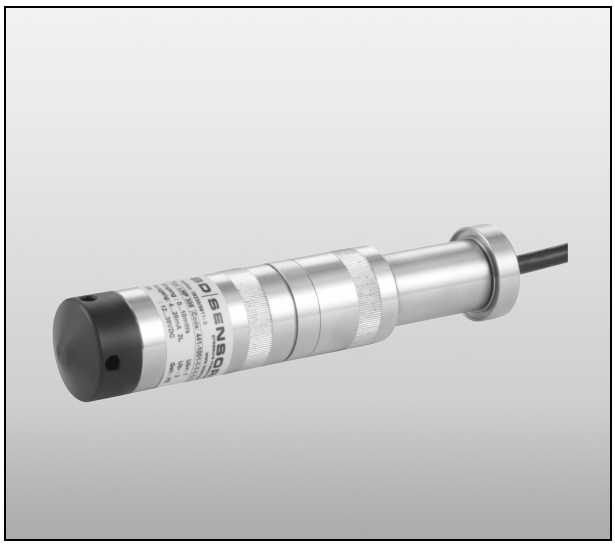
BD SENSORS
pressure measurement



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 mWC up to 0 ... 250 mWC (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

Characteristics

- 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

CE Ex

LMP 308
Stainless Steel Level Transmitter

TÜV CERT DIN EN ISO 9001

BD SENSORS GmbH
BD-Sensors-Strasse 1
D - 95199 Thierstein

Telefon +49 (0) 92 35 / 98 11- 0
Telefax +49 (0) 92 35 / 98 11- 11

www.bdsensors.de
info@bdsensors.de

LMP 308

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 [mWC]	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		IEC 60770 [1]	BFSL
	standard: nominal pressure > 0.4 bar:	≤ ± 0.35 % FSO	≤ ± 0.175 % FSO
	nominal pressure ≤ 0.4 bar:	≤ ± 0.50 % FSO	≤ ± 0.250 % FSO
	option 1: nominal pressure > 0.4 bar:	≤ ± 0.25 % FSO	≤ ± 0.125 % FSO
	option 2: nominal pressure ≥ 0.16 bar	≤ ± 0.10 % FSO	≤ ± 0.050 % FSO
Permissible load	$R_{max} = [(V_S - V_{S\,min}) / 0.02]\ \Omega$		
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 [% 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, $C_i \leq$ 1nF, $L_i \leq$ 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)

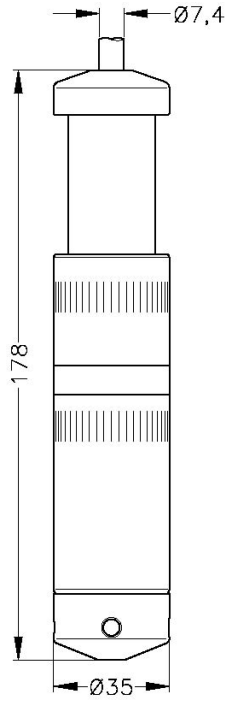
[2] with optional accuracy 0.1 % FSO the response time is 200 msec

[3] additional external overvoltage protection unit in terminal box KI1 and KL2 with atmospheric pressure reference available on request

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

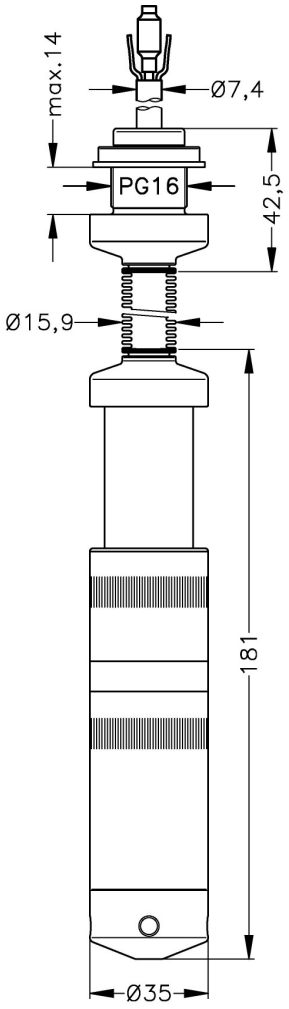
Dimensions

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)

LMP 308

Stainless Steel Level Transmitter — Technical Data

Electrical connection

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

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

Cable capacitance	signal line/shield: 150 pF/m	signal line/signal line: 100 pF/m
Cable inductance	signal line/shield: 1.0 µH/m	signal line/signal line: 1.0 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)

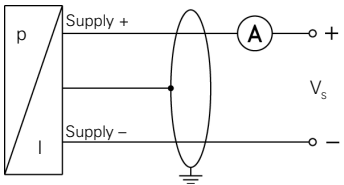
Screw fitting made of stainless steel 1.4571 (316Ti)
Terminal clamp made of stainless steel 1.4301 (304) or steel, zinc plated

Pin configuration

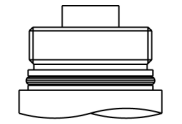
Electrical connection		Binder Series 723 [6] (5-pin)	cable colours (DIN 47100)
2-wire-system	Supply +	3	white
	Supply –	1	brown
	Ground	5	yellow / green (shield)

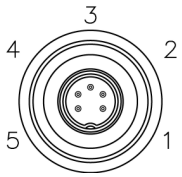
Wiring diagram

2-wire-system (current)



connector [6]





[5] cable with integrated air tube for atmospheric pressure reference

[6] in separated version

Telefon +49 (0) 92 35 / 98 11- 0
Telefax +49 (0) 92 35 / 98 11- 11
www.bdsensors.de
info@bdsensors.de
BD SENSORS pressure measurement

Fax: +49 (0) 92 35 / 98 11 -11

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Ordering Code LMP 308

LMP 308 ☐☐☐-☐☐☐☐-☐-☐-☐-☐-☐-☐-☐☐☐-☐☐☐-☐☐☐

Section	[mWC]	[bar]	Code
Pressure			
in bar			4 4 0
in mWC			4 4 1
Input	[mWC]	[bar]	
	1,0	0,10	1 0 0 0
	1,6	0,16	1 6 0 0
	2,5	0,25	2 5 0 0
	4,0	0,40	4 0 0 0
	6,0	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
Intrinsic safety 4 ... 20 mA / 2-wire			E
customer			9
Seals			
FKM			1
EPDM			3
customer			9
Electrical connection			
PVC-cable [1]			1
PUR-cable [1]			2
FEP-cable [1]			3
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
Cable length			
in m			9 9 9
Version			
standard			0 0 0
prepared for mounting [2] with stainless steel pipe			1 0 6
cable protection with stainless steel corrugated pipe with pipe length in m			1 0 3 - 9 9 9
customer			9 9 9

[1] cable with integrated air tube for atmospheric pressure reference
[2] stainless steel pipe is not part of the supply

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BD SENSORS GmbH
BD-Sensors-Straße 1 Telefon +49 (0) 92 35 / 98 11- 0 www.bdsensors.de
D - 95199 Thierstein Telefax +49 (0) 92 35 / 98 11- 11 info@bdsensors.de