BD SENSORS®
pressure measurement

LMK 382

Stainless Steel Probe

Ceramic Sensor

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

Nominal pressure

from 0 ... 40 cmH_2O up to 0 ... 200 mH_2O

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-protection zone 0
- mounting with stainless steel pipe
- flange version
- diaphragm 99.9 % Al_2O_3
- different kinds of cables
- different kinds of elastomers

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

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

Preferred areas of use are

Water
drinking water abstraction

Sewage
waste water treatment
water recycling

Fuel / Oil
level monitoring in open tanks with low filling heights
fuel storage
tank farms / biogas plants

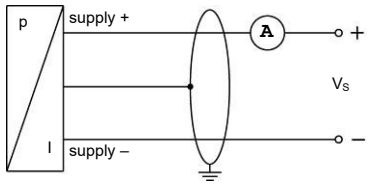
BD SENSORS s.r.o.
Hradišťská 817
CZ – 687 08 Buchlovice
Tel.: +420 572 411 011
www.bdsensors.cz
info@bdsensors.cz

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_2O]	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
max. ambient pressure (housing)	40 bar														

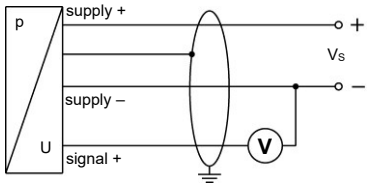
Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 9 ... 32 V_{DC}	
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}	
Option 3-wire	3-wire: 0 ... 10 V / V_S = 12.5 ... 32 V_{DC}	
Performance		
Accuracy [1]	standard: ≤ ± 0.35 % span option: ≤ ± 0.25 % span	
Permissible load	$R_{max} = [(V_S - V_{S\,min}) / 0.02\ A]\ \Omega$	
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kΩ	
Long term stability	≤ ± 0.1 % span / year	
Turn-on time	700 msec	
Mean response time	< 200 msec	measuring rate 5/sec
Max. response time	380 msec	
[1] accuracy according to EN IEC 62828-2– limit point adjustment (non-linearity, hysteresis, repeatability)		
Thermal effects (Offset and Span)		
Thermal error	≤ ± 0.1 % span / 10 K in compensated range 0 ... 70 °C	
Permissible temperatures		
Permissible temperatures	Medium/ electronics/ environment/ storage: -20 … 125 °C *	
**If the cable is intended for use in a smaller temperature range, the use of the probe is limited by this range.*		
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 (only for 4 … 20 mA / 2-wire)		
Cable with sheath material [3]	PVC (-5 … 70 °C) grey (-25 … 70 °C in fixed condition) Ø 7,4 mm PUR (-25 … 80 °C) black (with drinking water certificate) Ø 7,4 mm FEP [4] (-25 … 75 °C) black Ø 7,4 mm TPE-U (-25 … 125 °C) blue Ø 7,4 mm	
[3] shielded cable with integrated air tube for atmospheric pressure reference *[4] 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 (316 L)	
Seals	FKM FFKM EPDM others on request	
Diaphragm	standard: ceramics Al_2O_3 96 % Option: ceramics Al_2O_3 99.9 %	
Nose cone	POM	
Explosion protection		
Approval DX4-LMK 382	zone 0 [5]: II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex ia IIIC T110°C Da	
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 14 nF, L_i = negligible	
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 (by factory)	cable capacitance: signal line/shield also signal line/signal line: 220 pF/m cable inductance: signal line/shield also signal line/signal line: 1.5 µH/m	
[5] for optional stainless steel pipe following designation is valid: "II 1G Ex ia IIC T4 Ga" (zone 0)		
Miscellaneous		
Current consumption	max. 21 mA	
Weight	approx. 400 g (without cable)	
Ingress protection	IP 68	
CE-conformity	EMC Directive: 2014/30/EU	
ATEX Directive	2014/34/EU	

Wiring diagram

2-wire-system (current)



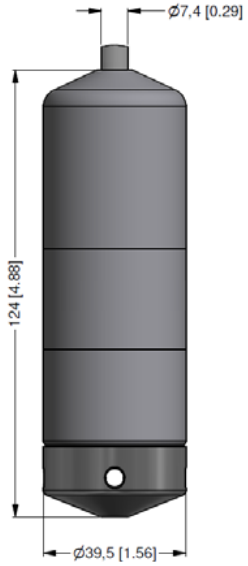
3-wire-system (voltage)



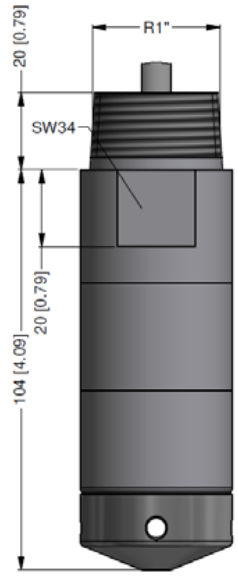
Pin configuration

Electrical connection	cable colours (IEC 60757)
Supply + Supply – Signal + (only for 3-wire)	wh (white) bn (brown) gn (green)
Shield	gn/ye (green / yellow)

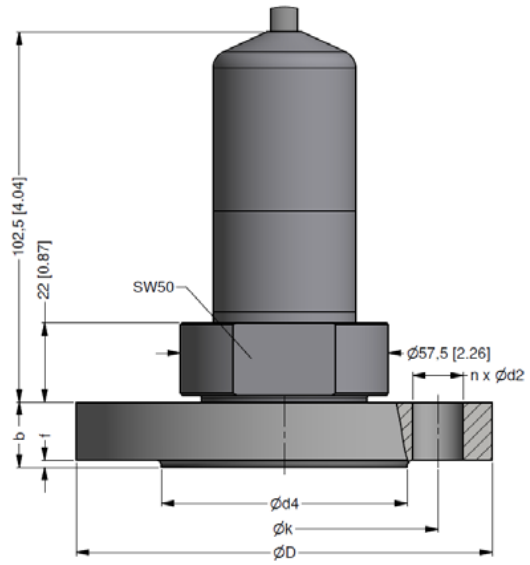
Dimensions (in mm)



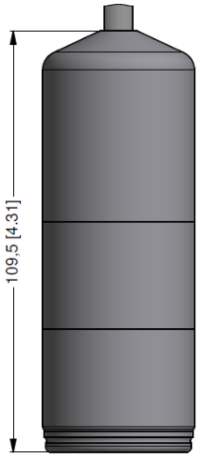
LMK 382 standard



LMK 382 with thread R1"
for stainless steel pipe



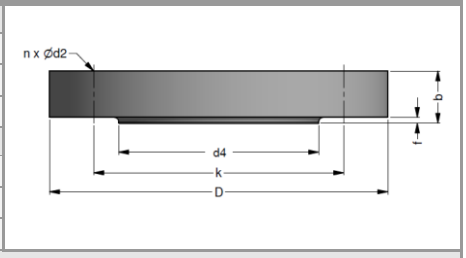
LMK 382
flange version



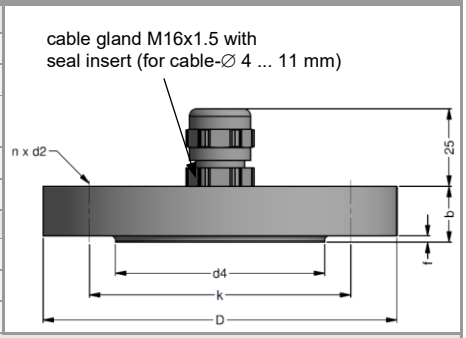
Protection cap removable

dimensions in mm				
dimen-sions	DN25 / PN40	DN40/ PN40	DN50 / PN40	DN80 / PN16
D	115	150	165	200
k	85	110	125	160
d4	68	88	102	138
b	18	18	20	20
f	2	3	3	3
n	4	4	4	8
d2	14	18	18	18

Transmitter flange for flange version		
Technical data		
Suitable for	LMK 382, LMK 382H, LMK 458, LMK 458H	
Flange material	stainless steel 1.4404 (316L)	
Hole pattern	according to DIN 2507	
Version	**Size (in mm)**	**Weight**
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d= 14	1.2 kg
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d= 18	2.6 kg
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d= 18	4.1 kg
Ordering type		**Ordering code**
Transmitter flange DN25 / PN40		5000389
Transmitter flange DN50 / PN40		5000390
Transmitter flange DN80 / PN16		5000392



Mounting flange with cable gland		
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	
Version	**Size (in mm)**	**Weight**
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		5000275
DN50 / PN40 with cable gland brass, nickel plated		5000278
DN80 / PN16 with cable gland brass, nickel plated		5000279



Terminal clamp		
Technical Data		
Suitable for	all probes with cable ∅ 5.5 ... 10.5 mm	
Material	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)	
Weight	approx. 160 g	
Ordering type		**Ordering code**
Terminal clamp, steel, zinc plated		1003440
Terminal clamp, stainless steel 1.4301 (304)		1000278

Tel.: +420 572 411 011
www.bdsensors.cz
info@bdsensors.cz
BD SENSORS® pressure measurement

Ordering code LMK 382

23.08.2024

LMK 382 □□□ - □□□□ - □ - □ - □ - □ - □ - □ - □□□ - □□□

Pressure			
in bar (gauge)			565
in m H_2O (gauge)			566
in bar (absolute)			567
Input	**[mH_2O]**	**[bar]**	
	0 … 0.4	0 … 0,04	0400
	0 … 0.6	0 … 0,06	0600
	0 … 1	0 … 0,1	1000
	0 … 1.6	0 … 0,16	1600
	0 … 2.5	0 … 0,25	2500
	0 … 4	0 … 0,4	4000
	0 … 6	0 … 0,6	6000
	0 … 10	0 … 1	1001
	0 … 16	0 … 1,6	1601
	0 … 25	0 … 2,5	2501
	0 … 40	0 … 4	4001
	0 … 60	0 … 6	6001
	0 … 100	0 … 10	1002
	0 … 160	0 ... 16	1602
	0 … 200	0 … 20	2002
Customer			9999
Housing material			
Stainless steel 1.4404 (316L)			1
Copper-nickel-alloy ($CuNi_{10}Fe_1Mn$) - resistant against sea water			K
Customer			9
Diaphragm material			
Ceramic Al_2O_3 96 %			2
Ceramic Al_2O_3 99,9 %			C
Customer			9
Output signal			
4 … 20 mA / 2-wire			1
0 … 10 V / 3-wire [4]			3
Intrinsic safety Ex ia 4 … 20 mA / 2-wire			E
Customer			9
Seals			
Viton (FKM)			1
EPDM			3
FFKM			7
Customer			9
Electrical connection			
PVC - cable (grey, Ø 7,4 mm, price for 1 m)[1]			1
PUR - cable (black, Ø 7,4 mm, price for 1 m)[1]			2
FEP - cable with PTFE sheath (black, Ø 7,4 mm, price for 1 m)[1]			3
TPE-U - cable, up to 125 °C (blue, Ø 7.4 mm, price for 1 m)[1]			4
Customer			9
Accuracy			
0,35 % (standard)			3
0,35 % including Calibration Certificate			S
0,25 %			2
Table of measured values for accuracy 0,35 %			M
Customer			9
Cable length			
in m			999
Special version			
Standard			000
Flange mounting version[3]			510
R 1" thread - Prepared for mounting with stainless steel pipe[2]			502
Temprature compensation 0 … 100 °C			848
Customer			999

Accessories for submersible transmitter	
Terminal clamp - zinc plated	1003440
Terminal clamp - Stainless Steel 1.4301	1000278
Mounting screw PG16 - plastic	5002200

On request … in accordance with the producer
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.

1 shielded cable with integrated ventilation tube for atmospheric pressure reference
2 stainless steel pipe is not part of the supply
3 mounting accessories are not part of supply and have to be ordered separately
4 maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m