



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 cmH₂O up to 0 ... 200 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 39.5 mm
- ► LR-certificate (Lloyd's Register)
- DNV•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 Al₂O₃ 99.9 %
- different housing materials (stainless steel, CuNiFe)
- IS-versionEx 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 certificated for shipbuilding and offshore applications.

A permissible operating temperature 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



Water

drinking water abstraction desalinization plant

Shipbuilding / Offshore

ballast tanks monitoring of

monitoring of a ship's position and draught

level measurement in ballast and storage tanks



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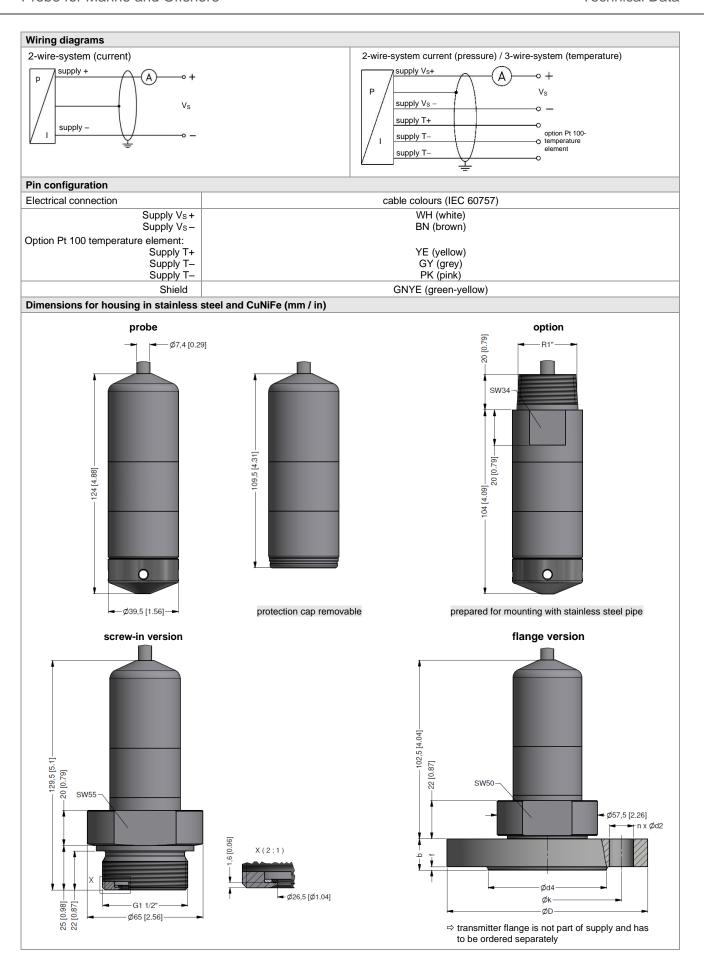




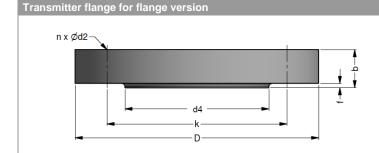


Probe for Marine and Offshore

Nominal pressure gauge 1																
Nonlinai 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	[mH2O]		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			
Max. ambient pressure (hou																
¹ available in gauge and absolut	e; nominal	pressure	ranges a	bsolute t	rom 1 ba	r										
Output signal / Supply																
Standard						. 32 V _{DC}				ated = 24						
Option IS-version		2-wire:	4 20	mA / V	s = 12	. 28 V _{DC}			Vsr	ated = 24	₽ V _{DC}					
Performance																
Accuracy ²			$rd: \leq \pm C$						opt	ion: for	p _N ≥ 0.	6 bar ³ :	$\leq \pm 0.$	1 % FS	<u>,O</u>	
Permissible load			[(Vs - V													
Long term stability						ence con	ditions									
Influence effects			0.05 %	FSO /	10 V				per	missible	load:	0.05 %	FSO /	kΩ		
Turn-on time		700 ms										. =/				
Mean response time		< 200 r							mea	an mea	suring	rate 5/s	sec			
Max. response time ² accuracy according to IEC 6077	70 limit n	380 ms		n linoar	tu huntou	rocio ropo	otobilit.	<i>(</i>)								
³ under the influence of disturbal	nce burst a	ccordina t	o EN 610	000-4-4 (iy, riystei 2004) +2	kV accura	acv dec	reased t	o ≤ ± 0.2	25 % FS	0					
Thermal effects (offset and							,									
Tolerance band	, .	≤±19							in c	ompens	sated ra	ange -2	20 80	0 °C		
Permissible temperatures				ronics	enviror	nment: -2	5 12	25 °C		rage: -4						
Electrical protection ⁴		1110 0101	, 0.000		0		·			age	·					
Short-circuit protection		permai	nent													
Reverse polarity protection		_	nage, bu	ıt also r	no functi	ion										
Electromagnetic compatibilit	tv					ding to	- FN 6	31326	- DN	V•GL (I	Det No	ske Ve	eritas •	Germa	nischer	Llovd)
⁴ additional external overvoltage	<u>, </u>				•							0.10 10	,,,,,,,	-		
Mechanical stability							,									
Vibration		4 g (ac	cordina	to DN\	/•GL: cla	ass B, cu	rve 2 /	basis:	DIN E	V 60068	3-2-6)					
Electrical connection																
Cable with sheath material 5	j	TPE-U	blue	Ø 7	.4 mm											
Bending radius		static in	nstallatio			e diamet	er		dyr	namic a	pplicati	on: 20-	fold ca	ble dia	meter	
⁵ shielded cable with integrated v	ventilation t							oressure								
Materials																
Housing		standa	rd: stai	nless s	eel 1.44	404 (316L	_)									
C		option:	CuN	li10Fe1	Mn (res	sistant ag	áinst s	ea wat	er)				C	others o	n requ	est
Seals (media wetted)		standa	rd: FKN													
		options				n. permiss	sible te	mpera							on requ	est
Diaphragm			rd: cera	amics A	l ₂ O ₃ 96	%			ор	tion: ce	eramics	Al ₂ O ₃	99.9 %	<u> </u>		
Protection cap		POM-C														
Cable sheath		TPE-U	`			alogen fre	,			ince aga	ainst oi	and g	asoline) ,		
Miscellaneous			1691	Starit a	Jan 15t S	alt, sea w	alei, i	leavy 0	11)							
			6			م ممامات										
Option cable protection for probes in stainless steel			ea ior m	ountine	i with St					is comp	aci bio					
		(etanda			ool nine				lable a	noceihl			ne on r	oanoet)		
· ·					eel pipe	with a to				possibl			ns on re	equest)	1	
Ingress protection		IP 68	ard: staii		eel pipe					possibl			ns on re	equest)		
Ingress protection Current consumption		IP 68 max. 2	ard: staii 1 mA	nless s						possibl			ns on re	equest)		
Ingress protection Current consumption Weight		IP 68 max. 2 min. 65	ard: staii	nless st	ble)					possibl			ns on re	equest)		
Ingress protection Current consumption		IP 68 max. 2 min. 65	ard: staii 1 mA 50 g (wit Directive	nless st	ble)					possibl			ns on re	equest)		
Ingress protection Current consumption Weight CE-conformity ATEX Directive	element	IP 68 max. 2 min. 65 EMC D 2014/3	ard: staii 1 mA 50 g (wit Directive	nless st	ble)					possibl			ns on re	equest)		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature	element	IP 68 max. 2 min. 65 EMC D 2014/3	ard: stain 1 mA 50 g (with 0) irective 4/EU	nless st	ble)					possibl			ns on re	equest)		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range		IP 68 max. 2 min. 65 EMC D 2014/3 6	ard: stain 1 mA 50 g (with 0) irective 4/EU	nless st	ble)					possibl			ns on re	equest)		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature elections		IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3	ard: stain 1 mA 50 g (with Directive 4/EU 125°C	nless st	ble)					possibl			ns on re	equest)		
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Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient		IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p	ard: stain 1 mA 50 g (with birective 4/EU 125°C at 0°C pm/K	hout ca	ble)					possibl			ns on re	equest)		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler	ment	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3	ard: stain 1 mA 50 g (with 0 irective 4/EU 125°C at 0°C	hout ca	ble)					possibl			ns on re	equest)		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient Supply Is	ment n with IS-v	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3	ard: stain 1 mA 50 g (with birective 4/EU 125°C at 0°C pm/K	hout ca	ble)					possibl			ns on re	equest)		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient Supply Is 6 not possible in combination	ment n with IS-v	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 rersion	ard: stain 1 mA 50 g (with birective 4/EU 125°C at 0°C pm/K	hout ca: 2014/;	ble) 30/EU						e; othe	r length	ns on re			
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient Supply Is 6 not possible in combination Category of the environment	ment n with IS-v	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 rersion	ard: stain 1 mA 50 g (with birective 4/EU 125°C at 0°C pm/K 1.0 mA EMV2,	hout ca: 2014/;	ble) 30/EU EMV4					numbe	e; othe	r length	: 13/20			
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient Supply Is 6 not possible in combination Category of the environment Lloyd's Register (LR)	ment n with IS-v	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 ersion	and: stain 1 mA 50 g (with 1 mC 10 g (with 10 mC 125°C at 0°C pm/K 1.0 mA EMV2, rature:	hout ca: 2014/3	ble) 30/EU EMV4 vit	e with a to	otal len			numbe	e; othe	tificate	: 13/20	0056 00001G		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient Supply Is 6 not possible in combination Category of the environme Lloyd's Register (LR) Det Norske Veritas • Germanischer Lloyd (DNV-C	ment n with IS-v	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 rersion EMV1,	and: stain 1 mA 50 g (with 1 mC 10 g (with 10 mC 125°C at 0°C pm/K 1.0 mA EMV2, rature:	hout ca 2014/3 D	ble) 30/EU EMV4 vit	e with a to	B B			numbe	e; othe	tificate	: 13/20 : TAA0	0056 00001G		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient Supply Is 6 not possible in combination Category of the environme Lloyd's Register (LR) Det Norske Veritas • Germanischer Lloyd (DNV•C	ment n with IS-v	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3 -wire 100 Ω 3850 p 0.3 ersion EMV1, temper	and: stain 1 mA 50 g (with 125°C at 0°C pm/K 1.0 mA EMV2, rature: ty:	hout ca 2014/3 D B	ble) 30/EU EMV4 vik	e with a to	B B			numbe numbe electro	e; othe	r length	: 13/20 : TAA0 npatibili	0056 00001G ity: B		
Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient Supply Is 6 not possible in combination Category of the environme Lloyd's Register (LR) Det Norske Veritas • Germanischer Lloyd (DNV-C	ment n with IS-vent	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 ersion EMV1, temper humidi IBExU U _i = 28	and: stain 1 mA 50 g (with 125°C 125°C at 0°C pm/K 1.0 mA atture: ty: 07 ATE 5 V, I _i = 9	hout ca 2014/3 D B X 1180 3 mA, nection	EMV4 vit en X Pi = 660s have:	pration: closure:	B D = 105 capacit	nF; L _i =	0 μH; ax. 140	numbe numbe electro zone 0	er of celler of celler agne	tificate tificate tic com	:: 13/20 :: TAA0 npatibili	0056 00001G ity: B		
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Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature eler Resistance Temperature coefficient Supply Is 6 not possible in combination Category of the environme Lloyd's Register (LR) Det Norske Veritas • Germanischer Lloyd (DNV•C Explosion protection 7 Approval DX14A-LMK 458 Safety technical maximum v	ment n with IS-vent GL) values	IP 68 max. 2 min. 65 EMC D 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 ersion EMV1, temper humidi IBExU U _i = 28 the sug in zone zone 1 cable of	ard: stain 1 mA 50 g (with 125°C at 0°C pm/K 1.0 mA ature: ty: 07 ATE V, I _i = 9 poly con 0 0:	hout case 2014/3 DEMV3, DEMV3 BEAUTION	EMV4 vit. en X Pi = 660 s have : -20 6 -25 7 signal li	oration: closure: 0 mW, C _i an inner of	B D = 105 capacio	nF; L _i = ty of ma 8 bar u	0 μH; ax. 140 p to 1.	numbe numbe electro zone 0 nF opp 1 bar e/signal	e; other	tificate tic com G Ex ia ne encl	: 13/20 : TAA0 npatibili a IIB T4	0056 00001G ity: B		



Mounting flange with cable gland



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

	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

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

cable gland M16x1.5 with seal insert (for cable-Ø 4 ... 11 mm) n x d2

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				

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

Tiolo pattorri	according to Dirt 2001		
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

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Ordering code LMK 458 LMK 458 Pressure in bar, gauge 7 6 5 7 6 8 7 6 6 in bar, absolute 1 in mH₂O Input mH₂O 0 4 0 0 0 6 0 0 1 0 0 0 2 5 0 0 4 0 0 0 1 0 0 1 1 6 0 1 2 5 0 1 4 0 0 0 1 0.4 0.04 0.06 0.6 1.0 0.10 16 0.16 2.5 0.25 0.40 4 0 0.60 6.0 10 1.0 16 1.6 25 2.5 40 4.0 6 0 0 1 1 0 0 2 60 6.0 100 10 160 16 6 0 2 200 20 2 0 0 2 customer 9 9 9 consult stainless steel 1.4404 (316L) copper-nickel-alloy (CuNi10Fe1Mn) customer consult Design probe 1 flange version ² 3 screw-in version Diaphragm ceramics Al₂O₃ 96% 2 ceramics Al₂O₃ 99.9% C 9 customer consult Output 4 ... 20 mA / 2-wire intrinsic safety 4 ... 20 mA / 2-wire F customer 9 consult FKM 1 **FPDM** 3 FFKM³ 7 customer 9 consult TPE-U-cable (blue, Ø 7.4 mm) 4 customer consult Accuracy standard 0.25 % FSO 2 option für P_N ≥0.6 bar: 0.1 % FSO customer 9 consult Cable length 9 9 9 in m Special version 0 0 0 0 1 3 standard with temperature sensor Pt 100 ⁵ prepared for mounting ⁶ 0 2 5 with stainless steel pipe 9 9 9 customer consult

25.11.2019

make modifications to the specifications and materials.

reserve the right to

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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