

# 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	$R_{max} = [(V_S - V_{Smin}) / 0.02 A] \Omega$
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

<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

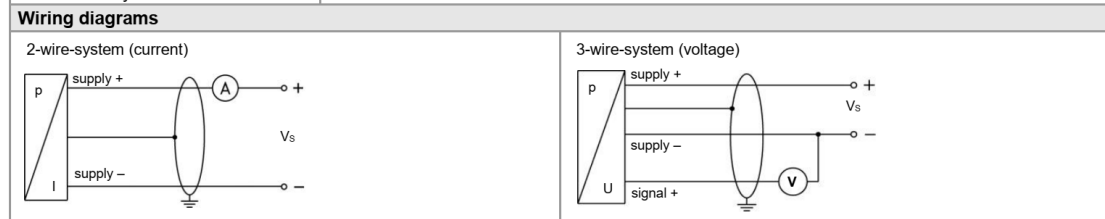
Electrical connection	
Cable with sheath material <sup>3</sup>	PUR (-25 ... 70 °C)      black      Ø 7.4 mm FEP <sup>4</sup> (-25 ... 70 °C)      black      Ø 7.4 mm TPE-U (-25 ... 100 °C)      blue      Ø 7.4 mm others on request
Cable capacitance	signal line/shield also signal line/signal line: 160 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



# LMK 809

Plastic Probe

Technical Data

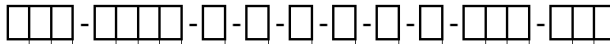
Pin configuration		
Electrical connection		cable colours (IEC 60757)
Supply +		WH (white)
Supply -		BN (brown)
Signal + (only for 3-wire)		GN (green)
Shield		GNYE (green-yellow)
Dimensions (mm / in)		
<b>standard</b>		<b>option</b>
<p>Diagram of the standard LMK 809 probe. It is a cylindrical probe with a diameter of <math>\varnothing 45</math> [1.77] mm and a height of 126 [4.96] mm. The top cable diameter is <math>\varnothing 7,4</math> [0.29] mm.</p>		<p>Diagram of the option LMK 809 probe. It is a cylindrical probe with a diameter of <math>\varnothing 45</math> [1.77] mm and a height of 126 [4.96] mm. The top cable diameter is <math>\varnothing 7,4</math> [0.29] mm. It features a threaded section with a radius <math>R1</math> and a SW36 hex nut. The probe is prepared for mounting with a pipe.</p>
		prepared for mounting with pipe

## Accessories

Terminal clamp		
Technical data		
Suitable for	all probes with cable $\varnothing$ 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



<b>Pressure</b>																						
	in bar	3	9	5																		
	in mH <sub>2</sub> O	3	9	6																		
<b>Input</b>																						
	[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																consult	
<b>Housing</b>																						
	PP-HT									R												
	PVDF									B												
	customer									9												consult
<b>Diaphragm</b>																						
	ceramics Al <sub>2</sub> O <sub>3</sub> 99.9%									C												
	customer									9												consult
<b>Output</b>																						
	4 ... 20 mA / 2-wire																				1	
	0 ... 10 V / 3-wire																				3	
	customer																				9	consult
<b>Seals</b>																						
	FKM																				1	
	EPDM																				3	
	FFKM																				7	
	customer																				9	consult
<b>Accuracy</b>																						
standard:	0.35 % FSO																				3	
option:	0.25 % FSO																				2	
	customer																				9	consult
<b>Electrical connection</b>																						
	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
<b>Cable length</b>																						
	in m																				9	9
<b>Special version</b>																						
	standard																				0	0
	pipe R1" <sup>2</sup>																				6	1
	customer																				9	9

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

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