



LMK 809

Plastic Probe for Aggressive Media

High Purity Ceramic Sensor

accuracy according to IEC 61298-2:
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
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 / $V_S = 9 \dots 32 V_{DC}$
Performance	
Accuracy ¹	standard: $\leq \pm 0.35 \% \text{ FSO}$ option: $\leq \pm 0.25 \% \text{ FSO}$
Permissible load	$R_{\max} = [(V_S - V_{S \min}) / 0.02 \text{ A}] \Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω
Long term stability	$\leq \pm 0.1 \% \text{ FSO} / \text{year}$ at reference conditions
Turn-on time	700 msec
Mean response time	< 200 msec
Max. response time	380 msec
measuring rate: 5/sec	

¹ accuracy according to IEC 61298-2 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (offset and span)	
Tolerance band	$\leq \pm 1 \% \text{ FSO}$
In compensated range	-20 ... 80 °C

Permissible temperatures	
Housing in PVDF	medium / electronic / environment / storage: -30 ... 60 °C
Housing in PP-HT	medium / electronic / environment / storage: 0 ... 60 °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

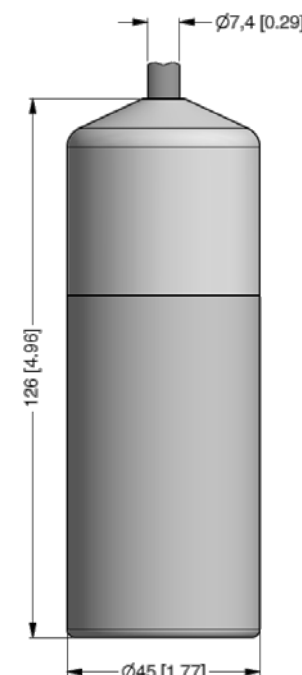
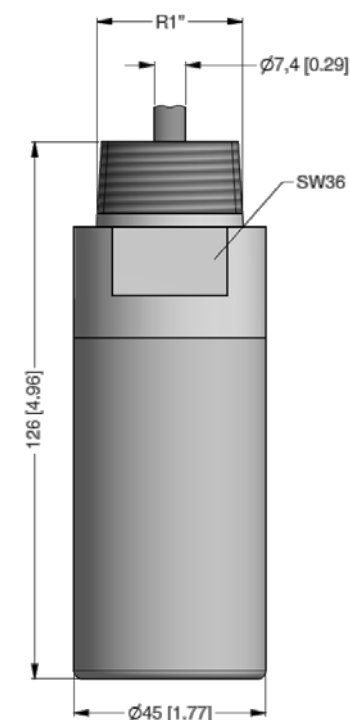
Miscellaneous	
Option cable protection	prepared for mounting with plastic pipe
Current consumption	max. 21 mA
Weight	approx. 320 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU

Wiring diagram	
2-wire-system (current)	

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Plastic Probe

Technical Data

Pin configuration		
Electrical connection		cable colours (IEC 60757)
Supply + Supply –		WH (white)
		BN (brown)
Shield		GNYE (green-yellow)
Dimensions (mm / in)		
standard  option 		
prepared for mounting with pipe		

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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

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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 (0 ... 60 °C)							R					
PVDF (-30 ... 60 °C)							B					
customer							9					consult
Diaphragm												
ceramics Al ₂ O ₃ 99.9 %							C					
customer							9					consult
Output												
4 ... 20 mA / 2-wire							1					
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