

Nav6plus User Guide

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Important Information

This equipment is not approved for use by SOLAS convention vessels within the Global Maritime Distress and Safety System (GMDSS)

It is intended for use by leisure craft and other non-SOLAS vessels wishing to participate within GMDSS

Safety Warnings

Do not use the sensor as a grab-handle

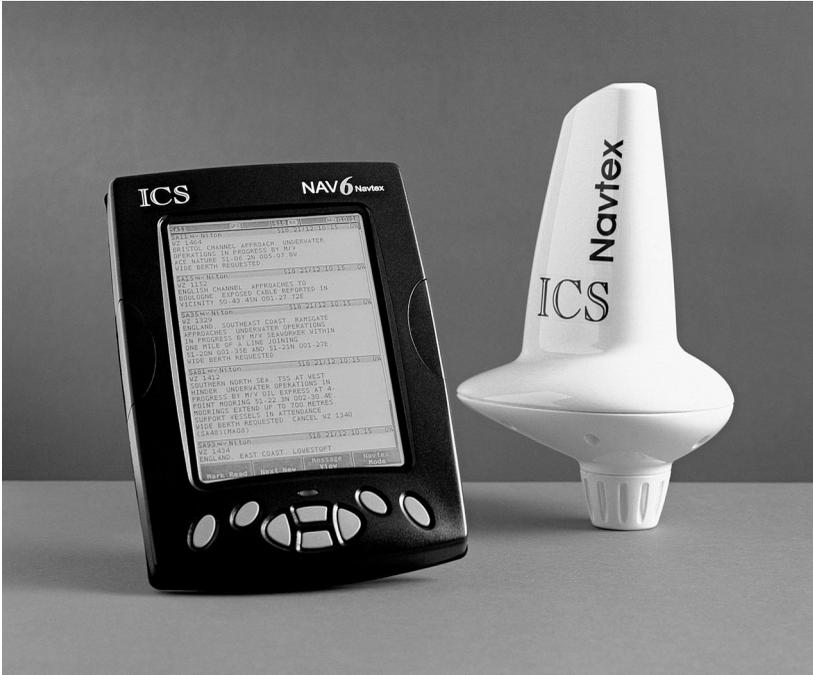
This instrument is for use as an aid to sailors and should not lead to a reduction in the level of good seamanship required at all times

Reception of messages cannot always be guaranteed as this depends on local radio propagation

The correct magnetic variation must be input at the navigation instruments (e.g. GPS, electronic compass) for the accurate display of COG, set, waypoint bearing and heading.

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Congratulations on purchasing this superb **ICS Electronics Ltd** product. It is not only an excellent Navtex receiver, but a first class instrument repeater. It may be the only display you will ever need at your navigation position. We hope that it gives you many years of reliable and trustworthy service. Please take the time to read this manual carefully as it contains some essential information regarding the operation and maintenance of the product and a useful background to the Navtex system.

We recommend that you regularly visit the ICS website www.icselectronics.co.uk for information on updates, the availability of software enhancements, further options and support. The support pages contain frequently asked questions about the Nav6 that you may find useful. There is also a Navtex database providing a list of operational Navtex stations and their details.

The IMO and various national coastguards also operate informative websites that you may wish to visit; see www.icselectronics.co.uk/links.

QUICK START

You will find this product extremely easy to operate. Please don't be intimidated by the comprehensive nature of this manual. In reality, receiving your first NAVTEX messages just could not be simpler.

- Follow the installation guidelines
- Re-check the cable connections
- Apply power
- If you have not connected a GPS navigation receiver, make sure that you set the date and time on the screen which will appear at start up
- Wait for your first NAVTEX message. If you are within range of a NAVTEX transmitter, you should not need to wait for more than four hours.
- Refer to "Appendix IV : Nav6 Menu Navigation" for an overview of the available operating modes & how to switch between them.
- Read the "Basic Operation" section to find out how to use some of the commonly used features of this product
- If you then want to get the best from the system, read the rest of the manual!

INTRODUCTION

What Is NAVTEX?

NAVTEX is a worldwide system for the broadcast and automatic reception of maritime safety information (MSI) in English by means of a narrow-band direct-printing telegraphy. NAVTEX provides shipping with navigational and meteorological warnings and urgent information.

NAVTEX is a component of the IMO/IHO worldwide Navigational Warning Service (WWNWS) as defined by IMO Assembly resolution A.706(17). It is included within the Global Maritime Distress and Safety System (GMDSS). Since 1 August 1993, NAVTEX receiving capability has become mandatory equipment for certain vessels under the provisions of the International Convention for the Safety of Life at Sea (SOLAS).

NAVTEX broadcast information is available to all seafarers, free of charge.

How Does Navtex Work?

NAVTEX transmissions are sent from stations situated worldwide. The power of each transmission is regulated so as to avoid the possibility of interference between transmitters. Each station is allocated a 10-minute time slot every 4 hours so that many stations can share the same frequency. Stations typically have a transmission range of 250 – 300 Nm.

NAV6PLUS FEATURES

Display Unit

- The Display Unit uses a high resolution backlit LCD to display NAVTEX messages in a choice of text sizes.
- The display unit contains a large non-volatile memory to store NAVTEX messages, NAVTEX station database, all of the user settings, filter options, LCD contrast and backlight levels. All messages and settings are retained during power down.
- Several messages can be displayed at once (depending upon the length of the message) and messages can be scrolled with a single keypress.
- Messages can be filtered and sorted using a number of user selectable criteria.
- The Nav6plus can act as an NMEA instrument repeater and is capable of displaying data in a choice of formats.
- The Nav6plus can be connected to a printer or computer to print NAVTEX messages and Navigation logs.
- Audible and visible alarms can be set up to indicate reception of SAR and/or New Messages.
- A sleep mode allows long standby periods with minimum power consumption, such as when the vessel is left in a marina with main batteries being trickle charged from the shore.

Sensor Unit

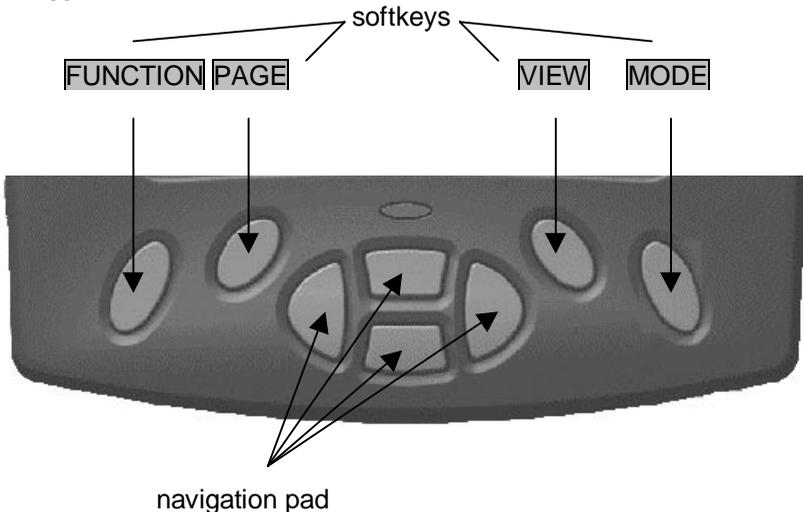
- The Sensor Unit contains a short whip antenna and dual receiver that can receive on both 490kHz and 518kHz simultaneously.
- Multiple sensors and displays can be connected together.

BASIC OPERATION

The Nav6plus is a flexible & powerful tool for receiving, storing & viewing NAVTEX messages. In order to assist you in getting the best from your Nav6plus, read this section which contains short cuts to the most common NAVTEX operations. Read the rest of the manual for a comprehensive guide to the Nav6plus.

First, find your way around the keypad and the display.

The Keypad



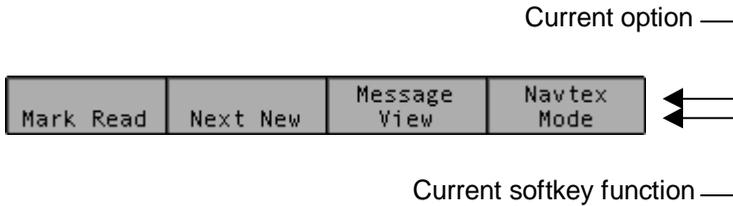
- Centre keys are a 'navigation pad' (**UP** **DOWN** **LEFT** **RIGHT**).
- Softkeys are situated on either side of the navigation pad. The current function of each softkey is shown on the soft-key menu area at the bottom of the display.
- The mode softkey switches between the three operating 'modes' (Navtex, Navigate & Setup).
- The view softkey switches between 'views' in each operating 'mode'. If a 'view' has several 'pages' associated with it then these are selected with the page softkey.
- Operate the keys in this order to get to the mode that you want:

MODE → **VIEW** → **PAGE** → **FUNCTION**

Hint : softkeys are context sensitive and cyclical in operation, several button presses will return you to the start of the cycle.

The Display

At the bottom of the display is the softkey menu area:



The softkey menu area shows what each softkey does in the current operating mode.

- The top line of each softkey menu box indicates the option that is *currently* selected.
- The bottom line of each softkey menu box indicates the current function of that softkey.

The example above shows the Nav6plus in Navtex Mode; the right hand softkey selects the 'mode' & the current mode is 'Navtex'.

At the top of the display is a status bar:



The status information is displayed as a series of icons. The meaning of the icons is as follows:

- IA39** Message ID for the message at the top of the display
- An alarm is active
- GPS** NMEA / GPS position data available
- 490** 490 kHz reception available
- 518** 518 kHz reception available
- RX** Receiving message now
- SIG** Signal Carrier, but no message
- ERR** Sensor communication fault
- SAR** SAR message received
- NEW** NEW message received
- 14:50** UTC Time

Viewing & Scrolling Through Navtex Messages

To view Navtex messages you must first select the Navtex Mode. Use the right hand softkey to change modes until 'Navtex Mode' is visible in the right hand softkey menu box. You can now use the **UP**, **DOWN**, **LEFT** & **RIGHT** keys to scroll through the displayed messages. **UP** & **DOWN** scroll line by line, whereas **LEFT** & **RIGHT** scroll message by message.

The messages currently displayed are a sub-set of all the messages stored in memory. Whether you can see a particular message or not depends upon the current station selection, message filter and age limit settings (see following sections for details).

Message Storage

All received NAVTEX messages are stored in memory regardless of whether you have them selected for viewing or not. The Nav6plus has lots of memory so you will easily have enough storage for all messages received in any 72 hour period. The messages displayed are selected from the Nav6plus' memory by applying the current message filter preset & age limit settings. This enables you to change your mind later about your message display options. This means you will still be able to view messages that were received previously, but were not selected for display at the time, by changing the current message filter or age setting.

After using the Nav6plus for a while you may notice that if you receive a particular message more than once there will only ever be one copy in view. If a message has been received more than once the Nav6plus will store only the best version. It even attempts to repair corrupted messages using comparing copies of the same message!

Filter Presets

The messages currently available for viewing on screen are selected from the messages stored in memory by applying 'filter presets'.

To see the current selected filter presets go to [Navtex Mode⇒Filter View]. You will notice that the left hand softkey is labelled 'Preset' and a number from 1 to 5 is visible. This is the currently selected filter preset number for the this 'filter page'. Each of the 4 filter pages (518 Types, 518 Stns, 490 Types & 490 Stns) has its own 5 presets.

In any one of the filter pages press **PRESET** to change the preset number. You will notice that the settings on the screen change with

filter preset number.

Select the preset that you require for the filter page that you are viewing and then look at the presets for the other filter pages. Note that the preset that is displayed is the one that is currently applied to the message display.

Multiple presets can be used for switching quickly between different sets of messages on the screen. For instance, if you want to show just 'navigational warnings from all stations in range', you can use a preset to do this.

Although the presets are pre-programmed, you can set them to any filter setting you require.

Tip : Use preset 1 for normal operation and only use the other presets if you want to switch between different sets of messages on the display.

Station Selection

If you leave your Nav6plus receiving for 72 hours you will have received many messages (subject to your current location) and unless you filter out those stations that are not required for display, you will be swamped with data. This can either be done automatically using a GPS or by using manual filter settings. In either case go to [Navtex Mode⇒Filter View⇒490 or 518 Stns Page]. You will notice that each station can be set to one of three filter settings:

Setting	Operation
On	Messages from station always in view (see note 1)
Off	Messages from station never in view
Auto	Messages from station only viewed when nearest or in range depending upon setting (see note 1)

note 1 : messages are only displayed if they also fall within the ageing limit, error limit and message category filter settings.

An asterisk to the right of the station name indicates that the station is selected with the current filter setting.

Automatic Station Selection Using GPS

Many users will just want to display NAVTEX from the nearest NAVTEX station to their cruising location. This is most easily achieved by connecting a GPS and selecting 'Nearest' station option in the set up page.

With a GPS connected and 'Nearest' selected you should only see one (or sometimes two) asterisks. Ensure that the set of stations that you want to automatically select from are all set to Auto. Stations that you definitely do not want should be set to Off. You may wish to set your 'home' station to On so that you display messages from it even if it is currently not the nearest station to your cruising position.

Manual Station Selection

Alternatively, you can manually select a station (or stations) setting stations to On or Off by using the **UP**, **DOWN**, **LEFT** & **RIGHT** keys. If you are using a GPS but still want to select stations manually then do not leave any stations set to Auto.

Message Filtering

You can further reduce the amount of unwanted messages that are displayed by applying a filter to the message categories. Go to [Navtex Mode, Filter View, 490 or 518 Types Page]. Each message category can be turned On or Off or can be set to New using the **UP**, **DOWN**, **LEFT** & **RIGHT** keys.

Reading 'New' Messages

Sometimes it is useful to know which messages have been received since you last looked at the Nav6plus display. You may have noticed that each message header carries a 'NEW' icon and that there is an additional 'NEW' icon in the status bar at the top of the display.

Select [Navtex Mode⇒Message View] and you will see that what was the **PAGE** softkey is now indicated as **NEXT NEW**. If the message at the top of the display has the 'NEW' icon showing then the left hand softkey will now be indicated as **MARK READ**. Once you have read the message & want to de-emphasise it then press **MARK READ**. The 'NEW' icon will disappear from the message header. Press **NEXT NEW** to jump to the next new message. Proceed through all of the messages in this way. Once all of the messages have been marked as read then the 'NEW' icon at the top of the display will also disappear. When you return to the Nav6plus

later on it is now very easy to tell if there are any new messages to read (the 'NEW' icon in the status bar at the top of the display will be illuminated).

Note that messages that have been 'marked as read' will still be displayed but with the 'NEW' icon removed from the header in each one. However, it is possible to hide messages once they have been read. Go to [Navtex Mode⇒Filter View⇒490 or 518 Types Page] and set the message categories that you want to hide after they have been marked as read to 'New' instead of 'On'. You may wish to leave SAR messages as 'On' so that they are not hidden once read.

Displaying The Newest Message

All messages are date and time stamped by the Nav6plus even if there is no GPS connected and therefore no correct source of time data.

If there is not a GPS connected then you can manually enter the time and date or just ignore it. The Nav6plus will still order the messages in the correct chronological order (remember that the indicated time of reception will be wrong though).

To display the newest message, go to [Navtex Mode⇒Sort View⇒Descending Order⇒Date Criteria]. The newest message is now at the top of the display.

Message Aging

NAVTEX messages become less relevant over time & eventually just clutter the display. In order to reduce the number of obsolete NAVTEX messages that are being displayed, the Nav6plus uses the concept of a message 'Age Limit'.

It is possible to hide messages that are older than a certain pre-settable age limit. These messages are still stored in the Nav6plus memory for a considerable time after they have been removed from the display and can still be displayed if necessary by increasing the message age limit setting.

To change the age limit go to [Setup Mode⇒Navtex View⇒Options Page] and select the age limit that you require. Use the **UP** & **DOWN** key to select 'age limit' and **LEFT** & **RIGHT** keys to select a value. 3 days is a sensible choice as NAVTEX messages have a nominal life of 72 hours. Set a longer age limit if you wish to display NAVTEX messages going back over the previous weeks.

ADVANCED OPERATION

This section provides a detailed description of the operation of your Nav6plus. The three operating modes are described in detail.

Remember to use the right-hand **MODE** softkey to switch between the operating modes.

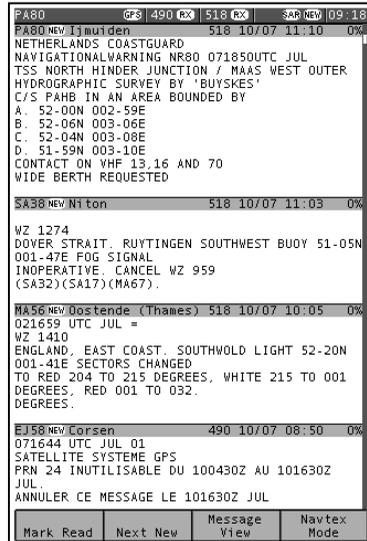
NAVTEX MODE

Navtex Mode is only available if a sensor is (or has been) connected to the display and the Navtex frequency setting on the Navtex options page is set to 518 kHz, 490 kHz or Both.

In Navtex Mode, the display consists of a large area dedicated to displaying NAVTEX messages, with a status bar at the top, and descriptions of the softkey functions at the bottom.

It is possible to scroll up and down the messages line by line, using the **UP** and **DOWN** keys.

Additionally, you can step through the display, message by message using the **LEFT** and **RIGHT** keys.



Four different 'views' can be selected by pressing the **VIEW** softkey:

Message View

Print View (when enabled in setup)

Sort View

Filter View

Navtex Mode, Message View

This view can be used for keeping track of new messages as they are received and displayed. Each new message can be accessed by a single key press & then marked as read, if required.

The **NEXT NEW** softkey should be used to move the next new message to the top of the Navtex display, where it can be marked as read by pressing **MARK READ**. Note that the message that will be 'marked as read' is indicated in the top left of the status bar. This is particularly useful when the message's header has scrolled off the top of the display area.

Navtex Mode, Print View

This view allows individual messages to be printed. The 'Print View' is only displayed if the manual print setting is enabled on the [Setup Mode⇒Navtex View⇒Options Page]. Printing is only possible if an external printer or PC is installed as part of the system.

The **NEXT NEW** softkey can be used to move the next new message to the top of the Navtex display where pressing **PRINT** will print it.

Navtex Mode, Sort View

From within this view different sort criteria can be applied to order the messages on the display. The Navtex Mode display can be sorted in one of three ways by pressing the **CRITERIA** softkey:

Sort by Station

Sort by Type

Sort by Date

The sort can be further organised in ascending or descending order by pressing the **ORDER** softkey.

Sort by Station orders the messages by Navtex frequency and the alphabetical order of their station letters.

Sort by Type orders the messages in the alphabetical order of their message identifier letter.

Sort by Date orders the messages by the date and time that they were first received. For sort by date to work properly, the correct time and date should be set using either time data from the NMEA input or if this is not available, time should be entered manually at start-up.

Navtex Mode, Filter View

This view allows specific stations to be selected for display and the various message categories to be turned on or off. Use the filter view to select which message types from which stations you wish to see displayed on the Navtex display.

(Tip: even if you have de-selected messages from a particular station and/or message type, the system will still receive and store those messages. You will be able to view those messages by re-selecting them in Filter View.)

5 different sets of filter settings can be programmed into the unit. Using the filter presets allows quick selection of 5 different filter settings. Once a preset is selected, the filter settings for that preset may be changed as required. The filter settings for the current selected preset will be applied when NAVTEX messages are next viewed. Press the **PRESET** softkey to select a preset.

(Tip: Set up the 5 filter presets for the stations and message types that you use most. For example:

Preset 1 - all message types from nearest station;

Preset 2 - meteorological warnings from nearest station,

Preset 3 - navigational warnings from nearest station;

Preset 4 - new messages of all message types from nearest station;

Preset 5 – new messages of all message types from stations in range)

There is a 'stations' and 'types' filter page for each selected receive frequency. Use the **PAGE** softkey to select one of the four possible filter pages: 518 Stations, 518 Types, 490 Stations, or 490 Types.

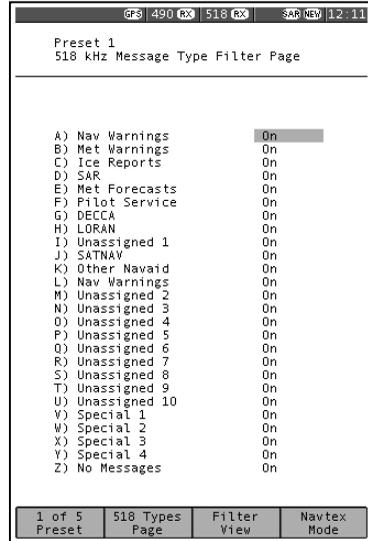
Message Categories

The picture shows the 518 Types filter page; the 490 Types filter page is similar.

Each of the message types can be selected as either On, Off or New

Use the **UP** and **DOWN** keys to select the message type setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.

Set each message type filter to one of the following:

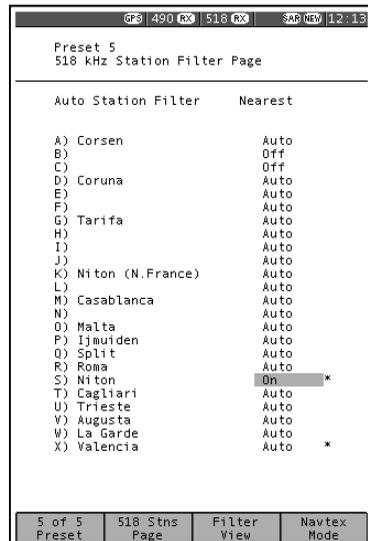


Setting	Notes
On	Message type always displayed
Off	Message type never displayed
New	Message type only displayed when new. Messages marked as read will not appear.

Stations

The picture shows the 518 Stations filter page; the 490 Stations filter page is similar. Use the **UP** and **DOWN** keys to select the station filter setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.

The 'Auto Station Filter' setting can be either Nearest or In Range. This setting is active only when you have a GPS receiver connected to the NMEA input and it applies only to stations set to Auto. To display messages from the nearest station to your current position, set the auto station filter to Nearest.



To display messages from all stations in range of your current position, set the auto station filter to In Range.

For all settings, an asterisk appears next to all stations for which messages will be displayed.

Set the filter for each station to one of the following:

Setting	Notes
On	Messages from station always displayed
Off	Messages from station never displayed
Auto	Messages from station displayed only when nearest or in range depending upon 'Auto Station Filter' setting.

Important: You may wish to leave your Nav6plus running whilst your GPS or instrument system is disconnected or switched off. If you do this then please be aware that the Navigate data items derived from NMEA (including position) will time out after a short while. If you have also opted to display only the 'nearest' NAVTEX station or stations 'in range' then the Nav6plus will no longer have the required position data. It will revert to displaying all stations that are set to 'Auto'. As soon as the NMEA data becomes available again only the 'Nearest' or 'In Range' stations will be displayed dependant upon your current settings.

NAVIGATE MODE

Navigate Mode is only available if there is a GPS or other source of NMEA 0183 data connected to the Nav6plus NMEA input.

The GPS icon in the status bar at the top of the display will be illuminated *only* if there is position data available on the NMEA input.

There are five fixed-format Navigate data display views and four user configurable views. These can be selected from within the Navigate Mode using the **VIEW** softkey. The five fixed views are:

Position View

Combined View

Waypoint View

Conning View

Log View

The user configurable views are User 1 View, User 2 View, User 3 View and User 4 View.

(Tip: Disable views that are not required, in [Setup Mode⇒Navigate ⇒Options Page and Setup Mode⇒Navigate⇒User View Page]).

(Tip: Display units can be changed in the Navigate Options page).

Note: Data fields that are not available on the NMEA input are indicated by a series of dashes (e.g. ---.--).

Important

- The correct magnetic variation must be input at the navigation instruments (e.g. GPS, electronic compass) for the accurate display of COG, set, waypoint bearing and heading.
- For the purposes of testing your installation, you may wish to use your GPS's simulator mode to generate data for the Nav6plus. Please check your GPS User Manual to find out whether it transmits valid NMEA data whilst it is in its simulator mode – many GPS's do not set the 'data valid' flag in the NMEA sentences during simulation. As a safety feature, the Nav6plus will ignore any NMEA sentences where the 'data valid' flag is not set.
- The Nav6plus has a built in NMEA simulator mode – please ensure that it is switched OFF in normal operation.

Position View

The Position View shows GPS information (Position, COG and SOG), Depth reading and Distance log using a large font.

The **UP**, **DOWN**, **LEFT** and **RIGHT** keys have no function.

GPS 490 516		SDR NEW 12:14	
Position			
12:14:39 26/07/01			
39° 36.846N			
2° 39.639E			
SOG		18.5 km/h	
COG(*T)		035°	
Depth		608.9 m	
Distance		1881.3 km	
Trip		1855.4 km	
		Position View	Navigate Mode

Combined View

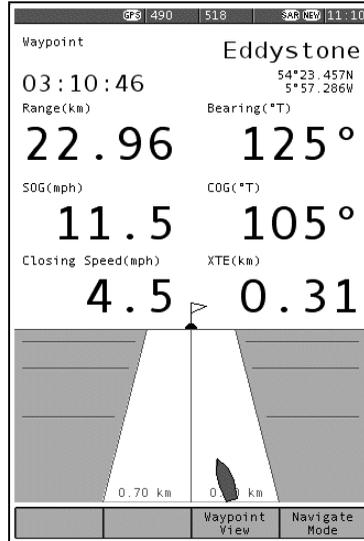
The Combined View shows all NMEA input data on one screen using a small font.

The **UP**, **DOWN**, **LEFT** and **RIGHT** keys have no function.

GPS 490 516		SDR NEW 12:16	
Position			
39° 37.106N		2° 39.769E	
12:16:23 26/07/01			
SOG 18.5 km/h		Water Speed 15.9 km/h	
COG(*T) 035°		Heading(*T) 012°	
Turn Rate -1 °/min		Depth 608.9 m	
Wind Speed(R) 10.1 m/s		Wind Direction(*R) P 043°	
Distance 1881.3 km		Trip 1855.4 km	
Waypoint Eddystone			
TTG 03:10:46		54°23.457N 5°57.266W	
Range 22.96 km		BRG(*T) 125°	
Closing Speed 7.2 km/h		XTE P 0.31 km	
		Combined View	Navigate Mode

Waypoint View

The Waypoint View shows waypoint navigation information and a graphical “rolling road” display of the boat position and course relative to the course line. The rolling road display can be used to steer the boat along the course line whilst keeping the cross track error within chosen limits (the XTE limit may be changed on the [Setup mode⇒Navigate View⇒Options Page]). The Waypoint View shows the waypoint name, waypoint position, time to go (TTG in hours, minutes and seconds), range and bearing to waypoint, closing speed to waypoint, cross track error and COG and SOG.

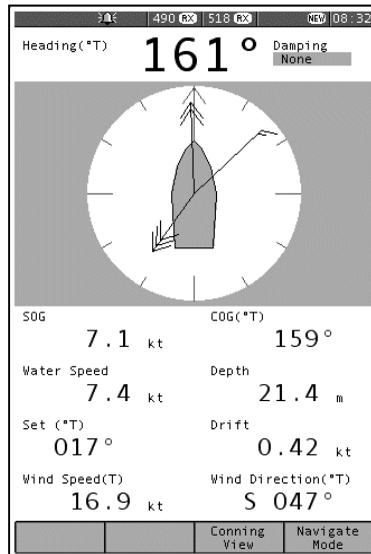


The **UP**, **DOWN**, **LEFT** and **RIGHT** keys have no function.

Conning View

The Conning Display is a unique analogue display which shows overlapping vectors for Heading (course through the water), Course Over the Ground (COG), Set (a combination of leeway and tide) and wind. All of these vectors are displayed relative to the current heading, which is displayed in digital form at the top of the screen.

Heading is shown as a single headed arrow; Course Over the Ground (COG) is shown as a double headed arrow, and Set is shown as a triple headed arrow - in the familiar manner. The wind vector displays variable tail patterns according to the strength of the wind. It follows the usual meteorological wind symbol rules: 5 kts per half feather, 10 kts



per full feather, 50 kts per triangle. Computed Set and Drift and other related parameters are shown in digital form at the bottom of the screen.

To take into account various sea states, variable damping levels may be selected by pressing the **LEFT** and **RIGHT** arrow keys. The currently selected level is shown in the top right hand corner of the display. The damping level can be None, Low, Medium or High. The damping level affects COG, SOG, Heading and Water Speed and Set and Drift readings. The **UP** and **DOWN** keys have no function.

Log View

The **UP** and **DOWN** keys allow the log to be scrolled forwards and backwards in time. The **LEFT** and **RIGHT** keys scroll other LOG data into view.

(Tip: consider the Log View to be a large piece of paper. The LCD allowing a smaller view which can be moved up, down, left and right displaying a portion of the paper at any one time)

The Log View columns are Position, COG, SOG, Heading, Water Speed, Wind Direction, Wind Speed, Depth and Distance.

		GPS 490 518		SAP NEW 1.2 20	
Time	Position	COG *T	SOG km/h		
11/07					
08:30	67°19.546N 016°30.989E	105.4	18.5		
08:29	67°19.371N 016°30.901E	105.4	18.5		
08:28	67°19.221N 016°30.826E	105.4	18.5		
08:27	67°19.146N 016°30.789E	105.4	18.5		
08:26	67°18.924N 016°30.677E	105.4	18.5		
08:25	67°18.849N 016°30.640E	105.4	18.5		
08:21	67°18.179N 016°30.305E	105.4	18.5		
08:20	67°18.029N 016°30.230E	105.4	18.5		
08:19	67°17.879N 016°30.155E	105.4	18.5		
08:18	67°17.729N 016°30.080E	105.4	18.5		
08:17	67°17.579N 016°30.005E	105.4	18.5		
08:16	67°17.429N 016°29.930E	105.4	18.5		
08:15	67°17.279N 016°29.855E	105.4	18.5		
08:14	67°17.129N 016°29.780E	105.4	18.5		
08:13	67°16.979N 016°29.705E	105.4	18.5		
08:12	67°16.829N 016°29.630E	105.4	18.5		
08:11	67°16.679N 016°29.555E	105.4	18.5		
08:10	67°16.529N 016°29.480E	105.4	18.5		
08:09	67°16.379N 016°29.405E	105.4	18.5		
08:08	67°16.229N 016°29.330E	105.4	18.5		
08:07	67°16.079N 016°29.255E	105.4	18.5		
08:06	67°15.929N 016°29.180E	105.4	18.5		
08:05	67°15.779N 016°29.105E	105.4	18.5		
08:04	67°15.629N 016°29.030E	105.4	18.5		
08:03	67°15.479N 016°28.955E	105.4	18.5		
08:02	67°15.329N 016°28.880E	105.4	18.5		
08:01	67°15.179N 016°28.805E	105.4	18.5		
08:00	67°15.029N 016°28.730E	105.4	18.5		
07:59	67°14.879N 016°28.655E	105.4	18.5		
07:58	67°14.729N 016°28.580E	105.4	18.5		
07:57	67°14.579N 016°28.505E	105.4	18.5		
07:56	67°14.429N 016°28.430E	105.4	18.5		
Print		Log View	Navigate Mode		

User Views

The four user views can be configured to show either 2,3 or 4 panels (picture shows a 3 panel view). Each panel can be configured to show different navigation information from a range of options. See the [Setup Mode⇒Navigate View⇒User View Page] for more details of the available options.

The **UP**, **DOWN**, **LEFT** and **RIGHT** keys have no function.



SETUP MODE

This mode enables the user to modify the operation of the Nav6plus. NAVTEX message display presentation, Navigate data presentation, LCD operation & printing operation can all be controlled from Setup Mode.

Setup Mode consists of 3 'Views' that can be selected with the **VIEW** softkey. Each View has a number of 'Pages' that can be selected with the **PAGE** softkey.

General View	Navtex View	Navigate View
LCD Page Options Page	Options Page 490 Names Page 518 Names Page Monitor Page	Options Page User View Page Monitor Page

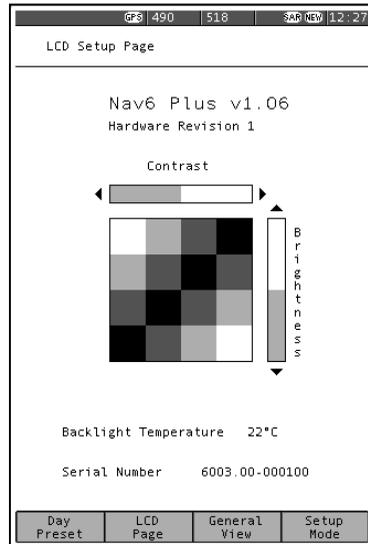
Setup Mode, General View, LCD Page

The General View LCD Page shows a checker board pattern that can be used to set up the LCD.

LCD contrast is adjusted with the **LEFT** and **RIGHT** keys.

LCD brightness is adjusted with the **UP** and **DOWN** keys.

There is a readout of the LCD backlight temperature towards the bottom of the display. This is internal case temperature, and gives only an approximation to ambient temperature.



(Tip: If the LCD is unreadable due to incorrect contrast setting, hold down the MODE softkey for more than 2 seconds, in any operating mode, to display the LCD page and reset the LCD contrast and backlight to 50%. The LCD should now be readable. Adjust the contrast as required).

Setup Mode, General View, Options Page

Option	Setting	Notes
Year	YYYY	Year, e.g. 2001
Month	MM	Month, e.g. 03
Day	DD	Day, e.g. 15
Hour	HH	24 hour clock
Minute	mm	Minutes
Keyclick	OFF	No beep on key press
	ON	Beep on key press
New Message Alert	OFF	New message alert off
	ON	Audible alarm for new messages
Antenna Alarm	OFF	Antenna alarm off
	Timed	Antenna alarms repeated 5 times, unless cancelled
SAR Alarm	Repeated	Antenna alarms repeated until cancelled
	OFF	SAR alarm off
Language	Timed	SAR alarms repeated 5 times, unless cancelled
	Repeat	SAR alarms repeated until cancelled
LED Function	English	English language menus
	Francais	French language menus
	Portugues	Portuguese language menus
	Deutsch	German language menus
LED Function	OFF	LED always off
	ON	LED as power indicator
	RX	LED as receive indicator
	SAR	LED as SAR indicator
	NEW	LED as New Message indicator

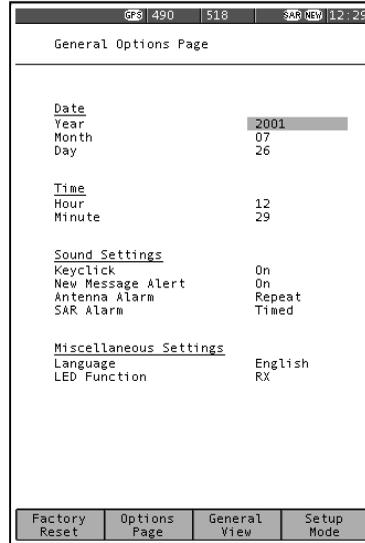
Defaults shown in BOLD

General View Options Page

This view shows general settings for the display such as Date, Time, Sound and Miscellaneous settings. Use the **UP** and **DOWN** keys to select the setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.

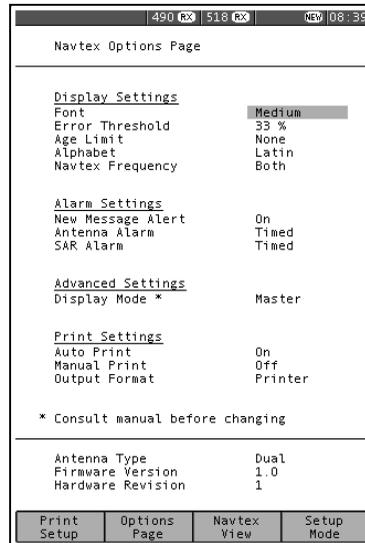
Notes:

- Date and time will be taken from NMEA input data if available.
- There is no battery backup so date and time will be incorrect when power is switched on unless NMEA data is available or the date and time are manually set. The date and time is used to mark all incoming NAVTEX messages so that they can be sorted by date and time.



Setup Mode, Navtex View, Options Page

The [Setup Mode⇒Navtex View⇒Options Page] shows general settings for Navtex operation such as Antenna, Display, Sound and Print settings. Use the **UP** and **DOWN** keys to select the setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.



Option	Setting	Notes
Font	Small	Display Navtex messages using small font
	Medium	Display Navtex messages using medium font
	Large	Display Navtex messages using large font
Error Threshold	XX %	Percentage character error rate above which messages are not displayed. Note that this setting does not stop messages with an error rate above the threshold from being stored in memory
Alphabet	Latin Cyrillic	Latin alphabet used for Navtex messages. Latin alphabet with third shift Cyrillic used for Navtex messages
Age Limit	None , 1, 2, 3, 5 Days, 1, 2, 3, 4, 8, 12 Weeks	Maximum age of Navtex messages to be displayed. Navtex messages older than the age limit are not displayed
Navtex Frequency	None	No receiver selected. Tip: useful when using the display only as a NMEA instrument repeater
	490 kHz	490 kHz only operation
	518 kHz	518 kHz only operation
	Both	490 and 518 kHz operation – only available if antenna Type is 'Dual'
New Message Alert	Off	New message alert off
	On	Audible alarm for new messages
Antenna Alarm	Off	Antenna alarm off
	Timed	Antenna alarms repeated 5 times, unless cancelled
SAR Alarm	Repeat	Antenna alarms repeated until cancelled
	Off	SAR alarm off
	Timed	SAR alarms repeated 5 times, unless cancelled
Display Mode	Repeat	SAR alarms repeated until cancelled
	Master	Set to master if this is the main display. This display will control the sensor over the sensor data link. Only one display may be set to master.
	Slave	Set to slave if this is a repeater unit. Slave units do not control the sensor and can only monitor the sensor data link. There can be multiple slave displays in a system

Option	Setting	Notes
Auto Print	Off On	Auto printing off Auto printing on. New messages will be printed when received. The print filter settings can be used to filter which messages are printed based upon message type and station
Manual Print	Off On	Manual printing off. The Navtex Mode, Print View is hidden Manual printing on. The Navtex Mode, Print View is enabled
Output Format	Data Printer	Formatted for PC. Messages printed in raw format as received. Formatted for printing. Messages printed with print header.
Antenna Type	Switchable Dual	Reported by sensor, cannot be changed
Firmware Version	X.X	Reported by sensor, cannot be changed
Hardware Revision	X	Reported by sensor, cannot be changed

Defaults shown in BOLD

Setup Mode, Navtex View, Options Page, Print Setup

Press the **PRINT SETUP** softkey from within the [Setup Mode⇒Navtex View⇒Options Page] to display the print filter setup pages. Press the **EXIT** softkey to leave the print filter setup.

Note: The print filter setup pages are available only when Auto Print is enabled.

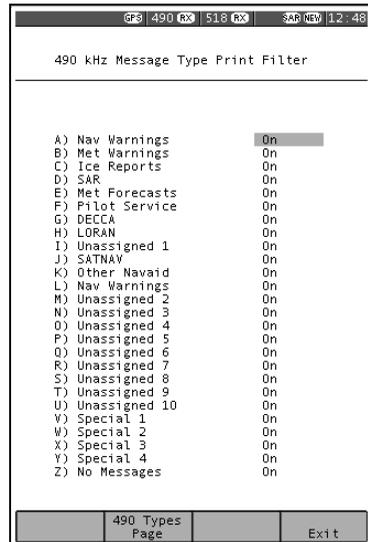
Use the print filter setup pages to select which message types from which stations you wish to have automatically printed when received. The print filtering is independent of the filtering used for the display. It does not affect the storage of messages for display on the Navtex screens.

There is a stations and types filter page for each selected receive frequency. Use the **PAGE** softkey to select one of the four possible filter pages: 518 Stations, 518 Types, 490 Stations, or 490 Types.

The picture shows the 490 Types filter page; the 518 Types filter page is similar.

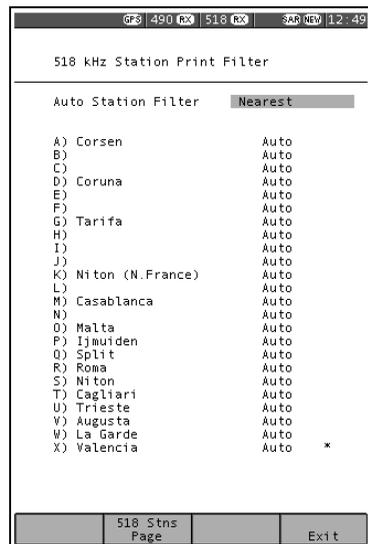
Each of the message types can be selected as either ON or OFF.

Use the **UP** and **DOWN** keys to select the message type setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.



The picture shows the 518 Stations filter page; the 490 Stations filter page is similar. Use the **UP** and **DOWN** keys to select the station filter setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.

The 'Auto Station Filter' setting can be either Nearest or In Range. The setting is active only when you have a GPS receiver connected to the NMEA input and it applies only to stations set to Auto. To print messages from the nearest station to your current position, set the auto station filter to Nearest. To print messages from all stations in range of your current position, set the auto station filter to In Range. An asterisk appears next to all stations for which messages will be printed.



Set the filter for each station to one of the following:

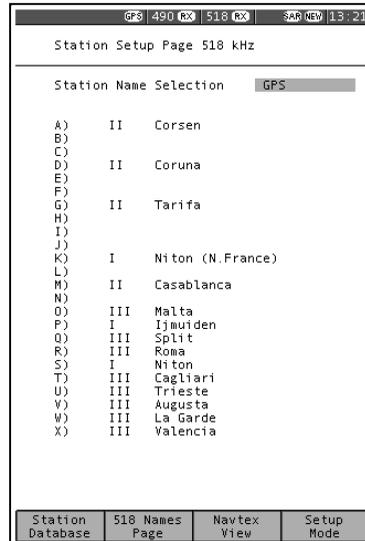
Setting	Notes
On	Messages from station always printed
Off	Messages from station never printed
Auto	Messages from station printed only when nearest or in range depending upon setting.

Setup Mode, Navtex View, 518 and 490 Names Pages

The station names setup pages determine the names of stations displayed on station filter pages and in Navtex message headers.

The picture shows the '518 Names' page; the '490 Names' page is similar.

Use the **UP** and **DOWN** keys to select the setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.



The Station Name Selection setting allows the user to select between 'GPS' and 'Manual' station selection. If 'GPS' is selected and there is valid position data on the NMEA input, the Nav6 will select the NAVTEX transmitting station name nearest to the boat's current location for each station letter.

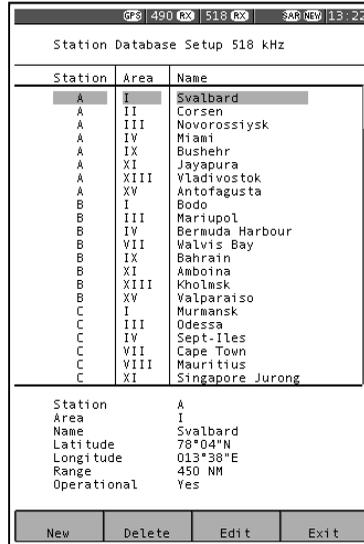
If 'Manual' is selected, then the user can manually select the transmitting station name to be displayed for each station letter.

(Tip : You may be sailing in Nav Area II and therefore will pick station names from Nav Area II. However it is important to realise that the corresponding station letter in the adjacent Nav Areas may be closer. For example, the 'S' station that you are receiving is the 'S' station in an adjacent Nav Area).

Setup Mode, Navtex View, 518 and 490 Names, Station Database Setup

Press the **[STATION DATABASE]** softkey from within the [Setup Mode⇒Navtex View⇒518 or 490 Names Page] to display the station database setup page for 518 or 490 kHz. Press the **[EXIT]** softkey to leave the station database setup.

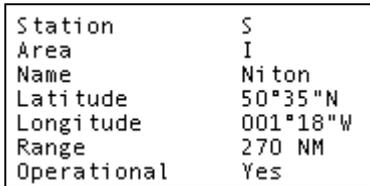
The station database page is divided into two halves. The top half shows a scrolling list of all stations in the database. The bottom half shows details of the current station selected in the station list.



To edit an existing station entry:

Use the **[UP]** and **[DOWN]** keys to select the station you wish to edit. Use the **[LEFT]** and **[RIGHT]** keys to jump to the next or previous station letter in the database.

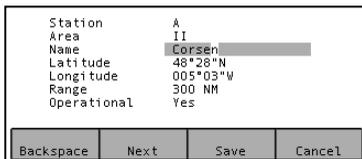
Press the **[EDIT]** softkey to edit the station details at the bottom of the display.



The database entry for a typical station (i.e. 'Niton') is shown left.

Data items are selected using **[UP]** and **[DOWN]** keys. Data items are changed using **[LEFT]** and **[RIGHT]** keys.

When editing the station name, use the **[LEFT]** and **[RIGHT]** keys to change the letters. Use the **[NEXT]** softkey to accept the current letter and move the cursor to the right. Use the **[BACKSPACE]** softkey to delete the current letter and move the cursor to the left



When editing the latitude and longitude fields, use the **[NEXT]** softkey to select the Degrees, Minutes or Cardinal part of the position. Use the **[LEFT]** and **[RIGHT]** keys to change the selected item.

When you have finished entering the data, press the **SAVE** softkey to save and update the database or **CANCEL** softkey to abort the change.

Field	Notes
Station	The station letter: A to X
Area	The Nav-Area: I to XVI
Name	The station name as displayed on Navtex messages. Up to 17 characters.
Latitude Longitude	The transmitter position. Used to determine the nearest and in-range stations
Range	The stated coverage range of the station in NM. Used to determine in range stations.
Operational	Set to YES when the station becomes operational. Set to NO when the station is declared but not yet operational. When set to NO, the station will be excluded when determining the nearest and in range stations.

To enter a new station:

Press the **NEW** softkey to create a new database entry. The rules for entering a new station are identical to those described above for editing an existing station. When you have finished entering the data, press the **SAVE** or **CANCEL** softkey as required.

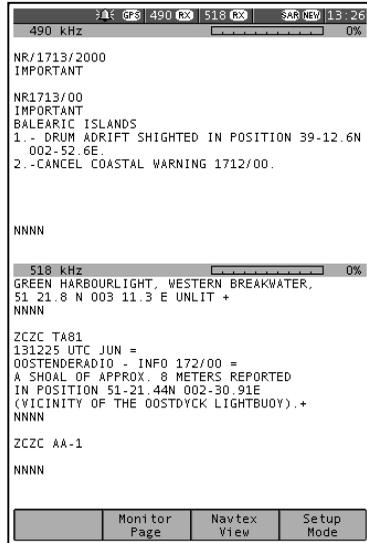
To delete a station :

Use the **UP**, **DOWN**, **LEFT** and **RIGHT** keys to select the station in the station list that you wish to delete. Press the **DELETE** softkey. Confirm or cancel the deletion by pressing the **CONFIRM** or **CANCEL** softkeys.

Setup Mode, Navtex View, Monitor Page

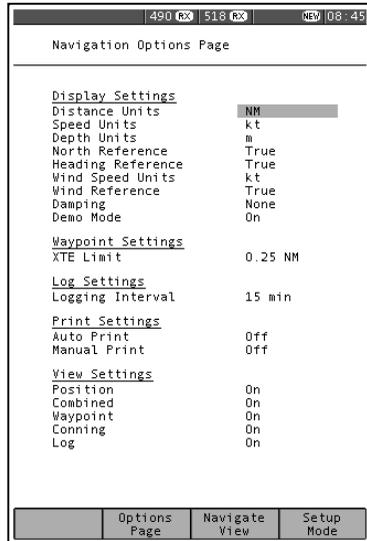
The monitor page shows a split screen view of live 490 and 518 kHz transmissions as they are received. None of the filtering selected in the various setup pages is applied.

The monitor page displays ALL incoming data regardless of error rate. The monitor page also shows the low level phasing characters contained within transmissions (shown as \emptyset characters) and transmission errors (shown as *characters).



Setup Mode, Navigate View, Options Page

The [Setup mode⇒Navigate View⇒Options Page] shows general settings for the navigation screens such as Display, Waypoint, Log, Print and View settings. Use the **UP** and **DOWN** keys to select the setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.



Option	Setting	Notes
Distance Units	NM km mi	Nautical Miles kilometres Miles
Speed Units	Kt Km/h m/s mph	Knots Kilometres per hour Metres per second Miles per hour
Depth Units	ft m	Feet metres
North Reference	True Magnetic	COG and waypoint bearings displayed relative to true North COG and waypoint bearings displayed relative to magnetic North
Heading Reference	True Magnetic	Heading and set displayed relative to true North Heading and set displayed relative to magnetic North
Wind Speed Units	Kt Km/h m/s mph	Knots Kilometres per hour Metres per second Miles per hour
Wind Reference	True Relative	True wind speed and direction displayed Relative wind speed and direction displayed
Damping	None , Low, Medium, High	Sets the damping level applied to COG, SOG, Heading, Water Speed, Set and Drift readings.
Demo Mode	Off On	Real navigation data from the NMEA input is displayed. Simulated navigation data is displayed. Note: the GPS icon does not appear on the status bar.
XTE Limit	0.02 to 1 NM	Set the cross track error limit used on the Waypoint View. Increments in 0.01 NM units.
Log Interval	OFF 15, 20, 30 mins 1, 2, 3, 4, 6, 12 hours	Logging interval as selected.
Auto Print	Off On	Auto printing off Auto printing on. Log data will be printed at the log interval.

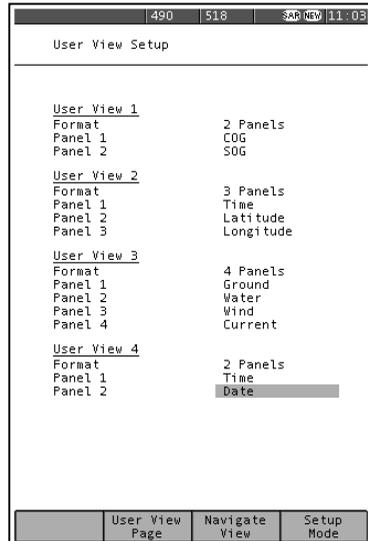
<i>Option</i>	<i>Setting</i>	<i>Notes</i>
Manual Print	Off	Manual printing off. The Print softkey on the Navigate Mode, Log View is hidden
	On	Manual printing on. The Print softkey on the Navigate Mode, Log View is enabled
Position	Off	Position view disabled
	On	Position view enabled
Combined	Off	Combined view disabled
	On	Combined view enabled
Waypoint	Off	Waypoint view disabled
	On	Waypoint view enabled
Conning	Off	Conning view disabled
	On	Conning view enabled
Log	Off	Log view disabled
	On	Log view enabled

Defaults shown in BOLD

Setup Mode, Navigate View, User View Page

The [Setup Mode⇒Navigate View ⇒User View Page] provides settings for the user view pages. Set the format for each user view page to either Off, 2, 3 or 4 panels. Set the contents of each panel. Panel 1 is displayed at the top and panel 4 is at the bottom of the page.

Use the **UP** and **DOWN** keys to select the setting that you wish to edit. Use the **LEFT** and **RIGHT** keys to change the setting.



Option	Setting	Notes
Format	Off	Disable the user view page
	2 Panels	Display the user view page with two large panels.
	3 Panels	Display the user view page with one large panel at the top and two small panels at the bottom.
	4 Panels	Display the user view page with four small panels.
Panel n	See right	<p>Choose the data to be displayed in large panels from the following: Time, Date, Position, COG, SOG, Heading, Water Speed, Wind Direction, Wind Speed, Set, Drift, Distance, Trip, Depth, Turn Rate, Waypoint, Wpt Position, Range, Bearing, TTG, Closing Spd, XTE.</p> <p>Choose the data to be displayed in small panels from the following: Time/Date, Latitude, Longitude, Ground, Water, Wind, Current, Odometer, Depth, Turn Rate, Waypoint, Wpt Latitude, Wpt Longitude, Range/Bearing, TTG, Closing Spd, XTE.</p>

Defaults shown in BOLD

Setup Mode, Navigate View, Monitor Page

The monitor page shows a view of live NMEA 0183 data received at the NMEA input. The monitor page displays ALL incoming sentences and can be paused by pressing the **PAUSE** softkey.

Gr8	518 EHR	SAP NEW	15:54
\$XXVHW,11.5,T,12.1,M,8.6,N,10.3,K			
\$XXVLW,55011.5,N,1001.8,N			
\$XXMNV,315.676,R,10.1,M,A			
\$XXDBT,20.5,f,608.9,M,4.2,F			
\$XXROT,-0.8,A			
\$XXRMB,A,0.17,L,Breakwater,Eddystone,5423.457			
.N,00557.286,W,12.4,124.7,3.9,F			
\$GPRMC,155416,A,4009.741,N,00256.086,E,10.0,3			
5.4,260701.02.2,W*57			
\$GPSNU,A			
\$GPVTG,105.4,T,107.6,M,300.0,280.0,K			
\$GPGA,155416,4009.741,N,00256.086,W,1.5,01.1			
.002,M,051,M,000,0000			
\$GPGLL,4009.741,N,00256.086,W			
\$XXVHW,11.5,T,12.1,M,8.6,N,10.3,K			
\$XXVLW,55011.5,N,1001.8,N			
\$XXMNV,315.676,R,10.1,M,A			
\$XXDBT,20.5,f,608.9,M,4.2,F			
\$XXROT,-0.8,A			
\$XXRMB,A,0.17,L,Breakwater,Eddystone,5423.457			
.N,00557.286,W,12.4,124.7,3.9,F			
\$GPRMC,155417,A,4009.744,N,00256.087,E,10.0,3			
5.4,260701.02.2,W*52			
\$GPSNU,A			
\$GPVTG,105.4,T,107.6,M,300.0,280.0,K			
\$GPGA,155417,4009.744,N,00256.087,W,1.5,01.1			
.002,M,051,M,000,0000			
\$GPGLL,4009.744,N,00256.087,W			
\$XXVHW,11.5,T,12.1,M,8.6,N,10.3,K			
\$XXVLW,55011.5,N,1001.8,N			
\$XXMNV,315.676,R,10.1,M,A			
\$XXDBT,20.5,f,608.9,M,4.2,F			
\$XXROT,-0.8,A			
\$XXRMB,A,0.17,L,Breakwater,Eddystone,5423.457			
.N,00557.286,W,12.4,124.7,3.9,F			
\$GPRMC,1			

Off Pause	Monitor Page	Navigate View	Setup Mode
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ALARM OPERATION

The Nav6 display contains a buzzer that can generate audible alarms for the following conditions:

Option	Notes
New Message Alert	Short beep beep. Not repeated. Indicates reception of a new Navtex message.
SAR Alarm	Morse code: Dot dot dot, dash dash dash, dot dot dot.. Repeated every ten seconds. Indicates reception of a message type D, Search And Rescue Navtex message.
Antenna Alarm	Short dah dee, dah dee. Repeated every eight seconds. Indicates that there is a fault in the Navtex antenna or the cabling; see the Fault Finding section for more details.

The alarms can be enabled or disabled via the [SETUP MODE, GENERAL VIEW, OPTIONS PAGE]. When enabled, the SAR Alarm and Antenna Alarm can be set to repeat 5 times or to repeat continuously.

(Tip: When an alarm is active, pressing any of the softkeys will cancel the alarm. The normal softkey action will not occur).

(Tip: When an alarm is active, an alarm bell icon will flash on the status bar).

The red LED found above the softkeys, can be setup (on the Setup Mode⇒General View⇒Options Page) to flash when there are unread new messages or SAR messages. This can be useful in a noisy environment where audible alarms cannot be easily heard.

PRINTING NAVTEX AND NAVIGATION LOG

The Nav6plus can be configured to function like a GMDSS paper Navtex printer when connected to a suitable serial printer. A Nav6 serial printer can be purchased from ICS (ICS order number 918.00). Alternatively, an ICS Nav4 Navtex receiver can be modified to become a Nav6 serial printer by purchasing a Nav4 to Nav6 printer conversion kit (ICS order number 6100.00).

The Navtex auto print facility acts like a GMDSS paper Navtex printer:

- Poor quality messages (error rates over 33%) are not printed.
- All new messages are printed when first received.
- Only messages not excluded by the print filtering are printed.
- Message repeats are printed each time they are received until they have been received with good quality (error rate of less than 4%).
- Once a good quality message has been received, repeats are not printed during the next 72 hours. After 72 hours the message is treated as a new message and printed again.

The Navigation Log auto-print facility prints navigation log entries as they are added to the Navigate Mode, Log View. Each log printout contains time, date, position, COG, SOG, heading, water speed, wind direction and speed, depth and distance. Only fields containing valid data are printed.

Setting up a printer

Follow these steps to setup Navtex printing.

- Connect the serial printer as described in the “Installation Of Display Unit” section.
- Test the printer installation by enabling manual print (see Setup Mode⇒Navtex View⇒Options Page) and printing a Navtex message by pressing the **PRINT** softkey on the Navtex Mode⇒Print View.
- Enable Navtex auto print and set the output format to “Printer”; see Setup Mode⇒Navtex View⇒Options Page.
- Enable Navtex manual print if you want to be able to the current print Navtex message by pressing the **PRINT** softkey on the Navtex Mode⇒Print View.

- Setup the Navtex print filtering to select which message types from which stations should be printed; see Setup Mode⇒Navtex View⇒Options Page⇒Print Setup.
- Enable Navigate auto print and set the logging interval; see Setup Mode⇒Navigate View⇒Options Page.
- Enable Navigate manual print if you want to be able to print the current page of log entries from the navigation log using the **PRINT** softkey on the Navigate Mode⇒Log View.

Auto printing of Navtex messages should now occur when new Navtex message transmissions are received from the selected stations. Auto printing of Navigation logs should now at Navigate logging intervals.

OUTPUT TO A PC OR PLOTTER

The Nav6 can be setup to output Navtex messages to a PC or compatible chart plotter. Setup the Nav6 as per “Setting up a printer” but with the following exceptions:

- Instead of connecting a serial printer , connect the PC or chart plotter.
- To test the PC connection, run a terminal application with the serial port set to 4800 baud, 8 data bits, 1 stop bit, no parity and print a Navtex message at the Nav6.
- Set the Navtex output format to “Data”; see Setup Mode⇒Navtex View⇒Options Page. This formats the Navtex messages for processing by chart plotter applications.

INSTALLATION OF SENSOR UNIT

The Sensor Unit is a rugged waterproof unit, but care should be taken during installation to prevent damage that may lead to subsequent water ingress.

- The Sensor Unit should be mounted so that the whip is approximately vertical.
- The Sensor Unit can be screwed into a standard marine antenna rail mount (1" 14 tpi thread or ICS part number 903.03).
- The mounting position should avoid any adjacent obstructions caused by the superstructure etc.
- The Sensor Unit should be located at least 0.5metres away from any other electronic equipment including GPS antennas, Radar

etc.

- On a yacht, pushpit mounting is permissible.

Note: due to the variety of possible mounting methods (horizontal rail, vertical rail, deck, etc) ICS do not supply the antenna mounting bracket as standard. They are readily available from most marine electronics stores.

Mounting the Sensor Unit

- First, fix the antenna mount in the desired location.
- If required, thread the sensor cable through the antenna mount (if the antenna mount thread has a slot to accept the sensor cable mount this may not be necessary).
- Now fit the Sensor Unit on top of the antenna mount.
- Holding the top of the Sensor Unit, rotate the large plastic nut on the bottom in order to engage the thread of the antenna mount.
- Continue to tighten the nut until the Sensor Unit is locked.
- Note that it is possible to position the Sensor Unit to face whichever way the user desires.
- Do not use a wrench to tighten the nut – hand-tighten only.

Mounting the optional 45cm Extension Whip

- Remove the red plastic plug on the top of the Sensor Unit.
- Screw in the Extension Whip.
- It is advisable to apply a smear of grease to the thread to ensure that salt deposits do not cause the thread to seize up.

Connections to the Sensor Unit

The sensor cable should be routed back to the intended location of the Display Unit. We do not recommend cutting the cable, but this may be done if, necessary, without effecting the performance of the product.

Note that the sensor cable consists of two twisted pairs, one for power and one for serial data communications.

Twisted Pair	Core Colour	Signal description
YELLOW twisted with BLACK	YELLOW BLACK	POWER from display GND from display
WHITE twisted with BLACK	WHITE BLACK	DATA A from display DATA B from display
Screen	Silver	Screen (nominally 0V)

Routing of the Sensor Cable

The Sensor Cable should be connected to the Display Unit via the terminal strip supplied.

- The Sensor Cable should be routed to the Display Unit taking care that potential tripping hazards are avoided.
- The Sensor Cable should be tied at regular intervals to ensure that the cable is not crushed or able to vibrate as this may affect its performance.
- The Sensor Cable should not be bent through tight radii (less than 4cm).
- Where the Sensor Cable passes through bulkheads or decking, rubber grommets or the optional deck gland (ICS part number 2520.08) should be used to prevent chaffing.

Grounding

For some installations where local interference is thought to be limiting receiver performance, it may be necessary to ground the screen of the antenna cable.

Connect the screen of the interconnecting cable from the connecting block to a good electrical ground. This can either be a specially installed ground plate, or the keel bolts on a non-encapsulated keel. If electrical isolation is to be maintained then this should be done via a 0.1uF 50V capacitor.

If in doubt consult your dealer.

INSTALLATION OF DISPLAY UNIT

- Choose a location that is flat, free from excessive heat and vibration, and which is convenient for routing the Display Cable. The display is best viewed when the screen is mounted square on.
- The Display Unit has been designed for above or below decks mounting. It can be panel mounted onto a bulkhead, mounted via a U-bracket (purchased separately as an option) or mounted on a conversion plate (purchased separately as an option and intended for use when replacing an existing Nav4 with a Nav6).
- **Avoid direct sunlight.** If this cannot be avoided then protect the unit when not in use by purchasing and fitting the optional suncover.
- The Display Unit should be located at least 0.5metres away from any transmitting equipment including GPS antennas, VHF radios, Radar etc.

Surface Mounting the Display Unit

You will need: 104mm (4") hole saw
3mm drill for fixing screws.
Phillips head screwdriver.

Follow the instructions:

- Choose a flat surface on which to mount the Display Unit.
- Use the drilling template supplied to mark out the centres for the 104mm hole and the two 3mm holes.
- Drill the holes.
- Remove the two screw covers from the Display Unit.
- Apply a releasing agent (grease or petroleum jelly) to the rubber seal around the back of the Nav6. This will prevent the seal from sticking to the bulkhead surface over time.
- Position the Nav6 over the holes and insert the screws.
- Do not over-tighten the screws.
- Clip the screw covers in place.

U-bracket Mounting

Please follow the fitting instructions contained within the optional U-bracket mounting kit.

Nav4 to Nav6 Conversion Mounting Plate

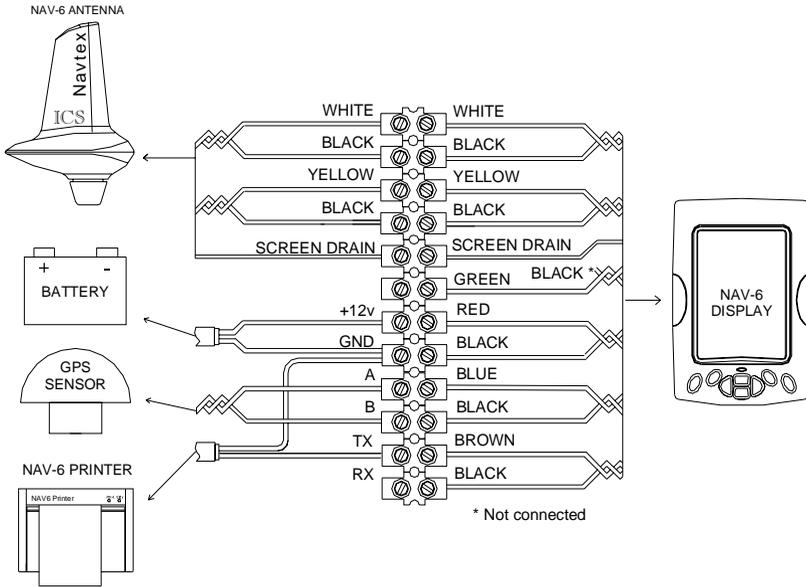
Please follow the fitting instructions contained within the optional Nav4 to Nav6 Conversion Mounting Plate kit.

Connections to the Display

The display cable consists of six twisted pairs:

<i>Twisted Pair</i>	<i>Core Colour</i>	<i>Signal description</i>
RED twisted with BLACK	RED	12V input
	BLACK	GND input
BLUE twisted with BLACK	BLUE	NMEA A input
	BLACK	NMEA B input
BROWN twisted with BLACK	BROWN	RS232 TX output
	BLACK	RS232 RX input
WHITE twisted with BLACK	WHITE	sensor DATA A
	BLACK	sensor DATA B
YELLOW twisted with BLACK	YELLOW	sensor POWER o/p
	BLACK	sensor GND o/p
GREEN twisted with BLACK	GREEN	programming signal
	BLACK	spare
Screen	Silver	Nominally 0V

The following diagram shows a typical Nav6 system.



Connecting Power

The Nav6 Navtex System should be powered from a nominal 12Vdc switched supply, capable of providing a continuous 350mA.

- To allow the unit to be isolated for service, a 1.5A circuit breaker or a 1.5A fuse and switch should switch the power supply.
- Use the RED and BLACK twisted pair for connection to the boat's power supply.
- Connect the RED wire to boat's positive (12V) supply.
- Connect the BLACK wire to negative (0V) supply.
- Note that vessels that require isolation may need to install a DC to DC converter (ICS part number 500.09) – if in doubt ask your dealer.
- 24V vessels should install the 24V / 12V DC to DC converter (ICS part number 500.10).

Connecting the Sensor

- Connect the sensor power. Connect the YELLOW and BLACK twisted pair from the display to the YELLOW and BLACK twisted pair of the sensor; YELLOW to YELLOW, BLACK to BLACK.
- Connect the sensor data. Connect the WHITE and BLACK twisted pair from the display to the WHITE and BLACK twisted pair of the sensor; WHITE to WHITE, BLACK to BLACK.
- Connect the screen. Connect the silver screen wires of the display and sensor. Do not connect these to the negative supply.

Connecting an NMEA Source

- Use the BLUE and BLACK twisted pair for connection to the NMEA data source.
- Connect the BLUE wire to the NMEA A signal.
- Connect the BLACK wire to the NMEA B signal.

(Trouble shooting: Note that NMEA signal terminology can vary between manufacturers – try swapping the BLUE and BLACK wires if the NMEA input does not work initially – no damage will be done)

The Nav6 is compatible with most sources of NMEA 0183 data such as a GPS receiver or adapter boxes supplied for use with networked instrument systems. Please note that you may need to program the source of NMEA data to send the correct sentences in the correct format. You may also need to purchase an NMEA adapter box for your instrument system. Should you be uncertain of your abilities in this area, you are strongly advised to seek the services of a qualified marine electronics installer.

Note: We do not guarantee compatibility with all GPS receivers or all instrument systems. However, this can normally be achieved for most systems by a skilled installer. For notes on achieving compatibility with various systems, see the Nav6 FAQ section on our web site: www.icselectronics.co.uk

The Nav6plus uses NMEA data for the following:

- To synchronise its internal clock with UTC time.
- To display a wide variety of NMEA data in a selection of formats (see Appendix IV for the NMEA sentences supported).
- To automatically filter the message display to show either messages from only the nearest Navtex transmitting station, or all stations that are currently within range.

Connecting the Programming Signal

The programming signal (GREEN and BLACK twisted pair) is not required for normal operation and should be left unconnected.

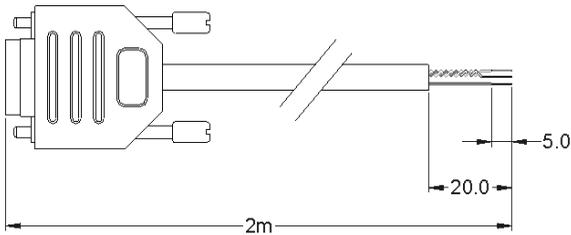
Connecting a PC, Printer or Plotter

The following equipment with RS232 serial data connection may be connected to the Nav6:

- A PC (via ICS Cable option 6020.09).
- Or a printer or chart plotter (via ICS Cable option 6020.10).

The PC and printer serial port should be set to 4800 baud, 8 data bits, no parity, 1 stop bit, and no flow control. A terminal emulator program, such as HyperTerminal, can be used to monitor the data output.

If you wish to make up your own PC interface cable please follow the diagram below.

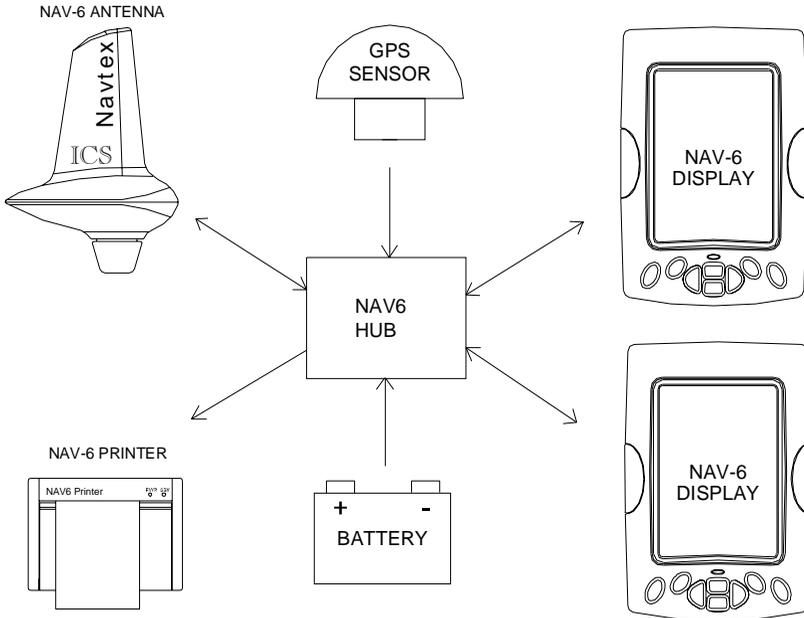


ALL DIMENSIONS IN mm UNLESS INDICATED OTHERWISE

9 way "D" type female pin number	Signal	Nav6 display connection
1	No connection	-
2	RX	Black (Paired with brown)
3	TX	Brown
4	No connection	-
5	GND	Black (Paired with red)
6	No connection	-
7	No connection	-
8	No connection	-
9	No connection	-

Connecting Multiple Display Units

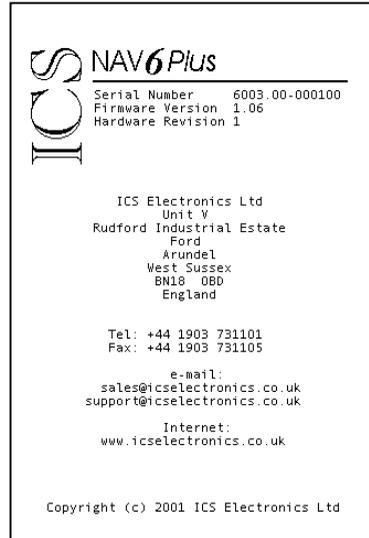
Where multiple displays are required, these may be purchased as an option (ICS part number 6003.00). In addition, a Nav6 hub is required to interconnect the equipment (ICS part number 919.00). For full details on using the Nav6hub within an extended Nav6 system, please refer to the Nav6hub User Guide.



Note: When multiple displays are used, only the main display must be set to master 'Display Mode' and all other displays must be set to be slaves; see Set-up Mode, Navtex View, Options Page.

TESTING THE NAV6 AFTER INSTALLATION

- Carefully check all connections before applying power.
- Switch on the power supply by closing the 1.5A circuit breaker or power panel switch.
- Check that the red LED illuminates for approximately 8 seconds and then goes out and the start-up page appears on the Nav6 display. The start-up progress bar at the bottom of the page will disappear when the system is ready to use. Press any key to show the next screen.
- Check that the sensor is working. Check that both the '490' and the '518' icon appear on the status line at the top of the Navtex display. If the correct icons do not appear, then switch off the power supply and check the sensor data and power connections; check that you have not swapped the sensor DATA A and DATA B wires.
- Check that the NMEA input is working. When the display is receiving GPS data the 'GPS' icon will appear on the status line at the top of the Navtex display. If the icon does not appear, ensure that the NMEA source is operating and check the NMEA data connections; you may have to swap the NMEA DATA A and DATA B wires.



MAINTENANCE AND TROUBLE SHOOTING

Cleaning

The Nav6 Navtex System may be cleaned when necessary by wiping with a cloth dampened with fresh water. Do not use solvents.

Fault Finding

Fault	Possible cause
LCD blank, RED LED On	Green wire connected to 12V <i>Disconnect green wire – it should not be connected other than for programming</i>
LCD blank, RED LED off	No power <i>Check that 12V is connected to RED wire and 0V to its BLACK pair</i>
RED LED flashing with a period of 2 seconds. Display not operating.	Low voltage <i>There is insufficient voltage supplying the display</i>
RED LED flashing with a period of 15 seconds. Display not operating.	Sleep Mode <i>Press any key to activate the display</i>
No Navtex messages received	<i>Check for SIG or ERR on status line; see below. Check siting of sensor.</i>
SIG on status line (signal fault)	<ul style="list-style-type: none"> If this symbol appears for short periods – don't worry – it's caused by one or more Navtex stations transmitting carrier but no modulation, or by local interference. If this symbol persists then you may have a receiver error or interference from nearby equipment. <i>Check for possible causes. Identify the local source of interference by turning off items of equipment (e.g. battery charger) until the SIG indicator is cleared</i>
ERR on status line (communications error)	<ul style="list-style-type: none"> No power to Sensor No communications to Sensor <i>Check connections to sensor. Check for 12V between YELLOW wire and its BLACK pair</i> <ul style="list-style-type: none"> Display Mode set to "Slave" Always set the 'Display Mode' to "Master" in single display systems. Two or more master displays connected to a sensor <i>Set the 'Display Mode' on one display to master and set all other displays to slave</i>
No GPS indicator on status line	No NMEA data on NMEA input. <i>Check the NMEA data connections. Check that the GPS unit is switched on. Check that the GPS unit is set to output compatible NMEA sentences (see Appendix III: NMEA Sentences Supported).</i>

Software Upgrade

The Nav6plus has FLASH memory based software. This allows the Nav6plus to be upgraded when new software releases are developed. Please check our website www.icselectronics.co.uk for information on new releases.

Input Fuse

The Nav6plus has a built-in resettable fuse on its 12V input. This fuse will trip if the unit due to a fault condition draws excessive currents. Power must be disconnected from the unit for 10 seconds in order for the fuse to reset.

Sensor Output Fuse

The Nav6plus has a built-in resettable fuse on its sensor output power connector. This fuse will trip if a fault condition on the sensor unit draws excessive currents. The sensor unit power must be disconnected for 10 seconds in order for the fuse to reset.

WARRANTY

ICS Electronics Ltd warrants to the original end-user that this product will be free from defects in materials and workmanship for a period of one year from the date of purchase. During the warranty period, and upon proof of purchase, the product will be repaired or replaced (with the same or a similar model, which may be a refurbished model) at ICS Electronics' option, without charge for either parts or labour. For warranty repair, the unit must be returned, carriage pre-paid, to the ICS Electronics Ltd. dealer from whom it was first purchased. This limited warranty shall not apply if the product is modified, tampered with, misused, subjected to abnormal working conditions (including, but not limited to lightning and immersion in water) and use with power supplies and other options not specifically recommended by ICS Electronics Ltd.

Please contact us for further details of our warranty repair procedure.

GLOSSARY

COG	Course Over Ground
GMDSS	Global Maritime Distress and Safety System
IMO	International Maritime Organisation
NMEA	National Marine Electronics Association
RS485	Serial data communication interface
RS232	Serial data communication interface
SAR	Search and Rescue
SOG	Speed Over Ground
SOLAS	Safety of Life at Sea
TTG	Time To Go
XTE	Cross Track Error

PACKING LIST AND OPTIONS

Packing List

For the Nav6 System contents – please see the packing list enclosed.

Options

The following Nav6 ancillary parts can be purchased:

Option	ICS Part Number
U-bracket mounting kit	6020.00
Nav4 to Nav6 conversion mounting kit	6020.17
Nav4 to Nav6 serial printer conversion kit	6100.00
Display unit suncover	6020.03
Sensor Rail mount	903.03
Cable deck gland	2520.08
Nav6 Serial Printer	918.00
Nav6hub	919.00
12V / 12V DC to DC converter	500.02
24V / 12V DC to DC converter	500.13
NAV6 PC serial interface cable	6020.09
Additional Nav6 plus display unit	6003.00
5m Navtex sensor cable extension kit	6020.19
30m Navtex sensor cable extension kit	6020.18

SPECIFICATION

Approval Standards

Meets the EMC requirements of IEC 60945

Power

Voltage range	10.8V to 15.6V
Consumption (Typical)	
Backlight full	310 mA (3.8 W at 12V)
Backlight off	165 mA (2.0 W at 12V)
Sleep mode	115 mA (1.4 W at 12V)

Display Unit

Operating Temperature Range	0 to +50degC
Storage Temperature Range	-20 to +55degC
Humidity	0 to 95%
Mounting	Above or below decks
Weight (without cable)	445 g (approx.)
Power	10.8V to 15.6V
Splash-proof	

Sensor Unit

Operating Temperature Range	-10 to +50degC
Storage Temperature Range	-20 to +55degC
Humidity	0 to 95% non-condensing
Mounting	Above decks
Weight (without cable)	420 g (approx.)
Power	Provided by Display Unit
Waterproof to IEC 60945	
Extension Whip (length)	45 cm
Extension Whip (screw thread)	3/8", 24 tpi

Receive Frequency

490kHz and 518kHz

Message Storage

Sufficient non-volatile storage for 3 days transmissions under normal operating conditions. Normally much longer than 3 days worth of storage will be achieved

NMEA Input Interface Specification

The unit meets the electrical requirements of NMEA 0183

Display Unit Features

- 1/2vga (480x320 pixels) monochrome LCD with 4 grey levels
- 32 step CCFL backlighting of LCD
- 128 step contrast adjustment of LCD
- LED backlighting for keyboard
- RS485 serial I/O port to sensor
- NMEA input
- RS232 printer output
- Piezo buzzer for audible alarms
- Internal temperature sensor
- Non volatile memory

APPENDIX I: NAVTEX STATION DATABASE

518kHz Navtex Stations

Id	Area	Country	Name	Latitude	Longitude	Range (NM)	Op
A	01	Norway	Svalbard	78°4'N	13°38'E	450	Yes
A	02	France	Corsen	48°28'N	5°3'W	300	Yes
A	03	Russia	Novorossiysk	44°43'N	37°47'E	300	Yes
A	04	USA	Miami	25°30'N	80°23'W	240	Yes
A	09	Iran	Bushehr	28°58'N	50°50'E	300	Yes
A	11	Indonesia	Jayapura	2°31'S	140°43'E	300	Yes
A	13	Russia	Vladivostok	43°7'N	131°53'E	280	No
A	15	Chile	Antofagusta	23°40'S	70°25'W	300	Yes
B	01	Norway	Bodo	67°16'N	14°23'E	450	Yes
B	03	Ukraine	Mariupol	47°6'N	37°33'E	280	Yes
B	04	Bermuda	Bermuda Harbour	32°23'N	64°41'W	280	Yes
B	07	Namibia	Walvis Bay	23°3'S	14°37'E	380	Yes
B	09	Bahrain	Bahrain	26°9'N	50°28'E	300	Yes
B	11	Indonesia	Amboina	3°42'S	128°12'E	300	Yes
B	13	Russia	Kholmsk	47°2'N	142°3'E	300	Yes
B	15	Chile	Valparaiso	32°48'S	71°29'W	300	Yes
C	01	Russia	Murmansk	68°58'N	33°5'E	140	Yes
C	03	Ukraine	Odessa	46°29'N	30°44'E	280	Yes
C	04	Canada	Sept -Iles	50°11'N	66°7'W	300	Yes
C	07	South Africa	Cape Town	33°41'S	18°43'E	500	Yes
C	08	Mauritius	Mauritius	20°10'S	57°28'E	400	Yes
C	11	Singapore	Singapore	1°20'N	103°42'E	400	Yes
C	12	USA	San Francisco	37°55'N	122°42'W	350	Yes
C	13	Russia	Petropavlosk	53°0'N	158°40'E	280	No
C	15	Chile	Talcahuano	36°42'S	73°6'W	300	Yes
D	01	Sweden	Grimeton	57°6'N	12°23'E	299	Yes
D	02	Spain	Coruna	43°22'N	8°27'W	400	Yes
D	03	Turkey	Istanbul	41°4'N	28°57'E	300	Yes
D	04	Canada	Sept -Iles	50°11'N	66°7'W	300	Yes
D	11	Indonesia	Ujungpandang	5°6'S	119°26'E	300	Yes
D	12	Canada	Prince Rupert	54°18'N	130°25'W	300	Yes
D	13	Russia	Magadan	59°40'N	151°1'E	000	No
D	15	Chile	Puerto Montt	41°29'S	72°57'W	300	Yes
E	03	Turkey	Samsun	41°17'N	36°20'E	300	Yes
E	11	Indonesia	Jakarta	6°7'S	106°52'E	300	Yes
E	12	USA	Savannah	32°8'N	81°42'W	200	Yes
E	13	Russia	Beringovskiy	64°10'N	179°02'W	000	No
E	15	Chile	Magallanes	52°56'S	70°54'W	300	Yes
F	01	Russia	Arkhangel'sk	64°33'N	40°32'E	300	Yes
F	02	Acores	Horta	38°32'N	28°38'W	640	Yes
F	03	Turkey	Antalya	36°53'N	30°42'E	300	Yes
F	04	USA	Boston (Ice Rep)	41°43'N	70°31'W	200	Yes
F	06	Uruguay	La Paloma	34°40'S	54°9'W	280	Yes
F	09	Iran	Bandar Abbas	27°8'N	57°4'E	300	Yes
F	11	Thailand	Krung Thep	13°44'N	100°34'E	200	Yes
F	13	Russia	Providenia Bukhta	64°10'N	173°10'W	000	No
F	15	Chile	Isla De Pascua	27°9'S	109°25'W	300	Yes
G	01	UK	Cullercoats	55°4'N	1°28'W	270	Yes
G	02	Spain	Tarifa	36°1'N	5°34'W	400	Yes
G	04	USA	New Orleans	29°53'N	89°55'W	200	Yes
G	08	India	Mumbai	19°5'N	72°50'E	299	Yes
G	09	Saudi Arabia	Damman	26°26'N	50°6'E	390	Yes
G	11	Japan	Naha	26°9'N	127°46'E	400	Yes
G	15	Chile	Isla De Pascua	27°9'S	109°25'W	300	Yes
H	01	Sweden	Bjuroklubb	64°28'N	21°36'E	300	Yes
H	03	Greece	Iraklion	35°20'N	25°7'E	280	Yes
H	04	Canada	Prescott	44°20'N	81°10'W	300	Yes
H	06	Dutch Antilles	Curacao	12°10'N	68°52'W	250	Yes

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Id	Area	Country	Name	Latitude	Longitude	Range (NM)	Op
H 09		Saudi Arabia	Jeddah	21°23'N	39°11'E	390	Yes
H 11		Japan	Moji	33°52'N	130°36'E	400	Yes
H 12		Canada	Tofino	48°56'N	125°32'W	300	Yes
H 15		Chile	Antofagusta	23°40'S	70°25'W	300	Yes
I 02		Islas Canarias	Las Palmas	28°8'N	15°25'W	400	Yes
I 03		Turkey	Izmir	38°21'N	26°35'E	300	Yes
I 07		South Africa	Port Elizabeth	33°57'S	25°31'E	500	Yes
I 11		Japan	Yokohama	35°22'N	139°36'E	400	Yes
I 15		Chile	Valparaiso	32°48'S	71°29'W	300	Yes
J 01		Sweden	Gislövshammer	55°29'N	14°19'E	300	Yes
J 03		Bulgaria	Varna	43°4'N	27°46'E	350	Yes
J 04		Canada	Sydney	46°11'N	59°54'W	300	Yes
J 11		Japan	Otaru	43°12'N	141°0'E	400	Yes
J 12		Alaska	Kodiak	57°46'N	152°34'W	200	Yes
J 15		Chile	Talcahuano	36°42'S	73°6'W	300	Yes
K 01		UK	Niton (N.France)	50°35'N	1°18'W	270	Yes
K 03		Greece	Kerkyra	39°45'N	19°52'E	280	Yes
K 11		Japan	Kushiro	42°59'N	144°23'E	400	Yes
L 01		Norway	Rogaland	58°39'N	5°36'E	450	Yes
L 03		Greece	Limnos	39°52'N	25°4'E	280	Yes
L 11		Hong Kong	Hong Kong	22°13'N	114°15'E	299	Yes
L 15		Chile	Magallanes	52°56'S	70°54'W	300	Yes
M 01		Belgium	Oostende (Thames)	51°11'N	2°48'E	150	Yes
M 02		Morocco	Casablanca	33°36'N	7°38'W	180	No
M 03		Cyprus	Cyprus	35°10'N	33°26'E	200	Yes
M 06		Argentina	Ushuaia Prefectur	54°48'S	68°18'W	280	Yes
M 09		Oman	Muscat	23°37'N	58°31'E	270	Yes
M 11		China	Sanya	18°14'N	109°30'E	250	Yes
N 01		Norway	Orlandet	63°40'N	9°33'E	450	Yes
N 03		Egypt	El Iskandariya	31°12'N	29°52'E	350	Yes
N 04		USA	Portsmouth	36°44'N	76°1'W	280	Yes
N 06		Argentina	Rio Gallegos	51°37'S	69°3'W	280	Yes
N 11		China	Guangzhou	23°9'N	113°29'E	250	Yes
O 01		UK	Portpatrick	54°51'N	5°7'W	270	Yes
O 03		Malta	Malta	35°49'N	14°32'E	400	Yes
O 04		Canada	St Johns	47°37'N	52°40'W	300	Yes
O 06		Argentina	Comodoro Rivadavi	45°51'S	67°25'W	280	Yes
O 07		South Africa	Durban	29°48'S	30°49'E	500	Yes
O 11		China	Fuzhou	26°2'N	119°18'E	250	Yes
O 12		Hawaiian Islands	Honolulu	21°22'N	158°9'W	350	Yes
P 01		Netherlands	Ijmuiden	52°27'N	4°35'E	110	Yes
P 03		Israel	Hefa	32°49'N	35°0'E	200	Yes
P 04		Canada	Thunder Bay	48°26'N	89°13'W	300	Yes
P 06		Argentina	Bahia Blanca	38°43'S	62°6'W	280	Yes
P 08		India	Madras	13°8'N	80°17'E	299	Yes
P 09		Pakistan	Karachi	24°51'N	67°3'E	400	Yes
P 11		Taiwan	Meilung	23°59'N	121°37'E	350	Yes
P 11		Taiwan	Lintou	23°33'N	119°38'E	350	Yes
P 11		Taiwan	Linyuan	22°29'N	120°25'E	540	Yes
P 11		Taiwan	Keelung	25°8'N	121°45'E	540	Yes
P 11		Vietnam	Hai Phong	20°43'N	106°44'E	400	No
Q 01		Ireland	Malin Head	55°22'N	7°21'W	400	Yes
Q 03		Croatia	Split	43°30'N	16°29'E	085	Yes
Q 04		Canada	Sydney	46°11'N	59°54'W	300	Yes
Q 06		Argentina	Mar Del Plata	38°3'S	57°32'W	280	Yes
Q 11		China	Shanghai	31°7'N	121°33'E	250	Yes
Q 12		USA	Long Beach	35°31'N	121°3'W	350	Yes
R 01		Iceland	Reykjavik	64°5'N	21°51'W	550	Yes
R 02		Portugal	Monsanto	38°44'N	9°11'W	530	Yes
R 03		Italy	Roma	41°48'N	12°31'E	320	Yes
R 04		Greenland	Reykjavik	64°5'N	21°51'W	550	Yes
R 06		Argentina	Buenos Aires	34°27'S	58°37'W	560	Yes
R 11		China	Dalian	38°52'N	121°31'E	250	Yes
R 12		Puerto Rico	San Juan	18°28'N	67°4'W	200	Yes
S 01		UK	Niton	50°35'N	1°18'W	270	Yes

Id	Area	Country	Name	Latitude	Longitude	Range (NM)	Op
S	04	Canada	Iqaluit	63°44'N	68°33'W	200	No
S	11	Malaysia	Labuan	5°54'N	118°0'E	350	Yes
S	16	Peru	Paita	5°5'S	81°7'W	200	Yes
T	01	Belgium	Oostende	51°11'N	2°48'E	050	Yes
T	03	Italy	Cagliari	39°14'N	9°14'E	320	Yes
T	04	Canada	Iqaluit	63°44'N	68°33'W	200	No
T	11	Malaysia	Kuching	4°27'N	114°1'E	350	Yes
U	01	Estonia	Tallinn	59°30'N	24°30'E	300	Yes
U	03	Italy	Trieste	45°41'N	13°46'E	320	Yes
U	04	Canada	Fundy	43°45'N	66°10'W	300	Yes
U	11	Malaysia	Port Kelang	5°25'N	100°24'E	350	Yes
U	16	Peru	Calleo	12°3'S	77°9'W	200	Yes
V	01	Norway	Vardo	70°22'N	31°6'E	450	Yes
V	03	Italy	Augusta	37°14'N	15°14'E	320	Yes
V	04	Canada	Fundy	43°45'N	66°10'W	300	Yes
V	11	South Korea	Chukpyon	37°3'N	129°26'E	200	Yes
V	11	Mariana Islands	Guam	13°34'N	144°50'E	100	Yes
W	01	Ireland	Valencia (Dublin)	51°27'N	9°49'W	400	Yes
W	03	France	La Garde	43°6'N	5°59'E	250	Yes
W	04	Greenland	Kook Islands	64°4'N	52°1'W	400	No
W	11	Vietnam	Da Nang	16°5'N	108°13'E	400	Yes
W	11	South Korea	Pyonsan	35°36'N	126°29'E	200	Yes
W	12	USA	Astoria	46°10'N	123°49'W	216	Yes
W	16	Peru	Mollendo	17°1'S	72°1'W	200	Yes
X	03	Spain	Valencia	38°43'N	0°9'E	300	Yes
X	04	Canada	Labrador	53°18'N	60°33'W	300	Yes
X	09	Egypt	Serapeum	30°28'N	32°22'E	200	Yes
X	11	Vietnam	Ho Chi Minh-City	10°47'N	106°40'E	400	Yes
X	12	Alaska	Kodiak	57°47'N	152°32'W	200	Yes

490kHz Navtex Stations

Id	Area	Country	Name	Latitude	Longitude	Range (NM)	Op
A	06	Uruguay	La Paloma	34°40'S	54°9'W	280	Yes
C	01	UK	Portpatrick	54°51'N	5°7'W	270	Yes
E	02	France	Corsen	48°28'N	5°3'W	300	Yes
G	02	Portugal	Monsanto	38°44'N	9°11'W	530	Yes
I	01	UK	Niton	50°35'N	1°18'W	270	Yes
J	02	Acores	Horta	38°32'N	28°38'W	640	Yes
J	11	South Korea	Chukpyon	37°3'N	129°26'E	200	Yes
K	11	South Korea	Pyonsan	35°36'N	126°29'E	200	Yes
S	03	France	La Garde	43°6'N	5°59'E	250	Yes
S	04	Canada	Iqaluit	63°44'N	68°33'W	200	No
U	01	UK	Cullercoats	55°4'N	1°28'W	270	Yes
W	11	Vietnam	Hai Phong	20°43'N	106°44'E	400	No

Note: to the best of our knowledge, all Navtex station database information was correct on the date of publication.

APPENDIX II: MESSAGE TYPE INDICATORS

Navtex broadcasts use following message type letter:

A	Navigational warnings
B	Meteorological warnings
C	Ice reports
D	Search and rescue information, and pirate warnings
E	Meteorological forecasts
F	Pilot service messages
G	DECCA messages
H	LORAN messages
I	OMEGA messages (Note: OMEGA has been discontinued)
J	SATNAV messages (i.e. GPS or GLONASS)
L	Navigational warnings - additional to letter A
V	Notice to Fishermen (U.S. only)
W	Environmental (U.S. only)
X	Special services - allocation by IMO Navtex Panel
Y	Special services - allocation by IMO Navtex Panel
Z	No message on hand

APPENDIX III: NMEA SENTENCES SUPPORTED

<i>Data Item</i>	<i>Taken from NMEA Sentences</i>
Time	RMC GGA GLL ZDA
Date	RMC ZDA
Lat/Long	RMC GGA GLL
Heading (True)	*HDT *HDG VHW
Heading (Magnetic)	*HDG VHW
Water Speed	*VBW VHW
Course (True)	RMC VTG
Course (Magnetic)	RMC VTG
Ground Speed	RMC *VBW VTG
Wind Speed	*MWV #VWR #VWT
Wind Angle	*MWV #VWR #VWT
Distance	VLW
Trip	VLW
Depth	*DPT DBT
Rate Of Turn	*ROT
Waypoint	RMB BWC BWR APB
Name	RMB BWC BWR
Lat/Long	ETA RMB ZTG
Range	RMB BWC BWR
Closing Speed	RMB WCV
Bearing (True)	RMB BWC BWR APB
Bearing (Magnetic)	BWC BWR APB
Cross Track Error	RMB XTE APB

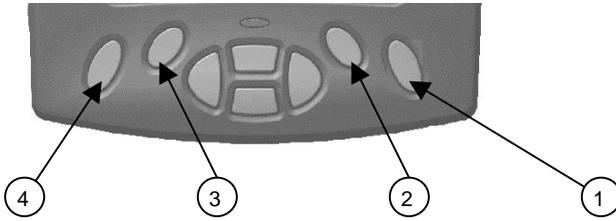
* SOLAS required sentence

Obsolete

Note that if a data item is present in more than one sentence, then it is taken from the leftmost sentence in the table entry above.

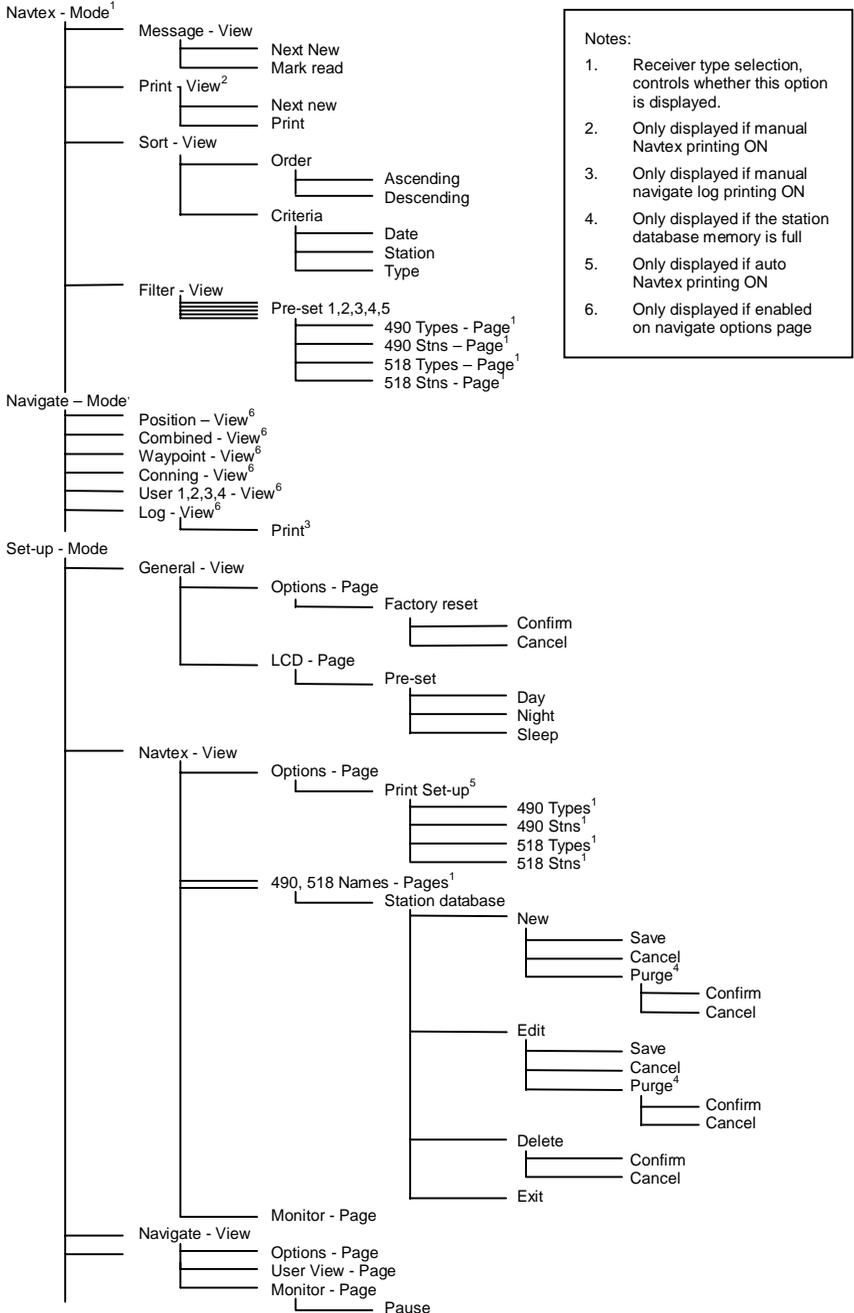
I.e. if Range is available in BWC and BWR, it will be taken from BWC.

APPENDIX IV: NAV6 MENU NAVIGATION



FUNCTION	PAGE	VIEW	MODE
Mark Read	Next New	Message View	Navtex Mode
Print	Next New	Print View	
Date Criteria	Ascending Order	Sort View	
Station Criteria	Descending Order		
Type Criteria	490 Types Page	Filter View	
Preset 1	490 Stns Page		
Preset 2	518 Types Page		
Preset 3	518 Stns Page		
Preset 4			
Preset 5			
<hr/>			
		Position View	Navigate Mode
		Combined View	
		Waypoint View	
		Conning View	
		User 1,2,3,4 View	
		Log View	
<hr/>			
	Options Page	General View	Setup Mode
	LCD Page	Navtex View	
	Options Page		
	490 Names Page	Navigate View	
	518 Names Page		
	Monitor Page		
	Options Page	Navigate View	
	User View Page		
	Monitor Page		

APPENDIX V: NAV6 MENU STRUCTURE



- Notes:**
- Receiver type selection, controls whether this option is displayed.
 - Only displayed if manual Navtex printing ON
 - Only displayed if manual navigate log printing ON
 - Only displayed if the station database memory is full
 - Only displayed if auto Navtex printing ON
 - Only displayed if enabled on navigate options page



DECLARATION OF CONFORMITY

ICS Electronics Limited declares herewith that the following equipment

NAV6/NAV6plus NAVTEX Receiver System

is in conformity with

89/336/EC Directive

Standards to which conformity is declared:

- EN301843-1 : 1996 Electromagnetic compatibility and Radio spectrum Matters (ERM);
Electromagnetic Compatibility (EMC) standard for Marine radio equipment and services;
Part 1 : common technical requirements
- EN301843-2 : 1996 Electromagnetic compatibility and Radio spectrum Matters (ERM);
Part 2 : Specific conditions for maritime radiotelephone transmitters and receivers
- EN301843-4 : 1996 Electromagnetic compatibility and Radio spectrum Matters (ERM);
Part 4 : Specific conditions for Narrow-Band Direct-Printing (NBDP) NAVTEX receivers

Date:

25/6/01

Signature:

Marc Palmano
Technical Director

Doc ref: 1098



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