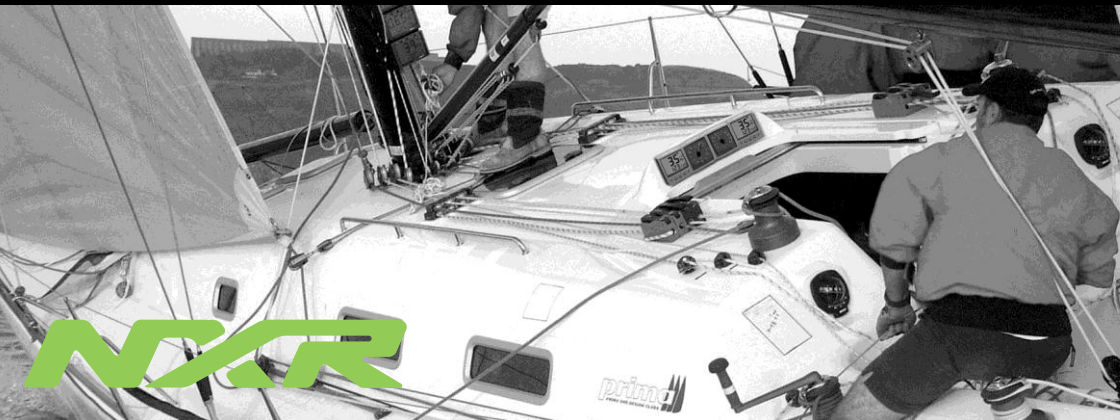# NXR Instruments

Installation and Operation Manual

English

This manual is written for NXR Instruments version 1.3
Edition: August 2009

1   Function overview

The functions in the XL20 and XL30 Instruments are divided into 20 pages.
Each page is configurable for lead text, function, unit, dampening and update rate.
When using the Nexus Race SW, it is also possible to create a page that toggles
between two functions, select update rate, change the name of the function, select
backlight colour etc. etc. see chapter 7.

It is also possible to have the same function on two or more pages but with different
damping or unit. As an example you may set-up three Boat speed pages on the top
instrument with three different dampening, by selecting page, you will then select boat
speed with three different damping.

Damping and unit may be global (same damping and unit on all instruments) or local
(individual for each instrument)

When an instrument is selected from the Multi Control, the top row (indicating the
function) is flashing for 3 seconds. Every time the function is changed, it starts to flash
to indicate which instrument that is active.

The NXR Multi Control Instrument is both a Full Functioning Display as well as the
remote control for the XLR instruments.

NXR is also fully compatible with the NX2 system and the NX2 Multi XL may be
controlled by the NXR Multi Control.

In a NXR system, all calibrations and setting are made from a PC, using the Nexus
Race SW. There are some setting and calibrations that may be done from the NXR
Multi Control and they are: Calibration of BSP, set Heel and Pitch to zero, make an
automatic deviation, set the compass A-fault and adjust the offset of the true wind
angle. Damping and units may also be changed from the Multi Control and affect the
whole system.

1.1   How to control the XLR Instrument

HOT-KEYS
Press and hold any hot key to store the present settings an all XLR Instrument instruments. Each time this hot key is pressed, the instrument jump back to that setting

SELECT INSTRUMENT
Scroll up or down to select the XLR or NX2 XL Instrument you want to control

ACCESS
Press ACCESS to be able to set-up the control NX2 XL Instrument.Access is also used for key lock

SELECT FUNCTION
Scroll through the function list with left or right on selected XLR Instrument or pages in a XL Instrument

SET
Press and hold SET for 2 sec to enter the set-up mode for a function or an accessed XL Instrument. A short press on SET also unlock a setting in set-up mode

PLUS
Scrolls up in the setting-list in set-up mode. Also increase a unlocked value in set-up

MINUS
Scrolls down in the setting-list in set-up mode. Also decrease a unlocked value in set-up

PAGE
Use page to scroll through the 20 pages in set-up mode. Press and hold PAGE for 2 sec to exit set-up

CLEAR
Clear a value

1.2 Remote Control the XLR Instrument

The NXR Multi Control Instrument is used to remote control XLR Instrument.

All digital instruments have their unique ID number on the Nexus Network. At power up the ID numbers are displayed for a short time.

The instrument to the right has ID number 16 and version 5

The Multi Control can control NXR XLR Instruments and NX2 Multi XL instruments only.

Hot keys / Quick Configuration
These keys are used to store favourite set-ups for your system. Set-up all instruments with required function and press and hold any of the key I – IV. A short beep will tell you that this setting is stored. Change the setting to some other configuration and press any other hot-key (I – IV). Now you have created two favourite settings. Every time any of these Hot-keys are pressed all instruments will jump to the function it had when it was stored.

Instrument selection
Select which instrument you want to control. Scroll the list up or down.

ACCESS, Press to Access more functions (see below)

Function selection
Select which function you want to see. Scroll the list up or down.

Instrument selection
All instrument has a unique ID-number as per above. When the instrument select key is pressed you will scroll up in the list of instruments.
When the instrument select down key is pressed you will scroll down in the list of instruments.

ACCESS – KEY LOCK
The ACESS-button switches the key lock on and off. To activate the key lock, press and hold the ACCESS button until the text "LOCK" is displayed. All keys on the instrument is now locked for accidental key presses. To temporary unlock the keys, press short on ACCESS. All keys will now be temporary released. If no push buttons are touched in 10 seconds, the keys will be locked again. To unlock the keys, press and hold ACCESS until the text "UNLOCK" is displayed.

Controlling an NX2 Multi XL instrument
When you have selected the required instrument and the ACCESS key is pressed, you will get full access to that instrument. This is only used for the NX2 Multi XL instruments. If you press ACCESS, you will use the five lower push buttons.

The display of the NX2 XL instrument you selected will flash once and then the Function text of that instrument will continue to flash to tell it is remote controlled.

Now you can use the five push buttons:

To exit the ACCESS mode, press **ACCESS** again:

Page Selection
The Page select Left/Right button is used to select Page or function in the selected instrument.

Note, to select Page, there is no need to press ACCESS.
On a XLR Instrument, you just scroll through all pages/functions.
In a NX2 Multi XL you will be able to page through the four main pages and to change sub-function, the ACCESS key has to be pressed and the four push buttons as above are used.

1.2.1 PAGE

PAGE is used to scroll through the 4 pages on the instrument display. If PAGE is pressed and hold for 2 sec you will jump to the LIGHT selection mode.

1.2.2 MINUS

Minus will scroll down in the list of sub functions. When in set-up mode, a press on **MINUS** moves to the next setting. In edit mode it decreases to the previous digit.

1.2.3 PLUS

Plus will scroll up in the list of sub functions. A press on **PLUS** moves to the previous setting when in set-up mode. In edit mode it increases to the next digit.

1.2.4 SET

Controlling a NX2 Multi XL
Press and hold **SET** for 2 seconds on the accessed NX2 Multi XL instrument to get in to the set-up mode.
A press on **SET** unlocks a digit when in set-up mode.
When unlocked, the digits are "active" (flashes) and can be edited by pressing **MINUS**, **PLUS** and **PAGE** as required.
When finished editing, lock the digit by another press on **SET**.

Note, it is not possible to setup the Server via the Multi Control. All settings are made from the NX2 Sail Performance SW.

1.2.5 Clear / cancel / reset

Clear or set a function to zero. C is used to clear the trip distance as an example.

1.2.6 Calibration

A long press on SET will access the settings of BSP, HDG and Wind. T return to normal mode, press SET for two seconds.
To access calibration mode in a NX2 Multi XL instrument, press and hold **SET** more than 2 seconds.

To return to main-function mode, press and hold PAGE for 2 sec.

1.2.7 Lighting

The instrument uses red or green back lighting for the display. The lighting can be set in 3 different levels.

To quick access the light control, press and hold **PAGE** for more than 2 seconds. The flashing text (LitE OFF) will be displayed on the Multi Instrument. To select between the light levels, Press **PLUS or MINUS**. To lock the selected level press **SET**.

The selected light level will be copied to all instruments connected to the system. When the lighting is on, it is not

possible to reduce or turn off the lighting on an individual instrument.

Change light colour in the NXR Multi Control Instrument:
When the **PAGE** button has been pressed for two seconds and you are in light selection mode, a short press on **PAGE** will toggle the light colour between red and green. The selected colour will be stored in memory even if the instrument is switched off.

1.2.8 Key lock

If the ACCESS button is pressed for two seconds, the key lock function is switched on. If none of the buttons has been touched in ten seconds, the key lock will be activated. A short press on ACCESS will temporary inactivate the key lock and if the ACCESS button is pressed for two seconds, the key lock function is switched off.

ACCESS
2 sec

2   Function overview of NXR Multi Control

The functions in the Multi Control instrument are divided into 4 pages:
SPEED, PLUS, NAVIGATE and WIND.
The selected page is indicated by the LCD marker 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 high digits.

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

You can easily lock your favourite combination of functions. The function you "lock" will be the function you display when you scroll to the page.

To lock a combination of functions, press short on PAGE and SET together when the combinations of functions are displayed. And confirm with SET

Create a customized page: You are able to create your own combination of main and sub functions, see Copy and Paste.

Start up mode: the Multi Control instrument will start up in the last combination of functions that was displayed when the instrument was switched off. You may chose that the instruments start up in your favourite page independent of where it was switched off. (See instrument set up.)

3 SPEED functions

3.1 SPEED main-function

Display boat speed through the water.
Unit knots (KT), to change unit, see 7.5.3
Damping is set to global, see chapter 7.5.1

$$6.05\,KT$$

3.1.1 Selection of main functions under SPEED

To change to other main function than Boat speed, Press SET and PAGE together. The display starts flashing. Select new function with PLUS or MINUS, followed by SET

Selectable functions:
GS   Speed Over Ground
PS   Polar Speed
BS   Boat Speed
WV   Waypoint Closure Velocity
VM   Velocity Made Good (to/from wind)

3.2 SPEED sub-functions
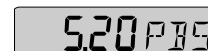
3.2.1 (SOG) and (COG)

Speed over ground (SOG).

$$5.60\ SOG$$

3.2.2 Polar Boat Speed (PBS)

This function displays the polar boat speed. This function requires data from a PC SW.

$$5.20\ PBS$$

3.2.3 MAXIMUM SPEED (MAX)

Maximum speed since power on, or from reset of timer. To reset, press **CLEAR**.

$$0.00\ MAX$$

3.2.4 AVERAGE SPEED (AVS)

Average speed since power on or from reset of timer. To reset press **CLEAR**.

$$4.56\ AVS$$

3.2.5 TRIP LOG (TRP)

0-199,99 NM, only displayed in NM. To reset TRIP LOG press **CLEAR**.

$$123.45\ TRP$$

3.2.6 TOTAL LOG (LOG)

0-19999 NM, only displayed in NM. Can not be reset.

$$12345\ LOG$$

3.2.7 DISTANCE (DST)

Covered distance from power on, or from reset of timer. To reset, press **CLEAR**.

$$\boxed{123.45 \; \text{DST}}$$

3.2.8 TIMER

Elapsed time in hr/min/sec from power on or from end of start timer count down. To reset, press **CLEAR**.

$$\boxed{12:04'52}$$

3.3 START TIMER (STA)

Count down timer from 59 to 1 minute.
To start the timer from minus 5 minutes (-05'STA) press **C** and **SET** together.
The start time is flashing. Press **SET** when you hear the gun (or see the flash).

$$\boxed{-05' \text{STA}}$$

If you want to start the timer from any other time (59 to 1 minute) for example minus 10 minutes (-10'STA), press **MINUS** or **PLUS** as required to set 10 minutes and start the timer with **SET.**
When started, displays the count down time in minutes and seconds.
During the last 10 seconds the alarm will sound once every second.

3.4 Calibration of Boat speed

Calibration value for speed and distance (1.00 - 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

$$\frac{T}{L} \times C = N$$

If you suspect a current in the water, drive the boat in both directions and divide trip counter distance by 2.

To change the value, press and hold **SET** when in the SPEED page. Increase the value with **PLUS** or decrease it with **MINUS**. To exit to normal operation mode, press and hold **SET** for two seconds.

4 PLUS functions

4.1 DEPTH main-function

Depth from the water surface or the keel depending on calibration setting (see 9.2.2) Unit for depth is meters (m).

To change unit, press SET and PLUST together. The display will flash. Select unit with PLUS or minus, followed by SET

4.1.1 Selection of main functions under PLUS

To change to other main function than Depth, Press SET and PAGE together. The display starts flashing. Select new function with PLUS or MINUS, followed by SET

Selectable functions:
DP	Depth
GS	Speed Over Ground
PS	Polar Speed
HC	Heading Compass
BS	Boat Speed
GC	Course Over Ground
BW	Bearing to WP
WV	Waypoint Closure Velocity
TA	True Wind Angle
AA	Apparent Wind Angle
TS	True Wind Speed
AS	Apparent Wind Speed
VM	Velocity Made Good (to/from wind)

4.2 PLUS sub-functions

4.2.1 LIGHT CONTROL

The instrument uses red or green back lighting for the display. The lighting can be set in 3 different levels.

To quick access the light control, press and hold **PAGE** for more than 2 seconds. The flashing text (LitE OFF) will be displayed on the Multi Instrument. To select between the light levels, Press **PLUS or MINUS**. To lock the selected level press **SET**.

The selected light level will be copied to all instruments connected to the system. When the lighting is on, it is not possible to reduce or turn off the lighting on an individual instrument.

Change light colour:
When the **PAGE** button has been pressed for two seconds and you are in light selection mode, a short press on **PAGE** will toggle the light colour between red and green (only on this instrument). The selected colour will be stored in memory even if the instrument is switched off.

4.2.2 BATTERY (BAT)

Battery voltage measured at the Server.

13.3 BAT

4.2.3 HEADING (HDT/HDM)

Compass heading, heading true (HDT)

270° HDT

4.2.4 TEMPERATURE (TMP)
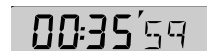
Water temperature. Unit is Celsius (C)

20℃ TMP

4.2.5 UNIVERSAL TIME (TIM)

Time in hr/min/sec. This function will only be displayed if a GPS receiver is connected to the system. Note only GMT is displayed

07:35'59U

4.2.6 TIME TO GO (TTG)

Time to next waypoint, if the WCV is negative (you are steering away from the WP), the TTG displays dashes.

00:35'59

4.2.7 BOAT SPEED (BSP/unit)

Boat speed through the water. The unit is knots (KT), damping is global

6.05 BSP

5 NAVIGATION functions

5.1 NAVIGATION main-function

Heading 000° to 359°.
Heading true (HT), to change to magnetic, see 7.5.3
Damping is set to global, see chapter 7.5.1

$$270°_{HT}$$

5.1.1 Selection of main functions under NAV

To change to other main function than Heading, Press SET and
PAGE together. The display starts flashing. Select new function
with PLUS or MINUS, followed by SET

Selectable functions:
HC   Heading Compass
GC   Course Over Ground
BW   Bearing to WP

5.2 NAVIGATION sub-functions

5.2.1 Course Over Ground (COG)

Course Over Ground (COG). Damping is global.

$$035° COG$$

5.2.2 Distance To Waypoint (DTW)

Distance to waypoint (DTW)

$$12.34 DTW$$

5.2.3 Bearing To Waypoint (BTW)

Bearing to waypoint (BTW)

$$283° BTW$$

5.2.4 LATITUDE and LONGITUDE (POS)

Displays position in Latitude/Longitude. The function toggles
between Latitude and Longitude

$$60°55.'18N$$
$$17°55.'46E$$

5.2.5 SET of current

Direction of current (SET) and speed of current (DRF).
Alternating function. To stop alternating, press **SET**.
To restart alternating, press **SET** again.

$$240° SET$$

5.2.6 DRIFT of current

Direction of current (SET) and speed of current (DRF).
Alternating function. To stop alternating, press **SET**.
To restart alternating, press **SET** again.

$$0.34 DRF$$

5.2.7   WAYPOINT CLOSURE VELOCITY (WCV)

Displays the speed over ground towards the waypoint in (KTS).

5.2.8   CROSS TRACK ERROR (XTE)

Distance in nautical miles (NM) to desired track.
To display this function, you must navigate towards a waypoint.
Your boat is the "triangle" symbol and the desired track line is represented by the "3 vertical lines". The "triangle" symbol will tell you on which side of the desired track you are. You should aim to steer your boat so that the display readout is 0.00 NM, which means you are on the desired track.

5.1   Calibration of HPC Compass

In order to get correct reading from the HPC compass, it has to be calibrated. Start with the levelling of the compass

5.1.1   Set heel and trim to zero

Press and hold **SET** when in the NAV page. The text HEEL ZRO is displayed. Make sure the boat is levelled and press **SET**. Now the HEEL and TRIM is set to zero.

5.1.1   Autodeviation of the Compass

Press and hold **SET** when in the NAV page. The text HEEL ZRO is displayed. Press **PAGE** and the text AutoDEV is displayed. Drive the boat in a circle for 1 1/4 turn (400 degrees) in calm water. When you start the circle manoeuvre, press **SET**. The text turn 400 is displayed and starts to count down as soon as you start the turn. Press **SET** when you have finalized the turn.

5.1.1   Compass misalignment correction

Compass transducer misalignment correction or the so called "A-fault". Can be set between 000°and 359°. Allows 180° reversed mounting if needed. Never mount the transducer in a 90° position relative to the boats fore-aft line since HEEL and TRIM will be swapped.

To check the transducer position, sail/drive your boat in a straight line towards two visible objects in a line. If the actual heading taken from the sea chart is 330° and the compass displays 335°, then set value to 360° - 5° = 355°.

Press and hold **SET** when in the NAV page. The text HEEL ZRO is displayed. Press **PAGE** twice and the text 0° ADJ is displayed. Change the value with **PLUS** or **MINUS**. When done, press and hold **SET** to get to normal operation mode.

6   Wind functions

6.1   WIND Main-function

Apparent wind angle (AWA)

The wind angle is indicated by a symbol to the right of the wind angle value:

--| = Wind from port side.

|--   = Wind from starboard side.

The type of wind; apparent, is indicated by a letter:

A   = Apparent wind .

When the instrument is delivered, the factory setting for the main function is apparent wind angle (AWA). The damping is set to global.

6.1.1   Selection of main functions under WIND

To change to other main function than AWA, Press SET and PAGE together. The display starts flashing. Select new function with PLUS or MINUS, followed by SET

Selectable functions:
TA	True Wind Angle
AA	Apparent Wind Angle
TS	True Wind Speed
AS	Apparent Wind Speed
WD	True Wind Direction

6.2   WIND Sub-functions

6.2.1   TRUE WIND ANGLE (TWA)

This function displays the apparent wind angle in knots. The damping is global
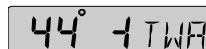
9.2.2 APPARENT WIND ANGLE (AWA)
This function displays the apparent wind angle in knots. The damping is global

6.2.2 TRUE WIND SPEED (TWS)

The function displays the true wind speed in knots. The damping is global

`7.7 TWS`

6.2.3 APPARENT WIND SPEED (AWS)

This function displays the apparent wind speed in knots. The damping is global

`10.2 AWS`

6.2.4 VELOCITY MADE GOOD (VMG)

Displays speed into the wind or speed running with the wind in (KTS)

`4.40 VMG`

6.2.5 TRUE WIND DIRECTION

Displays the wind direction in 000° to 359° related to north:

`226° TWD`

6.2.6 CUSTOM ANGULAR DATA, CAD

This function displays any angel transmitted from a PC software

`328° CAD`

6.2.7 CUSTOM FIXED POINT DATA, CFD

This function displays any decimal data transmitted from a PC software

`44.0 CFD`

6.2.8 RUDDER ANGLE

This function displays the rudder angle. In order to get the rudder angle information, a rudder angle transmitter and an autopilot Servo is required.

`0° L RUD`

6.2.1 Wind transducer misalignment correction

Wind transducer misalignment correction or the so called "A-fault". Can be set between port 0°-180° and starboard 0°-180°.

Press and hold **SET** when in the WIND page. The text 0° ADJ is displayed. Change the value with **PLUS** or **MINUS**. When done, press and hold **SET** to get to normal operation mode.

7   Customize the NXR Multi Control

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 paste a sub-function

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

Select WIND 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. To select an other sub function to be in the top of the list, se above.

The copied sub-function remains in its original location. It is only copied to a second location.

7.1   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 the to the original display, press **SET**.

7.2   Select power on function

The instrument will as default start up displaying the same combination of functions as it displayed when they were powered off. If you want the instrument to always power up in a specific

combination of functions, go to the functions you want as start up mode and press PAGE and SET together. Confirm with a long press on SET. If you want to cancel that combination a go back so the instrument start in last seen combination, press PAGE and SET together followed by a long press on C.

7.3   Change Damping

If Global damping is selected, all instruments will be affected when you change on one instrument. You may also change the damping from the Nexus Race SW.

If local damping is selected, only this function in this instrument will be affected of the change of damping.

7.3.1   Change damping for a main function

Select the main function you want to change the damping for

Press SET and PLUS together and the selected damping is displayed. If the damping is displayed with a capital D, global damping is selected. If it is displayed with a lower case d, local damping is selected. To change between local and global damping, press and hold SET. To select an other damping, press PLUS or MINUS as required and confirm with SET.

7.3.2   Change damping for a sub function

Select the sub function you want to change the damping for

Press SET and MINUS together and the currently selected damping is displayed. If the damping is displayed with a capital D, global damping is selected. If it is displayed with a lower case d, local damping is selected. To change between local and global damping, press and hold SET. To select an other damping, press PLUS or MINUS as required and confirm with SET.

7.3.3   Change unit for a main function

Select the main function you want to change the unit for

Press SET and PLUS together and the currently selected damping is displayed. Press PAGE and the currently selected unit is displayed. Select new unit with PLUS or MINUS and confirm with SET.
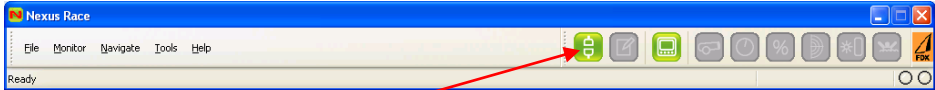
7.3.4   Change unit for a sub function

Select the sub function you want to change the unit for

Press SET and MINUS together and the currently selected damping is displayed. Press PAGE and the currently selected unit is displayed. Select new unit with PLUS or MINUS and confirm with SET.
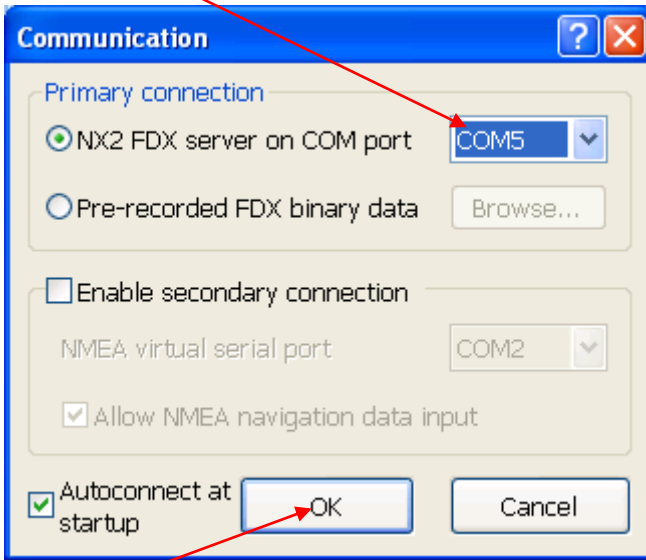
8   Set-up the instrument via Nexus Race SW
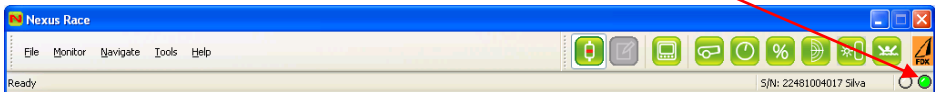
Start the Nexus race SW

Click on the connect icon
Select the com port where the PC cable from the Nexus Server is connected
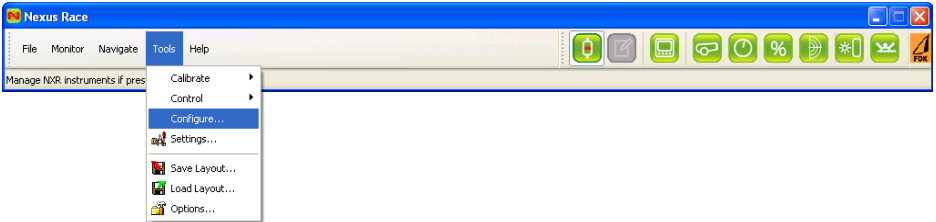

Press OK to connect
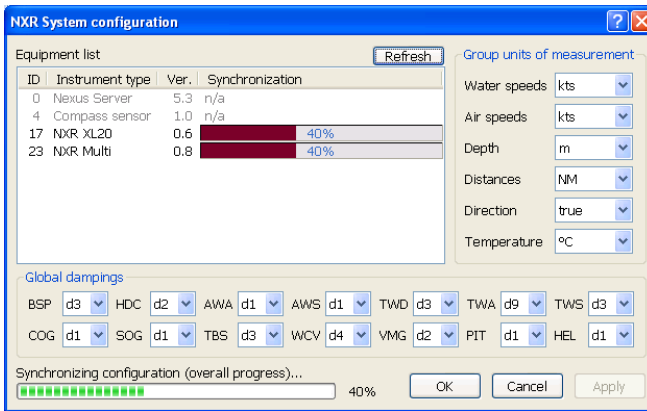When the SW has connected to the Nexus Server, the green LED will turn on.
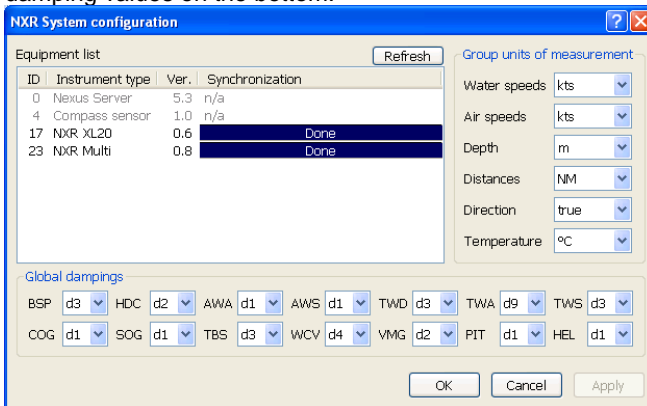
8.1   Configure the NXR instruments

To go to the configuration of the NXR instruments, click on Tools and select Configure

The current settings of the instruments are read

A list of the connected instruments in the network is displayed with their version numbers. Also a list of system units is displayed at the right and a list of global damping values on the bottom.

8.1.1   Unit settings

The Unit for water speed will affect all NXR instrument in the network and change to the selected unit for:
Boat speed
VMG
WCV
Average Speed
Speed Over Ground
Drift

The Unit for Air speed will affect all NXR instrument in the network and change to the selected unit for:
True Wind Speed
Apparent Wind Speed

The Unit for Depth will affect all NXR instrument in the network and change to the selected unit for Depth

The Unit for Distance will affect all NXR instrument in the network and change to the selected unit for:
Total Distance
Distance
Trip Distance
XTE
Distance to Waypoint DTW

The Unit for Direction will affect all NXR instrument in the network and change to the selection of true or magnetic for
Heading
COG
BTW
Set of current

Mote: It is also possible to use local setting of units. That is used if you want to have one instrument displaying an other unit than the rest in the system. Select <local> and select the unit individually in each instrument.
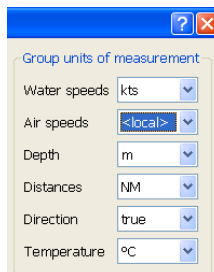
8.1.2 Damping settings

The damping of the displayed data is selectable from the either the Multi Control instrument or in the Configure box. The damping can either be local (different on each instrument) or global (same damping on all instruments. The factory setting is global.

The damping is selectable in 10 steps 0-9 and the damping time (for how long an average value is calculated) is as follows:

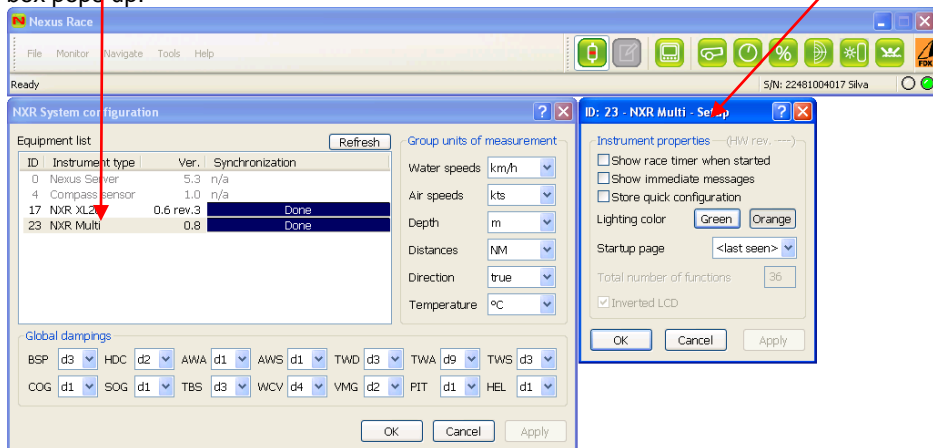|	
D0	raw data, no averaging
D1	2 second
D2	4 seconds
D3	6 seconds
D4	8 seconds
D5	10 seconds
D6	14 seconds
D7	18 seconds
D8	25 seconds
D9	30 seconds

To change damping from the instrument, go to the function you want to change damping for. If it is a main function, you press SET and PLUS together and if it is a sub function, you press SET and MINUS together.
The selected value for the damping is displayed next to the function. Change to the new value with PLUS or MINUS and confirm with SET.
If the value is written with a capital D, the damping is global and all instruments will be set to the same damping. If the damping is written with a lower case d the damping is local and only this instrument is affected.

8.2 Setup the NXR Multi Control Instrument

If you right click on the NXR Multi instrument and select Setup, the Instrument property box pops up.

Her you may select the following settings:

Show race time when started – If this box is ticked, this instrument will have the race timer to pop up when started from another instrument or from the Nexus Race SW.

Show immediate messages – This function is only used for the NXR XL20 instrument
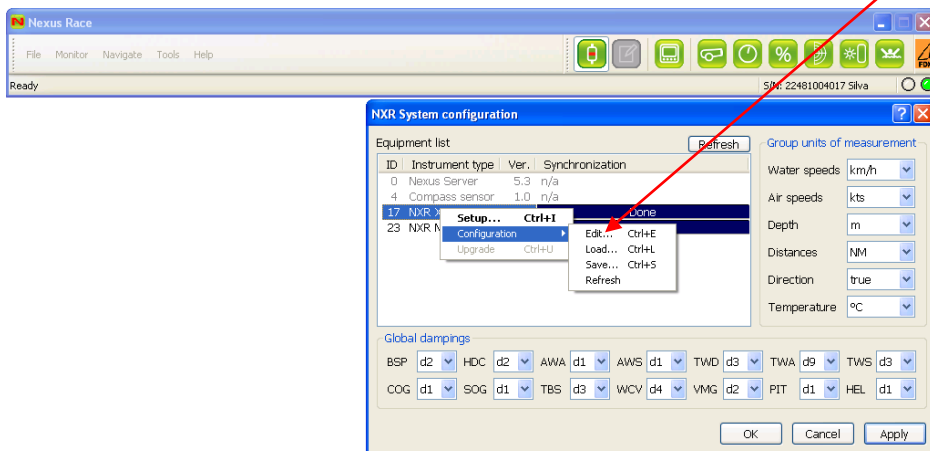
Store quick configuration – If this box is ticked, this instrument will store the display settings when one of the four hot keys are pressed and hold. It will then jump to this display when one of the hot keys are activated.

Select lighting colour – Here you select if you want to have green or orange back light for this instrument.
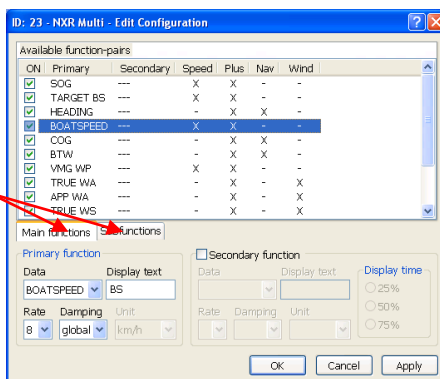
Select start up page – Here you select in which of the four pages (SPEED, PLUS, NAV or WIND) the instrument should start up in. You can also select last seen which is default and the instrument will start up in the display mode it was switched off in.

8.3   Edit display of NXR Multi Control Instrument

Right click on the instrument in the list you want to edit the display for and click on Edit

The following window will pop up.
The settings are divided in two folders, one for main function
and one
for sub functions

There are 14 functions in the list of main functions

If you choose one of the functions, i.e. the Boat speed function you can select in which pages that function should be displayed.

In this example, boat speed will be accessible from the Speed and the Plus page. If you want to be able to access it in some other page, double click on the minus sign and it will be changed to an X. It will now be selectable in that page.

You may select a secondary function and the display will toggle between the primary and secondary function.

Rate is the refresh rate of the display. The higher the rat, the more often the display will be updated

Damping is for how long time an average for the function should be calculated. As default the function is set to global and all instruments in the system will be set to the same damping for boat speed. If you want to have a different damping on one instrument (maybe you want a different damping at the nav station) you may select any other value and that will only be local on this instrument.
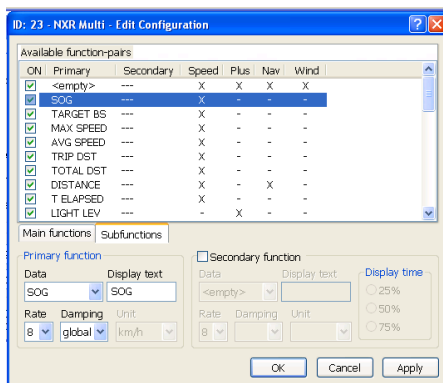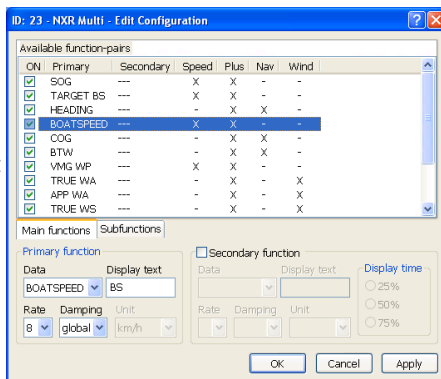
Unit is not possible to select since global damping has been selected (see 8.1.1) Select local units and you will be able to set an individual unit for this instrument.

There are 35 functions in the list of sub functions

If you choose one of the functions, i.e. the SOG function you can select in which pages that function should be displayed as a sub function.
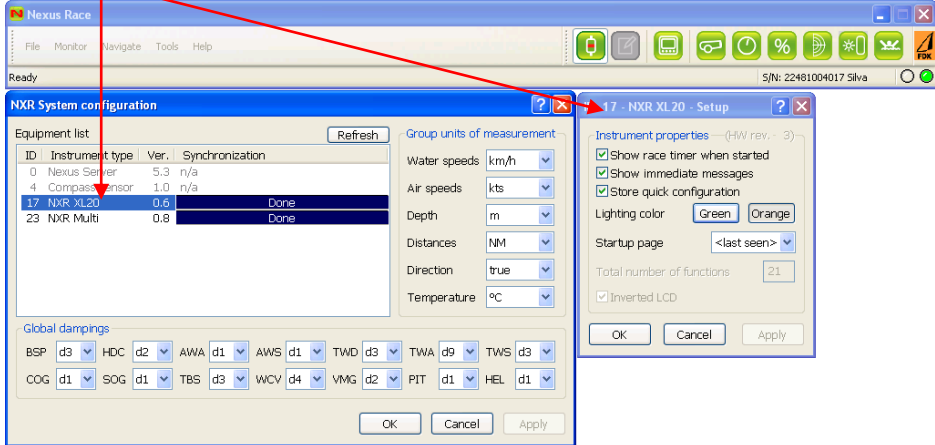
In this example, SOG will be accessible from the Speed page. If you want to be able to access it in some other page, double click on the minus sign and it will be changed to an X. It will now be selectable in that page.

Note, you can always copy and paste a sub function from one page to another in the Multi Control instrument (see 7.2).

8.4 Setup the NXR XL20 and XL30 instruments

If you right click on the NXR XL20 or XL30 instrument and select Setup, the Instrument property box pops up.

Her you may select the following settings:

Show race time when started – If this box is ticked, this instrument will have the race timer to pop up when started from another instrument or from the Nexus Race SW.

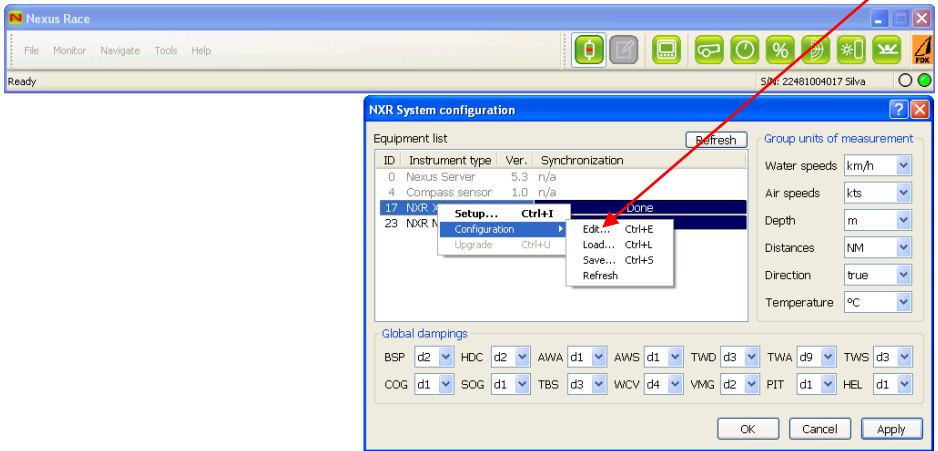**Show immediate messages** – This function is only used for the NXR XL20 instrument

Store quick configuration – If this box is ticked, this instrument will store the display settings when one of the four hot keys are pressed and hold. It will then jump to this display when one of the hot keys are activated.

Select lighting colour – Here you select if you want to have green or orange back light for this instrument.
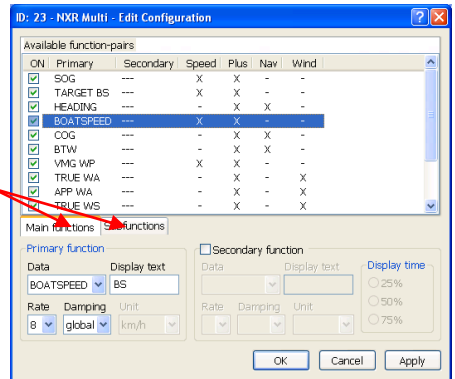
Select start up page – Here you select in which of the four pages (SPEED, PLUS, NAV or WIND) the instrument should start up in. You can also select last seen which is default and the instrument will start up in the display mode it was switched off in.

8.5 Edit display of NXR Multi Control Instrument

Right click on the instrument in the list you want to edit the display for and click on Edit
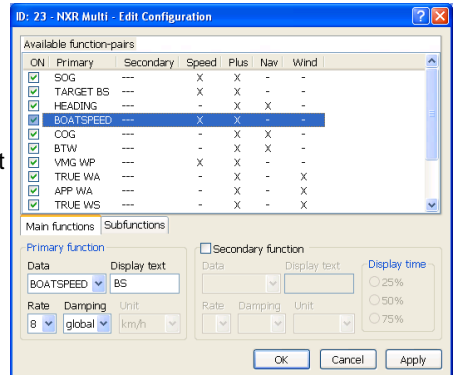

The following window will pop up.
The settings are divided in two folders, one
for main function
and one
for sub functions

There are 14 functions in the list of main functions

If you choose one of the functions, i.e. the
Boat speed function you can select in which
pages that function should be displayed.

In this example, boat speed will be accessible
from the Speed and the Plus page. If you want
to be able to access it in some other page,
double click on the minus sign and it will be
changed to an X. It will now be selectable in
that page.

You may select a secondary function and the
display will toggle between the primary and
secondary function.
Rate is the refresh rate of the display. The higher the rat, the more often the display
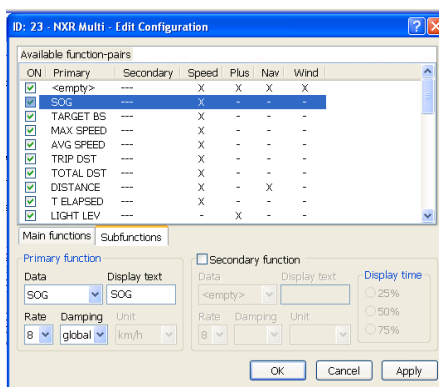will be updated
Damping is for how long time an average for the function should be calculated. As
default the function is set to global and all instruments in the system will be set to the
same damping for boat speed. If you want to have a different damping on one
instrument (maybe you want a different damping at the nav station) you may select
any other value and that will only be local on this instrument.

Unit is not possible to select since global damping has been selected (see 8.1.1)
Select local units and you will be able to set an individual unit for this instrument.

There are 35 functions in the list of sub
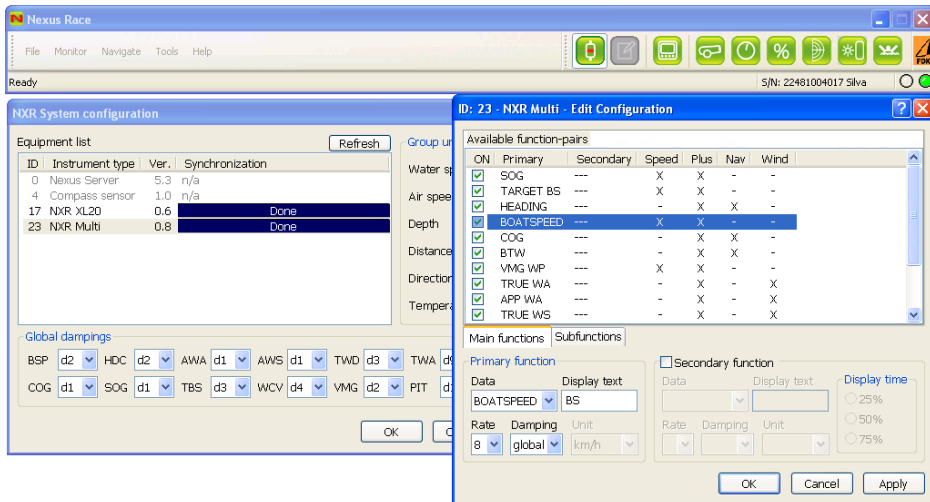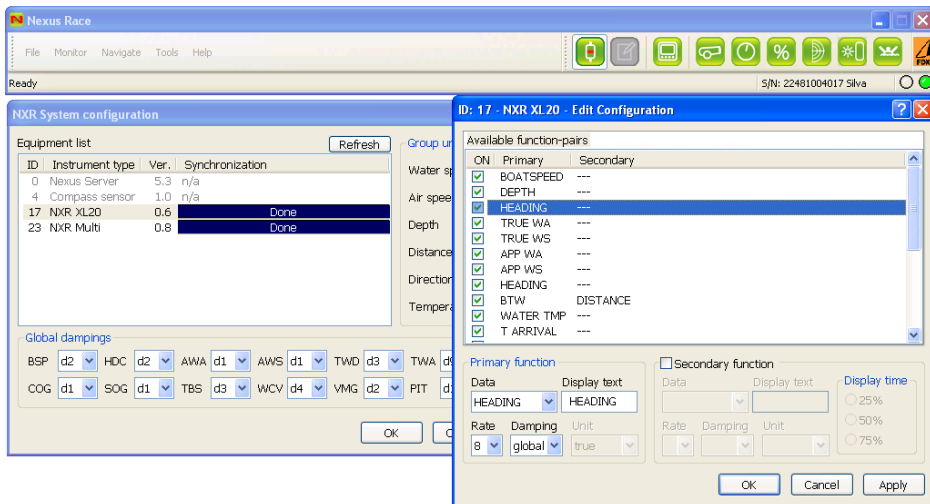functions

If you choose one of the functions, i.e. the
SOG function you can select in which
pages that function should be displayed as
a sub function.

In this example, SOG will be accessible
from the Speed page. If you want
to be able to access it in some other page,
double click on the minus sign and it will be
changed to an X. It will now be selectable
in that page.

Note, you can always copy and paste a sub function from one page to another in the
Multi Control instrument (see 7.2).

Function. Here you select which function (what kind of information data) a page should display. Select from the following list:

.

Available functions

Boatspeed	Apparen Wind Speed
Heading	Apparent Wind Angle
True Wind Speed	Winddirection
True Wind Angle	Course Over Ground
Speed Over Ground (SOG)	Distance to Waypoint
VMG	Time to Go
Bearing to Waypoint	Waypoint Closure Velocity
Target Boat Speed	Barometric Preassure
Water Temperarure	Time
Battery Voltage	Air Temperarure
Direction of Current	Distance since start
Custom data 0-9	Speed Of Current
Depth	

Rate. Here you select how often the display should be refreshed i.e. how many times per second a new value is displayed. Select from 1, 2, 4 or 8 times/sec.

Damping. Here you select the damping of the function. If there is rough see, you may want to make the readings more stable i.e show an average over a longer period. The higher the damping value is, the smother the reading.
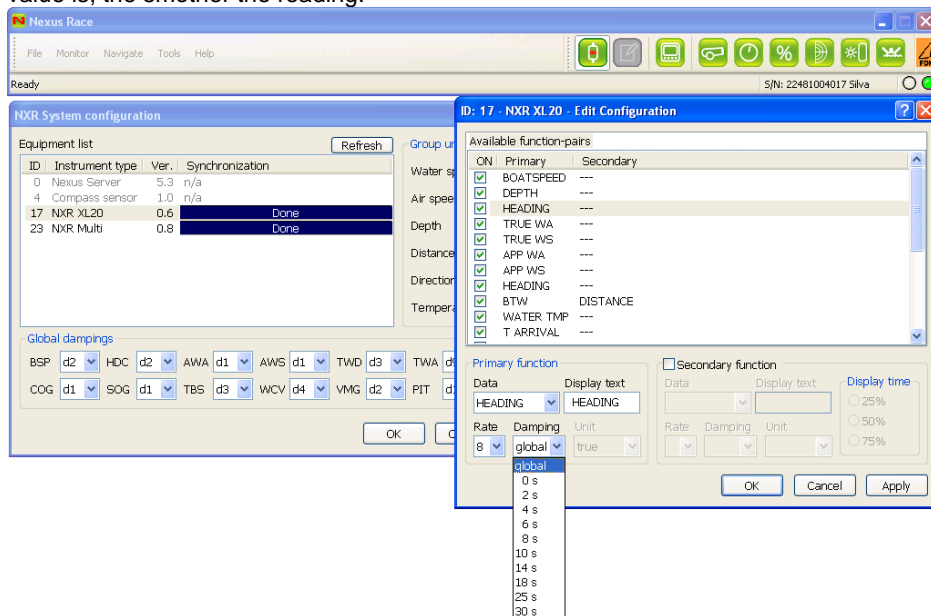
Display text. Here you may type in any text you want to be displayed on top of the page. The maximum number of letters are 9.

Unit. Here you select unit of measurement for the function. You can also select global and then it will be controlled from the Configure start page for all NXR instrument

Hint:
If you always want to display boat speed on one of your instrument but you want easy access to various setting (damping and rate) of the boat speed. Then you can make two or more pages all displaying boat speed but with different settings of damping and rate. You may the type in different lead text for these pages, Example: "BSP LOW", "BSP MID" and "BSP HIGH" if you have selected three different settings of damping for boat speed.

8.5.1   Secondary function

You may choose to toggle between two functions. With the display time you can select if you want the secondary function to be displayed 25%, 50% or 75% of the time. The total period is 4 seconds. If 50% is selected, the main function will be displayed 2 seconds and secondary function 2 seconds.

Hint:
If you want one function displayed all the time but you want the lead text to toggle, you can select the same function as main and secondary function and type in two different display texts for the two. For boat speed the main function displays BOATSPEED and the secondary function displays –KNOTS-.

If you want a toggling text, it is important that the damping, rate and unit is the same for the main and secondary function. If you select different settings for these three, the function will display different readings when it toggles.

8.5.2   Global damping

If you want all readings of a function to have the same damping through out the whole system, you should set them to global damping. All the functions that are able to dampen, BSP, wind angles and wind speeds, etc. are set to global damping in the Multi Control instrument.

In the Display setting of the XL, you may select any damping but you can also select also global damping.

If global damping is set, the corresponding function will be dampened according to the damping selected in the global damping display window.

8.6 Custom data

The XLR Instrument may display up to 10 custom data fields calculated and send from a PC.

This data is only displayed on the XLR Instrument and are not used in any calculations in the Nexus System.

The Display is updated according to the rate setting and the header text is displayed as send by the Software providing the data.

On top of the 10 data fields (0-9) there are the TBS (target Boat Speed), or as it is called in the Multi Control Instrument, the Polar Boat Speed (PBS)

The following NMEA sentences are read:

$PSILTBS,X.X,N<CR><LF>
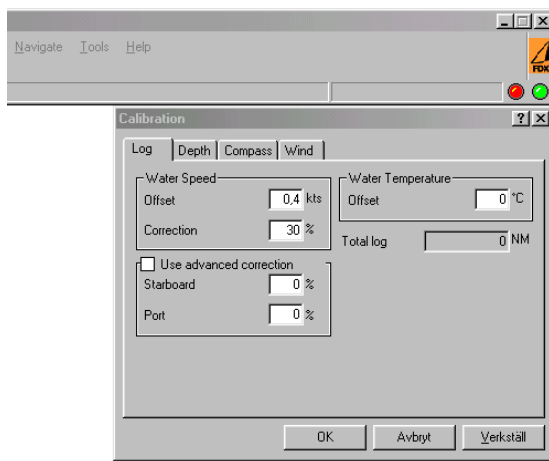
→ Knots

→ Target boat speed
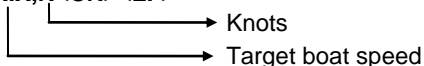
9   Tools

9.1   Calibration

The Calibration only works when the PC is connected to the FDX Server. All calibration values are stored in the Server.
The calibration may be done manually or automatic. In order to achieve an automatic calibration some minimum system requirements has to be fulfilled (see more under automatic calibration)

9.2   Manual calibration

9.2.1   Log calibration

Offset
Offset is the start value for the log and it could be described as slip or friction. Normally this value is about 0,4 knots and it will be constant at all speeds.

Correction
Correction is the calibration value for the log and has to do with the shape of the hull and the position of the transducer. The percentage is the value the measured speed will increased with. As an example: measured speed is 10 knots and the Correction is 30%, the corrected speed will be 13 knots (10 x 1,30)

Advanced corrections
If the log transducer is mounted on one side of the hull, it is likely you will have different readings on port and starboard. If you tick the use advanced correction box, the system will use these calibration values for port and starboard. This require a wind transducer to determine on which tack you are.
Note. If the tick box Advanced Corrections is ticked, you will not be able to set the calibration value from a NX2 Multi Control. You can only change these settings from the NX2 Race SW.

Temperature offset
If the temperature is read too high or too low, you may adjust that up or down.

9.2.2   Depth calibration
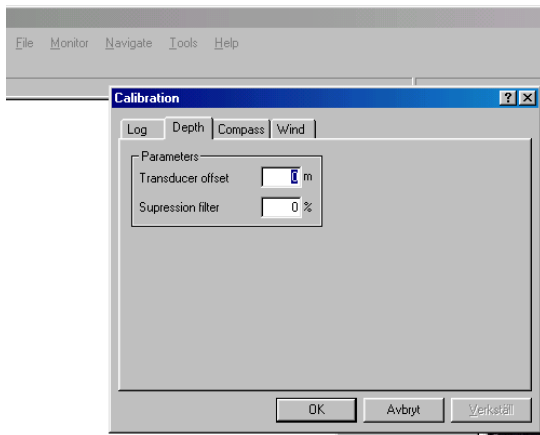
**Transducer offset**
The transducer offset is the distance from the transducer to the water surface. The value entered in this box will be added to the measured depth. If you want to display the depth from the keel, set a negative value for the distance from the transducer to the keel. I.e. if the draft of the boat is 1.6m and the transducer is mounted 0,4m below the surface, the distance from the transducer to the keel is 1,2m Enter the value -1,2m to get the rading from the keel.

Suppression filter
This function is not yet implemented.

9.2.3   Compass calibration
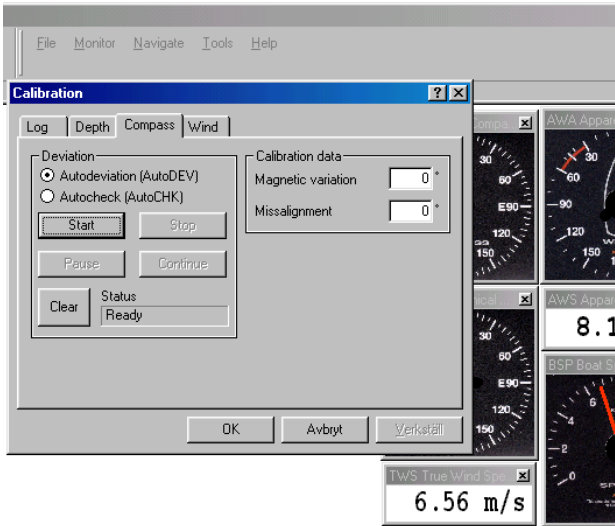
Magnetic variation, VAR
Set the deviation direction first, i.e. [+] for East or [-] for West, then enter the magnetic value in 1/10 of a degree.

Autodeviation
This function is used to autodeviate your Compass. Take the boat into a turn, in calm sea, when steady, press start.
When you have taken the boat through the minimum 360° turn, press Stop. If you want to pause (if waves comes up during deviation) press Pause and continue again when the waves have disappeared.

NOTE, The Auto deiviation for the HPC Compass can only be made from The NXR or NX2 Multi Control instrument

Check the Autodeviation
This function is used to check your Autodeviation. Make a new Autodeviation in calm sea (during the evening) as described in above.
NOTE, The Auto check for the HPC Compass can only be made from The NXR or NX2 Multi Control instrument

Clear the Autodeviation
If you by any reason prefer to reset the deviation created by the Autodeviation function, press Clear

Magnetic variation, VAR
Set the deviation direction first, i.e. [+] for East or [-] for West, then enter the magnetic value in 1/10 of a degree.

Adjust the Compass alignment
This function is used when the Compass is giving a constant course error, i.e. it is not mounted exactly aligned as the boat (there is no need to mount the transducer at the boats centreline). Make sure that the local magnetic variation is entered before you make the alignment adjustment, otherwise you are unable to see the difference between local magnetic variation and alignment error. The Compass may be installed reversed 180° , but never at perpendicular, or 90° relative the centreline.

9.2.4   Wind calibration
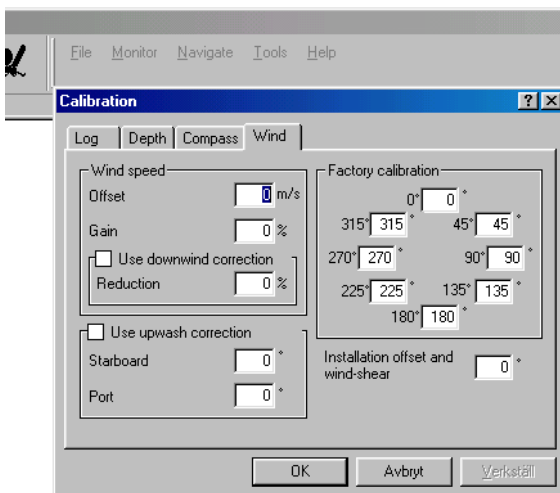
Offset
Offset is the start value for the wind speed and it could be described as the friction. Normally this value is about 0,5 m/s and it will be constant at all wind speeds.

Gain
Gain is the calibration value for the wind speed and has to do with the shape of the propeller. The percentage is the value the measured wind speed will increased with. As an example: measured speed is 10 m/s and the Correction is 70%, the corrected speed will be 17 m/s (10 x 1,70)

For two blade propellers, the calibration value is 50%

For three blade propellers, the calibration value is 70%

Down wind correction
Normally the apparent wind speed increases when you are sailing downwind. That has
to do with the fact that the wind has to pass the sails which the wind see as an
obstacle. If you enter 85% the wind speed will be decreased with 15% at 180 degree
and half of it (7.5%) at 135 degree. At 90 degree there will be no downwind correction.
Tick the box and enter the value for down wind correction.

**Note: a mast head rigged boat requires more down wind correction than a
fractional rig.**

When you are tacking the apparent wind angle will be distorted due to mast twist, up-
wash and the fact that the boat is heeling. All this together will give an error on the
apparent wind angle and also on the true wind angle. In order to get correct values for
Polar tables etc. it is very important that the wind angle and wind speed is correct.

The up-wash correction set in these boxes are the values for port and starboard. They
will only be used when tacking and the you may set the window for when you want to
use it (see Settings – Advanced)

Factory calibration
Each transducer is calibrated from factory. Each transducer come with calibration
certificate. Enter the values on the certificate for 000, 045, 090,135 etc. This is
essential to get correct values.

Installation offset and wind shear
If the transducer is mounted of-set to the boat, you may enter the misalignment here.
This is also the value used in the automatic calibration to correct for wind share.

9.2.5   Automatic Calibration
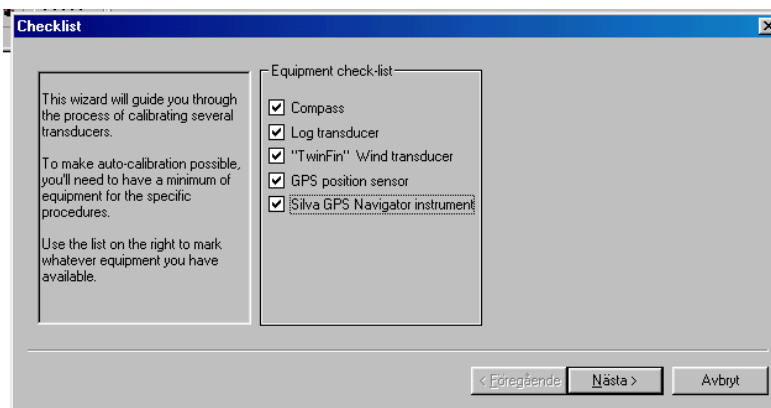
Some functions may be automatically calibrated. In order to do so, there are some minimum system requirements. If you have the following parts in your system: Compass transducer, Log transducer, "Twin Fin" wind transducer, GPS Position (Antenna) GPS navigator.
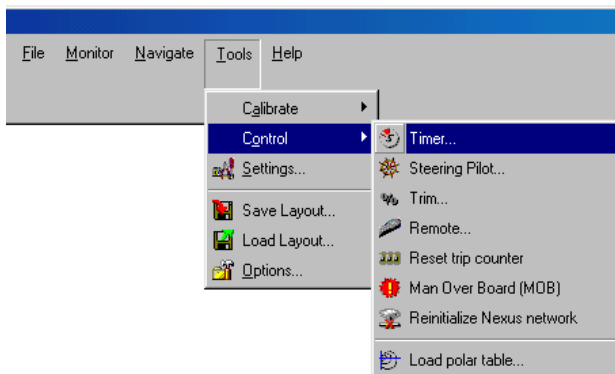You may calibrate the following:
Compass
Boat Speed
Up-Wind Sailing
Down Wind Sailing

Tick the boxes for the transducer you have in your system and then select what you want to calibrate.
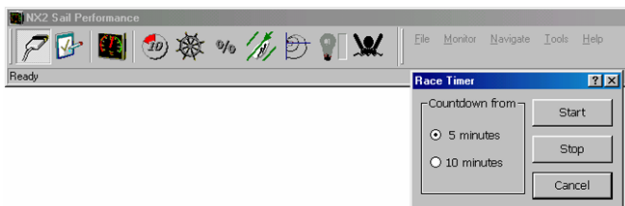
Follow the instructions on the screen!
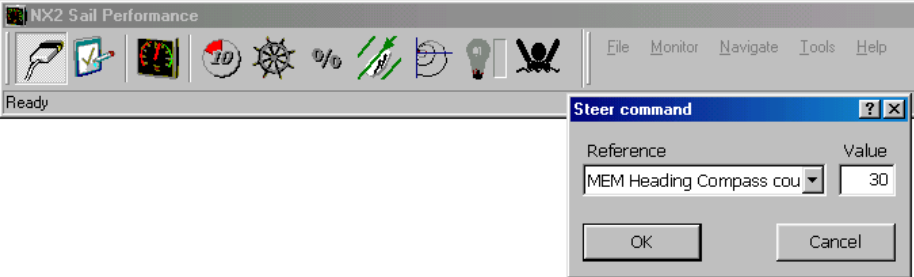
9.3   Controls

9.3.1   Timer

Here you may start the Race timer at 5 or 10 minuet count down. This is only possible if a Server is connected. The information will be send out on the Nexus Network to all instruments.
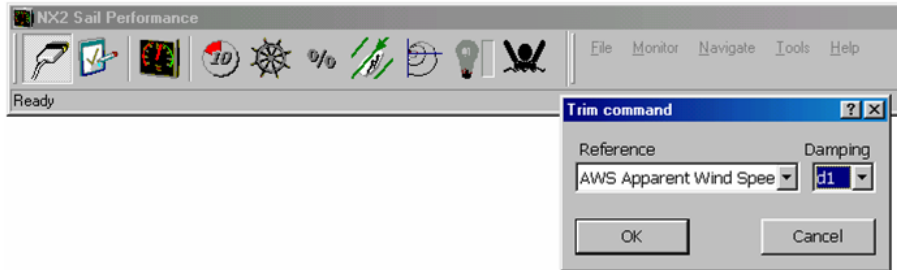
9.3.2   Steer Pilot

Here you may select the reference and the value for the Steer Pilot to refer to.

9.3.3   Trim

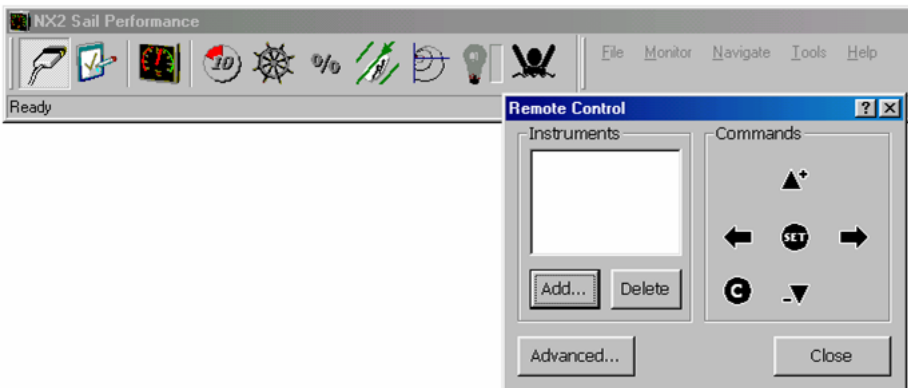Here you may select the reference and the value for the Speed trim instrument to refer to.

This is to set the reference, to trim the speed trim instrument, click the trim icon on the control bar.
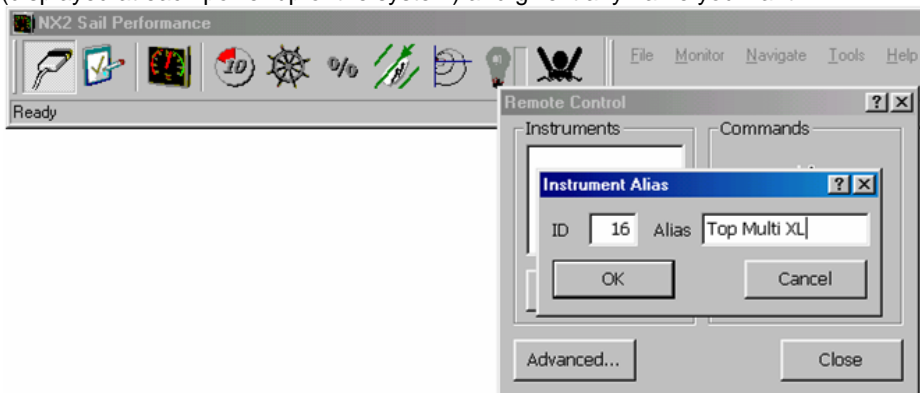

Remote control
All digital instruments connected to the Nexus Network may be remotely controlled from the NX2 Race SW.

To add instruments in the list, click Add. Then enter the ID number for that instrument (displayed at each power up of the system) and give it any name you want.
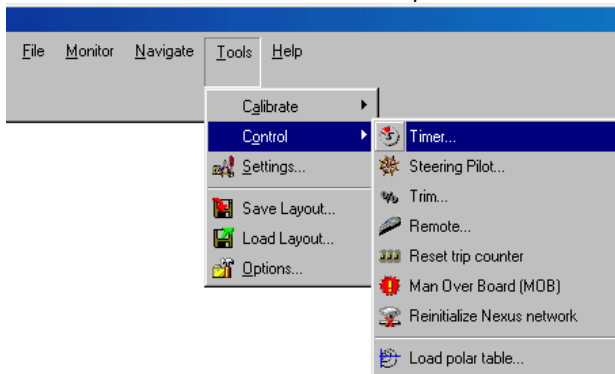
You may enter all instrument on the Network or only those you would like to be able to remote control. Then click OK
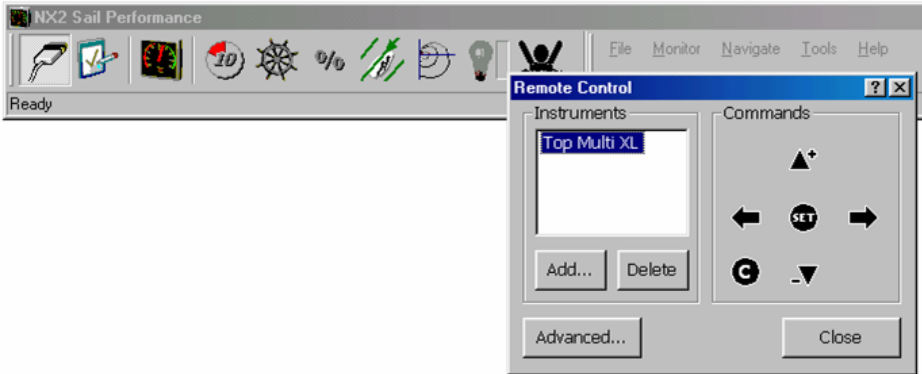
Then click on the instrument that you want to control and use the corresponding push buttons

9.3.4 Reset Trip Counter

Here you may reset the trip distance. The command is broadcasted to all instrument on the Network and all instruments Trip distance will be cleared simultaneously.

9.3.5 Man Over Board

Here you may start the Man Over Board function. The command is broadcasted to all instrument on the Network and all instruments start the Man Over Board function simultaneously.

You May Also click the Man Over Board button on the control bar

9.3.6 Reinitialize Nexus Network

This function will reinitialize the whole network and all instruments connected to it. A message Press Key will appear on all instruments and the order you press the keys is the order the Instruments will get their unique ID-numbers.

9.4 Polar table

The NX2 system together with the NX2 Race SW is able to calculate target Boat Speed from a Polar Table. The polar tables looks different for different boats.

The polar table is a tab- or comma-separated-values text file containing target boat speeds for specific true wind angles and speeds.
Every row represents data for a specific true wind speed (except first row, which contains the headings of the table and is ignored).
First column contains true wind speeds in knots, then, the following columns are pairs of target boat-speeds for a specific true-wind angle.
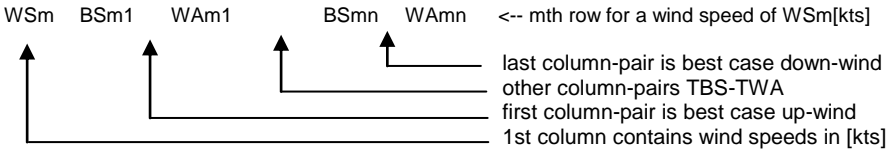The first and last pair of TBS-TWA columns are the best case up-wind and down-wind, respectively, and these columns are used to compute optimum course up- or down-wind, respectively.
NX2 Race SW interpolates and extrapolates the data to give continuous TBS and steering course. To achieve that, the file must contain a minimum of 5 column-pairs of TBS-TWA, but no more than 20, and a minimum of 3 data lines, but no more than 20.
So, including the column with wind speeds, the polar table should have a total of minimum 11 columns, but not more than 41.
The format of a polar table is:

TWS	TBS1	TWA1	TBSn	TWAn	<-- 1st row for table headings (no data here!)
WS1	BS11	WA11	BS1n	WA1n	<-- 2ns row for a wind speed of WS1[kts]

WSm	BSm1	WAm1	BSmn	WAmn	<-- mth row for a wind speed of WSm[kts]

last column-pair is best case down-wind
other column-pairs TBS-TWA
first column-pair is best case up-wind
1st column contains wind speeds in [kts]

In the above representation, WS1-WSm are (m) true wind speed values in [kts], BS11-BSmn are (m x n) target boat speed values in [kts], and WA11-WAmn are (m x n) true wind angle values in degrees, where:
$3 <= m <= 20$, and
$5 <= n <= 20$
Wind angles must have the same value on a given column, excepting the first and the last wind-angle columns, which are a special optimum case.
There must be no empty rows in the file, except for one row at the beginning (the heading row), which is ignored (and therefore put no values in there).
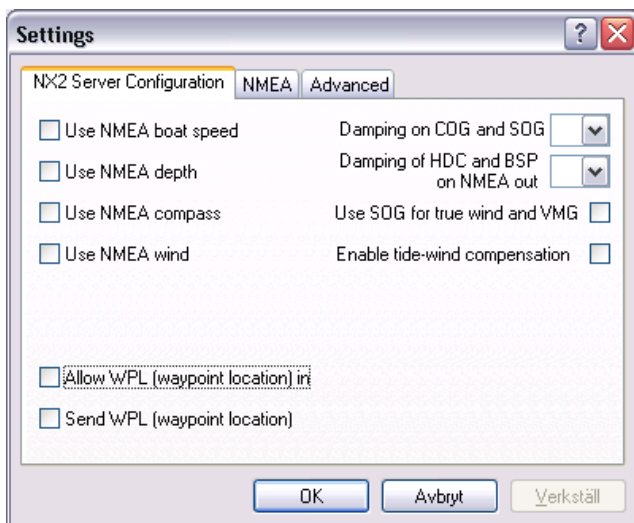All values must be separated with either tabs or commas (not spaces) and all rows must contain the same number of values (i.e. if row2 has 13 values, all other rows should have the same number of values).

9.5 Settings

9.5.1 NX2 Server settings

Here you set up the Server configuration

Use NMEA Boat Speed
If you want to use a NMEA transducer (connected to the NMEA input, you have to tick this box. The Server will then transmit this information on the Nexus Network to all connected instruments.
After you have changed this setting, you have to restart the system

Use NMEA Depth
If you want to use a NMEA transducer (connected to the NMEA input, you have to tick this box. The Server will then transmit this information on the Nexus Network to all connected instruments.
After you have changed this setting, you have to restart the system

Use NMEA Compass
If you want to use a NMEA transducer (connected to the NMEA input, you have to tick this box. The Server will then transmit this information on the Nexus Network to all connected instruments.
After you have changed this setting, you have to restart the system

Use NMEA Wind
If you want to use a NMEA transducer (connected to the NMEA input), you have to tick this box. The Server will then transmit this information on the Nexus Network to all connected instruments.
After you have changed this setting, you have to restart the system

Use NMEA Navigation

If you want to use a NMEA navigation (connected to the NMEA input), you have to tick this box. The navigation data (Bearing and Distance to WP, XTE etc.) will then transmitted by the Server on the Nexus Network to all connected instruments.
After you have changed this setting, you have to restart the system
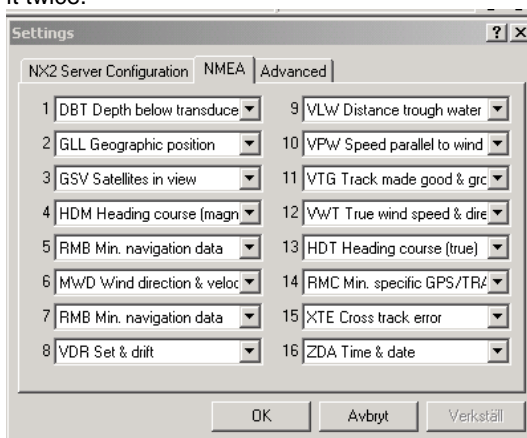
Allow WPL (Waypoint Location) in

If this box is ticked, waypoints transmitted from the Navigator will be received by the system

Send WPR (Waypoint Location)

If this box is ticked, waypoints will be transmitted via NMEA out

9.5.2   NMEA

This setting is controlling the NMEA out-put from the Server. Note, it will not affect what is transmitted on the NX2 Race SW virtual port. The Server is able to transmit 16 sentences which will take about 2 second. You may select which NMEA sentences to send in each box. If you want one type of data to be send more often than 2 sec, select it twice.

10 Part specification

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Items delivered with the NXR XLR Instrument

Qty.	Description	Reference
1	NXR XLR Instrument	1
1	Adhesive drill template for instrument	2
1	Operator's Manuals	3
1	Inter-connection cable 0,4m	4
1	Mounting material	5
1	Initialisation magnet (used at first power on)	6

Items delivered with the NXR Multi Control Instrument

Qty.	Description	Reference
1	NXR Multi Control Instrument	1
1	Adhesive drill template for instrument	2
1	Operator's Manuals	3
1	Inter-connection cable 0,4m	4
1	Mounting material	5

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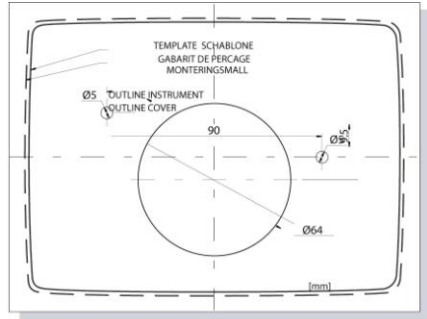
By returning the warranty card, it will assist your distributor to give you prompt and expert attention. Keep your proof of purchase. Also, your details are added to our customer database so that you automatically receive new product catalogues when they are released.

Warranty conditions see chapter 15.
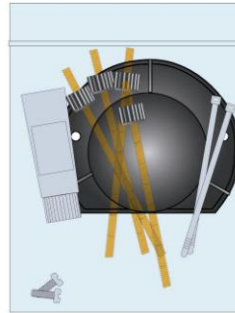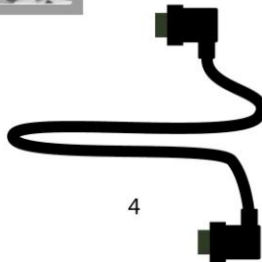
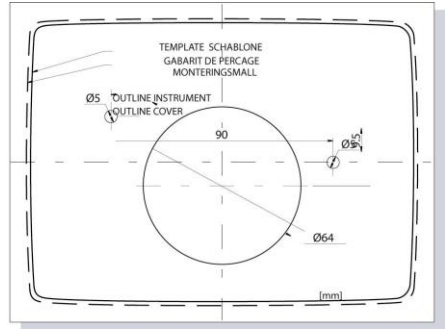## Parts delivered wit the NXR XLR Instrument

1

2

3

5

4

6

Parts delivered wit the NXR Multi Control Instrument
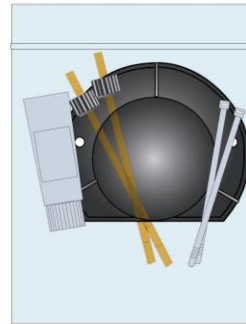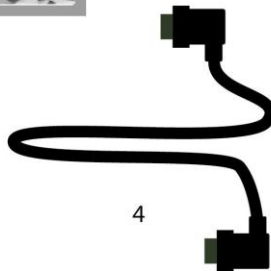

1

2

3

5

4

11 Installation

The installation includes 4 major steps:
1. Read the installation and operation manual.
2. Plan where to install the instruments.
3. Run the cables.
4. Install the instruments.

Before drilling ... make the installation as neat and simple as your boat will allow. Plan where to position the transducers, Server and instruments. Leave space for additional instruments in the future.

A few "do nots" 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.
−   The gasket eliminates the need for sealant behind the instruments.
−   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 hole 63 mm (2½"), used for Multi Control.
−   Saw for the instrument clearance hole, used for XLR.
−   5 mm (1/4") drill for the mounting holes.
−   Plastic cable ties

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

11.1.1 Installing instrument to the Server

All NXR instruments are connected directly to the Nexus Network in a daisy chain. They all use the same colour coded 4-lead cable (same as for NX2) and a water tight connector.

11.2 Installing the NXR Configurator SW

Run the Setup SW for the NXR Configurator SW supplied on the CD. Follow the instructions during the installation.
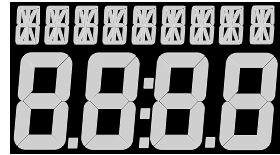

Start the SW by double clicking on the icon: NXR_Configurator.lnk

12 First start of XLR Instrument

12.1   Initializing the instrument

At power on, the instrument will perform a self test. The display will first show all segments, then the software version number, thereafter the instruments ID number,

At first power on after installation, the text MAGNET is displayed. In the top left corner, a star is shown. Take the supplied initialisation magnet and hold it over the star. A magnetic sensor inside the instrument will detect that and perform an initialisation of this instrument.

Magnet

Proceed with next instrument, one at the time.

Note: Always wait for the text with ID number and version number to be displayed, before you press SET (with magnet or push button) on the next instrument!

The Server automatically gives the first unit ID number 16, then 17 and so on. Note, The order in which you press **SET** (with the magnet) is the same order as the instruments will be given a logical ID number on the Nexus Network and will also be the order they are accessed.

The example shows that the instrument logical ID number is 16 and the version number is 0.5.

Note, if two instruments by mistake, get the same ID number, see 13.2.2

13 First start on Multi Control

13.1 Initialising the instrument

At power on, the instrument will perform a self test. The display will first show all segments, then the software version number and the Nexus Network ID number.

At first power on after installation, you will be asked to press **SET** (PrESkey). This will give the instrument a logical ID number on the Nexus Network.

To initialise the instrument, press **SET** on all installed digital instruments, one at the time.

Note: Always wait for the text 'Init OK' to be displayed, before you press SET on the next instrument!

The Server automatically gives the first unit ID number 16, then 17 and so on. The order in which you press **SET** is the same order as the instruments will be given a logical ID number on the Nexus Network.

The example shows that the instrument version number is 2.0 and the given logical ID number is 16.

### 13.2 Re-initializing the instrument

If two instruments by mistake have the same ID number, this can cause disturbance and block the information on the Nexus data bus.

To re-initialise the instrument, Start NX2 Sail Performance SW and go to Tools, Control and then select re-initialize.

14 Maintenance and fault finding

14.1 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.
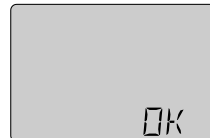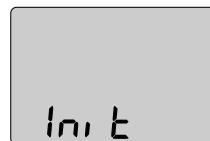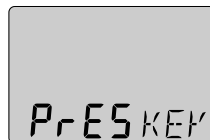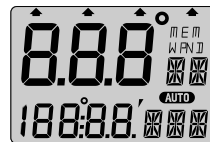
- Storing transducers and instruments when not in use for longer periods: It is advisable to remove the instruments and transducers, and store them inside the boat or at home in room temperature, if possible.

14.2 Fault finding

14.2.1 General

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

- All connected instruments and transducers, including their version numbers.
- Nexus Network ID numbers for each instrument (displayed at power up).

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.
- 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.

14.2.2 Re-initialising the instrument

If two instruments by mistake have the same ID number, this can cause disturbance and block the information on the Nexus data bus.

To re-initialise the instrument, Start NX2 Sail Performance SW and go to Tools, Control and then select re-initialize.
**Note! If you do not succeed to re-initialise, we suggest you disconnect all but one instrument with the same
ID number, then repeat the above procedure.**

15 Specifications

15.1   Technical specifications

Dimensions:	XLR Instrument instrument: 220 x 150 x 33 mm (4.3x6.2 inch).
Instrument cable:	0,4 m (1,7 ft).
Power supply:	12V DC (10-16V). The instruments are polarity protected
Power consumption at 12V:	XLR Instrument instrument: 0.09W with maximum lighting 0.80W.
Temperature range:	Storage:-30°to +80°C (-22°to +176°F) Operation: -10° to +70°C(14°to +158°F)
Weight:	XLR Instrument instrument: 435 gram (15.3 oz).
Enclosure:	XLR Instrument Instrument: Water proof (from front)

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

15.2   Nexus Network introduction and user policy

Introduction:
The Nexus data bus is a multi talker multi receiver data bus specially designed for marine navigation applications. It utilises the RS485 standard with up to 32 senders and/or receivers to form a Local Area Network. Data is transmitted synchronously with 1 start-bit, 8-data-bits, 1 parity-bit, two stop-bits in 9600 baud.

User policy:
The Nexus data bus is open for new users and applications without a licence or a licence fee. The data bus is, however, the property of the manufacturer, which means the specification must be followed in order to protect the manufacturer's commitments to the Nexus data bus performance and safety.
For most PC-applications, the full duplex interface, will be a very useful tool for monitoring real time data, to edit and store waypoints to PC-file or to Server. The interface is supplied with a cable for connection from PC to the Server or NX2 instruments. A 9-pole D-sub connector is connected to the RS232 port on the PC.

16 Warranty

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

File id: _____

OWNER:

Name:_____

Street :_____

City/Zip Code :_____

Country:_____

Product name: Serial number:

A   B   C   1   2   3   4   5   6   7

_____ ☐ ☐ ☐   ☐ ☐ ☐ ☐ ☐ ☐ ☐

_____ ☐ ☐ ☐   ☐ ☐ ☐ ☐ ☐ ☐ ☐

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Date of purchase:_____ Date installed:_____

Dealers stamp:

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

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