

LMK 387

Stainless Steel Probe

Ceramic Sensor

accuracy according to EN IEC 62828-2:
standard: 0.35 % span
option: 0.25 % span



Nominal pressure

from 0 ... 1 mH₂O up to 0 ... 100 mH₂O

Output signal

2-wire: 4 ... 20 mA
others on request

Special characteristics

- ▶ diameter 22 mm
- ▶ diaphragm ceramics 99.9% Al₂O₃
- ▶ good long-term stability
- ▶ especially for waste water

Optional versions

- ▶ housing material titanium
- ▶ IS-version
Ex ia = intrinsically safe for gas and dust
- ▶ drinking water certificate according to DVGW and KTW
- ▶ temperature element Pt 100
- ▶ mounting with stainless steel tube
- ▶ different kinds of cables and elastomers

The stainless steel probe LMK 387 was developed for level and gauge measurement in waste water, sludge or water courses. The mechanical robustness of the flush ceramic diaphragm facilitates an easy disassembly and cleaning of the probe in case of service.

Compared to the level probe LMK 382 the outer diameter is only 22 mm, whereby the installation or retrofitting can be easily carried out in 1" pipes or in confined installation conditions. An IS-version (zone 0) is also available.

Preferred areas of use



Water

groundwater and level monitoring



Sewage

waste water treatment
water recycling



Fuel and oil

tank battery
biogas plants



Input pressure range																																
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10																				
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100																				
Overpressure	[bar]	3	4	5	5	7	7	12	20	20	20	20																				
Burst pressure ≥	[bar]	4	6	8	8	9	9	18	25	25	30	30																				
Permissible vacuum	[bar]	-0.2	-0.3			-0.5					-1																					
Max. ambient pressure (housing): 40 bar																																
Output signal / Supply																																
Standard	2-wire: 4 ... 20 mA / V _S = 12 ... 36 V _{DC}																															
Option IS-version	2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC}																															
Option temperature element Pt 100																																
Temperature range	-25 ... 125 °C																															
Connectivity technology	3-wire																															
Resistance	100 Ω at 0 °C																															
Temperature coefficient	3850 ppm/K																															
Supply I _S	0.3 ... 1.0 mA _{DC}																															
		max. voltage 10 V _{DC} , in intrinsically safe circuit 30 V _{DC} max. current 2 mA, in intrinsically safe circuit 54 mA max. power 10 mW, in intrinsically safe circuit 405 mW																														
Performance																																
Accuracy ¹	standard: ≤ ± 0.35 % span option: ≤ ± 0.25 % span																															
Permissible load	R _{max} = [(V _S - V _{S,min}) / 0.02 A] Ω																															
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kΩ																															
Long term stability	≤ ± 0.1 % span / year																															
Turn-on time	450 msec																															
Mean response time	≤ 70 msec																															
Measuring rate	80 Hz																															
¹ accuracy according to EN IEC 62828-2 – limit point adjustment (non-linearity, hysteresis, repeatability)																																
Thermal effects (offset and span)																																
Tolerance band	≤ ± 1 % span																															
in compensated range	-20 ... 80 °C																															
Permissible temperatures																																
Permissible temperatures	medium / storage: -25 ... 85 °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	<table border="0"> <tr> <td>PUR</td> <td>(-25 ... 70 °C)</td> <td>black</td> <td>Ø 7.4 mm</td> <td></td> </tr> <tr> <td>FEP ⁴</td> <td>(-25 ... 70 °C)</td> <td>black</td> <td>Ø 7.4 mm</td> <td></td> </tr> <tr> <td>TPE-U</td> <td>(-25 ... 125 °C)</td> <td>blue</td> <td>Ø 7.4 mm</td> <td>(without / with drinking water certificate)</td> </tr> <tr> <td>TPE-U ⁵</td> <td>(-25 ... 125 °C)</td> <td>red</td> <td>Ø 9.0 mm</td> <td>others on request</td> </tr> </table>												PUR	(-25 ... 70 °C)	black	Ø 7.4 mm		FEP ⁴	(-25 ... 70 °C)	black	Ø 7.4 mm		TPE-U	(-25 ... 125 °C)	blue	Ø 7.4 mm	(without / with drinking water certificate)	TPE-U ⁵	(-25 ... 125 °C)	red	Ø 9.0 mm	others on request
PUR	(-25 ... 70 °C)	black	Ø 7.4 mm																													
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TPE-U	(-25 ... 125 °C)	blue	Ø 7.4 mm	(without / with drinking water certificate)																												
TPE-U ⁵	(-25 ... 125 °C)	red	Ø 9.0 mm	others on request																												
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 (for nominal pressure ranges absolute, the ventilation tube is closed)																																
⁴ do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected																																
⁵ only in combination with IS-version (explosion protection) and temperature element Pt 100																																
Materials (media wetted)																																
Housing	standard: stainless steel 1.4404 (316 L) option: titanium others on request																															
Seals (O-rings)	standard: FKM option: EPDM (without / with drinking water certificate) FFKM (min. permissible temperature from -15 °C) others on request																															
Diaphragm	ceramics Al ₂ O ₃ 99.9%																															
Protection cap	POM-C																															
Cable sheath	PUR, FEP, TPE-U																															
Explosion protection																																
Approval DX14B-LMK 387	IBExU 15 ATEX 1066 X / IECEx IBE 18.0019X zone 0: II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da																															
Safety technical maximum values (pressure)	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 49.2 nF, L _i = 0 μH; the supply connections have an inner capacity of max. 100 nF opposite the enclosure																															
Safety technical maximum values (temperature)	U _i = 30 V, I _i = 54 mA, P _i = 405 mW, C _i = 0 nF, L _i = 0 μH (temperature element Pt 100)																															
Permissible temp. for environment	in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar zone 1 and higher: -25 ... 65 °C																															
Connecting cables (by factory)	cable capacity: 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																																
Drinking water certificate ⁶	according to DVGW W 270 and UBA KTW (with order the indication "with drinking water certificate" is necessary)																															
Option cable protection	prepared for mounting with stainless steel pipe																															
Current consumption	max. 22 mA																															
Weight	approx. 180 g (without cable)																															
Ingress protection	IP 68																															
CE-conformity	EMC Directive: 2014/30/EU																															
ATEX Directive	2014/34/EU																															
⁶ only possible with EPDM seal in combination with TPE-U cable; not possible with IS-version (explosion protection) or housing material titanium																																

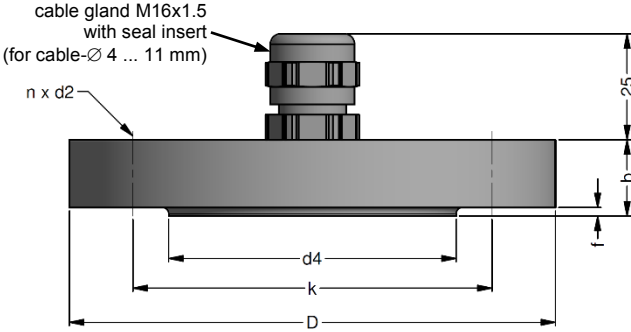
LMK 387

Stainless Steel Probe

Technical Data

Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply -	BN (brown)
Supply T+ (with Pt 100)	YE (yellow)
Supply T- (with Pt 100)	GY (grey)
Supply T- (with Pt 100)	PK (pink)
Shield	GNYE (green-yellow)
Wiring diagrams	
<p>2-wire-system (current)</p>	<p>2-wire-system current (pressure) / 3-wire-system (temperature Pt 100)</p>
Dimensions (mm/in)	
<p>probes</p> <p>protection cap removable</p>	<p>option:</p> <p>with thread R1/2" for mounting with stainless steel tube</p>
<p>option: screw-in version in stainless steel 1.4404 (316 L)</p> <p>G3/4"</p>	<p>G1/2" open</p>
<p>⇒ cable diameter $\varnothing 9$ mm for TPE-U cable (red), drawings for option with Pt 100 on request</p>	


Mounting flange with cable gland



dimensions in mm			
size	DN25 / PN40	DN50 / PN40	DN80 / PN16
b	18	20	20
D	115	165	200
d2	14	18	18
d4	68	102	138
f	2	3	3
k	85	125	160
n	4	4	8

Technical data		
Suitable for	all probes	
Flange material	stainless steel 1.4404 (316L)	
Material of cable gland	standard: brass, nickel plated on request: stainless steel 1.4305 (303); plastic	
Seal insert	material: TPE (ingress protection IP 68)	
Hole pattern	according to DIN 2507	
Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	5000275	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	5000278	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	5000279	4.8 kg


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	5000275	approx. 160 g
Terminal clamp, stainless steel 1.4301 (304)	5000278	

Display program

CIT 200	Process display with LED display
CIT 250	Process display with LED display and contacts
CIT 300	Process display with LED display, contacts and analogue output
CIT 350	Process display with LED display, bargraph, contacts and analogue output
CIT 400	Process display with LED display, contacts, analogue output and Ex-approval
CIT 600	Multichannel process display with graphics-capable LC display
CIT 650	Multichannel process display with graphics-capable LC display and datalogger
CIT 700 / CIT 750	Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts
PA 440	Field display with 4-digit LC display



For further information please contact our sales department or visit our homepage:
<http://www.bdsensors.cz>

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

Ordering code LMK 387									
2.5.2022	LMK 387	□	□	□	□	□	□	□	□
Pressure									
in bar (gauge)		3	6	0					
in mH ₂ O (gauge)		3	6	1					
Input									
	[mH ₂ O]	[bar]							
	0 ... 1.0	0 ... 0,10	1	0	0	0			
	0 ... 1.6	0 ... 0,16	1	6	0	0			
	0 ... 2.5	0 ... 0,25	2	5	0	0			
	0 ... 4.0	0 ... 0,40	4	0	0	0			
	0 ... 6.0	0 ... 0,60	6	0	0	0			
	0 ... 10	0 ... 1,0	1	0	0	1			
	0 ... 16	0 ... 1,6	1	6	0	1			
	0 ... 25	0 ... 2,5	2	5	0	1			
	0 ... 40	0 ... 4,0	4	0	0	1			
	0 ... 60	0 ... 6,0	6	0	0	1			
	0 ... 100	0 ... 10	1	0	0	2			
Customer									
			9	9	9	9			
Housing material									
Stainless steel 1.4404 (316 L)						1			
Titanium						T			
Customer									
						9			
Design									
Submersible probe						1			
Screw-in version (with G 1/2" open) ⁴						A			
Screw-in version (with G 3/4" flush) ⁴						B			
Diaphragm material									
Ceramic Al ₂ O ₃ 99,9 %						C			
Customer									
						9			
Output									
4 ... 20 mA / 2-wire						1			
Intrinsic safety Ex ia 4 ... 20 mA / 2-wire						E			
Customer									
						9			
Seals									
Viton (FKM)						1			
EPDM						3			
FFKM ¹						7			
Customer									
						9			
Electrical connection									
PUR-cable (black, Ø 7.4 mm) ²						2			
FEP-cable (black, Ø 7.4 mm) ²						3			
Customer									
						9			
Accuracy									
0,35 %						3			
0,25 %						2			
Customer									
						9			
Cable length									
in m						9	9	9	
Special version									
Standard							0	0	0
Temperature sensor PT100							0	1	3
R 1/2" thread - Prepared for mounting v with stainless steel pipe ³							5	0	2
Customer									
							9	9	9
Accessories for submersible transmitter									
Terminal clamp - zinc plated									1003440
Terminal clamp - Stainless Steel 1.4301									1000278
Mounting screw PG16 - plastic									5002200

0,...without additional charge

On request...in accordance with the producer

St. steel flange, clamp and pipe are not parts of the supply !!!

Surcharges for calibration are not subject to any discounts. Subject to change.□

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet.

BD SENSORS reserves the right to change sensor specifications without further notice.



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The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.



- 1 min. permissible temperature from -15 °C
- 2 shielded cable with integrated ventilation tube for atmospheric reference
- 3 possible for probes in stainless steel; stainless steel pipe is not part of the supply
- 4 only in combination with housing in stainless steel 1.4404 (316L)



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