Raymarine®

RVX1000

Installation instructions

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Software updates

Check the Raymarine website for the latest software releases for your product.
www.raymarine.com/software

Product documentation

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

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Chapter 1: Important information

Certified Installation

Raymarine recommends certified installation by a Raymarine approved installer. A certified installation qualifies for enhanced product warranty benefits. Contact your Raymarine dealer for further details, and refer to the separate warranty document packed with your product.

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.
- Raymarine recommends certified installation by a Raymarine approved installer. A certified installation qualifies for enhanced product warranty benefits. Contact your Raymarine dealer for further details, and refer to the separate warranty document packed with your product.

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: Positive ground systems

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

Warning: Power supply voltage

Connecting this product to a voltage supply greater than the specified maximum rating may cause permanent damage to the unit. Refer to the *Technical specification* section for voltage rating.

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.

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.

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: Product grounding

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

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 accidently removed whilst the product is powered on, switch the product's power off, replace the cable and then switch the power back on.

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.

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.

Caution: Service and maintenance

This product contains no user serviceable components. Please refer all maintenance and repair to authorized Raymarine dealers. Unauthorized repair may affect your warranty.

Water ingress

Water ingress disclaimer

Although the waterproof rating capacity of this product meets the stated IPX standard (refer to the product's *Technical Specification*), 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.

Disclaimer

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.

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 information utilized by the product supplied by third parties.

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.

Note: In areas of extreme EMC interference, some slight interference may be noticed on the product. Where this occurs the product and the source of the interference should be separated by a greater distance.

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.

Suppression ferrites

- Raymarine cables may be pre-fitted or supplied with suppression ferrites. These are important for correct EMC performance. If ferrites are supplied separately to the cables (i.e. not pre-fitted), you must fit the supplied ferrites, using the supplied instructions.
- 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 or its authorized dealers.
- Where an installation requires multiple ferrites to be added to a cable, additional cable clips should be used to prevent stress on the connectors due to the extra weight of the cable.

Chapter 2: Document and product information

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- 2.1 Document information on page 16
- 2.2 Parts supplied on page 18
- 2.3 Product overview on page 19
- 2.4 Sonar technology on page 20
- 2.5 Raymarine sonar modules on page 26

2.1 Document information

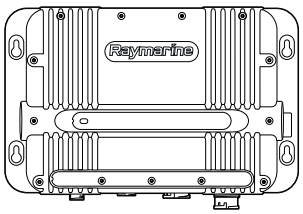
This document contains important information related to the installation of your Raymarine product.

The document includes information to help you:

- plan your installation and ensure you have all the necessary equipment;
- install and connect your product as part of a wider system of connected marine electronics;
- troubleshoot problems and obtain technical support if required.

Applicable products

This document is applicable to the following products:

	Part number	Name	Description
	E70511	RVX1000	RealVision™ 3D CHIRP sonar module

Document illustrations

Your product and if applicable, its user interface may differ slightly from that shown in the illustrations in this document, depending on product variant and date of manufacture.

All images are provided for illustration purposes only.

Product documentation

The following documentation is applicable to your product:

Description	Part number
RVX1000 Installation instructions Installation of an RVX1000 unit and connection to a wider system of marine electronics.	87349
RVX1000 Mounting template Mounting diagram for surface mounting an RVX1000	87350
LightHouse™ 3 Advanced Operation instructions Details the operation of the RVX1000 and the Fishfinder application for the following multifunction displays: • eS Series • gS Series • Axiom • Axiom Pro	81370

Operation instructions

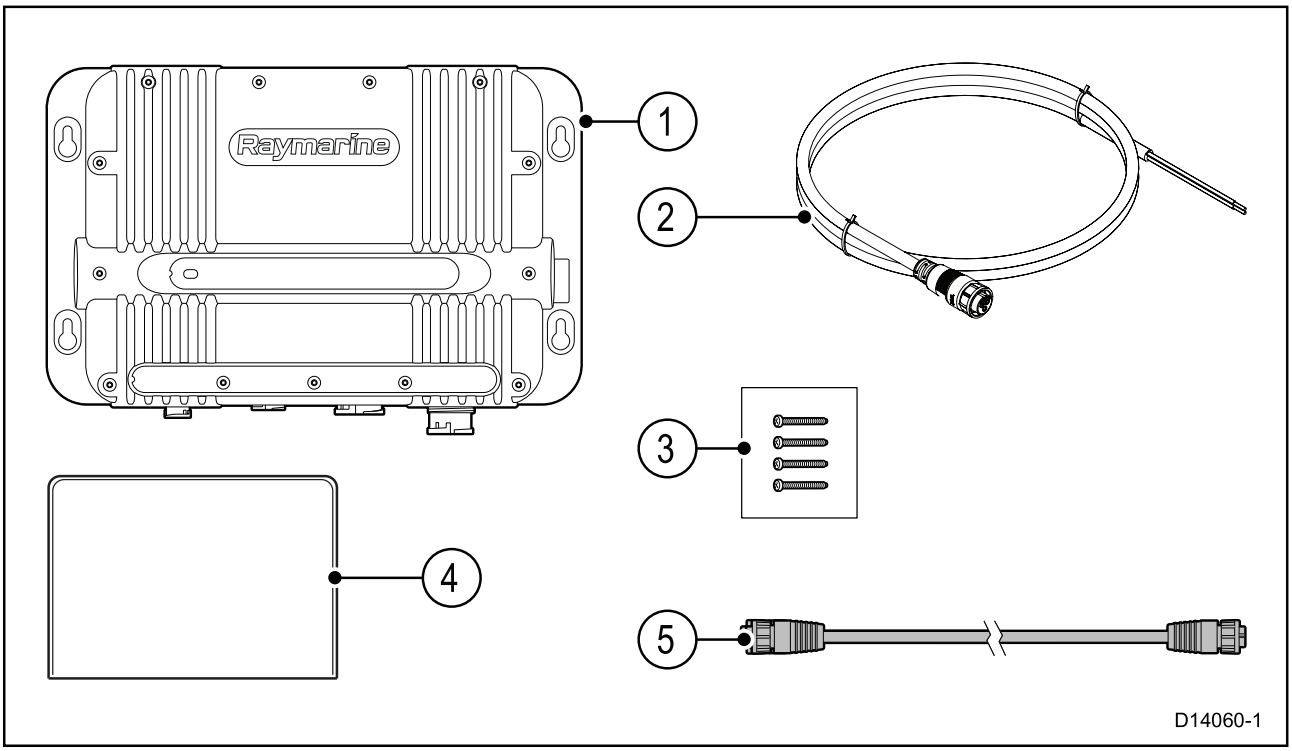
For detailed operation instructions for your product, refer to the documentation that accompanies your display.

LightHouse™ 3 MFD Operation instructions

For operation instructions for your MFD please refer to the LightHouse™ 3 MFD Operation instructions.

2.2 Parts supplied

RVX1000 — Parts supplied

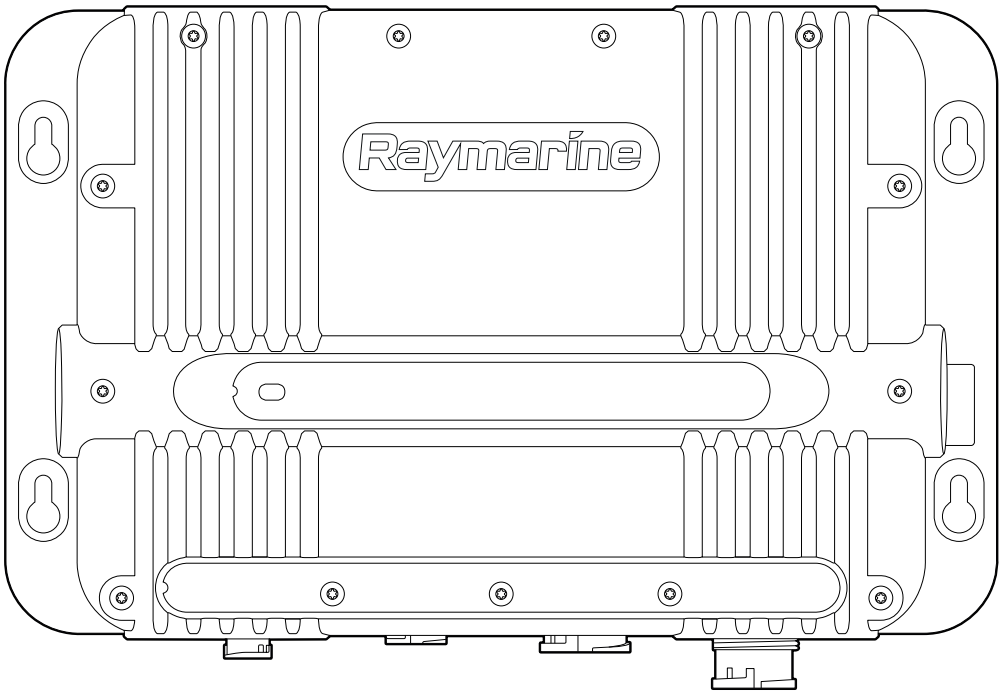


Item	Description	Quantity
1	Sonar module	1
2	1.5 m (5 ft) power cable	1
3	No.8 fixing screws	4
4	Documentation pack	1
5	2 m (6.56 ft) RayNet (Female) to RayNet (Female) network cable	1

2.3 Product overview

RVX1000 product overview

The RVX1000 is a **RealVision™ 3D** sonar module that also includes a 1kW CHIRP sonar. In conjunction with a compatible multifunction display and transducer, the RVX1000 produces realistic 3D representations of the objects below your vessel, to help you identify underwater structures and locate fish.



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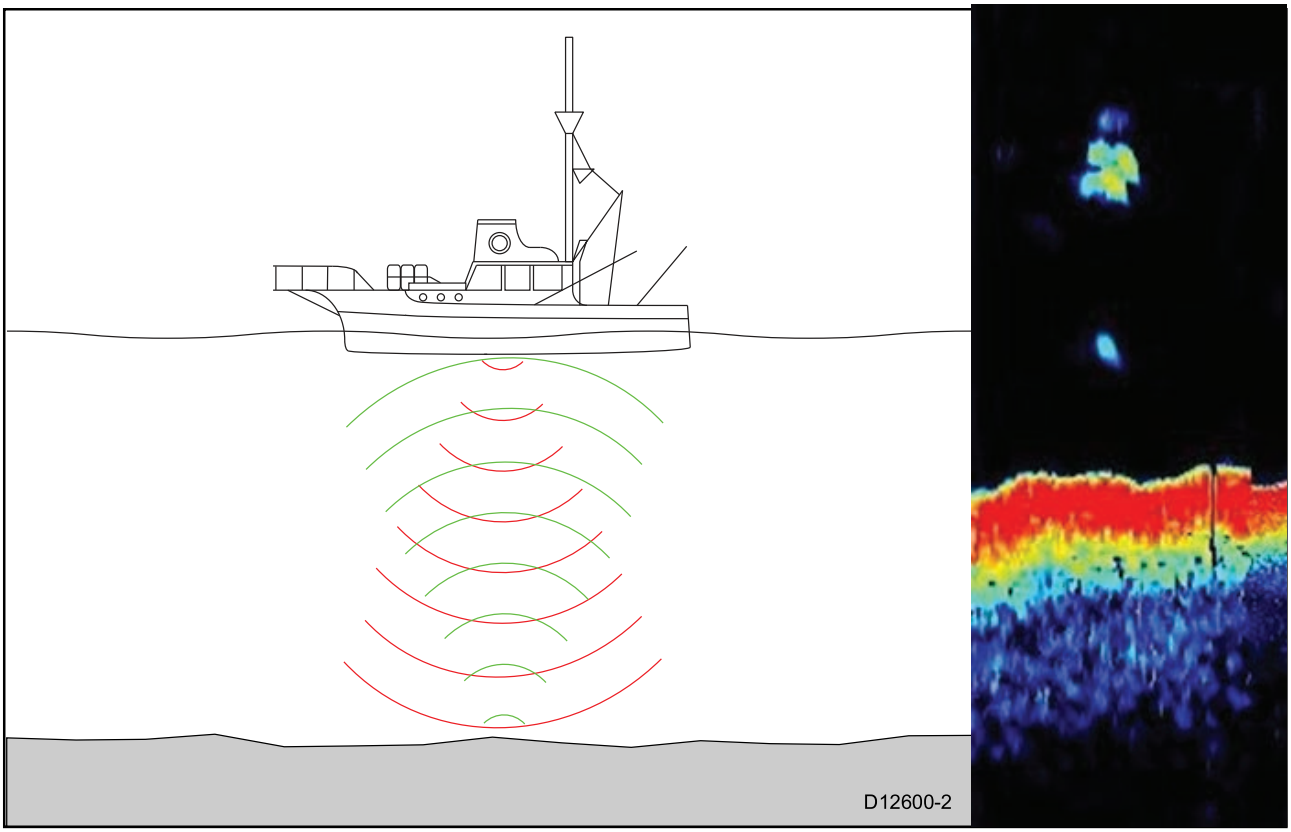
The RVX1000 has the following features:

- 1 x CHIRP sonar; 1 x DownVision™; 1 x SideVision™; 1 x RealVision™ 3D.
- 1 x 1 kW sonar supporting low, medium, and high frequency CHIRP or traditional transducers.
- 0.9 m (3 ft) to 1,524 m (5,000 ft) depth range (in optimum conditions using a 1 kW transducer).
- Water temperature and speed sensing.
- Support for transom, through-hull, in-hull, and pocket/keel mount transducers.
- Support for Wide Beam transducers.
- 12 V or 24 V dc operation.
- Waterproof to IPX6/IPX7.
- Robust and waterproof high-speed network connection.

2.4 Sonar technology

Traditional sonar technology

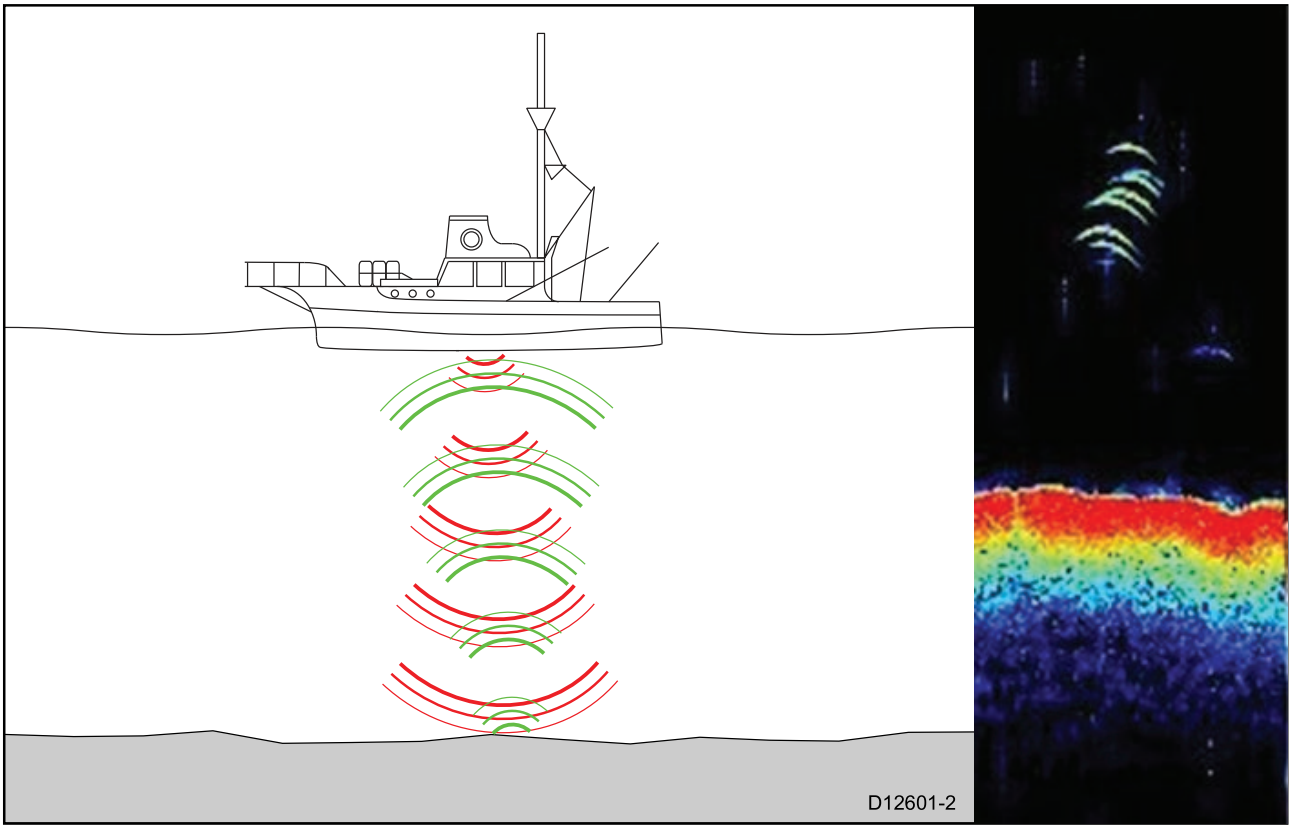
Traditional sonar uses a single carrier frequency or carrier wave for the sonar ping. The sonar works by measuring the time it takes the ping echo to return to the transducer to determine target depth.



CHIRP technology

CHIRP sonars use a swept frequency 'CHIRP' signal which can distinguish between multiple close targets, this enables the sonar to display multiple targets instead of large combined targets that you would see when using traditional non-CHIRP sonar.

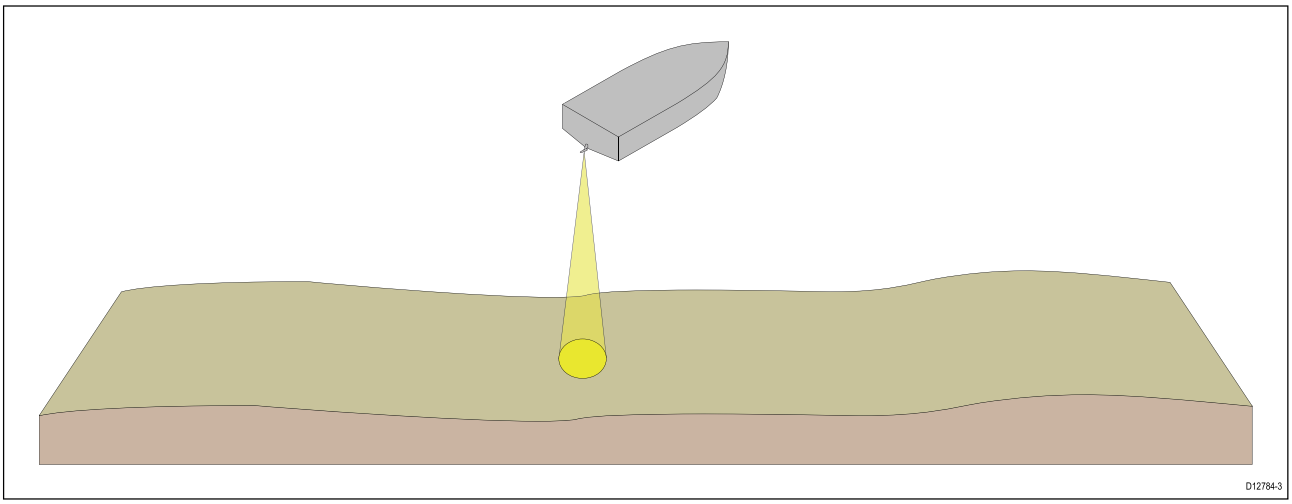
Benefits of CHIRP include improvements to target resolution, bottom detection even through bait balls and thermoclines and detection sensitivity.



CHIRP Sonar overview

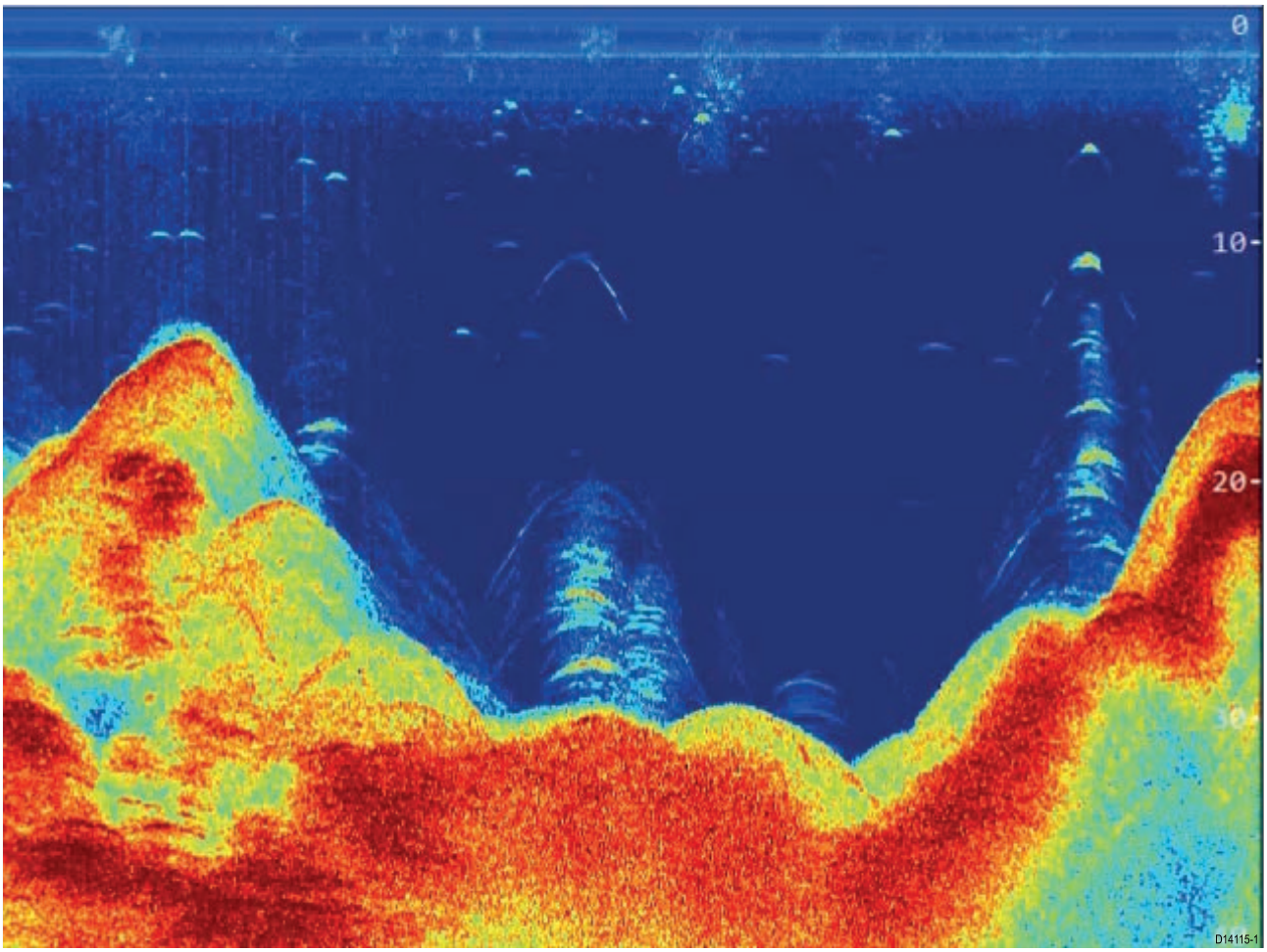
CHIRP sonar produces a conical shaped beam, the coverage of the conical beam is the water column directly beneath the vessel

Conical beam



Sonar is effective at a range of speeds. In deeper waters the CHIRP bandwidth is automatically optimized to improve bottom lock and the detection of moving objects (e.g. fish) in the wider water column.

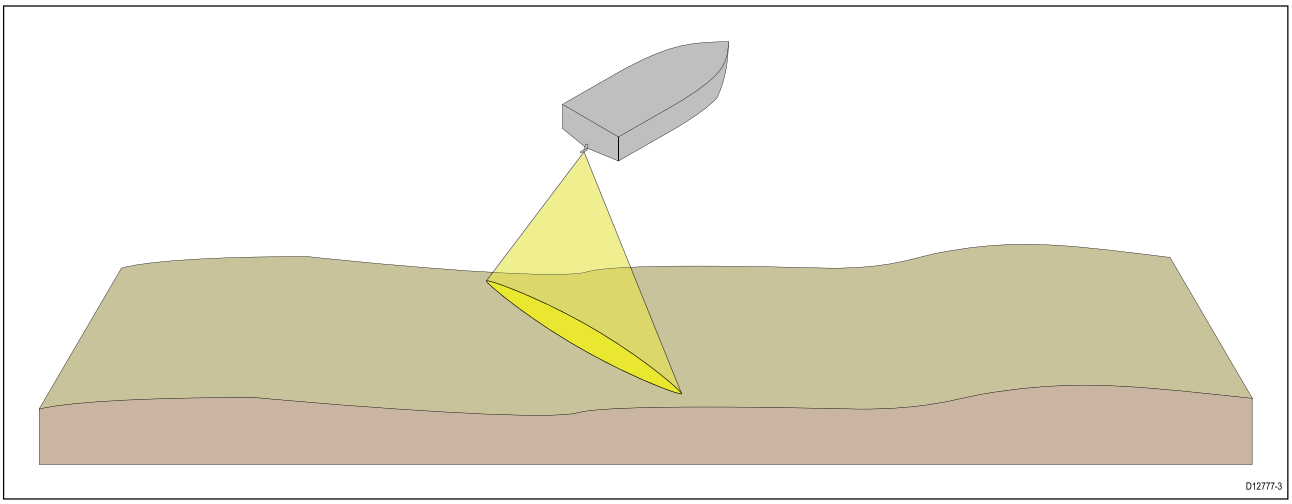
CHIRP sonar screen example



CHIRP DownVision™ overview

DownVision™ produces a wide-angle side-to-side beam and a thin fore-to-aft beam. The coverage of the **DownVision**™ beam is a water column directly beneath and to the sides of the vessel.

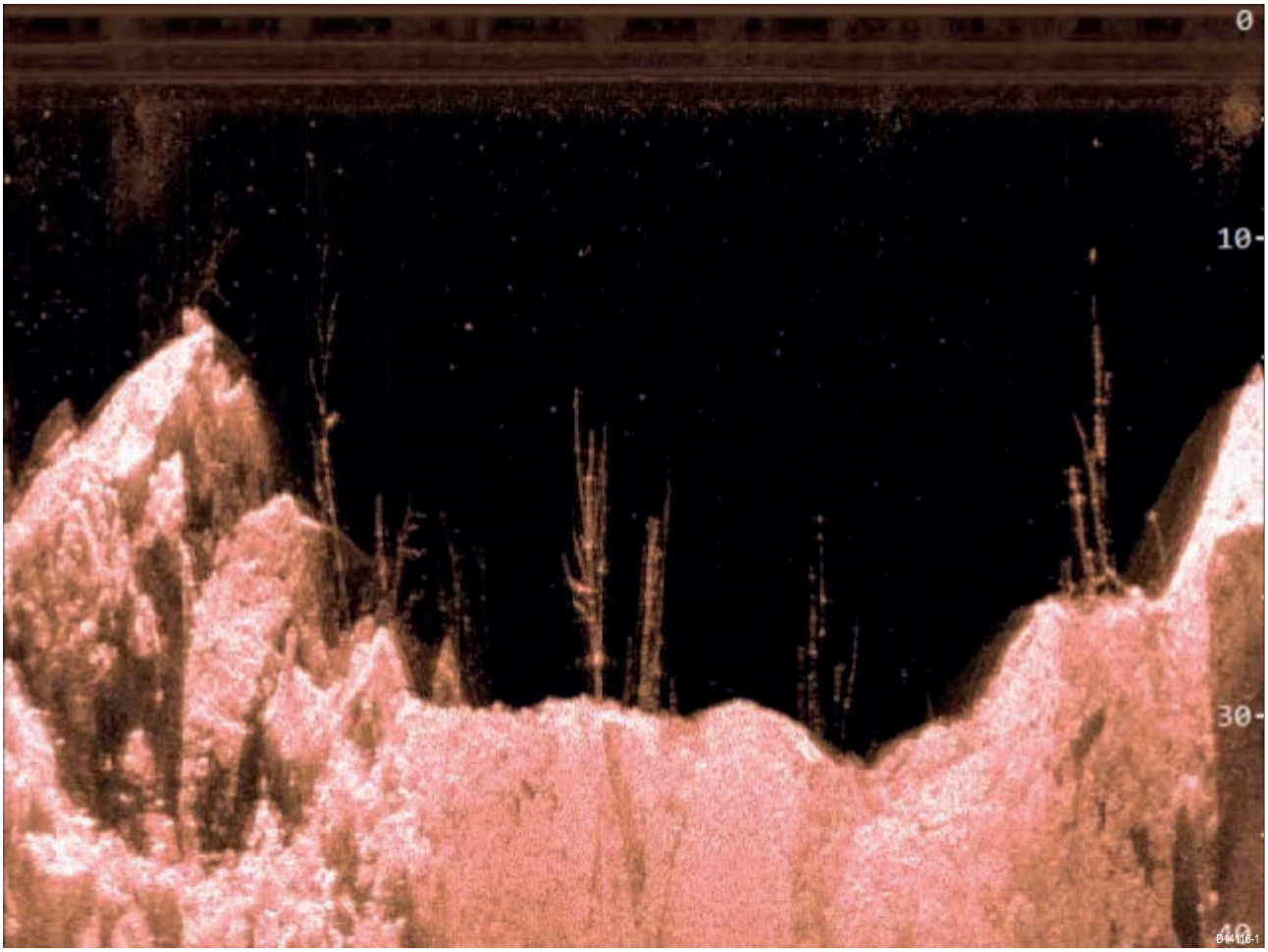
DownVision™ beam



DownVision™ is effective at lower vessel speeds. In deeper waters the CHIRP bandwidth is automatically optimized to improve bottom lock and the detection of moving objects (e.g. fish) in the wider water column.

The wide, thin beam produces clear target returns. The use of CHIRP processing and a higher operating frequency provide a more detailed image, making it easier to identify bottom structures around which fish may reside.

CHIRP DownVision™ screen example

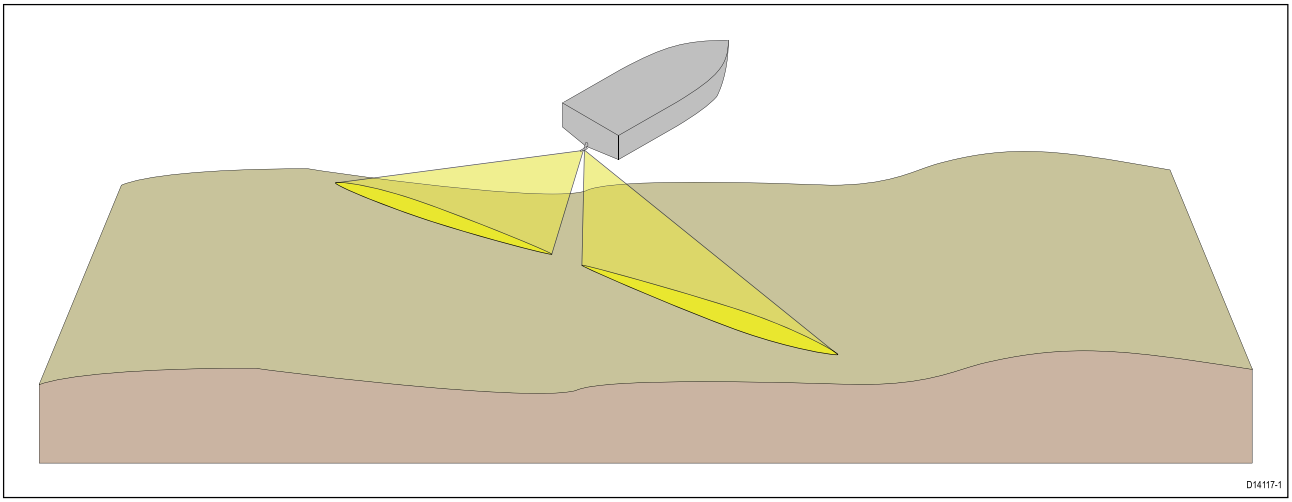


CHIRP SideVision™ overview

SideVision™ interprets signals from a pair of side-looking transducers and builds up a detailed underwater view as your vessel moves forward. The transducers send pulses of sound waves into the water on each side of your vessel, and record the sound waves that reflect off the bottom, and off objects on the bottom or suspended in the water column. The received echoes are affected by the bottom material (for example mud, gravel or rock), and by any other objects in their path (for example cables on the sea floor, bridge piers, wrecks, shoals or fish).

SideVision™ produces 2 wide-angle side-to-side beams, each with a thin fore-to-aft beam. The coverage of the **SideVision**™ beams is a swath on each side of the vessel.

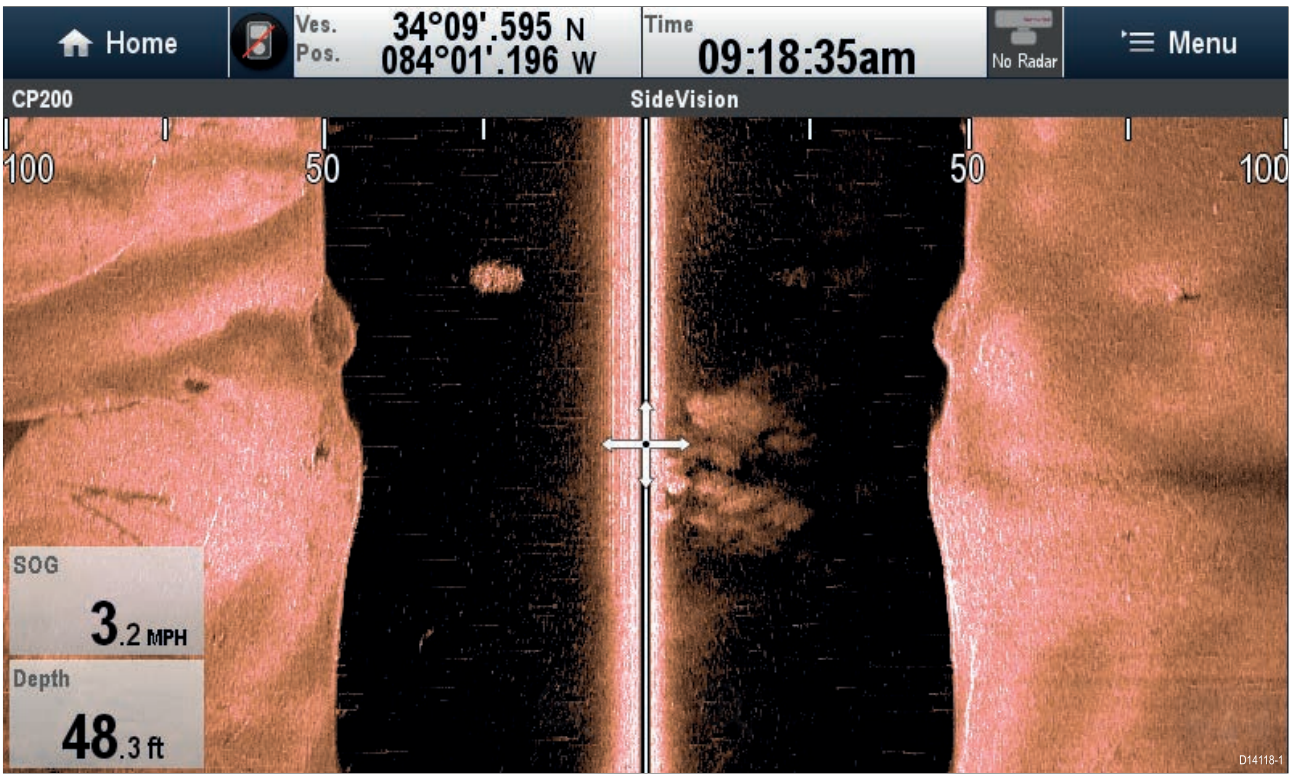
SideVision™ beams



SideVision™ is effective at lower vessel speeds. The wide, thin beams produce clear target returns. As your vessel moves forward, subsequent returns build up to provide an image of the sea floor on each side of your vessel.

The use of CHIRP processing and a high operating frequency provide a detailed image, making it easier to identify bottom structures around which fish may reside. The narrow angle the beams make with the bottom at longer ranges can reveal the shadows of structures that protrude from the bottom.

CHIRP SideVision™ screen example

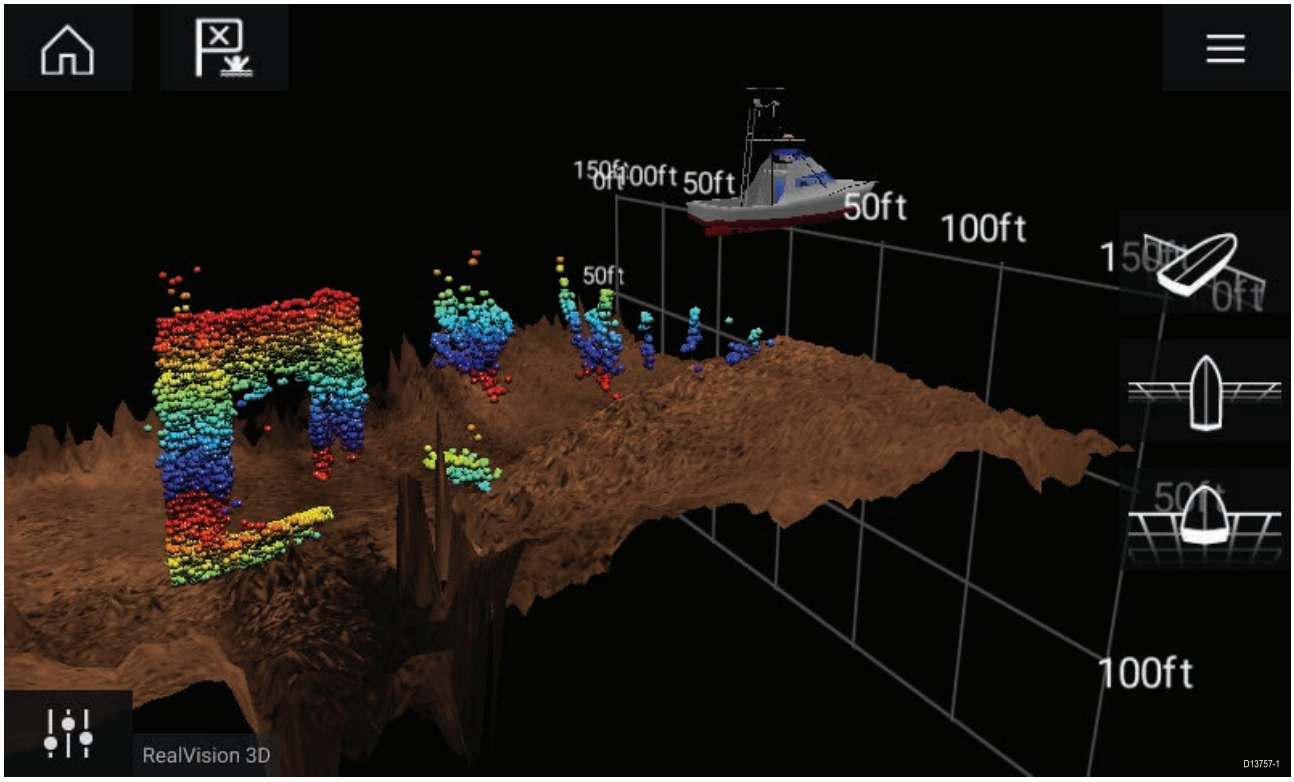


CHIRP RealVision™ 3D overview

CHIRP **RealVision™ 3D** transducers combine CHIRP DownVision™, CHIRP SideVision™, high frequency CHIRP Sonar, and RealVision™ 3D to deliver life-like 3D sonar imagery.

RealVision™ 3D provides a true, easy-to-understand view of bottom topography, debris, and fish.

CHIRP RealVision™ 3D screen example



Note: The “Depth” figure shown in the illustration above assumes that you have a device in your system that provides depth data. Please be aware that not all transducers and / or sonar modules support depth sensing.

2.5 Raymarine sonar modules

The table below lists Raymarine's current range of sonar modules.

Sonar module	Type	Technology
CP100	External	CHIRP **DownVision**™ / Sonar
CP200	External	**SideVision**™
CP300 / CP370	External	Traditional (1 kW)
CP450C / CP470	External	CHIRP
CP570	External	CHIRP
RVX1000	External	CHIRP **RealVision**™ **3D** / CHIRP **DownVision**™ / CHIRP / Traditional (1kW) sonar / 200W CHIRP sonar
Axiom™ Pro 9 RVX /12 RVX /16 RVX	Internal	CHIRP **RealVision**™ **3D** / CHIRP **DownVision**™ / CHIRP / Traditional (1kW) sonar / 200W CHIRP sonar
Axiom™ Pro 9 S /12 S /16 S	Internal	200W CHIRP sonar
Axiom™ 7 DV	Internal	CHIRP **DownVision**™ / Sonar / Traditional (600W) sonar / 200W CHIRP sonar
Axiom™ 7 /9 / 12 RV 3D	Internal	CHIRP **RealVision**™ **3D** / Sonar / Traditional (600W) sonar / 200W CHIRP sonar
a68 / a78 / a98 / a128 / eS78 / eS98 / eS128	Internal	CHIRP **DownVision**™ / Sonar
a67 / a77 / a97 / a127 / c97 / c127 / e7D / e97 / e127 / eS77 / eS97 / eS127	Internal	Traditional (600W) sonar
DSM30 / DSM300	External	Legacy external
Dragonfly	Internal	CHIR **DownVision**™ / Sonar

Note: SideVision™ cannot be used as a source of depth data.

Chapter 3: Planning the installation

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- 3.3 Multifunction display compatibility on page 30
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3.1 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.

3.2 Required additional components

This product forms part of a system of electronics and requires the following additional components for full operation.

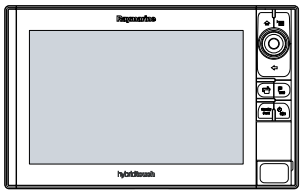
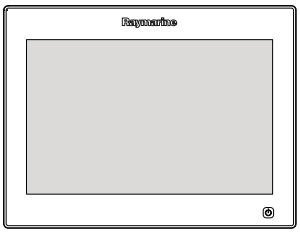
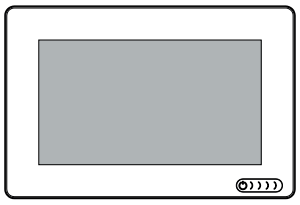
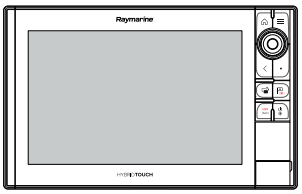
- Compatible transducer: transom, through-hull, in-hull, or pocket/keel mount. Refer to 3.5 **Compatible transducers** for a list of compatible products.
- Compatible Raymarine multifunction display. Refer to **Compatible multifunction displays** for a list of compatible products.
- Data cables. Refer to Chapter 4 **Cables and connections** for suitable cables. Some installations may also require extensions to data, power or transducer cables. Refer to the Chapter 4 **Cables and connections** and Chapter 10 **Spares and accessories** sections for more information.

3.3 Multifunction display compatibility

Compatible multifunction displays

This product is compatible only with Raymarine multifunction displays running LightHouse™ 3 software, version 3.4 or later.

LightHouse™ 3 MFDs:

	Product variants		**Product variants**
	* eS Series		* gS Series
	Axiom		Axiom Pro / Pro-S

* MFDs running existing LightHouse 2 software MUST be upgraded to LightHouse 3, version 3.4 or later.

LightHouse MFD software requirements

To use this product with a Raymarine LightHouse™ MFD, ensure that your MFD is running the required version of the software.

MFD software	**Required version**
LightHouse™ 3	3.4 or later

3.4 Software updates

The software running on the product can be updated.

- Raymarine periodically releases software updates to improve product performance and add new features.
- The software on many products can be updated using a connected and compatible multifunction display (MFD).

Important:

- To prevent potential software-related issues with your product, always follow the relevant update instructions carefully and in the sequence provided.
- If in doubt as to the correct procedure for updating your product software, refer to your dealer or Raymarine technical support.

Caution: Installing software updates

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

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

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

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

3.5 Compatible transducers

Compatible transducers — RVX1000 sonar module

You can connect the following transducer types directly to your RVX1000 sonar module:

RV Transducer connection:

- RealVision™ 3D transducers.

1kW Transducer connection:

- Wide Beam CHIRP transducers.
- CHIRP transducers.

You can use an adaptor cable to connect the following transducer types your RVX1000 sonar module:

RV Transducer connection, with 25-pin to 9-pin adaptor cable (A80490):

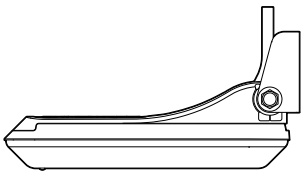
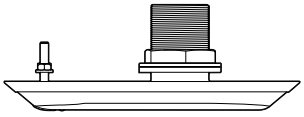
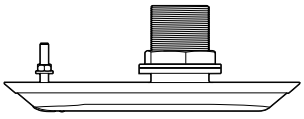
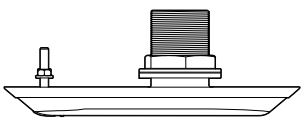
- DownVision™ transducers.
- CPT-S CHIRP conical beam transducers that utilize the 9 pin DownVision™ connector.

1kW Transducer connection, with 11-pin to 8-pin adaptor cable (A80496):

- Traditional transducers.

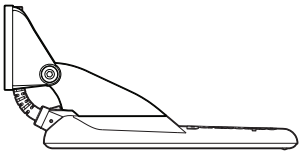
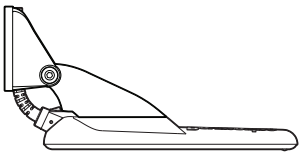
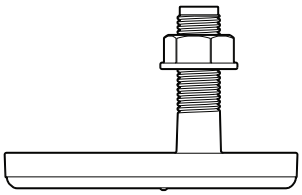
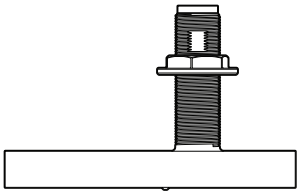
RealVision transducers

The transducers listed below can be connected directly to the RVX1000 RealVision™ 3D CHIRP sonar module.

Product number	Transducer	Mounting	Description
A80464		Transom	**RV-100** RealVision™ 3D Plastic Transducer
A80465		Thru-Hull	**RV-200** RealVision™ 3D Bronze 0° Single Transducer
The following two transducers are supplied as a pair (product no. T70318). Connect them to your RVX1000 using a Y-cable (product no. A80478).			
A80466		Thru-Hull	**RV-212P** RealVision™ 3D Bronze 12° Split-pair Port Transducer
A80467		Thru-Hull	**RV-212S** RealVision™ 3D Bronze 12° Split-pair Starboard Transducer
The following two transducers are supplied as a pair (product no. T70319). Connect them to your RVX1000 using a Y-cable (product no. A80478).			
A80468		Thru-Hull	**RV-220P** RealVision™ 3D Bronze 20° Split-pair Port Transducer
A80469		Thru-Hull	**RV-220S** RealVision™ 3D Bronze 20° Split-pair Starboard Transducer

DownVision™ transducers

The transducers listed below can be connected to the RVX1000 RealVision™ 3D CHIRP sonar module via an adaptor cable (part number A80490).

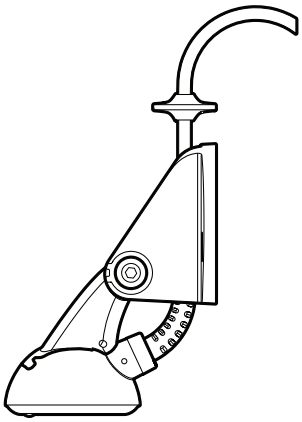
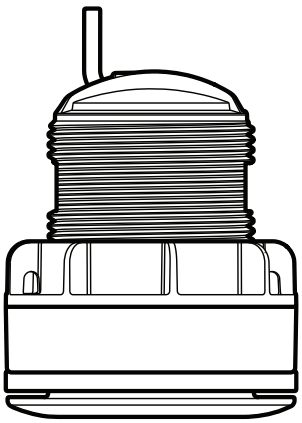
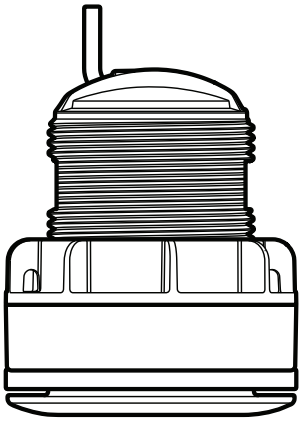
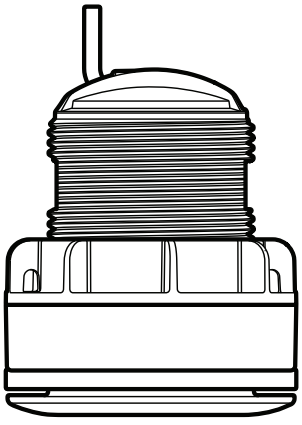
Product number	Transducer	Mounting	Description
A80507		Transom	**CPT-90DVS** plastic
A80351		Transom	**CPT-100DVS** plastic (replacement for A80270 CPT-100)
A80277		Thru-hull	**CPT-110** plastic
A80350		Thru-hull	**CPT-120** bronze (replacement for A80271 CPT-120)

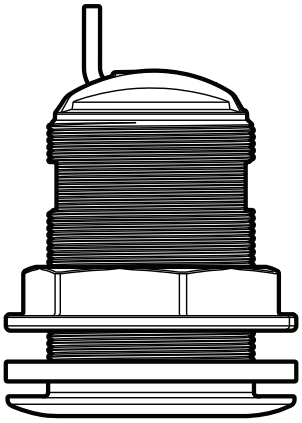
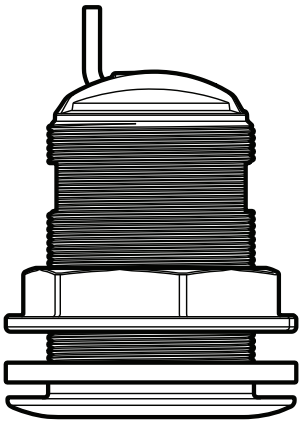
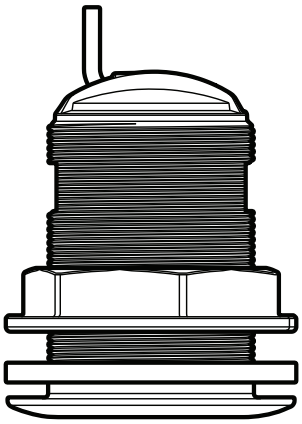
CHIRP conical beam transducers (using DownVision™ type connector)

The transducers listed below can be connected to the RVX1000 RealVision™ 3D CHIRP sonar module via an adaptor cable (part number A80490).

CPT-S transducers use CHIRP sonar technology to produce a conical-shaped sonar beam.

Note: CPT-S transducers do NOT offer DownVision™ capabilities.

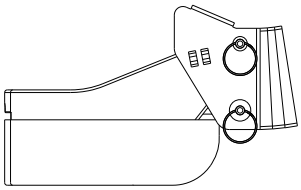
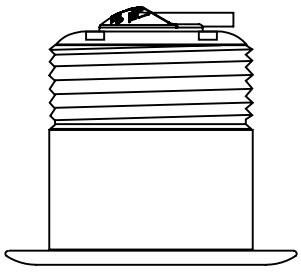
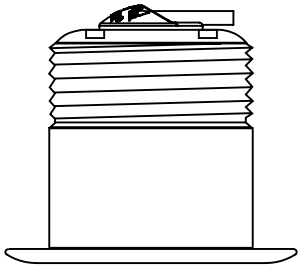
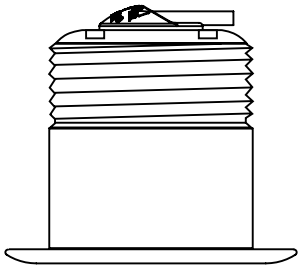
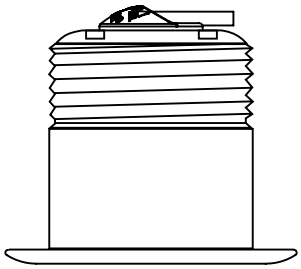
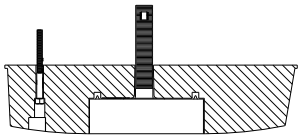
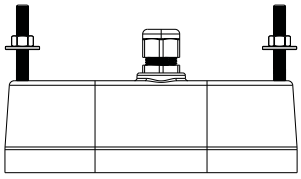
Product number	Transducer	Mounting	Description
E70342		Transom	**CPT-S** plastic
E70339		Thru-hull	**CPT-S 0°** angled element plastic
A80448		Thru-hull	**CPT-S 12°** angled element plastic
A80447		Thru-hull	**CPT-S 20°** angled element plastic

Product number	Transducer	Mounting	Description
A80446		Thru-hull	**CPT-S 0°** angled element bronze
E70340		Thru-hull	**CPT-S 12°** angled element bronze
E70341		Thru-hull	**CPT-S 20°** angled element bronze

Wide Beam CHIRP transducers

The transducers listed below can be connected directly to the RVX1000 RealVision™ 3D CHIRP sonar module.

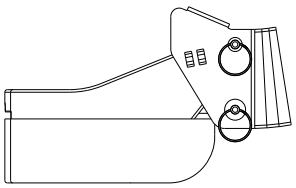
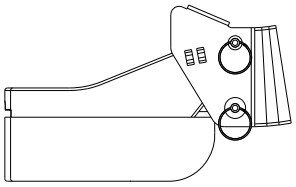
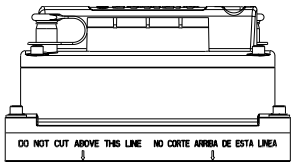
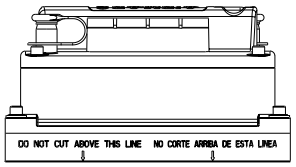
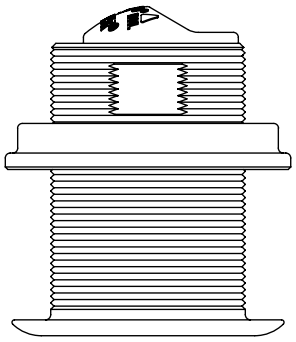
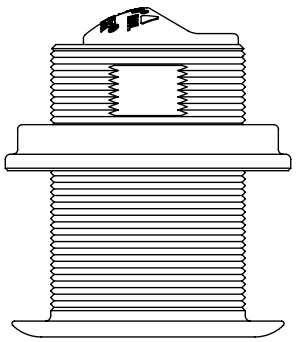
Note: All Wide Beam CHIRP transducers include a 2 m pigtail cable. Use an extension cable for a complete transducer installation (3 m: A102148; 5 m: A102150; 10 m: A80327).

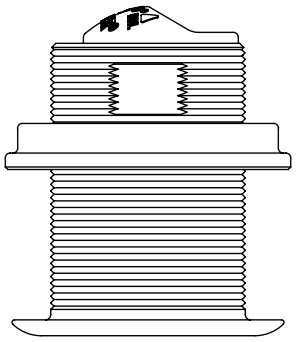
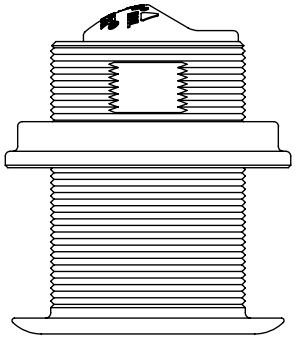
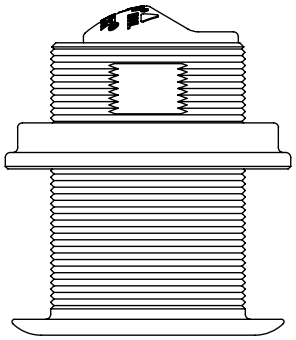
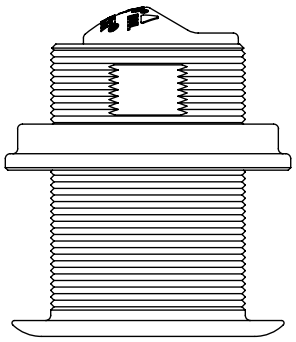
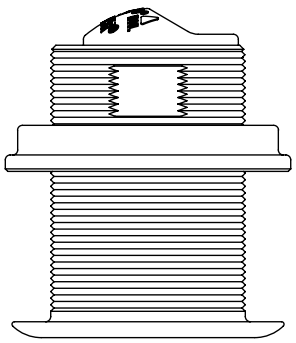
Product number	Transducer	Mounting	Description
A80318		Transom	**TM275LH-W** plastic
A80319		Thru-Hull	**B175H-W 0°** angled element bronze
A80320		Thru-Hull	**B175H-W 12°** angled element bronze
A80321		Thru-Hull	**B175H-W 20°** angled element bronze
A80506		Thru-Hull	**SS175H-W 20°** angled element stainless steel
A80322		Thru-Hull	**B275LH-W** bronze
A80325		Pocket / Keel mount	**PM275LH-W** bronze

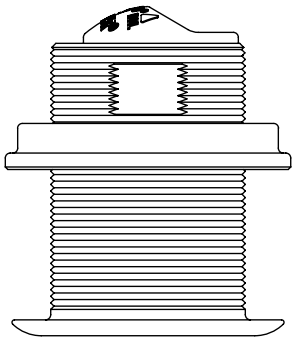
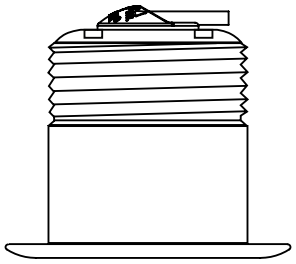
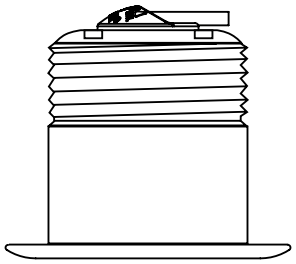
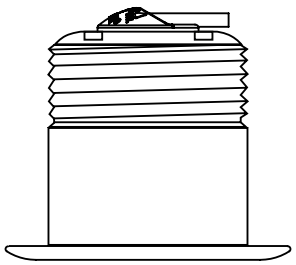
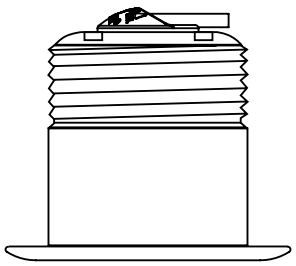
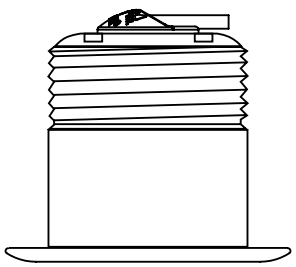
CHIRP transducers

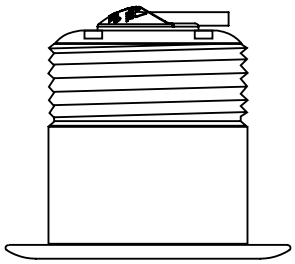
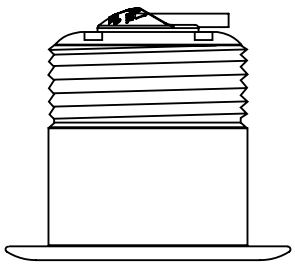
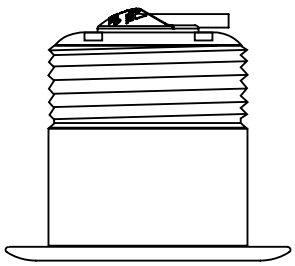
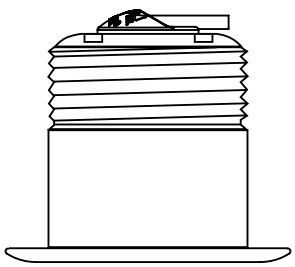
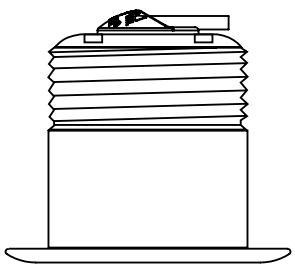
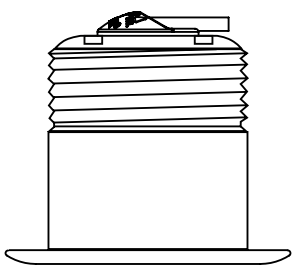
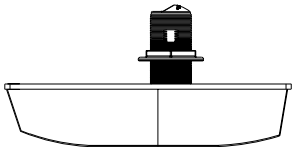
The transducers listed below can be connected directly to the RVX1000 RealVision™ 3D CHIRP sonar module.

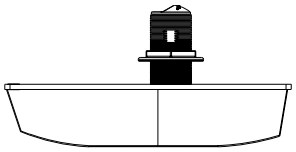
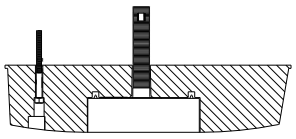
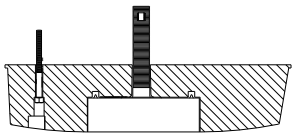
Note: To install individual B75 or B175 transducers, use the Single B75/B175 Operation Cable (A80328) instead of the Paired CHIRP Transducer Y-cable (A102146).

Product number	Transducer	Mounting	Description
A80013		Transom	**TM265LH** plastic
A80041		Transom	**TM265LM** plastic
A80012		In-Hull	**M265LH** plastic
A80038		In-Hull	**M265LM** plastic
A80016		Thru-Hull	**B75L 0°** angled element bronze
A80017		Thru-Hull	**B75M 0°** angled element bronze

Product number	Transducer	Mounting	Description
A80018		Thru-Hull	**B75H 0°** angled element bronze
A80033		Thru-Hull	**B75L 12°** angled element bronze
A80034		Thru-Hull	**B75M 12°** angled element bronze
A80035		Thru-Hull	**B75H 12°** angled element bronze
A80036		Thru-Hull	**B75M 20°** angled element bronze

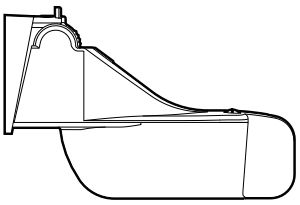
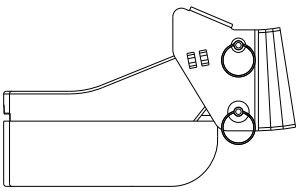
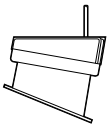
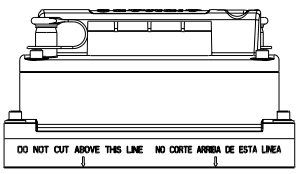
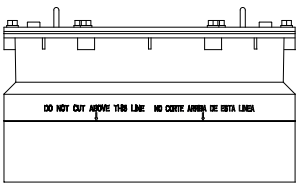
Product number	Transducer	Mounting	Description
A80037		Thru-Hull	**B75H 20°** angled element bronze
A80042		Thru-Hull	**B175L 0°** angled element bronze
A80043		Thru-Hull	**B175M 0°** angled element bronze
A80044		Thru-Hull	**B175H 0°** angled element bronze
A80045		Thru-Hull	**B175L 12°** angled element bronze
A80046		Thru-Hull	**B175M 12°** angled element bronze

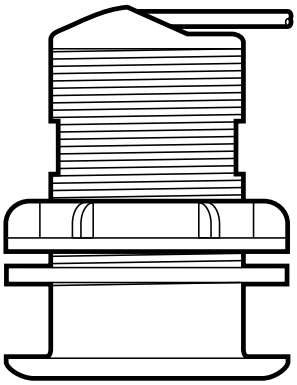
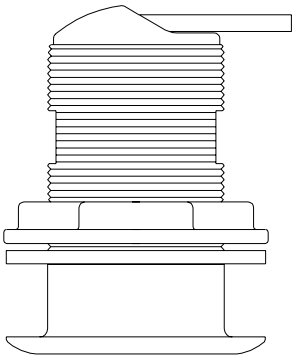
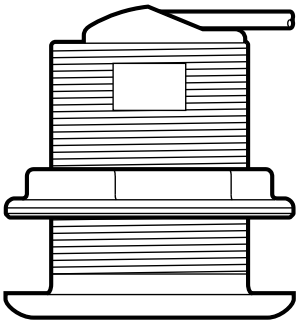
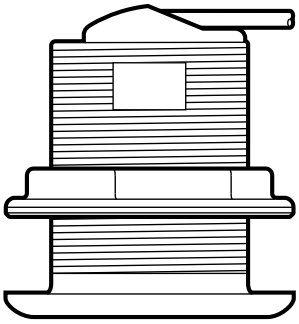
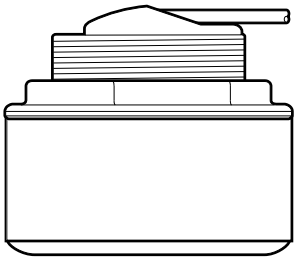
Product number	Transducer	Mounting	Description
A80047		Thru-Hull	**B175H 12°** angled element bronze
A80048		Thru-Hull	**B175L 20°** angled element bronze
A80049		Thru-Hull	**B175M 20°** angled element bronze
A80050		Thru-Hull	**B175H 20°** angled element bronze
A80504		Thru-Hull	**SS175L 20°** angled element stainless steel
A80505		Thru-Hull	**SS175M 20°** angled element stainless steel
A80014		Thru-Hull	**B765LH** bronze

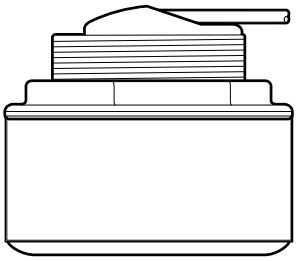
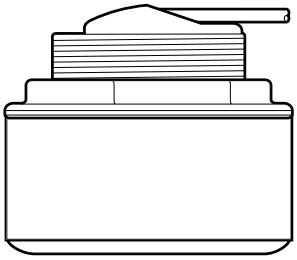
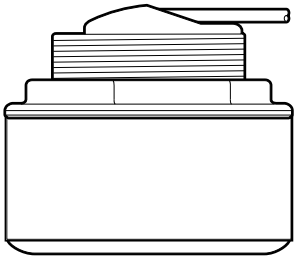
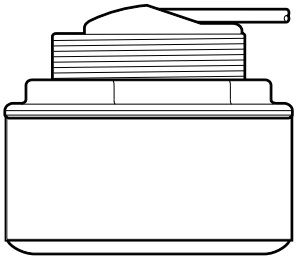
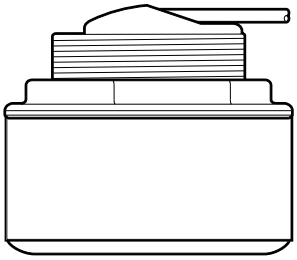
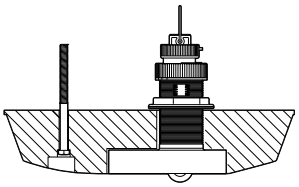
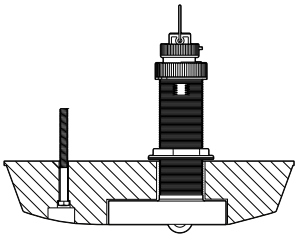
Product number	Transducer	Mounting	Description
A80015		Thru-Hull	**B765LM** bronze
A80010		Thru-Hull	**B265LH** bronze
A80011		Thru-Hull	**B265LM** bronze

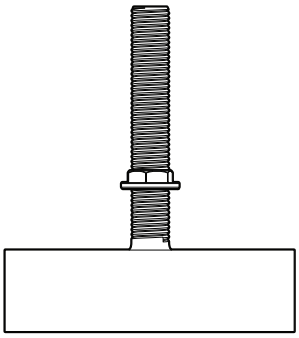
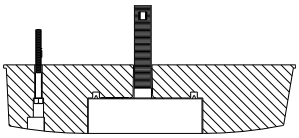
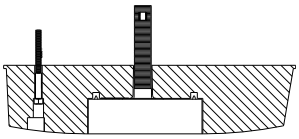
Traditional transducers

The transducers listed below can be connected to the RVX1000 RealVision™ 3D CHIRP sonar module via an adaptor cable (part number A80496).

Product number	Transducer	Mounting	Description
E66054		Transom	**P66** plastic
E66084		Transom	**TM258** plastic
E66008		In-hull	**P79** plastic
A66089		In-hull	**M260** plastic
E66076		In-hull	**R199** plastic

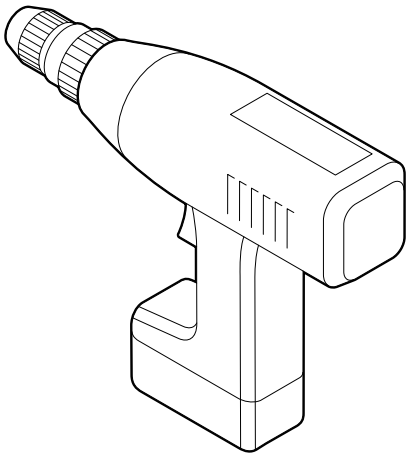
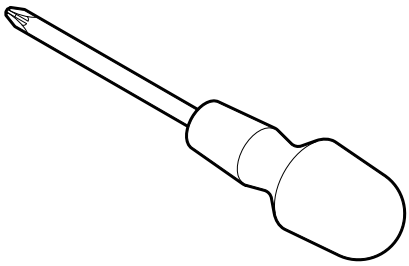
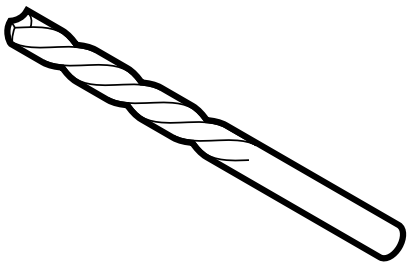
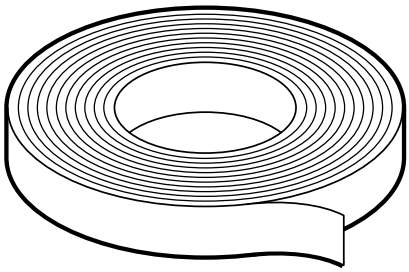
Product number	Transducer	Mounting	Description
E66013		Thru-hull	**P319** plastic
E66014		Thru-hull	**B117** bronze
E66086		Thru-hull	**B60 12˚** angled element bronze
E66085		Thru-hull	**B60 20˚** angled element bronze
A102137		Thru-hull	**B164 0˚** angled element bronze

Product number	Transducer	Mounting	Description
A102112		Thru-hull	**B164 12˚** angled element bronze
A102113		Thru-hull	**B164 20˚** angled element bronze
A80451		Thru-hull	**SS164 0˚** angled element stainless steel
A66098		Thru-hull	**SS164 12˚** angled element stainless steel
A66099		Thru-hull	**SS164 20˚** angled element stainless steel
A66091		Thru-hull	**B744V** bronze
A66092		Thru-hull	**B744VL** bronze

Product number	Transducer	Mounting	Description
E66082		Thru-hull	**B258** bronze
A102121		Thru-hull	**SS270W** wide-beam bronze
E66079		Thru-hull	**B260** bronze

3.6 Tools required

Product installation requires the following tools:

Item	Description	Quantity
	Power drill	1
	Pozidrive screwdriver	1
	Drill bit of appropriate size*	1
	Adhesive tape	1

Note: * The appropriate drill bit size is dependent on the thickness and material of the mounting surface.

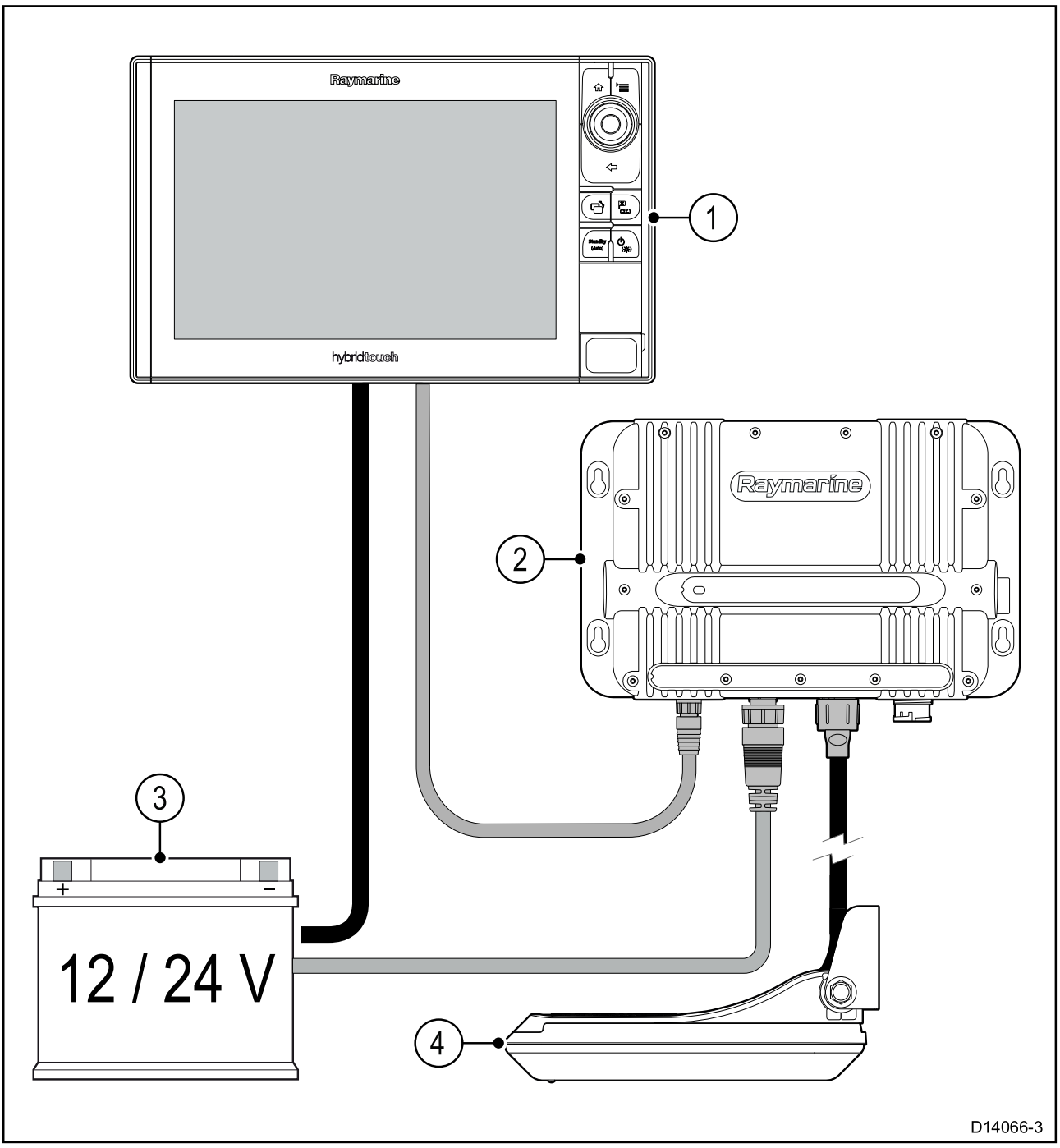
3.7 Typical system examples

The RVX1000 sonar module can be connected to a variety of equipment as part of your marine electronics system.

Note: The following illustrations show the various products that can be connected in a typical system. These systems are shown as an example only and may differ from your planned installation.

- For information on how to connect the products, refer to the Chapter 4 **Cables and connections** section.
- For information on available cables and accessories, refer to the Chapter 10 **Spares and accessories** section.

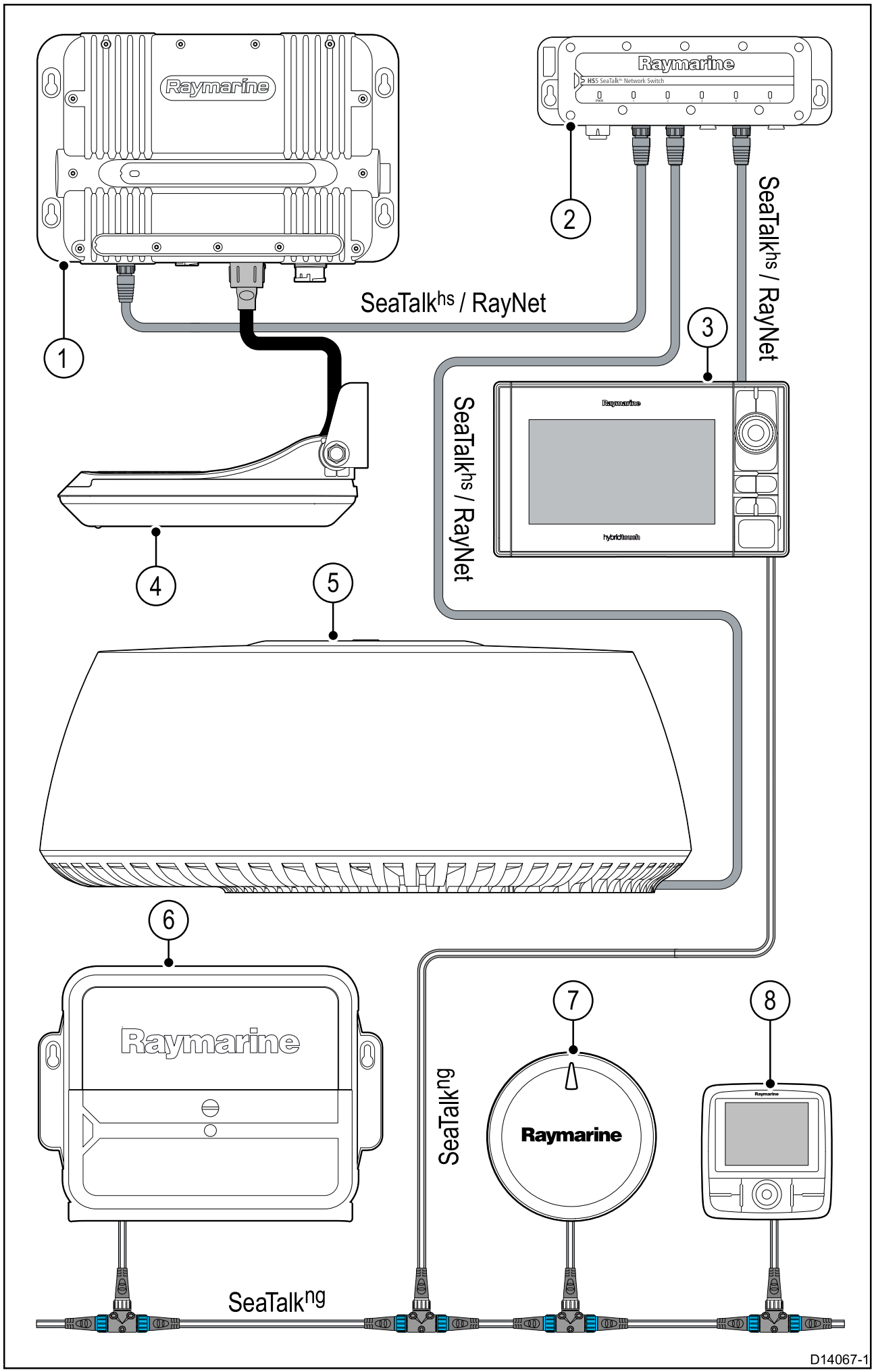
Example: Basic RealVision™ system



Item	Description
1	Compatible Raymarine multifunction display (eS Series illustrated)
2	RVX1000 sonar module

Item	Description
3	Power supply for RVX1000 and multifunction display
4	Transducer (RV-100 RealVision™ 3D illustrated)

Example: Extended RealVision™ system



Note: Power connections are not shown in this illustration. The sonar module, multifunction display, and some of the other devices shown require their own dedicated power connection.

Item	Description
1	RVX1000 sonar module
2	Raymarine network switch
3	Compatible Raymarine multifunction display (eS Series illustrated)
4	Transducer (RV-100 RealVision™ 3D illustrated)
5	Quantum™ 2 Doppler Radome
6	Actuator Control Unit (ACU)
7	EV unit
8	SeaTalk ng Pilot controller

Note: For detailed information on sonar module connections refer to Chapter 4 Cables and connections.

3.8 Warnings and cautions

Important: Before proceeding, ensure that you have read and understood the warnings and cautions provided in the Chapter 1 **Important information** section of this document.

3.9 General location requirements

Important considerations when choosing a suitable location for your product.

This product is suitable for mounting above or below decks.

The product 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 an engine room, near fuel tanks or a gas locker.

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

- **Access** — there must be sufficient space to enable cable connections to the product, avoiding tight bends in the cable.
- **Diagnostics** — the product must be mounted in a location where the diagnostics LED is easily visible.

> **Note:** Not all products include a diagnostics LED. Refer to the Chapter 6 **System checks and troubleshooting** for more information.

- **Electrical interference** — the product should be mounted far enough away from any equipment that may cause interference such as motors, generators and radio transmitters / receivers.
- **Magnetic compass** — refer to the *Compass safe distance* section in this document for advice on maintaining a suitable distance between this product and any compasses on your vessel.
- **Power** — to keep cable runs to a minimum, the product must be located as close as possible to the vessel's dc power supply.
- **Mounting surface** — ensure the product is adequately supported on a secure surface. Refer to the weight information provided in the *Technical specification* for this product and ensure that the intended mounting surface is suitable for bearing the product weight. Do NOT mount units or cut holes in places which may damage the structure of the vessel.

Cable routing requirements

Consider the following before installing the system cables:

- You will need to attach power, transducer and network cables to the unit.
- The transducer cable should only be extended where the sonar module cannot be installed close enough to the transducer to allow a direct connection.
- 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.

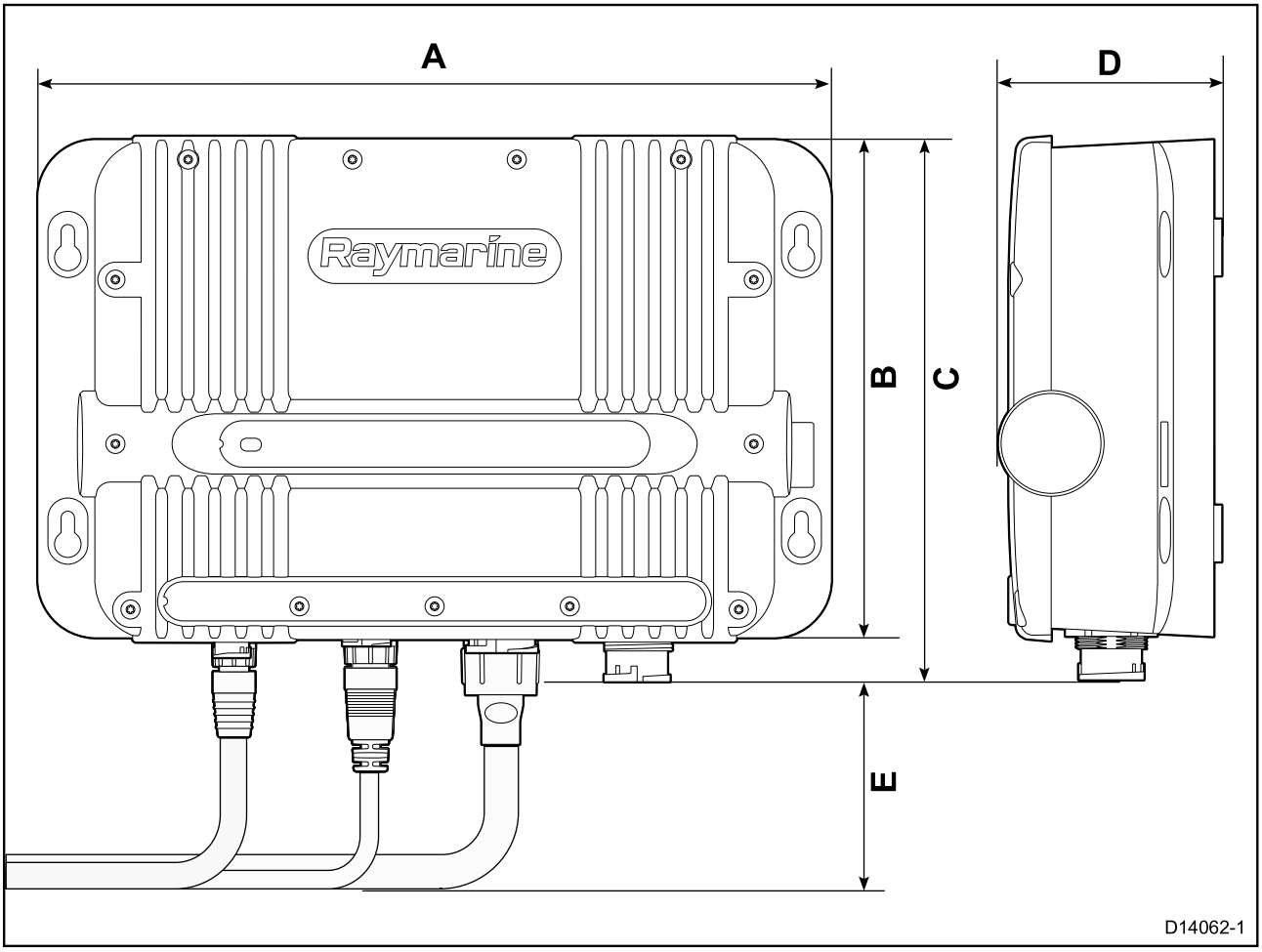
Compass safe distance

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

When choosing a suitable location for the product you should aim to maintain the maximum possible distance from 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 product this far away from a compass. In this situation, when choosing the installation location for your product, ensure that the compass is not affected by the product when it is in a powered state.

3.10 Product dimensions

RVX1000 dimensions



Item	Dimension
A	299.4 mm (11.79 in)
B	188.0 mm (7.40 in)
C	209.9 mm (8.26 in)
D	84.4 mm (3.32 in)
E	80.0 mm (3.15 in)

Chapter 4: Cables and connections

Chapter contents

- 4.1 General cabling guidance on page 56
- 4.2 Connections overview on page 58
- 4.3 Power connection on page 60
- 4.4 Transducer connections on page 64
- 4.5 Network connection on page 72

4.1 General cabling guidance

Cable types and length

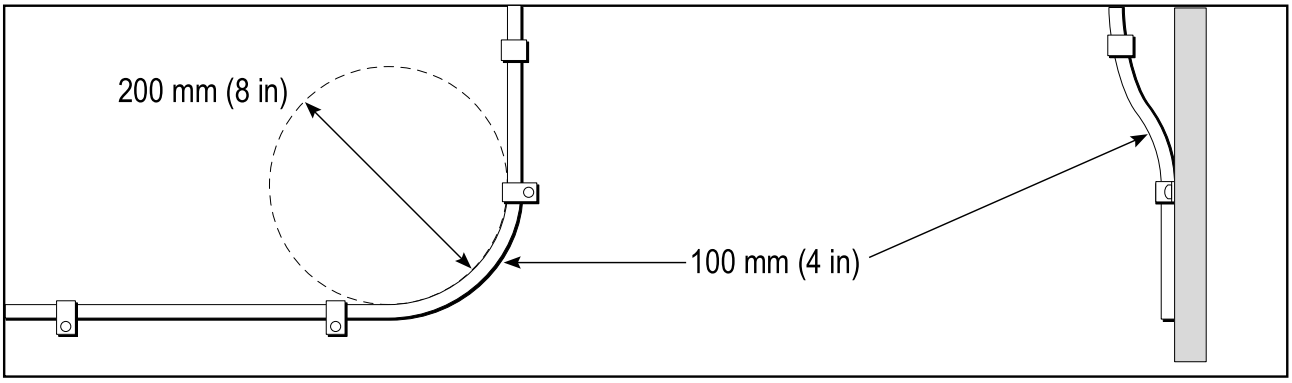
It is important to use cables of the appropriate type and length

- 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.

Routing cables

Cables must be routed correctly, to maximize performance and prolong cable life.

- Do NOT bend cables excessively. Wherever possible, ensure a minimum bend diameter of 200 mm (8 in) / minimum bend radius of 100 mm (4 in).



- Protect all cables from physical damage and exposure to heat. Use trunking or conduit where possible. Do NOT run cables through bilges or doorways, or close to moving or hot objects.
- Secure cables in place using tie-wraps or lacing twine. Coil any extra cable and tie it out of the way.
- Where a cable passes through an exposed bulkhead or deckhead, use a suitable watertight feed-through.
- 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.

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 cables are properly shielded and that the cable shielding is undamaged.

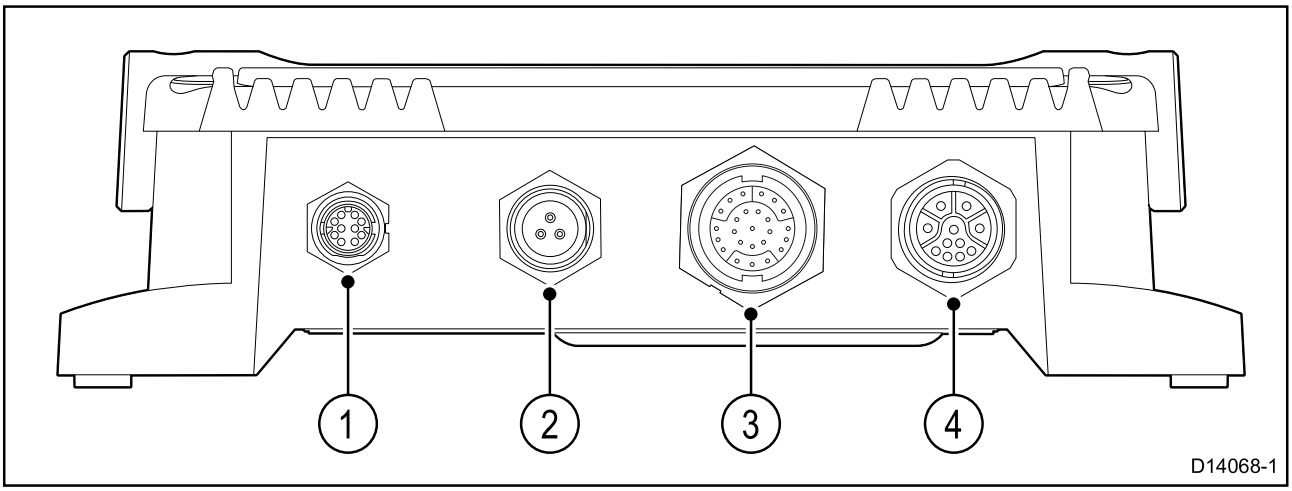
Suppression ferrites

- Raymarine cables may be pre-fitted or supplied with suppression ferrites. These are important for correct EMC performance. If ferrites are supplied separately to the cables (i.e. not pre-fitted), you must fit the supplied ferrites, using the supplied instructions.
- 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 or its authorized dealers.
- Where an installation requires multiple ferrites to be added to a cable, additional cable clips should be used to prevent stress on the connectors due to the extra weight of the cable.

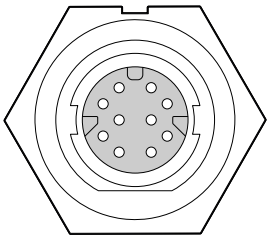
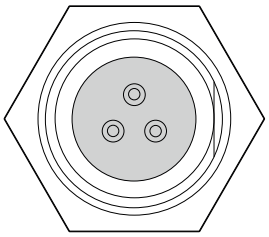
4.2 Connections overview

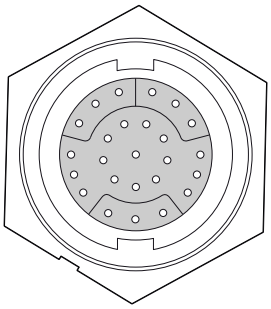
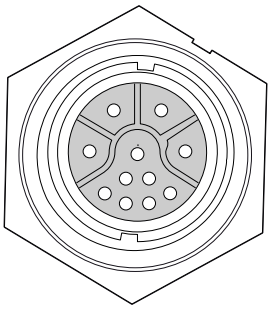
Cable connectors for your sonar module are shown below:

RVX1000 sonar module



Item	Description
1	Network connection
2	Power connection
3	RealVision™ (RV) transducer connection
4	1kW transducer connection

Item	Connector	Connects to:	Suitable cables
1		RayNet network or device	RayNet cable with female connector (Refer to Chapter 10 **Spares and accessories** for more information.)
2		12/24 DC power supply	Power cable (supplied)

Item	Connector	Connects to:	Suitable cables
3		• RealVision™ 3D transducers • DownVision™ transducers • CPT-S CHIRP conical beam transducers	• Transducer's fitted cable • Extension cable • Adaptor cable
4		• Wide Beam CHIRP transducers • CHIRP transducers • Traditional transducers	• Transducer's fitted cable • Extension cable • Adaptor cable

Note: A dust cap is provided for each transducer connector. Ensure that you fit the dust cap over any unused transducer connector.

Making connections

Follow the steps below to connect the cable(s) to your product.

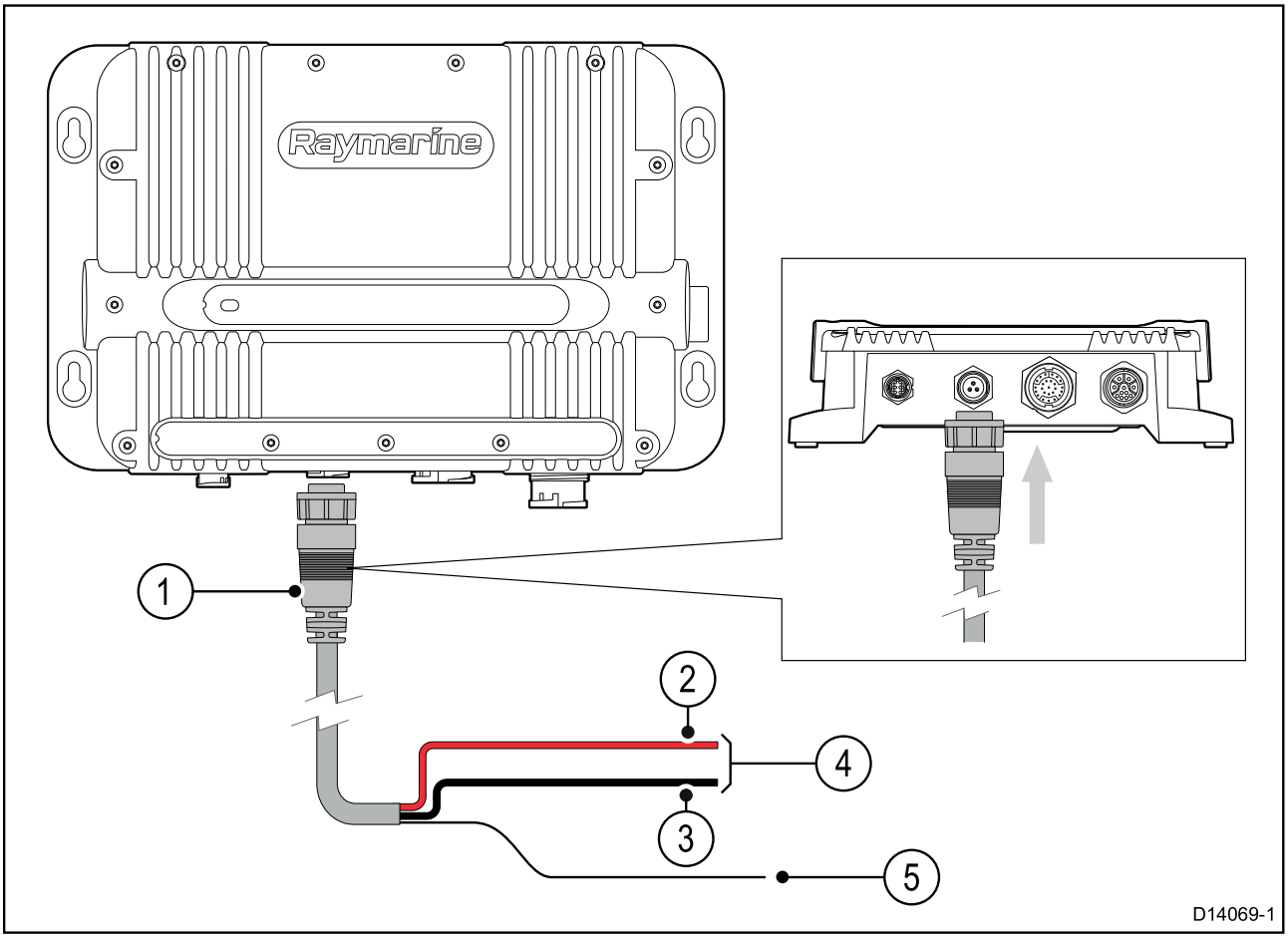
1. Ensure that the vessel's power supply is switched off.
2. Ensure that the device being connected to the unit has been installed in accordance with the installation instructions supplied with that device.
3. Ensuring correct orientation, push the cable connector fully onto the corresponding connector on the unit.
4. Turn the locking collar clockwise to secure the cable.

4.3 Power connection

Power must be supplied to the sonar module from an appropriate power source.

Power connection requirements

- 12 or 24 Vdc nominal supply voltage
- Isolated power supply
- Connected via an appropriately rated thermal breaker or fused switch.



Item	Description	Connects to:
1	Power cable.	Product's power connector.
2	Red cable (positive)	Power supply's positive terminal.
3	Black cable (negative)	Power supply's negative terminal.
4	Connection to 12V / 24V power supply.	Power supply.
5	Drain / Ground	Vessel RF ground, or negative battery terminal

In-line fuse and thermal breaker ratings

The following in-line fuse and thermal breaker ratings apply to your product:

In-line fuse rating	Thermal breaker rating
5 A slow blow	5 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 FLIR dealer.
- Your product's power cable may have a fitted in-line fuse, if not then you can add an in-line fuse to the positive wire of your product's power connection.

Power distribution

Recommendations and best practice.

- The product is supplied with a power cable, either as a separate item or a captive cable permanently attached to the product. Only use the power cable supplied with the product. Do NOT use a power cable designed for, or supplied with, a different product.
- Refer to the *Power connection* section for more information on how to identify the wires in your product's power cable, and where to connect them.
- See below for more information on implementation for some common power distribution scenarios.

Important:

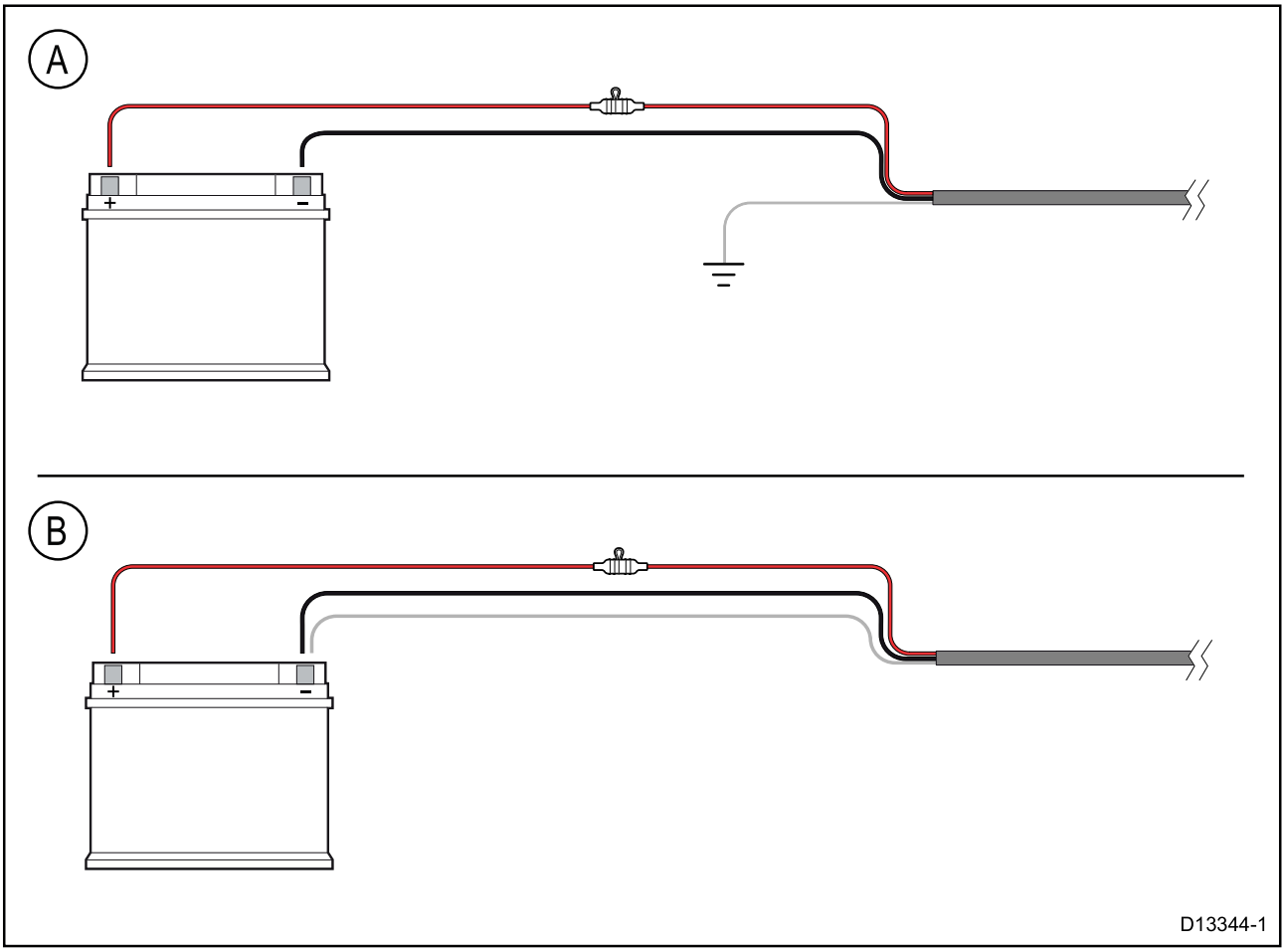
When planning and wiring, take into consideration other products in your system, some of which (e.g. sonar modules) may place large power demand peaks on the vessel's electrical system.

Note:

The information provided below is for guidance only, to help protect your product. It covers common vessel power arrangements, but does NOT cover every scenario. If you are unsure how to provide the correct level of protection, please consult an authorized Raymarine dealer or a suitably qualified professional marine electrician.

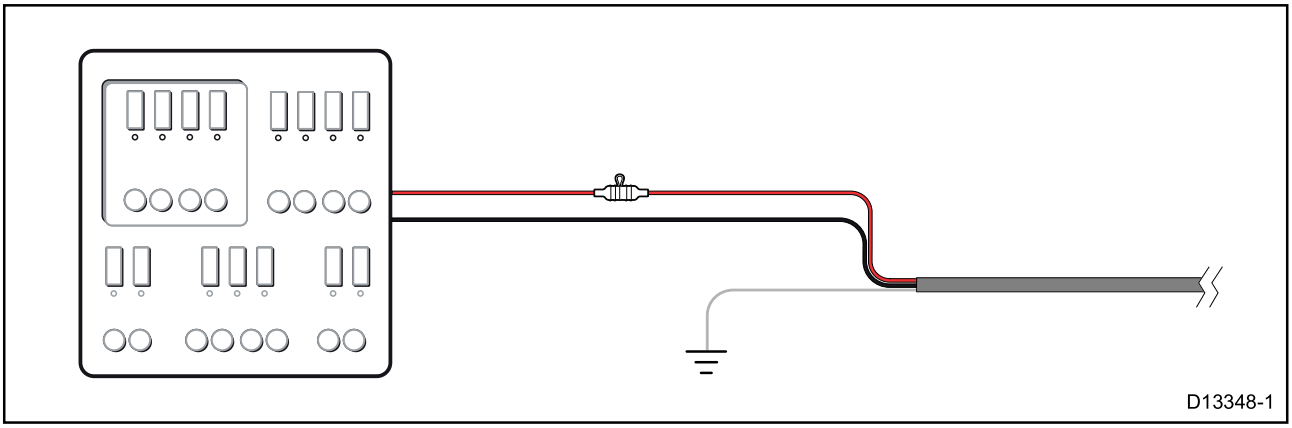
Implementation — direct connection to battery

- The power cable supplied with your product may be connected directly to the vessel's battery, via a suitably rated fuse or breaker.
- The power cable supplied with your product may NOT include a separate drain wire. If this is the case, only the power cable's red and black wires need to be connected.
- If the supplied power cable is NOT fitted with an inline fuse, you MUST fit a suitably rated fuse or breaker between the red wire and the battery's positive terminal.
- Refer to the inline fuse ratings provided in the product's documentation.
- If you need to extend the length of the power cable supplied with your product, ensure you observe the dedicated *Power cable extensions* advice provided in the product's documentation.

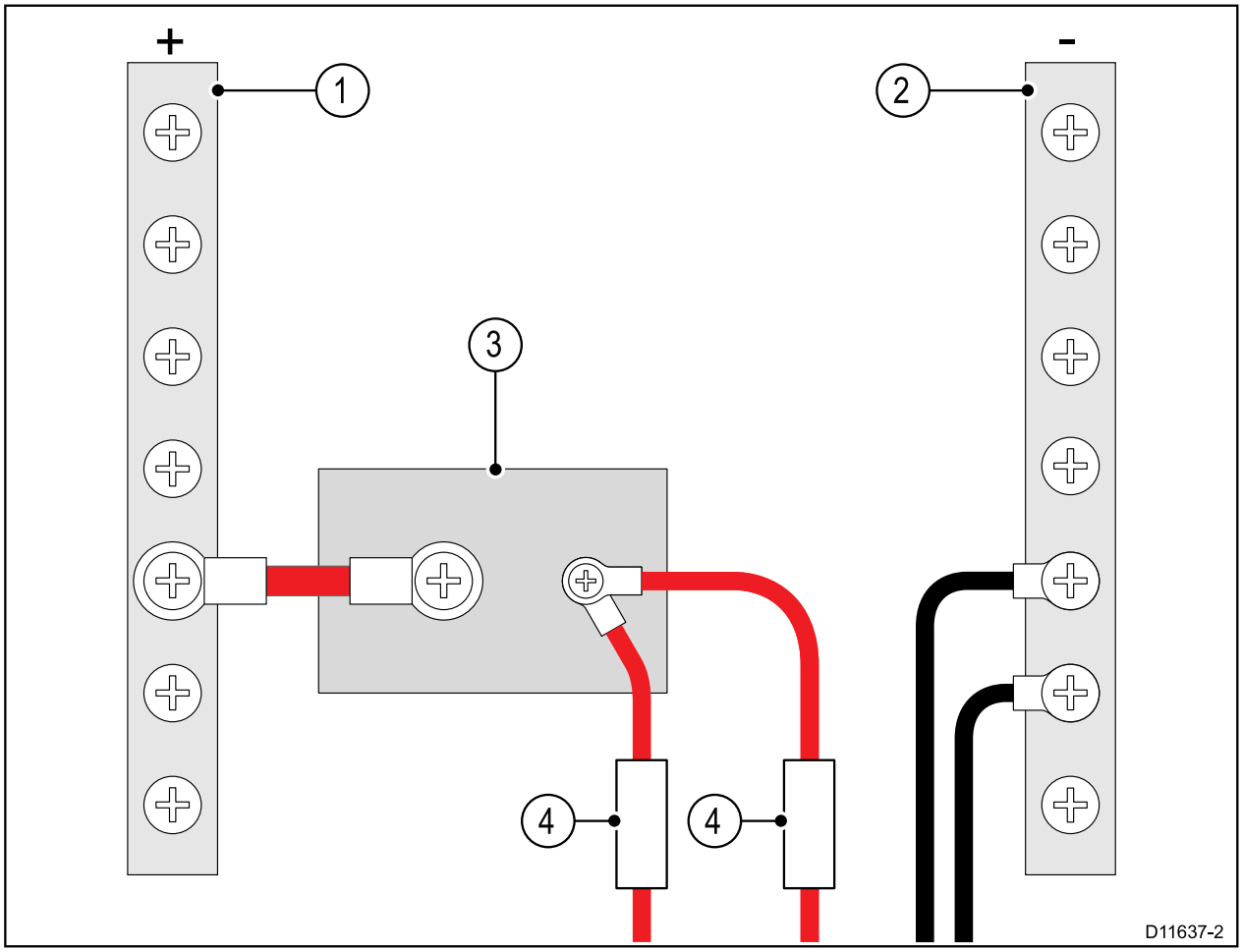


A	Battery connection scenario A: suitable for a vessel with a common RF ground point. In this scenario, if your product's power cable is supplied with a separate drain wire then it should be connected to the vessel's common ground point.
B	Battery connection scenario B: suitable for a vessel without a common grounding point. In this case, if your product's power cable is supplied with a separate drain wire then it should be connected directly to the battery's negative terminal.

Implementation — connection to distribution panel



- Alternatively, the supplied power cable may be connected to a suitable breaker or switch on the vessel's distribution panel or factory-fitted power distribution point.
- The distribution point should be fed from the vessel's primary power source by 8 AWG (8.36 mm^2) cable.
- Ideally, all equipment should be wired to individual suitably-rated thermal breakers or fuses, with appropriate circuit protection. Where this is not possible and more than 1 item of equipment shares a breaker, use individual in-line fuses for each power circuit to provide the necessary protection.



1	Positive (+) bar
2	Negative (-) bar
3	Circuit breaker
4	Fuse

- In all cases, observe the recommended breaker / fuse ratings provided in the product's documentation.

Important:

Be aware that the suitable fuse rating for the thermal breaker or fuse is dependent on the number of devices you are connecting.

Power cable extension

If you need to extend the length of the power cable supplied with your product, ensure you observe the following advice:

- The power cable for each unit in your system should be run as a separate, single length of 2-wire cable from the unit to the vessel's battery or distribution panel.
- For power cable extensions, a **minimum** wire gauge of 16 AWG (1.31 mm^2) is recommended. For cable runs longer than 15 meters, you may need to consider a thicker wire gauge (e.g. 14 AWG (2.08 mm^2), or 12 AWG (3.31 mm^2)).
- An important requirement for all lengths of power cable (including any extension) is to ensure that there is a continuous **minimum** voltage of 10.8 V at the product's power connector, with a fully flat battery at 11 V.

Important: Be aware that some products in your system (such as sonar modules) can create voltage peaks at certain times, which may impact the voltage available to other products during the peaks.

Grounding

Ensure that you observe any separate grounding advice provided in the product's documentation.

More information

It is recommended that best practice is observed in all vessel electrical installations, as detailed in the following standards:

- BMEA Code of Practice for Electrical and Electronic Installations in Boats
- NMEA 0400 Installation Standard
- ABYC E-11 AC & DC Electrical Systems on Boats
- ABYC A-31 Battery chargers and Inverters
- ABYC TE-4 Lightning Protection

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.

4.4 Transducer connections

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 accidently 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.

RVX1000 Transducer connections

The RVX1000 is a **RealVision™** sonar module designed for use with a variety of transducers.

The RVX1000 supports dedicated **RealVision™ 3D** transducers, CHIRP transducers (including Wide Beam CHIRP transducers), DownVision™ transducers, CPT-S CHIRP conical beam transducers, and traditional transducers.

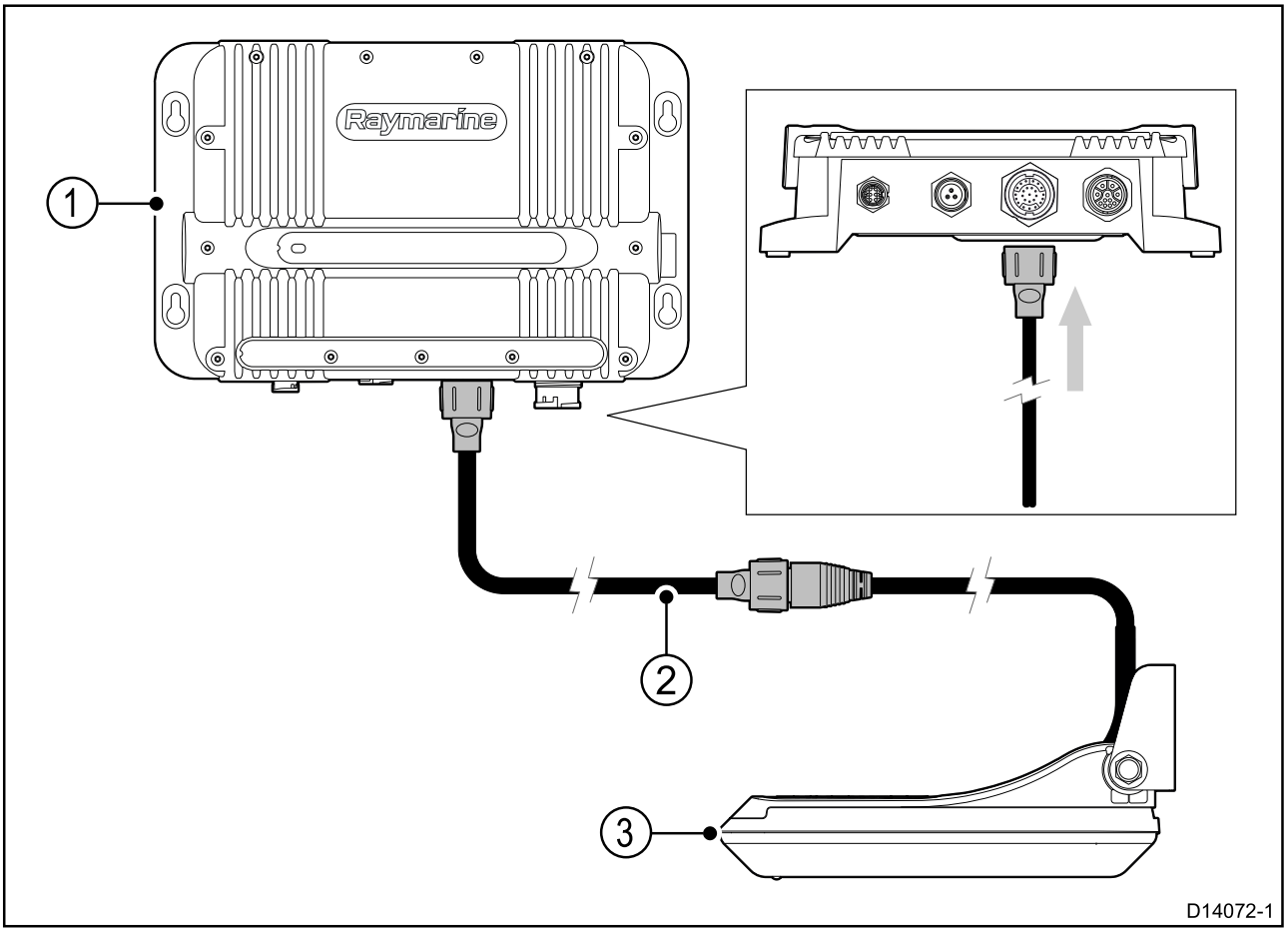
Transducers must be installed in accordance with the instructions provided with the transducer.

Note: Transducers without Transducer ID® are not supported.

For a list of compatible transducers, refer to **Compatible transducers — RVX1000 sonar module**

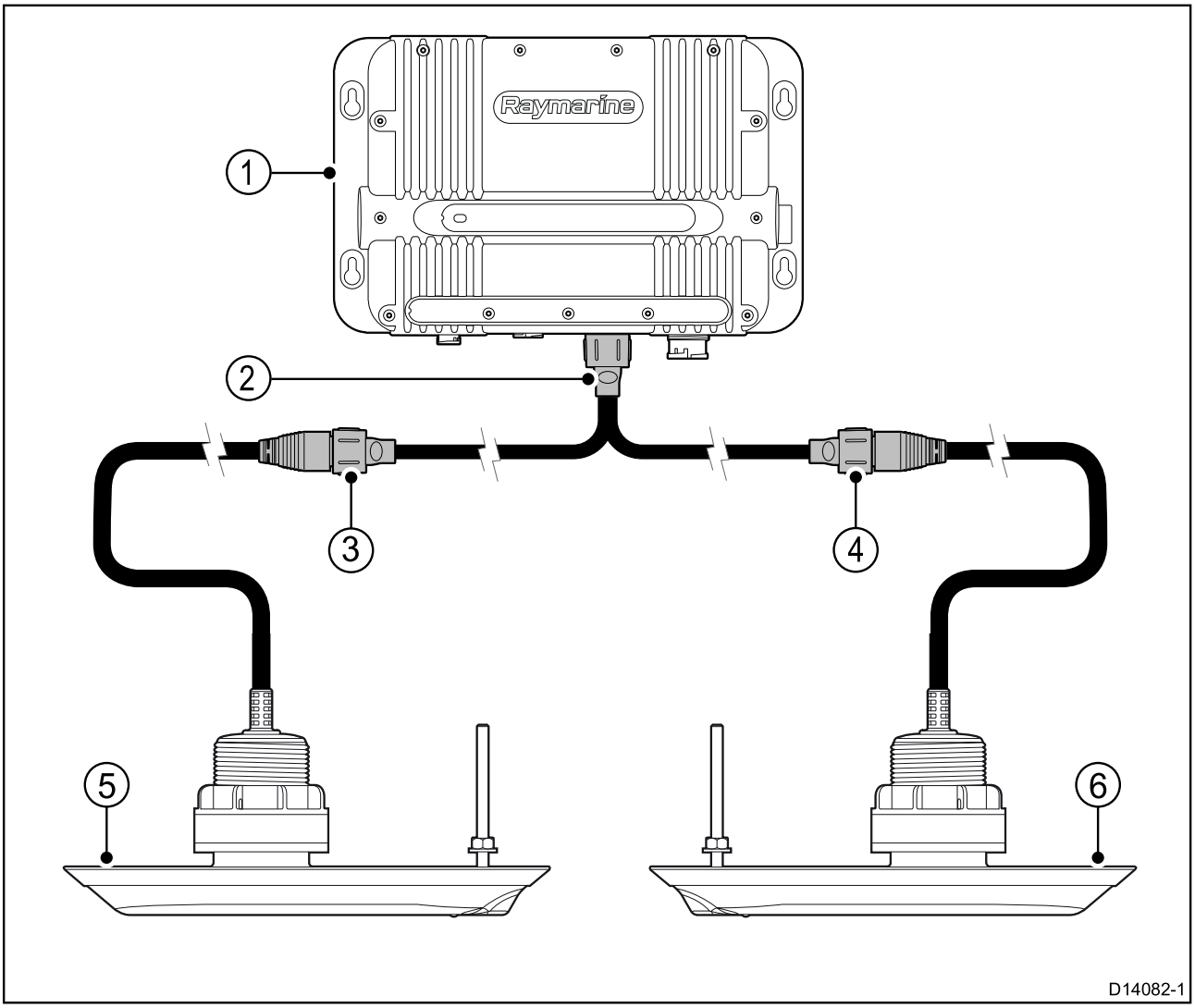
For a list of transducer cables refer to 10.1 Spares and accessories.

RealVision™ transducer connection



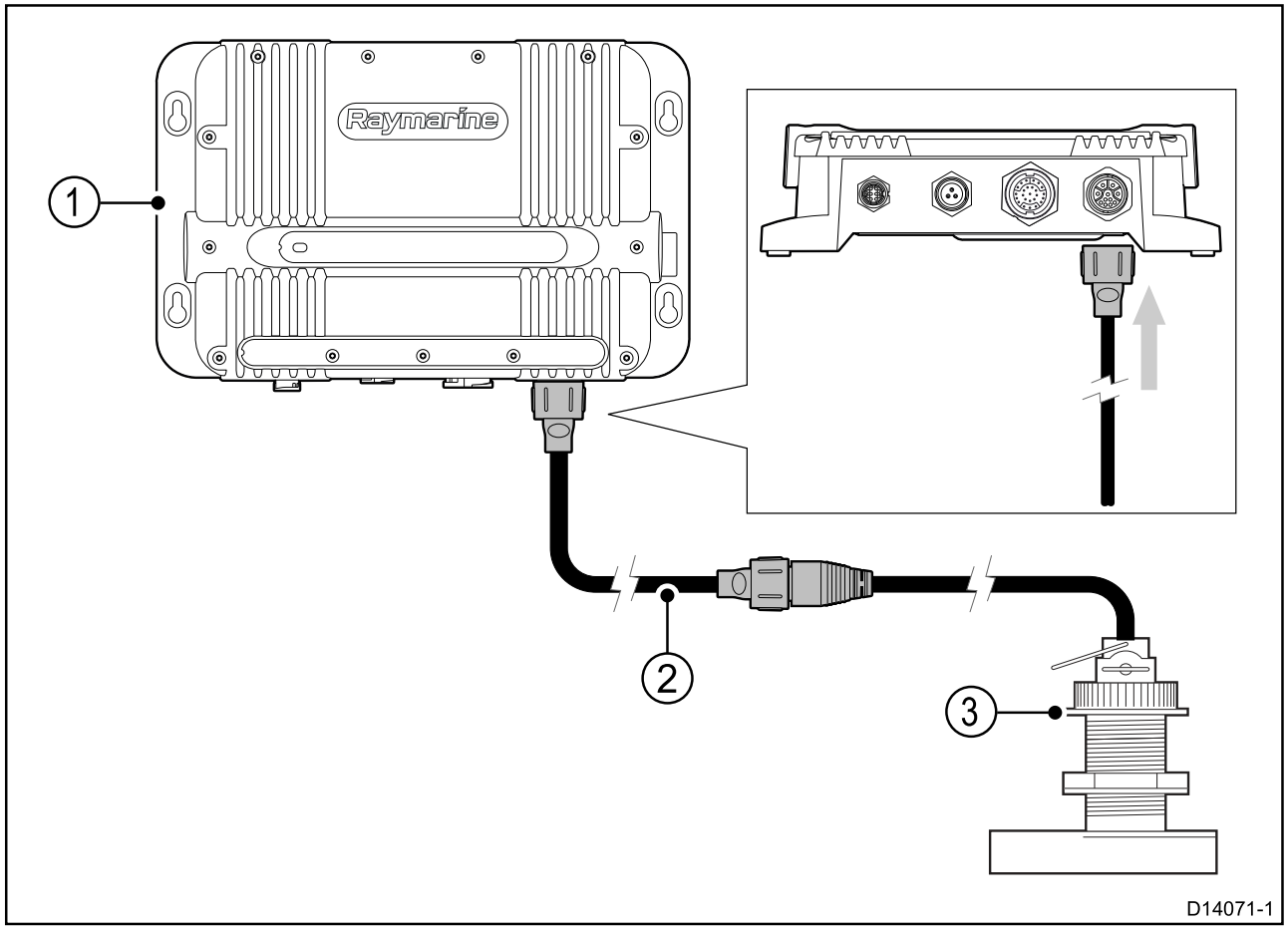
Item	Description
1	RVX1000
2	Extension cable (optional)
3	RealVision™ transducer

Split-pair RealVision™ transducers connection



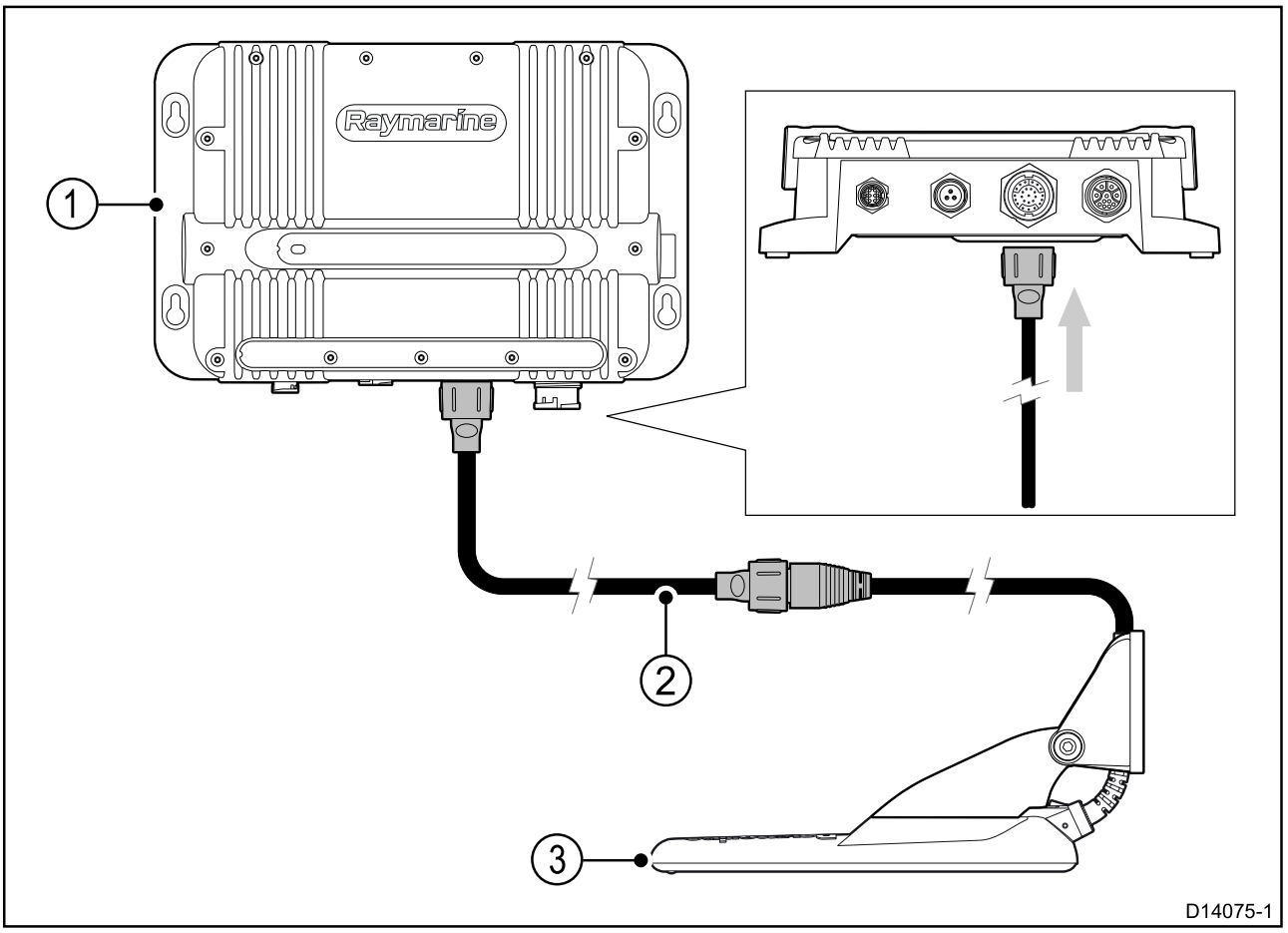
Item	Description
1	RVX1000
2	Paired RealVision™ transducer Y-cable (part number A80478)
3	Channel B of combined cable
4	Channel A of combined cable
5	RealVision™ transducer (split pair)
6	RealVision™ transducer (split pair)

CHIRP transducer connection (including Wide Beam CHIRP)



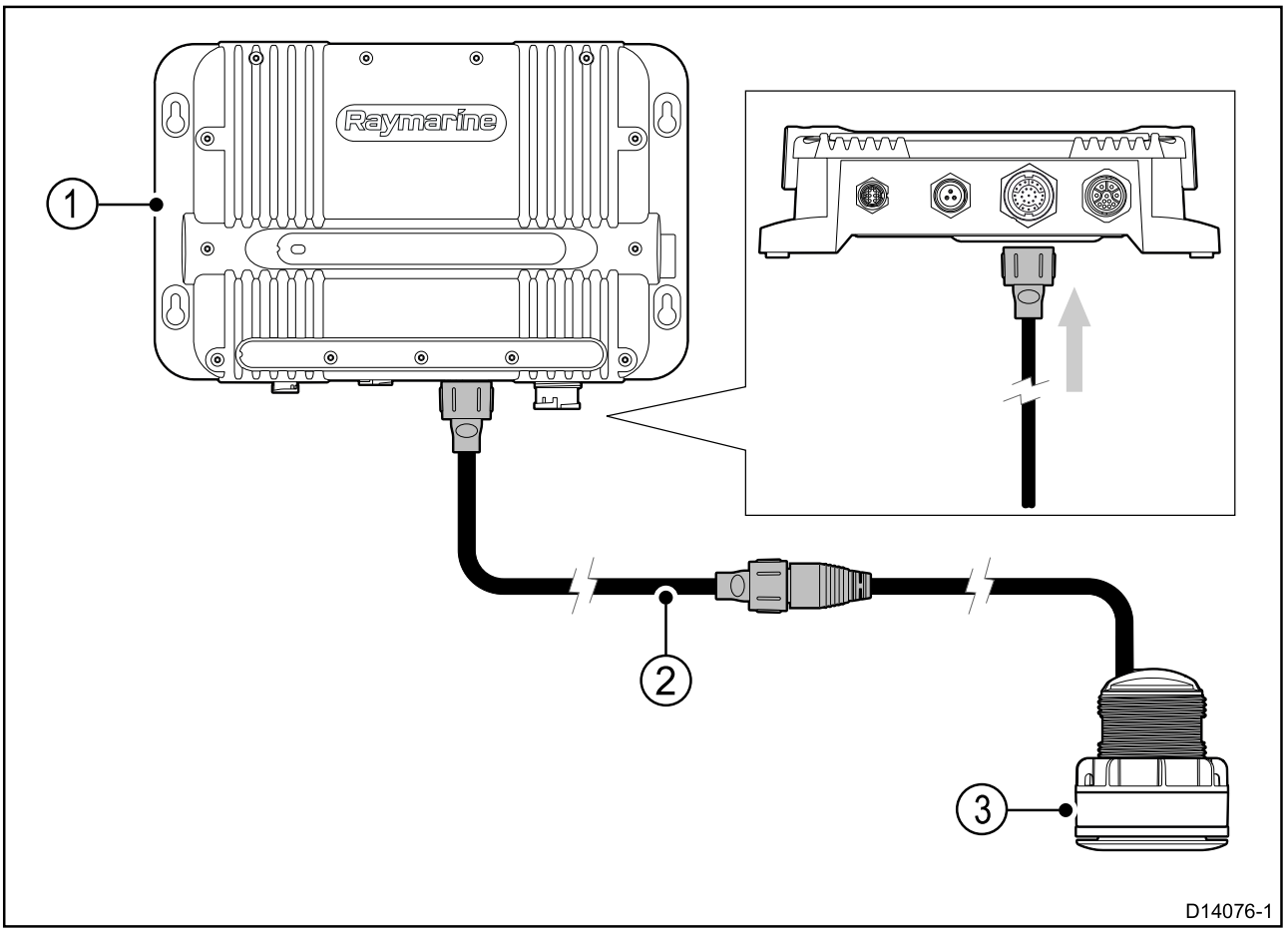
Item	Description
1	RVX1000
2	Extension cable (optional)
3	CHIRP transducer / Wide Beam CHIRP transducer

DownVision™ transducer connection



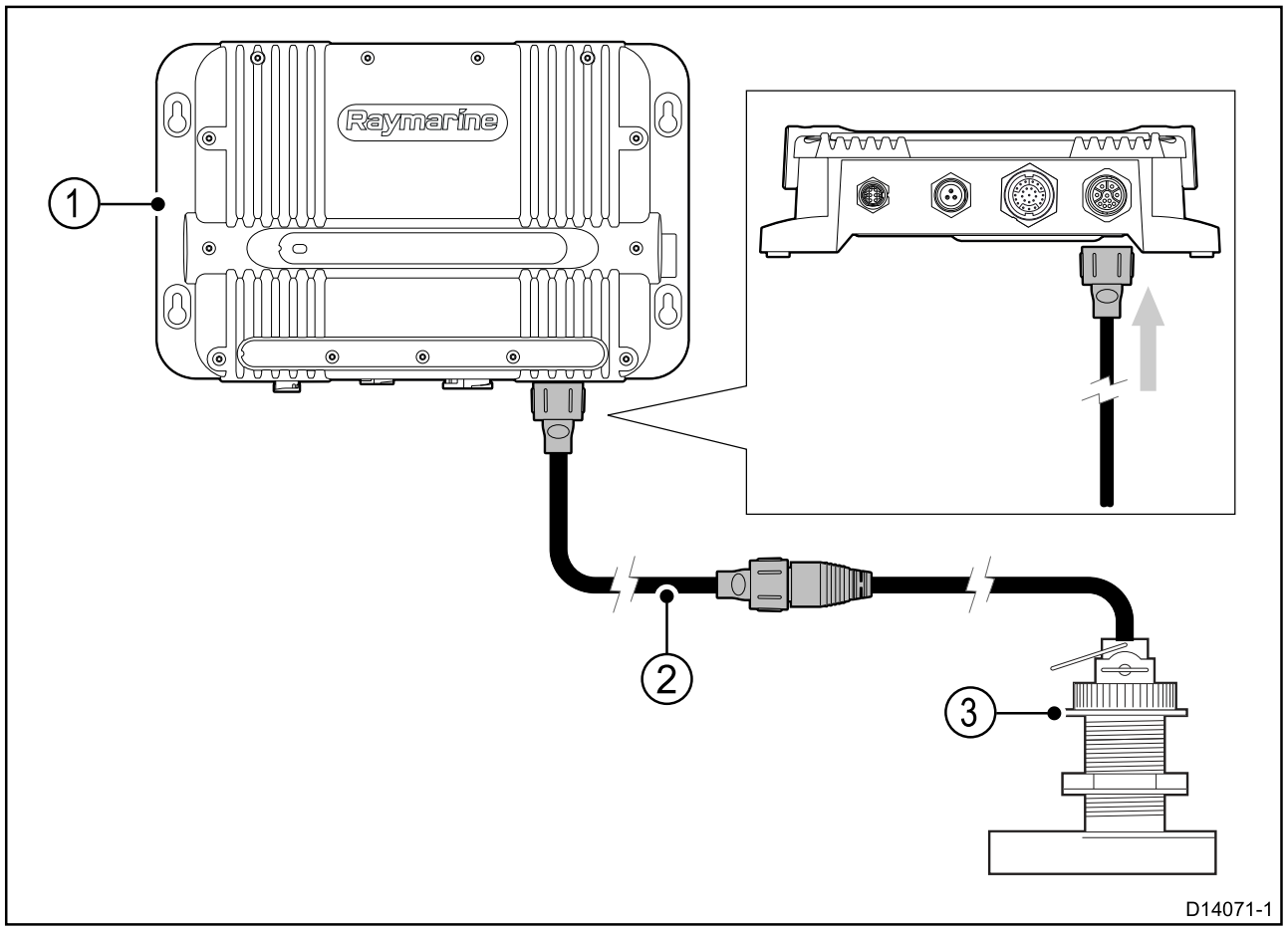
Item	Description
1	RVX1000
2	25-pin to 9-pin adaptor cable (A80490)
3	DownVision™ transducer

CPT-S CHIRP conical beam transducer connection



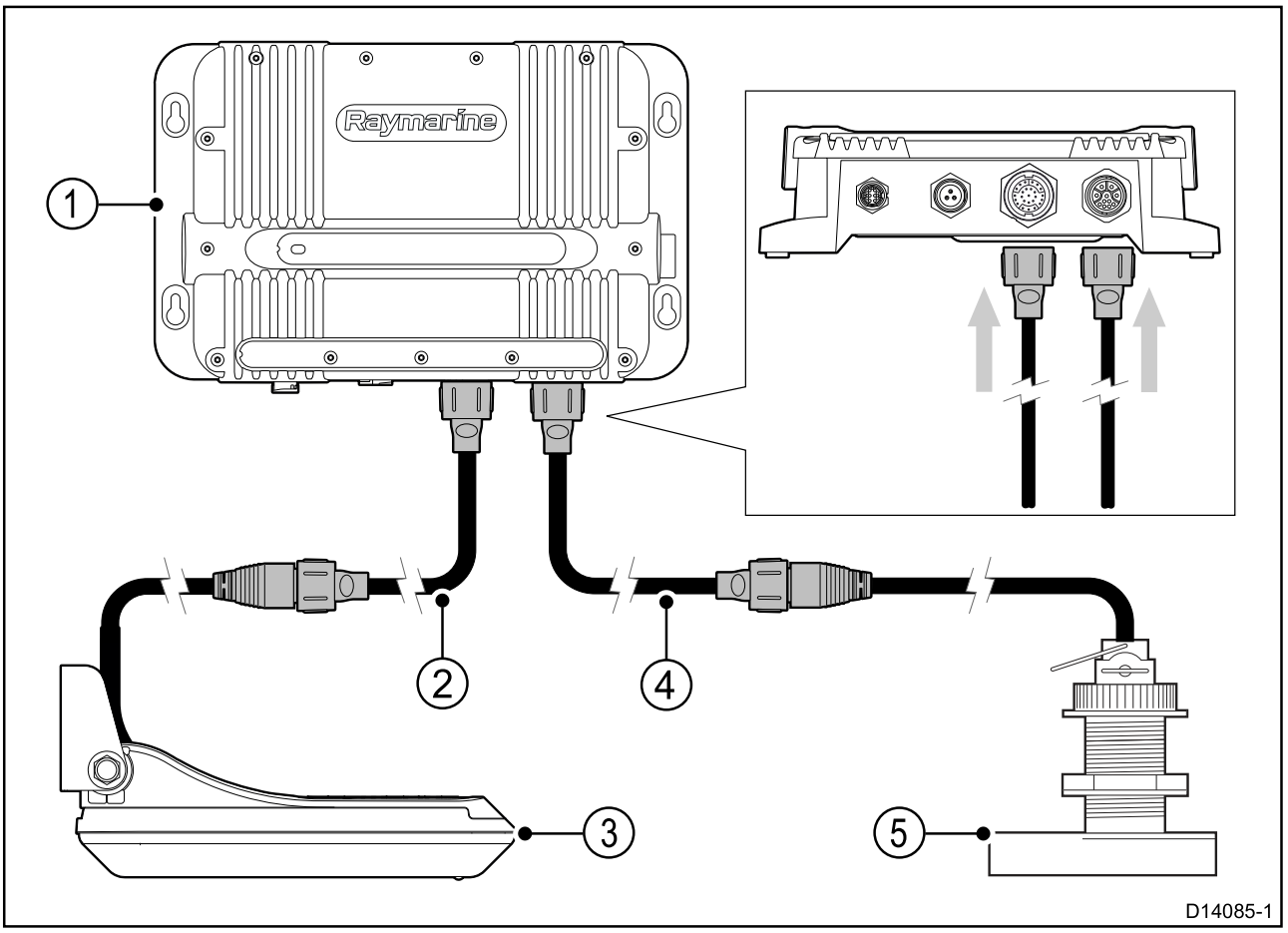
Item	Description
1	RVX1000
2	25-pin to 9-pin adaptor cable (A80490)
3	CPT-S CHIRP conical beam transducer

Traditional transducer connection



Item	Description
1	RVX1000
2	11-pin to 8-pin adaptor cable (A80496)
3	Traditional transducer

Simultaneous RealVision™ and traditional transducer connections



Item	Description
1	RVX1000
2	Extension cable (optional)
3	RealVision™ transducer
4	11-pin to 8-pin adaptor cable (A80496)
5	Traditional transducer

Transducer cable extension

For some installations it may be necessary to extend the transducer cable.

- Refer to Chapter 10 **Spares and accessories** for a list of suitable transducer extension cables.
- Raymarine recommends a maximum of one cable extension for any single transducer cable.
- For best performance, keep all cable lengths to a minimum.

Cable extensions for Wide Beam transducers

All Wide Beam transducers are supplied with a fixed 2 m cable.

You must pair the fixed 2 m cable with an appropriate extension cable to connect the Wide Beam transducer to your CHIRP sonar module.

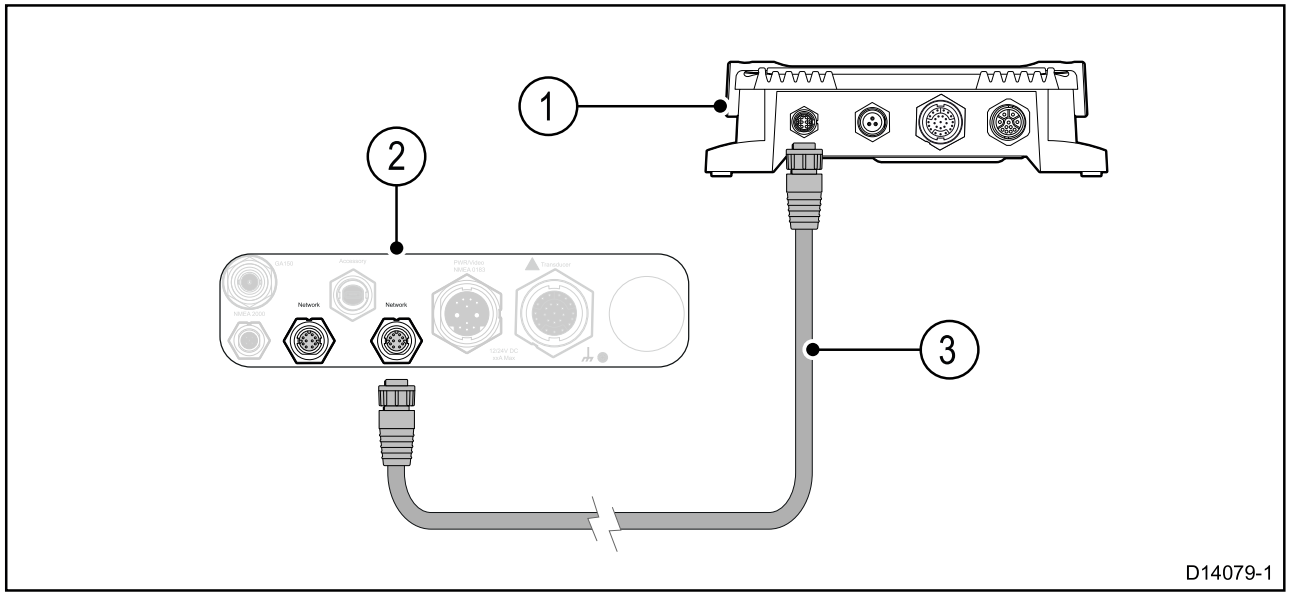
For paired Wide Beam transducer installations, extension cables must be placed between the Y-cable and the transducer.

4.5 Network connection

The unit must be connected to a compatible Raymarine multifunction display to enable echo sounder data to be viewed.

Multifunction display connection

Unit connected to a multifunction display using a RayNet cable.

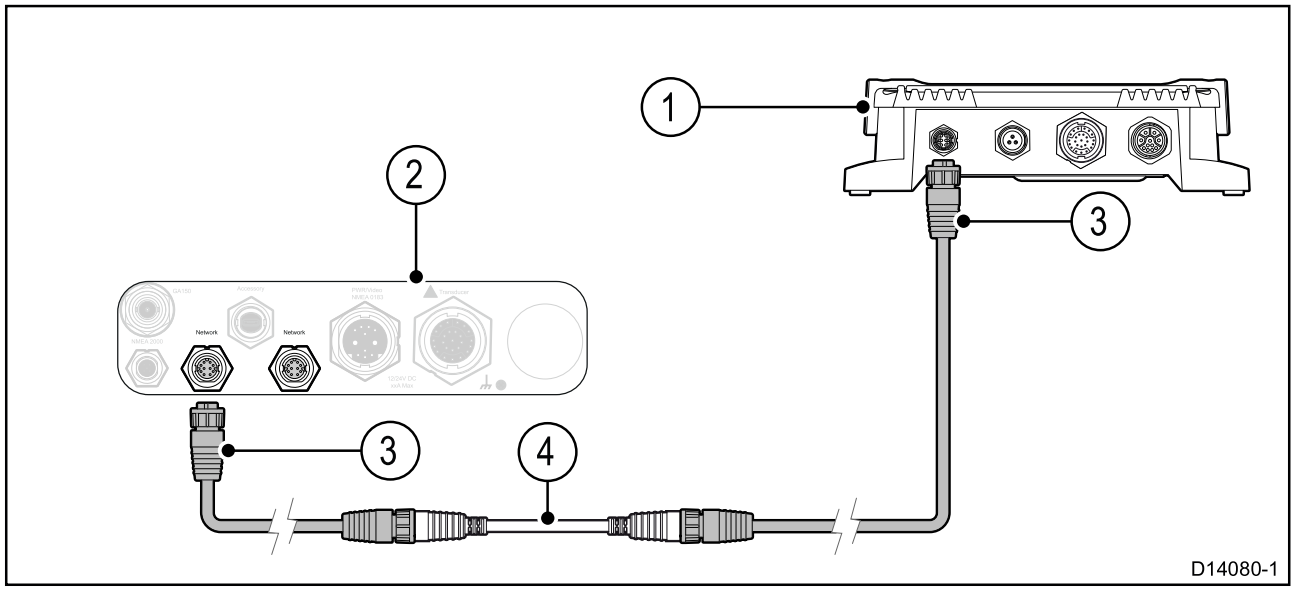


Note: The connection panel on your product may look slightly different to that shown, depending on variant. The network connection method remains the same for all products featuring RayNet connectors.

Item	Description
1	RVX1000 sonar module
2	Connector panel for compatible Raymarine multifunction display
3	RayNet cable

Multifunction display connection (extended cables)

When the required length of a single network cable run is greater than 20 m (65.6 ft), a RayNet (male) to (male) adaptor cable should be used to connect RayNet cables together .



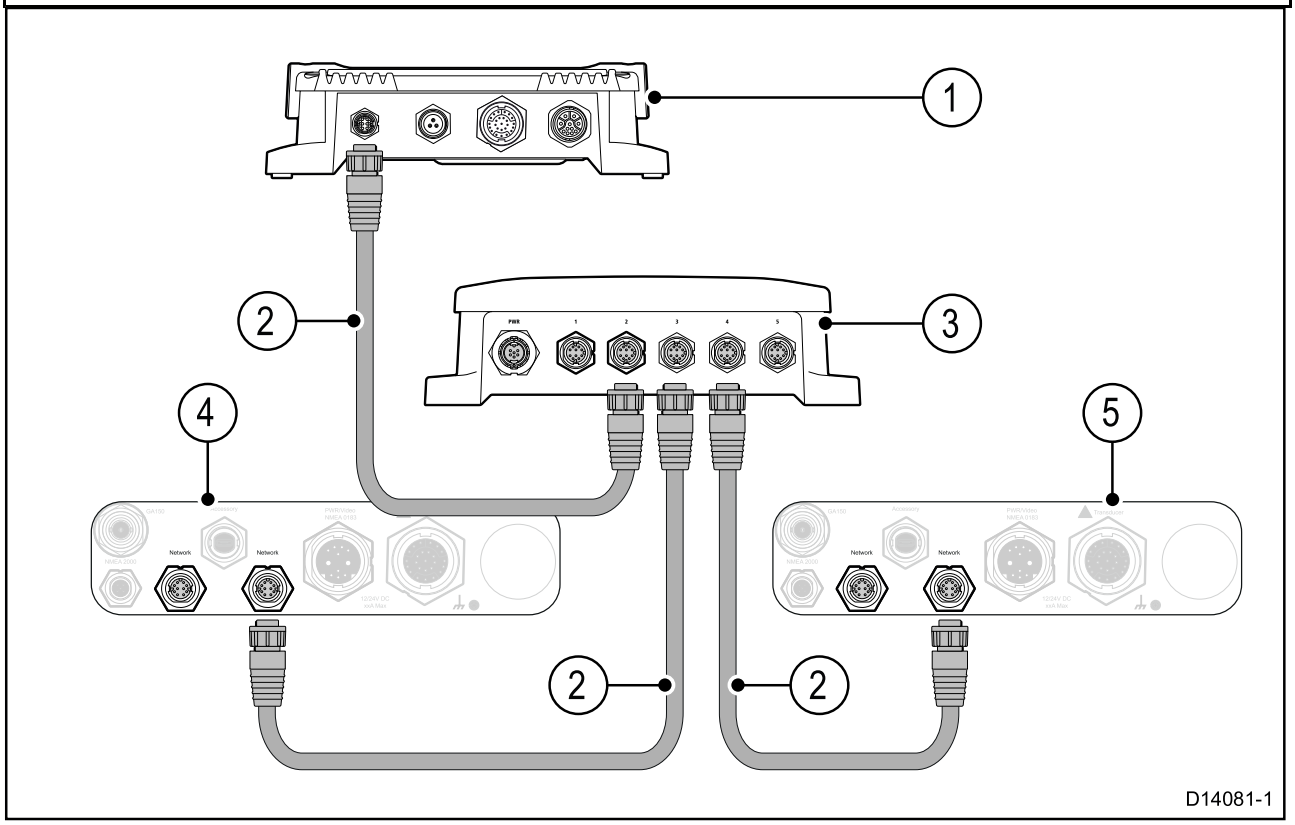
Note: The connection panel on your product may look slightly different to that shown, depending on variant. The network connection method remains the same for all products featuring RayNet connectors.

Item	Description
1	RVX1000 sonar module
2	Connector panel for compatible Raymarine multifunction display
3	RayNet cables
4	RayNet (Male) to (Male) adaptor cable

Multiple multifunction display connections

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

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



Note: The connection panel on your product may look slightly different to that shown, depending on variant. The network connection method remains the same for all products featuring RayNet connectors.

Item	Description
1	RVX1000 sonar module
2	RayNet cable
3	RayNet network switch
4	Connector panel for compatible Raymarine multifunction display
5	Connector panel for additional compatible Raymarine multifunction display

For details on available network hardware and cables refer to Chapter 10 **Spares and accessories**.

Chapter 5: Mounting

Chapter contents

- 5.1 Mounting on page 76

5.1 Mounting

Fixing screw suitability

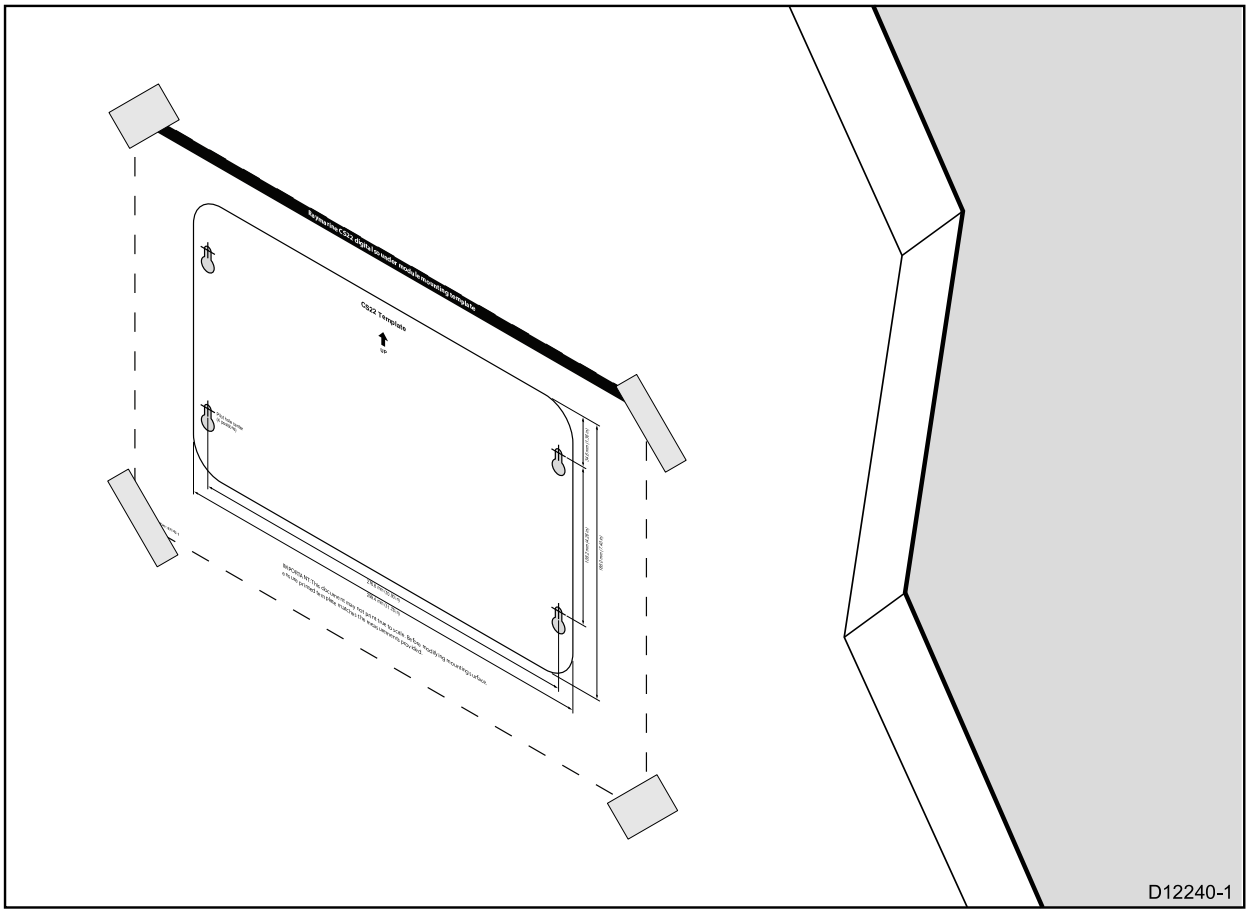
Important: The fixing screws supplied with your product may not be suitable for the mounting surface. Please check the security and integrity of the mounted product before finalizing your installation. If necessary, obtain replacement or additional mounting screws to ensure a secure installation.

Mounting the unit

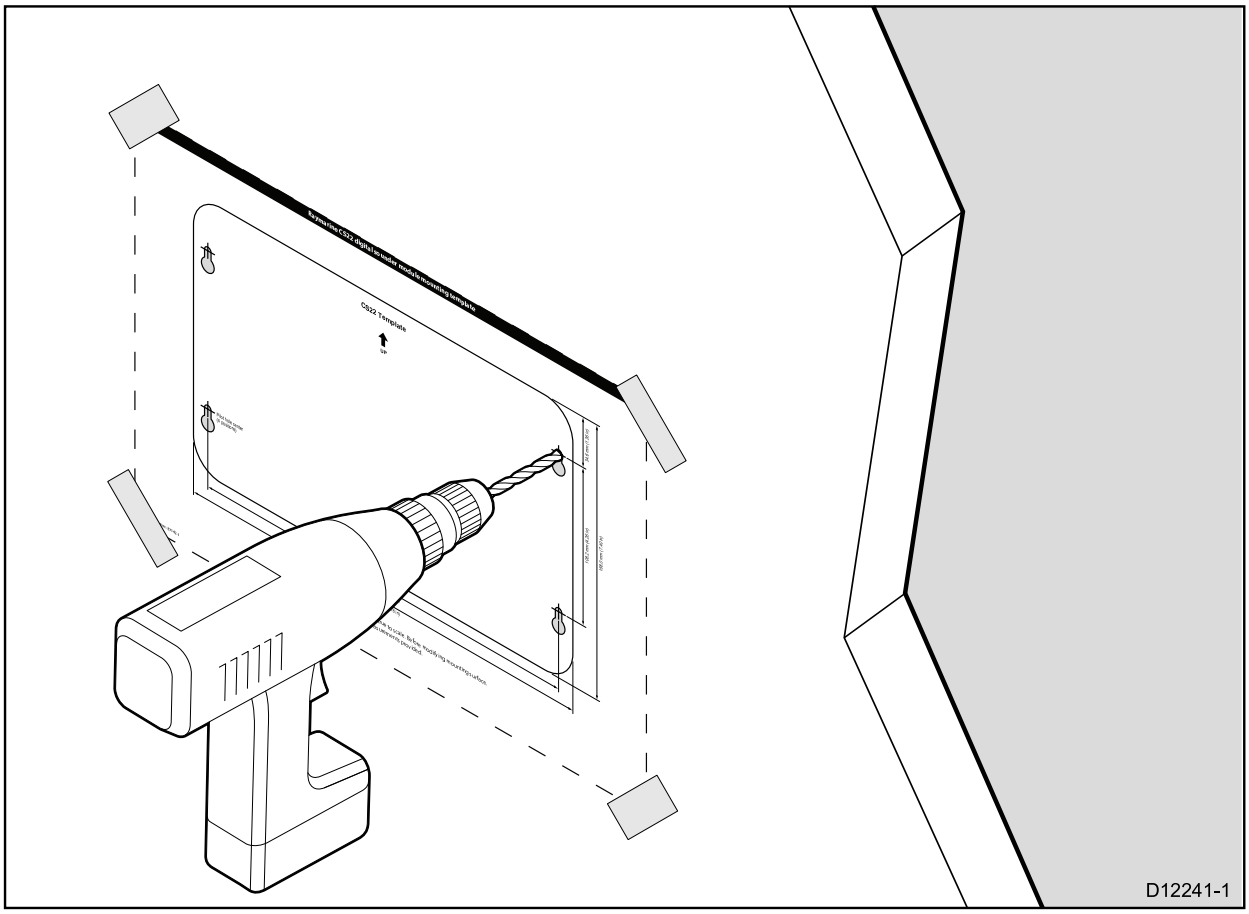
Having chosen a suitable location, install the unit as follows:

Note: Raymarine recommends mounting the unit vertically.

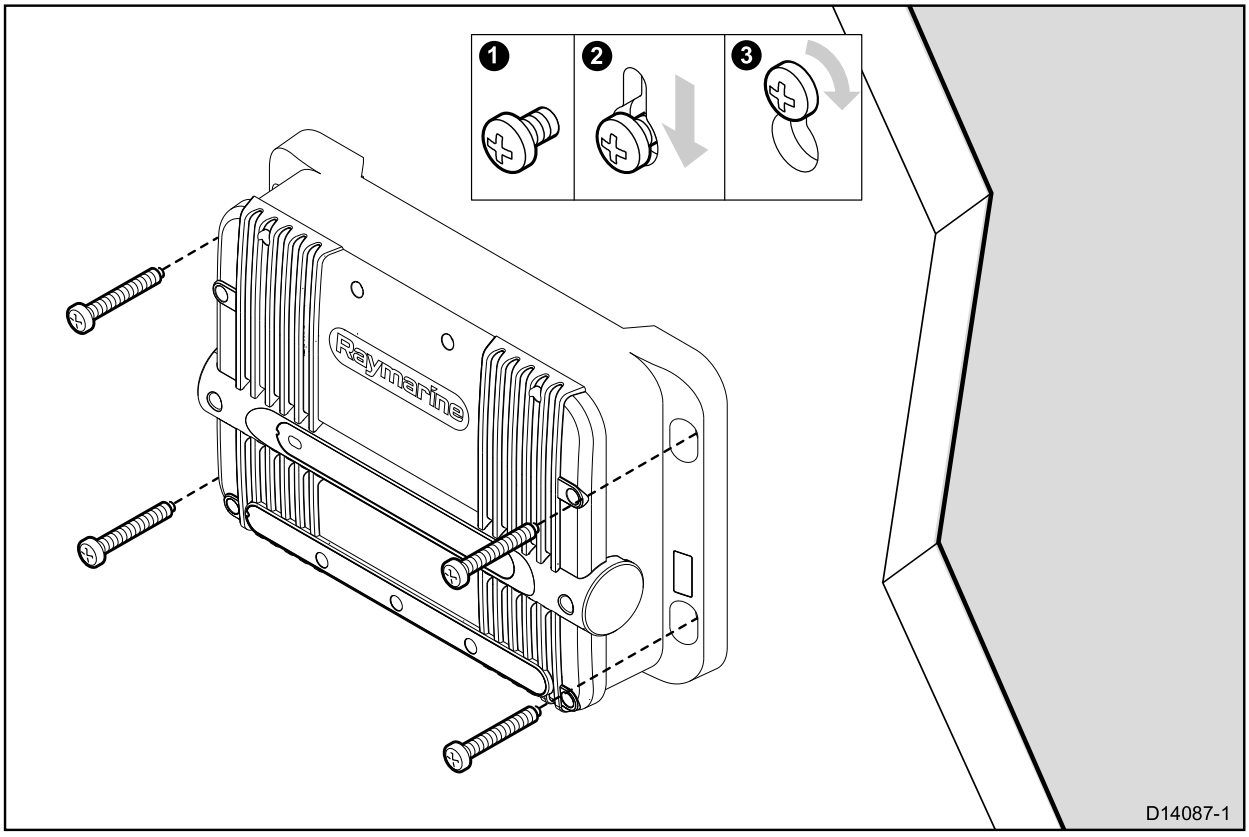
1. Secure the mounting template in the required location using adhesive tape.



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



3. Remove the mounting template.
4. Screw in the 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 6: System checks and troubleshooting

Chapter contents

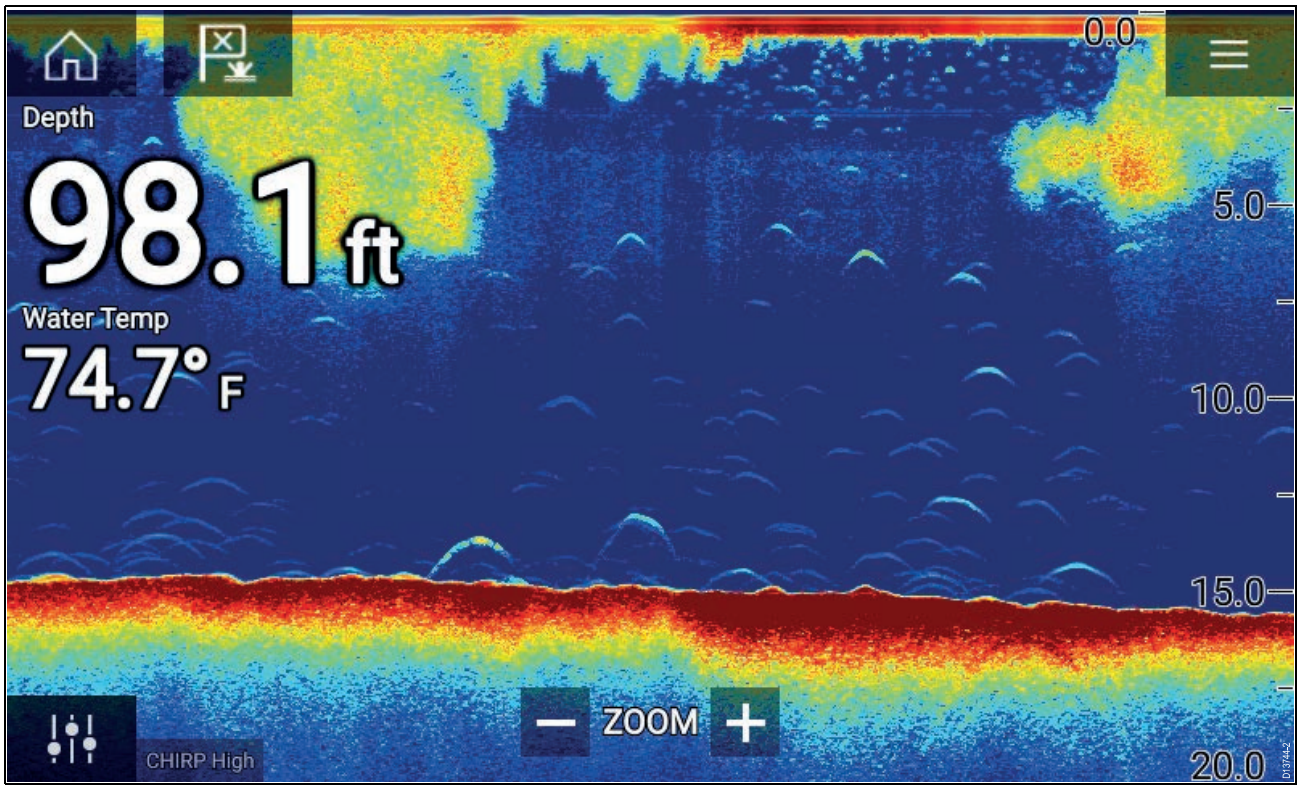
- 6.1 Initial power on test on page 80
- 6.2 Troubleshooting on page 81

6.1 Initial power on test

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

After powering on, the unit takes less than 1 minute to start up. From powering on through to normal operation, the LED status indicator is solid green, changing to blinking green when normal operation is underway. If the LED status indicator is not blinking 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.



Operation instructions

For detailed operation instructions for your product, refer to the documentation that accompanies your display.

6.2 Troubleshooting

The troubleshooting information provides possible causes and corrective action required for common problems associated with installation and operation of your product.

Before packing and shipping, all Raymarine products are subjected to comprehensive testing and quality assurance programs. If you do experience problems with 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 product, please refer to the Technical support section of this manual for useful links and Raymarine Product Support contact details.

Sonar troubleshooting

Scrolling image is not being displayed

Possible causes	Possible solutions
Sonar disabled	Enable **Ping** from the Sonar app's sounder tab: **Menu** > **Settings** > **Sounder** > **Ping**.
Incorrect transducer selected	Check that the correct transducer is selected in the Sonar app's Transducer tab: **Menu** > **Settings** > **Transducer** > **Ping**.
Damaged cables	1. Check that the transducer cable connector is fully inserted and locked in position. 2. Check the power supply cable and connectors for signs of damage or corrosion, replace if necessary. 3. With the unit turned on, try flexing the cable near to the display connector to see if this causes the unit to re-boot/loose power, replace if necessary. 4. Check the vessel's battery voltage, the condition of the battery terminals and power supply cables, ensuring connections are secure, clean and free from corrosion, replace if necessary. 5. With the product under load, using a multi-meter, check for high voltage drop across all connectors/fuses etc (this can cause the Fishfinder applications to stop scrolling or the unit to reset/turn off), replace if necessary.
Damaged or fouled transducer	Check the condition of the transducer ensuring it is not damaged and is free from debris/fouling, clean or replace as necessary.
Wrong transducer fitted	Check product and transducer documentation and ensure that the transducer is compatible with your system.
External sonar module: SeaTalkhs / RayNet network problem.	• Check that the unit is correctly connected to the MFD or network switch. Check all connections ensuring connections are secure, clean and free from corrosion, replace if necessary.
External sonar module: Software mismatch between equipment may prevent communication.	

No depth reading / lost bottom lock

Possible causes	Possible solutions
Transducer location	Check that the transducer has been installed in accordance with the instructions provided with the transducer.
Transducer angle	If the transducer angle is too great the beam can miss the bottom, adjust transducer angle and recheck.
Transducer kicked-up	If the transducer has a kick-up mechanism, check that it has not kicked up due to hitting an object.

Possible causes	Possible solutions
Power source insufficient	With the product under load, using a multi-meter, check the power supply voltage as close to the unit as possible to establish actual voltage when the current is flowing. (Check your product's Technical specification for power supply requirements.)
Damaged or fouled transducer	Check the condition of the transducer ensuring it is not damaged and is free from debris / fouling.
Damaged cables	1. Check the unit's connector for broken or bent pins. 2. Check that the cable connector is fully inserted into the unit and that the locking collar is in the locked position. 3. Check the cable and connectors for signs of damage or corrosion, replace if necessary. 4. With the unit turned on, try flexing the power cable near to the display connector to see if this causes the unit to re-boot/loose power, replace if necessary. 5. Check the vessel's battery voltage, the condition of the battery terminals and power supply cables, ensuring connections are secure, clean and free from corrosion, replace if necessary. 6. With the product under load, using a multi-meter, check for high voltage drop across all connectors/fuses etc (this can cause the Fishfinder applications to stop scrolling or the unit to reset/turn off), replace if necessary.
Vessel speed too high	Slow vessel speed and recheck.
Bottom too shallow or too deep	The bottom depth may be outside of the transducers depth range, move vessel to shallower or deeper waters as relevant and recheck.

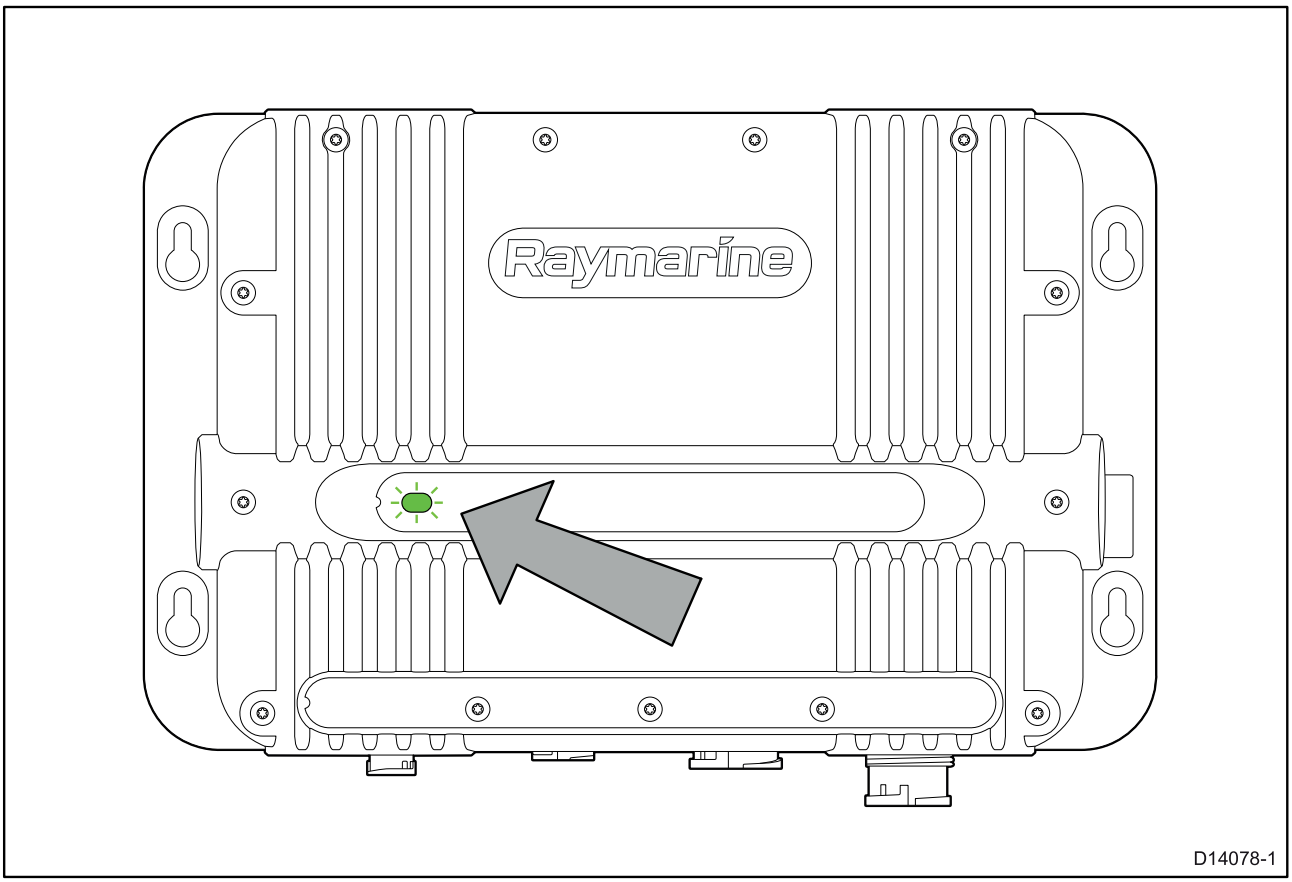
Poor / problematic image

Possible causes	Possible solutions
Targets will appear differently if your vessel is stationary (e.g.: fish will appear on the display as straight lines).	Increase vessel speed.
Scrolling paused or speed set too low	Unpause or increase sonar scrolling speed.
Sensitivity settings may be inappropriate for present conditions.	Check and adjust sensitivity settings or perform a Sonar reset.
Damaged cables	1. Check the unit's connector for broken or bent pins. 2. Check that the cable connector is fully inserted into the unit and that the locking collar is in the locked position. 3. Check the cable and connectors for signs of damage or corrosion, replace if necessary. 4. With the unit turned on, try flexing the power cable near to the display connector to see if this causes the unit to re-boot/loose power, replace if necessary. 5. Check the vessel's battery voltage, the condition of the battery terminals and power supply cables, ensuring connections are secure, clean and free from corrosion, replace if necessary. 6. With the product under load, using a multi-meter, check for high voltage drop across all connectors/fuses etc (this

Possible causes	Possible solutions
	can cause the Fishfinder applications to stop scrolling or the unit to reset/turn off), replace if necessary.
Transducer location	• Check that the transducer has been installed in accordance with the instructions provided with the transducer. • If a transom mount transducer is mounted too high on the transom it may be lifting out of the water, check that the transducer face is fully submerged when planing and turning.
Transducer kicked-up	If the transducer has a kick-up mechanism, check that it has not kicked up due to hitting an object.
Damaged or fouled transducer	Check the condition of the transducer ensuring it is not damaged and is free from debris / fouling.
Damaged transducer cable	Check that the transducer cable and connection is free from damage and that the connections are secure and free from corrosion.
Turbulence around the transducer at higher speeds may affect transducer performance	Slow vessel speed and recheck.
Interference from another transducer	1. Turn off the transducer causing the interference. 2. Reposition the transducers so they are farther apart.
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.

LED Diagnostics

RVX1000



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	• None (normal power up takes <1 minute).
		Green 1 blink	Normal operation	• None.
		Amber 2 blinks	No network detected	• Ensure network is powered. • Ensure network cable and connections are secure and free from damage. • If problem persists contact Raymarine technical support.

LED color	LED code		Status	User action
		Amber 3 blinks	Under voltage (<10.2V)	• Ensure power cable and connections are secure and free from damage. • Ensure power supply cabling is consistent with recommendations. • If problem persists contact Raymarine technical support.
		Red 3 blinks	Over voltage (>34.2V)	• Ensure power supply levels are consistent with recommendations. • If problem persists contact Raymarine technical support.

Note: During a software upgrade process the LED will be solid Green and change to blinking Green on successful completion.

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

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, open the Sonar app.
2. Open the **Settings** page.
3. Select the **Sounder** tab.
4. Select **Reset sounder**.
5. Select **Yes** to confirm.

The unit will now be reset to factory default settings.

Chapter 7: Maintenance

Chapter contents

- 7.1 Routine checks on page 88
- 7.2 Unit cleaning instructions on page 89

7.1 Routine checks

The following periodic checks should be made:

- Examine cables for signs of damage, such as chafing, cuts or nicks.
- Check that the cable connectors are firmly attached and that their locking mechanisms are properly engaged.

Note: Cable 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.

7.2 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.

Transducer cleaning

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: Transducers with a temperature sensor may not work properly if painted.

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.

If your transducer has a paddlewheel you can wet sand with fine grade wet/dry paper.

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

Chapter 8: Technical support

Chapter contents

- 8.1 Raymarine product support and servicing on page 92
- 8.2 Viewing product information on page 94

8.2 Viewing product information

You can view information about your unit from the **Diagnostics** menu on a compatible multifunction display. This option displays information such as product serial number and software version.

With the Homescreen displayed:

1. Select **Set-up.**
2. Select **Maintenance**.
3. Select **Diagnostics**.
4. Select the **Select Device** option.
   A list of connected devices is displayed.
5. Select the product for which you want to view information. Alternatively, select **Show All Data** to display information for all connected products.

Chapter 9: Technical specification

Chapter contents

- 9.1 RVX1000 Technical specification on page 96

9.1 RVX1000 Technical specification

Physical specification

Dimensions	• **Width**: 299.4 mm (11.79 in). • **Height**: 188.0 mm (7.40 in). • **Height (including connectors)**: 209.9 mm (8.26 in). • **Depth**: 84.4 mm (3.32 in).
Weight	1.585 kg (3.49 lbs)

Power specification

Nominal supply voltage	12 V / 24 V dc
Operating voltage range	10.8 V to 31.2 V dc
Power consumption	10.4 W (Maximum)
Current	2.4 A Peak; 1.2 A RMS
Fuse / breakers	5 A

Environmental specification

Operating temperature	-25°C (-13°F) to +55°C (+131°F)
Storage temperature	-30°C (-22°F) to +70°C (+158°F)
Relative humidity	93% at 40°C
Waterproof rating	IPX6/IPX7

Sonar specification

Power output	Up to 1 kW RMS
Depth	0.9 m (3 ft) to 1,524 m (5,000 ft) (in optimum conditions using a 1 kW transducer)
Transducer	Transom-mount, in-hull, thru-hull, pocket/keel mount
Connections	• 1 x Power connection • 1 x network connection (RayNet connector) 10 / 100 Mb/s • 2 x Transducer connections

Conformance specification

Conformance	• EN 60945:2002 • EMC Directive 2014/30/EU • EN 60950-1:2006+A2:2013 • Australia and New Zealand: C-Tick, Compliance Level 2

Chapter 10: Spares and accessories

Chapter contents

- 10.1 Spares and accessories on page 98
- 10.2 Network hardware on page 99
- 10.3 Network cable connector types on page 100
- 10.4 **RayNet** to **RayNet** cables and connectors on page 101
- 10.5 RayNet to RJ45 adapter cables on page 102
- 10.6 **RJ45 SeaTalk hs** network and patch cables on page 104

10.1 Spares and accessories

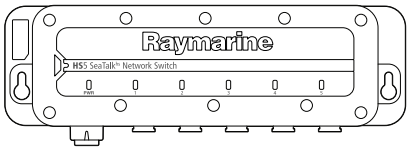
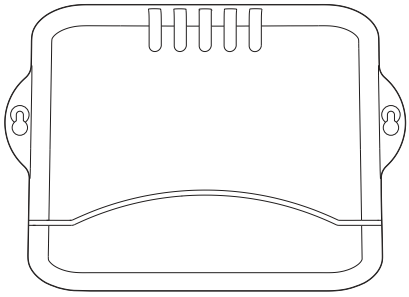
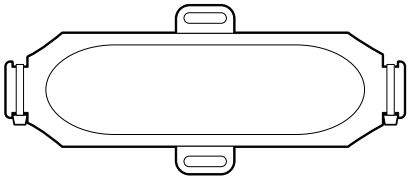
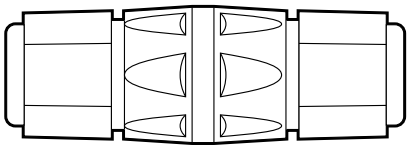
The following accessories and spare parts are available:

Item	Part number
3 m (10 ft) RealVision™ transducer extension cable	A80475
5 m (16.4 ft) RealVision™ transducer extension cable	A80476
8 m (26.2 ft) RealVision™ transducer extension cable	A80477
0.3 m (1 ft) RealVision™ 90-degree adapter cable	A80515
Paired RealVision™ transducer Y-cable	A80478
25-pin to 9-pin DownVision™ transducer adapter cable	A80490
11-pin to 8-pin CP370-style transducer adapter cable	A80496
3 m (10 ft) CHIRP transducer extension cable	A102148
5 m (16.4 ft) traditional transducer extension cable	E66010
5 m (16.4 ft) CHIRP transducer extension cable	A102150
10 m (32.8 ft) CHIRP transducer extension cable **Note:** For use with Wide Beam transducers only.	A80327
Dual Speed and Temperature traditional transducer cable	E66022
Dual Speed and Temperature CHIRP transducer cable	A80345
Single B75/B175 operation cable	A80328
Paired CHIRP transducer Y-cable	A102146
ST800–P120 Plastic low-profile speed/temp sensor	E66071
ST800–B120 Bronze low-profile speed/temp sensor	E66072

Transducers

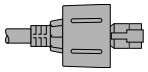
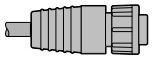
See 3.5 **Compatible transducers** for information about transducers that are compatible with your sonar module.

10.2 Network hardware

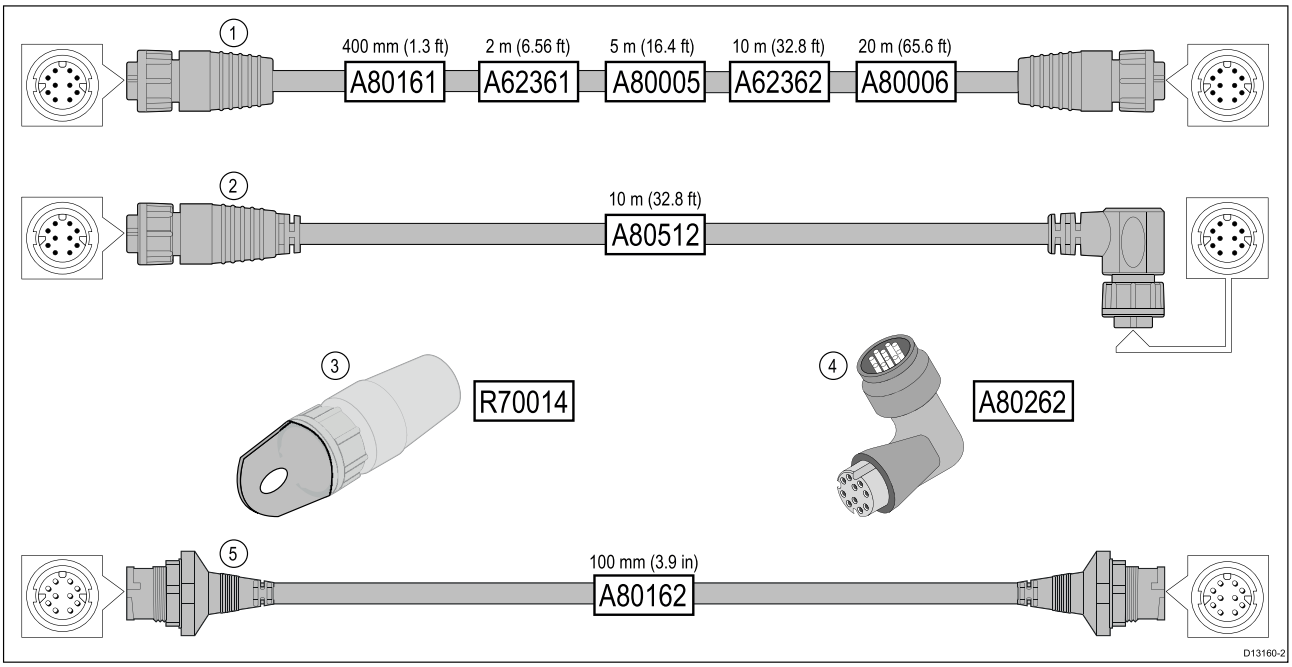
Item	Part number	Notes
HS5 RayNet network switch 	A80007	5–port switch for network connection of multiple devices featuring RayNet connectors. Equipment with RJ45 SeaTalk hs connectors can also be connected using suitable adapter cables.
RJ45 SeaTalk hs network switch 	E55058	8–port switch for network connection of multiple SeaTalk hs devices featuring RJ45 connectors.
RJ45 SeaTalk hs crossover coupler 	E55060	• Enables direct connection of RJ45 SeaTalk hs devices to smaller systems where a switch is not required. • Enables the connection of RJ45 SeaTalk hs devices to a HS5 RayNet network switch (in conjunction with suitable adapter cables). • Enables 2 RJ45 SeaTalk hs cables to be connected together to extend the length of the cabling. Recommended for internal installations. **Important:** Do NOT use crossover devices for POE (Power Over Ethernet) connections.
Ethernet RJ45 coupler 	R32142	• Enables direct connection of RJ45 SeaTalk hs devices to smaller systems where a switch is not required. • Enables the connection of RJ45 SeaTalk hs devices to a HS5 RayNet network switch (in conjunction with suitable adapter cables). • Enables 2 RJ45 SeaTalk hs cables to be connected together to extend the length of the cabling. Recommended for external installations.

10.3 Network cable connector types

There are 2 types of network cable connector — RayNet, and RJ45 SeaTalk hs.

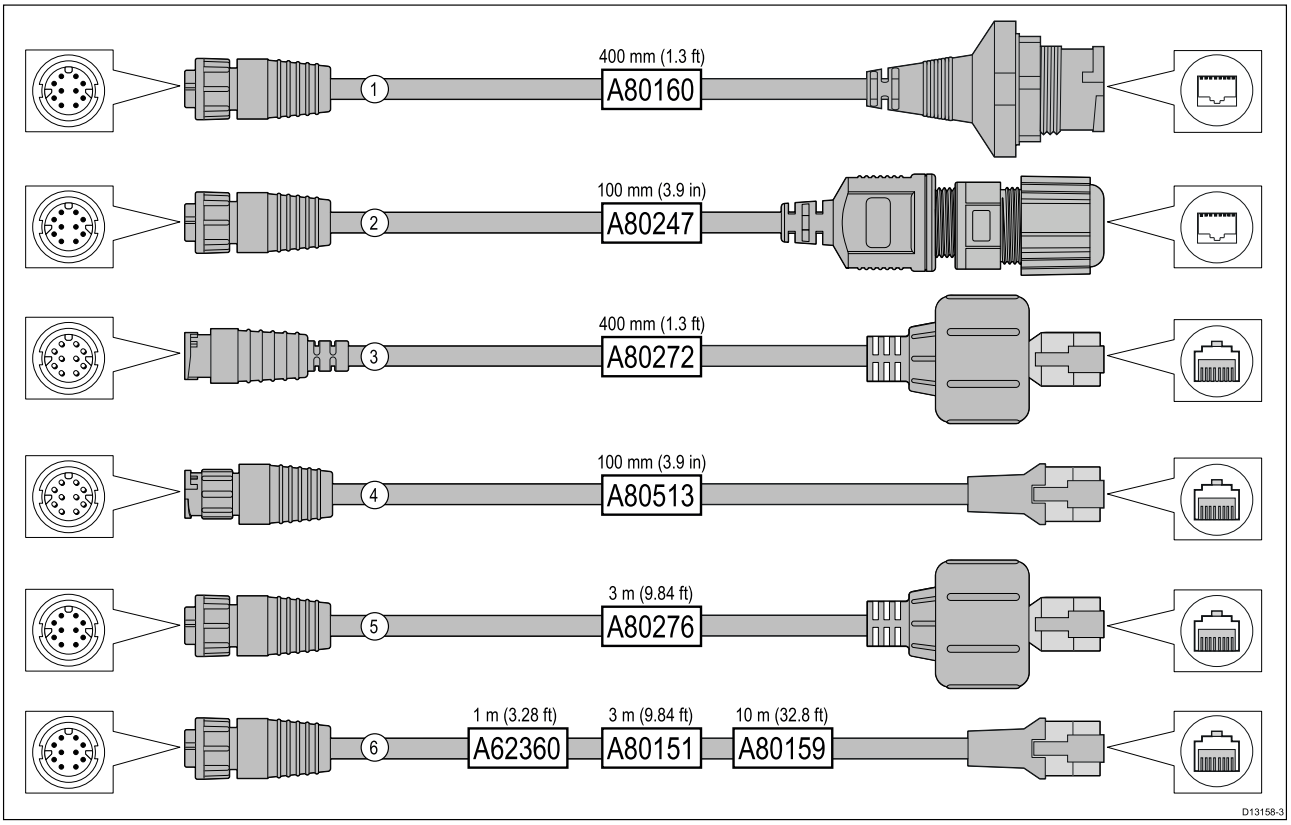
	**RJ45 SeaTalk hs** connector.
	**RayNet** connector.

10.4 RayNet to RayNet cables and connectors



	Description	Typical use	Quantity
1	Standard **RayNet** connection cable with a **RayNet** (female) socket on both ends.	Suitable for connecting all **RayNet** equipment directly to **LightHouse** multifunction displays featuring a **RayNet** connector. Can also be used to connect **RayNet** equipment via a **RayNet** network switch (e.g. **HS5**).	1
2	Right-angle **RayNet** connection cable with a straight **RayNet** (female) socket on one end, and a right-angle **RayNet** (female) socket on the other end.	Suitable for connecting at 90° (right angle) to a device, for installations where space is limited. For example, use this cable to connect to a multifunction display when there is not enough space behind the display for the usual cable bend radius required by a standard RayNet cable.	1
3	**RayNet** cable puller (5 pack).	These “handles” securely attach to the twist-lock on **RayNet** cables, enabling you to pull the cables through conduits and other obstacles.	5
4	**RayNet** to **RayNet** right-angle coupler / adapter.	Suitable for connecting **RayNet** cables at 90° (right angle) to devices, for installations where space is limited. For example, use this adapter to connect a **RayNet** cable to a multifunction display when there is not enough space behind the display for the usual cable bend radius required by a standard RayNet cable. This adapter features a **RayNet** (female) socket at one end, and a **RayNet** (male) plug at the other end.	1
5	Adapter cable with a **RayNet** (male) plug on both ends.	Suitable for joining (female) **RayNet** cables together for longer cable runs.	1

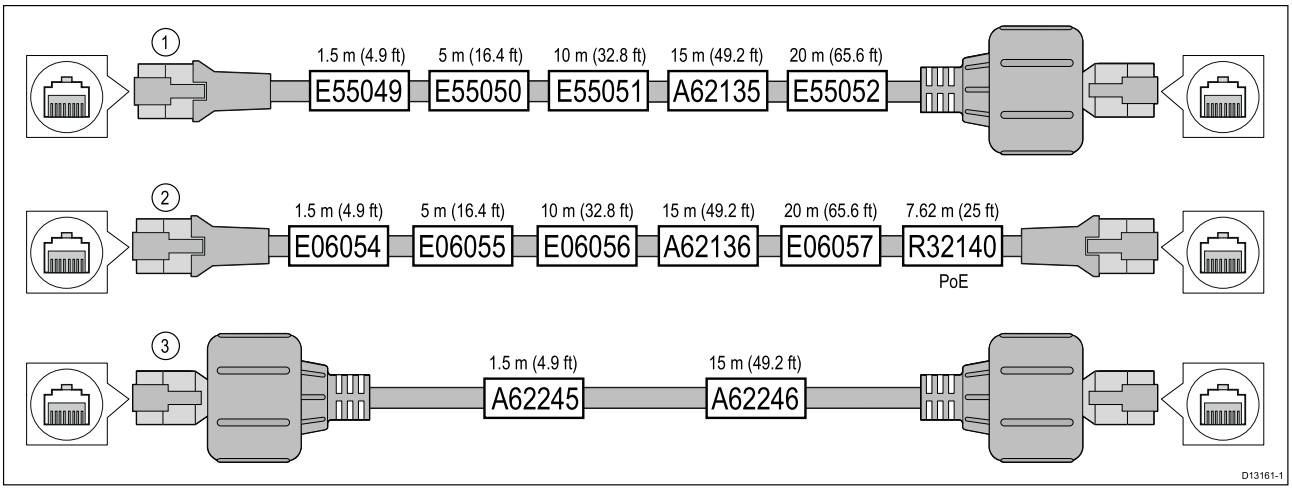
10.5 RayNet to RJ45 adapter cables



	Description	Typical use	Quantity
1	Adapter cable with a **RayNet** (female) socket on one end, and a waterproof (female) socket on the other end accepting the following cables with an **RJ45 SeaTalk hs** waterproof **locking** (male) plug: • **A62245** (1.5 m). • **A62246** (15 m).	A typical use for this adapter cable is to connect a **DSM300** sonar module to a **LightHouse** MFD, using all-waterproof cable connections. This adapter cable will also accept the following **RJ45 SeaTalk hs** cables, although the **RJ45** plug that connects at the equipment end (e.g. **DSM300**) will NOT be waterproof: • **E55049** (1.5 m). • **E55050** (5 m). • **E55051** (10 m). • **A62135** (15 m). • **E55052** (20 m).	1
2	Adapter cable with a **RayNet** (female) socket on one end, and a waterproof (female) **RJ45** socket on the other end, along with a locking gland for a watertight fit.	Directly connect a Raymarine radar scanner with an **RJ45 SeaTalk hs** (male) cable to a **RayNet** network switch (e.g. **HS5**) or **LightHouse** MFD.	1
3	Adapter cable with a **RayNet** (male) plug on one end, and an **RJ45 SeaTalk hs** waterproof (male) plug on the other end.	Connect a legacy **G-Series GPM-400**, **C-Series** Widescreen or **E-Series** Widescreen MFD to a Raymarine radar scanner supplied with a **RayNet** power / data cable.	1
4	Adapter cable with a **RayNet** (male) plug on one end, and an **RJ45 SeaTalk hs** (male) plug on the other end.	Connect a RayNet thermal camera to an Ethernet network switch with RJ45 ports.	1

	Description	Typical use	Quantity
5	Adapter cable with a **RayNet** (female) socket on one end, and an **RJ45 SeaTalk hs** waterproof (male) plug on the other end.	Connect a legacy **G-Series GPM-400**, **C-Series** Widescreen or **E-Series** Widescreen MFD to a **RayNet** network switch (e.g. the **HS5**).	1
6	Adapter cable with a **RayNet** (female) socket on one end, and an **RJ45 SeaTalk hs** (male) socket on the other end.	Connect a **LightHouse** MFD to a legacy **SR6** switch / weather receiver or a legacy 8–port **SeaTalk hs** network switch. Another common use for the cable is in conjunction with a crossover coupler (**E55060** or **R32142**) to connect Raymarine products with an **RJ45** connection (e.g. radar scanner, thermal camera or **DSM300**) to a **LightHouse** MFD or **RayNet** network switch (e.g. the **HS5**).	1

10.6 RJ45 SeaTalk hs network and patch cables



	Description	Typical use	Quantity
1	**RJ45 SeaTalk hs** network cables have an **RJ45 SeaTalk hs** (male) plug on one end, and a waterproof **RJ45 SeaTalk hs** (male) plug with locking collar on the other end.	Typical uses for these cables include: • Connecting a device with a **RJ45SeaTalk hs** socket (e.g. the **DSM300**, or an **E-Series** Widescreen **E90W**, **E120W** or **E140W** legacy MFD) to a **SeaTalk hs** 8–port network switch. • Connecting a thermal camera with an RJ45 (male) plug to an **E-Series** Widescreen **E90W**, **E120W** or **E140W** legacy MFD, via an RJ45 coupler (R32142). This assumes that **PoE** (Power over Ethernet) connections are not required, because there is no JCU (Joystick Control Unit) in the system.	1
2	**RJ45 SeaTalk hs** patch cables have an **RJ45 SeaTalk hs** (male) plug on each end.	Typical uses for these cables include: • Connecting multiple **SeaTalk hs** 8–port network switches. • Connecting a PC or laptop computer running **Voyager Planner** software to a **SeaTalk hs** 8–port network switch. • Connecting a JCU (Joystick Control Unit) to a thermal camera, via a PoE injector. For this particular connection the **R32140** cable is required, as this supports **PoE** (Power over Ethernet).	1
3	**RJ45 SeaTalk hs** patch cables have an **RJ45 SeaTalk hs** (male) plug on each end. Each plug features a locking collar for a fully **waterproof** connection.	A typical use for these cables is: • Connecting a device with a locking-type **RJ45SeaTalk hs** socket (e.g. the **DSM300**), to a legacy MFD with a locking-type **RJ45SeaTalk hs** socket (e.g. the **E-Series** Widescreen **E90W**, **E120W** or **E140W**).	1

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