

E-Series Networked Display

Reference Manual

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Important Information

Intended use

The display units detailed in this handbook may form part of marine navigational radar system or GPS system intended for use on (non-IMO/SOLAS class) leisure vessels or small workboats.

This handbook contains important information on the operation and maintenance of your E-Series Display. To get the best results in operation and performance, please take the time to read this handbook thoroughly.

For full details of installation and system integration, please refer to the E-Series Installation Guide supplied with the display.

Safety notices



WARNING:Navigation Aid

This device is intended to be used as an aid to navigation. Its accuracy can be affected by many factors, including equipment failure or defects, environmental conditions and incorrect handling or use. It is the user's responsibility to exercise common prudence and navigational judgement. This device should not be relied upon as a substitute for such prudence and judgement.



WARNING:Product installation

This equipment must be installed in accordance with the instructions in the E-Series System Installation Guide. Failure to do so could result in poor product performance, personal injury and/or damage to the vessel.



WARNING:High voltage

The display unit and scanner unit contain high voltages. Adjustments require specialized service procedures and tools only available to qualified service technicians - there are no user serviceable parts or adjustments. The operator should never remove the display unit cover or attempt to service the equipment.



WARNING:Electromagnetic energy

The radar scanner transmits electromagnetic energy. Ensure that the scanner has been installed according to the recommendations given in the relevant scanner handbook. Avoid looking directly at the antenna.

**WARNING: Fishfinder sounder module**

Removing the transducer cable from the rear of the fishfinder sounder module whilst it is switched on can cause sparks. Only remove the transducer cable after power has been switched off. Ensure that the sounder module is mounted where it is well ventilated and in an area free from flammable vapors.

CAUTION: Water Ingress

To prevent the ingress of water and consequent damage to the display, ensure that the chart card door is firmly closed. This can be confirmed by an audible click.

CAUTION: CompactFlash Cards

- Removing the CompactFlash card whilst information is being written to or read from it may cause damage to the card and loss of all data. Use the proper procedure detailed on page 20 to remove the card.
- Only one CompactFlash card per display can be used at any one time.
- Do not save data (waypoints, routes etc.) to a Navionics card as the charts may be overwritten. When archiving use a different CompactFlash card.
- DO NOT use a metallic instrument such as a screwdriver or pliers to help you remove a card, as doing this can cause irreparable damage.

CAUTION: Global Positioning System Antenna

Do not connect or disconnect the GPS antenna from the display unit whilst power is switched on. Doing this may result in irreparable damage.

CAUTION: UV Light

To provide protection against the damaging effects of UV light, it is advisable to replace the sun cover provided when the display is not in use.

CAUTION: Cleaning the display

Take care when cleaning the display, to avoid damaging it:

- (1) Do NOT wipe the display screen with a dry cloth, as this could scratch the screen coating.
- (2) Do NOT use acid, ammonia based or abrasive products.

Disclaimers

Electronic charts are an aid to navigation designed to facilitate the use of authorized government charts, not to replace them. Only official government charts and notices to mariners contain the current information needed for safe navigation. The Captain is responsible for their prudent use. The E-Series and its charts do not therefore exclude the user from carrying the required official charts and documents.

Raymarine does not warrant that this product is error-free or that it is compatible with products manufactured by any person or entity other than Raymarine.

This product uses digital chart data, and electronic information from the Global Positioning System (GPS) which may contain errors. Raymarine does not warrant the accuracy of such information and you are advised that errors in such information may cause the product to malfunction. Raymarine is not responsible for damages or

injuries caused by your use or inability to use the product, by the interaction of the product with products manufactured by others, or by errors in chart data or information utilized by the product and supplied by third parties.

Weather services

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About this manual

This manual describes how to operate your E-Series display in conjunction with Navionics cartography. It assumes that all peripheral equipment to be operated with it is compatible and has been correctly installed.

This manual is intended for users of varying marine abilities, but assumes a general level of knowledge of display use, nautical terminology and practices.

Raymarine does not necessarily support all the features in particular Navionics cartography.

Technical accuracy

To the best of our knowledge, the technical information contained within this handbook, was correct at the time of printing. However, Raymarine cannot accept liability for any inaccuracies or omissions it may contain.

In addition, Raymarine's policy of continuous product improvement may change specifications without notice. As a result Raymarine cannot accept liability for any differences between the product and this handbook.

Raymarine does not support after-sales or technical support for Navionics chart cards. If you wish to file a report of an error or omission on a Navionics chart, please provide the information to the Navionics web site at the link below:

<http://www.navionics.com/DiscrepancyReports.asp>

EMC conformance

All Raymarine equipment and accessories are designed to the best industry standards for use in the recreational marine environment. Their design and manufacture conforms to the appropriate Electromagnetic Compatibility (EMC) standards, but correct installation is required to ensure that performance is not compromised.

Multi-media chart cards

Navionics support

In addition to Gold and Platinum, the E-Series now supports the following Navionics cartography:

- Silver
- Gold Plus
- HotMaps USA
- HotMaps Premium
- Fish 'N Chip

For more information on Navionics charts, see www.navionics.com.

To use your E-Series Display as a navigation aid, charts with the appropriate level of detail for the geographic area you wish to navigate are required. The charts are available in electronic format on Navionics Chart cards.

To check the current availability of Navionics® chart card types and the latest feature sets, visit **www.navionics.com** or **www.navionics.it**

To obtain Navionics cards, contact your local dealer or visit the Navionics web site.

Alternatively, anywhere in North America call Navionics toll-free on **1-800-848-5896** Outside of North America, contact your local dealer or Navionics SpA on:

Phone: (+39) 0584 961696 or Fax: (+39) 0584 961309)

When archiving data, Raymarine recommends that you only use SanDisk CF memory cards. Other brands of CF memory card may not work in your E-Series Display.

Disposal

Waste Electrical and Electronic Equipment (WEEE) Directive



The WEEE Directive requires the recycling of waste electrical and electronic equipment. Whilst the WEEE Directive does not apply to some of Raymarine's products, we support its requirements as part of our

environmental policy and we ask you to be aware of how you should dispose of this product.

The crossed-out wheeled bin symbol found on our products signifies that it should not be disposed of in general waste or landfill.

Please contact your local dealer, national distributor or Raymarine Technical Services for information on product disposal.

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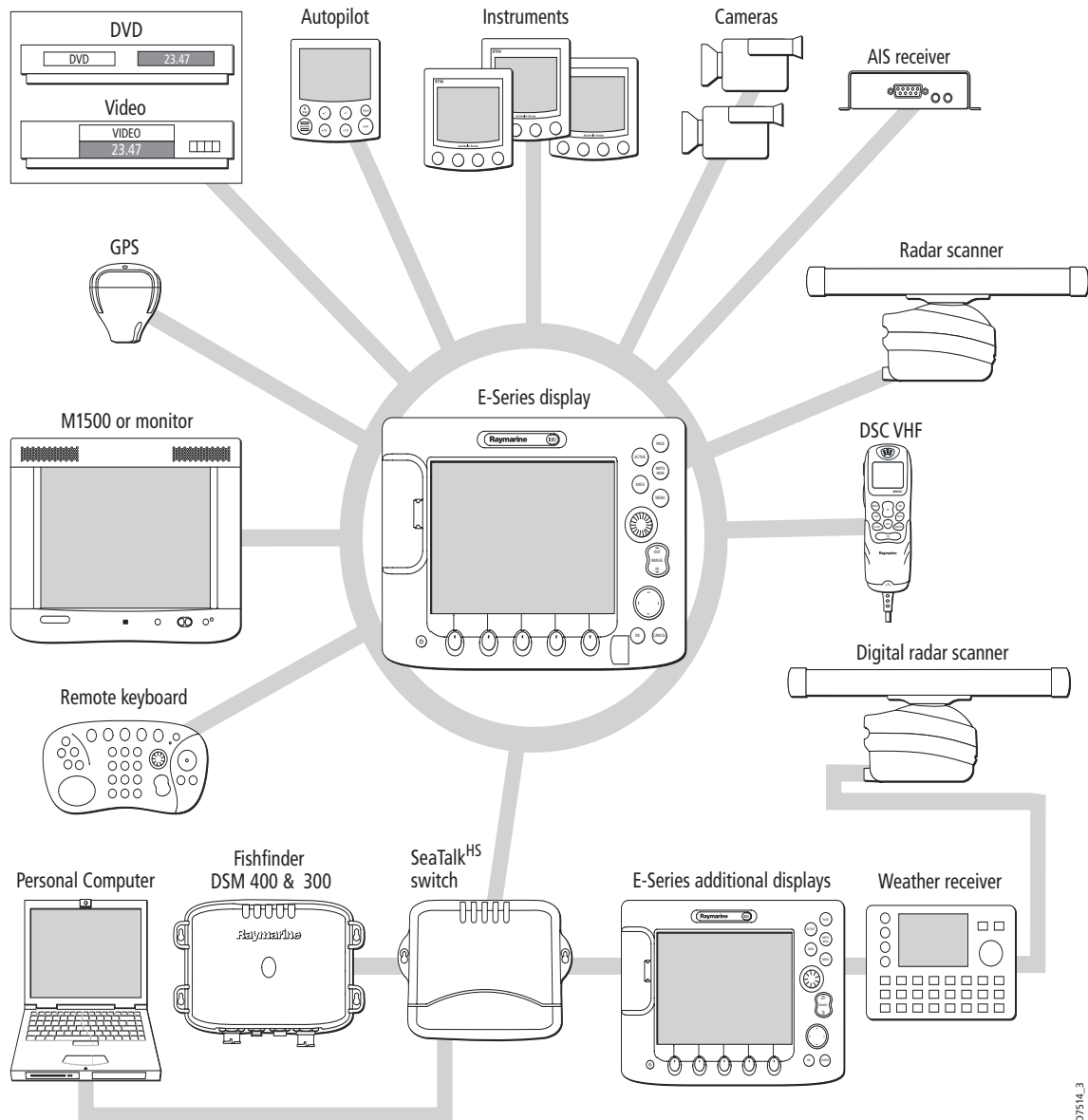
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Chapter 1: Overview

This chapter gives an overview of the E-Series display system and its features.

1.1 What will my E-Series integrate with?

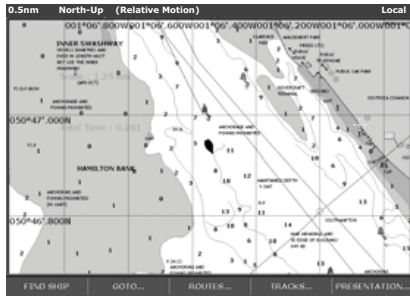


When used as part of a SeaTalk system it will display information from other SeaTalk and NMEA instruments. It can also be networked with other E-Series displays by way of Raymarine's SeaTalk High Speed switch. Information from the E-Series display can be transferred between applications and to other SeaTalk instruments within the system. For more detail on system integration, please refer to the Installation Guide.

1.2 What can the E-Series Display do?

With the appropriate equipment connected to your system and the necessary data available, your E-Series display combines the following applications which are used to:

Chart (Chapter 4)




- Locate where you are.
- Interpret your surroundings.
- Monitor where you are going.
- Record where you have been.
- Navigate to a specified position (waypoint).
- Build and navigate routes.
- View details of nearby features & services.
- View details of boats equipped with AIS.
- Distinguish between fixed and moving objects.
- Measure distances and bearings.

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You will need a chart card, and position/heading data, for the chart application to be fully functional.

3-D Chart (Chapter 5)

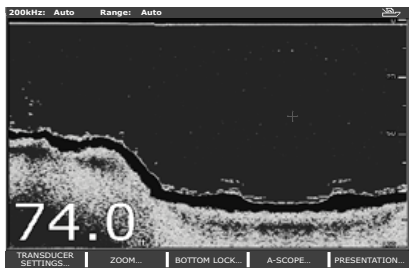


- Display a 3D view of land, sea & features.
- Locate where you are.
- Interpret your surroundings.
- Monitor where you are going.
- Go to an existing waypoint.
- Navigate a route.
- Synchronize with the 2D chart.
- Identify fishing spots

D8702_1

You will need a chart card and accurate heading and position data for your 3D chart application to be fully functional.

Fishfinder (Chapter 6)

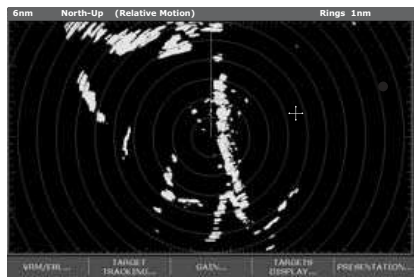


- Build a picture of what is below your vessel.
- Locate & distinguish underwater objects & targets.
- Distinguish the seabed and its texture.
- Obtain information about water depth, temperature.
- Mark a point of interest, fishing spot etc.
- Determine depths and distances of targets.

D7377_1

You will need position data, in addition to a DSM300, for your fishfinder to be fully functional.

Radar (Chapter 7) Digital Radar (Chapter 8)



- Detect landmasses & navigation markers.
- Detect and measure the range and distance of other vessels.
- Acquire targets and track them for collision avoidance.
- Navigate to a specified position (waypoint).
- View details of boats equipped with AIS.

D7375-2

You will need position and heading data, in addition to a compatible scanner, for your radar application to be fully functional.

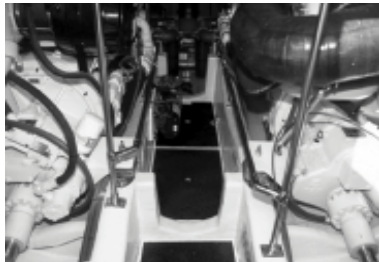
Data (Chapter 9)

Ves Pos 25°45'.940N 080°09'.718W	GOTO CURSOR 220°T 1.28nm	TTG --h--m--s	VMG Wpt -, -kt
Depth 78.8ft	Cog Sog 286°T 0.0kt	Heading 293°T	Speed 0.0kt
Set Drift 355°T 0.0kt	XTE 0.00nm Steer >	Trip 0.00nm	Local Time 01:42:12

- View data generated by the system or by instruments available on NMEA 0183, NMEA 2000 and SeaTalk or SeaTalk².

D7376-1

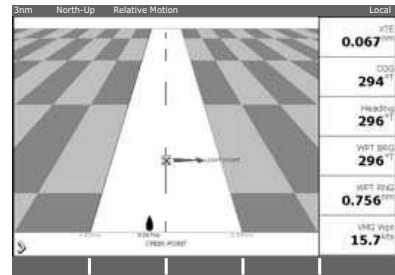
Video (Chapter 11)



- View video images from on-board CCTV cameras, DVD or video player.

D7378-1

Course Deviation Indicator (Chapter 12)

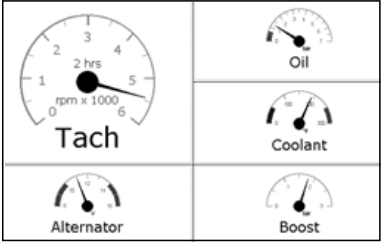


- View real-time display of your vessel on a 'rolling road' in 3D perspective.
- Give details of any correction required to steer your vessel along a given course.
- View data about the distance and time to go until you reach a specified point.

D7379-1

You will need accurate heading and position data for your CDI application to be fully functional.

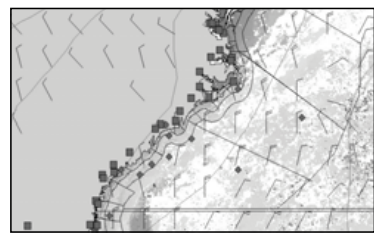
Engine Monitor (Chapter 13)



- View engine data e.g. engine temperature, oil pressure, fuel level etc from up to three engines on a compatible engine system.

D7497-1

Weather (Chapter 14)



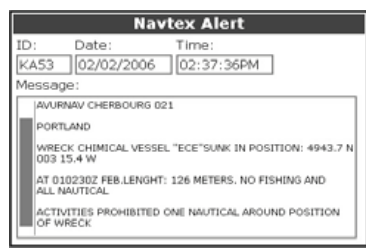
- Only available for the US.
- Superimpose historical and forecasted weather graphics on a world map.
- Determine conditions in your vicinity or at a particular location.
- View weather reports.

D8701-1

You will need accurate position data and be connected to a Sirius weather receiver (which is supplying the appropriate data) for your Weather application to be fully functional.

Navtex (Chapter 16)

Major areas of NAVTEX coverage include the Mediterranean Sea, the North Sea, coastal areas around Japan and areas around the North American continent.



- Automatic broadcast of localised Maritime Safety Information (MSI)
- Receive navigational and meteorological warnings, and search and rescue information.

D8728-1

You will need a Navtex receiver connected to your system via NMEA, in order to receive this data.

Waypoints (Chapter 3) & AIS (Chapter 17)

Whilst not applications in their own right, waypoints and AIS are handled at system level and are covered in separate chapters.

1.3 The Simulator

The E-Series Display includes a simulator mode, which allows you to practice operating your display without data from a GPS antenna, radar scanner, fishfinder or an AIS receiver. The simulator mode is switched on/off in the System Setup Menu (see *page 228*). Once enabled, you can use the simulator:

- **Before installation** - Simply connect the display to a 12V DC power supply, fused at 1 amp by attaching the red core from the power lead to positive (+) and the black core to negative (-).
- **After installation** - Whilst in a marina or at anchor.

Please note that system settings made whilst in simulator mode, are not transmitted via SeaTalk to other equipment.

Important: Incoming AIS safety messages cannot be displayed while the simulator is switched on.

Chapter 2: General Operation

2.1 Introduction

This chapter gives details of the general operation of the E-Series display, and covers the following subjects:

- Powering the display on/off.
- Using the controls.
- Application display.
- Displaying and editing additional information.
- Adjusting the display lighting.
- Initial setup procedures.
- Using CompactFlash cards.
- Managing data.
- Operating a networked E-Series Display.
- Emergencies and warnings.

2.2 Powering the display ON/OFF

Power ON



Press the **POWER** button until the introductory logo is displayed. The keys light up and after a few seconds an application page and a navigation warning and weather data disclaimer is displayed. Read this information and then press **OK** to remove it.

At this time the radar scanner (if fitted and powered) is checked for compatibility with the display. An error message is displayed if the scanner is incompatible.

Power OFF

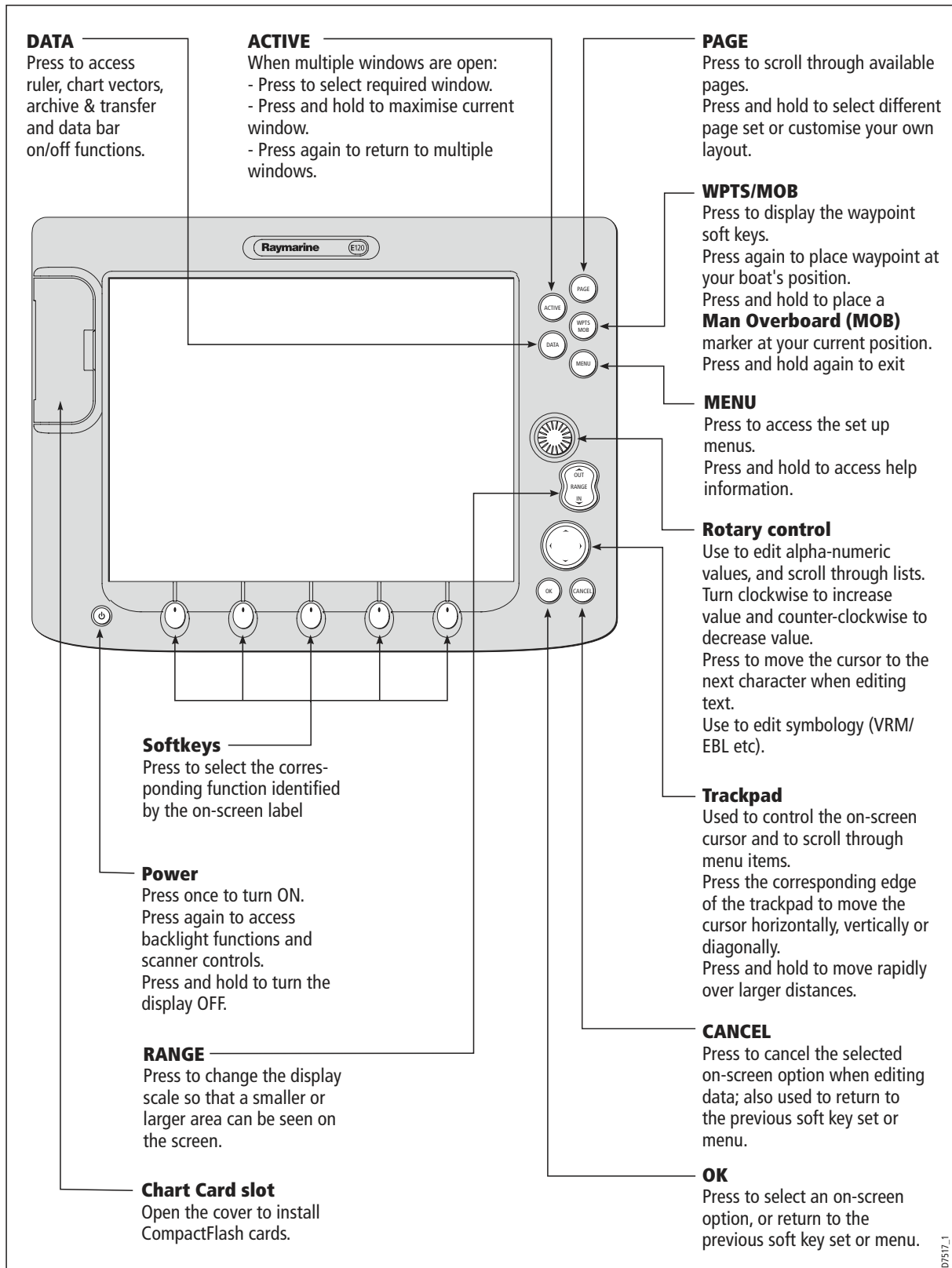


Press and hold the **POWER** button until the power down count reaches zero. If the **POWER** button is released within the countdown period, power off is cancelled.

Remember to replace the suncover to protect the display.

2.3 Using the controls

The control panel

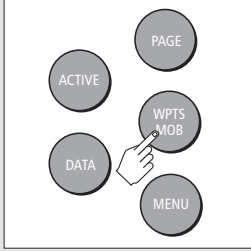


Buttons and soft keys

To navigate to the required function you will need to press a series of buttons and/or soft keys:

Buttons

- Access system functions or change what you see on-screen.
- Within the text of this document they are written in bold capitals e.g. **WPTS/MOB**.
- Press and hold to access short cuts.



↓

Soft keys

- They change depending on application or function being performed.
- Press the corresponding key (below the screen) to select. Further soft keys may be displayed.
- If a key has several options, each press will highlight the next option.
- If a key displays a single value or a slider above, use the rotary control to adjust.
- Within the text of this document they are written in capitals e.g. SORT LIST.

WAYPOINT AT CURSOR	WAYPOINT AT VESSEL	WAYPOINT AT LAT/LONG...	GO TO WAYPOINT OPTIONS...	REVIEW AND EDIT WAYPOINTS
●	●	●	●	● (hand pointing)

↓

ERASE WAYPOINT	SORT LIST	SET DEFAULT SYM & GROUP...	WAYPOINT GROUPS...	VIEW AND EDIT DETAILS...
●	●	● (hand pointing)	●	●

↓

	SET UP DEFAULT SYMB GROUP		EDIT DEFAULT
●	● (hand pointing)	●	●

Example:
The example above shows the series of button and soft key presses required to change the waypoint default symbol or group.

D7364-2

This process of pressing buttons and soft keys to navigate to the required function is simplified in this manual and represented by a strip e.g.

WPTS
MOB

⇒⇒⇒

REVIEW AND EDIT
WAYPOINTS ...

⇒⇒⇒

SET DEFAULT SYM
& GROUP...

⇒⇒⇒

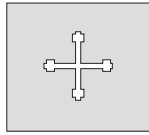
SET UP DEFAULT
SYMB GROUP

D7365-2

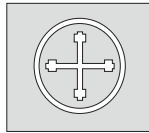
Note: The key beep that you hear whenever a button or soft key is pressed, can be switched off and the soft keys automatically hidden if required. For more details, please refer to the Display Setup Menu on page 236.

The cursor

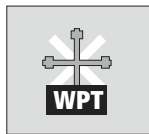
When you are using the chart and radar applications, the cursor is used to move around the screen:



The cursor appears on the screen as a white cross.



If the cursor has not been moved for a short period of time, it changes to a circle with a cross in it, to make it easier to locate on the screen.

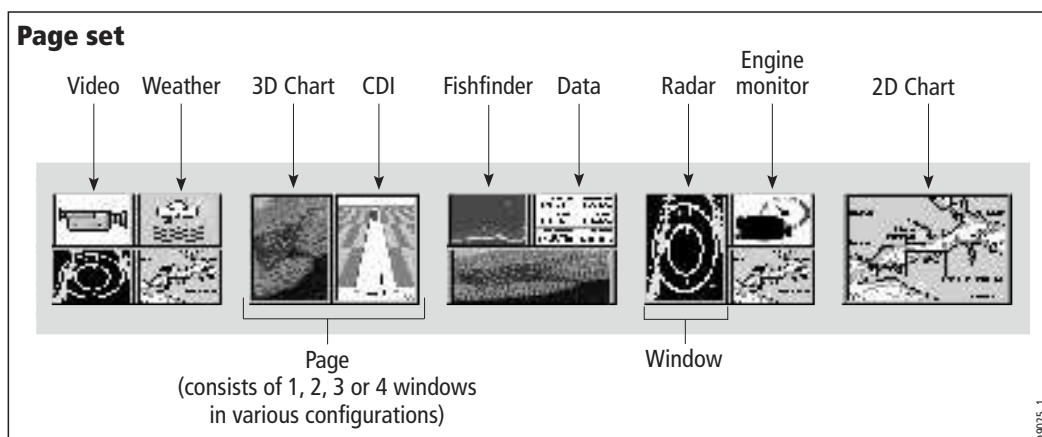


The cursor is context-sensitive - when it is placed over an object e.g. a waypoint or chart feature, it changes color and a label or information associated with the object is displayed. When you place the cursor over certain items, the soft keys change to enable you to access related operations.

- Notes:** (1) *For a full list of cursor labels and their meanings, please see Appendix C*
- (2) *For details of how to temporarily hide the cursor, please see page 236.*

2.4 Displaying applications

The various applications that make up your E-Series system are displayed in a series of screens known as *page sets*. There are 4 pre-configured and one empty page set to choose from. Each page set contains 5 *pages*. These pages are made up of 1, 2, 3 or 4 *windows* combined in various formats. Each window can display an application e.g.



If necessary, you can change the combination and layout of these page sets to meet your particular needs (see *page 221*).

Note: For details of how to select page sets, pages and windows, please refer to page 16.

2.5 Additional screen information

Information is displayed on the screen using a variety of methods:

The screenshot shows a marine display interface with several callout boxes explaining different UI elements:

- Status bar:** Gives information specific to each application. Cannot be edited or moved.
- Data bar:** Gives information associated with your boat or the environment. Customisable content*. Vertical or horizontal format*. Display or hide*. Normal or large size*.
- Status icons:** Confirm status of DSM, GPS, AIS and scanner.
- Data base lists:** Contain information you have added to the display's memory e.g. waypoints. Highlight an entry using trackpad or rotary control to display related information. Editable using soft keys.
- Pop-up messages:** Alert you to a situation e.g. alarm, function not available. Not editable. May require a response e.g. press ACKNOWLEDGE to silence alarms.
- Dialog boxes:** Enable data to be edited or entered into a store/list e.g. editing a waypoint.
- Menus (see next page):** Used to configure system to your particular needs.

The screenshot itself shows a status bar with data like 'COG 008 °T', 'Ves 50°50'.524N', 'Csr 50°50'.514N', 'Brg 197 °T', 'SOG 17.9 kts', 'Pos 001°06'.493W', 'Pos 001°06'.498W', 'Rng 0.011 nm'. Below this is a data bar with '3nm', 'Head-Up', 'Relative Motion', and 'Rings 1/2nm'. The main display area shows a 'Waypoint List' dialog box with fields for Name, Group, Position, and Rng/Brg. An 'Edit Waypoint' dialog box is also visible, showing a 'MARPA ALARM' message: 'Target lost (on screen)'. At the bottom of the screen, there is an 'ACKNOWLEDGE' button.

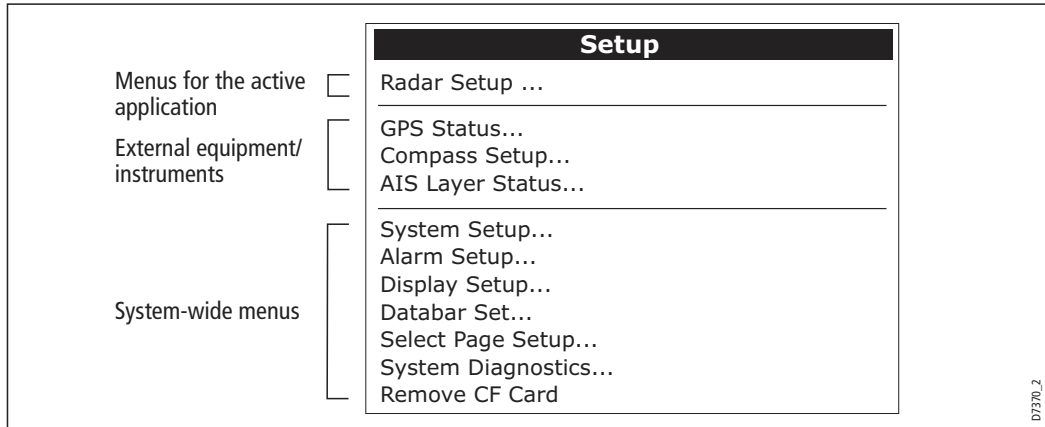
* For details of how to adjust and edit the data bar, please see *page 223*

Note: To change the size of the text on screen, please see page 236.

Menus



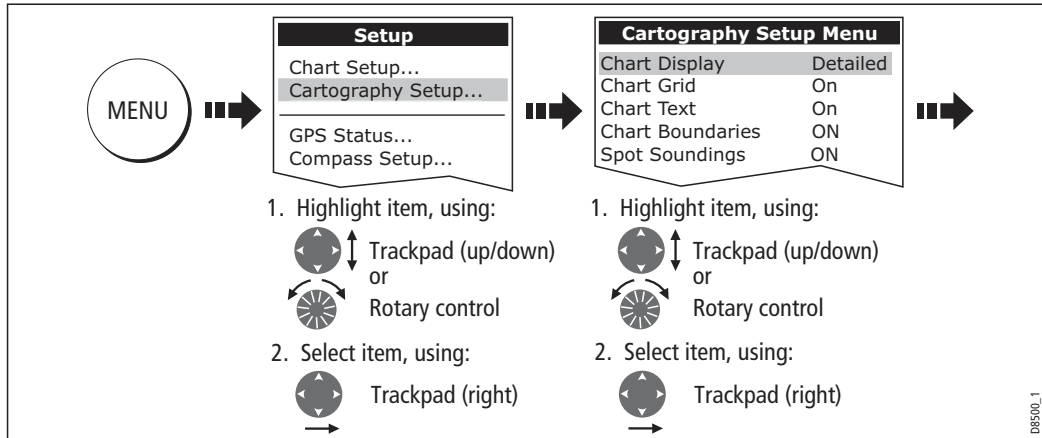
Menus enable you to configure your system to your particular needs. Whenever the **MENU** button is pressed, the Setup menu is displayed containing a list of all the menus available for the active application together with system wide menus e.g.



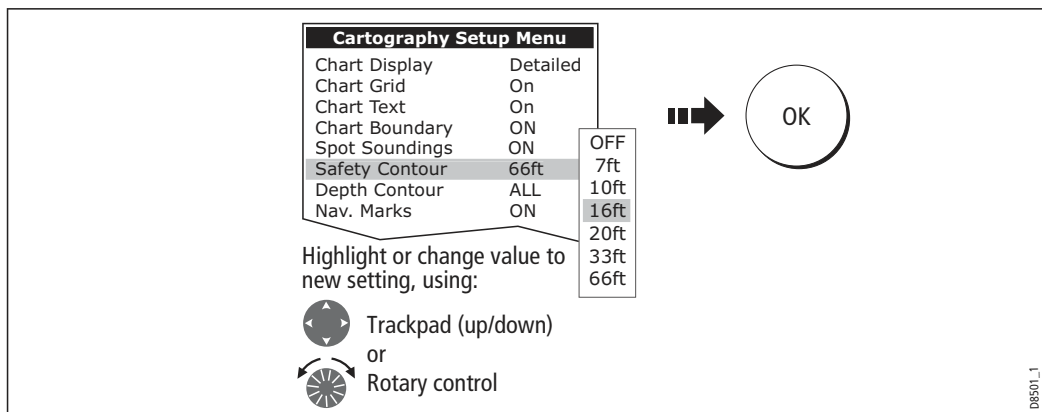
For details of application menus, please refer to the appropriate chapter. For all other settings, please refer to *Chapter 15: System setup and customizing*.

To access a menu:

1. Select the appropriate menu and setting:



2. To change the setting:

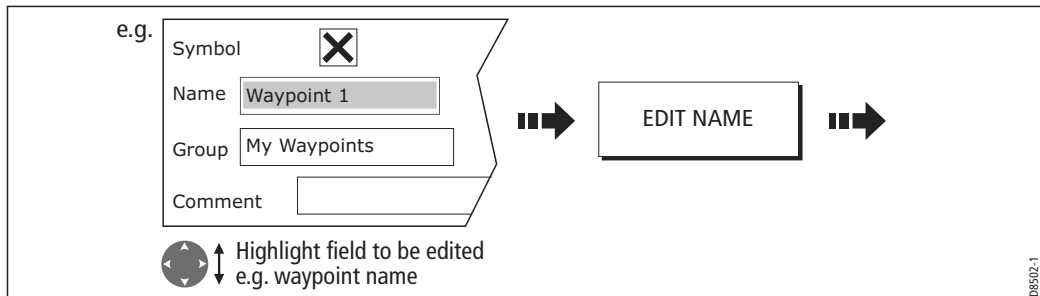


Editing the dialog box information

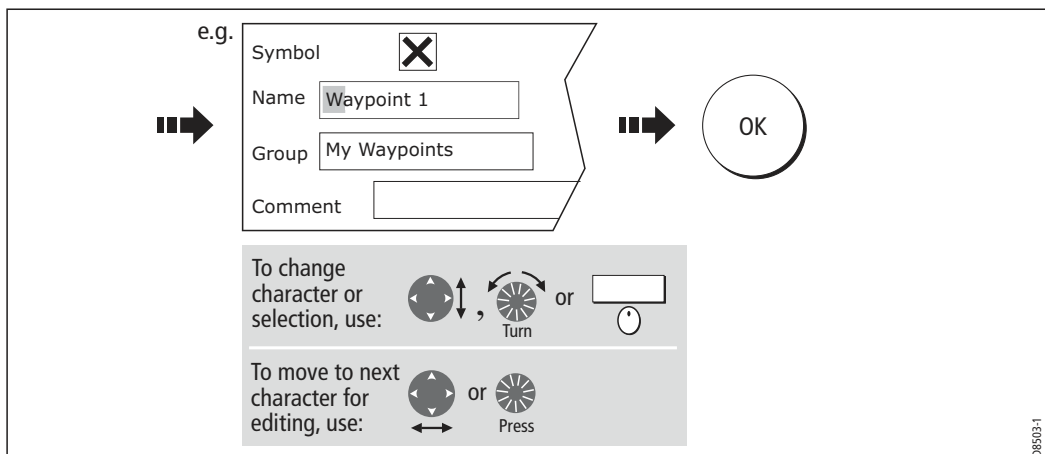
Dialog boxes enable data to be edited or entered into a list e.g. Edit Waypoint screen.

To edit/enter data into a dialog box:

1. Select the field for editing:



2. Edit/enter data and save:







3. Repeat Steps 1 and 2 if necessary.

Notes: (1) Character text can be entered in upper or lower case. (although the system is not case sensitive e.g. WAYPOINT 1, Waypoint 1 are considered to be the same name).

- (2) If you need to use special or accented characters (e.g. ~ ` ´), the Extended Character Set should be switched to ON in the System Setup Menu (see page 228).

Status icons

The status icons on the data bar confirm whether the appropriate connections to your E-Series system have been made:

Status icon	Description
 <p>(animated icon) <small>D6892.3</small></p>	<p>The boat and fish icon indicates the current status of your fishfinder: Icon animated - connection to a DSM has been successful. Icon static - the DSM is connected but not transmitting. Icon greyed-out - no DSM is connected.</p>
 <p>(static icon) <small>D6892.2</small></p>	<p>The satellite icon indicates the current status of your GPS: FIX - your unit is successfully connected to a GPS receiver. NO FIX - your unit has been unable to connect to a suitable GPS receiver.</p>
 <p>(static icon) <small>D6894.2</small></p>	<p>The scanner icon indicates the current status of your radar scanner: Icon rotates - the scanner is transmitting (TRANSMIT/TX mode). Icon static - the scanner is powered on but is not currently transmitting (STANDBY mode). Icon greyed out - this indicates that the scanner is currently powered off (OFF mode). Icon rotates and is then static - a power save mode in which the scanner powers on/off intermittently (TIMED TRANSMIT mode).</p>
 <p><small>D6892.1</small></p>	<p>The AIS icon indicates the current status of the AIS function:</p> <p>NO AIS - AIS unit not available i.e. not connected or off.</p> <p>AIS - AIS unit is switched on and operating.</p> <p>AIS (with alarm icon) - AIS unit on with active alarms.</p> <p>AIS (with crossed-out alarm icon) - AIS unit switched on and operating but dangerous and lost alarm disabled.</p>

Note: These icons will also appear when you are in simulator mode.

2.6 Initial setup procedures

When you first use your E-Series Display after it has been commissioned (see Installation Guide), we recommend that you carry out the following:

- Selecting the data master (Networked E-Series Displays only).
- Set the language, the date and time format and preferred units of measurement.
- Select a page set.
- Select an application page/window.
- Adjust the display lighting.

Note: For full details of all System Setup options, please refer to Chapter 15: System set-up and customizing. For application specific set up options, please refer to the appropriate chapter.

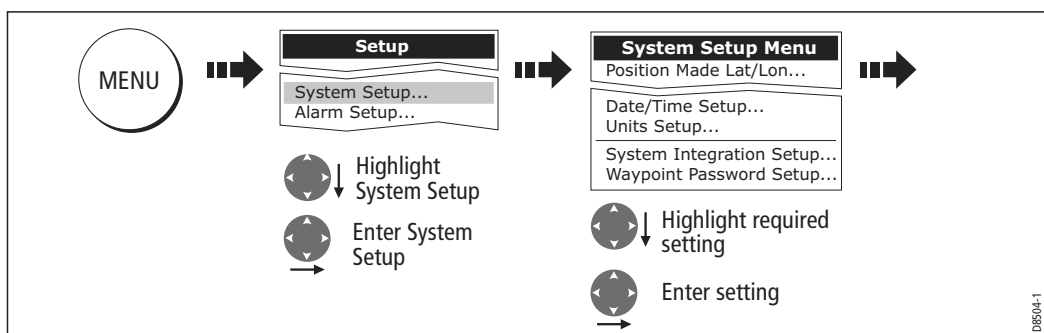
Selecting the data master (Networked E-Series only)

When a Networked E-Series system is powered on for the first time, an alarm will sound and you will be asked to nominate which display is to be the data master. For details of how to change the data master, please see *page 28*.

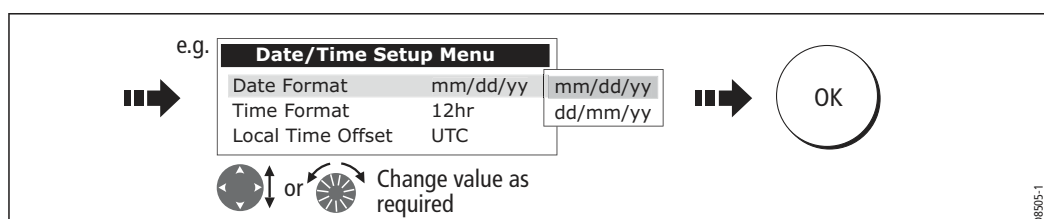
Setting the language, date/time format and units of measurement

To adjust the language, date/time format and units of measurement to your preferred settings:

1. Select the setting:



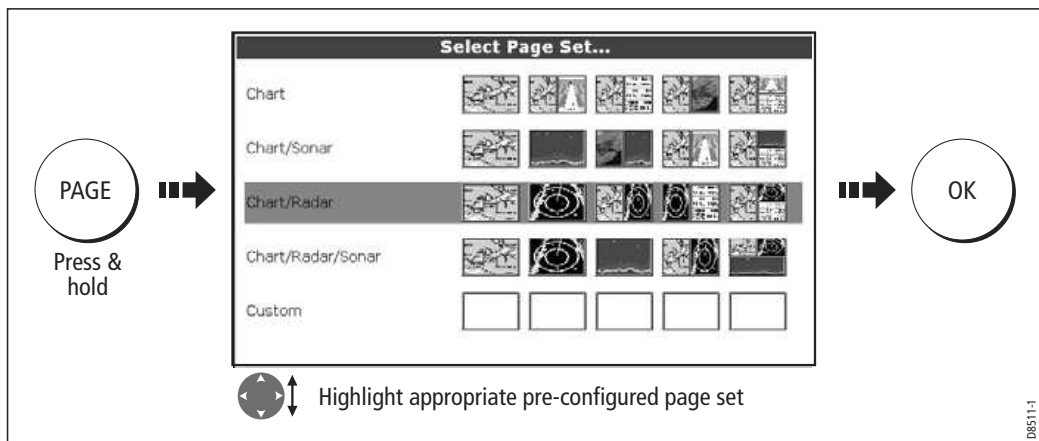
2. Adjust the setting:



3. Repeat this process until you have changed all of these settings.

Selecting a page set

Your Display has four pre-configured page sets and one empty set for you to choose from. The applications configured in a page set is a local setting and will therefore only affect the individual display on which you are working.

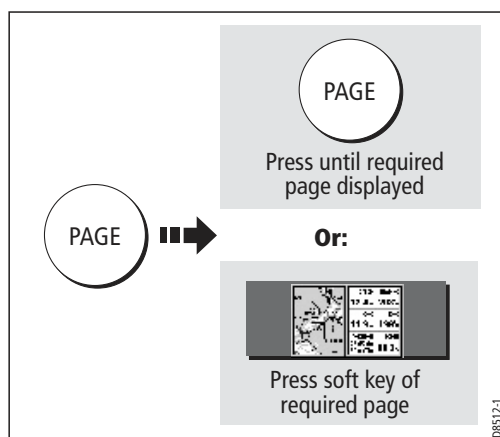


Note: Alternatively, you can access the Select Page Set screen via MENU.

If none of the pre-configured page sets meet your particular requirements and/or you intend to use the engine monitor, weather or video application, refer to the Setup and Customizing chapter for details of how to customize both the layout and the application appearing in each window.

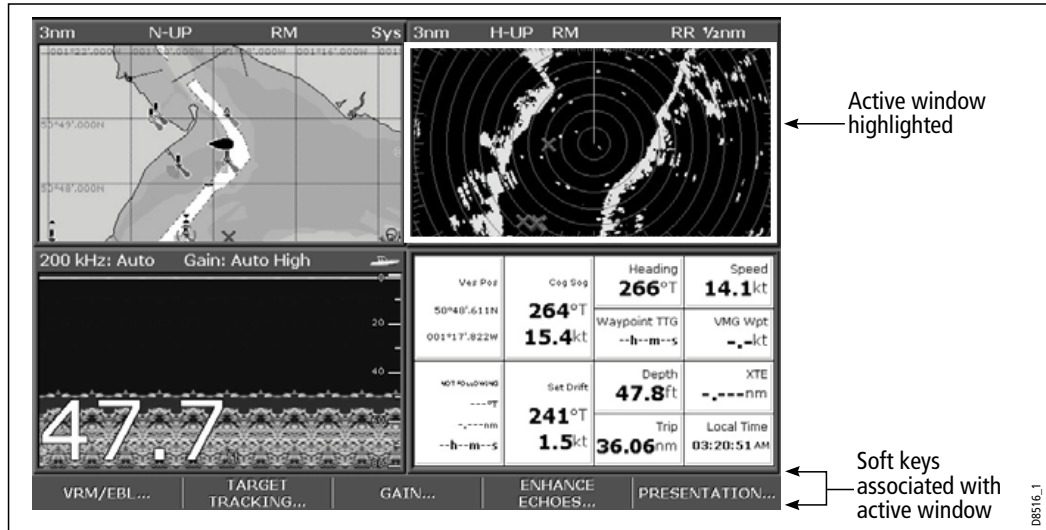
Selecting an application page

Once you have selected the appropriate page set (see previous section), choose the application page that you wish to use:



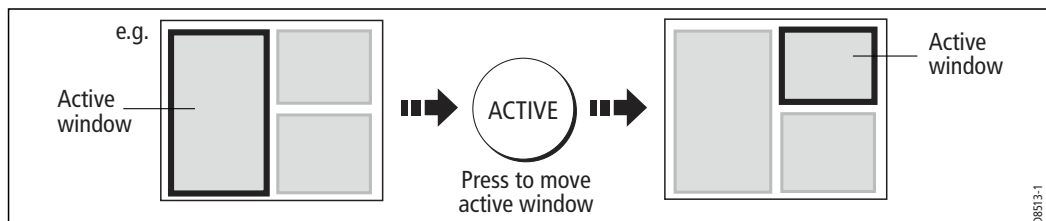
Selecting an application window

When the selected page has more than one window, the window that is currently active will be bordered in red e.g.



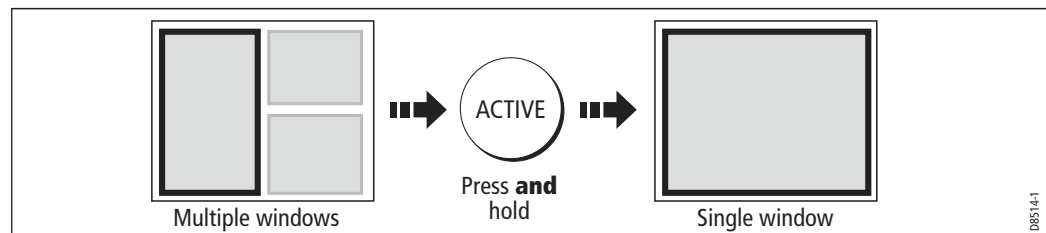
Changing the active window

To change the active highlight to other windows on the page and display the associated soft keys:



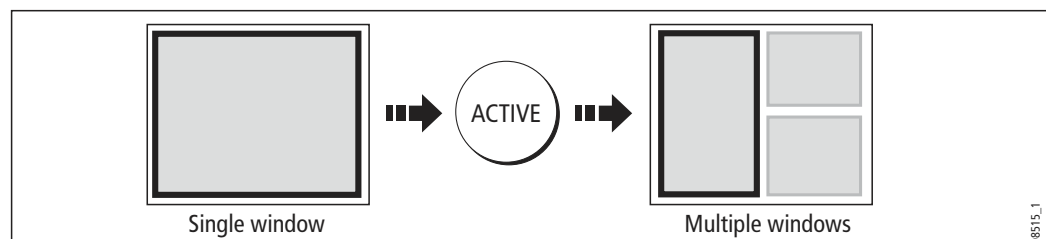
Multiple to single window

To make the active window full-screen when multiple windows are being displayed:



Single to multiple windows

To return to multiple windows:



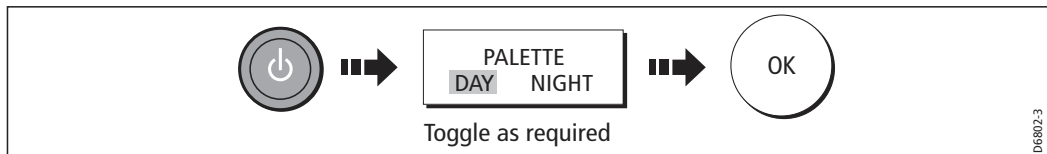
Adjusting the display lighting

The display has two distinct color palettes, for day and night operation. You can also manually adjust the backlight level.

Note: The display lighting is a local setting and will therefore only affect the individual display on which you are working.

Day/night operation

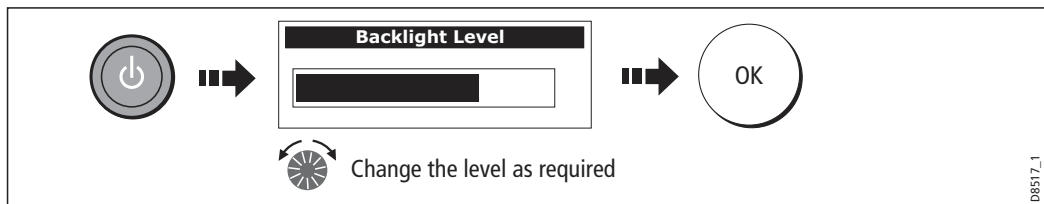
To select the day/night mode of operation:



The display saves the current palette when the unit is powered off. If the palette was set to NIGHT when it was last used, and you then power on in bright sunlight, it may be difficult to see the screen. Reset the palette to DAY to return to normal daytime lighting.

Backlight level

To adjust the backlight level when in day or night operation mode:



Note: The backlight level application will autohide once button activity ceases for periods greater than 3 seconds

2.7 Using CompactFlash cards

Cautions

CAUTION: CompactFlash Card Installation

When installing CompactFlash cards ensure that the card is fitted the correct way around. **DO NOT** try to force the card into position as this may result in irreparable damage to the card.

CAUTION: Water Ingress

To prevent the ingress of water and consequent damage to the display, ensure that the chart card door is firmly closed at all times. This can be confirmed by an audible click.

CAUTION: Card Removal

DO NOT use a metallic instrument such as a screwdriver or pliers to help you remove a card, as doing this can cause irreparable damage.

CAUTION: Card writing

CompactFlash cards can be damaged if they are removed from the unit during either a read or write operation. A warning is displayed during write operations. The unit is continually reading the card. It is therefore essential that before removing the card you follow the correct procedure to stop access to the card.

What are CompactFlash cards used for?

CompactFlash cards enable you to get the most from your display. Their uses include:

- **Detailed cartographic information**

Obtain detailed cartographic information of the area that you navigate using Navionics® chart cards. To check the current availability of Navionics chart card types, please visit www.navionics.com or www.navionics.it.

The amount of cartographic detail shown varies for different areas and for different scales. The chart scale in use is indicated in the status bar - the number represents the distance in nautical miles from the top of the chart window to the bottom of the chart window.

- **Archiving**

To archive waypoints, routes and tracks.

- **Saving**

To save waypoint, route and track data for use by other equipment e.g. a PC.

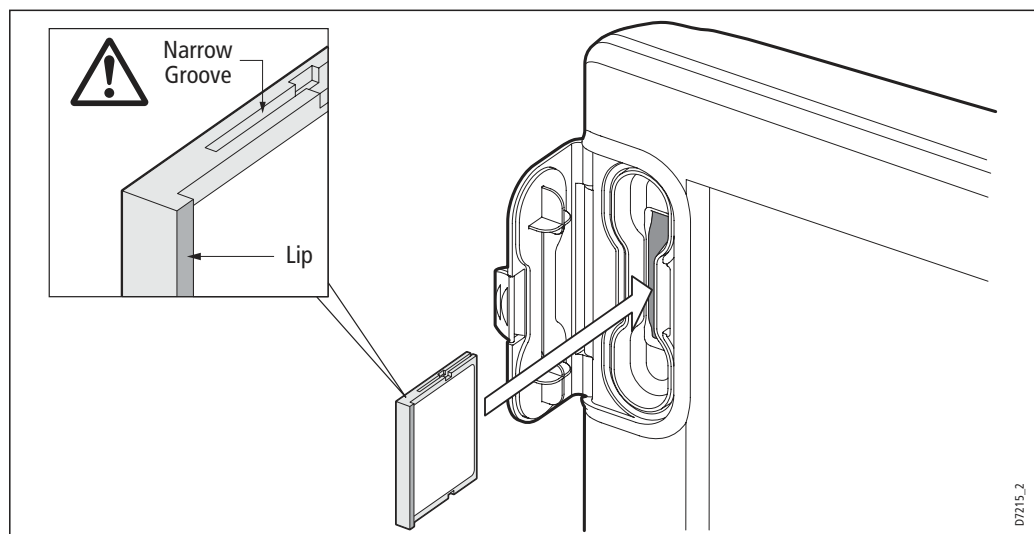
You can remove and insert cards while a chart is displayed provided that you follow the correct procedure (see *page 20*). The chart information is retained on-screen until the chartplotter redraws the screen; for example, when you pan outside the current area, or use the **RANGE** button to change the chart scale.

Note: In a networked system, cartographic data is available to any E-Series display connected on the SeaTalk High Speed network. However, the ARCHIVE and TRANSFER functions only operate with the card inserted in the display at which you are working.

Inserting a card

To insert a card, refer to the illustration and:

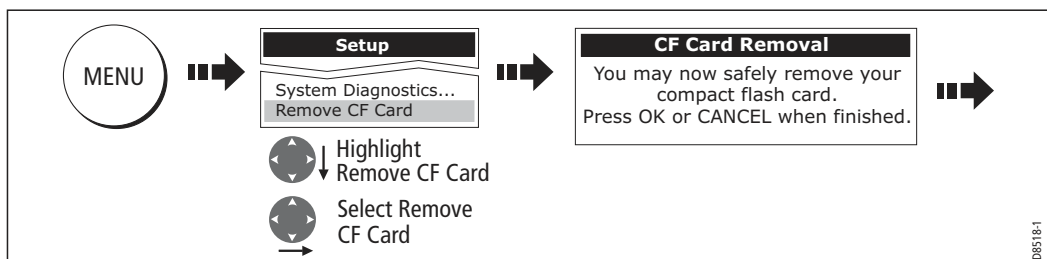
1. Check that you are using the correct type of card (see *Important Information*, at the beginning of this manual).
2. Open the chart card door, located on the front left of the display.
3. Insert the card as shown, with the lip of the card facing inwards. It should position easily. If it does not, DO NOT force it, check the direction in which the lip is facing.
4. Gently press the card home.
5. To prevent the ingress of water and consequent damage, close the chart card door and press firmly until a click is heard.



Removing a card

...with the unit powered on

1. Select the CF Card Removal function:



IMPORTANT:

If you try to remove a card without accessing the setup menu, a blue screen and warning message is displayed and the unit must be restarted. In an E-series networked system, where any display may be accessing the card, this message

appears on all displays in the network. All displays will therefore need to be restarted individually.

You must only remove the card while the CF Card Removal message is displayed. Once the message is closed, the card should no longer be removed.

2. Open the chart card door.
3. Grip the card and pull to remove it from its slot.
4. To prevent the ingress of water and consequent damage, close the chart card door and press firmly until a click is heard.
5. Press **OK**.

...with the unit powered down

1. Open the chart card door.
2. Grip the card and pull to remove it from its slot.
3. To prevent the ingress of water and consequent damage, close the chart card door and press firmly until a click is heard.

2.8 Managing data

This section explains how you can manage the data contained in your E-Series and includes the following:

- Writing/retrieving to a CF card.
- Erasing information from a card.
- Erasing information from your system.
- Transferring information to/from a PC.
- Password protection.

Writing/retrieving data to a CompactFlash card

Your display can save up to 1,200 waypoints, 150 routes and 10 tracks in data base lists. Once this number is reached you will need to archive data to a CompactFlash card for safe-keeping or retrieval at a later date. Alternatively, you can transfer data to another instrument or PC using SeaTalk^{hs} or NMEA. When navigation is active, you can also receive waypoints, routes and tracks from a PC, other SeaTalk^{hs}, SeaTalk and NMEA instruments (see *page 25*).

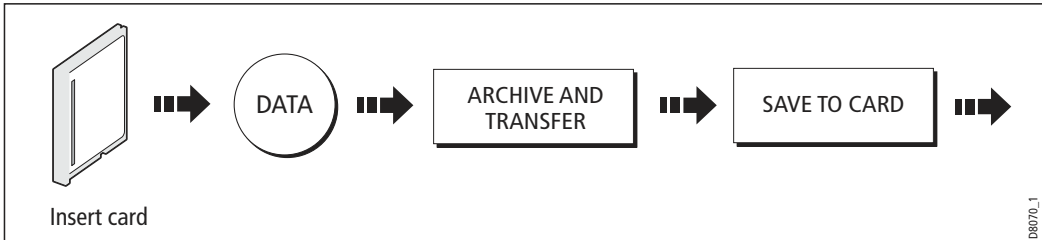
Note: In a networked E-Series system, you archive to and retrieve data from the CompactFlash card in the display on which you are working.

Saving information to a card

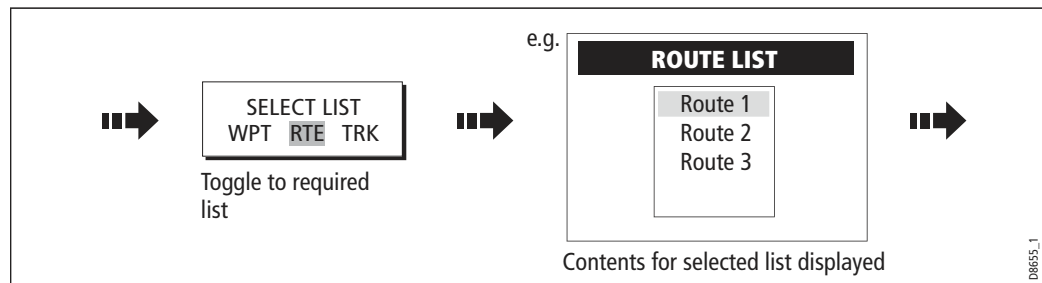
Important

Raymarine strongly recommend that you save data to a separate CompactFlash card and not to a Navionics card containing cartography.

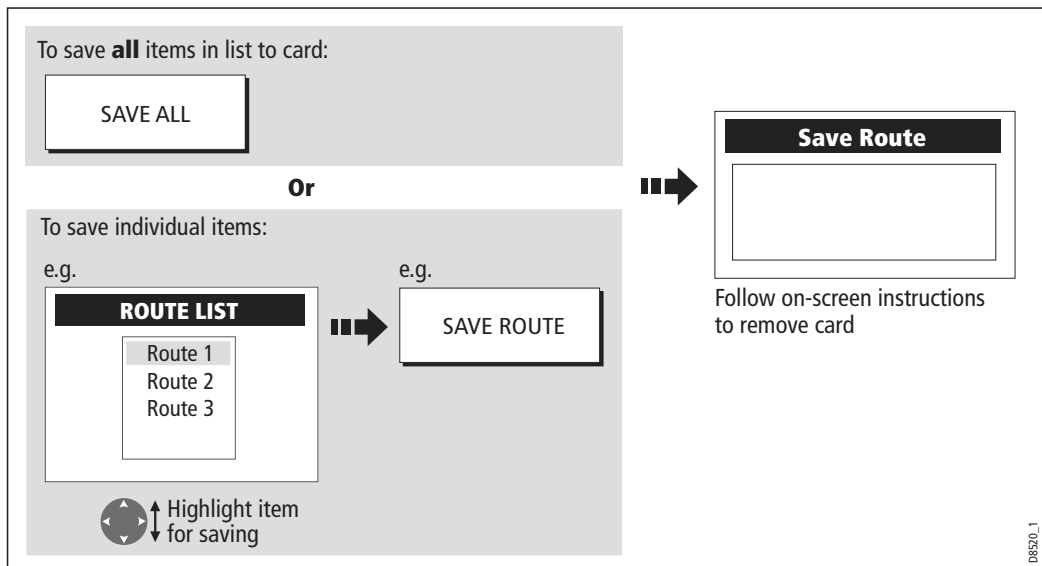
1. Insert card and select the SAVE TO CARD function:



2. Select list containing data for saving:



3. Define data for saving

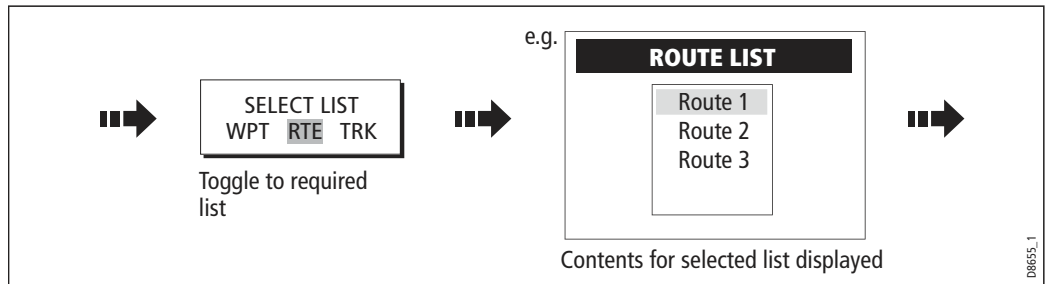


Retrieving information from a card

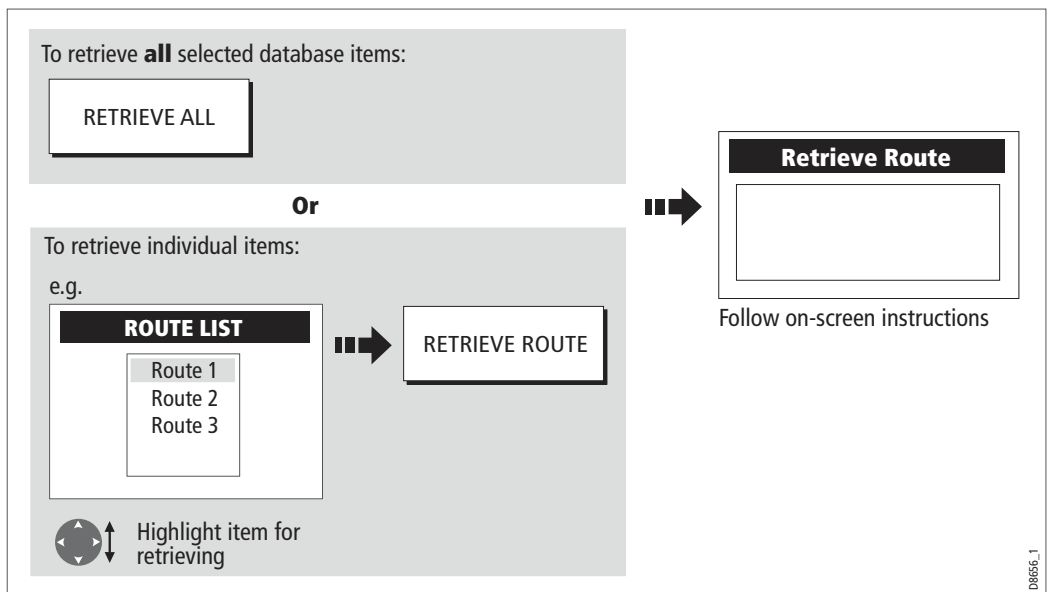
1. Insert card and select the RETRIEVE FROM CARD function:



2. Select required list:



3. Define data to be retrieved:



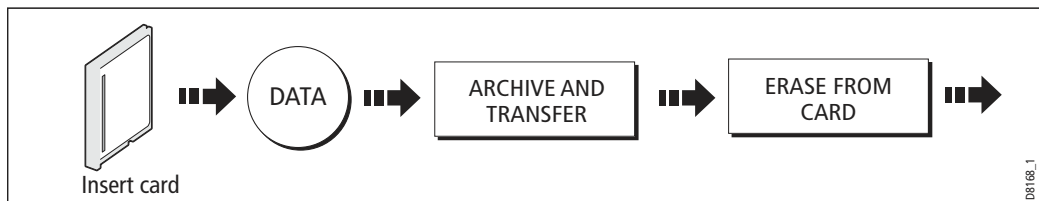
If whilst retrieving information a selection is already found to exist on the system, a warning message will appear.

The soft keys will change to give you the options of retrieving as new, replacing or cancelling the retrieving process

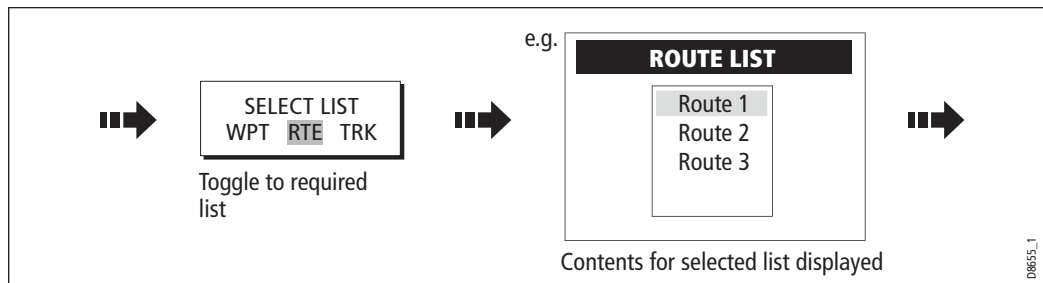
Erasing information from a card

If you wish to remove information from a card, for example you no longer need it, or the card is full, it can be erased by using the ERASE FROM CARD soft keys. A message will be displayed on screen asking you to confirm that you want to delete the item(s), before it takes place.

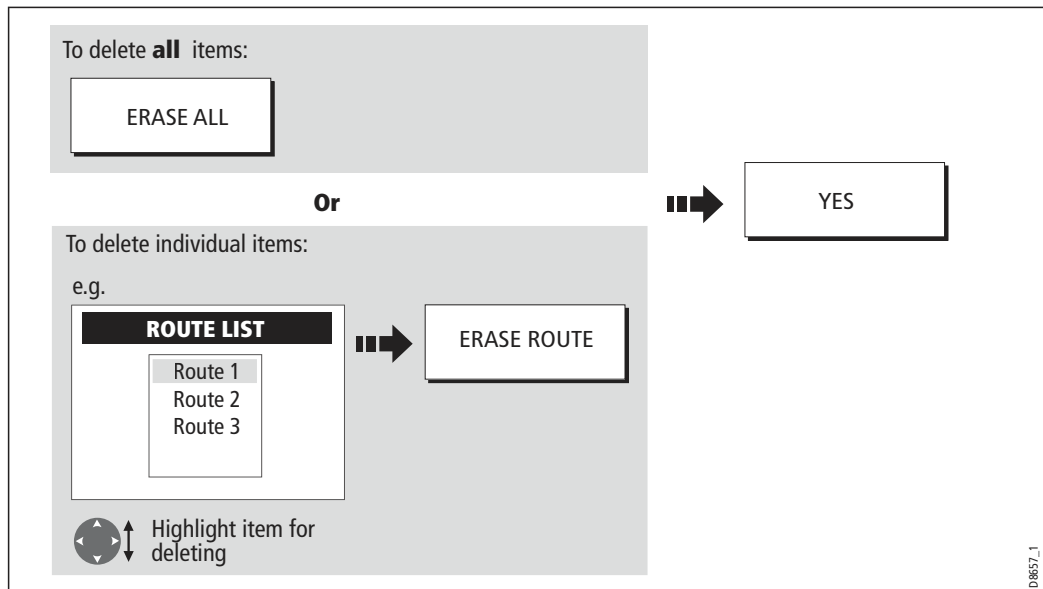
1. Insert the card and select the ERASE FROM CARD function:



2. Select the required list:



3. Define data to be deleted:



Sending and receiving information using a PC

You can transfer and retrieve waypoints or routes to and from another instrument or PC using NMEA or SeaTalk^{hs}.

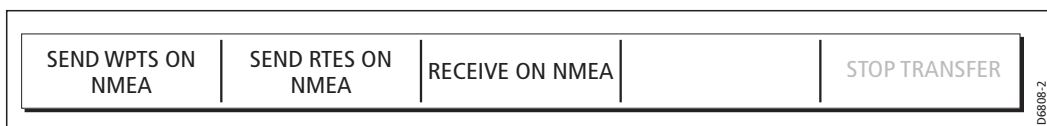
With a RayTech 6.0's planner you can transfer waypoints and routes via a CF memory card. Such transfers require that the PC be connected to the display's NMEA port via a serial data cable. RayTech 6.0 will transfer waypoints and routes via SeaTalk^{hs}.

To transfer or receive information:

1. Select the transfer on NMEA option:



2. Press the appropriate soft key to send or receive NMEA:



Note: If you wish to stop the transfer at any point, press STOP TRANSFER.

3. When transfer is complete, STOP TRANSFER greys out and the soft keys reappear.

Password protecting your waypoints

If required, you can prevent access to, modification and sight of your waypoint and route databases and functions by means of a password.

Password confirmation

When Password Protection is enabled and you are attempting to access a password protected function for the first time during a power-cycle, the system will request confirmation of your password before you can:

- Access WPTS key functions. This does not affect the operation of the MOB function.
- Access ROUTES soft key functions.
- Create a route from a track. All other track functions are unaffected.
- Archive or transfer any waypoints.
- Enter the Waypoint Password Setup menu.

Note: Once you have provided a password to the system, it must be entered to access the Password Setup sub-menu, regardless of the whether Password Protection is set to ON or OFF.

Disabled data/functions

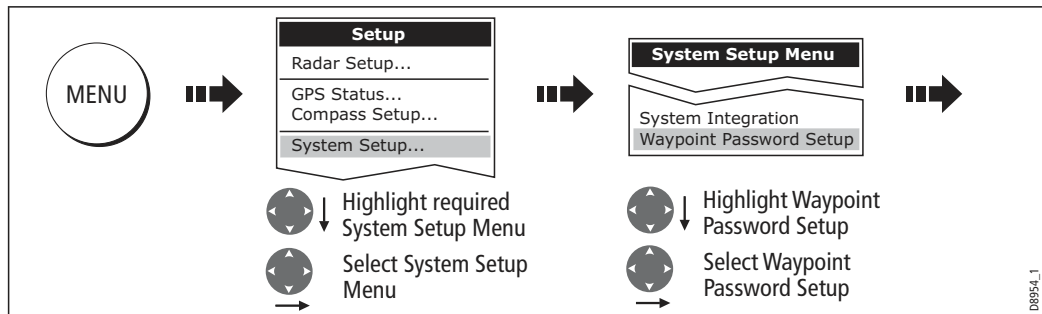
When Password Protection is ON and you have not entered a password you will be unable to:

- View details of waypoint and route databases.
 - Edit waypoints or routes.
 - Goto an existing waypoint.
 - Follow a route.
 - View waypoints on screen (even when the SHOW/HIDE status is set to SHOW).
 - View waypoint names on screen (even when WAYPOINT NAME is set to ON).
- All other options including GOTO CURSOR are unaffected.

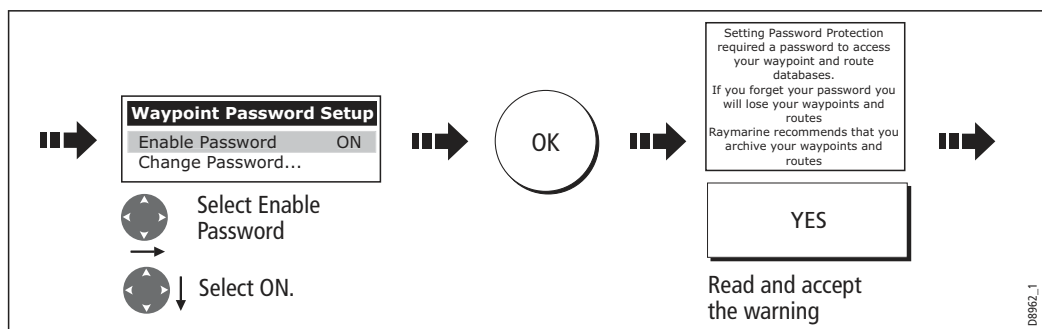
Setting up a password

To setup a password:

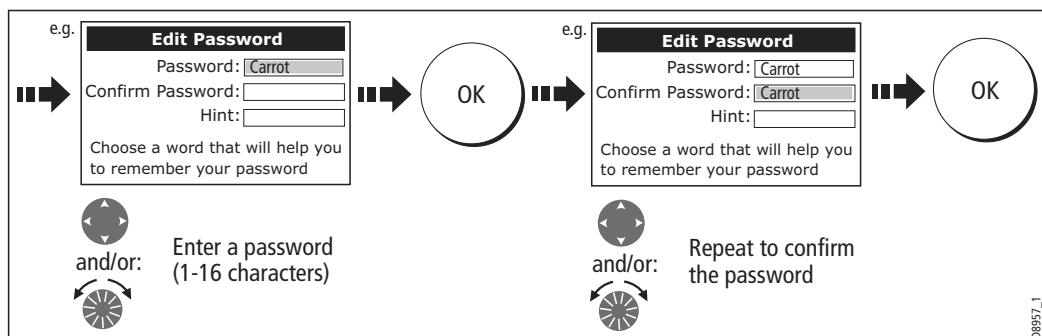
1. Select Waypoint Password Setup:



2. Change the Enable Password status to ON, read and accept the warning:

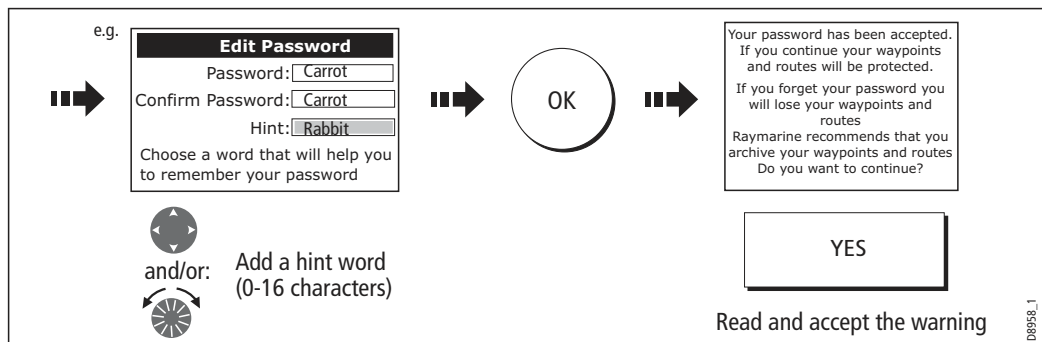


3. Enter a password and confirm it:



Note: *The password is case sensitive.*

4. Add a hint, to help you to remember your password (optional):



The password is now set and protection enabled although access to the waypoint and route functions remains available until you restart your system.

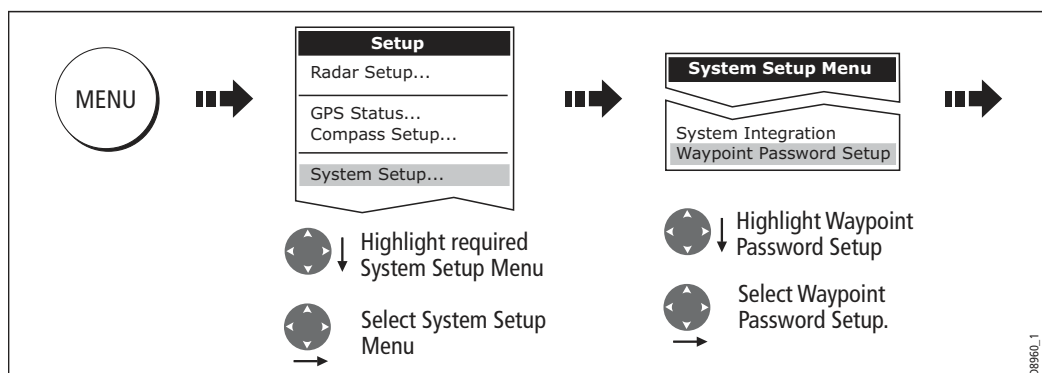
Note: *If required, this password can be changed by selecting the Change Password option on the Waypoint Password Setup Menu.*

Enabling/disabling password protection

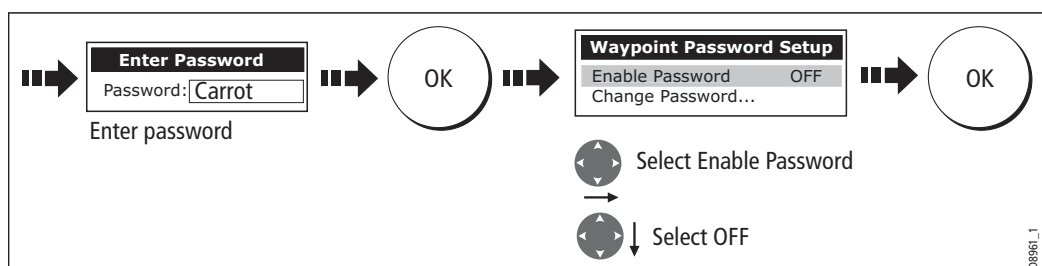
Once you have set up a password on your system (see previous section) you will need to key in this password whenever you want to change the status of the password protection feature.

To enable/disable password protection:

1. Select Waypoint Password Setup:



2. Enter your password ensuring that the appropriate upper or lower case characters are used and then enable/disable the password protection, as required.



Important: If you enter an invalid password more than twice within one power cycle the system shall display the hint. There is no limit to the number of attempts to enter a valid password but if you forget your password, you will need to perform a Settings

and Data Reset (see *page 229*) which will erase all waypoints in the unit's memory. Raymarine strongly recommend therefore that you regularly back-up your waypoints, routes and tracks to a CF memory card.

2.9 Operating a networked E-Series Display

What does a networked system do?

If you have connected two or more E-Series Displays (via either a crossover coupler or SeaTalk High Speed Network Switch), data is transferred across the network enabling you to input, view and maintain applications and data across all your Displays irrespective of the Display from which the data originated (excepting Video Input).

To ensure that the latest data i.e. SeaTalk data and waypoints, routes and tracks databases is available at all displays, the system needs one display to be designated as the data master.

Controlling a network

System data including user-created databases are managed by the data master. The display that has been installed and nominated as the master, should always be switched on (preferably first). The master display will copy its database to all other Displays that are switched on, each time it detects a change.

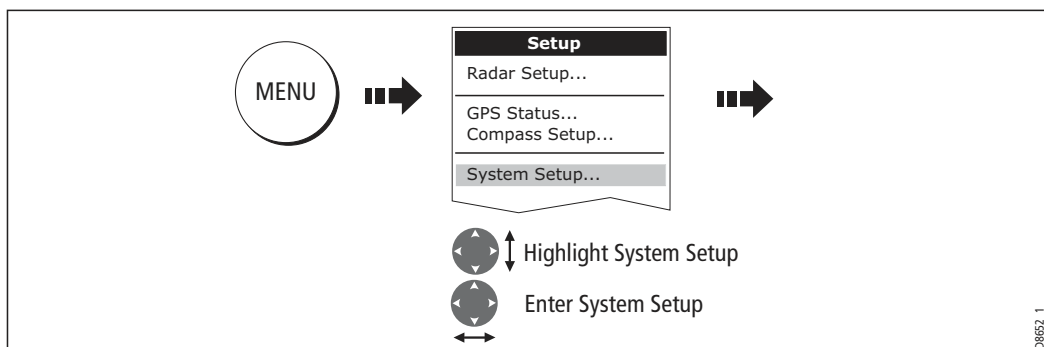
If the system does not detect a master, either because it is not switched on or because a master has not been selected, an alarm will sound and you will be prompted to select a master display.

Note: The data master copies its database to all other displays in the system. To prevent loss of data when adding displays, or changing the master, ensure that you select the appropriate display as the master. You can archive the database onto a Compact-Flash card and retrieve it later.

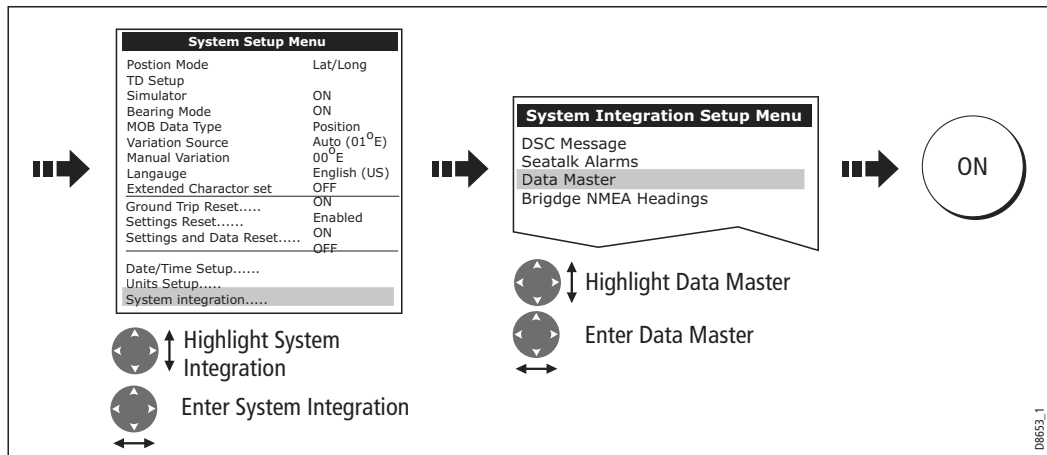
Changing the master display

On the display that you wish to nominate as the master:

1. Display the System Setup menu:



2. Select the System Integration then Data Master option:



Any such changes that you make to the nominated master will be saved when you power off.

Functions only affecting the display in use

The majority of functions, settings, additions and changes that you perform on a single Display are 'seen' by all other Displays connected to your network. There are however some local settings that will only affect the individual display on which you are working.

These local settings are summarized as follows:

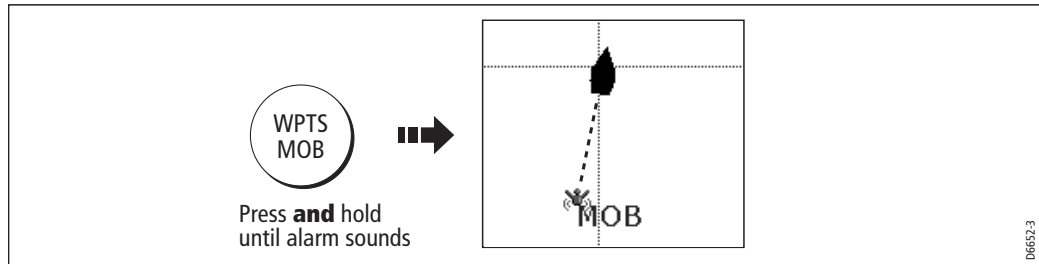
- Page set - selecting a set, name and applications configuration.
- Power on/off key (including Day/night setting).
- The **ACTIVE** window.
- The displayed panel in the digital data or engine monitoring application.
- Radar and Fishfinder presentation settings.
- Radar VRMs, EBLs and Wakes.
- Chart presentation settings when the Chart View is set to LOCAL.
- Show/hide waypoints, routes or tracks.
- Fishfinder Setup Menu options (top half of menu only).
- Video, Databar and Display Setup Menus.
- Databar on/off and configuration.
- Ruler settings.

2.10 Emergencies and warnings

You can use your E-Series display to mark the position of a man overboard or to sound an alarm when a particular situation occurs e.g when a depth limit is reached, a specified period of time has elapsed etc.

Man Overboard (MOB)

Marking a MOB



If you lose a person or object overboard, and need to return to the location, you should use the Man Overboard (MOB) function **immediately**. The MOB function can be used whilst any application is in use and is activated by either pressing and holding the **WPTS/MOB** key for three seconds, or by a MOB message being received from other equipment on the SeaTalk system.

When a MOB is activated the following is initiated **automatically**:

- **Alarm** - the MOB alarm is triggered (Morse --- every 30 seconds)
- **Waypoint** - a MOB waypoint is placed at your current position. 🚢
- **Positional information** - the bearing, range and vessel position are displayed in the data bar. These are calculated according to the MOB data type set in the System SetUp (see *page 228*). Assuming that your boat and the MOB are subject to the same tide and wind effects, dead reckoning normally gives a more accurate course.
- **Radar range change** - if radar is transmitting, the system changes the radar range to $\frac{1}{8}$ nm.
- **Active navigation is suspended** - Navigation to any active waypoint is suspended and any existing navigation function is cancelled. No further GOTO or route functions are selectable whilst the MOB function is active.
- **Autorange motion mode** - If radar/chart synchronisation is set to OFF (see *page 84*), the chart application changes the motion mode to Autorange. This displays the largest possible scale of chart that will include both the target waypoint (MOB symbol) and your on-screen vessel.
- **Other equipment** - other Raymarine equipment acknowledges the MOB.
- **Current position to MOB position** - as your vessel moves away from the MOB position, a dotted line is displayed from your current position to the MOB position.

Note: To obtain a MOB position, you need either position data from a GPS (or equivalent device) or heading and speed data.

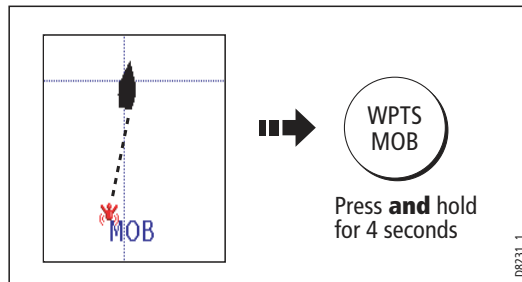
Silencing a MOB

To temporarily silence the alarm from a MOB, press any key on any instrument on the SeaTalk system. After approximately 10 seconds the alarm will sound once more if the state of MOB is still active.

Silencing an alarm **will not** deactivate or clear the MOB state.

Clearing a MOB

To clear a MOB and its data:



Once cleared, your chart and radar applications will return to the motion mode that applied prior to the MOB alarm and the GOTO and route functions will once more be available.

Note: Alternately if you have a MOB keypad fitted, press and hold the MOB key.

Alarms

You get warning of a hazard or a particular situation via in-built alarms which are generated for the system as a whole or for individual applications. When an alarm sounds, a message box is displayed explaining the cause of the alarm.

You can specify what alarms will operate and the parameters within which they will sound, via the Alarm Setup Menu (see *page 232*).

Cancelling alarms

Display alarms

By pressing the ACKNOWLEDGE soft key, the alarm is silenced and any message box is cleared. If the alarm has been generated by the chartplotter, the appropriate action is taken. For example, following an arrival alarm, the next route leg is activated.

Please note:

- Although you can change the configuration of the arrival alarm, it cannot be turned off.
- To cancel a MOB alarm, press and hold the **WPTS/MOB** until the MOB symbol disappears from the screen.
- If an anchor alarm is silenced, but the alarm condition persists, the alarm is repeated every 30 seconds

External alarms

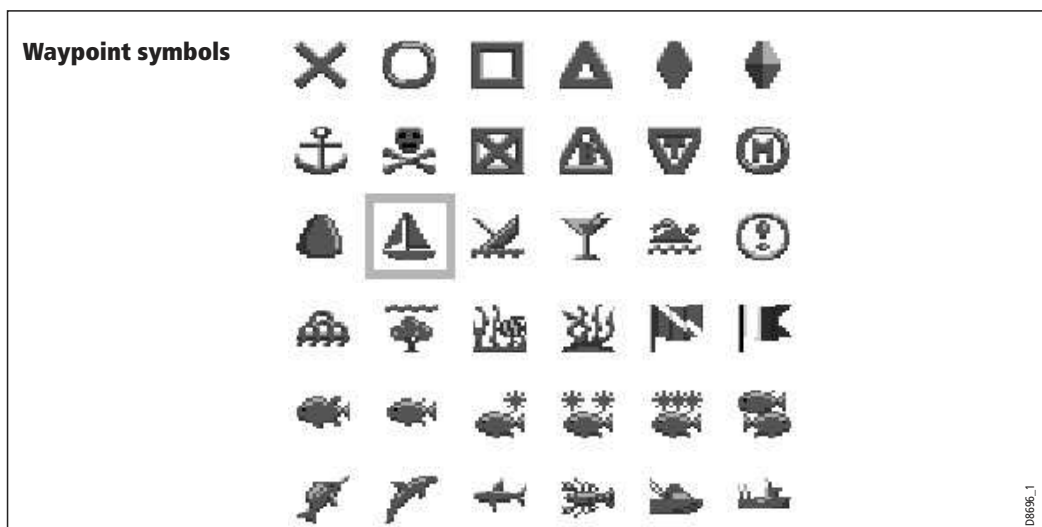
If an instrument that is connected to the display on SeaTalk generates alarms, these will sound on your E-Series display accompanied by a pop-up message box. You can cancel these alarms by pressing the ACKNOWLEDGE soft key. The alarm will be silenced, but no other action will be taken by the E-Series display.

Chapter 3: Working with Waypoints

This chapter gives details of how to place, edit, manage and navigate to a waypoint.

3.1 What is a waypoint?

A waypoint is a position marked on a chart, radar or fishfinder window to indicate a site (for fishing, diving etc.) or as a place to navigate to. By default, all waypoints are indicated on screen by a waypoint symbol - X. This symbol can however be changed if you wish. You can also select an alternative symbol to be used as the default for newly created waypoints.



Note: For details of how to change the symbol, please refer to page 39.

Waypoints are a core feature of the E-series display. They can be created in any application and are displayed on the radar, chart and fishfinder windows. A series of waypoints can be combined together to form a route. If you have networked several E-Series Displays, any waypoints that are created on one display are 'seen' by all the other displays.

The details of all waypoints, irrespective of the application they were created in, are stored in a dedicated waypoint list which will hold up to 1200 waypoints. All waypoints are by default, placed in the MY WAYPOINTS group. If required, you can create new groups and change the default group. If necessary, waypoints can be archived to a CompactFlash card or transferred to another NMEA compatible instrument. If the system receives an active waypoint over SeaTalk or NMEA, it is displayed but cannot be edited.

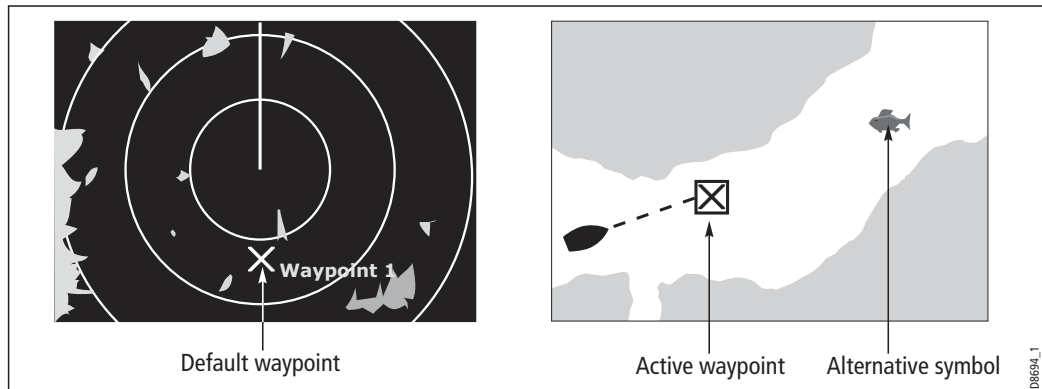
If required, you can prevent access to, modification and sight of your waypoint and route databases and functions by means of a password. For more information see page 25.

Note: You can only archive and transfer waypoints to a CompactFlash card/NMEA link installed at the display on which you are working.

3.2 How are waypoints represented?

Waypoints on 2D Chart and Radar windows

On 2D chart and radar windows, a waypoint is represented when it is both active (displayed in a box) and inactive (no box) i.e.



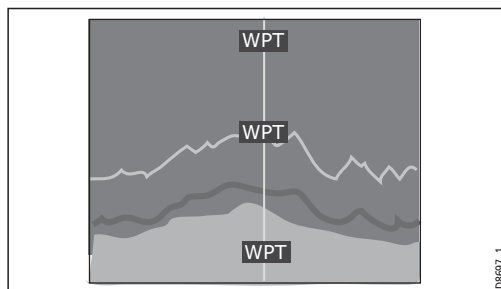
Waypoints on 3D Chart and CDI windows

On 3D chart and CDI windows, a waypoint is represented only when it is active (displayed in a box).



Waypoints on Fishfinder windows

When a waypoint is created it is represented on fishfinder windows, by a vertical line labelled **WPT**. This symbology cannot be changed.



Note: A waypoint can be placed when a Weather application window is active but it will not be seen in the weather window.

3.3 Placing a waypoint

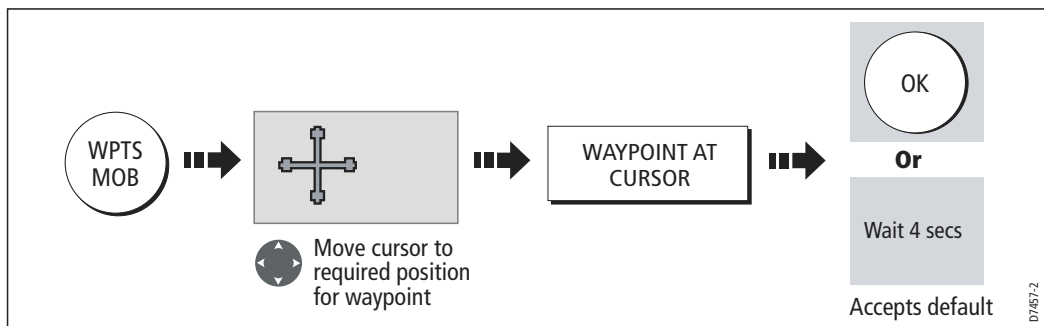
A waypoint can be placed at:

- The cursor position.
- Your vessel's position.
- At a position of your choosing (using lat/lon or Loran TD coordinates between 80° N/S).

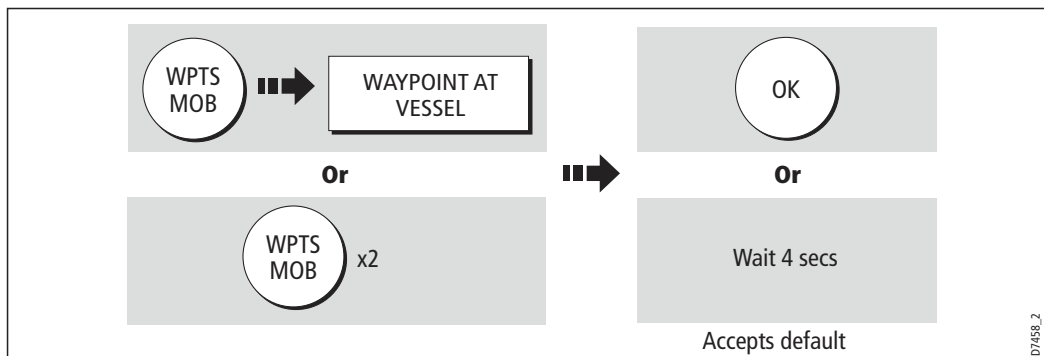
When you are placing a waypoint, you can either accept the default or customize its details. For more information see *page 38*.

Once a waypoint has been placed, you can view its details and edit them (if necessary). For more information, see *page 37* and *page 38*.

... at the cursor

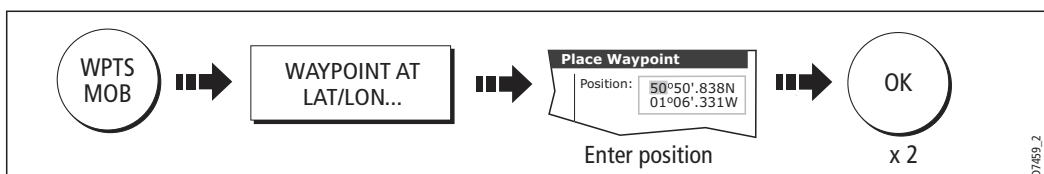


... at your vessel's position



If the system cannot determine your position, a warning is displayed and the waypoint is not placed.

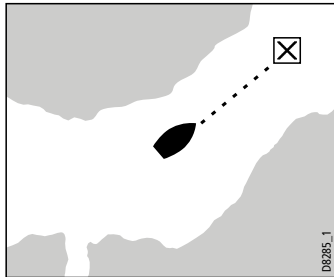
... at a known position



3.4 Navigating to a waypoint

This section explains how to start and stop navigating to a waypoint. When you navigate to a waypoint or to the cursor position, the data is sent on NMEA 0183 and SeaTalk and can be used by an autopilot, if connected. For more information on navigation, see *page 64*.

Start navigating to a waypoint



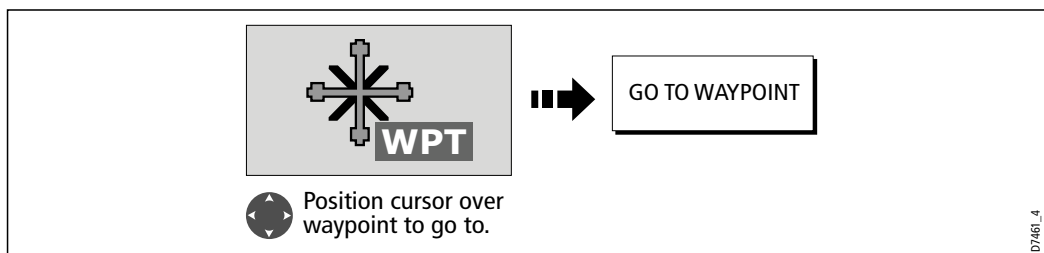
You can navigate to a waypoint using the cursor, via the **WPTS MOB** button or by selecting the **GOTO** option.

Once navigation is active, the waypoint symbol is surrounded by a box and a dashed line appears between your boat and the waypoint.

If required you can display navigation details for the active waypoint in the data bar (see *page 224*).

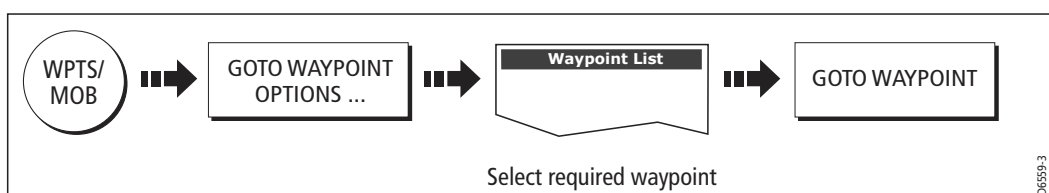
...using the cursor

To navigate to a waypoint using the cursor, when a chart or radar application is active:



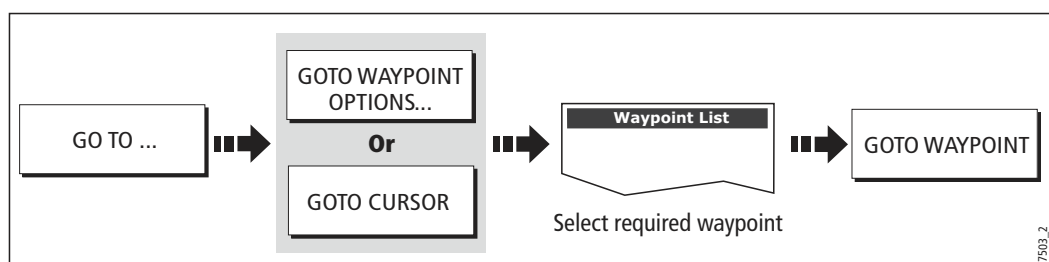
...via the WPTS MOB button

To navigate to a waypoint using the WPTS/MOB button when any application is active:



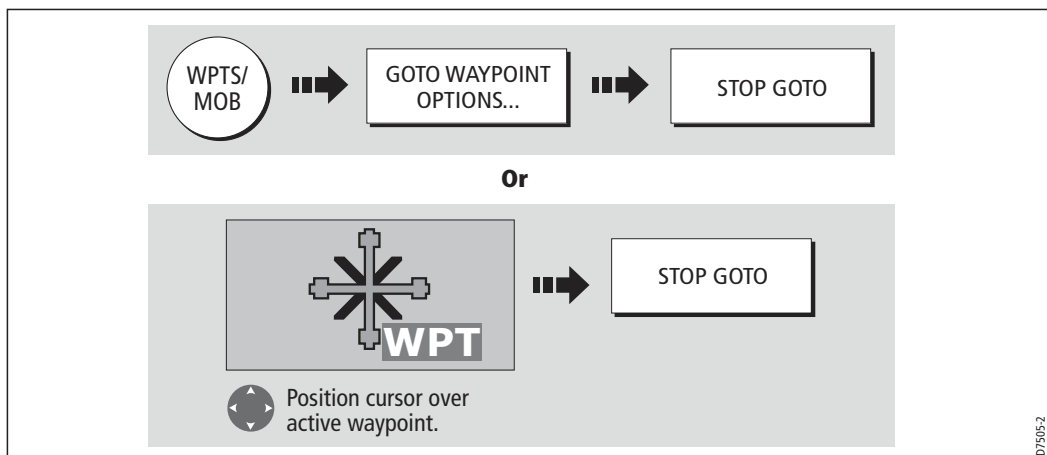
... by selecting the GOTO option

You can navigate to a waypoint using the GOTO option when a 2D or 3D chart application is active and the top level chart soft keys are displayed:



Stop navigating to a waypoint

If at any time you wish to stop navigating towards the selected waypoint:



Once navigation is no longer active, the waypoint symbol returns to its normal unboxed state and the dashed line between your boat and the waypoint is removed.

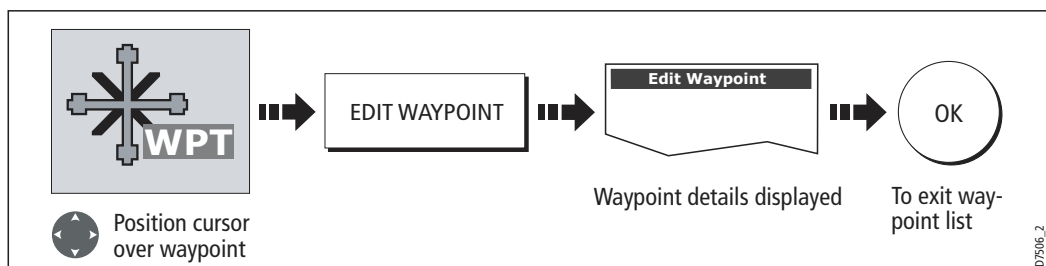
3.5 Viewing waypoint information

You can view the details of any waypoint that you have placed, by either selecting it with the cursor (in radar and chart windows) or by selecting it on the waypoint list. Once you are viewing a waypoint's details, a variety of editing and managing options are available.

You can also display navigation details for the active waypoint in the data bar (see *page 224*).

...using the cursor

To view the details of a waypoint that is **not** active.



Note: *Details of the waypoint that you are currently navigating to, can be accessed via the waypoint list as described below.*

...using the waypoint list

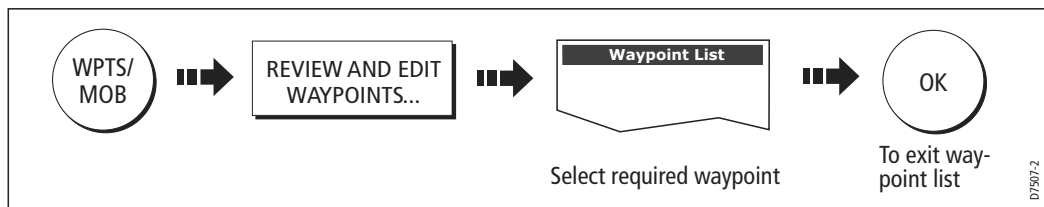
The waypoint list shows all the waypoints that have been placed (including the active one), and displays details of the selected waypoint:

Note: *Temperature and depth are only captured (if available) for waypoints placed at your vessel's position.*

Waypoint List	
Name:	Group: My Waypoints
<ul style="list-style-type: none"> ⚓ Waypoint 1 ⚓ Waypoint 2 ⚓ Waypoint 3 	Position: 50°53'.826N 001°10'.963W
	Rng/Brg: 284° 4.315nm
	Temperature: ---.-°F
	Depth: ---.-ft
	Date: 05/11/2003
	Time: 14:59:11

D6560-2

To access the waypoint list:




D7907-2

3.6 Editing a waypoint

Once a waypoint has been placed it can be edited in a variety of ways. You can:

- Change the waypoint details - name, symbol, group or add a comment.
- Move a waypoint.
- Erase a waypoint.
- Change the default symbol and group of newly placed waypoints.

Edit Waypoint	
Symbol: 	Position: 50°50'.838N 001°06'.331W
Name: Waypoint 1	BRG: 223°
Group: My Waypoints	RNG: 3.978nm
Comment:	

D6561-2