

LMP 307T

Level and Temperature Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770:
0.35 % / 0.5 % span



Nominal pressure

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

from 0 ... 30 °C up to 0 ... 70 °C

others on request

Output signals

2-wire: 4 ... 20 mA (pressure)

2-wire: 4 ... 20 mA (temperature)

others on request

Special characteristics

- ▶ diameter 27 mm
- ▶ separate output signals for pressure and temperature ranges
- ▶ integrated Pt 100 thermal element
- ▶ small thermal effect
- ▶ high accuracy
- ▶ easy handling

Optional versions

- ▶ Drinking water certificate acc. to DVGW and KTW
- ▶ different kinds of cables
- ▶ different kinds of seal materials
- ▶ customer specific versions

BD SENSORS has developed the stainless steel submersible probe LMP 307T for continuous level and temperature measurement in water and in clean to lightly-soiled liquids.

The advantage: simultaneous recording of level and temperature with separate independent signal amplification. The maintenance and wiring costs are considerably reduced.

In addition to classical signal processing of the level, an additional signal circuit independent of the level which converts the temperature signal into a 4 ... 20 mA analogue signal in 2-wire technology is provided.

Typical application areas are, for example, drinking water purification, monitoring of rainwater overflow basins and river courses, in addition to level measurement in containers or tank batteries.

Preferred areas of use are



Water / filtrated sewage

e.g. drinking water system

water recycling



Fuel / Oil

e.g. 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 | |
| max. ambient pressure (housing) | | 40 bar | | | | | | | | | | | | | |
| Input temperature range | | | | | | | | | | | | | | | |
| Temperature measuring range | | standard | | | 0 ... 30 °C | | | 0 ... 50 °C | | | 0 ... 70 °C | | | | |
| | | others on request ¹ | | | | | | | | | | | | | |
| ¹ min. temperature range: 30°C; max. temperature range: 80°C min. temperature: -10°C; max. temperature: 70 °C | | | | | | | | | | | | | | | |
| Output signal / Supply | | | | | | | | | | | | | | | |
| 2-wire (pressure) ² | | 4 ... 20 mA / V _S = 10 ... 30 V _{DC} | | | | | | | | | | | | | |
| 2-wire (temperature) ² | | 4 ... 20 mA / V _S = 10 ... 30 V _{DC} | | | | | | | | | | | | | |
| ² the circuits are galvanically isolated from each other | | | | | | | | | | | | | | | |
| Performance | | | | | | | | | | | | | | | |
| Accuracy (pressure) ³ | | standard: nominal pressure < 0.4 bar: | | | $\leq \pm 0.5$ % span | | | | | | | | | | |
| | | nominal pressure \geq 0.4 bar: | | | $\leq \pm 0.35$ % span | | | | | | | | | | |
| | | option 1: nominal pressure \geq 0,4 bar: | | | $\leq \pm 0.25$ % span | | | | | | | | | | |
| Accuracy (temperature) ⁴ | | $\leq \pm 1$ °C | | | | | | | | | | | | | |
| Permissible load | | $R_{\max} = [(V_S - V_S \text{ min}) / 0.02 \text{ A}] \Omega$ | | | | | | | | | | | | | |
| Influence effects | | supply: | | | 0.05 % span / 10 V | | | | | | | | | | |
| | | load: | | | 0.05 % span / k Ω | | | | | | | | | | |
| Long term stability | | $\leq \pm 0.1$ % span / year at reference conditions | | | | | | | | | | | | | |
| Response time | | < 10 ms (for output signal 2-wire (pressure)) | | | | | | | | | | | | | |
| ³ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) ⁴ Pt 100 class B; compensation time up to 1h depending on constant temperature and environmental respectively mass conditions | | | | | | | | | | | | | | | |
| Thermal effects (Offset and Span) | | | | | | | | | | | | | | | |
| Nominal pressure P _N | [bar] | < 0.40 | | | | | | ≥ 0.40 | | | | | | | |
| Tolerance band | [% span] | $\leq \pm 1$ | | | | | | $\leq \pm 0.75$ | | | | | | | |
| in compensated range | [°C] | 0 ... 70 | | | | | | | | | | | | | |
| Permissible temperatures | | | | | | | | | | | | | | | |
| Permissible temperatures | | Medium/ electronics/ environment/ storage: -20 ... 80 °C * | | | | | | | | | | | | | |
| *If the cable is intended for use in a smaller temperature range, the use of the probe is limited by this range. | | | | | | | | | | | | | | | |
| 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 | (-25 ... 70 °C in fixed condition) | | | | | | | Ø 7,4 mm | | | | |
| | | PUR (-25 ... 80 °C) | black | (with drinking water certificate) | | | | | | | Ø 7,4 mm | | | | |
| | | FEP ⁷ (-25 ... 75 °C) | black | | | | | | | | | | | Ø 7,4 mm | |
| | | TPE-U (-25 ... 125 °C) | blue | | | | | | | | | | | Ø 7,4 mm | |
| Bending radius | | static installation: 10-fold cable diameter, dynamic application: 20-fold cable diameter | | | | | | | | | | | | | |
| 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 (with drinking water certificate) | | | | | | | | | | others on request | | | |
| Diaphragm | | stainless steel 1.4435 (316L) | | | | | | | | | | | | | |
| Protection cap | | POM-C | | | | | | | | | | | | | |
| Cable sheath | | PVC, PUR, FEP, TPE-U, others on request | | | | | | | | | | | | | |
| Miscellaneous | | | | | | | | | | | | | | | |
| drinking water certificate | | According to DVGW W 270 and UBA KTW (With order please indicate if her device must be certificated for drinking water.) | | | | | | | | | | | | | |
| 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 | | | | | | | | | | |
| Current consumption | | signal output current: | | | max. 25 mA / signal output voltage: max. 7 mA | | | | | | | | | | |
| Weight | | approx. 200 g (without cable) | | | | | | | | | | | | | |

LMP 307

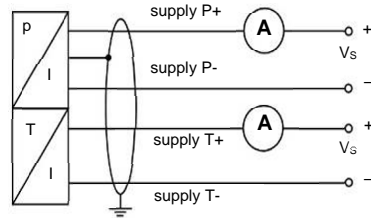
Stainless Steel Probe

Technical Data

| | |
|--------------------|---------------------------|
| Ingress protection | IP 68 |
| CE-conformity | EMC Directive: 2014/30/EU |

Wiring diagram

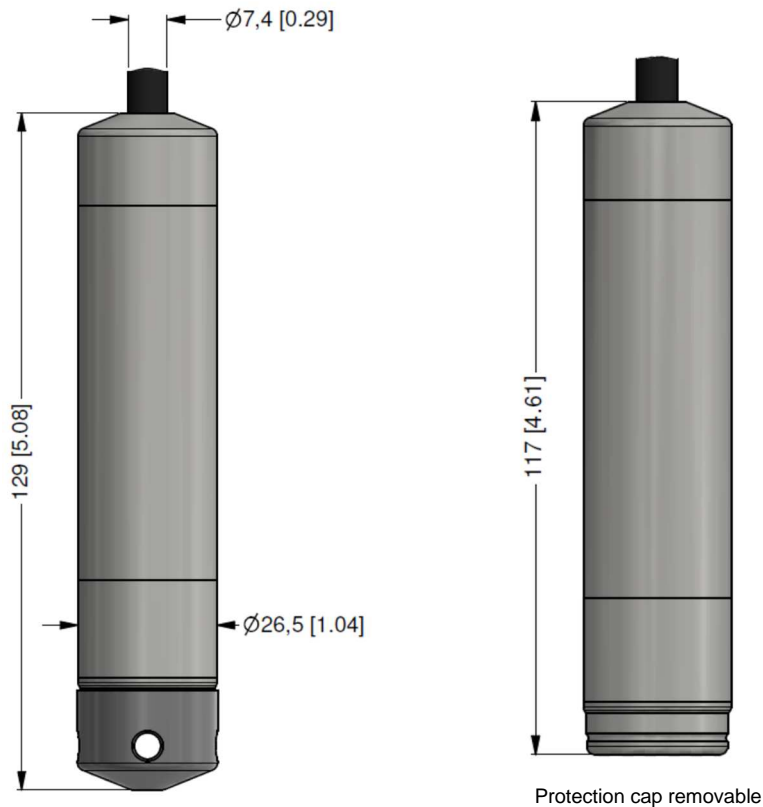
2x2-wire-system (current)




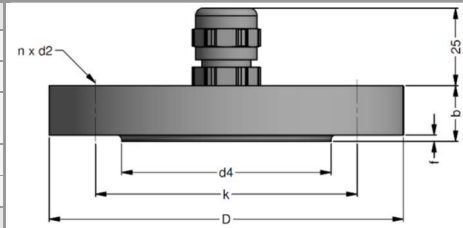
Pin configuration

| Electrical connection | cable colours (DIN 47100) |
|-----------------------|---------------------------|
| Supply P+ | wh (white) |
| Supply P- | bn (brown) |
| Supply T+ | gy (gray) |
| Supply T- | pk (pink) |
| Shield | ye/gn (yellow / green) |

Dimensions (in mm)



| 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 | | 5000275 |
| DN50 / PN40 with cable gland brass, nickel plated | | 5000278 |
| DN80 / PN16 with cable gland brass, nickel plated | | 5000279 |
| Terminal clamp | | |
| Technical data | | |
| Suitable for | all probes with cable \varnothing 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 | | 1003440 |
| Terminal clamp, stainless steel 1.4301 (304) | | 1000278 |
| 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> | |  |



This data sheet contains product specification. Properties are not guaranteed. Subject to change without notice.

- 1 drinking water certification only possible with EPDM seal (code 3) in combination with PUR cable
- 2 shielded cable with integrated ventilation tube for atmospheric pressure reference



BD SENSORS s.r.o.
Hradištská 817
CZ – 687 08 Buchlovice

Tel.: +420 572 411 011
Fax: +420 572 411 497

www.bdsensors.cz
info@bdsensors.cz

The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.

