



# LMP 307i

## Stainless Steel Probe

### Stainless Steel Sensor

accuracy according to IEC 60770:  
0.1 % FSO

#### Nominal pressure

from 0 ... 4 mH<sub>2</sub>O up to 0 ... 200 mH<sub>2</sub>O

#### Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 10 V

others on request

#### Special characteristics

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

#### Optional versions

- ▶ IS-version  
Ex ia = intrinsically safe for gas and dust
- ▶ drinking water certificate  
according to DVGW and KTW
- ▶ different kinds of cables  
and elastomers

The stainless steel probe LMP 307i 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 good long term stability.

#### Preferred areas of use are

##### Water / filtrated sewage

drinking water systems  
ground water level measurement  
rain spillway basins  
pump and booster stations  
level measurement in containers  
water treatment plants  
water recycling



##### Fuel and oil

fuel storage  
tank farms



Input pressure range <sup>1</sup>							
Nominal pressure gauge	[bar]	0.40	1	2	4	10	20
Level	[mH <sub>2</sub> O]	4	10	20	40	100	200
Overpressure	[bar]	2	5	10	20	40	80
Burst pressure ≥	[bar]	3	7.5	15	25	50	120
Max. ambient pressure (housing): 40 bar							
<sup>1</sup> On customer request we adjust the device within the turn-down-possibility by software on the required pressure range.							

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V <sub>S</sub> = 12 ... 36 V <sub>DC</sub>
Option IS-version	2-wire: 4 ... 20 mA / V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>
Options 3-wire	3-wire: 0 ... 10 V / V <sub>S</sub> = 14 ... 36 V <sub>DC</sub>
Performance	
Accuracy <sup>2</sup>	nominal pressure ≥ 0.1 bar: ≤ ± 0.1 % FSO nominal pressure < 0.1 bar: ≤ ± 0.2 % FSO
Permissible load	current 2-wire: R <sub>max</sub> = [(V <sub>S</sub> - V <sub>S min</sub> ) / 0.02 A] Ω voltage 3-wire: R <sub>min</sub> = 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	ca. 200 msec

<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (offset and span)	
Tolerance band	± ± 0.2 % FSO in compensated range -20 ... 80 °C
TC	± 0.02 % FSO / 10K in compensated range -20 ... 80 °C

Permissible temperatures	
Permissible temperatures	medium: -10 ... 70 °C storage: -25 ... 70 °C

Electrical protection <sup>3</sup>	
Insulation resistance	> 100 MΩ
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

<sup>3</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>4</sup>	PVC (-5 ... 70 °C) grey Ø 7.4 mm PUR (-10 ... 70 °C) black Ø 7.4 mm FEP <sup>5</sup> (-10 ... 70 °C) black Ø 7.4 mm TPE-U (-10 ... 70 °C) blue Ø 7.4 mm (without/with drinking water certificate)
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter

<sup>4</sup> shielded cable with integrated ventilation tube for atmospheric pressure reference

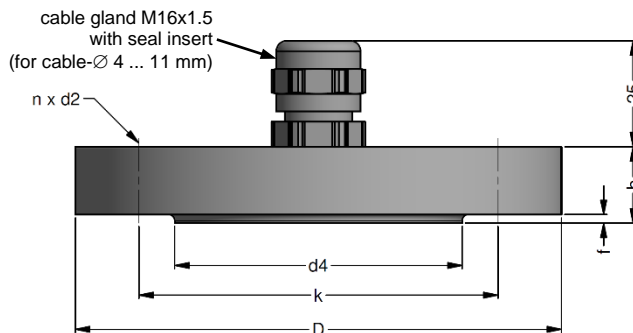
<sup>5</sup> do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected

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

Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approvals DX19-LMP 307i	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 T135 °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> ≈ 0 nF, L <sub>i</sub> ≈ 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 ... 65 °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	
Drinking water certificate <sup>6</sup>	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
<sup>6</sup> only possible with EPDM seal in combination with TPE-U cable; not possible with IS-version (explosion protection)	
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 (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 307i

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Pressure					
	in bar in mH <sub>2</sub> O	4 4	5 5	0 1	
Input	[mH <sub>2</sub> O] [bar]				
	4.0      0.4	4	0	0	0
	10        1.0	1	0	0	1
	20        2.0	2	0	0	1
	40        4.0	4	0	0	1
	100       10	1	0	0	2
	200       20	2	0	0	2
	customer	9	9	9	9
Housing					
	stainless steel 1.4404 (316L)			1	
	customer			9	
Diaphragm					
	stainless steel 1.4435 (316L)			1	
	customer			9	
Output					
	4 ... 20 mA / 2-wire			1	
	intrinsic safety 4 ... 20 mA / 2 wire			E	
	0 ... 10 V / 3-wire			3	
	customer			9	
Seals					
	FKM			1	
	EPDM			3	
DVGW/KTW:	EPDM <sup>1</sup>			3T	
	customer			9	
Accuracy					
	standard for p <sub>N</sub> ≥ 0.1 bar			1	
	standard for p <sub>N</sub> < 0.1 bar			B	
	customer			9	
Electrical connection					
	PVC-cable (grey, Ø 7.4 mm) <sup>2</sup>			1	
	PUR-cable (black, Ø 7.4 mm) <sup>2</sup>			2	
	FEP-cable (black, Ø 7.4 mm) <sup>2</sup>			3	
	TPE-U-cable (blue, Ø 7.4 mm) <sup>2</sup>			4	
DVGW/KTW:				F	
	TPE-U-cable (blue, Ø 7.4 mm) <sup>1,2</sup>				
	customer			9	
Cable length					
	in m			9	9
Special version					
	standard			1	1
	customer			9	9

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

<sup>2</sup> shielded cable with integrated ventilation tube for atmospheric pressure reference