



LMP 307

Stainless Steel Probe

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 % / 0.1 % FSO

Nominal pressure

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

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

others on request

Special characteristics

- ▶ diameter 26,5 mm
- ▶ small thermal effect
- ▶ excellent accuracy
- ▶ excellent long term stability

Optional versions

- ▶ IS-protection zone 0
- ▶ SIL 2 (Safety Integrity Level)
- ▶ Drinking water certificate acc. to DVGW and KTW
- ▶ different kinds of cables
- ▶ different kinds of seal materials

The stainless steel probe LMP 307 is designed for continuous level measurement in water and clean or waste fluids.

Basic element is a high quality stainless steel sensor with high requirements for exact measurement with excellent long term stability.

Preferred areas of use are

Water / filtrated sewage

drinking water system



ground water level measurement

rain spillway basin

pump and booster stations

level measurement in container

water treatment plants

water recycling



Fuel / Oil

fuel storage

tank farm

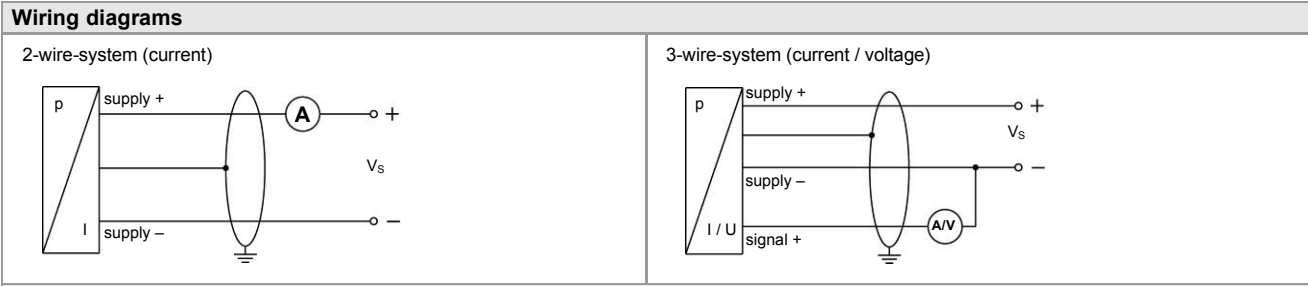


| Input pressure range | | | | | | | | | | | | | | |
|--|---------------------|---|------|------|-----|-----|-----|---|-----|----|----|-----|-----|-----|
| Nominal pressure gauge | [bar] | 0.1 | 0.16 | 0.25 | 0.4 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 25 |
| Level | [mH ₂ O] | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 |
| Overpressure | [bar] | 0.5 | 1 | 1 | 2 | 5 | 5 | 10 | 10 | 20 | 40 | 40 | 80 | 80 |
| Burst pressure \geq | [bar] | 1.5 | 1.5 | 1.5 | 3 | 7.5 | 7.5 | 15 | 15 | 25 | 50 | 50 | 120 | 120 |
| Output signal / Supply | | | | | | | | | | | | | | |
| Standard | | 2-wire: 4 ... 20 mA / $V_S = 8 \dots 32 V_{DC}$ | | | | | | SIL-version: $V_S = 14 \dots 28 V_{DC}$ | | | | | | |
| Option Ex-protection | | 2-wire: 4 ... 20 mA / $V_S = 10 \dots 28 V_{DC}$ | | | | | | SIL-version: $V_S = 14 \dots 28 V_{DC}$ | | | | | | |
| Options 3-wire | | 3-wire: 0 ... 20 mA / $V_S = 14 \dots 30 V_{DC}$ | | | | | | 0 ... 10 V / $V_S = 14 \dots 30 V_{DC}$ | | | | | | |
| Performance | | | | | | | | | | | | | | |
| Accuracy | | standard: nominal pressure < 0.4 bar: $\leq \pm 0.5\%$ FSO nominal pressure ≥ 0.4 bar: $\leq \pm 0.35\%$ FSO option 1: nominal pressure ≥ 0.4 bar: $\leq \pm 0.25\%$ FSO option 2: for all nominal pressures: $\leq \pm 0.1\%$ FSO | | | | | | | | | | | | |
| Permissible load | | current 2-wire: $R_{max} = [(V_S - V_S \text{ min}) / 0.02 A] \Omega$ current 3-wire: $R_{max} = 500 \Omega$ voltage 3-wire: $R_{min} = 10 k\Omega$ | | | | | | | | | | | | |
| Influence effects | | supply: 0.05 % FSO / 10 V | | | | | | load: 0.05 % FSO / k Ω | | | | | | |
| Long term stability | | $\leq \pm 0.1\%$ FSO / year at reference conditions | | | | | | | | | | | | |
| Response time | | 2-wire: ≤ 10 msec; | | | | | | 3-wire: ≤ 3 msec | | | | | | |
| ¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) | | | | | | | | | | | | | | |
| Thermal effects (Offset and Span) | | | | | | | | | | | | | | |
| Nominal pressure P_N | [bar] | < 0.40 | | | | | | ≥ 0.40 | | | | | | |
| Tolerance band | [% FSO] | $\leq \pm 1$ | | | | | | $\leq \pm 0.75$ | | | | | | |
| in compensated range | [°C] | 0 ... 70 | | | | | | | | | | | | |
| Permissible temperatures | | | | | | | | | | | | | | |
| Permissible temperatures | | medium: -10 ... 70 °C | | | | | | storage: -25 ... 70 °C | | | | | | |
| Electrical protection ² | | | | | | | | | | | | | | |
| 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 ³ | | PVC (-5 ... 70 °C) grey PUR (-10 ... 70 °C) black FEP ⁴ (-10 ... 70 °C) black TPE-U (-10 ... 70 °C) blue (with drinking water certificate) | | | | | | | | | | | | |
| 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 (with drinking water certificate) | | | | | | others on request | | | | | | |
| Diaphragm | | stainless steel 1.4435 (316L) | | | | | | | | | | | | |
| Protection cap | | POM-C | | | | | | | | | | | | |
| Explosion protection (only for 4 ... 20 mA / 2-wire) | | | | | | | | | | | | | | |
| Approvals | | IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X | | | | | | | | | | | | |
| DX19-LMP 307 | | 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, $C_i \approx 0$ nF, $L_i \approx 0$ μ H, 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 ... 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 μ H/m | | | | | | | | | | | | |
| Miscellaneous | | | | | | | | | | | | | | |
| Option SIL ⁵ 2 application | | according to IEC 61508 / IEC 61511 | | | | | | | | | | | | |
| drinking water certificate | | According to DVGW W 270 and UBA KTW (With order please indicate if her device must be certificated for drinking water.) | | | | | | | | | | | | |
| Current consumption | | signal output current: max. 25 mA / signal output voltage: max. 7 mA | | | | | | | | | | | | |
| Weight | | approx. 200 g (without cable) | | | | | | | | | | | | |
| Ingress protection | | IP 68 | | | | | | | | | | | | |
| CE-conformity | | EMC Directive: 2014/30/EU | | | | | | | | | | | | |
| ATEX Directive | | 2014/34/EU | | | | | | | | | | | | |
| ⁵ not in combination with the accuracy 0.1%, only for 4...20mA / 2-wire | | | | | | | | | | | | | | |

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Technical Data

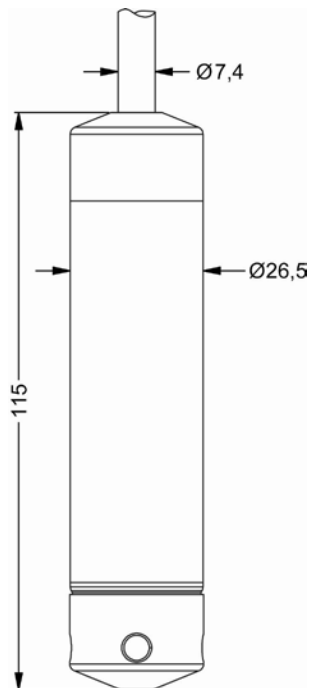


Pin configuration

| Electrical connection | cable colours (IEC 60757) |
|------------------------|---------------------------|
| Supply + | wh (white) |
| Supply - | bn (brown) |
| Signal + (only 3-wire) | gn (green) |
| Shield | gnye (green-yellow) |

Dimensions (in mm)

standard

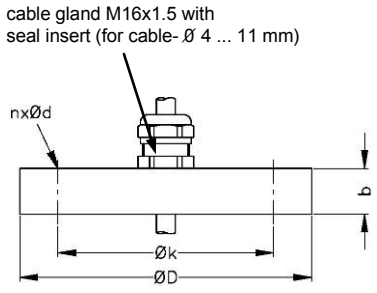
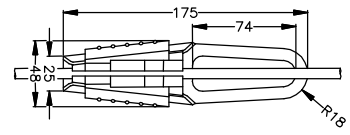



⊕ Total length of devices with accuracy 0.1 % FSO IEC 60770 increases by 35 mm!

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Accessories

| Mounting flange with cable gland | | |
|---|---|--|
| Technical data | | cable gland M16x1.5 with seal insert (for cable-Ø 4 ... 11 mm)  |
| 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 |
| 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 | | |
| 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 | | |

