



Ultrasonic sensors  
UM30, UM30-2

UM30-214118



**Model Name** > [UM30-214118](#)  
**Part No.** > [6036924](#)



**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:	350 mm ... 3,400 mm, 5,000 mm
Repeatability <sup>1)</sup> :	± 0.15 %
Accuracy <sup>2), 3)</sup> :	± 1 %
Response time:	180 ms
Switching frequency:	3 Hz
Ultrasonic frequency (typical):	120 kHz
Detection area (typical):	See diagrams
Temperature compensation:	✓

Additional function:	Set switching mode: Distance to object (DtO)/switching window (Wnd)/ Object Between Sensor and Background (ObSB) Teach-in of switching output Set levels of switching outputs Set on delay switching output Teach-in of analog output Automatic selection of analog current or voltage output Temperature compensation Synchronization of up to 10 sensors Multiplexing: no cross talk of up to 10 sensors Set measurement filters: value filter, filter strength, adjustable sensitivity, foreground suppression and detection area Reset to factory default Switch-off display Scaling of analog outputs Invertible analog output Switching output invertible Functions may vary depending on sensor type
Output time:	43 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

Output type <sup>1), 2)</sup> :	1 x PNP (200 mA)
Analog output <sup>3), 4), 5), 6)</sup> :	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ), 1 x 4 mA ... 20 mA ( $\leq 500 \Omega$ )
Resolution analog output:	12 bit
Hysteresis:	50 mm
Multifunctional input (MF):	1 x MF

<sup>1)</sup> Output Q short-circuit protected <sup>2)</sup> PNP: HIGH =  $V_S - (< 2 \text{ V})$ /LOW = 0 V <sup>3) 5)</sup> Automatic selection of analog current or voltage output dependent on load <sup>4)</sup> For 4 mA ... 20 mA and  $V_S \leq 20 \text{ V}$  max. load  $\leq 100 \Omega$  <sup>6)</sup> Subsequent smoothing of the analog output, depending on the application, may increase the response time by up to 200 %

### Mechanics/electronics

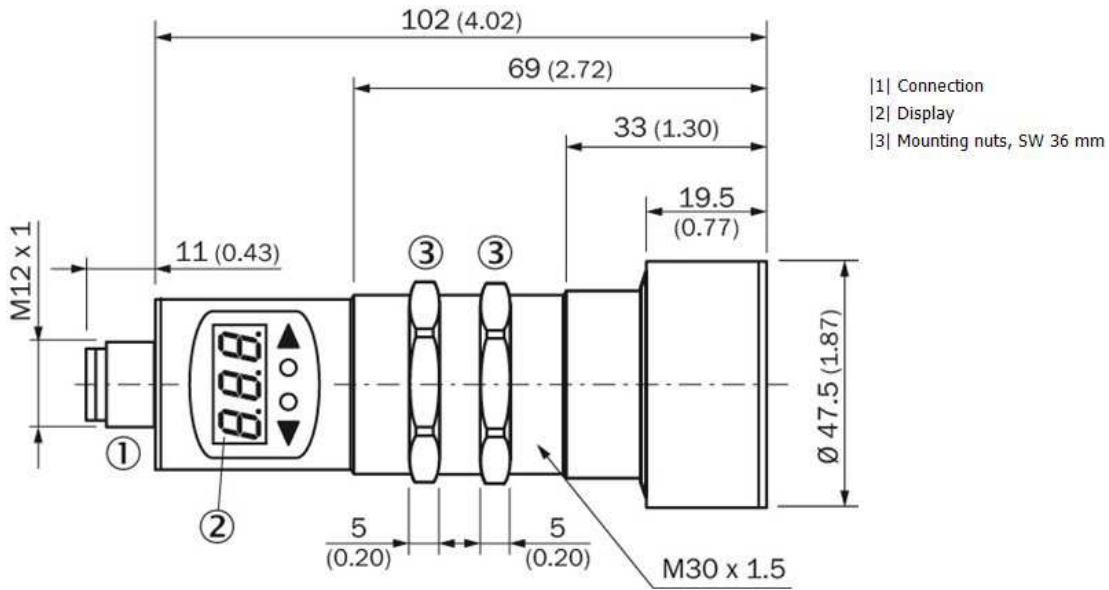
Sending axis:	Straight
Supply voltage $V_S$ <sup>1), 2)</sup> :	DC 9 V ... 30 V
Power consumption <sup>3)</sup> :	$\leq 2.4 \text{ W}$
Initialization time:	$< 300 \text{ ms}$
Design:	Cylindrical
Housing material:	Nickel-plated brass, PBT display: TPU ultrasonic transducer: polyurethane foam, glass epoxy resin
Electrical connection:	Male connector, M12, 5-pin
Indication:	LED display, 2 x LED
Weight:	210 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

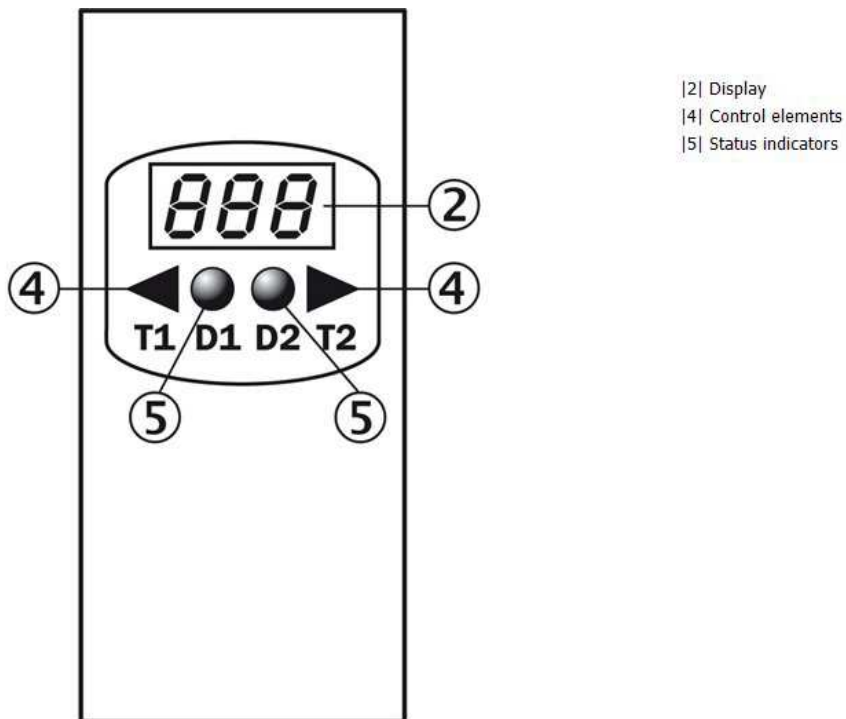
### Ambient data

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

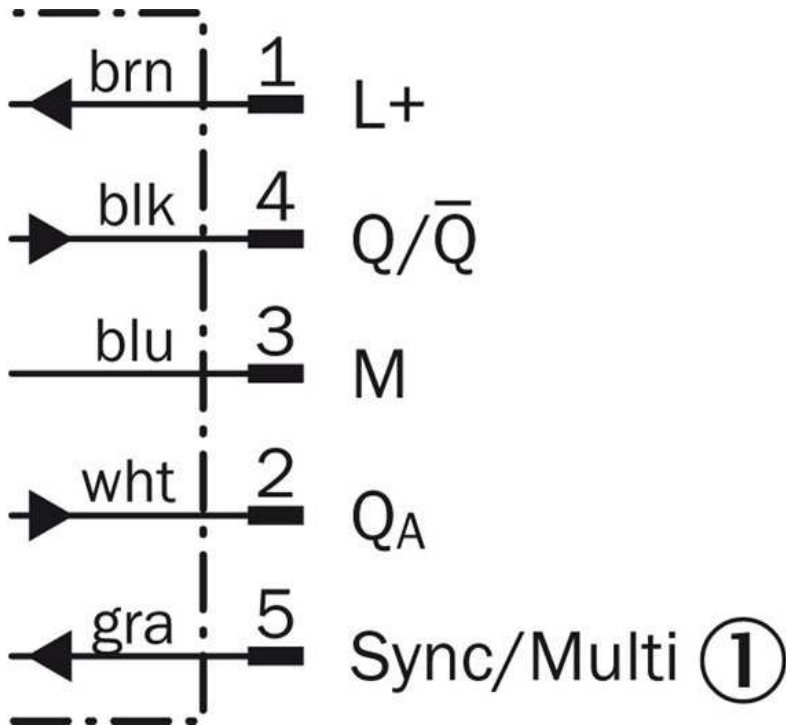
**Dimensional drawing**



**Adjustments**

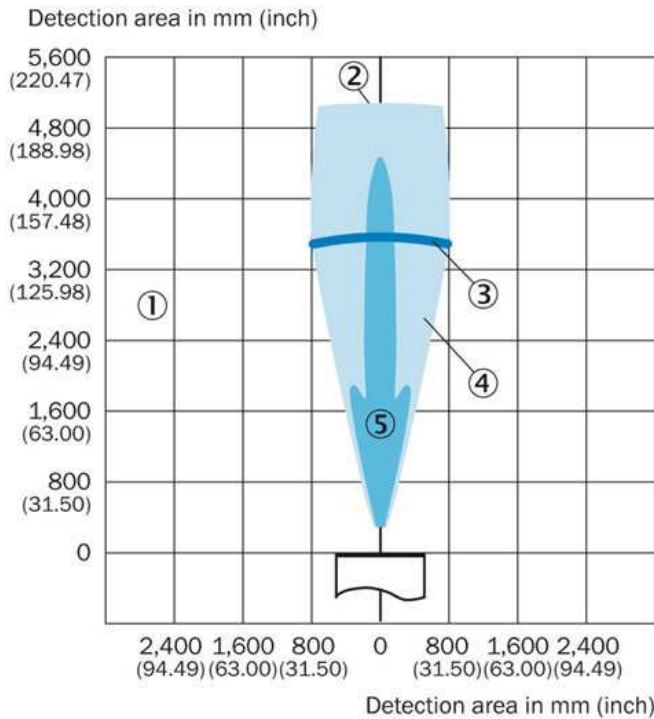


Connection diagram



|1| Synchronization and multiplex operation/communication Connect+

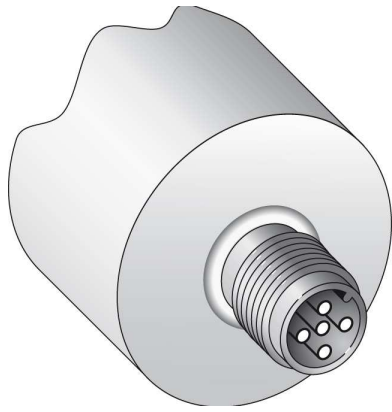
Detection area



- |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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