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Subject to technical change.

All dimensions in mm (inches).

We assume no liability for typing errors.

Valid from 01.04.2009 until 31.03.2010 unless otherwise agreed.

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

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

Nivowave®

Continuous level measuring system
Series NW - Acoustic Wave
Option list

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.

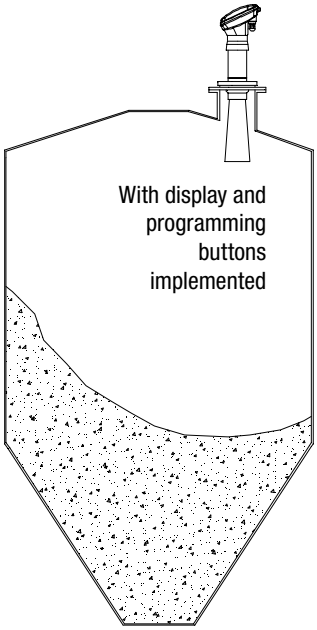
• Powers stations:
Boiler bunkers, raw coal bunkers, ash pits, fly ash silos, etc.

- **Food**
- **Plastics**
- **Chemicals**
- **Irrigation**
- **Cement**
- **Grain**
- **Paper**
- **Quarries**

Level measurement in solids

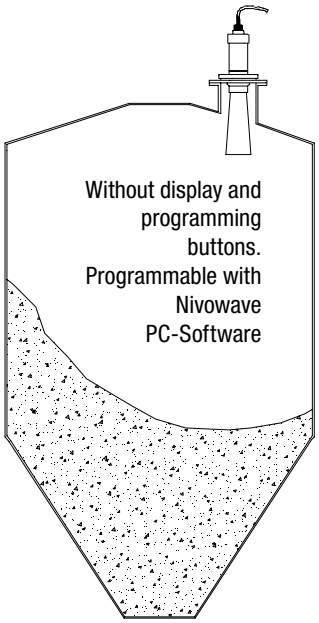
Standard Series
with horn for high performance in complex solid applications

Integral
NW 5000 series



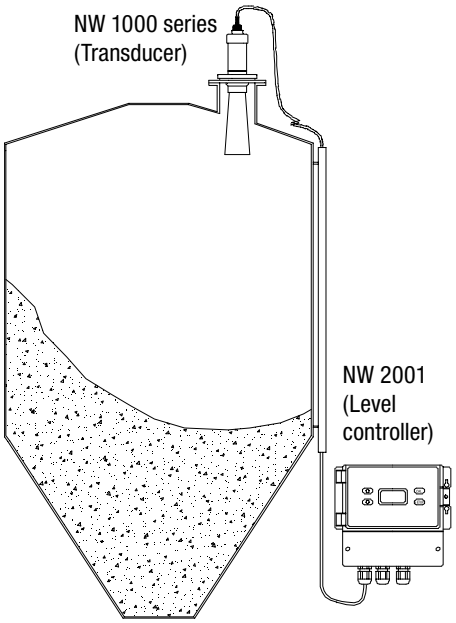
With display and programming buttons implemented

Smart
NW 4000 series



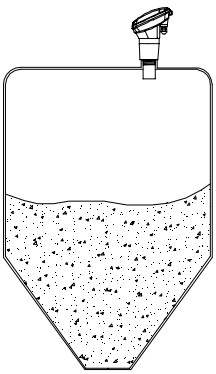
Without display and programming buttons. Programmable with Nivowave PC-Software

Remote



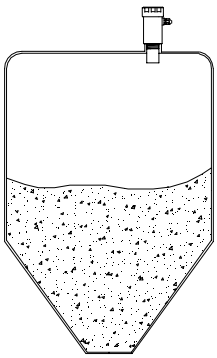
Light series
without horn for easy solid measurements in small vessels

Integral
NW 5000L series



With display and programming buttons implemented

Smart
NW 4000L series



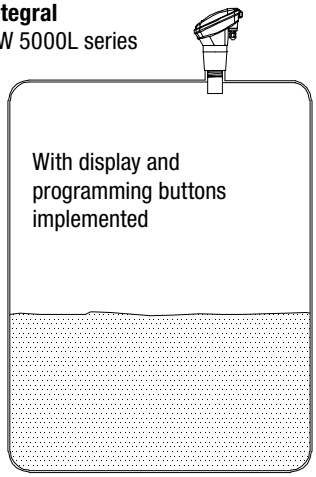
Without display and programming buttons. Programmable with Nivowave PC- software

Overview / Function

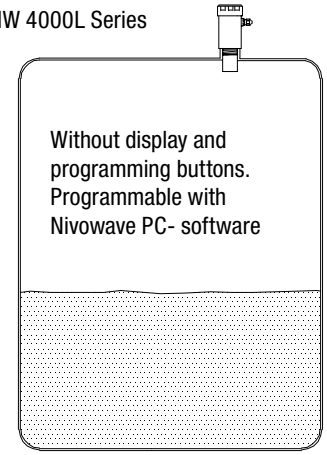
Level measurement in liquids

Light series
without horn for normal liquid applications

Integral
NW 5000L series

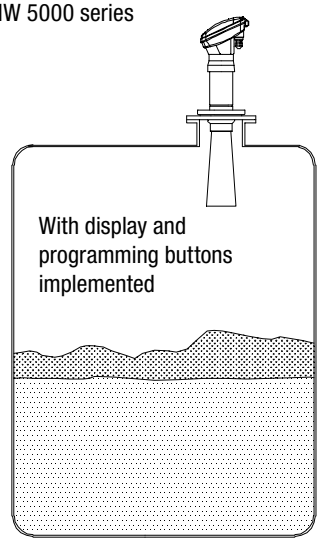


Smart
NW 4000L Series

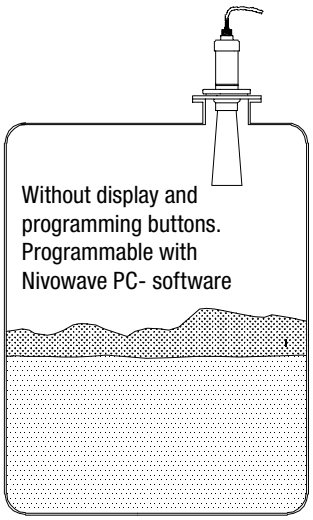


Standard Series
with horn for high performance in complex liquid applications

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 enviroment 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 indentify 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 tranducer and the material.
- Suitable for measuring many different applications.
- Easy to calibrate and commission.
- Wireless monitoring and programming with GSM possible.

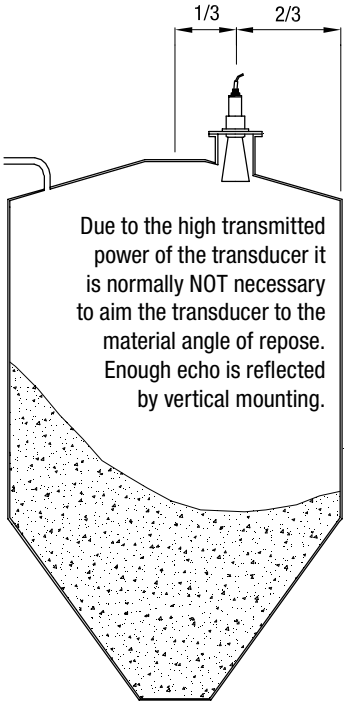
Mounting

Transducer mounting

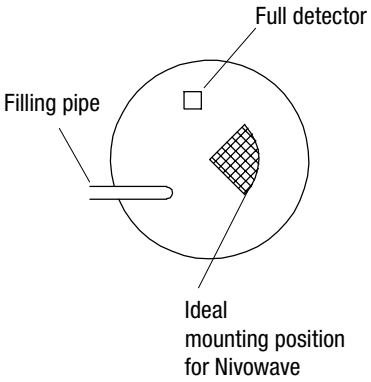
Mounting position

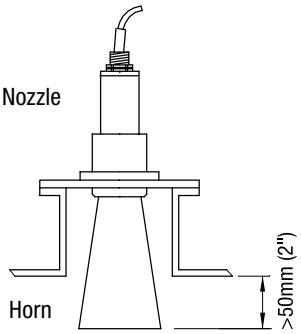
- Selecting a suitable position to mount the transducer on the vessel is the most important step. Please read the following installation guide and contact your representative if you have any doubts or questions.
- A clear line of sight from the transducer to the product being monitored is preferred.
- 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

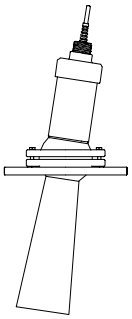




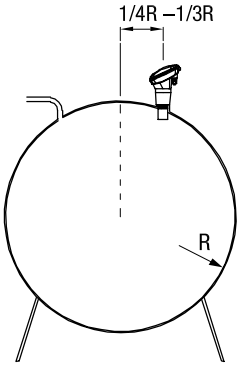
The horn must protrude at least 50mm (2") into the vessel.
See in table on page P18 the dimension "B" of the horn. Use this value as a reference to define the max. height of the nozzle.

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 Tansducer fixing, which is delivered as standard.

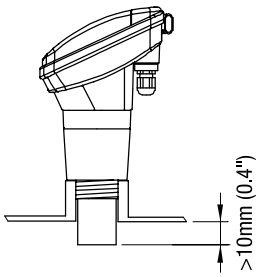


Light series



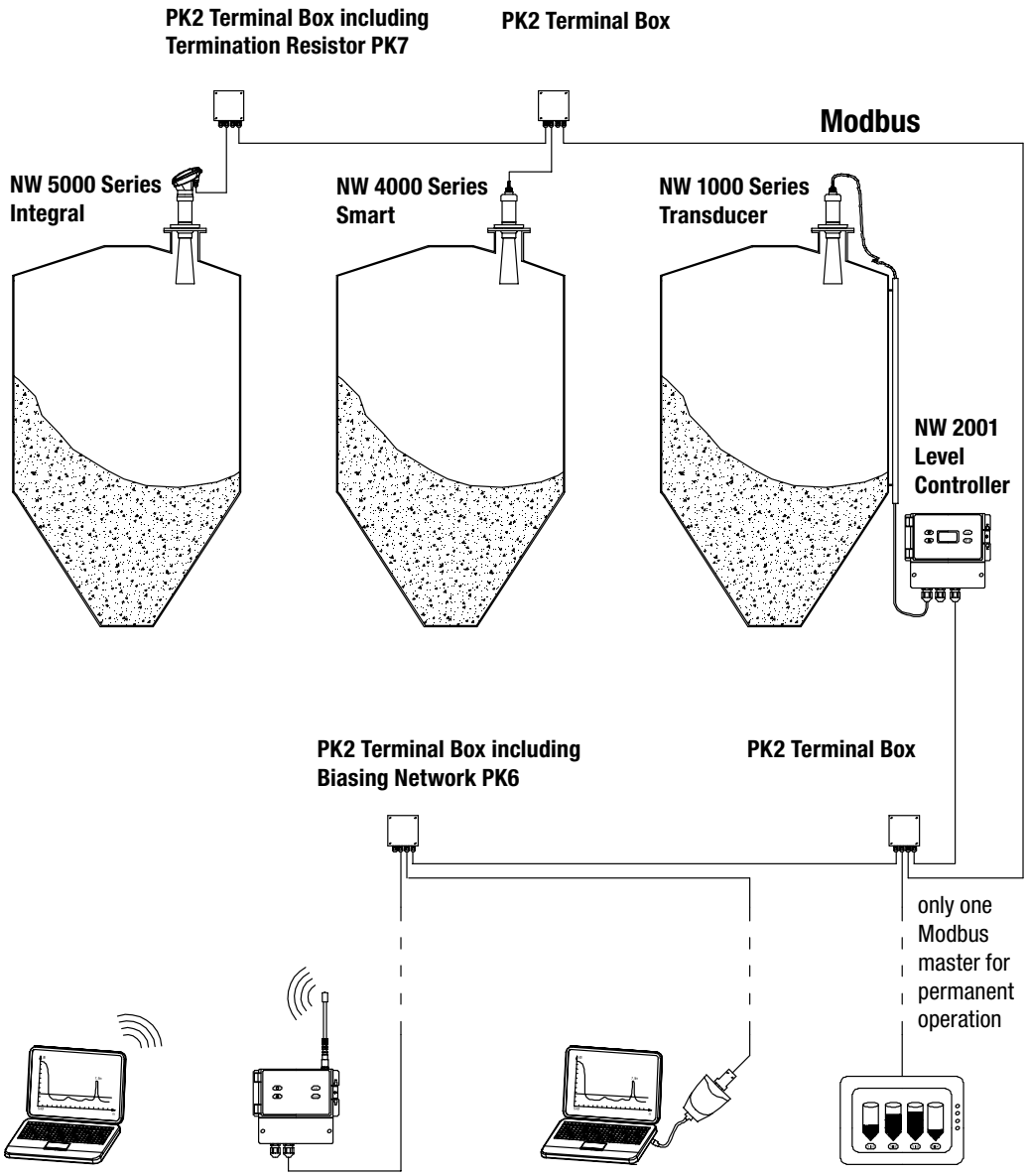
Vertical mounting of transducer

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.

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**		
Type	**NW ..30**	**NW ..20**	**NW ..15**	**NW ..10**	**NW ..05**	**NW ..50L**	**NW ..40L**	**NW ..30L**
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		

Nivowave®

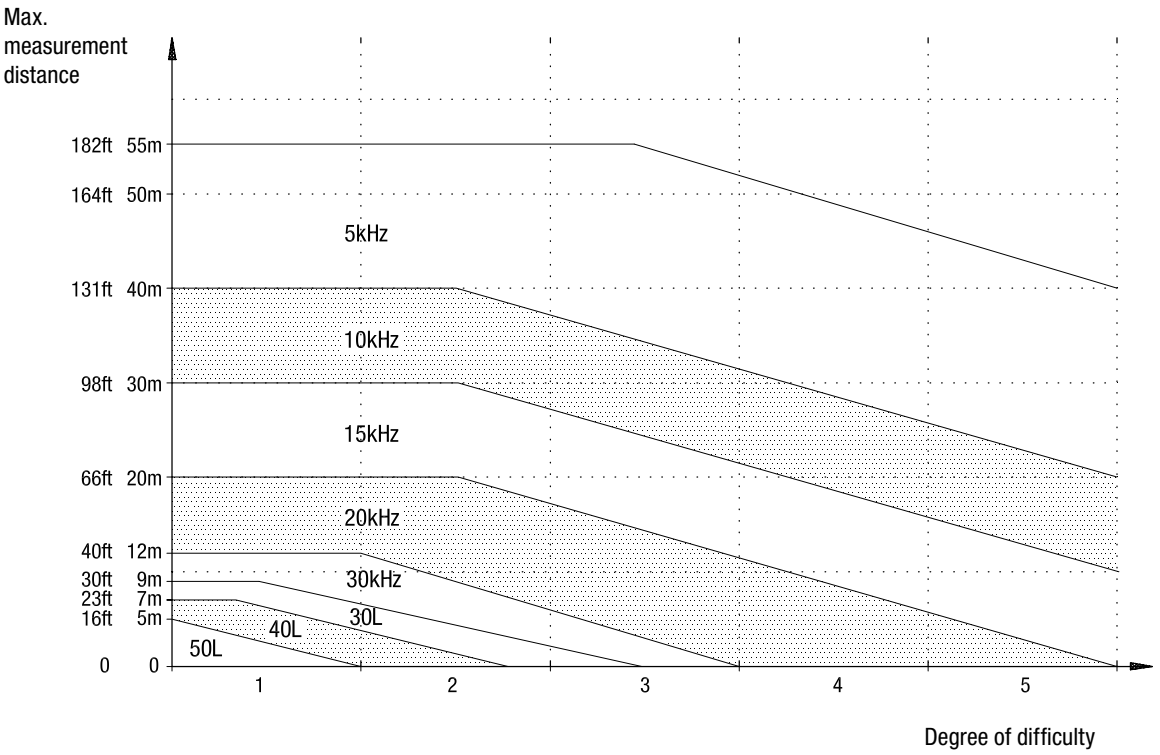
Continuous level measuring system
Serie NW - Acoustic Wave
Option list

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			
	ripply		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

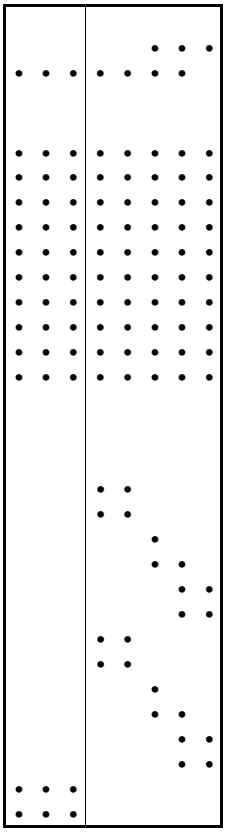
Nivowave®

Continuous level measuring system
Serie NW - Acoustic Wave
Option list

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 P14 [3]

Basic type	Position						
		0				0	← **Order code**
	1	2	3	4	5	6	

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

[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

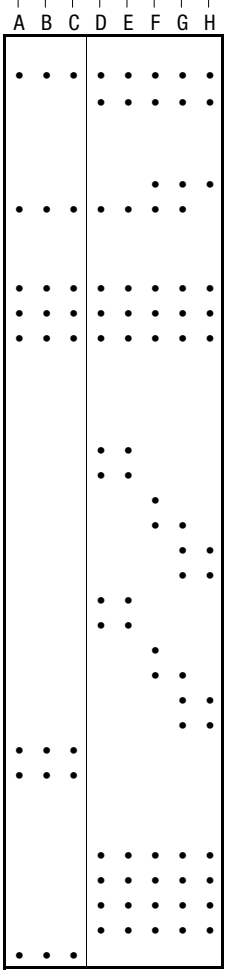
Cable entries:
M20 x 1.5 (1x screwed cable gland)

Dimensions
see page P18, 19

Nivowave®

Continuous level measuring system
Serie NW - Acoustic Wave
Option list

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 length** [3]

A	4m
B	15m
C	30m
D	50m
Z	Junction box with cable gland

Further option: see page P14 [2]

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)

Nivowave®

Continuous level measuring system
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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)

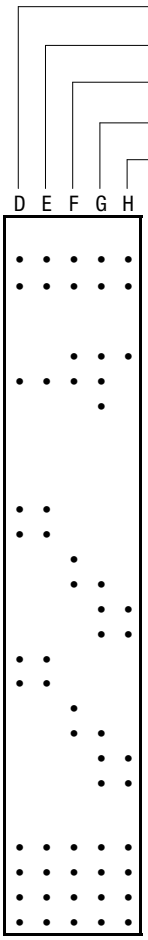
Dimensions
see page P18, 19

Nivowave®

Continuous level measuring system
Serie NW - Acoustic Wave
Option list

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 atmosph.	Teflon
3	max. +150°C (+302°F) in dry, wet and steamy atmosphere [2]	Titanium

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 [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 P14 [3]

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

[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]

Basic type	Position				
NW 2001	**A**	**0**	**0**		← **Order code**
	1	2	3	4	

[1] GSD file read only

Nivowave®

Continuous level measuring system
Series NW - Acoustic Wave
Option list

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		
NW 9000	**A**		
	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

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

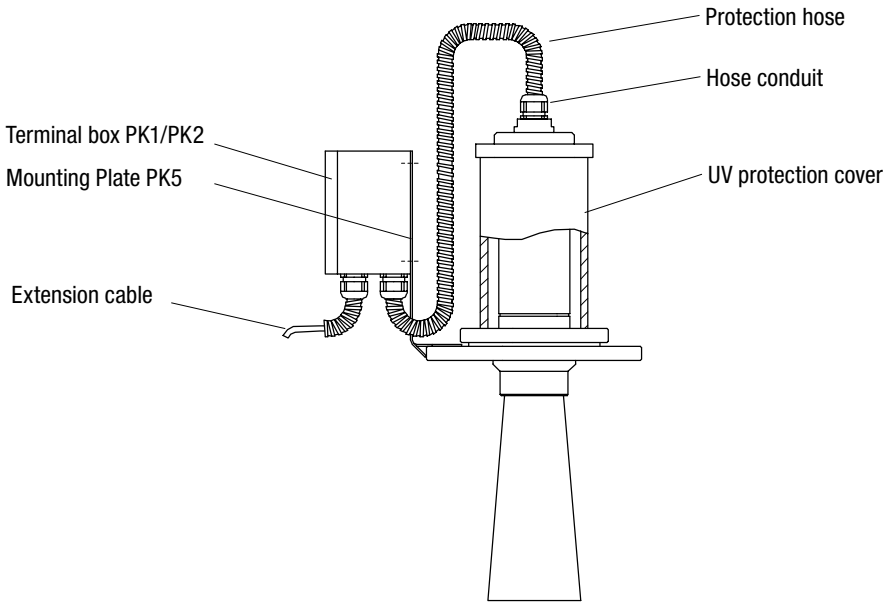
USB to RS485 (Modbus) converter
Modbus converter for connecting of a PC with NW5000 / NW4000 / NW2000 series

Package Content

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

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	suitable mounting kit 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

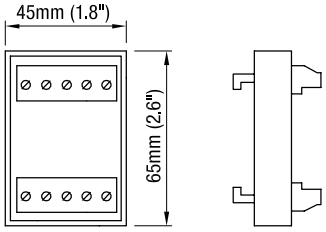
Bolts, washers and nuts for mounting Nivowave unit on flange provided upon measuring ponit (stainless steel / A2)

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.

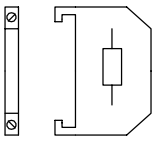


PK6

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.

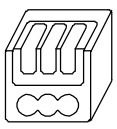


PK7

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)

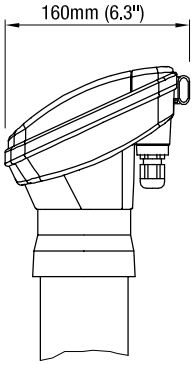


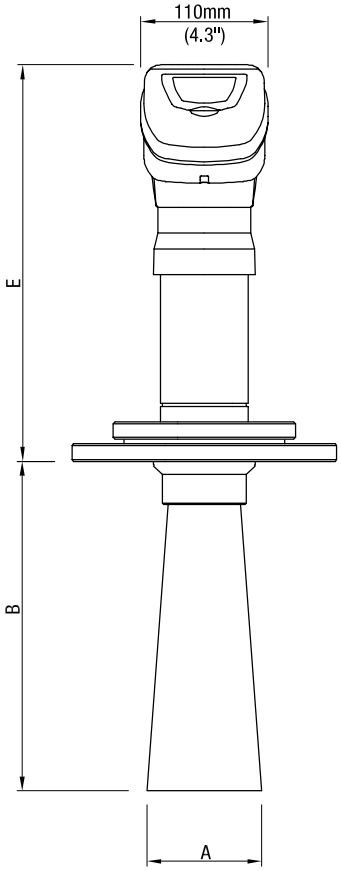
PK8

Dimensions

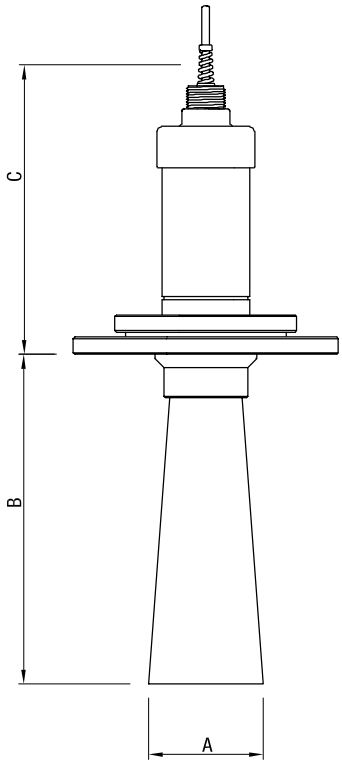
Standard series

Integral NW 5000 series





Smart NW 4000 series
Remote NW 1000 series



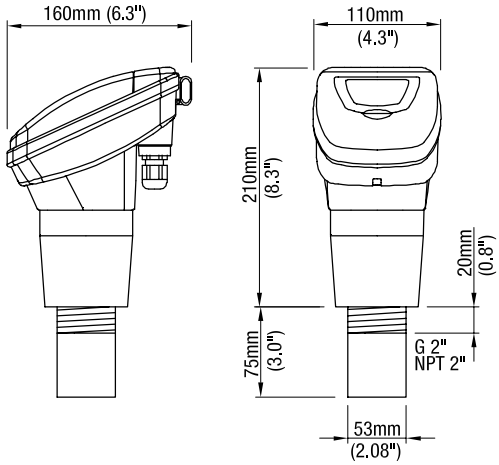
Integral NW 5000 series	Smart NW 4000 series	Remote NW 1000 series	Selected Flange	A		B		C		E	
				mm	inch	mm	inch	mm	inch	mm	inch
NW 5030	NW 4030	NW 1030	DN100 / 4" DN150 / 6"	98.5 98.5	3.9 3.9	260 260	10.2 10.2	260 260	10.2 10.2	350 350	13.8 13.8
NW 5020	NW 4020	NW 1020	DN100 / 4" DN150 / 6"	98.5 98.5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

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

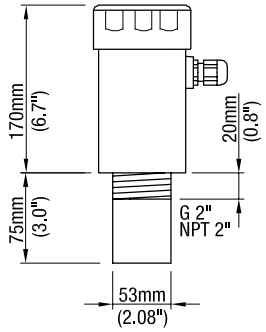
Dimensions

Light series

Integral
NW 5000L series

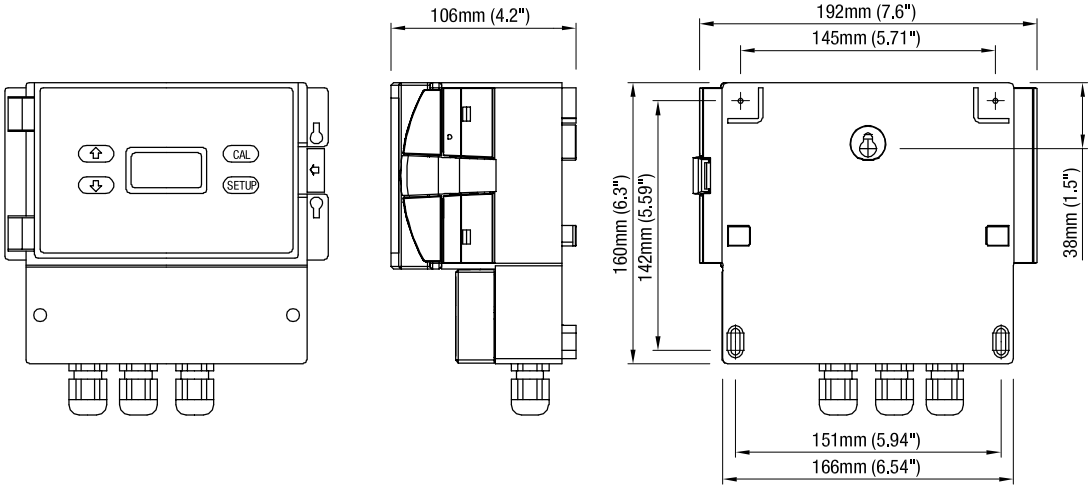


Smart
NW 4000L series



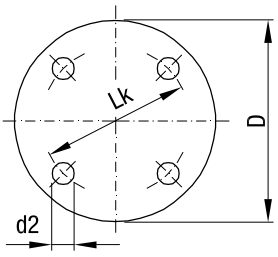
Level controller
NW 2001

GSM Modem
NW 9000



Flanges

NW flanges fitting to	Lk		D		d2		Holes
	mm	inch	mm	inch	mm	inch	number
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									
fl107000	DN100 PN16	EN1092-1	4"	PP	✔	✔	-	-	-
fl107010	DN150 PN16	EN1092-1	4"	PP	✔	✔	-	-	-
fl107020	DN200 PN16	EN1092-1	8"	PP	-	-	✔	-	-
fl107030	DN200 PN16	EN1092-1	8"	PP	-	-	-	✔	-
fl107040	DN250 PN10	EN1092-1	10"	PP	-	-	-	✔	-
fl107050	DN250 PN10	EN1092-1	10"	PP	-	-	-	-	✔
fl107100	4" 150lbs	ANSI B16.5	4"	PP	✔	✔	-	-	-
fl107110	6" 150lbs	ANSI B16.5	4"	PP	✔	✔	-	-	-
fl107120	8" 150lbs	ANSI B16.5	8"	PP	-	-	✔	-	-
fl107130	8" 150lbs	ANSI B16.5	8"	PP	-	-	-	✔	-
fl107140	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	✔	-
fl107150	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	-	✔
Flange with PUR-Cone									
fl107200	DN150 PN16	EN1092-1	8"	PP	-	-	✔	-	-
fl107210	DN200 PN16	EN1092-1	10"	PP	-	-	-	✔	✔
fl107220	6" 150lbs	ANSI B16.5	8"	PP	-	-	✔	-	-
fl107230	8" 150lbs	ANSI B16.5	10"	PP	-	-	-	✔	✔
Flange with CARBON-Cone									
fl107250	DN250 PN10	EN1092-1	10"	carbon	-	-	-	✔	-
fl107260	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									
fl107300	DN100 PN16	EN1092-1	4"	PP	✔	✔	-	-	-
fl107310	DN150 PN16	EN1092-1	4"	PP	✔	✔	-	-	-
fl107320	DN200 PN16	EN1092-1	8"	PP	-	-	✔	-	-
fl107330	DN200 PN16	EN1092-1	8"	PP	-	-	-	✔	-
fl107340	DN250 PN10	EN1092-1	10"	PP	-	-	-	✔	-
fl107350	DN250 PN10	EN1092-1	10"	PP	-	-	-	-	✔
fl107400	4" 150lbs	ANSI B16.5	4"	PP	✔	✔	-	-	-
fl107410	6" 150lbs	ANSI B16.5	4"	PP	✔	✔	-	-	-
fl107420	8" 150lbs	ANSI B16.5	8"	PP	-	-	✔	-	-
fl107430	8" 150lbs	ANSI B16.5	8"	PP	-	-	-	✔	-
fl107440	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	✔	-
fl107450	10" 100lbs	ANSI B16.5	10"	PP	-	-	-	-	✔