

# LMP 307

## Stainless Steel Probe

Stainless Steel Sensor

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



### 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

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-version  
Ex ia= intrinsically safe for gas  
and dust
- ▶ SIL 2 (Safety Integrity Level)
- ▶ Drinking water certificate acc. 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 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  
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 <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 $\geq$ [bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120	
max. ambient pressure (housing)	40 bar													
Output signal / Supply														
Standard	2-wire: 4 ... 20 mA / $V_s = 8 \dots 32 V_{DC}$						SIL-version: $V_s = 14 \dots 28 V_{DC}$							
Option Ex-protection	2-wire: 4 ... 20 mA / $V_s = 10 \dots 28 V_{DC}$						SIL-version: $V_s = 14 \dots 28 V_{DC}$							
Option Accuracy 0.1 % span	2-wire: 4 ... 20 mA / $V_s = 12 \dots 36 V_{DC}$						3-wire: 0 ... 10 V / $V_s = 14 \dots 30 V_{DC}$							
Options 3-wire	3-wire: 0 ... 20 mA / $V_s = 14 \dots 30 V_{DC}$						0 ... 10 V / $V_s = 14 \dots 30 V_{DC}$							
Performance														
Accuracy	standard: nominal pressure < 0.4 bar: $\leq \pm 0.5$ % span													
	nominal pressure $\geq 0.4$ bar: $\leq \pm 0.35$ % span													
	option 1: nominal pressure $\geq 0.4$ bar: $\leq \pm 0.25$ % span													
	option 2: for all nominal pressures: $\leq \pm 0.1$ % span													
Permissible load	current 2-wire: $R_{max} = [(V_s - V_s \text{ min}) / 0.02 \text{ A}] \Omega$						voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$							
	current 3-wire: $R_{max} = 500 \Omega$													
Influence effects	supply: 0.05 % span / 10 V						load: 0.05 % span / k $\Omega$							
Long term stability	$\leq \pm 0.1$ % span / year at reference condition													
Response time	2-wire: $\leq 10$ msec;						3-wire: $\leq 3$ msec							
<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)														
Thermal effects (Offset and Span)														
Nominal pressure $P_N$ [bar]	< 0.40						$\geq 0.40$							
Tolerance band [% span]	$\leq \pm 1$						$\leq \pm 0.75$							
in compensated range [°C]	0 ... 70													
Permissible temperatures														
Permissible temperatures	Medium/ electronics/ environment/ storage: -20 ... 80 °C *													
<sup>*</sup> if the cable is intended for use in a smaller temperature range, the use of the probe is limited by this range.														
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													
Integrated overvoltage protection (ground wire) in accordance with CSN EN 61000-4-5 (1 kV) <sup>3</sup>														
<sup>2</sup> additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request														
<sup>3</sup> version with the output signal 4 ... 20 mA / 2-wire														
Electrical connection														
Cable with sheath material <sup>4</sup>	PVC (-5 ... 70 °C)	grey (-25 ... 70 °C in fixed condition)						$\varnothing 7,4$ mm						
	PUR (-25 ... 80 °C)	black (with drinking water certificate)						$\varnothing 7,4$ mm						
	FEP <sup>5</sup> (-25 ... 75 °C)	black						$\varnothing 7,4$ mm						
	TPE-U (-25 ... 125 °C)	blue						$\varnothing 7,4$ mm						
Cable sheath	static installation: 10-fold cable diameter						dynamic application: 20-fold cable diameter							
<sup>4</sup> cable with integrated air 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 (with drinking water certificate)										others on request			
Diaphragm	stainless steel 1.4435 (316L)													
Protection cap	POM													
Cable sheath	PVC, PUR, FEP, TPE-U													
Explosion protection (only for 4 ... 20 mA / 2-wire)														
Approvals	IBExU10ATEX1122 X													
DX9-LMP 307	zone 0: II 1G Ex ia IIC T4 Ga						zone 20: II 1D Ex ia IIIC T135°C Da							
Safety technical maximum values	$U_i = 28 \text{ V}$ , $I_i = 93 \text{ mA}$ , $P_i = 660 \text{ mW}$ , $C_i \approx 0 \text{ nF}$ , $L_i \approx 0 \mu\text{H}$ , 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 $\mu\text{H}/\text{m}$													
Miscellaneous														
Option SIL <sup>6</sup> 2 application	according to IEC 61508 / IEC 61511													
drinking water certificate <sup>7</sup>	According to DVGW W 270 and UBA KTW (With order please indicate if her device must be certificated for drinking water.)													
Current consumption	signal output current: max. 25 mA / signal output voltage: max. 7 mA													
Weight	approx. 200 g (without cable)													

# LMP 307

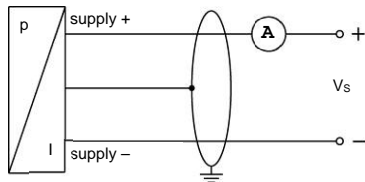
Stainless Steel Probe

Technical Data

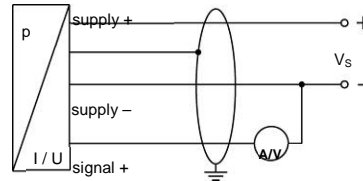
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU
<sup>6</sup> not in combination with the accuracy 0.1%, only for 4...20mA / 2-wire	
<sup>7</sup> only possible with EPDM seal in combination with TPE-U cable; not possible with IS-protection (explosion protection)	

## Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

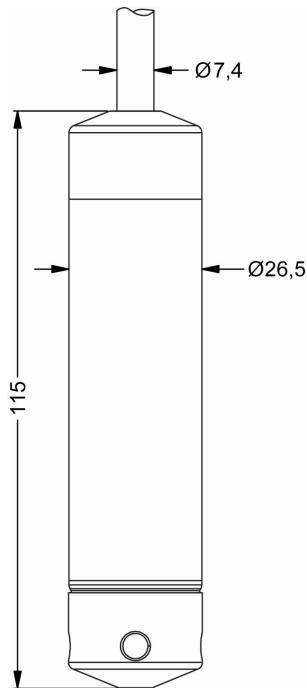


## Pin configuration

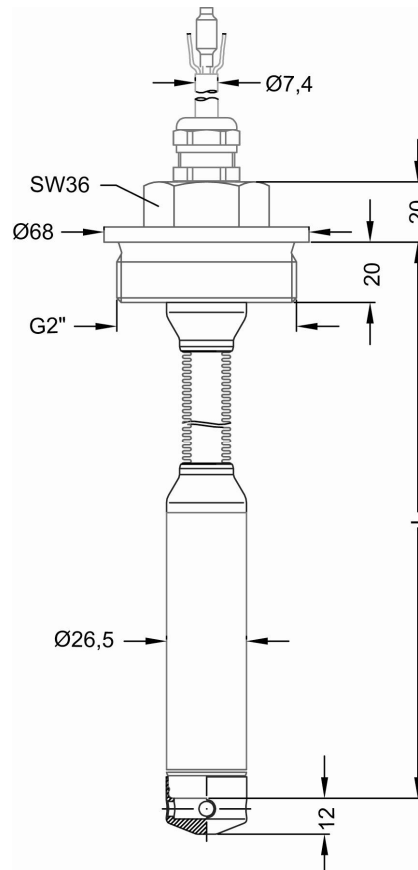
Electrical connection	cable colours (DIN 47100)
Supply +	wh (white)
Supply -	bn (brown)
Signal + (only 3-wire)	gn (green)
Shield	ye/gn (yellow / green)

## Dimensions (in mm)

standard



option



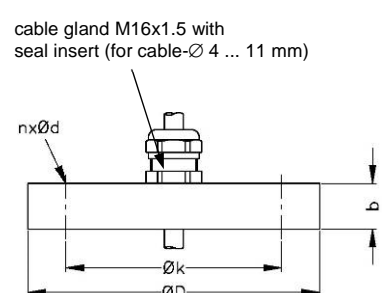


⇒ Total length of devices with accuracy 0.1 % span IEC 60770 increases by 35 mm!

cable protection  
with corrugated pipe (max length 20 m)

# LMP 307

Stainless Steel Probe

Accessories

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 Ø 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		1003440
Terminal clamp, stainless steel 1.4301 (304)		1000278
		
<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>		
		

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



Accessories for submersible transmitter	
Terminal clamp - zinc plated	1003440
Terminal clamp - Stainless Steel 1.4301	1000278
Mounting screw PG16 - plastic	5002200

0,- ... without additional charge

On request ... in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change. □

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet. BD SENSORS reserves the right to change sensor specifications without further notice.

1 drinking water certification only possible with EPDM seal (code 3) in combination with PUR cable

2 not in combination with SIL

3 shielded cable with integrated ventilation tube for atmospheric pressure reference

4 maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m



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The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.

