The separable stainless steel probe LMP 308 is designed for the continually level measurement of water and thin fluids.

In order to facilitate stock-keeping and maintenance the transmitter head is plugged to the cable assembly with a connector and can be changed easily.

**Preferred areas of use are**

- **Water / filtrated sewage**
- ground water level measurement
- level measurement in wells and open waters
- rain spillway basin
- level measurement in container
- water treatment plants
- water recycling

**Nominal pressure**

from 0 ... 1 mH₂O up to 0 ... 250 mH₂O

**Output signals**

2-wire: 4 ... 20 mA
others on request

**Special characteristics**

- diameter 35 mm
- cable and sensor section separable
- excellent accuracy
- excellent long term stability

**Optional versions**

- IS-version zone 0
- SIL 2 (Safety Integrity Level)
- cable protection via corrugated pipe
- mounting accessories as cable gland and terminal clamp of stainless steel
- different kinds of cables
- different kinds of seal materials

**accuracy according to IEC 60770:**

standard: 0.35 % FSO
option: 0.25 % FSO / 0.1 % FSO
## Technical Data

### Input pressure range

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal pressure gauge [bar]</td>
<td>0.10</td>
<td>16</td>
</tr>
<tr>
<td>Level [mH₂O]</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Overpressure [bar]</td>
<td>0.5</td>
<td>100</td>
</tr>
<tr>
<td>Burst pressure [bar]</td>
<td>1.5</td>
<td>120</td>
</tr>
</tbody>
</table>

### Output signal / Supply

<table>
<thead>
<tr>
<th>Type</th>
<th>Standard</th>
<th>Option IS-protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-wire</td>
<td>4...20 mA / Vᵢₛ = 8...32 VDC</td>
<td>4...20 mA / Vᵢₛ = 10...28 VDC</td>
</tr>
<tr>
<td>SIL-version</td>
<td>Vᵢₛ = 14...28 VDC</td>
<td>Vᵢₛ = 14...28 VDC</td>
</tr>
</tbody>
</table>

### Performance

#### Accuracy

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Nominal pressure &lt; 0.4 bar</th>
<th>Nominal pressure ≥ 0.4 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>standard</td>
<td>± 0.5 % FSO</td>
<td>± 0.35 % FSO</td>
</tr>
<tr>
<td>option 1</td>
<td>± 0.25 % FSO</td>
<td>± 0.1 % FSO</td>
</tr>
<tr>
<td>option 2</td>
<td>For all nominal pressures</td>
<td></td>
</tr>
</tbody>
</table>

#### Permissible load

\[ R_{\text{max}} = (Vᵢₛ - Vᵢₛ \text{ min}) / 0.02 A \Omega \]

#### Influence effects

Supply: 0.05 % FSO / 10 V
Load: 0.05 % FSO / kΩ

#### Long term stability

≤ ± 0.1 % FSO / year at reference conditions

#### Response time

< 10 msec

### Thermal effects (Offset and Span)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal pressure ( P_n ) [bar]</td>
<td>&lt; 0.40</td>
<td>≥ 0.40</td>
</tr>
<tr>
<td>Tolerance band [% FSO]</td>
<td>≤ 1</td>
<td>≤ ± 0.75</td>
</tr>
<tr>
<td>in compensated range [°C]</td>
<td>0 ... 70</td>
<td></td>
</tr>
</tbody>
</table>

### Permissible temperatures

Permissible temperatures
- medium: -20 ... 70 °C
- storage: -25 ... 70 °C

### Electrical protection

- Short-circuit protection: permanent
- Reverse polarity protection: no damage, but also no function
- Electromagnetic compatibility: emission and immunity according to EN 61326

### Electrical connection

Cable with sheath material:
- PVC (-5 ... 70 °C) grey
- PUR (-20 ... 70 °C) black
- FEP (-20 ... 70 °C) black

### Materials (media wetted)

- Housing: stainless steel 1.4404 (316L)
- Seals: FKM, EPDM
- Diaphragm: stainless steel 1.4435 (316L)
- Protection cap: POM

### Explosion protection

- Approvals
  - DX19-LMP 308
  - IBEExU 10 ATEX 1068 X / IECEx IBE 12.0027X

- Safety technical maximum values
  - \( U_i = 28 \text{ V}, I = 93 \text{ mA}, P = 660 \text{ mW}, C = 0 \text{ F}, L = 0 \text{ H} \)
  - The supply connections have an inner capacity of max. 27 nF to the housing

- Ambient temperature range
  - Zone 0: -20 ... 60 °C with \( p_{\text{amb}} = 0.8 \text{ bar} \) up to 1.1 bar
  - In zone 1 or higher: -20 ... 70 °C

- Connecting cables (by factory)
  - Cable capacitance: signal line/shield also signal line/signal line: 160 pF/m
  - Cable inductance: signal line/shield also signal line/signal line: 1 µH/m

### Miscellaneous

- Option SIL 2 application: according to IEC 61508 / IEC 61511
- Current consumption
  - Signal output current: max. 25 mA
- Weight: approx. 250 g (without cable)
- CE-conformity
  - EMC Directive: 2014/30/EU

---

1. accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)
2. additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request
3. cable with integrated air tube for atmospheric pressure reference
4. do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected
5. not in combination with the accuracy 0.1%
LMP 308
Stainless Steel Probe

Technical Data

Wiring diagram

2-wire-system (current)

<table>
<thead>
<tr>
<th>Connector</th>
<th>&quot;A&quot;</th>
<th>V_x</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>supply +</td>
<td></td>
<td></td>
</tr>
<tr>
<td>supply –</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pin configuration

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>Binder series 723* (5-pin)</th>
<th>Cable colours (IEC 60757)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply +</td>
<td>3</td>
<td>wh (white)</td>
</tr>
<tr>
<td>Supply –</td>
<td>1</td>
<td>bn (brown)</td>
</tr>
<tr>
<td>Shield</td>
<td>5</td>
<td>gnye (green-yellow)</td>
</tr>
</tbody>
</table>

* in separated version

Dimensions (in mm)

<table>
<thead>
<tr>
<th>Standard</th>
<th>Option</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>178</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø7,4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø35</td>
</tr>
<tr>
<td>separated version</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>42,5</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø15,9</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>181</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø3,5</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>14</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø7,4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total length of devices with accuracy 0.1 % FSO IEC 60770 increases by 16 mm!
(standard, Ex-protection and SIL-version)

www.sensorsone.com
### Mounting flange with cable gland

**Technical data**

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>Flange material</th>
<th>Material of cable gland</th>
<th>Seal insert</th>
<th>Hole pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>all probes</td>
<td>stainless steel 1.4404 (316L)</td>
<td>brass, nickel plated</td>
<td>stainless steel 1.4305 (303); plastic</td>
<td>according to DIN 2507</td>
</tr>
</tbody>
</table>

**Ordering type**

| DN25 / PN40 with cable gland brass, nickel plated | ZMF2540 |
| DN50 / PN40 with cable gland brass, nickel plated | ZMF5040 |
| DN80 / PN16 with cable gland brass, nickel plated | ZMF8016 |

**Version**

<table>
<thead>
<tr>
<th>Size (in mm)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN25 / PN40</td>
<td>D = 115, k = 85, b = 18, n = 4, d = 14</td>
</tr>
<tr>
<td>DN50 / PN40</td>
<td>D = 165, k = 125, b = 20, n = 4, d = 18</td>
</tr>
<tr>
<td>DN80 / PN16</td>
<td>D = 200, k = 160, b = 20, n = 8, d = 18</td>
</tr>
</tbody>
</table>

### Terminal clamp

**Technical data**

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>Material</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>all probes with cable ∅ 5.5 ... 10.5 mm</td>
<td>steel, zinc plated</td>
<td>approx. 160 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ordering type</th>
<th>Ordering code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal clamp, steel, zinc plated</td>
<td>Z100528</td>
</tr>
<tr>
<td>Terminal clamp, stainless steel 1.4301 (304)</td>
<td>Z100527</td>
</tr>
</tbody>
</table>

### Display program

- **CIT 200**
  Process display with LED display
- **CIT 250**
  Process display with LED display and contacts
- **CIT 300**
  Process display with LED display, contacts and analogue output
- **CIT 350**
  Process display with LED display, bargraph, contacts and analogue output
- **CIT 400**
  Process display with LED display, contacts, analogue output and Ex-approval
- **CIT 600**
  Multichannel process display with graphics-capable LC display
- **CIT 650**
  Multichannel process display with graphics-capable LC display and datalogger
- **CIT 700**
  Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts
- **PA 440**
  Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: [http://www.bdsensors.com](http://www.bdsensors.com)
## Ordering code LMP 308

### Pressure

<table>
<thead>
<tr>
<th>in bar</th>
<th>in mH₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4</td>
<td>4.4</td>
</tr>
</tbody>
</table>

### Input

<table>
<thead>
<tr>
<th>[mH₂O] [bar]</th>
<th>1.0</th>
<th>1.0</th>
<th>1.6</th>
<th>0.16</th>
<th>2.5</th>
<th>0.25</th>
<th>4.0</th>
<th>0.40</th>
<th>6.0</th>
<th>0.60</th>
<th>10</th>
<th>1.0</th>
<th>16</th>
<th>1.6</th>
<th>25</th>
<th>2.5</th>
<th>40</th>
<th>4.0</th>
<th>60</th>
<th>6.0</th>
<th>100</th>
<th>10</th>
<th>160</th>
<th>16</th>
<th>160</th>
<th>250</th>
<th>25</th>
<th>250</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>0.10</td>
<td>1.00</td>
<td>1.6</td>
<td>0.16</td>
<td>2.5</td>
<td>0.25</td>
<td>4.0</td>
<td>0.40</td>
<td>6.0</td>
<td>0.60</td>
<td>10</td>
<td>1.0</td>
<td>16</td>
<td>1.6</td>
<td>25</td>
<td>2.5</td>
<td>40</td>
<td>4.0</td>
<td>60</td>
<td>6.0</td>
<td>100</td>
<td>10</td>
<td>160</td>
<td>16</td>
<td>160</td>
<td>250</td>
<td>25</td>
<td>250</td>
</tr>
</tbody>
</table>

### Housing

- Stainless steel 1.4404 (316L)
- Stainless steel 1.4435 (316L)
- Customer

### Diaphragm

- Stainless steel 1.4404 (316L)
- Customer

### Output

- 4…20 mA / 2-wire
- Intrinsic safety 4…20 mA / 2-wire
- SIL2 4…20 mA / 2-wire
- SIL2 with Intrinsic safety

### Seals

- FKM
- EPDM
- Customer

### Electrical connection

- PVC-cable
- PUR-cable
- FEP-cable
- Customer

### Accuracy

- Standard for Pₑ ≥ 0.4 bar: 0.35 %
- Standard for Pₑ < 0.4 bar: 0.5 %
- Option 1 for Pₑ ≥ 0.4 bar: 0.25 %
- Option 2: 0.1 %
- Customer

### Cable length

<table>
<thead>
<tr>
<th>in m</th>
<th>9</th>
<th>9</th>
</tr>
</thead>
</table>

### Version

- Standard
- Prepared for mounting
- With stainless steel pipe
- Cable protection with stainless steel corrugated pipe
- With pipe length in m
- Customer

---

1. Cable with integrated air tube for atmospheric pressure reference
2. Not in combination with SIL
3. Stainless steel pipe is not part of the supply

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