NEXUS

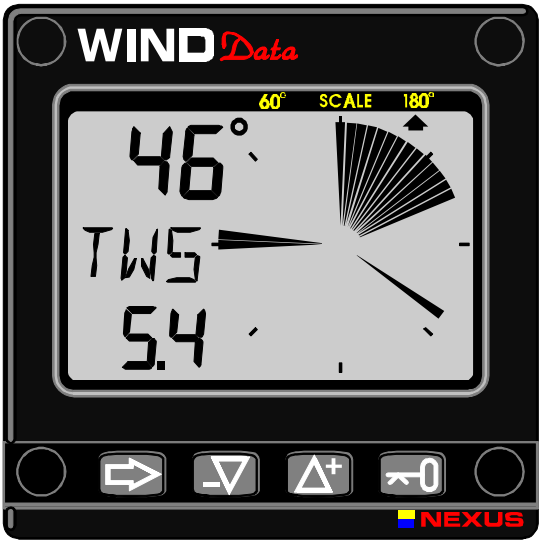
WIND *Data*

Installation and Operation Manual

Introduction

Thank you for choosing Nexus Wind Data instrument. We are convinced that you will appreciate all the valuable information either you are a cruiser or a racer. It is important that you are following this instruction regarding installation and operation.

If the instrument are to be used in a Nexus Network, there are some systems settings that are dependent on where the transducers are installed, i.e. at the instrument or at the Server.



This manual is written for Nexus Wind Data instrument version 1.00

Edition: June 2000

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1 Part specifications

Nexus Wind Data is delivered with all parts for mounting. Check prior to installation.

Wind Data instrument

Qty.	Description	Reference
1	Instrument, Nexus Wind Data	1
1	Instrument front cover	2
1	Drill template	3
1	Installation and user manual	4
1	Warranty card	5
1	National distributors list	6
1	Power cable, red and black, 3 m (9 ft)	7
5	Extra wire protectors, 0,25 mm (1/100”)	8
5	Extra wire protectors, 0,75 mm (1/32”)	8
4	Mounting screws for the instrument	9
4	Round rubber covers	9
1	Tube of silicon grease	9
1	Connection cover	9
2	4-pol screw terminal	9

Additional in Wind Data complete with transducer

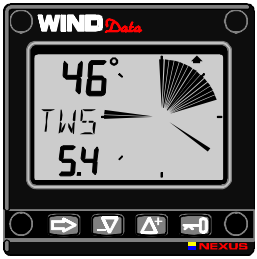
1	Wind transducer Nexus	10
1	Mast top cable. 25m (83 ft)	11
3	Mounting screws for mast bracket	12
1	Mast head bracket	13

Registering of 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 this document, it will assist your distributor to give you prompt and expert attention, in the event of your experiencing difficulties with this product. Keep your proof of purchase. Also, your details are added to our customer database so that you automatically receive new product catalogues as and when they are released.

PART SPCIFICATIONS



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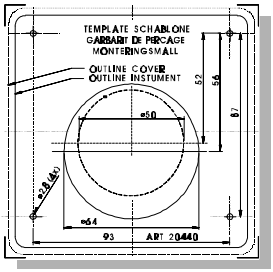

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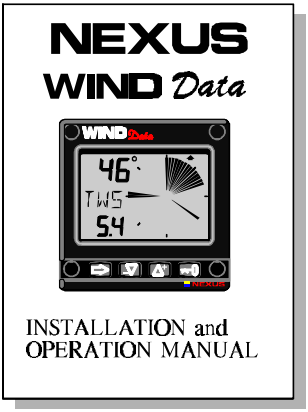

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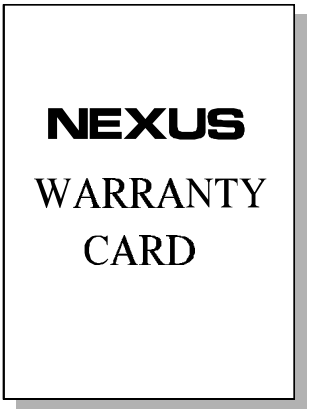

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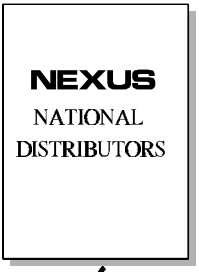

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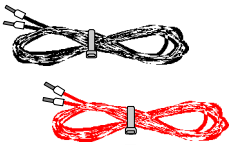

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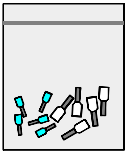

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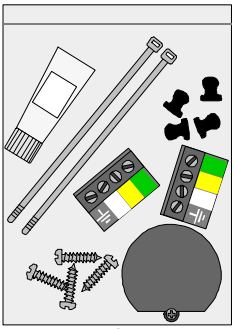

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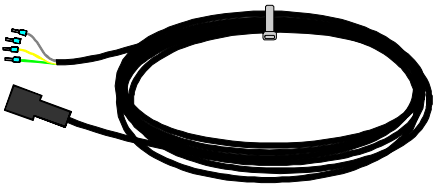

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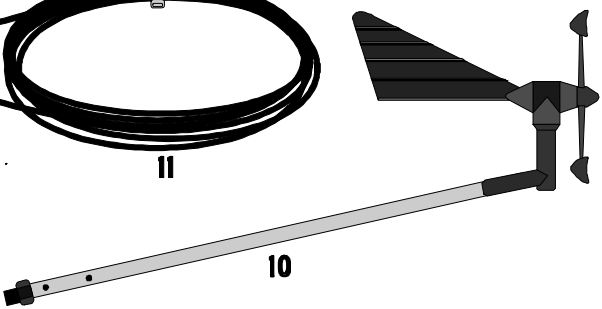

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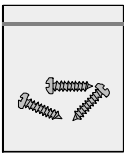

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1 Installation

You can install the Nexus Wind Data in three different ways:

- The wind transducer is connected directly to the Nexus Wind Data instrument
- By using the connection kit when both log and wind transducers are installed with a single Wind Data.
- The installation may also include a Nexus Server where all transducers may be connected. All data including power will pass along one cable.

- **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 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.
– 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 hole 63 mm (2½").
  2.8 mm ($^{7}/_{64}$") drill for the mounting holes in wood.
  3.2 mm ($^{1}/_{8}$") drill for the mounting holes in fibre glass.
  Plastic cable ties

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

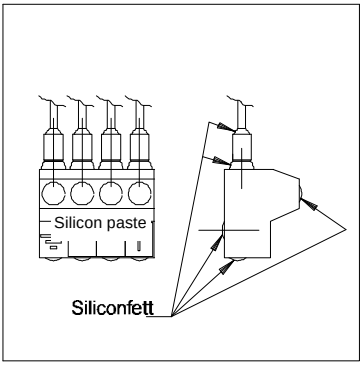
The warranty is not valid if you have damaged the instrument by drilling through the front mounting holes.

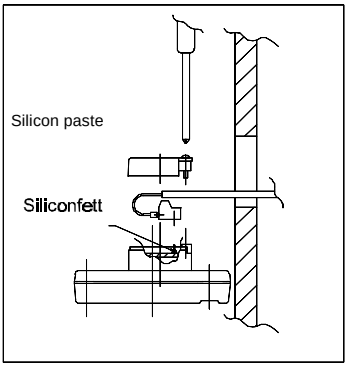
1.1 Installing the instrument

- Place the adhesive drill template on the desired location for the instrument. Drill the 4 screw holes using a 2.8 mm ($^{7}/_{64}$") drill for wood or 3.2 mm ($^{1}/_{8}$") for fibre glass. Use a 63 mm (2½") hole saw to machine the clearance hole for the instrument connection socket. Remove the template.

Note: Never drill through the instruments 4 mounting holes as the gaskets may be damaged and thus cause leakage. The warranty is not valid for damage caused by drilling through the mounting holes.

- Run the Nexus Network cable from the Server to the instrument.
- Cut the Nexus Network cable to length. 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 down the cable in the cable leads. Mount the connection back cover with the screw.
- Mount the instrument in the pre-drilled position.

Note! Use all 4 screws, and tighten the screws (in cross pattern) so the gasket will be evenly compressed to 1/3 of its original thickness. Very important for a correct sealing to avoid leakage!

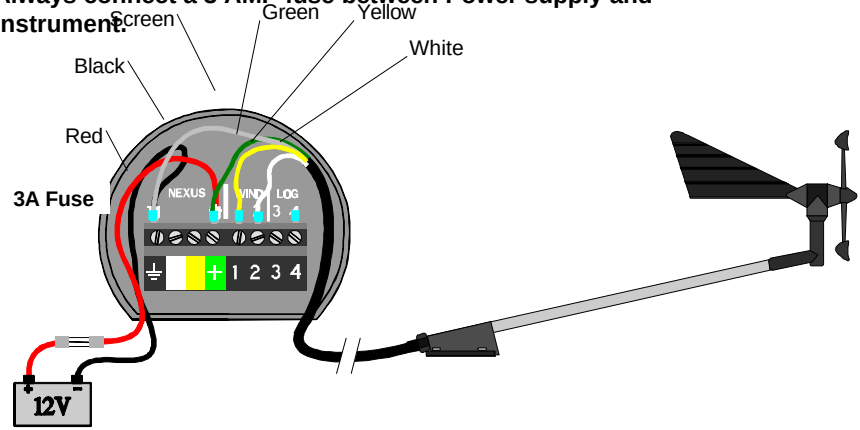
- Press on the 4 rubber caps to seal and hide the mounting screws.

Your instrument installation is done!

1.2 Installing cable

The power cable is connected via a 3A fuse from the battery or at the boats fuse panel and direct to the instrument or Server. One red and one black power wire is included. **Note**, set C71 On (see 5.5.1)

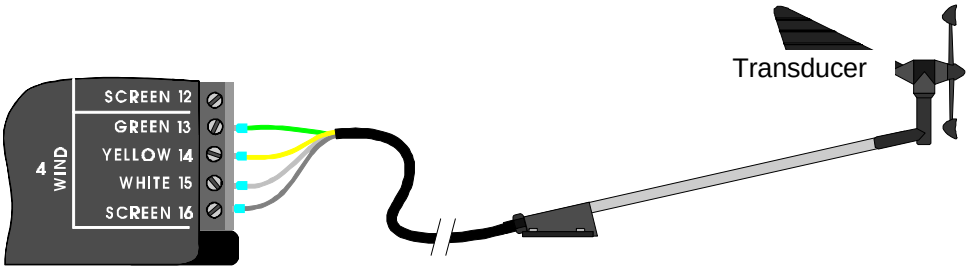
Always connect a 3 AMP fuse between Power supply and instrument.



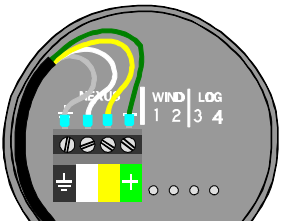
1.3 Connections in Nexus Network

Server

If you already have a Nexus Network i.e. a Server, it is more practical to connect the transducer to the Server due to the single instrument cable installation. **Note**, set C71 OFF (see 5.5.1)



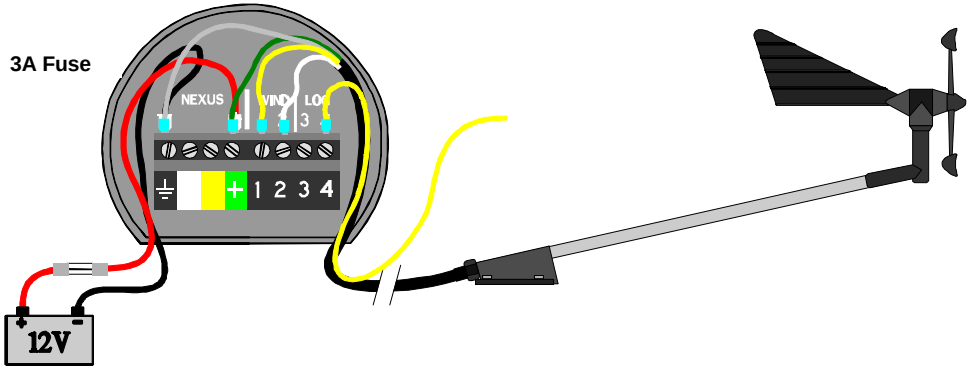
The instrument is then connected to the Server's Nexus Network terminal (pin 5, 6, 7 and 8) or any instrument .



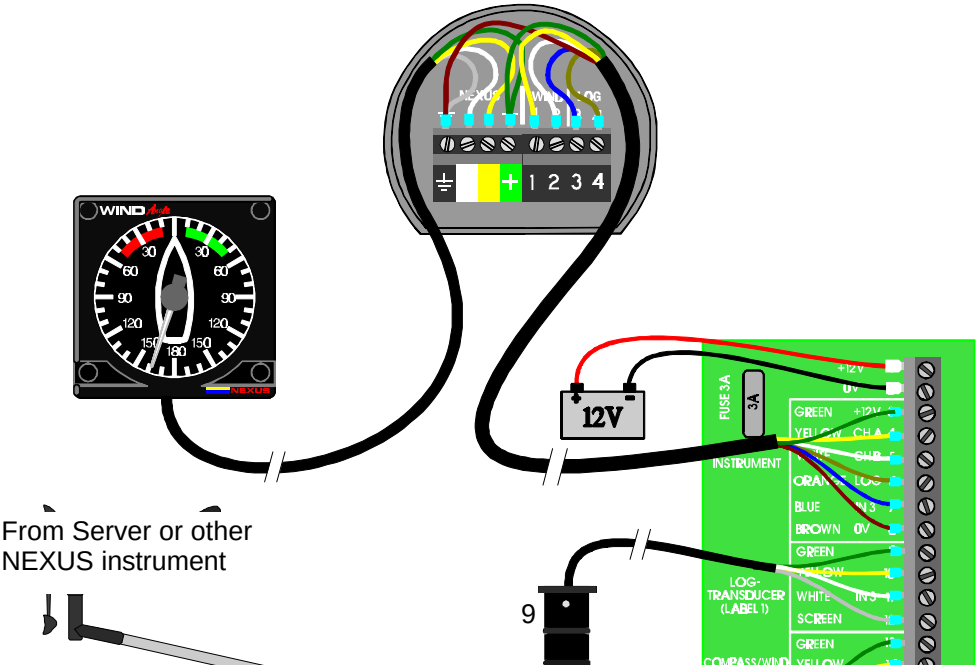
1.4 Connection of log transducer

From log transducer, NEXUS, Star, D-20, 2200 or 220

If you have an other log instrument i.e. a Nexu 0
log, a 2200 log or a 220 log, you may connect re
from that instrument to the Wind Data instrument terminal 4.

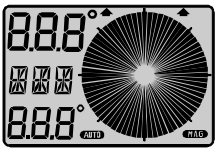


If you don't have a log instrument, but want to install a log transducer, use the connection box (Art. no: 21453).

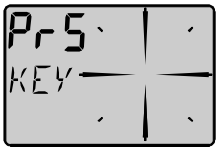


2 First start (only in a Nexus Network)

2.1 Initialising the instrument

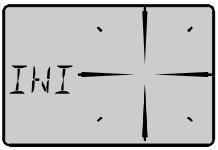


At power on, the instrument will perform a self test. The display will first show all segments, then the software version number and the Nexus Network ID number.

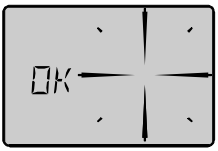


At first power on after installation, you will be asked to press **KEY** [PrSKEY]. This will give the instrument a logical ID number on the Nexus Network.

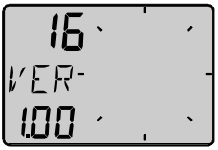
To initialise the instrument, press **KEY** on all installed digital instruments, one at the time.



Note: Always wait for the text "Init OK" to be displayed, <u>before</u> you press KEY on the next instrument!



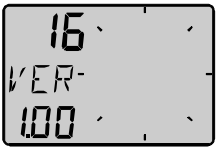
The Server automatically gives the first unit ID number 16, then 17 and so on. The order in which you press **KEY** is the same order as the instruments will be given a logical ID number on the Nexus Network.



The example shows that the instrument version number is 1.00 and the given logical ID number is 16.

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, press **DOWN** and **UP** together during the power up sequence when version and ID numbers are displayed.

The display self test is then re-started on all instruments and you will be asked to press **KEY** on each instrument as explained above.

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.

3 Operation

3.1 About this manual

- Each time a push-button are referred to in this manual, the push-button name will appear in **bold** and CAPITAL letters, e.g. **MODE**.

- Unless otherwise stated, the push-button presses are momentary.

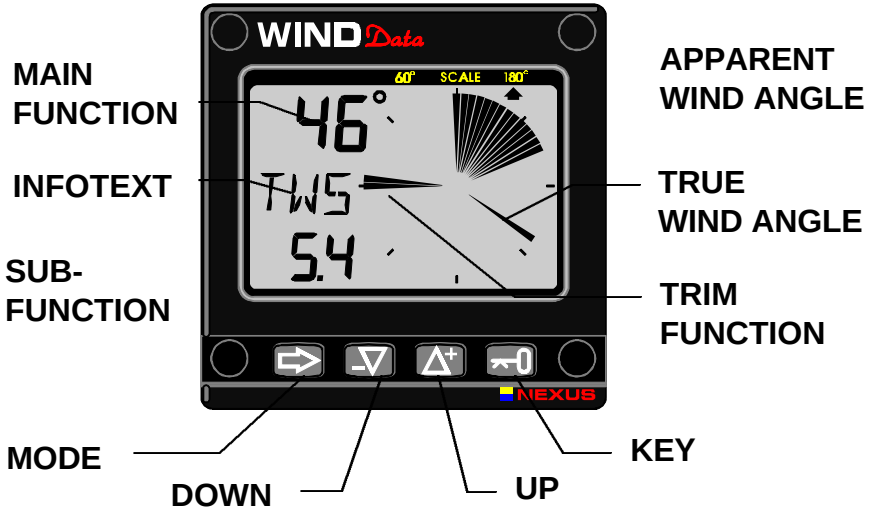
- Each time a function is mentioned in the text, it will be in brackets and in the same format, where possible, as displayed, e.g. [AWA].

- This manual has been written to be: Compatible with Wind Data instrument from software version 1.0.

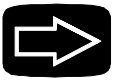
- All functions followed by the text **option** is not valid in a factory set-up instrument. See calibration to be able to display these functions.

Note!
We have put down a lot of effort in order to make this manual correct and complete. But since we continuously make our products better, some information can differ from the products functions. If you need further information contact your national distributor

3.2 How to use the 4 push-buttons



3.2.1 MODE



A press on **MODE** change the mode of the graphical display. It scrolls in a circular pattern, one step for every press.

The **MODE** button is **also** used to move the cursor when in edit mode. A press on **MODE** moves the cursor in a circular pattern, one step to the right for every press.
A press on **MODE** and **DOWN** together, back steps cursor to the preceding step.
When in editing mode a long press (>2sec) on **MODE** will escape from that editing mode.

3.2.2 DOWN

A press on **DOWN** moves to the next sub-function.
In edit mode it decreases to previous digit.

3.2.3 UP

A press on **UP** moves to the previous sub-function.
In edit mode it increases to next digit.

3.2.4 KEY

A press on **KEY** unlocks a digit to access edit mode.
When unlocked, the digits are ”active” (flashes) and can be edited by pressing **DOWN**, **UP** and **MODE** as required.
When finished editing, lock the digit by another press on **KEY**.

3.2.5 Clear

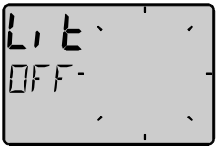
A press on **DOWN** and **UP together**, clear digits.

3.2.6 Calibration

To access calibration mode, press and hold **KEY** more than 2 seconds. To return to main function mode, press **KEY** when the text return [RET] is shown.

3.2.7 Lighting

The instrument uses red back lighting for the display and the 4 push-buttons. The lighting can be set at 4 different levels.

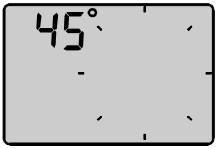


To access the light control, press and hold **MODE** for more than 2 seconds. The flashing text [Lit OFF] will be displayed and the display will be lit momentarily.

To select between the 4 light levels, press **UP**: [LOW], [MID], [MAX] and [OFF]. To lock the selected level, press **KEY**.

The selected light level will be copied to all Nexus 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.

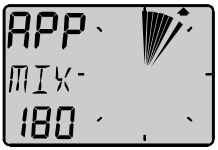
3.3 Main function



Top data is relative Wind angle, [AWA] (**A**pparent **Wind A**ngle). As an alternative to [AWA] the following can be displayed:

[AWS] (**A**pparent **Wind S**peed).
[TWA] (**T**rue **Wind A**ngle) if the log transducer is connected.
[TWS] (**T**rue **Wind S**peed) if the log transducer is connected.
To change between these functions, see C12, 5.1.2.

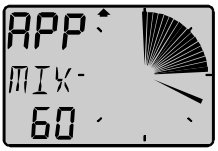
3.4 Analogue function



Change Wind scale between **180°** and **60°** with **MODE** . Selected scale is shown with the LCD arrow pointing at scale.

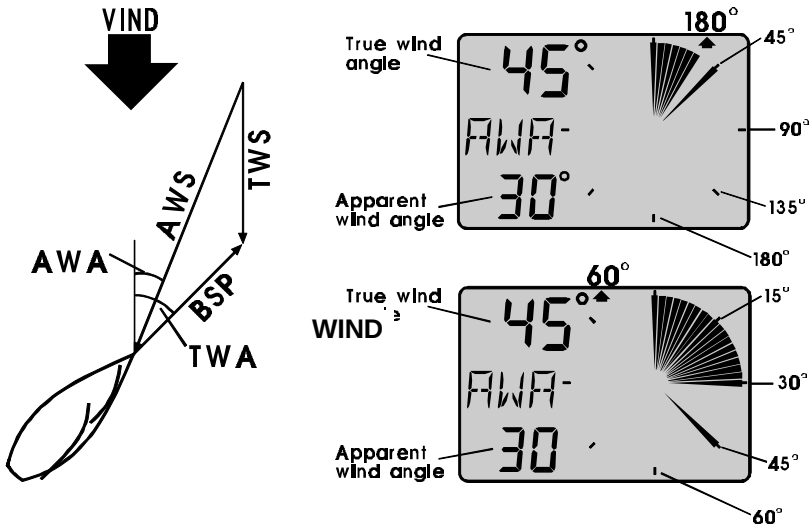
The text [APP] displays selected main function as apparent Wind angle or Wind speed.

MIX 180° The text **MIX 180°** means that both APP and TRUE Wind angle is displayed in scale 180°.



MIX 60° The text MIX 60° means that both APP and TRUE is displayed in scale 60.

The scale can be altered between 60° and 180° to get more accurate readings. At scale 180° each sector represent 5° and at scale 60° each sector represent 1 $^{2}/_{3}$°. See the example below .

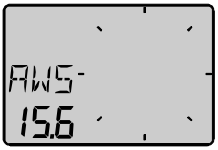


3.5 Sub-functions

Select sub-function with **UP** or **DOWN**.

Information text for the sub-function is displayed. You may also ”park” your favourite function so it will automatically be displayed after power on.
Press both **MODE** and **KEY** to ”park” the displayed function. The display will flash once to confirm that you have ”parked” the function.

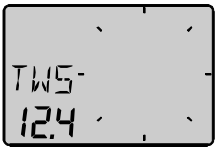
3.5.1 Apparent Wind Speed [AWS]



The text [AWS] (**A**pparent **Wind S**peed) and its value is displayed below.

The text [AWS] is toggled with the text [KTS] (KnoTS), [M/S] (Metres/S) or [BF] (Beaufort)**.**

3.5.2 True Wind Speed [TWS]



The text [TWS] (**T**rue **Wind S**peed) and its value is displayed below.

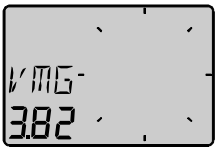
The text [TWS] (**T**rue **Wind S**peed) is toggled with the text [KTS] (**K**no**TS**), [M/S] (**M**etres**/s**) or [BF] (**B**eau**F**ort).

3.5.3 True maximum Wind speed

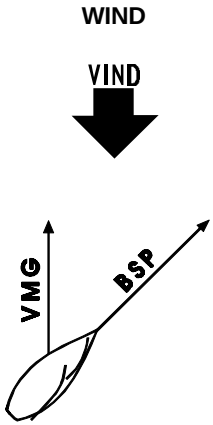
Press the **KEY** in the sub-function: [TWS] to display maximum true Wind speed. After 5 seconds the display will go back to [TWS] again.

Re-set or clear the [MAX] Wind speed value by pressing **UP** and **DOWN** together or switch off the power.

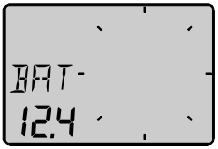
3.5.4 Velocity Made Good (VMG)



The text [VMG] **(V**elocity **M**ade **G**ood**)** is displayed with the actual boat speed towards or against the Wind.
The water speed information from the log transducer is needed. The speed information can be taken from the log transducer or from Nexus Network. VMG = 0.0 knots when the true Wind angle is perpendicular to the boat.

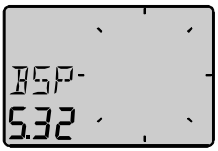


3.5.5 Battery voltage [BAT], option



The text [BAT] will display battery voltage. The voltage is measured inside the instrument and will not compensate for any voltage drop caused by installation.

3.5.6 Boat speed [BSP], option



The text [BSP] will display boat speed (water speed). The text [BSP] will toggle with selected unit, i.e. (KTS), (KMH) or (MPH).

As an option, you may add or remove displaying boat speed [BSP], trip log [TRP] and water temperature [TMP]. See further under calibration.

3.5.7 Trip log [TRP], option

The text [TRP] is displayed and will show trip distance from 0.00 to 99.9 nautical miles, kilometre or miles. After 99.9, 0.00 is displayed. Clear trip by pressing **UP** and **DOWN** together.

3.5.8 Water temperature [TMP], option

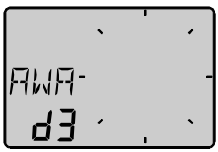
The text [TMP] is displayed with water temperature in Celsius or Fahrenheit.
This function require a Nexus or Star log transducer.

3.5.9 Trim function for optimum Wind angle or speed, option

The text [TRM] and [OFF] is displayed when this function is off. The trim function can be used as an aid to keep the correct tacking angle or to discover speed changes caused by sail or rig trimming. Some of the functions can only be used when the Wind Data is connected to Nexus Network.

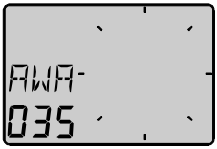
As the first example we will use [TRM AWA] (**TR**i**M A**pparent **Wind A**ngle).

To trim on Wind angle deviation, select the text:
Press **UP** and **DOWN** together, the display will flash. Select [AWA] with **DOWN** and confirm with **KEY.**



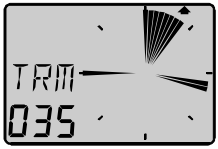
Select the level of dampening [d0-d9] and confirm with the **KEY.**

The default (or latest used) Wind angle is displayed. You may accept the proposed angle by pressing the **KEY** or enter a new Wind angle with **UP**, **DOWN** and **MODE** before confirming with **KEY.**



The entered Wind angle will be lost when power off. You may however select a default Wind angle in set-up. See C64 5.4.7.

Every time you select this function, or after power up, the pre-set value is proposed.



On the display you will see the text TRM and AWA toggling together with your Wind angle. On the graphic part you will see your reference angle as

Each sector represents 2°

one straight horizontal segment when actual angle is equal to the pre-set angle. At the same time you will see apparent and true Wind angle. The deviation is displayed visible upwards or downwards from the horizontal line to +/-15°. The maximum visible deviation is 15°. When the deviation is between 15° and 30° the 15° sector is lit. When larger then 30° the segment sector is blanked out.

Trim on speed:

Select the trim function.
Press **UP** and **DOWN** together. Select text (BSP) by pressing **UP** and confirm with **KEY**.

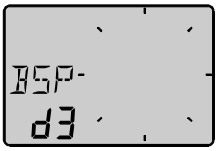
There is a number of different ”speeds” to be used for trimming. The most common is [BSP] (Boat SpeeD) and [VMG] (Velocity Made Good). The Wind Data instrument can also display deviation from optimum calculated boat speed [TBS] or (Target Boat Speed).
The TBS is normally calculated by use of polar diagram on PC with racing software. The value ”**T**arget **B**oat **S**peed” is transmitted through the Nexus Server on the NMEA 0183 input. The Server will then transmit TBS on the Nexus Network.
On the Wind Data display you will see both the digital value in % and the graphical value as a 2% variation for each segment.

You may select ”speeds” to **TRIM**, from this list:

BSP	Boat speed	**Log transducer!**
AWS	Apparent Wind Speed	
TWS	True Wind Speed	**Log transducer!**
SOG	Speed Over Ground	**Navigator!**

DRF	Drift	**Log transducer + Compass + Navigator!**
WCV	Speed towards a waypoint	**Navigator!**
VMG	Velocity Made Good	**Log transducer!**
TBS	Optimum speed based on polar diagram	**PC + NMEA 0183 through Nexus Server!**
OFF	Function is OFF	

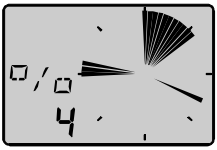
When [BSP] (or other function) is selected, the dampening [d3] is flashing. Select dampening level and confirm with **KEY.**
The text [% OFF] is then displayed to show that the function is selected, but no reference is yet set.



Press **KEY** to set [BSP] reference.

The display will now show you the text [%] toggling with text [BSP] or whatever trim you have selected.
Each selected represents 2%
The speed variation is expressed in % from set value.

Press the **KEY** every time you wish to set a new trim reference value.
There is an option to use an external trim button to set a new trim reference. See more in the calibration.



3.6 More Wind Data functions Nexus Network

By adding (or using) the Wind Data instrument in the Nexus Network, more functions will be added if the corresponding transducer is connected.

The Wind Data functions may be added or removed by the user.

The Wind Data instrument can be used in a small Network together with the Multi, Log or analogue instrument, without a Server.

In order to make the installation easy when using both log and Wind transducer in a small Network we recommend you to install with connection kit art.no. 21453. Only one cable will carry the signals to the instrument, then there is one Network/power cable to the Multi or Log instrument. (See 2.1.4).

When using the Wind Data in a bigger Network with more then 3 transducers, we recommend you to use the Nexus Server.
Only one cable will be used to connect all instruments. You will also have the NMEA 0183 input/output.
If you need to be able to read the depth information on more then one instrument, the Server is the only choice.

Network bonus function:

If you are using the race timer on the Multi or Log instrument you will have a graphical 60 second countdown timer ”popping up” on this instrument.

In this example there is 45 second to start.

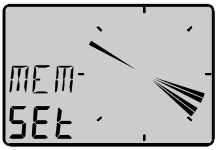
3.6.1 Geographic Wind direction (TWD)

To get this function, set NAV = On C14 (See 5.1.4).
Text [TWD] is displayed shortly, then is the abbreviation for Wind directions displayed, [SSW], [NO], [WNW] etc. together with the numerical direction below. The graphic direction is also displayed by pressing **MODE** one or more times until the display to the right is displayed together with the ”pointer”.If the Compass transducer is missing but there is a GPS installed, you may use the GPS as a reference for heading under the criteria that the vessel must be moving.
Change C33 from **USE Hdc** to **USE COG**.
(See 5.3.3)

When the boat is laying still, the TWD will be random readings if COG is used.

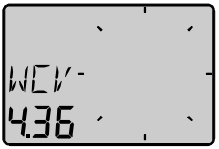
Each sector represents 5°

You may also check long term geographical Wind shifts by entering a ”marker” at present Wind direction as a remainder.
The ”marker” will stay until power off or by clearing the function.
A Wind shift of 5° will be easy to detect after hours of sailing.
Select function [TWD 360°] with **MODE**, and when the text [TWD] is flashing press **KEY.**
The ”marker” is now set. When there is a constant Wind shift, you will see this ”marker” as a slow blinking reminder of the origin Wind direction.



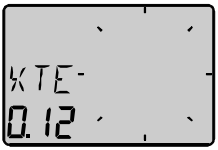
3.6.2 WCV, Waypoint Closing Velocity

To get this function, set NAV = On C14 (See 5.1.4).
The text [WCV] is displayed with the actual speed towards your Waypoint if a Waypoint is selected in your GPS navigator.

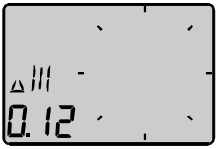


3.6.3 X-track error, XTE

To get this function, set NAV = On C14 (See 5.1.4).
The text [XTE] is displayed shortly when this function is selected, then a symbolic ”boat” is displayed on one side of the ”road” which is displayed as three vertical lines.



Your ”boat” will be displayed on the right or left side of the road. The distance is also displayed and can be in either Nautical mile, Km or Miles.

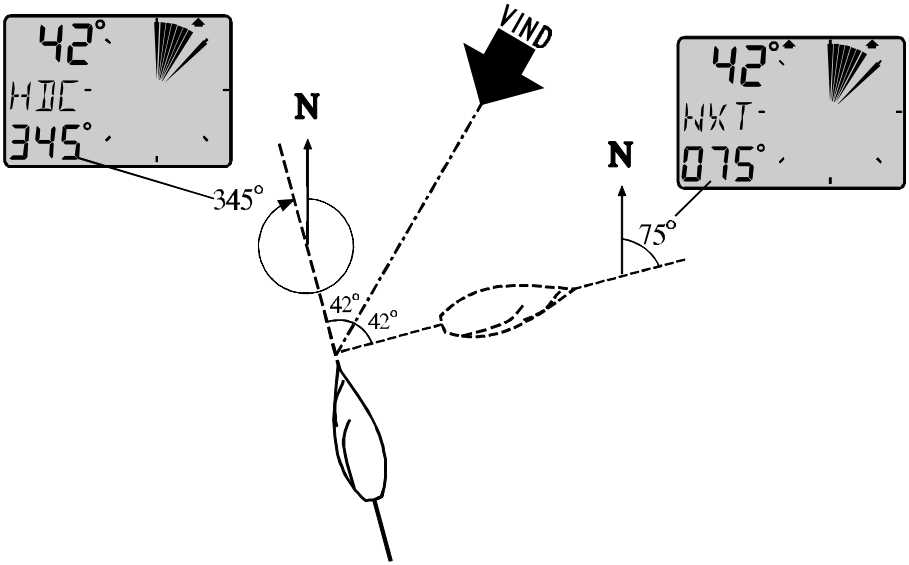


3.6.4 HDC / NXT, Course after tack or jibe

To get this function, set NAV = On C14 (See 5.1.4).
This function also needs a Compass connected to the Nexus Server
If the Compass sensor is missing, the HDC may be replaced by the COG (Course over ground) by setting the reference in COG. (See C33 5.3.3).

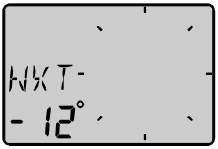
The text [HDC] is displayed with actual magnetic or true heading. After 4secs. the text [NXT] together with the true or magnetic course to keep after tack or jibe.

Note! The boat's drift must be included in your decision when to tack, to reach the mark.
After a tack, it will take some minute before the new tack angle is steady due to the dampening.
The functions [HDC] and [NXT] is toggling, but they can be locked or unlocked by use of the **KEY.**

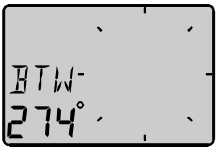


3.6.5 BTW / NXT, Bearing and angle deviation relative next course

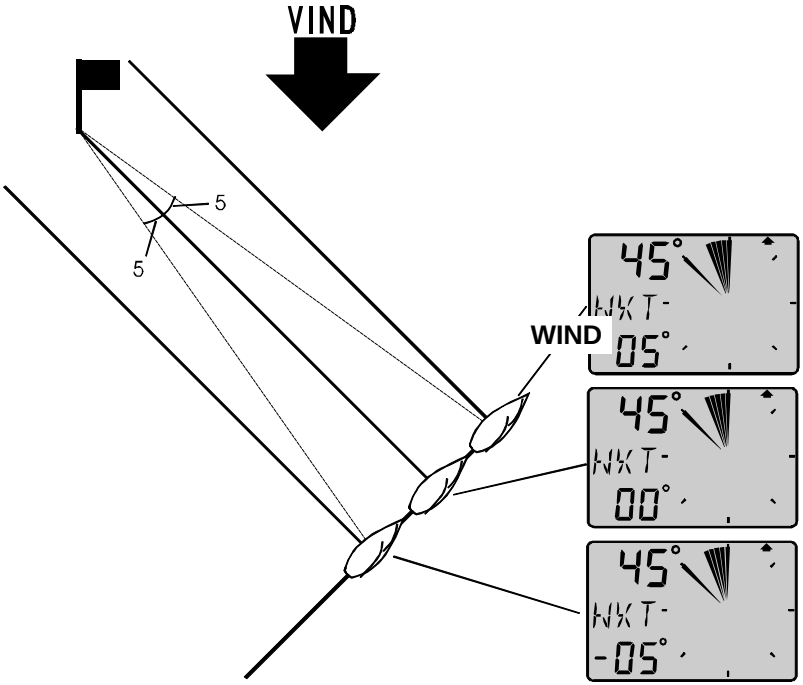
To get this function, set NAV = On C14 (See 5.1.4).
This function is using both the Compass and the navigator information to calculate the angle deviation between the bearing and the course after tack. i.e. the angle deviation is exactly what you should expect after the tack.
[BTW] is showing the actual Bering to Waypoint and [NXT] is showing the negative [-], positive tack or downWind angle that you would expect if you where tacking or jibing.
You may use COG but our recommendation is to use the Compass since the response and accuracy is superior. If you use COG without a differential GPS you will loose too much accuracy in the information.



[BTW] and [NXT] is toggling.

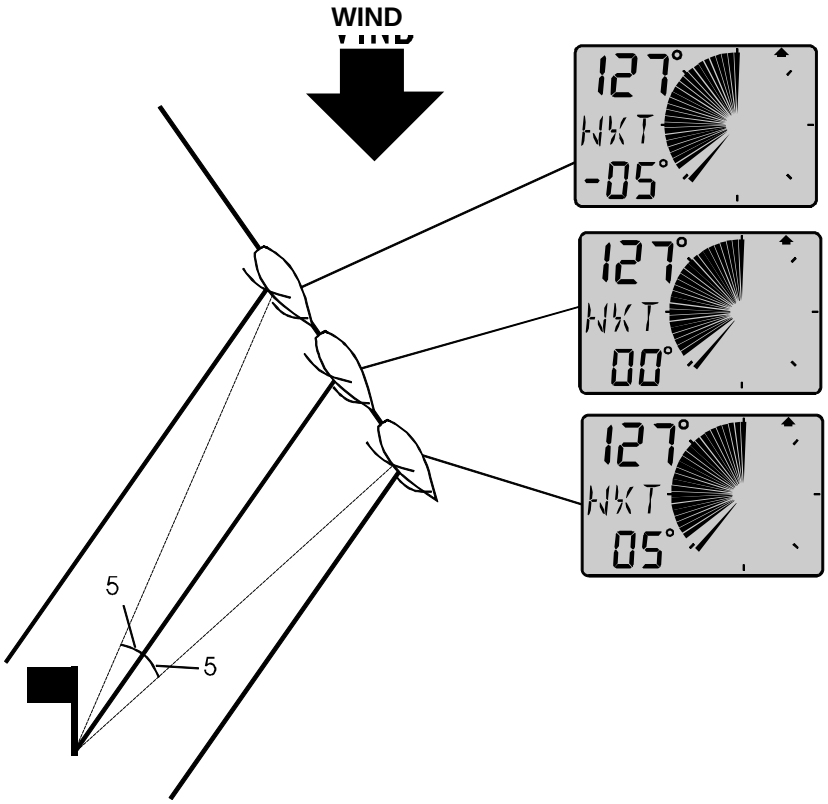


TACK :
Example: If you expect your drift to be 05°, your tack should be made when you read [NXT 05°] to be on (and stay on) lay line.
While you are approaching the proper angle, the value is negative, i.e. -12° and then increasing to 00° which is on lay line after tack except for the drift which is the margin you must add to compensate for the drift.
Note! This function is only used on the last leg.



DOWN Wind:
When sailing downWind, the boat can always be sailing at the highest WCV (speed towards the mark). When [NXT] is [00°] you should jibe because your drift is not important.
The functions [BTW] and [NXT] is toggling, but can be locked or unlocked by use of the **KEY.**

Note! This function is only used on the last leg.



4 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 non volatile memory.

To access calibration mode, press and hold **KEY** more than 2 seconds.
To select a calibration code, press **DOWN**, **UP** and **MODE** as required.
To return to normal operation mode, press **KEY** when the text return (RET) is displayed.

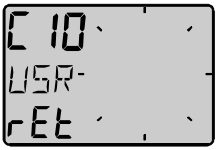
The different calibration routines are divided into five groups:

C10 - C15 = USR, User settings.
C20 - C24 = BSP, Log transducer and temp calibrations.
C30 - C33 = HDC, Compass settings.
C50 - C64 = WND, Wind transducer settings/calibrations.
C70 - C74 = CON, Configuration of the Nexus system.

To change a calibration value, press **KEY.**
To select calibration value, press **DOWN**, **UP** and **MODE** as required.
To lock the selected value, press **KEY.**

4.1 C10 User settings

To return to normal mode, press **KEY** when the text [rET] is displayed.

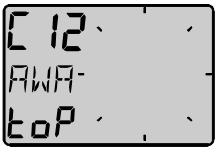


4.1.1 C11 Select the dampening

The dampening will affect Wind angle, Wind speed, boat speed and VMG. Dampening is between d0 (0s) and d9 (1’20).
To change the dampening, press **KEY** and change with **UP** or **DOWN** and enter with **KEY.**

4.1.2 C12 Select main information

Select function to be display at the top left of the LCD display. There is five options.



AWA Apparent Wind Angle.

TWA True Wind angle by the use of log transducer.

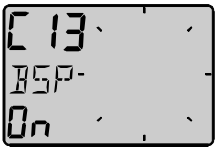
AWS Apparent Wind speed.

TWS True Wind speed by use of log transducer.

WIA Main setting for the Nexus system. When selected, all instruments using WIA will be system affected and following the set-up in the Multi Control setting C51.

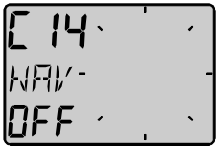
4.1.3 C13 Displaying boat speed, trip log and temperature, option

When set to OFF, the functions will be removed from the display. The Wind Data instrument may be used as a Server in the Nexus Network, transmitting the log and temp to other Nexus instruments without having the information displayed in this instrument.



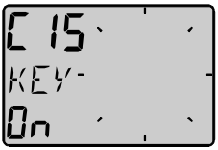
4.1.4 C14 Display NAV functions, option

NAV functions are only useful when the Wind Data is connected in a Nexus Network with Compass transducer and a navigator. The selection **NAV On** will add the functions as described under Nexus Network See 4.6.



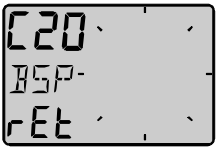
4.1.5 C15 Beep when key is pressed

Setting **On** will make a beep at every key press, while **OFF** is silent.



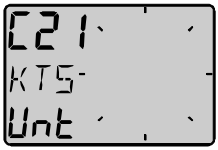
4.2 C20 Calibration of Log

To return to normal mode, press **KEY** when the text [rET] is displayed.



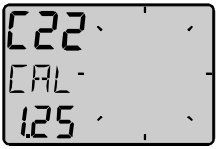
4.2.1 C21 Select unit for speed

Unit for speed, knots (KTS), km/h (K/h) or miles/h (m/h).



4.2.2 C22 Calibration of log transducer

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.



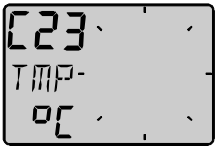
True distance from the sea chart:	T
Log trip counter distance:	L
The current calibration value:	C
New calibration value:	N

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

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

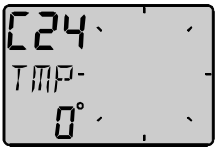
If the Wind Data is installed with Nexus Server where the log is already calibrated, no further calibration is needed.

4.2.3 C23 Unit for temperature



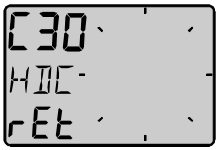
Select degree Celsius [**C**] or degree Fahrenheit [**F**].

4.2.4 C24 Temperature offset



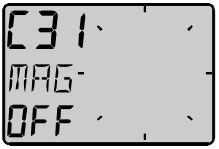
By adding a positive or [-] negative value here, it will be added as an offset before displayed as the temperature.

4.3 C30 Compass Settings



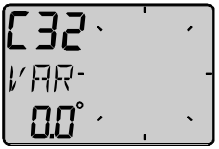
To return to normal mode, press **KEY** when the text [rET] is displayed.

4.3.1 C31 True or magnetic course



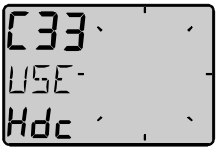
This function is only used when the instrument is connected in the Nexus Network. [MAG On] will display bearing, course and Wind direction as magnetic. The LCD indication is (MAG). Select [OFF] to display all as true.

4.3.2 C32 Magnetic deviation



Set the deviation direction first, i.e. [+E] (East) or [W] (West), then enter the magnetic value in 1/10 of a degree.

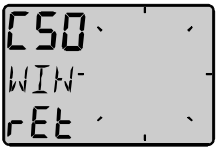
4.3.3 C33 Reference for Compass, static or GPS



Select heading Compass [Hdc] when the Compass transducer is connected to the Nexus Network (recommended).
Select course over ground [COG] when a GPS navigator is connected, **but no Compass.**
Select **STA** for static use at fixed installations, such as at the yacht club, airfield, ferry berth and so on.
In static mode you may mount the transducer in the direction of North, or if not possible, you may adjust the transducer electronically. See C54, 5.4.4.

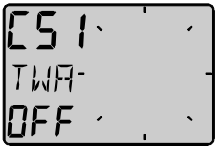
Note! [COG] as reference will only operate properly when the boat is doing speed over ground.

4.4 C50 Wind Settings



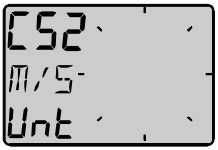
To return to normal mode, press **KEY** when the text [rET] is displayed.

4.4.1 C51 Network setting of true or apparent Wind angle



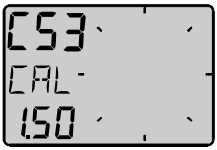
Select true [TWA] or apparent Wind angle [AWA] as main function. The optional analogue Wind instrument will display the same selection. All Multi Control instruments which have the calibration code 63 set to [WIA] will display what is selected in C51.

4.4.2 C52 Unit for Wind speed



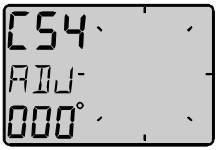
Unit for Wind speed [KTS] for (KnoTS), [M/S] for (Metres/S) and [BF] for (Beaufort).

4.4.3 C53 Wind speed calibration



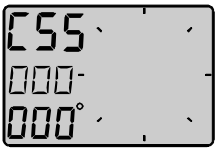
Do not change this factory setting.

4.4.4 C54 Adjustment of Wind angle



Mast top unit misalignment adjust value or the so called ”A-fault”, makes it possible to adjust any horizontal angle.
Example: If the Wind angle is +4° when you sail/drive the boat straight into the Wind, set the calibration value in C54 to 356°.

4.4.5 C55-C62 Calibration table for the Wind transducer

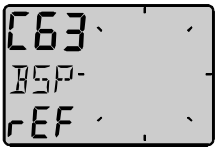


In channels C55 to C62 you set the calibration values for the mast top unit. Each mast top unit is individually calibrated for best accuracy. See the separate Wind calibration certificate supplied with each mast top unit. Each of the inter-cardinal directions are calibrated.

C55 000 000°
C56 045 045°
C57 090 090° **Set the calibration value according**
C58 135 135° **to the provided calibration certificate**

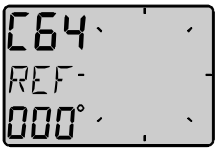
C59 180 180°
C60 225 225°
C61 270 270°
C62 315 315°

4.4.6 C63 Speed reference, water or GPS



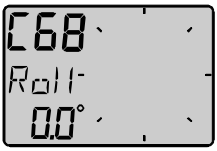
This function is only used when the instrument is connected in the Nexus Network. When [BSP] is selected, the reference is water speed provided by the log transducer for calculation of true Wind speed and angle, VMG and NXT function together with the BTW.
When [SOG] is selected, the reference is speed over ground.
Note! the boat must be moving to give correct readings. We also recommend you to use differential GPS to get good readings.

4.4.7 C64 Wind trim reference



This default reference for Wind angle trim. Each time the instrument is powered up and apparent Wind angle is selected as trim reference this value will be pre-set.

4.4.8 C68 Roll adjustment

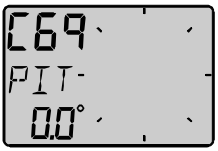


This adjustment is valid only if roll is selected in C73 (you have to exit and enter the calibration again after C73 is set to Roll.)

Adjustment of the roll offset. Mount the roll transducer according to the instructions. Adjust the offset so the roll is displaying 00° when the boat is horizontal. By entering a minus sign [-] in front of the value the roll will be decreased by the value. When the offset is without a minus sign, it will be added. When a roll transducer is connected the Wind- speed and angle will be compensated for roll and accuracy is increased.

The roll sensor is not yet available (at the time for this manual).

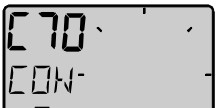
4.4.9 C69 Pitch adjustment



This adjustment is valid only if roll is selected in C73 (you have to exit and enter the calibration again after C73 is set to Roll).

Adjustment of the pitch offset. Mount the pitch transducer according to the instructions. Adjust the offset so the pitch is displaying 00° when the boat is horizontal. By entering a minus sign [-] in front of the value the roll will be decreased by the value. When the offset is without a minus sign, it will be added. When a pitch transducer is connected the Wind speed and angle will be compensated for pitch and accuracy is increased. Pitch does not affect Wind speed and angle as much as roll.

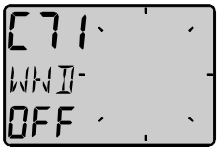
4.5 C70 Configure Nexus



To return to normal mode, press **KEY** when the text [rET] is displayed.

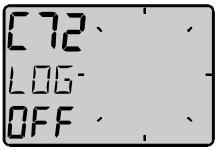
In the configuration you will be able to tell the Nexus Network where you have installed the log and Wind transducer.
This is important because you may optionally install those transducers at the Server too.

4.5.1 C71 Wind-master



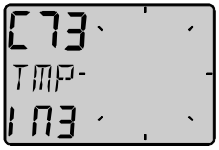
[On] = the Wind transducer is connected at the Wind Data instrument.
[OFF] = the Wind transducer is connected at the Nexus Server.

4.5.2 C72 Log-master



[On] = the log transducer is connected at the Wind Data instrument.
[OFF] = the log transducer is connected at the Nexus Server.

4.5.3 C73 Function on terminal In3

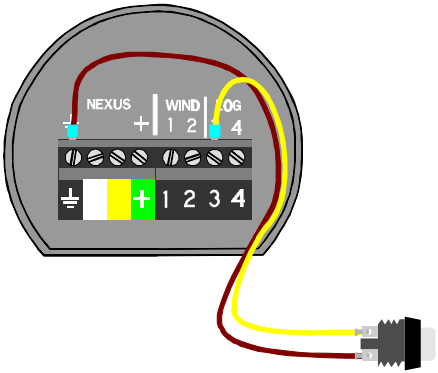


Select function on the terminal pin 3. The following functions are available:

[TMP]	Standard temperature function from the log transducer.
[TRM]	Use the external trim button for the STEER Pilot function.
[SPT]	Use the external trim button for the SPEED TRIM function.
[MOB]	Use the external trim button for the M.O.B. function.
[Roll]	Use the roll sensor to compensate Wind speed and angle. (Not yet available, at the time for this manual).

When the selection roll is made, further settings in calibration can be made to correct the offset angle. See C68 5.4.8. You may still use the water temperature by connecting the log transducer at the Server.

When Speed Trim [SPT] is selected, a press on the external trim button will transmit the trim command on the Network to all instrument. To be able to set both the STEER reference and the TRIM reference, the optimum way is to connect one trim button for speed to the Wind instrument and connect one trim button for Compass and Wind angle to the Server. Such a installation gives you the opportunity to trim speed and angle at two separate buttons.



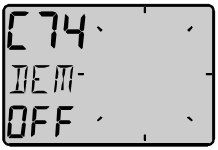
4.5.4 Connection of trim button

Connect the trim button as per the drawing. The button should make connection when pressed. It is also possible to connect more than one button in parallel, for example one on

starboard and one on port.

Article number
for the push button: **19763.**

4.5.5 C74 Demo mode



The Wind Data instrument has a built in demonstration mode. All values are simulated in this mode. It is convenient to learn the functions of the instrument by using this mode.

Every 7th second the text DEM will appear to alert you that demo mode is selected.

5 Maintenance and fault finding

5.1 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.

5.2 Fault finding

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

5.2.1 General

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 2.1).
- 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 10 V 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).
- Check the following important settings: C13, C14, C33, C63, C71 and C72.

5.2.2 Fault - action

1. Wind: No reading [---]

- If inaccurate Wind data is received, check the connections (separate through deck connection or below decks connection), are properly made.
- Make sure the transducer is aligned correctly, (see C54, 5.4.4).
- Measure with a voltmeter, at the screw terminal pin 1 and ground, and between pin 2 and ground.
- If the voltmeter shows 1.5 to 4 V DC (minimum Wind speed 3 m/s) at both measuring points, the transducer and the connections are OK.
- If the voltmeter shows 0 or 5 V DC at both measuring points, the transducer or the connections are defect. Contact you Nexus dealer with this information.

2. Speed and distance functions: No reading [---]

- C13 should be ON. See 5.1.3.
- If you have a voltmeter available, you can check the condition of the transducer. When measuring with voltmeter make sure everything is connected, that the power is on and make sure the paddle wheel is rotating.
- At the back of the instrument, measure between pin 4 and ground.
- When not rotating, the value should be fixed at either about 0 or 5 V DC. When rotating very slowly, by hand, the value should flip between 0 and 5 V DC. When rotating faster, the value should average around 2.5 V DC.

Irregular values: Check the speed damping (SEA), (see C11, 5.1.1).

3. Compass functions: No reading [---]

- C14 should be ON. See 5.1.4

5.2.3 Error messages

The following error messages can appear on the display:

ERROR 2	Nexus Network is missing, check colour coded connections
ERROR 3	No Network data received within a given time.
ERROR 10	Range error caused by bad format, e.g. 430°.
ERROR 11	Remote command that can not be performed.

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

6 Specifications

6.1 Technical specifications

Dimensions:	Wind Data instrument: 110 x 110 mm. (4.3x4.3 inch)
Instrument cable:	
Power supply:	12 V DC (10-16 V). The instrument is polarity protected.
Power consumption	
Instrument:	0,08 W 0.8 W (at max illumination)
Log- and temp sensor:	12 mW
Wind transducer:	50 mW
Temperature range:	Storage: From -30°C to +80°C.(-22°F to 176°F) Operation: From -10°C to +70°C. (14°F to 158°F)
Weight:	Instrument: 283 g (9.98 oz). Transducer: 293 g (10.33 oz).
Enclosure:	Instrument. Water proof

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

6.2 Nexus data bus 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 the licence or a licence fee. The data bus however is, 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 (Art. No. 21248), will be a very useful tool for monitoring real time data, to edit and store Waypoints to PC-file or to Server and/or to the Nexus GPS. The interface

is supplied with a cable for connection from PC to the Server or Nexus instruments and/or the Nexus GPS. A 9-pole D-sub connector is connected to the RS232 port on the PC.

7 Optional Accessories

Below find a selection of optional accessories available. Please contact your local Nexus dealer for more information.

Art. No.	**Nexus Complete Sets**:
20445-3	Multi Control instrument with Server
20445-1	Speed log, complete with transducer
20445-2	Depth, complete with transducer.
21033-1	GPS Navigator, complete with instrument and antenna
21440	Wind Data instrument complete with transducer
	Nexus Digital Repeaters:
20445-4.	Multi Control
21032	GPS Navigator, Nexus/NMEA
20445-5	Autopilot instrument
21210	Remote Control, Nexus remote and instrument
21434-1	Wind Data repeater
	Nexus Analogue Repeaters:
20550-1	Wind
20550-2	Steer Pilot
20550-6	Compass
20550-3	Log, 0-16 KTS
20550-4	Log, 0-50 KTS
20550-5	Depth, 0-200 m
20550-7	Depth, 0-600 FT
20550-8	Speed Trim
20550-9	Rudder Angle indicator
	Nexus Transducers:
20700	Log/Temp,0 - 30 KTS, retractable, 8 m (26 ft) cable
20711-2	Depth, 0.8 - 150 m (2.6-490 ft), retractable, 3 + 8 m (10 + 26 ft) cable
20721	Masttop Unit, 22 m (72 ft) cable
20860	Fluxgate Compass, 8 m (26 ft) cable
21000	GPS Antenna, Nexus/NMEA, fix, 10 m (33 ft) cable
21117	GPS Compass XL1000, portable
21170	GPS Navigator XL300, portable

	Nexus inboard hydraulic Autopilot
21035	Servo unit
21134	Pump set hydraulic steering
21134	Pump set complete with cylinder and solenoid
21036	Rudder angle transmitter
	Other Nexus Accessories
19841	Maxi repeater via NMEA, yellow digits
19941	Maxi repeater via NMEA, red digits
19923	Single bracket for Maxi repeater
69999	Double bracket for Maxi repeater
21248	Nexus FD interface. PC interface with 1 m (3.3 ft) cable. Includes a 3½”disc. with software for waypoint editing and a data bus manager and NMEA interface
19763	Push button for Tactical and MOB function
21154	High Speed Paddle wheel, up to 40 KTS
19038	Internal mounting kit for depth transducer
19216	Bronze through hull fitting
18129	Instrument panel in aluminium for up to 6 Nexus instruments
18500	Through deck connector 7-pole
18501	Through deck connector 4-pole
20966	Connector 4-pole
67400-15	15° angle adjustment for mast top bracket
21453	Connection box for Wind instrument

8 Abbreviations

BSP	Boat Speed
BTW	Bearing To Waypoint
C	Celsius
F	Fahrenheit
KM	KiloMetre
KTS	KnoTS
MH	Miles per Hour
LCD	Liquid Crystal Display
LOW	LOW
MID	MID
MAX	MAX
RET	RETurn
SOG	Speed Over Ground
TRP	TRiP
-	Minus
_	Plus

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.

File id:

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