

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...40 cmWC up to 0...250 mWC (0...40 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



LMP 307

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Technical Data

Input pressure range																
Nominal pressure gauge [bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	
Level [mWC]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	
Permissible overpressure [bar]	0.2	0.2	0.5	0.5	1	1	3	3	6	6	20	20	20	60	60	

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / $V_s = 12 \dots 36 V_{DC}$ Ex-version: $V_s = 14 \dots 28 V_{DC}$
Optional	3-wire: 0 ... 20 mA / $V_s = 14 \dots 36 V_{DC}$ 0 ... 10 V / $V_s = 14 \dots 36 V_{DC}$

Performance			
Accuracy	standard: nominal pressure > 0.4 bar:	IEC 60770 ¹	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: $R_{max} = [(V_s - V_{smin}) / 0.02] \Omega$	≤ ± 0.10 % FSO	≤ ± 0.050 % FSO
	current 3-wire: $R_{max} = 500 \Omega$		
	voltage 3-wire: $R_{min} = 10 k\Omega$		
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ		
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 [10 % FSO / 10 K]	± 0.3	± 0.2	± 0.14	± 0.1	± 0.07
in compensated range [°C]	0 ... 50			0 ... 70	

Electrical protection ³	
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 ⁴ : II 1 G EEx ia IIC T4 safety technical maximum values: $V_i = 28 V$, $I_i = 93 mA$, $P_i = 660 mW$, $C_i \leq 1 nF$, $L_i \leq 10 \mu H$

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 ⁵	PVC grey PUR black FEP black others on request

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 or KL2 with atmospheric pressure reference available on request

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

⁵ cable with integrated air tube for atmospheric pressure reference

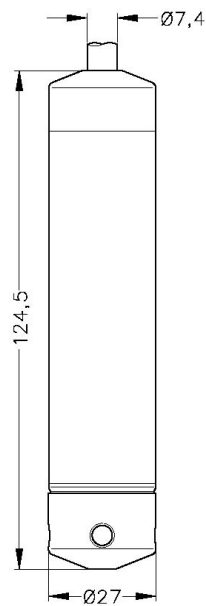
LMP 307

Stainless Steel Level Transmitter

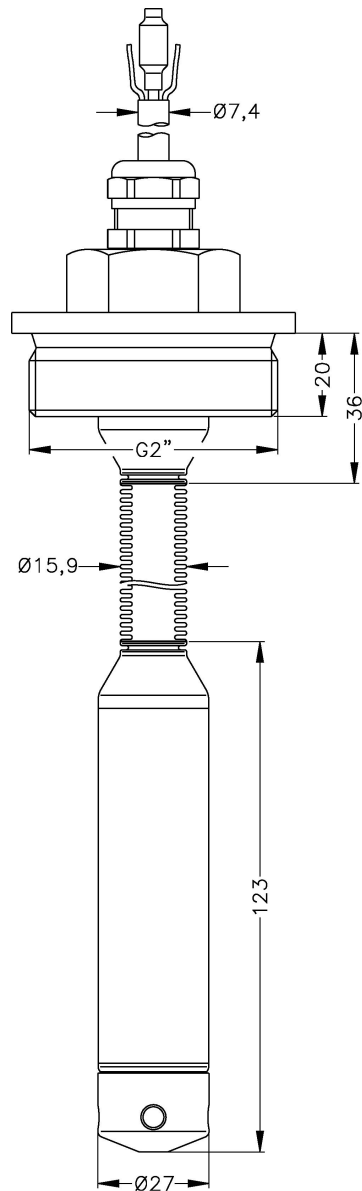
Technical Data

Dimensions

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)

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

Cable capacitance	signal line/shield: 150 pF/m	signal line/signal line: 100 pF/m
Cable inductance	signal line/shield: 1.0 μ H/m	signal line/signal line: 1.0 μ H/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 (\varnothing 115, 18 thick, 4 drill holes \varnothing 14 at \varnothing 85)

DN50 / PN16 (\varnothing 165, 18 thick, 4 drill holes \varnothing 18 at \varnothing 125)

DN80 / PN16 (\varnothing 200, 20 thick, 8 drill holes \varnothing 18 at \varnothing 160)

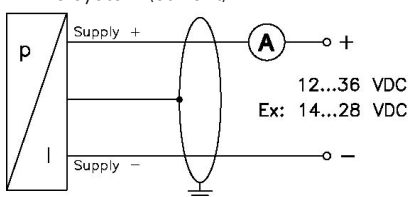
Terminal clamp, stainless steel 1.4301 (304) or steel, zinc plated

Pin configuration

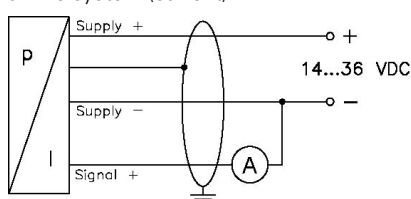
Electrical connection		cable colours (DIN 47100)
2-wire-system	Supply +	white
	Supply -	brown
	Ground	yellow / green (shield)
3-wire-system	Supply +	white
	Supply -	brown
	Signal +	green
	Ground	yellow / green (shield)

Wiring diagram

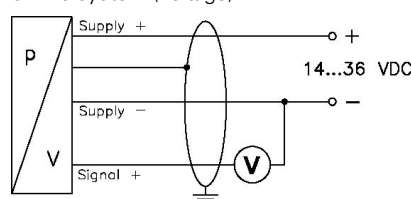
2-wire-system (current)



3-wire-system (current)



3-wire-system (voltage)



Ordering code LMP 307

LMP 307

Pressure			
	in bar	4	5 0
	in mWC	4	5 1
Input			
	[mWC]	[bar]	
	0,4	0,04	0 4 0 0
	0,6	0,06	0 6 0 0
	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
Housing			
	Stainless steel 1.4571 (316Ti)		1
	customer		9
Diaphragm			
	Stainless steel 1.4435 (316L)		1
	customer		9
Output			
	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
	customer		X
Seals			
	FKM		1
	customer		9
Accuracy			
	standard for $P_N > 0,4$ bar	0,35 %	3
	standard for $P_N \leq 0,4$ bar	0,5 %	5
	option 1 for $P_N > 0,4$ bar	0,25 %	2
	option 2 for $P_N \geq 0,16$ bar	0,1 %	1
	customer		9
Electrical connection			
	PVC-cable ¹		1
	PUR-cable ¹		2
	FEP-cable ¹		3
	customer		9
Cable length			
	in m		9 9 9
Special version			
	standard		0 0 0
	prepared for mounting ²		1 0 6
	with stainless steel pipe		
	cable protection with		
	stainless steel corrugated pipe		1 0 3
	customer		9 9 9

¹ cable with integrated air tube for atmospheric pressure reference

² stainless steel pipe is not part of the supply