4.18 Remote control functions

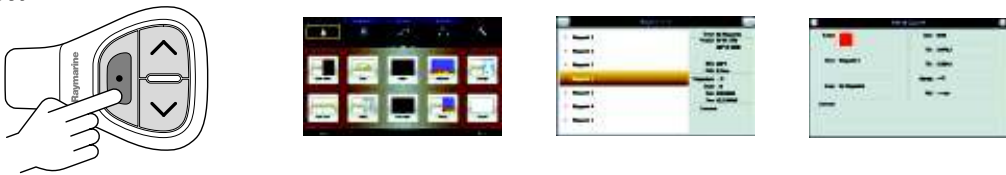**Buttons**
— Arrow buttons
— Shortcut button

Range
or

Pair

Select

D12051-2

Default functions:	Button	Application where function available:				
		Chart	Radar	Fishfinder	Weather	Homescreen
Range / zoom.	• Press UP or DOWN arrow for momentary response. • **Hold** UP or DOWN arrow for continuous response.	✔	✔	✔	✔	✘
Open homescreen.	Shortcut: **Hold**	✔	✔	✔	✔	✘
Select application in homescreen (in left-to-right, top-to-bottom order).	• Press UP or DOWN arrow for momentary response. • **Hold** UP or DOWN arrow for continuous response.	✘	✘	✘	✘	✔
Toggle menu items and options in dialogs and prompts (in left-to-right, top-to-bottom order).	• Press UP or DOWN arrow for momentary response. • **Hold** UP or DOWN arrow for continuous response.	✔	✔	✔	✔	✔
Place waypoint at vessel position.	Shortcut	✔	✔	✔	✔	✘
Media player control (requires a Bluetooth media player paired to the multifunction display).	• Press UP / DOWN arrow for next / previous track. • Press SHORTCUT button for play / pause.	✔	✔	✔	✔	✔
Customizable functions:						
Open homescreen.	SHORTCUT	✔	✔	✔	✔	✘
Switch active application (only available when multiple applications are displayed).	SHORTCUT	✔	✔	✔	✔	✘

Reconnecting the RCU

1. When you pair the RCU-3 with a multifunction display a wireless connection is established.
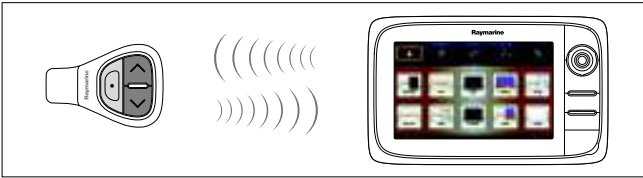
2. When you power off the multifunction display it loses its connection with the RCU-3 after 10 minutes.
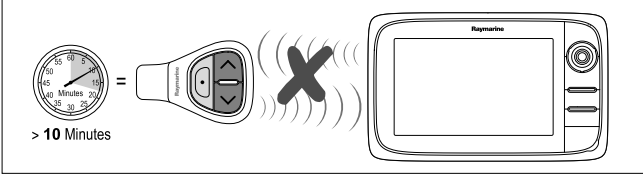
3. To restore the connection between the 2 units, press and hold any button on the RCU-3 for at least 3 seconds.
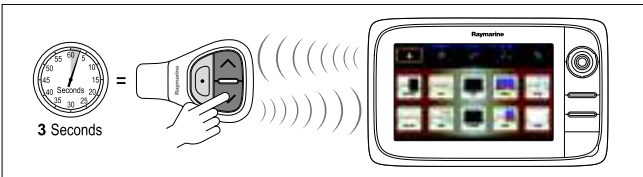
Note: You will also need to reconnect the RCU-3 as described above if you disable and then re-enable the Bluetooth connection on the multifunction display at any time.

4.19 WiFi connections

Raymarine mobile app connection

You can use compatible tablet and smartphone devices as a wireless repeat display or remote control for your multifunction display.

Raymarine apps allow you to stream and / or control, remotely what you see on your multifunction display to a compatible device, using a Wi-Fi connection.

To use this feature you must first:

- Ensure your device is compatible with the app you wish to use.

- Download and install the relevant Raymarine app, available from the relevant market store.

- Enable Wi-Fi in the System Settings on the multifunction display.

- Enable Wi-Fi on your compatible device.

- Select the Raymarine Wi-Fi connection from the list of available Wi-Fi networks on your compatible device.

- Enable the relevant Mobile app in the System Settings menu on the multifunction display.

Note: The multifunction display acts as a Wi-Fi access point. If your device already connects to an access point for e-mail and internet you must revert your access point back to regain access to e-mails and internet.

Navionics mobile marine app

You can wirelessly synchronize data between your multifunction display (MFD) and a mobile device that is running the Navionics mobile marine app.

The synchronization downloads Navionics Freshest Data from your mobile device to your MFD and uploads sonar logs from your MFD to your mobile device. Waypoints and routes can also be synchronized between your mobile device and MFD.
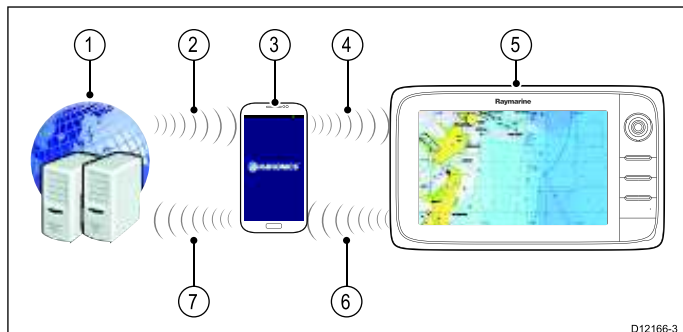
1	Navionics servers
2	Download Navionics Freshest Data to mobile device (internet connection required)
3	Mobile device running Navionics mobile app
4	Download Navionics Freshest Data to MFD (Wi-Fi connection to MFD required)
5	MFD
6	* Upload Sonar Logs and Community edits to mobile device (Wi-Fi connection to MFD required)
7	** Upload Sonar Logs and Community edits anonymously to Navionics servers (internet connection required)

Note:

* To participate in Navionics Sonar Charts, Sonar logging must be enabled on your MFD. Sonar Logs can be enabled from the Chart application menu: **Menu > Depth & Contour > Sonar Logs**.

** The Sonar logs shall be uploaded to Navionics servers anonymously.

To use this feature you must first:

1. Download and install the Navionics Mobile Marine app, available from the relevant app store.

2. Subscribe to Navionics Freshest Data.

3. Download Freshest data to your mobile device.

4. Enable Wi-Fi in the System Settings on the MFD.

5. Enable Wi-Fi on your mobile device.

6. Select the MFD Wi-Fi connection from the list of available Wi-Fi networks on your mobile device.

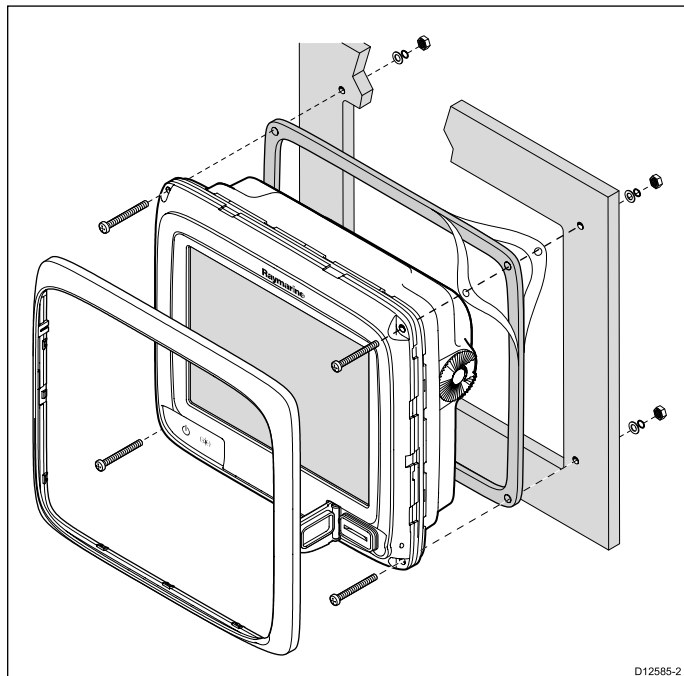# Chapter 5: Mounting

Chapter contents

5.1 Mounting - New a Series

Mounting

the display can be surface mounted.

Before mounting the unit, ensure that you have:

- Selected a suitable location.
- Identified the cable connections and route that the cables will take.
- Detached the front bezel.

D12585-2

1. Check the selected location for the unit. A clear, flat area with suitable clearance behind the panel is required.
2. Drill or knock out the 4 mounting holes on the unit

D12588-1
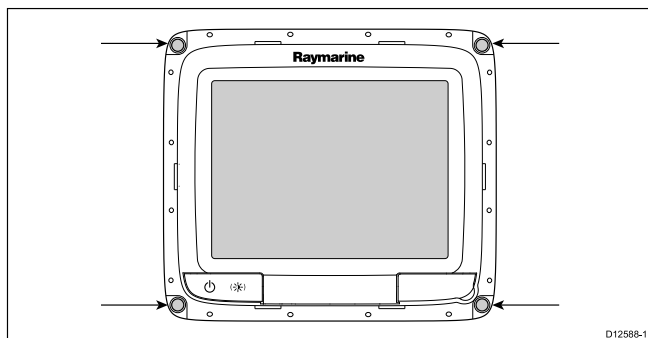
3. Fix the appropriate cutting template supplied with the product, to the selected location, using masking or self-adhesive tape.
4. Using a suitable hole saw (the size is indicated on the template), make a hole in each corner of the cut-out area.
5. Using a suitable saw, cut along the inside edge of the cut-out line.
6. Ensure that the unit fits into the removed area and then file around the rough edge until smooth.
7. Drill 4 holes as indicated on the template to accept the securing screws.
8. Place the gasket onto the display unit and press firmly onto the flange.
9. Connect the power, data and other cables to the unit.
10. Slide the unit into place and secure using the provided fixings.

Note: The supplied gasket provides a seal between the unit and a suitably flat and stiff mounting surface or binnacle. The gasket should be used in all installations. It may also be necessary to use a marine-grade sealant if the mounting surface or binnacle is not entirely flat and stiff or has a rough surface finish.

Bracket (trunnion) mounting

The display can be mounted on a trunnion bracket.

Before mounting the unit ensure that you have:

- Selected a suitable location.
- Identified the cable connections and route that the cables will take.
- Attached the front bezel.
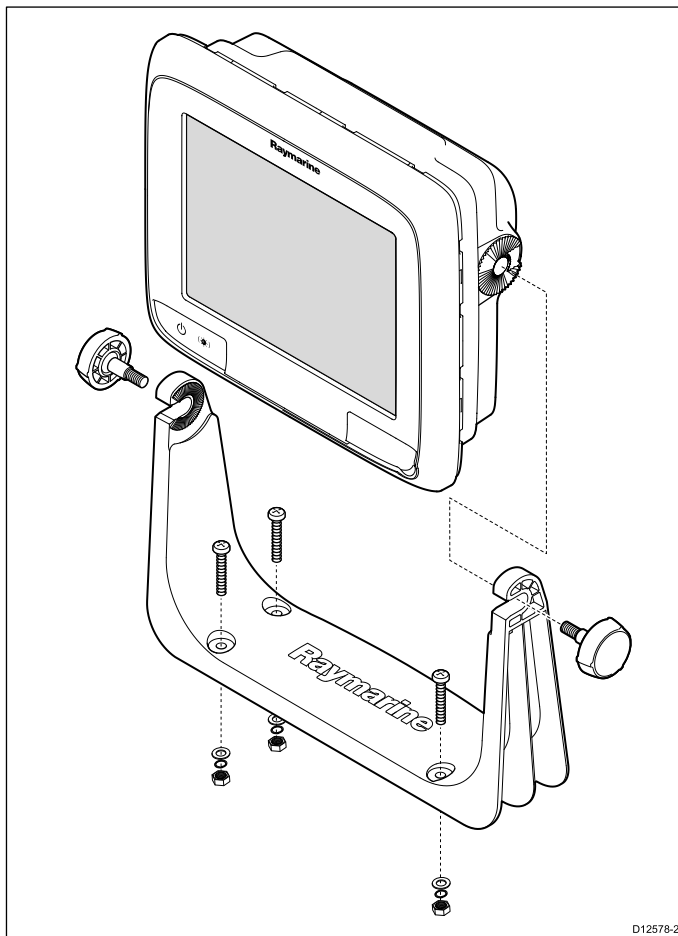
D12578-2

1. Mark the location of the mounting bracket screw holes on the chosen mounting surface.
2. Drill holes for the screws using a suitable drill, ensuring there is nothing behind the surface that may be damaged.
3. Use the fixings supplied with the mounting bracket to attach securely.
4. Attach the display to the mounting bracket.

Front bezel

Attaching the front bezel

The following procedure assumes that the unit has already been mounted in position.

1. Carefully lift one edge of the screen protection film, so that it is accessible for removing when unit installation is complete.
2. Ensure the memory card slot door is in the open position.
3. Orientate the bottom-right side of the bezel under the lip of the chart card door and place the bezel over the front of the

display, ensuring that the clips along the bottom edge of the bezel latch into position.
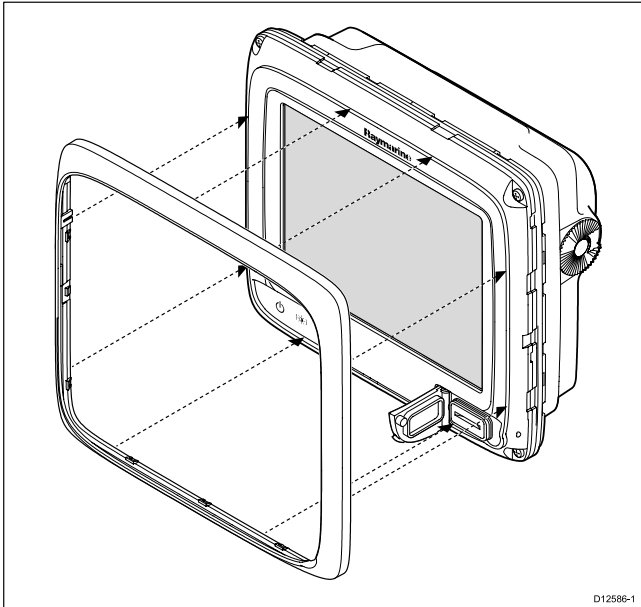

D12586-1

4. Ensure the bezel is correctly aligned with the display, as shown.

5. Apply firm but even pressure to the bezel along the:
   i. Outer edges - work from the sides upwards and then along the top edge, to ensure that it clips securely into position.
   ii. Inner edges - particularly along the chart card door edge, to ensure that the bezel sits flat.

6. Check that the **Power** button and chart card door are free to operate.

Removing the front bezel

Before proceeding ensure the memory card slot door is open.
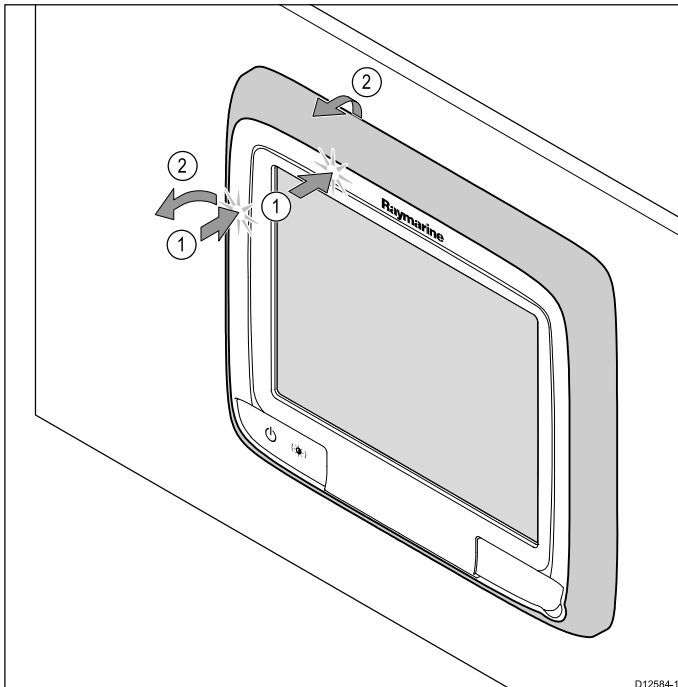
D12584-1

Important: Use care when removing the bezel. Do not use any tools to lever the bezel; doing so may cause damage.

1. Place both your thumbs on the upper left edge of the display, at the positions indicated in the diagram above.

2. Place your fingers underneath the bezel, at the positions indicated in the diagram above.

3. In a single firm motion, apply pressure to the outer edge of the display with your thumbs and pull the bezel towards you using your fingers.

The bezel should now come away from the display easily.

5.2 Mounting - New c Series and New e series

Removing the rear bezel

You must remove the rear bezel before surface mounting the display.

Note: These steps do not apply to the e165 as it does not require a rear bezel.

1. Remove the front bezel. Refer to the separate instructions provided for that procedure.

e7 / e7D
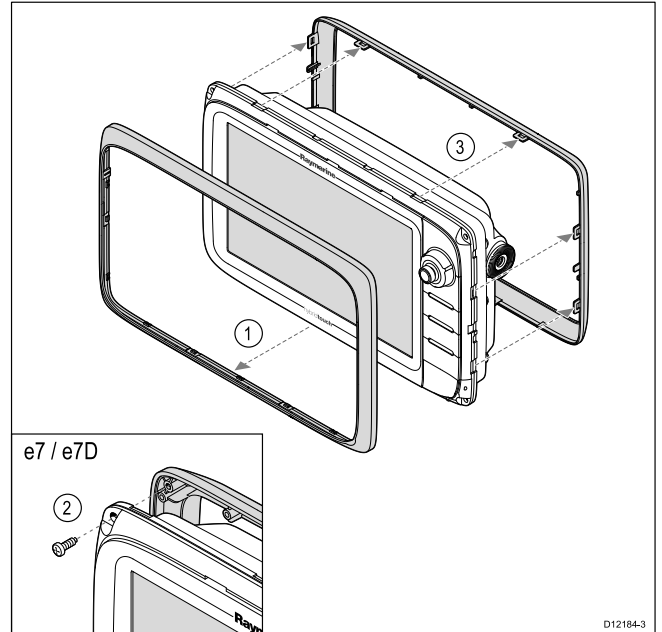
D12184-3

2. Remove the screws that secure the bezel to the display (only required for e7 and e7D).

3. Carefully remove the bezel from the rear of the display, pulling the bezel gently along the:
   i. Outer edges - work from the sides upwards and then along the top edge, ensuring that the clips are fully released from the display.
   ii. Inner edges - ensure that the bezel is completely removed from the display.

Note: Only the e7 and e7D have fixing screws for the rear bezel, other multifunction display variants have clips which hold the rear bezel in place.

Surface mounting

The display can be surface mounted.

Before mounting the unit, ensure that you have:

• Selected a suitable location.

• Identified the cable connections and route that the cables will take.

• Detached the front bezel.

D12271-2

1. Check the selected location for the unit. A clear, flat area with suitable clearance behind the panel is required.
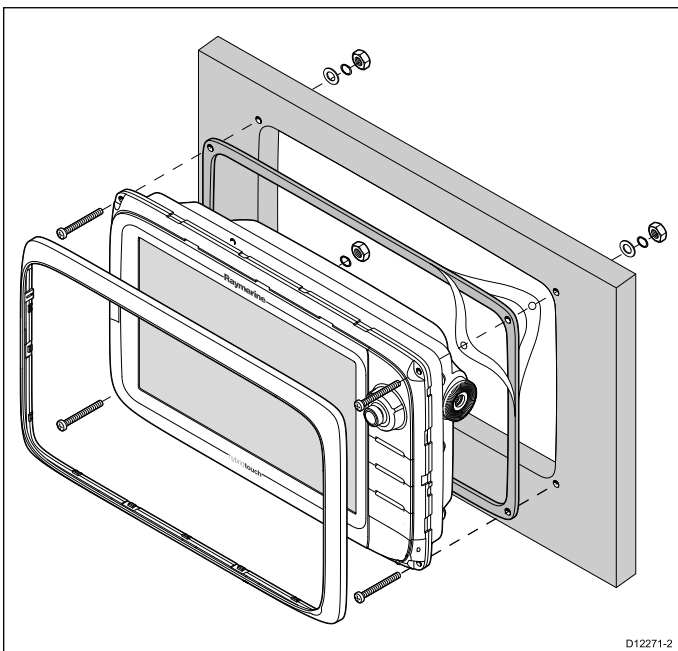2. Fix the appropriate cutting template supplied with the product, to the selected location, using masking or self-adhesive tape.
3. Using a suitable hole saw (the size is indicated on the template), make a hole in each corner of the cut-out area.
4. Using a suitable saw, cut along the inside edge of the cut-out line.
5. Ensure that the unit fits into the removed area and then file around the rough edge until smooth.
6. Drill 4 holes as indicated on the template to accept the fixings.
7. Place the gasket onto the display unit and press firmly onto the flange.
8. Connect the power, data and other cables to the unit.
9. Slide the unit into place and secure using the fixings provided.

Note: The supplied gasket provides a seal between the unit and a suitably flat and stiff mounting surface or binnacle. The gasket should be used in all installations. It may also be necessary to use a marine-grade sealant if the mounting surface or binnacle is not entirely flat and stiff or has a rough surface finish.

Attaching the rear bezel

The rear bezel must be fitted if you wish to use a mounting bracket to mount the unit.

Note: These steps do not apply to the e165 as it does not require a rear bezel.

1. Remove the front bezel. Refer to the separate instructions provided for that procedure.
2. Place the bezel over the rear of the display, ensuring that it is correctly aligned with the display. Apply firm but even pressure to the bezel along the:
   i. Outer edges - work from the sides upwards and then along the top edge, to ensure that it clips securely into position.

ii. Inner edges - ensure that the bezel sits flat against the unit.

e7 / e7D

D12183-3

3. Use the supplied screws to secure the bezel to the display (e7 and e7D only).

Bracket (trunnion) mounting

The display can be mounted on a trunnion bracket.

Note: The mounting bracket is supplied with the e7 and e7D display variants, for all other display variants the mounting bracket is an optional accessory See the *Spares and Accessories* section of this manual for details.
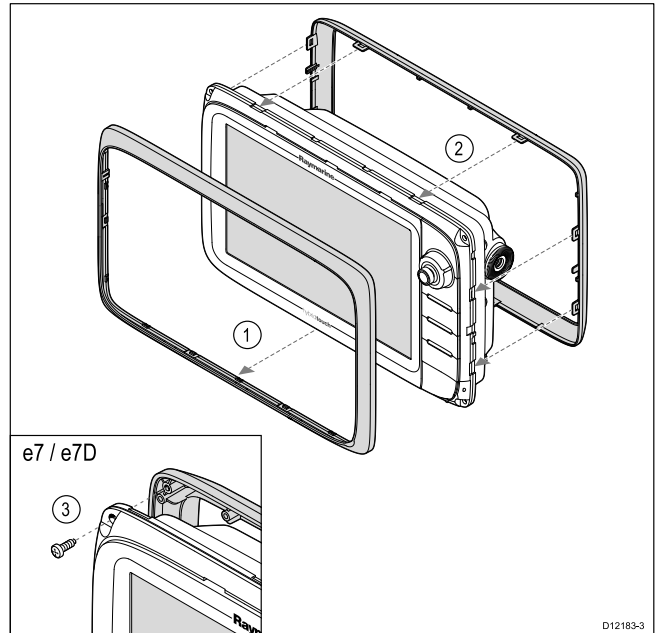
Before mounting the unit ensure that you have:

- Selected a suitable location.
- Identified the cable connections and route that the cables will take.
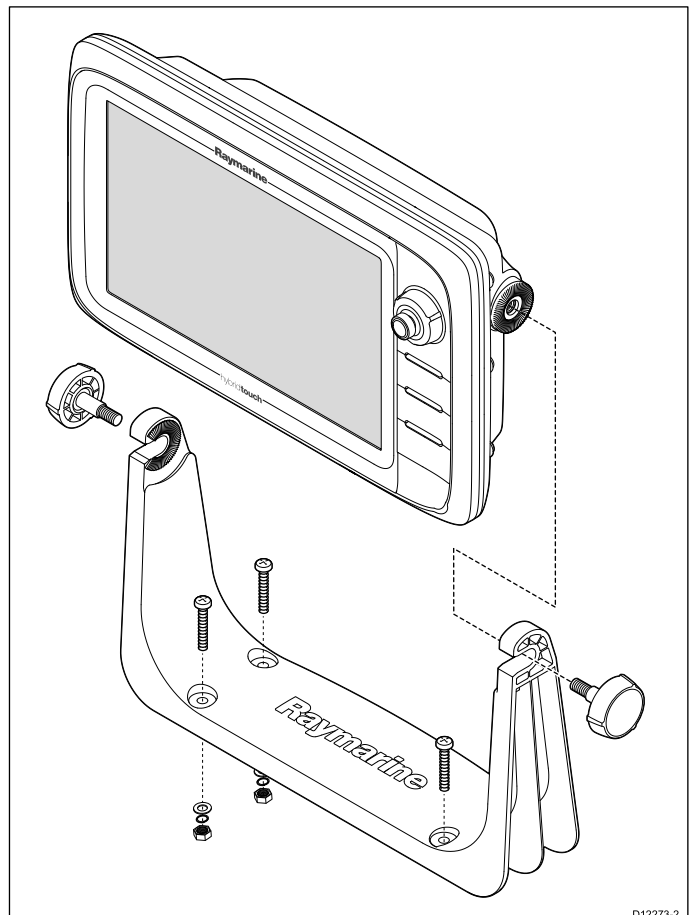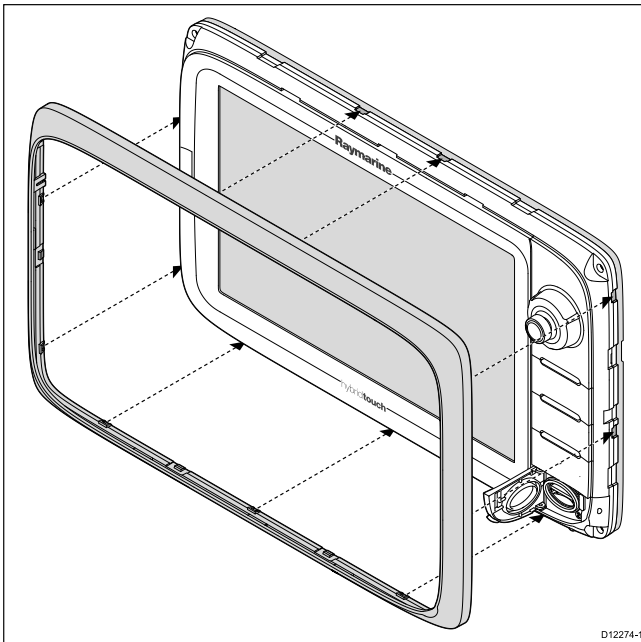- Attach the front bezel.

D12273-2

1. Mark the location of the mounting bracket screw holes on the chosen mounting surface.
2. Drill holes for the fixings using a suitable drill, ensuring there is nothing behind the surface that may be damaged.
3. Use the fixings supplied with the mounting bracket to attach securely.
4. Attach the display unit to the mounting bracket.

Front bezel

Attaching the front bezel

The following procedure assumes that the unit has already been mounted in position.

1. Carefully lift one edge of the screen protection film, so that it is accessible for removing when unit installation is complete.
2. Ensure the memory card slot door is in the open position.
3. Orientate the bottom-right side of the bezel under the lip of the chart card door and place the bezel over the front of the display, ensuring that the clips along the bottom edge of the bezel latch into position.

4. Ensure the bezel is correctly aligned with the display, as shown.
5. Apply firm but even pressure to the bezel along the:
   i. Outer edges - work from the sides upwards and then along the top edge, to ensure that it clips securely into position.
   ii. Inner edges - particularly along the chart card door edge, to ensure that the bezel sits flat.
6. Check that all control buttons are free to operate.

Removing the front bezel

Before proceeding ensure the memory card slot door is open.

Important: Use care when removing the bezel. Do not use any tools to lever the bezel; doing so may cause damage.

1. Place both your thumbs on the upper left edge of the display, at the positions indicated in the diagram above.
2. Place your fingers underneath the bezel, at the positions indicated in the diagram above.
3. In a single firm motion, apply pressure to the outer edge of the display with your thumbs and pull the bezel towards you using your fingers.

The bezel should now come away from the display easily.

Chapter 6: Getting started

Chapter contents

6.1 Display power

Powering the display on

1. Press the **POWER** button on the display.
2. Select **Accept** to acknowledge the disclaimer message.

🚫 Powering the display on

1. Press the **POWER** button.
2. Press the **OK** button to accept the disclaimer message.

Powering the display off

1. Press and hold the **POWER** button until the countdown reaches zero.

Note: If the **POWER** button is released before the countdown reaches zero, the power off is cancelled.

Standby (PowerSave) mode

In PowerSave mode all functions of the multifunction display remain active, but the unit is placed into a low power state. The LED lights around the Rotary controller will blink once every 1.5 seconds to indicate that the unit is in PowerSave mode. PowerSave mode is cancelled by pressing a physical button or when an alarm event occurs.

D12367-1
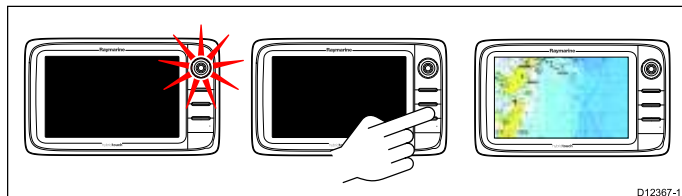
Note: To ensure user safety the PowerSave feature will not be available if:

• any connected radars are switched on

• the multifunction display is providing autopilot control in a system without a dedicated pilot head and the autopilot is engaged.

Enabling PowerSave mode

To enable PowerSave mode follow the steps below.

1. Ensure any radars connected to the system are switched off.
2. Press the **POWER** button.

   The shortcuts menu is displayed.
3. Select **PowerSave Mode**.

   The multifunction displays is now in PowerSave mode.
4. You can wake the unit from PowerSave mode at anytime by pressing a physical button on the multifunction display.

Note: PowerSave mode is automatically cancelled if an alarm event occurs.

6.2 New a Series Controls

D12577-1

	Description	Functions
1	**Touchscreen**	Touch the screen to operate functions, including all menu operations.
2	**Power**	• Press once to switch the unit ON. • Once powered on, press the Power button again to adjust the brightness, perform a screen capture, access Powersave mode or access the power controls for external devices. • Press and hold to switch the unit OFF. • If an integrated pilot is engaged, press and hold put the autopilot into STANDBY mode.
3	**Card reader slot**	Open the card door to insert or remove a MicroSD card. There is 1 card slot, used for electronic charts and archiving waypoint, route, track and settings data.

6.3 e7 / e7D Controls

D12179-1

	Description	Functions
1	**Touchscreen**	you can touch the screen to operate many common functions, including all menu operations.
2	**Menu**	Accesses menus. Press again to close menus.
3	**UniControl**	Provides a joystick, rotary control and an OK push button for using menus and applications.
4	**Back**	Press to return to a previous menu or dialog level.
5	**WPT / MOB**	• Press and release to access the waypoint options. Press again to place a waypoint. • Press and hold to place a Man Overboard (MOB) marker at your current position.
6	**Power**	• Press once to switch the unit ON. • Once powered on, press the Power button again to adjust the brightness, perform a screen capture, access Powersave mode or access the power controls for external devices. • Press and hold to switch the unit OFF. • If an integrated pilot is engaged, press and hold put the autopilot into STANDBY mode.
7	**Card reader slot**	Open the card door to insert or remove a MicroSD card. There are 2 card slots (labelled 1 and 2), used for electronic charts and archiving waypoint, route, track and settings data.

6.4 c95 / c97 / c125 / c127 / e95 / e97 / e125 / e127 / e165 Controls

D12276-1

	Description	Functions
1	**Touchscreen**	you can touch the screen to operate many common functions, including all menu operations.
2	**Home**	Press to return to the homescreen.
3	**Menu**	Accesses menus. Press again to close menus.
4	**UniControl**	Provides a joystick, rotary control and an OK push button for using menus and applications.
5	**Back**	Press to return to a previous menu or dialog level.
6	**Range In/Out**	Press minus (-) to range out and plus (+) to range in
7	**WPT / MOB**	• Press and release to access the waypoint options. Press again to place a waypoint. • Press and hold to place a Man Overboard (MOB) marker at your current position.
8	**Power**	• Press once to switch the unit ON. • Once powered on, press the Power button again to adjust the brightness, perform a screen capture, access Powersave mode or access the power controls for external devices. • Press and hold to switch the unit OFF.
9	**Card reader slot**	Open the card door to insert or remove a MicroSD card. There are 2 card slots (labelled 1 and 2), used for electronic charts and archiving waypoint, route, track and settings data.
10	**Pilot**	• Press to disengage integrated autopilot. • Press and hold to activate Auto mode on integrated autopilot.
11	**Switch Active Pane**	Press to switch the active pane (in splitscreen pages).

UniControl

Non-touch, HybridTouch and the remote keypad include a UniControl which consists of Rotary, Joystick and a push button control.

List of cursor labels

Label	Feature	Application
A/B	Ruler line	Chart
AIS	AIS target	Chart
COG	Course Over Ground vector	Chart
CTR	Center of radar	Radar
FLT	Floating EBL/VRM	Radar
GRD	Guard zone	Radar
HDG	Heading vector	Chart
MARPA	MARPA target	Radar
MOB	Man Over Board marker	Chart, Radar
POS	Vessel's position	Chart
RTE	Route leg	Chart
SHM	Ship's Heading Marker	Radar
TIDE	Tide indicator	Chart
TRACK	Track line	Chart
VRM/EBL	VRM and EBL, 1 or 2	Radar
WIND	Wind indicator	Chart
WPT	Waypoint	Chart, Radar

1. **Rotary** — use this to select menu items, move the on-screen cursor, and adjust the range in the chart and radar applications.

2. **Joystick** — use this to move the cursor position in applications, pan up, down, left and right in the chart, weather and fishfinder applications or to cycle through datapages in the data application.

3. **OK** button — push the end of the joystick to confirm a selection or entry.

Touch icons

Touchscreen multifunction displays can use the **BACK** and **CLOSE** icons to move between the different levels of menus available in each application.

◀	**Back** — go back one level (same effect as pressing the **BACK** button).
✕	**Close** — close all open menus (same effect as pressing the **MENU** button).

Using the cursor

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.
✛ WPT	The cursor is context-sensitive. When it is placed over an object such as a waypoint or chart feature, it changes color and a label or information associated with the object is displayed.

6.5 Homescreen overview — Touch only displays

The Homescreen provides a central point of access for your display's applications, data and settings.

- The Homescreen provides quick access to your data (waypoints, routes, tracks, images and videos) and backup settings.

- The Homescreen consists of a number of Homescreen pages. Swipe the screen left or right with your finger to scroll through the available Homescreen pages.

- Each Homescreen page consists of a number of icons. Applications are started by selecting the relevant icon.

Screen item	Description
1	**Waypoint** — select the icon to access the waypoint list. Select and hold on the icon to place a Man Overboard (MOB) marker at your vessel's current position.
2	**My Data** — this icon enables you to centrally manage your data including route, track, and waypoint lists. You can also access saved pictures and videos and backup settings.
3	**Customize** — select this icon to configure application pages and display preferences.
4	**Set-up** — select this icon to access the system set-up menus.
5	**Icon** — each icon represents an application page. A page can display multiple applications simultaneously.
6	**Status bar** — the status icons confirm the status of externally-connected equipment, including GPS, AIS, radar, sonar and autopilot units.

6.6 Homescreen overview — c Series / e Series

The Homescreen provides a central point of access for your display's applications, data and settings.

- The Homescreen provides quick access to your data (waypoints, routes, tracks, images and videos) and backup settings.

- The Homescreen consists of a number of Homescreen pages. Swipe the screen left or right with your finger to scroll through the available Homescreen pages.

- Each Homescreen page consists of a number of icons. Applications are started by selecting the relevant icon.
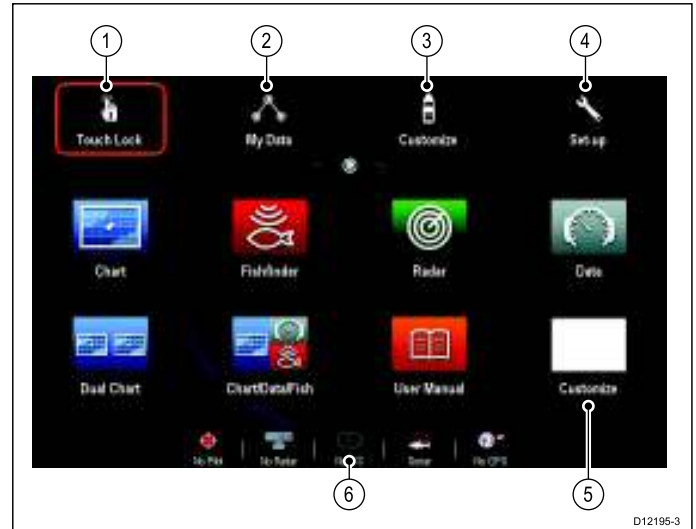

Screen item	Description
1	**Touch Lock** — (HybridTouch displays only) select this icon to lock the touchscreen, preventing accidental use. To unlock, use the UniControl to deselect the Touch Lock icon.
2	**My Data** — this icon enables you to centrally manage your data including route, track, and waypoint lists. You can also access saved pictures and videos and backup settings.
3	**Customize** — select this icon to configure application pages and display preferences.
4	**Set-up** — select this icon to access the system set-up menus.
5	**Icon** — each icon represents an application page. A page can display multiple applications simultaneously.
6	**Status bar** — the status icons confirm the status of externally-connected equipment, including GPS, AIS, radar, sonar and autopilot units.

Accessing the homescreen

The homescreen can be accessed from any application.

To access the homescreen follow the steps below:

1. Select the homescreen icon on-screen.

Accessing the homescreen

The homescreen can be accessed from any application.

To access the homescreen follow the steps below:

1. Press the **Home** button.

Note: The e7 and e7D have a combined Menu and Home button, to access the homescreen press and hold the **Menu / Home** button for 3 seconds.

Databar status symbols

The status symbols on the databar confirm whether the appropriate connections to your system have been made.

The symbols show the status for the following:

- Radar scanner.
- AIS receiver / transceiver.
- Sonar module.
- GPS receiver.
- Autopilot.

Autopilot status symbols

The autopilot status is indicated in the databar.

Symbol	Description
	Autopilot is in Standby mode.
	Autopilot is in Track mode.
	Autopilot is in Auto mode.
	No autopilot detected.
	Autopilot alarm active.
	Dodge mode is active.
	Fish mode is active.
	Autopilot calibration.
	Power steering active.
	Wind Vane mode is active.

Radar scanner status symbols

The radar scanner power mode status is indicated in the databar.

Symbol	Radar power mode	Description
	Transmit (TX)	Rotating icon, signifying that the scanner is on and transmitting. When SCANNER is set to ON, select this mode to activate the scanner. This is the usual mode of operation.
	Standby (STBY)	Static icon, indicating that the scanner is on but not transmitting, and the antenna is not rotating. The scanner does not transmit and the radar data is removed from the screen. This is a power-save mode used when the radar is not needed for short time periods. When you return to transmit mode, the magnetron does not need to warm up again. This is the default mode.

Symbol	Radar power mode	Description
	Off	Scanner powered off when radar not required, but display is in use for other applications, such as the chart. When selected, the system counts down. During this time you cannot re-power the scanner.
	Timed Transmit	Scanner switches between on/transmitting, and standby mode. Scanner goes into power save mode when constant use of radar is not required.

AIS status symbols

AIS status is indicated by a symbol in the databar.

Symbol	Description
	AIS unit is switched on and operating.
	AIS currently unavailable.
	AIS unit is switched off, or not connected.
	AIS unit is in Silent Mode.
	AIS unit is in Silent Mode, with active alarms.
	AIS unit is connected and switched on, but has active alarms.
	AIS unit is connected and switched on, but the dangerous and lost alarm is disabled.

Sonar status symbols

The sonar status is indicated in the databar.

Symbol	Description
	Symbol animated: the sonar module is connected and transmitting.
	Symbol static: the sonar module is connected but not transmitting.
	Symbol greyed-out: the sonar module is not connected, or is not detected.

GPS status symbols

The GPS receiver status is indicated in the databar.

Symbol	Description
	A GPS receiver is connected and has obtained a fix.
	A GPS receiver is not connected, or cannot obtain a fix.

6.7 Pages

Pages are used to display applications.

Pages are accessed using the icons on the Homescreen. Each page can display more than 1 application.

• You can set up and display up to 4 applications per page using a c Series, e Series or gS Series (except for the e7 and e7D) multifunction display.

• The a Series and the e7 / e7D multifunction displays can only set up and show up to 2 applications per page.

• The a series and the e7 / e7D can however show up to 4 application per page if they are sharing the Homescreen of a multifunction display which already has pages with up to 4 applications set up.

Pages can be customized, enabling you to group your applications into different pages, each designed for a specific purpose. For example, you could have a page that includes the chart and fishfinder applications, suitable for fishing, and another page that includes the chart and data applications, which would be suitable for general sailing.

	Icon for a page featuring a single application.
	Icon for a page featuring multiple applications.

You can also define the layout for each page, which determines how the applications are arranged on the screen.

Setting the Power-up page

You can setup your multifunction display to show a page instead of the Homescreen at power up.

Form the Homescreen:

1. Select **Customize**.
2. Select **Display Preferences**.
3. Select **Starting page**.

   A list of options is displayed

   • Homescreen — Homescreen is displayed after power-up.

   • Last page — The page last viewed is displayed after power-up

   • Choose page — The page you select will be displayed after power-up

4. If selecting Choose page the Homescreen is displayed.

5. Select the icon for the page you want displayed when the display is turned on.

The starting page setting applies to each individual display and is not automatically shared on networked displays.

Changing an existing page on the homescreen

With the homescreen displayed:

1. Select **Customize**.
2. Select **Homescreen**.
3. Select **Edit Page**.
4. Select the page icon that you want to change.

   The Customize menu options are displayed.
5. Select the appropriate page layout (for example, "Splitscreen").
6. Select the application(s) you want to display on the page, either by selecting the relevant menu item or dragging it over to the displayed page.
7. Select **Finish**.

   The Rename Page dialog is displayed.
8. Use the on-screen keyboard to name the page, then select **Save**.

Changing an empty page

With the homescreen displayed:

1. Select **Customize**.
2. Select **Homescreen**.
3. Select **Edit Page**.
4. Select an empty page icon (labelled "Customize").

   The Customize menu options are displayed.
5. Select the appropriate page layout (for example, "Splitscreen").
6. Select the application(s) you want to display on the page, either by selecting the relevant menu item or dragging it over to the displayed page.
7. Select **Finish**.

   The Rename Page dialog is displayed.
8. Use the on-screen keyboard to name the page, then select **Save**.

Moving a page on the homescreen

With the homescreen displayed:

1. Select the **Customize** icon.
2. Select **Homescreen**.
3. Select **Swap Page**.
4. Select the page icon that you want to move.
5. Select the page icon that you want to swap positions with.

   The page icon is moved to the new position.

Renaming a page on the homescreen

With the homescreen displayed:

1. Select the **Customize** icon.
2. Select **Homescreen**.
3. Select **Rename Page**.
4. Select the page that you want to rename.

   The on-screen keyboard is displayed.
5. Using the on-screen keyboard, enter the new name for the page.
6. Select SAVE.

Deleting a page from the homescreen

With the homescreen displayed:

1. Select the **Customize** icon.
2. Select **Homescreen**.
3. Select **Delete Page**.
4. Select the page that you want to delete.

   The page is deleted.

Resetting the homescreen to default settings

With the homescreen displayed:

1. Select the **Customize** icon.
2. Select **Homescreen**.
3. Select **Reset**.

   A warning message is displayed asking for confirmation.
4. Select **Yes** to reset the homescreen to the default range of pages, or **No** to cancel the operation.

6.8 Applications

	Chart application — provides a 2D or 3D graphical view of your charts to help you navigate. Waypoint, route, and track functions enable you to navigate to a specific location, build and navigate routes, or record where you've been. Chart cards provide higher levels of detail and 3D views.
	Fishfinder application — with a transducer and a sonar variant multifunction display or compatible Sonar Module, you can use the fishfinder application to help you accurately distinguish between different sizes of fish, bottom structure, and underwater obstacles. You can also view sea depth and temperature data and mark points of interest such as fishing spots or wrecks.
	Radar application — with a suitable radar scanner, you can use the radar application to track targets and measure distances and bearings. A number of automatic gain presets and color modes are provided to help you get the best performance from your radar scanner.
	Data application — view system and instrument data on your multifunction display, for a range of compatible instruments. Use the joystick or touchscreen to scroll through the available data pages.
	Weather application — (North America only). With a suitable weather receiver connected to your system, the weather application overlays historical, live, and forecasted weather graphics on a world map.
	Thermal cam application — view and control a thermal camera using a compatible multifunction display.
	Camera application — view a video or camera source on your multifunction display.
	Doc Viewer — view pdf documents stored on a MicroSD card.
	FUSION Link application — link to and control a compatible Fusion entertainment system from your multifunction display.
	Sirius Audio application — control Sirius radio from your multifunction display.
	User Manual — Opens the English version of the product user manual stored on the display. To open translated user manuals stored on memory card use the Doc Viewer.

6.9 Splitscreen controls

When viewing a page with more than 1 application displayed you can switch applications from the splitscreen view to fullscreen view.

Example 1 — Splitscreen page

Example 2 — Fishfinder application expanded to Fullscreen
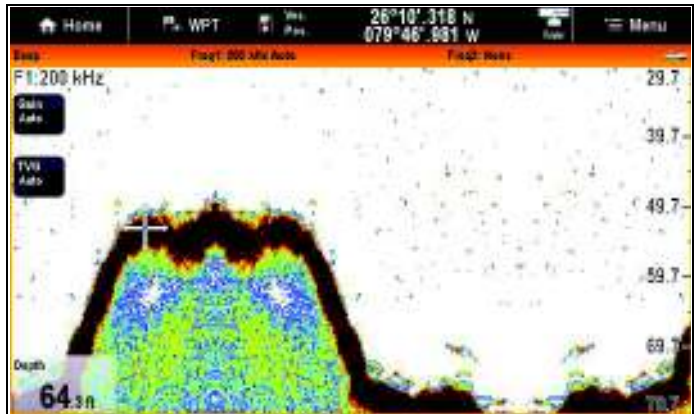
Selecting the active window

When viewing a splitscreen page you can select the active application and view it fullscreen by following the steps below.

With a page featuring multiple applications displayed:

1. Touch anywhere inside the application you want to make active.

   A border appears around the application, indicating that it is active.
2. Select **Menu**.
3. Select **Fullscreen** to view the active application in fullscreen, or
4. Select **Splitscreen** to return to the splitscreen view.

Selecting the active window using Non-touch controls

When viewing a splitscreen page you can select the active application and view it fullscreen using the MFD's physical buttons or a remote keypad.

With a page featuring multiple applications displayed:

1. Press the [icon] **Switch Active** button.

   The active pane pop up is displayed:
2. Press the **Switch Active Pane** button or use the **Rotary control** to cycle the active application.
3. Use the **Range in** or **Range out** controls to switch the active application between splitscreen and fullscreen views.

Selecting the active window — e7 / e7D

When viewing a splitscreen page you can select the active application and view it fullscreen on an e7 / e7D with the touch lock enabled by following the steps below.

With a page featuring multiple applications displayed:

1. Press the **Menu** button.
2. Select **Cycle application**.

   Selecting cycle application cycles through the available applications.
3. Select **Fullscreen** to view the active application in fullscreen, or
4. Select **Splitscreen** to return to the splitscreen view.

Switching the active pane or display using the keypad

The Switch Active button is used to switch the active pane on a multi application page and / or to switch the active display.

With multiple displays connected and / or multiple application page(s) displayed:

Cycle sequence

D12880-1
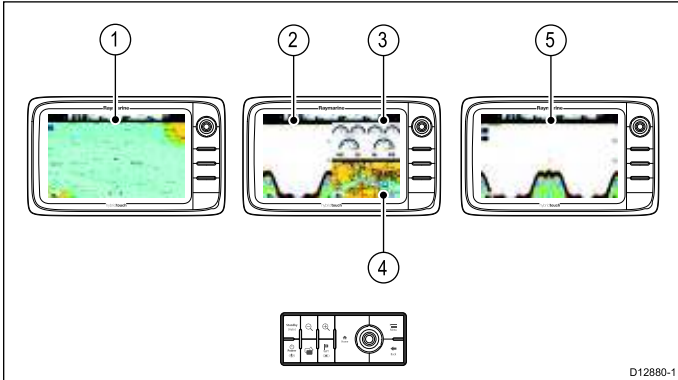
1. Press the **Switch Active** button to enter switch mode.
2. Use the **Rotary control** to cycle through the available panes and / or displays.

   The keypad will cycle through displays in the order in which they were paired. On multi application pages the Range buttons can be used to switch the active application between full and splitscreen.
3. Press the **Back** button or the **Switch Active** button to exit switch mode.

6.10 Screen overview

D12196-2
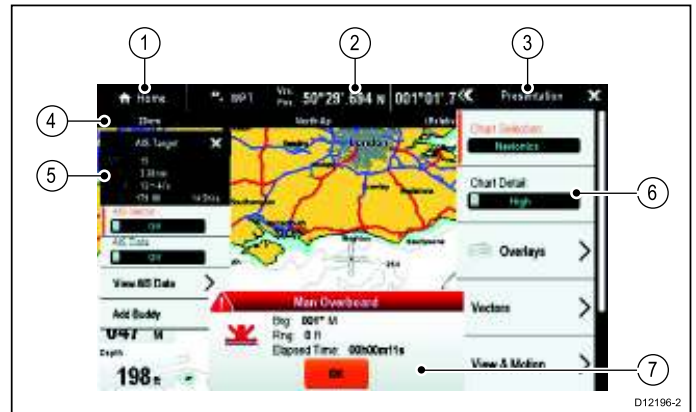
Screen item	Description
1	**Home** • **Displays with a touchscreen** — Select the onscreen **Home** icon to access the Homescreen. • **Non-touchscreen and HybridTouch displays** — Use the physical **Home** button to access the Homescreen.
2	**Databar** — provides information about your vessel and its environment. The type of information in the databar can be customized from the **Homescreen > Customize > Databar Set-up** menu, if required.
3	**Menu** — menu options are specific to the application that you are currently using.
4	**Status bar** — provides information specific to each application. This information cannot be edited or moved.
5	**Context menu** — provides information and options specific to each application.
6	**Menu options** — menu options are displayed when the Menu is selected.
7	**Pop-up messages** — alert you to a situation (such as an alarm), or unavailable function. Pop-up messages may require a response from you — for example, select **OK** to silence alarms.

Menus

Menus enable you configure settings and preferences.

Menus are used in the:

• **Homescreen** — to configure your multifunction display and externally-connected equipment.

• **Applications** — to configure the settings for that particular application.

D12281-4

Screen item	Description
1	**Back** — On displays with a touchscreen you can press the onscreen **<<** (back) icon to go back to a previous menu. On non-touchscreen displays or HybridTouch displays use the **Back** button.
2	**Close** — On displays with a touchscreen you can press the onscreen **X** (close) icon to go back to a previous menu. On non-touchscreen displays or HybridTouch displays use the **Back** button to back out of the menu structure.
3	**Selected menu option** — the menu option currently selected will be highlighted.
4	**Scroll bar** — indicates that further menu items are available by scrolling the menu. On displays with a touchscreen to scroll through the available menu items, press and hold your finger on the menu and drag it up or down. On non-touchscreen displays or HybridTouch displays use the **Rotary control**.
5	**On / Off switch** — On displays with a touchscreen you can select onscreen menu items to switch features On or Off to enable or disable the function. On non-touchscreen displays or HybridTouch displays use the **OK** button to switch the function On or Off.

Dialogs

Dialogs are fullscreen menus that enable you to manage data items such as waypoints and routes.

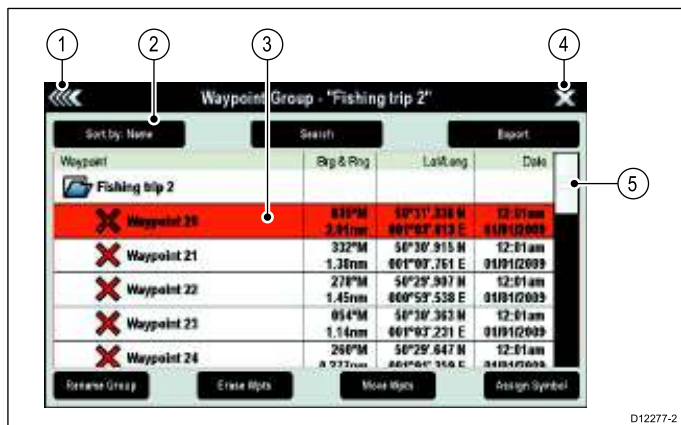| Screen item	Description
1	**Back** • Displays with a touchscreen — Select the onscreen **Back** icon to go back to the previous menu. • Non–touchscreen or HybridTouch displays — Use the **Back** button to go back to the previous menu.
2	**Function icons** — Some dialogs include icons which can be selected to access additional functions. For example, in the Waypoint List dialog, the **Sort by** icon can be used to change how the waypoints list is sorted.
3	**Menu / List item** • Displays with a touchscreen — Momentarily touching an item automatically selects the item and displays the item options menu. • Non–touchscreen or HybridTouch displays — Use the **Rotary control** to highlight an item, and the **Ok** button to select it and display the item options menu.

Screen item	Description
4	**Close** • Displays with a touchscreen — Select the onscreen **Close** icon to close the dialog. • Non–touchscreen or HybridTouch displays — Use the **Back** button to close the dialog.
5	**Scroll bar** • Displays with a touchscreen — To scroll through the available items, press and hold your finger on the scroll bar and drag it up or down. • Non–touchscreen or HybridTouch displays — To scroll through the available menu items, use the **Rotary control**.

Shortcuts page

A number of useful functions can be accessed from the Shortcuts page.
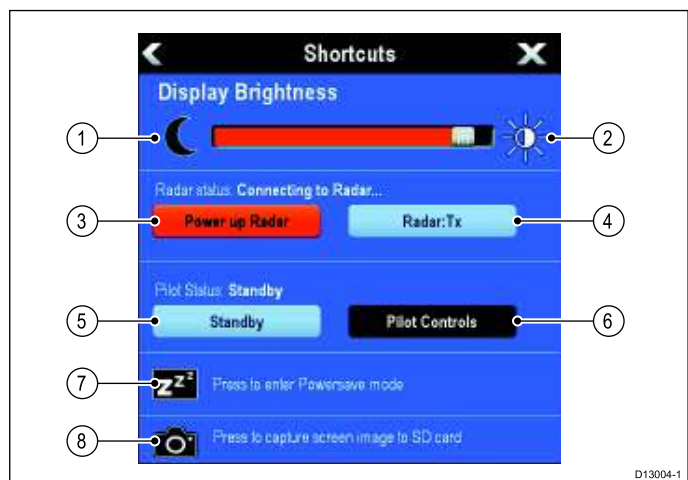
1	Decrease display brightness
2	Increase display brightness
3	Power up / Power down Radar
4	Radar standby / Radar transmit
5	Autopilot standby (during active navigation)
6	Display pilot control dialog
7	PowerSave mode
8	Screenshot / Screen capture

Edit dialogs

Edit dialogs enable you to edit the details of data items stored on your multifunction display, such as waypoints, routes, and tracks.

Selecting a text field displays the onscreen keyboard, which can be used to edit the details.

Editing information in dialogs

With the dialog displayed:

1. Select the field you want to edit.

   The onscreen keyboard is displayed:

2. Use the onscreen keyboard to make the changes.
3. Select **SAVE** to save the changes.

Entering special or accented characters

With the onscreen keyboard displayed:

1. Select the onscreen keyboard's **àèò** key.
2. Select the character you want to accent.

   The available accented characters are displayed above the text entry field.
3. For characters that have multiple available accents, use the character key to toggle between them.
4. Select the **àèò** key to enter the character.

Numeric menu items

Numeric menu items display numeric data and enables you to either select a predefined value or to increase and decrease the value as required.

Editing numerical settings

To edit numerical values you can use either the onscreen numeric adjust control, onscreen numeric keypad or the **Rotary Control** on a non-touch or HybridTouch display to increase or decrease numeric values.
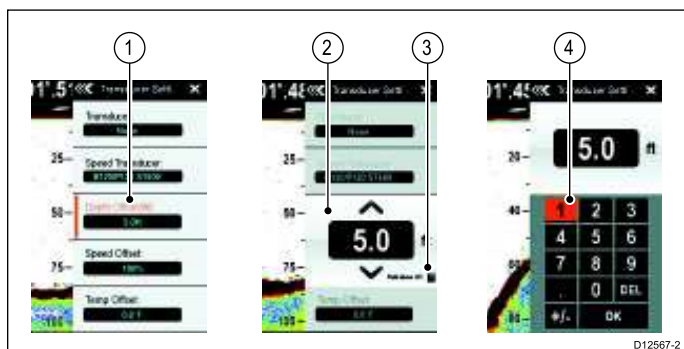
1. Select the numeric data field you want to edit.

   The numeric adjust control is displayed.
2. Adjust the setting to the required value using:

   i. The **Rotary control** — Non-touchscreen or HybridTouch displays, or
   ii. The onscreen **Up** and **Down** arrows — Touchscreen displays.
3. To access the on-screen numeric keypad:

   • Touch operation — Select the onscreen keypad icon from the numeric adjust control.

   • Non-Touch operation — Press and hold the **Ok** button.

   The onscreen numeric keypad is displayed.
4. Enter the required value.
5. Select **Ok** to exit the numeric keypad and return to the menu.

Using slider bar controls

Slider bar controls provide a graphical representation of numeric data and enables you to quickly change setting values.
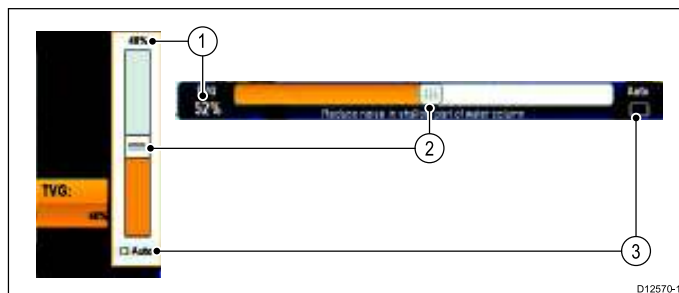
Item	Description	Non—Touch operation	Touch operation
1	Current value	N/A	N/A
2	Slider control	Use the **Rotary control** to adjust value	Slide the slider **Up** or **Down** to adjust value.
3	Auto	Press **Ok** button to switch between Auto and manual adjustment.	Select to switch between Auto and manual adjustment.

Using control dialogs

Control dialogs enable you to control externally connected equipment, such as an autopilot unit.

The following diagram shows the main features of a typical control dialog:
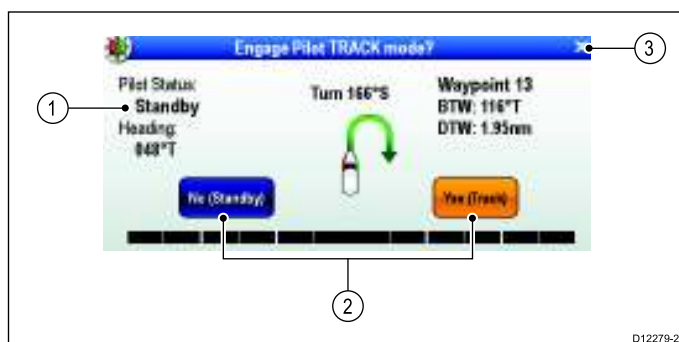
Screen item	Description
1	**Status** — provides status information for the connected equipment. For example, the Pilot Control dialog displays the locked heading and current navigation mode for a connected autopilot unit.
2	**Control icons** — provide direct control of the connected equipment. For example, the Pilot Control dialog **Standby** and **Track** icons enable you to instruct a connected autopilot unit to perform specific functions.
3	**Close** — Closes the control dialog.

6.11 Basic touchscreen operations

Placing and moving the cursor using touch

To place or move the cursor around the screen on a touchscreen multifunction display follow the steps below.

1. Touch the screen at any position on the screen to place the cursor there.

Touchscreen lock

On a multifunction display with HybridTouch you can lock the touchscreen to prevent accidental use.

For example, locking the touchscreen is particularly useful in rough water or weather conditions.

The touchscreen can be locked and unlocked from the homescreen. The touchscreen can only be unlocked using physical buttons.

Locking the touchscreen – New e Series

On new e Series multifunction displays the Homescreen contains a dedicated Touch Lock icon.

With the homescreen displayed:

1. Select the **Touch Lock** icon.

   It changes color to indicate that the touchscreen is disabled. All functions are still available using the physical buttons.

Touch Lock	Touchscreen is locked. All functions remain available using physical buttons.
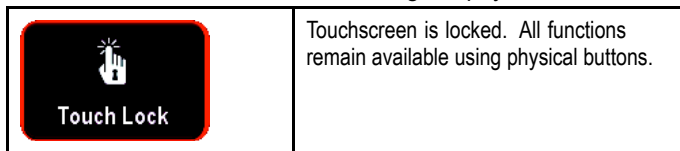
Locking the touchscreen - touch only displays

When a touch only display is paired with an optional remote keypad the touchscreen can be locked.

From the Homescreen:

1. Select the **Set-up** icon.
2. Select **Touch-Lock** so that On is highlighted.

The touchscreen is now locked.

Unlocking the touchscreen – New e Series

You can unlock the touchscreen by following the steps below.

With the homescreen displayed:

1. Use the UniControl to highlight the **Touch Lock** icon.
2. Press the **OK** button.

   The Touchscreen is enabled.

Touch Lock	Touchscreen is unlocked.
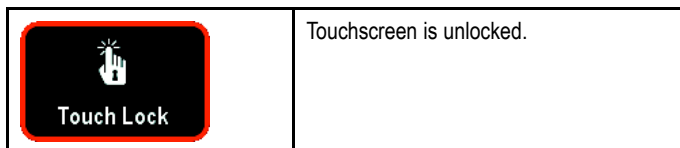
Unlocking the touchscreen - touch only displays

To unlock the touchscreen of a touch only display when paired with a remote keypad follow the steps below.

From the Homescreen:

1. Select the **Set-up** icon.
2. Select **Touch-Lock** so that Off is highlighted.

The touchscreen is now unlocked.

6.12 Multi-Touch gestures

Raymarine a Series and gS Series multifunction displays support multi-touch.

Multi-touch means that the display is capable of recognizing multiple simultaneous touch inputs. This means that you can use 2 or more fingers on the screen at the same time to perform multi-touch gestures.

Pinch to Zoom

The pinch to zoom gestures can be performed on multifunction displays that support multi-touch.

Pinch to zoom consists of 2 actions:

- Move 2 fingers apart to zoom in.
- Move 2 fingers together to zoom out.
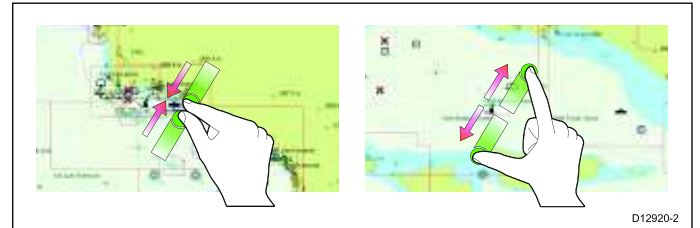
Pinch to Zoom can be used in the following applications:

- Chart application.
- Weather application.

6.13 Initial set up procedures

Once your display has been installed and commissioned, Raymarine recommends that you perform an initial set up procedure.

Startup wizard

When you power-up the display for the first time or after a system reset a Startup Wizard is displayed. The wizard guides you through the following basic configuration settings:

1. Language
2. Vessel type
3. Units of measure
4. Total fuel capacity
5. Number of batteries
6. Number of engines
7. Number of fuel tanks

Note: These settings can also be set at any time using the menus accessible from **Homescreen > Customize**.

Additional settings

In addition to the settings covered by the Wizard, it is also recommended that the following initial set up tasks are completed:

- Set your date and time preferences.
- Adjust the display brightness (and set up a shared brightness scheme if appropriate).
- Designate the data master.
- Select the GPS data source.
- Familiarize yourself with the product using Simulator Mode.

Adjusting the display brightness
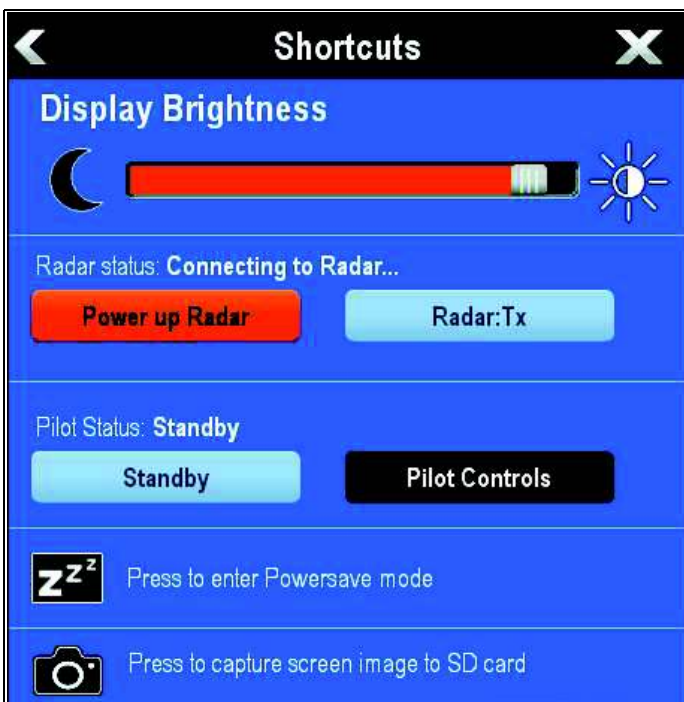
1. Press the **POWER** button once.
   The Shortcuts menu is displayed.
2. Adjust the brightness to the required level using the on-screen brightness slider bar control, or
3. Touch the Sun icon to increase the brightness level or the Moon icon to decrease the brightness level.

Note: The brightness level can also be increased by pressing the **Power** button multiple times.

Adjusting the display brightness

1. Press the **POWER** button once.
   The Shortcuts menu is displayed.
2. Adjust the brightness to the required level using the **Rotary control**.

Note: The brightness level can also be increased by pressing the **Power** button multiple times.

Setting the vessel minimum safe depth

With the homescreen displayed:
1. Select **Customize**.
2. Select **Boat Details**.
3. Select **Min. Safe Depth**.
4. Adjust the setting as appropriate.

Note: The units for the depth measurement are based on those specified in the **Homescreen > Customize > Units Set-up > Depth Units** menu.

Setting time and date preferences

With the homescreen displayed:
1. Select **Customize**.
2. Select **Time and Date Set-up**.
3. Use the **Date Format**, **Time Format**, and **Local Time: UTC** menu items to set your time and date preferences.

Data master

Any system containing more than one networked multifunction display must have a designated data master.

The data master is the display which serves as a primary source of data for all displays, it also handles all external sources of information. For example the displays may require heading information from the autopilot and GPS systems, usually received through a SeaTalk^{ng} or NMEA connection. The data master is the display to which the SeaTalk, NMEA and any other data connections are made, it then bridges the data to the SeaTalk^{hs} network and any compatible repeat displays. Information shared by the data master includes:

- Cartography
- Routes and waypoints
- Radar
- Sonar
- Data received from the autopilot, instruments, the engine and other external sources.

Your system may be wired for redundancy with data connections made to repeat displays. However these connections will only become active in the event of a fault and/or reassignment of the data master.

In an autopilot system which does not contain a dedicated pilot control head the Data master also acts as the control for the autopilot.

Designating the data master

For systems with 2 or more displays the following task must be performed on the multifunction display that you want to designate as the data master.

With the homescreen displayed:
1. Select **Set-up** .
2. Select **Maintenance**.
3. Select **Data Master**.
4. Select the display that you want to designate as the data master.

GPS selection

You can use an internal (if available) or external GPS receiver.

- Your multifunction display may feature an internal GPS receiver.

- You can also connect an external GPS receiver using SeaTalkng or NMEA 0183.
- Where appropriate use the System Settings menu to enable or disable the internal GPS receiver.

Enabling or disabling the internal GPS

If your multifunction display features an internal GPS then this can be enabled and disabled by following the steps below.

With the homescreen displayed:

1. Select **Set-Up**.
2. Select **System Settings**.
3. To enable the internal GPS, select **Internal GPS** so that On is highlighted.
4. To disable the internal GPS, select **Internal GPS** so that Off is highlighted.

Simulator mode

The Simulator mode enables you to practice operating your display without data from a GPS antenna, radar scanner, AIS unit, or fishfinder.

The simulator mode is switched on / off in the **System Setup Menu**.

> **Note:** Raymarine recommends that you do NOT use the simulator mode whilst navigating.

> **Note:** The simulator will NOT display any real data, including any safety messages (such as those received from AIS units).

> **Note:** Any system settings made whilst in Simulator mode are NOT transmitted to other equipment.

Enabling and disabling simulator mode

You can enable and disable simulator mode by following the steps below.

With the homescreen displayed:

1. Select **Set-Up** .
2. Select **System Settings**.
3. Select **Simulator:**.
4. Select On to turn simulator mode on, or
5. Select Off to turn simulator mode off.

> **Note:** The Demo movie option is for retail demonstration purposes only.

Pairing the keypad

The keypad can control 1 or more multifunction displays. Multiple keypads can be connected to a system. Each keypad can be paired with up to 4 multifunction displays.

With the keypad connected to the multifunction display:

1. Select **External Keypad** from the External Devices menu: **homescreen > Set-up > System Settings > External Devices > External Keypad**.
2. Select **Pair Keypad**.
3. Press any button on the external keypad.
4. From the pop-up message select the orientation of the keypad.

   Either landscape or portrait orientations are available.

The keypad is now paired.

Unpairing the keypad

The keypad can be unpaired from an individual display.

1. Select **External Keypad** from the External Devices menu: **homescreen > Set-up > System Settings > External Devices > External Keypad**.
2. Select **Clear Pairings**.
3. Select **Yes** to unpair the keypad with the display.

6.14 Enabling autopilot control

Enabling the autopilot control function — SeaTalk and SPX SeaTalkng autopilots

To enable control of your SeaTalk or SPX SeaTalkng autopilot using your multifunction display follow the steps below.

From the Homescreen:

1. Select **Set-up**.
2. Select **System Settings**.
3. Select **Autopilot Control** so that On is highlighted.

   Selecting Autopilot Control will switch the control between On and Off.

On a system containing multiple displays the pilot control is enabled on all displays at the same time.

Enabling the autopilot control function — Evolution autopilots

To enable control of your Evolution autopilot using your multifunction display follow the steps below.

From the Homescreen.

1. Select **Set-up**.
2. Select **System Settings**.
3. Select **External Devices**.
4. Select **Pilot Set-up**.
5. Select **Pilot control** so that On is highlighted.

   Selecting Pilot control will switch the Autopilot control function on and off.

6.15 Engine identification

Engine data can be displayed on your MFD using the Data application, which provides some preset Engine pages for displaying some of the most common types of engine data.

> **Important:** Before you can display Engine data on your MFD, you must:
>
> * Ensure that your MFD is running LightHouse software version 8 or later.
>
> * **Refer to the important "Engine instancing" and "Engine identification wizard" information.**
>
> * Make the data connections, according to the instructions provided in the **87202 ECI Installation instructions**.
>
> * Ensure all data buses are powered up (including engine data CAN buses, gateways, and also the SeaTalk^{ng} bus).
>
> * Start the engine. Ensure that you follow any applicable sequencing rules, as specified in the **"Engine instancing"** information.
>
> * Run the **Engine identification wizard** to complete any "instancing" required and ensure that your engines are displayed in the correct order in the Data application.

Engine instancing and setup

Before you can display engine data on your MFD, setup and "instancing" may be required.

Note: Engine setup and instancing is NOT required for single engine vessels.

Most engine data configurations can be setup using the "Engine Identification" wizard available on Raymarine MFDs running LightHouse software version 8 or later. However, for some multiple engine installations, it may be necessary to first have your engines "instanced" correctly by your engine representative / dealer (assigned a unique ID / address).

The following table details the different types of engine supported, and the setup requirements for each:

Engine CAN bus protocol	Number of engines	Engine CAN bus configuration	Number of ECI units required	Setup via wizard on MFD required	Engine instancing by Dealer required
NMEA 2000	1	Single CAN bus	1	✘	✘
NMEA 2000	2+	Single shared CAN bus	1	✘	✔
NMEA 2000	2+	Separate CAN bus for each engine	1 for each CAN bus	✔	✘
J1939	1	Single CAN bus	1	✘	✘
J1939	2+	Single shared CAN bus	1	✔	✘
J1939	2+	Separate CAN bus for each engine	1 for each CAN bus	✔	✘

Using the engine identification wizard

If your engine data appears in the wrong order on the engine data pages you can correct this by running the engine identification wizard.

From the Homescreen:

1. Select **Set-up > System Settings > External Devices > Engines Set-up**.
2. If required change the number of engines your vessel has by selecting **Num. of Engines:** and entering the correct number of engines.

   You can select up to 5 engines.
3. Select **Identify engines**.

Important: It is important that only one engine is running at a time, to ensure that the system can isolate the correct engine data message.

4. Follow the onscreen prompts to complete the engine identification wizard.

   The engines that will be included in the identification wizard are determined by the Number of engines set during step 2 above.
   i. Switch Off ALL vessel engines and select **Next**.

      The wizard will run through all engines (max of 5 as defined in step 2 above) from port to starboard in sequence.
   ii. Turn On the **port engine** and select **OK**.

      The wizard will now listen for data and assign the engine instance as the port engine.
   iii. Turn On the **center port engine** and select **OK**.

      The wizard will now listen for data and assign the engine instance as the center port engine.
   iv. Turn On the **center engine** and select **OK**.

      The wizard will now listen for data and assign the engine instance as the center engine.
   v. Turn On the **center starboard engine** and select **OK**.

      The wizard will now listen for data and assign the engine instance as the center starboard engine.
   vi. Turn On the **starboard engine** and select **OK**.

      The wizard will now listen for data and assign the engine instance as the starboard engine.
5. Select **OK** on the Identify Engines confirmation dialog.

The engines will now appear in the correct location on the engine data page.

6.16 Enabling AIS functions

Before proceeding ensure your AIS unit is connected to NMEA Port 1.

With the homescreen displayed:

1. Select **Set-Up**.
2. Select **System Settings**.
3. Select **NMEA Set-Up**.
4. Select **NMEA Input Port 1**.
5. Select the AIS 38400 option.
6. Select **Back** to return to the **System Settings** menu.
7. Select **External Devices**.
8. Select **AIS Unit Set-up**.

    The AIS Unit Set-up menu is displayed.
9. Adjust the AIS options as appropriate.

6.17 Software updates

Raymarine's multifunction display software is updated regularly to provide new and enhanced features and improved performance and usability. You should ensure you have the latest software by regularly checking the Raymarine website for new software.

You can identify your multifunction display's current software version from the Limitations on Use (LoU) splash screen:

The software version can also be identified from the **Maintenance** menu.

The software update process can be used to update all multifunction displays and remote keypads that are connected to the same network.

Caution: Downloading software updates

The software update process is carried out at your own risk. Before initiating the update process ensure you have backed up any important files.

Ensure that the unit has a reliable power supply and that the update process is not interrupted.

Damage caused by incomplete updates are not covered by Raymarine warranty.

By downloading the software update package, you agree to these terms.

Updating the software

Software updates can be downloaded from the Raymarine website.

To perform a software update you will need:

* A PC or Apple Mac with an internet connection and a card reader.
* A FAT 32 formatted MicroSD card with SD card adaptor.

Note: Do not use a cartography chart card to save software update or user data / settings files.

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1. Go to the Raymarine website www.raymarine.com
2. Click the **Service and Support** from the top banner.
3. Select **Software Updates** from the drop down list.
4. Select the relevant product.
5. Compare the latest available software against the software version on your multifunction display.
6. If the software on the website is newer than the software on your multifunction display select the option to download the software.
7. Place the MicroSD card into an SD card adaptor.
8. Place the SD card adaptor into the card reader of your PC or Mac.
9. Unzip the downloaded software update zip file to the MicroSD card.
10. Remove the MicroSD card from the SD card adaptor.
11. Backup your user data and settings by following the procedure described in section 8.4 Saving user data and user settings.

12. Insert the MicroSD card into the card reader of your multifunction display.

   After a few seconds your multifunction display will alert you that a software update is available and which multifunction displays and remote keypads require the update.

   The software alert is only displayed once per power cycle.

13. Select **Yes** to begin the software update.

   The following steps will now take place:

   1. All networked multifunction displays will reboot and commence a simultaneous software update (During the software update the display with the software update memory card inserted will display a progress indicator.

   2. Once the networked displays have been updated the display containing the software update memory card will reboot and commence the software update.

   3. Once all displays have been updated the system will check to see if any connected remote keypads require a software update.

14. If you have a remote keypad connected then select **Yes** to update the keypad software update.

   When the software update process has been completed a confirmation pop-up is displayed.

15. Select **OK** to confirm.

16. Remove the MicroSD card from the card reader.

17. Perform a factory reset of your multifunction displays following the procedure described in section 8.6 Resetting your system.

18. Restore any saved user data and settings by following the procedure described in section 8.4 Saving user data and user settings

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Note: Turning on a display whilst it has a software update memory card inserted will start a standalone software update on that display only.
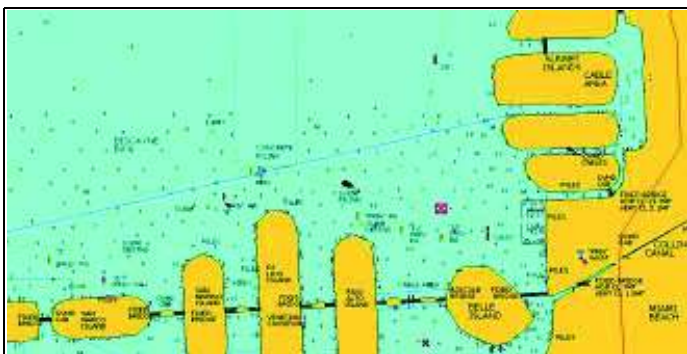

Chapter 7: System checks

Chapter contents

7.1 GPS Check

Checking GPS operation

You can check that the GPS is functioning correctly using the chart application.

1. Select the Chart page.

2. Check the screen.

   With the chart displayed, you should see:

   Your boat position (indicates a GPS fix). Your current position is represented by a boat symbol or solid circle. Your position is also displayed in the data bar under VES POS.

   A solid circle on the chart indicates that neither heading nor Course Over Ground (COG) data is available.

> **Note:** Raymarine recommends that you check the displayed vessel position in the chart application against your actual proximity to a known charted object. GPS receivers typically have an accuracy of between 5 and 15 m.
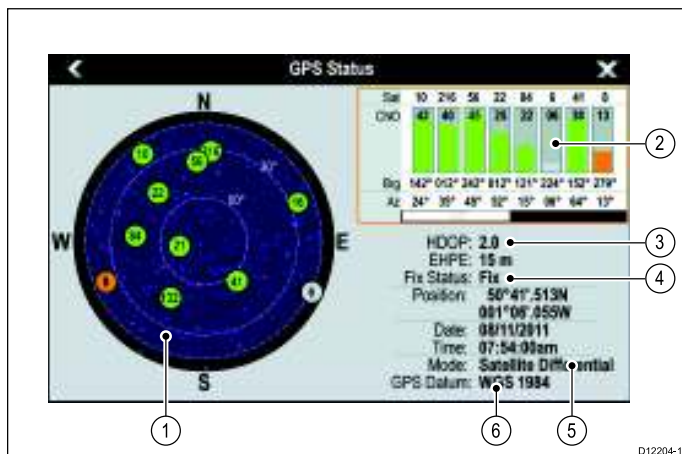
> **Note:** A GPS Status screen is available within the Setup menu of Raymarine multifunction displays. This provides satellite signal strength and other relevant information.

GPS setup

The GPS setup options enable you to configure a GPS receiver.

The Global Positioning System (GPS) is used to position your vessel on the chart. You can set up your GPS receiver and check its status from the GPS Status option in the **System Settings** menu. For each tracked satellite, the screen provides the following information:

- Satellite number.
- Signal strength bar.
- Status.
- Azimuth angle.
- Elevation angle.
- A sky-view to show the position of tracked satellites.

Item	Description
1	**Sky view** — a visual representation of the position of tracked satellites.
2	**Satellite status** — displays the signal strength and status of each satellite identified in the sky view diagram on the left of the screen. The colored bars have the following meanings: • Grey = searching for satellite. • Green = satellite in use. • Orange = tracking satellite.
3	**Horizontal Dilution of Position (HDOP)** — a measure of GPS accuracy, calculated from a number of factors including satellite geometry, system errors in the data transmission and system errors in the GPS receiver. A higher figure signifies a greater positional error. A typical GPS receiver has an accuracy of between 5 and 15 m. As an example, assuming a GPS receiver error of 5 m, an HDOP of 2 would represent an error of approximately 15 m. Please remember that even a very low HDOP figure is NO guarantee that your GPS receiver is providing an accurate position. If in doubt, check the displayed vessel position in the chart application against your actual proximity to a known charted object. **Estimated Horizontal Position Error (EHPE)** — a measure of GPS accuracy, this indicates that your position is within a circle radius of the stated size 67% of the time.
4	**Fix status** — indicates the actual mode the GPS receiver is reporting (No Fix, Fix, D Fix or SD Fix).
5	**Mode** — the mode currently selected by the GPS receiver.
6	**Datum** — The GPS receiver's datum setting affects the accuracy of the vessel position information displayed in the chart application. In order for your GPS receiver and multifunction display to correlate accurately with your paper charts, they must be using the same datum.

The accuracy of the GPS receiver depends on the parameters detailed above, especially the azimuth and elevation angles which are used in triangulation to calculate your position.

7.2 Radar check

⚠	**Warning: Radar scanner safety**
	Before rotating the radar scanner, ensure all personnel are clear.

| ⚠	**Warning: Radar transmission safety**
	The radar scanner transmits electromagnetic energy. Ensure all personnel are clear of the scanner when the radar is transmitting.

Checking the radar

From the Radar application:

1. Select **Menu**.
2. Select **Power** so that On is highlighted.

   The Radar scanner will now initialize in standby mode. This process will take approximately 70 seconds.
3. Select **Radar** so that Transmit is highlighted.

   The radar scanner should now be transmitting and receiving.
4. Check that the radar screen is operating correctly.

Typical HD radar screen
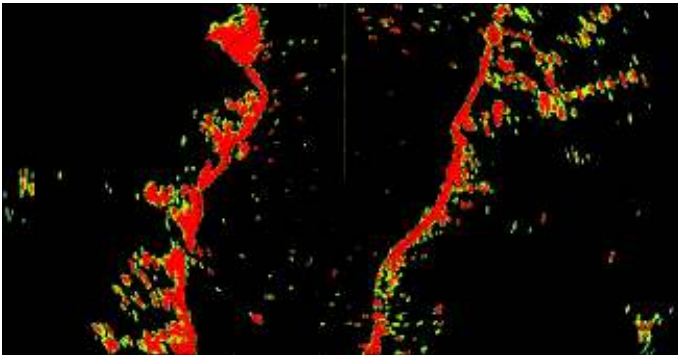
Note: The example above is representative of the enhanced output provided by a HD radar scanner.

Points to check:

- Radar sweep with echo responses are shown on screen.
- Radar status icon rotating in top right hand corner of the status bar.

Check and adjust bearing alignment

Bearing alignment

The radar bearing alignment ensures that radar objects appear at the correct bearing relative to your boat's bow. You should check the bearing alignment for any new installation.

Example misaligned radar
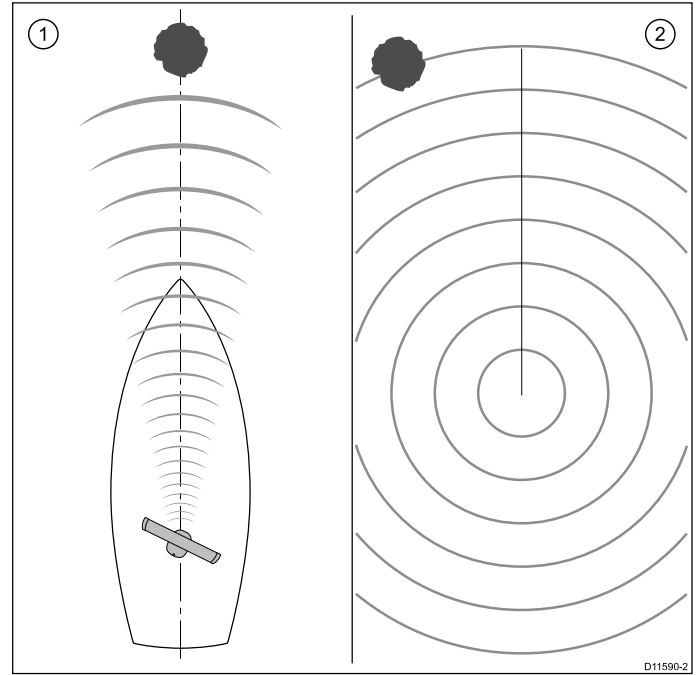
Item	Description
1	Target object (such as a buoy) dead ahead.
2	Target displayed on the radar display is not aligned with the Ship's Heading Marker (SHM). Bearing alignment is required.

Checking the bearing alignment

1. With your vessel under way: Align the bow with a stationary object identified on the radar display An object between 1 & 2 NM distant is ideal.
2. Note the position of the object on the radar display. If the target is not under the ships heading marker (SHM), there is an alignment error and you will need to carry out bearing alignment adjustment.

Adjusting the bearing alignment

Once you have checked the bearing alignment you can proceed and make any required adjustments.

With the radar application displayed:

1. Select **Menu**.
2. Select **Radar Set-up** .
3. Select **Advanced**.
4. Select **Bearing Alignment**.

   Selecting Bearing Alignment displays the numeric adjust control.
5. Adjust the setting so that the selected target is under the Ship's Heading Marker.
6. Select **Back** or **Ok** when complete.

7.3 Sonar check

Sonar transducer and sonar module selection

You must select the sonar transducer and Sonar module that you want to use in the displayed Fishfinder application pane.

Sonar module selection

• Sonar and DownVision™ variant displays are fitted with an internal sonar module.

• All variants allow you to connect a compatible external sonar module or use an internal sonar module from a networked display.

• The sonar channel you want to use must be selected from the Fishfinder menu.

Transducer selection

• Sonar variant displays allow direct connection of a Raymarine OR a Minn Kota sonar transducer.

• DownVision™ variant displays allow direct connection of Raymarine DownVision™ transducers.

• All variants allow the connection of a Raymarine sonar transducer via a compatible external sonar module.

• For all variants use the **Transducer Set-Up** menu in the Fishfinder application to specify the transducer you want to use.

Selecting the sonar channel

To select the channel you want to display follow the steps below.

From the Fishfinder application:

1. Select **Menu**.
2. Select **Channel**.

    The Channel selection page is displayed.
3. Select the tab for the sonar module you want to use.

    A list of available channels for the selected sonar module is displayed.
4. Select a channel from the list.

The Channel selection page will close and the Fishfinder application will now show the selected channel.

Selecting the sonar transducer

With the fishfinder application displayed:

1. Select **Menu**.
2. Select **Set-Up**.
3. Select **Transducer Set-Up**.
4. Select **Transducer**.

    A list of transducers is displayed.
5. Select the transducer you want to use.

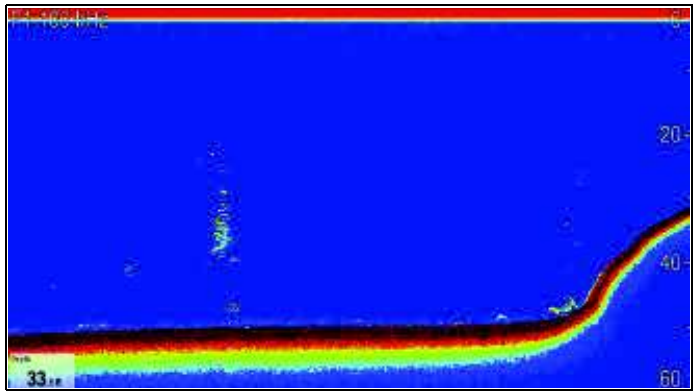### Selecting the speed transducer

With the fishfinder application displayed:

1. Select **Menu**.
2. Select **Set-Up**.
3. Select **Transducer Set-Up**.
4. Select **Speed Transducer**.

    A list of transducers is displayed.
5. Select your speed transducer from the list.

Checking the sonar

Sonar checks are made using the fishfinder application.

1. Select a fishfinder page from the Homescreen.

2. Check the fishfinder display.

    With the fishfinder active you should see:

    • Depth reading (indicates the transducer is working). The depth is shown in a databox in the bottom left of the screen.

    If the databox is not present it can be turned on from the Presentation menu: **Menu > Presentation > Databoxes Set-up**.

## Fishfinder Transducer Calibration

Your fishfinder transducer must be calibrated correctly to achieve accurate depth readings.

The multifunction display receives the image from a sonar module which processes sonar signals from a transducer mounted in the water. If the transducer is equipped with a speed paddle wheel and temperature-sensing thermistor, the sonar module calculates speed and temperature. To ensure accurate readings, it may be necessary to calibrate the transducer(s) by applying offsets to depth, speed and temperature. As these settings are held in the sonar module and relate to the transducer, they are applied system-wide.

Depth Offset

Depths are measured from the transducer to the sea bed, but you can apply an offset value to the depth data, so that the displayed depth reading represents the depth to the sea bed from either the keel or the water-line.

Before attempting to set a waterline or keel offset, find out the vertical separation between the transducer and either the waterline or the bottom of the keel on your vessel, as appropriate. Then set the appropriate depth offset value.
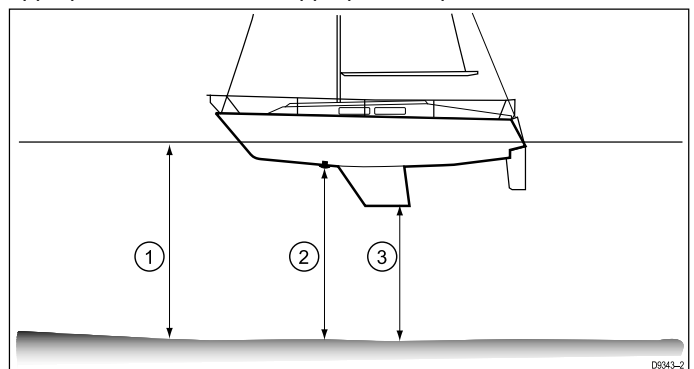
1	Waterline offset
2	Transducer / Zero offset
3	Keel offset

If an offset is not applied, displayed depth readings represent the distance from the transducer to the sea bed.

Setting the depth offset

From the fishfinder application:

1. Select **Menu**.
2. Select **Set-up**.
3. Select **Transducer Set-up**.
4. Select **Depth Offset**.

    The depth offset numeric adjust control is displayed.

5. Adjust the offset to the required value.

Setting the speed offset

From the fishfinder application:
1. Select **Menu**.
2. Select **Set-up**.
3. Select **Transducer Set-up**.
4. Select **Speed Offset**.
   The speed offset numeric adjust control is displayed.
5. Adjust the offset to the required value.

Setting the Temperature offset

1. Select **Menu**.
2. Select **Set-up**.
3. Select **Transducer Set-up**.
4. Select **Temperature Offset**.
   The temperature offset numeric adjust control is displayed.
5. Adjust the offset to the required value.

7.4 Thermal camera setup and checks

To ensure correct operation of the thermal camera you should setup and check the camera's main functions.

Before proceeding ensure that the camera is connected correctly, according to the instructions provided. If your system includes the optional Joystick Control Unit (JCU) and PoE (Power over Ethernet) injector, ensure these units are also connected correctly.

Set up the camera

You will need to:

• Adjust the image (contrast, brightness, and so on).

• Check camera movement (pan, tilt and home functions) (if applicable).

Adjusting the thermal camera image

With the thermal camera application displayed:
1. Select **Menu**.
2. Select **Adjust Contrast**.
3. Select the Contrast, Brightness, or Color option as appropriate.
   The relevant numeric adjust control is displayed.
4. Adjust the value as required.
5. Select **Back** or **Ok** to confirm the new value.

Pan, Tilt, Zoom (PTZ) cameras

 Panning and tilting, and the thermal image

On a touchscreen multifunction display you can pan and tilt the thermal camera image using the touchscreen.

	Move your finger up and down the screen to tilt the camera up or down.
	Move your finger left and right on the screen to rotate the camera left or right (panning).

 Panning, Tilting and zooming the thermal image

On a multifunction display with physical buttons or when using a remote keypad you can pan, tilt and zoom the thermal camera image using the UniControl.

In some circumstances it may be better to use just the UniControl's rotary and joystick controls to manipulate the thermal camera view. For example, this method is ideal for finer control over the camera and is particularly useful in rough sea conditions.

	UniControl joystick — is used for rotating the camera left or right (panning), or tilting the camera up or down.
	UniControl rotary — is used to zoom in and out.

Resetting the thermal camera to the home position

When connected to a pan, tilt thermal camera the home position of the camera can be set.

In the thermal camera application:

1. Select **Menu**.
2. Select **Camera Home**.

   The camera returns to its currently defined home position, and the "Home" icon appears on-screen momentarily.

Chapter 8: Managing display data

Chapter contents

8.1 Memory cards and chart cards

MicroSD memory cards can be used to back up / archive data (e.g. Waypoint, and Tracks). Once data is backed up to a memory card old data can be deleted from the system, creating capacity for new data. The archived data can be retrieved at any time. Chart cards provide additional or upgraded cartography.

It is recommended that your data is backed up to a memory card on a regular basis. Do NOT save data to a memory card containing cartography.

Compatible cards

The following types of MicroSD cards are compatible with your display:

- Micro Secure Digital Standard-Capacity (MicroSDSC)

- Micro Secure Digital High-Capacity (MicroSDHC)

> **Note:**
>
> - The maximum supported memory card capacity is 32 GB.
>
> - MicroSD cards must be formatted to use either the FAT or FAT 32 file system format to enable use with your MFD.

Speed class rating

For best performance it is recommended that you use Class 10 or UHS (Ultra High Speed) class memory cards.

Chart cards

Your product is pre-loaded with electronic charts (worldwide base map). If you wish to use different chart data, you can insert compatible chart cards into the unit's memory card reader.

Use branded chart cards and memory cards

When archiving data or creating an electronic chart card, Raymarine recommends the use of quality branded memory cards. Some brands of memory card may not work in your unit. Please contact customer support for a list of recommended cards.

8.2 a Series

Inserting a memory card or chart card

1. Open the card reader door, located on the front right of the display.

2. Insert the card, as shown in the diagram below, the card contacts should be facing UP. Do NOT force the card. If the card does not fit easily into the slot, check the orientation.
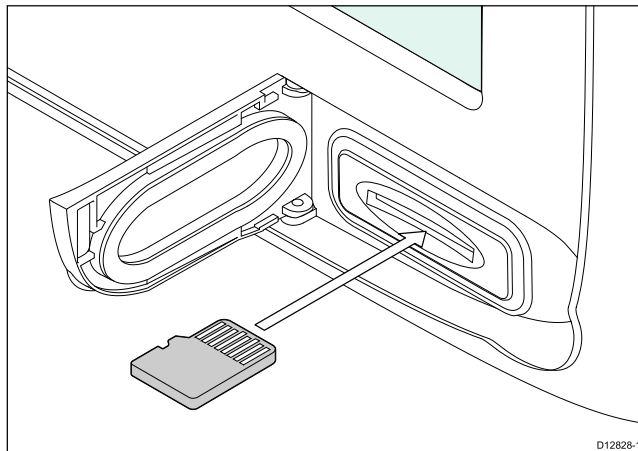
3. Gently press the card all the way in to the card slot, as shown in the diagram below. The card is secure when an audible click is heard.

4. To prevent the ingress of water and consequent damage, close the card reader door.

Removing a memory card or chart card

From the homescreen:
1. Select **My Data**.
2. Select **Eject Card**.
3. Open the card reader door, located on the front right of the display.
4. Push the edge of the card towards the unit, until an audible click is heard.

   The card is released from the card slot mechanism, as shown in the following diagram:

D12830-1

5. Use your fingers to pull the card clear of the card slot, using the edge of the card.

6. To prevent the ingress of water and consequent damage, close the card reader door.

> **Note:** You can also power off the multifunction display and follow steps 4 to 7 above.
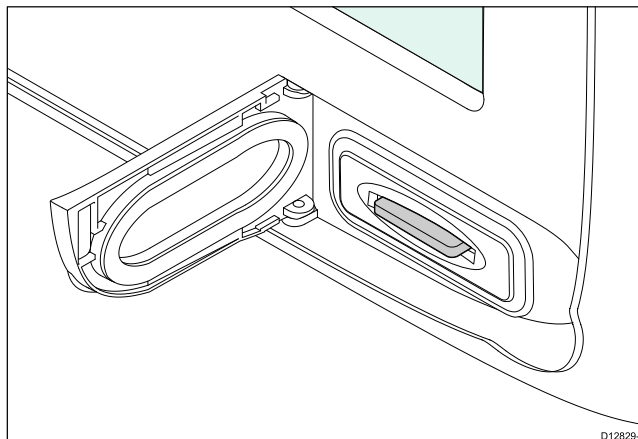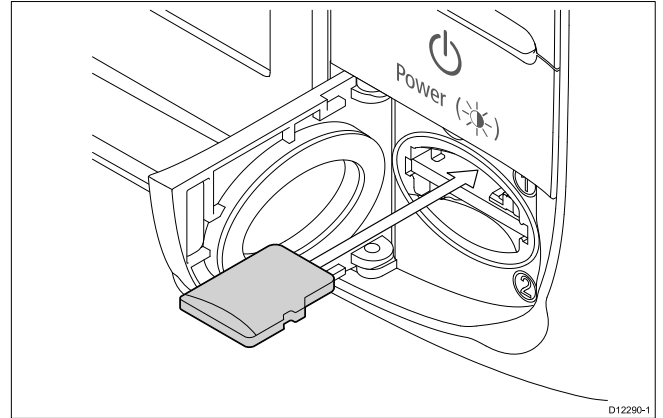
8.3 c and e Series

Inserting a memory card or chart card

1. Open the chart card door, located on the front right of the display.

2. Insert the card, as shown in the diagram below. For slot 1, the card contacts should be facing DOWN. For slot 2, the card contacts should be facing UP. Do NOT force the card. If the card does not fit easily into the slot, check the orientation.

D12290-1

3. Gently press the card all the way in to the card slot, as shown in the diagram below. The card is secure when an audible click is heard.

D12292-1

4. To prevent the ingress of water and consequent damage, close the chart card door.

Removing a memory card or chart card

From the homescreen:

1. Select **My Data**.

2. Select **Eject Card**.

   A message is displayed prompting you to select the memory device you want to eject.

3. Select **SD1** for a memory card in the top card slot, or **SD2** for a memory card in the bottom card slot.

4. Open the chart card door, located on the front right of the display.

5. Push the edge of the card towards the unit, until an audible click is heard.

   The card is released from the card slot mechanism, as shown in the following diagram:
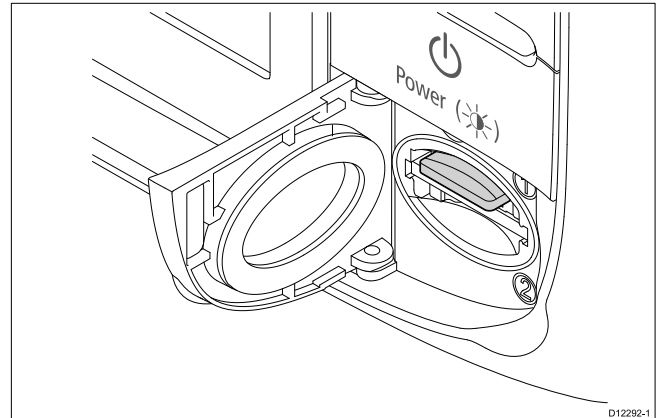
D12291-1

6. Use your fingers to pull the card clear of the card slot, using the edge of the card.

7. To prevent the ingress of water and consequent damage, close the chart card door.

Note: You can also power off the multifunction display and follow steps 4 to 7 above.

8.4 Saving user data and user settings

You can save your waypoints, routes, tracks and user settings to a memory card. Waypoints, routes and tracks are saved as gpx data files. The gpx file format is a device-independent data format making it easy to exchange data between your display and other GPS devices / software that support the gpx file format.

Type of data	Description	Notes
Waypoints (user data)	Each waypoint group can be saved separately	
Routes (user data)	Each route can be saved separately	
Tracks (user data)	Each track can be saved separately	
User settings	Saves the settings you've made in the set-up menus to a single archive file.	Only 1 user settings archive file can be saved per memory card.

Note: It is recommended that you save your user data and user settings to a memory card on a regular basis.

Note: Do NOT save user data or settings to a chart card containing cartography.

Saving all user data to a memory card

You can save all user data to one archive file.

With the Homescreen displayed:

1. Ensure you have a memory card (NOT a chart card) inserted into a card slot.
2. Select **My Data**.
3. Select **Import/Export**.
4. Select **Save Data to Card**.
5. Select **Save All**.

   The on-screen keyboard is displayed.
6. Using the on-screen keyboard enter the filename you want to save the file as.
7. Select **SAVE**.

   If your display has more than 1 card slot then a message is displayed prompting you to select the slot you want to save data to, if your display only has 1 card slot then you will not be prompted.
8. Select **SD1** for a memory card in the top card slot, or **SD2** for a memory card in the bottom card slot.

   A confirmation dialog is displayed.
9. Select **OK**.

Saving waypoints to a memory card

With the Homescreen displayed:

1. Ensure you have a memory card (NOT a chart card) inserted into a card slot.
2. Select **My Data**.
3. Select **Import/Export**.
4. Select **Save Data to Card**.
5. Select **Save Waypoints to Card**.

   The Waypoint Group list is displayed.
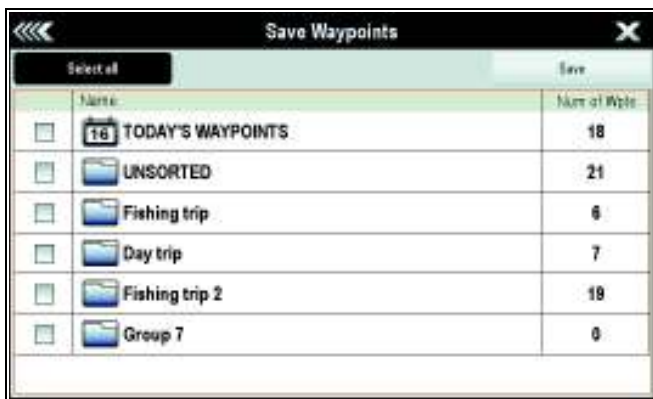
6. Select the group or groups you want to save, or select **Select All**.
7. Select **Save**.

   The on-screen keyboard is displayed.
8. Using the on-screen keyboard enter the filename you want to save the file as.
9. Select **SAVE**.

   If your display has more than 1 card slot then a message is displayed prompting you to select the slot you want to save data to, if your display only has 1 card slot then you will not be prompted.
10. Select **SD1** for a memory card in the top card slot, or **SD2** for a memory card in the bottom card slot.

    A confirmation dialog is displayed.
11. Select **OK**.

Saving routes to a memory card

With the Homescreen displayed:

1. Ensure you have a memory card (NOT a chart card) inserted into a card slot.
2. Select **My Data**.
3. Select **Import/Export**.
4. Select **Save Data to Card**.
5. Select **Save Routes to Card**.

   The Routes list is displayed.
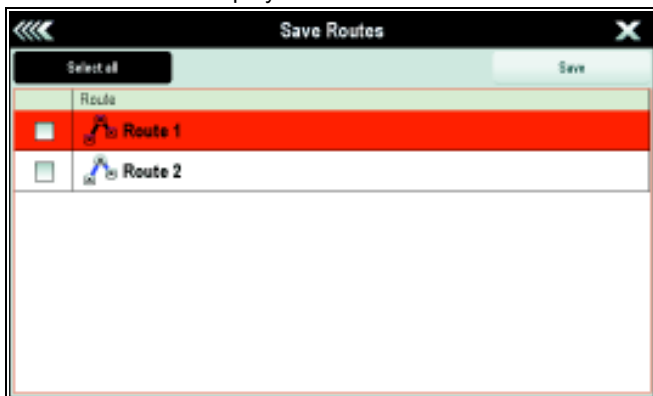
6. Select the route or routes you want to save, or select **Select All**.
7. Select **Save**.

   The on-screen keyboard is displayed.
8. Using the on-screen keyboard enter the filename you want to save the file as.
9. Select **SAVE**.

   If your display has more than 1 card slot then a message is displayed prompting you to select the slot you want to save data to, if your display only has 1 card slot then you will not be prompted.
10. Select **SD1** for a memory card in the top card slot, or **SD2** for a memory card in the bottom card slot.

    A confirmation dialog is displayed.
11. Select **OK**.
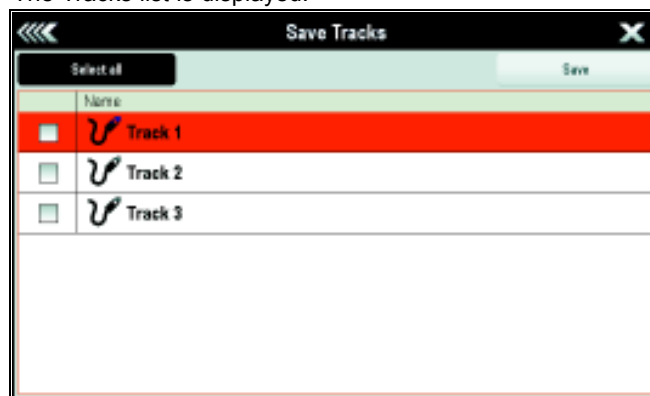
Saving tracks to a memory card

With the Homescreen displayed:

1. Ensure you have a memory card (NOT a chart card) inserted into a card slot.
2. Select **My Data**.
3. Select **Import/Export**.
4. Select **Save Data to Card**.
5. Select **Save Tracks to Card**.

   The Tracks list is displayed.

6. Select the track or tracks you want to save, or select **Select All**.
7. Select **Save**.

   The on-screen keyboard is displayed.
8. Using the on-screen keyboard enter the filename you want to save the file as.
9. Select **SAVE**.

   If your display has more than 1 card slot then a message is displayed prompting you to select the slot you want to save data to, if your display only has 1 card slot then you will not be prompted.
10. Select **SD1** for a memory card in the top card slot, or **SD2** for a memory card in the bottom card slot.

    A confirmation dialog is displayed.
11. Select **OK**.

Importing waypoints, routes, or tracks from a memory card

With the Homescreen displayed:

1. Ensure you have a memory card containing the user data in gpx format in one of the card slots.
2. Select **My Data**.
3. Select **Import/Export**.
4. Select **Retrieve from Card**.

   The file browser is opened.
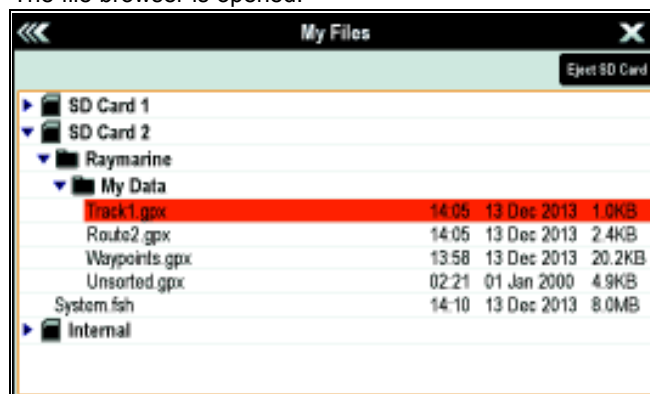
5. Browse to and select the file you want to import.

   A confirmation dialog is displayed.
6. Select **OK**.

> **Note:** When Routes and Tracks are imported they will be hidden by default, to display the imported routes and tracks please refer to the Showing or hiding routes and tracks section.

Erasing user data files from a memory card

With the Homescreen displayed:

1. Ensure you have the memory card containing the data in one of the card slots.
2. Select **My Data**.
3. Select **Import/Export**.
4. Select **Erase from Card**.

   The file browser is opened.

5. Browse to and select the file you want to erase.

   A confirmation dialog is displayed.
6. Select **Yes**.

Erasing waypoints, routes, and tracks from the system

Note: The following procedure permanently erases selected or ALL waypoints, routes, or tracks stored on the display. BEFORE proceeding, ensure that you backup any data that you want to keep on to a memory card.

With the Homescreen displayed:
1. Select **My Data**.
2. Select **Import/Export**.
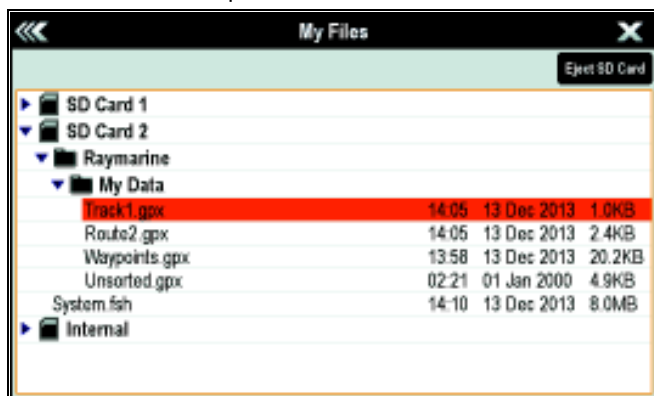3. Select **Erase from System**.
4. Select **Erase Waypoints from System**, **Erase Routes from System**, or **Erase Tracks from System**, as appropriate.
5. Select the specific data items you want to erase, or select **Erase All**.

   A message is displayed prompting you for confirmation.
6. Select **Yes** to proceed with the deletion, or **No** to cancel the operation.

Backing up user settings to a memory card

With the Homescreen displayed:
1. Ensure you have a memory card (NOT a chart card) in one of the card slots.
2. Select **My Data**.
3. Select **Import/Export**.
4. Select **Backup Settings**.

   If your display has more than 1 card slot then a message is displayed prompting you to select the memory device you want to save the settings to, if your display only has 1 card slot then you will not be prompted.
5. Select **SD1** for a memory card in the top card slot, or **SD2** for a memory card in the bottom card slot.

   A confirmation dialog is displayed.
6. Select **OK**.

Restoring user settings from a memory card

With the Homescreen displayed:
1. Ensure you have the memory card containing the user data in one of the card slots.
2. Select **My Data**.
3. Select **Import/Export**.
4. Select **Restore Settings**.

   If your display has more than 1 card slot then a message is displayed prompting you to select the memory device you

want to retrieve settings from, if your display only has 1 card slot then you will not be prompted.
5. Select **SD1** for a memory card in the top card slot, or **SD2** for a memory card in the bottom card slot.

   A confirmation dialog is displayed.
6. Select **OK**.

Save and restore items

The table below details the data items and settings which will be saved to and restored from a memory card on your multifunction display.

Homescreen and system settings

Application	Setting
Homescreen	Default page configuration
System settings	Position mode
	Text size
	Shared brightness
	Brightness group
	TD set-up
	Simulator
	Bearing mode
	MOB Data type
	Variation source
	Manual variation
	Language
	Date format
	Time format
	Local time offset
	Distance units
	Distance subunits
	Speed units
	Depth units
	Temperature units
	Pressure units
	Volume units
System settings — integration	Autopilot control
	DSC message
	SeaTalk alarms
	Bridge NMEA heading
Multiple data sources	GPS position source
	Heading source
	Depth source
	Speed source
	Wind source
Databar set-up	Databar content (cell 1 to 6)
	Compassbar
	Status icon
GPS status	GPS screen

Alarms

Application	Setting
Alarms	Anchor alarm
	Timer
	Alarm clock
	Temperature alarm
	Arrival alarm
	Offtrack alarm
	Collision alarm
	Guard zone sensitivity
	Fish alarm
	Fish alarm depth limit
	Shallow depth alarm
	Deep depth alarm
	AIS dangerous target alarm

Chart application — Cartography settings

Application	Setting
Cartography	Data overlay cell 1 on / off
	Data overlay cell 1 content
	Data overlay cell 2 on / off
	Data overlay cell 2 content
	Chart object menu
	Chart display
	Chart grid
	2D shading
	Community layer
	Chart text
	Chart boundaries
	Spot soundings
	Safety contour
	Depth contour
	Deep water color
	Hide rocks
	Nav marks
	Nav marks symbols
	Light sectors
	Routing systems
	Caution areas
	Marine features
	Land features
	Business services
	Panoramic photos
	Roads
	Additional wrecks
	Aerial photo overlay
	colored seabed areas
	Vessel icon
	Vessel size

Radar application

Application	Setting
Radar	Select scanner
	Range rings

AIS Layer

Application	Setting
AIS Layer	Displayed target types
	AIS safety messages
	Buddy tracking
	Silent mode

Data application

Application	Setting
Data	Datapages and content
	Datapage order
	Color theme
	Dial color
	Number of engines
	Maximum tachometer range

Fishfinder application

Application	Setting
Fishfinder	Configure preset frequencies

Weather application

Application	Setting
Weather	Wind symbol
	Watchbox alerts

Boat details

Application	Setting
Boat	Fuel economy units
	Low fuel threshold
	Fuel alarm on/off
	Total fuel capacity

8.5 Screenshots

You can take a screenshot of what is currently displayed on the screen.

Screenshots are saved to a MicroSD card in .bmp (bitmap) format. The saved image can be viewed from any device capable of viewing bitmap images.

Taking a screenshot

You can take a screenshot by following the steps below.

1. Insert a MicroSD card with suitable free space available into the card reader.
2. Press the **Power** button.

   The Shortcuts page is displayed:
3. Select the **Camera** icon.

   A confirmation message is displayed.
4. Select **Ok**.

   The screenshot is now saved to the MicroSD card.

Tip If your multifunction display has a **Back** button you can also take a screenshot by pressing and holding the **Back** button until the confirmation message appears.

Selecting the SD card slot for screenshots

If your multifunction display has 2 card reader slots, you must select which card slot to save the screenshot to.

From the homescreen.

1. Select **Customize**.
2. Select **Display Preferences**.
3. Select **Screenshot File:**.
4. Select either **MicroSD 1** or **MicroSD 2**.

Viewing a screenshot on the multifunction display

You can view images on the multifunction display.

1. Insert a MicroSD card containing the screenshot or image into the MicroSD card slot of your multifunction display.
2. From the homescreen, select **My Data**.
3. Select **Images and Video**.

   The file browser dialog is displayed.
4. Use the file browser to locate the file on the MicroSD card.
5. Select the file you want to view.

   The file will now open.
6. Select **Back** or **Close** to close the image.

8.6 Resetting your system

Your system may be reset to its factory default settings if required.

There are 2 types of reset operation, both of which affect the current display you are using, AND any networked displays.

• Settings reset.

• Settings and data reset.

Settings reset

This option resets your setup menus, page sets, and databar settings to factory default. It will NOT affect your waypoints, routes, or tracks data.

Settings and data reset

In addition to the settings reset detailed above, performing a settings and data reset will also remove ALL waypoints, routes, and tracks data.

Resetting system settings

With the homescreen displayed:

1. Select **Set-up**.
2. Select **Maintenance**.
3. Select **System Settings Reset**.

   A message is displayed prompting you to confirm the action.
4. Select **Yes** to proceed with the settings reset, or **No** to cancel.

Resetting system settings and data

Note: Performing a settings and data reset erases ALL waypoints, routes, and track data from your system. BEFORE proceeding with a settings and data reset, ensure that you backup any data that you want to keep on to a memory card.

With the homescreen displayed:

1. Select **Set-up**.
2. Select **Maintenance**.
3. Select **System Settings and Data Reset**.

   A message is displayed prompting you to confirm the action.
4. Select **Yes** to proceed with the settings and data reset, or **No** to cancel.
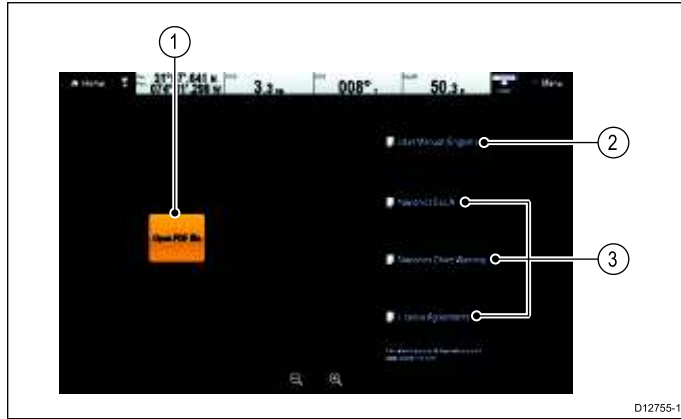
Chapter 9: Document viewer application
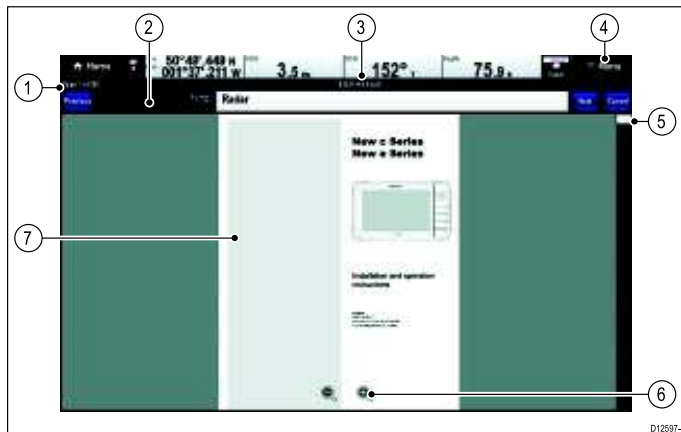
Chapter contents

9.1 Document viewer overview

You can view PDF documents on your multifunction display.

The document viewer is available from the homescreen and is used to view and search PDF documents (such as product handbooks).

D12755-1

1	Opens the MicroSD card file browser.
2	Opens the user manual stored on the multifunction display.
3	Opens the relevant license agreement information.

Note: The document viewer does not support password protected documents or documents containing security certificates. An error message will be displayed if you try to open such documents.

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1	Current page number (page x of y).
2	Find (search) tool bar (only displayed when searching a document). **Note:** The Previous, Next and Cancel buttons are only shown on touch-only products. For non-touch and Hybridtouch products the physical buttons are used.
3	Filename of the current PDF.
4	Document viewer menu.
5	Scroll bar.
6	On-screen zoom controls (Touchscreen displays only).
7	PDF document content.

The following options are available from the document viewer menu:

- **Open File** — Allows you to browse a MicroSD card or the MFD's internal storage for a PDF document to open.
- **Go to page:** — Allows you to jump to a specific page number.
- **Find** — Allows you to search the document for specific words.
- **Fit to Height** — Scales the open document to fit the height of the application window.

- **Fit to Width** — Scales the open document to fit the width of the application window.
- **Close File** — Closes the open document.

Opening the user manual

The product user manual is stored on the internal memory.

From the homescreen:

1. Select **Doc Viewer**.
2. Select **User Manual**.

   The product user manual is opened.

Note: The User manual can also be opened by selecting the **User Manual** icon from the Homescreen.

Opening a PDF document

You can open PDF documents stored on a MicroSD card by following the steps below.

Note: When saving PDF documents to MicroSD cards, ensure you do not overwrite important data.

1. Save the required PDF document to a MicroSD card.
2. Insert the MicroSD card into the multifunction display's MicroSD card slot.
3. Select **Menu**.
4. Select **Open File**.

   The file browser dialog is displayed.
5. Browse the MicroSD card containing the document you want to view.
6. Select the document you want to view.

   The document will now open.
7. If the 'Cannot Open File' error message is displayed, select **Ok** to confirm and then try opening the document again. Check that the PDF is not corrupted. Also ensure that the PDF does not include password protection or a security certificate. These PDF file security features are not supported by the document viewer application.

Note: Large filesize PDF documents may take a while to open.

Closing an open document

Each Doc viewer instance is separate, the last document opened will automatically open next time you select that instance of the Doc viewer unless it its closed using the Close File menu option.

With a document open
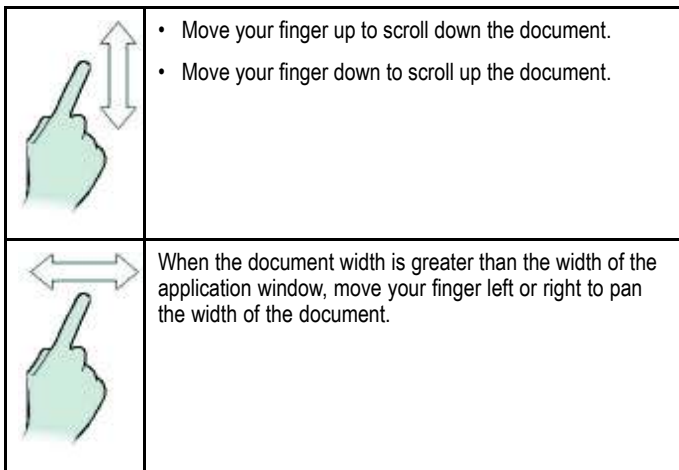
1. Select **Menu**.
2. Select **Close file**.

   The document is close and the main Doc viewer page is displayed.

Browsing an open document

On touchscreen displays you can browse pdf documents as detailed below.

With a pdf document open:

	• Move your finger up to scroll down the document. • Move your finger down to scroll up the document.
	When the document width is greater than the width of the application window, move your finger left or right to pan the width of the document.

Note: You can also use the scroll bars to navigate through the document.

Browsing an open document

On HybridTouch and non-touch displays you can browse pdf documents by following the steps below.

With a pdf document open:

1. Move the Joystick **Up** or **Down** to move up and down through the document.
2. Move the Joystick **Left** or **Right** to pan left and right.

Changing the zoom factor

On touchscreen displays you can change the zoom factor of the open document by following the steps below.

With a pdf document open:

1. Select the on-screen **Zoom in** icon to zoom in, or
2. Select the on-screen **Zoom out** icon to zoom out.

Changing the zoom factor

On HybridTouch and non-touch displays (excluding the e7 and e7D) you can change the zoom factor of the open document by following the steps below.

With a pdf document open:

1. Use the **Range out** button to zoom out, or
2. Use the **Range in** button to zoom in.

Note: New a Series and e7 / e7D multifunction displays do not have Range in and Range out button.

Note: On a New c Series display only the **Rotary control** can be used to change the zoom factor.

Selecting a page

You can skip to the page you want to view by entering the page number.

With a pdf document open:

1. Select **Menu**.
2. Select **Go to page:**.
   The numeric keypad is displayed.
3. Enter the page number of the page you want to view.
4. Select **Ok** to view the page.

Using document hyperlinks

On touchscreen displays you can use internal document hyperlinks.

With a pdf document opened on a page containing a hyperlink:

1. Momentarily touch your finger on the hyperlink.
   You will be taken to the hyperlinked page.

Document viewer application

Note: Document hyperlinks cannot be activated on a New c Series display.

Searching for text

To use the find function to search for text on touch only display follow the steps below.

With a pdf document open:

1. Select **Menu**.
2. Select **Find**.
   The on-screen keyboard is displayed.
3. Enter the keyword you want to find.
4. Select **SAVE**.
   The document viewer will enter find mode and:
   • You may see a 'Searching' icon while all occurrences are found.
   • The find tool bar is displayed.
   • The first occurrence of the keyword is highlighted.
5. Select **Next** to find the next occurrence of the keyword, or
6. Select **Previous** to go back to the last occurrence of the keyword.
7. You can select **Cancel** at any time to close the find tool bar and return to the normal viewing.

Searching for text

On HybridTouch and non-touch displays you can use the find function to search for text in an open pdf document by following the steps below.

With a pdf document open:

1. Press the **Menu** button.
2. Select **Find**.
   The on-screen keyboard is displayed.
3. Enter the keyword you want to find.
4. Select **SAVE**.
   The document viewer will enter find mode and:
   • You may see a 'Searching' icon while all occurrences are found.
   • The find tool bar is displayed.
   • The first occurrence of the keyword is highlighted.
5. Move the **Joystick Down** to go to the next occurrence of the keyword, or
6. Move the **Joystick Up** to go to the previous occurrence of the keyword.
7. You can press the **Back** button at any time to close the find tool bar and return to the normal viewing.

Keyword not found

The document viewer will let you know if the keyword you have searched for does not appear in the document.

If the keyword is not found then the find tool bar will display an exclamation mark and a pop-up message is displayed on-screen.

Selecting **New Search** will take you back to the on-screen keyboard so that you can try a different keyword. Selecting **Cancel** will close the find tool bar and resume normal operation.

Chapter 10: Autopilot control

Chapter contents

10.1 Autopilot control

You can use your multifunction display to control your autopilot. If connected to an Evolution autopilot then pilot settings will also be available.

Note: For information on connecting your multifunction display to a Raymarine autopilot system, refer to the documentation that accompanied your autopilot.

With the Autopilot Control function enabled, you can use your multifunction display to:

- Engage the autopilot in Track mode (Goto a specified position or follow a route).
- Engage the autopilot is Auto mode (Remain on the current heading).
- Adjust the current locked heading.
- Disengage the autopilot.
- Silence the waypoint arrival alarm.
- Adjust pilot settings (Evolution autopilots only)

Note: In a system that does not include a dedicated pilot head the data master multifunction display cannot be switched off or put into PowerSave mode whilst the autopilot is engaged.

The Pilot Control dialog is displayed in the following situations:

- When the physical **Pilot** button is pressed.
- When **Pilot Controls** is selected from the shortcuts page.
- When you select **Menu > Navigate > Goto Waypoint** , **Goto Cursor** or **Follow Route** option in the chart application.
- When you select **Goto Waypoint** or **Goto Cursor** using the chart context menu.
- When you place the cursor over an active route or waypoint on the chart and select **Stop Goto**, **Stop Follow** or **Advance Waypoint** from the context menu.
- When you are following a route or going to a waypoint or cursor position, and select **Menu > Navigate > Stop Goto**, **Stop Follow**, or **Advance Waypoint**.
- When you arrive at a target waypoint.

Note:
When arriving at a waypoint, the dialog title bar turns red to indicate waypoint arrival.

Pilot Control dialog (standby)

The example below shows the Pilot Control dialog options when the Pilot Control dialog is opened from the menu or using the dedicated Pilot button.

Selecting auto will engage the autopilot and maintain the current heading.
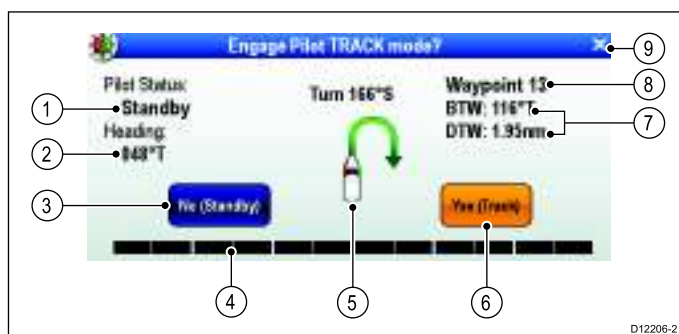
Pilot Control dialog (Auto)

The example below shows the Pilot Control dialog options when Auto (locked heading) has been engaged.
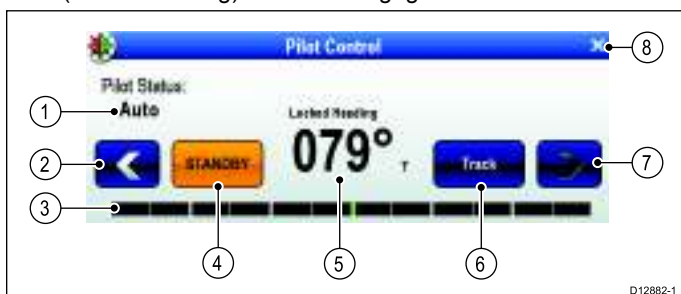
Item	Description
1	Pilot Status — Current pilot mode.
2	**Left Arrow** — Decrease locked heading angle.
3	Rudder bar — Indicates the position of the rudder.
4	**STANDBY** — Disengages the autopilot and returns to manual vessel control.
5	Current locked heading.
6	**Track** — Engages the autopilot in Track mode and automatically steers your vessel to a target waypoint or along a route plotted on your chartplotter.
7	**Right Arrow** — Increase locked heading angle.
8	**Close** — Closes the Pilot Control dialog.

Pilot Control dialog (Starting navigation)

The example below shows the Pilot Control dialog options when **Goto Cursor**, **Goto Waypoint** or **Follow Route** has been selected.

Item	Description
1	Pilot Status — Current pilot mode.
2	Current Heading.
3	**No (Standby)** — Disengages the autopilot and returns to manual vessel control.
4	Rudder bar — Indicates the position of the rudder.
5	Turn angle — The turn angle is only available for SeaTalk^{ng} autopilots. This indicates the direction and severity of turn.
6	**Yes (Track)** — Engages the autopilot in Track mode and automatically steers your vessel to a target waypoint or along a route plotted on your chartplotter.
7	Distance to next waypoint (DTW) and Bearing to next waypoint (BTW).
8	Next Waypoint name.
9	**Close** — Closes the Pilot Control dialog.

Pilot Control dialog (Track)

The example below shows the Pilot Control dialog options when in track mode.

Enabling autopilot control

Enabling the autopilot control function — SeaTalk and SPX SeaTalk^{ng} autopilots

To enable control of your SeaTalk or SPX SeaTalk^{ng} autopilot using your multifunction display follow the steps below.

From the Homescreen:

1. Select **Set-up**.
2. Select **System Settings**.
3. Select **Autopilot Control** so that On is highlighted.

   Selecting Autopilot Control will switch the control between On and Off.

On a system containing multiple displays the pilot control is enabled on all displays at the same time.

Enabling the autopilot control function — Evolution autopilots

To enable control of your Evolution autopilot using your multifunction display follow the steps below.

From the Homescreen.

1. Select **Set-up**.
2. Select **System Settings**.
3. Select **External Devices**.
4. Select **Pilot Set-up**.
5. Select **Pilot control** so that On is highlighted.

   Selecting Pilot control will switch the Autopilot control function on and off.

Disengaging the autopilot

Caution: Disengaging the autopilot

On integrated multifunction displays that do not have a dedicated pilot button, in an emergency the autopilot can be disengaged by pressing and holding the Power button.

Disengaging the autopilot using the Power button

On integrated multifunction displays that do not have a dedicated pilot button, when the autopilot is engaged it can be disengaged using the power button. This is useful in emergency situations, especially on touch only displays in the event the touchscreen becomes unresponsive due to adverse weather conditions e.g. rain.

With the autopilot engaged:

1. Press and hold the **Power** button.

   A 'Setting pilot to STANDBY' warning is displayed and an audible alarm is sounded.
2. Continue to hold the **Power** button and the pilot will be placed into standby mode then the Pilot control dialog is displayed.

Disengaging the autopilot using the shortcuts page

You can disengage the autopilot from the Shortcuts page.

With the autopilot engaged:

1. Press and release the **POWER** button.
2. Select **Standby**.

   The Pilot Status change confirmation pop-up is displayed.
3. Select **Yes** to disengage the autopilot.

The autopilot is disengaged (put into standby) and the Pilot Control dialog is displayed.

Disengaging the autopilot using the pilot button

On multifunction displays which have a dedicated pilot button or when using a remote keypad you can disengage the autopilot using the Pilot button.

With the autopilot engaged:

1. Press the **Pilot** button.

The autopilot is disengaged (put into standby) and the Pilot Control dialog is displayed.

Disengaging the autopilot from the chart application

On all multifunction display variants the autopilot can be disengaged from the chart application's menu.

In the chart application with the autopilot engaged:

1. Select **Menu > Navigate > Stop Goto** or **Stop Follow**.

   The Pilot Control dialog is displayed.
2. Select **STANDBY**.

   The Pilot Status change confirmation pop-up is displayed.
3. Select **Yes** to disengage the autopilot.

The autopilot is disengaged (put into standby).

Disengaging the autopilot from the homescreen

On Touchscreen displays the autopilot can be disengaged from the Homescreen.
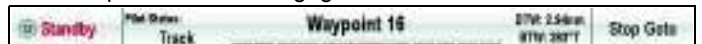

From the Homescreen:

1. Select **Standby**.

   The Pilot Status change confirmation pop-up is displayed.
2. Select **Yes** to disengage the autopilot.

The autopilot is disengaged (put into standby).

Disengage the autopilot from the pilot bar

The autopilot can be disengaged from the Pilot bar.

With the Pilot Bar displayed.

1. Select **Standby**.

Refer to 10.2 Pilot Bar for further information on the Pilot Bar.

Engaging the autopilot

Engaging the autopilot using the pilot button

On multifunction displays which have a dedicated pilot button or when using a remote keypad you can engage the autopilot using the Pilot button.

With the autopilot disengaged:

1. Press the **Pilot** button.

   The pilot control dialog is displayed.
2. Select **Auto**.

   The autopilot is engaged and will maintain the current heading.

Note: You can also automatically engage the autopilot by pressing and holding the **Pilot** button.

Engaging the autopilot from the chart application menu

You can engage the autopilot in track mode using the application menu.

In the chart application:

1. Select **Menu > Navigate > Goto Cursor**, **Goto Waypoint**, or **Follow Route** as appropriate.

   The Pilot Control dialog is displayed.
2. Select **Yes (Track)**.

Engaging the autopilot using the context menu

You can engage the autopilot in track mode using the context menu.

From the chart application context menu.

1. Select any of the following options from the Chart context menu:
   - **Goto Waypoint**
   - **Goto Cursor**
   - **Follow Route**
   - **Follow from Here**
   - **Follow Route in Reverse**

   The pilot control dialog is displayed.
2. Select **Yes (Track)**.

Manually displaying the pilot control dialog box

You can also open the Pilot Control dialog at any time from the homescreen or chart application.

1. From the homescreen:
   i. Select **Set-up**.
   ii. Select **Pilot Controls**.
2. From the chart application:
   i. Select **Menu**.
   ii. Select **Navigate**.
   iii. Select **Pilots Controls**.

10.2 Pilot Bar

The Pilot Bar provides autopilot status information. For touchscreen displays you can disengage the autopilot using the Pilot Bar.

Pilot Bar — Track mode

Pilot Bar — Auto mode

The Pilot Bar is displayed when autopilot control is enabled, the Pilot Bar is switched on and the autopilot is engaged.

When the autopilot is disengaged the Pilot Bar is hidden.

On a system containing multiple displays the Pilot Bar can be disabled or enabled on each display.

Enabling the Pilot Bar

When connected to a SeaTalk or SeaTalkng SPX autopilot the Pilot Bar can be enabled by following the steps below.

From the Homescreen, with autopilots controls enabled:

1. Select **Customize**.
2. Select **Display Preferences**.
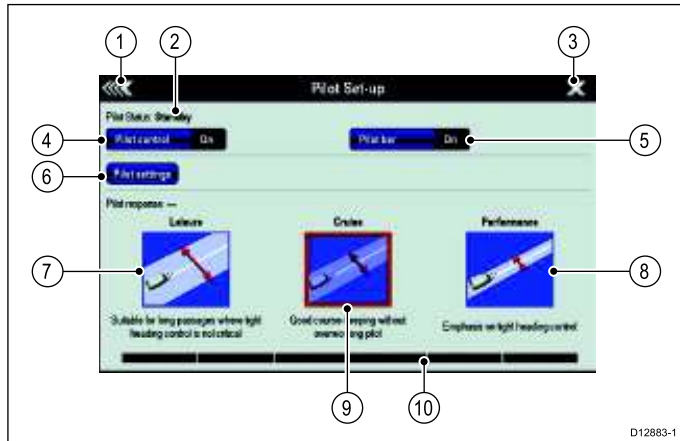3. Select **Pilot Control Bar** so that Shown is highlighted.
   Selecting Pilot Control Bar will switch the Pilot Bar between Shown and Hidden.
4. Engage the autopilot.

The Pilot Bar is now displayed at the bottom of the screen in all applications whilst the autopilot is engaged.

Note: When connected to an Evolution autopilot the Pilot Bar is enabled from the Pilot Set-up page.

10.3 Pilot Set-up

When connected to an Evolution autopilot the Pilot Set-up page is available.

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1	**Back** — Go back to the previous menu.
2	Pilot Status — Current pilot mode.
3	**Close** — Closes the pilot set-up page and displays the homescreen.
4	**Pilot control** — Switches autopilot control via the multifunction display on and off.
5	**Pilot bar** — Switches the Pilot bar on and off.
6	**Pilot settings** — Displays available pilot settings that can be configured from the multifunction display. **Note:** The **Pilot settings** menu is only available on the data master multifunction display.
7	**Leisure** — Places the autopilot in Leisure mode. Leisure mode is suitable for long passages where tight heading control is not critical.
8	**Performance** — Places the autopilot in Performance mode. Performance mode provides good course keeping without overworking the autopilot.
9	**Cruise** — Places the autopilot in Cruise mode. Cruise mode provides tight heading control.
10	Rudder bar — Indicates the position of the rudder.

Accessing the Pilot Set-up page.

When connected to an Evolution autopilot you can access the Pilot Set-up page by following the steps below.

From the Homescreen:

1. Select **Set-up**.
2. Select **System Settings**.
3. Select **External Devices**.
4. Select **Pilot Set-up**.

10.4 Pilot settings

The Pilot settings option is available on a data master multifunction display when it is integrated with an Evolution autopilot.

The Pilot settings enable the setup and commissioning of an Evolution autopilot using a multifunction display.

The Pilot settings include the following options:

- Vessel Settings
- Drive Settings
- Sail Boat Settings
- Commissioning

Initial setup and commissioning

Vessel settings

The vessel settings are designed to provide optimum steering performance for typical vessels.

It is important to complete the vessel hull type selection as part of the initial set-up, as it forms a key part of the autopilot calibration process. You can also access the options at any time by selecting **Pilot Settings > Vessel settings** from the Pilot Set-up page.

Vessel setting include the following options:

- Vessel Hull Type
- Drive Type
- Compass Offset
- Calibration Lock

Vessel hull type selection

The vessel hull type options are designed to provide optimum steering performance for typical vessels.

It is important to complete the vessel hull type selection as part of the initial set-up, as it forms a key part of the commissioning process. You can also access the options at any time with the pilot in Standby from the Pilot Set-up page by selecting: **Pilot Settings > Vessel Settings > Vessel Hull Type**.

As a general guide, select the option that most closely matches your vessel type and steering characteristics. The options are:

- **Sail**.
- **Sail (slow turn)**.
- **Sail Catamaran**.
- **Power**
- **Power (slow turn)**.
- **Power (fast turn)**.

It is important to be aware that steering forces (and therefore rate-of-turn) vary significantly depending on the combination of vessel type, steering system, and drive type. Therefore, the available vessel hull type options are provided for guidance only. You may wish to experiment with the different vessel hull type options, as it might be possible to improve the steering performance of your vessel by selecting a different vessel type.

When choosing a suitable vessel type, the emphasis should be on safe and dependable steering response.

Important: If you change the vessel type **after** completing the Dockside wizard, all commissioning settings will be reset to default settings, and you will need to complete the Dockside wizard again.

Selecting a vessel hull type

The Vessel hull type can be accessed from the Pilot Set-up page.

1. Select **Pilot Settings**.
2. Select **Vessel Settings**.
3. Select **Vessel Hull Type**.
4. Select the option that most closely matches your vessel type.

    The new selection is applied.

Selecting a drive type

Drive type selection is available from the dockside wizard, and also from the Vessel settings menu: **Pilot Set-up > Pilot Settings > Vessel Type > Drive type**.

With the **Drive Type** menu displayed:

1. Select your drive type from the list.

Note: The drive types available are dependant on the ACU type. If your drive type is not listed contact your Raymarine dealer for advice.

2. Select **OK** to save your setting and display the next set-up page.

Note: You can cancel the Dockside wizard at any time by selecting **STANDBY**.

Aligning heading

The autopilot heading can be aligned to the ship's compass using the Compass offset setting.

Note: To perform this procedure you will need a networked device such as an instrument, pilot control head or multifunction display to have the current autopilot heading shown onscreen.

Many factors can cause a difference between heading and course over ground (COG), you must align the heading so it matches the vessel's steering compass (or a known transit bearing).
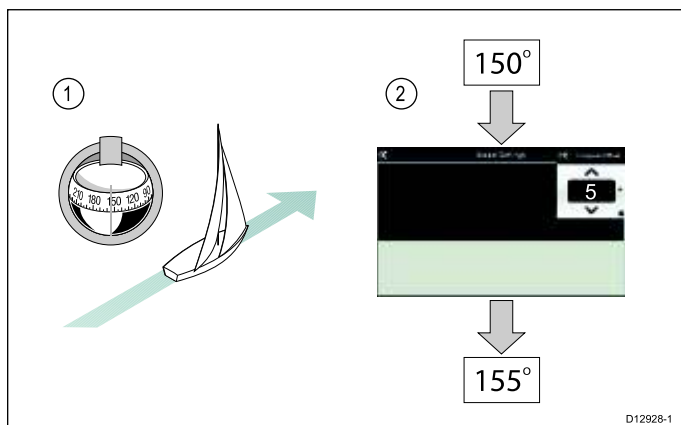
1. Set your vessel on a known heading and check the steering compass.
2. Check the autopilot heading on your multifunction display.
3. From the Pilot Set-up page select **Pilot Settings**.
4. Select **Vessel Settings**.
5. Select **Compass Offset**.
6. Adjust the Compass Offset so that the autopilot heading will match the steering compass heading.

   e.g. If the steering compass heading was 155° and autopilot heading was 150° applying a compass offset of 5° would mean that the steering compass and autopilot heading are aligned.

The compass offset will be changed automatically if required when the align compass to GPS procedure is carried out.

Drive settings

The drive settings are designed to provide optimum drive performance.

It is important to check and where necessary adjust the drive settings to suit your drive setup.

Drive settings include the following settings:

• *Rudder Damping.
• Auto Turn.
• Power Steer.
• Reverse rudder ref.
• Rudder Offset.

• Rudder Limit.
• Hard Over Time.

Note: *The rudder damping setting should not be adjusted without first seeking advice from Raymarine technical support.

Setting the auto turn angle

You can specify the angle at which the vessel will turn when performing an Auto Turn using a connected Pilot control Head.

From the Pilot Set-up page:

1. Select **Pilot Settings**.
2. Select **Drive Settings**.
3. Select **Auto Turn**.
4. Adjust the auto turn setting to the required value.
5. Select **Back** or **Ok** to confirm the setting.

Power Steer

If you have a joystick or a p70R pilot control head connected to your autopilot you can select its mode of operation. For detailed information refer to the documentation that accompanied your joystick or your p70R.

The modes of operation are as follows:

• **Off** — Joystick control is turned off.

• **Proportional** — Proportional mode applies rudder in proportion to joystick movement — the further the joystick is held over, the greater the applied rudder.

• **Bang-Bang** — Bang-bang modes applies continuous rudder in the direction of the joystick movement, to improve control, the speed of rudder movement changes with the angle of the joystick. For maximum speed, push the joystick hard over. If you return the joystick to the center position, the rudder will remain in its current position.

Reversing the rudder reference phase

On vessels fitted with a rudder reference transducer, if the rudder bar moves in the wrong direction you can correct this by reversing the phase of the rudder reference.

Note: This procedure is not required on vessels without a rudder reference transducer.

From the Pilot Set-up page:

1. Select **Pilot Settings**.
2. Select **Drive Settings**.
3. Select **Reverse Rudder Ref**.
   Selecting Reverse Rudder ref will switch between On and Off.

Setting the rudder offset

On vessels fitted with a rudder reference transducer, you can set an offset to the rudder's center position if required.

Note: This procedure is not required on vessels without a rudder reference transducer.

Note: To perform this procedure it is desirable to have a networked device such as an instrument, pilot control head or multifunction display that can display the current rudder position onscreen whilst making this adjustment.

1. Use the steering wheel to center the rudder.
2. From the Pilot Set-up page select **Pilot Settings**.
3. Select **Drive Settings**.
4. Select **Rudder Offset**.
5. Adjust the Rudder Offset value until the rudder bar shows the rudder in the central position.

   The rudder adjustment is limited to ± 9° if the adjustment required to center the rudder bar position is beyond these limits then the alignment of the rudder reference sensor will need to be physically adjusted.

Setting the rudder limits

On vessels fitted with a rudder reference transducer the rudder limits must be set. The rudder limit is used to set the rudder control. The rudder limits should be set to just inside the mechanical end stops to prevent unnecessary load on the steering system.

> **Note:** This procedure is not required on vessels without a rudder reference transducer.

> **Note:** To perform this procedure it is desirable to have a networked device such as an instrument, pilot control head or multifunction display that can display the current rudder position onscreen whilst making this adjustment.

The limits should be set to approximately 5° less than the maximum rudder angle.

1. Turn the steering wheel all the way to port and note the angle on the rudder bar.
2. Turn the steering wheel all the way to starboard and note the angle on the rudder bar.
3. From the Pilot Set-up page select **Pilot Settings**.
4. Select **Drive Settings**.
5. Select **Rudder Limit**.
6. Adjust the rudder limit to be 5° less than the lowest angle noted in steps 1 and 2 above.
7. Select **Back** or **OK** to confirm the settings.

Setting the hard over time

Once the hard over time has been established it can be set following the steps below.

From the Pilot Set-up page:

1. Select **Pilot Settings**.
2. Select **Drive Settings**.
3. Select **Hard Over Time**.
4. Enter your hard over time in seconds.

Sail boat Settings

When the vessel type has been set to a sail boat the Sail Boat settings menu will be available.

Sail boar settings consist of the following options:

- **Wind Trim Response** — Wind trim response controls how quickly the autopilot system responds to changes in the wind direction. A higher wind trim setting will result in a system that is more responsive to wind changes.

- **Gybe Inhibit** — With gybe inhibit turned on, to prevent accidental gybes, the autopilot will prevent the vessel from performing a turn away from the wind. With gybe inhibit turned off, you can perform an AutoTack into or away from the wind. Gybe inhibit does not effect Auto Turn.

- **Wind Trim** — This option determines whether the vessel steers to Apparent or True wind in when in Wind Vane mode.

Commissioning

You can commission an Evolution autopilot using the Pilot settings menu on your multifunction display. All set-up and commissioning procedures must be carried out before using the autopilot.

Commissioning the autopilot system consists of the following procedures:

- Vessel Hull Type selection.
- Drive Type selection.
- Rudder check
- Motor check

Commissioning pre-requisites

Before commissioning your system for the first time, check that the following processes have been carried out correctly:

- Autopilot system installation completed in accordance with the Installation instructions.
- SeaTalkng network installed in accordance with the SeaTalkng Reference Manual.
- Where fitted, the GPS receiver has been installed and connected in accordance with the associated Installation instructions.

Check also that the commissioning engineer is familiar with the installation and components of the autopilot system including:

- Vessel type.
- Vessel steering system information.
- What the autopilot will be used for.
- System layout: components and connections (you should have a schematic of the vessel's autopilot system).

Vessel hull type selection

The vessel hull type options are designed to provide optimum steering performance for typical vessels.

It is important to complete the vessel hull type selection as part of the initial set-up, as it forms a key part of the commissioning process. You can also access the options at any time with the pilot in Standby from the Pilot Set-up page by selecting: **Pilot Settings > Vessel Settings > Vessel Hull Type**.

As a general guide, select the option that most closely matches your vessel type and steering characteristics. The options are:

- **Sail**.
- **Sail (slow turn)**.
- **Sail Catamaran**.
- **Power**
- **Power (slow turn)**.
- **Power (fast turn)**.

It is important to be aware that steering forces (and therefore rate-of-turn) vary significantly depending on the combination of vessel type, steering system, and drive type. Therefore, the available vessel hull type options are provided for guidance only. You may wish to experiment with the different vessel hull type options, as it might be possible to improve the steering performance of your vessel by selecting a different vessel type.

When choosing a suitable vessel type, the emphasis should be on safe and dependable steering response.

> **Important:** If you change the vessel type **after** completing the Dockside wizard, all commissioning settings will be reset to default settings, and you will need to complete the Dockside wizard again.
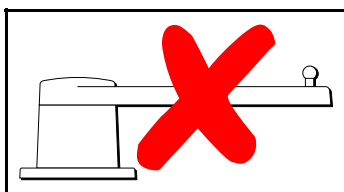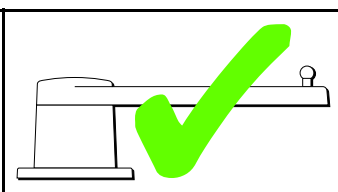
Selecting a vessel hull type

The Vessel hull type can be accessed from the Pilot Set-up page.

1. Select **Pilot Settings**.
2. Select **Vessel Settings**.
3. Select **Vessel Hull Type**.
4. Select the option that most closely matches your vessel type.
   The new selection is applied.

Performing the Dockside wizard

The dockside wizard must be completed before the Evolution autopilot system can be used for the first time. The Dockside wizard guides you through the steps required for commissioning.
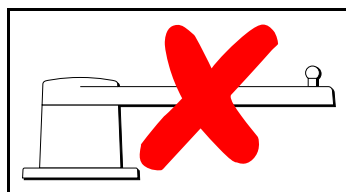
The Dockside wizard contains different steps depending on whether you have a rudder reference transducer fitted to your vessel:

The following Dockside wizard procedures only apply to vessels **without** a rudder reference transducer: • Drive Type selection. • Rudder Limit setting. • Hard-over time setting (Raymarine recommends that this information is specified once the dockside wizard and Rudder Drive check is complete, using the Hard Over Time menu option). • Rudder Drive check.	The following Dockside wizard procedures only apply to vessels **with** a rudder reference transducer: • Drive Type selection. • Align Rudder (rudder alignment). • Rudder Limit setting. • Rudder Drive check.

To access the wizard, ensure the pilot is in **standby** mode and then from the Pilot Set-up page:

1. Select **Pilot Settings**.
2. Select **Commissioning**.
3. Select **Dockside Wizard**.

Selecting a drive type

Drive type selection is available from the dockside wizard, and also from the Vessel settings menu: **Pilot Set-up > Pilot Settings > Vessel Type > Drive type**.

With the **Drive Type** menu displayed:

1. Select your drive type from the list.

Note: The drive types available are dependant on the ACU type. If your drive type is not listed contact your Raymarine dealer for advice.

2. Select **OK** to save your setting and display the next set-up page.

Note: You can cancel the Dockside wizard at any time by selecting **STANDBY**.

Checking the rudder alignment

This procedure establishes port and starboard rudder limits for systems using a rudder reference transducer.

The rudder check forms part of the dockside wizard.

The following procedure only applies to vessels with a rudder reference transducer.

1. Center the rudder and select **OK**.
2. When prompted, turn the rudder hard to port and select **OK**.
3. When prompted, turn the rudder hard to starboard and select **OK**.
4. When prompted, turn the rudder back to centre and select **OK**.

Note: You can cancel Dockside wizard at any time by selecting **STANDBY**.

Rudder limit setting

As part of the Dockside wizard, the system will set-up the rudder limits.

• **For vessels with a rudder reference transducer** — This procedure establishes the rudder limit. The rudder limit will be displayed with a message confirming that the rudder limit has been updated. This value can be changed if required.

• **For vessels without a rudder reference transducer** — A default of 30 degrees is displayed, and can be changed as required.

Hard over time

The hard over time setting can be specified as part of the Dockside wizard.

The following information only applies to vessels without a rudder reference transducer.

• **If you already know the hard-over time** for your vessel's steering system: enter this time during the Dockside wizard procedure.

• **If you do NOT know the hard-over time** for your vessel's steering system: skip this step during the Dockside wizard by selecting **SAVE**, complete the Dockside wizard procedure. Once the wizard is complete, calculate and adjust the hard-over time.

Checking the rudder drive

As part of the Dockside wizard, the system will check the drive connection. Once it has completed the check successfully, a message will appear asking if it is safe for the system to take the helm.

During this procedure the autopilot will move the rudder. Ensure it is safe to proceed before selecting **OK**.
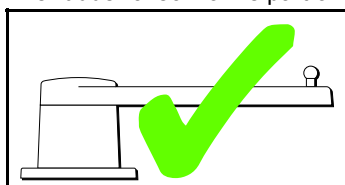
When in the Dockside wizard, with the Motor Check page displayed:

1. Center and let go of the rudder.
2. Disengage any rudder drive clutch.
3. Select **CONTINUE**.
4. Check it is safe to proceed before selecting **OK**.
   For vessels **with** a rudder reference transducer, the autopilot will now automatically move the rudder to port and then starboard.
5. For vessels **without** a rudder reference transducer, you will be asked to confirm the rudder turned to port by selecting **YES** or **NO**.
6. Select **OK** if it is safe to engage the rudder in the opposite direction.
7. You will be asked to confirm the rudder turned to starboard by selecting **YES** or **NO**.
8. Dockside wizard is now complete, select **CONTINUE**.

Note: If you confirmed a "NO" response for the rudder movement to both port and starboard, the wizard will exit. It is possible that the steering system did not move the rudder in any direction, and it will be necessary to check the steering system before completing the Dockside wizard procedure again.

Note: If the rudder moves in the opposite direction than expected you may need to reverse the phase of the rudder reference unit. This can be achieved by accessing: **Pilot Set-up > Pilot Settings > Drive Settings > Reverse Rudder Ref**.

You can cancel Dockside wizard at any time by pressing **STANDBY**.

⚠️ Warning: Rudder check

If no rudder reference has been fitted you MUST ensure that adequate provision is made to prevent the steering mechanism from impacting the end stops.

Adjusting the hard-over time

On vessels **without** a rudder reference transducer, it is important to set the hard-over time limits correctly, to ensure accurate autopilot operation. Hard-over time is the time it takes the vessel's steering system to drive the rudder from full port to full starboard.

Before attempting the following procedure, ensure that you've observed and understood the Rudder check warning provided in this document.
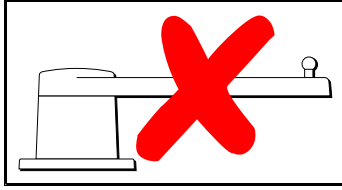
	The following information only applies to vessels without a rudder reference transducer.

1. With the autopilot in 'Standby' mode, **manually turn the helm full to port**.
2. Place the autopilot in 'Auto' mode.
3. Using a stopwatch, **start the timer**, and then immediately:
4. Turn 180 degrees from your current heading.
5. Once the rudder has reached the rudder limit that was specified as part of the Dockside wizard, **stop the timer**.
6. To calculate your hard-over time, take the measured time and double it.
7. Now access the **Hard Over Time** menu to specify this hard-over time.

Setting the hard over time

Once the hard over time has been established it can be set following the steps below.

From the Pilot Set-up page:

1. Select **Pilot Settings**.
2. Select **Drive Settings**.
3. Select **Hard Over Time**.
4. Enter your hard over time in seconds.

Compass linearization

With Evolution autopilot systems, when the EV unit is first installed and powered-up, its internal compass needs to compensate for local magnetic variations and the earth's magnetic field. This is achieved using an automatic process known as linearization, which forms an important part of the autopilot installation, commissioning and set-up process.

Linearization

In Evolution systems, the linearization process is performed automatically by the EV unit as a background task when the vessel's speed is between 3 and 15 knots, no user intervention is required however at least a 270 degree turn is required. The process will occur during your first voyage with the autopilot system, and will typically take no more than 30 minutes, but this does vary according to the characteristics of the vessel, the installation environment of the EV unit, and the levels of magnetic interference at the time of conducting the process. Sources of significant magnetic interference may increase the time required to complete the linearization process. Examples of such sources include:

• Marine pontoons.
• Metal-hulled vessels.
• Undersea cables.

Note: You can speed-up the linearization process by completing a 360 degree turn (at a speed of 3 – 15 knots). You can also restart the linearization process at any time by selecting the **Restart Compass** menu item.

Use the compass deviation indicator

The use of the compass deviation indicator on the pilot control head may be useful in this process, particularly if the EV unit has been installed in a location on the vessel where the levels of magnetic interference are too high for the EV unit to compensate appropriately. If this is the case, the deviation display will indicate a value of 25 degrees or higher. In this scenario, Raymarine highly recommends that the EV unit is moved and re-installed in a location which is subject to less magnetic interference. If "- -" is displayed as the Deviation value, it means that linearization has not been successfully completed yet.

Check the compass heading data

As part of the autopilot system commissioning process, Raymarine recommends that you check the compass heading value displayed on your autopilot control head or multifunction display, against a good known heading source on various headings. This will help you to determine when the EV unit has completed its linearization process.

Note: Once the linearization process has completed, it is possible that the heading value may have a slight offset of 2 to 3 degrees. This is common where installation space is limited, and the EV unit cannot be properly aligned to the vessel's longitudinal axis. In this case, it is possible to manually adjust the compass offset value using the pilot control head or multifunction display, and fine-tune the heading to an accurate value.

Note: Do NOT rely on the heading accuracy until you are satisfied that compass linearization and alignment is complete.

System monitoring and adaptation

To ensure optimum performance, after the initial linearization process is complete the EV continues to monitor and adapt the compass linearization to suit current conditions.

If the conditions for linearization are less than ideal, the automatic linearization process temporarily pauses until conditions improve again. The following conditions can cause the linearization process to temporarily pause:

• Boat speed is less than 3 knots.
• Boat speed is greater than 15 knots.
• Rate-of-turn is too slow.
• Significant external magnetic interference is present.

Compass lock

Once you are satisfied with the compass accuracy, you can lock the setting to prevent the autopilot system from completing a further automatic linearization in the future.

This feature is particularly useful for vessels in environments that are exposed to strong magnetic disturbances on a regular basis (such as offshore wind farms or very busy rivers, for example). In these situations it may be desirable to use the Compass lock feature to disable the continuous linearization process, as the magnetic interference may build a heading error over time.

Note: The compass lock may be released at any time, to allow the compass continuous linearization to restart. This is particularly useful if planning a long voyage. The earth's magnetic field will change significantly from one geographical location to another, and the compass can continuously compensate for the changes, ensuring you maintain accurate heading data throughout the voyage.

Aligning compass to GPS

You can align the autopilot compass to your COG heading.

Aligning the compass must be performed whilst heading into the tide or in slack water.
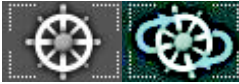
From the Pilot Set-up page:

1. Select **Pilot Settings**.
2. Select **Commissioning**.
3. Select **Align Compass to GPS**.
4. Steer your vessel on a steady course and then select **Start**.
5. Ensure sufficient vessel speed, if you are going too slow a 'Go Faster' message is displayed.
6. If the alignment is successful select **OK** to complete the procedure.

If required this procedure will automatically correct the compass offset value accessible from the Vessel Settings menu.

Note: If the alignment fails it means that the pilot sensor is more than a 10° deviation between your COG heading and the pilot sensor, in this situation the pilot sensor position must be checked.

10.5 Autopilot status symbols

The autopilot status is indicated in the databar.

Symbol	Description
	Autopilot is in Standby mode.
	Autopilot is in Track mode.
	Autopilot is in Auto mode.
	No autopilot detected.
	Autopilot alarm active.
	Dodge mode is active.
	Fish mode is active.
	Autopilot calibration.
	Power steering active.
	Wind Vane mode is active.

10.6 Autopilot alarms

The autopilot function provides alarms to alert you to situations that require action.

Your multifunction display shows autopilot alarms, regardless of whether there is active navigation on the system. If autopilot control is enabled, and an alarm is raised by the autopilot, the multifunction display provides an audible alarm sound (providing that the alarm has not already been silenced). The **Pilot Control** dialog is displayed, indicating a new alarm. Additionally, the autopilot status icon is displayed in red, and remains red until the alarm is cleared.

Silencing autopilot alarms

1. Select **Dismiss**.

   The alarm is silenced and the autopilot remains engaged in auto mode, continuing on the current locked heading.
2. Select **Auto**.

   The alarm is silenced and the autopilot remains engaged in auto mode, continuing on the current locked heading.
3. Select **Track**.

   The alarm is silenced and the autopilot 'tracks' to the next waypoint.

Silencing autopilot alarms and disengaging autopilot

1. Select **STANDBY**.

The alarm is silenced, and the autopilot is disengaged and put in standby mode.