



LMP 307T

Level and Temperature Transmitter

Stainless Steel Sensor

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

Nominal pressure / nominal temperature

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)

Special characteristics

- ▶ diameter 26.5 mm
- ▶ separate output signals for pressure and temperature ranges
- ▶ easy handling
- ▶ low maintenance and wiring costs

Optional versions

- ▶ drinking water certificate according to DVGW and KTW
- ▶ different kinds of cables and elastomers
- ▶ 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 or lightly polluted fluids. 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 rain spillway basins or river courses and level measurement in containers or tank batteries.

Preferred areas of use are

Water / filtrated sewage



drinking water system
rain spillway basins
water recycling



Fuel and oil

tank farm



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Technical Data

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: $\leq \pm 0.5$ % FSO			nominal pressure ≥ 0.4 bar: $\leq \pm 0.35$ % FSO			option 1: nominal pressure ≥ 0.4 bar: $\leq \pm 0.25$ % FSO								
Accuracy (temperature) ⁴		$\leq \pm 1$ °C														
Permissible load		$R_{\max} = [(V_S - V_{S_{\min}}) / 0.02 \text{ A}] \Omega$														
Influence effects		supply: 0.05 % FSO / 10 V						load: 0.05 % FSO / kΩ								
Long term stability		$\leq \pm 0.1$ % FSO / year at reference conditions														
Response time		< 10 msec (for output signal 2-wire (pressure))														
³ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)																
⁴ Pt100 class B; compensation time up to 1 h 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: -10 ... 70 °C						storage: -25 ... 70 °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	Ø 7.4 mm	PUR (-10 ... 70 °C)	black	Ø 7.4 mm	FEP ⁷ (-10 ... 70 °C)	black	Ø 7.4 mm	TPE-U (-10 ... 70 °C)	blue	Ø 7.4 mm	(without/with drinking water certificate)		
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														
Bending radius		static installation: 10-fold cable diameter						dynamic application: 20-fold cable diameter								
⁶ shielded cable with integrated ventilation 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 (without/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 ⁸		according to DVGW W 270 and UBA KTW (with order the indication "with drinking water certificate" is necessary)														
Current consumption		max. 25 mA														
Weight		approx. 200 g (without cable)														
Ingress protection		IP 68														
CE-conformity		EMC Directive: 2014/30/EU														
⁸ only possible with EPDM seal in combination with TPE-U cable																

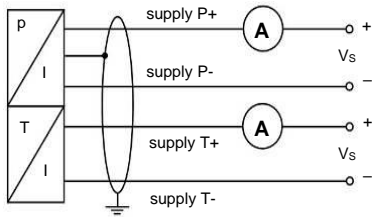
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Technical Data

Wiring diagram

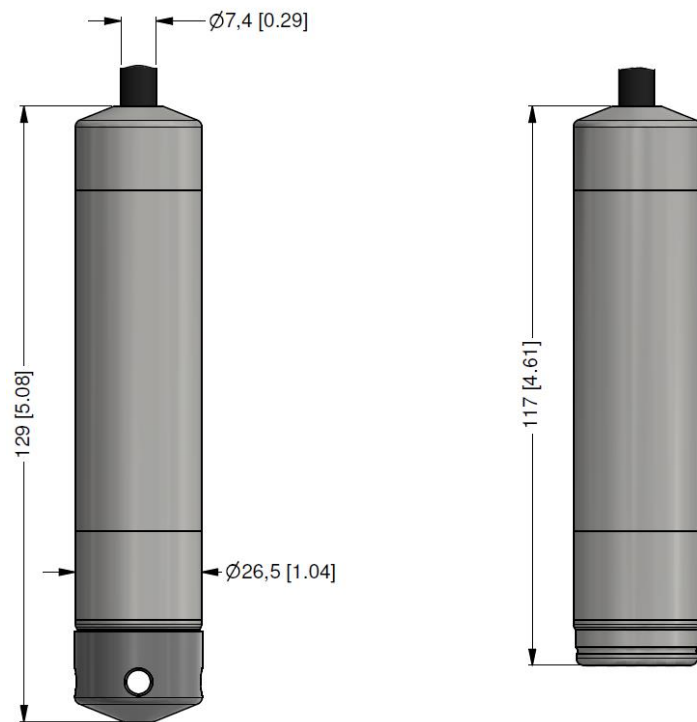
2x2-wire-system (current)



Pin configuration

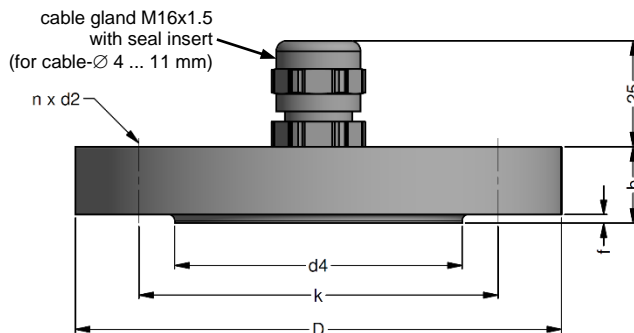
Electrical connection	cable colours (IEC 60757)
Supply P+	WH (white)
Supply P-	BN (brown)
Supply T+	GY (grey)
Supply T-	PK (pink)
Shield	GNYE (green-yellow)

Dimensions (mm / in)



protection cap
removable

Mounting flange with cable gland



dimensions in mm			
size	DN25 / PN40	DN50 / PN40	DN80 / PN16
b	18	20	20
D	115	165	200
d2	14	18	18
d4	68	102	138
f	2	3	3
k	85	125	160
n	4	4	8

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		

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp



Technical data

Suitable for	all probes with cable Ø 5.5 ... 10.5 mm		
Material of housing	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)		
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		
Dimensions (mm)	174 x 45 x 32		
Hook diameter	20 mm		

Ordering type	Ordering code	Weight
Terminal clamp, steel, zinc plated	Z100528	approx. 160 g
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 / CIT 750** 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.de>



Ordering code LMP 307T

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Pressure																					
	in bar	4	5	5																	
	in mH ₂ O	4	5	6																	
Input	[mH₂O]	[bar]																			
	1.0	0.10			1	0	0	0													
	1.6	0.16			1	6	0	0													
	2.5	0.25			2	5	0	0													
	4.0	0.40			4	0	0	0													
	6.0	0.60			6	0	0	0													
	10	1.0			1	0	0	1													
	16	1.6			1	6	0	1													
	25	2.5			2	5	0	1													
	40	4.0			4	0	0	1													
	60	6.0			6	0	0	1													
	100	10			1	0	0	2													
	160	16			1	6	0	2													
	250	25			2	5	0	2													
	customer				9	9	9	9													consult
Input temperature	°C																				
	0 ... 30				0	0	0	x	3	0											
	0 ... 50				0	0	0	x	5	0											
	0 ... 70				0	0	0	x	7	0											
	customer				9	9	9	9	9												
Housing																					
	stainless steel 1.4404 (316L)				1																consult
	customer				9																
Diaphragm																					
	stainless steel 1.4435 (316L)				1																consult
	customer				9																
Output pressure																					
	4 ... 20 mA / 2-wire									1											
Output temperature																					
	4 ... 20 mA / 2-wire										1										
Seals																					
	FKM										1										
	EPDM										3										
DVGW/KTW:																					
	EPDM ¹										3	T									
	customer										9										consult
Accuracy																					
	standard for p _N ≥ 0.4 bar	0.35 % FSO									3										
	standard for p _N < 0.4 bar	0.5 % FSO									5										
	option 1 for p _N ≥ 0.4 bar	0.25 % FSO									2										
	customer										9										consult
Electrical connection / cable length																					
PVC-cable (grey, Ø 7.4 mm)²																					
	3 m										1	0	0	3							
	5 m										1	0	0	5							
	10 m										1	0	1	0							
	15 m										1	0	1	5							
	special length in m										1	9	9	9							
PUR-cable (black, Ø 7.4 mm)²																					
	3 m										2	0	0	3							
	5 m										2	0	0	5							
	10 m										2	0	1	0							
	15 m										2	0	1	5							
	special length in m										2	9	9	9							
FEP-cable (black, Ø 7.4 mm)²																					
	5 m										3	0	0	5							
	10 m										3	0	1	0							
	special length in m										3	9	9	9							
TPE-U-cable (blue, Ø 7.4 mm)²																					
	special length in m										4	9	9	9							
DVGW/KTW:																					
	special length in m										F	9	9	9							
Special version																					
	standard																				
	customer														0	0	0				consult
															9	9	9				

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