



# LMK 458

# Probe For Marine And Offshore

Ceramic Sensor

accuracy according to IEC 60770: standard: 0.25 % FSO option: 0.1 % FSO

#### Nominal pressure

from 0 ... 40 cmH<sub>2</sub>O up to 0 ... 200 mH<sub>2</sub>O

#### **Output signals**

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

#### **Special characteristics**

- diameter 39.5 mm
- LR-certificate (Lloyd's Register)
- DVN• GL Approval (Det Norske Veritas
   Germanischer Lloyd)
- ABS-certificate (American Bureau of Shipping)
- CCS-certificate (China Classification Society)
- high overpressure resistance
- high long-term stability

## **Optional versions**

- diaphragm Al<sub>2</sub>O<sub>3</sub> 99.9 %
- different housing materials (stainless steel, CuNiFe)
- IS-version Ex ia = intrinsically safe for gas
- screw-in and flange version
- accessories e.g. assembling and probe flange, mounting clamp

The hydrostatic probe LMK 458 has been developed for measuring level in service and storage tanks and is as a consequence certificated for shipbuilding and offshore applications.

A permissible operating temperature of up to 125°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 458 is a capacitive ceramic sensor element designed by BD SENSORS, which offers a high overload resistance and medium compatibility.

## Preferred areas of use are





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

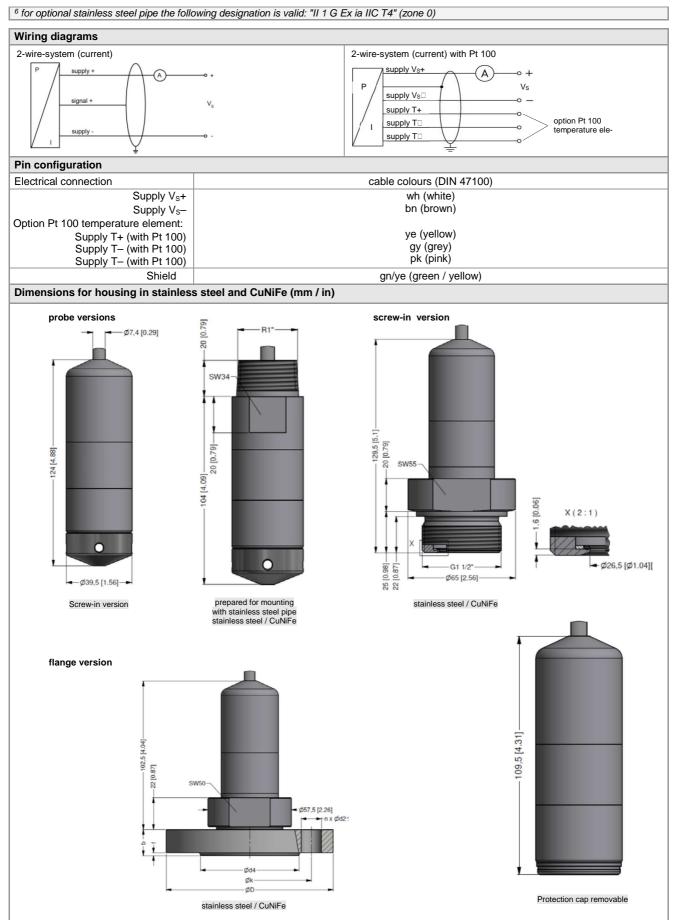
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The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.

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Pressure ranges						1										
Nominal pressure <sup>1</sup>	[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 <sub>2</sub> 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
Permissible vacuum	[bar]	-0	.2	-(	).3		-0.	.5			1		-1			
max. ambient pressure	(housing)	40 bar														
<sup>1</sup> available in gauge, seal	led gauge an	d absolu	ute; nom	ninal pre	essure r	anges s	ealed g	auge a	nd abs	olute fr	om 1 ba	ar				
Output signal / Supply																
Standard		2-wire:	4 20	mA / V	s = 9	32 Vdc		Vs	rated =	24 V <sub>DC</sub>						
Option IS-version		2-wire:	4 20	mA / V	s = 14	. 28 V <sub>DC</sub>		Vs	rated =	24 V <sub>DC</sub>						
Performance																
Accuracy <sup>2</sup>		standar	d: ≤ ± 0.	.25 % F	SO				optic	n: for F	N ≥ 0.6	bar 3:	≤±0.1	% FSC	)	
Permissible load		R <sub>max</sub> =	$R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega \qquad \text{Long term stability} : \le \pm 0.1 \% \text{ FSO } / \text{ year}$													
Influence effects		supply: 0.05 % FSO / 10 V permissible load: 0.05 % FSO / kΩ														
Turn-on time		700 ms														
Mean response time		< 200 r						asuring			N	lax. re	sponse	e time: 3	380 mse	ec
<sup>2</sup> accuracy according to IE											0	05 0/ 1	-00			
<sup>3</sup> Under the influence of d				) EN 61	000-4-4	4 (2004)	+2 KV 8	accurac	sy decr	eased	$0 \leq \pm 0.$	25 % 1	-50.			
Thermal effects / Permis	ssible tempe															
Thermal error		-	% FSO							208		on act	lo aha	oth / cr		_
Permissible temperatures	i i	mediur	n / elect	ronics	enviror	nment / s	siorage	: -25	125 °(	de) ر	epenas	on cab	ie snea	ath / sea	ais)	
Electrical protection <sup>4</sup>																
Short-circuit protection		permar			(											
Reverse polarity protection Electromagnetic compatib			nage, bu					226			Dot No.		ritoo -	Cormo	ninghor	
<u> </u>	,					ding to -								Germai	nischer	LIOYC
<sup>4</sup> additional external overv	voltage prote	ction un	it in tern	ninai do	DX KL 1 (	or KL 2 I	with ath	nospne	ric pres	ssure re	eterence	e availa	able			
Mechanical stability Vibration		4 9 (00	oording				un (0. 2. /	hanin			2 2 6)					
						ass B, cu	live 27	basis:		1 00000	5-2-6)					
Cable with sheath materia	al	-	blue Ø					<u> </u>								
Bending radius						e diame			•			le dian	neter			
(shielded cable with integrated ven	ntilation tube for a	tmospheric	pressure i	reference	(for nomina	al pressure	ranges al	bsolute, th	e ventila	tion tube i	s closed)					
Electrical connection																
Cable outlet						air tube		nosphei	ric refe	rence (i	or nom	inal pre	essure	ranges	sealed	
Cable outlet						air tube be is plu		nosphei	ric refe	rence (1	or nom	inal pre	essure	ranges	sealed	
Cable outlet Materials		gauge a	and abs	olute, tl	ne air tu	be is plu	igged)	nosphei	ric refe	rence (i	or nom	inal pre	essure	ranges	sealed	
Cable outlet		gauge a	and abs	olute, ti less ste	ne air tu eel 1.44	be is plu 04 (316L	igged)	·	ric refe	rence (1	or nom				sealed	
Cable outlet Materials Housing		gauge a standar option:	and abs rd: stain CuNi10	olute, ti less ste Fe1Mn	ne air tu eel 1.44	be is plu	igged)	·	ric refe	rence (i	or nom		essure rs on re		sealed	
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Cable outlet Materials Housing		gauge a standar option: standar options	and abs rd: stain CuNi10 rd: Fk s: Ef rd: cera	olute, tl less ste Fe1Mn (M PDM, F	eel 1.440 (resista FKM (m	be is plu 04 (316L int agair in. perm	igged) _) ist sea iissible	water) temper	ature f	rom -15	5 °C)	othei	rs on re	equest		st
Cable outlet Materials Housing Seals (media wetted) Diaphragm		gauge a standar option: standar options standar	and abs rd: stain CuNi10 rd: Fk :: EF rd: cerai	olute, tl less ste Fe1Mn (M PDM, F mics Al	eel 1.440 (resista FKM (m 2O3 96 %	be is plu 04 (316L int agair in. perm	igged) -) ist sea iissible	water) temper	ature f cerami	rom -15 cs Al <sub>2</sub> O	5 °C) ₃ 99.9 %	other	rs on re c	equest	n reque	st
Cable outlet Materials Housing Seals (media wetted) Diaphragm Protection cap		gauge a standar option: standar pOM-C TPE - U	and abs rd: stain CuNi10 rd: Fk s: EF rd: cerai C J (-	olute, tl less ste Fe1Mn M PDM, F mics Al 25 1	eel 1.440 (resista FKM (m 2O3 96 9 25 °C)	be is plu 04 (316L ant agair in. perm %	igged) -) ist sea iissible c	water) temper option: o	ature f cerami	rom -15 cs Al <sub>2</sub> O	5 °C) ₃ 99.9 %	other	rs on re c	equest	n reque	st
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Cable outlet Materials Housing Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for stainless steel Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Connection temperature of Resistance Temperature coefficient Supply Is Category of the enviro Lloyd's Register (LR)	ure element	gauge a standal option: standal POM-C TPE - U gasolin Prepare (standa IP 68 max. 2 min. 65 EMC D 2014/3 <sup>5</sup> (not pc -25 3-wire 100 Ω 3850 p 0.3 EMV1 tempe	and abs rd: stain CuNi10 rd: Fk :: EF rd: cerar J (- e, resist ed for m ard: stain 1 mA 50 g (wit Directive 4/EU birective 4/EU bissible v 125 °C at 0 °C pm/K 1.0 mA p	olute, ti less ste Fe1Mn CM PDM, F mics Al 25 1 cant age ounting nless st hout ca : 2014/: vith IS-1	Are air tu beel 1.444 (resista FKM (m 203 96 % 25 °C) ainst sal g with sta beel pipe able) 30/EU /ersion)	be is plu D4 (316L Int agair in. perm % (flame- t, sea wa ainless s with a t with a t	igged) ist sea issible c -resista ater, he steel pip cotal ler	water) temper option: o nt, halc eavy oil) pe; ava	ature f cerami igen fro ilable a to 2 m	rom -15 cs Al <sub>2</sub> O ee, incru s comp possib	3 °C) 3 99.9 ° eased r act pro le; othe certific B	other	rs on re c ace aga ns on re	equest others o ainst oil equest)	n reque and	st
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Probe flange for	flange version		
Technical data			
Suitable for	LMK 382, LMK 382H, LMK 458, LMK 458		
Flange materiál	stainless steel 1.4404 (316L)	n x Ød2	
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	d4
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	
Probe flange DN25	/ PN40	5000389	
Probe flange DN50	/ PN40	5000390	
Probe flange DN80	/ PN16		

Assembling flange with cable gland		
Technical Data		
Suitable for	all probes	cable gland M16x1.5 with seal insert (for cable-Ø 4 11 mm)
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)	n x d2
Hole pattern	according to DIN 2507	
Version	Size (in mm)	
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d = 14	
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d = 18	k
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d = 18	D D
Ordering type	Ordering code	
Assembling Flange DN25 / PN40		
Assembling Flange DN50 / PN40	5000278	
Assembling Flange DN80 / PN16	5000279	

	<b>−−−−</b> 175−−− <b>−</b> 1					
all probes with cable $\varnothing$ 5.5 10.5 mm						
standard: steel, zinc plated optionally: stainless steel 1.4301 (304)						
approx. 160 g		-				
	Ordering code					
zinc plated	1003440					
ss steel 1.4301 (304)	1000278					
	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)	standard: steel, zinc plated optionally: stainless steel 1.4301 (304) approx. 160 g Cordering code zinc plated 1003440				

pressure measurement

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**BD SENSORS**<sup>®</sup> pressure measurement



		0	rderi	ng	cod	еL	LM	K	458	}										
1.3.2021		IK 458	–۱	П	-	T	Т	r	1 -		т		1 -	1 -		1 -				ľ
	LIV	IN 400			L						-L_									
Pressure																				
in bar (gauge)				6																
in m H <sub>2</sub> O (gauge)				6																
in bar (absolute) <sup>1</sup>			7	6	8															
Input	[mH₂O]	[bar]																		
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	01	00,1					0 0													
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	0 100	0 10					0 0													
	0 160	010				1 6	5 0	2												
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Customer	5 200	5 <b>_</b> 0					9 9													
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Stainless steel 1.4			_	_	_	_	_		1											
		/n) - resistant against sea water							к											
Customer									9											
Design																				
Submersible prob	e									1										
Flange mounting	version <sup>2</sup>									3										
Screw-in transmit	ter (with G 1 1/	(2" thread)								5										
Customer										9										
Diaphragm mate																				
Ceramic Al <sub>2</sub> O <sub>3</sub> 96											2									
Ceramic Al <sub>2</sub> O <sub>3</sub> 99	,9 %										С									
Customer				_		_	_				9									
Output																				
4 20 mA / 2-wi												1								
Intrinsic safety Ex	ia 4 20 mA	/ 2-wire										E								
Customer Seals			_		_				_		_	9								
													4							
Viton (FKM) EPDM													1							
FFKM <sup>3</sup>													3 7							
Customer													9							
Electrical conne	ction												9	I						
		e, Ø 7.4 mm, price for 1 m) <sup>4</sup>												4						
Customer		-, - · · · · · · · · · · , prioc ior · · · · · · ·												9						
Accuracy																				
0,35 %															3					
0,25 %															2					
0,25 % including	Calibration Cer	tificate													R					
0,1 % (P <sub>N</sub> ≥ 0,6 b															1					
Customer															9					
Cable length																				
in m																9	99			
Special version																		1		
Standard																		0	00	
Temperature sens	sor PT100 <sup>5</sup>																	0		
		ting v with stainless steel pipe6																5		
Customer																			99	
																		9	99	
Accessories for	submersible t	ransmitter																		



BD SENSORS s.r.o. Hradišťská 817 CZ-687 08 Buchlovice The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.

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Т





1003440
1000278
5002200
5000389
5000390
5000392
5000275
5000278
5000279

0,-...without additional charge

On request...in accordance with the producer

Version 502 is not possible for CuNiFe !!!

St. steel flange, clamp and pipe are not parts of the supply !!!

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 nominal pressure ranges absolute from 1 bar

2 mounting accessories are not part of supply and have to be ordered separately

3 min. permissible temperature from -15°C

4 shielded cable with integrated ventilation tube for atmospheric reference

5 not possible in combination with IS-version

6 possible for probes in stainless steel; stainless steel pipe is not part of the supply



