

# LMK 307

## Stainless Steel Probe

Ceramic Sensor

accuracy according to IEC 60770:  
0.5 % FSO



### Nominal pressure

from 0 ... 4 mH<sub>2</sub>O up to 0 ... 250 mH<sub>2</sub>O

### Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

others on request

### Special characteristics

- ▶ diameter 27 mm
- ▶ good linearity
- ▶ excellent long term stability
- ▶ easy handling

### Optional versions

- ▶ IS-version  
Ex ia = intrinsically safe for gas and dust
- ▶ SIL 2 (Safety Integrity Level)  
according to IEC 61508 / IEC 61511
- ▶ different kinds of cables  
and elastomers
- ▶ customer specific versions  
e. g. special pressure ranges

The level transmitter LMK 307 is designed for continuous level measurement in water or waste water applications. Basic element is a flush mounted ceramic sensor.

Suitable for all fluids which are compatible with media wetted materials. Different cable and elastomer materials can be offered according to the customer-specific operating conditions.

### Preferred areas of use are

#### Water



drinking water systems  
ground water monitoring  
storm water systems

#### Sewage



waste water treatment  
water recycling  
dumpsite

#### Fuel and oil



fuel storage  
tank farm  
biogas plants



Input pressure range											
Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH <sub>2</sub> O]	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	2	2	2	4	4	10	10	20	40	40
Burst pressure ≥	[bar]	4	4	4	5	5	12	12	25	50	50
Max. ambient pressure (housing): 40 bar											

Output signal / Supply			
Standard	2-wire:	4 ... 20 mA / V <sub>S</sub> = 8 ... 32 V <sub>DC</sub>	SIL-version: V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>
Option IS-version	2-wire:	4 ... 20 mA / V <sub>S</sub> = 10 ... 28 V <sub>DC</sub>	SIL-version: V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>
Options 3-wire	3-wire:	0 ... 20 mA / V <sub>S</sub> = 14 ... 30 V <sub>DC</sub>	
		0 ... 10 V / V <sub>S</sub> = 14 ... 30 V <sub>DC</sub>	

Performance	
Accuracy <sup>1</sup>	≤ ± 0.5 % FSO
Permissible load	current 2-wire: R <sub>max</sub> = [(V <sub>S</sub> - V <sub>S min</sub> ) / 0.02 A] Ω current 3-wire: R <sub>max</sub> = 500 Ω voltage 3-wire: R <sub>min</sub> = 10 k Ω
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Response time	≤ 10 msec

<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (Offset and Span)	
Thermal error	≤ ± 0.2 % FSO / 10 K in compensated range 0 ... 70 °C

Permissible temperatures	
Permissible temperatures	medium: -10 ... 70 °C storage: -25 ... 70 °C

Electrical protection <sup>2</sup>	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic protection	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>	PVC ( -5 ... 70 °C) grey Ø 7.4 mm PUR (-10 ... 70 °C) black Ø 7.4 mm FEP <sup>4</sup> (-10 ... 70 °C) black Ø 7.4 mm others on request
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	stainless steel 1.4404 (316L)
Seals	FKM EPDM
Diaphragm	ceramics Al <sub>2</sub> O <sub>3</sub> 96 %
Protection cap	POM-C
Cable sheath	PVC, PUR, FEP

Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approvals DX19-LMK 307	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da
Safety technical maximum values	U <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> ≈ 0nF, L <sub>i</sub> ≈ 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar in zone 1: -40/-20 ... 70 °C
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

Miscellaneous	
Option SIL 2 version <sup>5</sup>	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 250 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

<sup>5</sup> only for 4 ... 20mA / 2-wire

# LMK 307

Stainless Steel Probe

Technical Data

**Wiring diagrams**

2-wire-system (current)

3-wire-system (current / voltage)

**Pin configuration**

Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply -	BN (brown)
Signal + (only 3-wire)	GN (green)
Shield	GNYE (green-yellow)

**Dimensions (mm / in)**

protection cap removable

## 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	
<b>Ordering type</b>	<b>Ordering code</b>	<b>Weight</b>
Terminal clamp, steel, zinc plated	Z100528	approx. 160 g
Terminal clamp, stainless steel 1.4301 (304)	Z100527	

LMK307\_E\_080221

Tel.: +49 (0) 92 35 / 98 11- 0  
 Fax: +49 (0) 92 35 / 98 11- 11

www.bdsensors.de  
 info@bdsensors.de

**BDSENSORS**  
 pressure measurement

© 2021 BDSENSORS GmbH – The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

## Ordering code LMK 307

LMK 307



<b>Pressure</b>																			
	in bar	3	8	0															
	in mH <sub>2</sub> O	3	8	1															
<b>Input</b>	[mH <sub>2</sub> O]	[bar]																	
	4	0.4		4	0	0	0												
	6	0.6		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												
	160	16		1	6	0	2												
	250	25		2	5	0	2												
	customer			9	9	9	9												consult
<b>Housing</b>																			
	stainless steel 1.4404 (316L)			1															
	customer			9															consult
<b>Diaphragm</b>																			
	ceramics Al <sub>2</sub> O <sub>3</sub> 96 %			2															
	customer			9															consult
<b>Output</b>																			
	4 ... 20 mA / 2-wire			1															
	0 ... 20 mA / 3-wire			2															
	0 ... 10 V / 3-wire			3															
	intrinsic safety 4 ... 20 mA / 2-wire			E															
	SIL2 4 ... 20 mA / 2-wire			1S															
	SIL2 with intrinsic safety			ES															
	4 ... 20 mA / 2-wire			ES															
	customer			9															consult
<b>Seals</b>																			
	FKM			1															
	EPDM			3															
	customer			9															consult
<b>Accuracy</b>																			
	0.5 % FSO			5															
	customer			9															consult
<b>Electrical connection</b>																			
	PVC-cable (grey, Ø 7.4 mm) <sup>1</sup>			1															
	PUR-cable (black, Ø 7.4 mm) <sup>1</sup>			2															
	FEP-cable (black, Ø 7.4 mm) <sup>1</sup>			3															
	customer			9															consult
<b>Cable length</b>																			
	in m																		
	standard: 3 m	PVC		0	0	3													
	standard: 5 m	PVC		0	0	5													
	standard: 10 m	PVC		0	1	0													
	standard: 15 m	PVC		0	1	5													
	standard: 20 m	PVC		0	2	0													
	<b>special length</b>	<b>PVC</b>		<b>9</b>	<b>9</b>	<b>9</b>													
	standard: 3 m	PUR		0	0	3													
	standard: 5 m	PUR		0	0	5													
	standard: 10 m	PUR		0	1	0													
	standard: 15 m	PUR		0	1	5													
	standard: 20 m	PUR		0	2	0													
	<b>special length</b>	<b>PUR</b>		<b>9</b>	<b>9</b>	<b>9</b>													
	standard: 5 m	FEP		0	0	5													
	standard: 10 m	FEP		0	1	0													
	<b>special length</b>	<b>FEP</b>		<b>9</b>	<b>9</b>	<b>9</b>													
<b>Special version</b>																			
	standard			0	0	0													
	customer			9	9	9													consult

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

Standard lengths 3 / 5 / 10 / 15 / 20 m are available from stock, special lengths are manufactured order-related.