ULTRASONIC SENSORS
ULTIMATE ULTRASONIC SENSOR SOLUTION FROM SICK
UM30, UM18, UM12, UC30, UC12, UC4
## Detailed technical data

### Performance

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>≥ 0.1 mm</td>
</tr>
<tr>
<td>Repeatability 2)</td>
<td>± 0.15 %</td>
</tr>
<tr>
<td>Accuracy 3)</td>
<td></td>
</tr>
<tr>
<td>13 mm ... 100 mm, 150 mm</td>
<td>0.17 % / K</td>
</tr>
<tr>
<td>13 mm ... 150 mm, 250 mm</td>
<td>± 1 %</td>
</tr>
<tr>
<td>Temperature compensation</td>
<td></td>
</tr>
<tr>
<td>13 mm ... 100 mm, 150 mm</td>
<td>-</td>
</tr>
<tr>
<td>13 mm ... 150 mm, 250 mm</td>
<td>✔</td>
</tr>
<tr>
<td>Switching frequency 3)</td>
<td></td>
</tr>
<tr>
<td>13 mm ... 100 mm, 150 mm</td>
<td>25 Hz</td>
</tr>
<tr>
<td>13 mm ... 150 mm, 250 mm</td>
<td>25 Hz / 100 Hz (depending on type)</td>
</tr>
<tr>
<td>Ultrasonic frequency (typical)</td>
<td>380 kHz</td>
</tr>
<tr>
<td>Detection area (typical)</td>
<td>See diagrams</td>
</tr>
<tr>
<td>Additional function 2)</td>
<td>Set switching mode: Distance to object (DtO) / Window (Wnd) / Object between sensor and background (ObSB) Teach-in and parameterization of switching output, invertible Teach-in and parameterization of analog output, invertible Temperature compensation Lock user interface</td>
</tr>
</tbody>
</table>

1) Referring to current measurement value.
2) Functions may vary depending on sensor type.

### Interfaces

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution analog output</td>
<td>12 bit</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>2 mm</td>
</tr>
</tbody>
</table>

### Mechanics/electronics

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage $V_s$ 2)</td>
<td>DC 15 V ... 30 V</td>
</tr>
<tr>
<td>Power consumption 2)</td>
<td>≤ 0.9 W</td>
</tr>
<tr>
<td>Initialization time</td>
<td>&lt; 300 ms</td>
</tr>
<tr>
<td>Design</td>
<td>Rectangular</td>
</tr>
<tr>
<td>Housing material</td>
<td>ABS-plastic, ultrasonic transducer: polyurethane foam, glass epoxy resin</td>
</tr>
<tr>
<td>Connection type</td>
<td>Male connector, M8, 3-pin</td>
</tr>
<tr>
<td>Indication</td>
<td>2 x LED</td>
</tr>
<tr>
<td>Weight</td>
<td>10 g</td>
</tr>
</tbody>
</table>

1) Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.
2) Without load.

### Ambient data

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure rating</td>
<td>IP 67</td>
</tr>
<tr>
<td>Protection class</td>
<td>III</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>Operation: −25 °C ... +70 °C 3)</td>
</tr>
<tr>
<td></td>
<td>Storage: −40 °C ... +85 °C</td>
</tr>
</tbody>
</table>

3) At operating temperatures of > 50 °C, the rear side of the UC4 must be installed with its surface flat against a bracket.
Ordering information

- **Sending axis**: straight

<table>
<thead>
<tr>
<th>Working range, limiting range ¹</th>
<th>Response time</th>
<th>Output time</th>
<th>Switching output ²)</th>
<th>Analog output</th>
<th>Type</th>
<th>Part no</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 mm ... 100 mm, 150 mm</td>
<td>10 ms</td>
<td>10 ms</td>
<td>1 x PNP (200 mA) ³)</td>
<td>–</td>
<td>UC4-11341</td>
<td>6034667</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 x NPN (200 mA) ⁴)</td>
<td>–</td>
<td>UC4-11345</td>
<td>6034668</td>
</tr>
<tr>
<td>13 mm ... 150 mm, 250 mm</td>
<td>30 ms</td>
<td>10 ms</td>
<td>1 x PNP (200 mA) ³)</td>
<td>–</td>
<td>UC4-13341</td>
<td>6034666€</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 x NPN (200 mA) ⁴)</td>
<td>–</td>
<td>UC4-13345</td>
<td>6034670</td>
</tr>
<tr>
<td></td>
<td>10 ms</td>
<td>5 ms</td>
<td>1 x PNP (200 mA) ³)</td>
<td>–</td>
<td>UC4-13341S01</td>
<td>604950€</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 x NPN (200 mA) ⁴)</td>
<td>–</td>
<td>UC4-13345S02</td>
<td>6049510</td>
</tr>
<tr>
<td></td>
<td>30 ms</td>
<td>10 ms</td>
<td>–</td>
<td>1 x 4 mA ... 20 mA (≤ 50 Ω) ⁵)</td>
<td>UC4-13346</td>
<td>6054708</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 x 0 V ... 10 V (≥ 10 kΩ)</td>
<td>UC4-13347</td>
<td>6054709</td>
</tr>
</tbody>
</table>

¹ Teach-in from 21 mm.
² Output Q short-circuit protected.
³ PNP: HIGH = V_S - (< 2 V) / LOW = 0 V.
⁴ NPN: HIGH = 2 V / LOW = V_S.
⁵ For 4 mA ... 20 mA and V_s ≤ 20 V max. load ≤ 10 C Ω.

**Dimensional drawing (Dimensions in mm (inch))**

1. Threaded mounting hole M3
2. Connection
3. Status indicator switching output (orange)
4. Status indicator power on (green)
5. Control elements
Detection ranges

UC4-11
Detection area in mm (inch)

UC4-13
Detection area in mm (inch)

1. Sensing range dependent on reflection properties, size and orientation of the object
2. Limiting range
3. Working range
4. Example object: aligned plate 100 mm x 100 mm
5. Example object: pipe with 10 mm diameter

Recommended accessories

Mounting systems

Mounting brackets and mounting plates

<table>
<thead>
<tr>
<th>Brief description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting bracket for wall mounting</td>
<td>2051628</td>
</tr>
</tbody>
</table>

Terminal and alignment brackets

<table>
<thead>
<tr>
<th>Brief description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball clamp bracket</td>
<td>2027128</td>
</tr>
</tbody>
</table>

Universal bar clamp systems

<table>
<thead>
<tr>
<th>Brief description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate H for universal clamp bracket</td>
<td>2022465</td>
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</tbody>
</table>
## Connection systems

### Plug connectors and cables

<table>
<thead>
<tr>
<th>Connection type head A</th>
<th>Connection type head B</th>
<th>Cable</th>
<th>Cable length</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female connector, M8, 3-pin, straight</td>
<td>Cable</td>
<td>PVC, unshielded</td>
<td>2 m</td>
<td>6010785</td>
</tr>
<tr>
<td>Female connector, M8, 3-pin, angled</td>
<td>Cable</td>
<td>PVC, unshielded</td>
<td>2 m</td>
<td>6008486</td>
</tr>
</tbody>
</table>

### Further accessories

#### Hardware

<table>
<thead>
<tr>
<th>Brief description</th>
<th>Type</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessory for ultrasonic channeling for the product family UC4</td>
<td>SonicTube UC4</td>
<td>5329249</td>
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