

LMK 458H



Probe with HART®-communication for Marine and Offshore

Ceramic Sensor

accuracy according to IEC 60770:
0.1 % FSO

Nominal pressure

from 0 ... 60 cmH₂O up to 0 ... 200 mH₂O

Output signals

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

Special characteristics

- ▶ shipping approvals acc. to:
Lloyd's Register (LR), Det Norske
Veritas ▪ Germanischer Lloyd (DNV·GL)
China Classification Society (CCS), Ameri-
can Bureau of Shipping (ABS)
- ▶ diameter 39.5 mm
- ▶ HART® communication (setting of
offset, span and damping)
- ▶ high overpressure resistance
- ▶ high long-term stability

Optional versions

- ▶ IS-version Ex ia = intrinsically safe for gas
and dust
- ▶ diaphragm Al₂O₃ 99.9 %
- ▶ different housing materials
(stainless steel, CuNiFe)
- ▶ screw-in and flange version
- ▶ accessories e. g. assembling and
probe flange, mounting clamp

The hydrostatic probe LMK 458H has been devel-
oped for measuring level in service and storage
tanks and is as a consequence of the certification
by Germanischer Lloyd predestined for shipbuild-
ing and offshore applications.

A permissible operating temperature of up to
85 °C and the possibility to use the device in
intrinsic safe areas enable to measure the pressure
of various fluids under extreme conditions. The
basis for the LMK 458H is a capacitive ceramic
sensor element, which offers a high overload re-
sistance and medium compatibility.

Preferred areas of use are



Water

Drinking water abstraction
Desalinization plant



Shipbuilding / Offshore

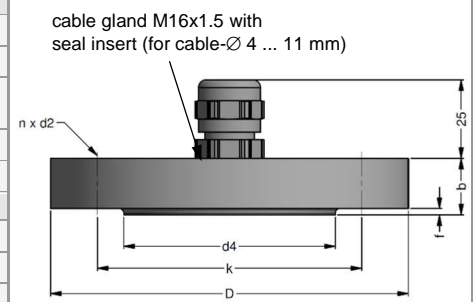
Ballast tanks
Draught monitoring
Level measurement in ballast and stor-
age tanks



Pressure ranges										
Nominal pressure ¹	[bar]	0.06	0.16	0.4	1	2	5	10	20	
Level	[mH ₂ O]	0.6	1.6	4	10	20	50	100	200	
Overpressure	[bar]	2	4	6	8	15	25	35	45	
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-version	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 ≥ 160 mbar	TD ≤ 1:5		≤ ± 0.2 % FSO		TD > 1:5		≤ ± [0.2 + 0.03 x TD] % FSO		TD _{max} = 1:10
	P _N < 160 mbar			≤ ± [0.2 + 0.1 x TD] % FSO						TD _{max} = 1:3
	P _N ≥ 0.6 bar	TD ≤ 1:5		≤ ± 0.1 % FSO		TD > 1:5		≤ ± [0.1 + 0.02 x TD] % FSO		TD _{max} = 1:10
Permissible load	R _{max} = [(V _S - V _{S min}) / 0.02 A] Ω					load at HART [®] -communication: R _{min} = 250 Ω				
Long term stability	≤ ± (0.1 x turn-down) FSO / year at reference conditions									
Influence effects	supply: 0.05 % FSO / 10 V					permissible load: 0.05 % FSO / 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 % FSO - turn down of span: max. 1:10									
² accuracy according to IEC 60770 – 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) / Permissible temperatures										
Tolerance band	≤ ± [0.2 x turn-down] % FSO									
TC, average	≤ ± [0.02 x turn-down] % FSO / 10 K									
in compensated range	-20 ... 80 °C									
Permissible temperatures	medium / electronics / environment / storage: -25 ... 85 °C									
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 - DNV•GL (Det Norske Veritas • Germanischer Lloyd)									
⁴ additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available										
Mechanical stability										
Vibration	4 g (according to DNV•GL: class B, curve 2 / basis: DIN EN 60068-2-6)									
Electrical connection										
Cable outlet with sheat material ⁵	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 (316L)					option: CuNi10Fe1Mn (resistant against sea water) others on request				
Cable sheath	TPE -U (-25 ... 125 °C) (flame-resistant, halogen free, increased resistance against oil and gasoline, resistant against salt, sea water, heavy oil)									
Seals	FKM; FFKM; EPDM others on request									
Diaphragm	standard: ceramics Al ₂ O ₃ 96 %					option: ceramics Al ₂ O ₃ 99.9 %				
Nose cone	POM									
Category of the environment										
Lloyd's Register (LR)	EMV1, EMV2, EMV3, EMV4					number of certificate: 13/20056				
Det Norske Veritas • Germanischer Lloyd (DNV•GL)	temperature: D		humidity: B		number of certificate: TAA00001GM					
	vibration: B		enclosure: D							
	electromagnetic compatibility: B									
Miscellaneous										
Option cable protection for probes in stainless steel	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)									
Ingress protection	IP 68									
Current consumption	max. 21 mA									
Weight	min. 650 g (without cable)									
CE-conformity	EMC Directive: 2014/30/EU									
ATEX Directive	2014/34/EU									

Accessories

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, d4 = 68, b = 18, f = 2, n = 4, d2 = 14	1.2 kg
DN50 / PN40	D = 165, k = 125, d4 = 102, b = 20, f = 3, n = 4, d2 = 18	2.6 kg
DN80 / PN16	D = 200, k = 160, d4 = 138, b = 20, f = 3, n = 8, d2 = 18	4.1 kg
Ordering type		Ordering code
Transmitter flange DN25 / PN40		ZSF2540
Transmitter flange DN50 / PN40		ZSF5040
Transmitter flange DN80 / PN16		ZSF8016
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		ZMF2540
DN50 / PN40 with cable gland brass, nickel plated		ZMF5040
DN80 / PN16 with cable gland brass, nickel plated		ZMF8016



Ordering code LMK 458H

3.4.2020

LMK 458H

□ □ □ - □ □ □ - □ - □ - □ - □ - □ - □ - □ □ □ - □ □ □

Pressure																				
in bar (gauge)		7	6	E																
in bar (absolute)		7	6	H																
in m H ₂ O		7	6	F																
Input	[mH₂O]	[bar]																		
	0 ... 0,6	0 ... 0,06			0	6	0	0												
	0 ... 1,6	0 ... 0,16			1	6	0	0												
	0 ... 4	0 ... 0,4			4	0	0	0												
	0 ... 10	0 ... 1			1	0	0	1												
	0 ... 20	0 ... 2			2	0	0	1												
	0 ... 50	0 ... 5			5	0	0	1												
	0 ... 100	0 ... 10			1	0	0	2												
	0 ... 200	0 ... 20			2	0	0	2												
Customer					9	9	9	9												
Housing material																				
Stainless steel 1.4404 (316L)								1												
Copper-nickel-alloy (CuNi ₁₀ Fe ₁ Mn) - resistant against sea water								K												
Customer								9												
Design																				
Submersible probe									1											
Flange mounting version									3											
Screw-in transmitter (with G 1 1/2" thread)									5											
Diaphragm material																				
Ceramic Al ₂ O ₃ 96 %										2										
Ceramic Al ₂ O ₃ 99,9 %										C										
Customer										9										
Output																				
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																				
TPE-U - cable, up to 125°C (blue, Ø 7.4 mm, price for 1 m)																4				
Customer																9				
Accuracy																				
0,1 % (P _N ≥ 1 bar)																	1			
0,2 % (P _N < 1 bar)																		B		
Customer																			9	
Cable length																				
in m																				9 9 9
Special version																				
Standard																				0 0 0
R 1" thread - Prepared for mounting v with stainless steel pipe																				5 0 2
Customer																				9 9 9

Accessories for submersible transmitter		
Terminal clamp - zinc plated		1003440
Terminal clamp - stainless steel 1.4301		1000278
Mounting screw PG16 - plastic		5002200
Flange with thread for flange version DN 25/PN 40		5000389
Flange with thread for flange version DN 50/PN 40		5000390
Flange with thread for flange version DN 80/PN 16		5000392
Mounting flange with cable gland (M 16 x 1,5) DN 25/PN 40		5000275
Mounting flange with cable gland (M 16 x 1,5) DN 50/PN 40		5000278
Mounting flange with cable gland (M 16 x 1,5) DN 80/PN 16		5000279



BD SENSORS s.r.o.
Hradišťská 817
CZ – 687 08 Buchlovice

Tel.: +420 572 411 011
Fax: +420 572 411 497

www.bdsensors.cz
info@bdsensors.cz



The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.

Software for the intelligent pressure transmitters

Communication device ADAPT-5 (RS 232 / HART incl. USB)
(ADAPT - 5 , INT-702, software included)

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.

HART® is registered trade-mark HART Communication Foundation



BD SENSORS s.r.o.
Hradištská 817
CZ – 687 08 Buchlovice

Tel.: +420 572 411 011
Fax: +420 572 411 497

www.bdsensors.cz
info@bdsensors.cz

The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.

