



LMK 457

Hydrostatic Level Transmitter for Shipbuilding and Offshore

- ▶ capacitive ceramic sensor
- ▶ materials: 1.4571 (316Ti); optional CuNiFe
- ▶ submersible or flange construction
- ▶ nominal pressure ranges from 0 ... 40 mbar up to 0 ... 25 bar (0 ... 40 cmWC up to 0 ... 250 mWC)

The hydrostatic level transmitter LMK 457 has been designed especially for shipbuilding and offshore applications with rough environmental and operation conditions. The transmitters are suitable for level measurement of fluids or pasty media in open tanks, containers, or reservoirs.

Based on a rugged and reliable capacitive ceramic sensor the LMK 457 is qualified for measuring small filling heights with high accuracy.

Due to the different housing materials such as stainless steel 1.4571 (316Ti) or the special copper-nickel-alloy CuNiFe in combination with several mounting types, the LMK 457 covers a lot of applications in shipbuilding and offshore business. Usage with many occurring media in various applications is possible.

The LMK 457 as a standard complies with the requirements of Germanischer Lloyd (GL) and Det Norske Veritas (DNV). Additionally, the devices can optionally be delivered with ATEX certificate.

Typical areas of use are:

- ▶ ballast tanks
- ▶ fuel and oil tanks
- ▶ service and waste water tanks,

- ▶ small thermal effect
- ▶ excellent linearity
- ▶ good long term stability
- ▶ accuracy: 0.175 % / 0.125 % FSO BFSL (0.35 % / 0.25 % FSO IEC 60770)
- ▶ **option Ex: II 1 G EEx ia IIC T4 (TÜV 03 ATEX 2006 X)**
- ▶ customer specific versions:
 - special pressure ranges
 - other versions on request

Characteristics

LMK 457
Hydrostatic Level Transmitter



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Technical Data

Input pressure range ¹																
Nominal 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	25	
Level [mWC]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	
Permissible overpressure [bar]	1	1	2	2	4	4	4	7	7	15	25	25	40	60	60	

Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / $V_s = 9 \dots 32 V_{dc}$ (rated: 24 V_{dc})	Ex-protection: $V_s = 12 \dots 28 V_{dc}$

Performance		
Accuracy ²	standard: $\leq \pm 0.35 \% \text{ FSO}$ option: $\leq \pm 0.25 \% \text{ FSO}$	BFSL: $\leq \pm 0.175 \% \text{ FSO}$ BFSL: $\leq \pm 0.125 \% \text{ FSO}$
Permissible load	$R_{max} = [(V_s - V_{smin}) / 0.02] \Omega$	
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω	

Thermal effects	
Thermal error for offset and span	$\leq \pm 0.1 \% \text{ FSO} / 10 \text{ K}$
in compensated range	0 ... 70 °C

Electrical protection ³	
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to - EN 61326 - Germanischer Lloyd (GL) - Det Norske Veritas (DNV)
Option Ex-protection DX13-LMK 457	II 1 G EEx ia IIC T4 safety technical maximum values: $U_i = 28 \text{ V}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$

Permissible temperatures	
Medium	-25 ... 80 °C
Storage	-40 ... 125 °C

Mechanical stability	
Vibration	4 g, according to GL (curve 2), and DNV (Class B) / basis: IEC 60068-2-6

¹ version with diaphragm Al_2O_3 99,9% up to 1 bar

² accuracy according IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

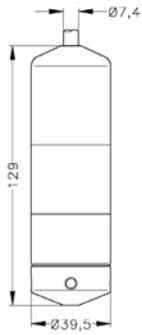
³ additional external overvoltage-protection unit with atmospheric pressure compensation KL1 or KL2 available (please ask for data sheet)

LMK 457

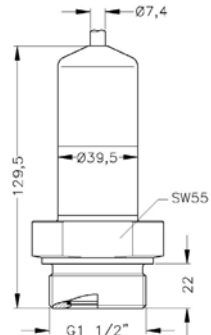
Hydrostatic Level Transmitter

Technical Data

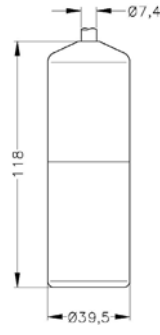
Dimensions



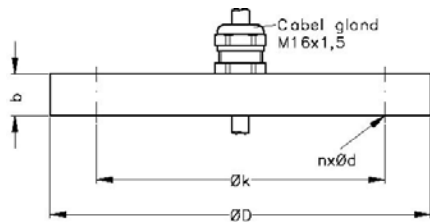
Standard (stainless steel)



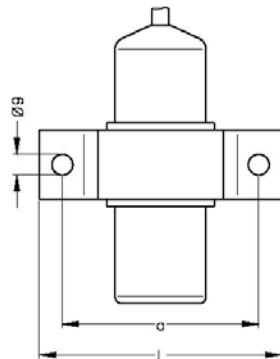
Screw-in transmitter (stainless steel)



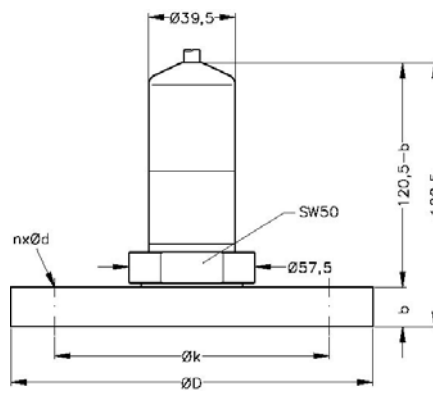
CuNiFe transmitter (CuNi10Fe1Mn)



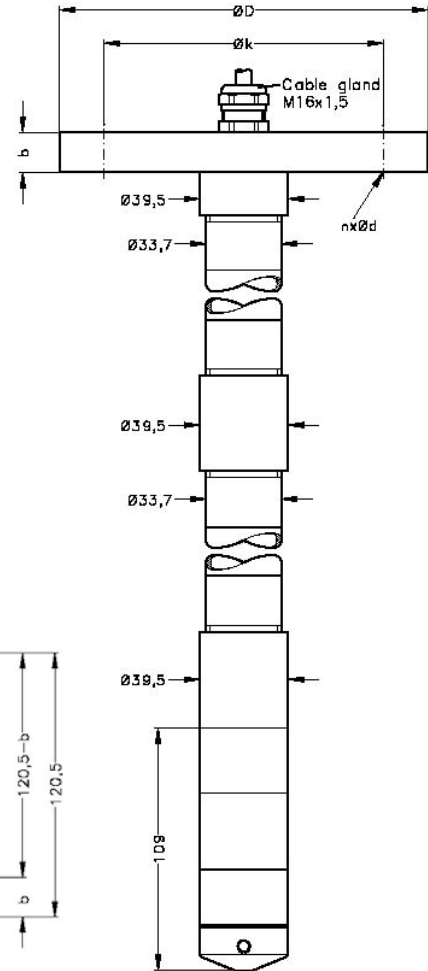
Mounting flange



Mounting clamp



Flange version (with transmitter flange)



Version with stainless steel pipe

Mounting clamp material	Dimensions	
	a	L
CuNiFe	115	82
Stainless steel	165	125

Flange	Dimensions				
	D	k	b	n	d
DN25/PN40	115	85	18	4	14
DN50/PN16	165	125	18	4	18
DN80/PN16	200	160	20	8	18

Electrical connection

Cable with cable sheath ⁴	TPE dark blue
Cable protection	standard: without cable protection option stainless steel pipe ⁵ : available as compact product with stainless steel pipe total length up to 2m; other lengths on request

Materials

Housing	standard: stainless steel 1.4571 (316Ti) option: CuNiFe (CuNi10Fe1Mn – resistant against sea water) others on request
Seals	FKM others on request
Diaphragm	Standard: ceramics Al ₂ O ₃ 96 % Option: ceramics Al ₂ O ₃ 99.9 % (up to 1 bar)
Cable sheath ⁶	TPE

Miscellaneous

Current consumption	max. 21 mA
Ingress protection	IP 68 – permanently submersible
Weight	approx. 400 g (without cable)

Mounting accessories (not part of the supply)

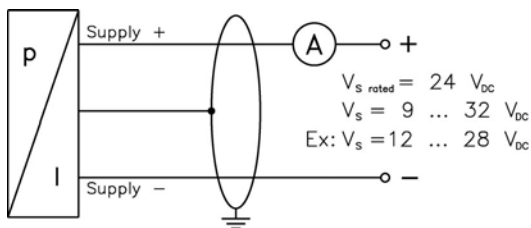
Transmitter flange, stainless steel 1.4571 (316Ti): DN25 / PN40 (Ø115, 18 thick, 4 drill holes Ø14 at Ø85) DN50 / PN16 (Ø165, 18 thick, 4 drill holes Ø18 at Ø125) DN80 / PN16 (Ø200, 20 thick, 8 drill holes Ø18 at Ø160)
Mounting clamp, stainless steel 1.4571 (316Ti) or CuNiFe
Mounting flange for fixing submersible transmitter, stainless steel 1.4571 (316Ti): DN25 / PN40 (Ø115, 18 thick, 4 drill holes Ø14 at Ø85) DN50 / PN16 (Ø165, 18 thick, 4 drill holes Ø18 at Ø125) DN80 / PN16 (Ø200, 20 thick, 8 drill holes Ø18 at Ø160)
Terminal clamp, stainless steel 1.4301 (304) or steel, zinc plated

Pin configuration

Electrical connection	cable colours (DIN 47100)
2-wire-system	white brown
Supply + Supply – Ground	yellow / black

Wiring diagram

2-wire-system (current)



⁴ shielded cable with integrated air tube for atmospheric reference

⁵ not for CuNiFe version

⁶ resistant against sea water, halogen free, temperature resistant up to +125 °C

