



РусАвтоматизация

FOR CLEAN WATER AND SEWAGE WATER

NIVOPRESS N

HYDROSTATIC LEVEL TRANSMITTERS



5 YEARS WARRANTY @ NIVELCO – WHERE ELSE?

NIVELCO

LEVEL TRANSMITTERS

Submersible Hydrostatic Level Transmitters

NIVOPRESS N

NIVOPRESS N submersible hydrostatic level transmitters are designed to measure the level of clean and contaminated liquids. The pressure sensor at the end of the probe measures the sum of the hydrostatic pressure (P_{hydr}) of the liquid column above and the atmospheric pressure (P_{atm}). Atmospheric pressure is channeled to the sensor through a breathing capillary equipped with a moisture filter that prevents moisture from damaging the electronics. The atmospheric pressure is subtracted from the overall measured pressure to get the hydrostatic pressure, which is proportional to the height of the liquid column (h), then the sensor's signal is converted into an output signal. If both the level and the temperature of the liquid needs to be measured, a combined (*level & temperature*) transmitters are available. There is a wide variety of accessories for the transmitters.

The new **NBB-400** separated head unit versions are particularly ideal for marine applications such as ships and floating docks. The separated head design allows for quick sensor replacement without the need for complex wiring disassembly, minimizing downtime and technical maintenance.

A sewage adapter operating on the diving bell principle can be snapped into the protective cap's place to avoid direct contact between the sensor and the measured contaminated liquid. A mechanical filter is built into **NZ** type transmitters as a measure of extra protection. **N-500** devices can be used in hazardous environments. **NZ** screw-in type transmitters are recommended for applications where there is a risk of flooding. **NB/NG** plastic housing types, are designed for those applications where aggressive mediums (e.g., saline solutions or seawater) may corrode stainless steel.

FEATURES

- Measuring range up to 350 m
- Remotely programmable
- IP68
- Submersible or screw-in versions
- Ø22 / Ø24 mm tube
- HART® communication
- PACTware™ compatible
- 2 or 3-wire versions
- Ex versions
- 2× 4...20 mA output (*level + temperature*)
- Built-in Pt100 temperature sensor
- Overvoltage and inverse polarity protection
- Wide range of accessories
- Detachable variants
- Approved for potable water
- Available with capacitance ceramic, piezoresistive stainless steel or ceramic sensor
- 5 years warranty



NB

NB + NAW-107
sewage adapter

NBB-400

NP / NK + NAW-104
sewage adapter

NP / NK



NZ / ND

NZ / ND + NAZ-103
sewage adapter

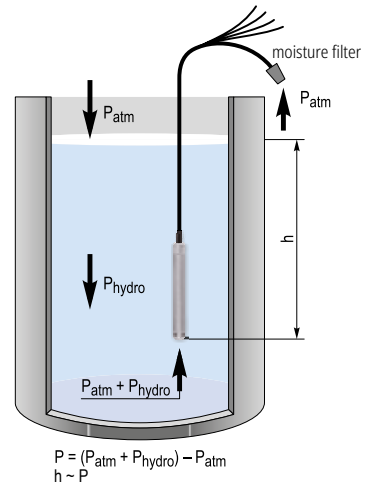
NC

APPLICATIONS

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

CERTIFICATES

- ATEX (Ex ia G)
- UKCA Ex (Ex ia G)
- Bureau Veritas (BV) (pending)



TECHNICAL DATA

		2-wire			3-wire	
		NB, NG	NK, NN, ND, NH	NC, NT	NP, NF, NZ, NR	NPH, NFH, NZH, NRH
Sensor	Principle	Piezoresistive		Capacitive	Piezoresistive	
	Material	Ceramic			Stainless steel	
Housing		Plastic		Stainless steel		
Measuring range ⁽¹⁾		0...200 mH ₂ O		0...20 mH ₂ O	0...350 mH ₂ O	0...200 mH ₂ O
As per order code; current output can be customized within 2...130% pressure range; remotely programmable						
Overload allowed (versus range)		3× (≤ 20 mH ₂ O) 2× (> 20 mH ₂ O)		20× (≤ 3 mH ₂ O) 10× (> 3 mH ₂ O)	3×	
Output		4...20 mA + HART®		4...20 mA	4...20 mA + HART®	0...10 V (0 V ≤ 80 mV) measured to the negative supply voltage
Supply voltage		12...30 V DC				18...30 V DC / 6 mA
Temperature measurement		NPD, NFD, NZD, NRD types: 2-wire 4...20 mA output (supply voltage: 12...30 V DC); 0...+60 °C, acc.: ±3 °C				-
		N□P types: 4-wire Pt100 "B" temperature sensor; Other types with HART® output: temperature can be queried as HART® Secondary Value, acc.: ±3 °C				
Linearity error (level)		±0.45%		±0.25%		
Temperature error		≤ ±0.1% / 10 K				≤ ±0.2% / 10 K
Process temperature ⁽²⁾		-30...+60 °C, for FEP cable devices, where the output code is N□K or N□P: -40...+80 °C				
Process connection		NAA-209 cable mounting wedge clamp, NZ, NR, ND, NH types: 3/4" 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 ⁽³⁾		0...300 m			0...450 m	
Dimensions		Ø24 × 212 mm	NK, NN: Ø22 × 173 mm ND, NH: Ø38 × 174 mm	Ø40 × 146 mm	NP, NF: Ø22 × 173 mm NZ, NR: Ø38 × 174 mm	
Weight		Probe: 200 g	NK, NN: Probe: 200 g ND, NH: Probe: 300 g	Probe: 0.4 kg	NP, NF: Probe: 200 g NZ, NR: Probe: 300 g	
Material of wetted parts	Sensor	Al ₂ O ₃			1.4404 (316L) or (1.4571 [316Ti] and 1.4435 [316L]	
	Housing	POM	1.4571 (316Ti)			
	Cable coating	Polyurethane (PUR) or FEP				
	Seals	Viton® (FKM)				
	Protective cap	POM	1.4571 (316Ti)	-		1.4571 (316Ti)

⁽¹⁾ mH₂O means: 1 metre of water column, 1 mH₂O ~0.1 bar

⁽²⁾ High-temperature (+75 °C) variant on request.

⁽³⁾ As order code.

Ex INFORMATION

	NP□ / NF□ / NZ□ / NR□ / NK□ / NN□ / ND□ / NH□-5□□-□ Ex
Protection	Intrinsic safety
Ex marking	Up to 100 m cable length: $\text{Ex II 1G Ex ia IIC T6 Ga}$, between 100 m and 300 m cable length: $\text{Ex II 1G Ex ia IIB T6 Ga}$
Intrinsic safety data	$U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$, $P_i = 0.8 \text{ W}$ for IIC gas group: $C_i \leq 52 \text{ nF}$, $L_i \leq 1.4 \text{ mH}$ (calculated with 100 m integrated cable), for IIB gas group: $C_i \leq 132 \text{ nF}$, $L_i \leq 1.6 \text{ mH}$
Supply voltage	14...30 V DC
Operation temperature range	-30...+60 °C

TECHNICAL PROPERTIES OF ACCESSORIES

NAA-101 – Cable terminal box

Dimensions	93 × 93 × 55 mm
Ingress protection	IP65
Process temperature range	-40...+70 °C
Material	Polystyrene
Cable gland	M20×1.5 (cable outer diameter: Ø5...Ø10 mm)
Electrical connection	Terminal block (for max. 2.5 mm ² wire cross section)

NAA-102 – Cable terminal box with overvoltage protection

Data	See NAA-101
Electrical Properties	See OVP

NAA-209 – Cable mounting wedge clamp

Max. mechanical load	300 m cable
Material	Polyamide, stainless steel wedge clamp
Process temperature range	-20... + 60 °C

Overvoltage protection

	OVP-22 / -33 ⁽¹⁾	OVP-32 / -33 ⁽¹⁾
Version	Field use	Rail-mountable (EN 60715)
Dimensions	72 × 42 × 19 mm	62 × 65 × 18 mm
Ingress protection	IP54	IP20
Breakdown voltage	33 V	
Absorbed energy	600 W / 1 ms	
Serial resistance	13 Ω	
Leakage current	≤ 10 µA	

⁽¹⁾ Applicable only for one 2-wire 4...20 mA (HART®) device!



NAA-101 / NAA-102 cable terminal box



NAA-209 cable mounting unit



NAA-105 cable-holding sliding sleeve



OVP-32 / 33 Overvoltage Protection Unit



OVP-22 / 33 Overvoltage Protection Unit

NIVOPRESS N-200 with capacitive ceramic sensor **5 years**

2-wire submersible hydrostatic level transmitter for liquids with capacitive ceramic sensor; humidity filter: fixed to breathing cable

Type / Cable material

N □ □ - 2 □ □ - □	
C	Capacitive ceramic sensor / PUR
T	Capacitive ceramic sensor / FEP

Output

N □ □ - 2 □ □ - □	
K	2-wire, 4...20 mA output
P	Level: 4...20 mA + Temperature: Pt100 sensor

Version

N □ □ - □ □ □ □ - □	
2	Standard

Range

N □ □ - 2 □ □ - □	
1	0...1 mH2O (0...100 mbar)
2	0...2 mH2O (0...200 mbar)
3	0...5 mH2O (0...500 mbar)
4	0...10 mH2O (0...1000 mbar)
5	0...20 mH2O (0...2000 mbar)

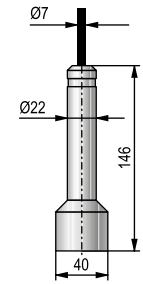
Breathing cable length

N □ □ - 2 □ □ - □	
PUR cable	
n n	1...99 m; sold by the meter
o o	100...190 m; sold by the meter
p p	200...290 m; sold by the meter
r r	300...390 m; sold by the meter
s s	400...450 m; sold by the meter
FEP cable	
n n	1...99 m; each started 1 m
o o	100...190 m; each started 1 m
p p	200...290 m; each started 1 m
r r	300...390 m; sold by the meter
s s	400...450 m; sold by the meter

nn = 01...99 : 1...99 m
 oo = A0...A9 : 100...190 m
 pp = B0...B9 : 200...290 m
 rr = C0...C9 : 300...390 m
 ss = D0...D5 : 400...450 m

Available on request (must be specified in the text of the order)

High-temperature (up to +75 °C) version
 Custom 4...20 mA output calibration



N□□ / NT□□-200

NIVOPRESS N-400 stainless steel sensor

5 years

2 or 3-wire submersible hydrostatic level transmitter for liquids with stainless steel piezoresistive sensor; humidity filter: fixed to breathing cable

Sensor / Cable material

N - - -

P	Piezoresistive stainless steel sensor / PUR
F	Piezoresistive stainless steel sensor / FEP
Z	Piezoresistive stainless steel sensor, 3/4" BSP process connection / PUR
R	Piezoresistive stainless steel sensor, 3/4" BSP process connection / FEP

Output

N - - -

K	2-wire, 4...20 mA + HART
H	* 3-wire, 0...10 V DC output (up to 200 mH2O)
D	* Level: 4...20 mA + HART + Temperature: 4...20 mA (electronic temp. sensor)
P	Level: 4...20 mA + HART + Temperature: Pt100 sensor

* Ex version not available

Version

N - - -

4	Standard
5	Ex ia G

Range

N - - -

1	0...1 mH2O (0...100 mbar)
2	0...2 mH2O (0...200 mbar)
3	0...5 mH2O (0...500 mbar)
4	0...10 mH2O (0...1000 mbar)
5	0...20 mH2O (0...2000 mbar)
6	0...50 mH2O (0...5000 mbar)
7	0...100 mH2O (0...10000 mbar)
8	0...200 mH2O (0...20000 mbar)
9	0...350 mH2O (0...35000 mbar)

Breathing cable length

N - - -

PUR cable

n n	1...99 m; sold by the meter
o o	100...190 m; sold by the meter
p p	200...290 m; sold by the meter
r r	300...390 m; sold by the meter
s s	400...450 m; sold by the meter

FEP cable

n n	1...99 m; sold by the meter
o o	100...190 m; sold by the meter
p p	200...290 m; sold by the meter
r r	300...390 m; sold by the meter
s s	400...450 m; sold by the meter

nn = 01...99 : 1...99 m

oo = A0...A9 : 100...190 m

pp = B0...B9 : 200...290 m

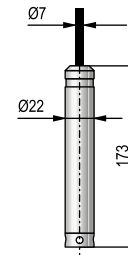
rr = C0...C9 : 300...390 m

ss = D0...D5 : 400...450 m

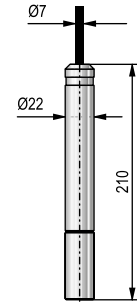
Available on request (must be specified in the text of the order)

High temperature (up to +75 °C) version (Ex version not available)

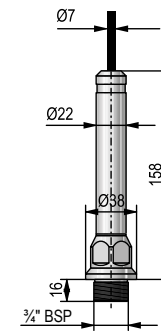
Custom 4...20 mA output calibration



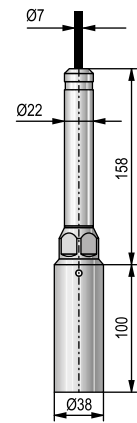
NP□ / NF□-400 / 500



NP□ / NF□-400 / 500
+ NAW-104



NZ□ / NR□-400 / 500



NZ□ / NR□-400 / 500
+ NAZ-103

NIVOPRESS N-400 piezoresistive ceramic sensor **5 years**

2-wire submersible hydrostatic level transmitter for liquids with piezoresistive ceramic sensor; humidity filter: fixed to breathing cable

Sensor / Cable material / Housing material

N	□ □ - □ □ □ - □ □
K	Piezoresistive ceramic sensor / PUR / 1.4571
N	Piezoresistive ceramic sensor / FEP / 1.4571
B	* Piezoresistive ceramic sensor / PUR / POM
G	* Piezoresistive ceramic sensor / FEP / POM
D	Piezoresistive ceramic sensor, 3/4" BSP process connection / PUR / 1.4571
H	Piezoresistive ceramic sensor, 3/4" BSP process connection / FEP / 1.4571

* Ex version not available

Output

N	□ □ - □ □ □ □ - □ □
K	2-wire, 4...20 mA + HART
P	Level: 4...20 mA + HART + Temperature: Pt100 sensor

Version

N	□ □ □ - □ □ □ □ - □ □
4	Standard
5	Ex ia G

Range

N	□ □ □ - □ □ □ □ □ - □ □
1	0...1 mH2O (0...100 mbar)
2	0...2 mH2O (0...200 mbar)
3	0...5 mH2O (0...500 mbar)
4	0...10 mH2O (0...1 000 mbar)
5	0...20 mH2O (0...2 000 mbar)
6	0...50 mH2O (0...5000 mbar)
7	0...100 mH2O (0...10000 mbar)
8	0...200 mH2O (0...20000 mbar)

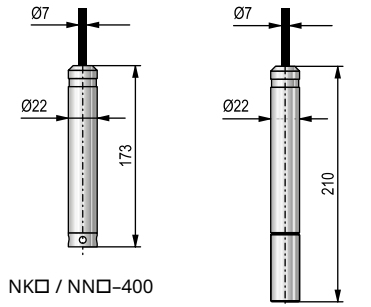
Breathing cable length

N	□ □ □ □ - □ □ □ □ □ □ - □ □
PUR cable	
n n	1...99 m; each started 1 m
o o	100...190 m; sold by the meter
p p	200...290 m; sold by the meter
C 0	300 m; sold by the meter
FEP cable	
n n	1...99 m; sold by the meter
o o	100...190 m; sold by the meter
p p	200...290 m; sold by the meter
C 0	300 m; sold by the meter

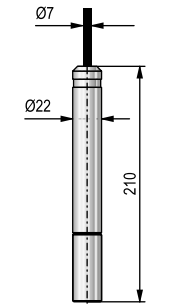
nn = 01...99 : 1...99 m
 oo = A0...A9 : 100...190 m
 pp = B0...B9 : 200...290 m

Available on request (must be specified in the text of the order)

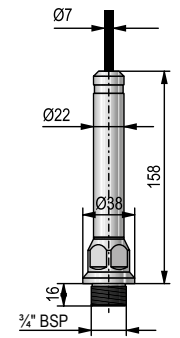
High temperature (up to +75 °C) version
 Custom 4...20 mA output calibration



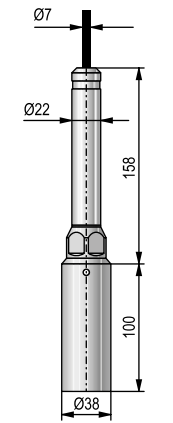
NIK / NN-400



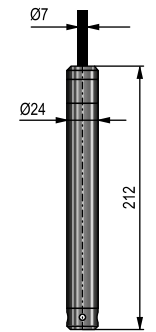
NIK / NN-400 + NAW-104



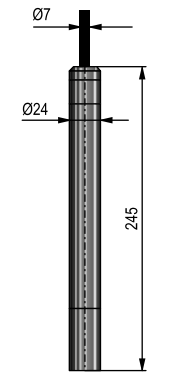
NIK / NH-400



NIK / NH-400 + NAZ-103



NIK / NG-400



NIK / NG-400 + NAW-107

NIV24
 NPK-431-0
 NPK-441-0

NIVOPRESS N-400 separated head unit

5 years

2-wire submersible hydrostatic level transmitter for liquids with piezoresistive ceramic sensor; separated head unit

Sensor / Housing material

N B - 0 - 0

B Piezoresistive ceramic sensor / POM

Output / Version

N B - 0 - 0

B 2-wire, 4...20 mA + HART

Version

N B B - 0 - 0

4 Standard

5 * Ex ia G

* Under development

Range

N B B - 0 - 01 0...1 mH₂O (0...100 mbar)2 0...2 mH₂O (0...200 mbar)3 0...5 mH₂O (0...500 mbar)4 0...10 mH₂O (0...1 000 mbar)5 0...20 mH₂O (0...2 000 mbar)6 0...50 mH₂O (0...5000 mbar)7 0...100 mH₂O (0...10000 mbar)8 0...200 mH₂O (0...20000 mbar)

Available on request (must be specified in the text of the order)

High temperature (up to +75 °C) version

Custom 4...20 mA output calibration

NIVOPRESS N-400 Detachable cable set

5 years

Detachable cable set for 2-wire submersible hydrostatic level transmitter with connector; with humidity filter: fixed to breathing cable

Cable material

N A - 4 0 -

B PUR

G FEP

Cable length

N A - 4 0 -

PUR cable

n n 1...99 m; sold by the meter

o o 100...190 m; sold by the meter

p p 200...290 m; sold by the meter

r r 300...390 m; sold by the meter

s s 400...450 m; sold by the meter

FEP cable

n n 1...99 m; sold by the meter

o o 100...190 m; sold by the meter

p p 200...290 m; sold by the meter

r r 300...390 m; sold by the meter

s s 400...450 m; sold by the meter

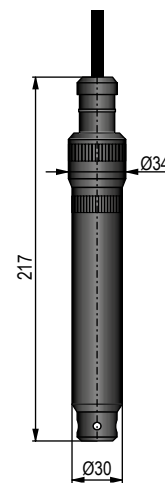
nn = 01...99 : 1...99 m

oo = A0...A9 : 100...190 m

pp = B0...B9 : 200...290 m

rr = C0...C9 : 300...390 m

ss = D0...D5 : 400...450 m



NBB-□□□

NIVOPRESS N accessories (sold separately) 5 years

Terminal boxes and cable mounting units

N A A - 1 0 □ - 0	
1	Terminal box with filter without OVP
2	Terminal box with filter with OVP-12/33 (only for N_K versions)
5	Sliding sleeve 1½" BSP
6	Sliding sleeve 1½" NPT
N A A - 2 0 9 - 0 Cable mounting wedge clamp	

Overvoltage protection units

O V P - □ 2 S - L	
2	OVP-22/33, outdoor, IP54
3	OVP-32/33, IP20, DIN rail mounting

Sewage adapters

N A W - 1 0 □ - 0	
4	Can be mounted in the place of the protective cap / 1.4571
7	Can be mounted in the place of the protective cap / POM (applicable when there is no risk of tilting)
N A Z - 1 0 3 - 0 Sewage adapter (for ¾" threaded process connection) / 1.4571	

Detachable sensor accessories

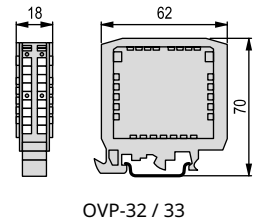
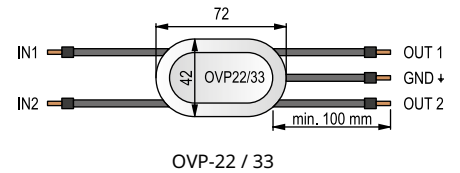
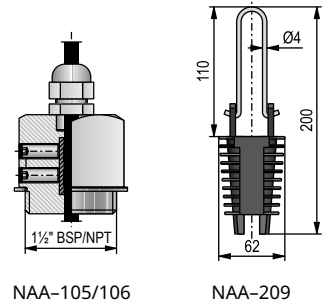
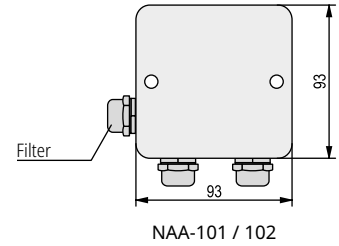
N A S - 1 0 □ - 0	
0	Separating ring
1	Protective cap for sensor head
2	Protective cap for cable set

Adapters

E A A - 1 5 3 - 0	¾" BSP / ½" BSP (1.4571)
E A A - 1 5 7 - 0	¾" BSP / M20x1.5 (1.4571)
E A A - 1 5 8 - 0	¾" BSP / 1" BSP (1.4571)
E A A - 1 5 9 - 0	¾" BSP / 1" NPT (1.4571)

Accessories (sold separately; see relevant page for details)

NAA-102-0M-100-00	Breathing cable gland
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem



- NIV24**
- NAA-209-0
- OVP-22 / 33
- OVP-32 / 33
- NAA-101-0