

LMK 307T

Level and Temperature Transmitter

Ceramic Sensor

accuracy according to IEC 60770:
0.5 % FSO



Nominal pressure / nominal temperature

from 0 ... 4 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
- ▶ good long term stability
- ▶ easy handling
- ▶ low maintenance and wiring costs

Optional versions

- ▶ different kinds of cables
- ▶ different kinds of seal materials
- ▶ customer specific versions

BD|SENSORS has developed the stainless steel submersible probe LMK 307T with flush mounted ceramic sensor for continuous level and temperature measurement in water or waste water applications.

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.

Preferred areas of use are

Water



e.g. drinking water system, RÜBs
ground water monitoring
storm water systems

Sewage



waste water treatment, water recycling,
dumpsite, waste water tanks

Fuel / Oil



fuel storage
tank farm, biogas plants

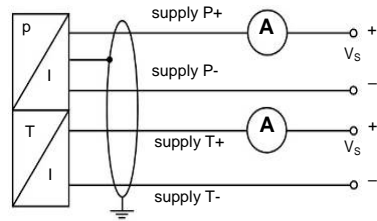


Input pressure range											
Nominal pressure gauge	[bar]	0,4	0,6	1	1,6	2,5	4	6	10	16	25
Level	[mH ₂ O]	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	1	2	2	4	4	10	10	20	40	40
Burst pressure \geq	[bar]	2	4	4	5	5	12	12	25	50	50

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		$\leq \pm 0.5\%$ 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		$\leq \pm 0.3\%$ 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)					
Thermal error		$\leq \pm 0.2\%$ FSO / 10 K in compensated range -25 ... 70 °C			
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	
		PUR	(-10 ... 70 °C)	black	
		FEP ⁷	(-10 ... 70 °C)	black	
		others on request			
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		ceramics Al ₂ O ₃ 96%			
Protection cap		POM			
Cable sheath		PVC, PUR, FEP			
Miscellaneous					
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		max. 25 mA			
Weight		approx. 250 g (without cable)			
Ingress protection		IP 68			
CE-conformity		EMC Directive: 2014/30/EU			

Wiring diagram

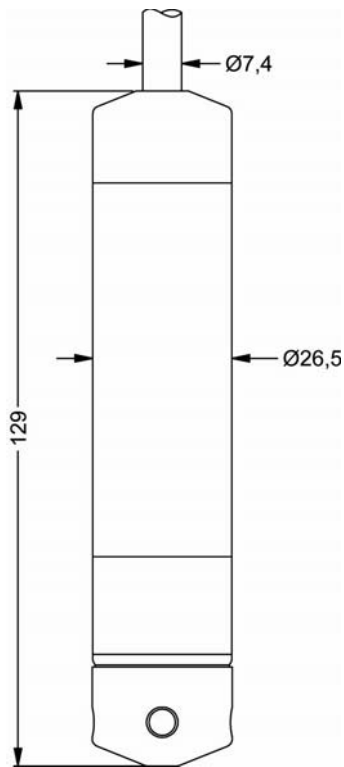
2x2-wire-system (current)



Pin configuration

Electrical connection	cable colours (IEC 60757)
Supply P+	wh (white)
Supply P-	bn (brown)
Supply T+	gy (gray)
Supply T-	pk (pink)
Shield	gnye (green-yellow)

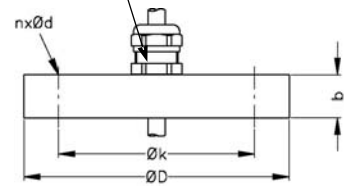
Dimensions (in mm)



Mounting flange with cable gland

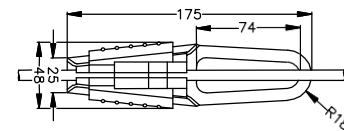
Technical data		
Suitable for	all probes	
Flange material	stainless steel 1.4404 (316L)	
Material of cable gland	standard: brass, nickel plated on request: stainless steel 1.4305 (303); plastic	
Seal insert	material: TPE (ingress protection IP 68)	
Hole pattern	according to DIN 2507	
Version	Size (in 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		ZMF2540
DN50 / PN40 with cable gland brass, nickel plated		ZMF5040
DN80 / PN16 with cable gland brass, nickel plated		ZMF8016

cable gland M16x1.5 with seal insert (for cable- \varnothing 4 ... 11 mm)



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		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>



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.

