

LMP 308i

Separable Stainless Steel Probe Precision

Stainless Steel Sensor

accuracy according to IEC 60770:
0.1 % FSO



Nominal pressure

from 0 ... 4 mH₂O up to 0 ... 200 mH₂O

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 ... 10 V
others on request

Special characteristics

- ▶ diameter 35 mm
- ▶ cable and sensor section separable
- ▶ excellent accuracy
- ▶ communication connection
- ▶ thermal error in compensated range
-20 ... 70 °C: 0.2 % FSO
TC 0.02 % FSO / 10K
- ▶ Turn-Down 1:10

Optional versions

- ▶ IS-version zone 0
- ▶ cable protection via corrugated pipe
- ▶ mounting accessories as cable gland and terminal clamp in stainless steel
- ▶ different kinds of cables
- ▶ different kinds of seal materials

The separable precision stainless steel probe LMP 308i is designed for continuous fill level and level measurement of water and liquid mediums. The signal processing of sensor signal is done by digital electronics with 16-bit analogue digital converter. Consequently it is possible to conduct an active compensation of sensor intrinsic deviations from normal conditions like nonlinearity and thermal error.

In order to facilitate stock-keeping and maintenance the transmitter body 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



LMP 308i

Precision Stainless Steel Probe

Technical Data

| Input pressure range ¹ | | | | | | | |
|---|---|-----------------------|-----|-------------------------------------|----|--|-----|
| Nominal pressure gauge | [bar] | 0.40 | 1 | 2 | 4 | 10 | 20 |
| Level | [mH ₂ O] | 4 | 10 | 20 | 40 | 100 | 200 |
| Overpressure | [bar] | 2 | 5 | 10 | 20 | 40 | 80 |
| Burst pressure | [bar] | 3 | 7.5 | 15 | 25 | 50 | 120 |
| ¹ On customer request we adjust the device within the turn-down-possibility by software on the required pressure range. | | | | | | | |
| Output signal / Supply | | | | | | | |
| Standard | 2-wire: 4 ... 20 mA / V _S = 12 ... 36 V _{DC} | | | with RS-232 communication interface | | | |
| Option IS-protection | 2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC} | | | | | | |
| Options | 3-wire: 0 ... 10 V / V _S = 14 ... 36 V _{DC} | | | | | | |
| Performance | | | | | | | |
| Accuracy | IEC 60770 ² : ≤ ± 0.1 % FSO | | | | | | |
| Performance after turn-down (TD) | no change of accuracy ³ | | | | | | |
| - TD ≤ 1:5 | formula for accuracy calculating (for nominal pressure gauge ≤ 0.40 bar see note 3): | | | | | | |
| - TD > 1:5 | ≤ ± [0.1 + 0.015 x turn-down] % FSO | | | | | | |
| | with turn-down = nominal pressure range / adjusted range | | | | | | |
| | e.g. following accuracy can be calculated for turn-down 1:10: | | | | | | |
| | ≤ ± (0.1 + 0.015 x 10) % FSO i.e. the accuracy is ≤ ± 0.25 % FSO | | | | | | |
| Permissible load | current 2-wire: R _{max} = [(V _S - V _{S min}) / 0.02 A] Ω | | | | | | |
| | voltage 3-wire: R _{min} = 10 kΩ | | | | | | |
| Influence effects | supply: 0.05 % FSO / 10 V | | | load: 0.05 % FSO / kΩ | | | |
| Long term stability | ≤ ± (0.1 x turn-down) % FSO / year at reference conditions | | | | | | |
| Response time | ca. 200 msec | | | | | | |
| Adjustability | following parameters can be adjusted (interface / software needed ⁴) | | | | | | |
| | electronic damping: 0 ... 100 sec | | | turn-down of span: max. 1:10 | | | |
| | offset: 0 ... 90 % FSO | | | | | | |
| ² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) | | | | | | | |
| ³ nominal pressure gauges ≤ 0.40 bar are excluded; for these the calculation of accuracy is as follows: | | | | | | | |
| ≤ ± (0.1 + 0.02 x turn-down) % FSO e.g. turn-down 1:3: ≤ ± (0.1 + 0.02 x 3) % FSO i.e. the accuracy is ≤ ± 0.16 % FSO | | | | | | | |
| ⁴ software, interface and cable must separate be ordered (software is compatible with Windows [®] 95, 98, 2000, NT from version 4.0 or higher and XP) | | | | | | | |
| Thermal effects (Offset and Span) | | | | | | | |
| Tolerance band | [% FSO] | ≤ ± (0.2 x turn-down) | | in compensated range -20 ... 70 °C | | | |
| TC | [% FSO / 10 K] | ± (0.2 x turn-down) | | in compensated range -20 ... 70 °C | | | |
| Permissible temperatures | | medium: -20 ... 70 °C | | storage: -25 ... 70 °C | | electronics / environment: -25 ... 65 °C | |
| Electrical protection ⁵ | | | | | | | |
| Short-circuit protection | permanent | | | | | | |
| Reverse polarity protection | no damage, but also no function | | | | | | |
| Electromagnetic compatibility | emission and immunity according to EN 61326 | | | | | | |
| ⁵ 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 ⁶ | PVC (-5 ... 70 °C) grey | | | others on request | | | |
| | PUR (-20 ... 70 °C) black | | | | | | |
| | FEP ⁷ (-20 ... 70 °C) black | | | | | | |
| ⁶ cable with integrated air tube for atmospheric pressure reference | | | | | | | |
| ⁷ 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, others on request | | | | | | |
| Diaphragm | stainless steel 1.4435 (316L) | | | | | | |
| Protection cap | POM | | | | | | |
| Explosion protection (only for 4 ... 20 mA / 2-wire) | | | | | | | |
| Approvals | IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X | | | | | | |
| DX19-LMP 308 i | zone 0: II 1G Ex ia IIC T4 Ga | | | zone 20: II 1D Ex ia IIIC T 85°C Da | | | |
| Safety technical maximum values | U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≈ 0 nF, L _i ≈ 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing | | | | | | |
| Ambient temperature range | in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar | | | | | | |
| | in zone 1 or higher: -20 ... 65 °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 | | | | | | | |
| Current consumption | max. 25 mA | | | | | | |
| Weight | approx. 250 g (without cable) | | | | | | |
| Ingress protection | IP 68 | | | | | | |
| CE-conformity | EMC Directive: 2014/30/EU | | | | | | |
| ATEX Directive | 2014/34/EU | | | | | | |

LMP 308i

Precision Stainless Steel Probe

Technical Data

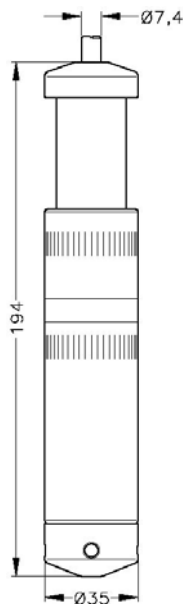
| Wiring diagram / connector | | | |
|--------------------------------|--------------------------------|--|--|
| <p>2-wire-system (current)</p> | <p>3-wire-system (voltage)</p> | <p>Binder series 723⁸ (5-pin)</p> | <p>Binder series 723⁸ (7-pin)</p> |

| Pin configuration | | | | |
|-----------------------|--|--|--|------------------------------|
| Electrical connection | Binder series 723 ⁸ (5-pin) / 2-wire | Binder series 723 ⁸ (5-pin) / 3-wire | Binder series 723 ⁸ (7-pin) / 2-wire with communication interface | cable colours (IEC 60757) |
| Supply + | 3 | 3 | 3 / wh (white) | wh (white) |
| Supply - | 1 | 4 | 1 / bn (brown) | bn (brown) |
| Signal + (for 3-wire) | - | 1 | (6) / gn (green) | gn (green) |
| RxD | - | - | 4 / ye (yellow) | - |
| TxD | - | - | 5 / gr (grey) | - |
| GND | - | - | 7 / gn (green) | - |
| Shield | 5 | 5 | 2 / gnye (green-yellow) | gnye (green-yellow) |

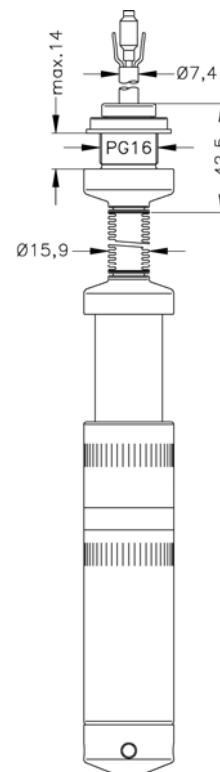
⁸ in separated version

Dimensions (in mm)

standard

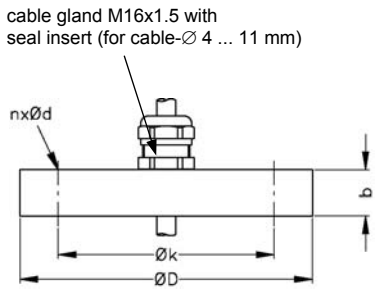
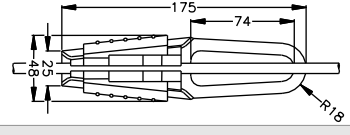



option



separated version

version with
corrugated pipe

| Mounting flange with cable gland | | |
|---|---|----------------------|
| Technical data | | |
| Suitable for | all probes | |
| Flange material | stainless steel 1.4404 (316L) | |
| Material of cable gland | standard: brass, nickel plated on request: stainless steel 1.4305 (303); plastic | |
| Seal insert | material: TPE (ingress protection IP 68) | |
| Hole pattern | according to DIN 2507 | |
| Version | Size (in mm) | Weight |
| DN25 / PN40 | D = 115, k = 85, b = 18, n = 4, d = 14 | 1.4 kg |
| DN50 / PN40 | D = 165, k = 125, b = 20, n = 4, d = 18 | 3.2 kg |
| DN80 / PN16 | D = 200, k = 160, b = 20, n = 8, d = 18 | 4.8 kg |
| 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 |
|  | | |
| <p>cable gland M16x1.5 with seal insert (for cable-Ø 4 ... 11 mm)</p> | | |
| Terminal clamp | | |
| Technical data | | |
| Suitable for | all probes with cable Ø 5.5 ... 10.5 mm | |
| Material | standard: steel, zinc plated optionally: stainless steel 1.4301 (304) | |
| Weight | approx. 160 g | |
| Ordering type | | Ordering code |
| Terminal clamp, steel, zinc plated | | Z100528 |
| Terminal clamp, stainless steel 1.4301 (304) | | Z100527 |
|  | | |
| Display program | | |
| <p>CIT 200 Process display with LED display</p> <p>CIT 250 Process display with LED display and contacts</p> <p>CIT 300 Process display with LED display, contacts and analogue output</p> <p>CIT 350 Process display with LED display, bargraph, contacts and analogue output</p> <p>CIT 400 Process display with LED display, contacts, analogue output and Ex-approval</p> <p>CIT 600 Multichannel process display with graphics-capable LC display</p> <p>CIT 650 Multichannel process display with graphics-capable LC display and datalogger</p> <p>CIT 700 Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts</p> <p>PA 440 Field display with 4-digit LC display</p> | | |
| <p>For further information please contact our sales department or visit our homepage: http://www.bdsensors.com</p> | | |
|  | | |

© 2018 BD|SENSORS GmbH – The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

