



LMK 387

Stainless Steel Probe

Ceramic Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

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

- 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



groundwater and level monitoring



Sewage

waste water treatment water recycling



Fuel and oil

tank battery biogas plants















Stainless Steel Probe

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		
Output signal / Supply											
Standard	2-wire:	4 20 mA / '	Vs = 12	36 Vnc							
Option IS-version		4 20 mA / '									
Option temperature element											
Temperature range	-25 ·	25 °C									
Connectivity technology	3-wire				max volta	age 10 V _{DC}	in intrin	sically safe	e circuit 30	Vnc	
Resistance	100 Ω 8	at 0 °C			max. curr				e circuit 54		
Temperature coefficient	3850 p	om/K			max. pow	er 10 mW,	in intrin	sically safe	e circuit 40	5 mW	
Supply Is	0.3 ′	.0 mA DC			1						
Performance											
Accuracy 1	standar	d: ≤ ± 0.35 %	FSO		option: ≤	± 0.25 % F	so				
Permissible load	R _{max} =	[(V _S - V _{S min})	0.02 A] C)	· ·						
Influence effects		0.05 % FSO			load: 0.05	% FSO / I	ς Ω				
Long term stability		% FSO / yea									
Turn-on time	450 ms	ec									
Mean response time	≤ 70 m	sec									
Measuring rate	80 Hz										
accuracy according to IEC 6077	'0 – limit point adjus	tment (non-line	earity, hyste	eresis, rep	eatability)						
Thermal effects (Offset and S	pan)										
Tolerance band	≤ 1.0 %	FSO			in compe	nsated ran	ge -20 8	30 °C			
Permissible temperatures											
Permissible temperatures	mediun	ı / storage: -2	5 85 °C	;							
Electrical protection ²											
Short-circuit protection	perman	ent									
Reverse polarity protection	no dam	age, but also	no functio	on							
Electromagnetic compatibility	emissio	n and immun	ity accord	ing to EN	61326						
² additional external overvoltage p	protection unit in teri	ninal box KL 1	or KL 2 w	ith atmosp	heric pressu	e reference	available o	on request			
Electrical connection											
Cable with sheath material ³	PUR	(-25	70 °C) I	black (7.4 mm						
	FEP ⁴	(-25	70 °C) I	black (ð 7.4 mm						
	TPE-U	(-25 1	,	blue 9	ð 7.4 mm	(without /	with drink	ing water c	ertificate)		
	TPE-U				9.0 mm				otl	hers on req	uest
		stallation:			ble diamete						
Bending radius		c application:	2	20-fold ca	ble diamete	ſ			-/\		
³ shielded cable with integrated ai ⁴ do not use freely suspended pro	ir tube for atmosphe obes with an FEP ca	ble if effects d	ference (fo ue to highly	y charging	pressure rar processes a			ibe is close	u)		
³ shielded cable with integrated and the shielded cable with integrated and the shield properties only in combination with IS-versity.	ir tube for atmosphe obes with an FEP ca	ble if effects d	ference (fo ue to highly	y charging	pressure rar processes a			ibe is close	u)		
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³ shielded cable with integrated and do not use freely suspended profonly in combination with IS-versimaterials (media wetted) Housing	ir tube for atmosphe obes with an FEP ca ion (explosion prote stainles	ble if effects d ction) and tem	ference (fo ue to highly perature ei	y charging	pressure rar processes a			ibe is close	,	ners on req	uest
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3 shielded cable with integrated and do not use freely suspended prosonly in combination with IS-versional footnoted by the second of the seco	ir tube for atmosphe bbes with an FEP ca ion (explosion prote stainles standar option: ceramic POM-C PUR, F IBEXU zone 0: zone 20: zone 20:	ble if effects d ction) and tem s steel 1.440 d: FKM EPDM (v FFKM (m cs Al ₂ O ₃ 99.9° EP, TPE-U 15 ATEX 106 II 1G Ex ia	oference (focuse to highly perature electrons of the control of th	y charging lement Pt iith drinkin ssible tem Ex IBE 18.a a "C Da mW, C _i =	pressure ran processes a 100 g water cert perature fro 0019X 49.2 nF, Li=	ificate) m -15 °C)			ott		
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³ shielded cable with integrated and to not use freely suspended profonly in combination with IS-versi	ir tube for atmosphe obes with an FEP carbon (explosion protes stainles standar option: ceramic POM-C PUR, F IBEXU zone 0: zone 20 the supplies U _i = 28 the supplies U _i = 30 then in zone	ble if effects d ction) and tem s steel 1.440 d: FKM EPDM (v FFKM (m S Al ₂ O ₃ 99.9' EP, TPE-U 15 ATEX 106 II 1G Ex ia): II 1D Ex ia V, I ₁ = 93 mA ply connectio V, I _i = 54 mA 0:	oference (focus to highly perature ended to highly perature ended to highly perature ended to highly perature ended to highly	y charging lement Pt ith drinkin ssible tem Ex IBE 18. a c °C Da mW, C _i = n inner ca mw, C _i = 0 °C with p	g water cert perature fro 0019X 49.2 nF, Li=	ificate) m -15 °C) = 0 µH; ax. 100 nF µH (tempe	opposite t	he enclosu	oth		
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according to DVGW W 270 and UBA KTW (with order the indication "with drinking water certificate" is necessary)

prepared for mounting with stainless steel pipe; available as compact product (standard: stainless steel pipe with a total length up to 2 m possible; other lengths on request)

Drinking water certificate 6

max. 22 mA

2014/34/EU

IP 68

approx. 180 g (without cable)

EMC Directive: 2014/30/EU

⁶ only possible with EPDM seal in combination with TPE-U cable; not possible with IS-version (explosion protection)

Option cable protection

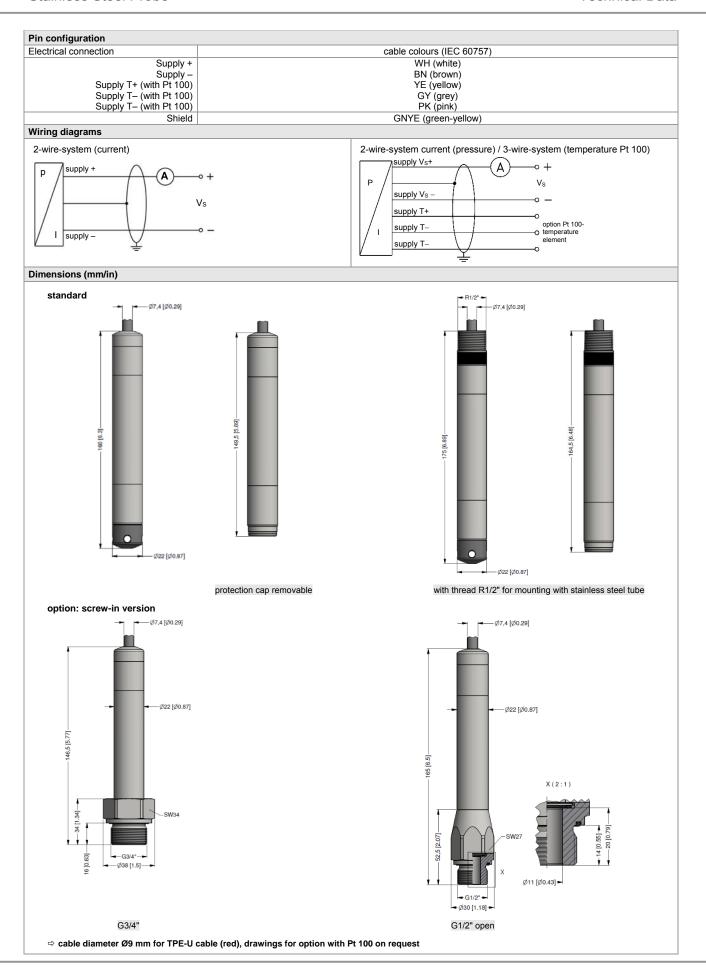
Current consumption

Ingress protection

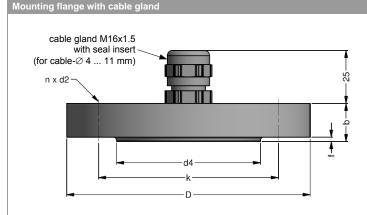
CE-conformity
ATEX Directive

Weight

Stainless Steel Probe



Stainless Steel Probe



dimensions in mm					
size	DN25 / PN40	DN50 / PN40	DN80 / PN16		
b	18	20	20		
D	D 115		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	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp



Technical data				
Suitable for	all probes with cable Ø 5.5 10.5 n	ım		
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	Z100528	approx 160 a
Terminal clamp, stainless steel 1.4301 (304)	Z100527	approx. 160 g

Display program

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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

 $\textbf{CIT 400} \qquad \text{Process display with LED display, contacts, analogue output and Ex-approval} \\$

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.com



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LMK387_E_090519

BD SENSORS
pressure measurement

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



Ordering code LMK 387 LMK 387 Pressure gauge in bar 3 6 0 3 6 3 absolute in bar consult 3 6 1 gauge in mH₂O 1 0 0 0 0 1 6 0 0 0 2 5 0 0 4 0 0 0 6 0 0 0 1 0 0 1 1 6 0 1 2 5 0 1 4 0 0 1 6 0 0 1 1 0 0 2 9 9 9 9 1.0 0.10 1.6 0.16 0.25 2.5 4.0 0.40 6.0 0.60 1.0 10 16 1.6 2.5 25 40 4.0 60 6.0 100 10 customer consult stainless steel 1.4404 (316L) 9 customer consult Design screw-in version G1/2" open screw-in version G3/4" flush В Diaphragm ceramics Al₂O₃ 99.9% С customer q consult Output 4 ... 20 mA / 2-wire intrinsic safety 4 ... 20 mA / 2-wire Е customer 9 consult Seals FKM 1 EPDM 3 DVGW / KTW: EPDM ¹ 3T FFKM ² consult 9 customer consult Electrical connection PUR-cable (black, Ø 7.4 mm) FEP-cable (black, Ø 7.4 mm) 3 TPE-U-cable (blue, Ø 7.4 mm) ³ 4 TPE-U-cable (red, Ø 9.0 mm) ⁴ 42 nsult Sold BDISENSORS GmbH - The specifications given in this document represent the state of engineering at the t DVGW / KTW: TPE-U-cable (blue, Ø 7.4 mm) 1,3 F customer 9 consult Accuracy 0.35 % FSO standard 3 0.25 % FSO option 2 customer 9 Cable length 9 9 9 in [m] Special version 0 0 1 3 standard 0 with temperature sensor Pt 100 0 0 2 prepared for mounting with stainless steel pipe 5 5 customer consult

modifications to the

right

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time of publishing.

¹ drinking water certification only possible with EPDM seal (code 3T) in combination with TPE-U cable (code F); not possible with IS-protection (explosion protection)

 $^{^2\,}$ min. permissible temperature from -15 $^{\rm o}{\rm C}$

³ shielded cable with integrated air tube for atmospheric pressure reference

⁴ only in combination with IS version (explosion protection) and temperature element Pt100

⁵ stainless steel pipe is not part of the supply