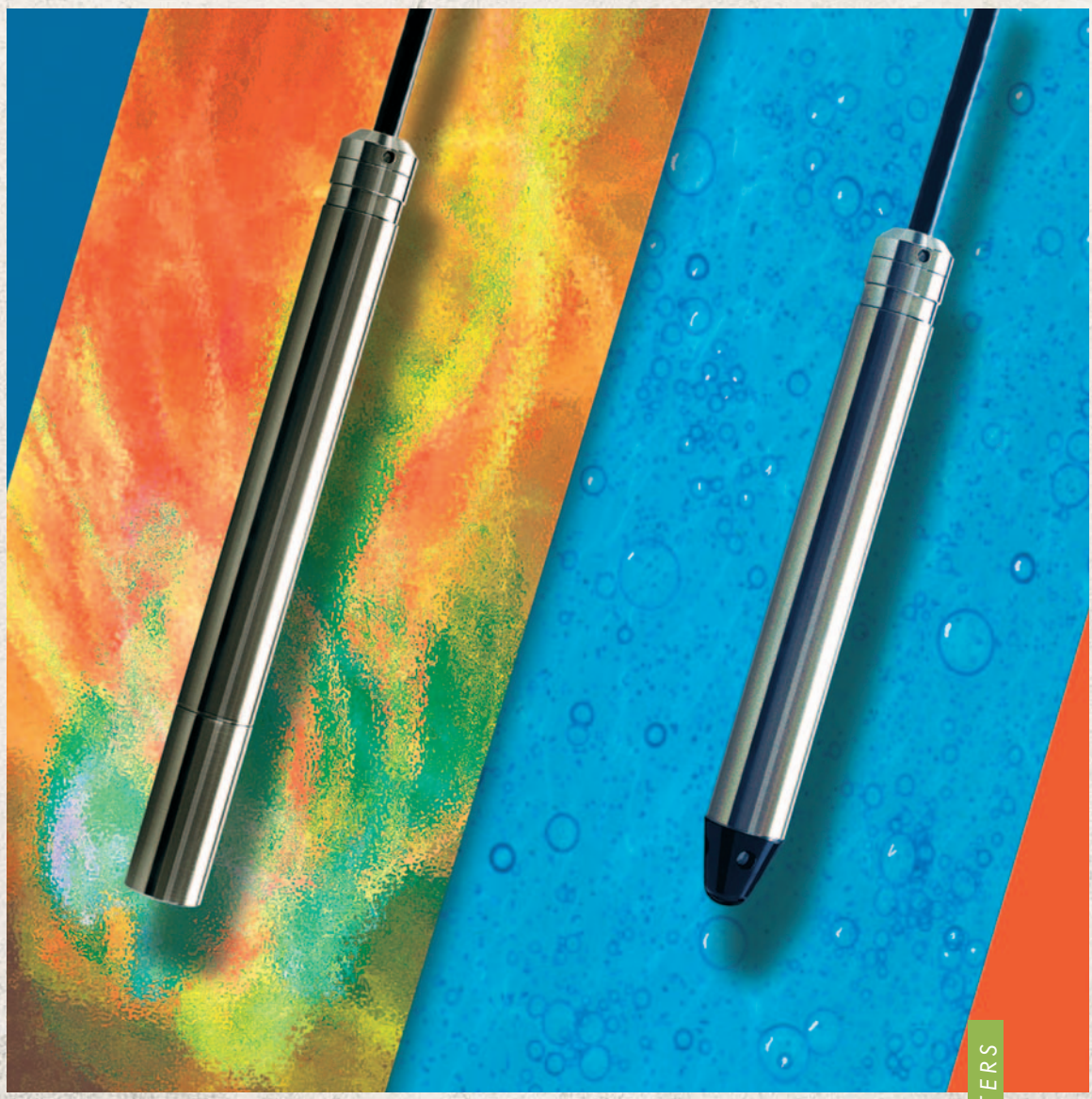
For clean water
and sewage water

NIVOPRESS N

HYDROSTATIC LEVEL TRANSMITTERS



OUR PROFESSION IS YOUR LEVEL

LEVEL TRANSMITTERS

NIVOPRESS N HYDROSTATIC LEVEL TRANSMITTERS FOR CLEAN WATER AND SEWAGE APPLICATIONS

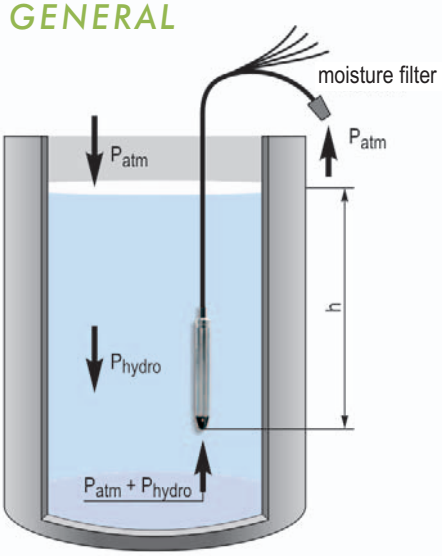
FEATURES

- *Measuring range up to 200m*
- *Built-in Pt100 temperature sensor*
- *IP68 protection*
- *Submersible or screw-in types*
- *Ø22 mm tube*
- *HART communication*
- *2- or 3-wire versions*
- *Ex versions*
- *2 x 4…20mA output (level + temperature)*
- *Overvoltage and inverse polarity protection*
- *Wide range of accessories*

APPLICATIONS

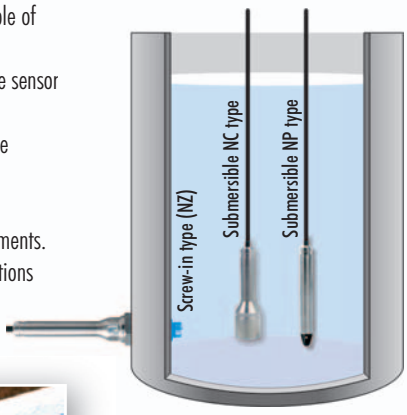
- *Level and temperature measurement of drinking water wells, tanks, pools*
- *Submersible pump control*
- *Screw-in submersible type with IP68 protection for applications with risk of flooding*
- *Clean or slightly contaminated liquids*
- *Sewage waters*
- *Draw-down protection*
- *Sewage lift station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

GENERAL



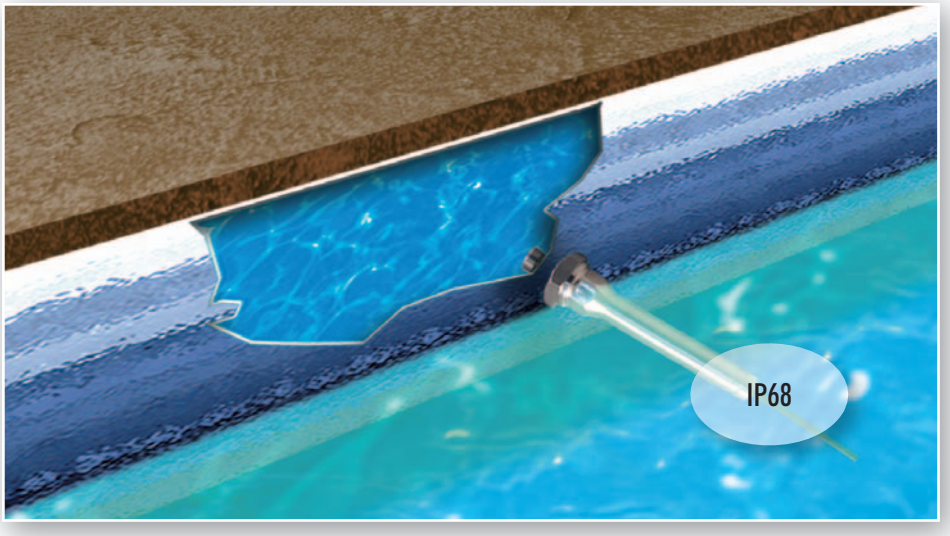
The **Nivopress N** hydrostatic level transmitters are designed to measure the level of clean or contaminated liquids. The pressure sensor at the bottom of the probe measures the sum of the hydrostatic pressure (Phydr) of the liquid column above it and the atmospheric pressure (Patm). The atmospheric 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.

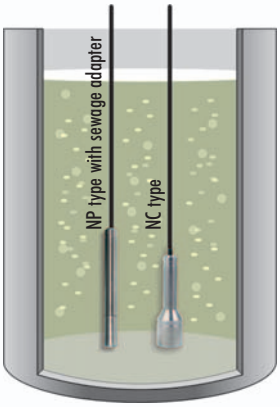


Hydrostatic transmitters for clean waters

APPLICATIONS



Screw-in type transmitter in places with risk of flooding



Hydrostatic transmitters for contaminated waters

TECHNICAL DATA

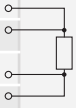
Type	2 wire		3 wire
	NP / NZ	NC	NPH / NZH
Measuring Range*	0 … 200 m w.h.	0 … 20 m w.h.	0 … 200 m w.h.
	As order code, for units with HART output the range can be downscaled to 50% of the nominal range		
Overload allowed (versus range)	3 x	20x (h ≤ 3 m w.h.) 10x (h > 3 m w.h.)	3 x
Output	4 ... 20 mA + 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)	$Rmin = \frac{(Ut - Umin)}{0{,}02\ A}$		≥ 5 kohm
Linearity (level)	± 0,25 %		
Temperature Error	≤ ± 0,1 % / 10 K		≤ ± 0,2 % / 10 K
Temperature transmitter **NPD, NZD** types	Power Supply:12…30 VDC/4…20mA; 0…+60°C, Accuracy: ±3°C		
Temperature sensor **NPP**, **NZP** and **NCP** types	Pt100B, 4-wire		–
Process temperature**	–10 ... +60 °C	0 ... +60 °C	–10 ... +60 °C
Mechanical connection	**NZ** type ¾" BSP thread	–	–
Ingress protection	IP 68		
Electrical protection	Class III.		
Electrical connection	Shielded cable with breathing capillary		
Cable	Ø 7 mm; 4x0.34 mm² Cu + 2x0.14 mm² St.		
Cable Length	0 ... 300 m as order code		
Dimensions	**NP:** Ø 22x179 mm **NZ:** Ø 38x158 mm	Ø40x146 mm	**NP:** Ø 22x179 mm **NZ:** Ø 38x158 mm
Mass	Probe: 0,2 kg	Probe: 0,4 kg	Probe: 0,2 kg
	Cable: ~ 0,06 kg/m		
Material of wetted parts – Sensor	1.4404	Al_2O_3 ceramic	1.4404
Material of wetted parts – Housing	1.4571		
Material of wetted parts – Cable coating	Polyurethane		
Material of wetted parts – Sealings	VITON (FKM)		

* Measuring range can be given in bar also
** Special order +75°C

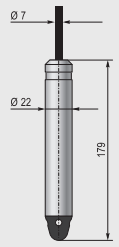
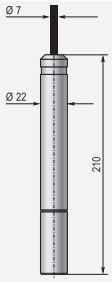
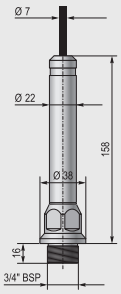
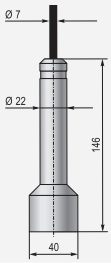
ADDITIONAL DATA FOR 'EX' APPROVED MODELS

Type	NP / NZ – 500 types
Power supply	14…30 V DC
Ex marking	⟨Ex⟩ II 1G EEx ia IIC T6
Intrinsical safety	Ui = 30 V, Ii = 100 mA, Pi = 0,8 W, Ci = 12 nF+ h x 0,04 nF; Li = 1.3mH + h x 0,9 µH (h = cable length)

WIRING

Type / Cable core		N□K	N□H	N□D	N□P
1	yellow	⏚	⏚	⏚	⏚
2	red	I_+	U_+	I_+	I_+
3	black/blue	I_-	U_-	I_-	I_-
4	uncolored	–	U_{out}	–	 Pt100
6	black	–	–	I_-(°C)	
7	black/red	–	–	–	
5	uncolored/blue	–	–	I_+(°C)	
L	breathing capillary	L	L	L	L

DIMENSIONS

NP	NP+ NAW-104	NZ	NC
			

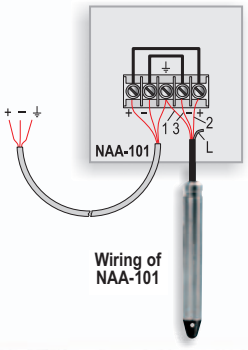
ACCESSORIES

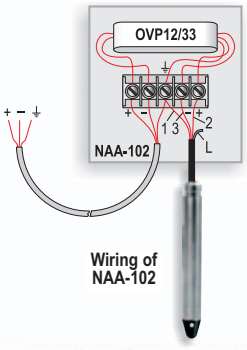
A wide range of accessories make an easier and safer installation and usage of the **Nivopress N** hydrostatic level transmitters.

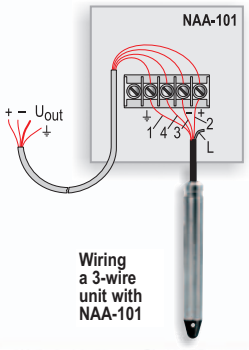
Technical data of the accessories

Cable terminal box	NAA-101	
Dimensions	93 x 93 x 55 mm	
Ingress protection	IP 65	
Operating temperature	–40 °C … +70 °C	
Material	Plastic	
Cable gland	M20x1,5 (cable Ø 5… Ø 10 mm)	
Electrical connections	Terminal block for cable with max. cross section of 2.5 mm²	
Cable terminal box with overvoltage protection	**NAA-102 ***	
Data	See NAA-101	
Electrical Data	See OVP	
Cable mounting wedge clamp	**NAA-209**	
Max. mech. load	300 m cable	
Material	Polyamide	
Operating temperature	–20 °C … + 60 °C	
Overvoltage protection unit	**OVP12/33 ***	**OVP32/33 ***
Type	field use	DIN 35 mm rail mountable
Dimensions	72 x 42 x 19 mm	62 x 65 x 18 mm
Ingress protection	IP 54	IP 20
Breakdown voltage	33 V	
Absorbed energy	600 W / 1 ms	
Serial resistance	13 ohm	
Leakage current	≤ 10 µA	

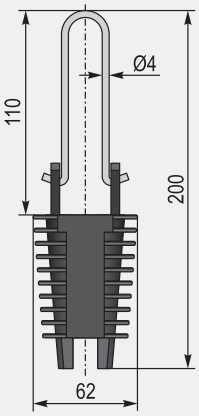
* only for 2-wire 4…20mA equipments



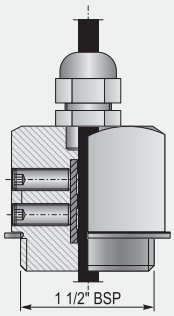




NAA–101/102

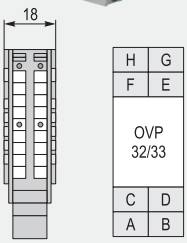


NAA–209



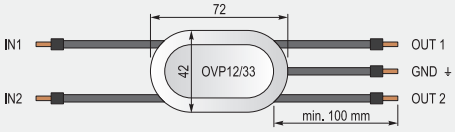
NAA–105

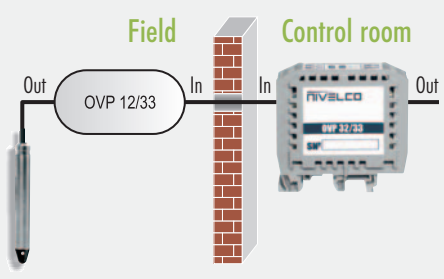
OVP-32/33



IN_1 (C) ; IN_2 (D)
Out_1(F) ; Out_2(E)
A,B,H,G = ⏚

OVP-12/33



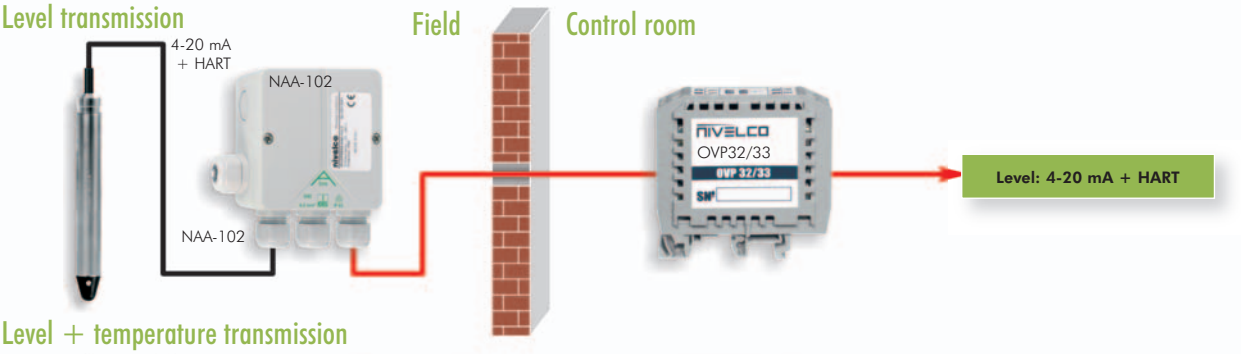


ACCESSORIES

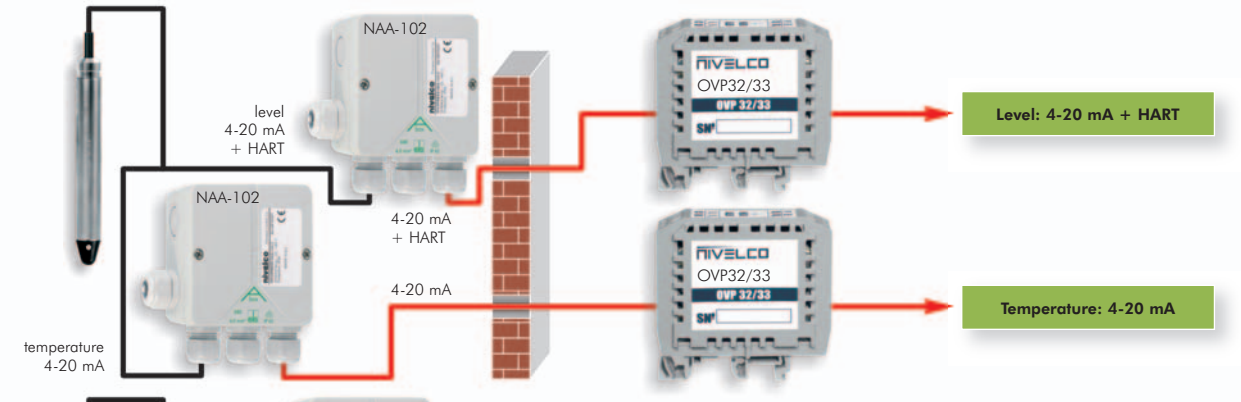
NAA-101: Cable terminal box with moisture filter and terminals for wiring the unit
NAA-102: Cable terminal box with moisture filter and terminals and OVP-12/33 for wiring the unit
NAA-209: Cable mounting wedge clamp
NAW-104: Stainless steel 1.4571 sewage adapter for NP types
NAA-105: Cable holding assy; material: stainless steel 1.4571
OVP-12/33: 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

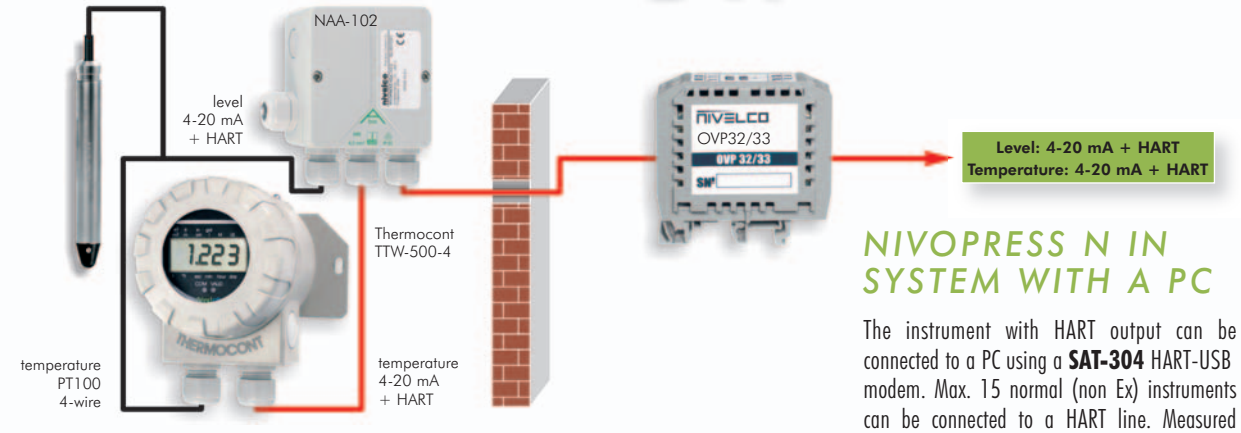
MEASURING CIRCUITS

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 **SAT-304** 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: **NPCal** 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 COMBINATIONS AVAILABLE)

NIVOPRESS N hydrostatic level transmitters

NIVOPRESS N ■■ - ■■■ - ■[1]

Type	Code
Piezo	P
Piezo threaded	Z
Capacitance	C

Version	Code
Normal	2[2]
Normal	4
Ex	5

Output	Code
4…20 mA + HART [3]	K
0…10 V DC	H
Level: 4…20 mA + HART [3] Temperature: 4…20 mA	D
Level: 4…20 mA + HART [3] Temperature: Pt100B, 4-wire	P

Range [4, 5]	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 w. h. (0…1000 mbar)	4
0…20 m w. h. (0…2000 mbar)	5
0…50 m w. h. (0…5000 mbar)	6
0…100 m w. h. (0…10000 mbar)	7
0…200 m w. h. (0…20000 mbar)	8

Code	Cable length			Code
0	0 m	upto 100 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
A	100 m	over 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 unit should end in 'Ex'
[2] Only with capacitive sensor
[3] Only N-400 series
[4] NC-200 series, max. 20m w.h.
[5] For HART capable units the range can be downscaled to 50% of the nominal range

Accessories to order	
NAA-101	Cable terminal box with moisture filter
NAA-102	Cable terminal box with moisture filter and OVP 12/33
NAA-209	Cable mounting wedge clamp
NAW-104	Sewage adapter for NP types
NAA-105	Cable holding assy
OVP 12/33	Outdoor overvoltage protection unit
OVP 32/33	Indoor overvoltage protection unit
SAT-304	HART-USB modem for use with a PC