

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

Optional versions

- ▶ IS-protection zone 0
- ▶ SIL 2 (Safety Integrity Level)
- ▶ drinking water certificate according to DVGW and KTW
- ▶ 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 lightly polluted 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 ≥	[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}						SIL-version: V _S = 14 ... 28 V _{DC}						
Option Ex-protection		2-wire: 4 ... 20 mA / V _S = 10 ... 28 V _{DC}						SIL-version: V _S = 14 ... 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: ≤ ± 0.5 % FSO nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % FSO option 1: nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % FSO option 2: for all nominal pressures: ≤ ± 0.1 % FSO												
Permissible load		current 2-wire: R _{max} = [(V _S - V _{S min}) / 0.02 A] Ω current 3-wire: R _{max} = 500 Ω voltage 3-wire: R _{min} = 10 kΩ												
Influence effects		supply: 0.05 % FSO / 10 V						load: 0.05 % FSO / kΩ						
Long term stability		≤ ± 0.1 % FSO / year at reference conditions												
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]	≤ ± 1						≤ ± 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 ⁴ (-10 ... 70 °C) black TPE-U (-10 ... 70 °C) blue (without/with drinking water certificate)												
³ cable with integrated air tube for atmospheric pressure reference														
⁴ 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												
Explosion protection (only for 4 ... 20 mA / 2-wire)														
Approvals		IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X												
DX19-LMP 307		zone 0: II 1G Ex ia IIC T4 Ga						zone 20: II 1D Ex ia IIIC T 85°C Da						
Safety technical maximum values		U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≈ 0 nF, L _i ≈ 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing												
Ambient temperature range		in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar						in zone 1 or higher: -20 ... 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 μH/m						
Miscellaneous														
Option SIL 2 version ⁵		according to IEC 61508 / IEC 61511												
Drinking water certificate ⁶		according to DVGW W 270 and UBA KTW (with order the indication "with drinking water certificate" is necessary)												
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												
ATEX Directive		2014/34/EU												
⁵ not in combination with the accuracy 0.1 %, only for 4...20 mA / 2-wire														
⁶ only possible with EPDM seal in combination with TPE-U cable; not possible with IS-protection (explosion protection)														

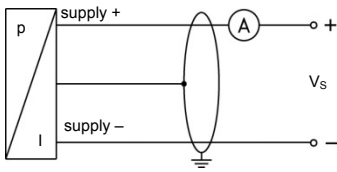
LMP 307

Stainless Steel Probe

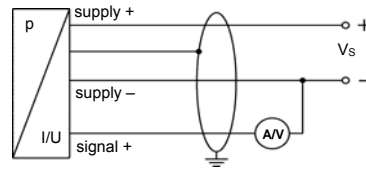
Technical Data

Wiring diagrams

2-wire-system (current)



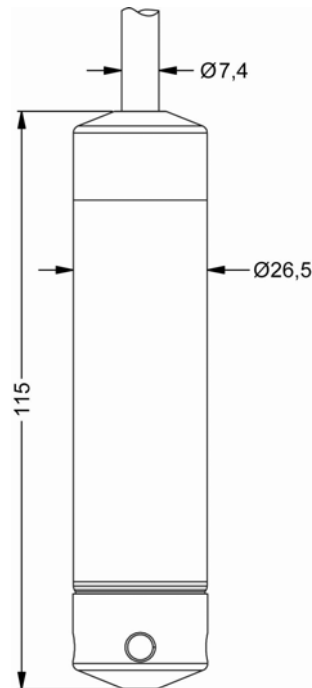
3-wire-system (current / voltage)



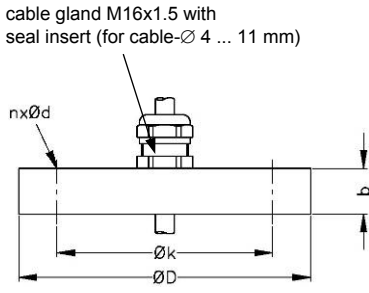
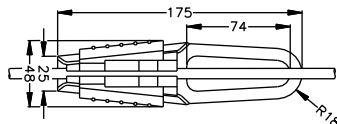

Pin configuration

Electrical connection	cable colours (IEC 60757)
Supply +	wh (white)
Supply -	bn (brown)
Signal + (only 3-wire)	gn (green)
Shield	gnye (green-yellow)

Dimensions (in mm)



⇒ 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 Ø 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>		
		

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Ordering code LMP 307

LMP 307

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Pressure																																																		
	in bar	4	5	0																																														
	in mH ₂ O	4	5	1																																														
Input																																																		
	[mH ₂ O]	[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																																												
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	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																																												
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Diaphragm																																																		
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Output																																																		
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	0 ... 20 mA / 3-wire																										2																							
	0 ... 10 V / 3-wire																										3																							
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	DVGW/KTW: EPDM ¹																										3T																							
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Accuracy																																																		
	standard for P _N ≥ 0.4 bar	0.35 %																									3																							
	standard for P _N < 0.4 bar	0.5 %																									5																							
	option 1 for P _N ≥ 0.4 bar	0.25 %																									2																							
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Electrical connection																																																		
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	PUR cable ³																										2																							
	FEP cable ³																										3																							
	TPE-U cable ³																										4																							
	DVGW/KTW: TPE-U cable ^{1,3}																										F																							
	customer																										9			consult																				
Cable length																																																		
	in m																																																	
	standard: 3 m	PVC																									0	0	3																					
	standard: 5 m	PVC																									0	0	5																					
	standard: 10 m	PVC																									0	1	0																					
	standard: 15 m	PVC																									0	1	5																					
	standard: 20 m	PVC																									0	2	0																					
	special length	PVC																									9	9	9																					
	standard: 3 m	PUR																									0	0	3																					
	standard: 5 m	PUR																									0	0	5																					
	standard: 10 m	PUR																									0	1	0																					
	standard: 15 m	PUR																									0	1	5																					
	standard: 20 m	PUR																									0	2	0																					
	special length	PUR																									9	9	9																					
	standard: 5 m	FEP																									0	0	5																					
	standard: 10 m	FEP																									0	1	0																					
	special length	FEP																									9	9	9																					
	special length	TPE-U																									9	9	9																					
Special version																																																		
	standard																										0	0	0																					
	customer																										9	9	9																					consult

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¹ drinking water certification only possible with EPDM seal (code 3T) in combination with TPE-U cable (code F); not possible with IS-protection (explosion protection)

² not in combination with SIL

³ cable with integrated air tube for atmospheric pressure reference

Standard lengths 3 / 5 / 10 / 15 / 20 m are available from stock, special lengths are manufactured order-related

12.04.2018

