



LMK 487

Probe for Marine and Offshore 22 mm

Ceramic Sensor

accuracy according to IEC 61298-2:
0.25 % FSO

Nominal pressure

from 0 ... 1 mH₂O up to 0 ... 100 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 22 mm
- ▶ LR-certificate (Lloyd's Register)
- ▶ DNV•GL Approval (Det Norske Veritas • Germanischer Lloyd)
- ▶ diaphragm 99.9 % Al₂O₃
- ▶ high long-term stability

Optional versions

- ▶ housing material titanium
- ▶ IS-version
Ex ia = intrinsically safe for gas and dust
- ▶ temperature element Pt 100
- ▶ different kinds of elastomer

The hydrostatic probe LMK 487 has been developed for measuring levels in various tank applications for shipbuilding and offshore. In comparison to the hydrostatic probe LMK 458 the external diameter amounts to only 22 mm by which the installation in 1" pipes can be carried out easily.

Beside the housing materials stainless steel and titanium, different elastomer materials are available by which an optimum adaptation to the application can be ensured.

Preferred areas of use



Water

drinking water abstraction
desalinization plant

Shipbuilding / Offshore

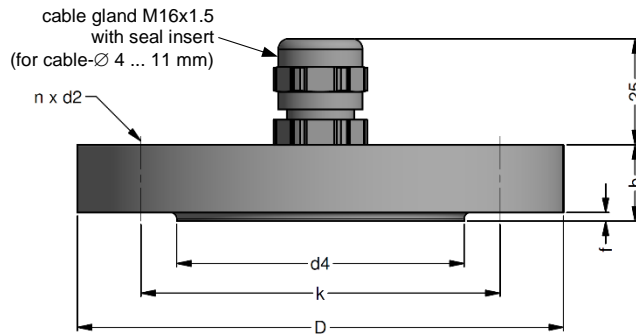
ballast tanks
monitoring of a ship's
position and draught
level measurement in ballast
and storage tanks



Input pressure range												
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	3	4	5	5	7	7	12	20	20	20	20
Burst pressure ≥	[bar]	4	6	8	8	9	9	18	25	25	30	30
Permissible vacuum	[bar]	-0.2	-0.3	-0.5				-1				
Max. ambient pressure (housing): 40 bar												
Output signal / Supply												
Standard	2-wire: 4 ... 20 mA / V _S = 12 ... 36 V _{DC}											
Option IS-version	2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC}											
Option Pt 100-temperature element ¹												
Temperature range	-25 ... 125 °C					max. voltage 10 V _{DC} , max. current 2 mA, max. power 10 mW,			in intrinsically safe circuit 30 V _{DC} in intrinsically safe circuit 54 mA in intrinsically safe circuit 405 mW			
Connectivity technology	3-wire											
Resistance	100 Ω at 0 °C											
Temperature coefficient	3850 ppm/K											
Supply I _S	0.3 ... 1.0 mA _{DC}											
¹ not possible in combination with IS-version												
Performance												
Accuracy ²	nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % FSO					nominal pressure < 0.4 bar ≤ ± 0.35 % FSO						
Permissible load	R _{max} = [(V _S – V _{S min}) / 0.02 A] Ω											
Influence effects	supply: 0.05 % FSO / 10 V					load: 0.05 % FSO / kΩ						
Long term stability	≤ ± 0.1 % FSO / year											
Turn-on time	450 msec											
Mean response time	≤ 70 msec											
Measuring rate	80 Hz											
² accuracy according to IEC 61298-2 – limit point adjustment (non-linearity, hysteresis, repeatability)												
Thermal effects (offset and span)												
Tolerance band	≤ ± 1 % FSO					in compensated range -20 ... 80 °C						
Permissible temperatures												
Permissible temperatures	medium / storage: -25 ... 85 °C											
Electrical protection ³												
Short-circuit protection	permanent											
Reverse polarity protection	no damage, but also no function											
Electromagnetic compatibility	emission and immunity according to - EN 61326											

Miscellaneous	
Current consumption	max. 22 mA
Weight	approx. 180 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU
Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply –	BN (brown)
Option Pt 100 temperature element:	
Supply T+	YE (yellow)
Supply T–	GY (grey)
Supply T–	PK (pink)
Shield	GNYE (green-yellow)
Wiring diagrams	
<p>2-wire-system (current)</p>	<p>2-wire-system (pressure) / 3-wire-system (temperature)</p>
Dimensions (mm / in)	
<p>standard</p>	<p>screw-in version in stainless steel 1.4404 (316 L)</p>
<p>protection cap removable</p>	<p>G3/4" flush</p>

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	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		

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

Terminal clamp



Technical data

Suitable for	all probes with cable Ø 5.5 ... 10.5 mm		
Material of housing	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)		
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		
Dimensions (mm)	174 x 45 x 32		
Hook diameter	20 mm		

Ordering type	Ordering code	Weight
Terminal clamp, steel, zinc plated	Z100528	approx. 160 g
Terminal clamp, stainless steel 1.4301 (304)	Z100527	

Display program

- CIT 200** Process display with LED display
- CIT 250** Process display with LED display and contacts
- CIT 300** Process display with LED display, contacts and analogue output
- CIT 350** Process display with LED display, bargraph, contacts and analogue output
- CIT 400** Process display with LED display, contacts, analogue output and Ex-approval
- CIT 600** Multichannel process display with graphics-capable LC display
- CIT 650** Multichannel process display with graphics-capable LC display and datalogger
- CIT 700 / CIT 750** Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts
- PA 440** Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage:
<http://www.bdsensors.de>



Ordering code LMK 487

LMK 487

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Pressure									
gauge in bar		3	6	5					
gauge in mH ₂ O		3	6	6					
Input		[mH ₂ O]	[bar]						
1.0		0.10		1	0	0	0		
1.6		0.16		1	6	0	0		
2.5		0.25		2	5	0	0		
4.0		0.40		4	0	0	0		
6.0		0.60		6	0	0	0		
10		1.0		1	0	0	1		
16		1.6		1	6	0	1		
25		2.5		2	5	0	1		
40		4.0		4	0	0	1		
60		6.0		6	0	0	1		
100		10		1	0	0	2		
customer				9	9	9	9		consult
Housing									
stainless steel 1.4404 (316L)						1			
titanium						T			
customer						9			consult
Design									
probe						1			
screw-in version G3/4" flush ¹						B			
Diaphragm									
ceramics Al ₂ O ₃ 99,9 %						C			
customer						9			consult
Output									
4 ... 20 mA / 2-wire						1			
intrinsic safety 4 ... 20 mA / 2-wire						E			
customer						9			consult
Seal									
FKM						1			
EPDM						3			
FFKM ²						7			
customer						9			consult
Electrical connection									
TPE-U-cable (blue, Ø 7.4 mm) ³						4			
Accuracy									
standard for p _N < 0,4 bar	0.35 % FSO					3			
standard for p _N ≥ 0,4 bar	0.25 % FSO					2			
customer						9			consult
Cable length									
in m						9	9	9	
Special version									
standard							0	0	0
with temperature sensor Pt 100 ⁴							0	1	3
customer							9	9	9
									consult

¹ only in combination with housing in stainless steel 1.4404 (316L)

² min. permissible temperature from -15 °C

³ shielded cable with integrated ventilation tube for atmospheric pressure reference

⁴ not possible in combination with IS-version