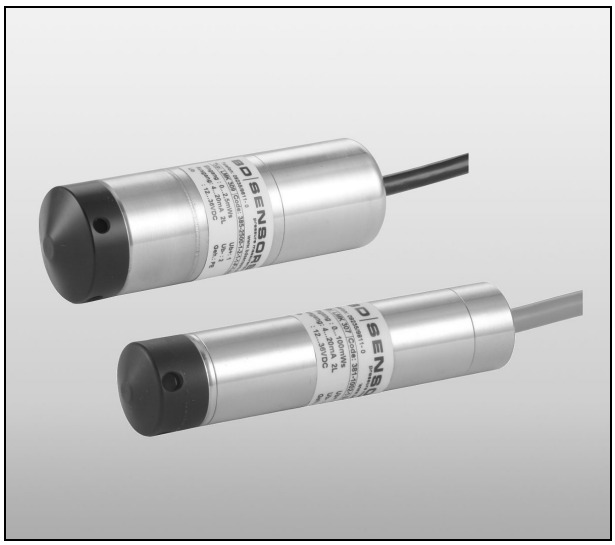

LMK 307
LMK 309

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_2O up to
  0 ... 250 mH_2O
  LMK 309: 0 ... 1.6 mH_2O up to
  0 ... 6 mH_2O

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_2O up to 0...250 mH_2O and LMK 309 (Ø 39,5 mm) in pressure ranges from 0...1.6 mH_2O up to 0...6 mH_2O.

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

Prefferred 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

Characteristics

- wide range of use
- easy handling
- good linearity
- good long term stability
- **option Ex version zone 0**
  II 1 G Ex 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

LMK 307 / 309
Stainless Steel Level Transmitter

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Input pressure range

	LMK 309				LMK 307									
Nominal pressure gauge [bar]	0.16	0.25	0.4	0.6	0.4 [1]	0.6	1	1.6	2.5	4	6	10	16	25
Level [mH_2O]	1.6	2.5	4	6	4 [1]	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_S = 12 ... 36 V_{DC}	Ex-protection:	V_S = 14 ... 28 V_{DC}
Optional for LMK 307	3-wire: 0 ... 20 mA / V_S = 14 ... 36 V_{DC} 0 ... 10 V / V_S = 14 ... 36 V_{DC}		

Performance

Accuracy	IEC 60770 [2]: ≤ ± 0.5 % FSO	BFSL: ≤ ± 0.25 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02]\ \Omega$ current 3-wire: R_{max} = 500 Ω voltage 3-wire: R_{min} = 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	≤ ± 0.2 % FSO / 10 K
in compensated range	-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 Ex ia IIC T4 zone 20: II 1 D Ex tD A20 IP65 T 85°C safety technical maximum values: V_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≤ 1nF, L_i ≤ 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 [5]	PVC grey PUR black FEP black

[1] not possible in combination with Ex-protection

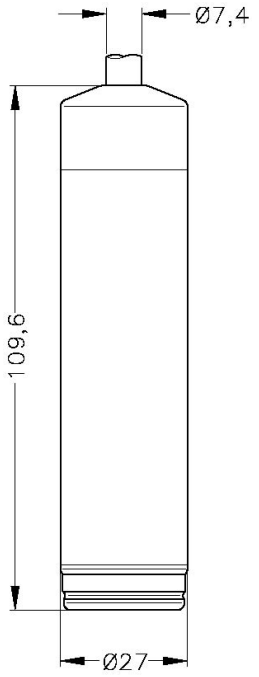
[2] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

[3] additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request

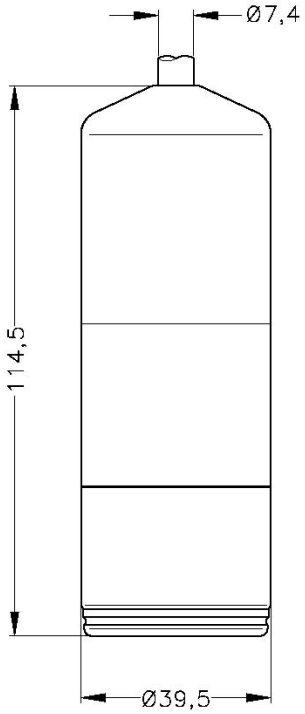
[4] approved for atmospheric pressure from 0.8 bar up to 1.1 bar

[5] cable with integrated air tube for atmospheric pressure reference

Dimensions (in mm)



LMK 307



LMK 309

Materials

Housing	stainless steel 1.4571 (316Ti)
Seals	FKM / EPDM
Diaphragm	ceramic Al_2O_3 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)

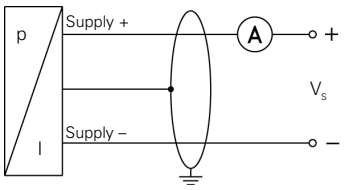
Screw fitting, stainless steel 1.4571 (316Ti)
Mounting flange for transmitter fixing, stainless steel 1.4571 (316Ti): DN25 / PN40 (∅115, 18 thick, 4 drill holes ∅14 at ∅85) DN50 / PN16 (∅165, 18 thick, 4 drill holes ∅18 at ∅125) DN80 / PN16 (∅200, 20 thick, 8 drill holes ∅18 at ∅160)
Terminal clamp, stainless steel 1.4301 (304) or steel, zinc plated

Pin configuration

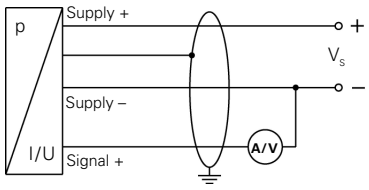
Electrical connection		cable colours (DIN 47100)
2-wire-system	Supply + Supply –	white brown
	Ground	yellow / green (shield)
3-wire-system	Supply + Supply – Signal +	white brown green
	Ground	yellow / green (shield)

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)



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Ordering code LMK 307

LMK 307 □□□-□□□□-□-□-□-□-□-□-□□□-□□□

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