RusAutomation

FOR CLEAN WATER AND SEWAGE WATER

NIVOPRESS N

HYDROSTATIC LEVEL TRANSMITTERS

3 YEARS WARRANTY @ NIVELCO – WHERE ELSE?

NIVELCO

LEVEL TRANSMITTERS

GENERAL DESCRIPTION

The **NIVOPRESS N** hydrostatic level transmitters are designed to measure the level of clean or contaminated liquids. The pressure sensor at the bottom of the probe measures the sum of the hydrostatic pressure (P_{hydr}) of the liquid column above it and the atmospheric pressure (P_{atm}). The atmospheric pressure is led to the sensor through a breathing capillary which is equipped with a moisture filter that prevents the moisture reaching and damaging the electronics. This enables the atmospheric pressure to be subtracted from the measured pressure to get the hydrostatic pressure which is proportional to the height of the liquid column (h). The electronics converts the sensor's signal into an output signal. If temperature measurement (of the liquid) is needed beside the level measurement a combined (level + temperature) transmitter should be used. The installation and wiring of the transmitter is helped by the wide variety of accessories. A sewage adapter working on the principle of the diving bell can be snapped into the place of the protecting cap to avoid the direct contact between the sensor and the measured contaminated liquid. An extra mechanical protection is built in the **NZ** type transmitters in the form of a mechanical filter. The **N-500** types can be used in hazardous environments. The **NZ** screw-in type transmitters are recommended for applications where there is a risk of flooding.

The **NB/NG** plastic housing types are designed for those applications where the aggressive medium (e.g. saline solutions or seawater) could cause galvanic corrosion of the stainless steel body.

MAIN FEATURES

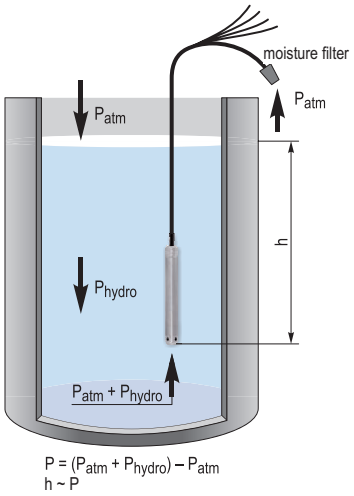
- Measuring range up to 200 m
- Remote programmable
- IP68 protection
- Submersible or screw-in types
- Ø22 / Ø24 mm tube
- HART® communication
- 2- or 3-wire versions
- Ex versions
- 2x 4 – 20mA output (level + temperature)
- Built-in Pt100 temperature sensor
- Overvoltage and inverse polarity protection
- Wide range of accessories
- Approved for potable water
- Available with capacitance ceramic, piezorezistive stainless steel or ceramic sensor

APPLICATIONS

- Level and temperature measurement of drinking water wells, tanks, pools
- Submersible pump control
- Screw-in submersible type with IP68 protection for applications with risk of flooding
- Clean or slightly polluted, contaminated liquids
- Sewage waters
- Draw-down protection
- Sewage lift station control
- Saline solutions, seawater

CERTIFICATIONS

- ATEX (Ex ia)




NB


NB
+ NAW-107
sewage
adapter


NP / NK


NZ / ND


NZ / ND
+ NAZ-103
sewage adapter


NC


NP / NK
+ NAW-104
sewage adapter


OVP-32 / 33
overvoltage
protection
unit


NAA-101 / NAA-102
cable terminal box


NAA-105
cable holding sliding sleeve

OVP-22 / 33 overvoltage
protection unit


NAA-209 cable
mounting unit

TECHNICAL DATA

Type		2-wire				3-wire
		NB, NG	NK, NN / ND, NH	NC, NT	NP, NF / NZ, NR	NPH, NFH / NZH, NRH
Sensor type	Principle	Piezoresistive		Capacitance	Piezoresistive	
	Material	Ceramic			Stainless steel	
Housing		Plastic	Stainless steel			
Measuring range		0 – 20 m water head			0 – 200 m water head	
		As per order code; the current output can be customized in the pressure range from 2% to 130% with remote programming				
Overload allowed (versus range)		3x		20x (h ≤ 3 mH_2O) 10x (h > 3 mH_2O)	3x	
Output		4 – 20 mA + HART®		4 – 20 mA	4 – 20 mA + HART®	0 – 10V (0 V ≤ 80 mV) measured to the power supply
Power supply		12 – 30 V DC				18 – 30 V DC / 6 mA
Temperature measurement		NPD and NZD types: power supply: 12 – 30 V DC / 4 – 20 mA; 0 … +60 °C, Accuracy: ±3 °C				–
		N□P types: Pt100 B temperature sensor, other types with HART® output: temperature can be queried as HART® Secondary Value, Accuracy: ±3 °C				
Linearity error (leve)		±0.45%		±0.25%		
Temperature error		≤ ±0.1% / 10 K				≤ ±0.2% / 10 K
Process temperature [1]		-30 °C … +60 °C				
Process connection		NAA-209 cable mounting wedge clamp, NZ, NR, ND, NH types: ¾" BSP thread				
Ingress protection		IP68				
Electrical protection		Class III				
Electrical connection		Shielded cable with breathing capillary				
Cable		Ø7 mm; 0.34 mm^2				
Cable length		0 – 300 m as order code				
Dimensions		Ø24 x 212 mm	NK, NN: Ø22 x 173 mm ND, NH: Ø38 x 174 mm	Ø40 x 146 mm	NP, NF: Ø22 x 173 mm NZ, NR: Ø38 x 174 mm	
Mass		Probe: 0.2 kg	NK, NN: Probe: 0.2 kg ND, NH: Probe: 0.3 kg	Probe: 0.4 kg	NP, NF: Probe: 0.2 kg NZ, NR: Probe: 0.3 kg	
Material of wetted parts	Sensor	Al_2O_3			1.4404 (316L)	
	Housing	POM	1.4571 (316Ti)			
	Cable coating	Polyurethane (PUR) or FEP				
	Sealings	Viton® (FKM)				
	Protecting cap	POM	1.4571 (316 Ti)	–	1.4571 (316 Ti)	

SPECIAL DATA FOR Ex CERTIFIED MODELS

Type	NP / NF / NZ / NR / NK / NN / ND / NH□-5□□-□ Ex
Protection type	Intrinsically safe
Ex marking	Up to 100 m cable length: ⟨Ex⟩ II 1G Ex ia IIC T6 Ga, between 100 m and 300 m cable length: ⟨Ex⟩ II 1G Ex ia IIB T6 Ga
Intrinsically safe data	Ui = 30 V, Ii = 100 mA, Pi = 0.8 W for IIC gas group: Ci ≤ 52 nF, Li ≤ 1.4 mH (calculated with 100 m integrated cable), for IIB gas group: Ci ≤ 132 nF, Li ≤ 1.6 mH
Power supply	14 – 30 V DC
Operation temperature range	-30 °C … +60 °C

TECHNICAL DATA OF ACCESSORIES

Cable terminal box	NAA-101
Dimensions	93 x 93 x 55 mm
Ingress protection	IP65
Process temperature range	-40 °C … +70 °C
Material	Polystyrene
Cable gland	M20x1.5 (cable outer diameter: 5 – 10 mm)
Electrical connection	Terminal block (for max. 2.5 mm^2 wire cross section)
Cable terminal box with overvoltage protection	**NAA-102**
Data	See: NAA-101
Electrical data	See: OVP

Cable mounting wedge clamp	NAA-209	
Max. mechanical load	300 m cable	
Material	Polyamide, stainless steel wedge clamp	
Process temperature range	-20 °C … + 60 °C	
Overvoltage protection unit	**OVP-22 / 33 [2]**	**OVP-32 / 33 [2]**
Type	Field use	EN 60715 rail mountable
Dimensions	72 x 42 x 19 mm	62 x 65 x 18 mm
Ingress protection	IP54	IP20
Breakdown voltage	33 V	
Absorbed energy	600 W / 1 ms	
Serial resistance	13 Ohm	
Leakage current	≤ 10 µA	

[1] High temperature (up to +75 °C) version is available on special request
[2] Only for 2-wire 4 – 20 mA equipments

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