NX Sea Data

- Instrument -

Installation and Operation Manual

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1  Part specification

Items delivered with the instrument

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Registering this product

Once you have checked that you have all the listed parts, please take time to fill in the warranty document and return it to your national distributor.

By returning the warranty card, it will assist your distributor to give you prompt and expert attention. Keep your proof of purchase. Also, your details are added to our customer database so that you automatically receive new product catalogues when they are released.

Warranty conditions see 11.
2 Installation

• The installation includes 6 major steps:
  1. Read the installation and operation manual.
  2. Plan where to install the transducers and instruments.
  3. Run the cables.
  4. Install the transducers and instruments.
  5. Take a break and admire your installation.
  6. Learn the functions and calibrate your system.

Before you begin drilling ... think about how you can make the installation as neat and simple as your boat will allow. Plan where to position the transducers, Server and instruments. Think about leaving space for additional instruments in the future.

• A few "do not" you should consider:
  − Do not cut the cables too short. Allow extra cable length at the Server so it can be disconnected for inspection without having to disconnect all attached cables.
  − Do not place sealant behind the display. The instrument gasket eliminates the need for sealant.
  − Do not run cables in the bilge, where water can appear.
  − Do not run cables close to fluorescent light sources, engine or radio transmitting equipment to avoid electrical disturbances.
  − Do not rush, take your time. A neat installation is easy to do.

• The following material is needed:
  Wire cutters and strippers.
  Small and large Philips and small flat head screw driver.
  Hole saw for the instrument clearance of 63 mm (2½”).
  5 mm (¼”) drill for the mounting holes.
  Plastic cable ties

If you are doubtful about the installation, obtain the services of an experienced technician.
2.1 Installing the instrument

- Place the adhesive drill template on the desired location for the instrument. Drill the 2 holes using a 5 mm (1/4") drill for the two pin bolts. Use a 63 mm (2½") hole saw to machine the clearance hole for the instrument connection socket. Remove the template.

- Screw the two pin bolts to the instrument
- Put the instrument in place
- Screw the two nuts from the back

Note! The two nuts must just be tighten by hand only

- Run the Nexus Network cable from the WSI-box to the instrument.
- If you want to cut the Nexus Network cable to length, disconnect 4-pole jack plug and cut the cable. Peel off about 35 mm (1.4") of the cable insulation. Remove about 6 mm (1/4") from the 3 isolated wires (the 4th wire is an earth / screen). Attach the 4 cable protectors to the wires using a pair of flat pliers.
- Connect the 4 cable protectors to the 4-pole jack plug as shown. Apply silicon paste on all locations as shown.

Note: Must be done to avoid corrosion.
Apply silicon paste to the instrument connection pins at the back of the instrument. Press the jack plug onto the instrument pins. Press the cable in to the cable leads.

Mount the connection back cover with the screw.

2.1.1 Installing instrument to the WSI-box

All NX2 instruments are connected directly to the Nexus Network in a daisy chain. They all use the same colour coded 4-pole jack plugs. (For instrument installation, see 2.2).
2.1.2 Installing instrument to the NX2 Server

All NX2 instruments are connected directly to the Nexus Network. They all use the same colour coded 4-pole jack plugs..
3 First start

3.1 Initialising the instrument
You will be asked to press SET (PrESkey) on the instrument the very first time after installation. This will give the instrument a logical ID number that belongs to your specific Nexus Network.

Press SET, on each installed instrument, one at the time.

⚠️ Always wait for the text ‘Init OK’ to be displayed, before you press SET on the next instrument!

The first unit ID number is 16, then 17 and so on in the order which you press SET.

The example shows that the instrument version number is 1.0 and that the instrument was given the logical ID number 16.
The bottom row shows the software version (4.8) and ID number (0) of the network master.

When the NX WSI-box is network master, the ID number is 2
When the NX2 Server is network master, the ID number is 0
3.2 How to use the push-buttons

**CLEAR**
Clear trip log, cancel alarms or reset the timer.

**MINUS**
Move to the next sub-function.
In edit mode: Decreases the shown value

**PAGE**
Change main function, either SPEED or DEPTH.
In edit mode: Moves the cursor

**PLUS**
Move to the previous sub-function.
In edit mode: Increase the shown value

**SET**
Set or edit alarm value or calibration. Start race timer
3.3 Instrument backlight

1. Press and hold PAGE
2. Select backlight level with PLUS
3. Set the light level with SET

4 Function overview

The functions in the Sea Data instrument are divided into 2 pages: SPEED and DEPTH. The selected page is indicated by the LCD mark at top of the display.

Each page has 2 types of functions that can be displayed together:

1. Main-function, displayed at the top of the display in 30 mm high digits.
2. Sub-function, displayed at the bottom part of the display in 17 mm high digits.

You can easily customise your favourite combination of functions, (See 9).

The instrument can display metric and imperial units.
For unit selection, (see 8).

For function overview and transducers needed to display each function, see below.
5 SPEED functions

The Sea Data instruments SPEED page is indicated by the LCD marker at top of the display. You can easily combine this main function with any sub function (See 9).

SPEED main-function

Boat speed through the water
Unit available in knots (KT), km/h (Kh) or miles/h (Mh)

SPEED sub-functions

Both water speed and water temperature is measured from the log transducer.

TRIP LOG (TRP)
Distance from 0 to 199,99 NM
To reset TRIP LOG press CLEAR.

TOTAL LOG (LOG)
Distance from 0 to 19999 NM.
The total log can not be reset.

START TIMER (STA)
Count down timer can be set between 59 and 1 minute.
To start the timer from minus 10 minutes (-10’STA) press SET.
The figure 1 in 10 is flashing. Press SET to start.

Change start timer.
Set to 5 minutes (-5’STA), press PAGE, MINUS and PLUS as required to set 5 minutes (or any value), Press SET to Start.

During the last 10 seconds the alarm will sound once every second.

TIMER
Elapsed time in hour, minute and seconds from power on, or from end of start timer count down. Press CLEAR to reset.

AVERAGE SPEED (AVS)
The average speed from power on, or from reset of timer
To reset press CLEAR
**MAXIMUM SPEED (MAX)**
Maximum speed since power on, or from reset of start timer
To reset, press **CLEAR**

**DEPTH (unit/DPT)**
Depth reading can be set to show distance from the water surface or from the keel.
Unit in meters (m), feet (FT) or fathoms (FA)
The text alternates between the selected (unit) and (DPT).

**BATTERY (BAT)**
The Battery voltage measured in the WSI unit.

**TEMPERATURE (TMP)**
Water temperature is measured in the log transducer.
Unit available in Celsius (C) or Fahrenheit (F)
6 DEPTH functions

DEPTH main-function
The actual depth between the boats keel or the water surface.
Units in meters (m), feet (FT) or fathoms (FA)
Preference is set by the user.

DEPTH sub-functions

LIGHT CONTROL
Set light level for all instruments, LOW, MID, MAX or OFF.

SHALLOW ALARM (SHA)
Audible and visual alarm is activated if the actual depth becomes less than the pre-set value.

DEPTH ALARM (DEA)
Audible and visual alarm is activated if the actual depth becomes deeper than the pre-set value.

ANCHOR ALARM
Audible and visual alarm is activated if the actual depth becomes less or deeper than the pre-set values.

Set shallow (SHA) alarm to actual depth minus 1.5 m / 5 FT then set depth (DEA) alarm to actual value plus 1.5 m / 5 FT.

BOAT SPEED (BSP/unit)
Boat speed (water speed)
Unit in knots (KT), km/h (Kh) or miles/h (Mh)
Text alternates between (BSP) and the selected (unit).

Barometric pressure (unit/hPA)
The wireless windtransducer has a built in barometric pressure sensor. The Sea Data instrument displays the barometric pressure in the following units; Hecto Pascal (hPa) or Inch HG (INH). To set the unit (See 9.1.9, C25).

6.1.1 TRUE WIND ANGLE (TWA)
This function requires a log transducer.
6.1.2 **APARENT WIND ANGLE (TWA)**
Displays the apparent wind angle.

6.1.3 **TRUE WIND SPEED TWS**
This function requires a log transducer. Displayed in m/s (m/s), knots (KTS) or Beaufort (BF). (See 12.5, C52). The text alternates between (TWS) and the selected (unit).

6.1.4 **APARENT WIND SPEED (AWS)**
Units displayed in m/s (m/s), knots (KTS) or Beaufort (BF), (see 12.5, C52). The function alternates between (AWS) and the selected (units).

6.2 **Set shallow (SHA) and depth alarm (DEA)**
Select shallow (SHA) or depth (DEA) alarm, press **SET**. The first digit in the previous value flashes. If you want to reset the previous value to zero (0), Press **CLEAR**. To select desired depth press **MINUS**, **PLUS** and **PAGE** as required. Press **SET** to lock the selected value. By this last press on **SET**, you have turned on the selected alarm function, which is indicated by the minute sign (´) above the last depth digit in the sub-function.

6.3 **Set and turn on anchor alarm (ANC)**
Select anchor alarm (ANC), press **SET**. The first digit flashes. The instrument will suggest a value for the shallow (SHA) alarm (actual depth minus 1,5 m / 5 FT). To store the value press **SET**, or select your own depth as in 7.3. The minute sign (´) is shown above the last depth digit in the sub-function. The instrument will suggest a value for the depth (DEA) alarm (actual depth plus 1,5 m / 5 FT). To store the value press **SET**, or select your own depth as in 7.3. The minute sign (´) is shown above the last depth digit in the sub-function.

6.4 **Clear an alarm value**
Select the alarm function to be cleared, press **SET**. The first digit flashes. To clear the alarm, press **CLEAR**. All digits are set to zero (0). Press **SET** to lock the function.
6.5 Silencing an alarm
To silence a triggered alarm that sounds and flashes, press ANY button.
The sound is silenced and the flashing stops.
The alarm is only triggered again if the selected depth value is exceeded (shallower or deeper) by 2 m (6 feet).

6.6 Turning OFF or ON an alarm
Select the alarm function to be turned off / on.
To turn the alarm off / on, press CLEAR.
The minute sign (´) disappears / appears.

When a triggered alarm has been silenced, it will only be triggered again if the selected depth value differs by +/-2m (6 ft)

If a different page than DEPTH is shown when the alarm is triggered, the set alarm function will automatically be shown flashing, until you silence or turn off the alarm. The instrument will then automatically return to the previous page.

Loss of depth signals are indicated with 3 dotted lines (---) until a new echo is received.
7 Customise your display

All sub-functions are organised in a list under the main-function. The first location in the sub-function list is an empty display. You can have your favourite sub-function moved in the same sub-function list, or copied and locked to any other page.

7.1 Move and lock a sub-function

Example: In SPEED page, move and lock the sub-function depth (DPT) to the top of the sub-function list.

Select the SPEED page and find the sub-function depth (DPT). Press PAGE and SET together. All digits flash.
To lock the sub-function press SET.

Each time the SPEED page is selected, the sub-function (DPT) will be displayed at the top of the sub-function list.

7.2 Copy and lock a sub-function

Example: Copy and lock the sub-function true wind speed (TWS) from DEPTH page to SPEED page.

Select DEPH page and find the sub-function (TWS).
Press PAGE and SET together.
All digits flash. To move and copy to SPEED page, press PAGE.
To lock the function, press SET.

Each time the SPEED page is selected, the sub-function (TWS) will be displayed.

The copied sub-function remains in its original location. It is only copied to a second location, where it takes the place of the empty sub-function in the list.

7.3 Select power on function

The last selected combination of page and sub-functions according to your selection in 8.2 is the first page the instrument will display at power up.

7.4 Cancel a moved or locked sub-function

Example: To cancel the previous moved sub-function true wind speed (TWS) from SPEED page.

Select the new combination, SPEED page and sub-function (TWS).
Press PAGE and SET together.
All digits flash.
To cancel the moved sub-function, press CLEAR.
The sub-function is cancelled and the main-function still flashes.
To return to the original display, press SET.
8 Calibration
To get the most out of your Nexus instrument, it is important to carefully calibrate the instrument. The calibration values are stored in a memory and will keep the values even if the instrument is unpowered for more than 10 years.

To access calibration mode, press and hold SET more than 2 seconds.
To select a calibration code, press MINUS, PLUS as required.
To return to normal mode, press PAGE followed by SET when the text return (RET) is displayed.

To change a calibration value, press SET.
To select calibration value, press MINUS, PLUS and PAGE as required.
To lock the selected value, press SET

8.1 Calibration of speed C10

8.1.1 Return C10 (RET)
To return to normal mode, press SET.

8.1.2 Unit for Speed, C11 (Unit KTS)
Unit for speed. Knots (KTS), km/h (K/h) or miles/h (m/h).

8.1.3 Calibration of Speed, C12 (1.25 CAL)
Calibration value for speed and distance (0.00 - 1.99).
Drive the boat a measured distance at normal speed.
Compare the distance with the trip counter.
Calculate the value with the following formula:

True distance from the sea chart : $T$
Log trip counter distance: $L$
The current calibration value: $C$
New calibration value. $N$

If you suspect a current in the water, drive the boat in both directions and divide trip counter distance by 2.
8.1.4 Damping of Speed, C13 (SEA)
Damping of indicated boat speed through the water. Controls the response time of speed changes.
To change damping, press SET.
To select damping level, press PLUS and select from:
- (LOW) 1 sec,
- (MED) 5 sec and
- (MAX) 22 sec.
To store the value, press SET.
Default value is (LOW), for use in calm sea. But if the sea is rough, you may want to "stabilise" the readout on the display, then select (MID) or (MAX). Damping is set separately for each instrument.

8.1.5 Unit for Depth readings, C14 (Unit m)
Unit for depth. Metre (m), feet (Ft) or fathoms (FA).

8.1.6 Adjust Depth readings, C15 (- 00.0 ADJ)
Calibration of the depth transducer position.
This option is used to select whether the displayed water depth is measured from the water level or the keel.
To measure from the keel, use the minus (-) sign.
Example: (- 01.2 ADJ). The distance from the transducer to the keel is 1.2 m.
To measure from the water surface, use the underlining character (_ ) sign.
Example: (_ 00.4 ADJ). The distance from the transducer to the water surface is 0.4 m.
The selected value will be subtracted or added from the measured depth.

8.1.7 Unit for Temp readings, C16 (Unit°C)
Unit for temperature. Celsius (C) or Fahrenheit (F).

8.1.8 Adjustment of Temp reading, C17 (0°C TMP)
Value to adjust the temperature.
To add, use underlining character (_ ) ahead of the digit (_1 TMP).
To subtract, use minus character (-) ahead of the digit (-1 TMP).
8.1.9  **Unit for Air Pressure, C18 (Unit hPa)**  
Unit for air pressure. Hecto Pascal (hPa) or Inch HG (INH).

8.1.10  **Unit for Wind Speed, C19 (Unit m/s)**  
Unit for wind speed. Metre/second (m/s), knots (KTS) or Beaufort (BF).

8.1.11  **Adjustment of Wind Angle, C20 (000° ADJ)**  
Mast top unit misalignment adjust value or the so called "A-fault", makes it possible to choose any horizontal mounting angle.  
*Example 1:* If the wind angle is +4° (from Starboard) when you sail/drive the boat straight into the wind. Set the calibration channel C20 to 356°.  
*Example 2:* If the wind angle is -4° (from port) when you sail/drive the boat straight into the wind. Set the calibration channel C20 to 004°.

8.1.12  **Damping of Wind Readings, C21 (SEA LOW)**  
Damping of wind information. Controls the response time of wind changes. To change damping, press SET. To select damping level, press PLUS and select from: LOW 1 sec, (MED) 5 sec and (MAX) 22 sec. To store the selected value, press SET. Factory value is (LOW), for use in calm sea. But if the sea is rough, you may want to "stabilise" the readout on the display, then select MID or (MAX). Damping is set separately for each instrument.

8.1.13  **Key beep setting, C22 (OFF KEY)**  
(On) = Sound when push buttons are pressed. (OFF) = no sound.
9 Maintenance and fault finding

9.1 Maintenance

- To clean the instrument, use only mild soap solution and rinse with water.
- Do not use detergents or high pressure washing equipment.
- At least once a year, check all your connections and apply additional silicon paste at each connection point.
- Always use the instrument cover for protection, when not in use.
- Storing transducers and instruments when not in use for longer periods: It is advisable to remove the instruments and transducers, and store them inside the boat or at home in room temperature, if possible.

9.2 Fault finding

Before you contact your NX2 dealer, and to assist your dealer to give you a better service, please check the following points and make a list of:

- All connected instrument and transducers , including their software version numbers.
- Server software version number.
- Nexus Network data bus ID numbers for each instrument (displayed at power up).

9.2.1 General fault finding

In most cases, the reason for faults in electronic equipment is the installation or poor connections. Therefore, always first check that:

- Installation and connection is made per instructions for instrument and transducers, (see 2).
- Screw terminals are carefully tightened.
- No corrosion on any connection points.
- No loose ends in the wires causing short cuts to adjacent wires.
- Cables for damage, that no cables are squeezed or worn.
- Battery voltage is sufficient, should be at least 10V DC.
- The fuse is not blown and the circuit-breaker has not opened.
- The fuse is of the right type.
- Two instruments do not have the same ID number, (see 3).
9.2.2 Fault - action

1. Speed and distance functions: No reading ( --- )
   For more information, see manual for WSI-box or NX2 Server.

   Irregular values: Check the speed damping (SEA), (see 8.1.4).

2. Wind: No reading ( --- )
   For more information, see manual for WSI box or NX2 Server.

9.2.3 Error messages

The following error messages can appear on the display:

- **ERROR 2**  Nexus Network is missing, check colour coded connections
- **ERROR 3**  No data received within a given time.
- **ERROR 10** Range error caused by bad format e.g. 400°.

If other error messages than the above appears on the Sea Data instrument, contact your Nexus dealer.
10 Specifications

10.1 Technical specifications

Dimensions: Sea data instrument: 113 x 113 x23 mm (4.3x4.3 inch).
Instrument cable: 8 m (26 ft).
Power supply: 12V DC (10-16V). The instruments are polarity protected
Power consumption at 12V: Sea Data instrument: 0,08W with maximum lighting 0,8W.
Server: 0,2W.
Temperature range: Storage:-30°to +80°C (-22°to +176°F)
Operation: -10° to +70°C (14°to +158°F)
Weight: Sea Data instrument: 260 gram (9.17 oz).
Enclosure: Sea Data Instrument: Water proof

CE approval
The products conforms to the EMC requirements for immunity and emission according to EN 50 08-1.
11 Waranty

WARRANTY

GENERAL
All our products are designed and built to comply to the highest class industry standards. If the products are correctly installed, maintained and operated, as described in the installation and operation manual, they will provide long and reliable service. Our international Network of distributors can provide you with the information and assistance you may require virtually anywhere in the world.
Please read through and fill in this warranty card and send it to your national distributor for product registration.

LIMITED WARRANTY
The warranty covers repair of defective parts due to faulty Manufacturing and includes labour when repaired in the country of purchase. The warranty period is stated in the product manual, and commences from the date of purchase. The above warranty is the Manufacturer's only warranty and no other terms, expressed or implied, will apply. The Manufacturer specifically excludes the implied warranty of merchantability and fitness for a particular purpose.

CONDITIONS
- The supplied warranty card and receipt with proof of purchase date, must be shown to validate any warranty claim. Claims are to be made in accordance with the claims procedure outlined below.
- The warranty is non-transferrable and extends only to the original purchaser.
- The warranty does not apply to Products from which serial numbers have been removed, faulty installation or incorrect fusing, to conditions resulting from improper use, external causes, including service or modifications not performed by the Manufacturer or by its national distributors, or operation outside the environmental parameters specified for the Product.
- The Manufacturer will not compensate for consequential damage caused directly or indirectly by the malfunction of its equipment. The Manufacturer is not liable for any personal damage caused as a consequence of using its equipment.
- The Manufacturer, its national distributors or dealers are not liable for charges arising from sea trials, installation surveys or visits to the boat to attend to the equipment, whether under warranty or not. The right is reserved to charge for such services at an appropriate rate.
- The Manufacturer reserves the right to replace any products returned for repair, within the warranty period, with the nearest equivalent. If repair within a reasonable time period should not be possible.
- The terms and conditions of the warranty as described do not affect your statutory rights.

CLAIMS PROCEDURE
Equipment should be returned to the national distributor, or one of its appointed dealers, in the country where it was originally purchased. Valid claims will then be serviced and returned to the sender free of charge.

Alternatively, if the equipment is being used away from the country of purchase, it may be returned to the national distributor, or one of its appointed dealers, in the country where it is being used. In this case valid claims will cover parts only. Labour and return postage will be invoiced to the sender at an appropriate rate.

DISCLAIMER
Common sense must be used at all times when navigating and the Manufacturer's navigation equipment should only be considered as aids to navigation.
The Manufacturers policy of continuous improvement may result in changes to product specification without prior notice.
WARRANTY CARD
TO BE RETURNED TO YOUR NATIONAL DISTRIBUTOR

OWNER:
Name:___________________________________________
Street :_________________________________________
City/Zip Code :_________________________________
Country:________________________________________

Product name: Serial number:

A B C 1 2 3 4 5 6 7
____________________
____________________
____________________
____________________
____________________
____________________

Date of purchase:________________________ Date installed:______________

Dealers stamp:

☐ Tick here if you do not wish to receive news about future products