

# LMP 308

## Separable Stainless Steel Probe

Stainless Steel Sensor

accuracy according to IEC 60770:  
standard: 0.35 % FSO  
option: 0.25 % FSO / 0.1 % FSO



### Nominal pressure

from 0 ... 1 mH<sub>2</sub>O up to 0 ... 250 mH<sub>2</sub>O

### Output signals

2-wire: 4 ... 20 mA  
others on request

### Special characteristics

- ▶ diameter 35 mm
- ▶ cable and sensor section separable
- ▶ excellent accuracy
- ▶ excellent long term stability

### Optional versions

- ▶ IS-version zone 0
- ▶ SIL 2 (Safety Integrity Level)
- ▶ cable protection via corrugated pipe
- ▶ mounting accessories as cable gland and terminal clamp of stainless steel
- ▶ different kinds of cables
- ▶ different kinds of seal materials

The separable stainless steel probe LMP 308 is designed for the continually level measurement of water and thin fluids.

In order to facilitate stock-keeping and maintenance the transmitter head is plugged to the cable assembly with a connector and can be changed easily.

### Preferred areas of use are

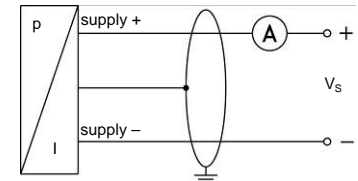
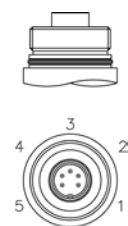
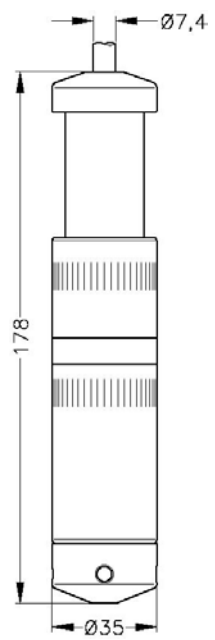
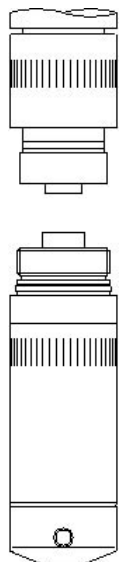
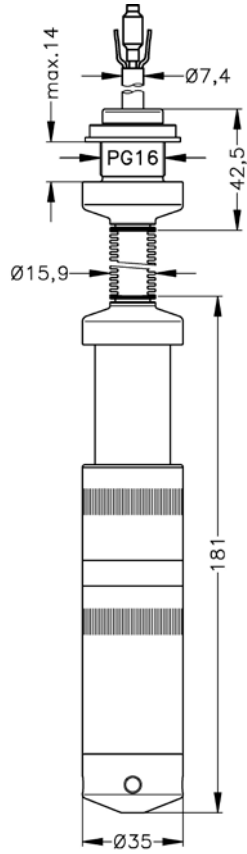
#### Water / filtrated sewage



- ground water level measurement
- level measurement in wells and open waters
- rain spillway basin
- level measurement in container
- water treatment plants
- water recycling



Input pressure range														
Nominal pressure gauge	[bar]	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25
Level	[mH <sub>2</sub> 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 <sub>S</sub> = 8 ... 32 V <sub>DC</sub>												
Option IS-protection		2-wire: 4 ... 20 mA / V <sub>S</sub> = 10 ... 28 V <sub>DC</sub>												
Performance														
Accuracy <sup>1</sup>		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		$R_{max} = [(V_S - V_{Smin}) / 0.02 A] \Omega$												
Influence effects		supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ												
Long term stability		≤ ± 0.1 % FSO / year												
Response time		< 10 msec												
<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)														
Thermal effects (Offset and Span)														
Nominal pressure P <sub>N</sub>	[bar]	< 0.40						≥ 0.40						
Tolerance band	[% FSO]	≤ ± 1						≤ ± 0.75						
in compensated range	[°C]	0 ... 70												
Permissible temperatures														
Permissible temperatures		medium: -20 ... 70 °C						storage: -25 ... 70 °C						
Electrical protection <sup>2</sup>														
Short-circuit protection		permanent												
Reverse polarity protection		no damage, but also no function												
Electromagnetic compatibility		emission and immunity according to EN 61326												
<sup>2</sup> 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 <sup>3</sup>		PVC (-5 ... 70 °C) grey PUR (-20 ... 70 °C) black FEP (-20 ... 70 °C) black others on request												
<sup>3</sup> cable with integrated air tube for atmospheric pressure reference														
Materials (media wetted)														
Housing		stainless steel 1.4404 (316L)												
Seals		FKM EPDM others on request												
Diaphragm		stainless steel 1.4435 (316L)												
Protection cap		POM												
Explosion protection														
Approvals DX19-LMP 308		IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X 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 <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> ≈ 0nF, L <sub>i</sub> ≈ 0μH, the supply connections have an inner capacity of max. 27 nF to the housing												
Permissible media temperature		in zone 0: -20 ... 60 °C with p <sub>atm</sub> 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: 1μH/m												
Miscellaneous														
Option SIL <sup>4</sup> 2 application		according to IEC 61508 / IEC 61511												
Current consumption		signal output current: max. 25 mA												
Weight		approx. 250 g (without cable)												
Ingress protection		IP 68												
CE-conformity		EMC Directive: 2004/108/EC												
ATEX Directive		94/4/EG												
<sup>4</sup> not in combination with the accuracy 0.1%														

Wiring diagram		
<p>2-wire-system (current)</p> 	connector	
Pin configuration		
Electrical connection	Binder series 723 <sup>5</sup> (5-pin)	cable colours (DIN 47100)
Supply +	3	wh (white)
Supply -	1	bn (brown)
Shield	5	gn/ye (green / yellow)
<p><sup>5</sup> in separated version</p>		
Dimensions (in mm)		
standard	option	
		
	separated version	version with corrugated pipe
<p>⇒ Total length of devices with accuracy 0.1 % FSO IEC 60770 increases by 16 mm! (standard, Ex-protection and SIL-version)</p>		

Mounting flange with cable gland		
<b>Technical data</b>		
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	
<b>Version</b>	<b>Size (in mm)</b>	<b>Weight</b>
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
<b>Ordering type</b>		<b>Ordering code</b>
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
<b>Terminal clamp</b>		
<b>Technical data</b>		
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	
<b>Ordering type</b>		<b>Ordering code</b>
Terminal clamp, steel, zinc plated		Z100528
Terminal clamp, stainless steel 1.4301 (304)		Z100527
<b>Display program</b>		
<p><b>CIT 200</b> Process display with LED display</p> <p><b>CIT 250</b> Process display with LED display and contacts</p> <p><b>CIT 300</b> Process display with LED display, contacts and analogue output</p> <p><b>CIT 350</b> Process display with LED display, bargraph, contacts and analogue output</p> <p><b>CIT 400</b> Process display with LED display, contacts, analogue output and Ex-approval</p> <p><b>CIT 600</b> Multichannel process display with graphics-capable LC display</p> <p><b>CIT 650</b> Multichannel process display with graphics-capable LC display and datalogger</p> <p><b>CIT 700</b> Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts</p> <p><b>PA 440</b> Field display with 4-digit LC display</p> <p>For further information please contact our sales department or visit our homepage: <a href="http://www.bdsensors.com">http://www.bdsensors.com</a></p>		

## Ordering code LMP 308

LMP 308

<b>Pressure</b>		in bar	4	4	0												
		in mH <sub>2</sub> O	4	4	1												
<b>Input</b>	[mH <sub>2</sub> 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										
		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											consult	
<b>Housing</b>		Stainless steel 1.4404 (316L)			1												
	customer				9												consult
<b>Diaphragm</b>		Stainless steel 1.4435 (316L)			1												
	customer				9												consult
<b>Output</b>		4 ... 20 mA / 2-wire					1										
	Intrinsic safety 4 ... 20 mA / 2-wire						E										
	SIL2 4 ... 20 mA / 2-wire						1S										
	SIL2 with Intrinsic safety 4 ... 20 mA / 2-wire						ES										
	customer						9										consult
<b>Seals</b>		FKM					1										
	EPDM						3										
	customer						9										consult
<b>Electrical connection</b>		PVC-cable <sup>1</sup>					1										
	PUR-cable <sup>1</sup>						2										
	FEP-cable <sup>1</sup>						3										
	customer						9										consult
<b>Accuracy</b>		standard for P <sub>N</sub> ≥ 0.4 bar		0.35 %			3										
	standard for P <sub>N</sub> < 0.4 bar		0.5 %				5										
	option 1 for P <sub>N</sub> ≥ 0.4 bar		0.25 %				2										
	option 2		0.1 % <sup>2</sup>				1										
	customer						9										consult
<b>Cable length</b>		in m						9	9	9							
<b>Version</b>		standard							0	0	0						
	prepared for mounting <sup>3</sup>								1	0	6						
	with stainless steel pipe								1	0	3	9	9	9			consult
	cable protection with								1	0	3	9	9	9			consult
	stainless steel corrugated pipe								1	0	3	9	9	9			consult
	with pipe length in m								9	9	9						consult
	customer								9	9	9						consult

<sup>1</sup> cable with integrated air tube for atmospheric pressure reference  
<sup>2</sup> not in combination with SIL  
<sup>3</sup> stainless steel pipe is not part of the supply

