

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 mH₂O up to 0 ... 100 mH₂O

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 % Al₂O₃
- ▶ 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



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 ₂ O]	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] Ω
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

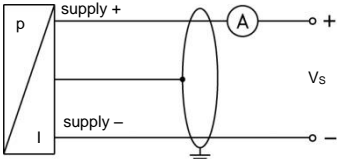
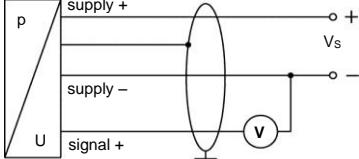
Electrical connection	
Cable with sheath material ³	PUR (-25 ... 70 °C) black Ø 7.4 mm FEP ⁴ (-25 ... 70 °C) black Ø 7.4 mm TPE-U (-25 ... 100 °C) blue Ø 7.4 mm others on request
Cable capacitance	signal line/shield also signal line/signal line: 160 pF/m
Cable inductance	signal line/shield also signal 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 ₂ O ₃ 99.9 %
Cable sheath	PUR, FEP, TPE-U

Miscellaneous	
Option pipe R1"	prepared for mounting with plastic pipe; available as compact product (standard: pipe with a total length up to 2 m possible; other lengths on request)
Current consumption	max. 21 mA
Weight	approx. 320 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU

Wiring diagrams	
<p>2-wire-system (current)</p> 	<p>3-wire-system (voltage)</p> 

Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply -	BN (brown)
Signal + (only for 3-wire)	GN (green)
Shield	GNYE (green-yellow)
Dimensions (mm / in)	
standard	option
<p> $\phi 7,4 [0.29]$ $126 [4.96]$ $\phi 45 [1.77]$ </p>	<p> $R1''$ $\phi 7,4 [0.29]$ $126 [4.96]$ $\phi 45 [1.77]$ SW36 </p> <p>prepared for mounting with pipe R1"</p>

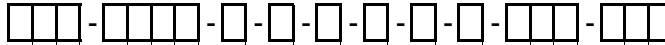
Accessories

Terminal clamp		
Technical data		
Suitable for	all probes with cable ϕ 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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Ordering code LMK 809

LMK 809



Pressure																						
	in bar	3	9	5																		
	in mH ₂ O	3	9	6																		
Input																						
	[mH ₂ O]	[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																					
	PVDF																					
	customer																					consult
Diaphragm																						
	ceramics Al ₂ O ₃	99.9%																				
	customer																					consult
Output																						
	4 ... 20 mA / 2-wire																					1
	0 ... 10 V / 3-wire																					3
	customer																					9
Seals																						
	FKM																					1
	EPDM																					3
	FFKM																					7
	customer																					9
Accuracy																						
	standard:	0.35 % FSO																				3
	option:	0.25 % FSO																				2
	customer																					9
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
Cable length																						
	in m																					9 9 9
Special version																						
	standard																					0 0 0
	pipe R1" ²																					6 1 0
	customer																					9 9 9

¹ shielded cable with integrated ventilation tube for atmospheric pressure reference

² pipe is not part of the supply