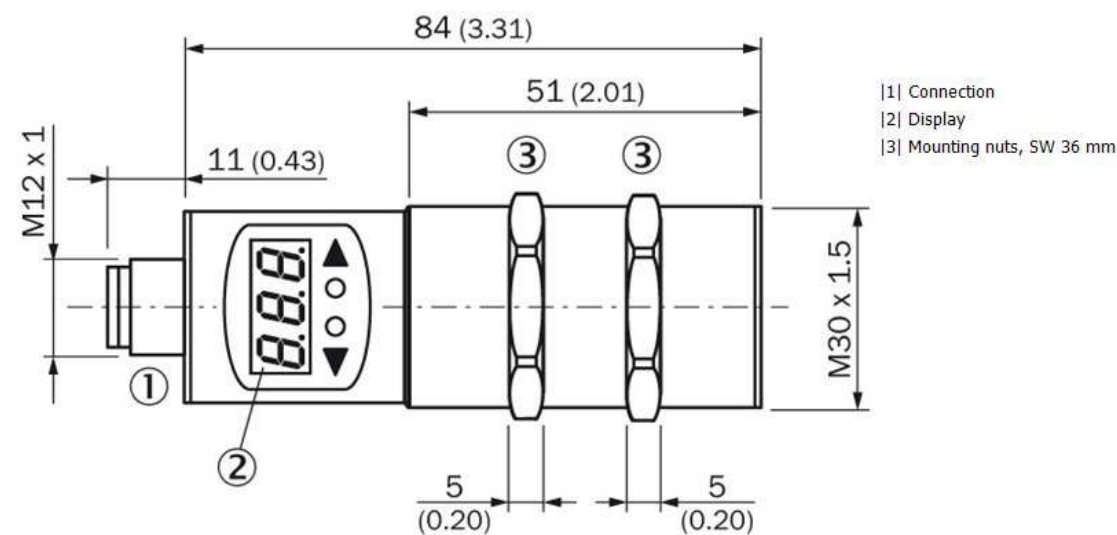
|                                                      |                                                                                                         |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Sending axis:                                        | Straight                                                                                                |
| Supply voltage $V_S$ <sup>1)</sup> , <sup>2)</sup> : | DC 9 V ... 30 V                                                                                         |
| Power consumption <sup>3)</sup> :                    | $\leq 2.4\text{ W}$                                                                                     |
| 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                                                                                                   |

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

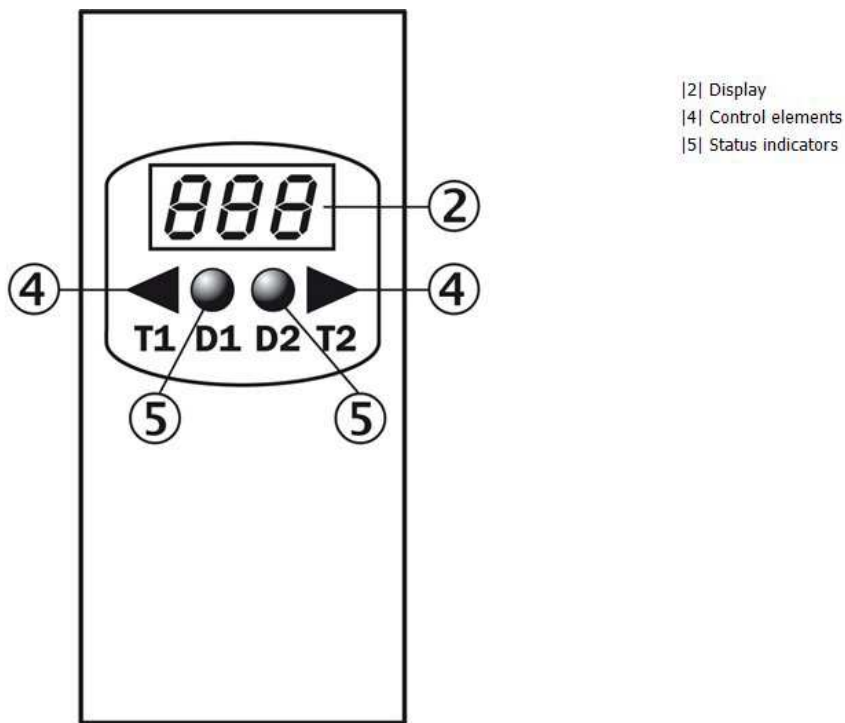
## Ambient data

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

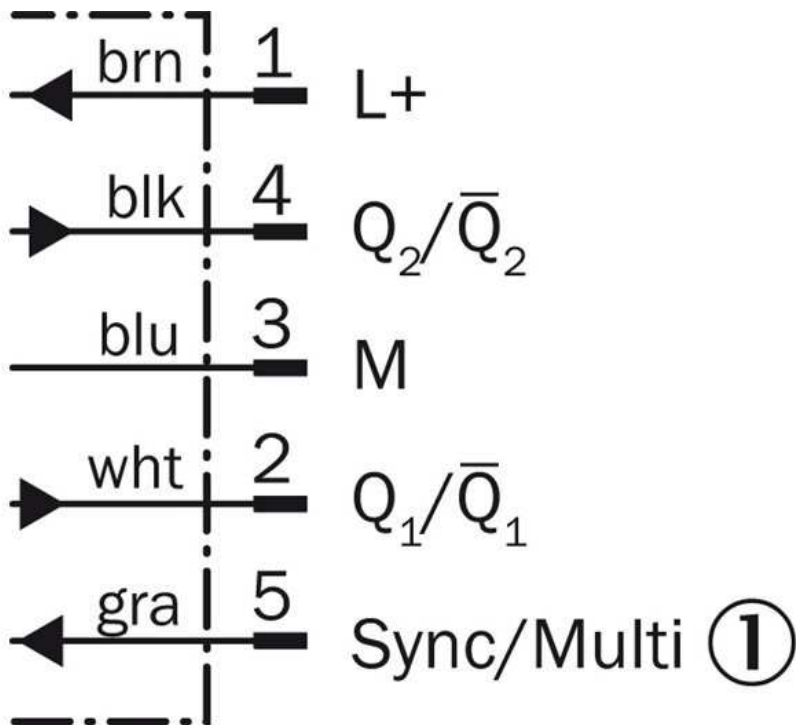
Dimensional drawing



Adjustments

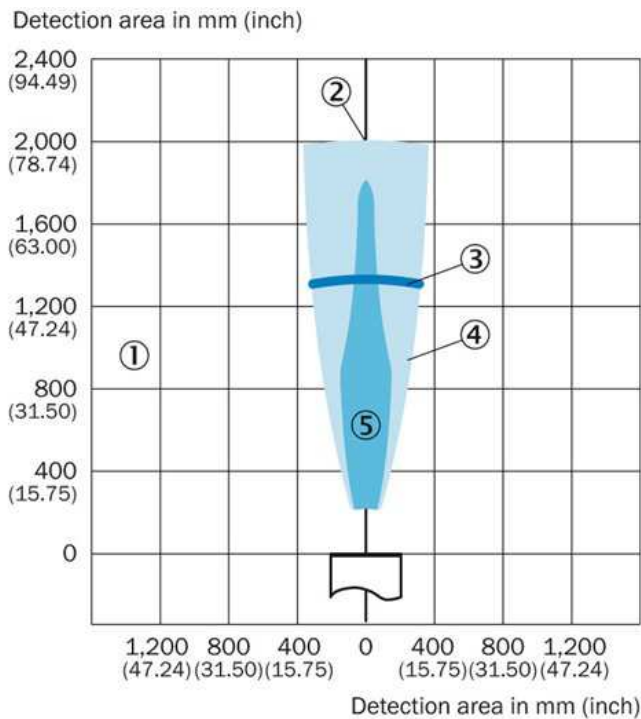


## Connection diagram



|1| Synchronization and  
multiplex operation/communication Connect+

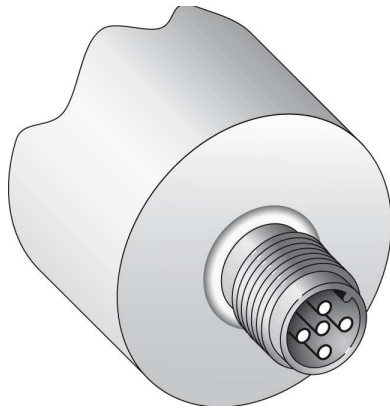
## Detection area



|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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