

CP450C

Clear Pulse Chirp Sonar Module

Installation instructions

ENGLISH

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Date: 03-2012

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Product handbooks

The latest versions of all English and translated handbooks are available to download in PDF format from the website www.raymarine.com. Please check the website to ensure you have the latest handbooks.

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Chapter 1: Important information

Safety notices



Warning: Positive ground systems

Do not connect this unit to a system which has positive grounding.



Warning: High voltage

This product contains high voltage. Adjustments require specialized service procedures and tools only available to qualified service technicians. There are no user serviceable parts or adjustments. The operator should never remove the cover or attempt to service the product.



Warning: Transducer cables

Do not remove the transducer cable whilst the product is powered on, doing so can cause sparks. If the transducer cable is accidentally removed whilst the product is powered on, switch the product's power off, replace the cable and then switch the power back on.



Warning: Do not cut or splice transducer cables

There is high voltage on the transducer cable. Splicing could create a safety hazard.



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: 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: Product grounding

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



Warning: Sonar operation

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

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: Do not cut transducer cables

- Cutting the transducer cable severely reduces sonar performance. If the cable is cut, it must be replaced, it cannot be repaired.
- Cutting the transducer cable will void the warranty and invalidate the European CE mark.

General Information

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.

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

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 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.

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.

Broadband sonar technology

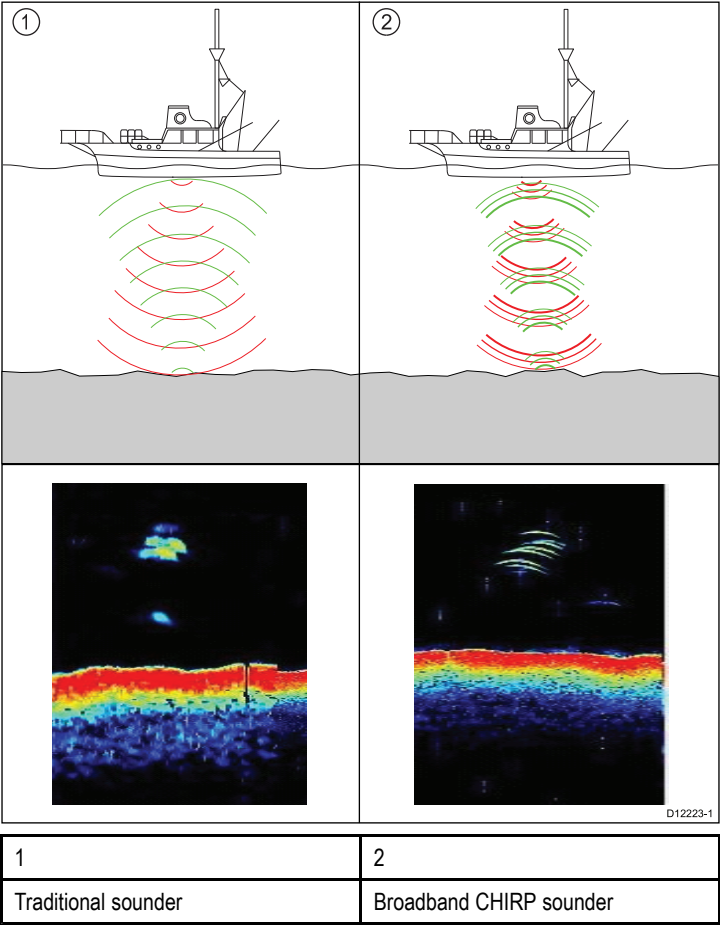
The CP450C uses broadband sonar technology.

Traditional sounders use a single carrier frequency or carrier wave for the sonar ping. These sounders work by measuring the time it takes the ping echo to return to the transducer to determine target depth. Using this method if 2 targets are close together they are shown as a single large target, rather than multiple smaller targets.

By using a broadband swept frequency 'CHIRP' the signal can distinguish between multiple close targets which enables the sounder to display multiple targets instead of large combined targets.

Some of the benefits are improved:

- target resolution.
- bottom detection even through bait balls and thermoclines.
- detection sensitivity.



Chapter 2: Planning the installation

Chapter contents

- [2.1 Handbook information on page 12](#)
- [2.2 Installation checklist on page 12](#)
- [2.3 CP450C system examples on page 13](#)
- [2.4 Tools on page 17](#)
- [2.5 Pack contents on page 17](#)

2.1 Handbook information

The Raymarine CP450C provides echo sounder data that can be displayed on compatible Raymarine multifunction displays.

This handbook contains important information for installing your CP450C. Instructions on how to operate the fishfinder application can be found in the user guide for your multifunction display.

CP450C handbooks

The CP450C has the following handbooks available:

CP450C Installation instructions	87141-1
CP450C Mounting template	87142-1

2.2 Installation checklist

Installation includes the following activities:

Installation Task	
1	Plan your system
2	Obtain all required equipment and tools
3	Site all equipment
4	Route all cables.
5	Drill cable and mounting holes.
6	Make all connections into equipment.
7	Secure all equipment in place.
8	Power on and test the system.

Schematic diagram

A schematic diagram is an essential part of planning any installation. It is also useful for any future additions or maintenance of the system. The diagram should include:

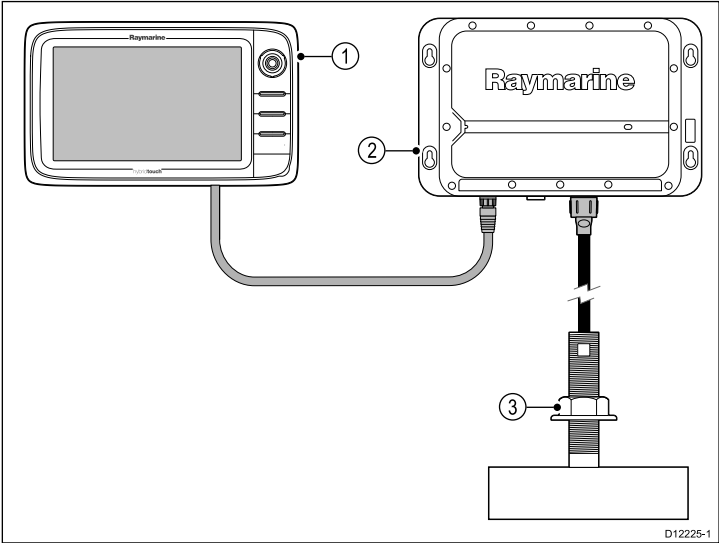
- Location of all components.
- Connectors, cable types, routes and lengths.

Further information

For detailed operating instructions, refer to the handbook that accompanies your multifunction display.

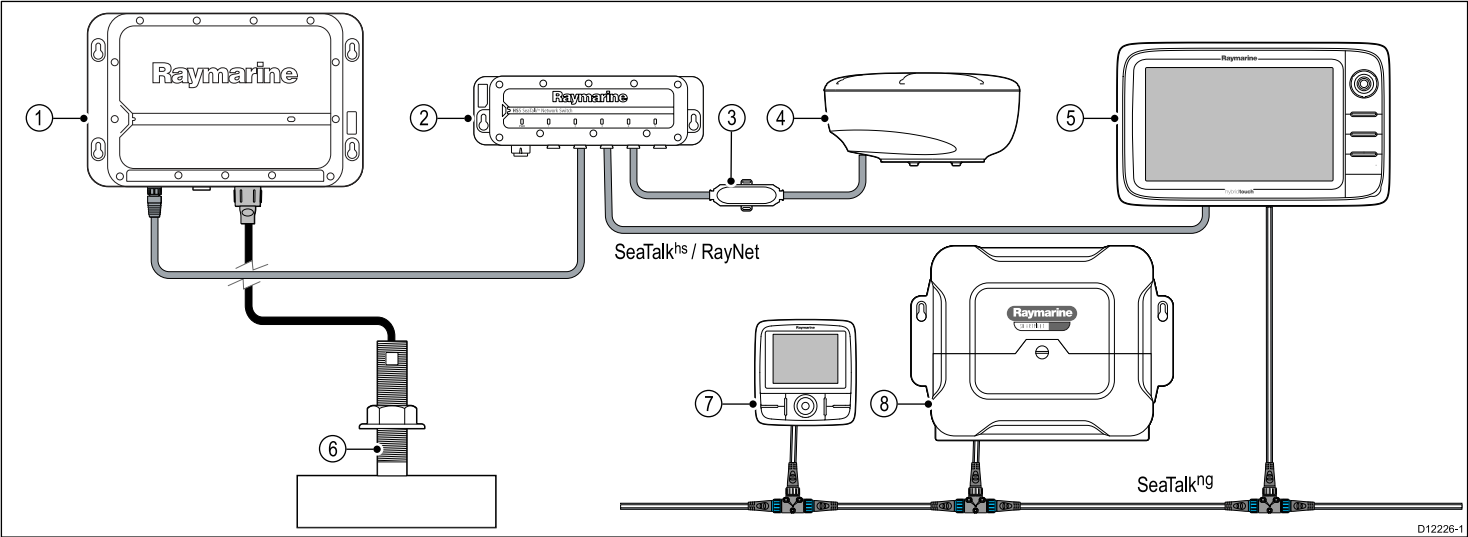
2.3 CP450C system examples

Example: Basic sonar set up featuring multifunction display



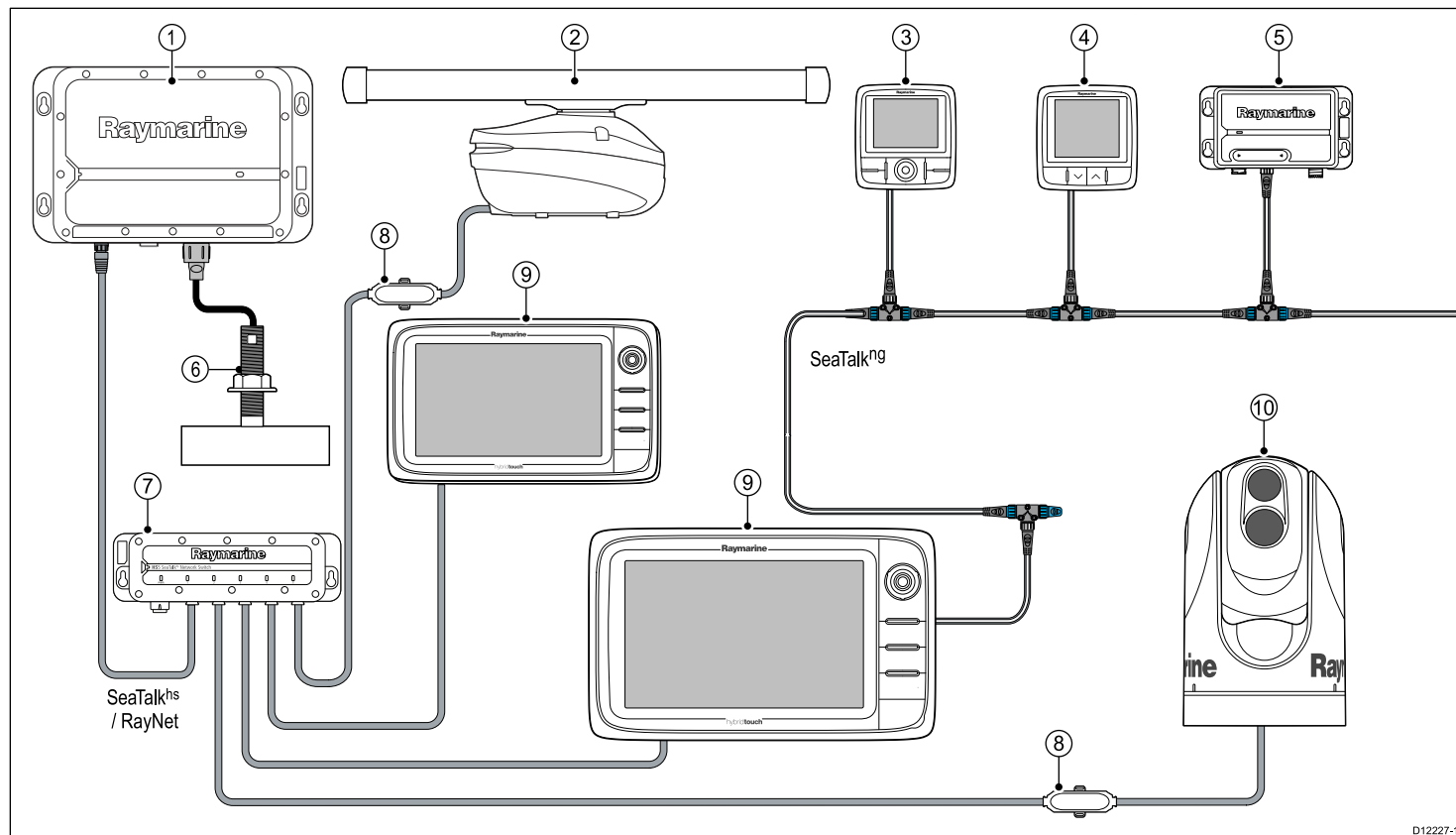
Item	Description
1	Compatible Raymarine multifunction display
2	CP450C
3	Broadband transducer

Example: Extended sonar system featuring multifunction display and SeaTalk^{ng} autopilot system



Item	Description
1	CP450C
2	Raymarine network switch
3	SeaTalk ^{hs} Crossover coupler (required to connect to Raymarine HS5 Network switch.)
4	Digital radome
5	Compatible Raymarine multifunction display
6	Broadband transducer
7	SeaTalk ^{ng} Pilot controller
8	SPX course computer

Example: Extended sonar system featuring multiple multifunction displays and SeaTalk^{ng} network

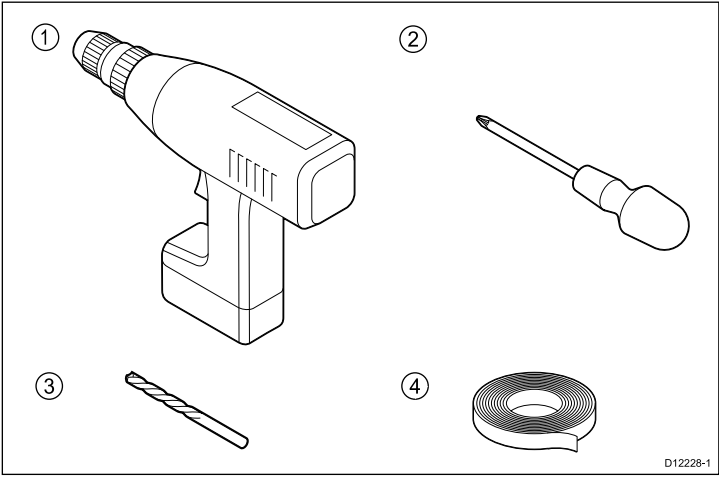


D12227-1

Item	Description
1	CP450C
2	Digital open array radar
3	SeaTalk ^{ng} Pilot controller
4	SeaTalk ^{ng} Instrument display
5	SeaTalk ^{ng} AIS receiver
6	Broadband transducer
7	Raymarine network switch
8	SeaTalk ^{hs} Crossover coupler (required to connect to Raymarine HS5 Network switch.)
9	Compatible Raymarine multifunction displays
10	Raymarine thermal imaging camera

2.4 Tools

Installation of the unit requires the following tools:



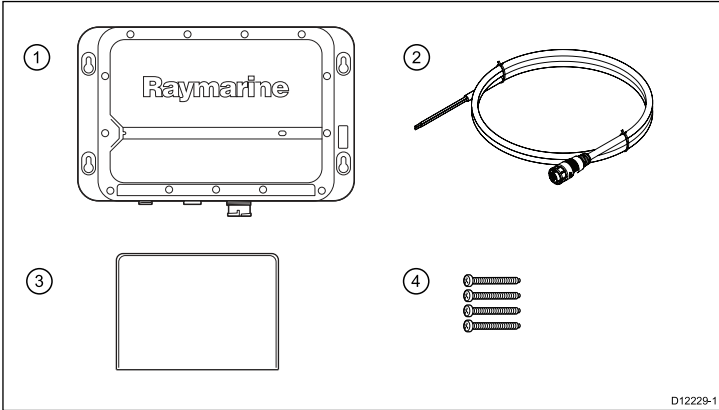
Item	Description
1	Drill
2	Pozidrive screwdriver
3	Drill bit of appropriate size*
4	Adhesive tape

Note: *Drill bit size is dependent on the thickness and type of material that the unit is to be mounted on.

2.5 Pack contents

Unpack the unit carefully, saving the packaging in case you need to return the unit for service.

Check that the correct components are present:



Item	Description
1	CP450C
2	1.5 m (5 ft.) power cable
3	Document pack including: • Installation instruction • Mounting template • Warranty registration • Multilingual CD
4	4 x No.8 fixing screws

Chapter 3: Cables and connections

Chapter contents

- [3.1 General cabling guidance on page 20](#)
- [3.2 Connections overview on page 21](#)
- [3.3 Transducer connection on page 22](#)
- [3.4 Network connection on page 24](#)
- [3.5 Power connection on page 26](#)

3.1 General cabling guidance

Cable types and length

It is important to use cables of the appropriate type and length

- Unless otherwise stated use only standard cables of the correct type, supplied by Raymarine.
- Ensure that any non-Raymarine cables are of the correct quality and gauge. For example, longer power cable runs may require larger wire gauges to minimize voltage drop along the run.

Strain relief

Ensure adequate strain relief is provided. Protect connectors from strain and ensure they will not pull out under extreme sea conditions.

Circuit isolation

Appropriate circuit isolation is required for installations using both AC and DC current:

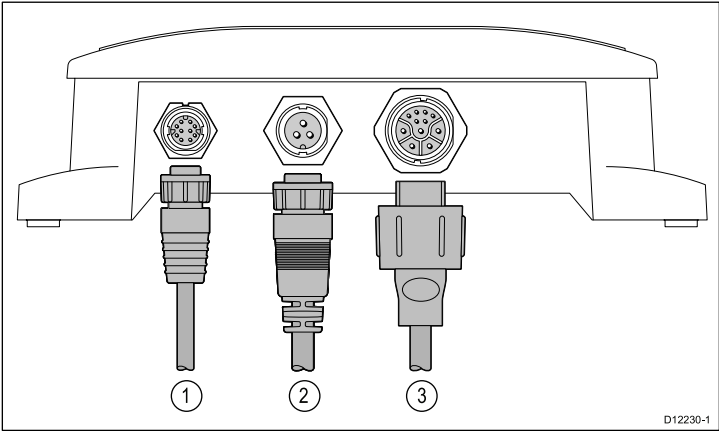
- Always use isolating transformers or a separate power-inverter to run PC's, processors, displays and other sensitive electronic instruments or devices.
- Always use an isolating transformer with Weather FAX audio cables.
- Always use an isolated power supply when using a 3rd party audio amplifier.
- Always use an RS232/NMEA converter with optical isolation on the signal lines.
- Always make sure that PC's or other sensitive electronic devices have a dedicated power circuit.

Cable shielding

Ensure that all data cables are properly shielded that the cable shielding is intact (e.g. hasn't been scraped off by being squeezed through a tight area).

3.2 Connections overview

Cable connectors are located on the bottom of the CP450C.



3. Ensuring correct orientation push the cable connector fully onto the corresponding connector on the unit.
4. Turn the locking collar clockwise to secure the cables.

Item	Description
1	Network connection
2	Power connection
3	Transducer connection

Making connections

Follow the steps below to connect network, transducer and power cables to your unit.

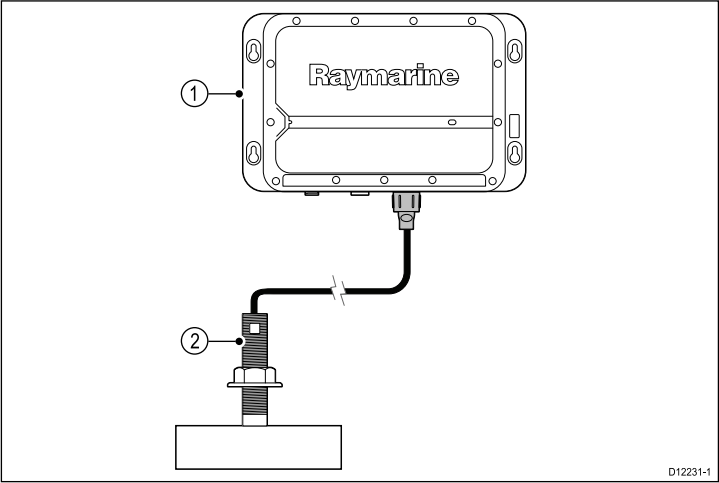
1. Ensure that the vessel's power supply is switched off.
2. Ensure that the device being connected to the unit has been installed in accordance with the installation instructions supplied with that device.

3.3 Transducer connection

This product is designed for use with broadband transducers but will also work with traditional transducers, using appropriate adaptor cables.

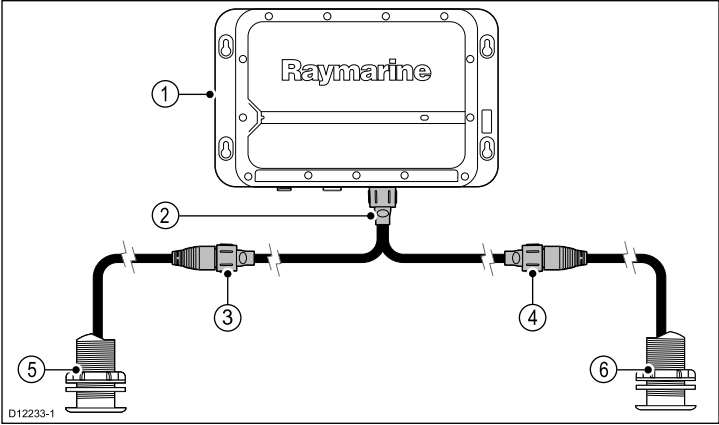
Transducers must be installed in accordance with the instructions provided with the transducer.

Broadband transducer connection



Item	Description
1	CP450C
2	Broadband transducer

Dual broadband transducer connections



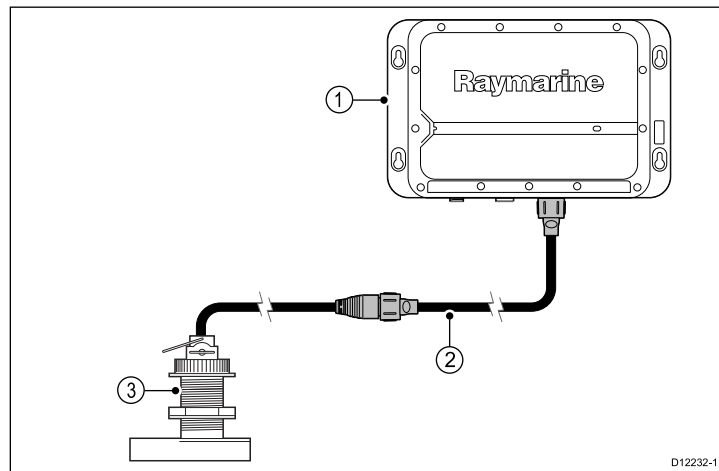
Item	Description
1	CP450C
2	Combined dual broadband transducer cable
3	Channel B of combined cable
4	Channel A of combined cable
5	Broadband transducer
6	Broadband transducer

Transducer pair connections

Transducer Pair Frequencies	Cable Channel A	Cable Channel B
Low & High	Low frequency transducer	High frequency transducer
Low & Medium	Low frequency transducer	Medium frequency transducer
Medium & High	Medium frequency transducer	High frequency transducer

Note: When fitting transducer pairs ensure that channel A and channel B of the transducer cable are connected to the relevant transducer as shown in the table above.

Traditional transducer connection



Item	Description
1	CP450C
2	Legacy Adaptor cable
3	Traditional transducer



Warning: Transducer cables

Do not remove the transducer cable whilst the product is powered on, doing so can cause sparks. If the transducer cable is accidentally removed whilst the product is powered on, switch the product's power off, replace the cable and then switch the power back on.

Caution: Do not cut transducer cables

- Cutting the transducer cable severely reduces sonar performance. If the cable is cut, it must be replaced, it cannot be repaired.
- Cutting the transducer cable will void the warranty and invalidate the European CE mark.

Transducer adaptor cables

Below is a list of transducer adaptor cables which may be required:

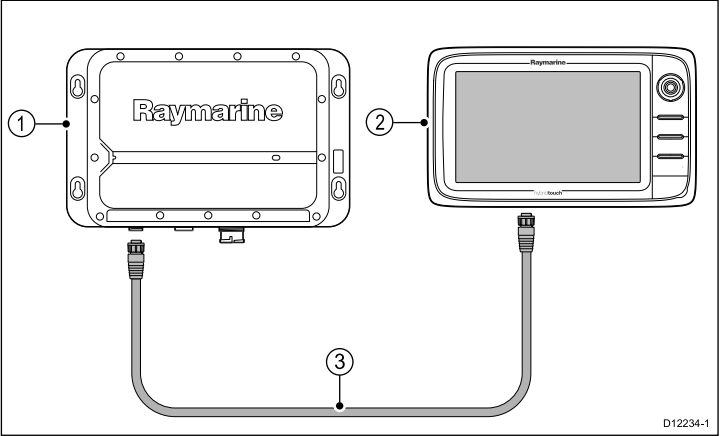
Description	Part number
Transducer 3m extension cable	A102148
Transducer 5m extension cable	A102150
Legacy Transducer adaptor cable	A102147
Combined dual broadband transducer cable	A102146

3.4 Network connection

The unit must be connected to a compatible Raymarine multifunction display to be able to show echo sounder data.

Multifunction display connection

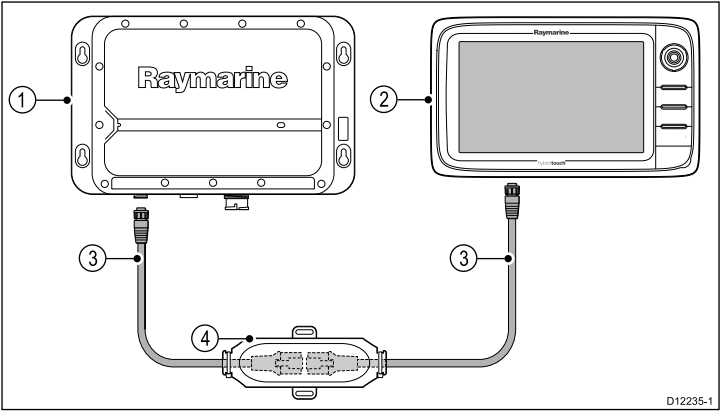
Unit connected to a multifunction display using a RayNet network cable.



Item	Description
1	CP450C
2	Compatible Raymarine multifunction display
3	RayNet to RayNet network cable

Multifunction display configuration (extended cables)

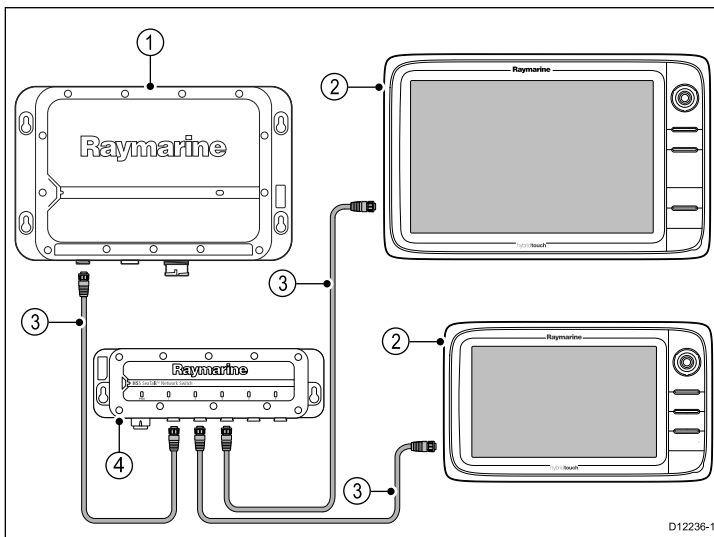
A Raymarine crossover coupler and RayNet to SeaTalk^{hs} (RJ45) network cables should be used to extend the length of network cabling.



Item	Description
1	CP450C
2	Compatible Raymarine multifunction display
3	RayNet to SeaTalk ^{hs} (RJ45) network cables
4	Raymarine crossover coupler

Multiple multifunction display configuration

A Raymarine network switch can be used to connect the unit to more than 1 multifunction display.



Item	Description
1	CP450C
2	Compatible Raymarine multifunction displays
3	*RayNet to RayNet network cable
4	Raymarine network switch

Note: *To connect the CP450C to a Raymarine network switch with SeaTalk^{hs} connectors a RayNet to SeaTalk^{hs} (RJ45) cable is required.

Note: Ensure network cables and connections are tight and secure using any cable ties provided with your network hardware.

Network hardware

Item	Part number	Notes
HS5 SeaTalk ^{hs} network switch	A80007	5-port switch for network connection of multiple SeaTalk ^{hs} devices featuring RayNet connectors. Equipment with SeaTalk ^{hs} connectors can also be connected via suitable adaptor cables.
SeaTalk ^{hs} network switch	E55058	8-port switch for network connection of multiple SeaTalk ^{hs} devices.
SeaTalk ^{hs} crossover coupler	E55060	Enables direct connection of SeaTalk ^{hs} devices to smaller systems where a switch is not required. Also enables the connection of SeaTalk ^{hs} devices to an HS5 SeaTalk ^{hs} network switch (in conjunction with a RayNet to RJ45 cable).

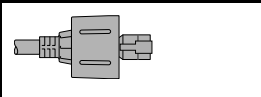
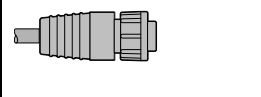
RayNet connector network cables

Cable	Part number
1 m (3.28 ft) RayNet to SeaTalk ^{hs} (RJ45) cable	A62360
2 m (6.56 ft) RayNet to RayNet cable	A62361

Cable	Part number
5 m (16.4 ft) RayNet to RayNet cable	A80005
10 m (32.8 ft) RayNet to RayNet cable	A62362
20 m (65.6 ft) RayNet to RayNet cable	A80006
RayNet cable puller 5 pack	R70014

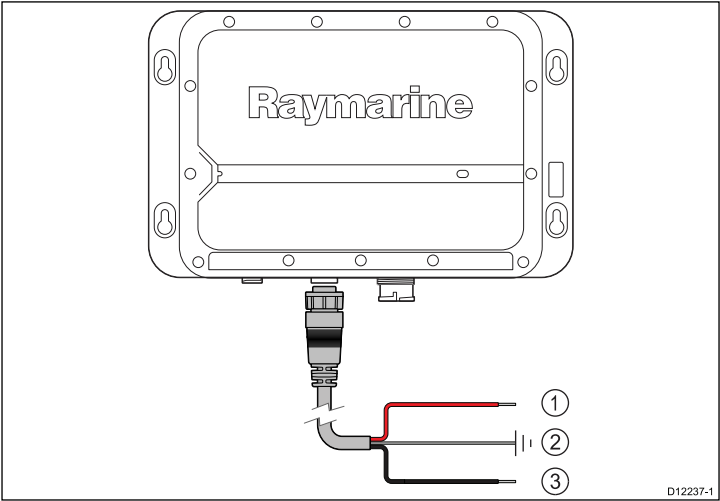
Network cable connector types

There are 2 types of network cable connector — SeaTalk^{hs} and RayNet.

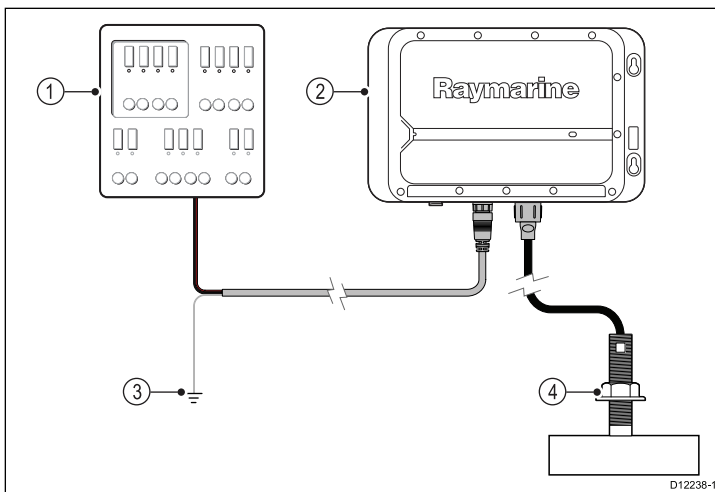
	SeaTalk^{hs} connector — used for connecting SeaTalk ^{hs} devices to a Raymarine network switch via SeaTalk ^{hs} cables.
	RayNet connector — used for connecting Raymarine network switches and SeaTalk ^{hs} devices to the multifunction display via RayNet cables. Also required for connecting a crossover coupler if only one device is being connected to the display's Network connector.

3.5 Power connection

Always use the power cable provided with your product.



Item	Description
1	RED positive wire
2	Ground
3	BLACK negative wire



The unit does not have a power switch. The unit is powered when the power cable is attached to the vessel's power supply.

Note: The unit should be mounted so that the power cable can be easily removed if necessary. If the unit is placed in a difficult to reach location, Raymarine recommends installing an on/off switch on the power connection at a point that is easily accessible.

Power cable extensions

The power cable should be run as a single length of cable from the unit to the vessel's battery/distribution panel. If the length of the power cable supplied is insufficient then please refer to the following table to ensure that the correct gauge of cable is used for any required extension to the power cable. Inadequate power cable sizes can cause issues which may not occur until used in deeper water.

Recommended cable sizes

Cable length		Wire size	
Feet	Metres	AWG	mm ²
10	3	14	2.1
15	4.6	14	2.1
20	6	12	3.3
25	7.6	12	3.3
30	9	10	5.3

Item	Description
1	Power supply
2	CP450C
3	Vessel's RF ground
4	Broadband transducer

The unit is intended for use on dc 'negative' or 'floating' ground power systems rated from 10.2V to 32V.

Raymarine recommend that all power connections are made via a distribution panel. All equipment must be either

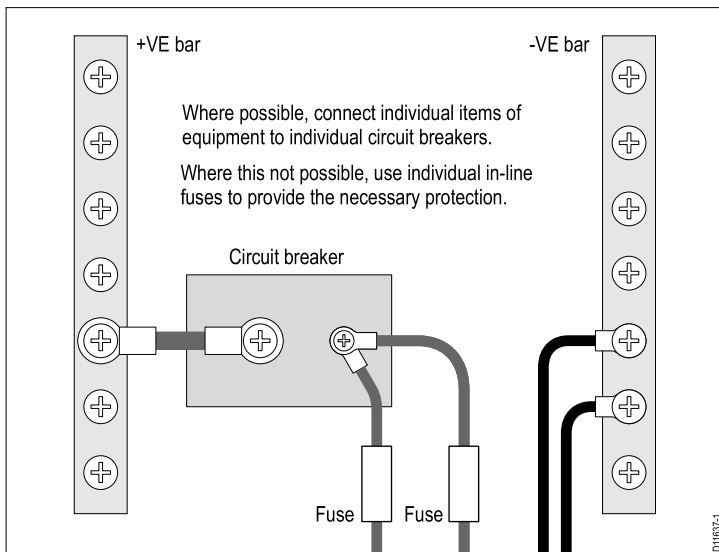
- powered from a circuit breaker or switch, with 5A circuit protection, or
- powered from a 5A slow blow in line fuse connected to the RED positive wire of the power cable.

Note:

- Cable length is the distance between the power source and the unit.
- These wire sizes give a total drop of about 0.5V between the power source and the unit, achieving a minimum voltage at the unit of 10.5V with a fully flat battery at 11V.

Sharing a breaker

Where more than 1 piece of equipment shares a breaker you must provide protection for the individual circuits. E.g. by connecting an in-line fuse for each power circuit.



Warning: Product grounding

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

Grounding — Dedicated drain wire

The power cable supplied with this product includes a dedicated shield (drain) wire for connection to a vessel's RF ground point.

It is important that an effective RF ground is connected to the system. A single ground point should be used for all equipment. The unit can be grounded by connecting the shield (drain) wire of the power cable to the vessel's RF ground point. On vessels without an RF ground system the shield (drain) wire should be connected directly to the negative battery terminal.

The dc power system should be either:

- Negative grounded, with the negative battery terminal connected to the vessel's ground.
- Floating, with neither battery terminal connected to the vessel's ground



Warning: Positive ground systems

Do not connect this unit to a system which has positive grounding.

Chapter 4: Location and mounting

Chapter contents

- [4.1 Selecting a location on page 30](#)
- [4.2 Mounting on page 31](#)

4.1 Selecting a location



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).

General location requirements

The unit should be mounted where it will be:

- protected from physical damage and excessive vibration.
- well ventilated and away from heat sources.
- away from any potential ignition source such as engine room, near fuel tanks or a gas locker.

When choosing a location for the unit, consider the following points to ensure reliable and trouble free operation:

- Access — there must be sufficient space below the unit to enable cable connections to the unit, avoiding tight bends in the cable.
- Diagnostics — the unit must be mounted in a location where the diagnostics LED is easily visible.
- Interference — the unit should be mounted far enough away from any equipment that may cause interference such as motors, generators and radio transmitter/receivers.
- Magnetic compass — mount the unit at least 1 m (3 ft.) away from a magnetic compass.
- Power — The unit must be located near a dc power source. The power cable supplied is 1.5 m (5 ft.) in length.

Cable routing requirements

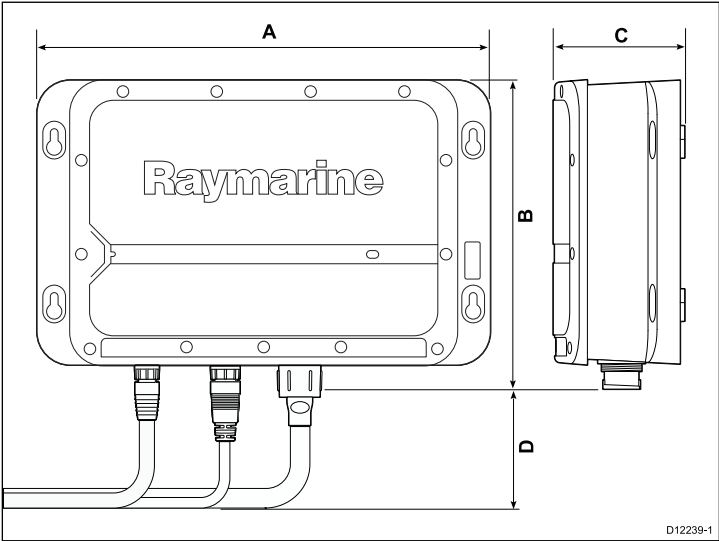
Consider the following before installing the system cables:

- You will need to attach power, transducer and network cables to the unit.
- All cables should be adequately secured, protected from physical damage, and protected from exposure to heat.
- Avoid sharp bends in cables.
- Use a watertight feed-through wherever a cable passes through an exposed bulkhead or deckhead.
- Secure cables in place using tie-wraps or lacing twine. Coil any extra cable and tie it out of the way.
- Do NOT run cables through bilges or doorways, or close to moving or hot objects.
- Do NOT run cables near to engines or fluorescent lights.

Always route data cables as far away as possible from:

- other equipment and cables,
- high current carrying ac and dc power lines,
- antennas.

Unit dimensions



Item	Dimension
A	299.4 mm (11.79')
B	204.9 mm (8.06')
C	87.5 mm (3.45')
D	80.0 mm (3.15')

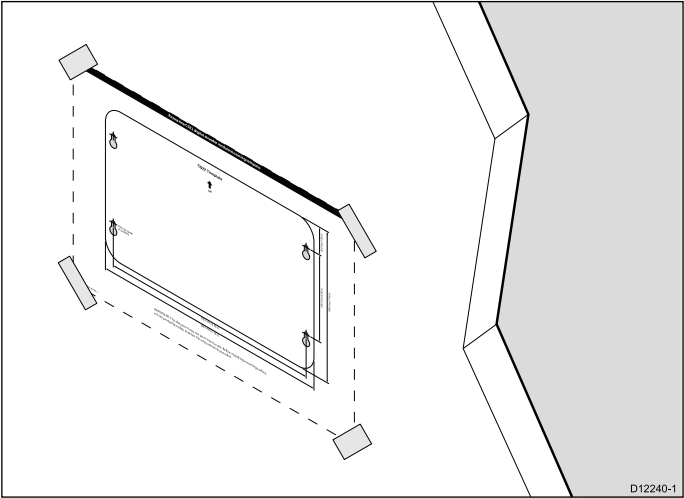
4.2 Mounting

Mounting the unit

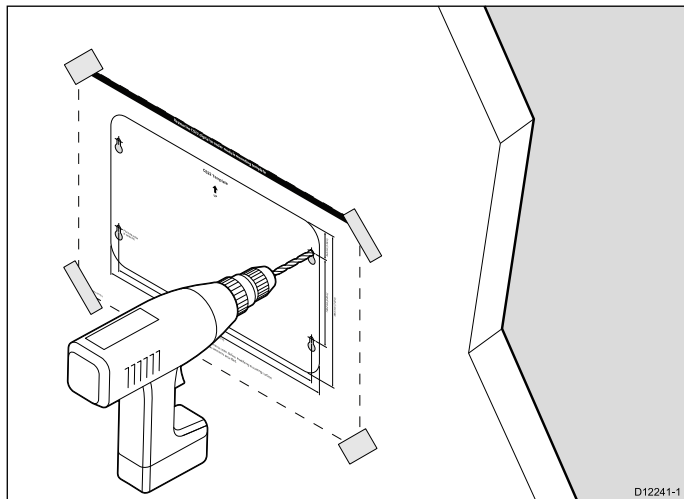
Having chosen a suitable location, install the unit as follows:

Note: Raymarine recommends mounting the unit vertically.

1. Secure the mounting template in the required location using adhesive tape.

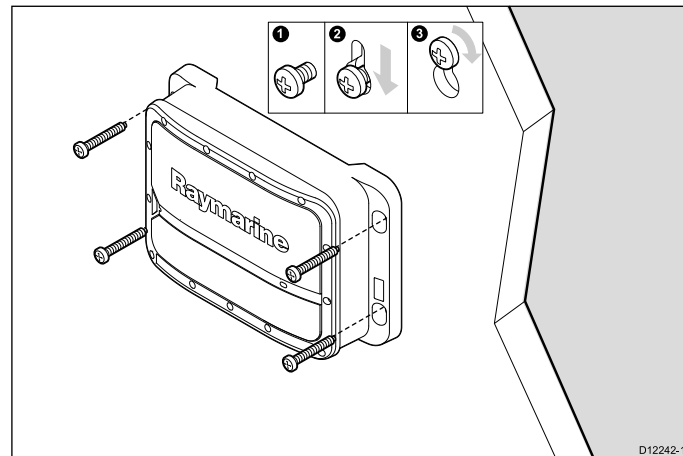


2. Drill 4 holes at the marked location on the template.



3. Remove the mounting template.
4. Screw in the supplied fixing screws about half way into the holes.
5. Place the unit onto the fixing screws.
6. Push the unit down to engage the key slots in the unit.

7. Tighten the screws



Note: Drill bit, tap size and tightening torque is dependent on the thickness and type of material the unit is to be mounted on.

Chapter 5: System checks and troubleshooting

Chapter contents

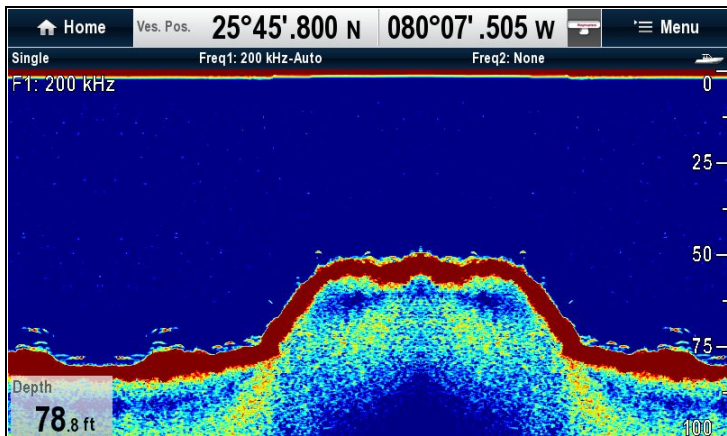
- [5.1 Initial power on test on page 34](#)
- [5.2 Troubleshooting on page 34](#)
- [5.3 Sonar troubleshooting on page 35](#)
- [5.4 LED Diagnostics on page 37](#)
- [5.5 Resetting the sonar on page 40](#)

5.1 Initial power on test

Once the unit has been correctly installed check that it is operating correctly.

After powering on, the unit will take approximately 50 seconds to bootup, from powering on through to normal operation LED status indicator should be GREEN. If the LED status indicator is not green then refer to the troubleshooting section of this handbook.

Open the Fishfinder application on your connected multifunction display and ensure that it is operating correctly.



Further information

For detailed operating instructions, refer to the handbook that accompanies your multifunction display.

5.2 Troubleshooting

The troubleshooting information provides possible causes and corrective action required for common problems associated with marine electronics installations.

All Raymarine products are, prior to packing and shipping, subjected to comprehensive test and quality assurance programs. However, if you experience problems with the operation of your product this section will help you to diagnose and correct problems in order to restore normal operation.

If after referring to this section you are still having problems with your unit, please contact Raymarine Technical Support for further advice.

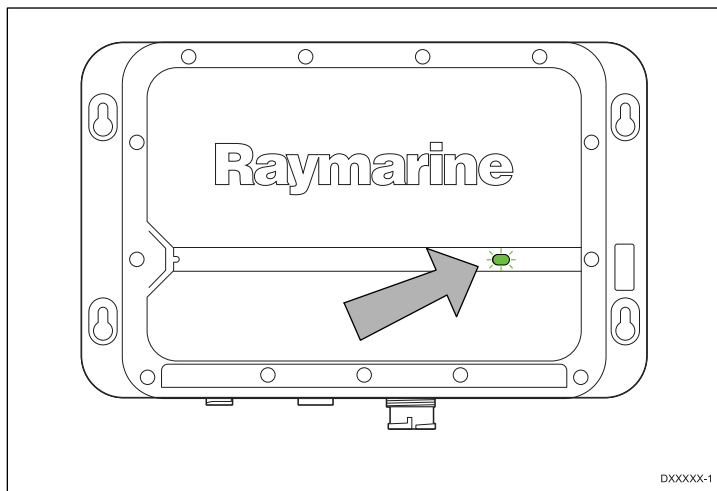
5.3 Sonar troubleshooting

Problems with the sonar and their possible causes and solutions are described here.

Problem	Possible causes	Possible solutions
Sonar data not available on multifunction display.	Unit power supply fault.	Check the unit power supply and cables.
	Other unit fault.	Refer to the instructions supplied with the unit.
	SeaTalk ^{hs} / RayNet network problem.	Check that the unit is correctly connected to a Raymarine network SeaTalk ^{hs} switch or crossover coupler (as applicable).
		Check the status of the Raymarine network switch (if applicable).
		Check that SeaTalk ^{hs} / RayNet cables are free from damage.
	Software mismatch between equipment may prevent communication.	Contact Raymarine technical support.
Problematic depth readings or sonar image.	Gain or Frequency settings may be inappropriate for present conditions.	Check the sounder presets, gain and frequency settings.
	Unit power supply fault	Check the voltage from the power supply, if this is too low it can affect the transmitting power of the unit.
	Unit cable fault.	Ensure that the power, transducer and all other cables to the unit are properly connected and free from damage.
	Transducer fault	Check that the transducer is mounted correctly and is clean.
		If you have a transom-mount transducer, check that the transducer hasn't kicked up due to hitting an object.
	Other unit fault.	Refer to the instructions supplied with the unit.
	Vessel stationary	Fish arches are not displayed if the vessel is stationary, fish will appear on the display as straight lines.
	High vessel speed	Turbulence around the transducer may be confusing the unit.
	Scroll speed set to zero	Adjust scroll speed

Problem	Possible causes	Possible solutions
Incorrect speed reading	Paddle wheel fault	Check that the paddle wheel is clean.
	No speed offset set	Add speed offset.
	Incorrect calibration	Re-calibrate equipment

5.4 LED Diagnostics



The LED on the front panel of the unit provides information on the status of the sonar module and notifies users of any problems within the unit. The LED blinks the following colors:

- **Green** — shows the unit is operating normally.
- **Amber** — warns of a problem in the unit.
- **Red** — shows that there is an error in the unit.

The number of times the LED blinks is a code which represents the errors or warnings as shown in the LED indication status table. If there are multiple warnings or errors, the codes are given in sequence with a 2 second pause between blink patterns.

LED indication status

LED color	LED code	Status	User action
		Solid Green	Power On
		Green 1 blink	Normal operation
		Amber 1 blink	Transducer disconnected
		Amber 2 blinks	No network detected
		Amber 3 blinks	Unit overheating
		Amber 4 blinks	Transducer overheating
		Amber 5 blinks	Under voltage (<10.2V)

LED color	LED code		Status	User action
		Amber 6 blinks	Over voltage (>34.2V)	• Ensure power supply levels are consistent with recommendations. • If problem persists contact Raymarine technical support.
		Red 1 blink	General failure	• If combined with voltage warning, check power supply and cables. • Power cycle unit to recover. • If problem persists contact Raymarine technical support.
		Red 2 blinks	Not Defined	• If problem persists contact Raymarine technical support.
		Red 3 blinks	Ambient temperature too hot	• Ensure installation environment is within recommendations. • Unit will recover when temperature falls within specifications. • If problem persists contact Raymarine technical support.
		Red 4 blinks	Problems with internal database	• Power cycle unit to recover. • If problem persists contact Raymarine technical support.

Note: During a software upgrade process the LED will be solid Red and change to solid Amber on successful completion. A power cycle will be necessary to install the changes.

Note: If any other LED sequence other than described above is seen and persists please contact Raymarine technical support.

5.5 Resetting the sonar

The reset function restores the unit to its factory default values.

Note: Performing a factory reset will clear speed and temperature calibration settings and the depth offset.

1. Using a compatible Raymarine multifunction display go to the Fishfinder application page.
2. Select **Menu** from the side menu.
3. Select **Set-up**.
4. Select **Sounder Set-up**.
5. Select **Sonar reset**.
6. Select **Yes** to confirm.

The unit will now be reset to factory default settings.

Chapter 6: Maintenance

Chapter contents

- [6.1 Routine checks on page 42](#)
- [6.2 Unit cleaning instructions on page 42](#)
- [6.3 Transducer cleaning on page 43](#)

6.1 Routine checks

This product is a sealed unit. Maintenance procedures are therefore limited to the following periodic checks:

- Examine cables for signs of damage, such as chafing, cuts or nicks.
- Check that the cable connectors are firmly attached

Note: Cables checks should be carried out with the power supply switched off.



Warning: High voltage

This product contains high voltage. Adjustments require specialized service procedures and tools only available to qualified service technicians. There are no user serviceable parts or adjustments. The operator should never remove the cover or attempt to service the product.

6.2 Unit cleaning instructions

The unit does not require regular cleaning. However, if you find it necessary to clean the unit, please follow the steps below:

1. Ensure power is switched off.
2. Wipe unit clean with a damp cloth.
3. If necessary, use a mild detergent solution to remove grease marks.

6.3 Transducer cleaning

Sea growth can collect on the bottom of the transducer, this can reduce performance. To prevent the build up of sea growth, coat the transducer with a thin layer of water based antifouling paint, available from your local marine dealer. Reapply paint every 6 months or at the beginning of each boating season. Certain smart transducers have restrictions on where antifouling paint is applied. Please consult your dealer.

Note: Never use ketone based paint. Ketones can attack many plastics possibly damaging the sensor.

Note: Never use spray paint on your transducer. Spraying incorporates tiny air bubbles, and a marine transducer cannot transmit properly through air.

Use a soft cloth and mild household detergent to clean the transducer. If the fouling is severe, remove the growth with a green scotch brite™ pad. Be careful to avoid scratching the transducers face. You can wet sand the paddlewheel with fine grade wet/dry paper.

Note: Harsh cleaning solvents such as acetone may damage the transducer.

Chapter 7: Technical support

Chapter contents

- [7.1 Raymarine customer support on page 46](#)
- [7.2 Viewing product information on page 46](#)

7.1 Raymarine customer support

Raymarine provides a comprehensive customer support service. You can contact customer support through the Raymarine website, telephone and email. If you are unable to resolve a problem, please use any of these facilities to obtain additional help.

Web support

Please visit the customer support area of our website at:

www.raymarine.com

This contains Frequently Asked Questions, servicing information, e-mail access to the Raymarine Technical Support Department and details of worldwide Raymarine agents.

Telephone and email support

In the USA:

- **Tel:** +1 603 324 7900
- **Toll Free:** +1 800 539 5539
- **Email:** Raymarine@custhelp.com

In the UK, Europe, the Middle East, or Far East:

- **Tel:** +44 (0)13 2924 6777
- **Email:** ukproduct.support@raymarine.com

Product information

If you need to request service, please have the following information to hand:

- Product name.
- Product identity.
- Serial number.
- Software application version.

You can obtain this product information using the menus within your product.

7.2 Viewing product information

You can view information about your unit from the Diagnostics menu on a compatible multifunction display, this will return information such as product serial number and software version.

1. Select **Maintenance** from the **Set-up** menu.
2. Select **Diagnostics**.
3. Select **View devices**.
4. Scroll to the unit you wish to see product information about.

Chapter 8: Technical specification

Chapter contents

- [8.1 Technical specification on page 48](#)

8.1 Technical specification

Nominal voltage	12V / 24V
Operating voltage	10.2V to 32V
Fuse / Breakers	5A
Current	6A peak
Power consumption	22W typical
Environmental	• Operating temperature: -20°C to +50°C • Storage temperature: -30°C to +70°C • Relative humidity: 95% • Waterproof rating: IPX6
Unit weight	1.539 kg
Frequency	25kHz to 255kHz
Pulse length	80ms maximum
Maximum transmit rate	80p/s
Power output	1KW RMS
Depth	0.6m (2ft) (to 3048m (10,000ft)) (Dependant upon connected transducer)
Transducer	Transom-mount, in-hull, thru-hull
Conformance	• EN 60945:2002 • EMC Directive 2004/108/EC • Australia and New Zealand C-Tick

Chapter 9: Options and accessories

Chapter contents

- 9.1 Network hardware on page 50
- 9.2 RayNet connector network cables on page 50
- 9.3 Spares and accessories on page 51

9.1 Network hardware

Item	Part number	Notes
HS5 SeaTalk ^{hs} network switch	A80007	5–port switch for network connection of multiple SeaTalk ^{hs} devices featuring RayNet connectors. Equipment with SeaTalk ^{hs} connectors can also be connected via suitable adaptor cables.
SeaTalk ^{hs} network switch	E55058	8–port switch for network connection of multiple SeaTalk ^{hs} devices.
SeaTalk ^{hs} crossover coupler	E55060	Enables direct connection of SeaTalk ^{hs} devices to smaller systems where a switch is not required. Also enables the connection of SeaTalk ^{hs} devices to an HS5 SeaTalk ^{hs} network switch (in conjunction with a RayNet to RJ45 cable).

9.2 RayNet connector network cables

Cable	Part number
1 m (3.28 ft) RayNet to SeaTalk ^{hs} (RJ45) cable	A62360
2 m (6.56 ft) RayNet to RayNet cable	A62361
5 m (16.4 ft) RayNet to RayNet cable	A80005
10 m (32.8 ft) RayNet to RayNet cable	A62362
20 m (65.6 ft) RayNet to RayNet cable	A80006
RayNet cable puller 5 pack	R70014

9.3 Spares and accessories

The following accessories and spare parts are available for the CP450C:

Spares

Item	Part number
1.5 m (5 ft.) power cable	A80025

Transducer adaptor cables

Below is a list of transducer adaptor cables which may be required:

Description	Part number
Transducer 3m extension cable	A102148
Transducer 5m extension cable	A102150
Legacy Transducer adapter cable	A102147
Combined dual broadband transducer cable	A102146

Owner notes:

Owner notes:



www.raymarine.com

