The slimline probe LMP 305 with silicon stainless steel sensor is designed for continuous level measurement in confined space conditions. Permissible media are clean or waste water and thin fluids.

A piezoresistive stainless steel sensor with low thermal error, an excellent linearity and a long term stability, is basis of LMP 305.

Preferred areas of use are

- **Water**
  - level measurement in confined space conditions
  - ground water monitoring
  - depth or level measurement in wells and open waters
  - drinking water system
  - level measurement in container

**Nominal pressure**

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

**Output signals**

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

**Special characteristics**

- diameter 19 mm for cramped areas
- small thermal effect
- excellent long term stability
- excellent linearity

**Optional versions**

- different kinds of cable
- customer specific versions
  - e.g. special pressure ranges
Stainless Steel Probe Technical Data

### Input pressure range

<table>
<thead>
<tr>
<th></th>
<th>0.1</th>
<th>0.16</th>
<th>0.25</th>
<th>0.4</th>
<th>0.6</th>
<th>1.0</th>
<th>1.6</th>
<th>2.5</th>
<th>4.0</th>
<th>6.0</th>
<th>10</th>
<th>16</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal pressure gauge [bar]</td>
<td>0.1</td>
<td>0.16</td>
<td>0.25</td>
<td>0.4</td>
<td>0.6</td>
<td>1.0</td>
<td>1.6</td>
<td>2.5</td>
<td>4.0</td>
<td>6.0</td>
<td>10</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Level [mH₂O]</td>
<td>1</td>
<td>1.6</td>
<td>2.5</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>16</td>
<td>25</td>
<td>40</td>
<td>60</td>
<td>100</td>
<td>160</td>
<td>250</td>
</tr>
<tr>
<td>Overpressure [bar]</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>20</td>
<td>20</td>
<td>60</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

### Output signal / Supply

<table>
<thead>
<tr>
<th></th>
<th>Standard 2-wire: 4 ... 20 mA / Vₛ = 12 ... 36 VDC</th>
</tr>
</thead>
</table>

### Performance

#### Accuracy

- Standard: nominal pressure > 0.4 bar: ≤ ± 0.35 % FSO
- Nominal pressure ≤ 0.4 bar: ≤ ± 0.50 % FSO

#### Permissible load

\[ R_{\text{max}} = \left[ \frac{V_S - V_S_{\text{min}}}{0.02 \ A} \right] \ \Omega \]

#### 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

1 accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

### Thermal effects (Offset and Span)

<table>
<thead>
<tr>
<th>Nominal pressure Pₐ [bar]</th>
<th>≤ 0.1</th>
<th>≤ 0.25</th>
<th>≤ 0.4</th>
<th>≤ 1</th>
<th>&gt; 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance band [% FSO]</td>
<td>≤ ± 2</td>
<td>≤ ± 1.5</td>
<td>≤ ± 1</td>
<td>≤ ± 1</td>
<td>≤ ± 0.75</td>
</tr>
<tr>
<td>TC, average [% FSO / 10 K]</td>
<td>± 0.3</td>
<td>± 0.2</td>
<td>± 0.14</td>
<td>± 0.1</td>
<td>± 0.07</td>
</tr>
</tbody>
</table>

In compensated range [°C] 0 ... 50 0 ... 70

### Permissible temperatures

<table>
<thead>
<tr>
<th></th>
<th>medium: -10 ... 70 °C storage: -25 ... 70 °C</th>
</tr>
</thead>
</table>

### Electrical protection

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

2 additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request

### Electrical connection

- Cable with sheath material: PVC (-5 ... 70 °C) grey, PUR (-10 ... 70 °C) black, FEP (-10 ... 70 °C) black
- others 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

### Materials (media wetted)

#### Housing

stainless steel 1.4404 (316L)

#### Seals

FKM / EPDM

#### Diaphragm

stainless steel 1.4435 (316L)

#### Protection cap

POM

#### Cable sheath

PVC / PUR / FEP

### Miscellaneous

#### 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

#### Current consumption

signal output current: max. 25 mA

#### Weight

approx. 100 g (without cable)

#### Ingress protection

IP 68

#### CE-conformity

EMC Directive: 2014/30/EU

### Wiring diagram

2-wire-system (current)

![Wiring diagram](image)
## Pin configuration

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>Cable colours (IEC 60757)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply +</td>
<td>wh (white)</td>
</tr>
<tr>
<td>Supply –</td>
<td>bn (brown)</td>
</tr>
<tr>
<td>Shield</td>
<td>gnye (green-yellow)</td>
</tr>
</tbody>
</table>

## Dimensions (in mm)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection cap removable</td>
<td>19.4</td>
</tr>
<tr>
<td></td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>131.5</td>
</tr>
<tr>
<td></td>
<td>120.3</td>
</tr>
</tbody>
</table>
Mounting flange with cable gland

Technical data

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>all probes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange material</td>
<td>stainless steel 1.4404 (316L)</td>
</tr>
<tr>
<td>Material of cable gland</td>
<td>standard: brass, nickel plated, on request: stainless steel 1.4305 (303); plastic</td>
</tr>
<tr>
<td>Seal insert</td>
<td>material: TPE (ingress protection IP 68)</td>
</tr>
<tr>
<td>Hole pattern</td>
<td>according to DIN 2507</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Version</th>
<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>
<td>1.4 kg</td>
</tr>
<tr>
<td>DN50 / PN40</td>
<td>D = 165, k = 125, b = 20, n = 4, d= 18</td>
<td>3.2 kg</td>
</tr>
<tr>
<td>DN80 / PN16</td>
<td>D = 200, k = 160, b = 20, n = 8, d= 18</td>
<td>4.8 kg</td>
</tr>
</tbody>
</table>

Ordering type | Ordering code
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

Cable clamp

Technical data

<table>
<thead>
<tr>
<th>Suitable for</th>
<th>all probes with cable Ø 5.5 ... 10.5 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>standard: steel, zinc plated, optionally: stainless steel 1.4301 (304)</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 160 g</td>
</tr>
</tbody>
</table>

Ordering type | Ordering code
Terminal clamp, of steel, zinc plated | Z100528
Terminal clamp, of stainless steel 1.4301 (304) | Z100527

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
<table>
<thead>
<tr>
<th>Pressure</th>
<th>Input [mH₂O</th>
<th>in bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.10</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>0.16</td>
<td>1.6</td>
</tr>
<tr>
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<td>0.25</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>0.40</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>0.60</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>10.0</td>
</tr>
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<td></td>
<td>1.6</td>
<td>16.0</td>
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<td></td>
<td>25.0</td>
<td>250.0</td>
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<tr>
<td></td>
<td>40.0</td>
<td>400.0</td>
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<tr>
<td></td>
<td>60.0</td>
<td>600.0</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>1000.0</td>
</tr>
</tbody>
</table>

### Housing
- Stainless steel 1.4404 (316L)
- Stainless steel 1.4435 (316L)
- FKM
- EPDM

### Diaphragm
- Stainless steel 1.4404 (316L)
- FKM
- EPDM

### Output
- 4 … 20 mA / 2-wire
- 0.35 %
- 0.5 %
- 0.25 %

### Seals
- FKM
- EPDM

### Accuracy
- standard for PN > 0.4 bar
- option for PN > 0.4 bar
- customer

### Electrical connection
- PVC-cable
- PUR-cable
- FEP-cable

### Cable length
- in m
- customer

### Special version
- standard
- customer

* cable with integrated air tube for atmospheric pressure reference