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Subject to technical change.

Valid from 01.04.2009 until 31.03.2010 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**

• **Irrigation**

• **Cement**

• **Grain**

• **Paper**

• **Quarries**

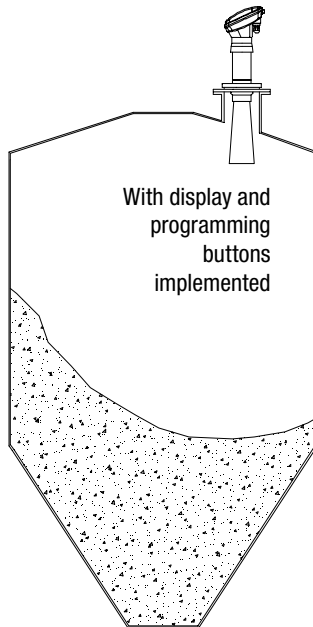
### Level measurement in solids

**Standard Series**

with horn for high performance in complex solid applications

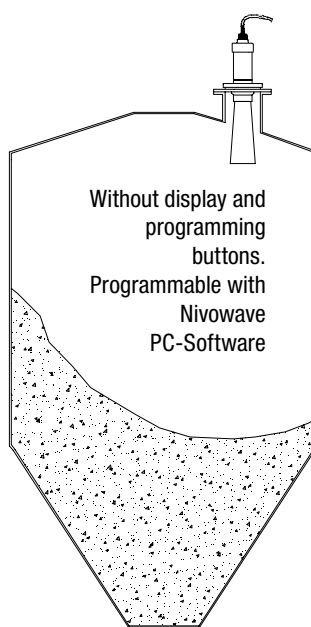
**Integral**

NW 5000 series



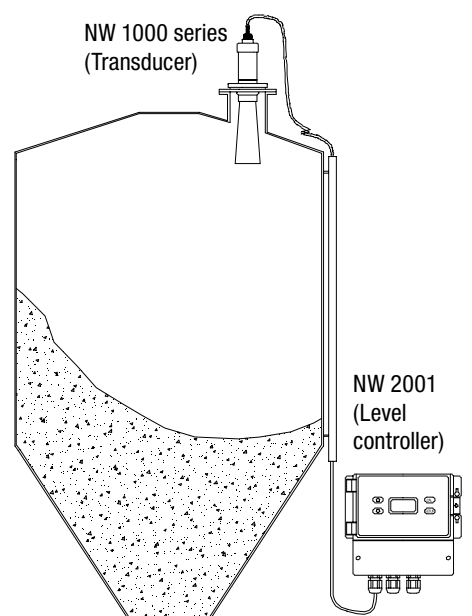
**Smart**

NW 4000 series



**Remote**

NW 1000 series (Transducer)

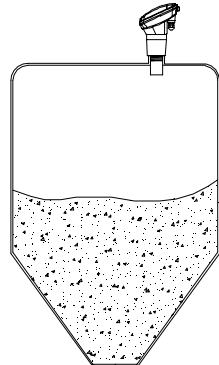


**Light series**

without horn for easy solid measurements in small vessels

**Integral**

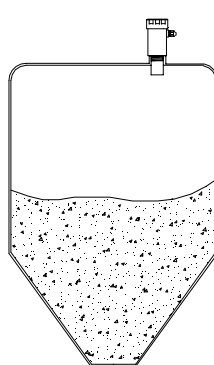
NW 5000L series



With display and programming buttons implemented

**Smart**

NW 4000L series



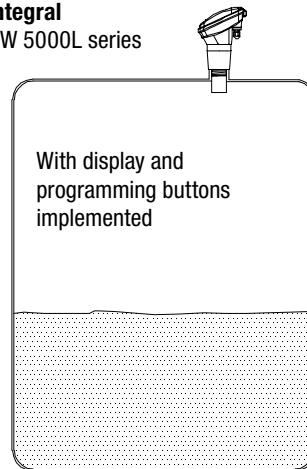
Without display and programming buttons. Programmable with Nivowave PC- software

## Overview / Function

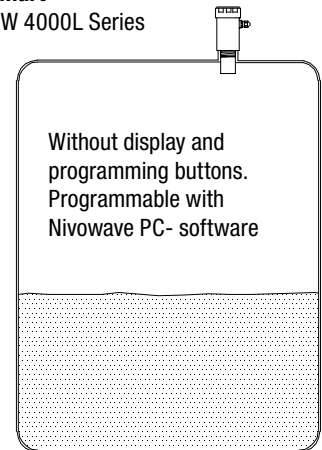
### Level measurement in liquids

**Light series**  
 without horn for  
 normal liquid  
 applications

**Integral**  
 NW 5000L series

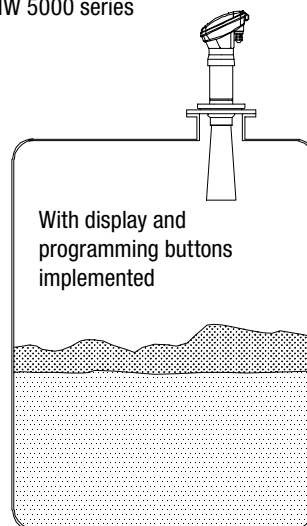


**Smart**  
 NW 4000L Series

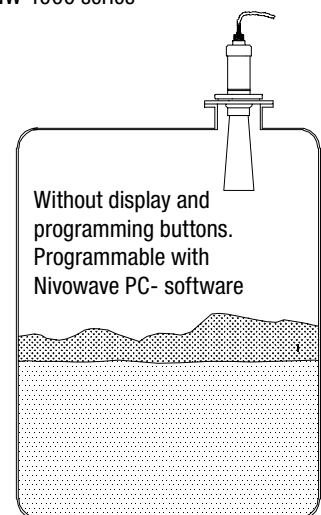


**Standard Series**  
 with horn for high  
 performance in  
 complex liquid  
 applications

**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 GSM possible.



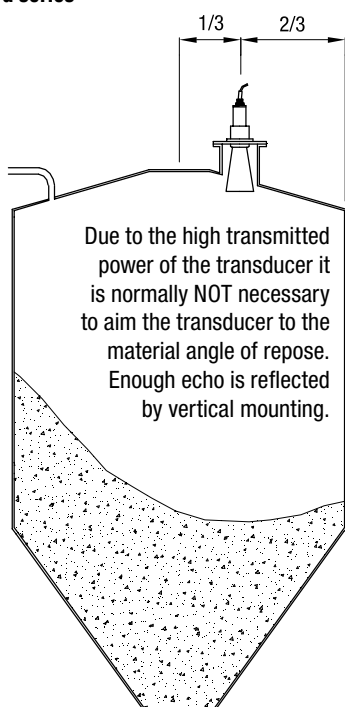
## Mounting

### Transducer mounting

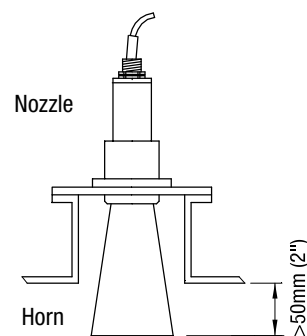
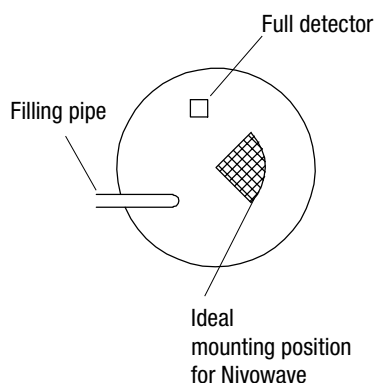
#### Mounting position

- 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



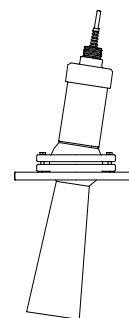
#### Mounting position on top of silo



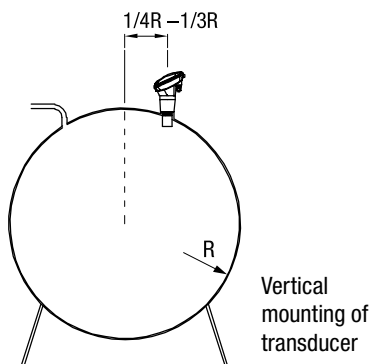
The horn must protrude at least 50mm (2") into the vessel. See in table on page P18 the dimension "B" of the horn. Use this value as a reference to define the max. height of the nozzle.

#### Option: Aiming kit

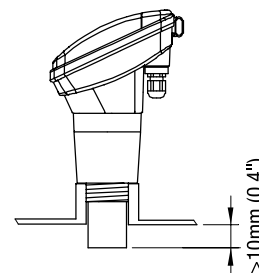
For aiming the Transducer in the application. Necessary only in case of wrong echoes caused by ladders, beams and other fixtures in the vessel. Normal measurement of solids does NOT require aiming to the material angle of repose. The Aiming kit is optionally available to the straight Transducer fixing,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



#### Light series

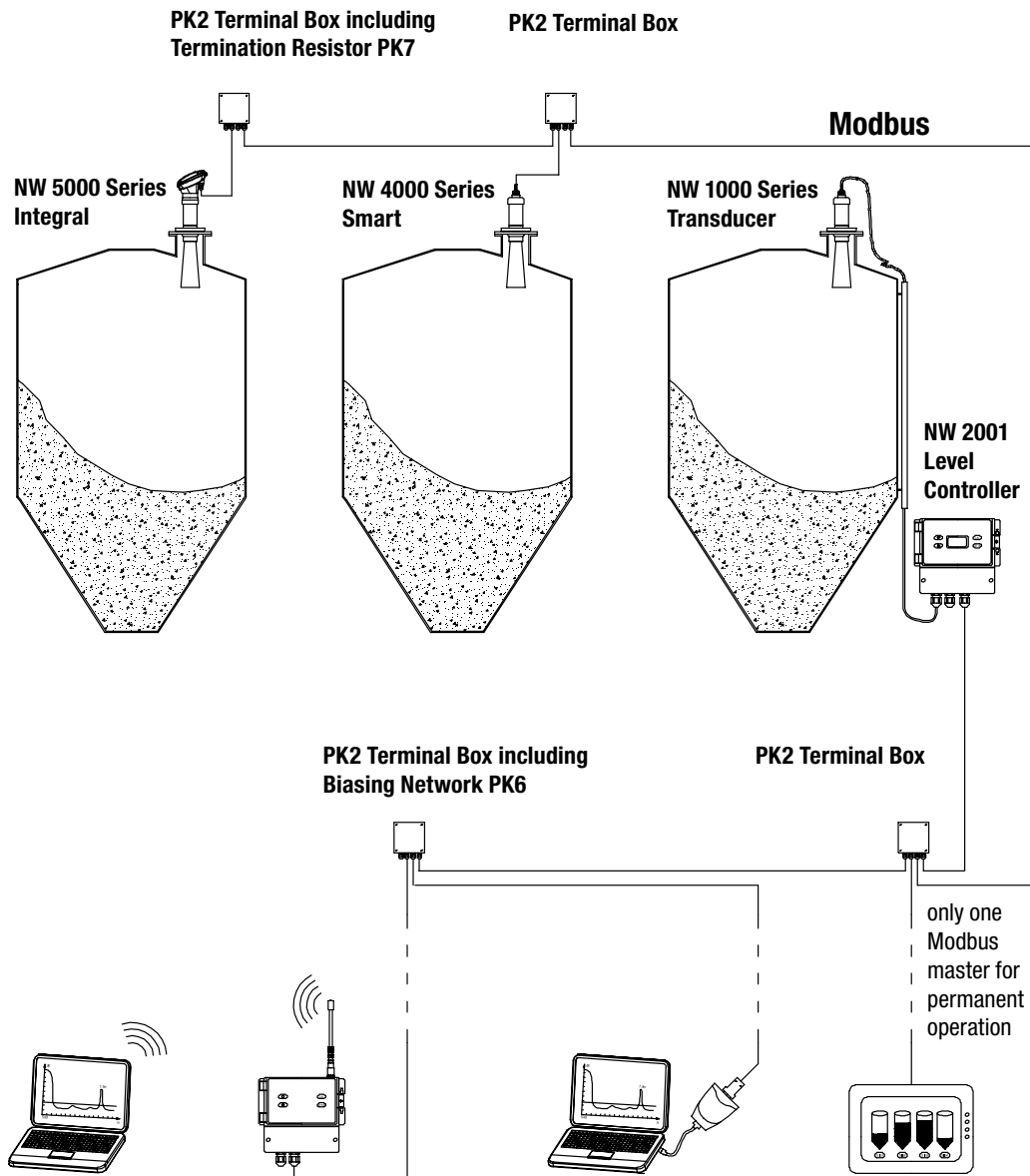


The face (membran) of transducer must extend at least 10mm (0.4") into the vessel. See dimension on page P19.



## Remote Control

### Remote Control via Modbus



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

**GSM-Modem NW 9000**  
 Wireless connection to Nivowave PC-Software.

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

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

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

## Technical Data

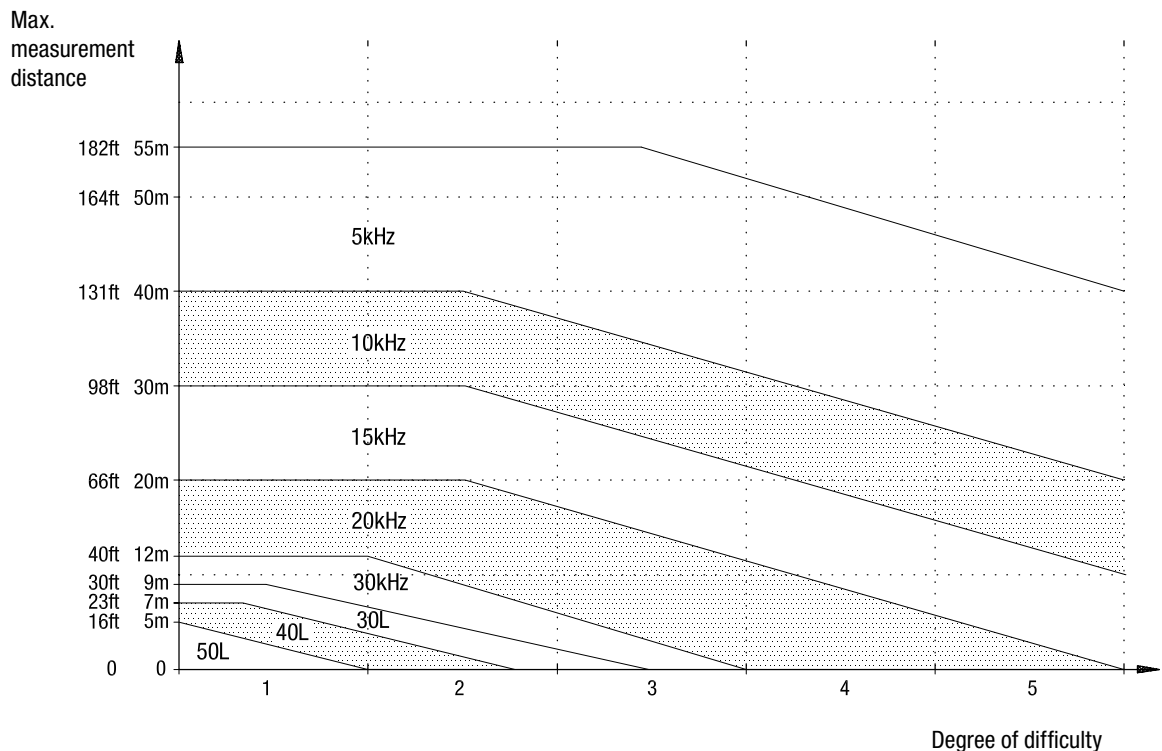
Series	Standard series NW 1000 / NW 4000 / NW 5000					Light series NW 4000L / NW 5000L		
	NW ..30	NW ..20	NW ..15	NW ..10	NW ..05	NW ..50L	NW ..40L	NW ..30L
<b>Type</b>								
<b>Blanking distance (min.)</b>	0.35m (14")	0.45m (17")	0.6m (24")	1.0m (39")	1.5m (59")	0.25m (10")	0.3m (12")	0.35m (14")
<b>Max. process temperature</b>								
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)		
<b>Max. housing temperature</b>	+70°C (+158°F)					+70°C (+158°F)		
<b>Min. temperature</b>	-40°C (-40°F)					-40°C (-40°F)		
<b>Max. over pressure</b>	0.1bar (1.5psi)					1bar (15psi)		
<b>Frequency</b>	30 kHz	20 kHz	15 kHz	10 kHz	5 kHz	50 kHz	40 kHz	30 kHz
<b>Process connection</b>								
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"	-	-	-
<b>Communication</b>								
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		
<b>Power supply</b>								
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		
<b>Material</b>								
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)					-		
<b>Typical applications</b>	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.

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



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
<b>Light Series</b>	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
<b>Standard Series</b>	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	<b>Basic type</b>				
	A	<b>NW 5050L</b>	50 kHz <sup>1</sup>	.....		
	B	<b>NW 5040L</b>	40 kHz <sup>1</sup>	.....		
	C	<b>NW 5030L</b>	30 kHz <sup>1</sup>	.....		
	D	<b>NW 5030</b>	30 kHz <sup>1</sup>	.....		
	E	<b>NW 5020</b>	20 kHz <sup>1</sup>	.....		
	F	<b>NW 5015</b>	15 kHz <sup>1</sup>	.....		
	G	<b>NW 5010</b>	10 kHz <sup>1</sup>	.....		
H	<b>NW 5005</b>	5 kHz <sup>1</sup>	.....			
	pos. 3	<b>Process temperature</b>		<b>Sensor face</b>		
		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	<b>Electronic module</b>				
	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	<b>Process connection</b>			<b>Flange material</b>	<b>Cone</b>
					<b>Ø (mm/inch)</b>	<b>material</b>
	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 <sup>2</sup>	236 (10")	PP <sup>2</sup>
	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 <sup>2</sup>	236 (10")	PP <sup>2</sup>	
N	Thread G2" BSP DIN 288 (incl. O-ring)					
P	Thread NPT2" ANSI B 1.20.1					

Further option: see page P14<sup>3</sup>

Basic type	Position								

NW 5015	F	0	1	E	D	0	+ pos.21	example code
---------	---	---	---	---	---	---	----------	--------------

<sup>1</sup> measuring range see page P7 Transducer selection guide  
<sup>2</sup> cone and flange in carbon for high temperature, Pos.3 3 with Pos.5 F,M only  
<sup>3</sup> for PP-cones only



## NW 4000 / NW 4000L Smart

### NW 4000 series



Teflon face

Polyolefin

### NW 4000L series

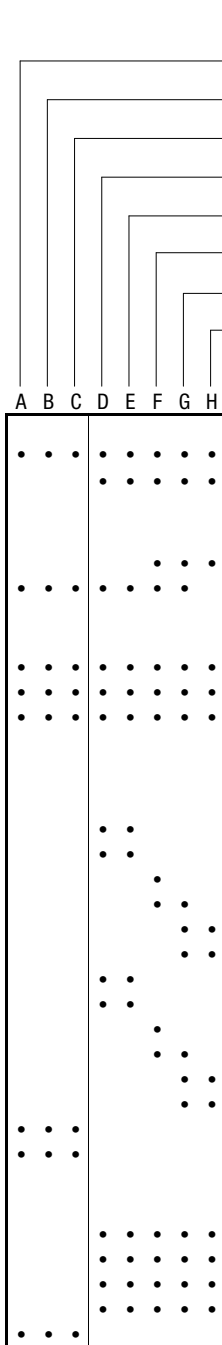


**Cable entries:**

M20 x 1.5 (1x screwed cable gland)

**Dimensions**

see page P18, 19

	pos. 1	<b>Basic type</b>				
		A	<b>NW 4050L</b>	50 kHz <sup>1</sup>	.....	
		B	<b>NW 4040L</b>	40 kHz <sup>1</sup>	.....	
		C	<b>NW 4030L</b>	30 kHz <sup>1</sup>	.....	
		D	<b>NW 4030</b>	30 kHz <sup>1</sup>	.....	
		E	<b>NW 4020</b>	20 kHz <sup>1</sup>	.....	
		F	<b>NW 4015</b>	15 kHz <sup>1</sup>	.....	
		G	<b>NW 4010</b>	10 kHz <sup>1</sup>	.....	
	H	<b>NW 4005</b>	5 kHz <sup>1</sup>	.....		
	pos. 2	<b>Certificate</b>				
		0	CE			
		W	ATEX II 1D and 1/2D <sup>4</sup>			
	pos. 3	<b>Process temperature</b>			<b>Sensor face</b>	
		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	<b>Electronic module</b>				
		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	<b>Process connection suitable for flange</b>		<b>Flange material</b>	<b>Cone Ø (mm/inch)</b>	<b>material</b>
		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	<b>Cable length<sup>3</sup></b>				
		A	4m			
		B	15m			
		C	30m			
		D	50m			
		Z	Junction box with cable gland			

**Further option:** see page P14<sup>2</sup>

Basic type	Position					← <b>Order code</b>
	1	2	3	4	5	
NW 4010	G	0	2	R	D	B

+ pos.21 ← example code

<sup>1</sup> measuring range see page P7 Transducer selection guide

<sup>2</sup> for PP-cones only

<sup>3</sup> standard units with potted cable encapsulated with bend protection, junction box for Light units only

<sup>4</sup> observe accessories for appropriate mounting (cabeling and UV protection)

## NW 1000 / NW 2000 Remote

### NW 1000 series



### NW 2000 series



**Cable entries:**

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

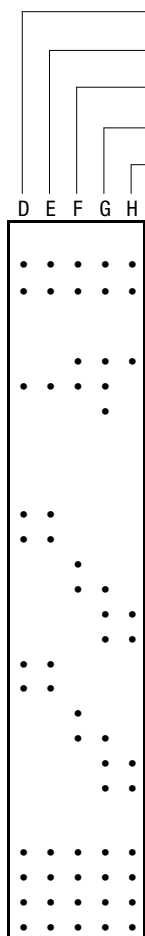
2-wire: M16 x 1.5 (1x screwed cable gland + 2x blind plug)

**Dimensions**

see page P18, 19

## NW 1000 / NW 2000 Remote

### NW 1000

	pos. 1	<b>Basic type</b>			
		D	<b>NW 1030</b>	30 kHz <sup>1</sup>	.....
		E	<b>NW 1020</b>	20 kHz <sup>1</sup>	.....
		F	<b>NW 1015</b>	15 kHz <sup>1</sup>	.....
		G	<b>NW 1010</b>	10 kHz <sup>1</sup>	.....
		H	<b>NW 1005</b>	5 kHz <sup>1</sup>	.....
	pos. 2		<b>Certificate</b>		
			0	CE	
			W	ATEX II 1D and 1/2D <sup>4</sup>	
	pos. 3		<b>Process temperature</b>		<b>Sensor face</b>
		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 atmosph.	Teflon	
		3	max. +150°C (+302°F) in dry, wet and steamy atmosphere <sup>2</sup>	Titanium	
pos. 5		<b>Process connection suitable for flange</b>	<b>Flange material</b>	<b>Cone Ø (mm/inch)</b>	<b>material</b>
		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 <sup>2</sup>	236 (10")	PP <sup>2</sup>
		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 <sup>2</sup>	236 (10")	PP <sup>2</sup>
pos. 6		<b>Cable length</b>			
		A	4m		
		B	15m		
		C	30m		
		D	50m		

Further option: see page P14<sup>3</sup>

Basic type	Position					← <b>Order code</b>	
	1	2	3	4	5		6
NW 1020	E	0	2	0	B	B	+ pos.21 ← example code

<sup>1</sup> measuring range see page P7 Transducer selection guide

<sup>2</sup> cone and flange in carbon for high temperature, Pos.3 3 with Pos.5 F,M only, not for ATEX

<sup>3</sup> for PP-cones only <sup>4</sup> observe accessories for appropriate mounting (cabeling and UV protection)

### NW 2000

pos. 1	<b>Basic type</b>		
	A	<b>NW 2001</b>	.....
pos. 4	<b>Electronic module</b>		
	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 <sup>1</sup>
	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 <sup>1</sup>

Basic type	Position				← <b>Order code</b>
NW 2001	A	0	0		
	1	2	3	4	

<sup>1</sup> GSD file read only



## NW 9000 / Option

### NW 9000

Enables wireless control to a remote PC in combination with the Nivowave PC-Software.

**Cable entries:**

- M20 x 1.5 (1x screwed cable gland)
- M16 x 1.5 (1x screwed cable gland)

**Dimensions**

see page P19



- pos. 1      **Basic type**  
 A    **NW 9000** .....
  
- pos. 2      **Power supply**  
 A    12-30V DC  
 B    12-30V DC, 90-260V AC
  
- pos. 3      **Network type**  
 1    Frequency 800/1900 MHz / 19200 Baud (for USA)  
 2    Frequency 900/1800 MHz / 19200 Baud (for Europe)

Basic type	Position		
<b>NW 9000</b>	<b>A</b>		
	1	2	3

← **Order code**

## 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

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### 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** .....

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### 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

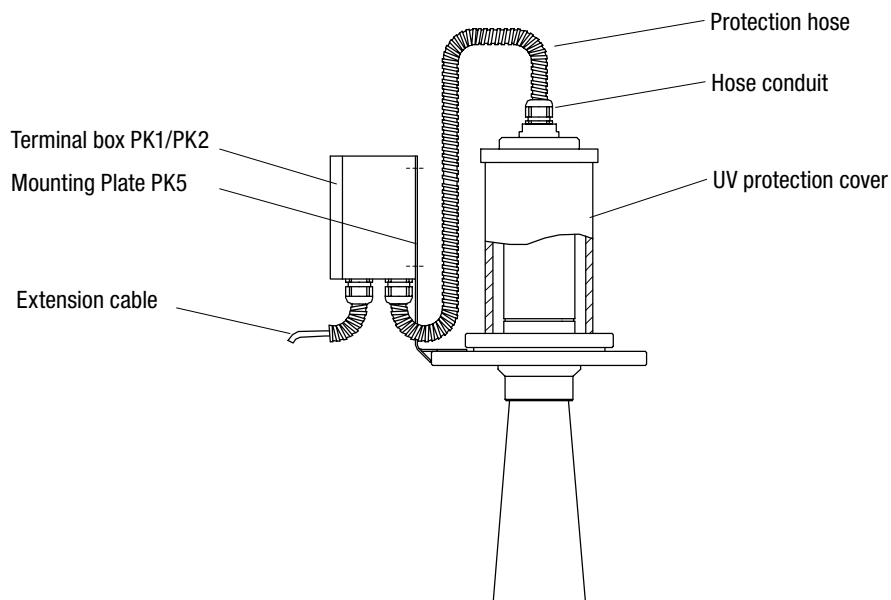
SubD 9-pin female bare end for connection to Nivowave units, driver disc for Win98SE/2000/XP



**nw107010** .....

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## Overview of mounting accessories



## Accessories

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### 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) .....

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### 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) .....

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### 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** .....

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### 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)

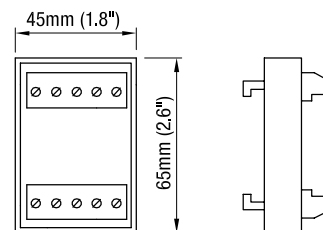
Article No.	material	bolts	washers	nuts
zu107010	stainless steel / A2	8 pieces M16x60	16 pieces	8 pieces
zu107020	stainless steel / A2	8 pieces M20x60	16 pieces	8 pieces
zu107030	stainless steel / A2	12 pieces M20x60	24 pieces	12 pieces

### 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.



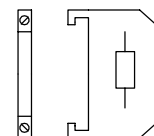
PK6 .....

### 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.



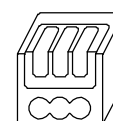
PK7 .....

### 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)



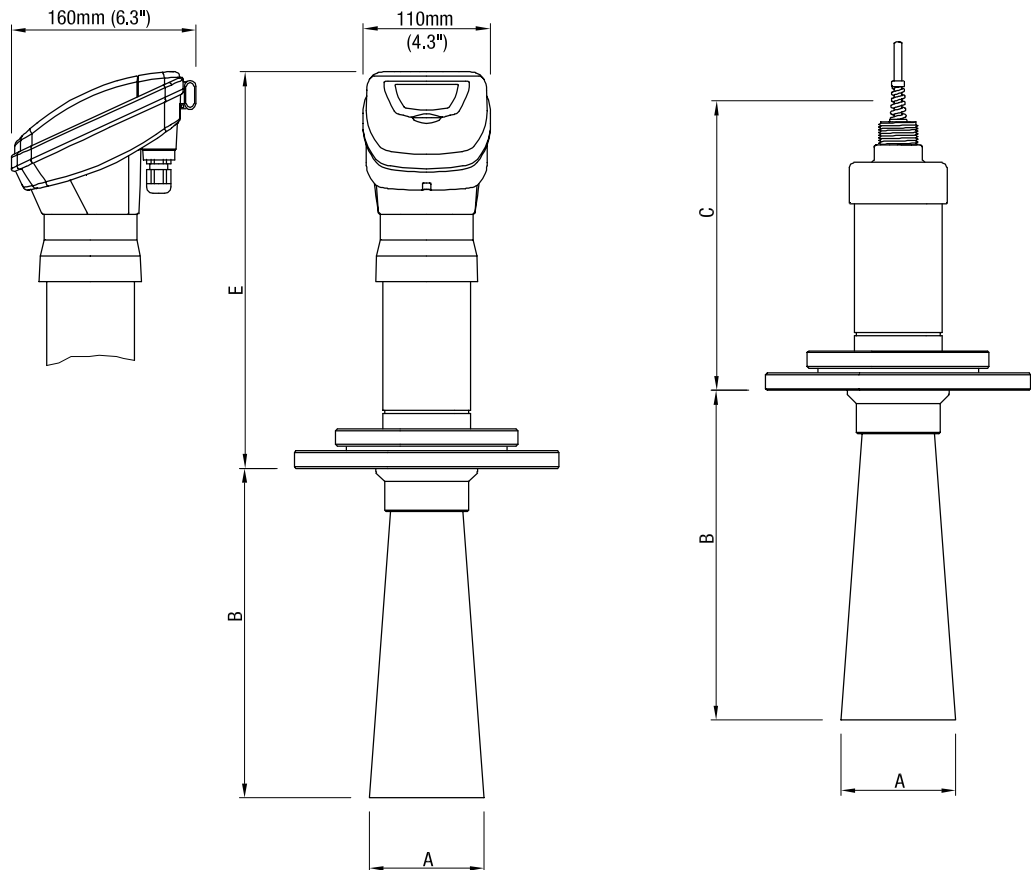
PK8 .....

## Dimensions

### Standard series

#### Integral NW 5000 series

#### Smart NW 4000 series Remote NW 1000 series



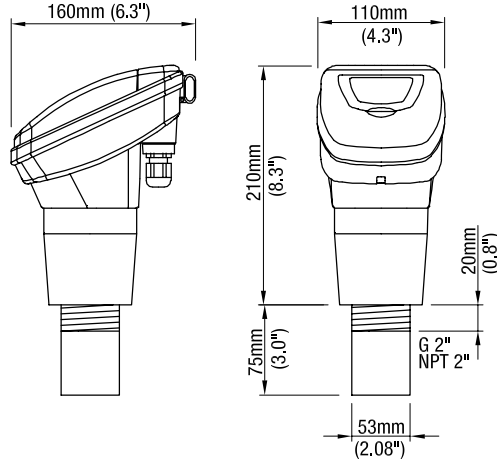
Integral NW 5000 series	Smart NW 4000 series	Remote NW 1000 series	Selected Flange	A		B		C		E	
				mm	inch	mm	inch	mm	inch	mm	inch
NW 5030	NW 4030	NW 1030	DN100 / 4"	98.5	3.9	260	10.2	260	10.2	350	13.8
			DN150 / 6"	98.5	3.9	260	10.2	260	10.2	350	13.8
NW 5020	NW 4020	NW 1020	DN100 / 4"	98.5	3.9	260	10.2	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.

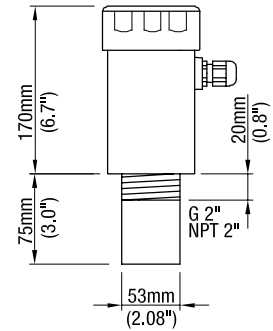
## Dimensions

### Light series

#### Integral NW 5000L series

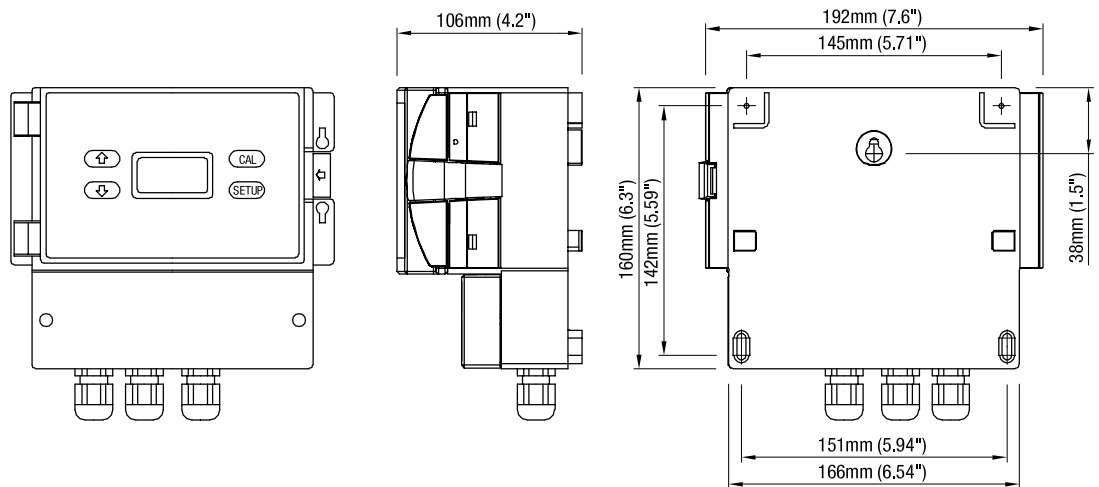


#### Smart NW 4000L series



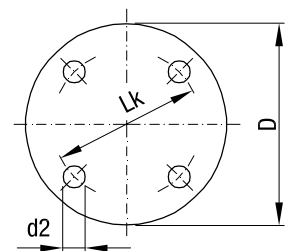
### Level controller NW 2001

### GSM Modem NW 9000



### 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									
<b>fi107000</b>	DN100 PN16	EN1092-1	4"	PP	✓	✓	-	-	-
<b>fi107010</b>	DN150 PN16	EN1092-1	4"	PP	✓	✓	-	-	-
<b>fi107020</b>	DN200 PN16	EN1092-1	8"	PP	-	-	✓	-	-
<b>fi107030</b>	DN200 PN16	EN1092-1	8"	PP	-	-	-	✓	-
<b>fi107040</b>	DN250 PN10	EN1092-1	10"	PP	-	-	-	✓	-
<b>fi107050</b>	DN250 PN10	EN1092-1	10"	PP	-	-	-	-	✓
<b>fi107100</b>	4" 150lbs	ANSI B16.5	4"	PP	✓	✓	-	-	-
<b>fi107110</b>	6" 150lbs	ANSI B16.5	4"	PP	✓	✓	-	-	-
<b>fi107120</b>	8" 150lbs	ANSI B16.5	8"	PP	-	-	✓	-	-
<b>fi107130</b>	8" 150lbs	ANSI B16.5	8"	PP	-	-	-	✓	-
<b>fi107140</b>	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	✓	-
<b>fi107150</b>	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	-	✓
Flange with PUR-Cone									
<b>fi107200</b>	DN150 PN16	EN1092-1	8"	PP	-	-	✓	-	-
<b>fi107210</b>	DN200 PN16	EN1092-1	10"	PP	-	-	-	✓	✓
<b>fi107220</b>	6" 150lbs	ANSI B16.5	8"	PP	-	-	✓	-	-
<b>fi107230</b>	8" 150lbs	ANSI B16.5	10"	PP	-	-	-	✓	✓
Flange with CARBON-Cone									
<b>fi107250</b>	DN250 PN10	EN1092-1	10"	carbon	-	-	-	✓	-
<b>fi107260</b>	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									
<b>fi107300</b>	DN100 PN16	EN1092-1	4"	PP	✓	✓	-	-	-
<b>fi107310</b>	DN150 PN16	EN1092-1	4"	PP	✓	✓	-	-	-
<b>fi107320</b>	DN200 PN16	EN1092-1	8"	PP	-	-	✓	-	-
<b>fi107330</b>	DN200 PN16	EN1092-1	8"	PP	-	-	-	✓	-
<b>fi107340</b>	DN250 PN10	EN1092-1	10"	PP	-	-	-	✓	-
<b>fi107350</b>	DN250 PN10	EN1092-1	10"	PP	-	-	-	-	✓
<b>fi107400</b>	4" 150lbs	ANSI B16.5	4"	PP	✓	✓	-	-	-
<b>fi107410</b>	6" 150lbs	ANSI B16.5	4"	PP	✓	✓	-	-	-
<b>fi107420</b>	8" 150lbs	ANSI B16.5	8"	PP	-	-	✓	-	-
<b>fi107430</b>	8" 150lbs	ANSI B16.5	8"	PP	-	-	-	✓	-
<b>fi107440</b>	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	✓	-
<b>fi107450</b>	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	-	✓