LMK 809

Plastic Probe for Aggressive Media

High Purity Ceramic Sensor

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

Nominal pressure

from 0 ... 0.4 mH_2O up to 0 ... 100 mH_2O

Output signals

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

Special characteristics

- diameter 45 mm
- chemical resistance
- high overpressure resistance
- especially for tank level measurement of viscous and aggressive media
- diaphragm 99.9 % Al_2O_3
- housing material PP-HT or PVDF

Optional versions

- different kinds of cables and elastomers
- prepared for mounting with pipe

The plastic submersible probe LMK 809 is designed for continuous level measurement in highly polluted and most of aggressive media. Basic element is a capacitive ceramic sensor.

Basic element of the plastic probe is the flush mounted ceramic sensor, which makes cleaning easier when solid parts of the medium deposit on it. Different cable and seal materials are available in order to achieve maximum media compatibility.

Preferred areas of use are

Sewage
waste water treatment
water recycling
dumpsite

Aggressive media
level measurement in most of acids and lyes

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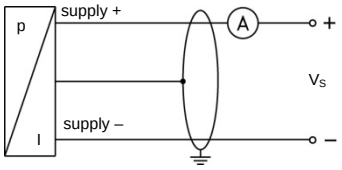
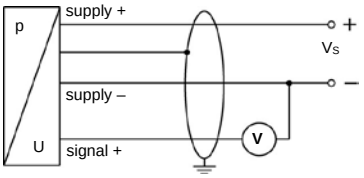
Input pressure range														
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH_2O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35
Max. ambient pressure (housing): 10 bar														

Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 9 ... 32 V_{DC}	
Option	3-wire: 0 ... 10 V / V_S = 12.5 ... 32 V_{DC}	
Performance		
Accuracy [1]	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % 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	
Turn-on time	700 msec	
Mean response time	< 200 msec	measuring rate: 5/sec
Max. response time	380 msec	
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)		
Thermal effects (offset and span)		
Tolerance band	≤ ± 1 % FSO	
In compensated range	-20 … 80 °C	
Permissible temperatures		
Permissible temperatures	medium / electronic / 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]	PUR (-25 … 70 °C) black Ø 7.4 mm FEP [4] (-25 … 70 °C) black Ø 7.4 mm TPE-U (-25 … 100 °C) blue Ø 7.4 mm others on request	
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 ventilation 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	standard: PP-HT option: PVDF	
Seals	FKM, EPDM, FFKM	
Diaphragm	ceramics Al_2O_3 99.9 %	
Cable sheath	PUR, FEP, TPE-U	
Miscellaneous		
Option cable protection	prepared for mounting with plastic pipe	
Current consumption	max. 21 mA	
Weight	approx. 320 g (without cable)	
Ingress protection	IP 68	
CE-conformity	EMC Directive: 2014/30/EU	
Wiring diagrams		

2-wire-system (current)



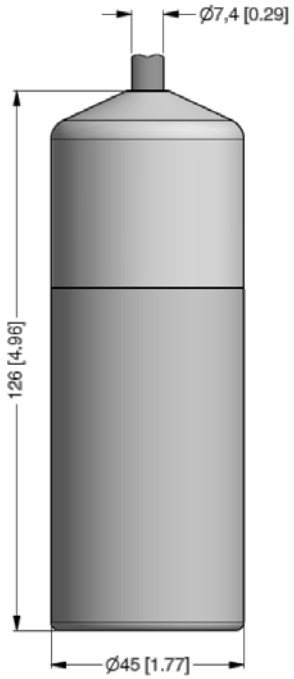
3-wire-system (voltage)



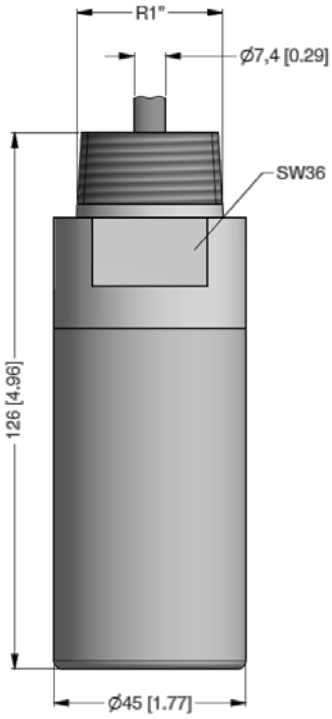
Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply + Supply – Signal + (only for 3-wire)	WH (white) BN (brown) GN (green)
Shield	GNYE (green-yellow)

Dimensions (mm / in)

standard



option



prepared for mounting with pipe

Accessories

Terminal clamp

Technical data		
Suitable for	all probes with cable ∅ 5.5 ... 10.5 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless steel 1.4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)	
Dimensions (mm)	174 x 45 x 32	
Hook diameter	20 mm	

Ordering type	Ordering code	Weight
Terminal clamp, steel, zinc plated	Z100528	approx. 160 g
Terminal clamp, stainless steel 1.4301 (304)	Z100527	

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BD|SENSORS pressure measurement

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Ordering code LMK 809

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Pressure				
in bar			3 9 5	
in mH_2O			3 9 6	
Input	**[mH_2O]**	**[bar]**		
	0.4	0.04	0 4 0 0	
	0.6	0.06	0 6 0 0	
	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	
PVDF			B	
customer			9	consult
Diaphragm				
ceramics Al_2O_3 99.9 %			C	
customer			9	consult
Output				
4 … 20 mA / 2-wire			1	
0 … 10 V / 3-wire			3	
customer			9	consult
Seal				
FKM			1	
EPDM			3	
FFKM			7	
customer			9	consult
Accuracy				
standard: 0.35 % FSO			3	
option: 0.25 % FSO			2	
customer			9	consult
Electrical connection				
PUR-cable (black, Ø 7.4 mm) [1]			2	
FEP-cable (black, Ø 7.4 mm) [1]			3	
TPE-U-cable (blue, Ø 7.4 mm) [1]			4	
customer			9	consult
Cable length				
in m			9 9 9	
Special version				
standard			0 0 0	
prepared for pipe R1" [2]			6 1 0	
customer			9 9 9	consult

[1] shielded cable with integrated ventilation tube for atmospheric pressure reference

[2] pipe is not part of the supply

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