

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 27 mm
- ▶ small thermal effect
- ▶ excellent accuracy
- ▶ excellent long term stability

Optional versions

- ▶ IS-protection zone 0
- ▶ SIL 2 (Safety Integrity Level)
- ▶ cable protection via corrugated pipe
- ▶ 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

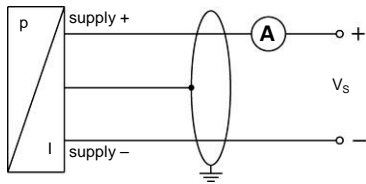
tank farm



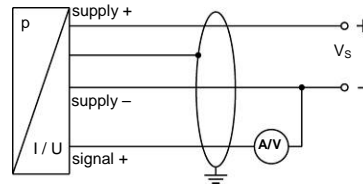
Input pressure range														
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80
Burst pressure \geq	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120
Output signal / Supply														
Standard		2-wire: 4 ... 20 mA / V _S = 8 ... 32 V _{DC}												
Option Ex-protection		2-wire: 4 ... 20 mA / V _S = 10 ... 28 V _{DC}												
Options 3-wire		3-wire: 0 ... 20 mA / V _S = 14 ... 30 V _{DC} 0 ... 10 V / V _S = 14 ... 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: $R_{\max} = [(V_S - V_S \text{ min}) / 0.02 \text{ A}] \Omega$ current 3-wire: $R_{\max} = 500 \Omega$ voltage 3-wire: $R_{\min} = 10 \text{ k}\Omega$												
Influence effects		supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω												
Long term stability		$\leq \pm 0.1\%$ FSO / year												
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 (-10 ... 70 °C) black												
³ cable with integrated air tube for atmospheric pressure reference														
Materials (media wetted)														
Housing		stainless steel 1.4404 (316L)												
Seals		FKM others on request												
Diaphragm		stainless steel 1.4435 (316L)												
Protection cap		POM												
Explosion protection (only for 4 ... 20 mA / 2-wire)														
Approval DX19-LMP 307		IBExU10ATEX1068X zone 0: II 1 G Ex ia IIC T4 Ga zone 20: II 1 D Ex iaD 20 T85°C												
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												
Permissible media temperature		in zone 0: -10 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -10 ... 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 ⁴ 2 application		according to IEC 61508 / IEC 61511												
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: 2004/108/EC												
⁴ not in combination with the accuracy 0.1%														

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

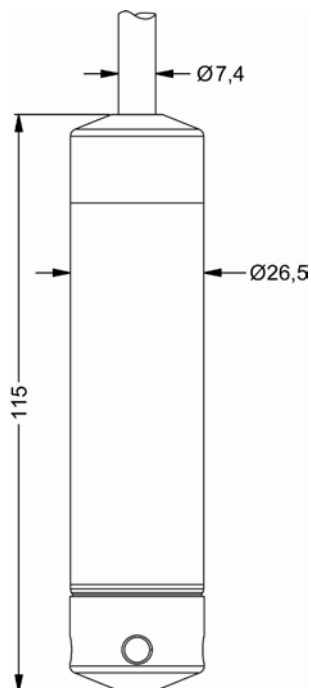


Pin configuration

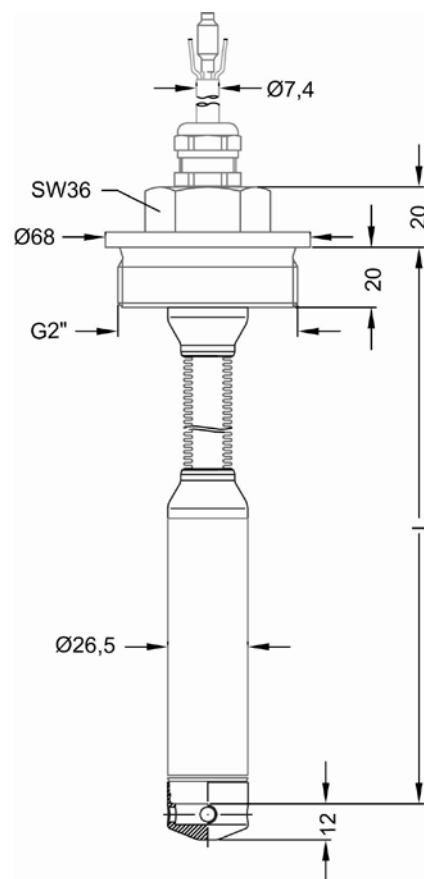
Electrical connection	cable colours (DIN 47100)
Supply +	wh (white)
Supply -	bn (brown)
Signal + (only 3-wire)	gn (green)
Shield	gn/ye (green / yellow)

Dimensions (in mm)

standard



option



cable protection
with corrugated pipe

⇒ Total length of devices with accuracy 0.1 % FSO IEC 60770 increases by 35 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
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		
<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>		
		<p>cable gland M16x1.5 with seal insert (for cable-\varnothing 4 ... 11 mm)</p>

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

