

## 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<sub>2</sub>O up to 0 ... 100 mH<sub>2</sub>O

#### 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<sub>2</sub>O<sub>3</sub>
- ▶ 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



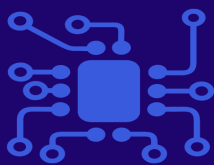
waste water treatment  
water recycling  
dumpsite



##### 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 <sub>2</sub> 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 <sub>S</sub> = 9 ... 32 V <sub>DC</sub>
Option	3-wire: 0 ... 10 V / V <sub>S</sub> = 12.5 ... 32 V <sub>DC</sub>

Performance	
Accuracy <sup>1</sup>	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % FSO
Permissible load	R <sub>max</sub> = [(V <sub>S</sub> - V <sub>S min</sub> ) / 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
Max. response time	380 msec
measuring rate: 5/sec	

<sup>1</sup> 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 <sup>2</sup>	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

<sup>2</sup> 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 <sup>3</sup>	PUR (-25 ... 70 °C) black Ø 7.4 mm FEP <sup>4</sup> (-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

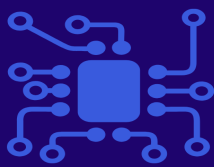
<sup>3</sup> shielded cable with integrated ventilation tube for atmospheric pressure reference

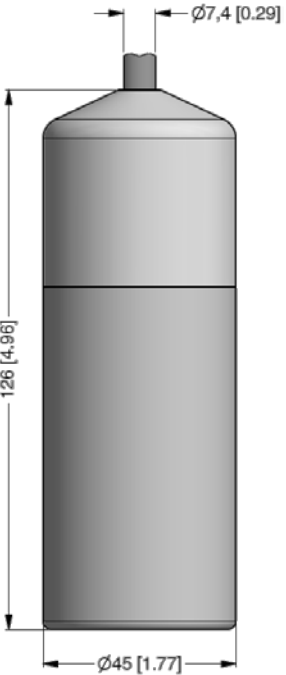
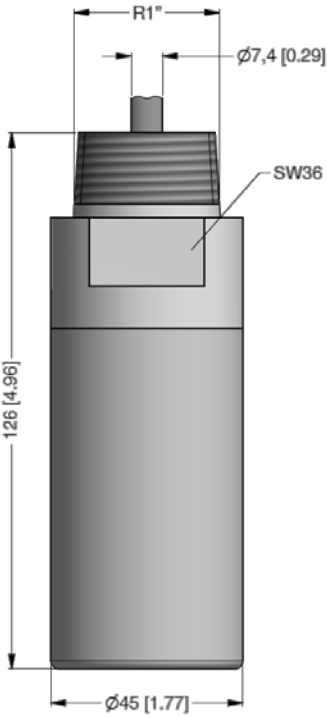
<sup>4</sup> do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected

Materials (media wetted)	
Housing	standard: PP-HT option: PVDF
Seals	FKM, EPDM, FFKM
Diaphragm	ceramics Al <sub>2</sub> O <sub>3</sub> 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	
<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)	
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>standard</b></p>  </div> <div style="text-align: center;"> <p><b>option</b></p>  </div> </div> <p style="text-align: right; margin-top: 10px;">prepared for mounting with pipe</p>	

## Accessories

Terminal clamp			
			
Technical data			
Suitable for	all probes with cable Ø 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		

Ordering code LMK 809

LMK 809

-  -  -  -  -  -  -  -

Pressure																				
	in bar	3	9	5																
	in mH <sub>2</sub> O	3	9	6																
Input	[mH <sub>2</sub> 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								R											
	PVDF								B											
	customer								9											consult
Diaphragm																				
	ceramics Al <sub>2</sub> O <sub>3</sub> 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) <sup>1</sup>									2										
	FEP-cable (black, Ø 7.4 mm) <sup>1</sup>									3										
	TPE-U-cable (blue, Ø 7.4 mm) <sup>1</sup>									4										
	customer									9										consult
Cable length																				
	in m										9	9	9							
Special version																				
	standard															0	0	0		
	prepared for pipe R1" <sup>2</sup>															6	1	0		
	customer															9	9	9		consult

<sup>1</sup> shielded cable with integrated ventilation tube for atmospheric pressure reference

<sup>2</sup> pipe is not part of the supply