

# LMK 307 LMK 309



## Stainless Steel Submersible Transmitter with Ceramic Sensor

- ▶ diameter:  
LMK 307: 27 mm  
LMK 309: 39.5 mm
- ▶ nominal pressure ranges:  
LMK 307: 0 ... 4 mH<sub>2</sub>O up to  
0 ... 250 mH<sub>2</sub>O  
LMK 309: 0 ... 1.6 mH<sub>2</sub>O up to  
0 ... 6 mH<sub>2</sub>O

LMK 307 and LMK 309 are suitable for a continuous level measurement of thin, non-aggressive and only marginally polluted fluids. The basic element of these stainless steel submersible probes is a flush mounted ceramic sensor.

LMK 307 (Ø 27 mm) is available in pressure ranges from 0...4 mH<sub>2</sub>O up to 0...250 mH<sub>2</sub>O and LMK 309 (Ø 39,5 mm) in pressure ranges from 0...1.6 mH<sub>2</sub>O up to 0...6 mH<sub>2</sub>O.

Different cable and sealing materials can be offered according to the customer-specific operating conditions. Both submersible probes can be used in explosive areas.

Preferred areas of use of the submersible level transmitters LMK 307 and LMK 309 are:

- ▶ depth measurement in wells and open waters
- ▶ ground water level measurement
- ▶ level measurement in open tanks

- ▶ wide range of use
- ▶ easy handling
- ▶ good linearity
- ▶ good long term stability
- ▶ **option Ex version zone 0  
II 1 G EEx ia IIC T4  
(only for 4 ... 20 mA / 2-wire)  
TÜV 03 ATEX 2006 X**
- ▶ accuracy:  
0.25 % FSO BFSL  
(0.5 % FSO IEC 60770)
- ▶ customer specific versions:
  - special pressure ranges
  - other versions on request

Characteristics

**LMK 307 / 309**  
Stainless Steel Level Transmitter



Input pressure range														
	LMK 309					LMK 307								
Nominal pressure gauge [bar]	0.16	0.25	0.4	0.6	0.4 <sup>1</sup>	0.6	1	1.6	2.5	4	6	10	16	25
Level [mH <sub>2</sub> O]	1.6	2.5	4	6	4 <sup>1</sup>	6	10	16	25	40	60	100	160	250
Permissible overpressure [bar]	0.6	0.6	1.5	1.5	1	2	3	7	7	12	12	25	50	50

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V <sub>S</sub> = 12 ... 36 V <sub>DC</sub> Ex-protection: V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>
Optional for LMK 307	3-wire: 0 ... 20 mA / V <sub>S</sub> = 14 ... 36 V <sub>DC</sub> 0 ... 10 V / V <sub>S</sub> = 14 ... 36 V <sub>DC</sub>

Performance	
Accuracy	IEC 60770 <sup>2</sup> : ≤ ± 0.5 % FSO      BFSL: ≤ ± 0.25 % FSO
Permissible load	current 2-wire: R <sub>max</sub> = [(V <sub>S</sub> - V <sub>Smin</sub> ) / 0.02] Ω current 3-wire: R <sub>max</sub> = 500 Ω voltage 3-wire: R <sub>min</sub> = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Response time	< 10 msec

Thermal effects	
Thermal error for offset and span in compensated range	≤ ± 0.2 % FSO / 10 K -25 ... 70 °C

Electrical protection <sup>3</sup>	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic protection	emission and immunity according to EN 61326
Option Ex-protection only with 4 ... 20 mA / 2-wire DX13-LMK 307 DX13-LMK 309	zone 0 <sup>4</sup> : II 1 G EEx ia IIC T4 safety technical maximum values: V <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> ≤ 1 nF, L <sub>i</sub> ≤ 10 μH

Permissible temperatures	
Medium	-10 ... 70 °C      Ex-protection: application in zone 0: -10 ... 60 °C application in zone 1 or higher: -10 ... 70 °C
Storage	-25 ... 70 °C

Electrical connection	
Cable with sheath material <sup>5</sup>	PVC grey PUR black FEP black

<sup>1</sup> not possible in combination with Ex-protection

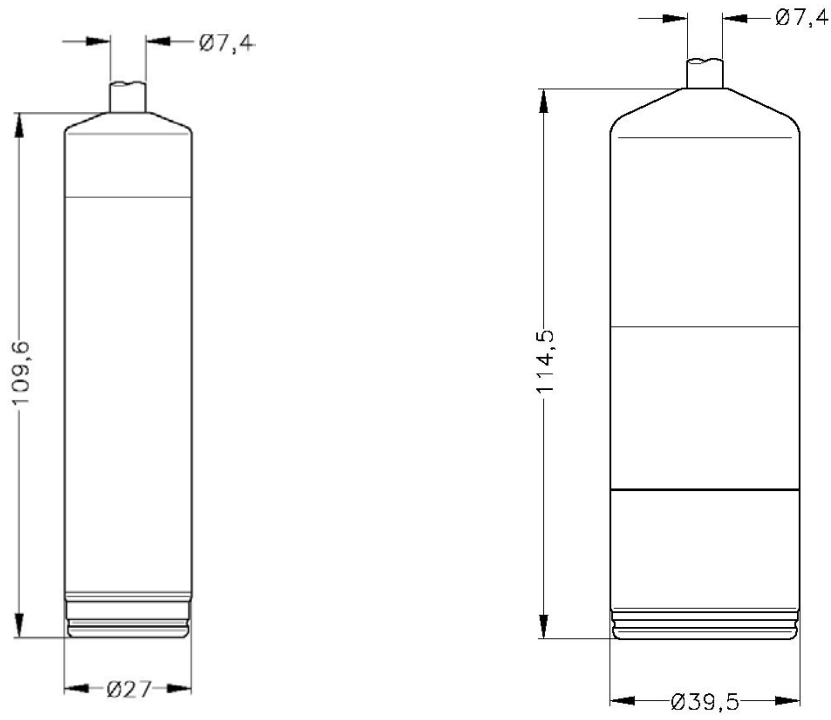
<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

<sup>3</sup> additional external overvoltage protection unit in terminal box KL1 or KL2 with atmospheric pressure reference available on request

<sup>4</sup> approved for atmospheric pressure from 0.8 bar up to 1.1 bar

<sup>5</sup> cable with integrated air tube for atmospheric pressure reference

Dimensions (in mm)



LMK 307

LMK 309

Materials

Housing	stainless steel 1.4571 (316Ti)
Seals	FKM / EPDM
Diaphragm	ceramic Al <sub>2</sub> O <sub>3</sub> 96 %
Cable sheath	PVC / PUR / FEP

Miscellaneous

Optionally for LMK 307: SIL 2 application	according to IEC 61508 / IEC 61511
Connecting cables (by factory)	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
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	LMK 307: approx. 250 g (without cable) LMK 309: approx. 400 g (without cable)
Ingress protection	IP 68

**Mounting accessories** (not part of delivery)

Screw fitting, stainless steel 1.4571 (316Ti)

Mounting flange for transmitter fixing, stainless steel 1.4571 (316Ti):

DN25 / PN40 (Ø115, 18 thick, 4 drill holes Ø14 at Ø85)

DN50 / PN16 (Ø165, 18 thick, 4 drill holes Ø18 at Ø125)

DN80 / PN16 (Ø200, 20 thick, 8 drill holes Ø18 at Ø160)

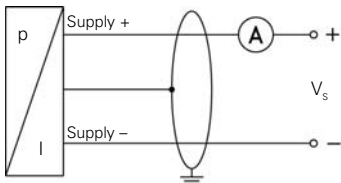
Terminal clamp, stainless steel 1.4301 (304) or steel, zinc plated

**Pin configuration**

Electrical connection		cable colours (DIN 47100)
2-wire-system	Supply +	white
	Supply -	brown
	Ground	yellow / green (shield)
3-wire-system	Supply +	white
	Supply -	brown
	Signal +	green
	Ground	yellow / green (shield)

**Wiring diagrams**

2-wire-system (current)



3-wire-system (current / voltage)

