

PROBE FOR MARINE AND OFFSHORE

FUNKTION

The hydrostatic probe type LTA 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 LTA is a capacitive ceramic sensor element, which offers a high overload resistance and medium compatibility.

accuracy according to IEC 60770:

standard: 0.25 % FSO

option: 0.1 % FSO

TECHNICAL DATA

Nominal pressure	von 0 ... 60 cm H ₂ O bis 0 ... 200 m H ₂ O
Output signals	2-wire: 4 ... 20 mA others on request
Special characteristics	GL-certificate (Germanischer Lloyd) diameter 39.5 mm high overpressure resistance high long-term stability
Optional versions	diaphragm Al2O3 99.9 % different housing materials (stainless steel, CuNiFe) IS-version zone 0 screw-in and flange version accessories e.g. assembling and probe flange, mounting clamp

PREFERRED AREAS OF USE ARE

Water

drinking water abstraction

desalinization plant

Shipbuilding / Offshore

ballast tanks

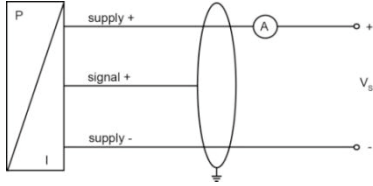
monitoring of a ship's position and draught

level measurement in ballast and storage tanks

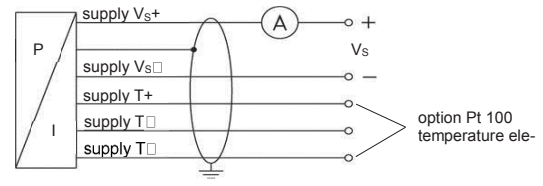
Pressure ranges																
Nominal pressure ¹	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0.2		-0.3		-0.5			-1							
¹ available in gauge and absolute; nominal pressure ranges absolute from 1 bar																
Output signal / Supply																
Standard	2-wire: 4 ... 20 mA / V _S = 9 ... 32 V _{DC}						V _S rated = 24 V _{DC}									
Option IS-version	2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC}						V _S rated = 24 V _{DC}									
Performance																
Accuracy ²	standard: ≤ ± 0.25 % FSO						option: for P _N ≥ 0.6 bar ³ : ≤ ± 0.1 % FSO									
Permissible load	R _{max} = [(V _S - V _S min) / 0.02 A] Ω															
Long term stability	≤ ± 0.1 % FSO / year at reference conditions															
Influence effects	supply: 0.05 % FSO / 10 V						permissible load: 0.05 % FSO / kΩ									
Turn-on time	700 msec															
Mean response time	< 200 msec						mean measuring rate 5/sec									
Max. response time	380 msec															
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)																
³ Under the influence of disturbance burst according to EN 61000-4-4 (2004) +2 kV accuracy decreased to ≤ ± 0.25 % FSO.																
Thermal effects / Permissible temperatures																
Thermal error	≤ ± 0.1 % FSO / 10 K						in compensated range -20 ... 80 °C									
Permissible temperatures	medium / electronics / environment: -25 ... 125 °C						storage: -40 ... 125 °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 - Germanischer Lloyd (GL) - Det Norske Veritas (DNV)															
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 GL: curve 2 / according to DNV: Class B / basis: DIN EN 60068-2-6)															
Electrical connection																
Cable outlet	shielded cable with integrated air tube for atmospheric reference (for nominal pressure ranges sealed gauge and absolute, the air tube is plugged)															
Materials																
Housing	standard: stainless steel 1.4404 (316L) option: CuNi10Fe1Mn (resistant against sea water) others on request															
Seals (media wetted)	standard: FKM options: EPDM, FFKM (min. permissible temperature from -15 °C) others on request															
Diaphragm	standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 %															
Cable sheath	TPE -U (flame-resistant, halogen free, increased resistance against oil and gasoline, resistant against salt, sea water, heavy oil)															
Miscellaneous																
Optionally cable protection	stainless steel pipe for probe in stainless steel: 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: 2004/108/EC															
Option Pt 100 temperature element ⁵																
Temperature range	-25 ... 125°C															
Connection temperature element	3-wire															
Resistance	100 Ω at 0°C															
Temperature coefficient	3850 ppm/K															
Supply I _S	0.3 ... 1.0 mA DC															
⁵ only for 4...20mA, cable length max. 5m																

Wiring diagrams

2-wire-system (current)



2-wire-system (current) with Pt 100



Pin configuration

Electrical connection

Supply Vs+
Supply Vs-
Option Pt 100 temperature element:
Supply T+ (with Pt 100)
Supply T- (with Pt 100)
Supply T- (with Pt 100)
Shield

cable colours (DIN 47100)

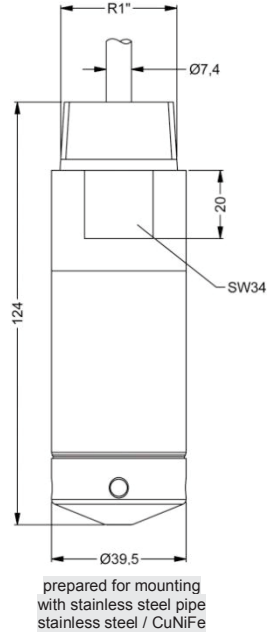
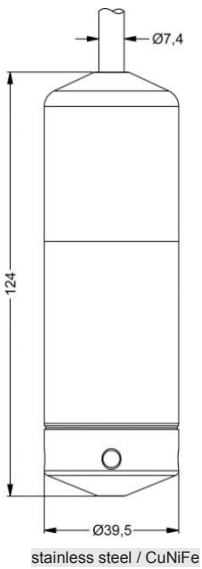
wh (white)
bn (brown)

ye (yellow)
gy (grey)
pk (pink)

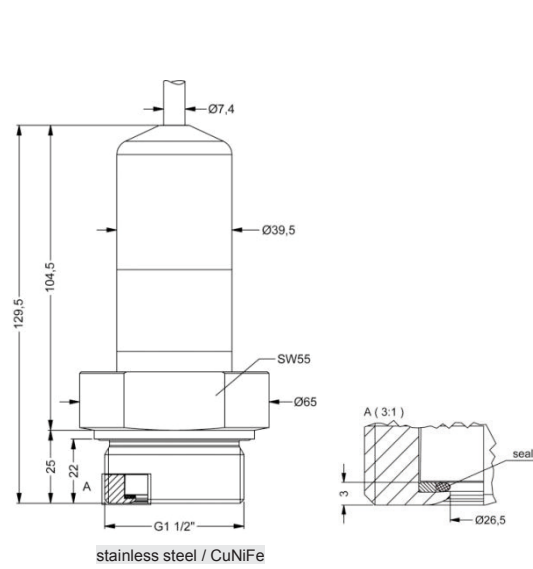
gn/ye (green / yellow)

Dimensions (in mm)

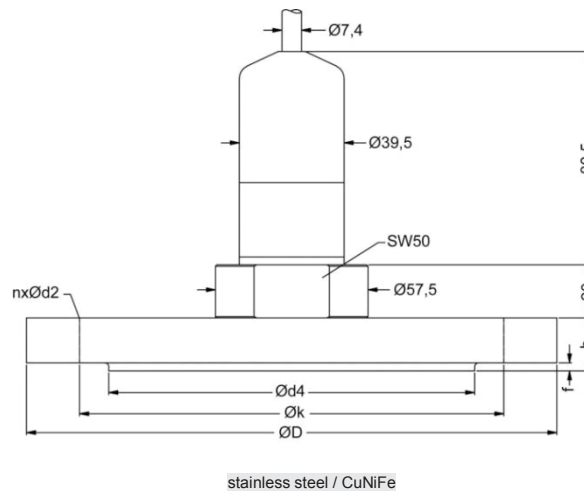
probe versions



screw-in version



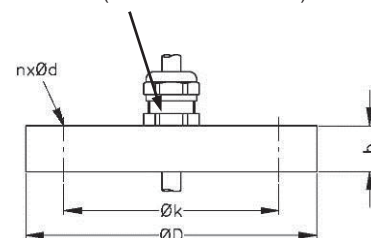
flange version



Probe flange for flange version	
Technical Data	
Suitable for	LTA
Flange material	stainless steel 1.4404 (316L)
Hole pattern	according to DIN 2507
Version	Size (in mm)
DN25 / PN40	D = 115, k = 85, d4 = 68, b = 18, f = 2, n = 4, d2 = 14
DN50 / PN40	D = 165, k = 125, d4 = 102, b = 20, f = 3, n = 4, d2 = 18
DN80 / PN16	D = 200, k = 160, d4 = 138, b = 20, f = 3, n = 8, d2 = 18
Ordering type	
Probe flange DN25 / PN40	ZSF2540
Probe flange DN50 / PN40	ZSF5040
Probe flange DN80 / PN16	ZSF8016

Assembling 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 (303); plastic
Seal insert	material: TPE (ingress protection IP 68)
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
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d = 18
Ordering type	
Assembling Flange DN25 / PN40	ZMF2540
Assembling Flange DN50 / PN40	ZMF5040
Assembling Flange DN80 / PN16	ZMF8016

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



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