BD|SENSORS
pressure measurement

LMP 808

Separable Plastic Probe

Stainless Steel Sensor

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

Nominal pressure

from 0 ... 1 mH_2O up to 0 ... 100 mH_2O

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 ... 20 mA / 0 ... 10 V
others on request

Special characteristics

- diameter 35 mm
- cable assembly and probe head separable
- excellent linearity
- small thermal effect

Optional versions

- SIL 2 (Safety Integrity Level) according to IEC 61508 / 61511
- mounting accessories e.g. mounting flange and terminal clamp in stainless steel
- different kinds of cables and elastomers
- customer specific versions e. g. special pressure ranges

The separable plastic probe is designed for level measurement of water, sewage as well as fuels and oils. Basic element is a piezoresistive stainless steel sensor.

In order to facilitate stock-keeping and maintenance the probe 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
rain spillway basins
drinking water systems
water treatment plants

Fuel and oil
fuel storage
tank farms
biogas plants
process water recycling

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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
Level	[mH_2O]	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40
Burst pressure ≥	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50

Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}	SIL-version: V_S = 14 … 28 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}	
Performance		
Accuracy	standard: nominal pressure < 0.4 bar: ≤ ± 0.5 % FSO nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % FSO option: nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % FSO	
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\ min}) / 0.02\ A]\ \Omega$ current 3-wire: R_{max} = 500 Ω voltage 3-wire: R_{min} = 10 kΩ	
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 ... 50	

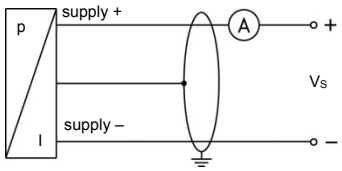
Permissible temperatures	
Permissible temperatures	medium / electronics / environment / storage: -25 ... 80 °C
Electrical protection [2]	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 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 Ø 7.4 mm PUR (-25 … 70 °C) black Ø 7.4 mm FEP [4] (-25 … 70 °C) black Ø 7.4 mm
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
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter
[3] shielded 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*	

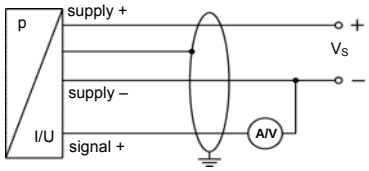
Materials (media wetted)	
Housing	PP-HT
Seals	FKM EPDM
Diaphragm	stainless steel 1.4435 (316L)
Protection cap	POM-C
Cable sheath	PVC, PUR, FEP, others on request
Miscellaneous	
Option cable protection (on request)	prepared for mounting with PP-HT pipe Ø 25 mm; available as compact product (standard: pipe with a total length up to 2 m possible)
Option SIL 2 application [5]	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 400 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
[5] only for 4...20 mA / 2-wire	

Wiring diagrams

2-wire-system (current)

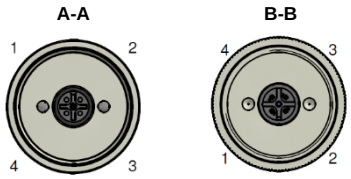


3-wire-system (current / voltage)



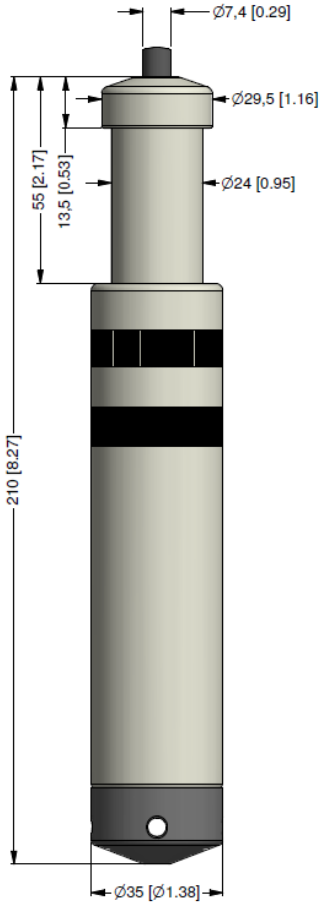
Pin configuration

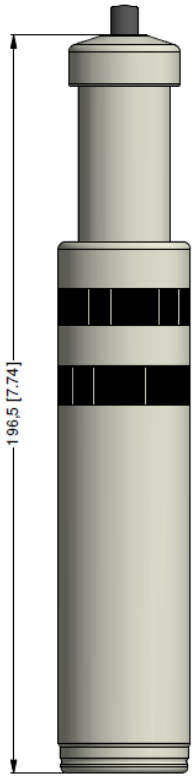
Electrical connection	M12x1 (4-pin) [6]	cable colours (IEC 60757)
	A-A / B-B	
Supply +	3	WH (white)
Supply –	4	BN (brown)
Signal + (only for 3-wire)	1	GN (green)
Shield	2	GNYE (green-yellow)



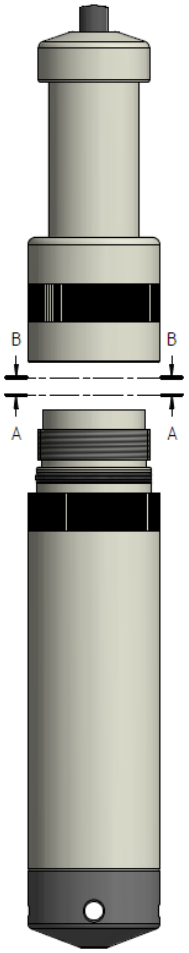
[6] *in separated version*

Dimensions (mm / in)





protection cap removable



separability of probe head and cable assembly

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Ordering code LMP 808

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Option	Code	Pressure	Input	Housing	Diaphragm	Output	Seals	Electrical connection	Accuracy	Cable length	Special version	Remark
Pressure												
in bar		4 1 0										
in mH_2O		4 1 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									
customer			9 9 9 9									consult
Housing												
PP-HT				R								
customer				9								consult
Diaphragm												
stainless steel 1.4435 (316L)					1							
customer					9							consult
Output												
4 … 20 mA / 2-wire						1						
0 … 20 mA / 3-wire						2						
0 … 10 V / 3-wire						3						
SIL2 4 … 20 mA / 2-wire						1S						
customer						9						consult
Seals												
FKM							1					
EPDM							3					
customer							9					consult
Electrical connection												
PVC-cable (grey, Ø 7.4 mm) [1]								1				
PUR-cable (black, Ø 7.4 mm) [1]								2				
FEP-cable (black, Ø 7.4 mm) [1]								3				
customer								9				consult
Accuracy												
standard for $p_N \geq 0.4$ bar	0.35 % FSO								3			
standard for $p_N < 0.4$ bar	0.5 % FSO								5			
option for $p_N \geq 0.4$ bar	0.25 % FSO								2			
customer									9			consult
Cable length												
in m										9 9 9		
Special version												
standard											0 0 0	
prepared for pipe mounting [2]											1 0 6	
customer											9 9 9	consult

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

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