SensorsONE
Measurement Instrumentation Products

LMP 308

Separable
Stainless Steel Probe

Stainless Steel Sensor

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

Nominal pressure

from 0 ... 1 mH_2O up to 0 ... 250 mH_2O

Output signals

2-wire: 4 ... 20 mA
others on request

Special characteristics

- diameter 35 mm
- cable and sensor section separable
- excellent accuracy
- excellent long term stability

Optional versions

- IS-version zone 0
- SIL 2 (Safety Integrity Level)
- cable protection via corrugated pipe
- mounting accessories as cable gland and terminal clamp of stainless steel
- different kinds of cables
- different kinds of seal materials

The separable stainless steel probe LMP 308 is designed for the continually level measurement of water and thin fluids.

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.

Preferred areas of use are

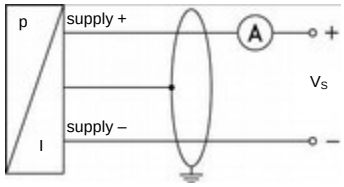
Water / filtrated sewage
ground water level measurement
level measurement in wells and open waters
rain spillway basin
level measurement in container
water treatment plants
water recycling

Input pressure range														
Nominal pressure gauge	[bar]	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25
Level	[mH_2O]	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	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120

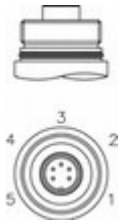
Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}	SIL-version: V_S = 14 … 28 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}	SIL-version: V_S = 14 … 28 V_{DC}
Performance		
Accuracy [1]	standard: nominal pressure < 0.4 bar: ≤ ± 0.5 % FSO nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % FSO option 1: nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % FSO option 2: for all nominal pressures: ≤ ± 0.1 % FSO	
Permissible load	$R_{max} = [(V_S – V_{S\ min}) / 0.02\ A]\ \Omega$	
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ	
Long term stability	≤ ± 0.1 % FSO / year at reference conditions	
Response time	< 10 msec	
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)		
Thermal effects (Offset and Span)		
Nominal pressure P_N [bar]	< 0.40	≥ 0.40
Tolerance band [% FSO]	≤ ± 1	≤ ± 0.75
in compensated range [°C]	0 ... 70	
Permissible temperatures		
Permissible temperatures	medium: -20 ... 70 °C	storage: -25 ... 70 °C
Electrical protection [2]		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 61326	
[2] additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request		
Electrical connection		
Cable with sheath material [3]	PVC (-5 … 70 °C) grey PUR (-20 … 70 °C) black FEP[4] (-20 … 70 °C) black others on request	
[3] cable with integrated air tube for atmospheric pressure reference *[4] 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 others on request	
Diaphragm	stainless steel 1.4435 (316L)	
Protection cap	POM	
Explosion protection		
Approvals DX19-LMP 308	**IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X** zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T 85°C Da	
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0nF, L_i ≈ 0µH, 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: 1µH/m	
Miscellaneous		
Option SIL[5] 2 application	according to IEC 61508 / IEC 61511	
Current consumption	signal output current: max. 25 mA	
Weight	approx. 250 g (without cable)	
Ingress protection	IP 68	
CE-conformity	EMC Directive: 2014/30/EU	
ATEX Directive	2014/34/EU	
[5] not in combination with the accuracy 0.1%		

Wiring diagram

2-wire-system (current)



connector



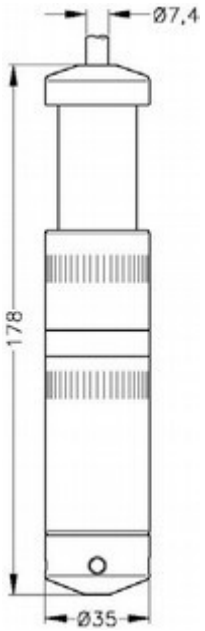
Pin configuration

Electrical connection	Binder series 723 [b] (5-pin)	cable colours (IEC 60757)
Supply + Supply –	3 1	wh (white) bn (brown)
Shield	5	gnye (green-yellow)

[b] *in separated version*

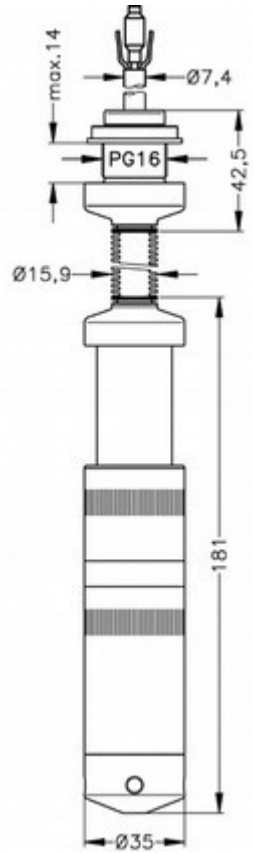
Dimensions (in mm)

standard



separated version

option



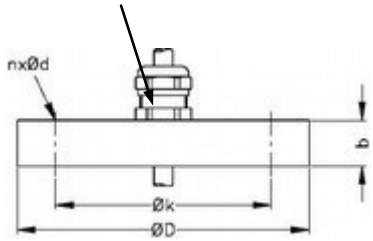
version with corrugated pipe

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

Mounting flange with cable gland

Technical data		
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	
Version	**Size (in mm)**	**Weight**
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

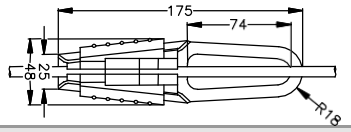
cable gland M16x1.5 with
seal insert (for cable- ∅ 4 ... 11 mm)



Ordering type	Ordering code
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

Terminal clamp

Technical data	
Suitable for	all probes with cable ∅ 5.5 ... 10.5 mm
Material	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)
Weight	approx. 160 g



Ordering type	Ordering code
Terminal clamp, steel, zinc plated	Z100528
Terminal clamp, stainless steel 1.4301 (304)	Z100527

Display program

CIT 200
Process display with LED display

CIT 250
Process display with LED display and contacts

CIT 300
Process display with LED display, contacts and analogue output

CIT 350
Process display with LED display, bargraph, contacts and analogue output

CIT 400
Process display with LED display, contacts, analogue output and Ex-approval

CIT 600
Multichannel process display with graphics-capable LC display

CIT 650
Multichannel process display with graphics-capable LC display and datalogger

CIT 700
Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts

PA 440
Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.com

Ordering code LMP 308

LMP 308 □□□-□□□□-□-□-□-□-□-□-□□□-□□□-□□□

Pressure			
	in bar	4 4 0	
	in mH_2O	4 4 1	
Input	**[mH_2O]**	**[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 consult
Housing			
	Stainless steel 1.4404 (316L)		1
	customer		9 consult
Diaphragm			
	Stainless steel 1.4435 (316L)		1
	customer		9 consult
Output			
	4 … 20 mA / 2-wire		1
	Intrinsic safety 4 … 20 mA / 2-wire		E
	SIL2 4 … 20 mA / 2-wire		1S
	SIL2 with Intrinsic safety 4 … 20 mA / 2-wire		ES
	customer		9 consult
Seals			
	FKM		1
	EPDM		3
	customer		9 consult
Electrical connection			
	PVC-cable [1]		1
	PUR-cable [1]		2
	FEP-cable [1]		3
	customer		9 consult
Accuracy			
standard for $P_N \geq 0.4$ bar	0.35 %		3
standard for $P_N < 0.4$ bar	0.5 %		5
option 1 for $P_N \geq 0.4$ bar	0.25 %		2
option 2	0.1 % [2]		1
	customer		9 consult
Cable length			
	in m		9 9
Version			
	standard		0 0 0
	prepared for mounting with stainless steel pipe [3]		1 0 6 consult
	cable protection with stainless steel corrugated pipe with pipe length in m		1 0 3 9 9 9 consult
	customer		9 9 9 consult

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

[2] not in combination with SIL

[3] stainless steel pipe is not part of the supply