

# LMP 307

## Stainless Steel Probe with Stainless Steel Sensor

- ▶ diameter: 27 mm
- ▶ level measurement in water, fuel and diesel oil
- ▶ nominal pressure ranges from 0 ... 1 mH<sub>2</sub>O up to 0 ... 250 mH<sub>2</sub>O (0 ... 100 mbar up to 0 ... 25 bar)

The submersible level transmitter LMP 307 has been designed for continuous fluid level measurement in water and clean to slightly contaminated media.

Housing material is 1.4571 (316Ti); the sensor diaphragm is made of 1.4435 (316L). Standard sealing material is FKM; other materials are available on request. Due to the high-value piezoresistive stainless steel sensor the submersible probe LMP 307 features an excellent linearity and good long term stability. On the basis of the excellent metrological features of the stainless steel sensor it is possible to manufacture the submersible probe with accuracy of 0.05% FSO BFSL.

In addition the several cable materials (PVC, PUR and FEP) the customer has the possibility to consider different versions of cable protection. The submersible probe is suited for explosive area (zone 0).

Preferred areas of use are:

- ▶ environmental engineering: water supply, sewage treatment
- ▶ depth or level measurement in wells and open waters
- ▶ ground water level measurement
- ▶ level monitoring in open tanks

- ▶ small thermal effect
- ▶ excellent linearity
- ▶ good long term stability
- ▶ accuracy:  
0.175 / 0.125 / 0.05% FSO BFSL  
(0.35 / 0.25 / 0.1 FSO IEC 60770)
- ▶ **option Ex version:**  
**(only with 4 ... 20 mA / 2-wire)**  
**TÜV 03 ATEX 2006 X**
- ▶ option cable protection with corrugated pipe
- ▶ customer specific versions:
  - special pressure ranges

Characteristics



**LMP 307**  
Stainless Steel Level Transmitter

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Stainless Steel Level Transmitter

Technical Data

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	
Permissible overpressure [bar]	1	1	1	1	3	3	6	6	20	20	60	60	60	

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V <sub>s</sub> = 12 ... 36 V <sub>DC</sub> Ex-version: V <sub>s</sub> = 14 ... 28 V <sub>DC</sub>
Optional	3-wire: 0 ... 20 mA / V <sub>s</sub> = 14 ... 36 V <sub>DC</sub> 0 ... 10 V / V <sub>s</sub> = 14 ... 36 V <sub>DC</sub>

Performance			
Accuracy	standard: nominal pressure > 0.4 bar:	IEC 60770 <sup>1</sup>	BFSL
	nominal pressure ≤ 0.4 bar:	≤ ± 0.35 % FSO	≤ ± 0.175 % FSO
	option 1: nominal pressure > 0.4 bar:	≤ ± 0.50 % FSO	≤ ± 0.250 % FSO
	option 2: nominal pressure ≥ 0.16 bar:	≤ ± 0.25 % FSO	≤ ± 0.125 % FSO
Permissible load	current 2-wire: R <sub>max</sub> = [(V <sub>s</sub> - V <sub>s min</sub> ) / 0.02] Ω	≤ ± 0.10 % FSO	≤ ± 0.050 % FSO
	current 3-wire: R <sub>max</sub> = 500 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		
Response time <sup>2</sup>	< 10 msec		

Thermal errors (Offset and Span)					
Nominal pressure P <sub>N</sub> [bar]	≤ 0.1	≤ 0.25	≤ 0.4	≤ 1	> 1
Tolerance band [% FSO]	≤ ± 2	≤ ± 1.5	≤ ± 1	≤ ± 1	≤ ± 0.75
TC, average [% FSO / 10 K]	± 0.3	± 0.2	± 0.14	± 0.1	± 0.07
in compensated range [°C]		0 ... 50			0 ... 70

Electrical protection <sup>3</sup>	
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Option Ex-protection only with 4 ... 20 mA / 2-wire DX13-LMP 307	zone 0 <sup>4</sup> : II 1 G EEx ia IIC T4 safety technical maximum values: V <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> ≤ 1 nF, L <sub>i</sub> ≤ 10 μH

Permissible temperatures	
Medium	-10 ... 70 °C      Ex-protection: application in zone 0: -10 ... 60 °C application in zone 1 or higher: -10 ... 70 °C
Storage	-25 ... 70 °C

Electrical connection	
Cable with sheath material <sup>5</sup>	PVC grey PUR black FEP black others on request

<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

<sup>2</sup> with optional accuracy 0.1 % FSO the response time is 200 msec

<sup>3</sup> additional external overvoltage protection unit in terminal box KL1 or KL2 with atmospheric pressure reference available on request

<sup>4</sup> approved for atmospheric pressure from 0.8 bar up to 1.1 bar

<sup>5</sup> cable with integrated air tube for atmospheric pressure reference

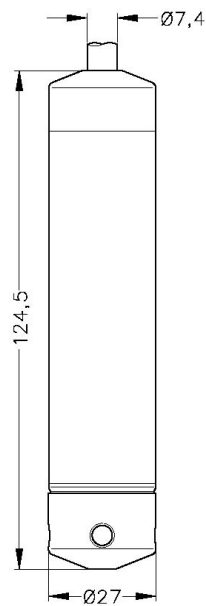
# LMP 307

Stainless Steel Level Transmitter

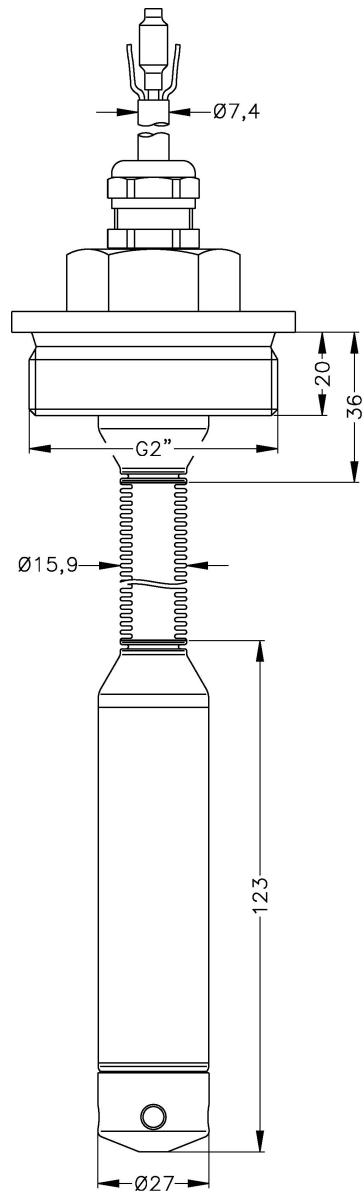
Technical Data

## 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! (standard and Ex-protection)

# LMP 307

## Stainless Steel Level Transmitter

## Technical Data

Materials	
Housing	stainless steel 1.4571 (316Ti)
Seals	FKM; others on request
Diaphragm	stainless steel 1.4435 (316L)
Cable sheath	PVC / PUR / FEP / others on request

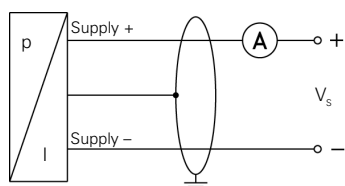
Miscellaneous	
Optionally SIL 2 application	according to IEC 61508 / IEC 61511
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 200 g (without cable)
Ingress protection	IP 68

Mounting accessories (not included in delivery)	
Screw fitting, stainless steel 1.4571 (316Ti)	
Mounting flange for transmitter fixing, stainless steel 1.4571 (316Ti): DN25 / PN40 (Ø115, 18 thick, 4 drill holes Ø14 at Ø85) DN50 / PN16 (Ø165, 18 thick, 4 drill holes Ø18 at Ø125) DN80 / PN16 (Ø200, 20 thick, 8 drill holes Ø18 at Ø160)	
Terminal clamp, stainless steel 1.4301 (304) or steel, zinc plated	

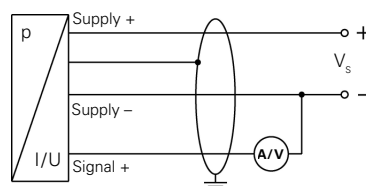
Pin configuration		
Electrical connection	cable colours (DIN 47100)	
2-wire-system	Supply +	white
	Supply -	brown
	Ground	yellow / green (shield)
3-wire-system	Supply +	white
	Supply -	brown
	Signal +	green
	Ground	yellow / green (shield)

## Wiring diagram

2-wire-system (current)



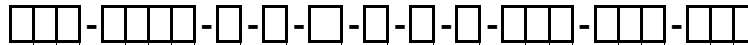
3-wire-system (current / voltage)



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

Ordering code LMP 307

**LMP 307**



<b>Pressure</b>			
	in bar	4	5 0
	in mH <sub>2</sub> O	4	5 1
<b>Input</b>			
	[mH <sub>2</sub> O]	[bar]	
	1	0,10	1 0 0 0
	1,6	0,16	1 6 0 0
	2,5	0,25	2 5 0 0
	4	0,40	4 0 0 0
	6	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 9
<b>Housing</b>			
	Stainless steel 1.4571 (316Ti)		1
	customer		9
<b>Diaphragm</b>			
	Stainless steel 1.4435 (316L)		1
	customer		9
<b>Output</b>			
	4 ... 20 mA / 2-wire		1
	0 ... 20 mA / 3-wire		2
	0 ... 10 V / 3-wire		3
	Intrinsic safety 4 ... 20 mA / 2-wire		E
	SIL2 4 ... 20 mA / 2-wire		1S
	SIL2 with Intrinsic safety		ES
	4 ... 20 mA / 2-wire		9
	customer		9
<b>Seals</b>			
	FKM		1
	customer		9
<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 for P <sub>N</sub> ≥ 0,16 bar	0,1 %	1
	customer		9
<b>Electrical connection</b>			
	PVC-cable <sup>1</sup>		1
	PUR-cable <sup>1</sup>		2
	FEP-cable <sup>1</sup>		3
	customer		9
<b>Cable length</b>			
	in m		9 9 9
<b>Special version</b>			
	standard		0 0 0
	cable protection with stainless steel corrugated pipe with pipe length in m		1 0 3
	customer		9 9 9

<sup>1</sup> cable with integrated air tube for atmospheric pressure reference

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