



Ultrasonic sensors UM30, UM30-2

UM30-213118



Model Name > [UM30-213118](#)
Part No. > [6036923](#)



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 ¹⁾ :	± 0.15 %
Accuracy ^{2), 3)} :	± 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)/
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:

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 ^{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:	20 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

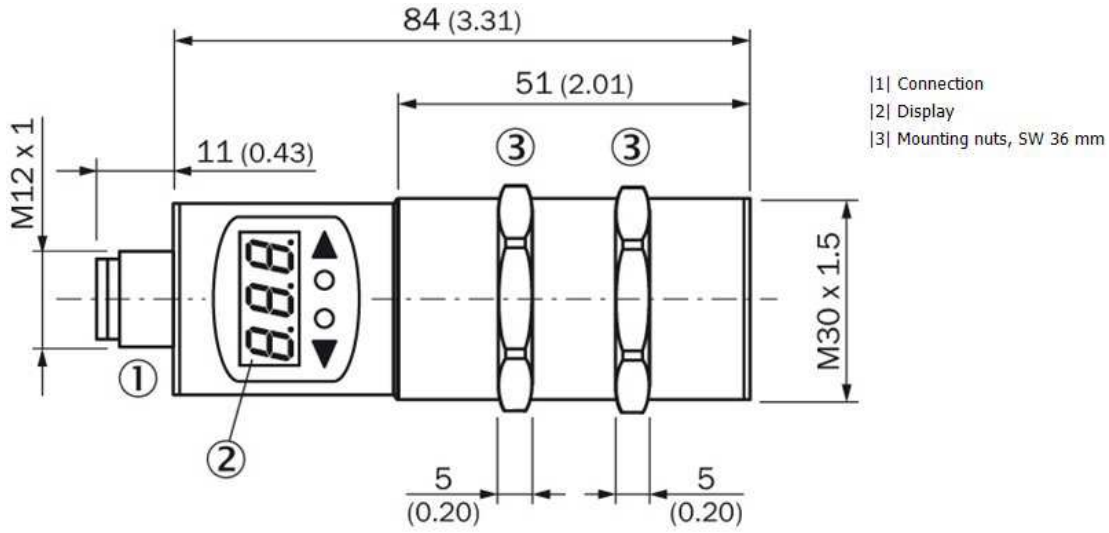
Sending axis:	Straight
Supply voltage V_S ^{1), 2)} :	DC 9 V ... 30 V
Power consumption ³⁾ :	$\leq 2.4 \text{ W}$
Initialization time:	$< 300 \text{ ms}$
Design:	Cylindrical
Housing material:	Nickel-plated brass, PBT display: TPU ultrasonic transducer: polyurethane foam, glass epoxy resin
Electrical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

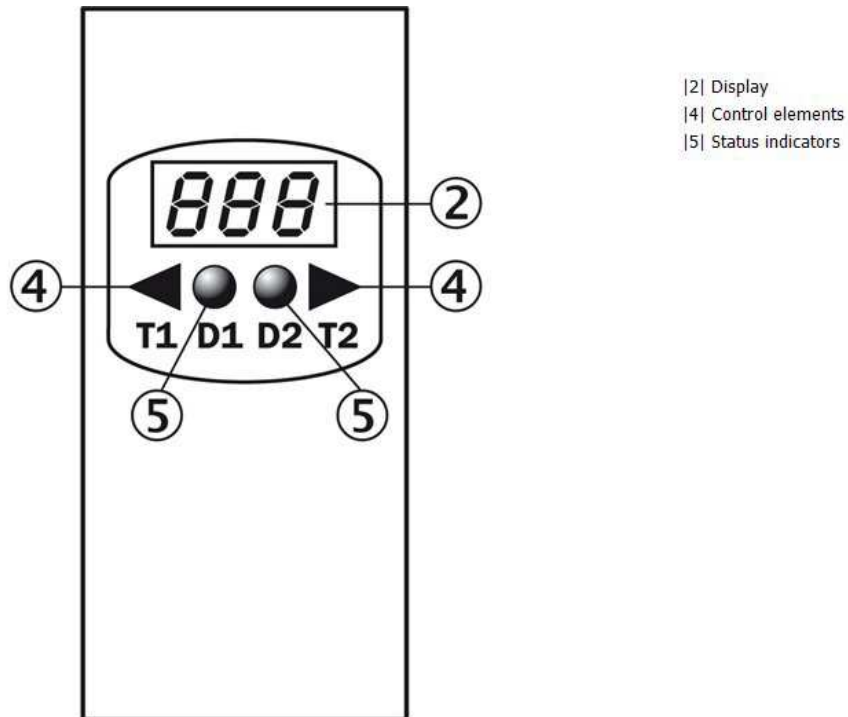
Ambient data

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

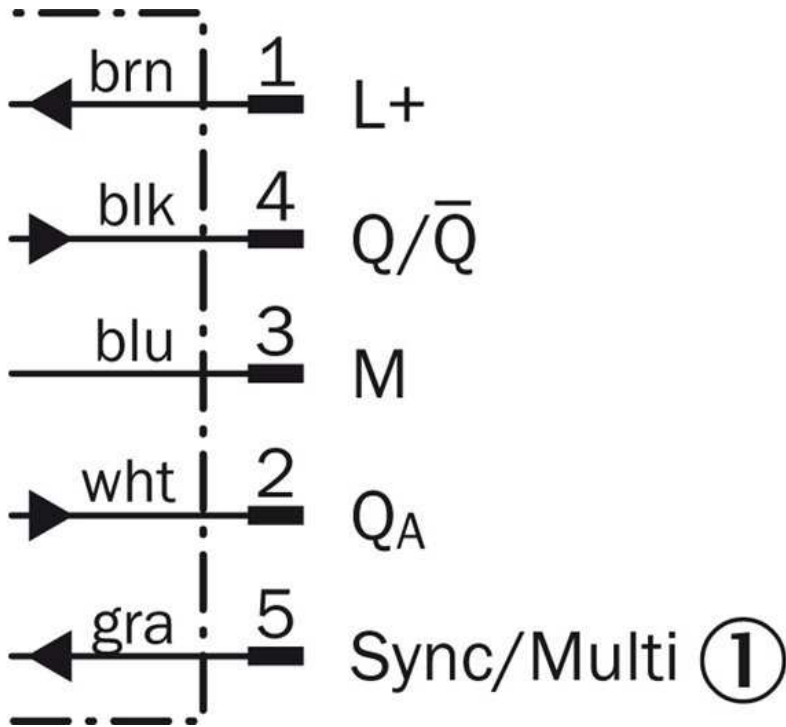
Dimensional drawing



Adjustments

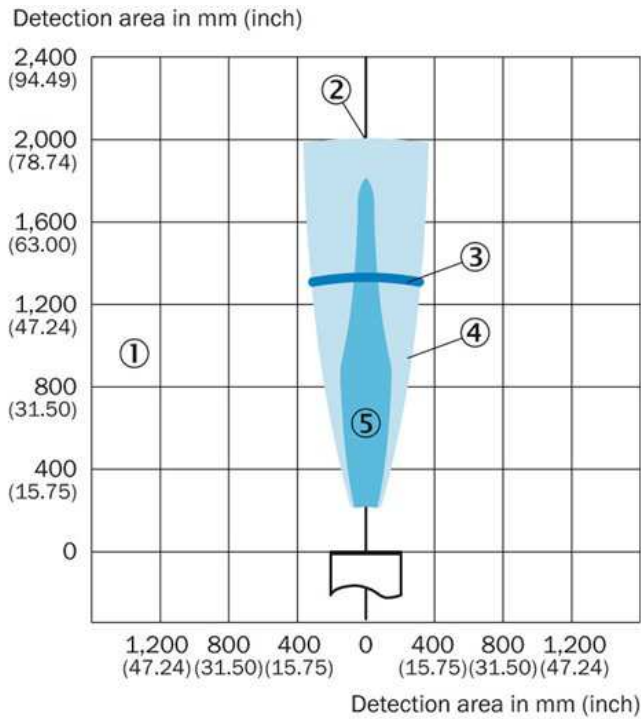


Connection diagram



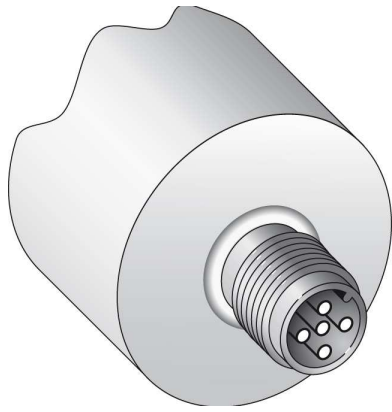
[1] Synchronization and multiplex operation/communication Connect+

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 27 mm diameter

Connection type



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