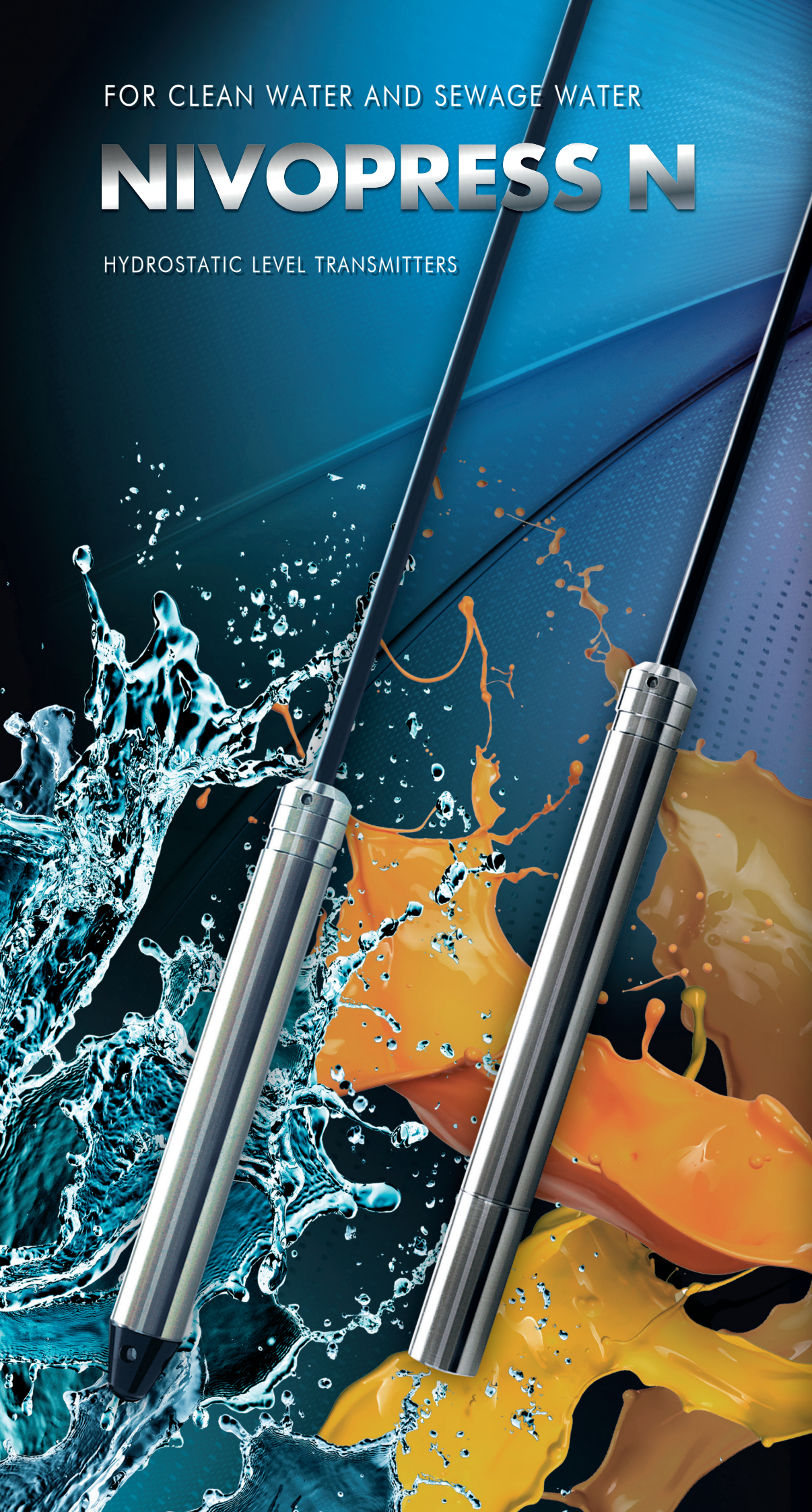


FOR CLEAN WATER AND SEWAGE WATER

NIVOPRESS N

HYDROSTATIC LEVEL TRANSMITTERS



3 YEARS WARRANTY @ NIVELCO – WHERE ELSE?

NIVELCO

LEVEL TRANSMITTERS

NIVOPRESS N HYDROSTATIC LEVEL TRANSMITTERS FOR CLEAN WATER AND SEWAGE APPLICATIONS

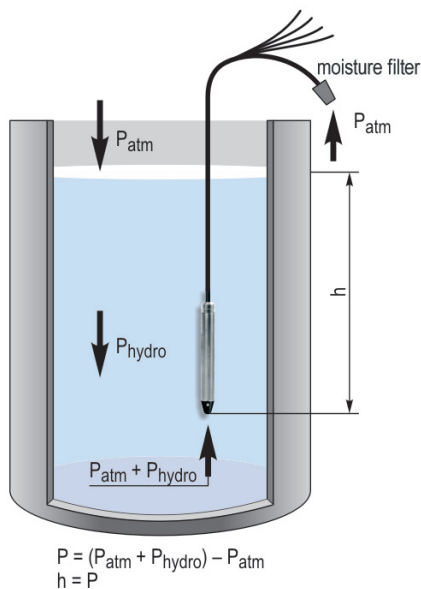
FEATURES

- Measuring range up to 200 m
- Built-in Pt100 temperature sensor
- Remote programmable
- IP68 protection
- Submersible or screw-in types
- Ø 22 mm tube
- HART communication
- 2- or 3-wire versions
- 2 x 4-20mA output (level + temperature)
- Overvoltage and inverse polarity protection
- Wide range of accessories
- Ex version
- Approved for potable water
- 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 contaminated liquids
- Sewage waters
- Draw-down protection
- Sewage lift station control

APPLICATIONS



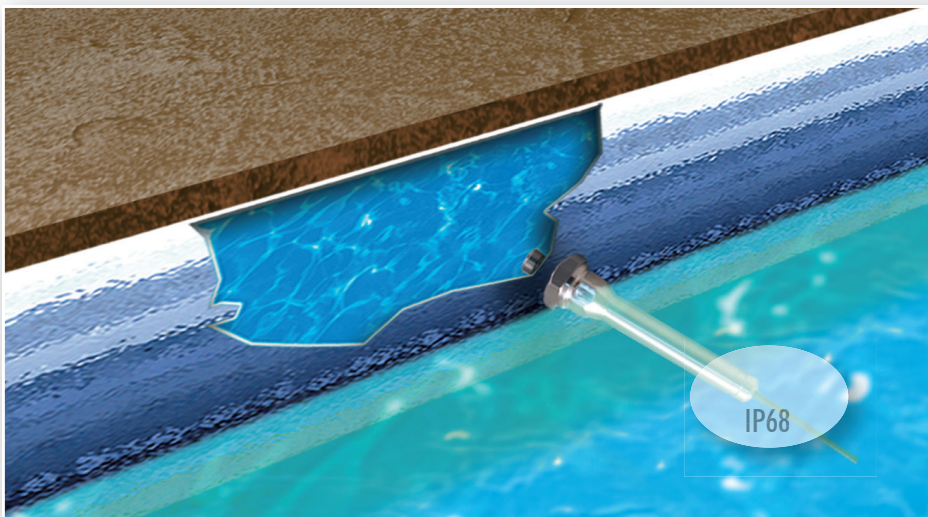
GENERAL



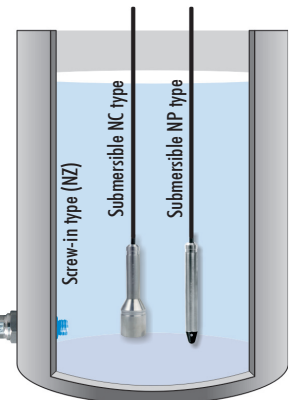
The NIVOPRESS N hydrostatic level transmitters are designed to measure the level of clean or contaminated liquids. The pressure sensor at the bottom of the probe measures the sum of the hydrostatic pressure (Phydro) of the liquid column above it and the atmospheric pressure (Patm). The atmospheric pressure 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 types are recommended for applications where there is a risk of flooding.

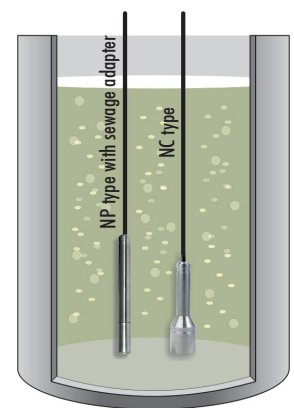
APPLICATIONS



Screw-in type transmitter in places with risk of flooding



Hydrostatic transmitters for clean waters



Hydrostatic transmitters for contaminated waters

TECHNICAL DATA

Type	2 wire		3 wire	
	NP, NF / NZ	NC	NPH, NFH / NZH	
Measuring Range	0 ... 200 m w.h. (0 ... 656 ft)	0 ... 20 m w.h. (0 ... 65 ft)	0 ... 200 m w.h. (0 ... 656 ft)	
	As order code, for units with HART output the range can be downscaled to 50% of the nominal range			
Overload allowed (versus range)	3 x	20x (h ≤ 3 m w.h. (10 ft)) 10x (h > 3 m w.h. (10 ft))	3 x	
Output	4 – 20 mA + HART	4 – 20 mA	0 – 10V (0 V ≤ 80 mV) measured to the power supply	
Power Supply	12 – 30 V DC		18 – 30 V DC / 6mA	
Max. Load (Ut = power supply; Umin = min. power supply)	$R_{min} = \frac{(U_t - U_{min})}{0.02 \text{ A}}$		≥ 5 kΩ	
Temperature transmitter NPD, NZD types	Power Supply: 12...30 V DC / 4 – 20mA; 0...+60°C (32 °F ... 140 °F), Accuracy: ±3°C (±5.4°F)			
Temperature sensor NPP, NZP and NCP types	Pt100 B, 4-wire		–	
Linearity (level)	± 0.25 %			
Temperature Error	≤ ± 0.1 % / 10 K		≤ ± 0.2 % / 10 K	
Process temperature (1)	–10 °C ... +60 °C (14 °F ... 140 °F)	0 °C ... +60 °C (32 °F ... 140 °F)	–10 °C ... +60 °C (14 °F ... 140 °F)	
Mechanical connection	NAA-209 cable mounting wedge clamp, NZ types: 3/4" BSP thread			
Ingress protection	IP 68			
Electrical protection	Class III.			
Electrical connection	Shielded cable with breathing capillary			
Cable	Ø 7 mm; 4x0.34 mm ² (AWG22) Cu + 2x0.14 mm ² (AWG25) St.			
Cable Length	0 ... 300 m (0 ... 985 ft) as order code			
Dimensions	NP: Ø 22x179 mm (0.87x7 inch) NZ: Ø 38x158 mm (1.5x6.2 inch)	Ø 40x146 mm (1.55x5.75 inch)	NP: Ø 22x179 mm (0.87x7 inch) NZ: Ø 38x158 mm (1.5x6.2 inch)	
Mass	NP: Probe 0.2 kg (0.44 lb) NZ: Probe 0.3 kg (0.66 lb)	Probe: 0.4 kg (0.88 lb)	Probe: 0.2 kg (0.44 lb)	
	Cable: ~ 0.06 kg/m (0.045 lb/ft)			
Material of wetted parts	Sensor	1.4404 (316L)	Al ₂ O ₃ ceramic	1.4404 (316L)
	Housing	1.4571 (316Ti)		
	Cable coating	Polyurethane (PUR) or FEP		
	Sealings	VITON (FKM)		
	Protecting cap	NP: ABS	–	NPH: ABS

(1) High temperature (up to 75 °C (167 °F)) version is available on special request

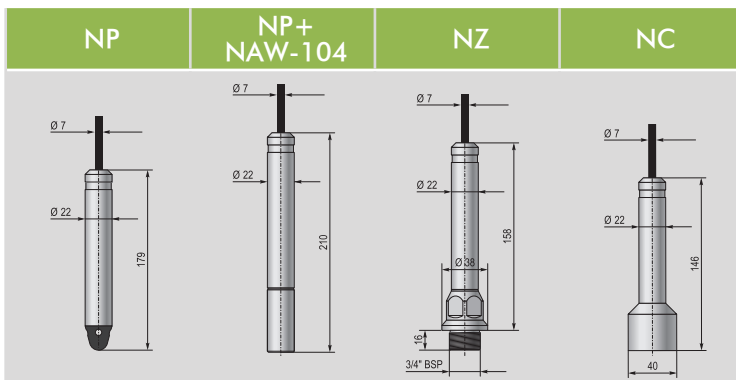
SPECIAL DATA FOR EX CERTIFIED MODELS

Type	NP / NZ – 500 types
Protection type	Intrinsically safe
Ex marking	ATEX Ⓜ II 1G Ex ia IIC T6
Intrinsically safe data	U _i = 30 V, I _i = 100 mA, P _i = 0.8 W, C _i = 12 nF+ h x 0.4 nF; L _i = 1.3mH + h x 0.9 μH (h = cable length in meter)
Power supply	14...30 V DC
Operation temperature range:	–10 °C ... 60 °C (14 °F ... 140 °F)

WIRING

Type	NP / NZ – 500 types			
Cable core	NOK	NOH	NOD	NOP
1 yellow	⏚	⏚	⏚	⏚
2 red	I+	U+	I+	I+
3 black/blue	I-	U-	I-	I-
4 uncolored	–	U _{out}	I+ (°C)	 Pt100
6 black	–	–	–	
7 black/red	–	–	–	
5 uncolored/blue	–	–	I- (°C)	
L breathing capillary	L	L	L	

DIMENSIONS



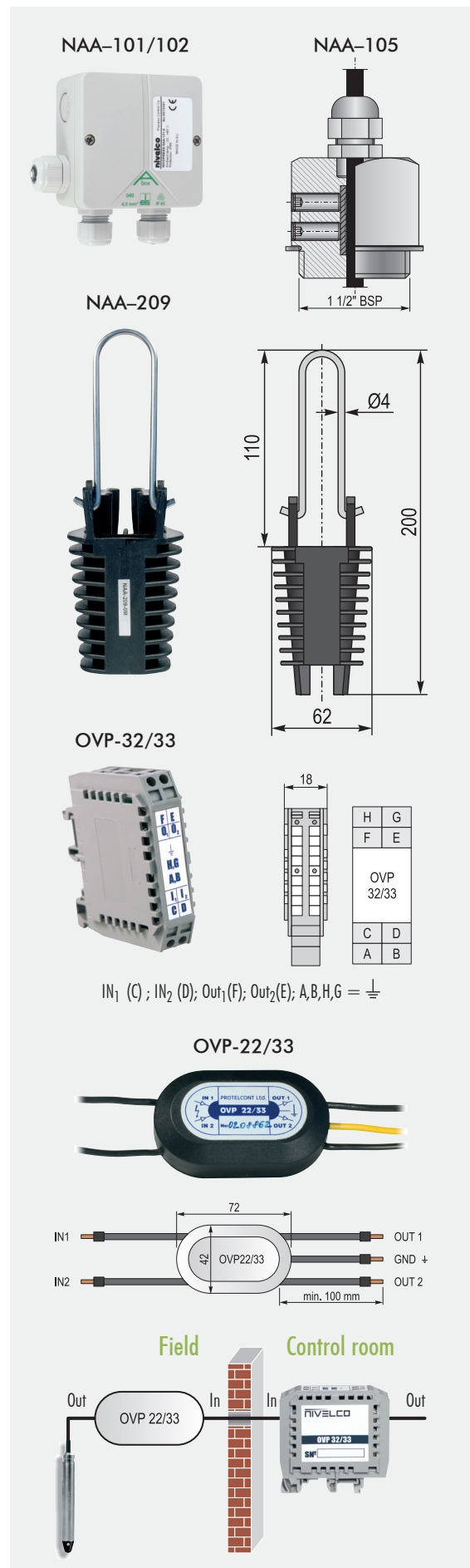
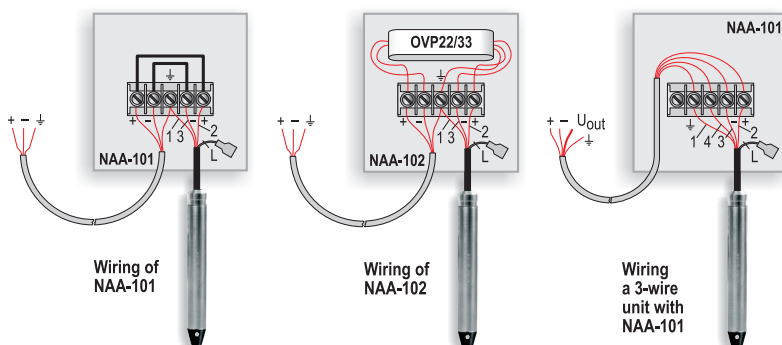
ACCESSORIES

A wide range of accessories make an easier and safer installation and usage of the NIVOPRESS N hydrostatic level transmitters.

Technical data of the accessories

Cable terminal box	NAA-101	
Dimensions	93 x 93 x 55 mm (3.66 x 3.66 x 2.16 inch)	
Ingress protection	IP 65	
Operating temperature	-40 °C ... +70 °C (-40 °F ... +158 °F)	
Material	Plastic	
Cable gland	M20x1.5 (cable Ø 5... Ø 10 mm (0.2 ... 0.4 inch))	
Electrical connections	Terminal block for cable with max. cross section of 2.5 mm ² (AWG13)	
Cable terminal box with overvoltage protection	NAA-102(2)	
Data	See NAA-101	
Electrical Data	See OVP	
Cable mounting wedge clamp	NAA-209	
Max. mech. load	300 m (985 ft) cable	
Material	Polyamide, stainless steel wedge clamp	
Operating temperature	-20 °C ... +60 °C (-4 °F ... +140 °F)	
Overvoltage protection unit	OVP22/33(2)	OVP32/33(2)
Type	field use	DIN 35 mm rail mountable
Dimensions	72 x 42 x 19 mm (2.8 x 1.65 x 0.75 inch)	62 x 65 x 18 mm (2.44 x 2.56 x 0.7 inch)
Ingress protection	IP 54	IP 20
Breakdown voltage	33 V	
Absorbed energy	600 W / 1 ms	
Serial resistance	13 Ω	
Leakage current	≤ 10 μA	

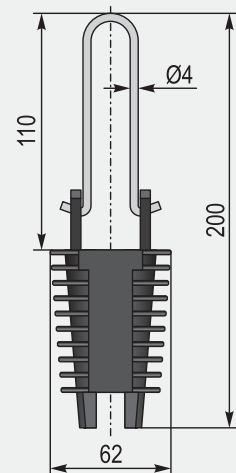
(2) only for 2-wire 4 – 20 mA equipments!



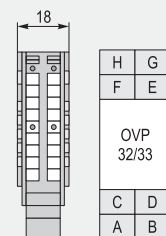
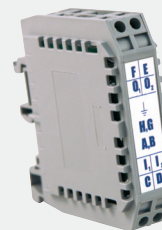
NAA-101/102

NAA-105

NAA-209

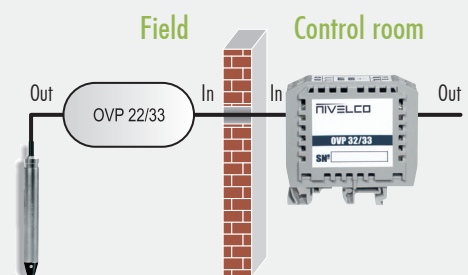
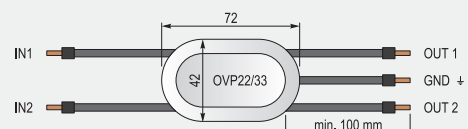


OVP-32/33



IN₁ (C) ; IN₂ (D); Out₁(F); Out₂(E); A,B,H,G = ⚬

OVP-22/33



ACCESSORIES

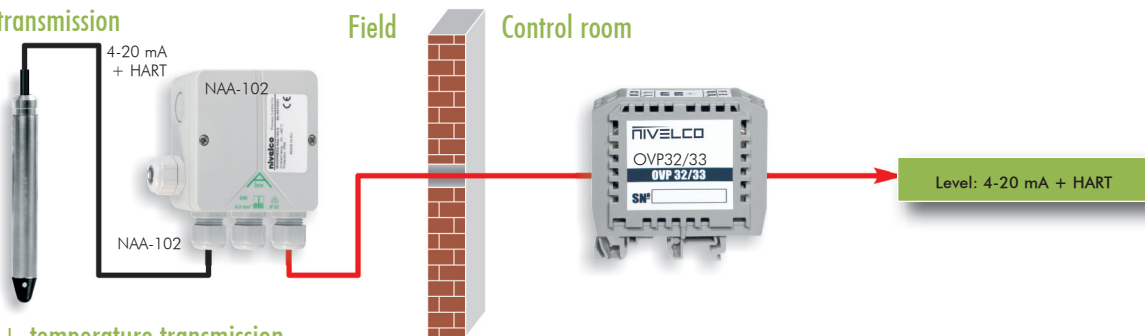
NAA-101: Cable terminal box with moisture filter and terminals for wiring the unit
NAA-102: Cable terminal box with moisture filter and terminals and OVP-12/33 for wiring the unit
NAA-209: Cable mounting wedge clamp
OVP-22/33: outdoor overvoltage protection unit with IP54 protection for use in 4-20 mA loop

OVP-32/33: indoor overvoltage protection unit with IP20 protection for use in 4-20 mA loop

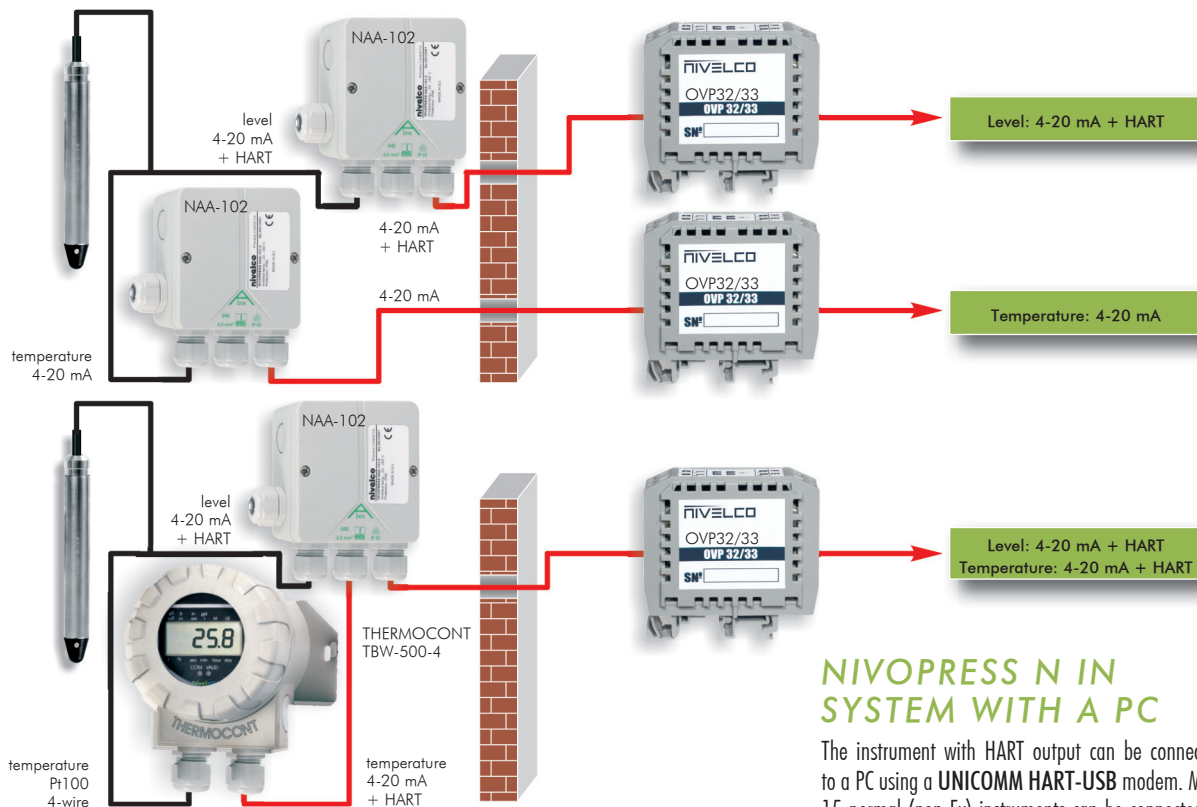
NAW-104: Stainless steel 1.4571 (316 Ti) sewage adapter for NP types
NAA-105: Cable sliding sleeve with 1 1/2" thread; material: stainless steel 1.4571 (316 Ti)

MEASURING CIRCUITS

Level transmission



Level + temperature transmission

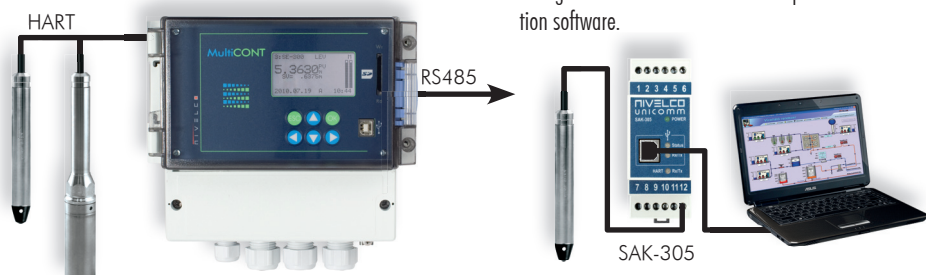


NIVOPRESS N IN SYSTEM WITH A PC

The instrument with HART output can be connected to a PC using a UNICOMM HART-USB modem. Max. 15 normal (non Ex) instruments can be connected to a HART line. Measured values can be visualised and/or the instruments can be programmed via digital HART communication. Applicable software: **EView2** configuration software or **NIVISION** process visualization software.

NIVOPRESS N IN SYSTEM WITH MULTICONT

MultiCONT can handle a max. of 15 normal or max 4 Ex-proof HART capable transmitters. The digital (HART) information is processed, displayed and if needed it can be transmitted via RS485 communication line to a PC. Remote programming of the transmitters is also possible. Visualisation on PC can be accomplished with **NIVISION** process visualization software.



ORDER CODES (NOT ALL COMBINATION AVAILABLE)

NIVOPRESS N hydrostatic level transmitters

NIVOPRESS N ■■■ - ■■■ - ■■■ (1)

Sensor / Cable	Code
Piezo / PUR	P
Piezo threaded / PUR	Z
Piezo / FEP	F(2)
Capacitance ceramic / PUR	C(2)

Version	Code
Normal - With ceramic sensor	2(3)
Normal - With piezo sensor	4
Ex - With piezo sensor	5

Code	Cable lenbgt	Cable lenbgt	Code
0	0 m	0 m	0
1	10 m	1 m	1
2	20 m	2 m	2
3	30 m	3 m	3
4	40 m	4 m	4
5	50 m	5 m	5
6	60 m	6 m	6
7	70 m	7 m	7
8	80 m	8 m	8
9	90 m	9 m	9

With piezo sensor	
Output	Code
4-20 mA + HART	K
0 - 10 V DC	H(2)
Level: 4-20 mA + HART Temperature: 4-20 mA	D
Level: 4-20 mA + HART Temperature: Pt100	P

Range (4)	Code
0...1 m water h. (0...100 mbar)	1
0...2 m water h. (0...200 mbar)	2
0...5 m water h. (0...500 mbar)	3
0...10 m water h. (0...1000 mbar)	4
0...20 m water h. (0...2000 mbar)	5
0...50 m water h. (0...5000 mbar)	6
0...100 m water h. (0...10000 mbar)	7
0...200 m water h. (0...20000 mbar)	8

Code	Cable lenbgt	Cable lenbgt	Code
A	100 m	0 m	0
B	200 m	10 m	1
C	300 m	20 m	2
		30 m	3
		40 m	4
		50 m	5
		60 m	6
		70 m	7
		80 m	8
		90 m	9

- (1) The order code of an Ex version should end in "Ex"
 (2) Not available in Ex version
 (3) For maximum 20 m water height
 (4) For HART capable units the range can be downscaled to 50% of the nominal range with remote programming

Accessories and auxiliary devices to order

Accessories	NAA-101	Cable terminal box with moisture filter
	NAA-102	Cable terminal box with moisture filter with OVP 22/33 (only for 2-wire types)
	NAW-104	Sewage adapter for NP types
	NAA-105	Cable sling sleeve with cable gland and 1 1/2" thread
	NAA-209	Cable mounting wedge clamp
	OVP-22/33	IP 54 outdoor overvoltage protection unit for 4-20 mA loop
	OVP-32/33	DIN rail mountable IP 20 indoor overvoltage protection unit for 4-20 mA loop
Auxiliary devices	MultiCONT P-200	Wall mountable multichannel process controller / display unit
	NIPOWER PPK-331	DIN rail mountable 24V DC power supply unit
	THERMOCONT TBW-500	Field display / temperature transmitter unit for Pt100 sensor output, wall mountable
	UNICONT PKK-312	Current controlled limit switch with SPDT relay output, DIN rail mountable
	UNICONT PDF-401	Universal current loop indicator for 4-20 mA transmitters, wall mountable
	UNICONT PMM-511	Universal process controller / display panel unit
	UNICONT PGK-301 Ex	Intrinsically safe power supply unit, DIN rail mountable
	UNICOMM SAK-305	HART- USB/RS485 modem for remote programming via PC, DIN rail mountable
	UNICOMM SAT-304	HART- USB modem for remote programming via PC
EView2	Configuration software for remote programming via PC	

