

# AHD-S 201

## Hydrostatic Level Transmitter for Shipbuilding and Offshore

accuracy:  
0.125 % FSO BFSL  
(0.25 FSO IEC 60770)



Hydrostatic Level Transmitter

### Product characteristics

- ▶ capacitive ceramic sensor
- ▶ nominal pressure ranges from 0 ... 40 cmH<sub>2</sub>O up to 0 ... 200 mH<sub>2</sub>O
- ▶ diameter 39.5 mm
- ▶ permissible temperatures up to 125 °C
- ▶ high overpressure resistance
- ▶ chemical 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 on demand
- ▶ screw-in and flange version
- ▶ accessories e. g. assembling and probe flange, mounting clamp

The hydrostatic level transmitter AHD-S 201 is as a consequence of the certification by Germanischer Lloyd predestined for shipbuilding and offshore applications.

A permissible operating temperature of up to 125°C enables to measure the pressure of various fluids under extreme conditions.

The basis for the AHD-S 201 is a self-developed capacitive ceramic sensor element, which offers a high overload resistance and medium compatibility.

### Preferred areas of use are

#### Shipbuilding / Offshore



- ▶ ballast tanks
- ▶ draught monitoring
- ▶ level measurement in ballast and storage tanks

#### Wasser



- ▶ drinking water abstraction
- ▶ desalinization plant

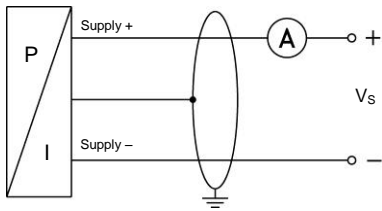
AHD-S 201



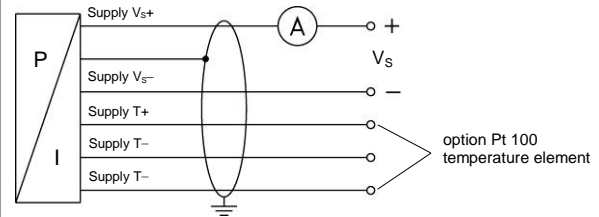
<b>Pressure ranges</b>																	
Nominal pressure <sup>1</sup>	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20	
Level	[mH <sub>2</sub> O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200	
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	40	40	
Permissible vacuum	[bar]	-0.2		-0.3		-0.5				-1							
<sup>1</sup> available in gauge, sealed gauge and absolute; nominal pressure ranges sealed gauge and absolute from 1 bar																	
<b>Output signal / Supply</b>																	
Standard	2-wire: 4 ... 20 mA / V <sub>S</sub> = 10 ... 32 V <sub>DC</sub> (rated: 24 V <sub>DC</sub> )																
(Option IS-version)	2-wire: 4 ... 20 mA / V <sub>S</sub> = 12 ... 28 V <sub>DC</sub> (rated: 24 V <sub>DC</sub> )																
<b>Performance</b>																	
Accuracy	standard:					IEC 60770 <sup>2</sup>					BFSL						
	option for P <sub>N</sub> ≥ 0.6 bar <sup>3</sup> :					≤ ± 0.25 % FSO					≤ ± 0.125 % FSO						
						≤ ± 0.10 % FSO					≤ ± 0.050 % FSO						
Permissible load	R <sub>max</sub> = [(V <sub>S</sub> - V <sub>S min</sub> ) / 0.02] Ω																
Long term stability	≤ ± 0.1 % FSO / year																
Influence effects	supply: 0.05 % FSO / 10 V										permissible load: 0.05 % FSO / kΩ						
Response time	< 120 ms										measuring rate 8/sec						
<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)																	
<sup>3</sup> Under the influence of disturbance burst according to EN 61000-4-4 (2004) +2 kV accuracy decreased to ≤ ± 0.25 % FSO.																	
<b>Thermal errors / Permissible temperatures</b>																	
Thermal error	≤ ± 0.1 % FSO / 10 K in compensated range 0 ... 85 °C																
Permissible temperatures	electronics / environment / storage : -25 ... 125 °C (depending on cable sheath) storage: -40 ... 100 °C																
<b>Electrical protection <sup>4</sup></b>																	
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)																
<sup>4</sup> additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available																	
<b>Mechanical stability</b>																	
Vibration	4 g (according to GL: curve 2 / according to DNV: Class B / basis: IEC 60068-2-6)																
<b>Electrical connection</b>																	
Cable outlet	shielded cable with integrated air tube for atmospheric reference (for nominal pressure ranges sealed gauge and absolute, the air tube is plugged)																
<b>Materials</b>																	
Housing	standard: stainless steel 1.4404 (316L) option: CuNi10Fe1Mn (resistant against sea water) others on request																
Seals (media wetted)	standard: FKM options: EPDM, FFKM; others on request																
Diaphragm	standard: ceramics Al <sub>2</sub> O <sub>3</sub> 96 % option: ceramics Al <sub>2</sub> O <sub>3</sub> 99.9 % - for pressure ranges 0.1 up to 1 bar (absolute on request)																
Cable sheath	standard: TPE, dark blue (resistant against sea water, halogen free) option: FEP, black (resistant against sea water) - max. permissible temperature up to 80 °C others on request																
<b>Miscellaneous</b>																	
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																
<b>Option Pt 100 temperature element (only with standard version)</b>																	
Temperature range	-25 ... 125 °C																
Connection temperature element	3-wire																
Resistance	100 Ω at 0 °C																
Temperature coefficient	3850 ppm/K																
Supply I <sub>S</sub>	0.3 ... 1.0 mA DC																

## Wiring diagrams

### 2-wire-system (current)



### 2-wire-system (current) with Pt 100

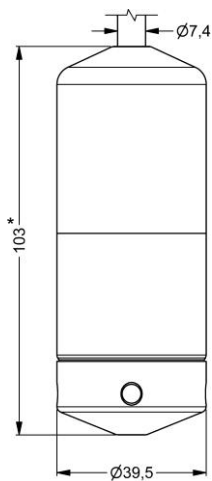


## Pin configuration

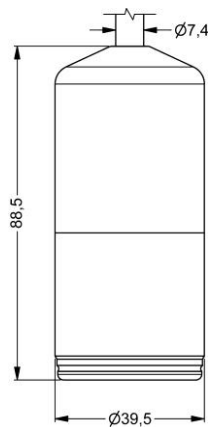
Electrical connection	cable colours (DIN 47100)
Supply $V_s+$	white
Supply $V_s-$	brown
option Pt 100 temperature element:	
Supply T+ (with Pt 100)	yellow
Supply T- (with Pt 100)	grey
Supply T- (with Pt 100)	pink
Shield	yellow / green

## Dimensions (in mm)

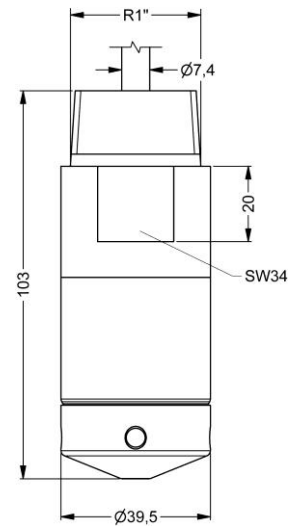
### probe version



stainless steel (optionally)



CuNiFe (optionally)

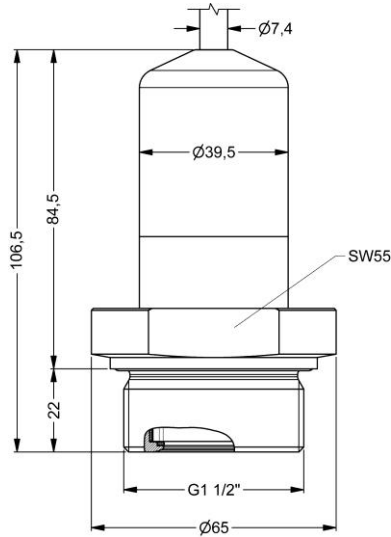


prepared for mounting with stainless steel pipe

\* probe in stainless steel housing is also available with a total length of 129 mm

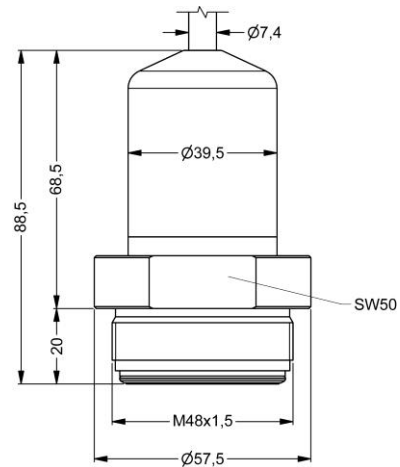
**Dimensions (in mm)**

**screw-in version**



stainless steel / CuNiFe

**flange version**



stainless steel / CuNiFe

**Probe flange for flange version**

Technical Data	
Suitable for	All flange versions
Flange material	stainless steel 1.4571 (316Ti)
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



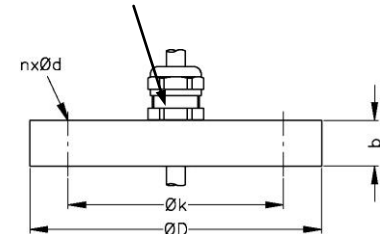
**Ordering type**

- Probe flange DN25 / PN40
- Probe flange DN50 / PN40
- Probe flange DN80 / PN16

**Assembling flange with cable gland**

Technical Data	
Suitable for	all probes
Flange material	stainless steel 1.4571 (316Ti)
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

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



**Ordering type**

- Assembling Flange DN25 / PN40
- Assembling Flange DN50 / PN40

This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.