



LMK 382

Stainless Steel Probe

Ceramic Sensor

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

Nominal pressure

from $0 ... 40 \text{ cmH}_2\text{O}$ up to $0 ... 200 \text{ mH}_2\text{O}$

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 10 V others on request

Special characteristics

- diameter 39.5 mm
- especially for sewage, viscous and pasty media

Optional versions

- IS-version Ex ia = intrinsically safe for gas and dust
- mounting with stainless steel pipe
- flange version
- diaphragm 99.9 % Al₂O₃
- different kinds of cables and elastomers

The stainless steel probe LMK 382 has been designed for continuous level measurement in waste water, polluted and higher viscosity media.

Basic element is a robust and high overpressure capable capacitive ceramic sensor which is suitable e. g. for low levels.

Preferred areas of use are



drinking water abstraction



Sewage

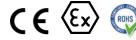
waste water treatment water recycling





level monitoring in open tanks with low filling heights fuel storage

tank farms / biogas plants



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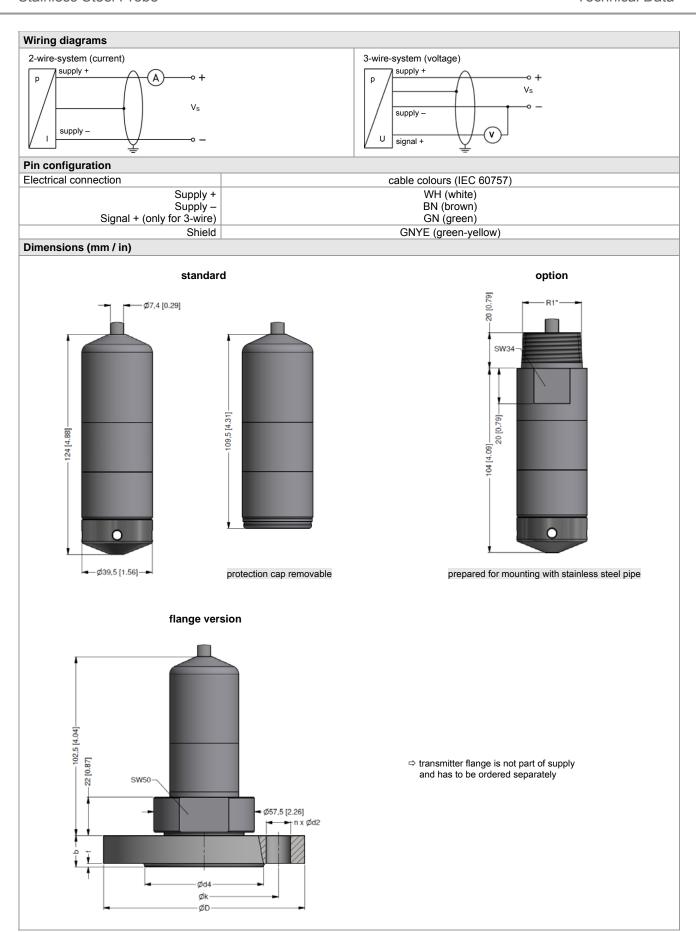


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Input pressure range																
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45

Output signal / Supply	
Standard	2-wire: 4 20 mA / V _S = 9 32 V _{DC}
Option IS-version	2-wire: 4 20 mA / V _S = 9 32 V _{DC} 2-wire: 4 20 mA / V _S = 14 28 V _{DC}
-	
Option 3-wire	3-wire: 0 10 V / V _S = 12.5 32 V _{DC}
Performance	
Accuracy 1	standard: ≤±0.35 % FSO
Permissible load	option: ≤ ± 0.25 % FSO
	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Turn-on time	700 msec
Mean response time	< 200 msec measuring rate 5/sec
Max. response time	380 msec
	it point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (Offset and Span)	
Thermal error	≤ ± 0.1 % FSO / 10 K in compensated range 0 70 °C
Permissible temperatures	
Permissible temperatures	medium / electronics / environment / storage: -25 125 °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
	on unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request
Electrical connection	
Cable with sheath material ³	PVC (-5 70 °C) grey Ø 7.4 mm
	PUR (-25 70 °C) black Ø 7.4 mm
	FEP ⁴ (-25 70 °C) black Ø 7.4 mm
1	TPE-U (-25 125 °C) blue Ø 7.4 mm
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter
³ shielded cable with integrated ventilation	on tube for atmospheric pressure reference
	th an FEP cable if effects due to highly charging processes are expected
Materials (media wetted)	
Housing	stainless steel 1.4404 (316 L)
Seals	FKM, FFKM, EPDM, others on request
Diaphragm	standard: ceramics Al ₂ O ₃ 96 %
	option: ceramics Al_2O_3 99.9 %
Protection cap	POM-C
Cable sheath	PVC, PUR, FEP, TPE-U
Explosion protection (only for 4.	
Approval DX14-LMK 382	IBEXU05ATEX1070 X
	zone 0 5: II 1G Ex ia IIB T4 Ga
	zone 20: II 1D Ex ia IIIC T85 °C Da
Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}, C_{gnd} = 27 \text{ nF}$
Permissible media temperature	in zone 0: -10 60 °C with p _{atm} 0.8 bar up to 1.1 bar
· · · · · · · · · · · · · · · · · · ·	zone 1 and higher: -10 70 °C
Connecting cables	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m
(by factory)	cable inductance: signal line/shield also signal line/signal line: 1 μH/m
5 for antional stainless stool nine followin	,
Tor optional stainless steer pipe following	g designation is valid: "II 1G Ex ia IIC T4 Ga" (zone 0)
Miscellaneous	,
Miscellaneous Option cable protection	g designation is valid: "Il 1G Ex ia IIC T4 Ga" (zone 0) prepared for mounting with stainless steel pipe; available as compact product
Miscellaneous Option cable protection for probes	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)
Miscellaneous Option cable protection	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) max. 21 mA
Miscellaneous Option cable protection for probes	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) max. 21 mA approx. 400 g (without cable)
Miscellaneous Option cable protection for probes Current consumption	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) max. 21 mA
Miscellaneous Option cable protection for probes Current consumption Weight	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) max. 21 mA approx. 400 g (without cable)

Stainless Steel Probe



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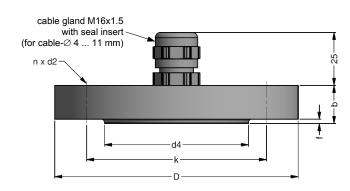
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dimensions in mm					
oi=0	DN25 /	DN50 /	DN80 /		
size	PN40	PN40	PN16		
b	18	20	20		
D	115	165	200		
d2	14	18	18		
d4	68	102	138		
f	2	3	3		
k	85	125	160		
n	4	4	8		

1				
Technical data				
Suitable for	LMK 382, LMK 382H, LMK 458	LMK 382, LMK 382H, LMK 458, LMK 458H		
Flange material	stainless steel 1.4404 (316L)			
Hole pattern	according to DIN 2507			
Ordering type		Ordering code	Weight	

Ordering type	Ordering code	Weight	
Transmitter flange DN25 / PN40	ZSF2540	1.2 kg	
Transmitter flange DN50 / PN40	ZSF5040	2.6 kg	
Transmitter flange DN80 / PN16	ZSF8016	4.1 kg	

Mounting flange with cable gland



dimensions in mm				
size	DN25 /	DN50 /	DN80 /	
SIZE	PN40	PN40	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	

all probes
stainless steel 1.4404 (316L)
standard: brass, nickel plated on request: stainless steel 1.4305 (303); plastic
material: TPE (ingress protection IP 68)
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 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless st	eel 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 q	
Terminal clamp, stainless steel 1.4301 (304)	Z100527	арргох. 160 у	
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BD SENSORS
pressure measurement

LMK382_E_251119

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Ordering code LMK 382 LMK 382 in bar in mH₂O 5 6 5 5 6 6 Input 0 4 0 0 0 6 0 0 0.4 0.04 0.6 0.06 0 0 0 .0 0.10 1.6 0.16 6 0 5 0 0 0 0 0 2.5 0.25 4 4 0 0.40 0 0 0 0 0 1 6 0 1 6 6.0 0.60 10 1.0 16 1.6 5 25 2.5 0 40 4.0 4 0 60 6.0 6 0 0 100 10 0 0 2 6 0 2 0 0 2 9 9 9 160 16 200 20 customer consult stainless steel 1.4404 (316L) customer consult Diaphragm ceramics Al₂O₂ 96 % ceramics Al₂O₃ 99.9 % customer consult Output 4 ... 20 mA / 2-wire 1 0 ... 10 V / 3-wire intrinsic safety 4 ... 20 mA / 2-wire Е customer FKM **EPDM** 3 FFKM 9 customer consult PVC-cable (grey, Ø 7.4 mm) PUR-cable (black, Ø 7.4 mm) FEP-cable (black, Ø 7.4 mm) 1 TPE-U-cable (blue, Ø 7.4 mm) customer 9 consult standard 0.35 % FSO 3 0.25 % FSO option consult Cable length standard: 3 m PVC 0 3 PVC 0 1 1 2 **9** standard: 5 m 0 5 PVC standard: 10 m O 0 standard: 15 m PVC 5 0 standard: 20 m PVC 0 special length **PVC** 9 standard: 3 m **PUR** 0 0 3 standard: 5 m PUR 0 0 5 0 PUR standard: 10 m 0 1 1 2 9 PUR standard: 15 m 0 5 0 standard: 20 m PUR 0 special length 9 PUR 9 0 0 standard: 5 m FEP 5 FEP standard: 10 m 0 1 9 0 special length FEP 9 9 special length TPE-U 9 9 9 Special version 0 0 0 prepared for mounting 0 2 5 with stainless steel pipe 2 1 0 9 9 flange version ³ 5 consult customer

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

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specifications given in this

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¹ shielded cable with integrated ventilation tube for atmospheric pressure reference

² stainless steel pipe is not part of the supply

 $^{^{\}rm 3}$ mounting accessories are not part of supply and have to be ordered separately