LMP 808

Detachable 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 sensor head detachable
- excellent linearity
- small thermal effect
- integrated lightning protection and increased overvoltage protection 8 kA gas discharge tube (8/20 µsec); 4 kV surge l-l/l-e according to EN61000-4-5

Optional versions

- SIL 2 (Safety Integrity Level) according to IEC 61508 / 61511
- different kinds of cables and elastomers

The separable plastic immersion probe LMP 808 was developed for water applications, for level measurements in rivers and for level measurements by fuels and oils designed. The basic element is a precise stainless steel sensor.

Since the area of application is often outside a building, great emphasis was placed on overvoltage / lightning protection.

To simplify warehousing and Maintenance, the probe head can be separated from the cable part and, if necessary, can be done without time-consuming assembly work can be replaced.

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
Max. ambient pressure (housing): 20 bar												

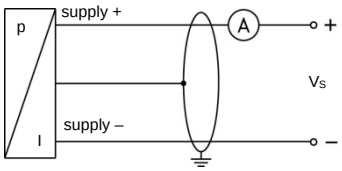
Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}	SIL-version: V_S = 14 … 28 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}	
Performance		
Accuracy	standard: nominal pressure < 0.4 bar: ≤ ± 0.5 % FSO nominal pressure ≥ 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: $R_{max} = 500\ \Omega$ 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 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	

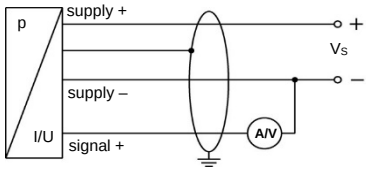
Permissible temperatures	
Permissible temperatures	medium / electronics / environment / storage: -25 ... 80 °C
Electrical protection [2]	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
[2] additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request	
Overvoltage / Lightning protection (only 4 … 20 mA / 2-wire without SIL2)	
Series resistance	9.4 Ω for each positive and negative wire
Max. leakage current	8 kA (8/20 µsec)
Overload	4 kV (line-line and line-earth) according to EN 61000-4-5
Max. rated current	30 mA
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)

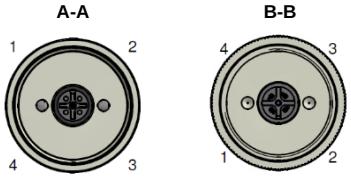


3-wire-system (current / voltage)



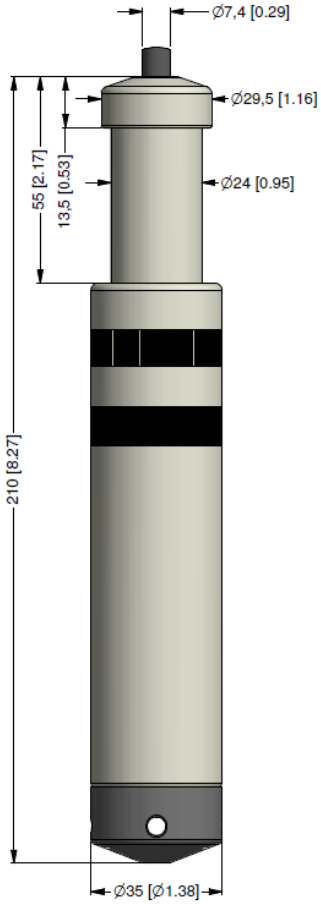
Pin configuration

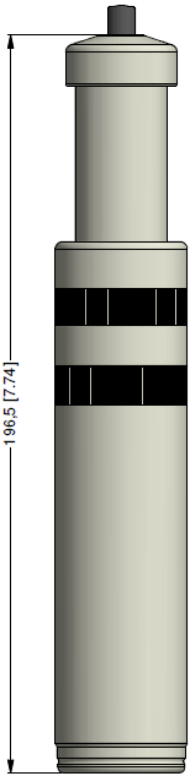
Electrical connection	M12x1 (4-pin) [6]	cable colours (IEC 60757)
	A-A / B-B	
Supply +	3	WH (white)
Supply –	4	BN (brown)
Signal + (only for 3-wire)	1	GN (green)
Shield	2	GNYE (green-yellow)



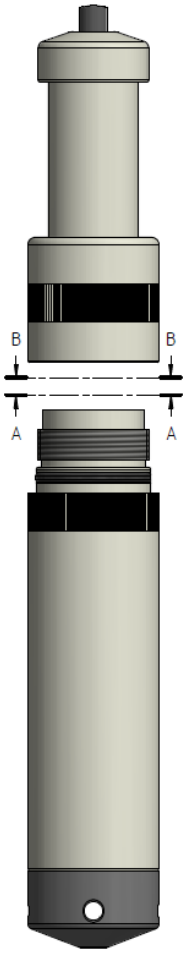
[6] *if detached*

Dimensions (mm / in)





protection cap removable



sensor head and cable detached

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BD|SENSORS pressure measurement

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Ordering code LMP 808

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			Code	
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
Seal				
		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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