

LMP 307T

Level and Temperature Transmitter

Stainless Steel Sensor

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



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

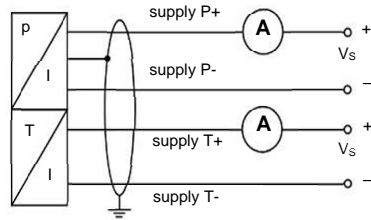


Input pressure range															
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80	
Burst pressure \geq	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120	
Input 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:			$\leq \pm 0.5$ % FSO										
		nominal pressure \geq 0.4 bar:			$\leq \pm 0.35$ % FSO										
		option 1: nominal pressure \geq 0,4 bar:			$\leq \pm 0.25$ % FSO										
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 % FSO / 10 V										
		load:			0.05 % FSO / k Ω										
Long term stability		$\leq \pm 0.1$ % FSO / 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	[% FSO]	$\leq \pm 1$					$\leq \pm 0.75$								
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)							\varnothing 7,4 mm				
		PUR (-25 ... 80 °C)	black								\varnothing 7,4 mm				
		FEP ⁷ (-25 ... 75 °C)	black								\varnothing 7,4 mm				
		TPE-U (-25 ... 125 °C)	blue (with drinking water certificate)								\varnothing 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)													
Ingress protection		IP 68													

CE-conformity	EMC Directive: 2014/30/EU
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Wiring diagram

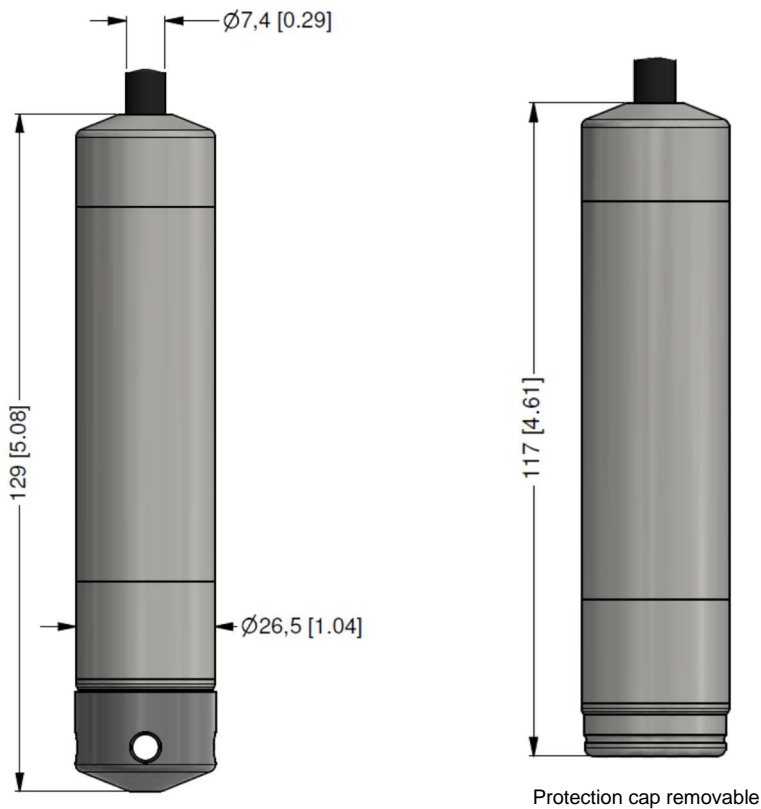
2x2-wire-system (current)




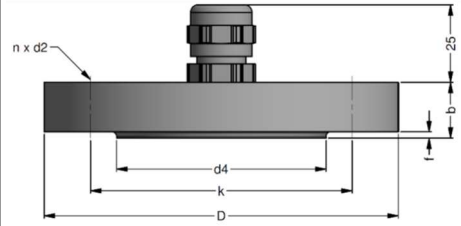
Pin configuration

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>		



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