



Ultrasonic sensors
UM30, UM30-2

UM30-211118



Model Name > [UM30-211118](#)
Part No. > [6036921](#)



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: | 30 mm ... 250 mm, 350 mm |
| Repeatability ¹⁾ : | ± 0.15 % |
| Accuracy ^{2), 3)} : | ± 1 % |
| Response time: | 50 ms |
| Switching frequency: | 11 Hz |
| Ultrasonic frequency (typical): | 320 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 Multifunctional input: synchronization/multiplexing Functions may vary depending on sensor type |
| Output time: | 8 ms |

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

Interfaces

| | |
|---|---|
| Output type ^{1), 2)} : | 1 x PNP (200 mA) |
| Analog output ^{3), 4), 5), 6)} : | 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: | 3 mm |
| Multifunctional input (MF): | 1 x MF |

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

Mechanics/electronics

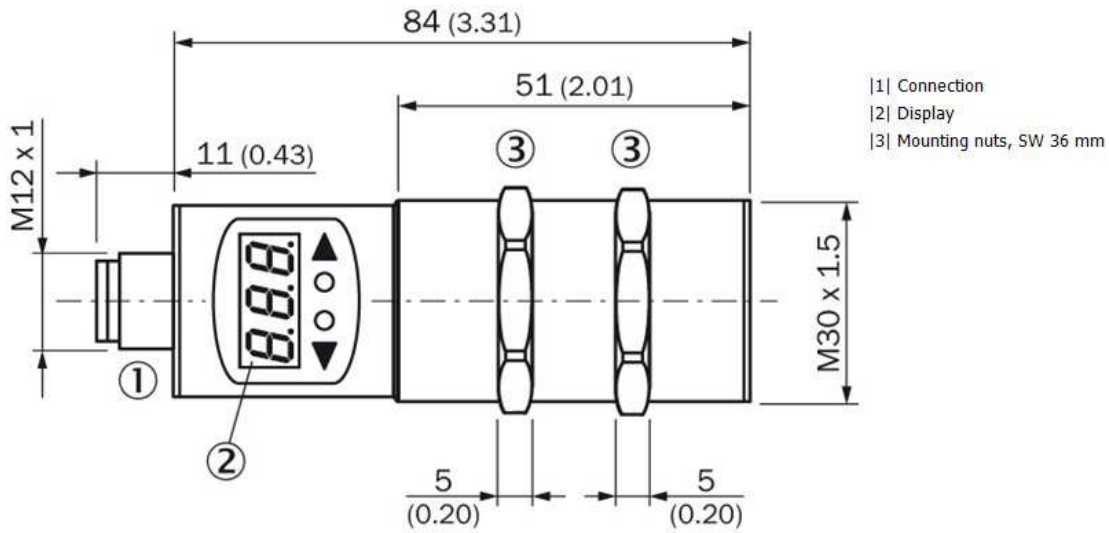
| | |
|--|---|
| Sending axis: | Straight |
| Supply voltage V_S ^{1), 2)} : | DC 9 V ... 30 V |
| Power consumption ³⁾ : | $\leq 2.4 \text{ W}$ |
| Initialization time: | $< 300 \text{ ms}$ |
| Design: | Cylindrical |
| Housing material: | Nickel-plated brass, PBT display: TPU ultrasonic transducer: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

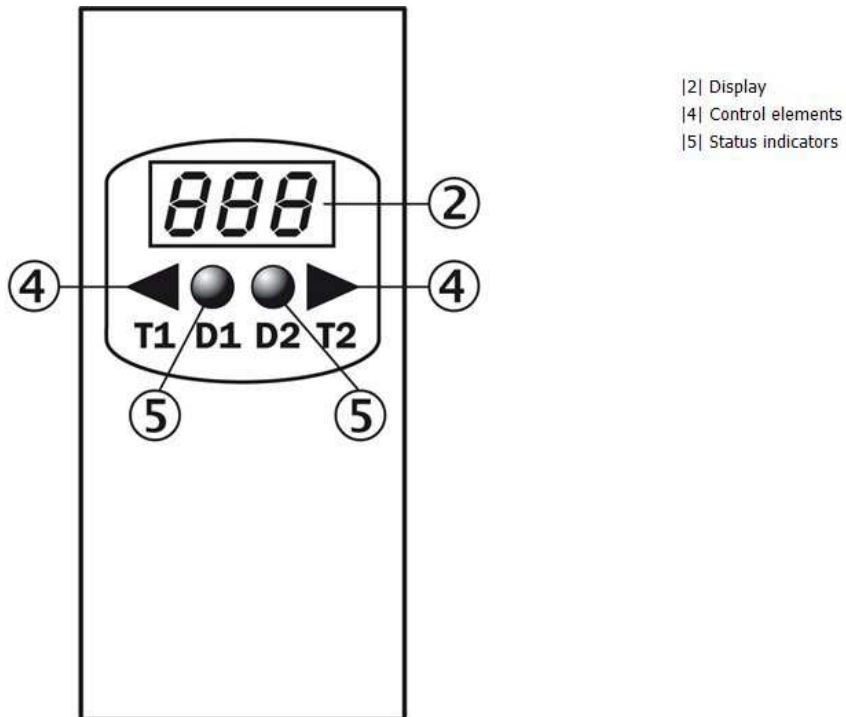
Ambient data

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

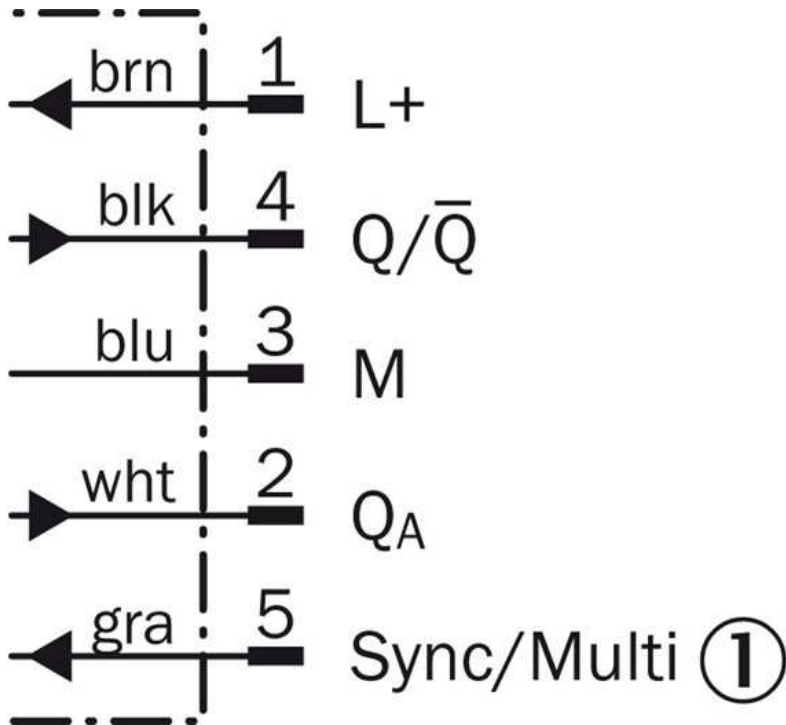
Dimensional drawing



Adjustments

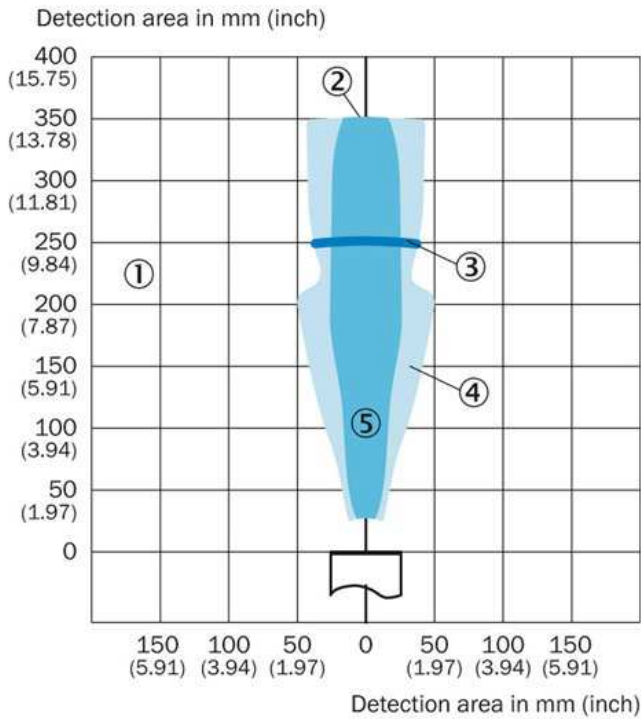


Connection diagram



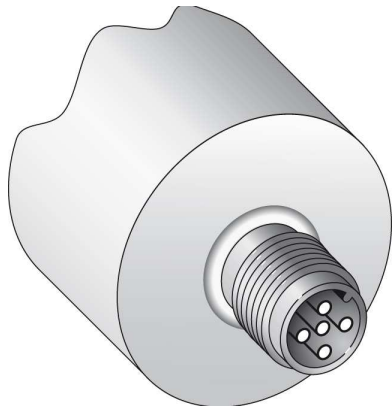
|1| Synchronization and multiplex operation/communication Connect+

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 10 mm diameter

Connection type



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