BD SENSORS®
pressure measurement

LMK 382H

Stainless Steel Probe with HART®-communication

Ceramic Sensor

accuracy according to EN IEC 62828-2:
0.1 % span

Nominal pressure

from 0 ... 60 cmH_2O up to 0 ... 200 mH_2O

Output signals

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

Special characteristics

- diameter 39.5 mm
- HART® communication (setting of off-set, span and damping)
- permissible temperatures up to 85 °C
- high overpressure resistance
- high long-term stability

Optional versions

- IS-version zone 0
- mounting with stainless steel pipe
- flange version
- diaphragm 99.9 % Al_2O_3
- accessories e.g. assembling and probe flange, mounting clamp

The stainless steel probe LMK 382H has been de
waste and higher viscosity mediums.

Basic element is a robust and high overpressure c

Preferred areas of use are

Water
ground water level measurement
rain spillway basin

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

Pressure ranges [1]								
Nominal pressure [bar]	0.06	0.16	0.4	1	2	5	10	20
Level [mH_2O]	0.6	1.6	4	10	20	50	100	200
Overpressure [bar]	2	4	6	8	15	25	35	45
max. ambient pressure (housing)	40 bar							

[1] On customer request we adjust the devices by software on the required pressure ranges, within the turn-down possibility (starting at 0.02 bar).

Output signal / Supply				
Standard	2-wire: 4 ... 20 mA / V_S =	12 ... 36 V_{DC} with HART® communication		$V_{S\ rated}$ = 24 V_{DC}
Option IS- protection	2-wire: 4 ... 20 mA / V_S =	14 ... 28 V_{DC} with HART® communication		$V_{S\ rated}$ = 24 V_{DC}
Performance				
Accuracy [2]	$P_N \geq$ 160 mbar	TD ≤ 5:1	≤ ± 0.2 % span	TD_{max} = 10:1
		TD > 5:1	≤ ± [0.2 + 0.03 x TD] % span	
	P_N < 160 mbar		≤ ± [0.2 + 0.1 x TD] % span	TD_{max} = 3:1
	$P_N \geq$ 1 bar	TD ≤ 5:1	≤ ± 0.1 % span	TD_{max} = 10:1
		TD > 5:1	≤ ± [0.1 + 0.02 x TD] % span	
Permissible load	$R_{max} = [(V_S - V_{S\ min}) / 0.02\ A]\ \Omega$		load at HART®-communication: R_{min} = 250 Ω	
Long term stability	≤ ± (0.1 x turn-down) % span / year at reference conditions			
Influence effects	supply: 0.05 % span / 10 V		permissible load: 0.05 % span / kΩ	
Turn-on time	850 msec			
Mean response time	140 msec without consideration of electronic damping			mean measuring rate 7/sec
Max. response time	380 msec			
Adjustability	configuration of following parameters possible (interface / software necessary [3]): - electronic damping: 0 ... 100 sec - offset: 0 ... 80 % span - turn down of span: max. 10:1			

[2] accuracy according to EN IEC 62828-2– limit point adjustment (non-linearity, hysteresis, repeatability)
[3] software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP)

Thermal effects (Offset and Span)	
Tolerance band	≤ ± (0.2 x turn-down) % span
TC, average	± (0.02 x turn-down) % span / 10 K
in compensated range	-20 ... 80 °C
Permissible temperatures	Medium/ electronics/ environment/ storage: -20 … 85 °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 [4]	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

[4] additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request

Mechanical stability	
Vibration	4 g (according to: DIN EN 60068-2-6)

Electrical connection				
Cable outlet with sheat material[5]	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 [6]	(-25 … 75 °C)	black	Ø 7,4 mm
	TPE-U	(-25 … 125 °C)	blue	Ø 7,4 mm

[5] shielded cable with integrated air tube for atmospheric pressure reference
[6] do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected

Materials	
Housing	stainless steel 1.4404
Seals	FKM FFKM EPDM others on request
Diaphragm	standard: ceramics Al_2O_3 96 % option: ceramics Al_2O_3 99.9 %
Protection cap	POM

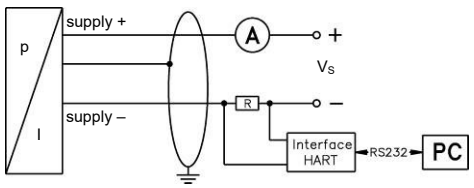
Miscellaneous	
Option cable protection	stainless steel pipe for probe in stainless steel
Ingress protection	IP 68
Current consumption	max. 21 mA
Weight	approx. 400 g (without cable)
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

IS-protection	
Approval DX5A-LMK 382H	IBExU10ATEX1185 X zone 0 [7]: II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex iaD 20 T85°C Da
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 0 nF, L_i = 0 µH, C_{iGND} = 27 nF the supply connections have an inner capacity of max. 27 nF opposite the enclosure
Permissible media temperature	in zone 0: -10 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar zone 1 or higher: -25 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m

[7] for optional stainless steel pipe following designation is valid: "II 1G Ex ia IIC T4" (zone 0)

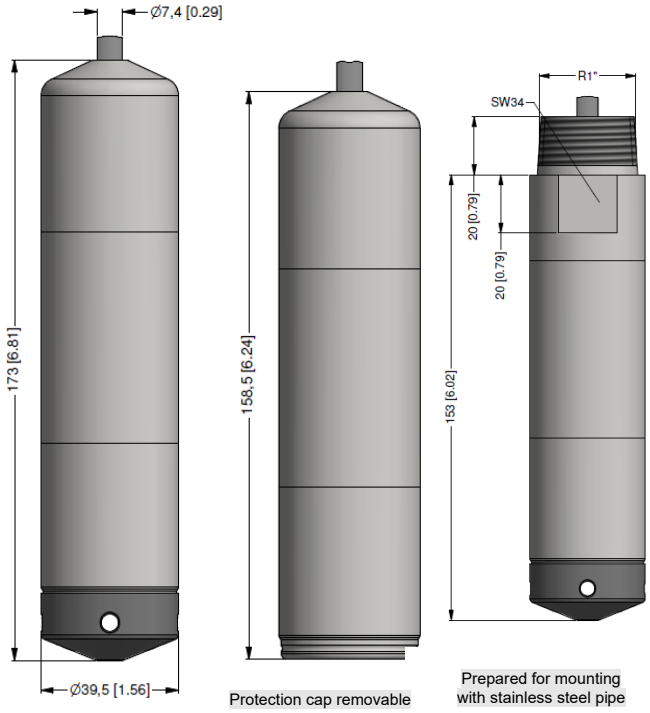
Wiring diagram

2-wire-system (current) HART®



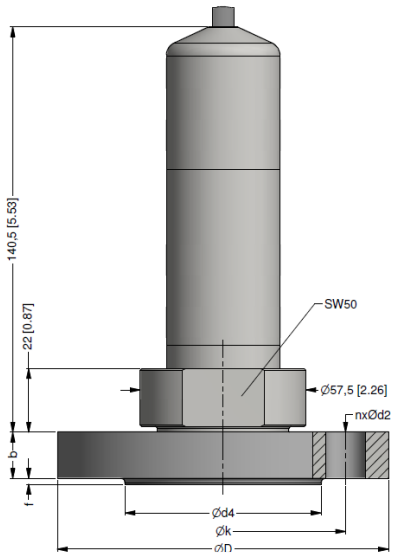
Pin configuration	
Electrical connection	cable colours (DIN 47100)
Supply + Supply –	wh (white) bn (brown)
Shield	gn/ye (green / yellow)

Dimensions (in mm)



Protection cap removable

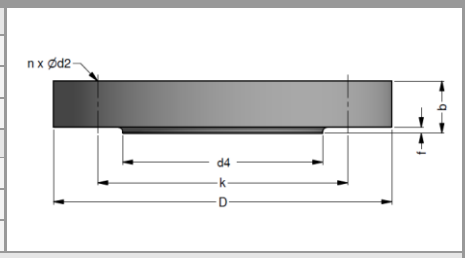
Prepared for mounting with stainless steel pipe

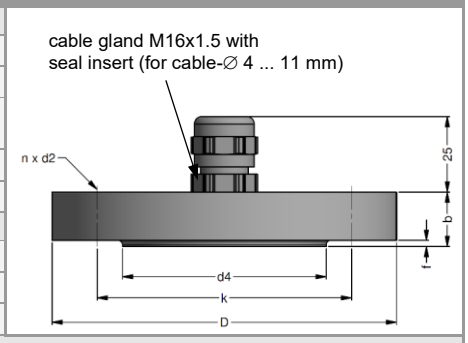


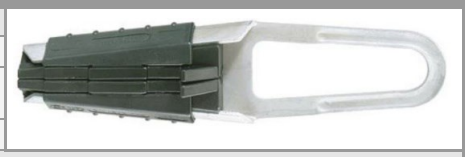
flange version

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

HART® is a registered trade mark of HART Communication Foundation;
Windows® is a registered trade mark of Microsoft Corporation

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; 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		
Weight	approx. 160 g		
Ordering type		**Ordering code**	
Terminal clamp, steel, zinc plated		1003440	
Terminal clamp, stainless steel 1.4301		1000278	

Tel.: +420 572 411 011

www.bdsensors.cz
info@bdsensors.cz

BD SENSORS®
pressure measurement

Ordering code LMK 382H

23.08.2024

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

Pressure			
in bar (gauge)			565
in m H_2O (gauge)			566
Input	**[mH_2O]**	**[bar]**	
	0 … 0.6	0 … 0,06	0600
	0 … 1.6	0 … 0,16	1600
	0 … 4.0	0 … 0,40	4000
	0 … 10	0 … 1.0	1001
	0 … 20	0 … 2.0	2001
	0 … 50	0 … 5.0	5001
	0 … 100	0 … 10	1002
	0 … 200	0 … 20	2002
Customer			9999
Housing material			
Stainless steel 1.4404 (316L)			1
Customer			9
Diaphragm material			
Ceramic Al_2O_3 96 %			2
Ceramic Al_2O_3 99,9 %			C
Customer			9
Output signal			
HART® communication 4 … 20 mA / 2-wire			H
HART® communication Intrinsic safety 4 … 20 mA / 2-wire			I
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			
0,1 % ($P_N \geq 1$ bar)			1
0,2 % ($P_N < 1$ bar)			B
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
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 she
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