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Subject to technical change.

Valid from 01.04.2010 until 31.03.2011 unless otherwise agreed.

All dimensions in mm (inches).

By publishing this option list all other option lists become invalid.

We assume no liability for typing errors.

Different variations to those specified are possible. Please contact our technical consultants.

Applications / Overview

The Nivowave is a non intrusive acoustic wave measurement system. It is used for level monitoring of solids and liquids.

The Nivowave system is normally mounted at the top of the silo or tank.

A selection of fields of applications and industries:

• Water / Waste water:

Inlet screens, sumps, pump stations, water towers, dam level, chemical, open channel flow etc.

• Mining:

Crushers, surge bins, ore passes, conveyor profile, blocked chute, stockpile, stackers, reclaimers, storage silos etc.

• Powers stations:

Boiler bunkers, raw coal bunkers, ash pits, fly ash silos, etc.

• Food

• Plastics

• Chemicals

• Quarries

• Cement

• Grain

• Paper

Level measurement in solids

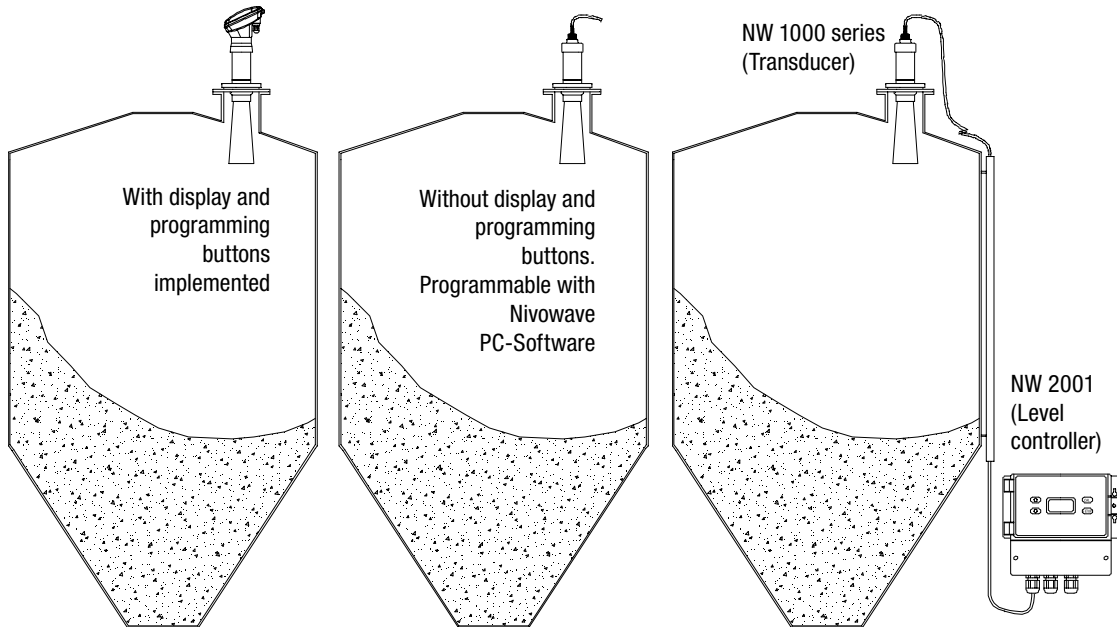
Standard Series
 with horn for high performance in complex solid applications

Integral
 NW 5000 series

Smart
 NW 4000 series

Remote

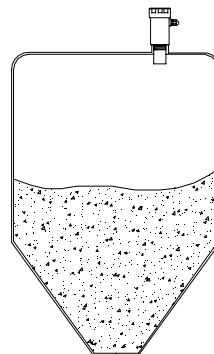
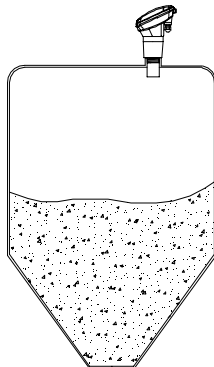
NW 1000 series
 (Transducer)



Light series
 without horn for easy solid measurements in small vessels

Integral
 NW 5000L series

Smart
 NW 4000L series



With display and programming buttons implemented

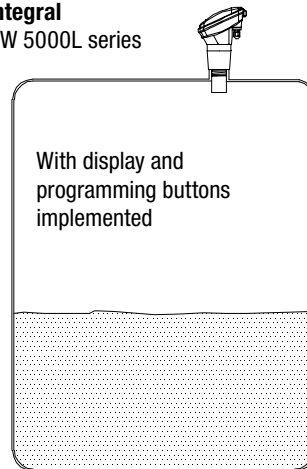
Without display and programming buttons. Programmable with Nivowave PC- software

Overview / Function

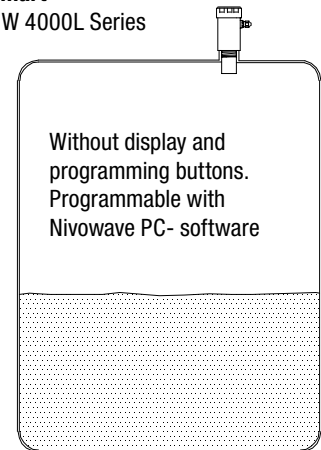
Level measurement in liquids

Light series
 without horn for
 normal liquid
 applications

Integral
 NW 5000L series

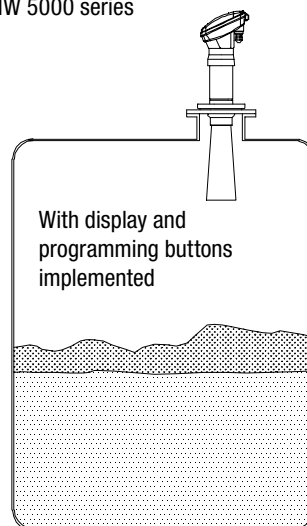


Smart
 NW 4000L Series

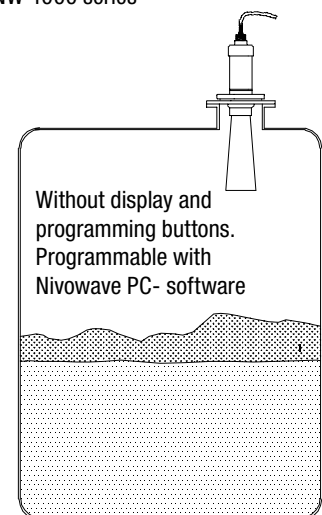


Standard Series
 with horn for high
 performance in
 complex liquid
 applications

Integral
 NW 5000 series



Smart
 NW 4000 series



Function

The Nivowave emits a high powered acoustic wave transmit pulse which is reflected from the surface of the material being measured.

The reflected signal is processed using specially developed software to enhance the correct signal and reject false or spurious echoes.

The transmission of these high powered waves ensures minimal losses through the environment where the sensor is located. Due to the high powered emitted pulse, any losses have a far less effect than traditional ultrasonic devices.

More energy is transmitted hence more energy is returned.

The receiver circuitry is designed to identify and monitor low level return signals even when noise levels are quite high.

The measured signal is temperature compensated to provide maximum accuracy to the outputs and display.

Advantages

- Large selection of transducers.
- No contact between the transducer and the material.
- Suitable for measuring many different applications.
- Easy to calibrate and commission.
- Wireless monitoring and programming with GPRS possible.

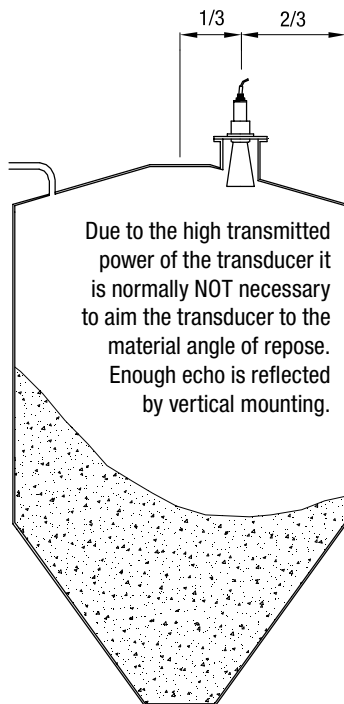
Mounting

Transducer mounting

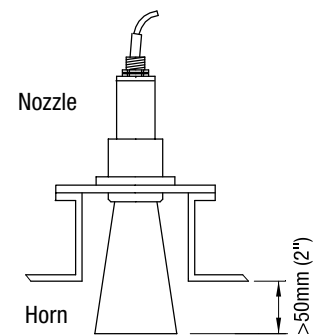
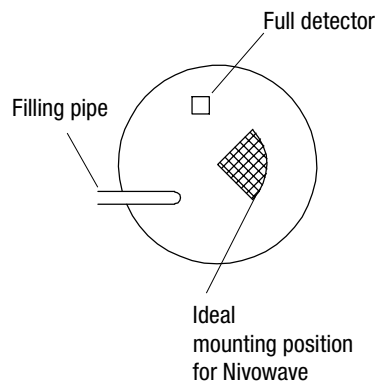
Mounting position

- Selecting a suitable position to mount the transducer on the vessel is the most important step. Please read the following installation guide and contact your representative if you have any doubts or questions.
- A clear line of sight from the transducer to the product being monitored is preferred.
- First priority is to keep the transducer away from fill pipes, ladders, beams etc.
- Normal measurement of solids does NOT require aiming to the material angle of repose. Aiming the Transducer to the material angle of repose is only in seldom cases necessary. It is required, if any ladders, beams etc cause wrong echoes. In this case, use the Aiming kit to blank these wrong echoes.

Standard series



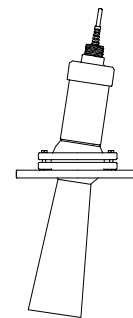
Mounting position on top of silo



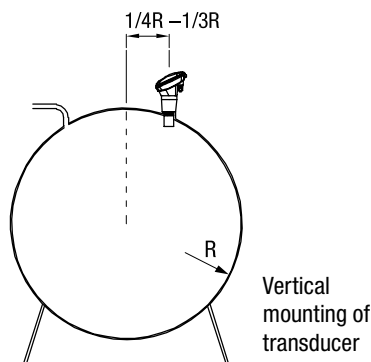
The horn must protrude at least 50mm (2") into the vessel. See in table on page P18 the dimension "B" of the horn. Use this value as a reference to define the max. height of the nozzle.

Option: Aiming kit

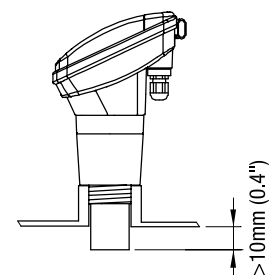
For aiming the Transducer in the application. Necessary only in case of wrong echoes caused by ladders, beams and other fixtures in the vessel. Normal measurement of solids does NOT require aiming to the material angle of repose. The Aiming kit is optionally available to the straight Transducer fixing, which is delivered as standard.



Light series

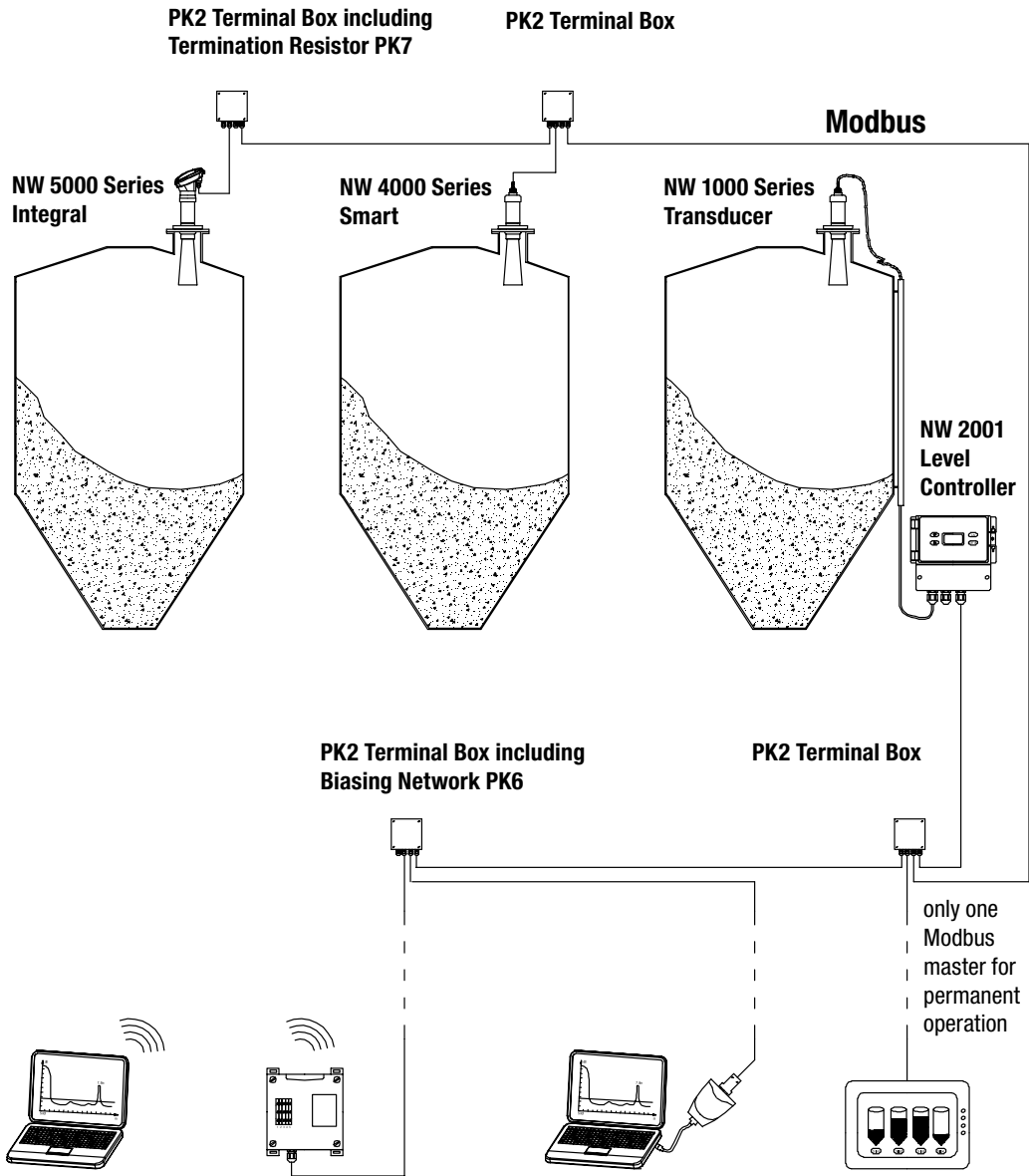


The face (membran) of transducer must extend at least 10mm (0.4") into the vessel. See dimension on page P19.



Remote Control

Remote Control via Modbus



Nivowave PC-Software
 Programming, diagnosis,
 display of level measure-
 ment. Remote worldwide.

GPRS-Modem NW 9100
 Wireless connection to
 Nivowave PC-Software.

Nivowave PC-Software
 Programming, diagnosis,
 display of level measurement.

Connection with **Nivowave
 PC-Converter**, interface
 USB-RS485.

Touchscreen NT 1000
 Visualisation of level measurement
 (panel mounting, see Nivotec).

Technical Data

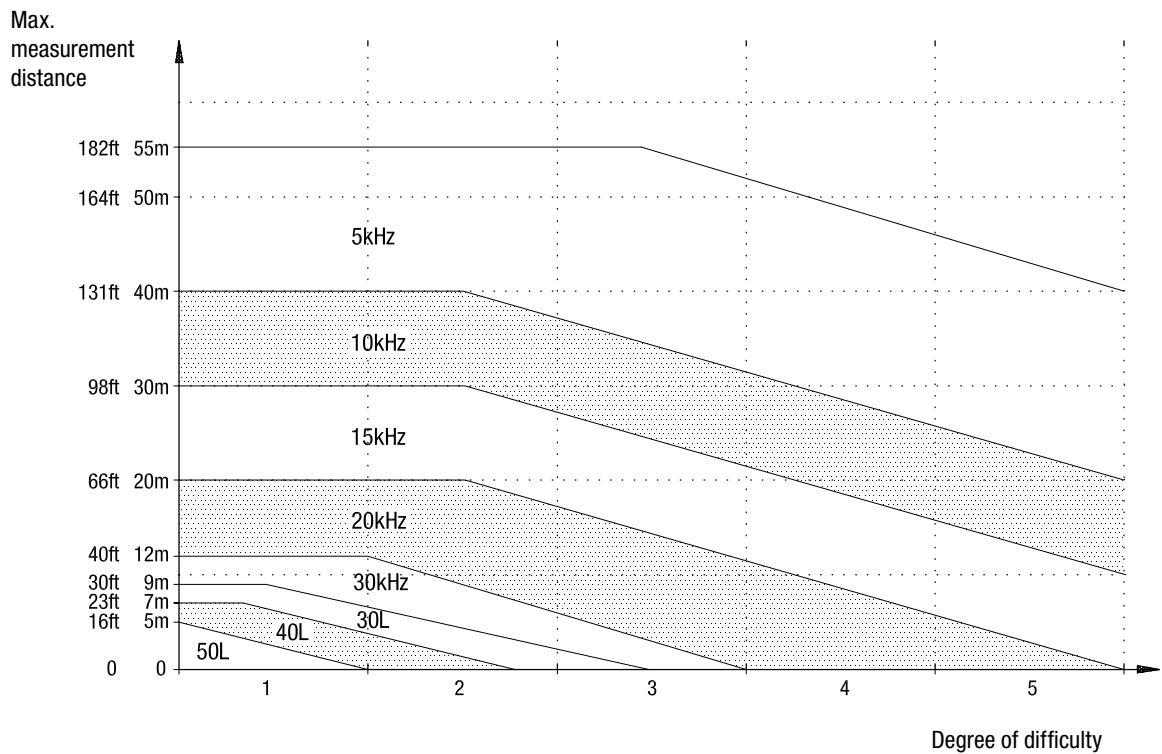
Series	Standard series NW 1000 / NW 4000 / NW 5000					Light series NW 4000L / NW 5000L		
	NW ..30	NW ..20	NW ..15	NW ..10	NW ..05	NW ..50L	NW ..40L	NW ..30L
Type								
Blanking distance (min.)	0.35m (14")	0.45m (17")	0.6m (24")	1.0m (39")	1.5m (59")	0.25m (10")	0.3m (12")	0.35m (14")
Max. process temperature								
NW 1000	+70°C (+158°F) / +85°C (185°F) / +150°C (302 °F)					-		
NW 4000 / NW 5000	+70°C (+185°F) / +85°C (185°F)					+85°C (+185°F)		
Max. housing temperature	+70°C (+158°F)					+70°C (+158°F)		
Min. temperature	-40°C (-40°F)					-40°C (-40°F)		
Max. over pressure	0.1bar (1.5psi)					1bar (15psi)		
Frequency	30 kHz	20 kHz	15 kHz	10 kHz	5 kHz	50 kHz	40 kHz	30 kHz
Process connection								
Thread DIN / ANSI	-	-	-	-	-	2"	2"	2"
Flange DIN / ANSI	DN100 / 4"	DN100 / 4"	-	-	-	-	-	-
	-	DN150 / 6"	DN150 / 6"	-	-	-	-	-
	-	-	DN200 / 8"	DN200 / 8"	DN200 / 8"	-	-	-
	-	-	-	DN250 / 10"	DN250 / 10"	-	-	-
Communication								
NW 2000	Modbus, HART, 4-20mA, Profibus DP, 5 relays					-		
NW 4000	Modbus, 4-20mA, 1 relay					Modbus, 4-20mA, 1 relay		
NW 5000	Modbus, HART, 4-20mA, 2 relays					Modbus, HART, 4-20mA, 2 relays		
Power supply								
NW 2000	12-30V DC, 90-260V AC					-		
NW 4000	9-24V DC					9-24V DC		
NW 5000	12-30V DC, 90-260V AC					12-30V DC, 90-260V AC		
Material								
Sensor	polyolefin, teflon or titanium face					teflon face		
Housing	plastic PC / plastic Valox 357U					plastic PC / plastic Valox 357U		
Flange	polypropylene (85°C) / carbon (150°C)					-		
Cone	polypropylene or polyurethane (85°C) / carbon (150°C)					-		
Typical applications	liquids, powder, pellets, solids					liquids, clean granular		

Transducer Selection guide

Transducer selection by applications

The following graphic is a guideline for the selection of the right transducer depending on the application. Anyway it is recommended to contact the local distributor to ensure a proper transducer selection fitting to the individual application.

Liquids	waveless	x	o			
	rippy		x	o		
Solids	granular			x	o	
	powder			x		o
Degree of difficulty		1	2	3	4	5



Note: x Normal measurement
 o Measurement also during filling process or with strongly absorbent surface (e.g. cellulose, wood chips, foil snippet, foam formation)
 Measurement distance >55m (182 ft) on request

Transducer ratings

		Frequency	Min. Blanking Distance	Measurement Accuracy at ideal conditions (of adjusted range)	Beam Angle	Number of pulses per minute		
						3/4-Wire 24V DC/ 230V AC	2-Wire 4mA	2-Wire 20mA
Light Series	NW ...50L	50kHz	0,25 m (10")	+/- 0,25%	7.5°	180	30	100
	NW ...40L	40kHz	0,30m (12")	+/- 0,25%	7.5°	180	30	100
	NW ...30L	30kHz	0,35m (14")	+/- 0,25%	7.5°	180	30	100
Standard Series	NW ....30	30kHz	0,35 m (14")	+/- 0,25%	6°	180	30	100
	NW ....20	20kHz	0,45m (17")	+/- 0,25%	6°	130	18	70
	NW ....15	15kHz	0,60m (24")	+/- 0,25%	6°	90	8	40
	NW ....10	10kHz	1,0m (39")	+/- 0,25%	6°	50	3	22
	NW ....05	05kHz	1,5m (59")	+/- 0,25%	6°	40	0,75	14

NW 5000 / NW 5000L Integral

NW 5000 series



NW 5000L series



Cable entries:

3/4-wire: M16 x 1.5 (2x screwed cable gland + 1x blind plug)

2-wire: M16 x 1.5 (1x screwed cable gland + 2x blind plug)

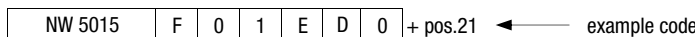
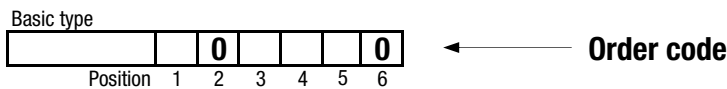
Dimensions

see page P18

NW 5000 / NW 5000L Integral

	pos. 1	Basic type			
	A	NW 5050L	50 kHz ¹	.....
	B	NW 5040L	40 kHz ¹	.....
	C	NW 5030L	30 kHz ¹	.....
	D	NW 5030	30 kHz ¹	.....
	E	NW 5020	20 kHz ¹	.....
	F	NW 5015	15 kHz ¹	.....
	G	NW 5010	10 kHz ¹	.....
H	NW 5005	5 kHz ¹	.....	
	pos. 3	Process temperature			Sensor face
	1	max. +70°C (+158°F) in dry and condensed atmosphere			Polyolefin
	2	max. +85°C (+185°F) in dry, wet and steamy atmosphere			Teflon
	pos. 4	Electronic module			
	A	2-wire, 12-30V DC,	4-20mA		
	B	2-wire, 12-30V DC,	4-20mA, HART		
	C	3/4-wire, 12-30V DC,	2 relays		
	D	3/4-wire, 12-30V DC,	2 relays, Modbus, 4-20 mA		
	E	3/4-wire, 12-30V DC,	2 relays, HART, 4-20mA		
	F	3/4-wire, 12-30V DC,	2 relays, Modbus		
	H	3/4-wire, 12-30V DC, 90-260V AC,	2 relays		
	I	3/4-wire, 12-30V DC, 90-260V AC,	2 relays, Modbus, 4-20 mA		
	K	3/4-wire, 12-30V DC, 90-260V AC,	2 relays, HART, 4-20mA		
	L	3/4-wire, 12-30V DC, 90-260V AC,	2 relays, Modbus		
	pos. 5	Process connection	Flange material	Cone Ø (mm/inch)	material
	A	DN100 PN16 EN1092-1	PP	98 (4")	PP
	B	DN150 PN16 EN1092-1	PP	98 (4")	PP
	C	DN150 PN16 EN1092-1	PP	195 (8")	PUR
	D	DN200 PN16 EN1092-1	PP	195 (8")	PP
	E	DN200 PN16 EN1092-1	PP	236 (10")	PUR
	F	DN250 PN10 EN1092-1	pp ²	236 (10")	pp ²
	G	4" 150lbs ANSI B16.5	PP	98 (4")	PP
	H	6" 150lbs ANSI B16.5	PP	98 (4")	PP
	I	6" 150lbs ANSI B16.5	PP	195 (8")	PUR
	K	8" 150lbs ANSI B16.5	PP	195 (8")	PP
	L	8" 150lbs ANSI B16.5	PP	236 (10")	PUR
	M	10" 100lbs ANSI B16.5	pp ²	236 (10")	pp ²
	N	Thread G2" BSP DIN 288 (incl. O-ring)			
	P	Thread NPT2" ANSI B 1.20.1			

Further option: see page P14³



¹ measuring range see page P7 Transducer selection guide

² cone and flange in carbon for high temperature, Pos.3 3 with Pos.5 F,M only

³ for PP-cones only

NW 4000 / NW 4000L Smart

NW 4000 series



Teflon face

Polyolefin

NW 4000L series



Cable entries:

M20 x 1.5 (1x screwed cable gland)

Dimensions

see page P18, 19

NW 4000 / NW 4000L Smart

	pos. 1	Basic type				
		A	NW 4050L	50 kHz ¹	
		B	NW 4040L	40 kHz ¹	
		C	NW 4030L	30 kHz ¹	
		D	NW 4030	30 kHz ¹	
		E	NW 4020	20 kHz ¹	
		F	NW 4015	15 kHz ¹	
		G	NW 4010	10 kHz ¹	
	H	NW 4005	5 kHz ¹	.....	
	pos. 2	Certificate				
		0	CE			
		W	ATEX II 1D and 1/2D ⁴			
	pos. 3	Process temperature			Sensor face	
		1	max. +70°C (+158°F) in dry and condensed atmosphere		Polyolefin	
		2	max. +85°C (+185°F) (75°C for ATEX) in dry, wet and steamy atmosphere		Teflon	
	pos. 4	Electronic module				
		P	2-wire, 9-24V DC, 4-20mA			
		Q	3/4-wire, 9-24V DC, 1 relay, Modbus			
		R	3/4-wire, 9-24V DC, 1 relay, Modbus, 4-20 mA			
	pos. 5	Process connection suitable for flange		Flange material	Cone Ø (mm/inch) material	
		A	DN100 PN16 EN1092-1	PP	98 (4") PP	
		B	DN150 PN16 EN1092-1	PP	98 (4") PP	
		C	DN150 PN16 EN1092-1	PP	195 (8") PUR	
		D	DN200 PN16 EN1092-1	PP	195 (8") PP	
		E	DN200 PN16 EN1092-1	PP	236 (10") PUR	
		F	DN250 PN10 EN1092-1	PP	236 (10") PP	
		G	4" 150lbs ANSI B16.5	PP	98 (4") PP	
		H	6" 150lbs ANSI B16.5	PP	98 (4") PP	
		I	6" 150lbs ANSI B16.5	PP	195 (8") PUR	
		K	8" 150lbs ANSI B16.5	PP	195 (8") PP	
		L	8" 150lbs ANSI B16.5	PP	236 (10") PUR	
		M	10" 100lbs ANSI B16.5	PP	236 (10") PP	
		N	Thread G2" BSP DIN 288 (incl. O-ring)			
		P	Thread 2" NPT ANSI B 1.20.1			
	pos. 6	Cable length³				
		A	4m			
		B	15m			
		C	30m			
		D	50m			
		Z	Junction box with cable gland			

Further option: see page P14²

Basic type

Position	1	2	3	4	5	6

← **Order code**

NW 4010 | G | 0 | 2 | R | D | B + pos.21 ← example code

¹ measuring range see page P7 Transducer selection guide

² for PP-cones only

³ standard units with potted cable encapsulated with bend protection, junction box for Light units only

⁴ observe accessories for appropriate mounting (cabeling and UV protection)

NW 1000 / NW 2000 Remote

NW 1000 series



Teflon face

Polyolefin

NW 2000 series



Cable entries:

3/4-wire: M16 x 1.5 (2x screwed cable gland + 1x blind plug)

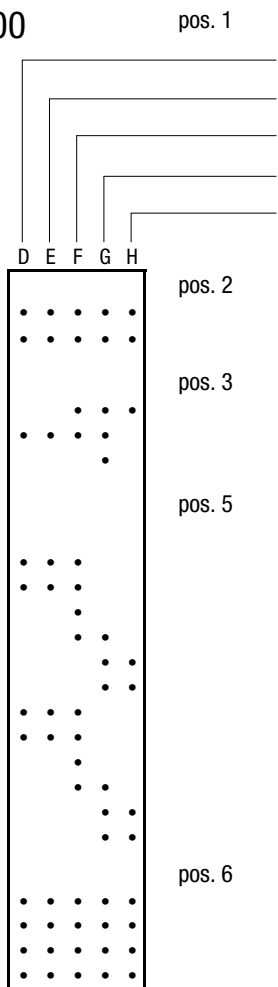
2-wire: M16 x 1.5 (1x screwed cable gland + 2x blind plug)

Dimensions

see page P18, 19

NW 1000 / NW 2000 Remote

NW 1000



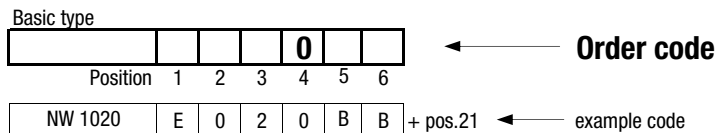
pos. 1	Basic type				
	D	NW 1030	30 kHz ¹	.....
	E	NW 1020	20 kHz ¹	.....
	F	NW 1015	15 kHz ¹	.....
	G	NW 1010	10 kHz ¹	.....
	H	NW 1005	5 kHz ¹	.....

pos. 2	Certificate				
	0	CE			
	W	ATEX II 1D and 1/2D ⁴			
pos. 3	Process temperature			Sensor face	
	1	max. +70°C (+158°F) in dry and condensed atmosphere		Polyolefin	
	2	max. +85°C (+185°F) (75°C for ATEX) in dry, wet and steamy atmosp.		Teflon	
	3	max. +150°C (+302°F) in dry, wet and steamy atmosphere ²		Titanium	

pos. 5	Process connection	Flange	Cone		
	suitable for flange	material	Ø (mm/inch)	material	
	A DN100 PN16 EN1092-1	PP	98 (4")	PP	
	B DN150 PN16 EN1092-1	PP	98 (4")	PP	
	C DN150 PN16 EN1092-1	PP	195 (8")	PUR	
	D DN200 PN16 EN1092-1	PP	195 (8")	PP	
	E DN200 PN16 EN1092-1	PP	236 (10")	PUR	
	F DN250 PN10 EN1092-1	PP ²	236 (10")	PP ²	
	G 4" 150lbs ANSI B16.5	PP	98 (4")	PP	
	H 6" 150lbs ANSI B16.5	PP	98 (4")	PP	
	I 6" 150lbs ANSI B16.5	PP	195 (8")	PUR	
	K 8" 150lbs ANSI B16.5	PP	195 (8")	PP	
	L 8" 150lbs ANSI B16.5	PP	236 (10")	PUR	
	M 10" 100lbs ANSI B16.5	PP ²	236 (10")	PP ²	

pos. 6	Cable length	
	A	4m
	B	15m
	C	30m
	D	50m

Further option: see page P14³

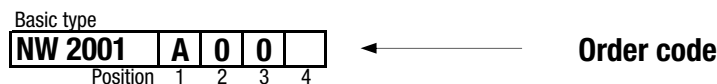


¹ measuring range see page P7 Transducer selection guide
² cone and flange in carbon for high temperature, Pos.3 3 with Pos.5 F,M only, not for ATEX
³ for PP-cones only ⁴ observe accessories for appropriate mounting (cabeling and UV protection)

NW 2000

pos. 1	Basic type	
	A	NW 2001

pos. 4	Electronic module	
	A	2-wire, 12-30V DC, 4-20mA
	B	2-wire, 12-30V DC, 4-20mA, HART
	C	3/4-wire, 12-30V DC, 5 relays
	D	3/4-wire, 12-30V DC, 5 relays, Modbus, 4-20 mA
	E	3/4-wire, 12-30V DC, 5 relays, HART, 4-20mA
	F	3/4-wire, 12-30V DC, 5 relays, Modbus
	G	3/4-wire, 12-30V DC, 5 relays, Profibus DP ¹
	H	3/4-wire, 12-30V DC, 90-260V AC, 5 relays
	I	3/4-wire, 12-30V DC, 90-260V AC, 5 relays, Modbus, 4-20 mA
	K	3/4-wire, 12-30V DC, 90-260V AC, 5 relays, HART, 4-20mA
	L	3/4-wire, 12-30V DC, 90-260V AC, 5 relays, Modbus
	M	3/4-wire, 12-30V DC, 90-260V AC, 5 relays, Profibus DP ¹



¹ GSD file read only

NW 9100 / Option

NW 9100 GPRS/ EDGE-Modem

Enables wireless connection between the Nivowave units and a remote computer.

Connection via Internet by a secured VPN tunneling (Virtual Private Network)
 A SIM card for the data transfer via internet is necessary.

Required software on the remote computer:

- Internet access (on site)
- Virtual COM-Port (free download)
- Nivowave PC-Software (free download)

Supply:	Via Nivowave units or 10-30VDC (with NW 2-wire units)
Interface to NW units:	Modbus RTU
Housing material:	Polycarbonat
Mounting:	Wall mounting
Protection:	IP 66
Temperature range:	-20°C .. +55°C
Cable gland:	M20 x 1,5 (1 piece)
Dimensions:	(180x180x90)mm



Option

- pos. 21 **Aiming flange for NW 5000, NW 4000 and NW 1000**
 Additional aiming function in flange integrated
 Necessary only in case of wrong echoes caused by unfavourable mounting position, beams and other fixtures in vessel.
 For PP-cones only.

Flange size	
DN100 PN16 / ANSI 4" 150lbs	.....
DN150 PN16 / ANSI 6" 150lbs	.....
DN200 PN16 / ANSI 8" 150lbs	.....
DN250 PN16 / ANSI 10" 150lbs	.....



Accessories

Nivowave PC-Software

Software for programming, diagnose and display of level measurement.

Connection via RS485 (Modbus) to PC. Nivowave PC-Converter or GSM Modem NW 9000 required.

Delivery with Nivowave units only.

nw107000

Nivowave PC-Converter

USB to RS485 (Modbus) converter

Modbus converter for connecting of a PC with NW5000 / NW4000 / NW2000 series

Package Content

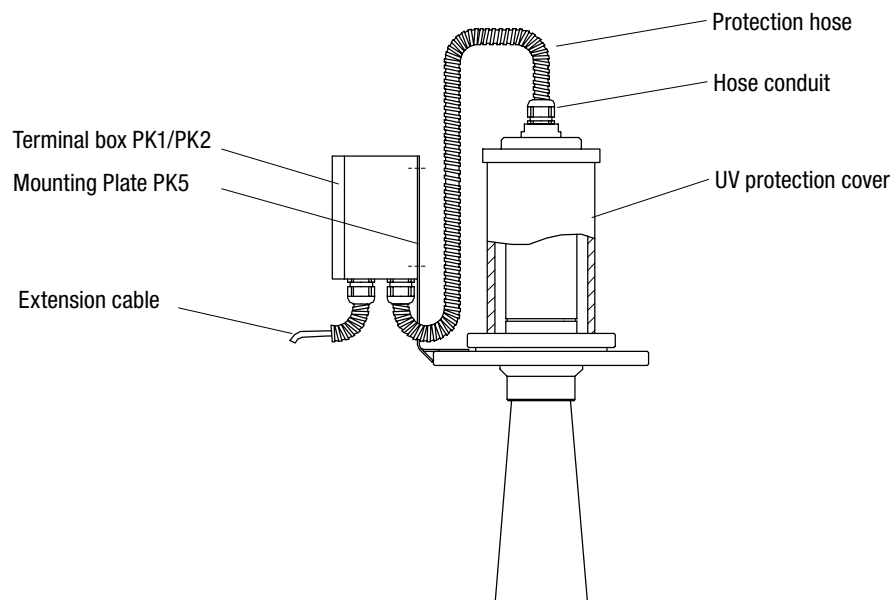
USB to Modbus converter, USB cable

SubD 9-pin female bare end for connection to Nivowave units, driver disc for Win 2000/ XP/ Vista.



nw107010

Overview of mounting accessories



Accessories

Terminal Box PK1

For extension of the connection cable of NW 1000, NW 4000, NW 4000L series.
 Terminals integrated, ingress protection IP 65, cable glands: 2 pieces M16x1.5 + 1 blind plug
 Including Mounting Plate PK5 or PK5 ATEX

Dimensions: PK1: 130mm x 130mm (5.1" x 5.1")
 PK1 ATEX: 160mm x 160mm (6.3" x 6.3")

PK1
PK1 ATEX (ATEX II 2D certificate for installation in ATEX Zone 21)

Modbus Terminal Box PK2

For installing a Modbus network with the Nivowave units.
 Terminals integrated, ingress protection IP65, cable glands: 3 pieces M16x1.5 + 1 blind plug
 NOT including PK5 / PK6 / PK7

Dimensions: PK2: 130mm x 130mm (5.1" x 5.1")
 PK2 ATEX: 160mm x 160mm (6.3" x 6.3").

PK2
PK2 ATEX (ATEX II 2D certificate for installation in ATEX Zone 21)

Mounting Plate PK5

Used for mounting the Terminal box PK2 directly on the flange of the transducers

PK5 (fitting to PK2)
PK5 ATEX (fitting to PK2 ATEX)

Extension cables / cable protection

Shielded cable - UNITRONIC LiYCY 10x0.34
 Functionality up to 50m.

em300500

Twisted pair cable - 4 conductor shielded instrument cable
 Functionality up to 500m.

em300510

Protection hose
 For installation of transducer cable or modbus cable in ATEX Zone 21

em300529

Threaded hose coupling
 With thread M16x1,5. Fitting to above mentioned protection hose. Applicable for ATEX Zone 21.

em100535

UV protection cover

For installation of ATEX transducers in the sun
 With connection thread M16x1,5 for mounting the threaded hose coupling

zu200430 (for sensor with 30kHz)
zu200420 (for sensor with 20kHz)
zu200415 (for sensor with 15kHz)
zu200410 (for sensor with 10kHz)
zu200405 (for sensor with 5kHz)

Accessories

Flange seal

Seal for mounting Nivowave unit on flange provided upon measuring point. Material: neoprene (85°C), viton (150°C)

Article No.	suitable for flanges	max. temp	suitable mounting kit	
			DIN	ANSI
di307100	DN100 PN16 and 4" 150lbs	+85°C (185°F)	zu107010	zu107010
di307110	DN150 PN16 and 6" 150lbs	+85°C (185°F)	zu107020	zu107010
di307120	DN200 PN16	+85°C (185°F)	zu107030	-
di307125	8" 150lbs	+85°C (185°F)	-	zu107020
di307130	DN250 PN10 and 10" 100lbs	+85°C (185°F)	zu107030	zu107030
di307140	DN250 PN10 and 10" 100lbs	+150°C (302°F)	zu107030	zu107030

Mounting Kit

Bolts, washers and nuts for mounting Nivowave unit on flange provided upon measuring point (stainless steel / A2)

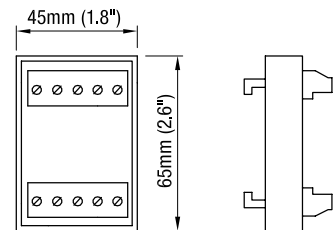
Article No.	material	bolts	washers	nuts
zu107010	stainless steel / A2	8 pieces M16x60	16 pieces	8 pieces
zu107020	stainless steel / A2	8 pieces M20x60	16 pieces	8 pieces
zu107030	stainless steel / A2	12 pieces M20x60	24 pieces	12 pieces

Modbus Biasing Network PK6

Stabilizer for Modbus communication.

Supports the needed Biasing voltages to ensure a proper function in a network with long installed cables. Implements the needed termination resistor for the beginning of the Modbus network. To be connected to 24V DC supply voltage.

DIN Rail mounting. Can be placed in the PK2 Terminal box or in a cabinet.



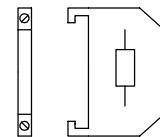
PK6

Modbus Termination Resistor PK7

120 Ohms resistor for the end of the Modbus network.

DIN Rail mounting.

Can be placed in the PK2 Terminal box.



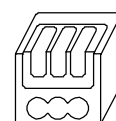
PK7

Modbus Terminal Clamps PK8

Used for wiring a Modbus network inside the terminal compartment of the NW 2001.

Dimensions: 14x17x20mm (0.55x0.67x0.79")

1 Set includes 5 terminals (needed for one NW 2001)



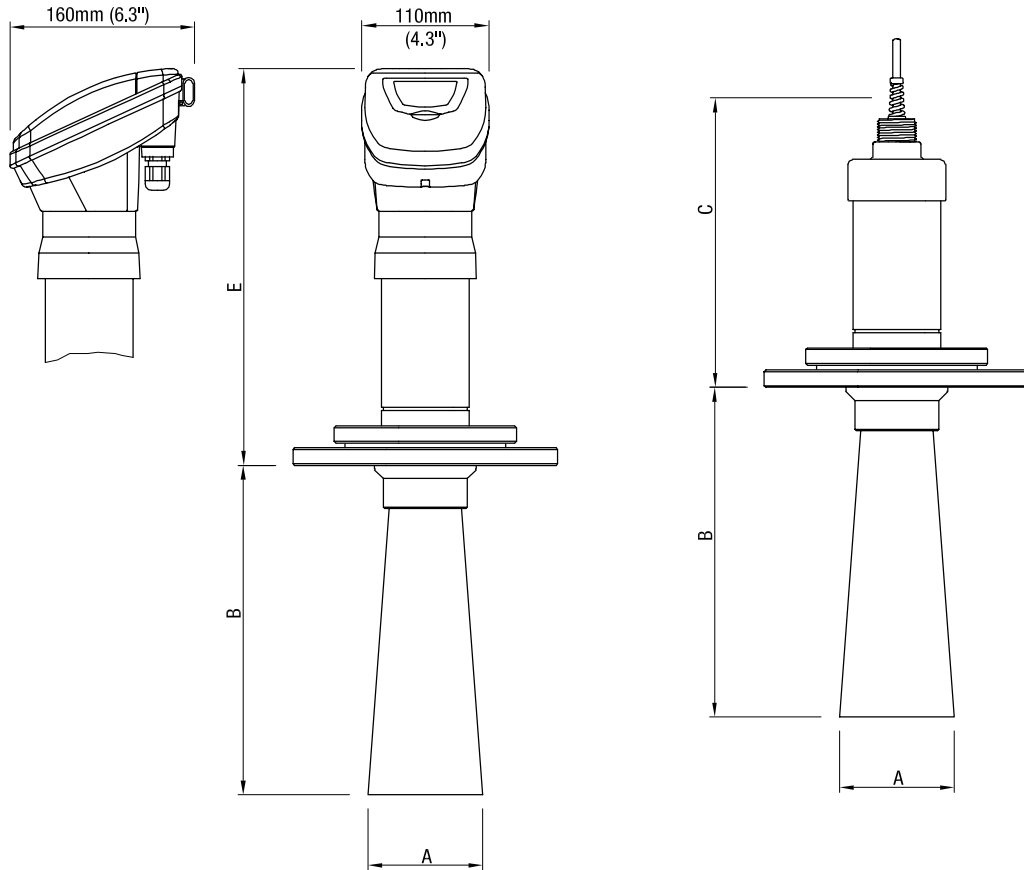
PK8

Dimensions

Standard series

Integral NW 5000 series

Smart NW 4000 series Remote NW 1000 series



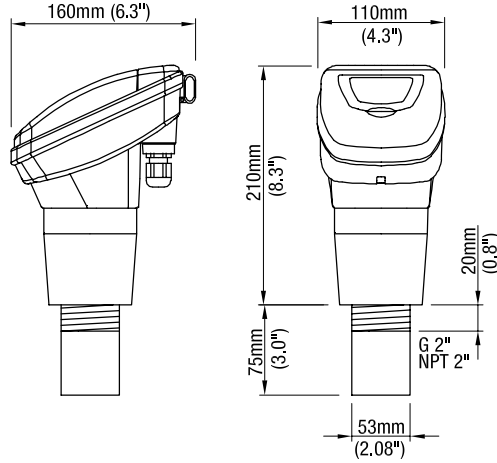
Integral NW 5000 series	Smart NW 4000 series	Remote NW 1000 series	Selected Flange	A		B		C		E	
				mm	inch	mm	inch	mm	inch	mm	inch
NW 5030	NW 4030	NW 1030	DN100 / 4"	98.5	3.9	260	10.2	260	10.2	350	13.8
			DN150 / 6"	98.5	3.9	260	10.2	260	10.2	350	13.8
NW 5020	NW 4020	NW 1020	DN100 / 4"	98.5	3.9	260	10.2	300	11.8	390	15.4
			DN150 / 6"	98.5	3.9	260	10.2	300	11.8	390	15.4
NW 5015	NW 4015	NW 1015	DN150 / 6"	195 (1)	7.6 (1)	280	11.0	350	13.8	440	17.3
			DN200 / 8"	195	7.6	280	11.0	350	13.8	440	17.3
			DN250 / 10"	236	9.2	415	16.3	350	13.8	440	17.3
NW 5010	NW 4010	NW 1010	DN200 / 8"	195	7.6	280	11.0	450	17.7	540	21.3
			DN200 / 8"	236 (1)	9.2 (1)	415	16.3	450	17.7	540	21.3
			DN250 / 10"	236	9.2	415	16.3	450	17.7	540	21.3
NW 5005	NW 4005	NW 1005	DN200 / 8"	236 (1)	9.2 (1)	415	16.3	750	29.5	840	33.1
			DN250 / 10"	236	9.2	415	16.3	750	29.5	840	33.1

Note: (1) Flexible polyurethan horn is used, which can be folded together to fit in the mounting nozzle.

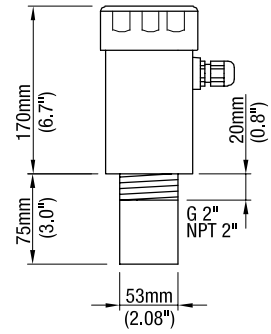
Dimensions

Light series

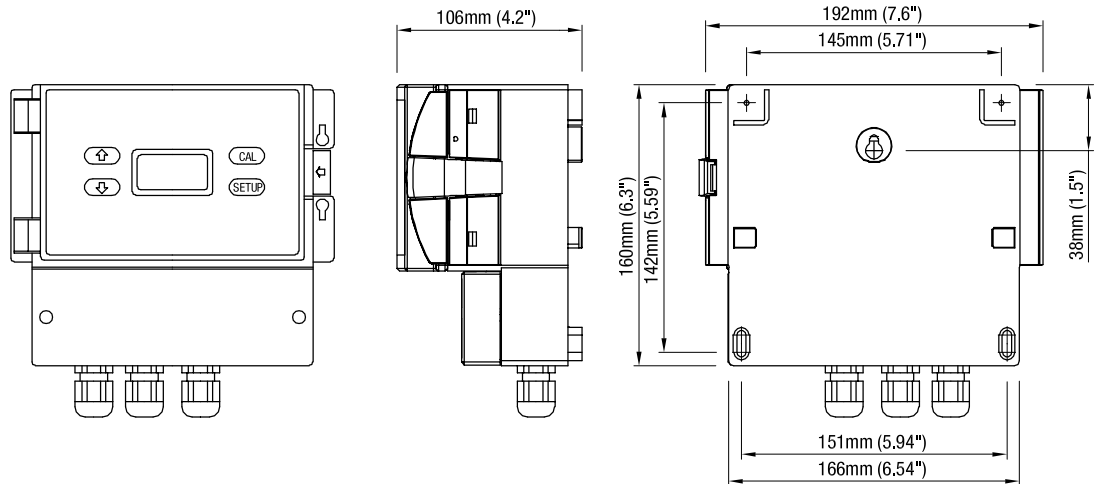
Integral NW 5000L series



Smart NW 4000L series

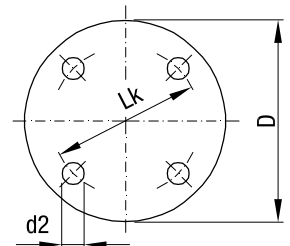


Level controller NW 2001



Flanges

NW flanges fitting to	Lk		D		d2		Holes number
	mm	inch	mm	inch	mm	inch	
DN100 PN16	180	7.0	220	8.7	18	0.7	8
DN150 PN16	240	9.4	285	11.2	22	0.85	8
DN200 PN16	295	11.6	340	13.4	22	0.85	12
DN250 PN10	350	13.8	395	15.6	22	0.85	12
4" 150bs ANSI	190.5	7.5	228	9.0	19	0.75	8
6" 150bs ANSI	241	9.5	279.5	11.0	22	0.85	8
8" 150bs ANSI	298.5	11.8	343	13.5	22	0.85	8
10" 150bs ANSI	362	14.3	406	16.0	25	1.0	12



Spare parts

Selection of flanges and cones and aiming kits available for Nivowave units NW1000, NW4000 and NW5000

Flanges with cones

Acoustically isolated flange and cone for vertical mounting of sensors (not available for Nivowave 'Light')

Article no.	suitable for flange		cone Ø	Mat.	Sensor				
					30 kHz	20 kHz	15 kHz	10 kHz	5 kHz
Flange with PP-Cone									
ff107000	DN100 PN16	EN1092-1	4"	PP	✓	✓	-	-	-
ff107010	DN150 PN16	EN1092-1	4"	PP	✓	✓	-	-	-
ff107020	DN200 PN16	EN1092-1	8"	PP	-	-	✓	-	-
ff107030	DN200 PN16	EN1092-1	8"	PP	-	-	-	✓	-
ff107040	DN250 PN10	EN1092-1	10"	PP	-	-	-	✓	-
ff107050	DN250 PN10	EN1092-1	10"	PP	-	-	-	-	✓
ff107100	4" 150lbs	ANSI B16.5	4"	PP	✓	✓	-	-	-
ff107110	6" 150lbs	ANSI B16.5	4"	PP	✓	✓	-	-	-
ff107120	8" 150lbs	ANSI B16.5	8"	PP	-	-	✓	-	-
ff107130	8" 150lbs	ANSI B16.5	8"	PP	-	-	-	✓	-
ff107140	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	✓	-
ff107150	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	-	✓
Flange with PUR-Cone									
ff107200	DN150 PN16	EN1092-1	8"	PP	-	-	✓	-	-
ff107210	DN200 PN16	EN1092-1	10"	PP	-	-	-	✓	✓
ff107220	6" 150lbs	ANSI B16.5	8"	PP	-	-	✓	-	-
ff107230	8" 150lbs	ANSI B16.5	10"	PP	-	-	-	✓	✓
Flange with CARBON-Cone									
ff107250	DN250 PN10	EN1092-1	10"	carbon	-	-	-	✓	-
ff107260	10" 100lbs	ANSI B16.5	10"	carbon	-	-	-	✓	-

Aiming flanges with cones

Acoustically isolated flange and cone for adjustable mounting of sensors (not available for Nivowave 'Light')

Article no.	suitable for flange		cone Ø	Mat.	Sensor				
					30 kHz	20 kHz	15 kHz	10 kHz	5 kHz
Flange with PP-Cone									
ff107300	DN100 PN16	EN1092-1	4"	PP	✓	✓	-	-	-
ff107310	DN150 PN16	EN1092-1	4"	PP	✓	✓	-	-	-
ff107320	DN200 PN16	EN1092-1	8"	PP	-	-	✓	-	-
ff107330	DN200 PN16	EN1092-1	8"	PP	-	-	-	✓	-
ff107340	DN250 PN10	EN1092-1	10"	PP	-	-	-	✓	-
ff107350	DN250 PN10	EN1092-1	10"	PP	-	-	-	-	✓
ff107400	4" 150lbs	ANSI B16.5	4"	PP	✓	✓	-	-	-
ff107410	6" 150lbs	ANSI B16.5	4"	PP	✓	✓	-	-	-
ff107420	8" 150lbs	ANSI B16.5	8"	PP	-	-	✓	-	-
ff107430	8" 150lbs	ANSI B16.5	8"	PP	-	-	-	✓	-
ff107440	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	✓	-
ff107450	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	-	✓

Electrical installation

NW 2001, NW 5000, NW 5000L series
 Power supply, 4-20mA output, Relay output

Power supply

3/4-wire

DC supply



+ -

+ -

12-30V DC

AC or DC supply
 depending on
 ordered version

AC supply



L1 N ⊕

L1 N ⊕

90-260V AC

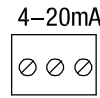
max. 1.5mm²
 (AWG14)

Note:
 Terminal "DC-IN -" and
 "Earth" are internally
 connected

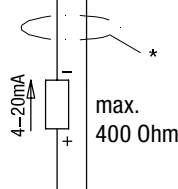
4-20mA output

2 wire
 2 wire HART
 3/4 wire
 3/4 wire HART

Active (3/4 wire version)

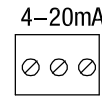


- + Is

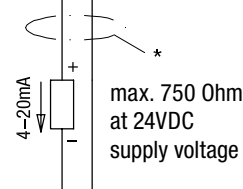


max.
 400 Ohm

Passive (2 wire, 3/4 wire version)



- + Is



max. 750 Ohm
 at 24VDC
 supply voltage

Power supply
 12-30V DC

max. 1.5mm²
 (AWG14)

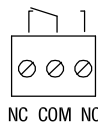
3/4 wire: Isolated output:
 can be made common
 with + or - of DC supply
 supply

* Use shielded
 cable. Connect
 shield to either DC-
 or Earth

Relay output

3/4 wire

Relay x



NC COM NO

Relay 1 to max. Relay 5
 (depending on selected version)

Independent programmable

Switching logic:

See description in the
 programming manual
 under "Output Adjustment
 Menu"

Fuse: max. 0,5A

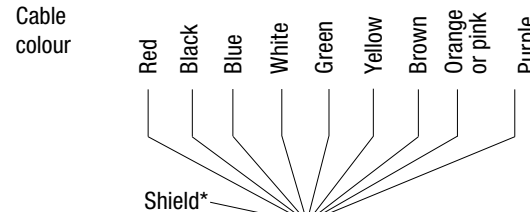
max. 240V AC, 0,5A, 120VA, non inductive

Electrical installation

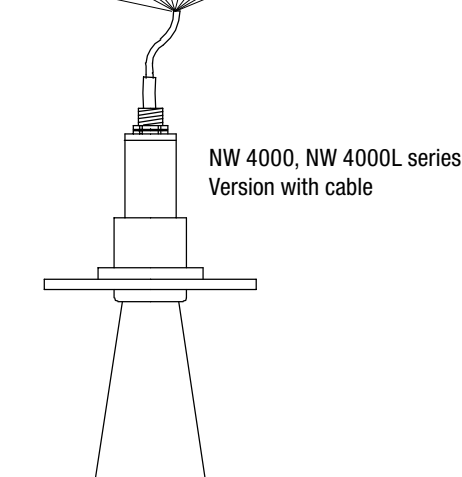
NW 4000, NW 4000L series
 Version with cable

Cable colours

Signal	DC IN		Comms		4-20mA		Relais		
Connection	+	-	B	A	-	+	COM	NO	TEST IN



Cables are present according to the ordered version

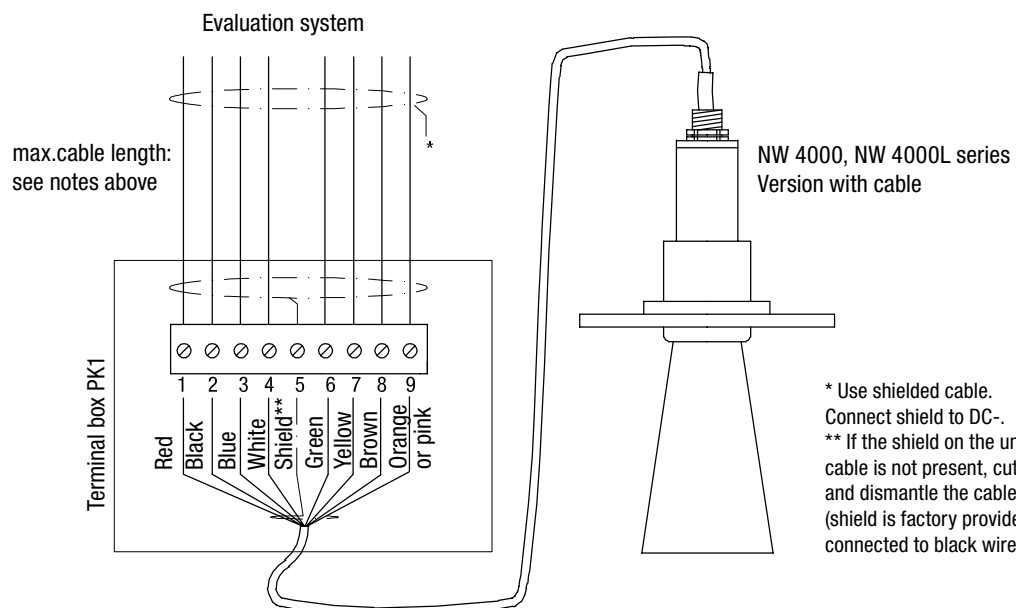


* If the shield on the cable is not present, cut and dismantle the cable (shield is factory provided connected to black wire)

Cable extension with Terminal Box PK1

Recommended cables:

- If "Comms" connection is only used to program or diagnose the unit (no evaluation in a Modbus network):
 Shielded cable, max. cable length 50m (164ft)
- If "Comms" connection is used in a Modbus network for evaluation:
 Twisted pair cable, max. cable length 1000m (3270ft)



* Use shielded cable. Connect shield to DC-.
 ** If the shield on the unit cable is not present, cut and dismantle the cable (shield is factory provided connected to black wire)

Electrical installation

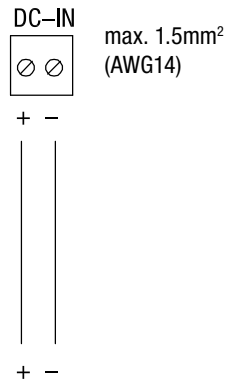
NW 4000, NW 4000L series

Power supply, 4-20mA output, Relay output

Power supply

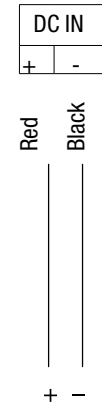
3/4-wire

Version with junction box



9-24V DC

Version with cable

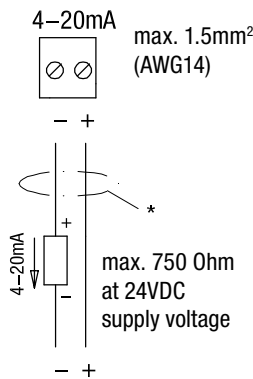


9-24V DC

4-20mA output (passive)

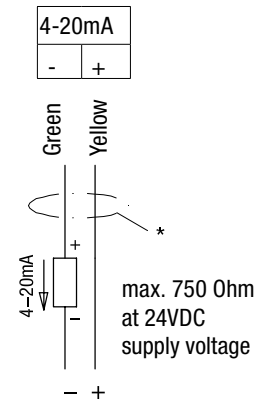
2 wire
 3/4 wire

Version with junction box



9-24V DC

Version with cable



9-24V DC

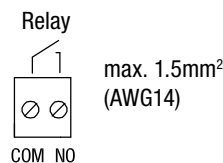
3/4 wire: Isolated output:
 can be made common
 with + or - of DC power
 supply

* Use shielded
 cable. Connect
 shield to DC-

Relay output

3/4 wire

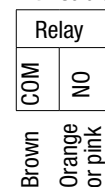
Version with junction box



Fuse:
 max. 0,5A

max. 30V DC, 0,5 A
 non inductive

Version with cable



Fuse:
 max. 0,5A

max. 30V DC, 0,5 A
 non inductive

1 Relay
 available

