



This manual is written for the Remote Control instrument (Art. No. 21210) from version 1.00
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1 Introduction

1.1 Welcome aboard!

Thank you for choosing a Nexus Remote Control instrument. Through this manual we would like to help you to install and operate your Nexus product. We are convinced that you will appreciate the useful functions whether you are a cruiser or a racer. To get the most out of your Nexus product, please read through this manual carefully before you start your installation. If you see us at a show, stop by and say hello.

Good luck and happy boating!

1.2 Capabilities

The Server is the "heart" of your Nexus Network, to which transducers for speed, depth, heading, wind and navigation (GPS, Loran or Decca) are connected.

From the Server, the single Nexus data bus cable carries power and data to the instruments, which are repeaters of the information sent from the Server.

Your Remote Control instrument can be connected directly to a Nexus instrument on the Nexus Network, or to the Nexus Server, and if so you do not have to re-calibrate the transducers or your current Nexus Network setup.

The Remote Control instrument is more than just a remote control:

- It is a Nexus Multi function instrument in itself, displaying all functions in your Network.
- It can remote control all, or selected Nexus instruments in your Network.
- It can be used at the chart table as the waypoint and route editor in your Network
- It can be an integrated control unit for the Nexus Autopilot.
- It offers unique trim functions for the sailor.
- It offers a Man Overboard function.
- It offers a built in alarm with eight alarm settings.
- It offers a control of the MAXI repeaters, up to nine units.
- It offers the possibility to customise the display with your two favourite functions.
- It can be configured to "hide" pages you do not want to use, or conceal from curious hands.

The optional cable - cable connection (Art. No. 20966) gives you the flexibility to use it anywhere on your boat. Simply disconnect it, and take it to your navigation table.

INTRODUCTION

To give you an idea of the versatility of what your Remote Control instrument can perform for you, here is an example of a possible scenario:

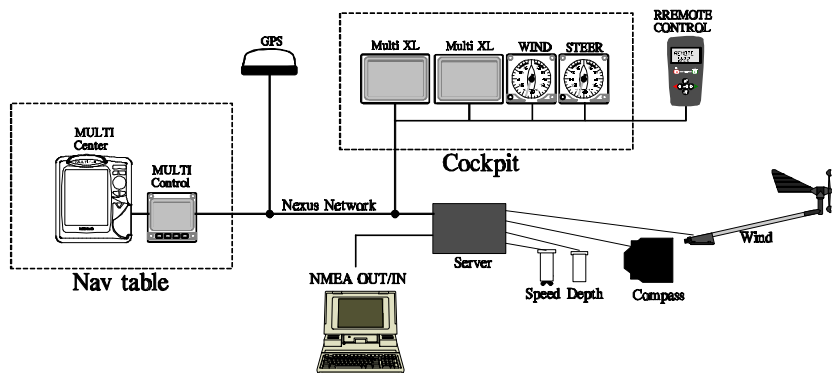
Note! The Remote Control instruments NAV, WP and ROUTE pages must first be "opened in the setup to be used as described in this scenario!"

You take your boat out of the harbour and start the Nexus Autopilot in Compass mode by use of the Remote Control instrument, then while under way; you create some waypoints also used in the sailplan. Reset the trip counter, then enter Autopilot mode and activate the NAV function, the Autopilot will follow the sail plan you just created.

Now you use the Remote Control Instrument to change information on your Nexus instruments.

When this is done, you check the water temperature before setting depth and boat speed as well as geographical wind direction and true wind speed as the favourite functions in the BOAT page.

To alert your attention to the weather forecasts, you set the timer with a name for the particular forecast. Before the coffee break, you check your expected time of arrival, wind speed and geographic wind direction, at the same time as the Autopilot heads direct for your waypoint.



1.3 Part specifications

Nexus Remote Control instrument is delivered with all parts for mounting. Check prior to installation.

Qty.	Description
1	Remote Control Instrument with 5m (16 ft) cable
1	Instrument bracket
3	Mounting screws for the instrument bracket
5	Wire protectors 0,25 mm (1/100")
1	Installation and operation manual
1	Warranty card
1	National distributors list

1.4 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.

1.5 About this manual

- Each time a push-button is referred to in this manual, the push-button name is written in **bold** and CAPITAL letters e.g. **PAGE RIGHT**.
- 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. [Lat].
- With the word navigator we mean a GPS, Loran or Decca instrument.
- Which instrument is navigating? By the term navigating, we mean the active instrument in which the waypoint memory is used for navigation to calculate the navigation data, i.e. BTW, DTW etc. There can only be one instrument on the Nexus Network, which is keeping the waypoints in memory, but the waypoints can be reached from all instruments.
- Functions followed by the text "optional" are not valid in factory default setting. See setup mode to be able to display and use these functions.

Note! We have put in a lot of effort, in order to make this manual correct and complete. However, since we have a policy of continuous improvement, some information may differ from the product functions. If you need further information, contact your national distributor.

2 Installation

2.1 Installation general

Reliable and accurate operation of marine electronics depends very much on correct installation. Please read and fully understand the installation requirements before attempting installation.

The installation includes 6 major steps:

1. Read this installation and operation manual.
2. Plan where to install the bracket and where to run the cable.
3. Install the bracket.
4. Run the cable, and connect the instrument.
5. Take a break and admire your installation.
6. Learn the functions and calibrate your Network.

Before you begin drilling... think about how you can make the installation as neat and simple as your boat will allow. Think about how the cable will lie in the boat not to disturb any of your routines on board.

The Remote Control instrument can be connected to the Nexus Server, or directly to any Nexus instrument on the Nexus Network.

The bracket for the Remote Control can be mounted on almost any convenient location on the boat. The instrument is waterproof, but should not be submerged in water for longer periods.

When selecting a location for your bracket and instrument, please ensure that they are at least 500 mm (20") away from radio receiving equipment.

The instrument can be mounted right beside a magnetic compass.

A few "do not" you should consider:

- Do not cut the cables too short. Allow extra cable length at the Server so it can be disconnected for inspection without having to disconnect all attached cables.
- Do not run cables in 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.

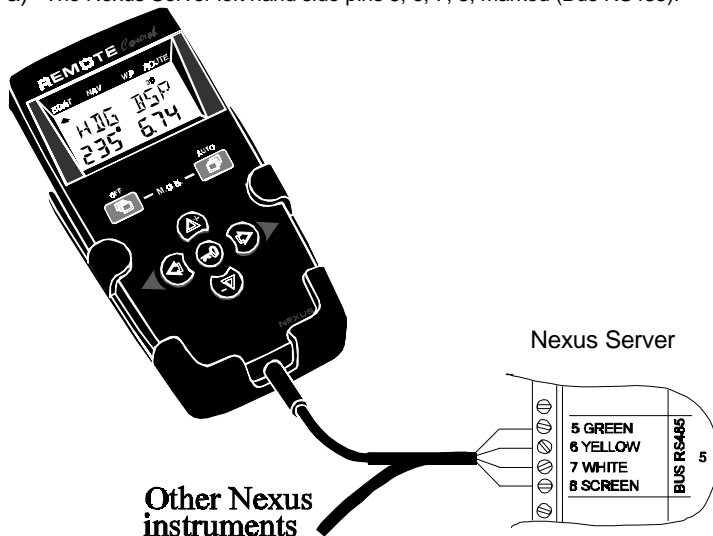
The following tools are needed:

- Wire cutters and strippers
- A pair of flat pliers
- Large Philips and small flat head screw driver
- Drill for the mounting holes, 2,8 mm (0,11").
- Plastic cable ties.

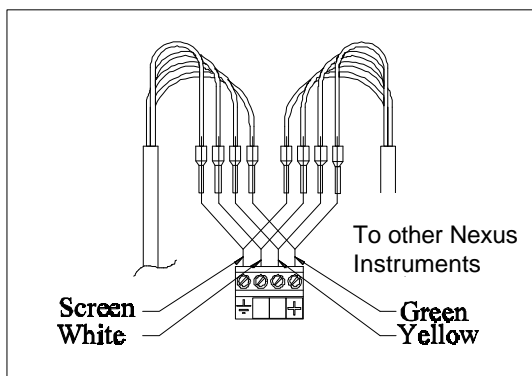
If the cable is not long enough, you can buy the optional Nexus 8-m (26-ft) extension cable (Art. No. 21266-8) or use left over Nexus cable from other installations. The same 4-pole Nexus cable is used for all instruments and transducers.

2.2 Connection to Nexus Server or Nexus Instruments

- 1 Mark the desired location for the Remote Control bracket. Drill the three screw holes using a 2,8 mm (0,11") drill. Mount the bracket using a Philips screwdriver.
- 2 Run the Nexus data bus cable from the location of Remote Control bracket to the Nexus Server, or to a Nexus instrument.
- 3 Cut the Nexus data bus cable to length. Peel off about 35 mm (1,4") of the cable insulation. Remove about six mm (1/4") from the three isolated wires (the 4th wire is a blank leader). Attach the 4 cable protectors to the wires using a pair of flat pliers.
- 4 Apply silicon paste on all screw terminals. **Note!** Must be done to avoid corrosion.
- 5 Connect the four cable from the Remote Control to either:
 - a) The Nexus Server left hand side pins 5, 6, 7, 8, marked (Bus RS485).



- b) The four-pole jack plug at the back of the Nexus instrument.



The pins or jack-plug are all colour coded to match the Remote Control wires.

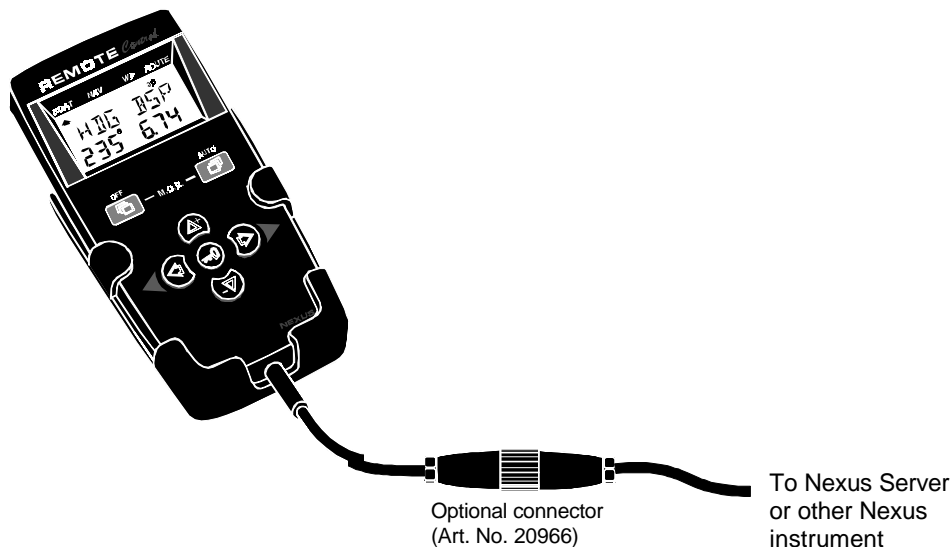
Your installation is done!

2.2.1 Optional cable - cable connection

The optional connector (Art. No. 20966) allows you the flexibility to disconnect the Remote Control to use it at a second location on the boat.

In this case the optional bracket (Art. No. 21218-1) is handy to use.

Further the optional eight metres (26 ft) Nexus data bus cable (Art. No. 21266-8) can be supplied by the metre.



Note! For other connections, see chapter "Connection of other Nexus parts".

3 First start and initialising

3.1 Initialising the instrument

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

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

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

The Nexus Server is automatically given ID number 0 (ID numbers 0 - 15 is reserved for transducers. Therefore the first given ID number is 16, then 17 and so on. The order in which you press **KEY** is the same order as the instruments will be given an ID number on the Nexus Network.

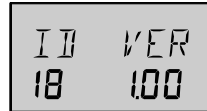
The drawing shows that the instrument version number is 1.0 and the given ID number is 18.

3.2 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 Network.

To re-initialise the instrument, press **DOWN** and **UP** together during the power up sequence when version and ID numbers are displayed.

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



4 Operation

4.1 Instrument overview

4.1.1 Instrument display

The display consists of two lines, a top-line and a lower-line. Each line contains 7 digits which are 7 mm (0.27") high.

Above the two lines are various signs, or flags, to give additional information. (2D or 3D navigation from the GPS etc.)

4.1.2 Instrument pages

The Remote Control instrument has its functions divided on 4 pages. The page names are printed above the display:

BOAT (default), **NAV** (optional), **WP** (optional) and **ROUTE** (optional).

The selected page is indicated by the page-arrow at the top of the display.

Note! The Remote Control instrument is factory default set with the optional page closed. The optional page has to be opened individually to gain access to the page. These pages are considered optional for advanced users only.



4.1.3 Instrument functions

Main-function: Each page has a main-function, displayed when you select a new page.

Sub-function: Under each main-function there is a list of sub-functions, accessed by pressing **DOWN** or **UP**.

Side-function: Some functions also offer side-functions, accessed by pressing **LEFT** or **RIGHT**.

4.1.4 Instrument modes

Instrument mode:	It is an instrument itself.
Remote control mode:	It remote controls connected Nexus instruments.
Autopilot mode:	It is an instrument for the Autopilot.
Setup mode:	It allows calibrating your Network settings.
Edit mode:	It allows editing settings (when digits are flashing).

4.1.5 Instrument power on/off

You switch on/off your Nexus instruments by using the instrument switch on your electrical panel, as the instruments have no separate power on/off push-button.

4.1.6 Instrument units

The instrument can display metric and imperial units. For unit selection, see the setup group units.

4.1.7 Instrument central settings

Central settings affect all instruments connected to the Nexus Network. Most settings are central such as "clear trip", "depth alarm", "lighting" and "set steer reference"

4.1.8 Instrument local settings

Local settings affect only the instrument in which it is set. When a setting is local we have listed this after the setting. Typical local settings are "boat speed dampening" and "units". These settings will not be transferred to other instruments on the Nexus Network.

4.2 How to use the push-buttons



4.2.1 PAGE LEFT

A press on **PAGE LEFT** (red push-button) moves one page left, or moves to another remote controlled Nexus instrument to the left.



4.2.2 PAGE RIGHT

A press on **PAGE RIGHT** (green push-button) moves one page right, or moves to another remote controlled Nexus instrument to the right.



4.2.3 UP

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



4.2.4 DOWN

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



4.2.5 LEFT

A press on **LEFT** moves to a side-function, where available.



In edit mode, **LEFT** moves the cursor one step to the left.

4.2.6 RIGHT

A press on **RIGHT** moves to a side-function, where available.

In edit mode, **RIGHT** moves the cursor one step to the right.



4.2.7 KEY

KEY is similar to Enter on a computer.

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, **LEFT** and **RIGHT** as required.

When finished editing, lock the digit by another press on **KEY**.



4.2.8 Escape

If you by mistake enter edit mode, with flashing digits, and want to escape, press **PAGE LEFT** or **PAGE RIGHT** to escape the edit mode.

The text [ESCAPE] will be displayed momentarily.



4.2.9 Cancel / clear / reset

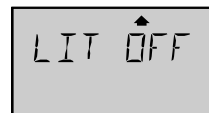
A press on **DOWN** and **UP** together, clears digits in edit mode, cancel alarms or resets the counters, Man Overboard etc.



4.2.10 Lighting

The instrument uses red back lighting of both display and push buttons. The lighting can be set at 4 different levels.

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



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

The selected light level will be copied to all Nexus instruments connected to the Network. It is not possible to reduce or turn off the lighting on an individual instrument.

4.2.11 Setup mode

To access setup mode, press and hold **PAGE RIGHT** more than two seconds.

The text [SETUP] will be displayed momentarily.

To return to instrument mode, press **PAGE RIGHT**.



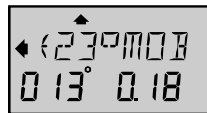
4.2.12 Autopilot mode

To change between instrument mode and Autopilot mode, press **PAGE LEFT** and **PAGE RIGHT** together.



4.2.13 Man over board (MOB)

To activate the MOB function, press and hold for more than two seconds **PAGE LEFT** and **PAGE RIGHT** together. To reset the MOB function, press **DOWN** and **UP** together. For function explanation, see 10.



4.2.14 Name a waypoint, timer or instrument

Above objects can be given a 7-letter name, to help you remember the waypoint.

Select the object to be named, and press **KEY**. The first digit flashes.

To page through the alphabet to find a letter, press **UP**.

One press is "A", two presses "B" etc.

To move to the cursor to the next digit, press **RIGHT** etc.

To enter numbers and signs, press **DOWN**.

To lock the name, press **KEY**.

5 Remote control mode

At the first power up, you automatically enter instrument mode and BOAT page.

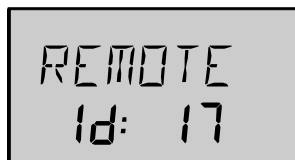
When the Remote Control instrument is connected to the Nexus Network and initialised, all Nexus digital instruments connected to the Nexus Network are automatically detected by the Remote Control instrument and can now be remote controlled.

To access remote control mode from instrument mode, press **PAGE LEFT** or **PAGE RIGHT**, until the Remote Control instrument will display the text [REMOTE] and [Id no -] for the accessed instrument.

The complete display of the Nexus instrument being remote controlled will "flash" once when accessed, then the page-arrow will "flash" slowly at top of the display to indicate that this particular instrument is being remote controlled.

The example shows that Nexus instrument with Id no 17 is accessed.

To access another Nexus instrument or to get back to BOAT page press **PAGE LEFT** or **PAGE RIGHT** until preferred function is selected. In this way you move around in a circle, to display either Boat page or remote control Nexus instruments.



When a Nexus instrument is accessed, you have the push buttons of that instrument in your hand!

The 4 push buttons on the Remote Control instrument, **UP**, **DOWN**, **KEY** and **RIGHT**, correspond to the 4 push buttons on the Nexus instruments. The **LEFT** push-button is extra and will back step a main function on the remote controlled Nexus instrument.

Press the push buttons on the Remote Control instrument in the same way as if you pressed directly on the push buttons on the selected Nexus instrument.

5.1 Customise your Remote Control access list

When you connect the Remote Control instrument to the Nexus Network, it automatically detects all Nexus digital instruments and will display them with the text [REMOTE Id #] in Id number access order.

You may customise your Remote Control instrument to create your own access order of Nexus digital instruments and to name them for easier recognition. You may also exclude access of the instruments that you can not see or simply want to limit access to.

Note! This is an optional function for advanced users.

Proceed as follows:

1. Make a note of each instrument's Id number, seen during the power up procedure. Note the Id numbers in the order you want them to be accessed (not in Id number order). Exclude Id numbers of those instruments you do not want to access.
2. Enter setup mode:
Press and hold **PAGE RIGHT** until text [SETUP] is displayed.

SETUP

1. Find [CONFIG]:
Press **UP** to find function [CONFIG] and press **KEY**.

CONFIG

2. Find [EDIT List]:
Press **UP** until you find function [EDIT LiSt], and press **KEY** to enter the end of the list.

EDIT
L 5t

1. Press **UP** to go to the next instrument in the list. Access order number is displayed in the lower left corner. If you want to add an instrument to the list, press **KEY**.
The first line "_" of the 7 lines "_ _ _ _ _" now flashes.
2. To name the first instrument:
To enter characters, press **UP** or **DOWN**. To move to next character, press **RIGHT**.
When the name is entered, lock it with **KEY**.

---END---
05 : Id--

1. Enter the Id number of the instrument in the lower right corner and press **KEY** to lock it.
2. Repeat steps 5 to 7 for all instruments you want to have included in the list.
3. To exit [EDIT LiSt] press **PAGE RIGHT**.

"MULTI"
01 : Id 17

1. Set [USELIST] to [On]:
Press **UP** to [USELIST], if [USELIST] is [OFF] press **KEY**, then press **UP** to change to [On] and press **KEY** to lock.

USELIST
OFF

Now your customised list is used instead of the complete list. If you need to remote control all instruments again, set [USELIST] to [OFF] an all instruments will be accessible.

To exclude an instrument from the list, when in [EDIT LiSt] press **UP** and **DOWN** together when the instrument Id number is displayed.

Note! In setup mode and under [CONFIG] group, you can create an instrument list with a combination of the following 3 functions:

- [MAKE LiSt, YES/no], to make a list of all connected instruments in Id number order.
- [EDIT LiSt], to create a new list, or edit an existing list.

[USELIST On/OFF], to activate / de-activate the customised user list.



6 BOAT page

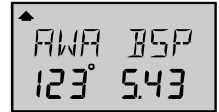
In boat page you find the boat performance functions.

If you have a navigator, extended navigation functions can also be displayed.

6.1 BOAT main-function

The main-function displays two functions, a left and right function.

These can be customised from a list of functions, to give you fast access to your 2 most preferred functions.

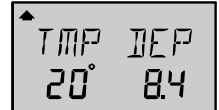


The list of functions is split so that angle information is mainly displayed to the left and numerical data, to the right.

6.1.1 BOAT main-function selection

Factory default settings of main-function are:

Apparent wind angle [AWA] and speed through the water [BSP]



To change left side main-function, press KEY, and [AWA] flashes.

Press **DOWN** or **UP**, to select left main-function from the following options:

[AWA]	Apparent Wind Angle	000° -180°
[BOD]	Bearing Original Destination	000° -359°
[BTW]	Bearing To Waypoint	000° -359°
[CMG]	Course Made Good	000° -359°
[COG]	Course Over Ground	000° -359°
[CTS]	Course To Steer	000° -359°
[DEP]	Depth (in metre, fathoms or feet)	0-150 m
[HDC]	HeadDing Compass. Heading true [HDT] or magnetic [HDM] selected in setup.	000° -359°
[SET]	Direction of current	000° -359°
[TMP]	Water TeMPerature	-5 - 50 C/23 - 80 F
[TWA]	True Wind Angle	000° -180°
[TWD]	True Wind Direction	000° -359°

The symbol after the degree sign will show port or starboard

When desired function is found, press **KEY** to lock it.

After having locked left main-function, [BSP] flashes to the right and allows you to change the right side main-function.

Press **DOWN** or **UP** to select right main-function from the following options:

[BSP]	Boat SPeed	Knots, Km/h or Miles/h
[DEP]	Depth	Metres, Feet or Fathoms
[DRF]	Speed of the current	Knots, Km/h or Miles/h
[DMG]	Distance Made Good (dead reckoning)	NM, Kilometres or Miles
[DTW]	Distance To waypoint	NM, Kilometres or Miles
[SOG]	Speed Over Ground	Knots, Km/h or Miles/h
[TBS]	True Boat Speed	Knots, Km/hour Miles/h
[TWS]	True Wind Speed	M/S, Knots or Beau- fort
[VMG]	Velocity Made Good	Knots, Km/h or

Miles/h		
[WCV]	Waypoint Closure Velocity	Knots, Km/h or
Miles/h		
[XTE]	Cross Track Error	NM, Kilometres or
Miles		
[AWS]	Apparent Wind Speed	M/S, Knots or Beau-
fort		
[BAT]	BATtery voltage, measured at Server	Volt
When desired function is found, press KEY to lock it.		

6.1.2 BOAT side-function selection

To access BOAT side-function, press **LEFT** or **RIGHT**, to toggle between main-function and side function.

Factory default settings of side-function are:

Water temperature in C° [TMP] and depth in metres [DEP] in the other.

To change left side-function, press **KEY**, and [TMP] flashes.

Press **DOWN** or **UP**, to select left side-function from the same list as in main-function.

When desired function is found, press **KEY** to lock it.

After having locked left side-function, [DEP] flashes to the right and allows you to change the right side-function.

Press **DOWN** or **UP** to select right side-function from the same list as in main-function.

When desired function is found, press **KEY** to lock it.

6.2 Steer reference [Pilot]

The sub-function [Pilot] is intended for use together with the optional analogue instrument Steer Pilot (Art no 20550-2) to assist the helmsman to keep the desired heading. The same function is also used in the Compass Data instrument (Art. No. 21487).

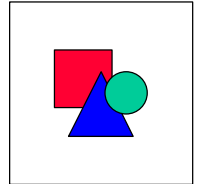
When a steer reference has been selected, the analogue Steer Pilot instrument is automatically activated. It starts to indicate the difference between desired and actual heading and angle. The logic is to keep the Steer Pilot instrument needle straight up pointing at 0 (zero) to stay on the set heading.

In analogue Steer Pilot instruments from version 2.0, [MEM] and [BTW] is functioning with COG (if navigator connected) even if a compass is not installed. The analogue read out will start at speed above 4 KTS and stop below 2 KTS.

If you do not have the analogue Steer Pilot instrument, you can still use the function if you display the selected steer reference heading [Str] in the sub-function and compare it with the actual compass heading in the main-function in the Nexus Multi Control instrument.

A Nexus Autopilot can not be activated from the steer reference function. But when the Nexus Autopilot has been activated in compass or wind mode it is possible to alter the Autopilot heading from the [MEM] and [AWA] functions.

The last used steer reference function will be stored in memory and automatically activated at power on. (Available from Nexus Server version 2.6).



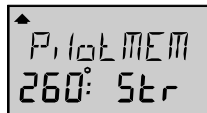
6.2.1 Overview of steer reference [Pilot]

Steer reference	Function	Type	Text on display
[MEM]	Compass heading stored in 1, or 2 memories [TAC]	Settable	MEM
[BTW]	Bearing to waypoint	Automatic	WP
[CTS]	Course to steer to waypoint, corrected for drift and current	Automatic	MEM WP
[AWA]	Apparent wind angle	Settable	WIND
[OFF]	Steer Pilot off		

When any steer reference function is activated, the text on the display will be copied and shown on all Nexus Multi XL and Multi Control instruments in your Nexus Network.

6.2.2 Steer reference, compass memory [MEM]

This function requires a Nexus or NMEA compass transducer. The function displays the deviation from a set compass course value. When the optional analogue Steer Pilot instrument or a Compass Data instrument is connected, it will display the difference from the set course and the actual heading.



The function is semi automatic, i.e. when activated, present compass heading is copied to memory. You can later change the value manually.

Select sub-function [Pilot], press **KEY**. The text [OFF] or the last selected steer reference function flashes.

To select steer reference [MEM], press **UP**.

To activate the function, press **KEY**. MEM is shown on the Multi Control display. The 100th digit for present compass course flashes. If the course is OK, and you want to confirm the value, press **KEY** to lock it.

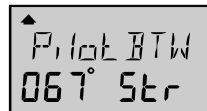
To set your own value, press **DOWN, UP** and **RIGHT** as required.

To lock the value, press **KEY**.

Note! Steer reference heading value [MEM] can also be selected directly from an optional trim push-button (Art. No. 19763) connected to the Nexus Server, without first selecting [MEM] in [Pilot OFF] function. (Available from Nexus Server version 1.9.)

6.2.3 Steer reference, bearing to waypoint [BTW]

This function requires a Nexus or NMEA compass transducer and a Nexus GPS or NMEA navigator. When selected, the function displays [BTW] and the analogue Steer Pilot instrument displays the difference between the compass heading and the [BTW].



The function can only be displayed if the connected navigator is navigating towards a waypoint. Since the navigator controls the displayed value, the value can not be altered.

Select sub-function [Pilot], press **KEY**.

The text [OFF] or the last selected steer reference function flashes.

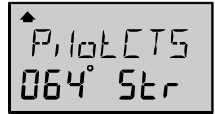
To select steer reference [BTW], press **UP**.

To activate the function, press **KEY**. [WP] is shown on the Multi Control / XL display.

The sub-function [Str] automatically displays the stored [BTW] value.

6.2.4 Steer reference, course to steer [CTS]

The function requires log transducer, a Nexus or NMEA compass transducer and a Nexus GPS or NMEA navigator. When selected, the function displays [CTS] and the analogue Steer Pilot instrument displays the difference between the compass heading and [CTS] including set and drift.



The function can only be displayed if the connected navigator is navigating towards a waypoint. Since the navigator controls the displayed value, the value can not be altered.

The function is compensated for set and drift, by using compass heading, boat speed through the water, course and speed over ground [COG/SOG] and bearing to waypoint [BTW].

Select sub-function [Pilot], press **KEY**.

The text [OFF] or the last selected steer reference function flashes.

To select steer reference [CTS], press **UP**.

To activate the function, press **KEY**. [MEM WP] is lit on the display.

The sub-function [Str] automatically displays the stored [CTS] value.

The function is invaluable when you want to sail the shortest distance to a waypoint.

6.2.5 Steer reference, apparent wind angle [AWA]

The function requires a Nexus or NMEA wind transducer.

The function displays the deviation from a set wind angle value, and can together with the optional analogue Steer Pilot instrument be used as a closed hauled indicator, or show an enlarged "picture" of the tack or running angle.

Select sub-function [Pilot], press **KEY**.

The text [OFF] or the last selected steer reference function flashes.

To select steer reference [AWA], press **UP**.

To activate the function, press **KEY**. [WIND] is shown on the Multi Control display.

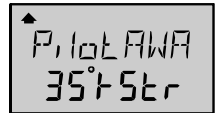
The 100th digit for present apparent wind angle flashes and the symbol after the degree

sign will show wind from port **⤴** or starboard **⤵**.

If the wind angle is OK and you want to confirm the value, press **KEY** to lock it.

To set your own value, press **DOWN, UP** and **MODE** as required.

To lock the value, press **KEY**.



Use the analogue Steer Pilot as a "close hauled" instrument.

Example: You have selected 35° starboard side [35° **⤵**] as your tacking angle. When the needle on the analogue Steer Pilot instrument points straight up to zero (0), you steer at the selected 35°-wind angle.

You can of course also use the [AWA] function when running down wind, to keep a selected value for the run angle and/or to warn for a gibe.

Example: You have selected 175° port side 175° **⤴** as your running angle. When the needle on the analogue Steer Pilot instrument points to 15° port side you are at 160°. When the needle is at zero (0) you are at 175°. When the needle points 15° starboard you are at 190° starboard, having accidentally giped and successfully cleared the deck.

At night, when you can not see the wind shifts, the use of the [AWA] function together with the analogue Steer Pilot is a very helpful.

This is a dynamite combination that allows you to "expand" the wind angles!

Note! Steer reference value [AWA] can also be selected directly from the optional trim push-button. The [AWA] function must first have been activated.
(Available from Nexus Server version 1.7.)

When a Nexus Autopilot is activated in wind mode, the [AWA] function can be used to perform an automatic tack.

The sign $\bar{\quad}$ behind the wind angle value = port side.

The sign $\underline{\quad}$ behind the wind angle value = starboard side.

Simply change the value of the sign in front of the wind angle, and the Nexus Autopilot will gibe to the opposite tack.

To summarise: The powerful combination of the Nexus Remote Control instrument together with the analogue Steer Pilot actually offers you 6 functions.

Compass steering: [MEM]

1. Compass steering, using the one memory.
2. Headers and lifters, using the two memories and trim push-button [TAC]. (See 9.1).

Wind steering: [AWA]

1. Close-hauled indicator, ex. 35°
2. Down wind indicator, ex. 175°

Waypoint steering:

1. Bearing To Waypoint [BTW]
2. Course To Steer [CTS], including set and drift

6.2.6 Trim [TRM]

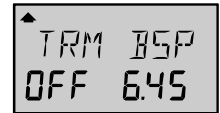
The function [TRM] will display selected speed, and the deviation in percentage, in relation to a set reference value. The [TRM] function is located as a side-function to [Pilot].

To access the [TRM] function from the sub-function [Pilot], press **RIGHT**.

At power up, [TRM OFF] and boat speed [BSP] are displayed.

To set actual speed as reference, when the boat is keeping a good speed, press **KEY**.

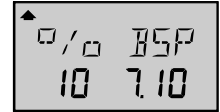
The speed changes are now displayed in percentage, in relation to the set reference value, and the actual boat speed.



When [0 %] is displayed, actual speed is the same as the set reference speed.

When [10%] is displayed, the speed is 10% higher than the set reference speed.

When [-10%] is displayed, the speed is 10% lower than the set reference speed.



When activated, the display alternates between [TRM] and [%] in the top left corner of the display. Each press on **KEY** sets a new reference speed value.

This is how to select type of speed reference, and damping of the deviation.

Select side-function [TRM] and press **DOWN** and **UP** together. [BSP] or latest selected speed reference is flashing.

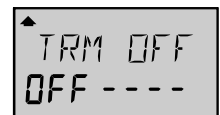
Select between the following speeds:

[AWS]	Apparent wind speed
[BSP]	Boat speed, the speed of the water against the hull
[DRF]	Drift, the speed vector consisting of drift
[SOG]	Speed over ground, the ground speed
[TBS]	Target boat speed* (Optimal speed through the water.)
[TWS]	True wind speed
[VMG]	Speed into the wind or with the with the wind
[WCV]	Speed towards the waypoint
[OFF]	Trim function off

(To quick select [TRM OFF], press **DOWN** and **UP** together.)

Select reference with **UP** or **DOWN**, to lock the selected reference, press **KEY**.

When the speed value have been locked, the damping value starts to flash.



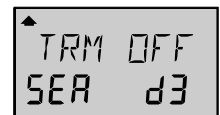
Select between the following damping values:

[d0]	No damping	[d5]	40 sec
[d1]	2 sec	[d6]	1 min 20 sec
[d2]	4 sec	[d7]	2 min 40 s
[d3]	10 sec	[d8]	5 min
[d4]	20 sec	[d9]	10 min

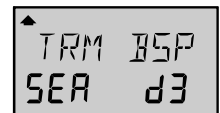
(To quick select damping [d0], press **DOWN** and **UP** together.)

To lock the selected damping value, press **KEY**.

To get most out of the [TRM] function we recommend you use it together with the optional Nexus analogue Speed Trim instrument (Art. No. 20550-8).

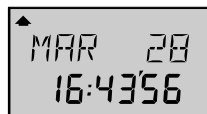


*Target boat speed [TBS] is a function calculated from a polar diagram, which is computed for each individual boat. It is done by the use of a PC and special software. The Nexus Server (from version 2.3) can receive [TBS] via NMEA sentences and re-transmit it on the Nexus Network and display it in this function.



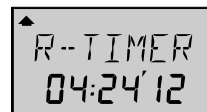
6.3 Date and clock [TIME], and race-timer [R—TIMER]

When manually setting the date without a GPS, you set year, month, day and finally time, the setting has to be done every time you power up your system. At the first start up of your Nexus GPS you can set year, month, day and time with the Remote Control instrument. When a Nexus GPS is connected, year, month, day and time is displayed automatically. If no time is set, the text [TIME] is displayed.



To set time zone [T-ZONE], press **KEY**.
 To add time zone for East of Greenwich meridian, select [_].
 To reduce time zone for West of Greenwich meridian, select [-].
 To set year, date and time, press **KEY**, **DOWN**, **UP** and **RIGHT**, as required.

To access the side-function race timer [R—TIMER], press **RIGHT**. Initially it displays elapsed time since power on. To reset [R—TIMER], press **DOWN** and **UP** together. Maximum time that can be displayed is 99 hours 59 minutes and 59 seconds. To select type of [R—TIMER] press **KEY**, and [-10] flashes. By pressing **UP**, select between:

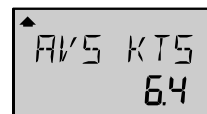


- Absolute [AbS] start time. Set the exact time (h, min, sec) when you want to start, within 24 hours, and the timer automatically calculates the remaining count down time. To set hour and minute, press **KEY**, **DOWN**, **UP** and **RIGHT**, as required.

Note! AbS is only available if the time is set or a GPS is connected.

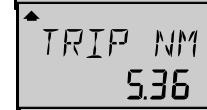
- Five minutes [-5] count down.
- Ten minutes [-10] count down.

To activate the count down, press **KEY**. To reset (zero) the [R—TIMER] to start a new timing, press **DOWN** and **UP** together. When ten seconds are remaining of the count down, a short signal is given each second. When the count down is over, one long signal is given and elapsed time is started. To escape the function, press **PAGE RIGHT**.



6.4 Average speed [AVS], and distance [DIST]

[AVS] and [DIST] are calculated from the end of each [R-TIMER] count down period, or from each reset of [R-TIMER]. To toggle between [AVS] and [DIST], press **LEFT**.



6.5 Trip distance [TRIP], and total distance [TOTAL]

Maximum trip distance is 9999.99 nautical miles.
 To reset the trip counter, press **DOWN** and **UP** together.



To access the side-function total distance, press **RIGHT**.
 Maximum total distance is 99999.9 nautical miles.
 After that, the instrument re-starts with 0.0 nautical mile.
 Total distance can not be reset.

7 NAV page (Optional)



Optional page!

Note! The Remote Control instrument is factory default set with the optional page closed. The optional page has to be opened individually to gain access to the page. These pages are considered optional for advanced users only.

To open NAV page:

Press **PAGE RIGHT** until text [SETUP] appears, followed by text [ALARMS].

Press **UP** once to display [CONFIG], then press **KEY** to display text [NEXUS Control].

Press **UP** once to display [USE+ - - - Pages].

Each [+] indicates that the corresponding page is open.

Each [-] indicated that the corresponding page is closed.

[USE++++] means that all main pages BOAT, NAV, WPT and ROUTE are open.

To open NAV page, press **KEY**. The first [+] flashes.

Use **LEFT** or **RIGHT** to select 2:nd [-] from left, and use **UP** or **DOWN** to open [+] the page. To lock your setting, press **KEY**.

Under NAV page you find the most common navigation functions.

7.1 Go to waypoint [GOTO WP], and Dead Reckoning [D/R]

When no waypoint is selected [GOTO WP --- ----] is displayed.

To select a waypoint to go to, press **KEY**. The last edited waypoint is flashing.

To accept the waypoint, press **KEY**, or select another one by pressing **DOWN** or **UP**.

To lock it, press **KEY**.

To access side-function dead reckoning [D/R], press **RIGHT**.

This function requires a compass and a log transducer.

The [D/R] function is a help at dead reckoning and when using e.g. GPS, Decca or Loran navigators.

Course made good [CMG] is displayed to the left.

Covered distance [DMG] is displayed to the right.

See drawing on the inside of the front cover for explanation. The function is called dead reckoning [D/R] and calculates bearing and distance from the position where the reset was done.

To reset [D/R], press **DOWN** and **UP** together.

The instrument will display [CONFIRM] with [yES] flashing.

To reset, select [yES]. To escape, select [no]. To lock the function, press **KEY**.

7.2 Combi steer including COG, SOG, BTW, DTW, and course deviation

The combi steer function displays on two lines.

Top line: Course over ground [COG] left, and speed over ground [SOG] right.

Lower line: Bearing to waypoint [BTW] left, and distance to waypoint [DTW] right.

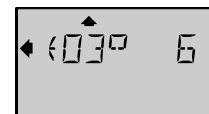
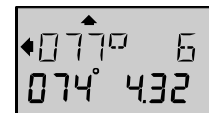
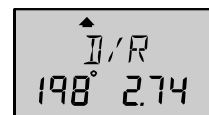
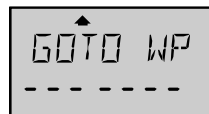
If the navigator is not navigating, the top and lower line will display [--- ----]. If no waypoint is activated, the lower line will display [--- ----].

To access side-function course deviation, press **RIGHT**.

This function displays the course deviation from calculated bearing, indicated by arrows left or right in degrees (maximum 99°) of the deviation value on the top line to the right.



A course deviation of 0° means you are on a direct heading towards the waypoint.

The other 3 functions [SOG], [BTW] and [DTW] are the same as in combi steer.



7.3 Cross track error [XTE], and course to steer [CTS], WP. closure velocity [WCV]

The first calculated bearing is stored in memory as bearing original destination [BOD], which is called track. The bearing original destination [BOD] is used to calculate the cross track error [XTE]. When you select a new waypoint to go to, the old [BOD] value will be replaced by a new value. In other words, you select a new track to follow.

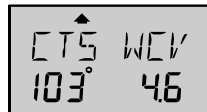
The centre line of the track  is displayed, and the symbolic triangle  is displaying the relative position to the centre line of the navigator. The track is narrow; i.e. the boat can be on either one side or the other of the track, never exact on the centre line. The advantage is that you can see exact when you are passing the centre line.

In the drawing is displayed [BOD] 090 and [XTE] 0.01 nautical mile port of the centre line.

To access the side-functions course to steer [CTS] and waypoint closure velocity [WCV], press **RIGHT**. The functions [CTS] and [WCV] have already been described, (see 6.2).

To access the side-function [CTS] and [WCV], press **RIGHT**.

When you are checking [BOD] and [XTE], it is handy to check course to steer [CTS] and waypoint closure velocity [WCV] at the same time.



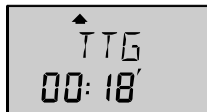
7.4 Time to go [TTG], and estimated time of arrival [ETA]

[TTG] is the remaining time to go in hours and minutes, based on that present course and speed to the waypoint is constant.

To access side-function estimated time of arrival [ETA], press **RIGHT**.

[ETA] is the estimated time when you will arrive at the waypoint, based on that present course and speed is constant.

Both above functions are activated when a waypoint is activated in the [GOTO WP] function.



7.5 Position in latitude / longitude, and satellite status

Factory default setting is to display position in latitude and longitude in degrees, minutes and 1/100 of a minute. To access side-function satellite status, press **RIGHT**.

On the top line, the number of satellites [SAT] used is displayed.

Example: [4 SAT] = 4 satellites.

On the lower line, figure of merit [F] is displayed to the left together with horizontal dilution of precision [HDOP] to the right.

Figure of merit [F] is a factor for the GPS reception quality on a scale from one to nine, where [F1] = best reception and [F9] = no reception.

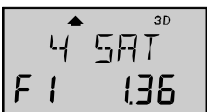
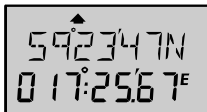
[F] Is only displayed if you have a Nexus GPS connected.

The [HDOP] value should be as low as possible, a typical good value is between 1.00 and 3.00.

The symbol [2D] means 2-dimensional navigation with three satellites, and [3D] means 3-dimensional navigation with minimum 4 satellites, are displayed above the top line.

If the [HDOP] value is more than ten or if the [F] value is more than three, the [2D] or [3D] symbol will be flashing as a warning of deteriorated [HDOP].

If a differential GPS [dGPS] receiver is connected and the RTCM-data is correct, the quality factor will change from [F] to [d] to confirm differential correction.



8 WP page (Optional)

**Optional page!**

Note! The Remote Control instrument is factory default set with the optional page closed. The optional page has to be opened individually to gain access to the page. These pages are considered optional for advanced users only.

To open WP page:

Press **PAGE RIGHT** until text [SETUP] appears, followed by text [ALARMS].

Press **UP** once to display [CONFIG], then press **KEY** to display text [NEXUS Control].

Press **UP** once to display [USE+ - - - Pages].

Each [+] indicates that the corresponding page is open.

Each [-] indicated that the corresponding page is closed.

[USE++++] means that all main pages BOAT, NAV, WPT and ROUTE are open.

To open WP page, press **KEY**. The first [+] flashes.

Use **LEFT** or **RIGHT** to select 3:rd [-] from left, and use **UP** or **DOWN** to open [+] the page. To lock your setting, press **KEY**.

The WP page is used when a Nexus GPS (WP 0-99), a Nexus GPS Navigator (WP 0-399) or a NMEA navigator is connected to the Nexus Server.

Under the WP page you can mark, edit, view, copy, move and delete waypoints.

The Remote Control instrument can use waypoints that are stored in the active Nexus navigator. No waypoints are stored in the Remote Control instrument.

If you have a NMEA navigator and you want the possibility to navigate with the help of the Remote Control instrument, you shall configure your Nexus Server to perform the navigation.

8.1 Mark waypoint [MARK WP], and set waypoint [SET WP]

The functions [MARK WP] and [SET WP] work together with the Nexus GPS Navigator only. The function [SET WP] is also available together with the Nexus Server, if the Server has been configured to perform the navigation.

The function [SET WP] is used in the same way as [MARK WP], with the difference that [MARK WP] stores the position in the first free memory location, and [SET WP] stores the position in your selected memory location.

Select [MARK WP]. To store present position, press **KEY**.

Note: At the moment you press KEY, the present position is blocked in memory.

7 dashes ["_ _ _ _ _"] is displayed with the first dash flashing.

If you want to store the Waypoint without name, that is with number only, press **KEY**.

If you want to name to the waypoint, press **DOWN**, **UP** and **RIGHT** as required to insert letters. To store the waypoint, press **KEY**.

To access side-function [SET WP], press **RIGHT**.

The function [SET WP] can be used to adjust a retrieved or earlier stored waypoint, or to mark a new waypoint starting at a specific waypoint number.



Example of a likely scenario:

From your sea chart you select a position for a waypoint, and you call it ["N-CAPE "]. Enter the waypoint in [EDIT WP], and activate the waypoint in [GOTO WP]. You start to navigate towards the position, and when you approach, you realise that the co-ordinates are too far north. You decide to correct the waypoint, and therefore select to pass the exact position where you want to store the waypoint. Select [SET WP], and press **KEY**. The first free waypoint number flashes. To store and over-write the corrected waypoint with your new position, first search for the waypoint number to be corrected, by pressing **DOWN**, **UP** and **LEFT**, **RIGHT** as required. When the waypoint number is found, press **KEY** at the exact position where you want to store the waypoint. The ["N"] in ["N-CAPE "] flashes to allow a change of the name. If you want to keep the name, just press **KEY**. ["N-CAPE "] is now corrected to the specific waypoint number you selected.



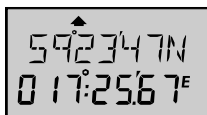
8.2 Edit waypoint [EDIT WP], and view waypoint [VIEW WP]

In [EDIT WP] you can create a new waypoint, or change a previously stored waypoint in the Nexus Server or the Nexus GPS Navigator waypoint memory.

Select [EDIT WP] and to unlock, press **KEY**. The first free number [no: 001] flashes, and the text [FREE] is displayed. To accept the first free waypoint, press **KEY**. The text [FREE] will be replaced by seven dashes ["_ _ _ _ _ _ _"], of which the first dash flashes. Enter a name that will help you to remember the waypoint. If you press **UP**, letters and numbers will be displayed in consecutive order. If you press **DOWN**, numbers and letters will be displayed in reverse order. Select the first, second, third letter etc. To edit next letter in the name and to move the cursor, press **RIGHT**. To lock the waypoint name, press **KEY**.



Present position in latitude and longitude is now displayed, with the first digit in latitude flashing. To edit the latitude, press **DOWN**, **UP** and **RIGHT** as required. **Note!** Select the right hemisphere for latitude, Northern or Southern. To lock the latitude, press **KEY**.

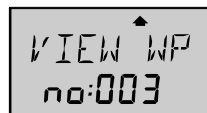


The cursor moves to the next line to allow for editing of longitude. Perform the same procedure as with latitude, **Note!** Select the right hemisphere for the longitude, Eastern or Western. To lock the longitude and thereby the complete position, press **KEY**.

You have now created a new waypoint that later can be used for navigation. If you want to edit an already created waypoint name or position, do exactly as when you created a new waypoint. Select a waypoint you have earlier locked, and change letters and figures as when a waypoint was created.

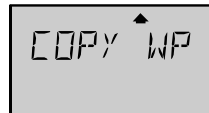
To cancel a name or number, press **DOWN** and **UP** together, and ["_ _ _ _ _ _ _"] is displayed. Cancel is done from the cursor position and to the end of the line.

In [VIEW WP], you can view waypoints, but you can not edit them. To access side-function [VIEW WP] press **RIGHT**. To unlock a waypoint, press **KEY**. The last edited waypoint is flashing. To search the waypoint to view, press **DOWN** or **UP**. To view a waypoint, Press **KEY**. The latitude and longitude of the stored waypoint are displayed. To return to [VIEW WP], press **KEY**. To select another waypoint, press **KEY**, and start the same process again.



8.3 Copy waypoint [COPY WP]

To copy a waypoint, or a group of waypoints, to another location, select [COPY WP] and press **KEY**. [FROM WP] is displayed, with the 100:th-digit flashing. To select a number, press **DOWN**, **UP** and **RIGHT** as required.



In our example, select waypoint [no 12] in the group.

When you have selected the waypoint you want to copy, press **KEY**.

The 100:th digit flashes. From waypoint, to the same waypoint is displayed.

If you only want to copy one waypoint, accept the waypoint, e.g. [012-012].

If you want to copy a group of waypoints, select the last waypoint number in the group, example [012 - 123].

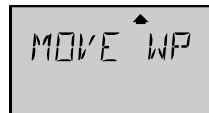
To confirm [FROM WP] number, press **KEY**.

The text [TO WP] is displayed, and the 100:th digit flashes. Select waypoint address, that is selecting the number of the waypoint to where you want your one waypoint or group of waypoints to be copied to.

If you select [200] for waypoints [012-123] and press **KEY**, waypoint [012-123] is copied to waypoint address [200-311]. To copy the waypoint, press **KEY**.

8.4 Move waypoint [MOVE WP]

This function works in the same way as the [COPY WP] function. The only difference is that the selected waypoints after the copying will be cancelled from their previous location.



8.5 Delete waypoint [DELETE]

With this function you can delete a group of waypoints. Proceed as in function [COPY WP]. A single waypoint is easiest deleted in function [EDIT WP].

Warning! It is not possible to regret a deleted waypoint, or a group of deleted waypoints.

If you by mistake press **KEY**, you can escape the function without deleting when [CONFIRM yES] is displayed, by pressing UP to [CONFIRM no], or pressing **PAGE RIGHT**.



8.6 Methods to search for a waypoint

The search for a waypoint name or a number is done in the same way, independently if you shall navigate, edit or cancel the waypoint. Before you can search for a Waypoint, you must enter a few waypoints in the function [EDIT WP]. The search can be done from sub-functions [EDIT WP], [VIEW WP] or [GOTO WP].

8.6.1 Search a waypoint in numerical order

To be able to search a waypoint in numerical order, you must have the Nexus Server or the Nexus GPS instrument connected.

In this example, select WP page, and find sub-function edit waypoint [EDIT WP].

To be able to search for a waypoint, first unlock [EDIT WP] by pressing **KEY**. The first free [FREE] waypoint number flashes.

In this example, waypoint number 23 is the first free waypoint.

- To search for a waypoint in straight numerical order, starting from the first free waypoint number:
- To increase the number, press **UP**.
- To decrease the number, press **DOWN**.

d) To search for a specific waypoint number, starting from the first free waypoint number:

Based on the 1:st digit, press **LEFT** once.

Based on the 10:th digit, press **LEFT** twice.

Based on the 100:th digit, press **LEFT** 3 times.

When you have pressed **LEFT** the digit flashes and is ready for search **UP** or **DOWN**.

When you have found your searched waypoint, press **KEY** to edit it.

First the name flashes. Edit and / or press **KEY** to continue.

Then the latitude flashes. Edit and / or press **KEY** to continue.

Finally the longitude flashes. Edit and / or press **KEY**, to lock it.

In the same way as described above, you can search for a route name in numerical order under the ROUTE page.

8.6.2 Search for a waypoint in alphabetical order

To be able to name a waypoint and then search for it in alphabetical order, you must have a Nexus GPS Navigator connected.

In this example, select NAV page and sub-function [GOTO WP]. To be able to search for a waypoint, first unlock the [GOTO WP] function by pressing **KEY**. The last edited waypoint is displayed with flashing number.

a) To search for a waypoint name in straight alphabetical order, starting from the last edited waypoint, press **RIGHT** and the waypoint name flashes:

- To forward the alphabetical order, press **UP**.

- To reverse alphabetical order, press **DOWN**,

b) To search for a waypoint name, letter by letter, starting from the first letter in the last edited Waypoint:

- Based on the first letter, press **LEFT** once.

- Based on the second letter, press **LEFT** twice.

- Based on the third letter, press **LEFT** three times, etc. up to the seven letters available.

When you have pressed **LEFT**, the corresponding letter flashes, and is ready for search **UP** or **DOWN**.

When you press **UP**, the next waypoint name found in the memory with this letter or the next available letter in alphabetical order is displayed.

When you press **DOWN**, the next waypoint name found in the memory with this letter or preceding letter in alphabetical order is displayed.

When you have found your searched waypoint, to select it press **KEY**.

The waypoint name and number will be displayed as a confirmation.

If no waypoint with the selected letter resides in the memory, the letter flashes continuously and the waypoint is left in the display.

In the same way as described above you can search for a route name in alphabetical under ROUTE page.

9 ROUTE page (Optional)



Optional page!

Note! The Remote Control instrument is factory default set with the optional page closed. The optional page has to be opened individually to gain access to the page. These pages are considered optional for advanced users only.

To open ROUTE page:

Press **PAGE RIGHT** until text [SETUP] appears, followed by text [ALARMS].

Press **UP** once to display [CONFIG], then press **KEY** to display text [NEXUS Control].

Press **UP** once to display [USE+ - - - Pages].

Each [+] indicates that the corresponding page is open.

Each [-] indicated that the corresponding page is closed.

[USE++++] means that all main pages BOAT, NAV, WPT and ROUTE are open.

To open ROUTE page, press **KEY**. The first [+] flashes.

Use **LEFT** or **RIGHT** to select 4:th [-] from left, and use **UP** or **DOWN** to open [-] the page. To lock your setting, press **KEY**.

The page is used when a Nexus GPS Antenna / portable GPS (WP 0-99), a Nexus GPS Navigator (WP 0-399) or a NMEA navigator is connected to the Nexus Server.

To use all functions under the ROUTE page, the Nexus GPS Navigator must be connected and set in [MASTER] mode, and some waypoints must have been entered under the WP page.

With a route we mean a sequence of waypoints combined together in a sailplan that makes up your planned travel itinerary, which is stored as a route.

When the route is activated and you arrive at each waypoint, an arrival alarm will sound and the next waypoint in the route list will be activated automatically.

The ROUTE page can store up to 24 routes, with up to 24 waypoints in each route. We recommend using Waypoints 0-50 for temporary waypoints, and the remaining waypoints for the sailplans.

If you edit a waypoint that belongs to a route, the route will be affected.

9.1 Sailplan [SAIL PLAN]

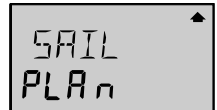
When a route is created or activated, that is used for navigation, it is called a [SAIL PLAN].

In the [SAIL PLAN] you can create or edit one sailplan with up to 24 waypoints.

If you have a Nexus GPS Navigator connected you can later store the whole sailplan with the function route store [ROUTE StorE].

If you have a Nexus Server as navigator you can use the sailplan, but not store it.

A sailplan is consumed successively as the waypoints are passed. The last waypoint is not cancelled automatically; it must be cancelled manually.



To cancel the last waypoint, select [GOTO WP], and press **DOWN** and **UP** together.

Waypoint (000) is always defined as the present position.

To input the first leg in the [SAIL PLAN], Select [SAIL PLAN], and press **KEY**.

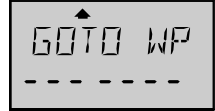
If no [GOTO WP] is defined, waypoint (000) is displayed.

If a [GOTO WP] is defined, that waypoint number is automatically entered into the sailplan and displayed.



Next [NXT] tells you that you can input a waypoint into the next leg.

Press **DOWN** until the text [FROM WP] is displayed to see from what waypoint the navigation will start. Normally the navigation automatically starts from waypoint (000, current position), when the function sailplan is selected.



In function [FROM WP] you can also select any waypoint to start the navigation from.

Press **KEY**, current position [CUR--POS] with [no: 000] flashes. Select this waypoint or select another waypoint with **DOWN** or **UP** to start navigating from, and press **KEY** to store it.



Note! Cross track error [XTE] is always calculated from waypoint [FROM WP] towards the selected waypoint in your sailplan.

Select to navigate from current position and return to [LEG 01] by pressing **UP**. (000) means from, and [NXT] means the end of the sailplan, e.g. the next waypoint can be selected. [LEG: 01] is the first leg in the sailplan, the sailplan is empty if [LEG: 01] is displayed together with [NXT].

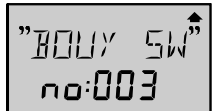
To enter next waypoint, press **KEY**. The last edited waypoint is flashing.

To search for next waypoint press **DOWN** or **UP**.

In our example, select ["BUOY SW"], and press **KEY** to store it.

Momentarily the number of the [LEG] is displayed, after that the distance and bearing to the waypoint is displayed. Leg one goes from WP 000 to WP 003.

The bearing to ["BUOY SW"] in the first leg is 184° and the distance is 0.20 nautical mile.



To go to the next leg in the sailplan, press **UP**.

Waypoint 003 will now be the starting position for [LEG: 02].

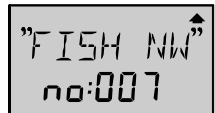
To get the next waypoint, press **KEY**.



Press **KEY** to select ["FISH NW"] as the second leg.

For a couple of seconds the number of the leg [LEG] is displayed, after that bearing and distance to ["FISH NW"] is displayed.

Continue editing until the sailplan is ready, up to max. 24 waypoints.



Note! Always check the bearing and the distance in the sailplan against your sea chart.

9.1.1 Cancel a sail plan [CLEAR PLAN]

To cancel a sailplan, press **DOWN** and **UP** together, in the function [SAIL PLAN]. [CLEAR PLAN] is displayed momentarily to confirm the cancellation.

9.1.2 Insert a LEG in the sail plan [INSERT]

You can add legs to the sailplan by inserting waypoints between existing waypoints.

Example: Insert a new leg between waypoint (003), and waypoint (007).

Waypoint (007) moves down one step in the sailplan, and will leave room for waypoint (127). See the example.

Use **DOWN** or **UP** to see the different legs in the sailplan.

The text [LEG: 02] is shown, then bearing and distance.



- **start -- LEG 1 -- 003 -- LEG 2 -- 007**

To insert the new leg press **UP** and **KEY** together. The text [INSERT] is displayed; you may select a waypoint (004).

After inserting of a new leg:

- **start -- LEG 1 -- 103 -- LEG 2 -- 004 -- LEG 3 -- 007**

9.1.3 Cancel a LEG in the sail plan

To cancel waypoint (004) in (LEG 2) without affecting the sailplan in any other way.

Use **DOWN** or **UP** to search (LEG 2).

First (LEG 2) is displayed, then bearing and distance.

To remove waypoint (004) in (LEG 2), press **DOWN** and **UP** together.

Before:

- start -- LEG 1 -- **103** -- LEG 2 -- **004** -- LEG 3 -- **007**

After:

- start -- LEG 1 -- **103** -- LEG 2 -- **007**

9.2 Store a route [ROUTE StorE]

The function [ROUTE StorE] is used to store the route you have created in [SAIL PLAN].

Select [ROUTE StorE], and press **KEY** to unlock it.

The first free route number [no: 001] is flashing, press **KEY** to unlock it.

The first position for a letter is flashing, give the route a name with **DOWN**, **UP** and **RIGHT**.

Press **KEY**, and the number of stored waypoints is displayed momentarily.



9.3 Route call [ROUTE CALL]

To use [ROUTE CALL] at least one route must first be stored. [ROUTE CALL] will copy and activate a selected route to the sailplan.

To unlock [ROUTE CALL], press **KEY**, and last active route will be displayed with the route number flashing.

To select a route, press **DOWN** or **UP**. To activate it, press **KEY**.

The route has now been copied to the [SAIL PLAN].

The leg name is displayed momentarily and then bearing and distance to first the waypoint is displayed.

It is possible to add more than one route to the sailplan which, as long as the total number of waypoints in the sailplan is less than 25.



9.4 Reverse route call [REVERSE CALL]

To use [REVERSE CALL] at least one route must first be stored. [REVERSE CALL] will copy a selected route in reverse order to the sailplan, and activate it.

[REVERSE CALL] is used in the same way as [ROUTE CALL].

Press **KEY**. Route number (001) flashes, select a route with **DOWN** or **UP**, and press **KEY** to store activate it in the sailplan.

The route has now been copied in reverse order; i.e. the last waypoint in the route is now the first in the sailplan.



9.5 Delete a route [DELETE]

[DELETE] deletes a selected route from the memory.

Press **KEY** and the first route number (001) flashes.

To select a route press **DOWN** or **UP**.

To cancel the route, press **DOWN** and **UP** together.

A long tone will be heard and the text [DELETE] will be displayed momentarily.

Warning! A deleted route can not be regretted once it is executed.

10 Man Over Board [MOB] function

This function will guide you back to the position where the man over board [MOB] function was activated.

This function requires either a navigator (a Nexus GPS or NMEA navigator can be used as long as the Server is set to perform the navigation), or a log and compass transducer.

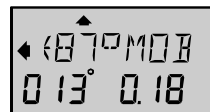
If only a compass and a log transducer are connected, dead reckoning [MOB] will be displayed on both the Multi Control and the Speed Log instruments, if connected.

If a navigator, a compass and a log transducer are connected, dead reckoning [MOB] will be performed and displayed in the Nexus Speed Log instrument. At the same time the Nexus Multi Control instrument will display [MOB] relative position stored in memory when the [MOB] push-button was activated.

Dead reckoning [MOB] is very useful information, maybe even more valuable than a ground related position. The dead reckoning [MOB] position will be calculated according to the drift and set. A position in latitude and longitude is more important for the sea rescue service.

The [MOB] position is automatically stored in the last waypoint number (99 in Nexus Server, 399 in Nexus GPS instrument), and cancels any earlier stored position in these locations.

To activate the MOB function, press and hold **PAGE LEFT** and **PAGE RIGHT** together for more than **two seconds**. The text M.O.B. is printed between the two push buttons. A fixed alarm signal will sound briefly to alert the crew. The text [MOB] flashes in top right corner. Off course error will be displayed in top left corner.

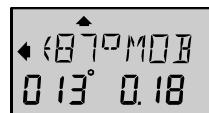


The sign \rangle steer to right.

The sign \langle steer to left.

Bearing to the MOB position will be displayed at lower left corner.

Distance to the MOB position will be displayed at lower right corner.



All you have to do is to keep calm and steer the boat in the indicated direction and distance to pick up your wet crewmember.

To reset the [MOB] function, press **DOWN** and **UP** together.

The earlier calculated course [CMG] and the distance made good [DMG] is not affected by the [MOB] function.

If a Nexus GPS and the analogue Steer Pilot instrument are connected the analogue instrument will indicate [MOB] course difference with priority to GPS position over dead reckoning position.

Note! It is wise to practice this manoeuvre with the crew. Everyone in the crew should be aware of the [MOB] routine. When you practice, it can be thoughtful to use a fender instead of a crewmember!

11 Autopilot mode

The Remote Control instrument can also control a Nexus Autopilot. In autopilot mode it has 4 automatic steering functions: Compass [HDG], Navigation [NAV], Wind [AWA] and Power Steer [PWR].

Operator Warning!

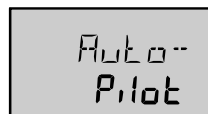
An Autopilot is an aid to navigation only. It is not intended or designed to replace the man on watch. Always be in position to monitor the boat's heading and to watch for navigational hazards. Be prepared to revert to manual steering immediately, if an undesired change of heading occurs, if the heading is not maintained within reasonable limits, or when navigating in a hazardous situation.

Always remember: Whenever underway, a qualified man on watch is required.

It is the skippers responsibility to provide for a power safety switch, mounted within reach for the helmsman, and to brief all crew members that the Nexus Autopilot must be turned off with the red push-button **KEY**, to enable manual steering.

11.1 Switch between instrument mode and autopilot mode

To switch the Remote Control instrument between instrument mode and autopilot mode, press **PAGE LEFT** and **PAGE RIGHT** together. The text [Auto -- Pilot] is displayed momentarily to confirm your mode selection. To return to instrument mode, press **PAGE LEFT** and **PAGE RIGHT** together.



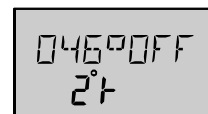
To set your start up mode, and to allow switching between these two modes, (see 12.7.1).

When you have enabled switching between these two modes, ALL of the crew must know how to turn the autopilot off, that is to press and hold **PAGE LEFT** for more than two seconds.

11.2 Standby mode

When autopilot mode is activated the Remote Control instrument starts in standby mode and operates as a passive compass repeater.

Current compass course and the text [OFF] are displayed on the top-line. The rudder angle is displayed on the lower-line. In any autopilot function, the top-line displays the heading at all times.



11.3 Autopilot functions

Prior to activating any automatic steering function, the boat should be steadied on the desired heading and on track for 5 to 10 seconds to minimise large course changes when activated. The Autopilot operates with course errors up to 90° and cross-track-errors of up to 2 NM.

11.3.1 Activate automatic steering

To select a steering function, press **UP**. The function text top right of the display indicates the selected function. To activate the selected steering function, press **PAGE RIGHT** when function text is flashing. The text AUTO is also printed above the green push-button **PAGE RIGHT**.

The text [Auto] on the lower-line to the right to confirm the Autopilot is on.

The Autopilot will now steer according to the selected steering function.

Note! If a function is not available, such as when no waypoint information is programmed / activated or no navigator or wind transducer connected, it will not stop at that function.

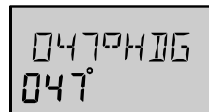
11.3.2 Turn off automatic steering

To turn off automatic steering and return to manual steering, press **PAGE LEFT**. The text OFF is also printed above the red push-button **PAGE LEFT**.

To turn off the Autopilot if you are in process of changing functions or are in calibration mode, press and hold **PAGE LEFT** for more than two seconds.

11.3.3 Automatic steering by compass [HDG]

To select compass steering, press **UP** until [HDG] is flashing on top-line. Your present course is displayed on the top-line. This course will become the reference course the Autopilot will keep when automatic steering by compass is activated.



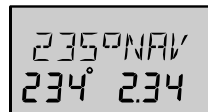
To activate compass steering, press **PAGE RIGHT** when [HDG] is flashing. The present heading now becomes the reference course, and is displayed on the lower-line to the left.

To change the reference course to port, press **LEFT**.
 To change the reference course to starboard, press **RIGHT**.
 A short press changes the course by 1 degree, a long press (two beeps) by 10 degrees.

11.3.4 Automatic steering by navigator [NAV]

Automatic steering by navigator is only possible if a navigator is connected and it is navigating towards a waypoint.

To select steering by navigator, press **UP** until [NAV] is flashing on top-line. Your present course is displayed on the top-line.



Caution! Before activating [NAV] steering, make sure bearing to waypoint [BTW] corresponds approximately with present heading, and that the cross track error [XTE] is less than two NM, because the Autopilot will turn the boat towards the track line first and then onto the set heading.

To activate NAV steering, press **PAGE RIGHT** when [NAV] is flashing. On the lower-line is now displayed bearing to waypoint (to left) and or cross track error (to right). A small arrow indicates if you are to left or right of the track line.

At arrival the waypoint alarm will sound and the text [ARRIVAL] will momentarily be displayed. If you selected manual confirm waypoint arrival in the Nexus GPS Navigator the text [NEXT WP YES] is displayed. To accept [YES], press **KEY**, or to select [NO] press **UP**, and lock press **KEY**.

Warning! If you select [No] when the text [NEXT--WP] is displayed, the Autopilot will pass the waypoint, and after 0,3 NM the Autopilot will return to the same waypoint. If you have said no, the [NAV] steering must be turned off when the waypoint is passed and you have another waypoint in your sailplan.

Caution!

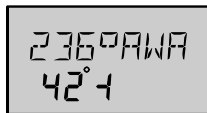
The NAV function will automatically change course when the next waypoint information is displayed and the helmsman should ensure that there are no boats or other hazards on the new course as the waypoint is changing. When using waypoint sequencing in a route list, it is extremely important that the helmsman is at the steering position and ready to override the pilot if the course change would cause collision with other boats or objects.

Set all waypoints in navigators away from navigational hazards by at least 100 metres as the boat may require this radius or more on waypoint advance. The Nexus GPS Navigator will allow you to select a route list with automatic sequencing, or with a confirming push-button press for each waypoint.

11.3.5 Automatic steering by wind angle [AWA]

Automatic steering by wind is only possible if the Autopilot is connected to a Nexus Network with a wind-transducer connected.

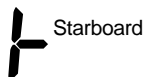
Note! The apparent wind speed must be more than 3 knots. If the apparent wind speed will fall below 3 knots, wind signals are disabled and the Autopilot will maintain the current magnetic heading reference instead.



Before activating wind steering, first optimise your sail trim.

To select wind steering, press **UP** until [AWA] is flashing on the top-line. Your present course is displayed on the top-line.

To activate wind steering, press **PAGE RIGHT** when [AWA] is flashing. The present [AWA] now becomes the reference angle, and is displayed on the lower-line to the left, followed by a sign to describe wind from port or starboard.



To steer to port, press **LEFT**.
To steer to starboard, press **RIGHT**.
A short press changes the value by 1 degree, a long press by 10 degrees.



When making large changes of over 30 degrees, it may take about 1 minute for an accurate course to be re-established due to changes in boat balance which must be recognised by the automatic trim function.

To tack, press **RIGHT** and **LEFT** together and the boat will come about the same apparent wind angle on the opposite tack.

Warning! Tack angles greater than 80 degrees off the wind are not recommended due to the possibility of an accidental gibe.
Pressing for a tack when the wind is abaft the beam will result in a gibe!

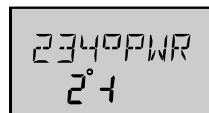
11.3.6 Power steering [PWR]

To select power steering, press **UP** until [PWR] is flashing on the top-line. Your present course is displayed on the top-line.

To activate power steering, press **PAGE RIGHT** when [PWR] is flashing. The rudder angle followed by a sign for port or starboard is displayed on the lower-line.

To change the rudder angle to starboard press **RIGHT** and hold it, until the desired rudder angle is displayed.

To change the rudder angle to port press **LEFT** and hold it, until the desired rudder angle is displayed.



11.3.7 Dodging and returning to last steering function

To dodge, turn off the automatic steering by pressing **PAGE LEFT**, and dodge manually.

If you want to re-activate the last steering function and value, press **DOWN** and **UP** together, within 10 minutes after turning off the automatic steering.

This function is not available after 10 minutes after Autopilot off, or if the Autopilot has been turned off by pressing **PAGE LEFT** for more than two seconds.

12 Setup mode

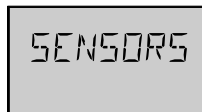
12.1 Setup mode

To get the most out of your Nexus product, it is important to carefully setup and calibrate your Network. The settings are stored in a non-volatile memory, which means they will remain in memory after you have turned off the power. To get an overview of your Network settings, we recommend that you note your settings.



12.1.1 The setup mode is divided in 7 setup groups

- [ALARMS] Shallow / depth, timers, navigation limits.
- [DAMPING] Speed, compass, wind, SOG, COG, drift. Steer Pilot.
- [UNITS] Distance, speed, depth, wind, temp, Lat./Lon.
- [SENSORS] Transducers: Speed, temp, depth, compass, wind, GPS.
- [Auto - Pilot] Installation, boat and weather corrections.
- [OPTIONS] Push-button beep, WP-bank, Network, Server - NMEA.
- [CONFIG] Start up mode, change, arrows, instrument list, Maxi Repeaters.



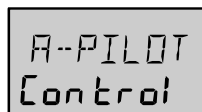
12.1.2 How to access setup mode and setup group

To access setup mode, press and hold **PAGE RIGHT** more than two seconds.

The text [SETUP] is displayed momentarily.

To move to next setup group, press **UP** or **DOWN**.

To access a setup group, press **KEY**.

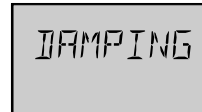


12.1.3 How to change a setting

To unlock a setting, press **KEY**.

To change a setting, press **LEFT, RIGHT, DOWN** and **UP** as required.

To lock a setting, press **KEY**.



12.1.4 How to return to previous mode

To return to previous mode, press **PAGE RIGHT**.



12.1.5 Factory default settings

After each setting we have listed the default setting when available. This allows you to manually get back to factory default settings, if needed. There is no automatic way to get back to factory default settings, it has to be done manually.

Most settings are central in that they will affect all instruments connected to the Nexus Network. Some settings are local for this instrument only, which is noted after the setting.



Note! Above explanation is only mentioned here. It is not repeated for each calibration.

12.2 Alarm setup group [ALARMS]

12.2.1 General depth alarm information

The alarms will be triggered, if the actual depth becomes less, (shallow alarm) or more (deep alarm) than the set depth value.

The alarm is audible (signal) and visual (sub-function flashes).

When a triggered alarm has been silenced, it can only be triggered again if the selected depth value differs by +/- two metres (6 feet).

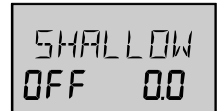
When the alarm is triggered, the set alarm function will automatically be shown flashing, until you silence or turn off the alarm. The instrument will then automatically return to the previous shown function.



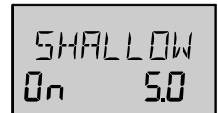
12.2.2 Set and turn on shallow alarm [SHALLOW]

Possible settings are [On] or [OFF] and [0-200 m]. Default setting is [OFF].

Select [SHALLOW], and press **KEY**. The 100:th digit flashes.
To select desired depth, press **DOWN**, **UP**, **LEFT** and **RIGHT** as required.
To lock the selected value, press **KEY**.



By this last press on **KEY**, you have also turned on the alarm. For the Remote Control display to accept the change to [On], press **UP** then **DOWN** back to [SHALLOW].



12.2.3 Set and turn on depth alarm [DEEP]

Possible settings are [On] or [OFF] and [0-200 m]. Default setting is [OFF].

Select [DEEP], and press **KEY**. The 100:th digit flashes.
To select desired depth, press **DOWN**, **UP**, **LEFT** and **RIGHT** as required.
To lock the selected value, press **KEY**.



By this last press on **KEY**, you have also turned on the alarm. For the Remote Control display to accept the change to [On], press **UP** then **DOWN** back to [SHALLOW].



12.2.4 Cancel an alarm value

Select the alarm function to be cancelled, press **KEY**. The 100:th digit flashes.
To cancel the alarm, press **DOWN** and **UP** together. All digits are set to zero (0).
Press **KEY** to lock the function.

12.2.5 Silencing an alarm

To silence a triggered alarm that sounds and flashes, press any push-button.
The sound is silenced and the flashing stops.
The alarm is only triggered again if the selected depth value is exceeded (shallower or deeper) by two metres (6 feet).

12.2.6 Turning off an alarm

Select the alarm function to be turned off.
To turn the alarm off, press **DOWN** and **UP** together. The text changes to [OFF].
To turn the alarm on again, press **DOWN** and **UP** together. The text changes to [On].

12.2.7 Off course alarm limit [OCA -- LIM]

Possible settings are [OFF] and [00-99°]. Default setting is [OFF].

This alarm is to watch over course limits in degrees from the [Pilot] function.

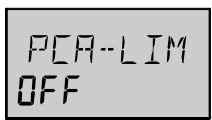
Set maximum average course limit in degrees (damping 30 sec.) to be allowed before the alarm will be triggered.



If set, this alarm is automatically activated when a steer reference is selected in the sub-function [Pilot].

12.2.8 Pilot off course alarm [PCA]

Possible settings are [OFF] and [00-99°]. Default setting is [OFF].



This alarm is to watch over an activated Nexus Autopilot, which must be connected to be able to activate the function.

Set maximum average course limit in degrees (damping 30s) to be allowed before the alarm will be triggered.

12.2.9 Watch-out timer alarm [W-TIMER]

Possible settings are [On] or [OFF]. Default setting is [OFF].

The audible alarm will sound every 5 minutes to alert the person on watch.

To confirm and restart the timer, press any push-button. If not confirmed within 30 seconds the optional buzzer, if connected to the Server, will sound to alert the rest of the crew. The alarm sounds for a maximum of 30 seconds.



12.2.10 The 8 named timer alarms [TIMERS]

The function [TIMERS] can be set for 8 different alarms. E.g. the most important weather reports. To use the function you must first set the clock.

Setting of the clock can be done in 3 different ways:

- 1 Manual setting of time and date, in the BOAT page.
- 2 Automatic setting of time and date, from a Nexus GPS.
- 3 Automatic setting of time, from a connected NMEA 0183 GPS Navigator.

For the best accuracy, synchronise the time functions with GPS time.

It is possible to use the clock and [TIMERS] without GPS. The accuracy of the clock without GPS is a couple of seconds per 24 hours.

To access [TIMER 1], select [TIMERS] and press **KEY**.

To unlock [TIMER 1], press **KEY**. The sign flashes.

The name [TIMER 1] can be changed to ["WEATHER"].

To set the name, press **DOWN**, **UP** and **RIGHT** as required. To lock the name, press **KEY**.

The first digit for the time flashes. The time is settable between 00:00-23:59.

To set the time, press **DOWN**, **UP** and **RIGHT** as required.



The on [ON] indication in the lower right corner displays that the alarm is activated.

To change between [OFF] and [On], without changing the set time, press **DOWN** and **UP** together.

The alarm sounds in both the Server and the Remote Control instrument for 30 seconds or until confirmed.

To access [TIMER 2], [TIMER 3] and so on, until [TIMER 8], press **DOWN**.

To return to the function [TIMER], press **PAGE RIGHT**.

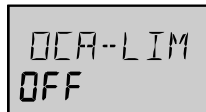


12.2.11 Navigation arrival alarm [NAV-ALM]

12.2.11.1 Waypoint circle arrival alarm [CIRCLE]

Possible settings are [0.00-9.99]. Default setting is [0.00]. Off = [0.00].

Set the radius of the circle surrounding the waypoint. If you set [CIRCLE] to 0.05 NM, the alarm will sound when the distance to the waypoint is less than 0,05 NM. The alarm will beep a few times and the text [ARRIVAL] will flash momentarily.



12.2.11.2 Waypoint line arrival alarm [LINE]

Possible settings are [On] or [OFF]. Default setting is [OFF].

Only works together with the Nexus GPS Navigator instrument.

If set to [On] the arrival alarm will sound when the waypoint is passed in bearing 90 from original or desired track. See drawing about [XTE] and [BOD] inside cover of manual.



The function is used as a complement to [CIRCLE] alarm because you can not always pass close enough so that the circle arrival alarm [CIRCLE] criteria will be met. Most often you want next waypoint in the sailplan to be automatically selected with the help of the arrival alarm line or circle.

12.2.11.3 Waypoint confirm arrival alarm [NEXT WP]

Possible settings are [On] or [OFF]. Default setting is [OFF].

If [NEXT WP] is [On], next waypoint in the sailplan will automatically be activated.

If [NEXT WP] is [OFF], a confirmation must be made by pressing **KEY** before the next Waypoint is activated.

The function [OFF] is of importance when the Autopilot is connected, and you for security reasons want to prevent an automatic heading change.

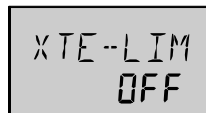


12.2.11.4 Cross track error limit alarm [XTE-LIM]

Possible settings are [0.00-9.99]. Default setting is [0.00]. Off = [0.00].

When the [XTE] value is the same as the set value, the alarm will sound.

Can be utilised when tacking to recognise the distance to the centre line.



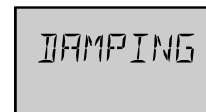
12.3 Damping setup group [DAMPING]

Factory default setting of all dampings are set for use in calm sea. If the sea is rough, you may want to "stabilise" the readout on the display, then select a higher value.

Damping controls the response time of the display readout.

Damping time corresponds to the following:

d0	No damping	d5	40 sec
d1	2 sec	d6	1 min 20 sec
d2	4 sec	d7	2 min 40 sec
d3	10 sec	d8	5 min
d4	20 sec	d9	10 min



To unlock damping value, press **KEY**

To change damping value press **DOWN** or **UP** as required.

To lock the selected value, press **KEY**.

Local damping only affects the Remote Control instrument.

Central damping affects [ALL] instruments connected to the Nexus Network.

Damping of boat speed through the water [SPEED]

Local damping affects only the readings on Remote Control instrument.



12.3.1 Damping of compass heading [COMPASS]

Local damping affects only the readings on Remote Control instrument.



12.3.2 Damping of wind angle and wind speed [WIND]

Local damping affects only the readings on Remote Control instrument.

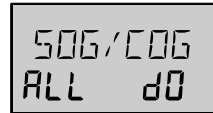


12.3.3 Damping of speed and course over ground [SOG/COG]

Central damping [ALL] = The setting affects the readings on all connected to Nexus instruments that can display [SOG/COG].

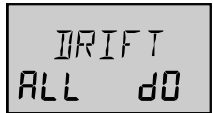
Use a high damping value at low speed, and low damping value at high speed.

If differential [dGPS] is used, you can select low damping value even at low speed.



12.3.4 Damping of drift [DRIFT]

Central damping [ALL] = The setting affects the readings on all connected Nexus instruments that can display [DRIFT].



12.3.5 Damping of Steer Pilot instrument [STEER Pilot]

Possible settings are [LOW] 1 sec, [MID] 5 sec and [MAX] 22 sec.

Default setting is [MID].

When this setting is activated by the **KEY** press a command is send to all analogue Steer Pilot instruments. Every time you enter this setting the [MID] setting will be displayed, even though you earlier made another selection.



12.4 Unit setup group [UNITS]

All unit settings are local and affect only this instrument.



12.4.1 Unit for distance [DIST]

Nautical miles [NM]. Kilometres [KM]. Miles [MI]. Default setting is [NM].



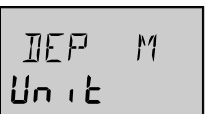
12.4.2 Unit for speed [SPD]

Knots [KTS]. Miles/h [MPH]. Kilometre/h [KMH]. Default setting is [KTS].



12.4.3 Unit for depth [DEP]

Metre [M]. Fathoms [FA]. Feet [F]. Default setting is [M].

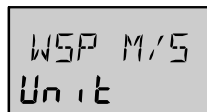


12.4.4 Unit for wind speed [WSP]

Metres/second [M/S]. Beaufort [F]. Knots [KTS]. Default setting is [M/S].

12.4.5 Unit for water temperature [TEMP]

Celsius [°C]. Fahrenheit [°F]. Default setting is [°C].



12.4.6 Unit for latitude / longitude [SECONDS]

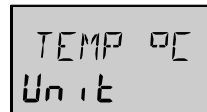
Format of position in latitude and longitude. Default setting is [OFF].

[SECONDS OFF] = degrees, minutes and 1/100 of a minute.

This setting is indicated with a decimal sign [,] after minutes in longitude.

[SECONDS ON] = degrees, minutes and seconds.

This setting is indicated with no decimal sign after minutes in longitude.



12.5 Transducer setup group [SENSORS]

Setup and calibration of transducers connected to the Nexus Server.



12.5.1 Boat speed calibration [BSP CAL]

Possible settings are [1.00-1.99]. Default setting is [1.30].

Calibration value for boat speed and distance.

Drive the boat a measured distance at normal speed.

Compare the distance with the trip counter.



Calculate the coefficient by following formula:

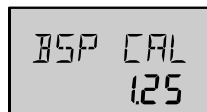
True distance from the sea chart: T

Trip counter distance: L

The current calibration value: C

New calibration value: N

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

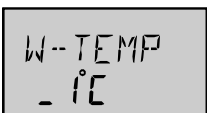


If you suspect a current in the water, drive the boat in both directions and divide trip counter distance by two.

12.5.2 Water temperature offset [W--TEMP]

Possible settings are [+/- 0-9°]. Default setting is [0°].

[_] = Add value, e.g. [1°C]. [-] = Subtract value, e.g. [-1°C].



12.5.3 Depth transducer location [DEP]

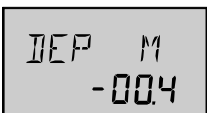
Possible settings are [+/-0.00-99.9]. Default setting is [00.4].

Select if displayed water depth is measured from above (the water level) or below (the keel).

[-] = Subtract value. Measure from the keel. Example: [- 01.2 ADJ]

[_] = Add value. Measure from the water surface. Example: [_ 00.4 ADJ]

The selected value will be subtracted or added from the measured depth.



12.5.4 compass transducer calibration Compass

Auto-deviation, auto-deviation-check and auto-deviation-clear are only available, if a Nexus compass transducer is connected. The auto-deviation routine will automatically correct all possible faults, except alignment.



Note! As soon as you place any kind of ferrous items close to the compass, the auto-deviation and auto-deviation-check routines should be repeated. So if you have packed your boat for the vacation, think about where you place ferrous items in relation to the compass transducer.

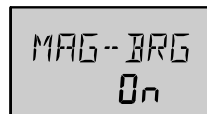
To access the compass settings, press **KEY**.

12.5.4.1 Magnetic heading [MAG--BRG]

Possible settings are [On] or [OFF]. Default setting is [OFF].

[On] = All headings and bearings will be magnetic.

[OFF] = All headings and bearings will be true, i.e. corrected for local magnetic variation set in [MAG--VAR].



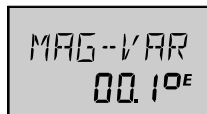
12.5.4.2 Local magnetic variation [MAG--VAR]

Possible settings are [+/-00.0-99.9°]. Default setting is [00.0°].

[_] = Easterly variation [E].

[-] = Westerly variation [W].

The local magnetic variation is usually printed in the sea chart.



12.5.4.3 Automatic compass deviation compensation [AUTODEV]

This function is used to auto-deviate your compass.

Take the boat into a slow turn, in calm sea and away from other boats or obstructions. There is no need to perform a perfect circle.

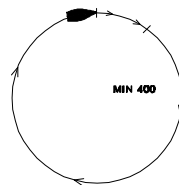


When steady, select [AUTODEV] and press **KEY** to start. The present "uncorrected" compass heading is displayed and the compass auto-deviation is in progress. Turn the boat in a 1 ¼ circle, and when ready press **KEY** again.

If successful, the text [AUTODEV] will be displayed.

If not, an error messages can be displayed:

- [Err 15]: Make sure an Autopilot function is not activated and redo the auto-deviation.
- [Err 16]: Auto-deviation is not possible, because a NMEA compass is selected as compass for the Nexus Network.
- [Err 17]: The 1 ¼ turn was not performed or the compass is affected by strong magnetic distortion.



You may interrupt the auto-deviation procedure at any time by pressing **LEFT** and **RIGHT** together.

To check the auto-deviation, make the auto-deviation-check routine.

12.5.4.4 Check automatic compass deviation [AUTOCHK]

This function is used to check your auto-deviation.

The result of [AUTOCHK] will be compared with [AUTODEV]. If the deviation is less than 1,5°, the average value from the comparison between [AUTODEV] and [AUTOCHK] will be stored.

Take the boat into a slow turn, in calm sea and away from other boats or obstructions. There is no need to perform a perfect circle.

When steady, select [AUTOCHK] and press **KEY** to start.

The present compass heading is displayed and the compass auto-deviation-check is in progress. Turn the boat in a 1 ¼ circle, and to end the routine, press **KEY** again.

If successful, the text [AUTOCHK] will be displayed.

If not, [ERR 17] or [ERR 19] will appear, i.e. the difference between the last auto-deviation and this auto-deviation-check was too big to be accepted.

AUTOCHK

Make a new auto-deviation-check, and if you still get [ERR 19], make a new auto-deviation, since the last one was probably disturbed.

12.5.4.5 Clear automatic compass deviation [AUTOCLR]

This function clears the calibration created by the auto-deviation. You must confirm [CONFIRM] with [yES] or [no]. [YES] will cancel. [No] will interrupt without clearing.

AUTOCLR

12.5.4.6 Adjust compass transducer alignment [ADJUST]

Possible settings are [000-359]. Default setting is [0.00].

Compass transducer alignment correction or the so-called "A-fault". Allows 180° reversed mounting if needed. Never mount the transducer in a 90° position relative to the boats fore-aft line.

CONFIRM
YES

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.

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 $360^\circ - 5^\circ = 355^\circ$.

ADJUST
000°

12.5.5 Wind transducer calibration [WIND]

To access the wind settings, press **KEY**.

WIND

12.5.5.1 True or relative wind angle in Multi Control instrument [USE TWA]

Possible settings are [On] or [OFF]. Default setting is [OFF].

[USE TWA] is the same function as Nexus Multi Control instrument calibration [C51 OFF TWA]. Selects true or apparent wind angle in Nexus Multi Control instrument, main-function Wind and in the analogue Wind Angle instrument. [OFF] = Relative wind angle. [On] = True wind angle.

USE TWA
On

12.5.5.2 Wind speed [W--SPEED]

Default setting of wind speed value is [1.50]. Do not change!

W--SPEED
150

12.5.5.3 Wind transducer alignment [W--ANGLE]

Possible settings are [000-359°]. Default setting is [000°]. Mast top unit misalignment adjustment value or the so-called "A-fault" makes it possible to choose any horizontal angle. If the wind angle is -4° when you sail/drive the boat straight into the wind, set the value to $360 - 4 = 356^\circ$.

W--ANGLE
000°

12.5.5.4 Wind transducer calibration [ADJ]

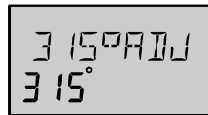
Each wind transducer is individually calibrated for best accuracy. See the separate calibration certificate supplied with each wind transducer, and enter the values on the lower -line.

000°ADJ
000°

SETUP MODE

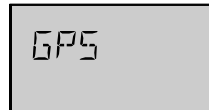
The settable value is displayed on the lower-line and the interval is on the top-line:

000 ADJ	045 ADJ	090 ADJ	135 ADJ
000	045	090	135
180 ADJ	225 ADJ	270 ADJ	315 ADJ
180	225	270	315



12.5.6 Nexus GPS Antenna settings [GPS]

The Remote Control instrument can set RTCM differential correction and geodetic datum in the stand alone Nexus GPS Antenna. This means maximum use of the Remote Control instrument as a GPS navigator together with Nexus GPS Antenna and Server.

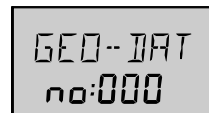


12.5.6.1 Geodetic datum [GEO--DAT]

This setting can be displayed only when a Nexus GPS is connected.

When no Nexus GPS is connected, it displays [000].

Factory setting is WGS 84. You can select from more than 100 geodetic datums.



12.5.6.2 Latitude correction [LAT--COR]

Possible settings are [+/-0.00-9.99]. Default setting is [0.00].

Setting used to correct latitude position from a GPS navigator that does not have the possibilities to set local geodetic datum.

[-] = Subtract value. [_] = Add value.

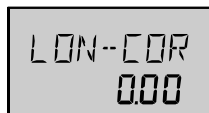


12.5.6.3 Longitude correction [LON--COR]

Possible settings are [+/-0.00-9.99]. Default setting is [0.00].

Setting used to correct the longitude position from a GPS navigator that does not have the possibilities to set local geodetic datum.

[-] = Subtract value. [_] = Add value.



12.5.6.4 RTCM differential correction [RTCM input]

This setting can only be changed if a Nexus GPS is connected.

To use this function you need an optional RTCM transmitter.

This function allows setting of RTCM transmission baud rates and type of data.

Default set Baud rate is [4800]. Select from baud rate [300, 600, 1200, 2400, 4800, and 9600].

Default set is [Type 5] [OFF -.-]. Select from [On 2.0] or [On 2.1].

For more information see your RTCM transmitter manual.



12.5.6.5 Self test of Nexus GPS [SELF test]

This setting can only be displayed if a Nexus GPS is connected.

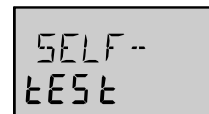
This function performs a self-test of the Nexus GPS Antenna.

To activate the self-test, press **KEY**. When activated the text [WAIT] is displayed.

If successful, the GPS Antenna version number and text [GPS OK] is displayed.

To return to setup mode, press any push-button.

If an error message is displayed, see the Nexus GPS Antenna manual.

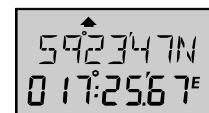


12.5.6.6 Initiation of position [INITPOS]

To speed up the satellite acquisition time of the Nexus GPS Antenna, enter your position in latitude / longitude within 100 km distance diameter from your current position. It is not necessary to use the [INITPOS] because there is a built in sky search function who will perform it automatically within 15 minutes (cold start).



Note! Do not forget to put a battery in the Nexus GPS Antenna to "keep alive" the built in clock, once a position is acquired to avoid a cold start next time.



12.6 Autopilot setup group [Auto--Pilot]

Note! All Autopilot instrument settings are central, and affects all connected Autopilot instruments and their commands.



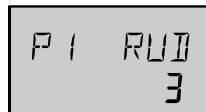
Note! The APC routine automatically sets these functions: [RUD], [SEA], [CRD], [ATC] and [RRS]. Therefore these settings and their minimum and maximum values and times depend on how your boat behaves.

12.6.1 Rudder [P1 RUD]

Possible settings are [0] = Minimum to [9] = Maximum.

Set by the APC routine.

The setting affects how much rudder angle is used.

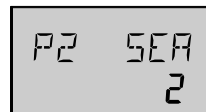


12.6.2 Damping of compass heading [P2 SEA]

Possible settings are [0] = Minimum to [9] = Maximum.

Set by the APC routine.

Controls the response time of heading changes.

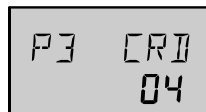


Default setting should work on most boats in light to moderate sea conditions. Following seas, no matter how rough, may require lower settings to catch course error trends quickly in order to minimise excessive yaw.

12.6.3 Counter Rudder [P3 CRD]

Possible settings are [0] = Minimum to [9] = Maximum.

Set by the APC routine.

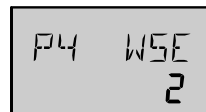


A low value makes the boat to do overcorrecting manoeuvres at large heading changes. A high value can result in high power consumption, if the rudder angle is corrected frequently.

12.6.4 Damping of wind [P4 WSE]

Possible settings are [0] = Minimum to [9] = Maximum. Default setting is [2].

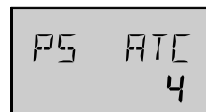
Damping of wind information. The factory default setting should be adequate. In very heavy weather, or unstable wind conditions, unnecessary corrections may be minimised by increasing the setting.



12.6.5 Automatic Trim Calibration [P5 ATC]

Possible settings are [0] = Minimum to [9] = Maximum. Set by the APC routine.

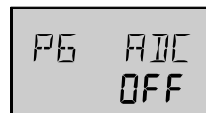
In general, longer trim times (higher settings) should be set for large boats and sailing boats and shorter trim times (lower settings) for small boats and high speed planning boats. The factory default setting should be acceptable for all but extreme applications.



12.6.6 Adaptive Control [P6 ADC]

Possible settings are [OFF] or [On].

This function is reserved for future functions.



12.6.7 Automatic Pilot Calibration [P7 APC]

Possible settings are [ON] or [OFF].

The APC routine automatically sets [RUD], [SEA], [CRD], [ATC] and [RRS].

The Autopilot will not function unless the boat pass the APC routine. The APC will automatically determine and correct how wires and pipes are connected. It will also learn how the boat reacts on different rudder commands and automatically calibrate itself.



How to perform the APC function, see Sea Trials in the Nexus Autopilot manual.

12.6.8 Rudder Reduction Speed [P8 RRS]

[Possible settings are [0] = Minimum to [9] = Maximum.
Set by the APC routine.

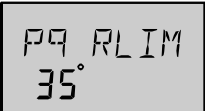


The [RRS] controls the flow of the pumpset. It will effect the pumpset, not a solenoid valve steering system.

The [RRS] will be set to [5] after the APC routine is performed. It is then possible to increase or decrease the speed reduction of the pumpset motor.

12.6.9 Rudder angle limits [P9 RLIM]

Possible settings are [0°-99°]. Default setting is [00°].
An angle of 00° is the same as rudder angle limit disconnected (OFF).
Note! Make sure [LIM] is set to 00° (OFF) during installation.



12.7 Option setup group [OPTIONS]

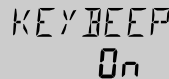
To access [OPTIONS] settings, press **KEY**.



OPTIONS

12.7.1 Push-button beep [KEYBEEP]

Possible settings are [On] or [OFF]. Default setting is [On].
[On] = A "beep" each time a push-button is pressed. [OFF] = No "beep".

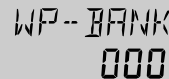


KEYBEEP
On

12.7.2 Waypoint bank [WP--BANK]

Possible settings are [000-900]. Default setting is [000].

This setting affects the Nexus Server. This function allows you to select what waypoint bank (what hundred) to be transferred via NMEA. This function is used when the Server is connected to other NMEA products (Navigators, plotters, PC etc.) which can handle more than 100 waypoints.



WP--BANK
000

If the [WP-- BANK] is set to 100, waypoint 27 will be transmitted as 127 via the NMEA sentence WPL.

If the [WP-- BANK] is set to 100, waypoint 127 will be received as 27 via the NMEA sentence WPL.

If the [WP-- BANK] is set to 200, waypoint 27 will be transmitted as 227 via the NMEA sentence WPL.

If the [WP-- BANK] is set to 200, waypoint 227 will be received as 27 via the NMEA sentence WPL.

12.7.3 Nexus Network status [NETWORK StAtUS]

The Remote Control instrument has built in control functions, which will allow you to monitor the status and performance of the Nexus Network.

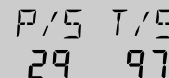


NETWORK
STATUS

12.7.3.1 Data packages per second [P/S] and transmissions per second [T/S]

To select function [P/S T/S], press **KEY**.
[P/S T/S] displays the performance of the Nexus Network.

[P/S] displays the average value for the number of data packages per second, that Remote Control instrument will read.



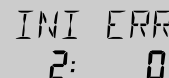
P/S T/S
29 97

[T/S] displays the average value for the number of transmissions per second, sent out by the Remote Control instrument. This is the lap counter of the Nexus Network and displays how fast data is moved. Boat speed, compass heading, wind speed, depth etc. are sent with a certain frequency, independent of how hard the Nexus data bus is utilised.

A maximum of 32 Nexus units can continuously send data to each other through the Nexus Network. A Nexus installation of 4-5 instruments, and 5 transducers including a GPS will give an average lap time of about 100 laps/second.

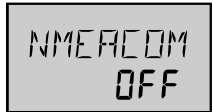
12.7.3.2 Nexus data bus initiations [INI] and errors [ERR]

To select function [INI ERR], press **DOWN**.
[INI ERR] displays the status of the Nexus Network since power on.



INI ERR
2: 0

[INI] displays the number of data bus initiations. At power on there are normally a small number of initiations. During normal use, the [INI] value should be constant. If the [INI] value increases, is it due to the fact that two instruments have the same ID number on the Nexus data bus, caused by that a press **KEY** has been done too quick during the Nexus data bus initiation.



[ERR] displays the number of data packages that have a wrong checksum (normally 0). If the value increases, it can be that a data cable has a bad connection at any instrument, or has a short circuit. Data can find its way even if one of the two Nexus data bus cables are missing a connection, or even if there is a short circuit near an instrument. To reset [INI ERR], press **DOWN** and **UP** together.

To escape the function, press **PAGE RIGHT**.

12.7.4 Nexus Server NMEA setup [SERVER SETUP]

These settings corresponds to calibration code (C70) series in the Multi Control instrument, and allows you to set NMEA settings for transducers connected to the Nexus Server.

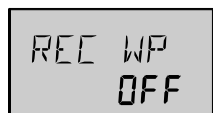


12.7.4.1 Receive waypoint [REC WP]

Possible settings are [On] or [OFF]. Default setting is [OFF].

Receive waypoints from a NMEA navigator to the Server via the NMEA sentence WPL (See Server C78, WBN and C73 WPR).

[OFF] = Reception off. [On] = Reception on.



12.7.4.2 Send waypoint [SEND WP]

Possible settings are [On] or [OFF]. Default setting is [OFF].

Transmit waypoints from the Server to a NMEA navigator or plotter, via the NMEA sentence WPL. (See Server C78 WBN and C74 WPT).

The NMEA sentence WPL must be selected in one Server slot. (See Server C79 to C94)

[OFF] = Transmission off. [On] = Transmission on.

It takes approximately 200 seconds to transfer 100 waypoints.



Note! When the transfer of waypoints are ready, we recommend that both [REC WP] and [SEND WP] are set to [OFF], to avoid unintentional update of the waypoint memory.

12.7.4.3 NMEA navigator [NMEANAV]

Possible settings are [On] or [OFF]. Default setting is [OFF].

Select which instrument you want to use for navigating. (See Server C75 NAV).

By the term "navigating", we mean the active instrument, in which the waypoint memory is used for navigation to calculate the navigation data, i.e. BTW, DTW etc. There can only be one instrument on the Nexus Network that is navigating.

[OFF] = The Server is navigating. One of the following NMEA position sentences must be received for the Server to calculate navigation data: RMC, GGA, RMA or GLL.

[On] = NMEA navigator is navigating. The Remote Control instrument becomes a repeater of the information transmitted from the NMEA navigator. Such as bearing and distance to waypoint etc. See "Receive NMEA sentences IN to Server from external navigator".

Note! If a Nexus GPS is connected, Server C75 will be ignored, that is the Server will automatically take over the navigation no matter how C75 is set.



12.7.4.4 NMEA compass transducer [NMEACOM]

Possible settings are [On] or [OFF]. Default setting is [OFF].

[OFF] = Nexus compass. [On] = NMEA compass. See Server C76.

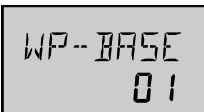
12.7.4.5 NMEA wind transducer [NMEAWIN]

Possible settings are [On] or [OFF]. Default setting is [OFF].
 [OFF] = Nexus wind. [On] = NMEA wind. See Server C77.

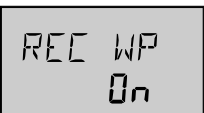


12.7.4.6 Waypoint base number [WP--BASE]

Possible settings are [00-99]. Default setting is [00].
 1 base or block = 100 waypoints. See Server C78



Example 1: To receive waypoint number 101 to 150, from a NMEA navigator and store them in memory 1 to 50 in the Server, set [WP--BASE] to [01] and [REC WP] to [On].

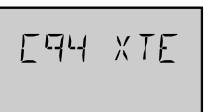
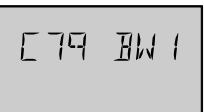


Example 2: To transfer waypoint number 1 to 50, from a Server and store them in a NMEA navigator memory number 101 to 150, set [WP--BASE] to [01] and [SEND WP] to [On].



12.7.4.7 NMEA OUT, 16 slots (C79) to (C94)

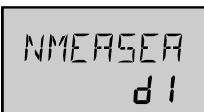
Corresponds to the 16 NMEA OUT slots C79 to C94 in the Server. See 12.7.5.



12.7.4.8 Damping of NMEA out from Server [NMEASEA]

Possible settings are [d0] = Minimum to [d9] = Maximum. Default setting is [4].

Only compass heading [HT / HM] and boat speed through water [BSP], can be damped with this setting. The most common use is together with MAXI repeaters, where there is no selection of damping. See Server C95.



d0	No damping	d5	10 sec
d1	0.5 sec	d6	20 sec
d2	1.1 sec	d7	40 sec
d3	2.5 sec	d8	1 min 20 sec
d4	5 sec	d9	2 min 40 sec

12.7.5 Transmit NMEA sentences OUT from Server

Settings (C79) to (C94) corresponds to the 16 NMEA slots in the Nexus Server.

The Server supports 29 different NMEA sentences.

This means you can select up to 16 of the 29 available NMEA sentences.

The Nexus Network uses the NMEA 0183 sentences, version 1.5 and 2.0.

The number in brackets, example (C79), corresponds to the 16 default set NMEA slots.

No.	Cal. co.	Sentence	Contents
0		(---)	No sentence sent.
1		(APA)	Autopilot "A" (old).
2		(APB)	Autopilot "B".
3		(BOD)	Bearing Original Destination.
4		(BWC)*	Bearing & Distance to waypoint.
	(C79)	(BW1)	Short version of BWC (MAXI-Rep.).
6		(BWR)*	Bearing & Distance, dead reckoning.
7	(C80)	(DBT)	Depth Below Transducer.
8		(DPT)	DePTH.
9	(C81)	(GLL)	Geographic position.
10	(C82)	(HDM)	HeaDing Magnetic.
11	(C83)	(HDT)	HeaDing True.
	(C91)		
12		(MTW)	Mean Temperature Water.
13	(C84)	(MWD)	Mean Wind Direction and velocity.
14		(MWV)	Mean Wind Velocity & angle apparent).
15		(RMA)	Minimum Specific Loran-C data.
16		(RMB)*	Minimum Navigation data.
17		(RMC)	Minimum Specific GPS/TRANSIT data.
18	(C85)	(VDR)	Set & Drift.
19	(C86)	(VHW)	Water speed and heading.
20		(VLW)	Distance travelled trough water.
21	(C87)	(VPW)	Speed measured parallel to Wind.
22	(C88)	(VTG)	Track made good and ground speed.
23	(C89)	(VWR)	Apparent Wind speed & Direction.
24	(C90)	(VWT)	True Wind speed & Direction.
25	(C92)	(WCV)	Waypoint Closure Velocity.
26	(C93)	(WPL)*	Waypoint Location.
27	(C94)	(XTE)	Cross Track Error.
28		(ZDA)	Time & Date.
29		(ZTG)	UTC and Time to Destination.

(*) = Sent by the Server when it is set to navigate in the Nexus Network.

Example of NMEA sentences:

```

$IIAPA,A,A,00.007,L,N,V,V,145.03,M,004
$IIAPB,A,A,00.007,L,N,V,V,147.53,T,004,147.52,T,,T*29
$IIBOD,147.53,T,145.03,M,004,000
$IIBWC,101515,5912.890,N,01812.580,E,147.52,T,145.02,M,15.649,N,004
$IIBWC,,,,,147.52,T,145.02,M,15.647,N,004
$IIBWR,101516,5912.890,N,01812.580,E,147.52,T,145.02,M,15.647,N,004
$IIDBT,293.52,f,089.47,M,048.36,F
$IIDPT,089.47,0.40
$IIGLL,5926.110,N,01756.171,E,101517,A
$IIHDM,026,M
$IIHDT,029,T
$IIMTW,19,C
$IIMWD,161.77,T,159.27,M,07.01,N,03.61,M
$IIMWV,133,R,07.03,N,A
$IIRMA,A,5926.110,N,01756.171,E,,,0.23,189.47,,,,*00
$IIRMB,A,00.007,L,000,004,5912.890,N,01812.580,E,15.647,147.52,,V*01
$IIRMC,101340,A,5926.115,N,01756.172,E,0.04,063.42,,,*06
$IIVDR,063.42,T,060.92,M,0.04,N
$IIVHW,029,T,026,M,00.00,N,00.00,K
$IIVLW,49626.59,N,,
$IIVPW,0.00,N,,
$IIVTG,063.42,T,060.93,M,0.04,N,,
$IIVWR,133,R,07.03,N,03.62,M,,
$IIVWT,133,R,07.01,N,03.61,M,,
$IIWCV,0.00,N,004
$IIWPL,5503.000,N,01013.450,E,027
$IIXTE,A,A,00.003,L,N
$IIZDA,101341,,,,
$IIZTG,101341,,004

```

Each sentence is ended with, <CR><LF> (Hex 0D 0A).

(BWR) consists of rump line data, and is the same information as (BWC) except that (BWC) consists of great circle data.

(BWR) is a service for receivers not accepting information that is (BWC).

(BW1) is a shorter version of (F), i.e. lacks time and destination waypoint position, will be sent out as a zero string. The transmitted string will be (BWC) and not (BW1) (as in the example). (BW1) is for MAXI-Repeaters.

(WPL) is sent when (C74) is set to (F), which means that each time

(WPL) is transmitted, the contents will be the next defined waypoint and when all have been transmitted it starts again with the first one etc. the identity Id of all waypoints are transmitted with three digits.

It is possible to send and receive waypoints in block of 100 by setting (C78) (WBN) the same as the desired block number.

Example: If (C78) is set to (03), waypoint (23) will be sent as number (323).

Note! All waypoints will be affected alike.(ZDA) consists only of UTC time. Date is not sent.

12.7.5.1 Change NMEA sentences OUT from Server

Before you change any of the factory set NMEA sentences, check what NMEA sentences can be received by your NMEA navigator, plotter, radar etc.

Select the slot number for the sentence to be changed, then press **KEY**.

To select the sentence, press **DOWN** or **UP** until found.

To lock the selected sentence, press **KEY**.

To cancel a NMEA slot, press **DOWN** and **UP** together.

It takes two seconds to transmit all 16 NMEA sentences.

To double the transmission speed, select a NMEA sentence two times with seven slots apart, that is the slots should be as far away from each other as possible.

In a similar way, you can select a sentence 4 times to make it 4 times faster.

Example: If you want to transmit the Nexus compass heading via NMEA, to for example an autopilot, select (HDM) for every odd slot number, C79, C81, C83 ... C93, that is eight times which makes the speed four times / second. This leaves the other eight slots with even numbers, C78, C80, C82 ... C94 free to use for other NMEA sentences.

One of the advantages with the Nexus Network is the very fast transmission speed of data, compared to the relatively slow NMEA standard (about ten times faster). Therefore we recommend that you use Nexus instruments and transducers for better accuracy.

12.7.6 Receive NMEA sentences IN to Server from external navigator

There are 5 different main types of NMEA sentences:

1. **Position related data:** Position, SOG/COG, time, and a limited amount of satellite status if a GPS is connected. The information is read if no other Nexus GPS is connected. If a Nexus GPS is connected, it will take over the navigation.
2. **Navigation data:** (BTW), (DTW), (BOD), (XTE), (SET) and (DRIFT). This information is read only if C75 NAV is set to (On). Nexus Server will automatically send data to the Nexus Network. E.g.: (DRIFT), (WCV), (TTG) and (CTS).
3. **Waypoint data:** Is received from (WPL) data if (C73 WPR) is set to on (On). Nexus Server version 1.7 and higher can receive (NMEA WP) and re-transmit to an active Nexus navigator through the Nexus network.
4. **Compass heading** is read only if (C76 CMP) is set to (On). Heading is either (HDT) (priority) or (HDM). Magnetic variation, from Nexus network is added to (HDM) but not to (HDT).
5. **Relative wind angle and wind speed** is read from (VWR) data, only if (C77 WND) is set to (On). Nexus calculates true wind angle and wind speed, when the boat speed (the speed of the water) is known.

The following NMEA sentences can be received IN to Server:

(AAM)	Waypoint Arrival Alarm.
(APA)	AutoPilot string "A" (old).
(APB)	AutoPilot string "B".
(BOD)	Bearing Original Destination.
(BWC)	Bearing & distance to Waypoint.
(BWR)	Bearing & distance to Waypoint (old).
(GGA)	Global position fix data (GPS).
(GLL)	Geographic position, Latitude/Longitude.
(HDM)	HeadDing Magnetic.
(HDT)	HeadDing True.
(RMA)	Minimum Specific Loran-C Data.
(RMB)	Minimum Navigation Information.
(RMC)	Minimum Specific GPS/TRANSIT Data.
(SNA)	Navigation Status.
(VDR)	Set & Drift.

(VTG)	Track made good & ground speed.
(VWR)	Relative Wind Speed & Direction.
(WPL)	Waypoint Location.
(XTE)	Cross Track Error, Measured.
(ZDA)	Time & date.

All data (POSITION, BTW, SOG/COG, etc.) is received from one type of NMEA sentence. If data is placed in different locations, the data will be selected from the sentence with the highest priority.

Example 1: Position is read in priority order: RMC, GGA, RMA and GLL.

Example 2: BTW/DTW is priority first with: RMB, BWC and BWR. The transmission ID (the first two letters after "\$") is ignored by the Server. Present position is read, after that possible latitude and longitude correction is added (C39 and C40) before the position is sent over the Nexus Network to all instruments.

12.8 Special NMEA sentences

The Nexus Server can read two special NMEA sentences, which can be sent from a PC. One contains TBS (target boat speed), the other CAD (customised angle data) and CFD (customised fixpoint data). These 3 data are re-transmitted on the Nexus Network and can be displayed as a sub-function on the Multi XL instrument.

Note! [TBS] and [CAD] may also be displayed as main-functions.

See setting C13 and C37.

12.8.1 Target boat speed [TBS]

To access sub-function [TBS], select SPEED page and the "empty" sub-function. Then press **RIGHT** and **KEY** together, followed by **UP** and **DOWN** together.

12.8.2 Customised angle data [CAD]

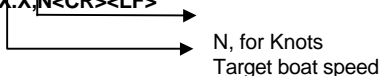
To access sub-function [CAD], select NAVIGATE page and the "empty" sub-function. Then press **RIGHT** and **KEY** together, followed by **UP** and **DOWN** together.

12.8.3 Customised fixpoint data [CFD]

To access sub-function [CFD], select WIND page and the "empty" sub-function. Then press **RIGHT** and **KEY** together, followed by **UP** and **DOWN** together.

12.8.4 Example of special NMEA-sentence

\$SPSILTBS,X.X,N<CR><LF>



\$SPSILCD1,X.X,X.X,<CR><LF>

CAD (000.0°-360.0°)
CFD (-327.67- +327.67 units)

This function is valid from Nexus Server version 2.4 or later.

12.9 Configuration setup group [CONFIG]

In [CONFIG] you can configure the Remote Control instrument to suit your needs, to get the most out of the instrument the way you plan to use it.

CONFIG

12.9.1 Start up mode [NEXUS / A--PILOT Control]

Possible settings are [NEXUS Control] or [A--PILOT Control].

Default setting is [NEXUS Control], which means that the Remote Control instrument at power up starts in Nexus mode.

A--PILOT
Control

If you have a Nexus Autopilot connected, you can select [A--PILOT Control] which means the Remote Control instrument at power up starts in autopilot mode.

12.9.2 Change mode [CHANGE]

Possible settings are [CHANGE YES] or [CHANGE no].

Default setting is [CHANGE no].

Allow or stop change between [NEXUS Control] and [A-PILOT Control].

If you have an autopilot, and want the possibility to change between the two modes, select [CHANGE YES]. If you do not have a Nexus Autopilot, select [CHANGE no].

CHANGE
YES

12.9.3 Page-arrow [ARROWS PAGE]

Future function, do not change!

ARROWS
PAGE

12.9.4 Instrument list

12.9.4.1 Use list [USELIST]

Possible settings are [USELIST OFF] or [USELIST On].

Default setting is [USELIST OFF].

[USELIST] serves to activate or de-activate the instrument list created with [MAKE LiSt].

USELIST
OFF

[USELIST OFF] = All Nexus instruments can be remote controlled.

[USELIST On] = Only Nexus instruments selected in the instrument list can be remote controlled.

To change [USELIST], press **KEY**. To set [On / OFF], press **UP**. To lock press **KEY**.

12.9.4.2 Edit list [EDIT LiSt]

In [EDIT LiSt] you can edit the list already created in [MAKE LiSt].

Select the Id number of the instrument to be edited and proceed in the same way as described under [MAKE LiSt].

EDIT
LiSt

12.9.4.3 Make list [MAKE LiSt]

The Remote Control instrument can find, and make a list [MAKE LiSt] over all Nexus instruments connected to the Network. From the found instruments, a tailor-made list can be made, to exclude not visible instruments. First note what Nexus Network Id number each instrument has. The Id numbers are displayed at power up, or in the remote control mode, starting with no from Id no.16 and continuing with 17, 18, 19 etc.



To unlock the function [MAKE LiSt], press **KEY**.

If there is already a list, the instrument will display [REPLACE no], with [no] flashing.

If you want to make a new list, press **UP** to display [REPLACE yES].

To replace the list [yES], press **KEY**.

The Remote Control instrument may now for example display the text [--END--, 03 : Id-), which means there are two Nexus digital instruments connected to the Nexus Network, plus one empty space [END] for adding a new instrument.

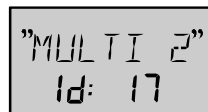
To page through the list of connected instruments, press **DOWN** or **UP**.

To exclude instruments from the list, which are not to be remote controlled, select the Id number and press **DOWN** and **UP** together.

To name a digital instrument, e.g. "MULTI", "GPS" or "LOG" etc., select the Id number for the instrument you want to name and press **KEY**. The first digit flashes.

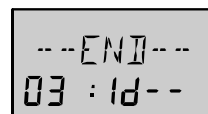
To enter a name press **DOWN**, **UP** or **RIGHT** as required.

To lock the name, press **KEY**. Now the first digit in the Id number flashes.



To change the Id number in the list, press **DOWN**, **UP** or **RIGHT** as required.

To lock the Id number, press **KEY**.



If you want to change the order of the list, you have to know the Id number of the instrument you want to use. Make a note of the Id number during the power on routine.

To exit [MAKE LiSt], press **PAGE LEFT**.

12.9.5 Maxi Repeater control [MAXIREP]

Possible settings are [0-9]. Default setting is [0].

Maxi Repeaters can be remote controlled by the Remote Control instrument, from Maxi Repeater version 1.0.



To select how many Maxi repeaters you want to remote control, press **KEY**, and select from 0 up to 9 by pressing **UP** or **DOWN**.

Select for example two Maxi repeaters, and press **KEY**.

To number your two Maxi repeaters 1 and 2, see the Maxi Repeater manual.

The Maxi Repeater page will now appear to the right of ROUTE page in the page list.

To switch between Maxi Repeater 1 and 2, press **UP** or **DOWN**.

To change Maxi Repeater setting, press **KEY**.

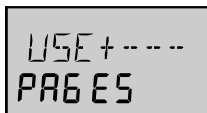
To change data press **UP** or **DOWN**.

To lock the function, press **KEY**.

12.9.6 Page access or stop [USE PAGES]

Factory default setting is [+ - - -], which means that only the BOAT page can be accessed.

The other 3 pages are optional and have to be "opened" to be accessed with this setting.



The 1:st [+] represents access of BOAT page, the 2:nd [+] NAV page, the 3:rd [+] WP page and the 4:th ROUTE page.

Example: If you have a Nexus or NMEA navigator you may want to use the NAV, WP and ROUTE pages by changing the [-] sign to a [+] sign for each page.

Select [USE PAGES] and press **KEY**. The first [+] flashes.

For each page you want to "open" change the [-] to a [+] by pressing **UP**, **DOWN** and **RIGHT** as required. To lock the change, press **KEY**.

13 Installation of other Nexus parts

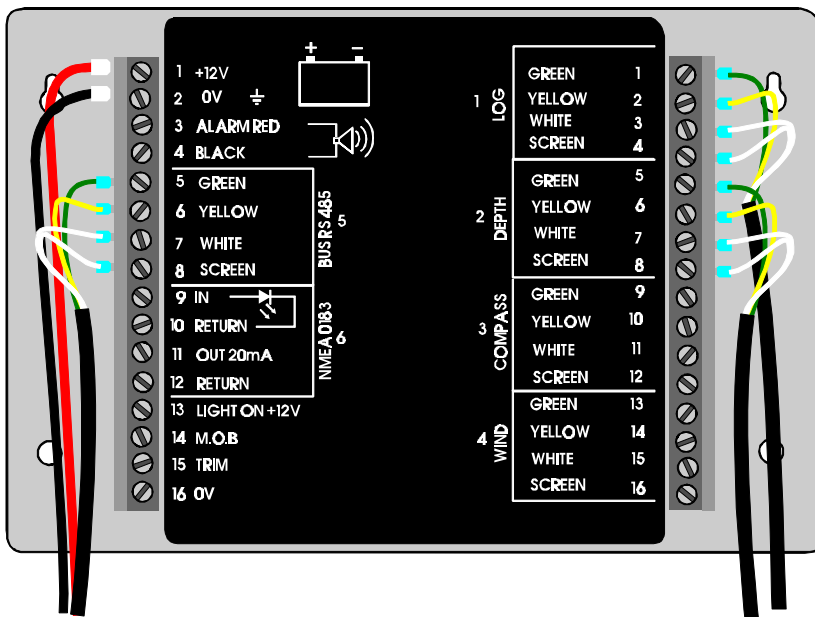
13.1 Location of the Server

The Server must be mounted on a dry, flat and vertical surface below deck, at least 500 mm (20") from radio receiving equipment.

Locate the Server in the centre of the boat and close to the electrical panel if possible.

13.2 Installing the Server

Remove the Server cover from the base plate by removing the two screws. Drill the 4 screw holes using a 2.8-mm (0.11") drill. Mount the Server using the 4 mounting screws.



- Apply silicon paste on the screw terminal. Connect the 8 m Nexus Network cable labelled number 5 and supplied with cable protectors to the Server on pins 5, 6, 7, and 8. Match the colour codes for each wire.

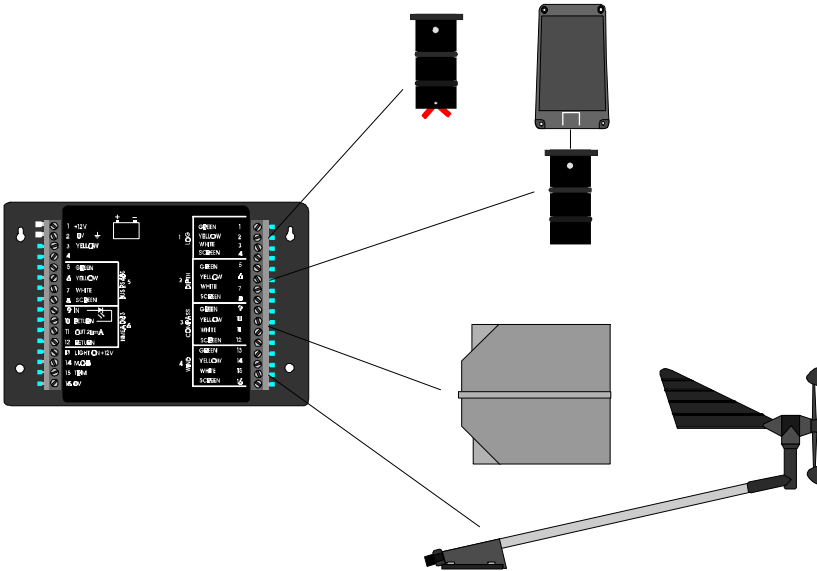
Note: If the cable must be cut, it is recommended it is cut at the unmarked cable end, since a marked cable is easier to identify.

- When all connections are made, use the cable straps as required. Mount the Server cover using the two mounting screws.

Your Server installation is done!

13.3 Installing the transducers

Log, depth, wind and compass transducers are all connected to the pins on the right hand side of the Server. They are all clearly colour coded and marked with numbers and names. Install the transducers according to the separate instructions supplied with each transducer. Connect as per below drawings.



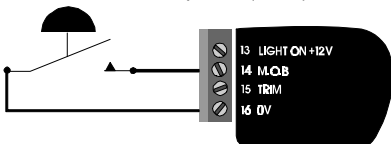
13.4 Connecting optional accessories

These optional accessories are available from your local Nexus Dealer. (For a more complete list of accessories available, see 14.4).

13.4.1 Man over board (MOB) push-button

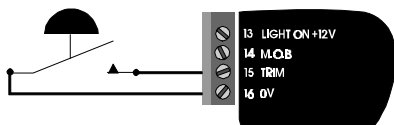
Art. No. 19763. (For function explanation, see 10).

White wire to Server pin 14 (MOB). Brown wire to Server pin 16 (0V).



13.4.2 Tactical function push-button

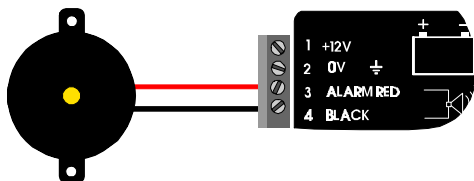
Art. No. 19763 (same as MOB). (For function explanation, see 9.1).
 White wire to Server pin 15 (TRIM). Brown wire to Server pin 16 (0 V).



13.4.3 External alarm buzzer

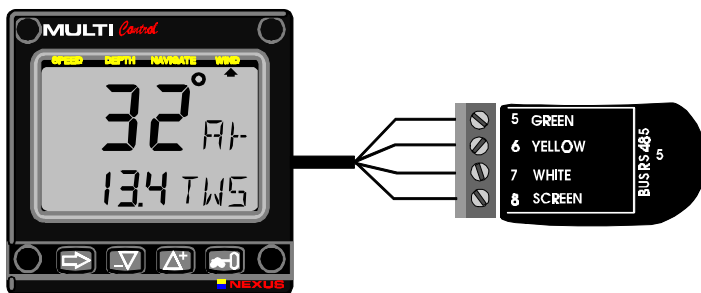
Art. No. 20081. The extra buzzer (105 dB at 15 cm, not waterproof) can be mounted where you want a louder sound. The buzzer will sound as soon as any alarm function is activated in the Nexus Network.

Red wire to Server pin 2 (ALARM RED).
 Black wire to Server pin 4 (BLACK).



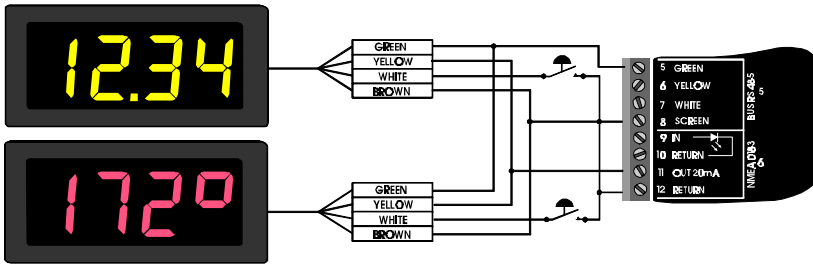
13.4.4 Nexus instruments

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



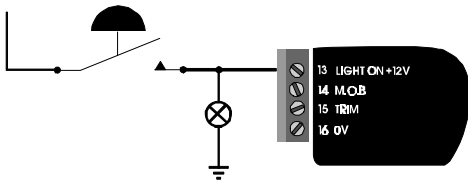
13.4.5 Maxi repeater

Electro-mechanical Maxi repeaters with good readability and contrast, digit height: 45 mm (1.77"), Red digits Art. No. 19941. Yellow digits Art. No. 19841. Up to 10 Maxi repeaters can be connected.



13.5 Connecting instrument lighting

The instrument lighting can be controlled from the boats general lighting switch. Connect the wire from the electrical panel's instrument light switch to Server pin 13 (LIGHT ON +12 V).



13.6 Connecting a NMEA instrument IN to the Server

Products transmitting NMEA, for example:
GPS, Decca, Loran, NMEA compass and wind transducer etc.

If a NMEA instrument is connected, most information will be available and can be displayed on the Nexus Network.

You must know which two cables from your other NMEA instrument carry the NMEA out signal. If you have trouble call the dealer you bought your NMEA instrument from. He should know the wiring colour and will probably sell the "plug set" which may be required. We do not have this information.

Connect NMEA out signal from the NMEA instrument to Server pin 9 (IN).
Connect NMEA return signal from the NMEA instrument to Server pin 10 (RETURN).
(For list of NMEA received sentences, see 12.6.3).

Note a: The Server allows only one NMEA instrument connected to be connected to the input pins 9 and 10.

Note b: We do not recommend the use of NMEA transducers like wind and compass, because the update rate of data is slow compared to the very fast Nexus data bus.

Note c: If the NMEA instrument has only one output cable, put a "bridge" cable on the Server between pins 10 (RETURN) and 12 (RETURN). (See chapter 12.6 , C75)

13.7 Connecting a NMEA instrument OUT from Server

Products receiving NMEA, for example:

Plotter, radar, Maxi repeaters, POWER Navigate.

Again you must know which two cables from your other NMEA instrument carry the NMEA in signal. If you have trouble call the dealer you bought the NMEA instrument from. He should know the wiring colour and will probably sell the "plug set" which may be required. We do not have this information.

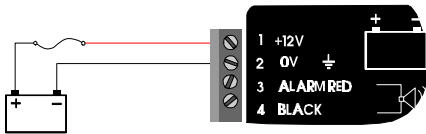
Connect NMEA in signal from NMEA instrument to Server pin 11 (OUT). Connect NMEA return signal from NMEA instrument to Server pin 12 (RETURN). (For list of NMEA transmit sentences, see 12.61.)

13.8 Connecting the power supply

1. Connect the red wire from the Server pin 1 (+12V) to +12V.

Connect the black wire from the Server pin 2 (0V) to 0V.

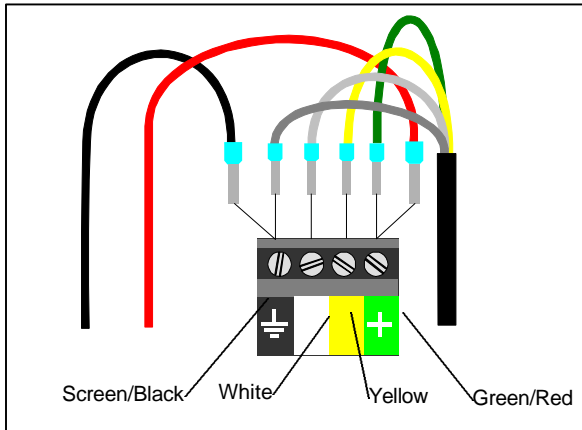
Protect the circuit with a 3 Amp fuse/circuit breaker on the 12V side.



Note a: Try to keep the power cables as short as possible.

Note b: Up to 32 Nexus instrument units (Server, digital and analogue instruments, Autopilot servo-unit or a Nexus GPS) can be connected to the single Nexus data bus cable.

If more than 10 units are connected, the power must be supplied at both ends of the chain of units, a so-called "ring-connection", as shown. Do not connect the Nexus data bus wires (yellow and white) in ring-connection.



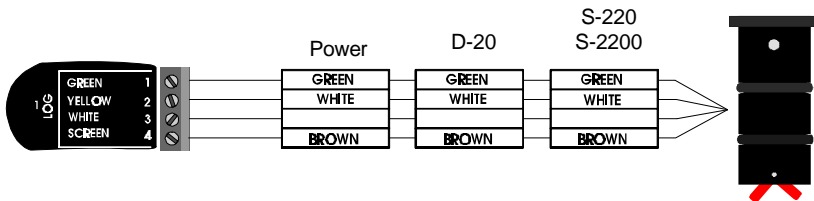
2. Check that all the connections are correct before you power up the system.

13.9 Compatibility with our previous transducers

13.9.1 Log transducer

All our log transducers (except the transducers from the S-2000 and S-200 series) can be used for speed and distance.

Only transducers from Nexus- and STAR-series are able to measure water temperature. Other transducers

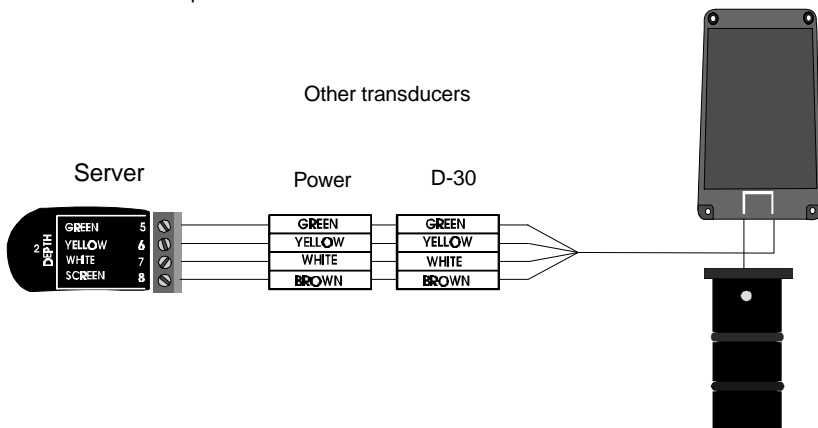


Note: On the Power transducer the white cable (for water temperature) should be isolated and not installed.

13.9.2 Depth transducer

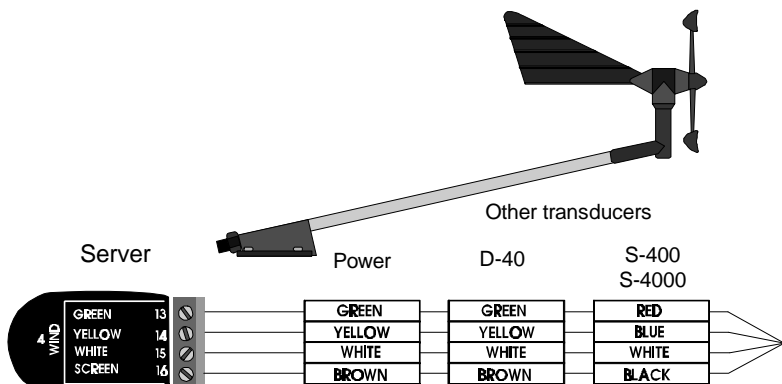
Our depth transducers with stand-alone amplifier boxes can be used, that is the Direction D30 and Power depth.

Note: Do not mix amplifier boxes with transducers from other series.



13.9.3 Wind transducer

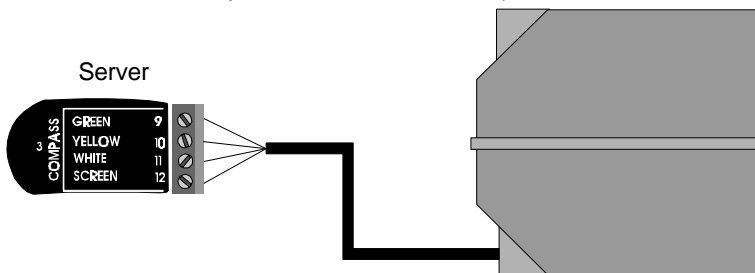
All our wind transducers can be used.



13.9.4 Compass transducer

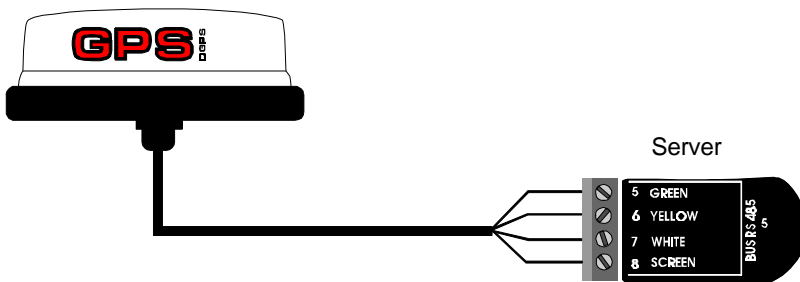
Only the Nexus version can be used.

Compass transducer for S-5000, D50, S-520/S-525 and POWER can be upgraded to Nexus standard. Contact your local Nexus dealer for a quote.



13.9.5 GPS transducer

All Nexus GPS products can be connected directly to the Nexus Network.



13.9.6 NMEA transducers

NMEA compass and NMEA wind transducer.

You must know which two cables from your other NMEA transducer carry the NMEA out signal. If you have trouble call the dealer you bought your NMEA instrument from. He should know the wiring colour and will probably sell the "plug set" which may be required. We do not have this information.

Connect NMEA out signal from the NMEA transducer to Server pin 9 (IN). Connect NMEA return signal from the NMEA transducer to Server pin 10 (RETURN).

Note a: The Server allows only one NMEA transducer or instrument to be connected to the input pins 9 and 10.

Note b: Make sure the calibration codes (C76 and C77 in chapter 12.6) for NMEA transducers are correctly set.

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

In most cases, the reason for faults in electronic equipment is to be found in poor installations. 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 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.

14.2.2 What you should know about digital depth sounders.

The principle of a depth sounder is that you measure the time it takes for a short acoustic signal to go from the transducer to bottom and back again to the transducer.

The echo changes due to bottom character, heavy layers of salt and temperature, irregular bottom vegetation, fish etc. Thanks to an advanced signal treatment, these variations will normally not influence the depth measurement.

You can in some circumstances get transitory disturbances. In the list below you will find some explanations for disturbances to the measurement of depth and how it is expressed on the instrument display.

In general when a boat is moored in a harbour with other boats around, there can be disturbances from signals from other depth transducers, chains or other mooring equipment, which will result in wrong depth readings.

14.3 Fault - action

Function	Display	Cause	Action	Setup
BTW	no values	No waypoint selected	Select way point	
BTW	no values	Incorrect selection of navigation master	Correct selection of navigation master	C75
Compass	no heading [---]	Wrong setting of COG: COG set to ON but no navigator connected	Set COG to OFF	C38
Compass	no values [---]	Nexus compass transducer and C76 set to ON	Set C76 to OFF	C76
Compass	no values [---]	NMEA compass transducer and C76 set to OFF	Set C76 to ON	C76
Compass	wrong COG-values	Incorrect setting of damping	Correct setting of damping	C72
Compass	wrong values	Incorrect setting of magnetic variation	Correct setting of magnetic variation	C32
Compass	wrong values	Autodeviation not performed	Run the Autodeviation	C33
Compass	wrong values	Autodeviation not successful	Check Autodeviation Run the Autodeviation	C34 C33
Compass	wrong values	Incorrect setting of compass transducer misalignment	Correct setting of compass transducer misalignment	C36
Compass	wrong values	Wrong selection of magnetic/true	Correct setting	C47
Compass	wrong values	Wrong mounting of the transducer	Check that transducer is not mounted upside down. Mount correct	
Compass	wrong values	Magnetic disturbance	Check that there are no ferrous items close to the transducer.	
Compass	wrong values	Incorrect setting of damping	Correct setting of damping	Subfunction NAV-page
Compass	no values [---] Compass Data	C71 incorrect set to [ON] (Compass Data)	Correct setting to [OFF]	C71 in Compass Data
Depth	wrong values	Wrong units	Correct setting of units	C21
Depth	wrong values	Incorrect calibration of the depth transducer position	Correct calibration of the depth transducer position	C22
Depth	no values [---]	Deep water outside the range of the transducer		
Depth	no values [---]	Deep water and soft bottom		
Depth	no values [---]	The boat is heeling heavily		
Depth	no values [---]	In propeller stream, where air bubbles are created		
Depth	wrong values	In propeller stream, where air bubbles are created		
Depth	no values [---]	Poor cable connections at the amplifier box	Check connections	
Depth	no values [---]	Internal mount: poor signal penetration due to thick hull	Use through hull fitting	
Depth	no values [---]	Internal mount: air between transducer and hull	re-install the transducer	
Depth	wrong values	Going over shoal water, with uneven and high bottom vegetation		
Depth	wrong values	Heavy layers of salt or noticeable ranges of water temperature		

Function	Display	Cause	Action	Setup
Depth	wrong values	Heavily agitated water containing particles of sand or some other contami-		

		nation		
Depth	wrong values (in harbour / at anchor)	Disturbances from other depth transducers		
Depth	wrong values (in harbour / at anchor)	Disturbances from chains or mooring equipment		
DTW	no values	No waypoint selected	Select waypoint	
DTW	no values	incorrect selection of navigation master	Correct selection of navigation master	C75
NMEA out	no values on NMEA-unit	Incorrect selection of NMEA out sentences	Select desired NMEA sentences	C79 to C94
NMEA out	wrong / no values	Poor NMEA-out connection	Check connections	
NMEA in	wrong / no values	Poor NMEA-in connection	Check connections	
NMEA in	No values	Wrong NMEA sentences transmitted	Check setup in the transmitting unit	
Position	no values	Incorrect selection of position source	Correct selection of position source	Config Nexus / NMEA position in GPS Navigator
Position	wrong values	Incorrect setting of compensation of latitude and/or longitude	Correct setting of compensation of latitude and/or longitude	C39 C40
Position	wrong values	Incorrect setting of local geodetic datum	Correct setting of local geodetic datum	C46
Speed	no speed [---]	Wrong setting of SOG: SOG set to ON but no navigator connected	Set SOG to OFF	C13
Speed	no speed [000]	Impeller is not rotating	Clean the impeller	
Speed	no speed [000]	Impeller is not rotating, due to remaining antifouling inside the through hull fitting	Clean the through-hull fitting	
Speed	wrong SOG-values	Incorrect setting of unit	Correct setting of unit	C11
Speed	wrong SOG-values	Incorrect setting of damping	Correct setting of damping	C72
Speed	wrong values	Wrong units	Correct setting of units	C11
Speed	wrong values	Incorrect calibration value	Correct calibration	C12
Speed	wrong values	Incorrect setting of damping	Correct setting of damping	Subfunction SPEED-page
Wind	no values [---]	Nexus wind transducer and C77 set to ON	Set C77 to OFF	C77
Wind	no values [---]	NMEA wind transducer and C77 set to OFF	Set C77 to ON	C77
Wind	wrong speed values	Wrong units	Correct setting of units	C52
Wind	wrong wind angle	Wrong selection of wind angle	Correct selection of wind angle	C51
Wind	wrong wind angle	Incorrect setting of mast top unit misalignment	Correct setting of mast top unit misalignment	C54
Wind	wrong wind angle	Incorrect setting of wind calibration values	Correct setting of wind calibration values	C55 to C62
Wind	wrong values	Poor cable connection	Check connections wind transducer / cable through deck connectors	
Function	Display	Cause	Action	Setup
Wind	wrong values	Incorrect setting of damping	Correct setting of damping	Subfunction WIND-page
Wind	no values [---] Wind Data	C71 incorrect set to [ON] (Wind Data)	Correct setting to [OFF]	C71 Wind Data

14.4 Nexus Network error messages with cause and remedy

If an error message [Err #] is displayed, an error has been detected by the Nexus Network. The message can assist you to diagnose the cause and remedy the error.

To escape from an error message, press any push-button. If not possible to escape, reset power (turn off and on again), then make the remedy if suggested below.

Note! For errors marked with [*], contact your national distributor to return the unit for rectification if the action fails.

No.	Message and cause	Action	*
01	Activated watchdog timeout.	Reset power.	*
02	Nexus Network data frames are missing.	Check connections and setup.	
03	No data received within approx. 10 sec.	Check connections.	
04	EEPROM read.	Reset power.	*
05	EEPROM write.	Reset power.	*
06	RAM memory error.	Reset power.	*
07	Autolog full in GPS Compass.	Clear Autolog memory.	
08	Break reset.	Reset power.	*
09	EEPROM auto initiation, or NMEA transmit fail. (Nexus Server only).	Reset power.	*
10	Range error, depending on wrong input e.g. 17° 70' = too many minutes.	Correct input format..	
11	Remote control setup error. Command can not be executed.	Check connections and settings.	
12	No response from navigator.	Check navigator connection and settings.	
13	Waypoint not defined.	Define a waypoint.	
14	Impossible command when used with an external NMEA navigator.	Use only possible command.	
15	Impossible command when in autopilot mode.	Use only possible commands.	
16	Auto-deviation is not possible.	Check for extreme magnetic field, upside down mounting of transducer or wrong transducer type setting.	
17	Auto-deviation check failed.	1¼ turns not completed or extreme magnetic disturbance.	
18	Auto-deviation. Function denied.	Function denied since compass is busy with the auto-deviation routine.	
19	Auto-deviation failure.	Error larger than 1.5°. The boat probably hit a wave during the turn.	
20	GPS to CPU communication error.	Reset power.	*
21	GPS acquisition failure (time out).	Maximum allowed time for searching satellites. E.g. when try to navigate indoors. Check GPS antenna location.	
22	CPU to GPS communication error.	Reset power.	*
23	DGPS (RTCM) data ignored.	Change the DGPS (RTCM) setting.	
24	GPS bad fix, no fix position (time expired at one-fix).	Check GPS antenna location.	
25	No autopilot response. Object is not connected.	Check wiring connections and fuse.	
26	The unit is not allowed to power up because there is too high input voltage.	Check input voltage.	*
27	Extended object server busy or error.	Set one GPS Navigator instrument to master.	
28	Route command error. The waypoint bank mem-	Clear waypoint bank for new space.	

	ory is full.		
29	DGPS mode is interrupted.	Check the DGPS receiver.	
30-41	Reserved for Nexus Autopilot Servo Unit.	See Nexus Autopilot manual.	
42	Bad transducer input / bad measurement.	Reset power.	*

	Reserved for Nexus Autopilot Servo Unit.		
30	General autopilot failure	Reset power.	*
31	Autopilot compass input failure in autopilot standalone connection.	Check compass connection at autopilot Servo Unit.	
32	Autopilot compass input failure in autopilot Nexus Network connection.	Check compass connection at Nexus Server or at the Compass Data instrument	
33	Received wind data input failure.	Check wind wire connection.	
34	Autopilot calibration failure.	Check for air in the system and make APC routine again in calm water.	
35	Navigation data not available in autopilot stand alone connection.	Check NMEA input connections and settings in the navigator.	
36	Navigation data not available in autopilot Nexus Network connection.	Check connections and navigator settings.	
37	Autopilot Network re-initialisation.	Check connections and wire dimensions.	
41	Failure to initialise EEPROM.	Reset power.	*

15 Specifications

15.1 Technical specifications

Dimensions:	Instrument:	150 x 72 x 26 mm (5.9 x 2.8 x 1.0")
	Bracket:	110 x 79 x 28 mm (4.3 x 3.1 x 1.1")
Weight:	Instrument:	200 g (7 oz)
	Bracket:	20 g (0.7 oz)
Enclosure:	Waterproof	
Instrument cable:	5 m (16 ft)	
Power supply:	12 V DC (10-16 V). The instrument is polarity protected.	
Power consumption:	0,15 W (with lighting 0,8 W)	
Current consumption:	12.5 mA (at 12V), at max lighting 70 mA (at 12V)	
Temperature range:	Storage:	-30°C to +80°C. (-22°F to 176°F)
	Operation:	-10°C to +70°C. (14°F to 158°F)

Warranty period:

The above product has a 2 year warranty period, see separate conditions.

CE approval:

The products conforms to the EMC requirements for immunity and emission according to EN 5008-1 and EN 55022

15.2 Nexus Network specification

The Nexus Network is a high performance, non-collision multi talker multi receiver data bus, specially designed for marine navigation applications. The most important features are the high update rate, fast response times, very low data latency (25ms) and very high data security even at long distances. Another important feature is that data transfer efficiency will not degrade even when used in large and complex systems. It utilises the RS485 standard with up to 32 senders and/or receivers to form a Local Area Network. Data is transmitted asynchronously with 1 start-bit, 8-data-bits, 1 parity bit, two stop-bits in 9600 baud.

The link between Nexus Network and your PC-application is the PC interface FD (Full Duplex) / NMEA (Art. No. 21248-1). This is supplied with a 9-pole D-sub connector on a 1 m (3.3 ft) cable for the RS232 PC port. The PC interface is a useful tool to monitor and log real time data, or when editing waypoints to/from PC-file or to/from Nexus Network. For users who write their own software, please see our web-site where you find the Nexus application notes.

15.3 Optional accessories

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

Art. No. Nexus Completes

20445-1	Speed Log complete with transducer
20445-2	Depth complete with transducer
21440	Wind Data complete with transducer
21732	Compass Data complete with 35° tilt transducer
21033-1	GPS Navigator complete with GPS Antenna
20445-3	Multi Control instrument and Server

Art. No. Nexus Transducers

20700	Log/Temp, 0 - 30 KTS, 8 m (26 ft) cable
20711-2	Depth, 0.8 - 150 m (2.6-490 ft), 3 + 8 m (10 + 26 ft) cable
20721	Wind transducer, 25 m (82 ft) cable
20860	Compass transducer 45° tilt, incl. 8 m (26 ft) cable
21000	GPS Antenna, Nexus/NMEA, 10 m (33 ft) cable
21731	Compass transducer 35°. tilt, incl. 8 m (26 ft) cable
20721-1	Carbon-fibre wind transducer, (no mast cable incl.)
21721	MTC (Mast Twist Compensator) box incl. 8 m (26 ft) cable

Art. No. Nexus Digital Instruments

20445-4.	Multi Control instrument
21434-1	Wind Data instrument
21487	Compass Data instrument
21032	GPS Navigator instrument
20445-5	Autopilot instrument
21210	Remote Control instrument
21680-1	Multi XL instrument
21684-2	Multi XL Set, incl. Remote Control instrument
21621	Multi Center

Art. No. Nexus Analogue Instruments

20550-2	Steer Pilot analogue
20550-1	Wind Angle analogue
20550-6	Compass analogue
20550-3	Speed analogue, 0-16 KTS
20550-4	Speed analogue, 0-50 KTS
20550-5	Depth analogue, 0-200 m
20550-7	Depth analogue, 0-600 FT
20550-8	Speed Trim analogue, 20% - 0 - 20%
20550-9	Rudder Angle analogue, 50 - 0 - 50

Art. No.	Nexus Autopilot
21035	Servo Unit
21036	Rudder angle transmitter
21134	Pumpset 12V PF-0,3, for hydraulic steering
21341	Pumpset 12V PF-0,3 with solenoid, for mechanical steering
21136-2	Cylinder SP-20, stroke 200 mm
Art. No.	Other Nexus Accessories
19841	Maxi Repeater yellow digits, NMEA repeater
19941	Maxi Repeater red digits, NMEA repeater
69999	Mast bracket Maxi, for two Maxi repeaters
69995	Mast bracket XL, for Multi XL and standard Nexus 110x110
21556	Connection box Nexus Network
21453	Connection box Wind Data and Compass incl. 6 m (19 ft) cable
21248-1	PC Interface FD (Full Duplex) / NMEA with 1 m (3.3 ft) cable and a 3½"disc.
20438	Instrument cover Nexus instruments 110 x 110 mm
20443	Nexus extenuation cable, per meter
21266-8	Nexus cable 8 m (26 ft) with wire protectors each end
20594	Nexus mast cable 25 m (82 ft)
18129	Instrument panel for up to 6 Nexus 110x110 mm instruments
19763	Remote push-button for external MOB or Trim function
20081	External alarm buzzer, for Nexus Server
19038	Internal mounting kit for depth transducer
19216	Through hull fitting bronze
21154	Paddlewheel blue with axle, high speed 0-50 kts
67400-15	Mast top adapter 15° aluminium
18500	Through deck connector 7-pole
18501	Through deck connector 4-pole
20966	Connector 4-pole
Art. No.	Common spare parts
19488	Rubber screw cover, for instrument front
20608	4-pole jack plug, colour coded
20608-2	4-pole jack plug, marked 1 2 3 4
20482	Cover plate 44 mm, for 4-pin connectors
21027	Cover plate 60 mm, for 8-pin connectors
20535	Wire protection set, 5 pcs x 0,75 mm + 5 pcs x 0,25 mm
18490	Paddlewheel red with axle, standard 0-30 kts
18884	Through hull fitting plastic incl. nut
18990	Dummy plug with o-rings and lock wire
18029	O-ring, for log and depth transducer
19210	Mast top bracket plastic, for wind transducer

15.4 Abbreviations

<u>Abbreviation</u>	<u>Description</u>
A	Angle
AbS	AbSolut
ADJ	ADJust
ALM	ALarM
ANC	ANChor
ANC	ANChor alarm
APC	Automatic autoPilot Calibration
AQU	AcQUisition
ARC	ARC
Arrival	Arrival
ATC	Automatic Trim Control
AVS	AVerage Speed
AWA	Apparent Wind Angle
AWS	Apparent Wind Speed
BAT	BATtery
BF	BeauFort
BOD	Bearing Original Destination
BRG	BeaRinG
BSP	Boat Speed
BTW	Boat Speed To waypoint
C	Celcius
Cal co	Calibration code
CE	Communaute Européenne
C10	Calibrate 10
CAL	Calibrate
CDI	Course Deviation Indicator
CG	Course over Ground
CHK	CHeck
CLR	CLear
CMG	Course Made Good
CMP	CoMPass
COG	Course Over Ground
COR	Correction
CRD	CouRse Damping
CTS	Course To Steer
d	Differential
D/R	Dead Reckoning
DAT	DATum
DEFAULT	Facotry setting
DEP	DEPth
DEV	DEViation
DGPS	Differential GPS
DMG	Distance Made Good
DEA	DEpth Alarm
DPT	DePTH
DRF	DRiFt
DST	DiSTance
DTW	Distance To waypoint
E	East
EDIT	EDIT
EEPROM	Electrically Erasable Programmable Read Only

ABBREVIATIONS

	Memory
EMC	Electro Magnetic Compatibility
EN	European Norm
ETA	Estimated Time or Arrival
F	Fahrenheit
F1-F9	Figure of merit
FA	Fathom
FREE	FREE
FT	FeeT
GEO	GEOdetic
GLL	Geographic Latitude Longitude
GoTo	Go To
GPS	Global Positioning System
HDC	HeadIng Compass
HDM	HeadIng Magnetic
HDOP	Horizontal Dilution Of Precision
HDT	HeadIng True
HM	Heading Magnetic
HT	Heading True
ID	IDentity
INI	INItiation
Init	Initiation
Insert	Insert
Km	Kilometre per hour
KT	KnoTs
KTS	KnoTS
L	Local
LAT	LATitude
LCD	Liquid Crystal Display
LEG	LEG
LGD	Local Geodetic Datum
LIM	LIMit
LOG	LOGg
LON	LONgitude
LOW	LOW
MAG	MAGnetic
MAX	MAXimum
m/s	Meter per second
MEM	MEMory
Mh	Miles per hour
MID	MID
MIN	MINimum
MN	Magnetic North
MOB	Man Over Board
m	Metre
N	North
NAV	NAVigate
NM	Nautical Mile
NMEA	National Marine Electronic Association
NXT	NeXT
OCA	Off Course Alarm
PCA	Pilot Course Alarm
P/S	Packets per Second
PWR	PoWeR
RAM	Random Access Memory
RET	RETurn
RRS	RuddeR Speed

ABBREVIATIONS

RTCM	Radio Technical Commission for Maritime service
RUD	RUDder
RTE	RouTE
Roll	Roll
S	South
S/A	Selective availability
SAT	SATellite
SEA	SEA
SEC	SEConds
SET	SET
SHA	SHallow Alarm
SOG	Speed Over Ground
STA	STArt
STR	STeeR
SW	South West
TAC	TACTical
TBS	True Boat Speed
TMP	TeMPerature
TRM	TriM
TRP	TRiP
T/S	Transmission per Second
TTG	Time To Go
TWA	True Wind Angle
TWD	True Wind Direction
TWS	True Wind Speed
UTC	Universal Time Co-ordinate
VAR	VARiation
VER	VERsion
VMG	Velocity Made Good
W	West
W	Wind
WBN	Waypoint Base Number
WCV	Waypoint Closing Velocity
WPR	Waypoint Receive
WPT	Waypoint Transmit
WSE	Wind SpEed damping
WSP	Wind Speed
WP	Waypoint
XTE	Cross Track Error
(-)	Minus
(_)	Plus

15.5 Warranty

WARRANTY

GENERAL

All our products are designed and built to comply with 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:

7 _____

A	B	C
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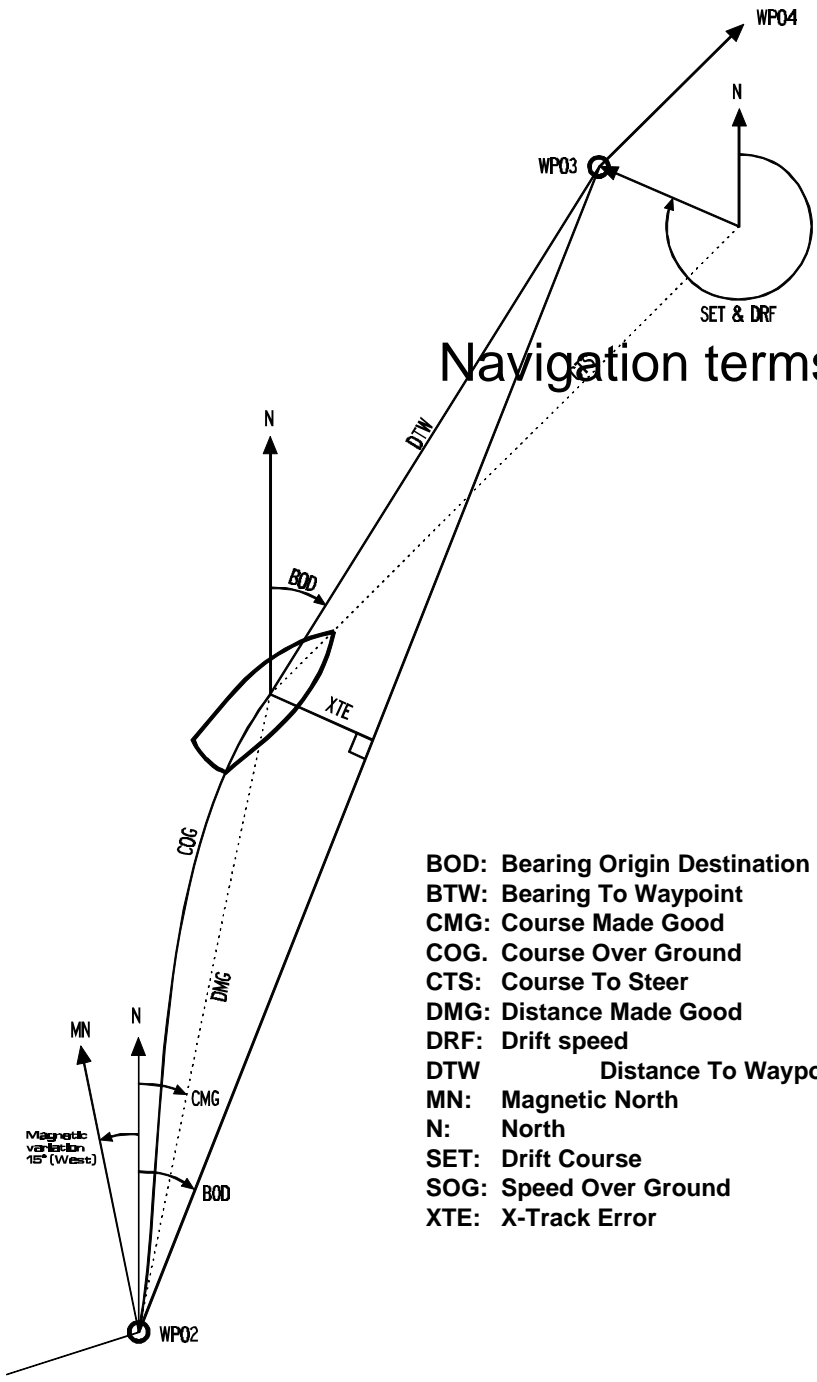
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Date of purchase: _____ Date installed _____

Dealers stamp:

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

Navigation terms



- BOD:** Bearing Origin Destination
- BTW:** Bearing To Waypoint
- CMG:** Course Made Good
- COG:** Course Over Ground
- CTS:** Course To Steer
- DMG:** Distance Made Good
- DRF:** Drift speed
- DTW:** Distance To Waypoint
- MN:** Magnetic North
- N:** North
- SET:** Drift Course
- SOG:** Speed Over Ground
- XTE:** X-Track Error