

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 ... 6 mWC up to
0 ... 250 mWC
LMK 309: 0 ... 1.6 mWC up to
0 ... 6 mWC

Level transmitters LMK 307 and LMK 309 are designed for continuous level measurement in water or waste water applications. Permissible media are thin fluids.

Basic element of the stainless steel submersible probes is a flush mounted ceramic sensor, which makes cleaning easier when solid parts of the medium deposit on it. Pressure ranges from 0 ... 1.6 mWC up to 0 ... 6 mWC are being built as LMK 309 (Ø9.5 mm); those of the LMK 307 (Ø27) starts from 0 ... 6 mWC up to 0 ... 250 mWC.

Different cable and seal materials are available in order to achieve maximum media compatibility. The submersible probes LMK 307 / LMK 309 are suited for explosive area.

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

- ▶ environmental engineering: sewage and water treatment plants
- ▶ depth or level measurement in wells and open waters
- ▶ ground water level measurement
- ▶ level measurement in open tanks, also in most of aggressive media

- ▶ 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



LMK 307 / 309

Stainless Steel Level Transmitter

Technical Data

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

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / $V_s = 12 \dots 36 V_{DC}$ Ex-protection: $V_s = 14 \dots 28 V_{DC}$
Optional for LMK 307	3-wire: 0 ... 20 mA / $V_s = 14 \dots 36 V_{DC}$ 0 ... 10 V / $V_s = 14 \dots 36 V_{DC}$

Performance	
Accuracy	IEC 60770 ² : $\leq \pm 0.5 \% \text{ FSO}$ BFSL: $\leq \pm 0.25 \% \text{ FSO}$
Permissible load	current 2-wire: $R_{max} = [(V_s - V_{smin}) / 0.02] \Omega$ current 3-wire: $R_{max} = 500 \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / $\text{k}\Omega$
Response time	< 10 msec

Thermal effects	
Thermal error for offset and span in compensated range	$\leq \pm 0.2 \% \text{ FSO} / 10 \text{ K}$ -25 ... 70 °C

Electrical protection ³	
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 ⁴ : II 1 G EEx ia IIC T4 safety technical maximum values: $V_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \leq 1 \text{ nF}$, $L_i \leq 10 \mu\text{H}$

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 ⁵	PVC grey PUR black FEP black

¹ LMK 309 from 0.16 bar up to 0.6 bar; LMK 307 from 0.6 bar up to 25 bar

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

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

⁴ approved for atmospheric pressure from 0.8 bar up to 1.1 bar

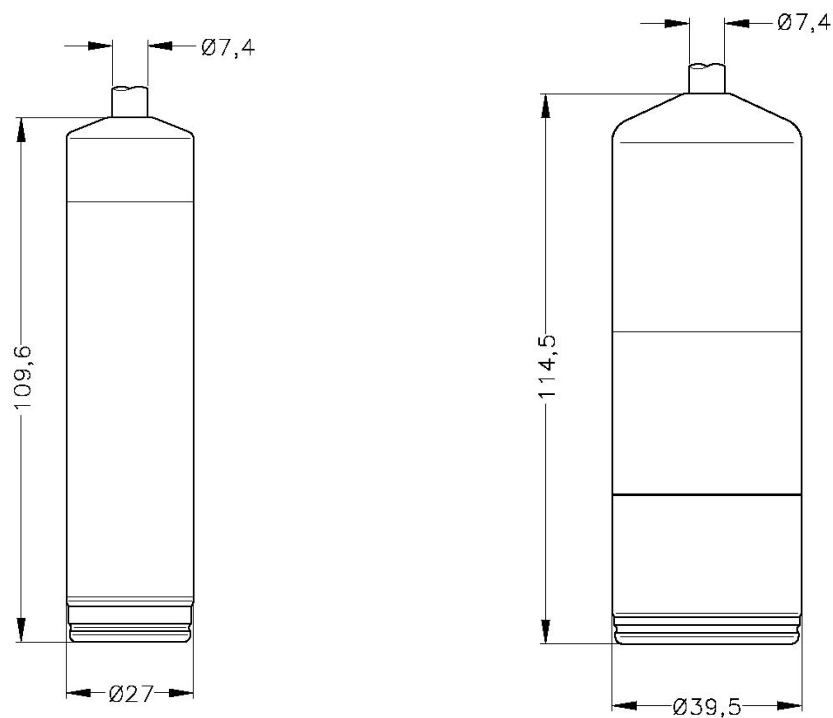
⁵ cable with integrated air tube for atmospheric pressure reference

LMK 307 / 309

Stainless Steel Level Transmitter

Technical Data

Dimensions



LMK 307

LMK 309

Materials

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

Miscellaneous

Cable capacitance	signal line/shield: 150 pF/m	signal line/signal line: 100 pF/m
Cable inductance	signal line/shield: 1.0 µH/m	signal line/signal line: 1.0 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)	

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Technical Data

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)

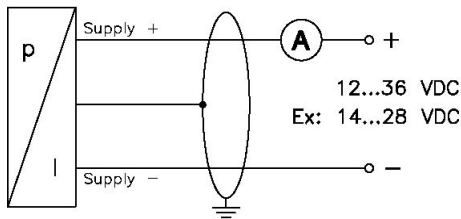
Terminal clamp, stainless steel 1.4301 (304) or steel, zinc plated

Pin configuration

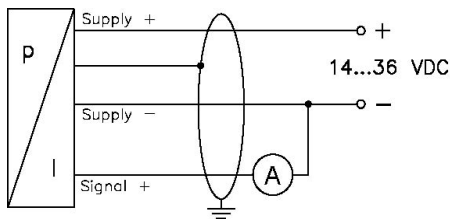
Electrical connection		cable colours (DIN 47100)
2-wire-system	Supply +	white
	Supply -	brown
	Ground	yellow / green (shield)
3-wire-system	Supply +	white
	Supply -	brown
	Signal +	green
	Ground	yellow / green (shield)

Wiring diagrams

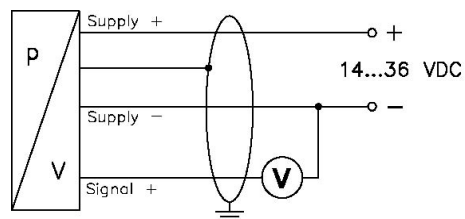
2-wire-system (current)



3-wire-system (current)



3-wire-system (voltage)



This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

Ordering Code LMK 309

LMK 309

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Pressure		in bar	3	8	5															
		in mWC	3	8	6															
Input		[mWC]																		
		[bar]																		
		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											
		customer				9	9	9	9											
Housing		Stainless steal 1.4571 (316Ti)																		
		customer																		
Diaphragm		Ceramics Al ₂ O ₃ 96%																		
		customer																		
Output		4 ... 20 mA / 2-wire																		
		Intrinsic safety 4 ... 20 mA / 2-wire																		
		customer																		
Seals		FKM																		
		EPDM																		
		customer																		
Accuracy		0,5 %																		
		customer																		
Electrical connection		PVC-cable ¹																		
		PUR-cable ¹																		
		FEP-cable ¹																		
		customer																		
Cable length		in m																		
Special version		standard																		
		customer																		

¹ cable with integrated air tube for atmospheric pressure reference

