

LMP 308

Separable Stainless Steel Submersible Transmitter with Stainless Steel Sensor



- ▶ diameter: 35 mm
- ▶ transmitter head and cable assembly plugged
- ▶ nominal pressure ranges from 0 ... 1 mH₂O up to 0 ... 250 mH₂O (0 ... 100 mbar up to 0 ... 25 bar)

The submersible transmitter LMP 308 is suited for continuous level measurement for water and thin fluid media which are compatible with stainless steel and sealing materials.

A piezoresistive stainless steel sensor, which features a small thermal effect and a good long term stability is the basis of the LMP 308. It is possible to guarantee an accuracy up to 0.05 % FSO BFSL. 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.

In addition to 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 zone 0:**
II 1 G EEx ia IIC T4
(TÜV 03 ATEX 2006 X)
- ▶ option cable protection with corrugated pipe
- ▶ customer specific versions:
- special pressure ranges

Characteristics

LMP 308
Stainless Steel Level Transmitter



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	
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 _s = 12 ... 36 V _{dc} Ex-protection: V _s = 14 ... 28 V _{dc}

Performance			
Accuracy	standard:	nominal pressure > 0.4 bar:	IEC 60770 ¹
		nominal pressure ≤ 0.4 bar:	BFSL
	option 1:	nominal pressure > 0.4 bar:	≤ ± 0.35 % FSO
	option 2:	nominal pressure ≥ 0.16 bar	≤ ± 0.50 % FSO
Permissible load	R _{max} = [(V _s - V _{s min}) / 0.02] Ω		≤ ± 0.175 % FSO
Influence effects	supply:	0.05 % FSO / 10 V	≤ ± 0.250 % FSO
	load:	0.05 % FSO / kΩ	≤ ± 0.125 % FSO
Long term stability	≤ ± 0.1 % FSO / year		
Response time ²	< 10 msec		

Thermal errors (Offset and Span)					
Nominal pressure P _N [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 ³	
Short-circuit protection	permanent
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 308	zone 0 ⁴ : II 1 G EEx ia IIC T4 safety technical maximum values: V _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≤ 1nF, L _i ≤ 10 μH

Permissible temperatures	
Medium	-20 ... 70 °C Ex-protection: application in zone 0: -20 ... 60 °C application in zone 1 or higher: -20 ... 70 °C
Storage	-25 ... 70 °C

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

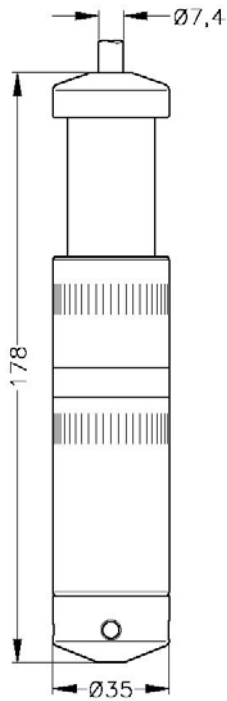
² with optional accuracy 0.1 % FSO the response time is 200 msec

³ additional external overvoltage protection unit in terminal box Kl1 and Kl2 with atmospheric pressure reference available on request

⁴ approved for atmospheric pressure from 0.8 bar up to 1.1 bar

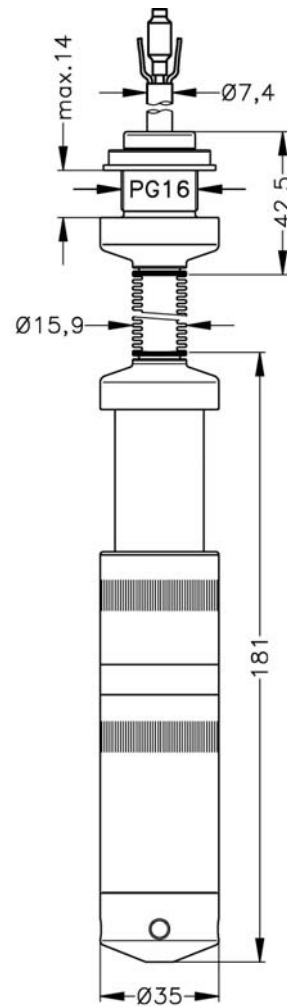
Dimensions (in mm)

Standard



separability of transmitter head and cable assembly

Option



version with corrugated pipe

⇒ Total length of devices with accuracy 0.1 % FSO IEC 60770 increases by 16 mm! (standard and Ex-protection)

Electrical connection

Cable with sheath material ⁵	PVC grey PUR black FEP black others on request
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Materials

Housing	stainless steel 1.4571 (316Ti)
Seals	FKM, EPDM; 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
Weight	approx. 250 g (without cable)
Ingress protection	IP 68

Mounting accessories (not part of delivery)

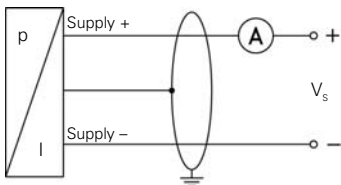
Screw fitting made of stainless steel 1.4571 (316Ti)
Terminal clamp made of stainless steel 1.4301 (304) or steel, zinc plated

Pin configuration

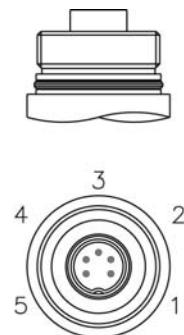
Electrical connection		Binder Series 723 ⁶ (5-pin)	cable colours (DIN 47100)
2-wire-system	Supply +	3	white
	Supply -	1	brown
	Ground	5	yellow / green (shield)

Wiring diagram

2-wire-system (current)



connector ⁶



⁵ cable with integrated air tube for atmospheric pressure reference

⁶ in separated version

