

gS95 / gS125 / gS165

EN	Mounting and Getting Started.....	p.3
DA	Montering og Kom godt i gang.....	p.21
DE	Montage und Einstieg.....	p.39
EL	τοποθέτηση και γρήγορη αναφορά....	p.59
ES	Montaje y guía de inicio.....	p.81
FI	Uppoasennus ja Pikaohje.....	p.101
FR	Installation et guide de démarrage..	p.120
IT	Montaggio e per iniziare.....	p.140
JA	取り付けとご使用の前に.....	p.159
NL	Monteren en beginnen.....	p.178
NO	Montering og Kom i gang.....	p.198
pt-BR	Montagem e Introdução.....	p.216
SV	Montering och Komma igång.....	p.236

MULTILINGUAL

Date: 03-2013

Document number: 88017-2-EN-DA-DE-EL-ES-FI-FR-IT-JA-NL-NO-pt-BR-SV

© 2013 Raymarine UK Limited

INNOVATION • QUALITY • TRUST

Raymarine®

Important information



Warning: Read the expanded handbook

This document is an abbreviated ("quick start") handbook, containing only the basic information required to get you started with your new product. For the complete documentation and safety information for your product, please refer to the expanded handbook, available on the documentation CD (if supplied), or the Raymarine website (www.raymarine.com).



Warning: Product installation and operation

This product must be installed and operated in accordance with the instructions provided. Failure to do so could result in personal injury, damage to your vessel and/or poor product performance.



Warning: Potential ignition source

This product is NOT approved for use in hazardous/flammable atmospheres. Do NOT install in a hazardous/flammable atmosphere (such as in an engine room or near fuel tanks).



Warning: High voltages

This product contains high voltages. Do NOT remove any covers or otherwise attempt to access internal components, unless specifically instructed in this document.



Warning: Product grounding

Before applying power to this product, ensure it has been correctly grounded, in accordance with the instructions in this guide.



Warning: Switch off power supply

Ensure the vessel's power supply is switched OFF before starting to install this product. Do NOT connect or disconnect equipment with the power switched on, unless instructed in this document.



Warning: FCC Warning (Part 15.21)

Changes or modifications to this equipment not expressly approved in writing by Raymarine Incorporated could violate compliance with FCC rules and void the user's authority to operate the equipment.



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.



Warning: Sonar operation

- NEVER operate the sonar with the vessel out of the water.
- NEVER touch the transducer face when the sonar is powered on.
- SWITCH OFF the sonar if divers are likely to be within 7.6 m (25 ft) of the transducer.



Warning: Touchscreen display

Exposure to prolonged rain may cause erroneous touch performance, in these situations keep touch activity to a minimum and wipe the screen with a dry non-abrasive cloth before using the touchscreen.

Caution: Power supply protection

When installing this product ensure the power source is adequately protected by means of a suitably-rated fuse or automatic circuit breaker.

Caution: Care of chart and memory cards

To avoid irreparable damage to and / or loss of data from chart and memory cards:

- Ensure that chart and memory cards are fitted the correct way around. DO NOT try to force a card into position.
- DO NOT save data (waypoints, tracks, and so on) to a chart card, as the charts may be overwritten.
- DO NOT use a metallic instrument such as a screwdriver or pliers to insert or remove a chart or memory card.

Caution: Ensure card reader door is securely closed

To prevent water ingress and consequent damage to the product, ensure that the card reader door is firmly closed.

Caution: Cleaning

When cleaning this product:

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

TFT Displays

The colors of the display may seem to vary when viewed against a colored background or in colored light. This is a perfectly normal effect that can be seen with all color Thin Film Transistor (TFT) displays.

Water ingress

Water ingress disclaimer

Although the waterproof rating capacity of this product meets the IPX6 standard, water intrusion and subsequent equipment failure may occur if the product is subjected to commercial high-pressure washing. Raymarine will not warrant products subjected to high-pressure washing.

Disclaimers

This product (including the electronic charts) is intended to be used only as an aid to navigation. It is designed to facilitate use of official government charts, not replace them. Only official government charts and notices to mariners contain all the current information needed for safe navigation, and the captain is responsible to use their prudent use. It is the user's responsibility to use official government charts, notices to mariners, caution and proper navigational skill when operating this or any other Raymarine product. This product supports

electronic charts provided by third party data suppliers which may be embedded or stored on memory card. Use of such charts is subject to the supplier's End-User Licence Agreement included in the documentation for this product or supplied with the memory card (as applicable).

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

This product uses digital chart data, and electronic information from the Global Positioning System (GPS) which may contain errors. Raymarine does not warrant the accuracy of such information and you are advised that errors in such information may cause the product to malfunction. Raymarine is not responsible for damages or injuries caused by your use or inability to use the product, by the interaction of the product with products manufactured by others, or by errors in chart data or information utilized by the product and supplied by third parties.

Chart cards and memory cards

Memory cards are used for archiving data and chart cards provide additional or upgraded charts.

Compatible cards

The following types of memory or chart card are compatible with your Raymarine product:

- micro Secure Digital Standard-Capacity (microSDSC)
- micro Secure Digital High-Capacity (microSDHC)

Note: The maximum card capacity supported is 32 GB.

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 card slot.

Use branded chart cards and memory cards

When archiving data, 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.

Power over Ethernet (PoE)

This product can supply Power over Ethernet (PoE) to class 1, 2 and 3 devices. The product can output a maximum of 20 Watts for consumption by PoE devices.

The PoE class denotes the power range of the PoE device.

PoE Class	Power range	Class description
Class 1	0.44 W to 3.84 W	Very low power
Class 2	3.84 W to 6.49 W	Low power
Class 3	6.49 W to 12.95 W	Mid power
Class 0	0.44 W to 12.95 W	-

Note: The product will not provide power to class 4 devices.

The product can power up to 3 devices using the available network / PoE ports as long as the combined max power of the PoE devices does not exceed 20 watts.

When a PoE device is connected it is interrogated to establish if the device is PoE and if so what class of device it is. The max power for that class of device is then assigned to that port (e.g. class 2 = 6.49 W) and deducted from the remaining power output.

The table below shows acceptable configurations of PoE devices.

Class 1 (3.84 W)	Class 2 (6.49 W)	Class 3 / Class 0 (12.95 W)	Total power used
1			3.84 W
2			7.68 W
3			11.52 W
	1		6.49 W
	2		12.98 W
	3		19.47 W

Class 1 (3.84 W)	Class 2 (6.49 W)	Class 3 / Class 0 (12.95 W)	Total power used
1	1		10.33 W
2	1		14.17 W
1	2		16.82 W
		1	12.95 W
1		1	16.79 W
	1	1	19.44 W

Note: A class 0 device shall be assigned the same power allocation as a class 3 device.

Note: If a PoE device is connected that will take the total assigned power over 20 W the device will not be powered.

Product operation in high temperatures

At extreme temperatures, the unit can become very hot, especially the internal components.

To protect the internal components, the unit automatically reduces the performance of the main processor to prevent it from overheating. When this occurs, you may notice a slight degradation in the performance of the unit, in terms of responsiveness to user operation.

This is expected behavior, designed to protect the unit from the adverse effects of excessive heat.

EMC installation guidelines

Raymarine equipment and accessories conform to the appropriate Electromagnetic Compatibility (EMC) regulations, to minimize electromagnetic interference between equipment and minimize the effect such interference could have on the performance of your system

Correct installation is required to ensure that EMC performance is not compromised.

For optimum EMC performance we recommend that wherever possible:

- Raymarine equipment and cables connected to it are:
 - At least 1 m (3 ft) from any equipment transmitting or cables carrying radio signals e.g. VHF radios, cables and antennas. In the case of SSB radios, the distance should be increased to 7 ft (2 m).
 - More than 2 m (7 ft) from the path of a radar beam. A radar beam can normally be assumed to spread 20 degrees above and below the radiating element.
- The product is supplied from a separate battery from that used for engine start. This is important to prevent erratic behavior and data loss which can occur if the engine start does not have a separate battery.
- Raymarine specified cables are used.
- Cables are not cut or extended, unless doing so is detailed in the installation manual.

Note: Where constraints on the installation prevent any of the above recommendations, always ensure the maximum possible separation between different items of electrical equipment, to provide the best conditions for EMC performance throughout the installation

RF exposure

This transmitter with its antenna is designed to comply with FCC / IC RF exposure limits for general population / uncontrolled exposure. The WiFi / Bluetooth antenna is mounted behind the front fascia on the left hand side of the screen. It is recommended to maintain a safe distance of at least 1 cm from the left hand side of the screen.

FCC

Compliance Statement (Part 15.19)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC Interference Statement (Part 15.105 (b))

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio / TV technician for help.

Industry Canada

This device complies with Industry Canada License-exempt RSS standard(s).

Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This Class B digital apparatus complies with Canadian ICES-003.

Japanese approvals

In the frequency band used for this device, campus radio stations (radio stations that require a license) and specified low power radio stations (radio stations that do not require license) for mobile identification and amateur radio stations (radio stations that require license) used in industries such as microwave ovens, scientific, medical equipment devices and production line of other factories are also being operated.

1. Before using this device, please make sure that campus radio stations and specified low power radio stations for mobile identification and amateur radio stations are not being operated nearby.
2. In case there is any case of harmful interference to campus radio stations for mobile identification caused by this device, please immediately change the frequency used or stop the transmission of radio waves and then consult about the measures to avoid interference (for example, the installation of partitions) through the contact information below.
3. Besides, when in trouble, such as when there is any case of harmful interference to specified low power radio stations for mobile identification or amateur radio stations caused by this device, please consult through the following contact information.

Contact information: Please contact your local authorized Raymarine dealer.

Suppression ferrites

Raymarine cables may be fitted with suppression ferrites. These are important for correct EMC performance. If a ferrite has to be removed for any purpose (e.g. installation or maintenance), it must be replaced in the original position before the product is used.

Use only ferrites of the correct type, supplied by Raymarine authorized dealers.

Connections to other equipment

Requirement for ferrites on non-Raymarine cables
If your Raymarine equipment is to be connected to other equipment using a cable not supplied by Raymarine, a suppression ferrite MUST always be attached to the cable near the Raymarine unit.

Declaration of conformity

Raymarine UK Ltd. declares that this product is compliant with the essential requirements of EMC directive 2004/108/EC.

The original Declaration of Conformity certificate may be viewed on the relevant product page at www.raymarine.com.

Product disposal

Dispose of this product in accordance with the WEEE Directive.



The Waste Electrical and Electronic Equipment (WEEE) Directive requires the recycling of waste electrical and electronic equipment. Whilst the WEEE Directive does not apply to some Raymarine products, we support its policy and ask you to be aware of how to dispose of this product.

Pixel defect policy

In common with all TFT units, the screen may exhibit a few wrongly-illuminated ("dead") pixels. These may appear as black pixels in a light area of the screen or as colored pixels in black areas.

If your display exhibits MORE than the number of wrongly-illuminated pixels stated below, please contact your local Raymarine service center for further advice.

	gS95 / gS125 / gS165
Maximum acceptable wrongly-illuminated pixels	8

Warranty registration

To register your Raymarine product ownership, please visit www.raymarine.com and register online.

It is important that you register your product to receive full warranty benefits. Your unit package includes a bar code label indicating the serial number of the unit. You will need this serial number when registering your product online. You should retain the label for future reference.

IMO and SOLAS

The equipment described within this document is intended for use on leisure marine boats and workboats not covered by International Maritime Organization (IMO) and Safety of Life at Sea (SOLAS) Carriage Regulations.

Technical accuracy

To the best of our knowledge, the information in this document was correct at the time it was produced. However, Raymarine cannot accept liability for any inaccuracies or omissions it may contain. In addition, our policy of continuous product improvement may change specifications without notice. As a result, Raymarine cannot accept liability for any differences between the product and this document. Please check the Raymarine website (www.raymarine.com) to ensure you have the most up-to-date version(s) of the documentation for your product.

Location and mounting

Selecting a location

General location requirements

When selecting a location for your product it is important to consider a number of factors.

Key factors which can affect product performance are:

- **Ventilation**

To ensure adequate airflow:

- Ensure that product is mounted in a compartment of suitable size.
- Ensure that ventilation holes are not obstructed. Allow adequate separation of all equipment.

Any specific requirements for each system component are provided later in this chapter.

- **Mounting surface**

Ensure product is adequately supported on a secure surface. Do not mount units or cut holes in places which may damage the structure of the vessel.

- **Cable entry**

Ensure the product is mounted in a location which allows proper routing and connection of cables:

- Minimum bend radius of 100 mm (3.94 in) unless otherwise stated.
- Use cable supports to prevent stress on connectors.

- **Water ingress**

The product is suitable for mounting both above and below decks. Although the unit is waterproof, it is good practice to locate it in a protected area away from prolonged and direct exposure to rain and salt spray.

- **Electrical interference**

Select a location that is far enough away from devices that may cause interference, such as motors, generators and radio transmitters / receivers.

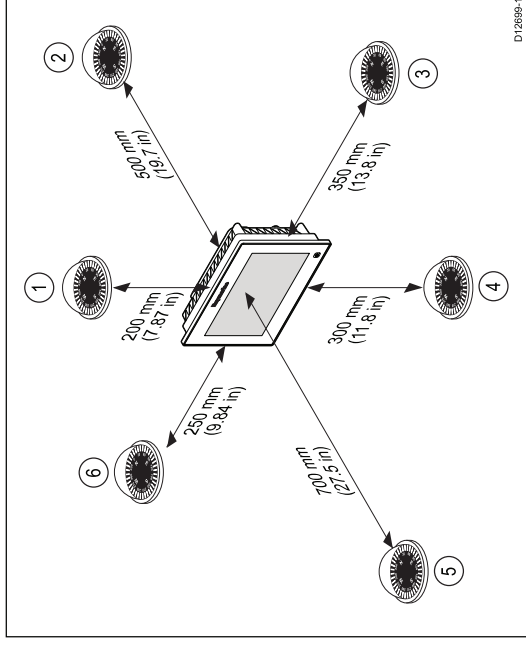
- **Power supply**

Select a location that is as close as possible to the vessel's DC power source. This will help to keep cable runs to a minimum.

- **Compass safe distance**

To prevent potential interference with the vessel's magnetic compasses, ensure an adequate distance is maintained from the display.

When choosing a suitable location for the multifunction display you should aim to maintain the maximum possible distance between the display and any compasses. Typically this distance should be at least 1 m (3 ft) in all directions. However for some smaller vessels it may not be possible to locate the display this far away from a compass. In this situation, the following figures provide the minimum safe distance that should be maintained between the display and any compasses.

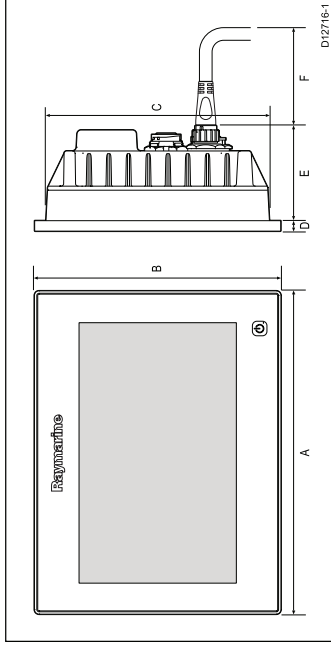


Item	Compass position in relation to display	Minimum safe distance from display
1	Top	200 mm (7.87 in.)
2	Rear	500 mm (19.7 in.)
3	Right-hand side	350 mm (13.8 in.)
4	Underside	300 mm (11.8 in.)
5	Front	700 mm (27.5 in.)
6	Left-hand side	250 mm (9.84 in.)

Viewing angle considerations

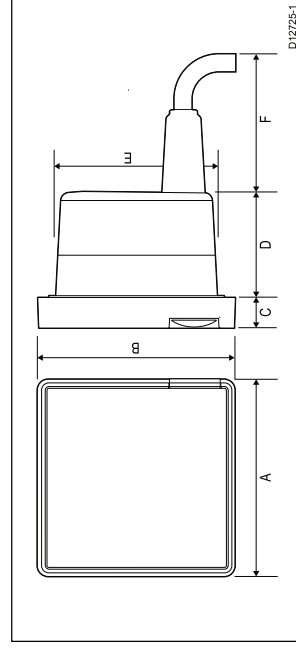
As display contrast, color and night mode performance are all affected by the viewing angle, Raymarine recommends you temporarily power up the display when planning the installation, to enable you to best judge which location gives the optimum viewing angle.

Product dimensions



	gS95	gS125	gS165
A	246.8 mm (9.7 in)	311.8 mm (12.3 in)	383.2 mm (15 in)
B	188.2 mm (7.4 in)	237.1 mm (9.3 in)	284.7 mm (11.2 in)
C	170.8 mm (6.7 in)	219.8 mm (8.7 in)	267.4 mm (10.5 in)
D	8 mm (0.3 in)	8 mm (0.3 in)	8 mm (0.3 in)
E	69 mm (2.72 in)	70 mm (2.75 in)	69 mm (2.72 in)
F	91 mm (3.6 in)	91 mm (3.6 in)	91 mm (3.6 in)

Card reader dimensions

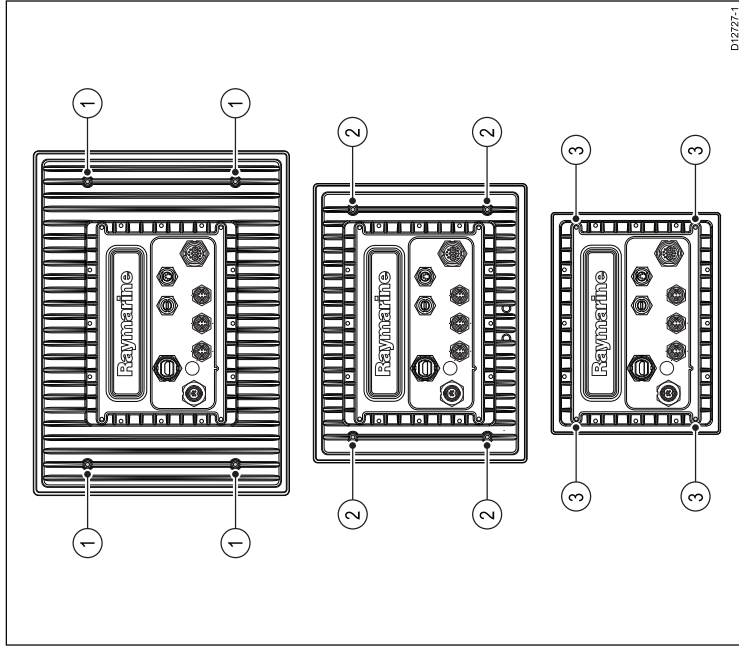


A	55 mm (2.17 in)
B	55 mm (2.17 in)

C	8.5 mm (0.33 in)
D	36 mm (1.4 in)
E	39.2 mm (1.5 in)
F	90 mm (3.5 in)

Bracket mounting hole locations

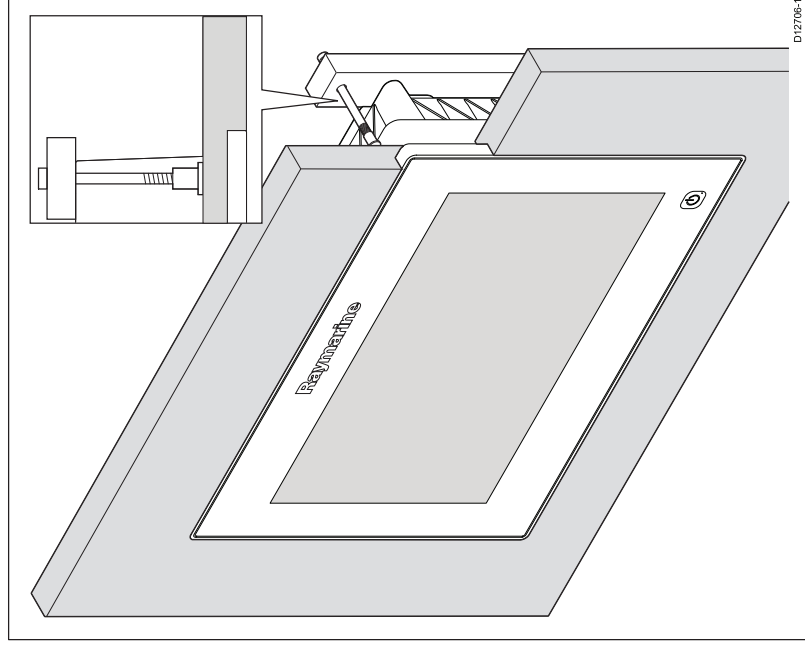
The location of the bracket mounting holes on each display variant is shown below.



1	gS165 bracket mounting hole locations
2	gS125 bracket mounting hole locations
3	gS95 bracket mounting hole locations

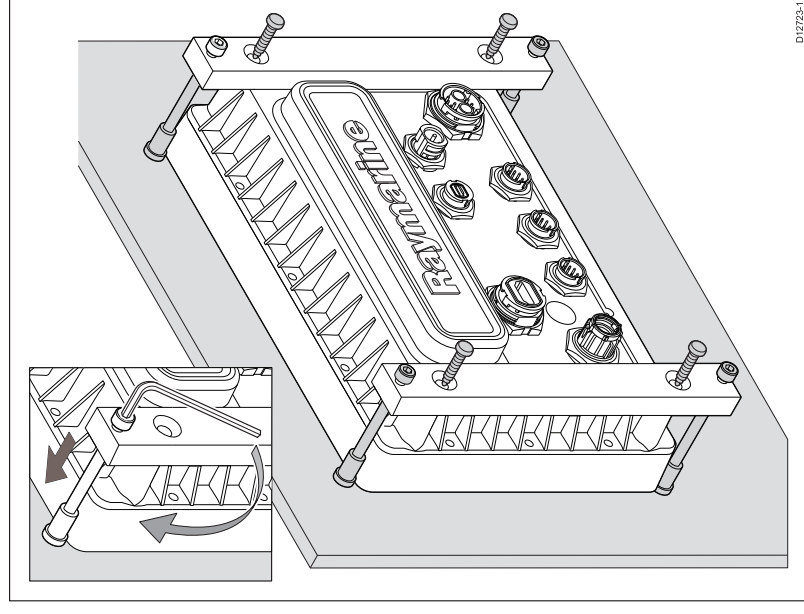
Flush mounting the monitor

For flush mounting you must rebate the mounting surface to accommodate the glass surround.



1. Check the selected location for the unit. A clear, flat area with suitable clearance behind the panel is required.
2. Before modifying the mounting surface, refer to the dimensions supplied in this document to ensure there is enough space for the monitor and all cables.
3. Fix the supplied mounting template to the selected location, using masking or self-adhesive tape.
4. Using a suitable hole saw (the size and position 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 rear casing cut-out line indicated on the template.

6. Follow the rebate cut-out line on the template to cut a rebate around the hole with a depth of 8.5 mm (0.33 in), to accept the monitor glass surround.
7. Ensure that the unit fits into the removed area and then remove rough edges.
8. Affix the supplied gasket onto the rear of the display and press firmly onto the flange.
9. Connect the power, data and other cables to the unit.
10. Attach the supplied mounting brackets to the rear of the monitor using the supplied fixings, as shown in the diagram below. Use one bracket for each side of the monitor.



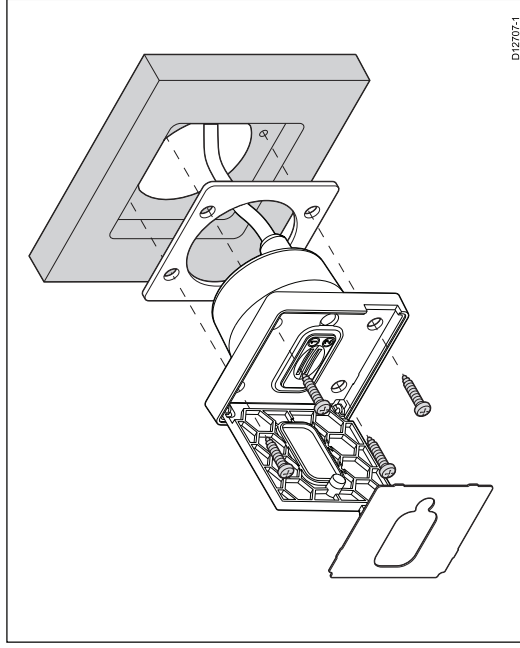
Note: Refer to the *Bracket mounting hole locations* section for the location of the bracket mounting holes on the rear of the display.

11. Insert the supplied mounting bolts into the bracket holes.
12. Using a suitable allen key, tighten the bracket mounting bolts against the mounting surface to secure the monitor into position.
The bolts should be tightened sufficiently to securely hold the monitor in position. Do not overtighten.

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.

Flush mounting the card reader

For flush mounting you must rebate the mounting surface to accommodate chart reader housing.



1. Check the selected location for the unit. A clear, flat area with suitable clearance behind the panel is required.
2. Before modifying the mounting surface, refer to the dimensions supplied in this document to ensure there is enough space for the unit and cable.
3. Fix the supplied mounting template to the selected location, using masking or self-adhesive tape.

4. Drill 4 holes as indicated on the mounting template to accept the fixings.
5. Using a 40 mm (1.6 in) hole cutter, drill out the cut-out area identified on the mounting template.
6. Follow the rebate cut-out line on the template to cut a rebate around the hole with a depth of 8.5 mm (0.33 in), to accept the unit.
7. Ensure that the card reader fits into the removed area and then remove rough edges.
8. Affix the supplied gasket onto the rear of the card reader and press firmly onto the flange.
9. Feed the cable through the hole and connect to the multifunction display's card reader connector.
10. Place the card reader into the rebate and secure using the fixings provided.
11. Insert the card reader label over the top of the card reader slots so that the mounting screw locations are covered.

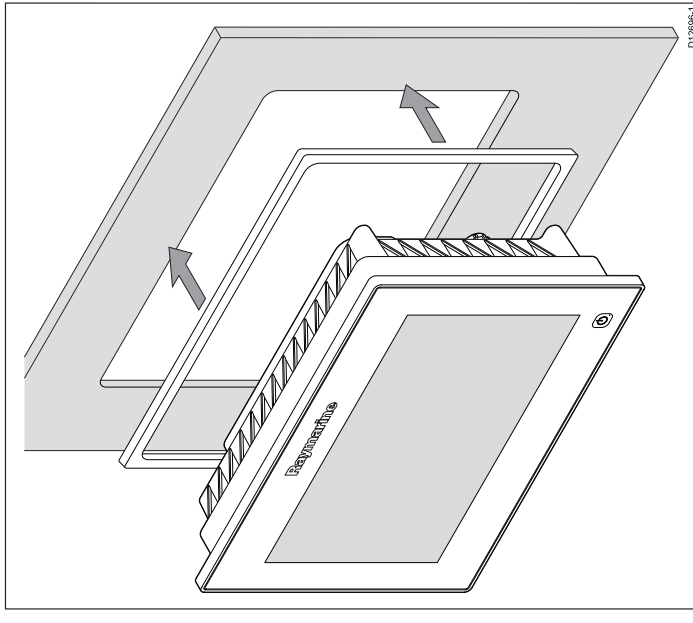
Note: The appropriate tightening torque and drill bit size to use depends on the thickness of the mounting surface and the type of material it is made from.

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.

Surface mounting the monitor

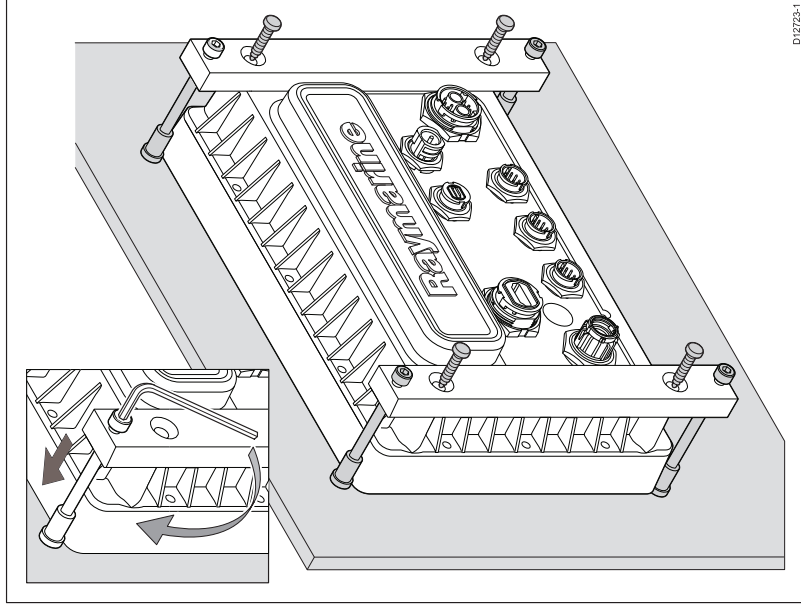
1. Check the selected location for the unit. A clear, flat area with suitable clearance behind the panel is required.
2. Before modifying the mounting surface, refer to the dimensions supplied in this document to ensure there is enough space for the monitor and all cables.
3. Fix the supplied mounting template to the selected location, using masking or self-adhesive tape.
4. Using a suitable hole saw (the size and position 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 rear protrusion cut-out line indicated on the template.
6. Follow the cut-out line on the template to cut around the hole.
7. Ensure that the unit fits into the removed area and then remove rough edges.



8. Connect the power, data and other cables to the unit.
9. Attach the supplied mounting brackets to the rear of the monitor using the supplied fixings, as shown in the diagram below. Use one bracket for each side of the monitor.

10. Insert the supplied mounting bolts into the bracket holes, as shown in the following diagram:

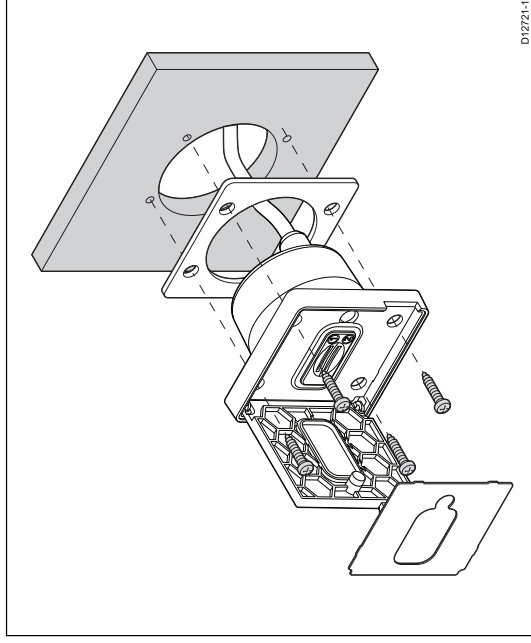


Note: Refer to the *Bracket mounting hole locations* section for the location of the bracket mounting holes on the rear of the display.

11. Using a suitable allen key, tighten the bracket mounting bolts against the mounting surface to secure the monitor into position.

The bolts should be tightened sufficiently to securely hold the monitor in position. Do not overtighten.

Surface mounting the card reader



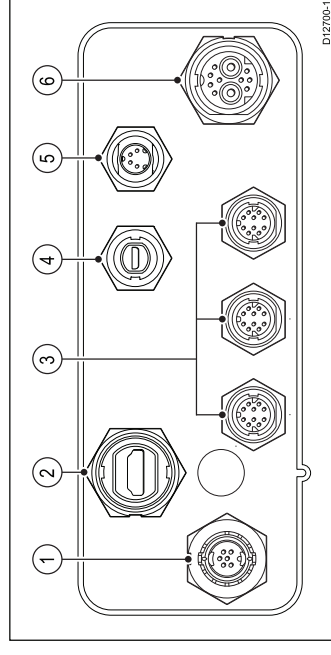
1. Check the selected location for the unit. A clear, flat area with suitable clearance behind the panel is required.
2. Before modifying the mounting surface, refer to the dimensions supplied in this document to ensure there is enough space for the unit and cable.
3. Fix the supplied mounting template to the selected location, using masking or self-adhesive tape.
4. Drill 4 holes as indicated on the mounting template to accept the fixings.
5. Using a 40 mm (1.6 in) hole cutter, drill out the cut-out area identified on the mounting template.
6. Ensure that the card reader fits into the removed area and then remove rough edges.
7. Affix the supplied gasket onto the rear of the card reader and press firmly onto the flange.
8. Feed the cable through the hole and connect to the multifunction display's card reader connector.
9. Secure using the fixings provided.
10. Insert the card reader label over the top of the card reader slots so that the mounting screw locations are covered.

Note: The appropriate tightening torque and drill bit size to use depends on the thickness of the mounting surface and the type of material it is made from.

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.

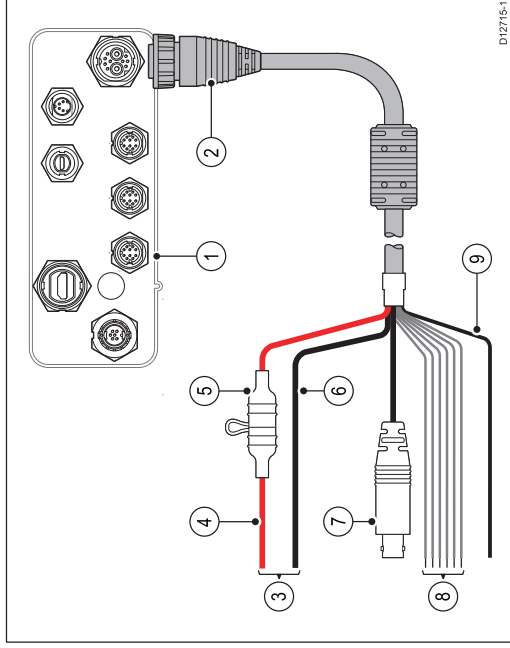
Connections overview

Details of the connections available on the multifunction display are shown below.



1	SeaTalk ¹⁹
2	HDMI
3	3 x RayNet SeaTalk ^{hs}
4	Card reader
5	Video in / Alarm Out
6	Power / NMEA 0183 / Video in

Power connection



1. Multifunction display connections.
2. Power and data cable.
3. Connection to 12/24 V power supply.
4. Red cable (positive).
5. Fuse.
6. Black cable (negative).
7. Video input cable.
8. NMEA 0183 data cables.
9. Ground (drain) wire (thin black wire; must be connected to RF ground point).

Power distribution

Raymarine recommends that all power connections are made via a distribution panel.

- All equipment must be powered from a breaker or switch, with appropriate circuit protection.



Warning: Product grounding

Before applying power to this product, ensure it has been correctly grounded, in accordance with the instructions in this guide.

Power cable

The display is supplied with a combined power and data multi cable, this can be extended if required.

Power cables available

Cable	Part number	Notes
1.5 m (4.9 ft) Straight power and data cable	R62379	
1.5 m (4.9 ft) Right angled power and data cable	R70029	

Cable extension

The following restrictions apply to any extension to the power cable:

- Cable must be of a suitable gauge for the circuit load.
- Each unit should have its own dedicated power cable wired back to the distribution panel.

Total length (max)	Supply voltage	Cable gauge (AWG)
0–5 m (0–16.4 ft)	12 V	18
	24 V	20
5–10 m (16.4–32.8 ft)	12 V	14
	24 V	18
10–15 m (32.8–49.2 ft)	12 V	12
	24 V	16

Total length (max)	Supply voltage	Cable gauge (AWG)
15–20 m (49.2–65.5 ft)	12 V	12
	24 V	14

Note: These distances are for a 2 wire power cable run from the battery to the display (approximately the distance from the battery to the display). To calculate the round trip length, double the figure stated here.

Breakers, fuses and circuit protection

The power cable includes an in-line fuse. It is recommended that you fit an additional thermal breaker or fuse at the distribution panel.

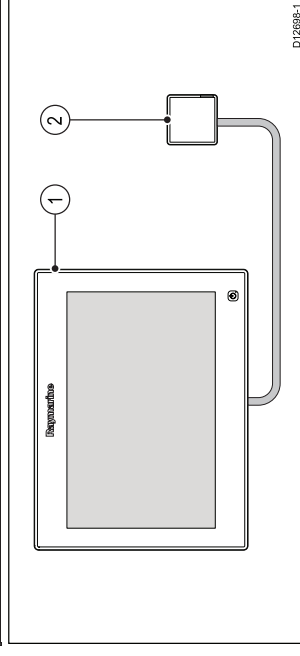
Fuse rating	Thermal breaker rating
15 A in-line fuse fitted within power cable.	15 A (if only connecting one device)

Note: The suitable fuse rating for the thermal breaker is dependent on the number of devices you are connecting. If in doubt consult an authorized Raymarine dealer.

Card reader connection

The card reader must be connected directly to the dedicated card reader connector on the rear of the display.

Note: Do not use cable extensions when connecting the card reader to the display.

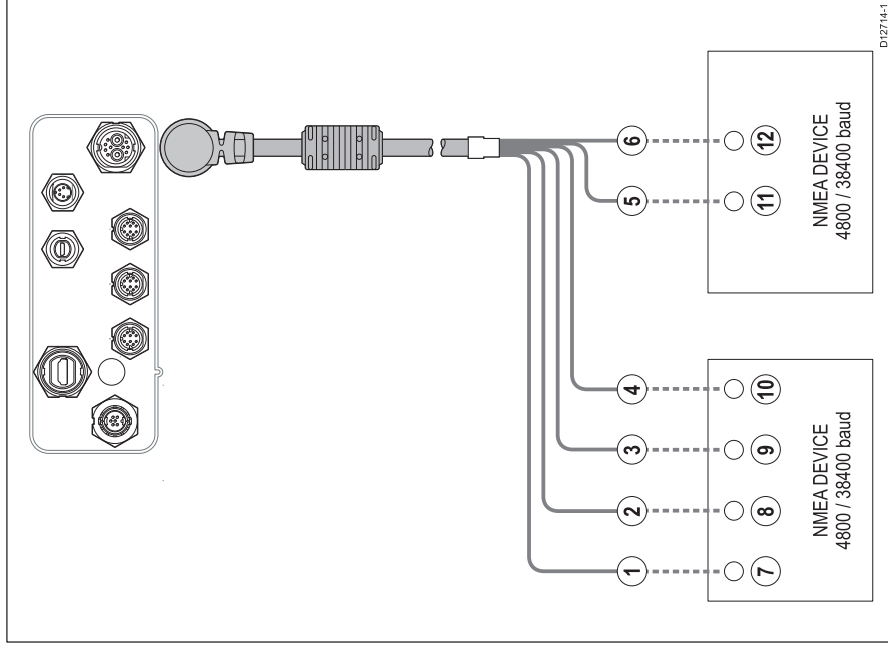


- Multifunction display.
- Card reader.

Note: The card reader must be connected directly to the display.

NMEA 0183 connection

NMEA 0183 devices can be connected to the multifunction display using the power and data cable.



NMEA 0183 devices are connected using the supplied power and data cable.

The display has 2 NMEA 0183 ports:

- **Port 1:** Input and output, 4800 or 38400 baud rate.
- **Port 2:** Input only, 4800 or 38400 baud rate.

Note: The baud rate you want to use for each port input must be specified in the System Settings menu (**Homescreen**:→**Set-up**→**System Settings**→**NMEA Set-up**→**NMEA Input Port**).

Note: For Port 1, both the input and output communicate at the same baud rate. For example, if you have one NMEA 0183 device connected to the display's Port 1 INPUT, and another NMEA 0183 device connected to the display's Port 1 OUTPUT, both NMEA devices must be using the same baud rate.

You can connect up to 4 NMEA 0183 devices to the display's NMEA 0183 OUTPUT (Port 1). You can connect a total of 2 NMEA 0183 devices to the display's NMEA 0183 INPUT ports.

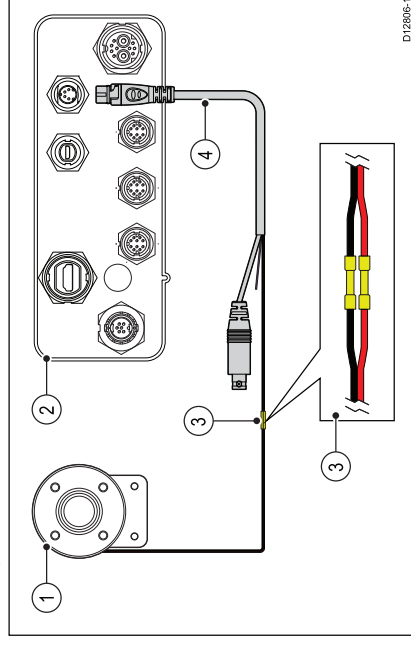
Item	Device	Cable color	Port	Input / output	Positive (+) / negative (-)
1	Multi-function display	White	1	Input	Positive
2		Green	1	Input	Negative
3		Yellow	1	Output	Positive
4		Brown	1	Output	Negative
5	NMEA device	Orange / white	2	Input	Positive
6		Orange / green	2	Input	Negative
7	NMEA device	*	*	Output	Positive
8		*	*	Output	Negative
9		*	*	Input	Positive
10		*	*	Input	Negative

Item	Device	Cable color	Port	Input / output	Positive (+) / negative (-)
11	NMEA device	*	*	Output	Positive
12		*	*	Output	Negative

Note: *Refer to instructions provided with the NMEA device.

Auxiliary alarm connection

The auxiliary alarm (supplied) can be connected to the Video in / Alarm out connector of the multifunction display.



1. Auxiliary alarm (supplied).
2. Multifunction display rear connector panel.
3. Example connection.
4. Video in / Alarm out cable (supplied).

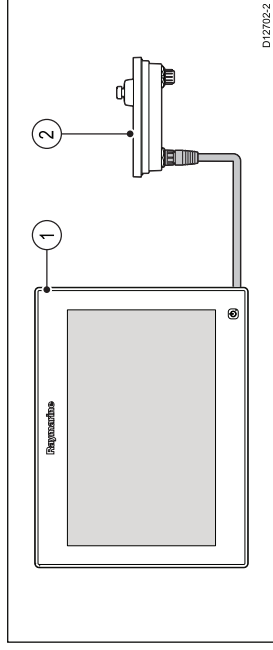
The auxiliary alarm to cable connection should be made using suitable connectors (e.g. crimps). To prevent damage due to water ingress ensure the connection is watertight.

Keypad connection

The keypad can be connected directly to a multifunction display's network connector or via a network switch. The keypad can control multiple multifunction displays

connected over SeaTalk^{hs}. If the network does not provide Power over Ethernet (PoE) then the keypad must be powered separately.

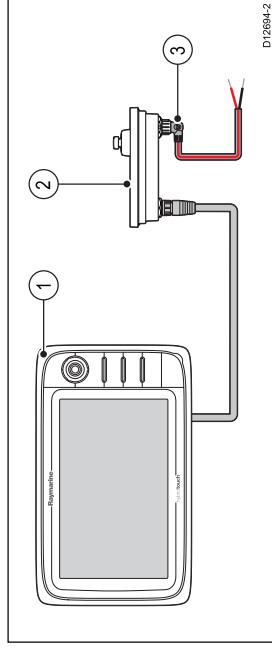
Direct connection — gS Series multifunction display



1. gS Series multifunction display.
2. Keypad.

When connecting the keypad directly to a gS Series multifunction display the keypad is supplied with PoE, from the multifunction display.

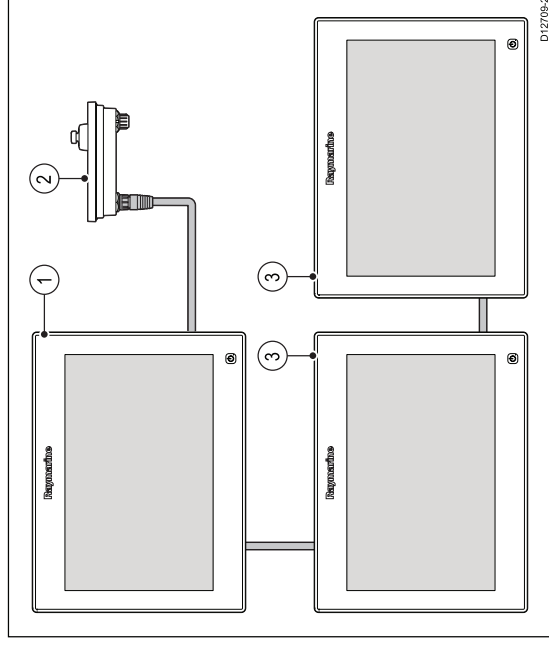
Direct connection — Raymarine multifunction display



1. Multifunction display.
2. Keypad.
3. Right angled power cable.

When connecting the keypad directly to a New a Series, New c Series or New e Series multifunction display the keypad is not supplied with PoE, and so requires power using the alternate power connector.

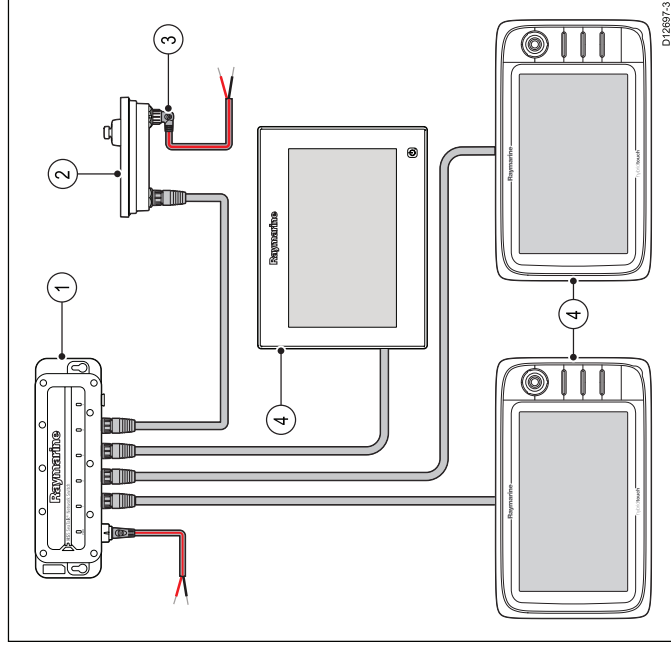
Network connection — gS Series multifunction displays



1. gS Series multifunction display (supplying PoE to the keypad).
2. Keypad.
3. Networked gS Series multifunction displays.

When connecting the keypad to a gS Series multifunction display network the keypad is supplied with PoE.

Network connection — Raymarine multifunction displays

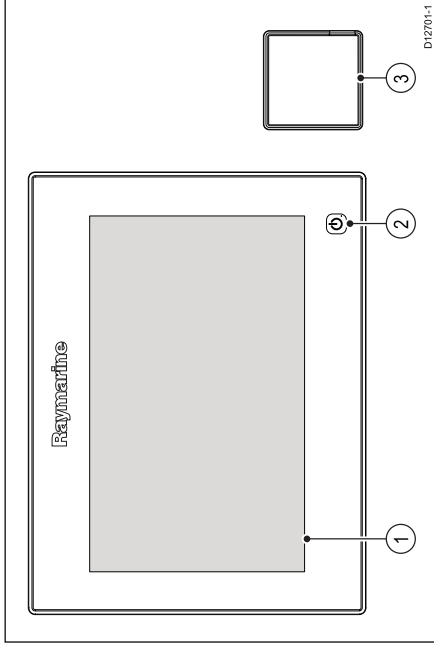


1. Network switch.
2. Keypad.
3. Right angled power cable.
4. Networked multifunction displays.

When connecting the keypad to a network switch the keypad requires a separate power supply using the alternate power connector.

Once connected the keypad must be paired with the each multifunction display you want to control using the keypad.

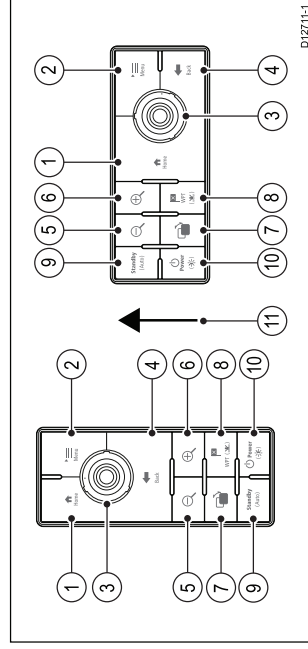
Controls



1. **Touchscreen** — you can touch the screen to operate many common functions, including all menu operations. Your multifunction display also supports 2 point multi-touch actions.
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.
3. **Card reader** — open the card reader door to insert or remove MicroSD cards. There are 2 card slots (labelled 1 and 2), used for electronic charts and archiving waypoint, route and track data.

Keypad controls

Connecting the keypad allows you to control your multifunction display remotely.



1. **Home** — press to return to the homescreen.
2. **Menu** — accesses menus. Press again to close menus.
3. **UniControl** — provides a rotary control and a joystick with an OK push button for using menus and applications.
4. **Back** — press to return to a previous menu or dialog level.
5. **Range Out** — press to range out.
6. **Range In** — press to range in.
7. **Switch Active** — press to switch the active pane, or to switch the active multifunction display (in multiple display systems).
8. **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.
9. **Standby (Auto)** — press to disengage integrated autopilot, press and hold to activate Auto mode on integrated autopilot.
10. **Power** — press once to switch all linked displays ON. Once powered on, press the Power button again to access the shortcuts page. Press and hold to switch the display in focus OFF.
11. Joystick Up direction.

Touchscreen overview

The touchscreen provides an alternative to using physical buttons to control your multifunction display. All functions can be accessed using the touchscreen

Note: Raymarine strongly recommends that you familiarize yourself with touch operations while your vessel is anchored or moored. You may find it helpful to use the simulator mode (accessible from **Homescreen**→**Set-up**→**System Settings**) in these situations.

Basic touchscreen operations

Placing and moving the cursor using touch

To place or move the cursor around the screen follow the steps below.

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

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.

Powering the display on

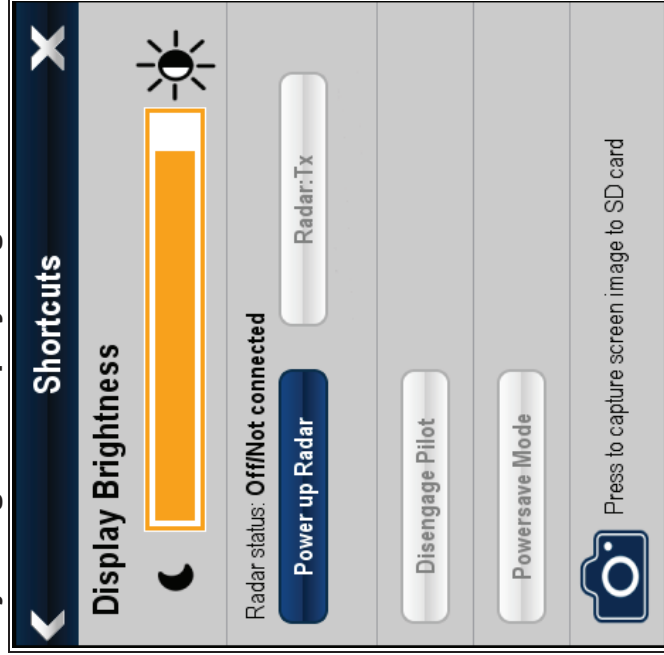
1. Press the **POWER** button on the display.
2. Select **Accept** to acknowledge the disclaimer message.

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.

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.

Pairing the keypad

The keypad can control 1 or more multifunction displays. Multiple keypads can be used to control 1 or more 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.

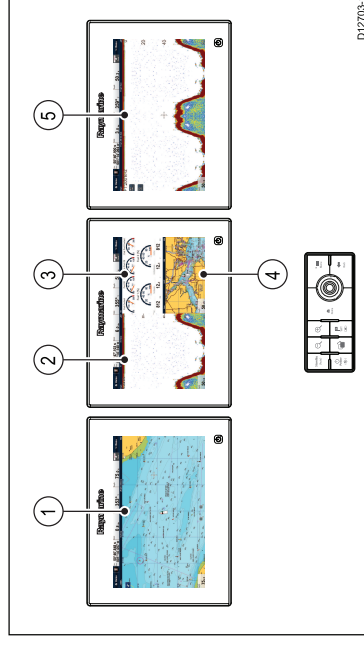
The keypad is now paired.

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 a multiple application page displayed:

Cycle sequence



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.

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**.

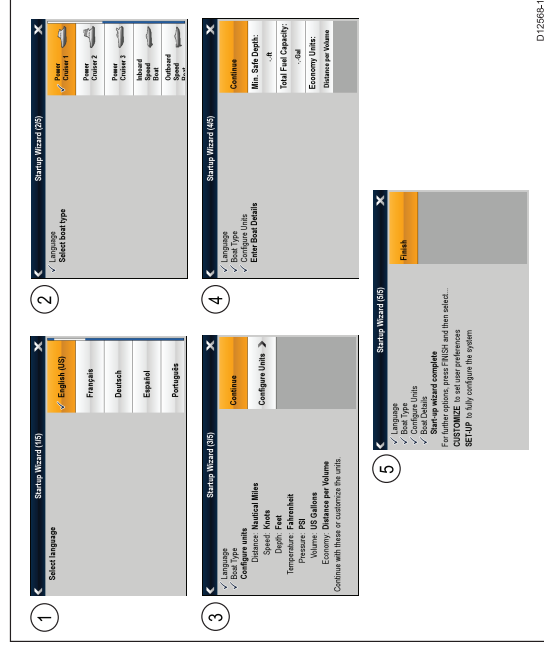
2. Select **Clear Pairings**.

3. Select **Yes** to unpair the keypad with the display.

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 initial settings:

1. Language selection
2. Vessel type selection
3. Configure units
4. Boat details (number of engines and total fuel capacity.)
5. Finish

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 Simulator Mode.

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.

Language selection

The system can operate in the following languages:

English (US)	English (UK)	Arabic
Bulgarian	Chinese	Croatian

Danish	Dutch	Finnish
French	German	Greek
Icelandic	Italian	Japanese
Korean	Norwegian	Polish
Portuguese (Brazilian)	Russian	Spanish
Swedish	Turkish	

With the homescreen displayed:

1. Select **Customize**.
2. Select **Language**.
3. Select from the languages available.

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.

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.

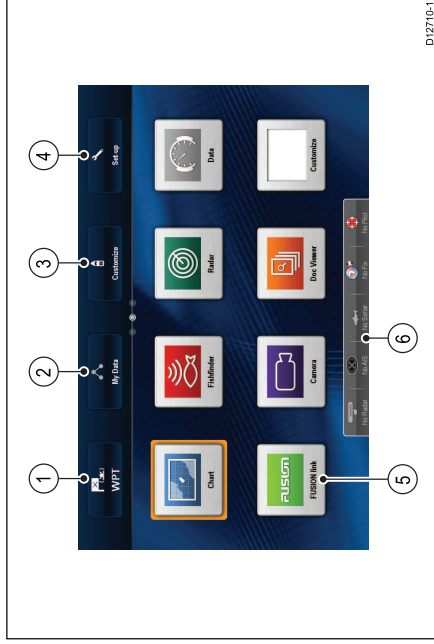
	Weather application — (North America only). With a suitable weather receiver connected to your system, the weather application overlays historical, live, and forecasted weather graphics on a world map.
	Thermal cam application — view and control a thermal camera using a compatible multifunction display.
	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 XM application — control Sirius radio from your multifunction display.

Homescreen overview

The homescreen provides a central point of access to your display's range of applications.

- The homescreen also provides quick access to your data (waypoints, routes, and tracks).
- The homescreen consists of a number of application "pages", each represented by an icon. Applications can be started by selecting the relevant page icon.

- Swipe the screen with your finger to scroll the homescreen and access additional application pages.





D12710-1

Pages

Pages are used to display applications.

Pages are accessed on the homescreen. Each page can display up to 4 applications.

Any page on the homescreen 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.

	Page featuring a single application.
	Page featuring multiple applications.

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

Changing an existing page on the homescreen

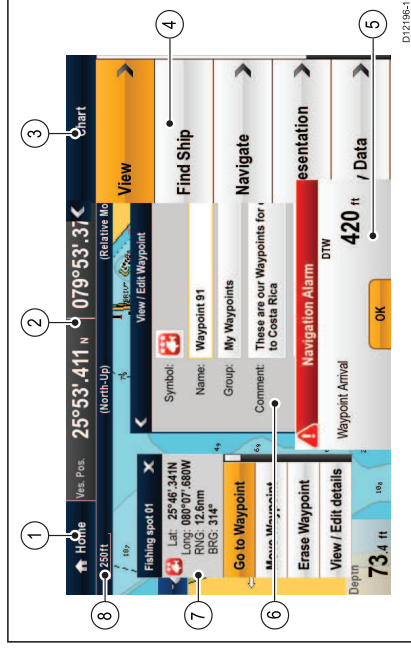
With the homescreen displayed:

- Select **Customize**.
- Select **Homescreen**.
- Select **Edit Page**.
- Select the page icon that you want to change. The Customize menu options are displayed.
- 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**.

Screen overview



Screen item	Description
1	Home — select the Home icon to access the homescreen.
2	Databar — provides information about your vessel and its environment. The position and type of information in the databar can be customized from the Homescreen → Customize → Databar Set-up menu, if required.
3	Menu — the menu options are specific to the application that you are currently using.
4	Pop-up menu — menu options are displayed when the Menu is selected.

Screen item	Description
5	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.
6	Dialogs — enable data to be selected, edited or entered. Use in many common functions — for example, editing a waypoint.
7	Context menu — provides information and options specific to each application.
8	Status bar — provides information specific to each application. This information cannot be edited or moved.

Alarms

Alarms alert you to a situation or hazard requiring your attention.

You can set up alarms to alert you to certain conditions, such as collision warnings and temperature limits.

Alarms are raised by system functions, and also external equipment connected to your multifunction display.

When an alarm sounds a message dialog is displayed on your multifunction display and any networked displays. The dialog states the reason for the alarm.

You can configure the behavior of certain alarms by selecting the Edit option on the message dialog or by using the **Alarms** menu, accessible from the homescreen via the **Set-Up** icon.

Disabling and enabling the auxiliary alarm

If there is more than one alarm fitted (e.g. auxiliary alarm and remote keypad) then the auxiliary alarm can be enabled or disabled.

From the homescreen:

1. Select **Set-up**.
2. Select **Remote Devices**.
3. Select **Auxiliary Alarm**.

4. Select **Auxiliary Alarm**.

Selecting Auxiliary Alarm will switch the auxiliary alarm On and Off.

Note: If the auxiliary alarm is the only alarm in the system then it is permanently enabled and no delay can be set.

Enabling the auxiliary alarm delay

If there is more than one alarm fitted (e.g. auxiliary alarm and remote keypad) then the auxiliary alarm can be delayed by 5 seconds.

From the auxiliary alarm menu:

1. Select **Alarm Delay** so that On is highlighted.

Selecting Alarm Delay will switch the alarm delay On (5 second delay) and Off (0 second delay).

Man overboard

If you lose a person or object overboard, you can use the Man Overboard (MOB) function to mark the position that the vessel was at when the MOB function was activated.

The MOB function is available at all times, regardless of which application is running. MOB can be set to Dead Reckoning or Position mode. Dead Reckoning mode will take into consideration the effects of wind and tides. This usually provides a more accurate course. Position mode does not take these factors into account.

To obtain a MOB position, your multifunction display must have a GPS position fix. If you're using dead reckoning, heading and speed data must also be available.

When MOB is **activated**:

- An audible MOB alarm is sounded.
- An MOB alarm dialog box is displayed.
- The system sends MOB alarms to other Raymarine equipment.
- The active chart application is changed to a low-detail 2D view, with an initial range of 15 m (50 ft). Motion mode is set to Auto Range.

- The active radar application range is changed to 230 m (760 ft).
- All Goto and Follow functions are disabled in all applications. Navigation to any active waypoint is stopped and any existing navigation function is cancelled.
- If position or heading and speed information is available a MOB waypoint is placed at the current vessel position in any application that is capable of showing waypoints and vessel position.
- MOB data is displayed in the databar, replacing the existing data.
- MOB data is displayed on the homescreen, replacing the status icons.
- As the vessel moves away from the MOB position a dotted line is displayed, joining the MOB position with the vessel's position.

When the MOB alarm is **cancelled**:

- MOB data is removed from the relevant applications.
- The chart application motion mode is reset.
- The chart is centered on the vessel and pitch / rotation set to default.
- GOTO and route functions are restored.
- The databar mode is reset.
- A MOB normal mode signal is sent to any instrument on SeaTalk.

Activating the man overboard (MOB) alarm

Use the WPT (MOB) icon to activate the MOB alarm

1. Select and hold the **WPT / MOB** icon for 3 seconds.

Cancelling the man overboard (MOB) alarm

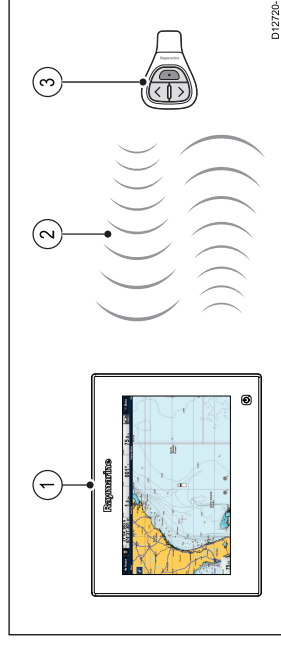
To cancel a MOB alarm and resume normal operation follow the steps below:

1. Select and hold the **WPT / MOB** icon for 4 seconds.
The MOB alarm is cancelled and normal operation is resumed.

Wireless remote control connection

You can control the multifunction display wirelessly using a Raymarine remote control unit.

The remote control uses a Bluetooth wireless connection.



1. Multifunction display.
2. Bluetooth connection.
3. Raymarine Bluetooth remote control (for example, RCU-3).

To use the remote control you must first:

- Enable Bluetooth in the System Settings on the multifunction display.
- Pair the remote control unit with the multifunction display.

Raymarine mobile apps

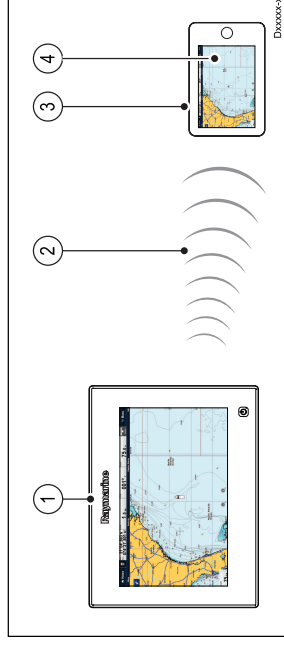
Raymarine mobile apps enable viewing and control of your multifunction display via a compatible mobile device, using a Wi-Fi connection.

Raymarine currently offers the following mobile apps:

- **RayView**
- **RayRemote**
- **RayControl**

RayView

This app enables you to stream what you see on your multifunction display to a compatible smartphone or tablet device, using a Wi-Fi connection.

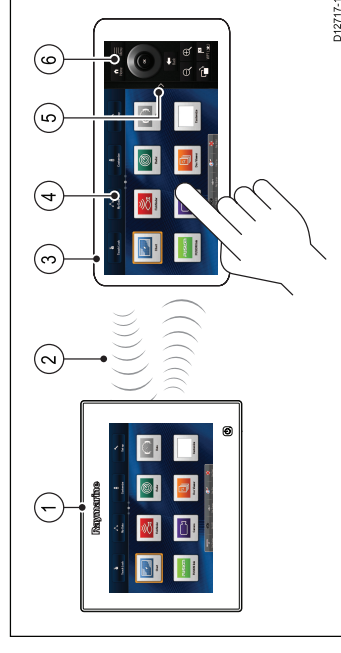


1. Multifunction display.
2. Wi-Fi connection (1 way – streaming only).
3. Compatible device.
4. “RayView” video streaming app.

RayControl

— This app enables you to stream and remotely control your multifunction display from a compatible tablet device, using a Wi-Fi connection.

Note: For safety reasons pilot controls and power button options are not available remotely.



1. Multifunction display.
2. Wi-Fi connection (2 way – streaming and remote control).
3. Compatible tablet.
4. “RayControl” streaming and remote control app.

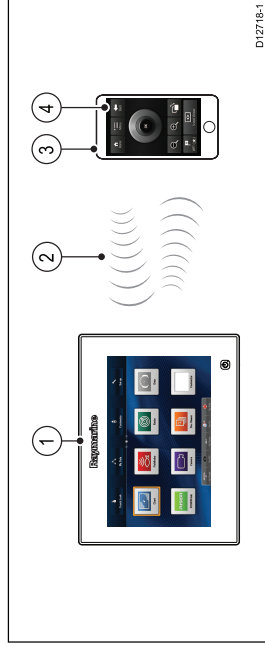
5. "RayControl" controls access (Touch the arrow to access controls).

6. "RayControl" remote controls

RayRemote

This app enables you to stream or control your multifunction display remotely from a compatible smartphone, using a Wi-Fi connection.

Note: RayRemote is able to switch between displaying the remote controls or the video stream.



1. Multifunction display.
2. Wi-Fi connection (2 way – streaming or remote control).
3. Compatible smartphone.
4. RayRemote app

To use Raymarine mobile apps you must first:

- Download and install the required app from the relevant app 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 type of connection (i.e. Viewing or Remote Control) in the System Settings on the multifunction display.

Mobile app compatibility

The Raymarine mobile apps are compatible with the following devices.

Device	Operating system
iPhone 4 or later	iOS
iPad 2 or later	iOS
Android smartphone	Android V2.2.2 or greater with 1GHz or greater processor
Android tablet	Android V2.2.2 or greater with 1GHz or greater processor
Kindle Fire	Android \ amazon

Enabling Wi-Fi

With the homescreen displayed:

1. Select **Set-up**.
2. Select **System Settings**.
3. Select **Wireless Connections**.
4. Select **Wi-Fi**→**ON**.

Enabling mobile apps

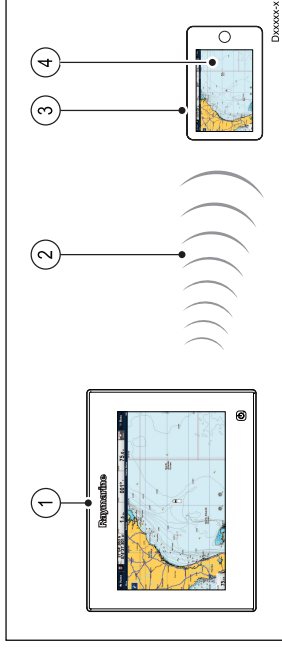
Raymarine mobile apps must be enabled on your multifunction display before you can stream video or remote control your multifunction display via a tablet or smartphone device.

With the homescreen displayed:

1. Select **Set-up**.
2. Select **System Settings**.
3. Select **Wireless Connections**.
4. Select **Mobile apps**.
5. Select **Viewing only** to enable video streaming only, or
6. Select **Remote Control** to enable remote control and video streaming using.
7. Launch the relevant Raymarine mobile app on your tablet or smartphone device and follow the on-screen instructions.

Navionics chartplotter sync connection

You can wirelessly synchronize waypoints and routes between the multifunction display and a tablet or smartphone device.



1. Multifunction display.
2. Wi-Fi connection.
3. Tablet / smartphone.
4. Navionics Marine app.

To use this feature you must first:

- Download and install the Navionics Marine app, available from the relevant app store.
- Enable Wi-Fi in the System Settings on the multifunction display.
- Enable Wi-Fi on your tablet / smartphone.
- Select the Raymarine Wi-Fi connection from the list of available Wi-Fi networks on your tablet / smartphone.