

LMK 387

Stainless Steel Probe 22 mm

Ceramic Sensor

accuracy according to IEC 60770:
0.35 % FSO



Nominal pressure

from 0 ... 4 mH₂O up to 0 ... 200 mH₂O

Ausgangssignale

2-wire: 4 ... 20 mA

3-wire: 0 ... 10 V

others on request

Special characteristics

- ▶ diameter 22 mm
- ▶ diaphragm ceramics 96% Al₂O₃
- ▶ high long-term stability
- ▶ highly appropriated for wastewater, sludge and viscous media


Optional versions


- ▶ diaphragm ceramics 99,9% Al₂O₃ (on request)
- ▶ IS-version (**in preparation**)
Ex ia = intrinsically safe for gases and dust
- ▶ mounting with stainless steel tube
- ▶ different kinds of cable
- ▶ different kinds of elastomer


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

Compared to the level probe LMK 382 the outside-diameter is only 22mm, which allows an easy installation and backfitting in 1" tubes or in cramped fitting conditions. An IS-version is also available.

Preferred areas of use

 Wastewater
Sewage works
Water preparation

 Water
Groundwater and level monitoring

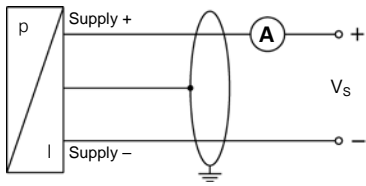
 Fuel and oil
Tank battery
Biogas plants



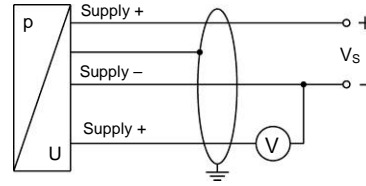
Input pressure range												
Nominal pressure gauge	[bar]	0,4	0,6	1	1,6	2,5	4	6	10	16	20	
Level	[mH ₂ O]	4	6	10	16	25	40	60	100	160	200	
Overpressure	[bar]	5	7	7	12	20	20	20	20	40	40	
Burst pressure ≥	[bar]	8	9	9	18	25	25	30	30	45	45	
Permissible vacuum	[bar]	-0.5					-1					
Output signal / Supply												
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	3-wire: 0 ... 10 V / V _S = 14 ... 36 V _{DC}											
Performance												
Accuracy ¹	≤ ± 0.35 % FSO										others on request	
Permissible load	2-wire: R _{max} = [(V _S - V _{S min}) / 0.02 A] Ω											
Influence effects	supply:	0.05 % FSO / 10 V					load:	0.05 % FSO / kΩ				
Long term stability	≤ ± 0.1 % FSO / year											
Turn-on time	450 msec											
Mean response time	≤ 70 msec											
Measuring rate	80 Hz											
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)												
Thermal effects (Offset and Span)												
Tolerance band	[% FSO]	≤ 1.0% FSO in compensated range -20 ... 80 °C										
Permissible temperatures												
Permissible temperatures	medium:	standard: -40 ... 85 °C			option: -40 ... 125 °C (on request)							
	electronics / environment:	standard: -40 ... 85 °C			option: -40 ... 125 °C (on request)							
	storage:	-40 ... 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 outlet	shielded cable with integrated air tube for atmospheric reference (for nominal pressure ranges absolute, the air tube is closed)											
Materials (media wetted)												
Housing	standard: stainless steel 1.4404 (316 L)										others on request	
Cable	PVC	(-5 ... 70 °C) gray										
	PUR	(-25 ... 70 °C) black										
	FEP	(-25 ... 70 °C) black (seawater resistant)										
	TPE	(-25 ... 125 °C) blue (flame-resistant, halogen free, increased resistance against oil and gasoline, resistant against salt, sea water, heavy oil)										
Seals (O-rings)	standard:	FKM									others on request	
	option:	EPDM; FFKM (min. permissible temperature from -15 °C)									others on request	
Diaphragm	standard:	ceramics Al ₂ O ₃ 96%					option:	ceramics Al ₂ O ₃ 99,9% (on request)				
Protection cap	POM											
IS-protection												
Approval DX14B-LMK 487 (in preparation)	IBExU13ATEX xxxx X zone 0: II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex iaD 20 T 85°C											
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 105 nF; L _i = 5 μH; the supply connections have an inner capacity of max. 140 nF opposite the enclosure											
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar zone 1 and higher: -25 ... 70 °C											
Connecting cables (by factory)	cable capacity:	signal line/shield as well as signal line/signal line: 160 pF/m										
	cable inductance:	signal line/shield as well as signal line/signal line: 1 μH/m										
Miscellaneous												
Current consumption	max. 22 mA											
Weight	approx. 180 g (without cable)											
Ingress protection	IP 68											
CE-conformity	EMC Directive: 2004/108/EC											
Pin configuration												
Electrical connection	cable colours (DIN 47100)											
Supply +	wh (white)											
Supply -	bn (brown)											
signal + (only 3-wire)	gn (green)											
Shield	ye/gn (yellow / green)											

Wiring diagrams

2-wire-system (current)

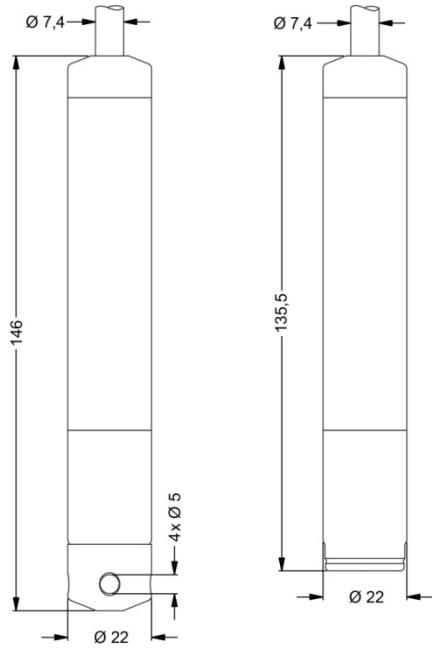


3-wire-system (voltage)



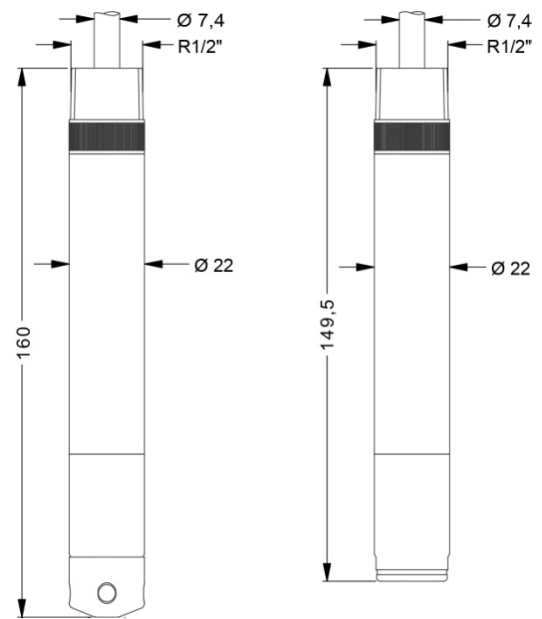
Dimensions (in mm)

standard



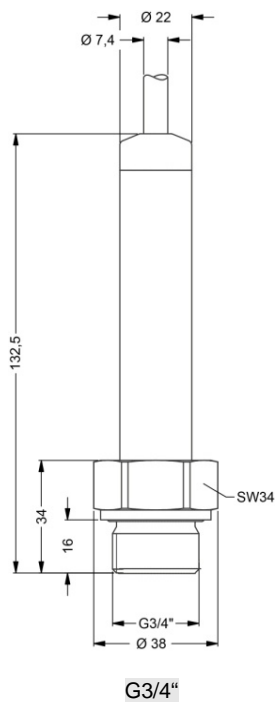
with protection cap

without protection cap

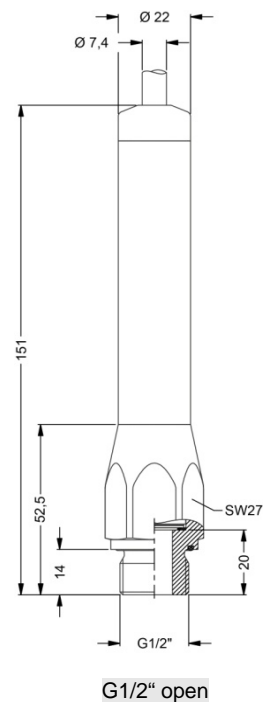


with thread R1/2" for mounting with stainless steel tube

option: screw-in version



G3/4"



G1/2" open

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

Mounting flange with cable gland		
Technical data		<p>cable gland M16x1.5 with seal insert (for cable-Ø 4 ... 11 mm)</p>
Suitable for	all probes	
Flange material	Stainless steel 1.4404 (316 L)	
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	
Version	Size (in mm)	
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d = 14	1.4 kg
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d = 18	3.2 kg
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d = 18	4.8 kg
Ordering type		Ordering code
DN25 / PN40 with cable gland brass, nickel plated		ZMF2540
DN50 / PN40 with cable gland brass, nickel plated		ZMF5040
DN80 / PN16 with cable gland brass, nickel plated		ZMF8016
Terminal clamp		
Technical data		
Suitable for	all probes with cable Ø 5.5 ... 10.5 mm	
Werkstoff	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)	
Weight	approx. 160 g	
Ordering type		Ordering code
Terminal clamp, steel, zinc plated		Z100528
Terminal clamp, stainless steel 1.4301 (304)		Z100527
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		
<p>For further information please contact our sales department or visit our homepage: http://www.bdsensors.com</p>		

