i40

DEPTH / **SPEED** / **WIND** / **BIDATA** INSTRUMENTS

INSTALLATION & OPERATION INSTRUCTIONS

English (en-US)
Date: 11-2024
Document number: 81340 (Rev 4)

Raymarine®

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Document number: 81340 (Rev 4)
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CONTENTS

CHAPTER 1: IMPORTANT INFORMATION

Safety warnings

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.

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 or damage to your vessel. It may also cause poor product performance or invalidate the product warranty.
- Raymarine highly recommends certified installation by a Raymarine approved installer. A certified installation qualifies for enhanced product warranty benefits. Register your warranty on the Raymarine website: www.raymarine.com/warranty

Warning: Potential ignition source

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

Warning: High 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: 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.

Product warnings

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 product's information label for the correct voltage.

Caution: Power supply protection

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

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.

Caution: Transducer cable

- Do NOT use the transducer cable to lift or suspend the transducer; always support the transducer body directly during installation.
- Do NOT cut, shorten, or splice the transducer cable.
- Do NOT remove the connector.

If the cable is cut, it cannot be repaired. Cutting the cable will also void the warranty.

Caution: Sun covers

- If your product is supplied with a sun cover, to protect against the damaging effects of ultraviolet (UV) light, always fit the sun cover when the product is not in use.
- To avoid potential loss, sun covers must be removed when travelling at high speed, whether in water or when the vessel is being towed.

Caution: Product cleaning

When cleaning products:

- Switch off power supply.
- Use a clean damp cloth to wipe clean.
- Do NOT use: abrasive, acidic, ammonia, solvent or other chemical based cleaning products.
- Do NOT use a jet wash.

Caution: Condensation

Certain atmospheric conditions may cause a small amount of condensation to form on the unit's window. This will not damage the unit and will clear after the unit has been switched on for a short period.

Regulatory notices

Water ingress

Water ingress disclaimer

Although the waterproof rating capacity of this product meets the stated water ingress protection standard (refer to the product's *Technical Specification*), water intrusion and subsequent equipment failure may occur if the product is not installed correctly or subjected to 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.

Third-party hardware, such as converters, adapters, routers, switches, Access Points etc., provided by third parties, may be made available directly to you by other companies or individuals under separate terms and conditions, including separate fees and charges. Raymarine UK Ltd or its affiliates have not tested or screened the third-party hardware.

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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 (3.28 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 2 m (6.6 ft).
  - More than 2 m (6.56 ft) from the path of a radar beam. A radar beam can normally be assumed to spread 20 degrees above and below the radiating element.
- The product is supplied from a separate battery from that used for engine start. This is important to prevent erratic behavior and data loss which can occur if the engine start does not have a separate battery.
- Raymarine specified cables are used.
- Cables are not cut or extended, unless doing so is detailed in the installation manual.

Note:

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

Suppression ferrites

- Raymarine cables may be 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.

Connections to other equipment

Requirement for ferrites on non-Raymarine cables:

If your Raymarine equipment is to be connected to other equipment using a cable not supplied by Raymarine, a suppression ferrite MUST always be attached to the cable near the Raymarine unit.

For more information, refer to your third-party cable manufacturer.

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 must aim to maintain a distance of at least 1 m (3.3 ft) in all directions from any compasses.

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 on state.

Declaration of conformity

Raymarine UK Ltd declares that this product is compliant with the essential requirements of EMC Directive 2014/30/EU.

The original Declaration of Conformity certificate may be viewed on the relevant product page at: https://bit.ly/rym-docs

IMO and SOLAS

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

Warranty policy and registration

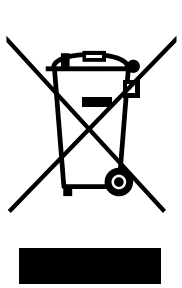
Visit the Raymarine website to **read the latest warranty policy**, and **register** your product's warranty online: www.bit.ly/rym-warranty

It is important that you register your product to receive full warranty benefits. Your product package includes a barcode label indicating the serial number of the unit. This serial number is also provided on a label affixed to the product itself. You will need this serial number when registering your product online.

Product disposal

Dispose of this product in accordance with the WEEE Directive.

The Waste Electrical and Electronic Equipment (WEEE) Directive requires the recycling of waste electrical and electronic equipment which contains materials, components and substances that may be hazardous and present a risk to human health and the environment when WEEE is not handled correctly.



Equipment marked with the crossed-out wheeled bin symbol indicates that the equipment should not be disposed of in unsorted household waste.
Local authorities in many regions have established collection schemes under which residents can dispose of waste electrical and electronic equipment at a recycling center or other collection point.
For more information about suitable collection points for waste electrical and electronic equipment in your region, refer to the Raymarine website: https://bit.ly/rym-recycling

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Publication copyright

CHAPTER 2: DOCUMENT INFORMATION

CHAPTER CONTENTS

2.1 Applicable products

This document is applicable to the following products:

Part number	Description
E70066	i40 Bidata, includes: • i40 Bidata SeaTalk 1 instrument display.
E70145	i40 Bidata Thru-hull system pack, includes: • i40 Bidata SeaTalk 1 instrument display. • P7 Thru-hull Depth transducer. • P371 Thru-hull Speed and Temp transducer.
E70064	i40 Depth, includes: • i40 Depth SeaTalk 1 instrument display.
E70142	i40 Depth Thru-hull system pack, includes: • i40 Depth SeaTalk 1 instrument display. • P7 Thru-hull Depth transducer.
E70143	i40 Depth Transom mount system pack, includes: • i40 Depth SeaTalk 1 instrument display. • P66 Transom mount Depth transducer.
E70063	i40 Speed, includes: • i40 Speed SeaTalk 1 instrument display.
E70140	i40 Speed Thru-hull system pack, includes: • i40 Speed SeaTalk 1 instrument display. • P371 Thru-hull Speed and Temp transducer.
E70141	i40 Speed Transom mount system pack, includes: • i40 Speed SeaTalk 1 instrument display. • ST69 Transom mount Speed and Temp transducer.
E70065	i40 Wind, includes: • i40 Wind SeaTalk 1 instrument display.
E70144	i40 Wind system pack, includes: • i40 Wind SeaTalk 1 instrument display. • Rotavecta wind transducer.

2.2 Product documentation

The following documentation is applicable to your product:

Applicable documents

Document	Description	Link
81340	i40 Installation and Operation Instructions (this document).	www.bit.ly/i40-docs
87155	i40 Mounting template.	www.bit.ly/i40-docs

Related documentation

Document	Description	Link
87221	Rotavecta Installation Instructions.	www.bit.ly/rotavecta-docs
—	Depth and Speed Transducer Installation Instructions.	*As supplied with your transducer*

Printed (hardcopy) product manuals

Raymarine provides a Print Shop service, enabling you to purchase a high-quality, professionally-printed manual for your Raymarine product, delivered directly to your door.

Printed manuals are ideal for keeping onboard your vessel, as a useful source of reference whenever you need assistance with your Raymarine product.

Printed manuals are provided by a third-party (**Lulu Press**).

To order a printed manual, use the Lulu Press website link provided below. The manual will then be printed and delivered to the address you specify. Once an order is placed, it typically takes Lulu Press approximately 5 to 10 working days to print and deliver a printed manual.

Supplier	Book purchase link
lulu	www.bit.ly/rym-i40-book

Note:

- Accepted methods of payment for printed manuals are credit cards and PayPal.
- Printed manuals can be shipped worldwide.
- Further manuals will be added to the Print Shop over the coming months for both new and legacy products.
- Raymarine user manuals are also available to download free-of-charge from the Raymarine website, in the popular PDF format. These PDF files can be viewed on a PC / laptop, tablet, smartphone, or on the latest generation of Raymarine multifunction displays.

2.3 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.

CHAPTER 3: PRODUCT AND SYSTEM OVERVIEW

CHAPTER CONTENTS

3.1 Product overview

The i40 range of SeaTalk 1 instrument displays can be connected directly to the relevant transducers and used to transmit data on the SeaTalk 1 network to other compatible displays.

The i40 instrument display has the following key features:

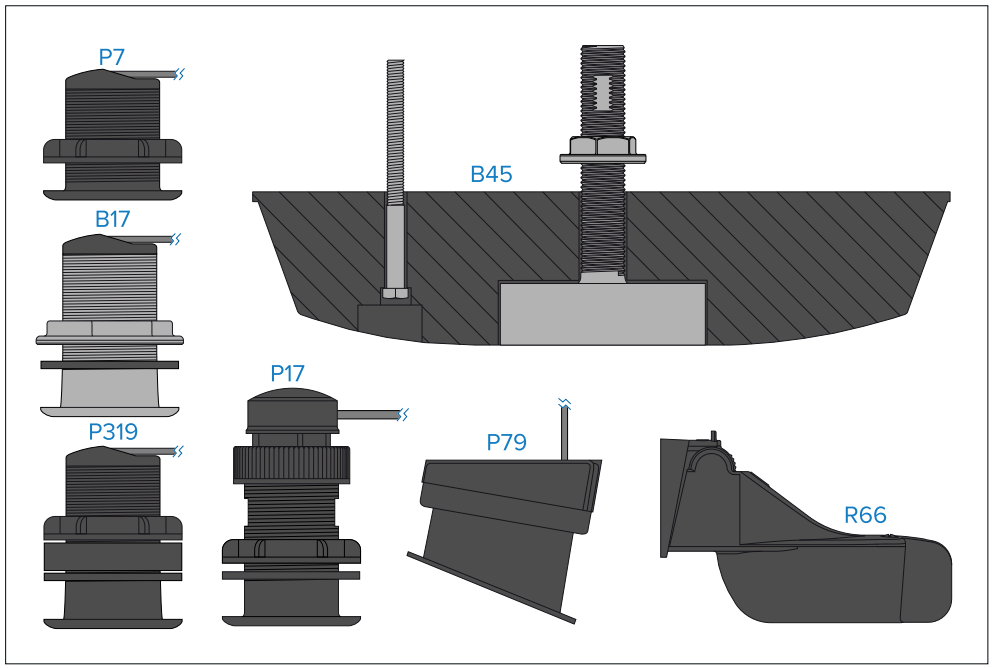
- Seemless integration with Raymarine autopilots and navigation equipment.
- Surface or bracket (trunnion) mountable.
- 28 mm (1.10 in) Extra large maximum digit size and sharp LCD quality provides improved visibility in low-lighting conditions.
- Low power consumption.

3.2 Compatible transducers

Instrument Depth transducers

The depth transducers listed below are compatible with the following instrument displays:

- i40 Depth / i40 Bidata.

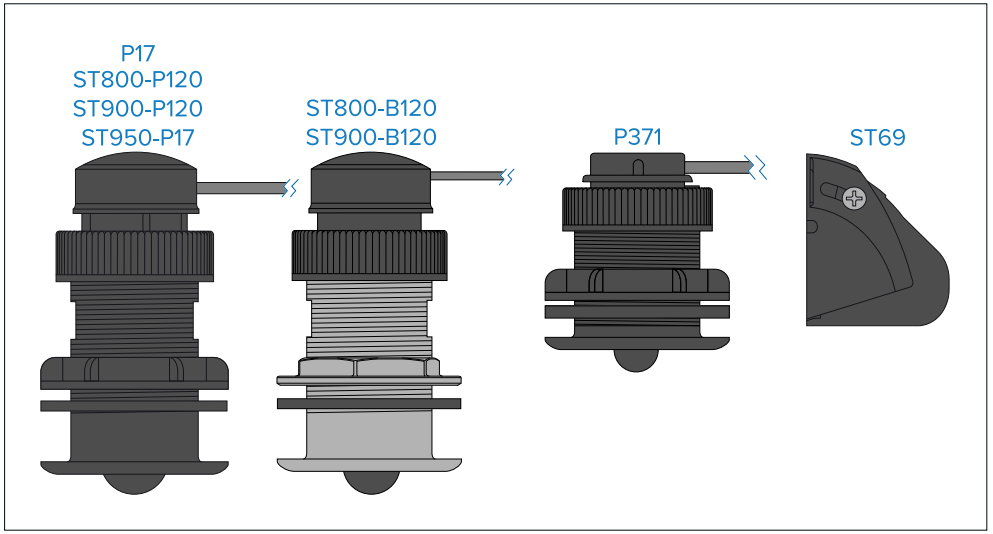


Part number	Transducer description
E26009	**P7** Thru-hull
E26019-PZ	**B45** (including fairing block) Thru-hull
M78717	**B17** Thru-hull
M78713-PZ	**P319** Thru-hull
E26030	**P17** Thru-hull
E26027-PZ	**P66** Transom mount

Instrument Speed and Temperature transducers

The speed and temperature transducers listed below are compatible with the following instrument displays:

- i40 Speed / i40 Bidata.
- i50 Speed / i50 Tridata.
- i70 / i70s via iTC-5 converter.

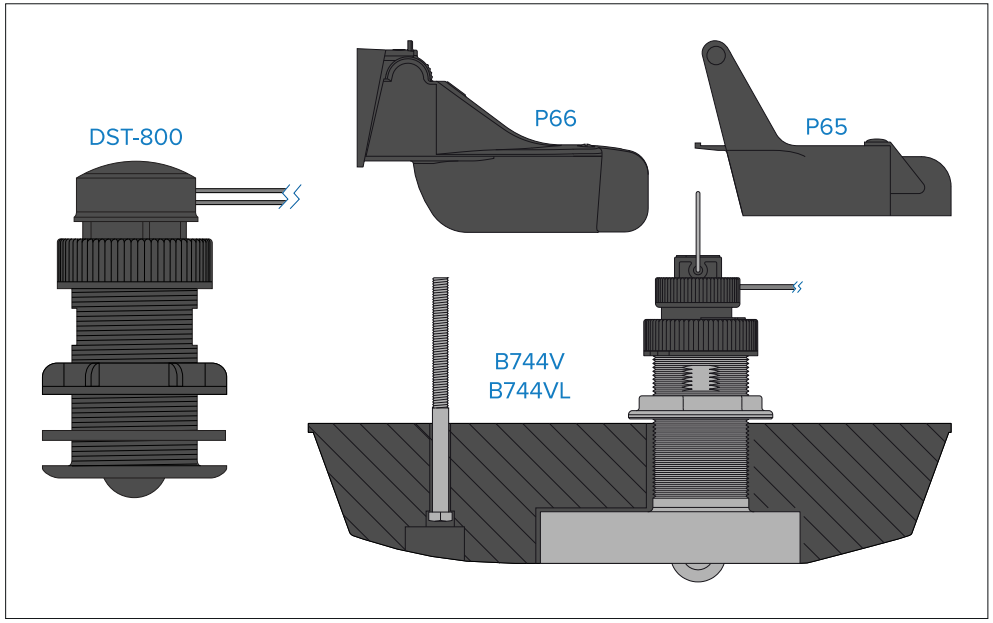


Part number	Description
E25025	**P17** Thru-hull
E26031	**ST800**-P120 Thru-hull.
E70673	**ST900**-P120 Thru-hull, with 13.7 m (44.95 ft) fitted cable.
E70674	**ST900**-P120 Thru-hull, with 20 m (65.62 ft) fitted cable.
E66072	**ST800**-B120 Thru-hull.
E70686	**ST900**-B120 Thru-hull, with 13.7 m (44.95 ft) fitted cable.
E70687	**ST950**-P17 Thru-hull with 6 m (19.69 ft) fitted cable.
E26008	**P371** Thru-hull.
E26005	**ST69** Transom mount.

Instrument Depth, Speed and Temperature (DST) transducers

The DST transducers listed below are compatible with the following instrument displays:

- i40 Depth / i40 Speed / i40 Bidata.
- i50 Depth / i50 Speed / i50 Tridata.
- i70 / i70s via iTC-5 converter.



Part number	Transducer description
A22154	**DST-800** Thru-hull
E26028–PZ	**P66** Transom mount
E26006–PZ	**P65** / **ST40** Transom mount
A26043	**B744V** (including fairing block) Thru-hull
A26044	**B744VL** (including fairing block) Thru-hull

Instrument Rotavecta transducer

The wind transducers listed below are compatible with the following instrument displays:

- i40 Wind.
- i60 Wind.
- i70 / i70s via the iTC-5 converter.

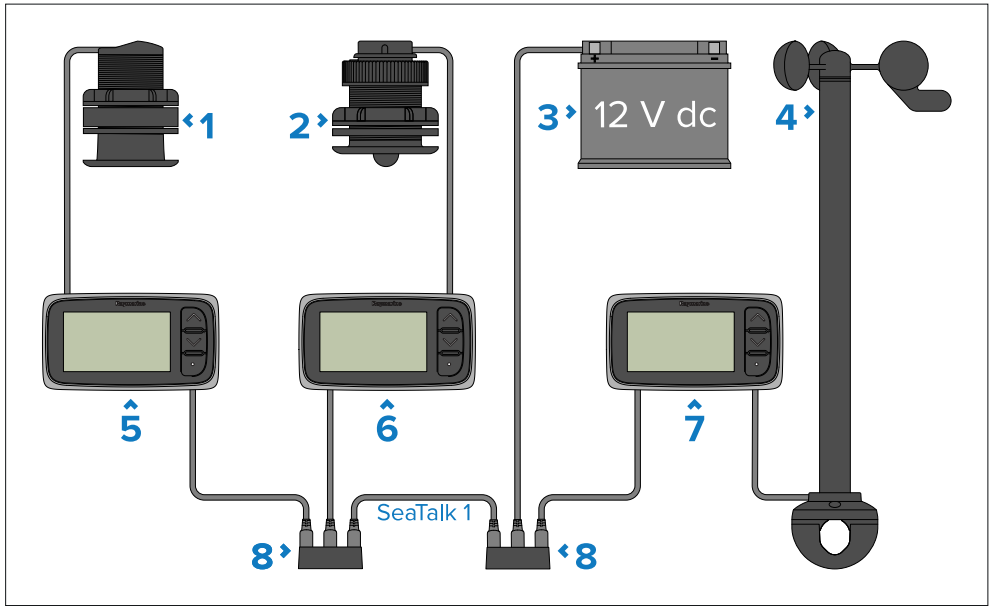
Part number	Transducer description
Z195	Rotavecta transducer

3.3 SeaTalk 1 system example

The following example provides an overview of a SeaTalk 1 system, including the available connections and types of transducers that can be connected to your i40 instrument display.

Note:

This system is shown as an example only and may differ from your planned installation.



	Description
1	Compatible depth transducer (P319 currently illustrated).
2	Compatible speed transducer (P371 currently illustrated).
3	12 V dc power supply.
4	Compatible wind transducer (Rotavecta currently illustrated).
5	i40 Depth.
6	i40 Speed.
7	i40 Wind.
8	SeaTalk 1 3–way junction box.

SeaTalk 1

SeaTalk 1 is a cable system which enables compatible devices (typically, instruments) to connect to each other and share data.

SeaTalk 1 is used to connect compatible instruments and equipment. A single SeaTalk 1 cable carries both power and data signals, and enables the connection of mulitple devices without the need for a central processor or gateway.

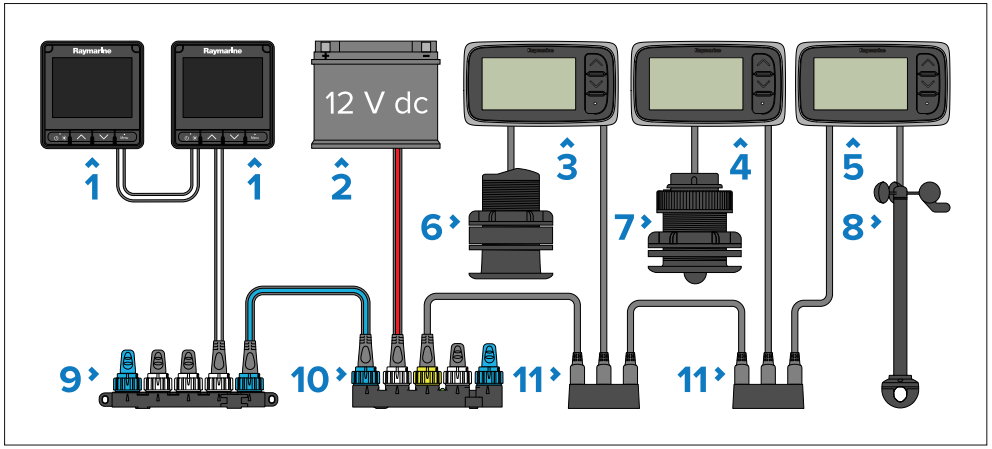
Additional instruments and functions can be added to a SeaTalk 1 system, simply by plugging them into the network. SeaTalk 1 equipment can also communicate with other non-SeaTalk 1 equipment via the NMEA 0183 standard, provided a suitable interface / converter is used. SeaTalk 1 devices can also be connected to SeaTalk NG systems, via adapter cables and the SeaTalk 1 to SeaTalk NG converter (E22158).

3.4 SeaTalk NG system example

The following example provides an overview of a SeaTalk NG system, including the available connections and types of transducers that can be connected to your i40 instrument display.

Note:

This system is shown as an example only and may differ from your planned installation.



	Description
1	SeaTalk NG instrument display (i70s currently illustrated).
2	12 V dc power supply.
3	i40 Depth.
4	i40 Speed.
5	i40 Wind.
6	Compatible depth transducer (P319 currently illustrated).
7	Compatible speed transducer (P371 currently illustrated).
8	Compatible wind transducer (Rotavecta currently illustrated).
9	SeaTalk NG 5-way connector
10	SeaTalk 1 to SeaTalk NG converter.
11	SeaTalk 1 3–way junction box.

SeaTalk NG

SeaTalk NG (*Next Generation*) is an enhanced cable system for the connection of compatible marine instruments and equipment. It replaces the older SeaTalk 1 and SeaTalk 2 cable systems.

SeaTalk NG utilizes a single backbone which compatible equipment connects to using a spur. Data and power are carried within the backbone. Devices that have a low power draw can be powered from the network, although high current equipment will need to have a separate power connection.

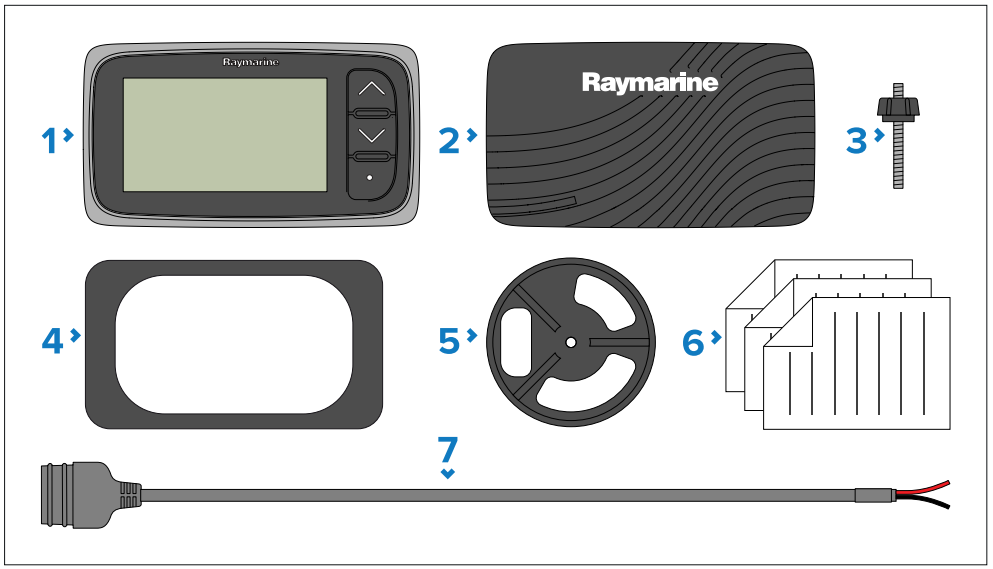
SeaTalk NG is a proprietary extension to NMEA 2000 and the proven CAN bus technology. Compatible NMEA 2000, SeaTalk 1 and SeaTalk 2 devices can also be connected using the appropriate interfaces or adaptor cables as required.

CHAPTER 4: PARTS SUPPLIED

CHAPTER CONTENTS

4.1 Parts supplied

The following parts are supplied with your product.



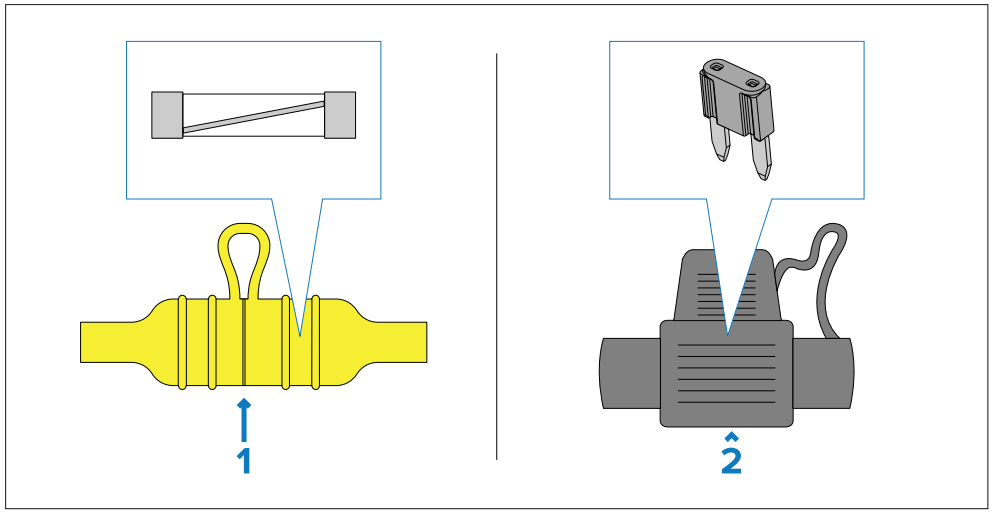
	Description
1	i40 instrument display.
2	i40 sun cover.
3	Fixing stud and thumb nut.
4	Mounting gasket.
5	Clamping bracket.
6	Documentation pack.
7	SeaTalk 1 power cable, 1 m (3.28 ft).

4.2 Inline fuse requirement

If your product is NOT supplied with an inline fuse (whether separately or fitted to the power cable), you MUST fit a suitably-rated inline fuse to your product's red power wire, housed in a waterproof fuse holder.

The illustration below shows the two main types of inline fuse with waterproof holder, for use in marine electronics installations. Fuses in a variety of ratings are widely available at chandleries and marine electrical retailers.

Select one of the following fuse types to protect your Raymarine product:



1. Waterproof fuse holder containing a "glass"-type inline fuse.
2. Waterproof fuse holder containing a "blade"-type inline fuse.

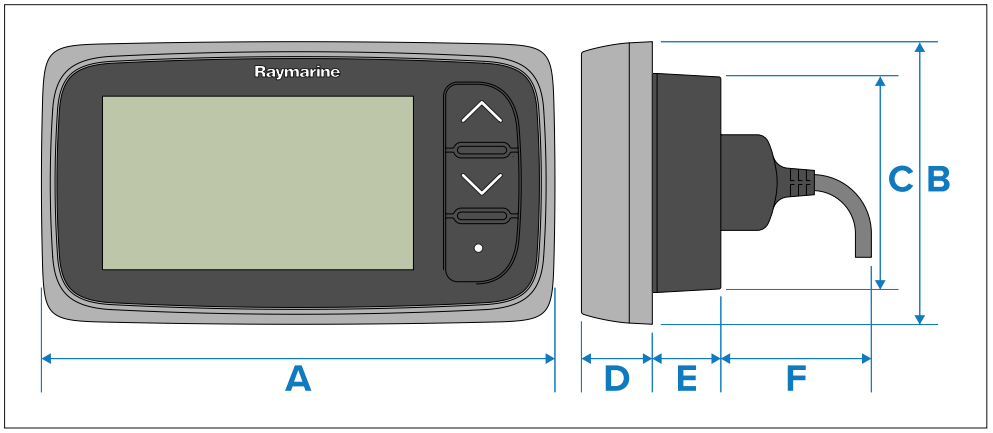
Fuse ratings:

- *Voltage rating* — must be equal to or greater than the voltage of your vessel's power supply.
- *Current rating* — refer to the *Inline fuse and thermal breaker rating* section in this document.

CHAPTER 5: PRODUCT DIMENSIONS

CHAPTER CONTENTS

5.1 Product dimensions



	Description
A	128.00 mm (5.04 in)
B	72.00 mm (2.83 in)
C	55.00 mm (2.17 in)
D	18.00 mm (0.71 in)
E	17.00 mm (0.67 in)
F	30.00 mm (1.18 in)

CHAPTER 6: LOCATION REQUIREMENTS

CHAPTER CONTENTS

6.1 Warnings and cautions

Important:

Before proceeding, ensure that you have read and understood the warnings and cautions provided in the following section of this document:
p.9 — Important information

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).

6.2 General location requirements

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

Factors for consideration:

- **Ventilation** — To ensure adequate airflow:
  - Ensure that product is mounted in a compartment of suitable size.
  - Ensure that ventilation holes are not obstructed. Allow adequate separation of all equipment.

  Any specific requirements for each system component are provided later in this chapter.
- **Mounting surface** — Ensure product is adequately supported on a secure surface. Do not mount units or cut holes in places which may damage the structure of the vessel.
- **Cabling** — Ensure the product is mounted in a location which allows proper routing, support and connection of cables:
  - Minimum bend radius of 100 mm (3.94 in) unless otherwise stated.
  - Use cable clips to prevent stress on connectors.
  - If your installation requires multiple ferrites to be added to a cable then additional cable clips should be used to ensure the extra weight of the cable is supported.
- **Water ingress** — The product is suitable for mounting both above and below decks. Although the unit is waterproof, it is good practice to locate it in a protected area away from prolonged and direct exposure to rain and salt spray.
- **Electrical interference** — Select a location that is far enough away from devices that may cause interference, such as motors, generators and radio transmitters / receivers.
- **Power supply** — Select a location that is as close as possible to the vessel's DC power source. This will help to keep cable runs to a minimum.

6.3 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 (3.28 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 2 m (6.6 ft).
  - More than 2 m (6.56 ft) from the path of a radar beam. A radar beam can normally be assumed to spread 20 degrees above and below the radiating element.
- The product is supplied from a separate battery from that used for engine start. This is important to prevent erratic behavior and data loss which can occur if the engine start does not have a separate battery.

- Raymarine specified cables are used.
- Cables are not cut or extended, unless doing so is detailed in the installation manual.

Note:

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

6.4 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 must aim to maintain a distance of at least 1 m (3.3 ft) in all directions from any compasses.

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 on state.

6.5 Viewing angle considerations

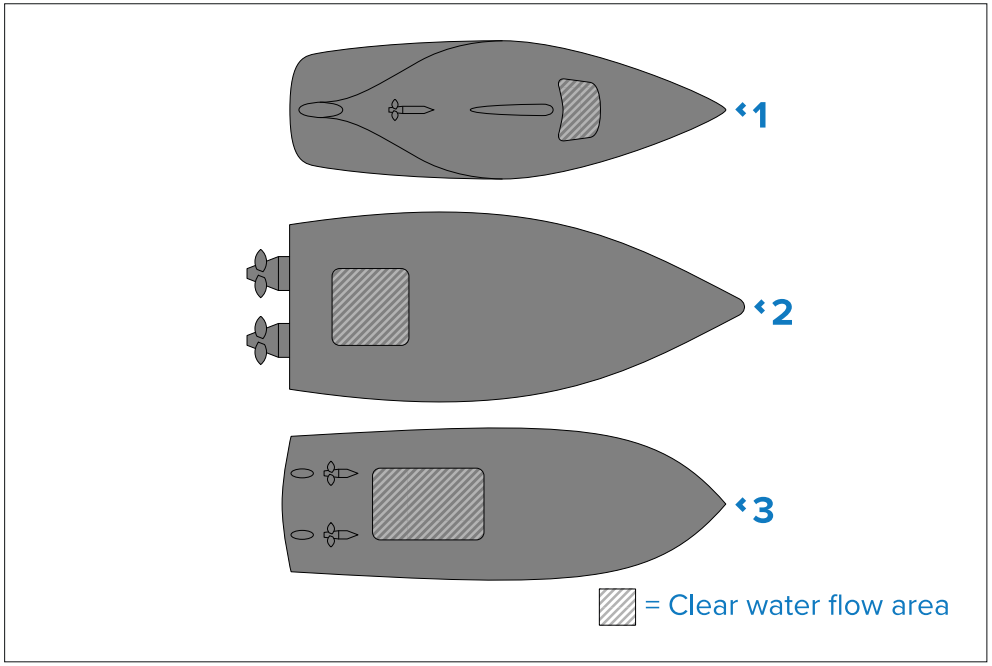
As display contrast and color are affected by the viewing angle, It is recommended that you temporarily power up the display, prior to installation, to enable you to best judge which location provides the optimum viewing angle.

For viewing angles for your product refer to the *Technical specification*.

6.6 General speed and depth transducer location requirements

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

The transducer should be mounted in a clear water flow area, as indicated by the key shown in the following image.



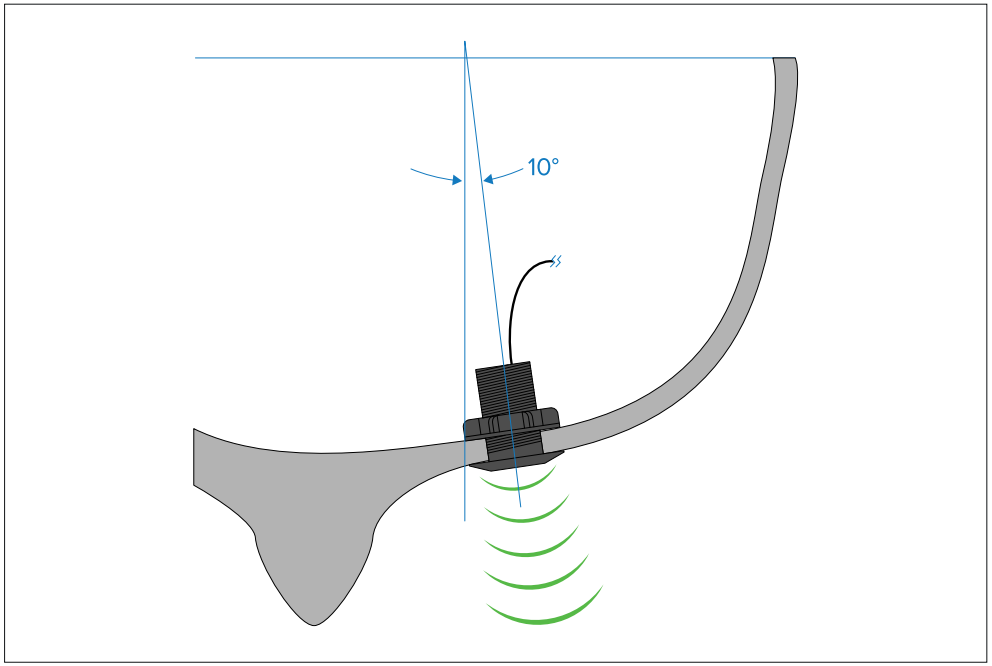
	Description
1	Sailing vessel
2	Planing power vessel
3	Displacement power vessel

Each transducer should also:

- Be ahead of the propellers (by a minimum of 10% of the water line length).
- Be at least 150 mm (5.91 in) away from the keel (ideally ahead of the keel on a sailing yacht).
- Be as near as possible to the center line of the vessel.
- Be clear of other through-hull fittings or projections.
- Have sufficient clearance inside the hull to fit the nut.
- Have 100 mm (3.94 in) of headroom to allow for withdrawal.

Note:

In addition to the requirements listed above, the depth transducer must also be mounted within 10° of the vertical.



6.7 Speed and depth transducer mounting

Ensure transducers are installed in accordance with the instructions supplied with the transducer.

6.8 Wind transducer location requirements

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

The transducer's location must ensure that:

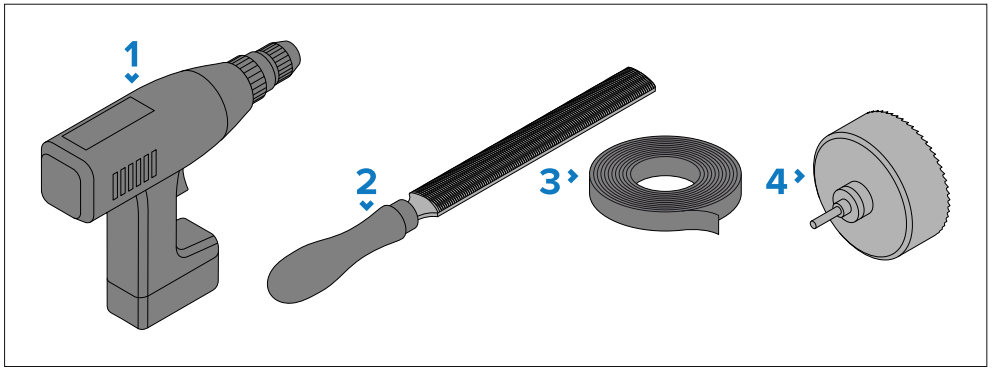
- It is installed facing forwards.
- It is installed on a horizontal surface. If a surface (e.g. a mast top) is otherwise suitable but not horizontal, make up a suitable wedge piece to provide the necessary horizontal surface.
- It is installed as high as possible and away from any equipment which may shield the transducer or otherwise disturb the air flow to the transducer.
- There is a viable route for the transducer's cable to be routed to the display / converter that it will be connected to.
- The vane and cups can spin freely.
- There is sufficient access for installation and servicing.

CHAPTER 7: MOUNTING

CHAPTER CONTENTS

7.1 Tools required

The following tools are required for installation.



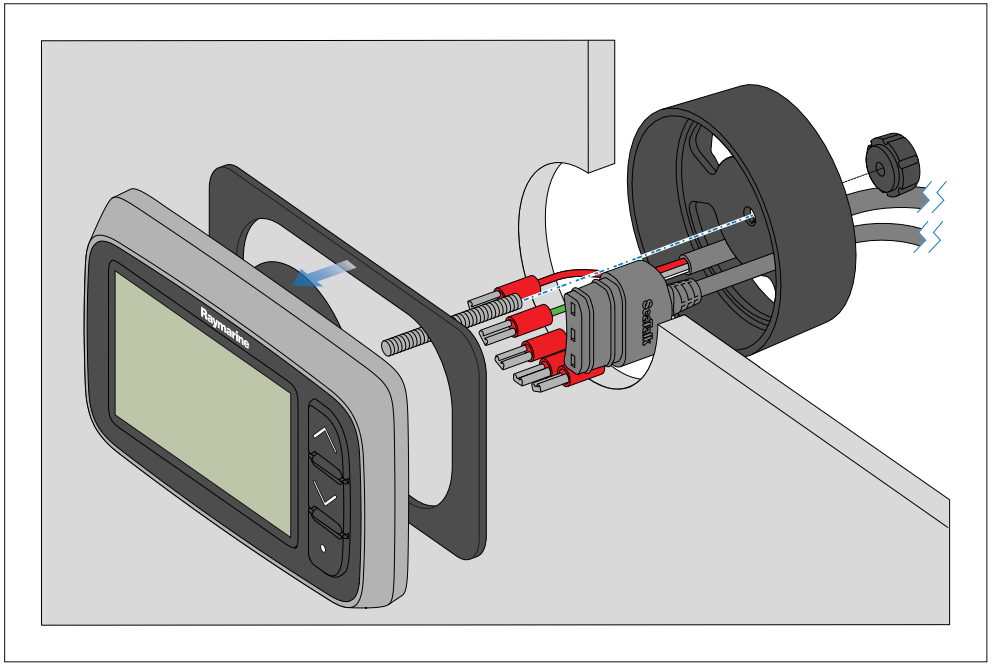
1. Power drill.
2. File.
3. Adhesive tape.
4. Hole cutter, 57 mm (2.25 in).

7.2 Mounting the unit

Follow the instructions below to mount the unit to a surface.

Before mounting the product, ensure that you have:

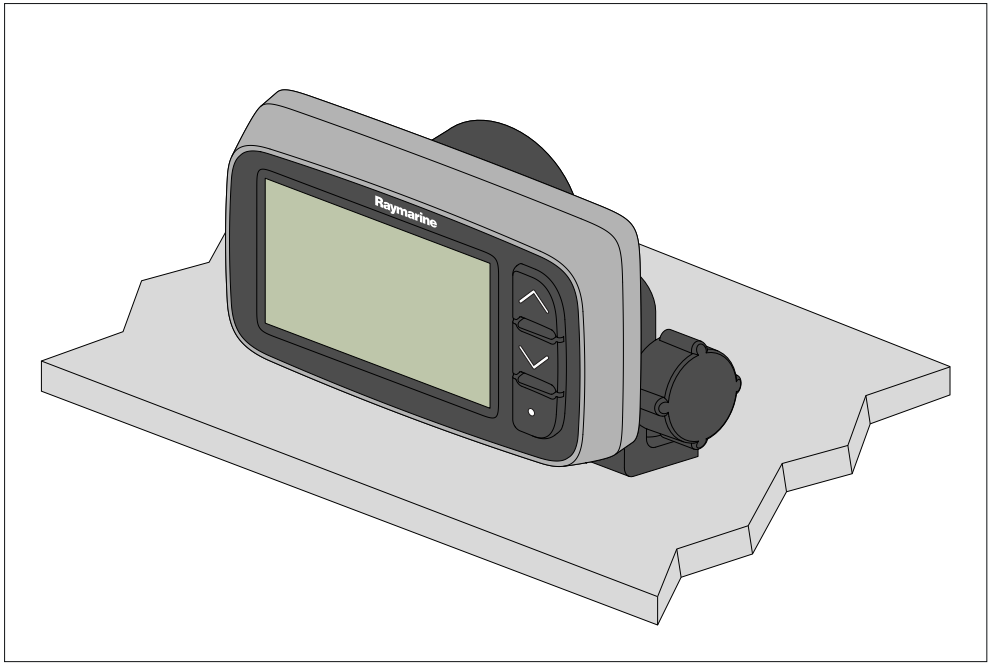
- Selected a suitable location, based on the location requirements found in this document.
- Identified the relevant cable connections and the route that the cables will take.



1. Check the selected location for the unit. A clear, flat area with suitable clearance behind the panel is required.
2. Fix the supplied mounting template to the selected location, using masking or self adhesive tape.
3. If possible use an appropriate size hole cutting saw to cut-out the center hole area as indicated on the mounting template; or
4. Using a suitable hole cutting saw, make pilot holes in each corner of the cut-out area, and using a jigsaw cut along the inside edge of the cut-out line.
5. Ensure that the unit fits into the removed area and then file around the cut edge until smooth.
6. Peel the backing off the supplied gasket and place the adhesive side of the gasket onto the display unit and press firmly onto the flange.
7. Screw the supplied mounting stud into the back of the unit.
8. Feed cables through the supplied clamping bracket and connect to the unit.
9. Secure the instrument and bracket using the thumb nut and stud.

7.3 Bracket mounting the unit

The unit can also be mounted to a desktop using the separately available mast bracket accessory (E25024). The mast bracket accessory is supplied with installation instructions.



Note:

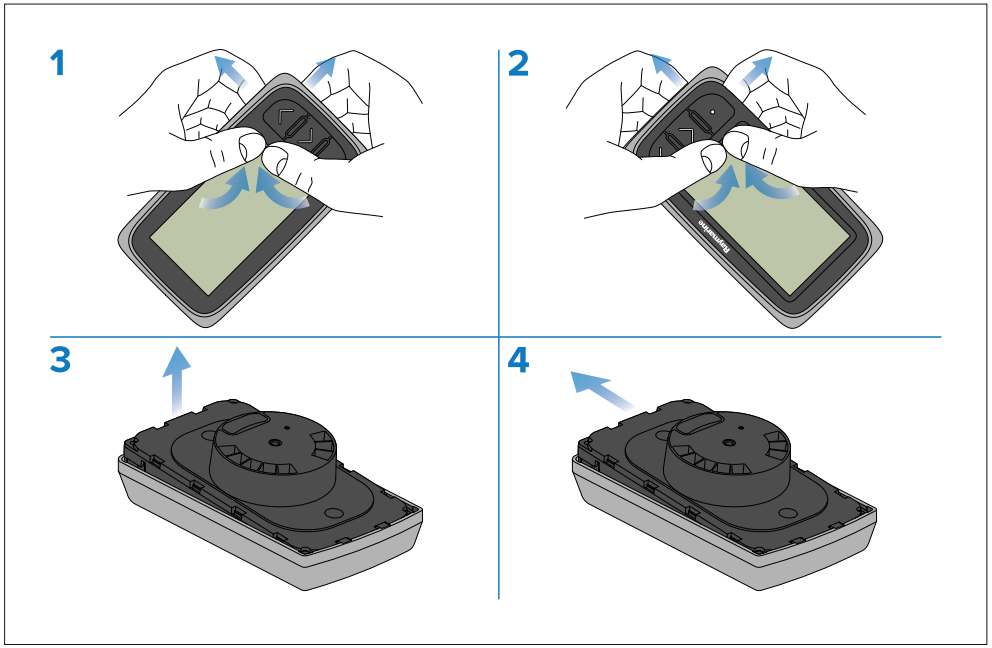
For more information on the spares and accessories available, refer to:
p.110 — Spares and accessories

7.4 Removing the front bezel

Note:

The front bezel does not need to be removed when mounting the unit.

To remove the front bezel:



1. Remove the unit from the mounting surface or mounting bracket and disconnect the cables.
2. Using your fingers, pull the bezel up and away from the unit at the top corner, nearest the buttons, as shown in Step 1.

   The bezel will start to come away from the unit at the top corner.
3. Using your fingers, pull the bezel up and away from the unit at the bottom corner, nearest the buttons, as shown in Step 2.
4. Pull the unit away from the bezel and slide the unit away from the lugs on the opposite side of the bezel, as shown in Steps 3 and 4.

   The bezel will now be released from the unit.

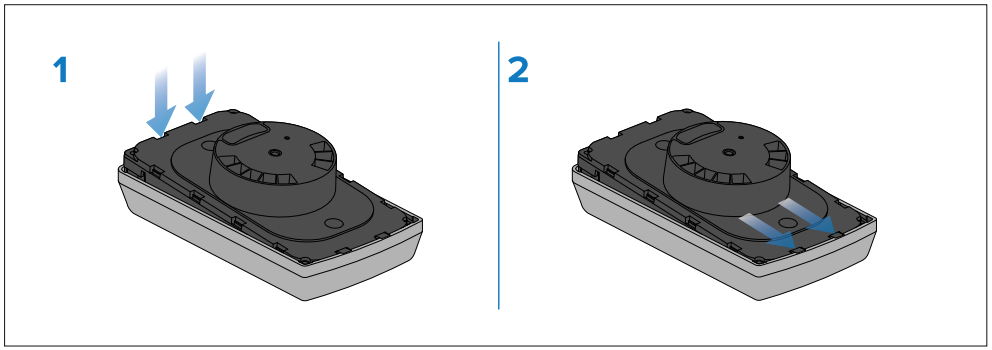
Important:

Use care when removing the bezel. Do not use any tools to lever the bezel, as doing so may cause damage.

7.5 Front bezel

Fitting the front bezel

To fit the front bezel:



1. Ensure that the keymat is positioned correctly.
2. Fit the unit into the bezel so that the unit slides under the lugs on the bezel, as shown in Step 1.
3. Gently but firmly, press the bezel onto the unit until it clicks into place, as shown in Step 2.
4. Follow the mounting instructions to refit the unit on to the mounting surface.

7.6 Rotavecta mounting

The Rotavecta wind transducer should be mounted in accordance with the installation instruction that are provided with the transducer.

For more information on how to install your Rotavecta wind transducer, refer to the *Rotavecta Installation Instructions (87221)*.

CHAPTER 8: CABLES AND CONNECTIONS — GENERAL INFORMATION

CHAPTER CONTENTS

8.1 General cabling guidance

Cable types and length

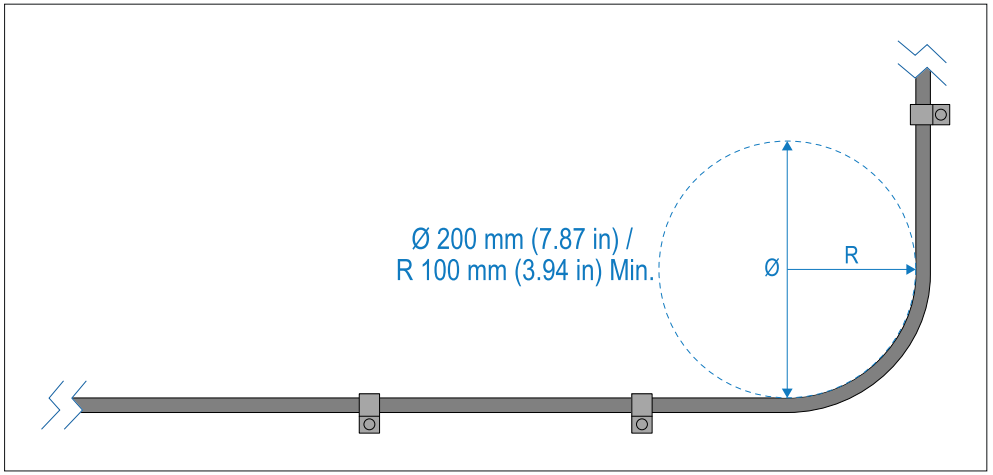
It is important to use cables of the appropriate type and length.

- Unless otherwise stated only use cables supplied by Raymarine.
- Where it is necessary to use non-Raymarine cables, ensure that they are of correct quality and gauge for their intended purpose. (e.g.: longer power cable runs may require larger wire gauges to minimize voltage drop along the run).

Cable routing

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

- Do NOT bend cables excessively. Wherever possible, ensure a minimum bend diameter (Ø) of 200 mm (7.87 in) / minimum bend radius (R) of 100 mm (3.94 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 cable clips or cable ties. Coil any excess 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

Use adequate strain relief for cabling to ensure that connectors are protected from strain and will not pull out under extreme sea conditions.

Cable shielding

Ensure that cable shielding is not damaged during installation and that all cables are properly shielded.

Important:

Be aware that some **third-party** cables and adaptors (for example, certain Ethernet cables using RJ45 connectors) are not always shielded. To prevent breaks in cable shielding continuity and potential grounding issues, special attention is required to ensure that any cables, extension cables, adaptors, or other signal-coupling devices (such as multi-way connectors, junction boxes, terminal blocks etc.) used in cable runs **maintain all shield connections throughout the cable run**.

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.

Connecting cables

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 has been installed in accordance with the installation instructions supplied with that device.
3. Ensuring correct orientation, push cable connectors fully onto the corresponding connectors.
4. Engage any locking mechanism to ensure a secure connection (e.g.: turn locking collars clockwise until tight, or in the locked position).
5. Ensure any bare ended wire connections are suitably insulated to prevent shorting and corrosion due to water ingress.

Bare-ended wire connections

You must ensure that any bare-ended wires are adequately protected from short circuit and water ingress.

Bare-ended wire connections

It is recommended that bare-ended wire connections are made by soldering or using crimp connectors, and then protected by wrapping the connection in electrical insulation tape.

Unused bare-ended wires

Any unused bare-ended wires should be folded back and wrapped in electrical insulation tape.

Warning: Positive ground systems

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

CHAPTER 9: NETWORK CONNECTIONS

CHAPTER CONTENTS

9.1 Connections overview

The following section will provide 4 different connection scenarios that may be applicable when connecting your i40 variant to a compatible transducer or a SeaTalk 1 network.

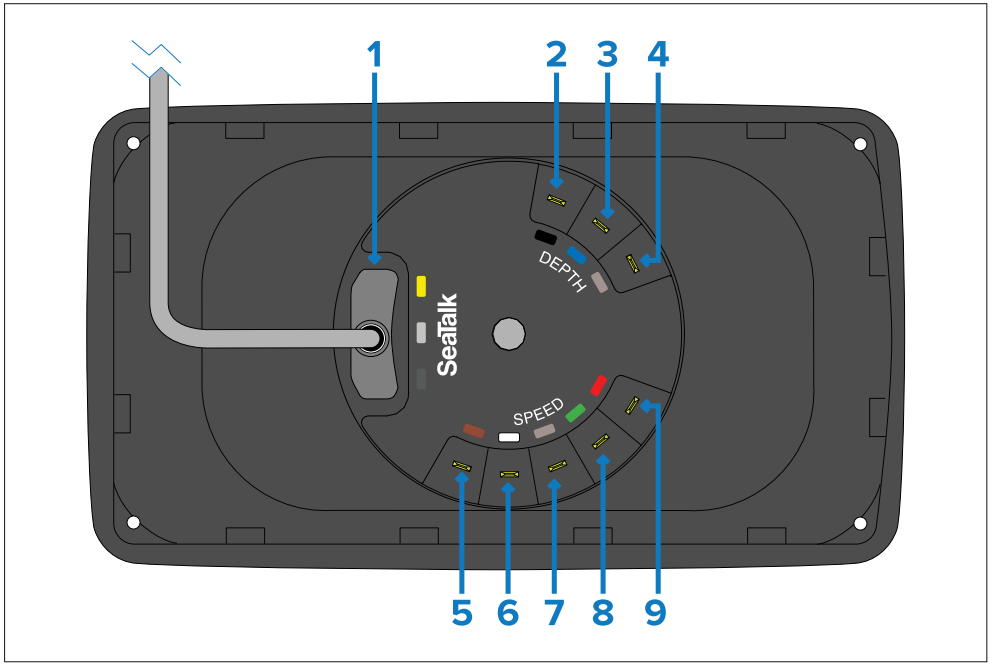
1. **p.37 —** i40 Bidata **connections**
2. **p.37 —** i40 Depth **connections**
3. **p.38 —** i40 Speed **connections**
4. **p.38 —** i40 Wind **connections**

Note:

For a list of compatible transducers, refer to the following section:
p.17 — Compatible transducers

i40 Bidata connections

The i40 Bidata includes the following connections:



SeaTalk 1 connections

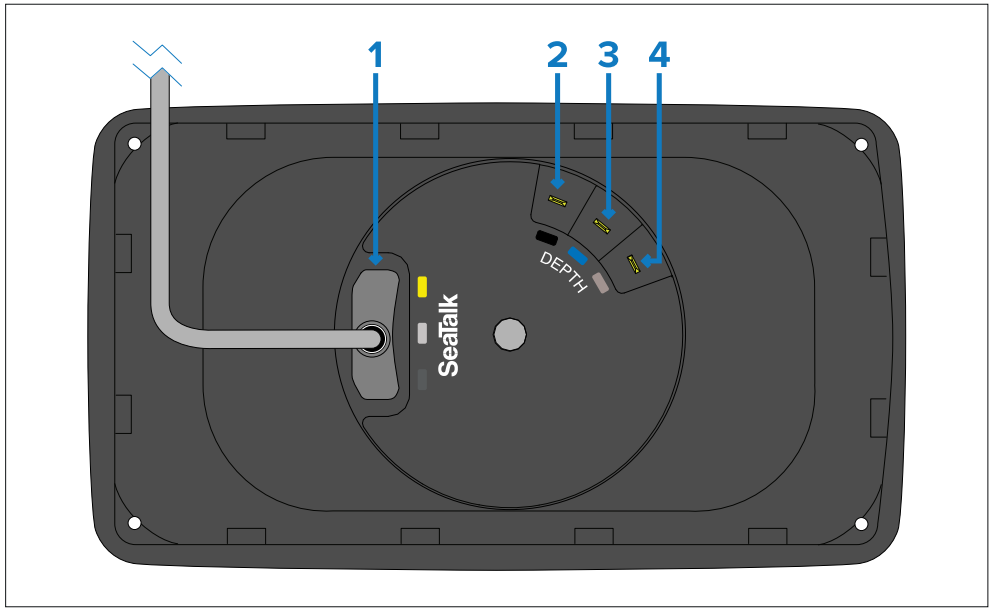
	Description
1	SeaTalk 1 connector.

Depth and Speed / Temp transducer connections

	Cable color	Signal name
2	Black (Depth)	Piezoceramic –
3	Blue (Depth)	Piezoceramic +
4	Screen (Depth)	0 V (shield)
5	Brown (Speed)	Temperature 0 V
6	White (Speed)	Temperature (signal)
7	Screen (Speed)	Speed 0 V (shield)
8	Green (Speed)	Speed (signal)
9	Red (Speed)	Speed V+

i40 Depth connections

The i40 Depth includes the following connections:



SeaTalk 1 connections

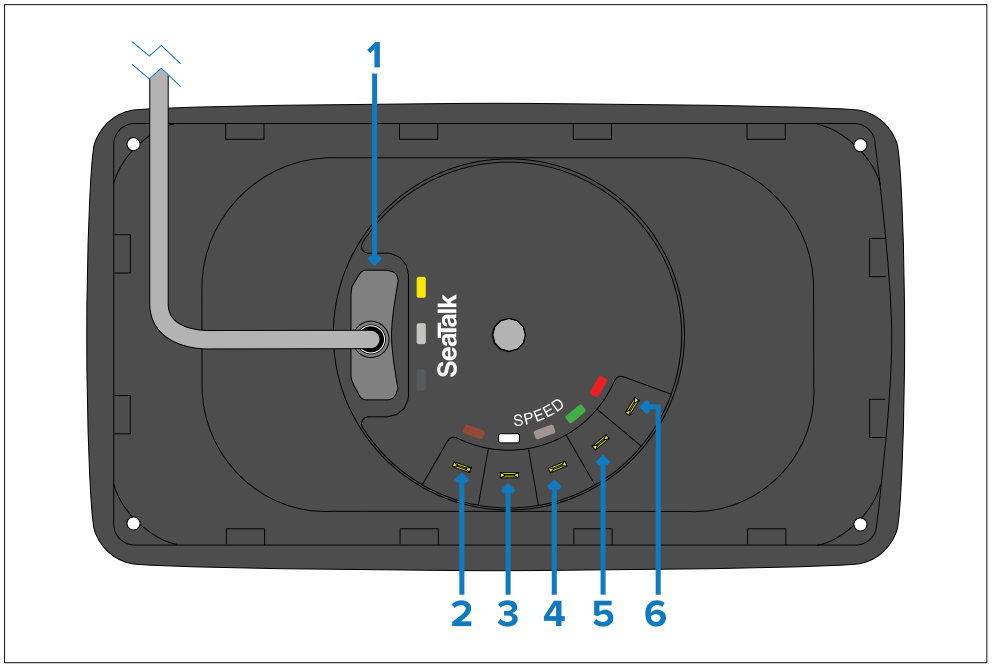
	Description
1	SeaTalk 1 connector.

Depth transducer connections

	Cable color	Signal name
2	Black (Depth)	Piezoceramic –
3	Blue (Depth)	Piezoceramic +
4	Screen (Depth)	0 V (shield)

i40 Speed connections

The i40 Speed includes the following connections:



SeaTalk 1 connections

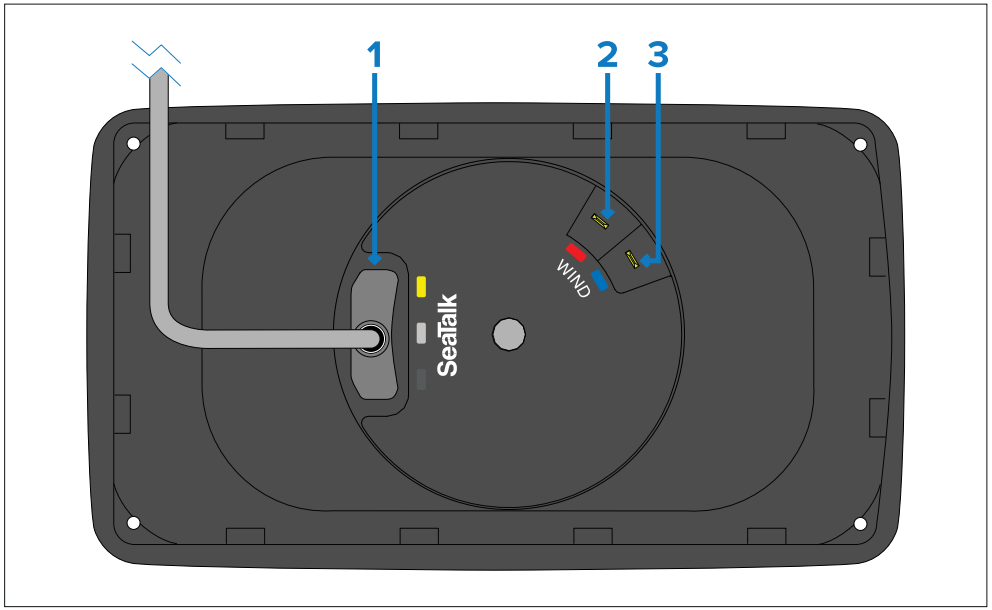
	Description
1	SeaTalk 1 connector.

Speed / Temp transducer connections

	Cable color	Signal name
2	Brown (Speed)	Temperature 0 V
3	White (Speed)	Temperature (signal)
4	Screen (Speed)	Speed 0 V (shield)
5	Green (Speed)	Speed (signal)
6	Red (Speed)	Speed V+

i40 Wind connections

The i40 Wind includes the following connections:



SeaTalk 1 connections

	Description
1	SeaTalk 1 connector.

Wind transducer connections

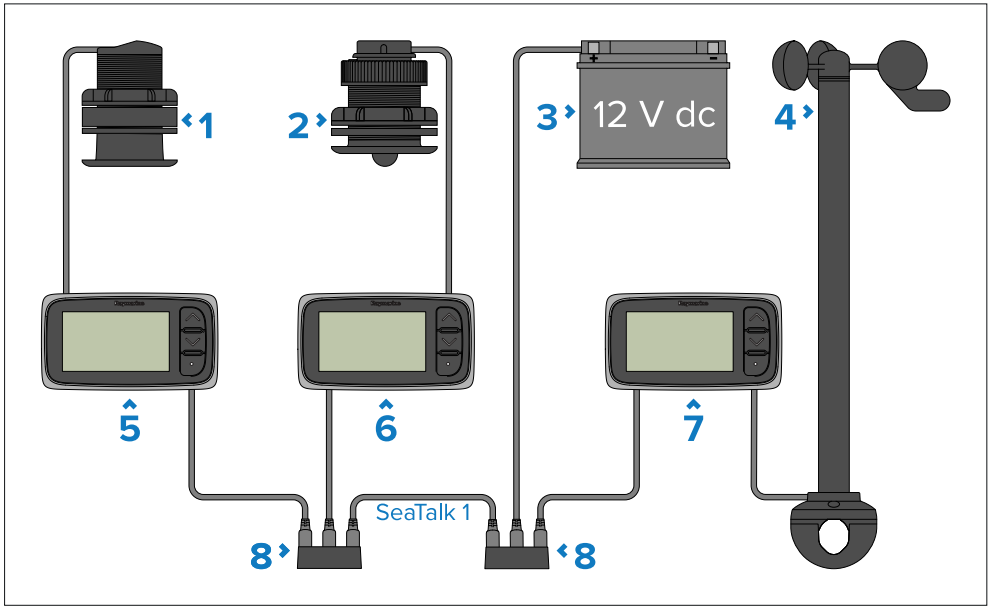
	Cable color	Signal name
2	Red (Wind)	Rotor +
3	Blue (Wind)	Rotor -

9.2 SeaTalk 1 system example

The following example provides an overview of a SeaTalk 1 system, including the available connections and types of transducers that can be connected to your i40 instrument display.

Note:

This system is shown as an example only and may differ from your planned installation.



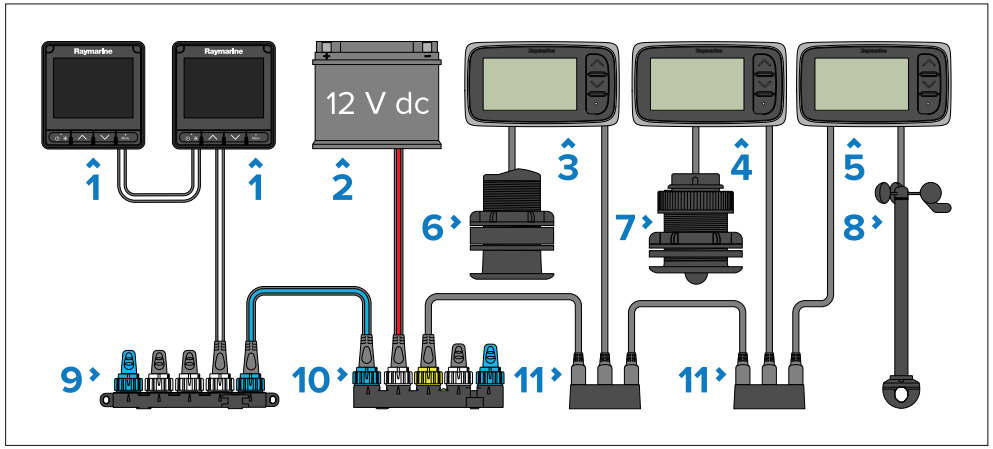
	Description
1	Compatible depth transducer (P319 currently illustrated).
2	Compatible speed transducer (P371 currently illustrated).
3	12 V dc power supply.
4	Compatible wind transducer (Rotavecta currently illustrated).
5	i40 Depth.
6	i40 Speed.
7	i40 Wind.
8	SeaTalk 1 3–way junction box.

9.3 SeaTalk NG system example

The following example provides an overview of a SeaTalk NG system, including the available connections and types of transducers that can be connected to your i40 instrument display.

Note:

This system is shown as an example only and may differ from your planned installation.



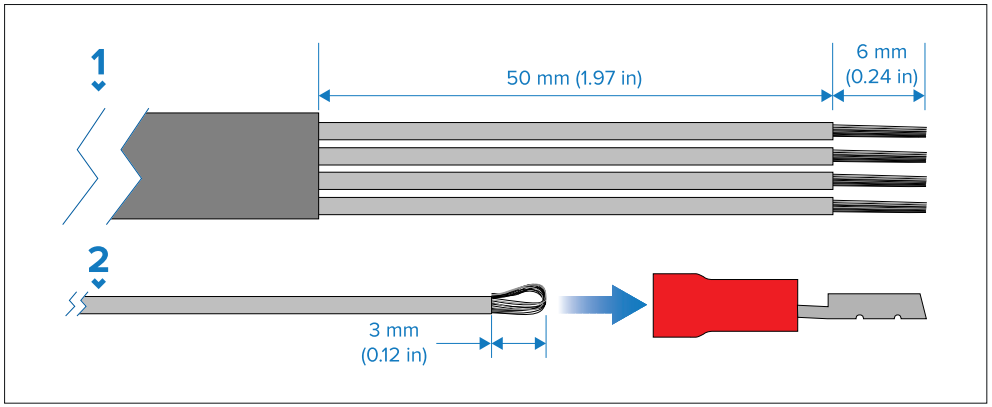
	Description
1	SeaTalk NG instrument display (i70s currently illustrated).
2	12 V dc power supply.

	Description
3	i40 Depth.
4	i40 Speed.
5	i40 Wind.
6	Compatible depth transducer (P319 currently illustrated).
7	Compatible speed transducer (P371 currently illustrated).
8	Compatible wind transducer (Rotavecta currently illustrated).
9	SeaTalk NG 5-way connector
10	SeaTalk 1 to SeaTalk NG converter.
11	SeaTalk 1 3–way junction box.

9.4 Replacing spade terminals

Although the transducer cable is fitted with spade terminals for direct connection to a compatible display or converter, it may be necessary to remove these to allow the cable to be routed through bulkheads or masts etc. 5 x 1/8th spade terminals will be required (not supplied), to replace those removed.

When fitting the new spade terminals, prepare the cables as detailed below:



1. Prepare the cable as shown in 1 above.
2. Fold back the wire strands and insert into the new spade connector as shown in 2 above.
3. Ensure the wire strands do not extend beyond the rear of the spade connector insulation.
4. Crimp the connector to the wire.

CHAPTER 10: POWER CONNECTIONS (SEATALK NG CONNECTIONS)

CHAPTER CONTENTS

10.1 Power options

This product must have only **one** power source.

Important:

Before attempting to power your product from a SeaTalk NG backbone or SeaTalk 1 network, please note the following important requirements and considerations:

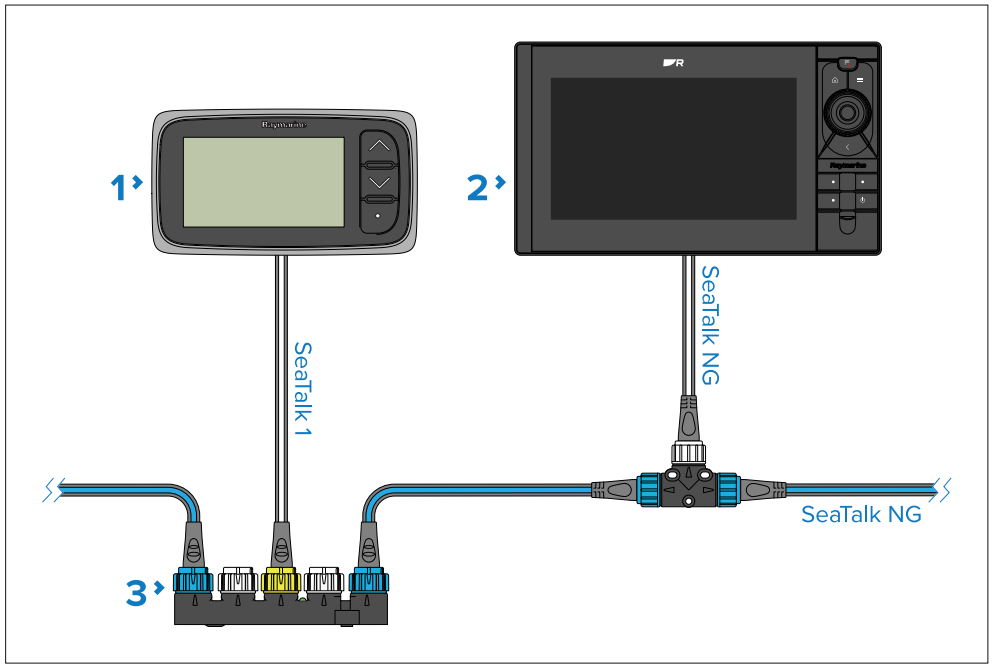
- You must connect only **one** power source.
- If your SeaTalk NG backbone is connected to any other system, ensure that in the combined system you connect only **one** data source for any given data type (for example GNSS (GPS)), unless specified otherwise.
- If any SeaTalk NG and SeaTalk 1 products are connected together, do NOT connect to an NMEA 2000 backbone. This product combination may compromise the integrity of your NMEA 2000 system.
- If you are connecting your product to a SeaTalk NG backbone via the SeaTalk 1 to SeaTalk NG converter (E22158), the converter must ONLY be powered by the SeaTalk NG bus.
- You can connect two separate SeaTalk 1 networks to a SeaTalk NG backbone using different adapter cables and bridging methods (e.g. via an ST70 instrument or a SeaTalk 1 to SeaTalk NG converter), but the SeaTalk 1 networks must NOT be connected together. For more information, refer to the SeaTalk NG Reference Manual (81300).

The following power options are available for your product. The required option is dependent on your system configuration:

1. **SeaTalk NG** power option:
   - Connection to a SeaTalk NG backbone, using the separately available SeaTalk 1 to SeaTalk NG converter (E22158) and a SeaTalk 1 (3 pin) to SeaTalk NG adapter cable (A22164). For more information, refer to: **p.41 — Power connections (SeaTalk NG connections)**
2. **SeaTalk 1** power option — Either:
   - Connection to a SeaTalk 1 3-way junction box (D244), using a separately available SeaTalk 1 extension cable; OR:
   - Connection (daisy-chained) to a second SeaTalk 1 product, using a separately available SeaTalk 1 extension cable. For more information, refer to: **p.49 — Power connections (SeaTalk 1 connections)**
3. **Direct connection** power option:
   - Direct connection to a vessel's 12 V dc power supply, using the supplied power cable. For more information, refer to: **p.56 — Power connections (Direct connections)**

10.2 SeaTalk NG power connection

You can connect your i40 instrument display to a SeaTalk NG backbone using the separately available SeaTalk 1 to SeaTalk NG converter (E22158) and a SeaTalk 1 (3 pin) to SeaTalk NG adapter cable (A22164).



	Description
1	i40 instrument display.
2	Compatible Raymarine multifunction display (Axiom 2 Pro currently illustrated).
3	SeaTalk 1 to SeaTalk NG converter (E22158).

10.3 SeaTalk NG power supply

Your product is supplied power via the SeaTalk NG backbone (or the NMEA 2000 backbone if applicable).

A SeaTalk NG backbone requires a single 12 V dc power supply. Power can be supplied to the SeaTalk NG backbone by one of the following methods:

- (1) Direct connection to a 12 V dc battery using an inline 5 amp fuse.
- Connection to a 12 V dc distribution panel using a 3 amp thermal breaker.
- (2) Connection to the SeaTalk NG connector of an ACU-Series Autopilot Control Unit (not ACU-100 or ACU-150), or an SPX-Series course computer (not SPX-5).
- For 24 V vessels, connection must be via a 5 amp, regulated, continuous 24 V dc to 12 V dc converter.

Note:

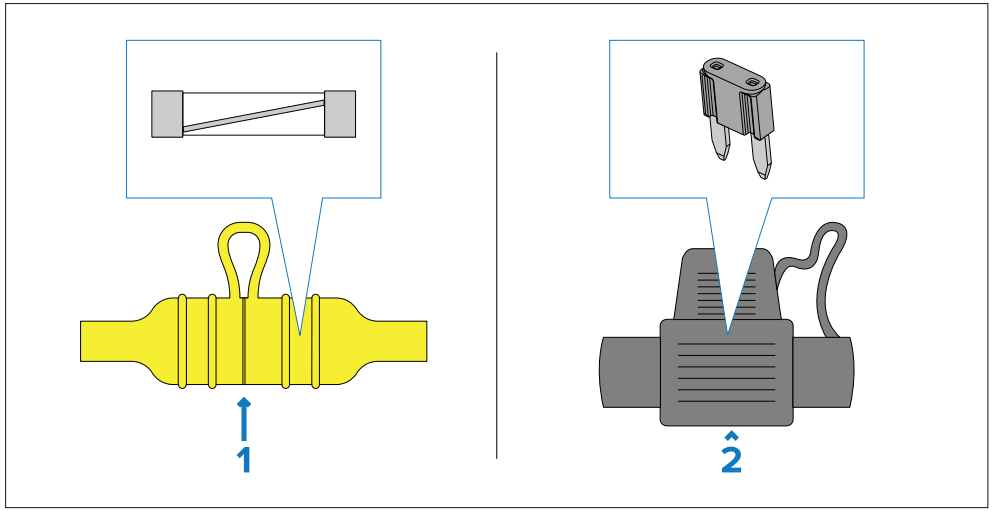
- (1) The battery used for starting the vessel's engine(s) should NOT be used to power the SeaTalk NG backbone, as this can cause sudden voltage drops when the engines are started.
- (2) The ACU-100, ACU-150 or SPX-5 cannot be used to power the SeaTalk NG backbone.
- The course computer SeaTalk NG connector includes a power switch that must be in the On position to provide power to the backbone.

10.4 Inline fuse requirement

If your product is NOT supplied with an inline fuse (whether separately or fitted to the power cable), you MUST fit a suitably-rated inline fuse to your product's red power wire, housed in a waterproof fuse holder.

The illustration below shows the two main types of inline fuse with waterproof holder, for use in marine electronics installations. Fuses in a variety of ratings are widely available at chandleries and marine electrical retailers.

Select one of the following fuse types to protect your Raymarine product:



1. Waterproof fuse holder containing a "glass"-type inline fuse.
2. Waterproof fuse holder containing a "blade"-type inline fuse.

Fuse ratings:

- *Voltage rating* — must be equal to or greater than the voltage of your vessel's power supply.
- *Current rating* — refer to the *Inline fuse and thermal breaker rating* section in this document.

10.5 Inline fuse and thermal breaker ratings

The SeaTalk NG network's power supply requires a suitably-rated inline fuse or thermal breaker to be fitted.

Inline fuse rating	Thermal breaker rating
5A	3A (refer to note below)

Note:

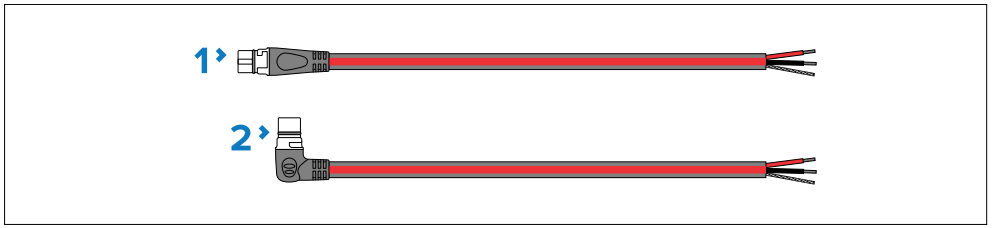
The suitable fuse rating for the thermal breaker is dependent on:

1. How many devices you have connected to your SeaTalk NG network, and;
2. How many devices are sharing the same thermal breaker that your SeaTalk NG network is connected to.

10.6 SeaTalk NG power cables

The following SeaTalk NG power cables can be used to connect the backbone to your chosen **12 V dc** power supply:

Direct connection cables



1. Standard (straight) SeaTalk NG power cable, 2 m (6.6 ft) (part number: **A06049**).
2. Elbow (right-angled) SeaTalk NG power cable, 2 m (6.6 ft) (part number: **A06070**).

Wiring

- **+ Red (positive) wire** — connects to the battery or distribution panel positive terminal. A waterproof fuse holder with 5 A inline fuse (not supplied) must be fitted to this red wire.
- **– Black (negative) wire** — connects to battery or distribution panel negative terminal.
- **Drain wire** — connects to the vessel's RF common ground point (if available), or the battery's negative (-) terminal.

Autopilot Control Unit connection cable

1. ACU-Series/SPX-Series autopilot to SeaTalk NG spur cable, 0.3 m (1.0 ft) (part number **R12112**). Connects the course computer to the SeaTalk NG backbone. This connection can also be used to provide 12 V dc power to the SeaTalk NG backbone.

10.7 SeaTalk NG product loading

The number of products that can be connected to a SeaTalk NG backbone depends on the current draw of each product and the physical length of the backbone cabling.

NMEA 2000 Load Equivalency Numbers (LEN) are used to express the amount of current that is drawn from SeaTalk NG products (**1 LEN = 50 mA**). The LEN for each product can be found in the product's *Technical Specification*.

Products which have a dedicated power supply connection that are connected to the SeaTalk NG backbone will still have an LEN rating. This is because the product's NMEA 2000/SeaTalk NG internal transceiver will still be powered by the SeaTalk NG backbone.

LENs are used to determine the power connection point for the SeaTalk NG backbone.

10.8 SeaTalk NG power connection point

The point along the backbone where the power connection should be made is based on the length of the backbone.

Note:

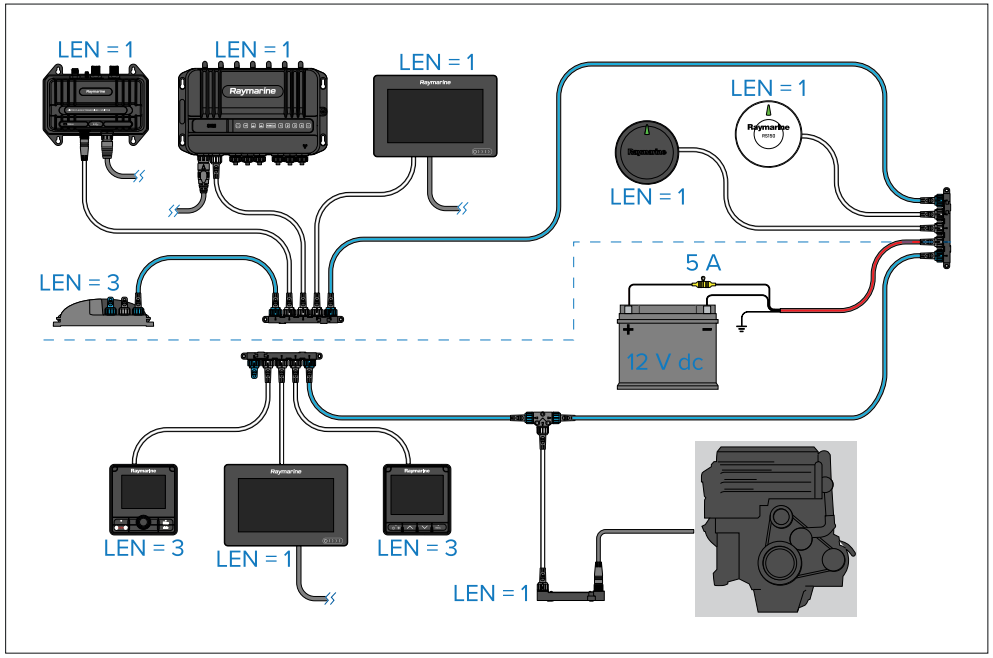
- A 12 V dc power supply must be connected to a *white* spur SeaTalk NG connection on the backbone.
- Do NOT connect the power connection to a *blue* SeaTalk NG backbone connector.
- **With the exception of** the iTC-5 and the backbone itself, do NOT connect the power supply directly to a product's *white* SeaTalk NG spur connector.

Small systems

If the backbone length is 60 m (197 ft) or less, the power connection may be made at any point in the backbone.

Large systems

If the backbone length is greater than 60 m (197 ft), the power connection should be made at a point that creates a balanced current draw from each side of the backbone. Load Equivalency Numbers (LEN) are used to determine the power connection point for the system.



In the example above, the system has an overall LEN of 16, so the optimum connection point would be to have a loading of 8 LEN either side of the connection point.

10.9 SeaTalk NG system loading

The maximum loading (LEN) for a SeaTalk NG system depends on the length of the backbone.

Unbalanced system loading:

- **Backbone Length**: 0 m (0 ft) to 20 m (66 ft) — **Maximum LEN**: 40
- **Backbone Length**: > 20 m (66 ft) to 40 m (131 ft) — **Maximum LEN**: 20
- **Backbone Length**: > 40 m (131 ft) to 60 m (197 ft) — **Maximum LEN**: 14

Balanced system loading:

- **Backbone Length**: 0 m (0 ft) to 60 m (197 ft) — **Maximum LEN**: 100
- **Backbone Length**: > 60 m (197 ft) to 80 m (262 ft) — **Maximum LEN**: 84
- **Backbone Length**: > 80 m (262 ft) to 100 m (328 ft) — **Maximum LEN**: 60
- **Backbone Length**: > 100 m (328 ft) to 120 m (394 ft) — **Maximum LEN**: 50

- **Backbone Length**: > 120 m (394 ft) to 160 m (525 ft) — **Maximum LEN**: 40
- **Backbone Length**: > 160 m (525 ft) to 200 m (656 ft) — **Maximum LEN**: 32

10.10 Power distribution — SeaTalk NG

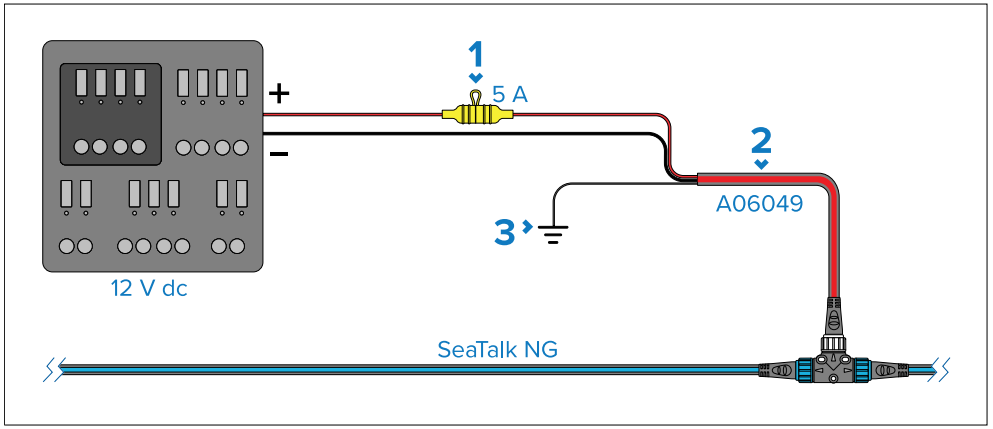
Recommendations and best practice.

- Only use approved SeaTalk NG power cables. Do NOT use a power cable designed for, or supplied with, a different product.
- See below for more information on implementation for some common power distribution scenarios.

Important:

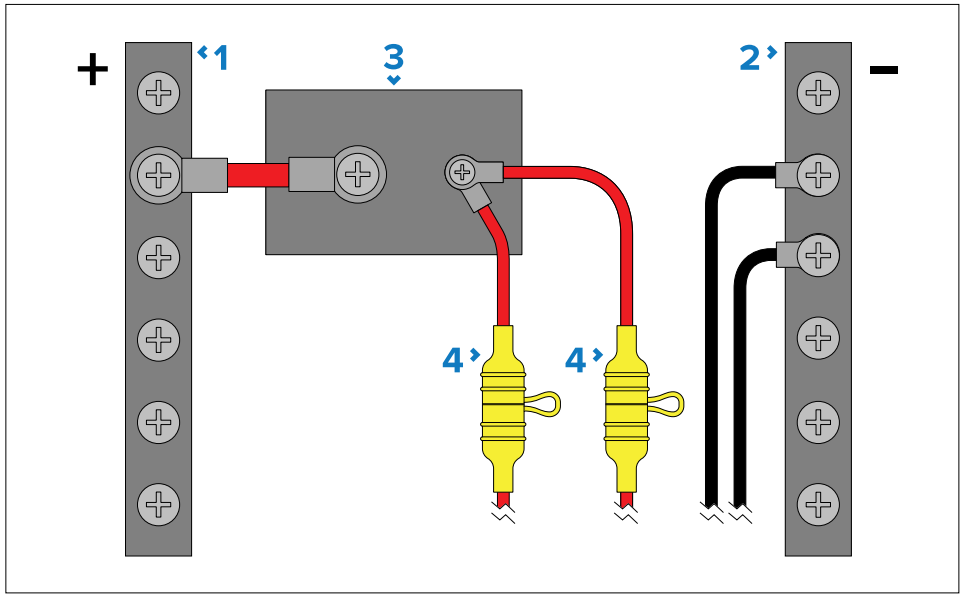
- When planning and wiring, take into consideration other products in your system, some of which (e.g. sonar modules) may place large power demand peaks on the vessel's electrical system, which may impact the voltage available to other products during the peaks.
- The information provided below is for 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 — connection to distribution panel (recommended)



1. Waterproof fuse holder with 5 A inline fuse must be fitted (not supplied).
2. SeaTalk NG power cable.
3. RF Ground connection point for drain wire.

- Ideally, the SeaTalk NG power cable should be connected to a suitable breaker or switch on the vessel's distribution panel or factory-fitted power distribution point. It is recommended that a 5 A inline fuse is fitted to the red (positive) wire of the SeaTalk NG power cable.
- 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 one item of equipment shares a breaker, use individual in-line fuses for each power circuit to provide the necessary protection.



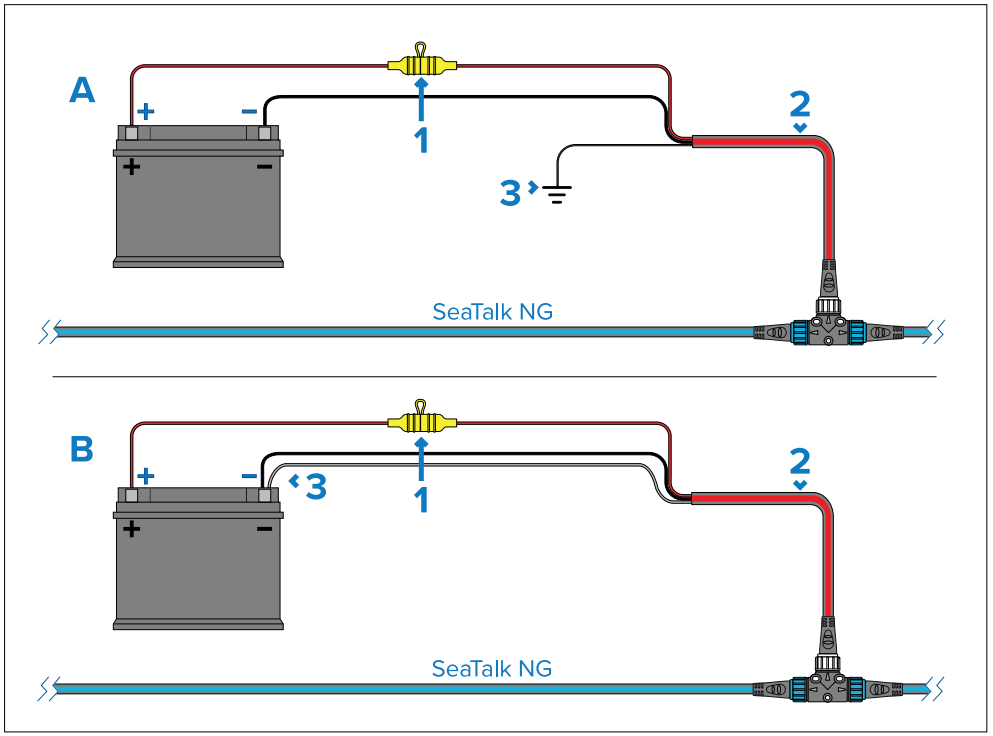
1. Positive (+) bar
2. Negative (-) bar
3. Circuit breaker
4. Waterproof fuse holder with 5 A inline fuse must be fitted (not supplied).

Important:

Observe the recommended fuse / breaker ratings provided in the product's documentation, however be aware that the suitable fuse / breaker rating is dependent on the number of devices being connected.

Implementation — direct connection to battery

- Where connection to a power distribution panel is not possible, the power cable may be connected to the vessel's battery.
- You MUST fit a 5 A inline fuse between the red wire and the battery's positive terminal.
- If you need to extend the length of the power cable, ensure you use suitably rated cable and that sufficient power (12 V dc) is available at the SeaTalk NG backbone's power connection.



1. Waterproof fuse holder with 5 A inline fuse must be fitted (not supplied).
2. SeaTalk NG power cable.
3. Connection point for drain wire.

Battery connection scenario A:

Suitable for a vessel with a common RF ground point. In this scenario, the power cable's drain wire should be connected to the vessel's common RF ground point.

Battery connection scenario B:

Suitable for a vessel without a common RF ground point. In this scenario the power cable's drain wire should be connected directly to the battery's negative terminal.

SeaTalk NG Power cable extension

If you need to extend the length of the SeaTalk NG power cable, ensure you use suitably-rated cable, and that sufficient power is available at the SeaTalk NG backbone's power connection point:

- For power cable extensions, a **minimum** wire gauge of 16 AWG (1.31 mm^2) is recommended. For cable runs longer than 15 m (49.2 ft), you may need to consider a thicker wire gauge (e.g. 14 AWG (2.08 mm^2), or 12 AWG (3.31 mm^2).
- To ensure power cables (including any extension) are of a sufficient gauge, ensure that there is a continuous **minimum** voltage of **10.8 V dc** at the end of the cable where it enters the product's power connector, even with a fully flat battery at 11 V dc. (Do not assume that a flat battery is at 0 V dc. Due to the discharge profile and internal chemistry of batteries, the current drops much faster than the voltage. A "fully flat" battery still shows a positive voltage, even if it doesn't have enough current to power your device.)

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.

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
- ISO 13297: Small craft — Electrical systems — Alternating and direct current installations
- ISO 10133: Small craft — Electrical systems — Extra-low-voltage d.c. installations
- ABYC E-11 AC & DC Electrical Systems on Boats
- ABYC A-31 Battery chargers and Inverters
- ABYC TE-4 Lightning Protection

Warning: 12 Volt dc only

This product must ONLY be connected to a 12 V dc power source.

Warning: Product grounding

Before applying power to this product, it MUST be correctly grounded, in accordance with the instructions provided.

Warning: Positive ground systems

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

CHAPTER 11: POWER CONNECTIONS (SEATALK 1 CONNECTIONS)

CHAPTER CONTENTS

11.1 Power options

This product must have only **one** power source.

Important:

Before attempting to power your product from a SeaTalk NG backbone or SeaTalk 1 network, please note the following important requirements and considerations:

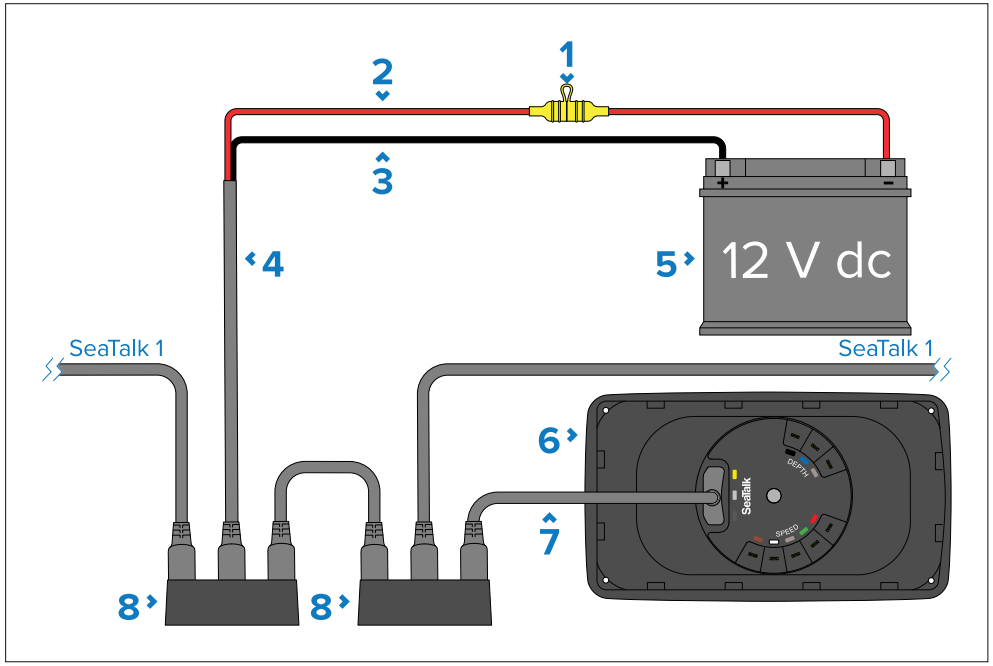
- You must connect only **one** power source.
- If your SeaTalk NG backbone is connected to any other system, ensure that in the combined system you connect only **one** data source for any given data type (for example GNSS (GPS)), unless specified otherwise.
- If any SeaTalk NG and SeaTalk 1 products are connected together, do NOT connect to an NMEA 2000 backbone. This product combination may compromise the integrity of your NMEA 2000 system.
- If you are connecting your product to a SeaTalk NG backbone via the SeaTalk 1 to SeaTalk NG converter (E22158), the converter must ONLY be powered by the SeaTalk NG bus.
- You can connect two separate SeaTalk 1 networks to a SeaTalk NG backbone using different adapter cables and bridging methods (e.g. via an ST70 instrument or a SeaTalk 1 to SeaTalk NG converter), but the SeaTalk 1 networks must NOT be connected together. For more information, refer to the SeaTalk NG Reference Manual (81300).

The following power options are available for your product. The required option is dependent on your system configuration:

1. **SeaTalk NG** power option:
   - Connection to a SeaTalk NG backbone, using the separately available SeaTalk 1 to SeaTalk NG converter (E22158) and a SeaTalk 1 (3 pin) to SeaTalk NG adapter cable (A22164). For more information, refer to: **p.41 — Power connections (SeaTalk NG connections)**
2. **SeaTalk 1** power option — Either:
   - Connection to a SeaTalk 1 3-way junction box (D244), using a separately available SeaTalk 1 extension cable; OR:
   - Connection (daisy-chained) to a second SeaTalk 1 product, using a separately available SeaTalk 1 extension cable. For more information, refer to: **p.49 — Power connections (SeaTalk 1 connections)**
3. **Direct connection** power option:
   - Direct connection to a vessel's 12 V dc power supply, using the supplied power cable. For more information, refer to: **p.56 — Power connections (Direct connections)**

11.2 SeaTalk 1 junction box power connection

You can connect your i40 instrument display to a SeaTalk 1 junction box (D244) using a separately available SeaTalk 1 extension cable.

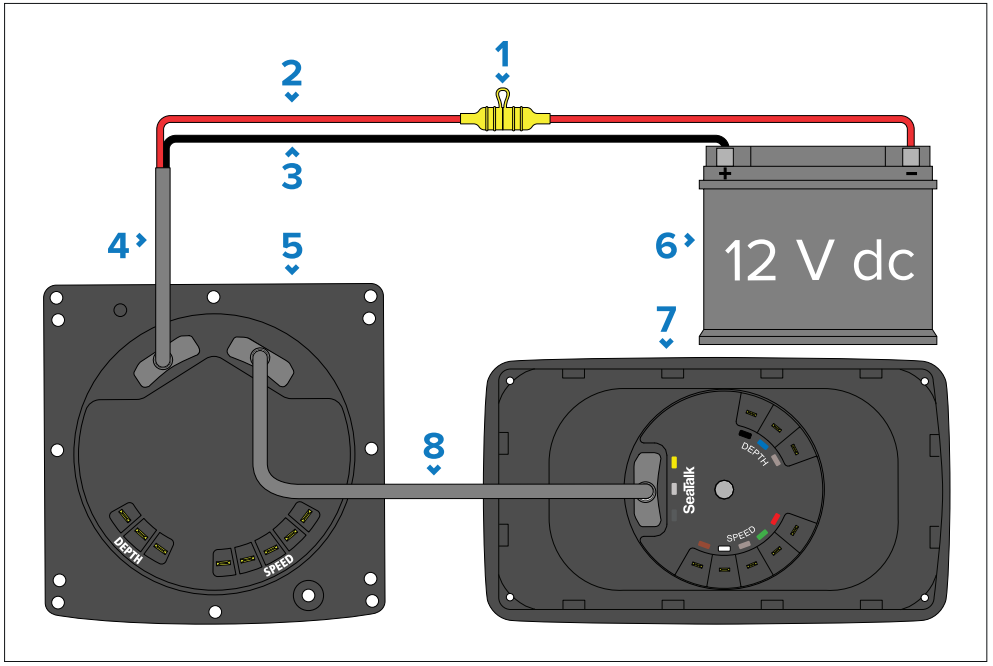


	Description
1	Waterproof fuse holder containing a suitably-rated inline fuse (**not supplied**), which must be fitted to the red positive wire — refer to the fuse ratings below.
2	Red wire (positive) — connects to the power supply's positive terminal.
3	Black wire (negative) — connects to the power supply's negative terminal.

	Description
4	SeaTalk 1 power cable, 1 m (3.28 ft).
5	12 V dc power supply.
6	i40 instrument display.
7	SeaTalk 1 extension cable.
8	SeaTalk 1 junction box (D244).

11.3 SeaTalk 1 daisy-chain power connection

You can connect (daisy-chain) your i40 instrument display to a second SeaTalk 1 product using a separately available SeaTalk 1 extension cable.



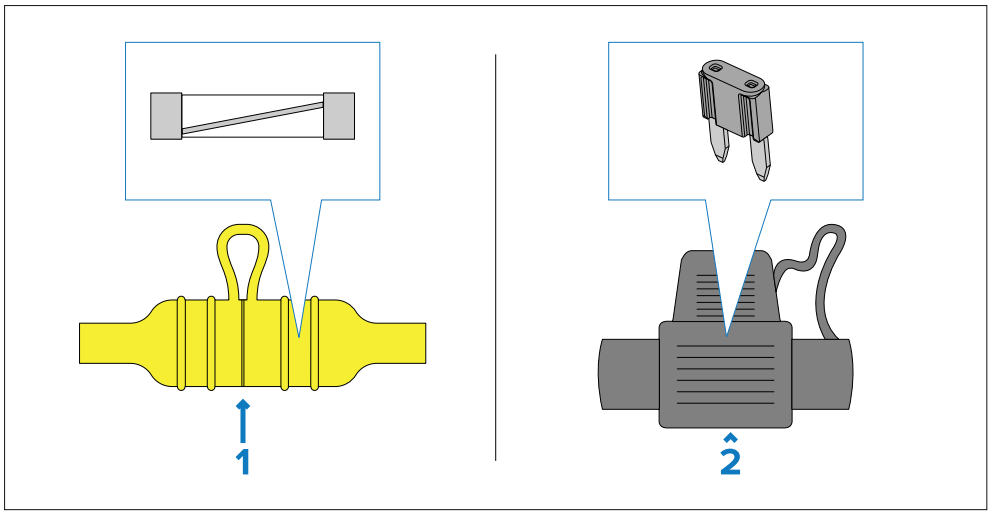
	Description
1	Waterproof fuse holder containing a suitably-rated inline fuse (**not supplied**), which must be fitted to the red positive wire — refer to the fuse ratings below.
2	Red wire (positive) — connects to the power supply's positive terminal.
3	Black wire (negative) — connects to the power supply's negative terminal.
4	SeaTalk 1 power cable, 1 m (3.28 ft).
5	Daisy-chained SeaTalk 1 product (ST60+ currently illustrated).
6	12 V dc power supply.
7	i40 instrument display.
8	SeaTalk 1 extension cable.

11.4 Inline fuse requirement

If your product is NOT supplied with an inline fuse (whether separately or fitted to the power cable), you MUST fit a suitably-rated inline fuse to your product's red power wire, housed in a waterproof fuse holder.

The illustration below shows the two main types of inline fuse with waterproof holder, for use in marine electronics installations. Fuses in a variety of ratings are widely available at chandleries and marine electrical retailers.

Select one of the following fuse types to protect your Raymarine product:



1. Waterproof fuse holder containing a “glass”-type inline fuse.
2. Waterproof fuse holder containing a “blade”-type inline fuse.

Fuse ratings:

- *Voltage rating* — must be equal to or greater than the voltage of your vessel’s power supply.
- *Current rating* — refer to the *Inline fuse and thermal breaker rating* section in this document.

11.5 Inline fuse and thermal breaker ratings

The SeaTalk 1 network’s power supply requires a suitably-rated inline fuse or thermal breaker to be fitted.

Inline fuse rating	Thermal breaker rating
5A	5A (refer to note below)

Note:

The suitable fuse rating for the thermal breaker is dependent on:

1. How many devices you have connected to your SeaTalk 1 network, and;
2. How many devices are sharing the same thermal breaker that your SeaTalk 1 network is connected to.

Raymarine recommends that the power is connected to a SeaTalk 1 system in such a way that the current drawn on each side of the power connection point is equal.

Warning: 12 Volt dc only

This product must ONLY be connected to a 12 V dc power source.

Warning: Positive ground systems

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

Warning: Grounding not required

This product does NOT require separate grounding.

11.6 Power distribution

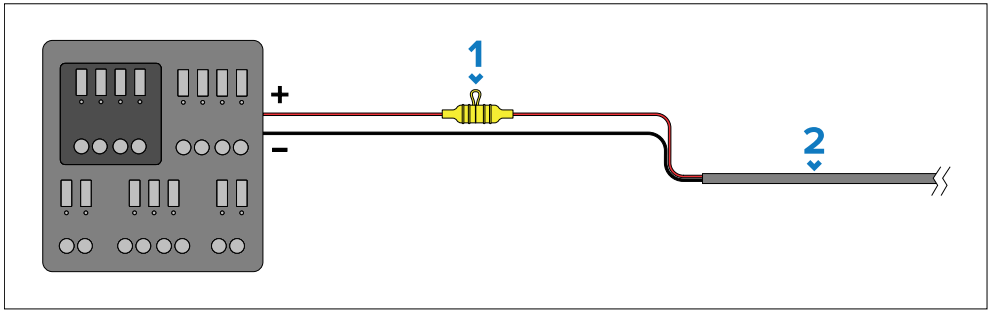
Recommendations and best practice.

- 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:

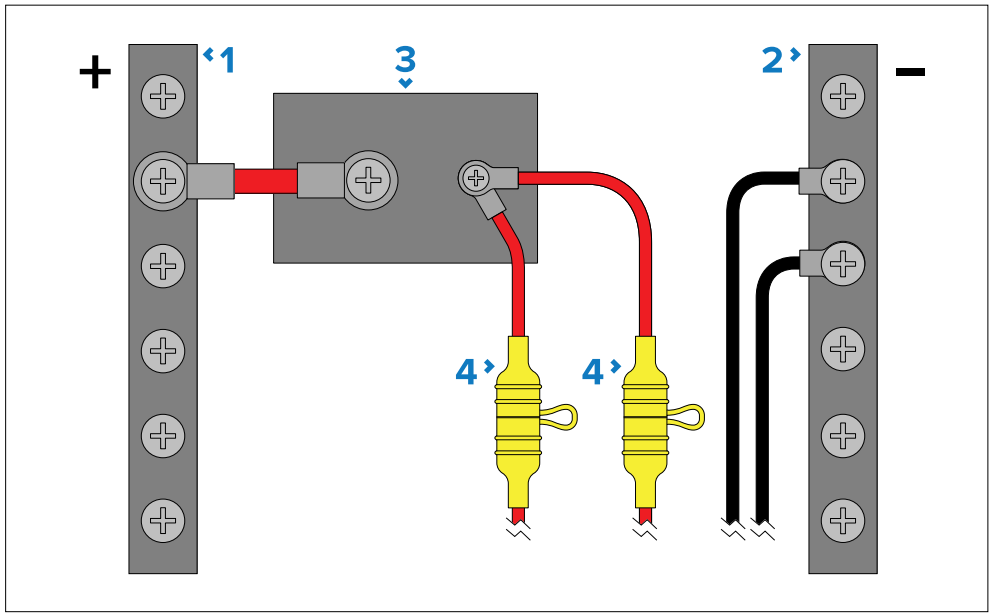
- When planning and wiring, take into consideration other products in your system, some of which (e.g. sonar modules) may place large power demand peaks on the vessel's electrical system, which may impact the voltage available to other products during the peaks.
- The information provided below is for 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 dealer or a suitably qualified professional marine electrician.

Implementation — connection to distribution panel (Recommended)



	Description
1	Waterproof fuse holder containing a suitably-rated inline fuse must be fitted. For suitable fuse rating, refer to: *Inline fuse and thermal breaker ratings*.
2	Product power cable.

- It is recommended that the supplied power cable is 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 one item of equipment shares a breaker, use individual inline fuses for each power circuit to provide the necessary protection.



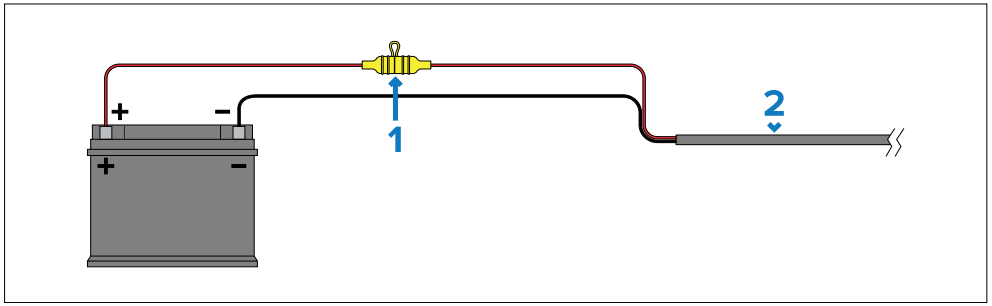
	Description
1	Positive (+) bar
2	Negative (-) bar
3	Circuit breaker
4	Waterproof fuse holder containing a suitably-rated inline fuse must be fitted. For suitable fuse rating, refer to: *Inline fuse and thermal breaker ratings*.

Important:

Observe the recommended fuse / breaker ratings provided in the product's documentation, however be aware that the suitable fuse / breaker rating is dependent on the number of devices being connected.

Implementation — direct connection to battery

- Where connection to a power distribution panel is not possible, 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 does NOT include a separate drain wire. Therefore, only the power cable's red and black wires need to be connected.
- If the power cable is NOT supplied with a fitted 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.



	Description
1	Waterproof fuse holder containing a suitably-rated inline fuse must be fitted. For suitable fuse rating, refer to: *Inline fuse and thermal breaker ratings*.
2	Product power cable.

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
- ISO 13297: Small craft — Electrical systems — Alternating and direct current installations
- ISO 10133: Small craft — Electrical systems — Extra-low-voltage d.c. installations
- ABYC E-11 AC & DC Electrical Systems on Boats
- ABYC A-31 Battery chargers and Inverters
- ABYC TE-4 Lightning Protection

11.7 Power cable extension (12 / 24 V systems)

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.
- Ensure that the extension cable is of a sufficient gauge for the supply voltage and the total load of the device and the length of the cable run. Refer to the following table for typical **minimum** power cable wire gauges:

Cable length in meters (feet)	Wire gauge in AWG (mm^2) for 12 V supply	Wire gauge in AWG (mm^2) for 24 V supply
<8 (<25)	16 (1.31 mm^2)	18 (0.82 mm^2)
16 (50)	14 (2.08 mm^2)	18 (0.82 mm^2)
24 (75)	14 (2.08 mm^2)	16 (1.31 mm^2)
>32 (>100)	14 (2.08 mm^2)	16 (1.31 mm^2)

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.

Important:

To ensure power cables (including any extension) are of a sufficient gauge, ensure that there is a continuous **minimum** voltage of **10.8 V dc** at the end of the cable where it enters the product's power connector, even with a fully flat battery at 11 V dc. (Do not assume that a flat battery is at 0 V dc. Due to the discharge profile and internal chemistry of batteries, the current drops much faster than the voltage. A "fully flat" battery still shows a positive voltage, even if it doesn't have enough current to power your device).

CHAPTER 12: POWER CONNECTIONS (DIRECT CONNECTIONS)

CHAPTER CONTENTS

12.1 Power options

This product must have only **one** power source.

Important:

Before attempting to power your product from a SeaTalk NG backbone or SeaTalk 1 network, please note the following important requirements and considerations:

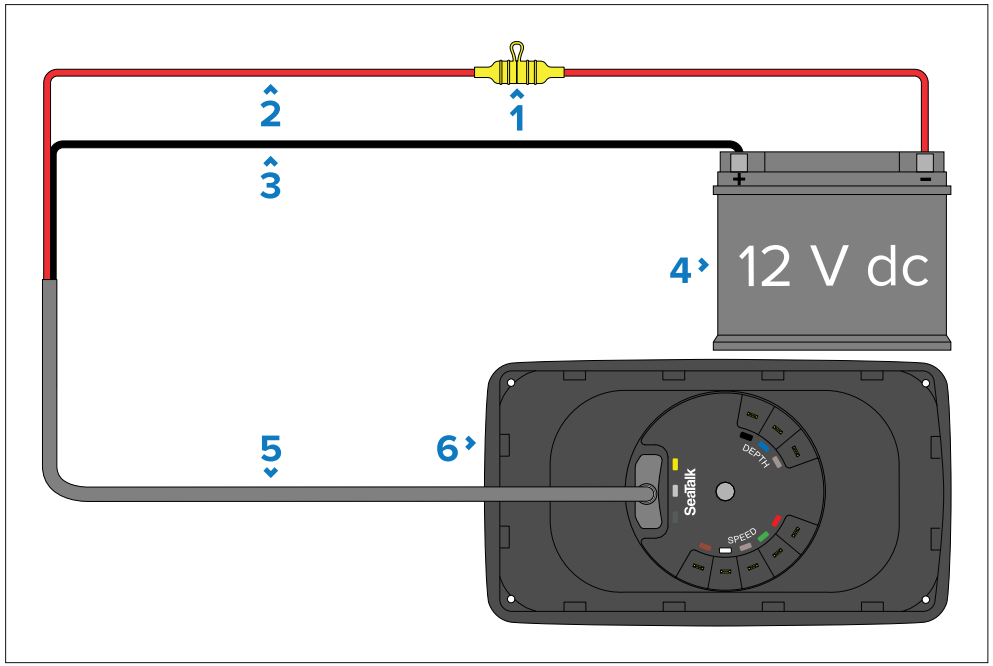
- You must connect only **one** power source.
- If your SeaTalk NG backbone is connected to any other system, ensure that in the combined system you connect only **one** data source for any given data type (for example GNSS (GPS)), unless specified otherwise.
- If any SeaTalk NG and SeaTalk 1 products are connected together, do NOT connect to an NMEA 2000 backbone. This product combination may compromise the integrity of your NMEA 2000 system.
- If you are connecting your product to a SeaTalk NG backbone via the SeaTalk 1 to SeaTalk NG converter (E22158), the converter must ONLY be powered by the SeaTalk NG bus.
- You can connect two separate SeaTalk 1 networks to a SeaTalk NG backbone using different adapter cables and bridging methods (e.g. via an ST70 instrument or a SeaTalk 1 to SeaTalk NG converter), but the SeaTalk 1 networks must NOT be connected together. For more information, refer to the SeaTalk NG Reference Manual (81300).

The following power options are available for your product. The required option is dependent on your system configuration:

1. **SeaTalk NG** power option:
   - Connection to a SeaTalk NG backbone, using the separately available SeaTalk 1 to SeaTalk NG converter (E22158) and a SeaTalk 1 (3 pin) to SeaTalk NG adapter cable (A22164). For more information, refer to: **p.41 — Power connections (**SeaTalk NG **connections)**
2. **SeaTalk 1** power option — Either:
   - Connection to a SeaTalk 1 3-way junction box (D244), using a separately available SeaTalk 1 extension cable; OR:
   - Connection (daisy-chained) to a second SeaTalk 1 product, using a separately available SeaTalk 1 extension cable. For more information, refer to: **p.49 — Power connections (**SeaTalk 1 **connections)**
3. **Direct connection** power option:
   - Direct connection to a vessel's 12 V dc power supply, using the supplied power cable. For more information, refer to: **p.56 — Power connections (Direct connections)**

12.2 Direct power connection

The power connection for the i40 can be provided directly from a 12 V power source.



	Description
1	Waterproof fuse holder containing a suitably-rated inline fuse (**not supplied**), which must be fitted to the red positive wire — refer to the fuse ratings below.
2	Red wire (positive) — connects to the power supply's positive terminal.
3	Black wire (negative) — connects to the power supply's negative terminal.

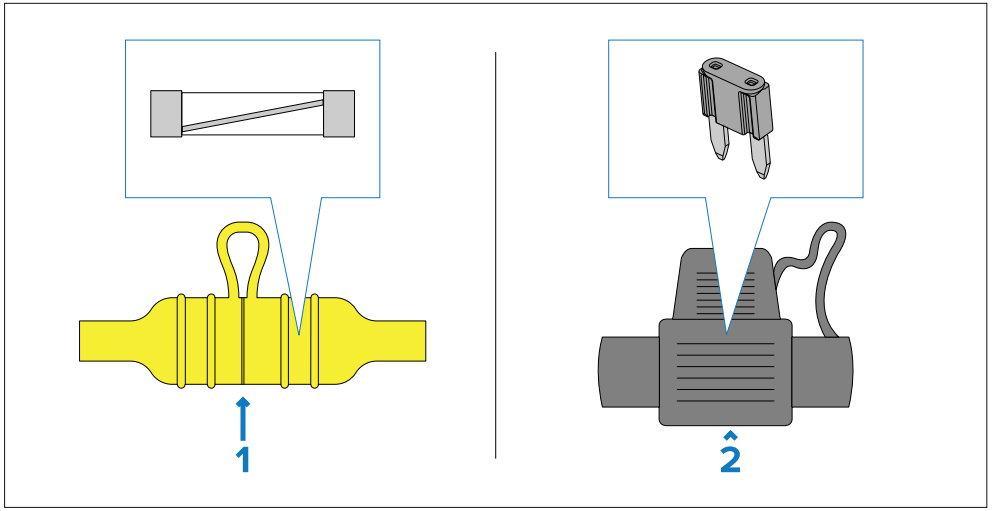
	Description
4	12 V dc power supply.
5	SeaTalk 1 power cable, 1 m (3.28 ft), supplied.
6	i40 instrument display.

12.3 Inline fuse requirement

If your product is NOT supplied with an inline fuse (whether separately or fitted to the power cable), you MUST fit a suitably-rated inline fuse to your product's red power wire, housed in a waterproof fuse holder.

The illustration below shows the two main types of inline fuse with waterproof holder, for use in marine electronics installations. Fuses in a variety of ratings are widely available at chandleries and marine electrical retailers.

Select one of the following fuse types to protect your Raymarine product:



1. Waterproof fuse holder containing a "glass"-type inline fuse.
2. Waterproof fuse holder containing a "blade"-type inline fuse.

Fuse ratings:

- *Voltage rating* — must be equal to or greater than the voltage of your vessel's power supply.
- *Current rating* — refer to the *Inline fuse and thermal breaker rating* section in this document.

12.4 Inline fuse and thermal breaker ratings

The following inline fuse and thermal breaker ratings apply to your product:

Inline fuse rating	Thermal breaker rating
3A	3A

Important:

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

Warning: 12 Volt dc only

This product must ONLY be connected to a 12 V dc power source.

Warning: Positive ground systems

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

Warning: Grounding not required

This product does NOT require separate grounding.

12.5 Power distribution

Recommendations and best practice.

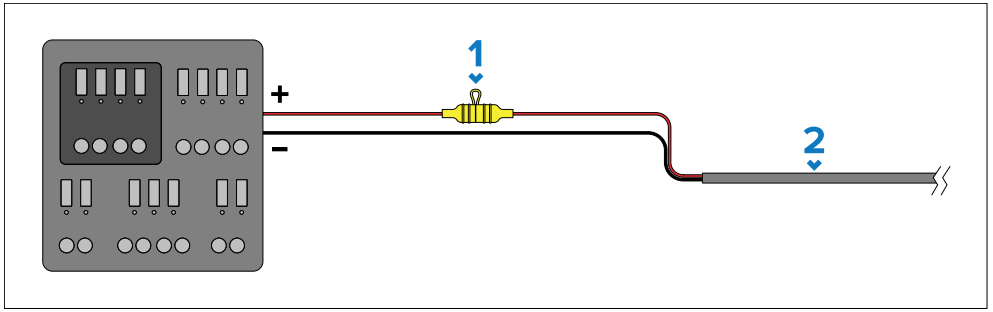
- The product is supplied with a power cable, either as a separate item or a captive cable permanently attached to the product. Only use the power cable supplied with the product. Do NOT use a power cable designed for, or supplied with, a different product.
- Refer to the *Power connection* section for 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:

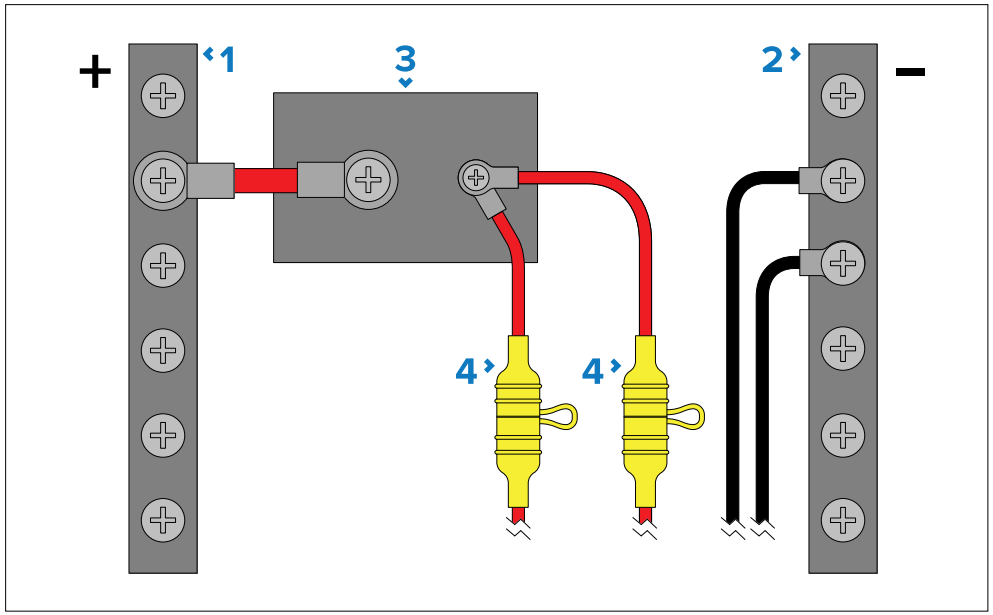
- When planning and wiring, take into consideration other products in your system, some of which (e.g. sonar modules) may place large power demand peaks on the vessel's electrical system, which may impact the voltage available to other products during the peaks.
- The information provided below is for 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 dealer or a suitably qualified professional marine electrician.

Implementation — connection to distribution panel (Recommended)



	Description
1	Waterproof fuse holder containing a suitably-rated inline fuse must be fitted. For suitable fuse rating, refer to: *Inline fuse and thermal breaker ratings*.
2	Product power cable.

- It is recommended that the supplied power cable is 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 mm²) 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 one item of equipment shares a breaker, use individual inline fuses for each power circuit to provide the necessary protection.



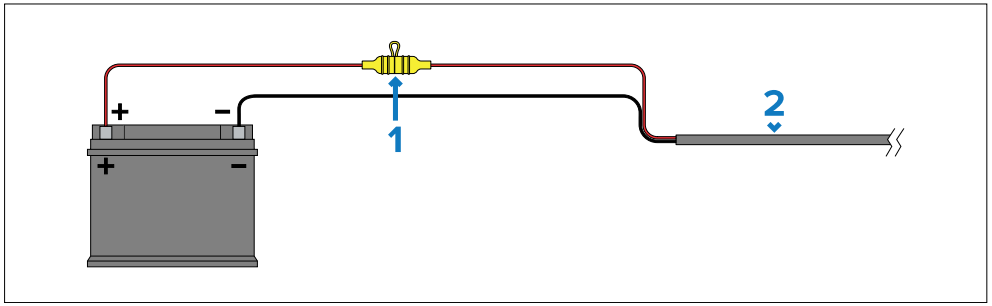
	Description
1	Positive (+) bar
2	Negative (-) bar
3	Circuit breaker
4	Waterproof fuse holder containing a suitably-rated inline fuse must be fitted. For suitable fuse rating, refer to: *Inline fuse and thermal breaker ratings*.

Important:

Observe the recommended fuse / breaker ratings provided in the product's documentation, however be aware that the suitable fuse / breaker rating is dependent on the number of devices being connected.

Implementation — direct connection to battery

- Where connection to a power distribution panel is not possible, 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 does NOT include a separate drain wire. Therefore, only the power cable's red and black wires need to be connected.
- If the power cable is NOT supplied with a fitted 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.



	Description
1	Waterproof fuse holder containing a suitably-rated inline fuse must be fitted. For suitable fuse rating, refer to: *Inline fuse and thermal breaker ratings*.
2	Product power cable.

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
- ISO 13297: Small craft — Electrical systems — Alternating and direct current installations
- ISO 10133: Small craft — Electrical systems — Extra-low-voltage d.c. installations
- ABYC E-11 AC & DC Electrical Systems on Boats
- ABYC A-31 Battery chargers and Inverters
- ABYC TE-4 Lightning Protection

12.6 Power cable extension (12 / 24 V systems)

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.
- Ensure that the extension cable is of a sufficient gauge for the supply voltage and the total load of the device and the length of the cable run. Refer to the following table for typical **minimum** power cable wire gauges:

Cable length in meters (feet)	Wire gauge in AWG (mm^2) for 12 V supply	Wire gauge in AWG (mm^2) for 24 V supply
<8 (<25)	16 (1.31 mm^2)	18 (0.82 mm^2)
16 (50)	14 (2.08 mm^2)	18 (0.82 mm^2)
24 (75)	14 (2.08 mm^2)	16 (1.31 mm^2)
>32 (>100)	14 (2.08 mm^2)	16 (1.31 mm^2)

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.

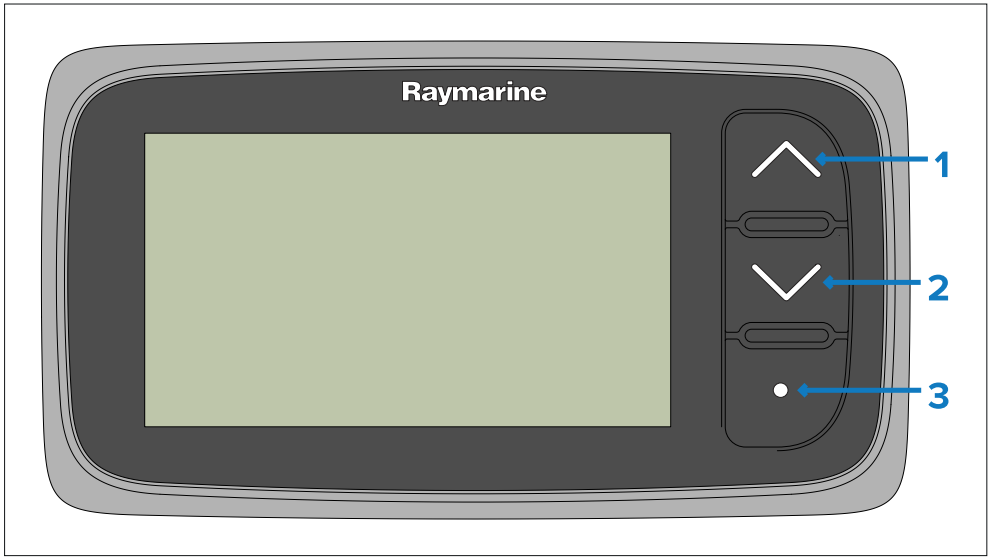
Important:

To ensure power cables (including any extension) are of a sufficient gauge, ensure that there is a continuous **minimum** voltage of **10.8 V dc** at the end of the cable where it enters the product's power connector, even with a fully flat battery at 11 V dc. (Do not assume that a flat battery is at 0 V dc. Due to the discharge profile and internal chemistry of batteries, the current drops much faster than the voltage. A "fully flat" battery still shows a positive voltage, even if it doesn't have enough current to power your device).

CHAPTER 13: GETTING STARTED

CHAPTER CONTENTS

13.1 Controls



	Description
1	*[Up]*
2	*[Down]*
3	*[Action]*

13.2 Power

Once the power supply is connected and turned on, the unit will power up. When the power supply is switched off, the unit will power off.

13.3 Data master

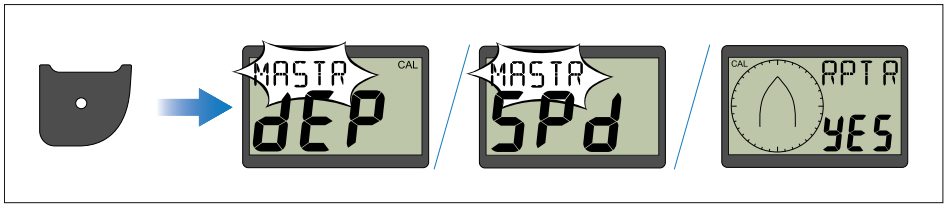
Where a system contains more than one unit capable of displaying a data type (e.g. depth can be displayed on the i40 Depth and i40 Bidata), the unit physically connected to the transducer must be set as the data master and any other units set as a repeater.

Setting a unit as data master

To set a unit as a data master:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 4 seconds.

   The software version page is displayed.
2. Press the *[Action]* button to display the instrument status.



Note:

The i40 Bidata requires an extra *[Action]* button push to switch from depth instrument status and speed instrument status.

3. Use the *[Up]* and *[Down]* buttons to change the instrument status between *Master* and *Repeater*.
4. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

13.4 Adjusting the backlight

The backlighting can be adjusted using the *[Action]* button.

During normal operation:

1. Press and hold the *[Action]* button for approximately 1 second until the backlight page is displayed.

   The backlight is turned on or if the backlight is already on:

   - i40 Depth, Speed and Bidata —*[LAMPS]* and the current backlight level is displayed on-screen.
   - i40 Wind — *[L]* and the current backlight level is displayed on-screen.
2. Press the *[Action]* button again to cycle through the available backlight levels (1 to 3).

3. To return to normal operation press the *[Up]* or *[Down]* button, or wait for 5 seconds for the page to time-out.
4. Alternatively press and hold the *[Action]* button approximately 1 second to adjust the contrast level.

13.5 Adjusting the contrast

The contrast can be adjusted using the *[Action]* button.

During normal operation:

1. Press and hold the *[Action]* button for approximately 2 seconds until the contrast page is displayed, or from the backlight page press and hold the *[Action]* button for approximately 1 second.

   [CON] and the current contrast level is displayed on-screen.
2. Press the *[Action]* button again to cycle through the available contrast levels (0 to 3).
3. To return to normal operation press the *[Up]* or *[Down]* button, or wait for the 5 second time-out.

13.6 Pages

When the unit is switched on the page displayed at last switch off will be displayed.

The pages available depend on the display variant and are shown in the table below:

(2) i40 Bidata		
Current depth / speed	(1) *[Maximum speed]*	(1) *[Average speed]*
(1) *[Log]*	(1) *[Trip]*	*[Water temperature]*
(1) *[Minimum depth]*	(1) *[Shallow alarm]*	(1) *[Deep alarm]*
(1) *[Shallow anchor alarm]*	(1) *[Deep anchor alarm]*	(1) *[Depth offset]*

i40 Depth		
[Current depth]	(1) *[Minimum depth]*	(1) *[Shallow alarm]*
(1) *[Deep alarm]*	(1) *[Shallow anchor alarm]*	(1) *[Deep anchor alarm]*
(1) *[Depth offset]*		

i40 Speed		
[Current speed]	(1) *[Maximum speed]*	(1) *[Average speed]*
(1) *[Log]*	(1) *[Trip]*	*[Water temperature]*

i40 Wind		
[Apparent wind]	*[True wind]*	(1) *[High wind speed alarm]*

Note:

- (1) These pages are temporary pages and will revert to the previous permanent page after 5 seconds.
- (2) The pages available on the i40 Bidata are also dependent on which data is being displayed in the main screen area (i.e. if Depth is displayed in the main area then the pages available will be the same as an i40 Depth instrument, if Speed is displayed in the main area then the pages available will be the same as an i40 Speed instrument.

Changing pages

During normal operation:

1. Press the *[Up]* or *[Down]* buttons to cycle through the available pages.

CHAPTER 14: I40 BIDATA

CHAPTER CONTENTS

14.1 i40 Bidata operation

When connected to the relevant transducer(s) your i40 Bidata instrument:

- Provides speed information (current, maximum and average), in either knots (KTS), miles per hour (MPH) or kilometers per hour (KPH).
- Provides log and trip information. These are given in either nautical miles (NM), statute miles (M) or kilometers (KM).
- Provides water temperature information. This is given in either degrees celsius (ºC) or degrees fahrenheit (ºF).
- Provides depth information in either feet (FT), metres (M) or fathoms (FA).
- Records the minimum depth encountered during the period the unit is switched on. This can be reset at any time.
- Enables you to define alarm thresholds for *[Shallow alarm]*, *[Deep alarm]*, *[Shallow anchor alarm]* and *[Deep anchor alarm]*.
- Enables you to see what offset is applied to the depth reading.

Note:

The required speed, distance, depth and water temperature units are selected during *[User calibration]*.

It should be noted that:

- Up / Down depth-trend arrows are displayed, if the seabed is rising or falling at a significant rate.
- The log screen shows the total distance covered by the vessel since the unit was fitted.
- Minimum depth, maximum speed, average speed and trip reading are reset to zero at power up.

14.2 i40 Bidata Display

The display is split into upper and lower data areas, each of which shows either depth or speed information, depending on user selection.

The *[Current speed]*, *[Current depth]* and *[Current water temperature]* pages are permanent pages, all other pages are temporary and will time-out after 5 seconds, to the last permanent page displayed.

14.3 Calibration

Before first use the unit must be calibrated to ensure optimum performance.

The calibration settings are grouped into 3 categories: **User Calibration**, **Intermediate Calibration** and **Dealer Calibration**.

Access to the *[User Calibration]* menu can be locked from the *[Dealer Calibration]* menu.

14.4 User calibration — i40 Bidata

Calibration procedures are dependant on instrument display variant.

[User calibration] options include:

- *Depth display response* — Dictates the rate at which the instrument display responds to changes in depth data.
- *Speed display response* — Dictates the rate at which the instrument display responds to changes in speed data.
- (1) *Units for depth readings* — Assigns the unit of measure used for depth related readings.
- (1) *Units for speed readings* — Assigns the unit of measure used for speed related readings.
- (1) *Units for distance readings* — Assigns the unit of measure used for distance related readings.
- (1) *Units for water temperature* — Assigns the unit of measure used for temperature related readings.
- (1) *Correct speed reading* — Assigns an offset to the speed reading.
- (1) *Depth offset* — Assigns an offset to the depth reading.
- (1) *Shallow alarm lock* — Locks the *[Shallow alarm]*.

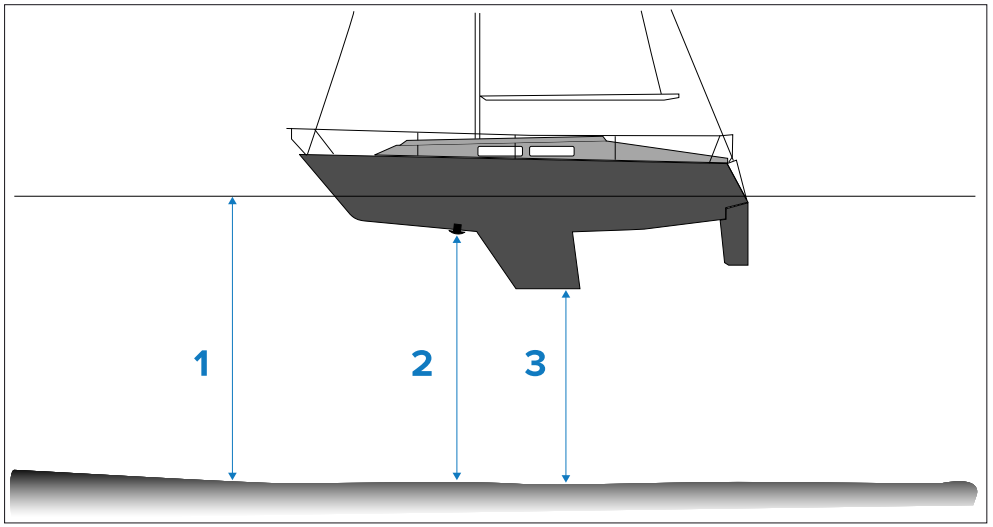
Note:

(1) These settings are only available on units when the instrument status set to *Master* (see *[Intermediate Calibration]* for details of changing the display to be *Master* or *Repeater*).

Depth Offset

Depths are measured from the transducer face to the bottom (e.g.: seabed). An offset value can be applied to the depth data so that the displayed depth reading represents the depth reading taken from either the keel (negative offset) or the waterline (positive offset).

Before attempting to set a waterline or keel offset, find out the vertical distance between the transducer and either the waterline or the bottom of your vessel's keel, as appropriate. Then set the distance as the depth offset value.



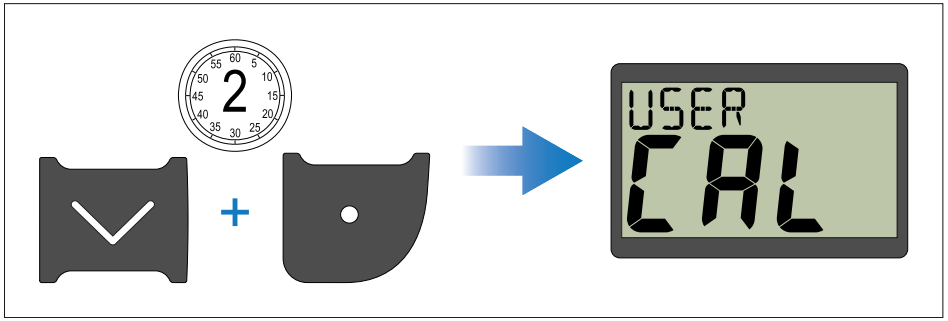
1. *[Waterline offset]* — Values greater than zero (Positive values) represent a waterline offset
2. *[Transducer]* — Zero offset represents the depth from the transducer's location
3. *[Keel offset]* — Values less than zero (Negative values) represent a keel offset

Calibrating Bidata

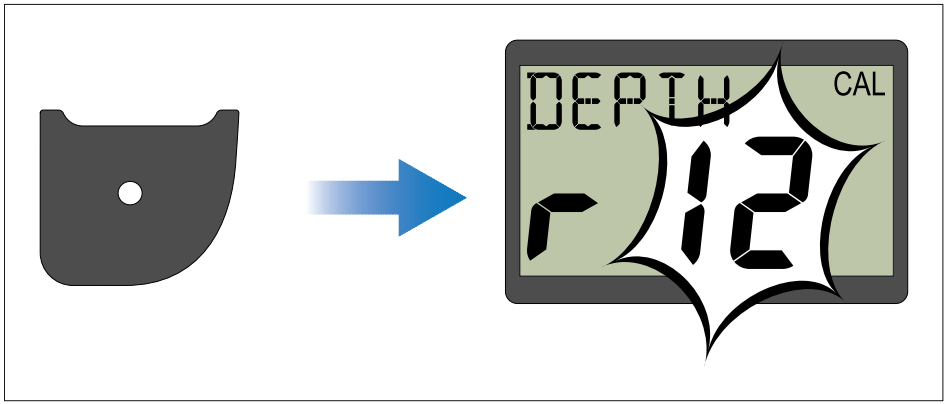
To calibrate your i40 Bidata follow the steps below.

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds to display the *[User Calibration]* page.



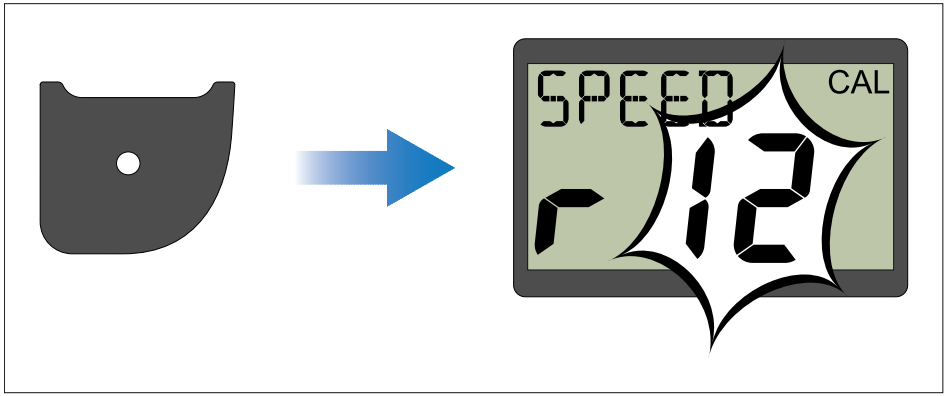
2. Press the *[Action]* button to display the *[Depth Response]* page.



3. Use the *[Up]* and *[Down]* buttons to adjust the *[Depth Response]* to the required level.

   The default level is 12. The levels available are 1 to 15 with level 1 being the slowest update rate and level 15 the quickest.

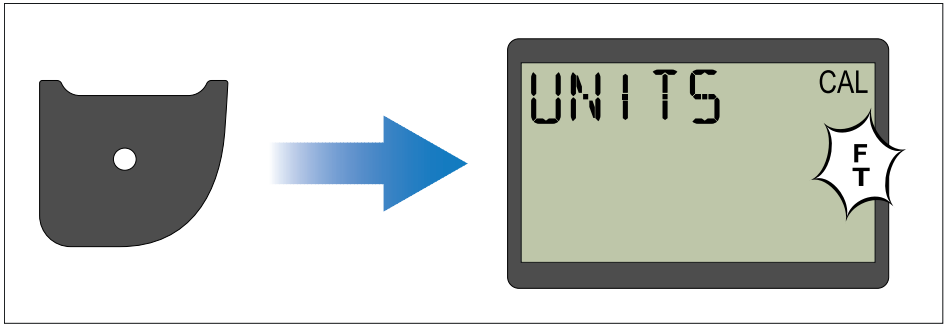
4. Press the *[Action]* button to display the *[Speed Response]* page.



5. Use the *[Up]* and *[Down]* buttons to adjust the speed response to the required level.

   The default level is 12. The levels available are 1 to 15 with level 1 being the slowest update rate and level 15 the quickest.

6. Press the *[Action]* button to display the *[Depth units]* page.

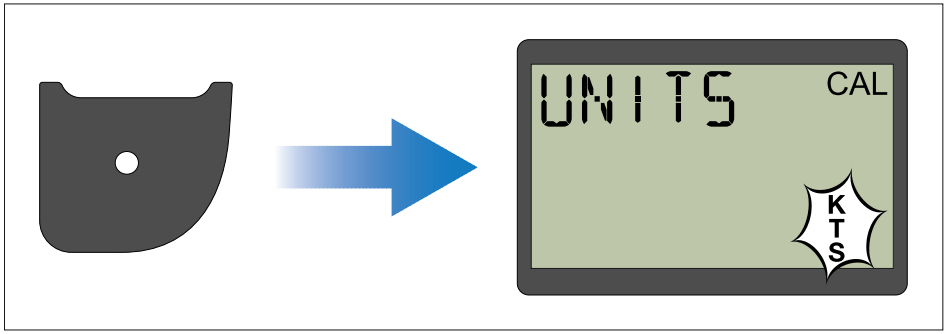


7. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for depth readings.

   The units of measure available for depth readings are:

   - *FT — feet (default)*
   - *M — Meters*
   - *FA — Fathoms*

8. Press the *[Action]* button to display the *[Speed units]* page.

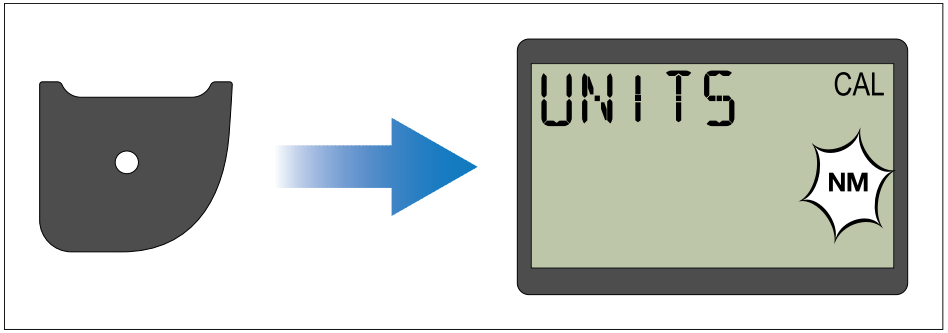


9. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for speed readings.

   The units of measure available for speed readings are:

   - *KTS — Knots (default)*
   - *MPH — Miles Per Hour*
   - *KPH — Kilometers Per Hour*

10. Press the *[Action]* button to display the *[Distance units]* page.

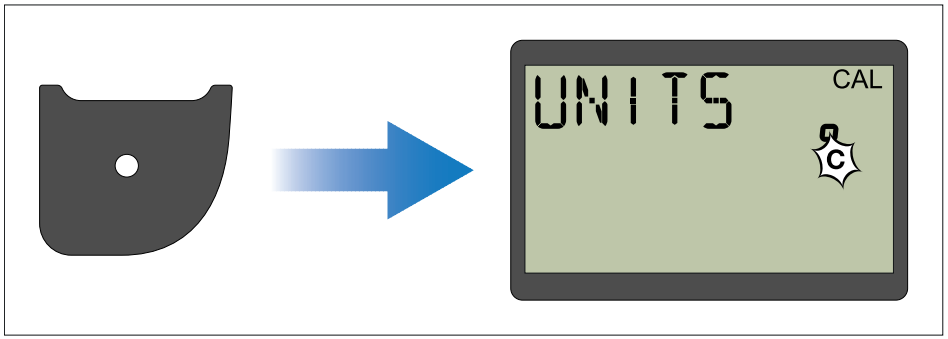


11. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for distance readings.

    The units of measure available for distance readings are:

    - *NM — Nautical Miles (default)*
    - *SM — Statute Miles*
    - *KM — Kilometers*

12. Press the *[Action]* button to display the *[Water temperature units]* page.

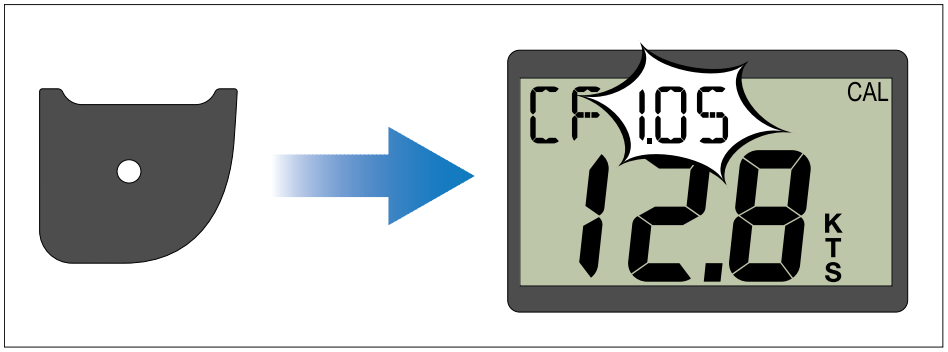


13. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for temperature readings.

    The units of measure available for temperature are:

    - *°C — degrees Celsius (default)*
    - *°F — degrees Fahrenheit*

14. Press the *[Action]* button to display to the *[Speed Calibration Factor]* page.

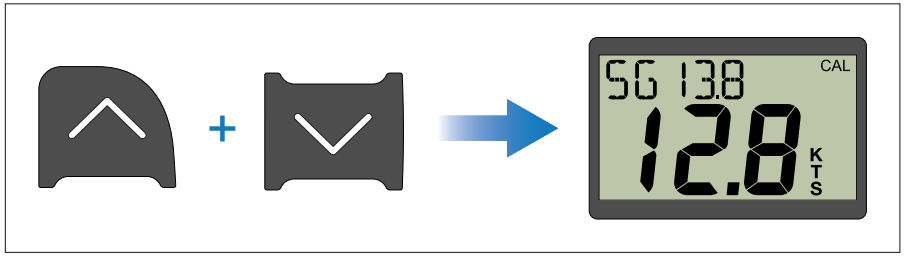


15. Use the *[Up]* button to increase the calibration factor value, or the *[Down]* button to decrease the calibration factor value until the displayed speed is correct.

    The default calibration factor is 1.00. The calibration factor can be set from 0.25 to 2.50.

16. Alternatively:

    i. Simultaneously press and hold the *[Up]* and *[Down]* buttons to display the *[Speed Over Ground (SOG)]* page.

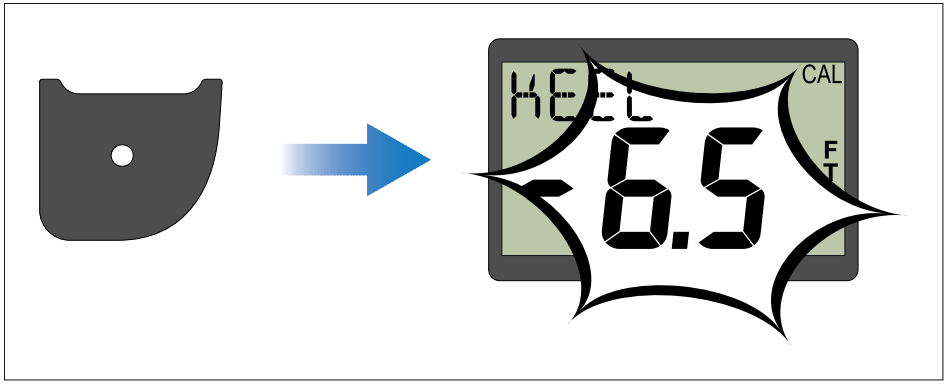


Note:

The SOG page is only displayed if SOG data is available on your network and the vessel speed is greater than 0.5 kts.

    ii. Then, in conditions of zero tide and current, press the *[Up]* button for 3 seconds to apply the SOG value as the speed reading.

17. Press the *[Action]* button to display the *[Depth Offset]* page.

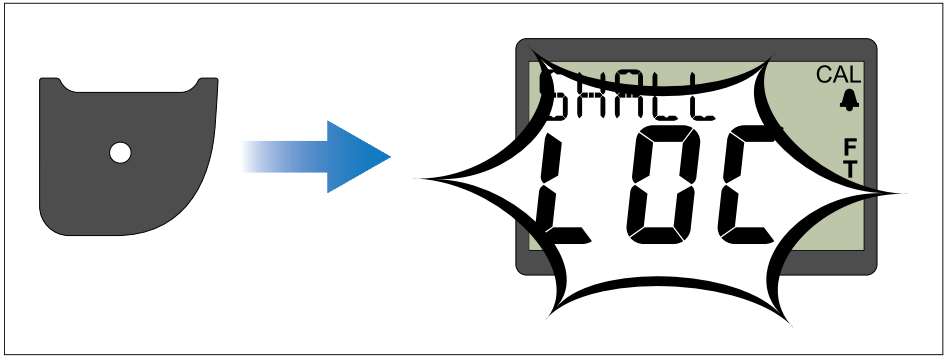


18. Use the *[Up]* and *[Down]* buttons to select the required depth offset value.

    The depth offset can be set to the following values:

    - *Keel* — values between –9.9 to –0.1
    - *OFST (zero offset) (default)* — 0.0
    - *W/L (Waterline)* — values between 0.1 to 9.9

19. Press the *[Action]* button to display the *[Shallow Alarm Lock]* page.



20. Use the *[Up]* and *[Down]* buttons to switch the shallow alarm lock on and off.

    With the *[Shallow Alarm Lock] On* you cannot change the alarm threshold or switch the alarm on and off. To change the alarm threshold or switch the alarm on and off the alarm lock must be set to *Off (default)*.

21. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

14.5 Intermediate calibration

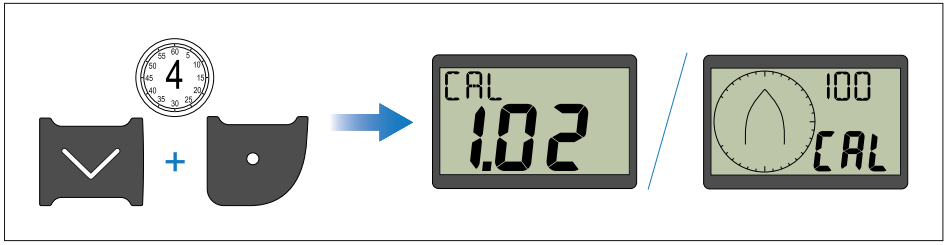
[Intermediate calibration] allows you to:

- Check the instrument software version.
- Check and if necessary set the instrument status as either *Master* or *Repeater*.

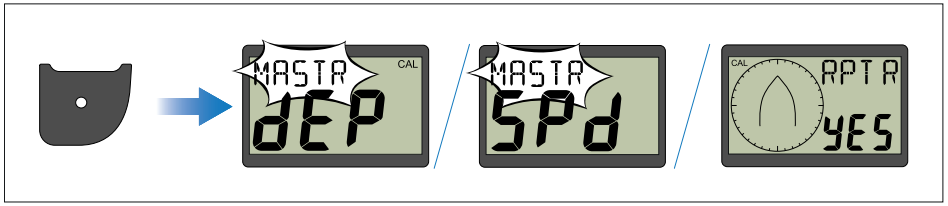
Checking software version and instrument status

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 4 seconds to display the software version.



2. Press the *[Action]* button to display the instrument status.



Note:

The i40 Bidata requires an extra Action button push to switch from depth instrument status and speed instrument status.

3. Use the *[Up]* and *[Down]* buttons to change the instrument status between *Master* and *Repeater*.
4. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

14.6 Dealer calibration

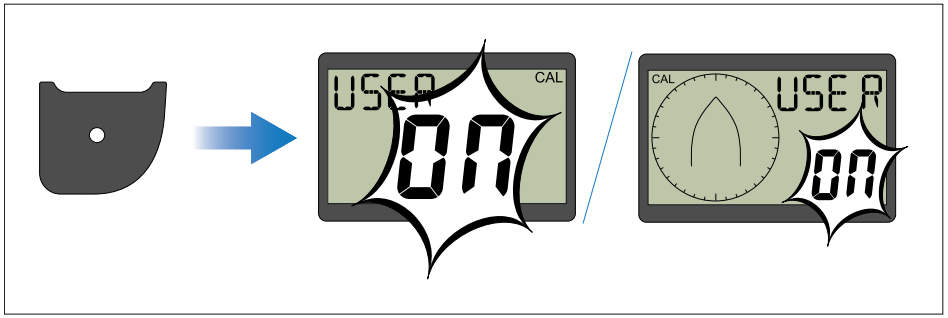
[Dealer calibration] enables you to set:

- *[User calibration]* menu access *On (default)* and *Off*.
- *[Boat show]* mode *On* and *Off (default)* (*[Boat show]* mode is only be available on displays set as repeaters).
- Reset to factory defaults.

Changing dealer calibration settings

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 12 seconds to display the *[Dealer Calibration]* page.

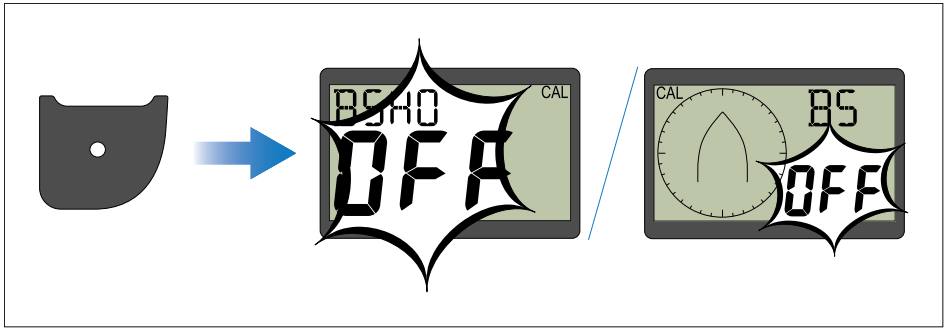
2. Press the *[Action]* button to display the *[User Calibration Access]* page.



3. Use the *[Up]* and *[Down]* buttons to switch access to the *[User Calibration]* menu *On (default)* and *Off*.

   Selecting *Off* disables access to the *[User Calibration]* menu.

4. Press the *[Action]* button to display the *[Boat Show]* mode page.



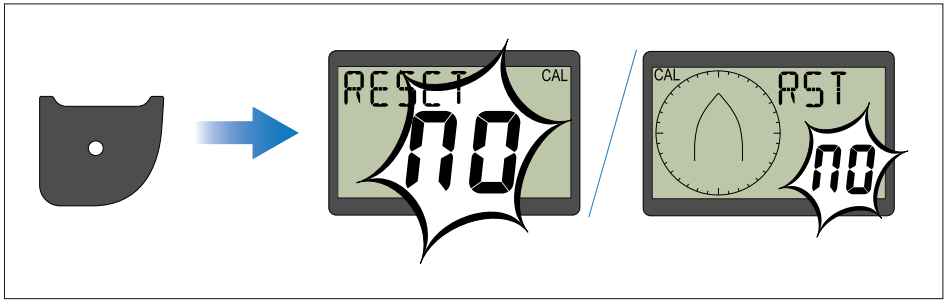
5. Use the *[Up]* and *[Down]* buttons to switch *[Boat show]* mode *On* and *Off*.

   Selecting *On* will put the display into *[Boat show]* mode.

Note:

[Boat show] mode should NOT be used whilst your vessel is in use.

6. Press the *[Action]* button to display the *[Factory defaults]* page.

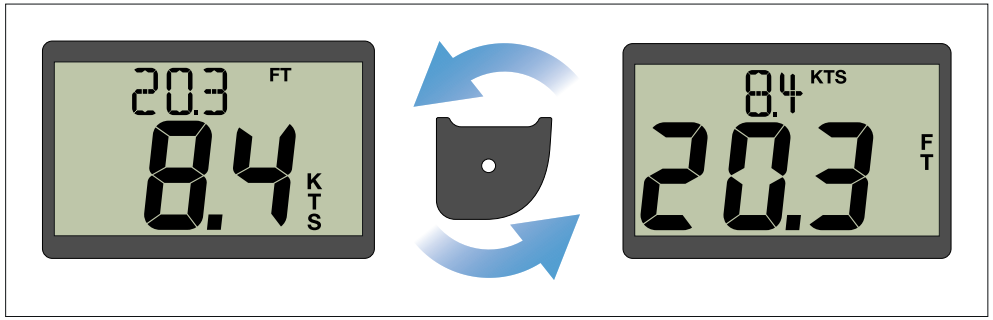


7. To reset the display to factory default settings:
   i. Use the *[Up]* or *[Down]* buttons to change the reset option to *Yes*.
   ii. Press the *[Action]* button to reset your display to factory default settings.

   Resetting the unit defaults the display to a repeater display. Refer to the following section for details on how to change the display back to a data master, if required: **p.63 — Data master**

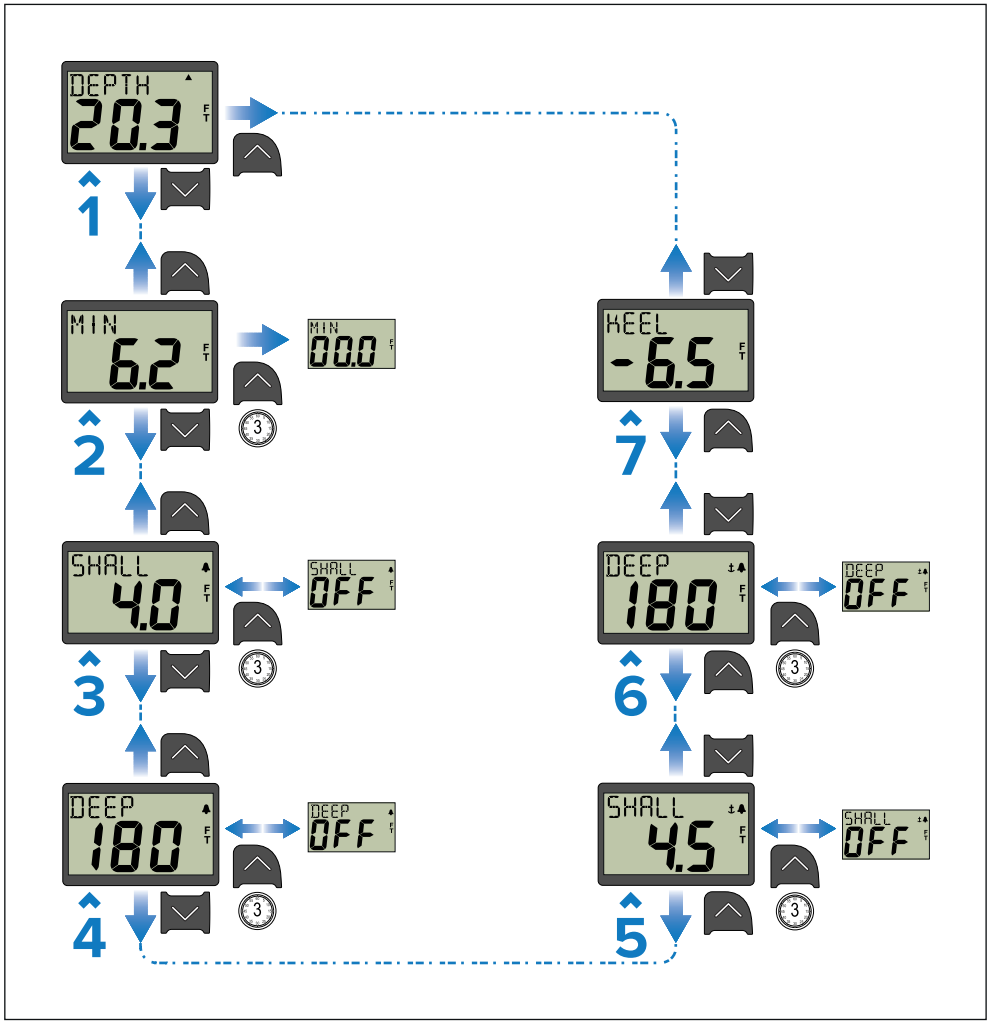
8. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

14.7 Switching the depth and speed position



1. Press the *[Action]* button to switch speed and depth positions on the display.

14.8 Using the depth pages



	Page name
1	*[Current Depth]*
2	*[Minimum Depth]*
3	*[Shallow Alarm]*
4	*[Deep Alarm]*
5	*[Shallow Anchor Alarm]*
6	*[Deep Anchor Alarm]*
7	*[Depth Offset]*

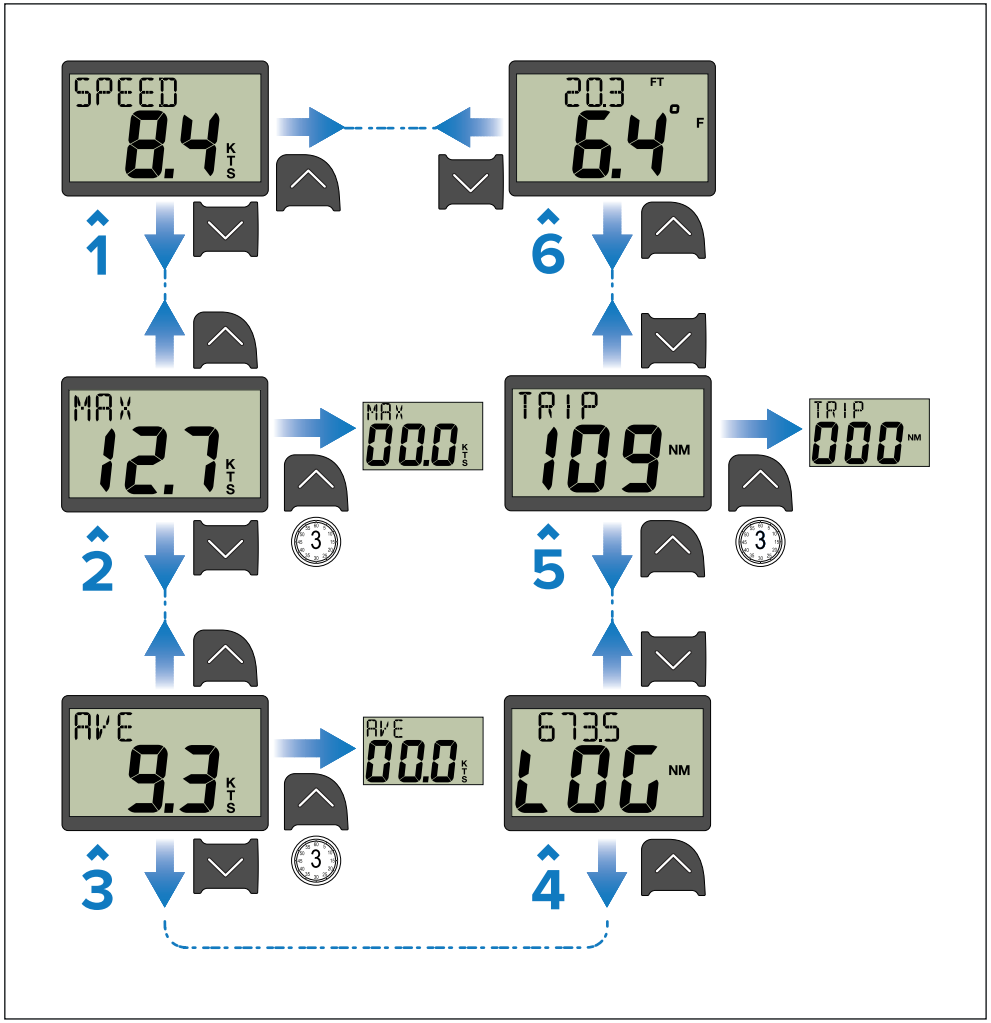
Note:

- Alarm and offset pages are only available if the unit's status is set to *Master* (See the *Data master* section for details).
- Only the *[Current Depth]* page is a permanent page, all other pages will time out after 5 seconds and revert back to the last permanent page displayed.
- For details on enabling, disabling and adjusting alarm thresholds, refer to: **p.93 — Alarms**

1. Use the *[Up]* and *[Down]* buttons to cycle through the available pages.
2. To reset the *[Minimum Depth]* value, from the *[Minimum Depth]* page press and hold the *[Up]* button for 3 seconds.
3. To switch alarms *On* and *Off (default)*, from the relevant alarm page press and hold the *[Up]* button for 3 seconds.

14.9 Using the speed pages

To cycle through the speed pages follow the steps below:



	Page name
1	*[Current Speed]*
2	*[Max Speed]*
3	*[Average Speed]*
4	*[Log]*
5	*[Trip]*
6	*[Water Temperature]*

1. Use the *[Up]* and *[Down]* buttons to cycle through the available pages.
2. To reset the *[Maximum speed]*, *[Average speed]* and *[Trip values]*, with the relevant page displayed press and hold the *[Up]* button for 3 seconds.

Important:

The trip reading can only be reset if the unit's status is set to *Master* (See the *Data master* section for details).

Note:

Only the *[Current speed]* and *[Water temperature]* pages are permanent pages, all other pages will time out after 5 seconds and revert back to the last permanent page displayed.

CHAPTER 15: I40 DEPTH

CHAPTER CONTENTS

15.1 i40 Depth operation

When connected to the relevant depth transducer, your i40 Depth instrument:

- Provides depth information, in either feet (ft), metres (M) or fathoms (FA).
- Records the minimum depth encountered during the period the unit is switched on.
- Enables you to define alarm thresholds for *[Shallow alarm]*, *[Deep alarm]*, *[Shallow anchor alarm]* and *[Deep anchor alarm]*.
- Enables you to see what offset has been applied to the depth reading.

Note:

The required depth units are selected during *[User calibration]*.

It should be noted that:

- Up / Down depth-trend arrows are displayed, if the seabed is rising or falling at a significant rate.
- Minimum depth reading is reset to zero at power up.

15.2 Calibration

Before first use the unit must be calibrated to ensure optimum performance.

The calibration settings are grouped into 3 categories: **User Calibration**, **Intermediate Calibration** and **Dealer Calibration**.

Access to the *[User Calibration]* menu can be locked from the *[Dealer Calibration]* menu.

15.3 User calibration — i40 Depth

Calibration procedures are dependant on instrument display variant.

[User calibration] options include:

- *Depth display response* — Dictates the rate at which the instrument display responds to changes in depth data.
- (1) *Units for depth readings* — Assigns the unit of measure used for depth related readings.
- (1) *Depth offset* — Assigns an offset to the depth reading.
- (1) *Shallow alarm lock* — Locks the *[Shallow alarm]*.

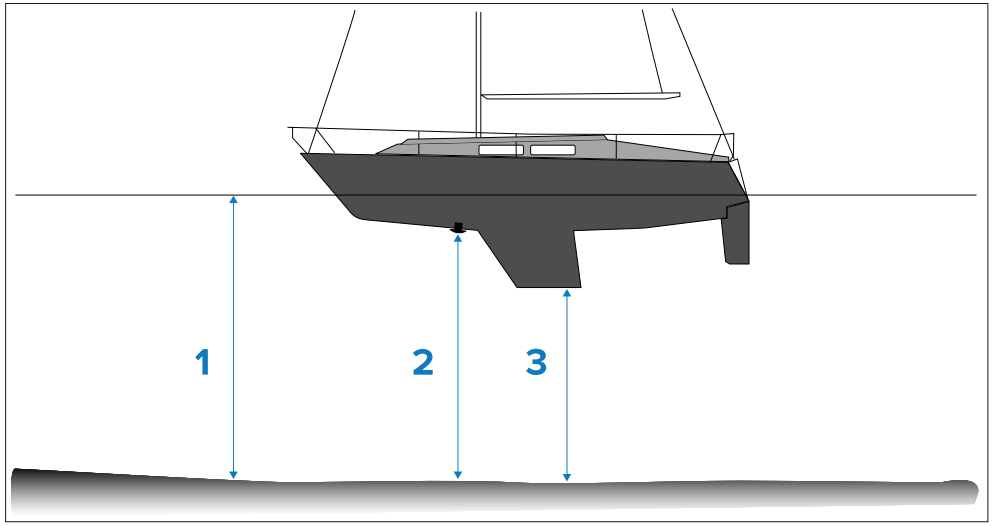
Note:

(1) These settings are only available on units when the instrument status set to *Master* (see *[Intermediate Calibration]* for details of changing the display to be *Master* or *Repeater*).

Depth Offset

Depths are measured from the transducer face to the bottom (e.g.: seabed). An offset value can be applied to the depth data so that the displayed depth reading represents the depth reading taken from either the keel (negative offset) or the waterline (positive offset).

Before attempting to set a waterline or keel offset, find out the vertical distance between the transducer and either the waterline or the bottom of your vessel's keel, as appropriate. Then set the distance as the depth offset value.



1. *[Waterline offset]* — Values greater than zero (Positive values) represent a waterline offset
2. *[Transducer]* — Zero offset represents the depth from the transducer's location

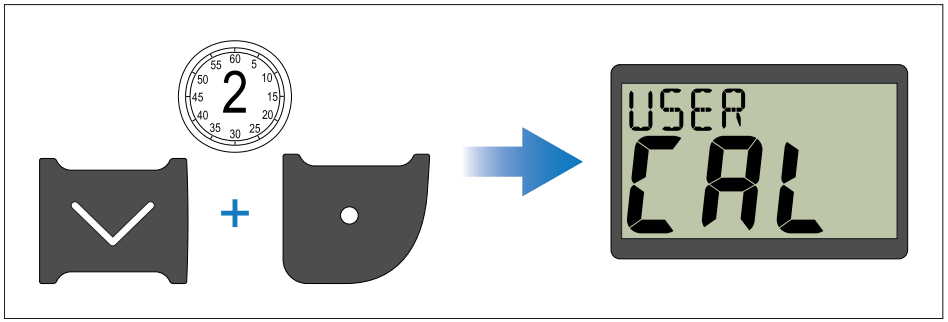
3. *[Keel offset]* — Values less than zero (Negative values) represent a keel offset

Calibrating depth

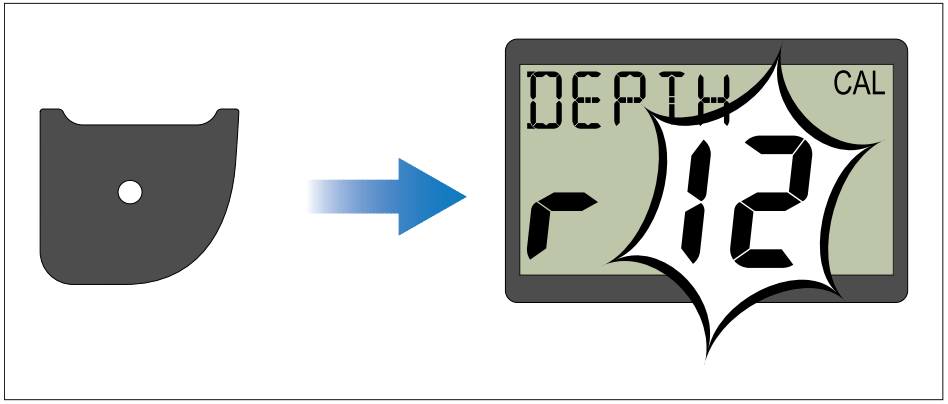
To calibrate your i40 Depth follow the steps below.

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds to display the *[User Calibration]* page.



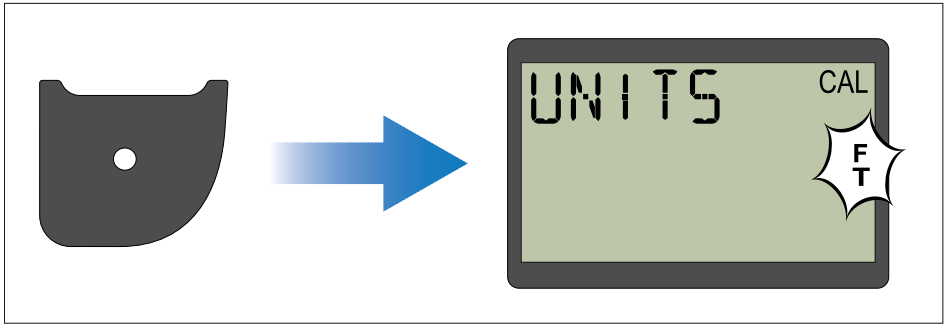
2. Press the *[Action]* button to display the *[Depth Response]* page.



3. Use the *[Up]* and *[Down]* buttons to adjust the *[Depth Response]* to the required level.

   The default level is 12. The levels available are 1 to 15 with level 1 being the slowest update rate and level 15 the quickest.

4. Press the *[Action]* button to display the *[Depth units]* page.

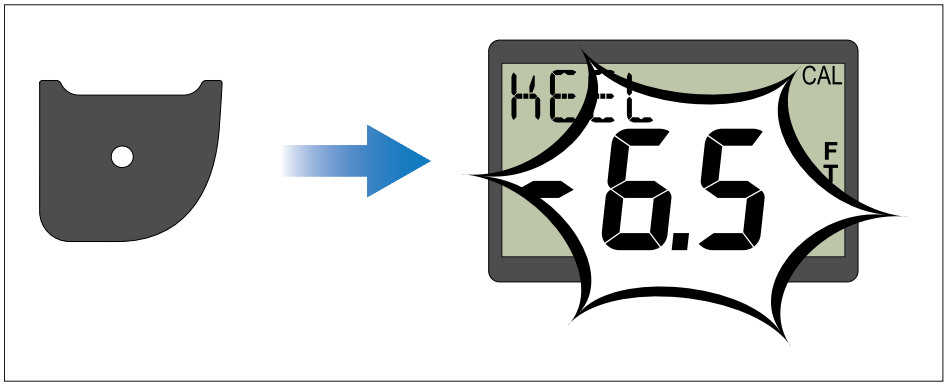


5. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for depth readings.

   The units of measure available for depth readings are:

   - *FT — feet (default)*
   - *M — Meters*
   - *FA — Fathoms*

6. Press the *[Action]* button to display the *[Depth Offset]* page.

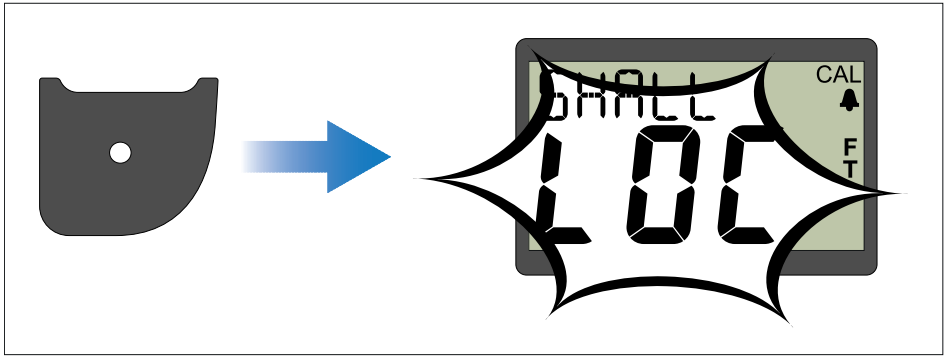


7. Use the *[Up]* and *[Down]* buttons to select the required depth offset value.

   The depth offset can be set to the following values:

   - *Keel* — values between –9.9 to –0.1
   - *OFST (zero offset) (default)* — 0.0
   - *W/L (Waterline)* — values between 0.1 to 9.9

8. Press the *[Action]* button to display the *[Shallow Alarm Lock]* page.



9. Use the *[Up]* and *[Down]* buttons to switch the *[Shallow Alarm Lock] On* and *Off*.

   With the *[Shallow Alarm Lock] On* you cannot change the alarm threshold or switch the alarm on and off. To change the alarm threshold or switch the alarm on and off the alarm lock must be set to *Off (default)*.

10. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

15.4 Intermediate calibration

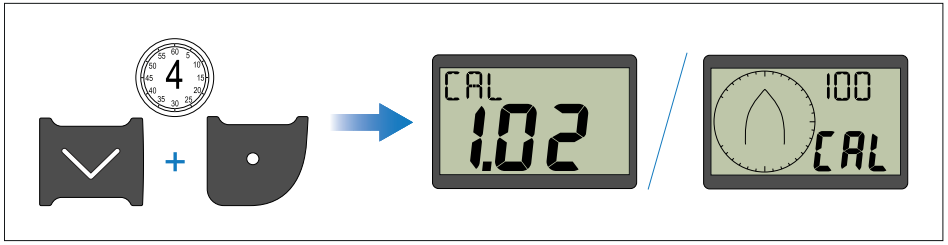
[Intermediate calibration] allows you to:

- Check the instrument software version.
- Check and if necessary set the instrument status as either *Master* or *Repeater*.

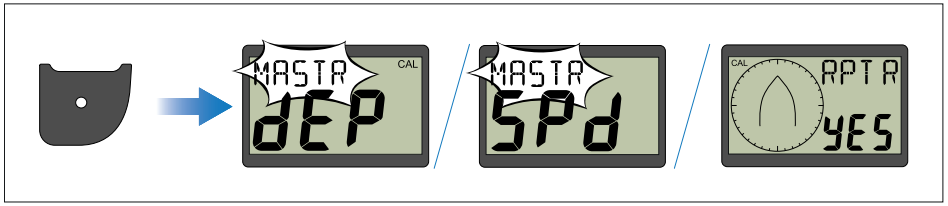
Checking software version and instrument status

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 4 seconds to display the software version.



2. Press the *[Action]* button to display the instrument status.



Note:

The i40 Bidata requires an extra Action button push to switch from depth instrument status and speed instrument status.

3. Use the *[Up]* and *[Down]* buttons to change the instrument status between *Master* and *Repeater*.
4. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

15.5 Dealer calibration

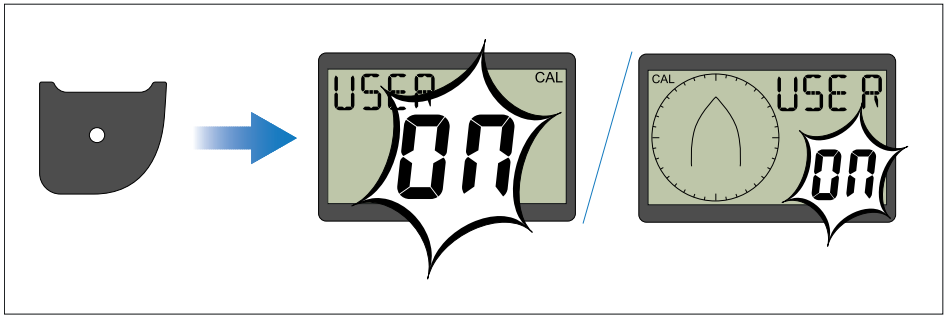
[Dealer calibration] enables you to set:

- *[User calibration]* menu access *On (default)* and *Off*.
- *[Boat show]* mode *On* and *Off (default)* (*[Boat show]* mode is only be available on displays set as repeaters).
- Reset to factory defaults.

Changing dealer calibration settings

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 12 seconds to display the *[Dealer Calibration]* page.

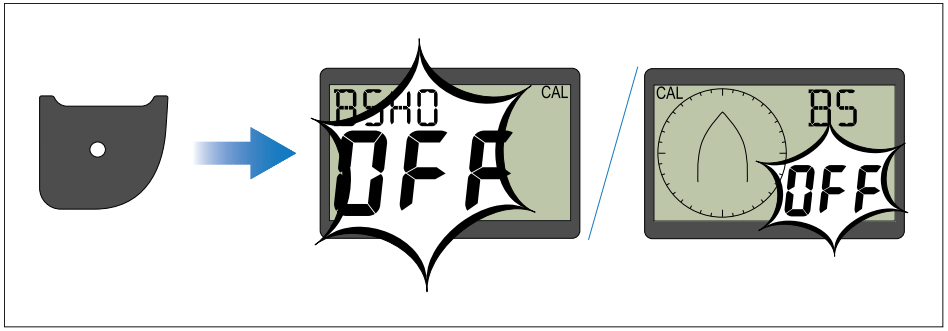
2. Press the *[Action]* button to display the *[User Calibration Access]* page.



3. Use the *[Up]* and *[Down]* buttons to switch access to the *[User Calibration]* menu *On (default)* and *Off*.

   Selecting *Off* disables access to the *[User Calibration]* menu.

4. Press the *[Action]* button to display the *[Boat Show]* mode page.



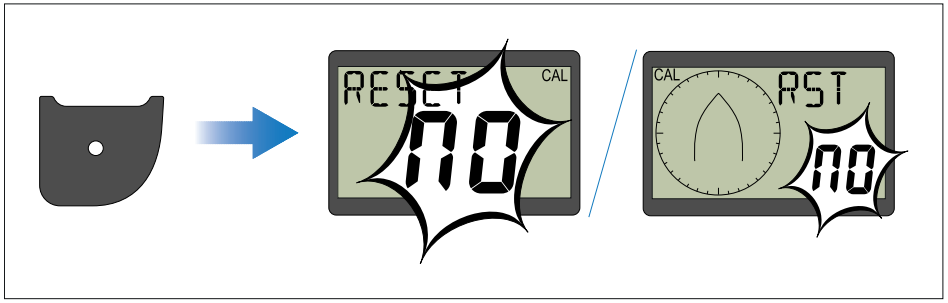
5. Use the *[Up]* and *[Down]* buttons to switch *[Boat show]* mode *On* and *Off*.

   Selecting *On* will put the display into *[Boat show]* mode.

Note:

[Boat show] mode should NOT be used whilst your vessel is in use.

6. Press the *[Action]* button to display the *[Factory defaults]* page.

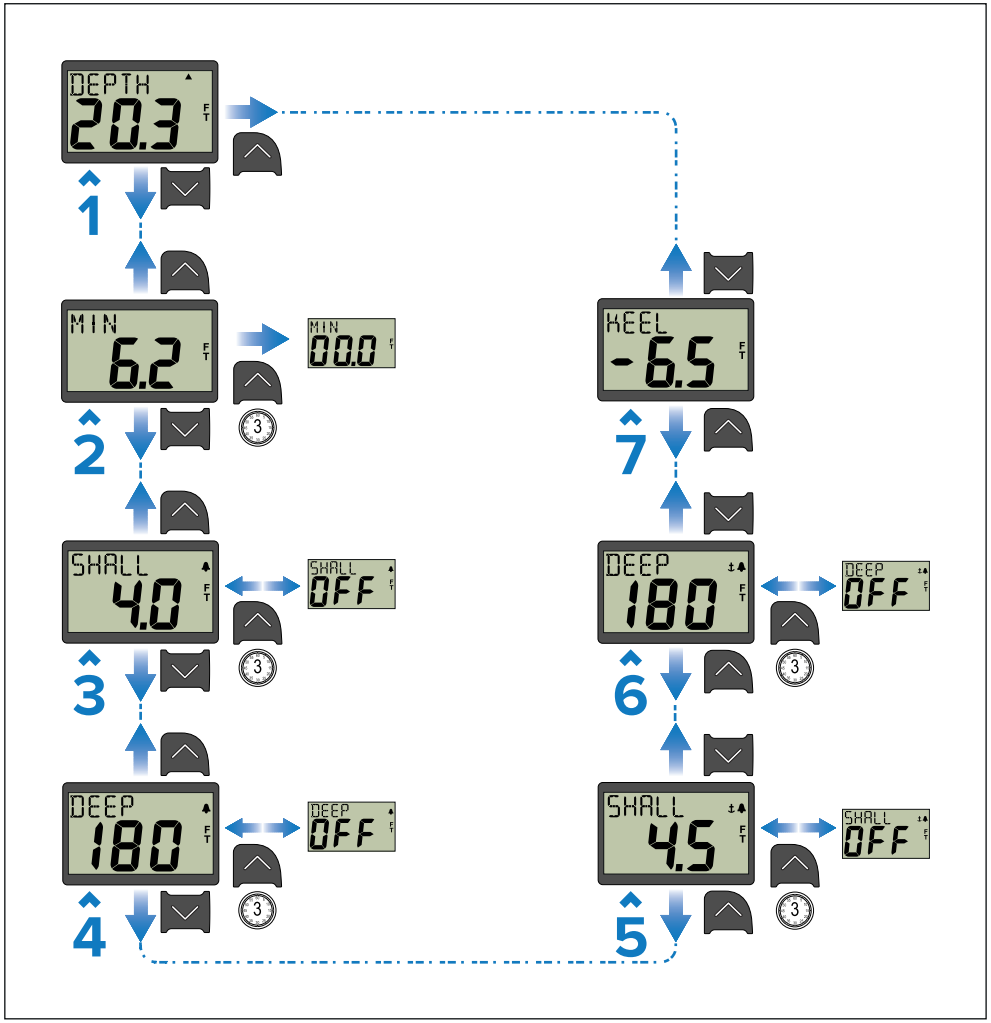


7. To reset the display to factory default settings:
   i. Use the *[Up]* or *[Down]* buttons to change the reset option to *Yes*.
   ii. Press the *[Action]* button to reset your display to factory default settings.

   Resetting the unit defaults the display to a repeater display. Refer to the following section for details on how to change the display back to a data master, if required: **p.63 — Data master**

8. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

15.6 Using the depth pages



	Page name
1	*[Current Depth]*
2	*[Minimum Depth]*
3	*[Shallow Alarm]*
4	*[Deep Alarm]*
5	*[Shallow Anchor Alarm]*
6	*[Deep Anchor Alarm]*
7	*[Depth Offset]*

Note:

- Alarm and offset pages are only available if the unit's status is set to *Master* (See the *Data master* section for details).
- Only the *[Current Depth]* page is a permanent page, all other pages will time out after 5 seconds and revert back to the last permanent page displayed.
- For details on enabling, disabling and adjusting alarm thresholds, refer to: **p.93 — Alarms**

1. Use the *[Up]* and *[Down]* buttons to cycle through the available pages.
2. To reset the *[Minimum Depth]* value, from the *[Minimum Depth]* page press and hold the *[Up]* button for 3 seconds.
3. To switch alarms *On* and *Off (default)*, from the relevant alarm page press and hold the *[Up]* button for 3 seconds.

CHAPTER 16: I40 SPEED

CHAPTER CONTENTS

16.1 i40 Speed operation

When connected to the relevant speed or speed and temperature transducer, your i40 Speed instrument provides:

- Current, maximum and average speed information, in either knots (KTS), mile per hour (MPH) or kilometers per hour (KPH).
- Log and trip information, in either nautical miles (NM), statute miles (M) or kilometers (KM).
- Water temperature information, in either degrees celsius (°C) or fahrenheit (°F).

Note:

The required speed, distance and temperature units are selected during *[User calibration]*.

It should be noted that:

- The maximum speed, average speed and trip reading are reset to zero at power up.
- The log screen shows the total distance covered by the vessel since the unit was fitted.

16.2 Calibration

Before first use the unit must be calibrated to ensure optimum performance.

The calibration settings are grouped into 3 categories: **User Calibration**, **Intermediate Calibration** and **Dealer Calibration**.

Access to the *[User Calibration]* menu can be locked from the *[Dealer Calibration]* menu.

16.3 User calibration — i40 Speed

Calibration procedures are dependant on instrument display variant.

[User calibration] options include:

- *Speed display response* — Dictates the rate at which the instrument display responds to changes in speed data.
- (1) *Units for speed readings* — Assigns the unit of measure used for speed-related readings.
- (1) *Units for distance readings* — Assigns the unit of measure used for distance-related readings.
- (1) *Units for water temperature* — Assigns the unit of measure used for temperature-related readings.
- (1) *Correct speed reading* — Assigns an offset to the speed reading.

Note:

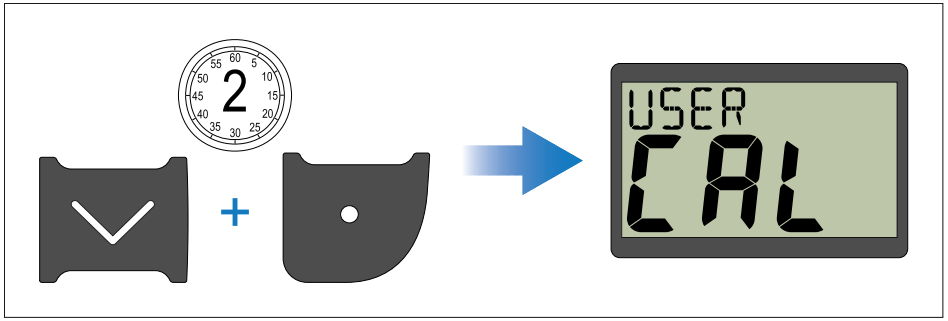
(1) These settings are only available on units when the instrument status is set to *Master* (see *[Intermediate Calibration]* for details of switching the display between *Master* or *Repeater*).

Calibrating speed

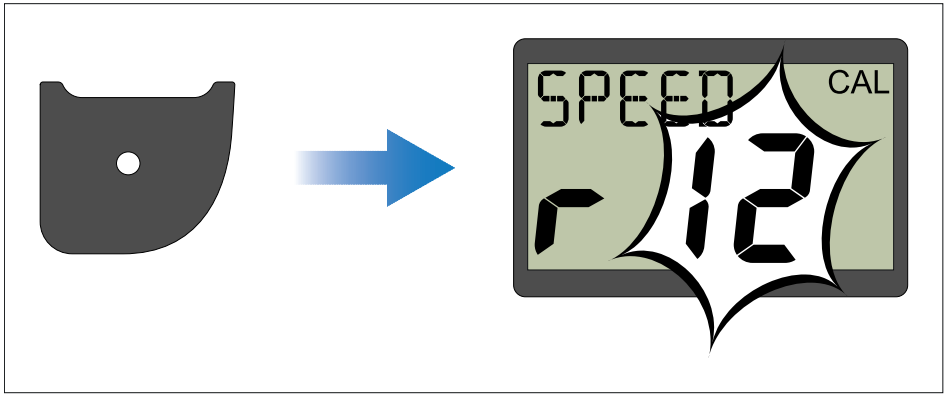
To calibrate your i40 Speed follow the steps below.

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds to display the *[User Calibration]* page.



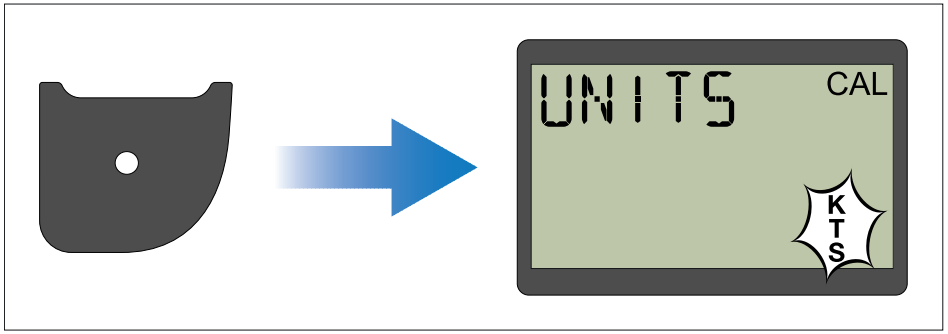
2. Press the *[Action]* button to display the *[Speed Response]* page.



3. Use the *[Up]* and *[Down]* buttons to adjust the speed response to the required level.

   The default level is 12. The levels available are 1 to 15 with level 1 being the slowest update rate and level 15 the quickest.

4. Press the *[Action]* button to display the *[Speed units]* page.

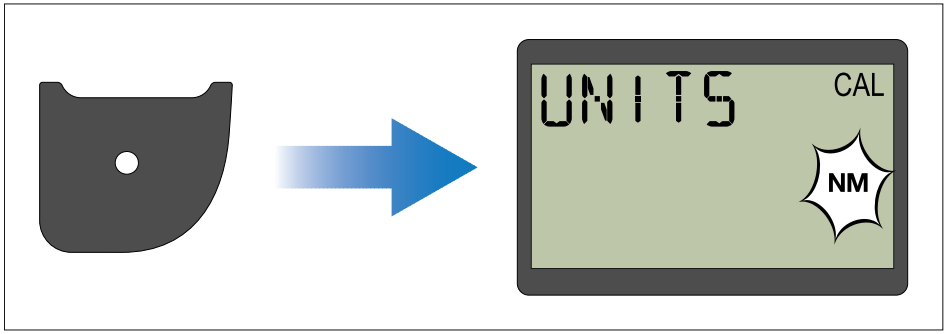


5. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for speed readings.

   The units of measure available for speed readings are:

   - *KTS — Knots (default)*
   - *MPH — Miles Per Hour*
   - *KPH — Kilometers Per Hour*

6. Press the *[Action]* button to display the *[Distance units]* page.

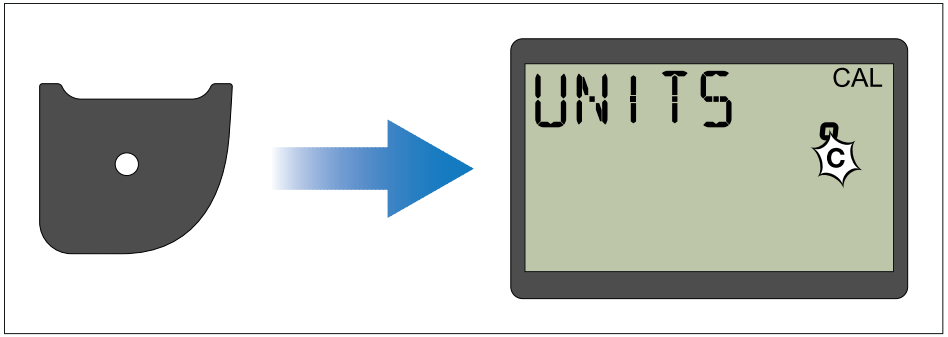


7. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for distance readings.

   The units of measure available for distance readings are:

   - *NM — Nautical Miles (default)*
   - *SM — Statute Miles*
   - *KM — Kilometers*

8. Press the *[Action]* button to display the *[Water temperature units]* page.

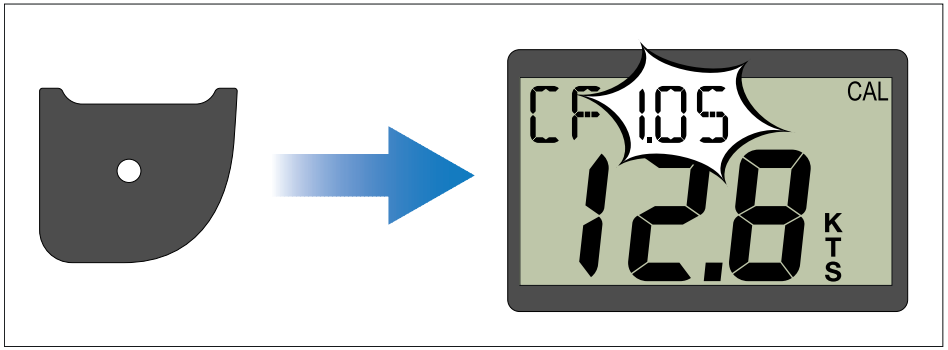


9. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for temperature readings.

   The units of measure available for temperature are:

   - *°C — degrees Celsius (default)*
   - *°F — degrees Fahrenheit*

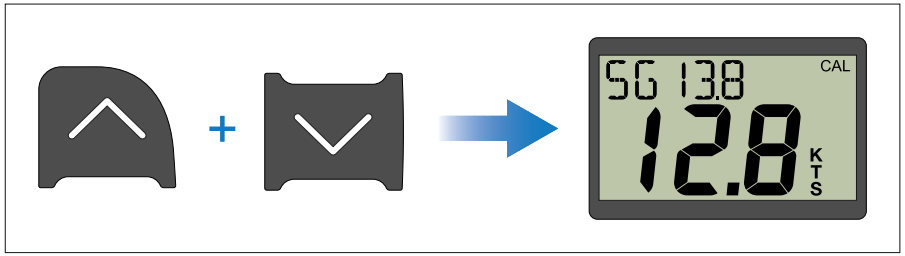
10. Press the *[Action]* button to display to the *[Speed Calibration Factor]* page.



11. Use the *[Up]* button to increase the calibration factor value, or the *[Down]* button to decrease the calibration factor value until the displayed speed is correct.

    The default calibration factor is 1.00. The calibration factor can be set from 0.25 to 2.50.

12. Alternatively:
    i. Simultaneously press and hold the *[Up]* and *[Down]* buttons to display the *[Speed Over Ground (SOG)]* page.



Note:

The SOG page is only displayed if SOG data is available on your network and the vessel speed is greater than 0.5 kts.

    ii. Then, in conditions of zero tide and current, press the *[Up]* button for 3 seconds to apply the SOG value as the speed reading.

13. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

16.4 Intermediate calibration

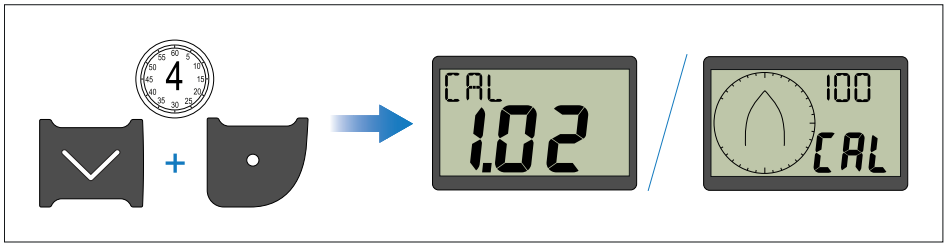
[Intermediate calibration] allows you to:

- Check the instrument software version.
- Check and if necessary set the instrument status as either *Master* or *Repeater*.

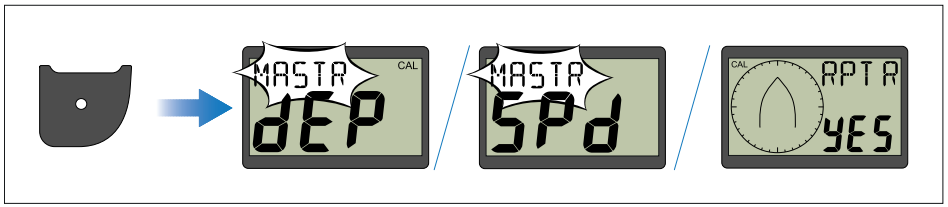
Checking software version and instrument status

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 4 seconds to display the software version.



2. Press the *[Action]* button to display the instrument status.



Note:

The i40 Bidata requires an extra Action button push to switch from depth instrument status and speed instrument status.

3. Use the *[Up]* and *[Down]* buttons to change the instrument status between *Master* and *Repeater*.
4. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

16.5 Dealer calibration

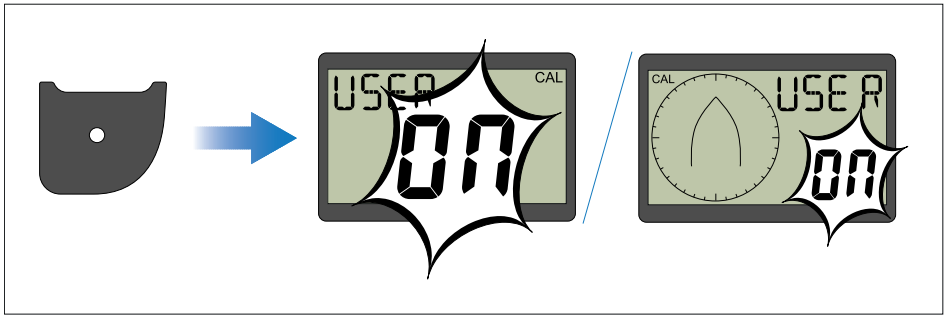
[Dealer calibration] enables you to set:

- *[User calibration]* menu access *On (default)* and *Off*.
- *[Boat show]* mode *On* and *Off (default)* (*[Boat show]* mode is only be available on displays set as repeaters).
- Reset to factory defaults.

Changing dealer calibration settings

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 12 seconds to display the *[Dealer Calibration]* page.

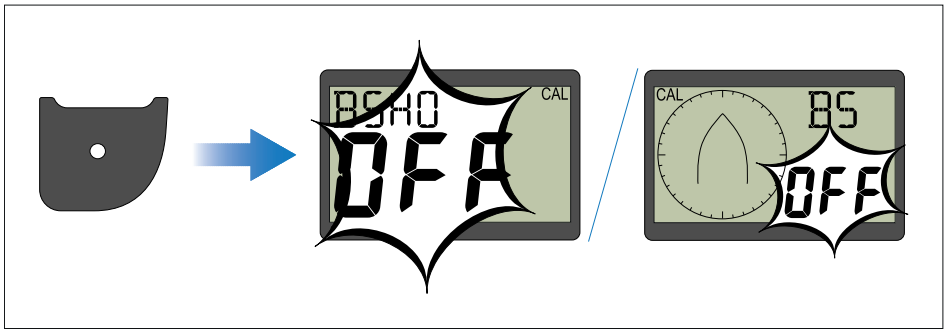
2. Press the *[Action]* button to display the *[User Calibration Access]* page.



3. Use the *[Up]* and *[Down]* buttons to switch access to the *[User Calibration]* menu *On (default)* and *Off*.

   Selecting *Off* disables access to the *[User Calibration]* menu.

4. Press the *[Action]* button to display the *[Boat Show]* mode page.

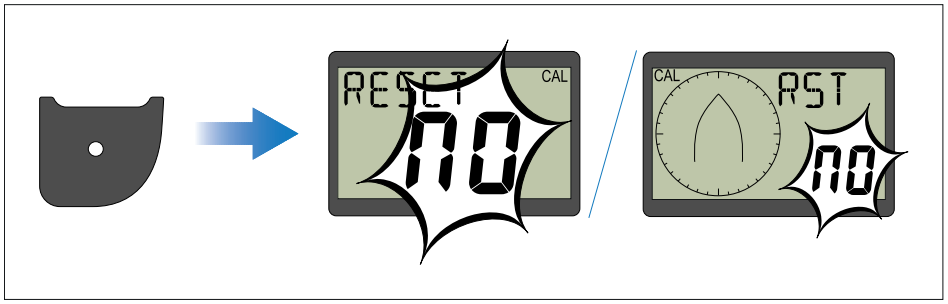


5. Use the *[Up]* and *[Down]* buttons to switch *[Boat show]* mode *On* and *Off*. Selecting *On* will put the display into *[Boat show]* mode.

Note:

[Boat show] mode should NOT be used whilst your vessel is in use.

6. Press the *[Action]* button to display the *[Factory defaults]* page.



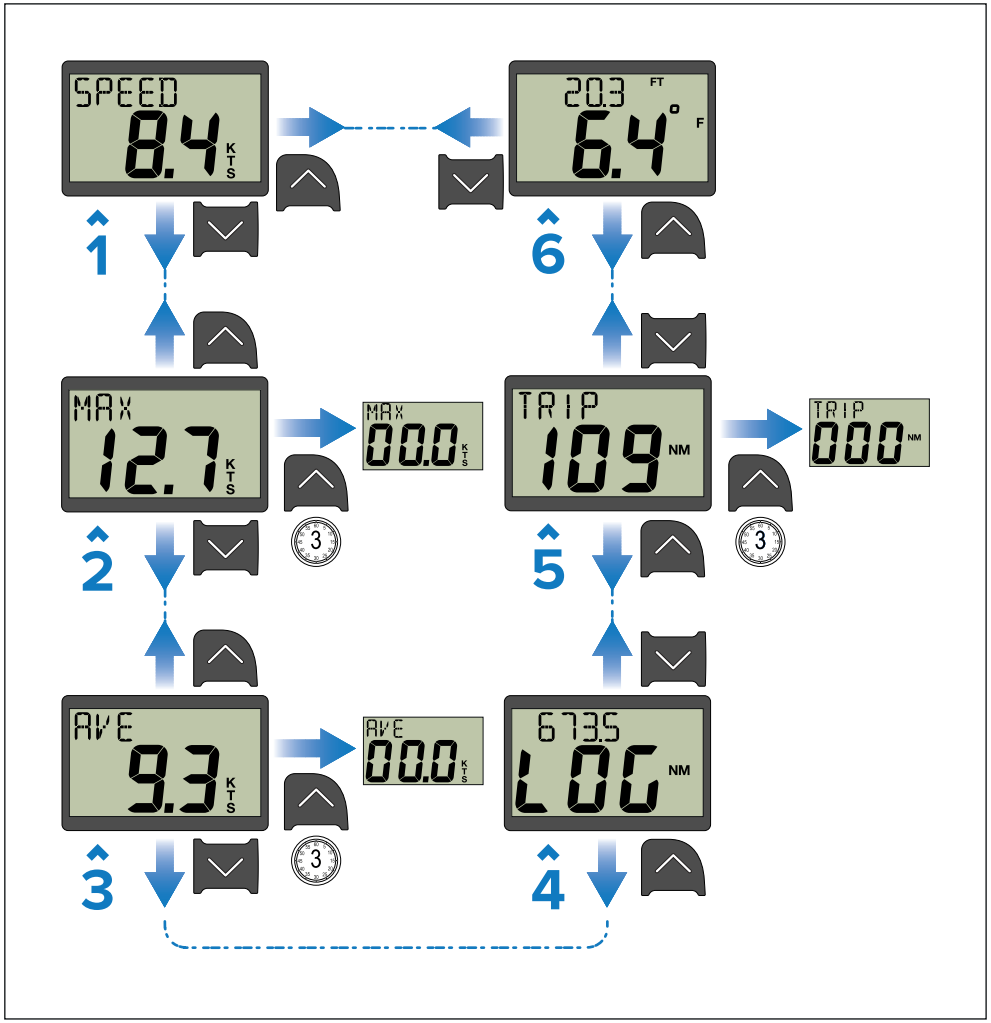
7. To reset the display to factory default settings:
   i. Use the *[Up]* or *[Down]* buttons to change the reset option to *Yes*.
   ii. Press the *[Action]* button to reset your display to factory default settings.

   Resetting the unit defaults the display to a repeater display. Refer to the following section for details on how to change the display back to a data master, if required: **p.63 — Data master**

8. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

16.6 Using the speed pages

To cycle through the speed pages follow the steps below:



	Page name
1	*[Current Speed]*
2	*[Max Speed]*
3	*[Average Speed]*
4	*[Log]*
5	*[Trip]*
6	*[Water Temperature]*

1. Use the *[Up]* and *[Down]* buttons to cycle through the available pages.
2. To reset the *[Maximum speed]*, *[Average speed]* and *[Trip values]*, with the relevant page displayed press and hold the *[Up]* button for 3 seconds.

Important:

The trip reading can only be reset if the unit's status is set to *Master* (See the *Data master* section for details).

Note:

Only the *[Current speed]* and *[Water temperature]* pages are permanent pages, all other pages will time out after 5 seconds and revert back to the last permanent page displayed.

CHAPTER 17: I40 WIND

CHAPTER CONTENTS

17.1 i40 Wind operation

When connected to a rotavecta transducer, your i40 Wind instrument:

- Provides apparent wind speed and direction information, in either knots (KTS), or metres per second (M/S).
- Provides true wind speed and direction information, if vessel speed information is available on your network.
- Enables a locked apparent wind angle, which is defined either manually or automatically by a course computer. In this mode, the unit shows the deviations from the locked wind angle and the direction to steer to achieve the locked wind angle.

17.2 Calibration

Before first use the unit must be calibrated to ensure optimum performance.

The calibration settings are grouped into 3 categories: **User Calibration**, **Intermediate Calibration** and **Dealer Calibration**.

Access to the *[User Calibration]* menu can be locked from the *[Dealer Calibration]* menu.

17.3 User calibration — i40 Wind

Calibration procedures are dependant on instrument display variant.

[User calibration] options include:

- *Wind Angle display response* — Dictates the rate at which the instrument display responds to changes in wind angle data.
- *Wind Speed display response* — Dictates the rate at which the instrument display responds to changes in wind speed data.
- (1) *Units for wind speed readings* — Assigns the unit of measure used for wind speed related readings.
- *Linearization* — Performs wind transducer linearization.
- *Alignment* — Aligns wind transducer to vessel heading.

Note:

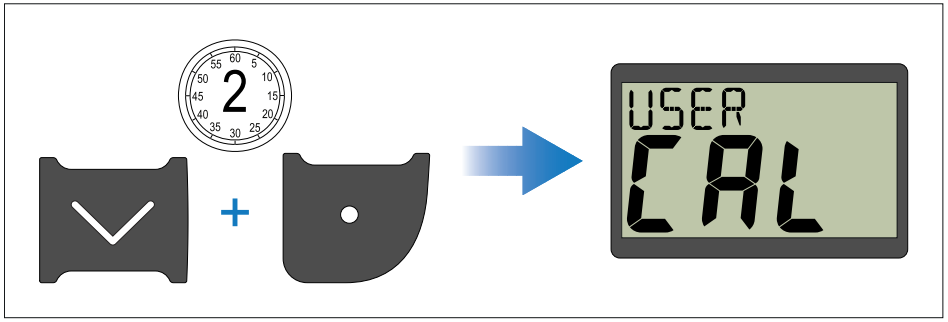
(1) These settings are only available on units when the instrument status set to *Master* (see *[Intermediate Calibration]* for details of changing the display to be *Master* or *Repeater*).

Calibrating wind

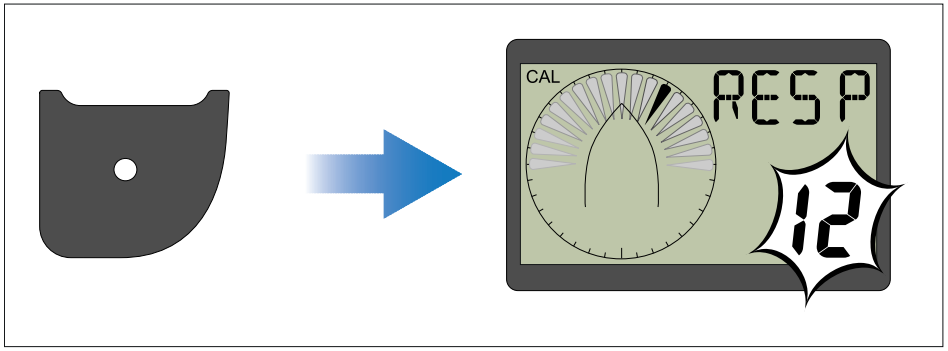
You will need to be underway, with sufficient space to turn in a large slow circle unhindered. Conditions should be calm (i.e. a slight sea) and a steady breeze. Try to ensure the vessel is not rolling or pitching too much.

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds to display the *[User Calibration]* page.



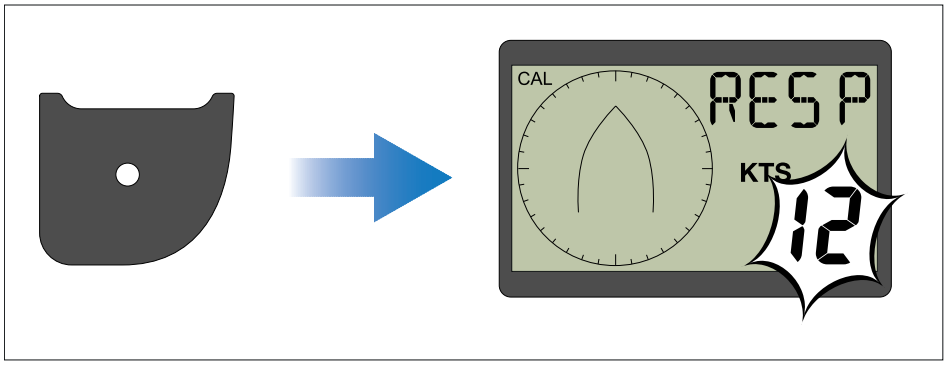
2. Press the *[Action]* button to display the set *[Wind Angle Response]* page.



3. Use the *[Up]* and *[Down]* buttons to adjust the wind angle response to the required level.

   The default level is 12. The levels available are 1 to 15 with level 1 being the slowest update rate and level 15 the quickest.

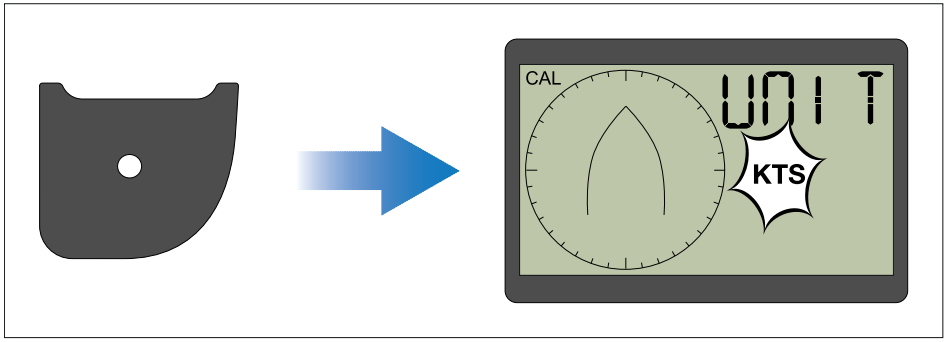
4. Press the *[Action]* button to display the *[Wind Speed Response]* page.



5. Use the *[Up]* and *[Down]* buttons to adjust the wind speed response to the required level.

   The default level is 12. The levels available are 1 to 15 with level 1 being the slowest update rate and level 15 the quickest.

6. Press the *[Action]* button to display the *[Wind Speed Units]* page.

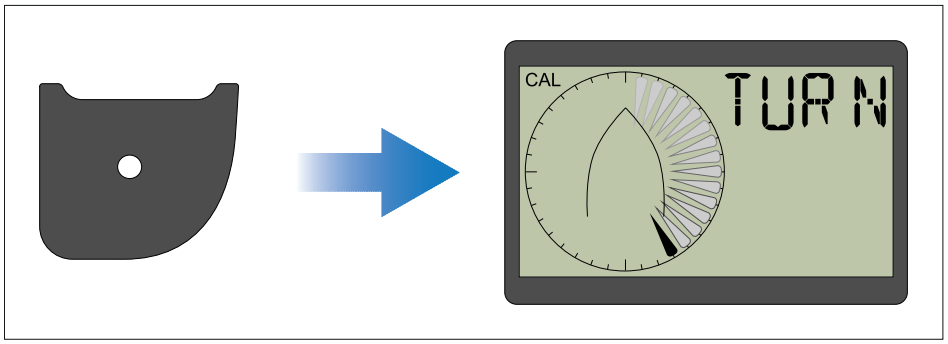


7. Use the *[Up]* and *[Down]* buttons to select the required unit of measurement for wind speed readings.

   The units of measure available for wind speed readings are:

   - *KTS — Knots (default)*
   - *M/S — Meters Per Second*

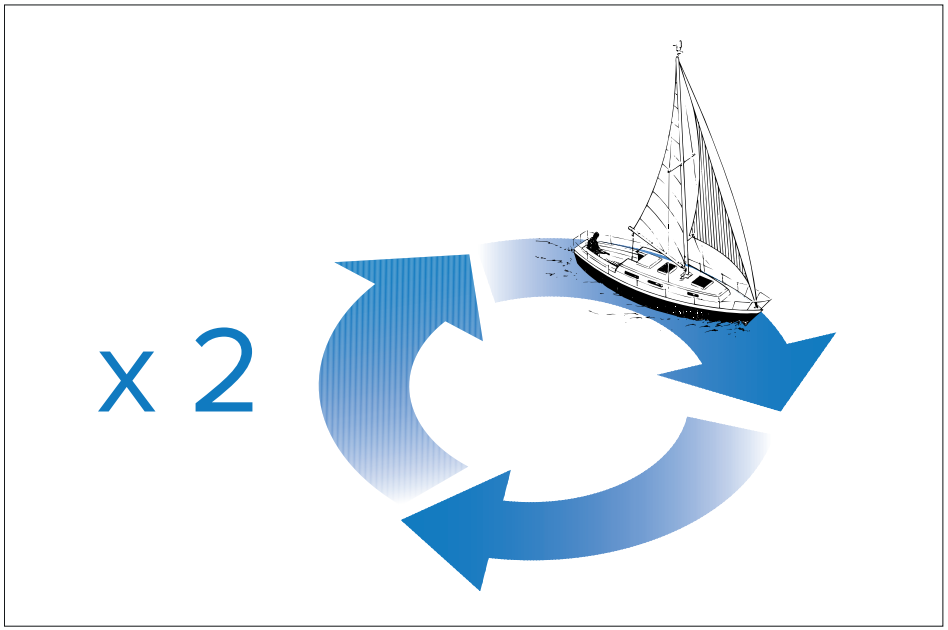
8. Press the *[Action]* button to display the *[Linearize Transducer]* page.



Note:

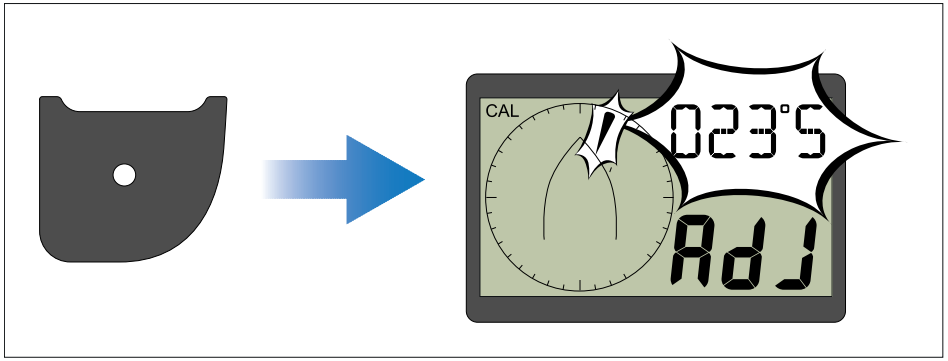
If 5pd is displayed on the linearize transducer page the wind speed is outside of the range suitable for linearization.

9. Keep the vessel speed below 2 kts and begin to turn the vessel in a circle.
10. Press the *[Up]* button to begin linearization.
11. You will be required to perform a minimum of 2 complete circles.

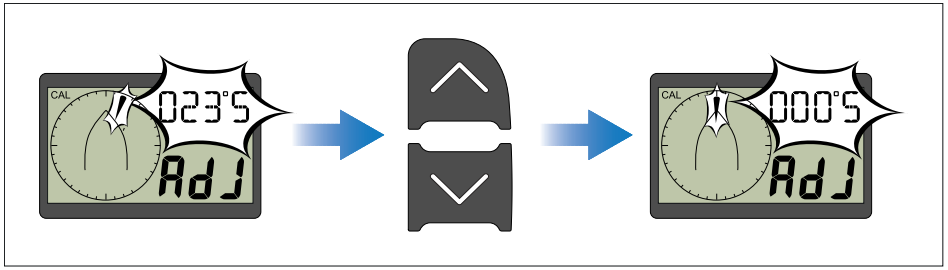


An alarm will sound upon successful completion.

12. Sail the vessel directly into the wind.
13. Press the *[Action]* button to display the *[Align Transducer]* page.



14. Use the *[Up]* and *[Down]* buttons to adjust the value until the wind angle pointer is set to zero.



15. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

17.4 Intermediate calibration

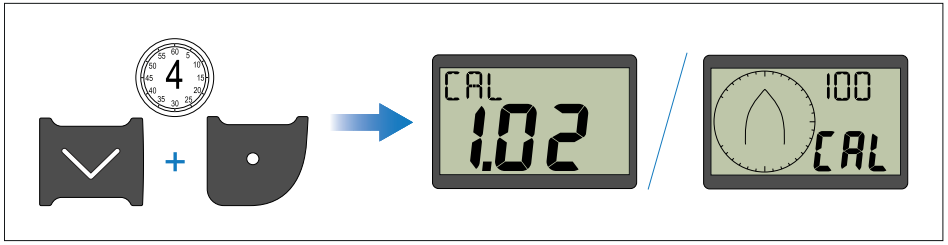
[Intermediate calibration] allows you to:

- Check the instrument software version.
- Check and if necessary set the instrument status as either *Master* or *Repeater*.

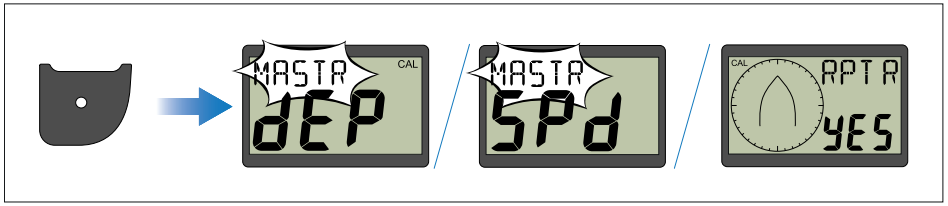
Checking software version and instrument status

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 4 seconds to display the software version.



2. Press the *[Action]* button to display the instrument status.



Note:

The i40 Bidata requires an extra Action button push to switch from depth instrument status and speed instrument status.

3. Use the *[Up]* and *[Down]* buttons to change the instrument status between *Master* and *Repeater*.
4. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

17.5 Dealer calibration

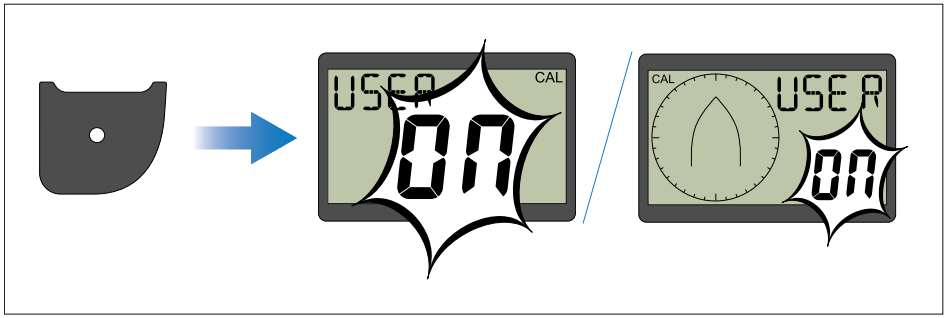
[Dealer calibration] enables you to set:

- *[User calibration]* menu access *On (default)* and *Off*.
- *[Boat show]* mode *On* and *Off (default)* (*[Boat show]* mode is only be available on displays set as repeaters).
- Reset to factory defaults.

Changing dealer calibration settings

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 12 seconds to display the *[Dealer Calibration]* page.

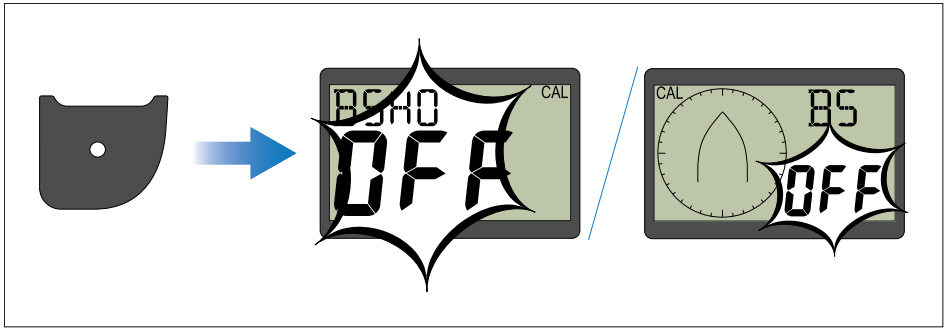
2. Press the *[Action]* button to display the *[User Calibration Access]* page.



3. Use the *[Up]* and *[Down]* buttons to switch access to the *[User Calibration]* menu *On (default)* and *Off*.

   Selecting *Off* disables access to the *[User Calibration]* menu.

4. Press the *[Action]* button to display the *[Boat Show]* mode page.



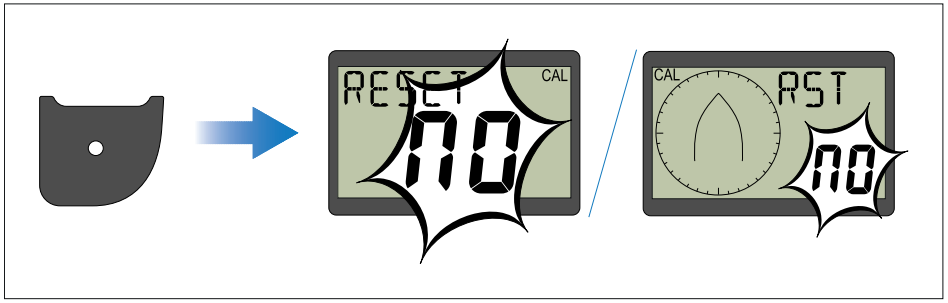
5. Use the *[Up]* and *[Down]* buttons to switch *[Boat show]* mode *On* and *Off*.

   Selecting *On* will put the display into *[Boat show]* mode.

Note:

[Boat show] mode should NOT be used whilst your vessel is in use.

6. Press the *[Action]* button to display the *[Factory defaults]* page.



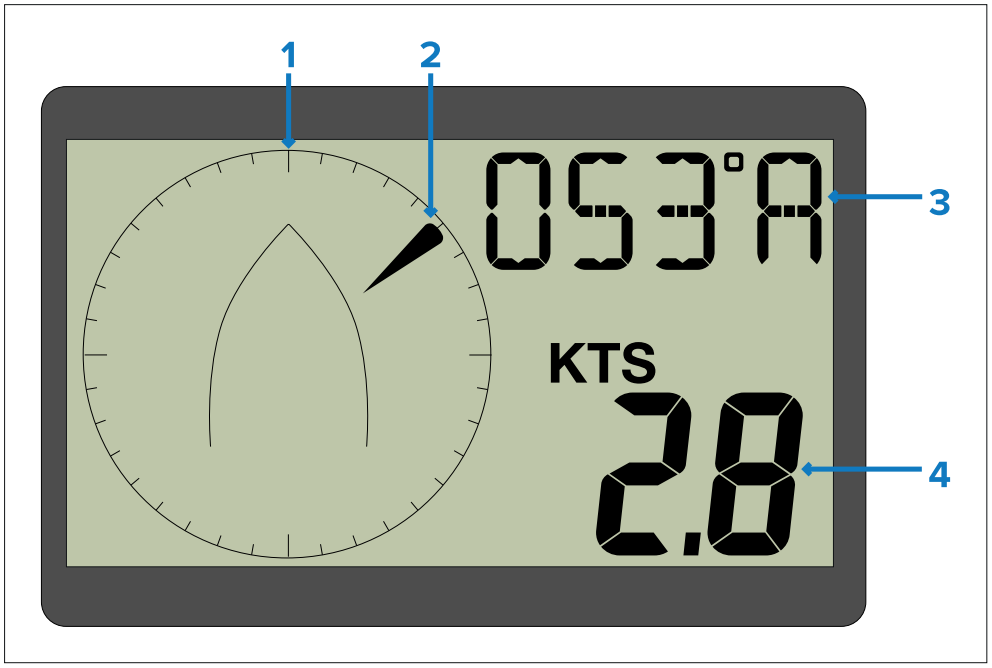
7. To reset the display to factory default settings:
   i. Use the *[Up]* or *[Down]* buttons to change the reset option to *Yes*.
   ii. Press the *[Action]* button to reset your display to factory default settings.

   Resetting the unit defaults the display to a repeater display. Refer to the following section for details on how to change the display back to a data master, if required: **p.63 — Data master**

8. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

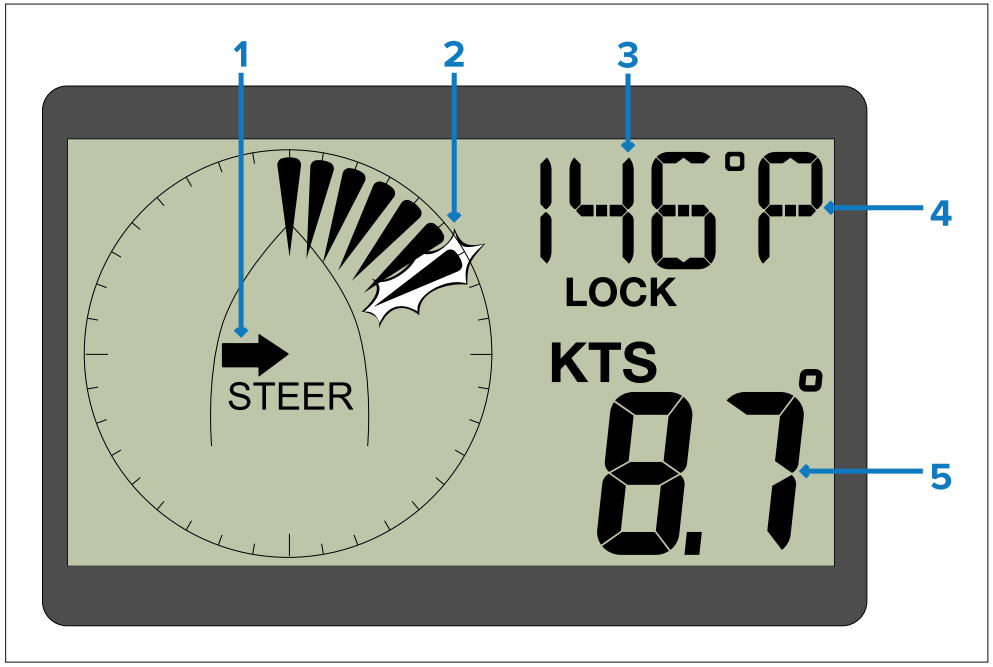
17.6 True and apparent wind pages

Apparent and True wind pages



1. Vessel heading.
2. Wind direction with respect to vessel heading.
3. Wind angle, either A (apparent) or T (True).
4. Wind speed, either apparent or true, as indicated in item 3.

Locked apparent wind page



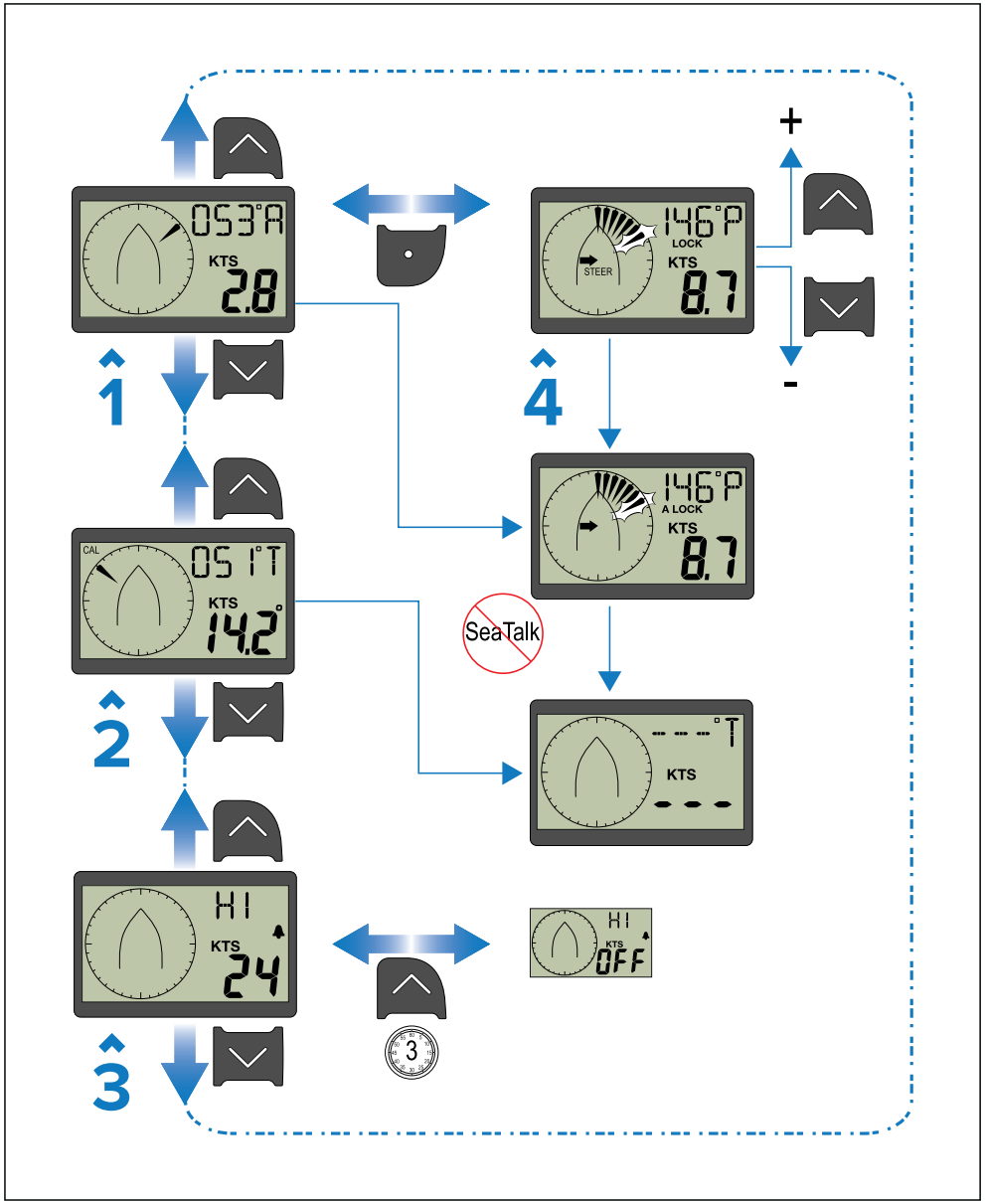
1. Direction to steer indicator, to achieve locked wind angle.
2. Flashing segment indicates the difference between the apparent wind angle and the locked wind angle.
3. Locked wind angle.
4. Relative direction of the locked wind angle:
   - **P** = Port.
   - **S** = Starboard.
5. Apparent wind speed.

Note:

If *[LOCK]* is displayed on-screen then the wind angle is controlled by the course computer and cannot be changed manually.

17.7 Using the wind pages

To cycle through the wind pages follow the steps below:



	Description
1	*[Apparent Wind]*.
2	*[True Wind]*.
3	*[High Speed Wind Alarm]*.
4	*[Locked Apparent Wind]*.

Note:

The *[High wind speed alarm]* page is only available on master units (See the *Data master* section for details), it is a temporary page which will time out after 5 seconds to the previous permanent page.

1. Use the *[Up]* and *[Down]* buttons to cycle through the available pages.
2. Pressing the *[Action]* button from the *[Apparent Wind]* page will apply the current wind bearing as the locked heading and display the *[Locked Apparent Wind Angle]* page.
3. Pressing the *[Action]* button from the *[Locked Apparent Wind]* page will return to the *[Apparent Wind]* page.
4. Pressing and holding the *[Up]* button from the *[High Wind Speed Alarm]* page will switch the *[High Wind Speed Alarm] On (default)* and *Off*.

Note:

For details on enabling, disabling and adjusting alarm thresholds, refer to:
p.93 — Alarms

CHAPTER 18: ALARMS

CHAPTER CONTENTS

18.1 Alarms

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

You can set up alarms to alert you to certain conditions.

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

When an alarm event occurs an audible and visual alarm is activated which indicates the alarm state.

Alarm thresholds can be configured from the relevant alarm page / menu.

Instrument alarms

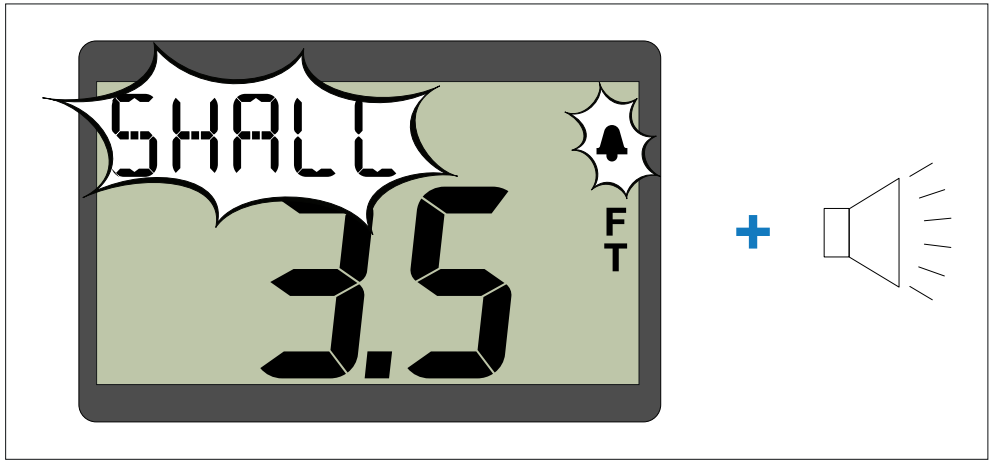
The alarms available on each instrument display variant are shown below.

- *[Shallow Alarm]* — Available on i40 Bidata and i40 Depth instrument displays.
- *[Deep Alarm]* — Available on i40 Bidata and i40 Depth instrument displays.
- *[Shallow Anchor Alarm]* — Available on the i40 Bidata and i40 Depth instrument displays.
- *[Deep Anchor Alarm]* — Available on the i40 Bidata and i40 Depth instrument displays.
- *[High Wind speed Alarm]* — Available on the i40 Wind instrument displays.

Alarm indications

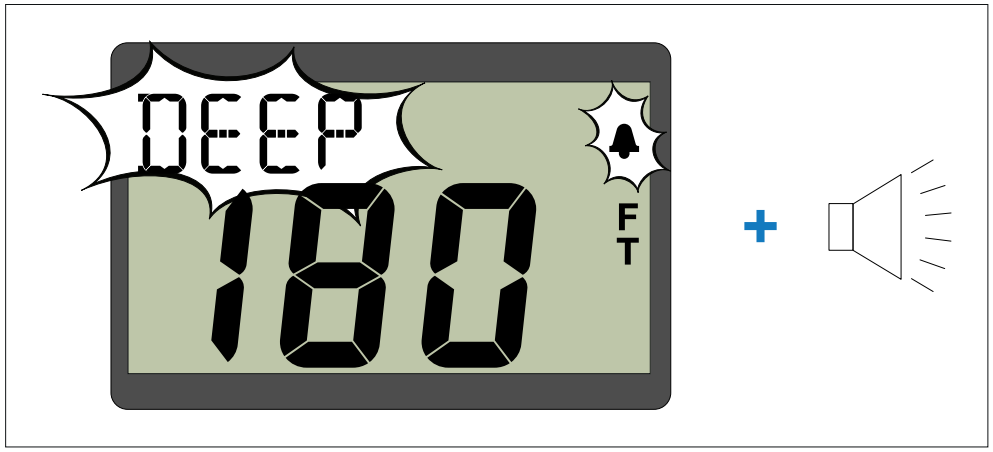
An alarm event is indicated by both audible and visual warnings.

Shallow alarm



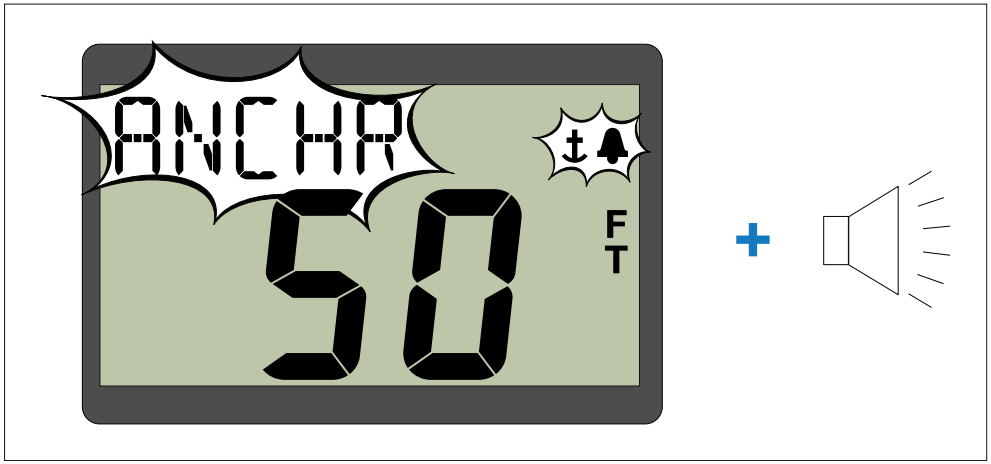
The *[Shallow alarm]* is available on both the i40 Bidata and i40 Depth instruments. The *[Shallow alarm]* sounds when the depth is equal to or less than the Shallow alarm threshold. The alarm sounds until silenced manually.

Deep alarm



The *[Deep alarm]* is available on both the i40 Bidata and i40 Depth instruments. The *[Deep alarm]* sounds when the depth is equal to the *[Deep alarm]* threshold. The alarm sounds until silenced manually.

Anchor alarms

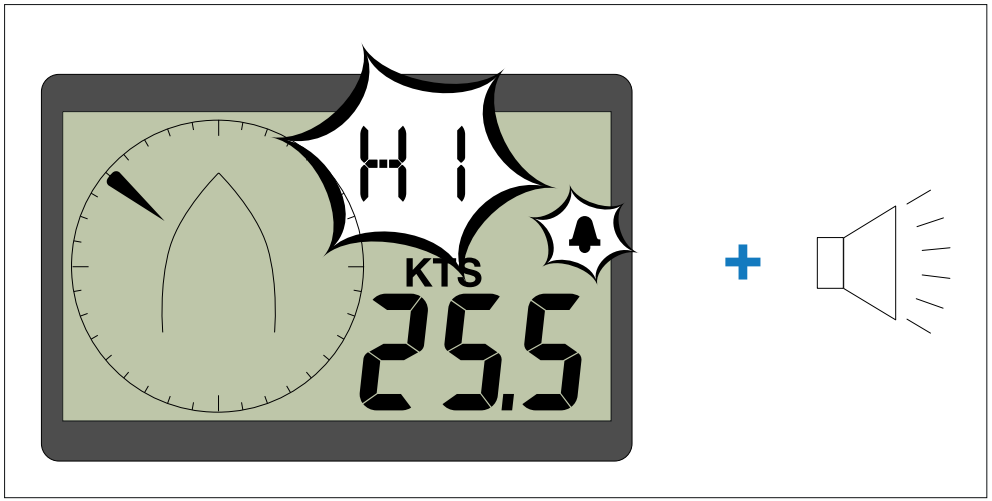


The anchor alarms are available on both the i40 Bidata and i40 Depth instruments. The anchor alarms sound when either:

- Depth is equal to or less than the *[Shallow Anchor Alarm]* threshold, or
- Depth is equal to or more than the *[Deep Anchor Alarm]* threshold.

The alarm sounds until silenced manually.

High wind speed alarm



The *[High wind speed alarm]* is available on the i40 Wind instrument. The *[High wind speed alarm]* sounds when the wind speed exceeds the *[High wind speed alarm]* threshold. The alarm sounds until silenced manually.

True wind — If vessel speed information is available at the instrument (from your network) the alarm is triggered if True wind speed exceeds the threshold.

Apparent wind — If vessel speed information is not present, the alarm is triggered if the Apparent wind speed exceeds the threshold.

Silencing alarms

1. Press any button to silence an active alarm.

Enabling / Disabling alarms

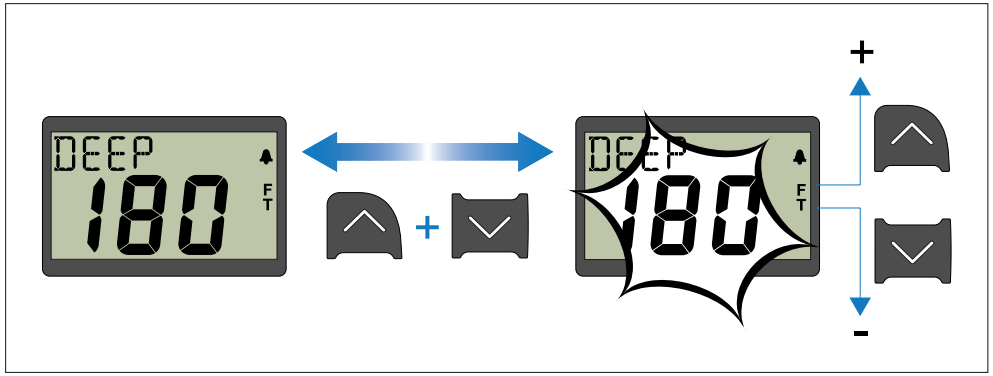
Alarms can be enabled or disabled at any time.

With the relevant alarm page displayed:

1. Press and hold the *[Up]* button for 3 seconds to switch the alarm *on* or *off*.

Setting alarm thresholds

You can adjust the threshold at which alarms are triggered by following the steps below.



With the relevant alarm page displayed:

1. Press the *[Up]* and *[Down]* button simultaneously to enter edit mode.
2. Use the *[Up]* button to increase the alarm threshold.
3. Use the *[Down]* button to decrease the alarm threshold.
4. Press the *[Up]* and *[Down]* button simultaneously to save the new alarm threshold and exit edit mode.

Note:

The illustration above is an example depicting setting the Deep alarm threshold on an i40 Depth instrument.

CHAPTER 19: MAINTAINING YOUR DISPLAY

CHAPTER CONTENTS

19.1 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.

> **Caution: Condensation**
>
> Certain atmospheric conditions may cause a small amount of condensation to form on the unit's window. This will not damage the unit and will clear after the unit has been switched on for a short period.

19.2 Routine equipment checks

It is recommended that you perform the following routine checks, on a regular basis, to ensure the correct and reliable operation of your equipment:

- Examine all cables for signs of damage or wear and tear.
- Check that all cables are securely connected.

19.3 Cleaning the display case

The display is a sealed unit and does not require regular cleaning. If it is necessary to clean the display, follow this basic procedure:

1. Switch off the power to the display.
2. Wipe the case with a clean, lint-free cloth.
3. If necessary, use a mild detergent to remove grease marks.

19.4 Cleaning the display screen

A coating is applied to the display screen. This makes it water repellent, and prevents glare. To avoid damaging this coating, follow this procedure:

1. Switch off the power to the display.
2. Rinse the screen with fresh water to remove all dirt particles and salt deposits.
3. Allow the screen to dry naturally.
4. If any smears remain, very gently wipe the screen with a clean microfibre cleaning cloth.

> **Caution: Product cleaning**
>
> When cleaning products:
>
> - Switch off power supply.
> - Use a clean damp cloth to wipe clean.
> - Do NOT use: abrasive, acidic, ammonia, solvent or other chemical based cleaning products.
> - Do NOT use a jet wash.

CHAPTER 20: TROUBLESHOOTING

CHAPTER CONTENTS

20.1 Troubleshooting

The troubleshooting section provides possible causes and the corrective action required for common problems that are associated with the 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 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 technical support contact details.

20.2 Instrument troubleshooting

i40 Bidata

Troubleshooting issue	User action(s)
Low battery:	• Recharge your vessel's battery as soon as possible.
Blank display:	• Check the fuse / circuit breaker. • Check the power supply. • Check the security and condition of any cable connections made between units.
Depth reading flashes when underway:	• Ensure the reading stabilizes when clear of disturbed water (e.g. vessel wakes, propeller wash etc.).
No data:	• Check the condition of your transducer, the transducer cable and the security of any connections made.
No speed information but water temperature is present:	• Ensure that the transducer paddle wheel is not fouled. **CAUTION** **If you need to remove the transducer insert, have the transducer bung to hand and secure it in the transducer body immediately after the insert is removed, to prevent excessive ingress of water.**
Information not being transferred between instruments:	• Check the security and condition of any cable connections made between units. • Attempt to isolate any faulty units by disconnecting the units one by one.
A group of daisy-chained units not working:	• Check the security and condition of any cable connections made between functioning and non-functioning units.

i40 Depth

Troubleshooting issue	User action(s)
Low battery:	• Recharge your vessel's battery as soon as possible.
Blank display:	• Check the fuse / circuit breaker. • Check the power supply. • Check the security and condition of any cable connections made between units.
Depth reading flashes when underway:	• Ensure the reading stabilizes when clear of disturbed water (e.g. vessel wakes, propeller wash etc.).
No data:	• Check the condition of your transducer, the transducer cable and the security of any connections made.

Troubleshooting issue	User action(s)
Information not being transferred between instruments:	• Check the security and condition of any cable connections made between units. • Attempt to isolate any faulty units by disconnecting the units one by one.
A group of daisy-chained units not working:	• Check the security and condition of any cable connections made between functioning and non-functioning units.

i40 Speed

Troubleshooting issue	User action(s)
Low battery:	• Recharge your vessel's battery as soon as possible.
Blank display:	• Check the fuse / circuit breaker. • Check the power supply. • Check the security and condition of any cable connections made between units.
No data:	• Check the condition of your transducer, the transducer cable and the security of any connections made.
No speed information but water temperature is present:	• Ensure that the transducer paddle wheel is not fouled. **CAUTION** **If you need to remove the transducer insert, have the transducer bung to hand and secure it in the transducer body immediately after the insert is removed, to prevent excessive ingress of water.**

Troubleshooting issue	User action(s)
Information not being transferred between instruments:	• Check the security and condition of any cable connections made between units. • Attempt to isolate any faulty units by disconnecting the units one by one.
A group of daisy-chained units not working:	• Check the security and condition of any cable connections made between functioning and non-functioning units.

i40 Wind

Troubleshooting issue	User action(s)
Low battery:	• Recharge your vessel's battery as soon as possible.
Blank display:	• Check the fuse / circuit breaker. • Check the power supply. • Check the security and condition of any cable connections made between units.
No data:	• Check the condition of your transducer, the transducer cable and the security of any connections made. • If true wind speed information is missing, but apparent wind is present on your unit, then it may be that no speed information is available on your network.
Information not being transferred between instruments:	• Check the security and condition of any cable connections made between units. • Attempt to isolate any faulty units by disconnecting the units one by one.
A group of daisy-chained units not working:	• Check the security and condition of any cable connections made between functioning and non-functioning units.

20.3 Power up troubleshooting

Product does not turn on or keeps turning off:

Possible causes	Possible solutions
Blown fuse / tripped breaker:	1. Check condition of relevant fuses and breakers and connections, replace if necessary. (Refer to the *Technical Specification* section of your product's installation instructions for fuse ratings.) 2. If fuse keeps blowing check for cable damage, broken connector pins or incorrect wiring.
Poor / damaged / insecure power supply cable / connections:	1. Check that the power cable connector is correctly orientated and fully inserted into the display connector and locked in position. 2. Check the power supply cable and connectors for signs of damage or corrosion, and replace if necessary. 3. With the display turned on, try flexing the power cable near to the display connector to see if this causes the unit to restart or lose power. Replace if necessary. 4. Check the vessel's battery voltage and 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, and replace if necessary.
Incorrect power connection:	The power supply may be wired incorrectly, ensure the installation instructions have been followed.

Product will not start up (restart loop):

Possible causes	Possible solutions
Power supply and connection:	See possible solutions from the table above, entitled 'Product does not turn on or keeps turning off'.
Software corruption:	1. In the unlikely event that the product's software has become corrupted, try downloading and installing the latest software from the Raymarine website. 2. On display products, as a last resort, attempt to perform a 'Power on Reset'. Be aware that this will delete all settings / presets and user data (such as waypoints and tracks), and revert the unit back to factory defaults.

20.4 Miscellaneous troubleshooting

Miscellaneous problems and their possible causes and solutions are described here.

Display behaves erratically (frequent unexpected resets / system crashes, or other erratic behavior):

Possible causes	Possible solutions
Intermittent problem with power to the display.	• Check relevant fuses and breakers. • Check that the power supply cable is sound and that all connections are tight and free from corrosion. • Check that the power source is of the correct voltage and sufficient current.
Software mismatch on system (upgrade required).	Go to https://bit.ly/rym-software for the latest software downloads.
Corrupt data / other unknown issue.	Perform a factory reset. **Important:** This will result in the loss of any settings and data (such as waypoints) stored on the product. Save any important data to a memory card before resetting.

CHAPTER 21: TECHNICAL SUPPORT

CHAPTER CONTENTS

21.1 Raymarine technical support and servicing

Raymarine provides a comprehensive product support service, as well as warranty, service, and repairs. You can access these services through the Raymarine website, telephone, and e-mail.

Product information

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

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

You can obtain this product information using diagnostic pages of the connected display.

Servicing and warranty

Raymarine offers dedicated service departments for warranty, service, and repairs.

Don't forget to visit the Raymarine website to register your product for extended warranty benefits: https://www.raymarine.com/en-us/support/product-registration

United Kingdom (UK), EMEA, and Asia Pacific:

- E-Mail: emea.service@raymarine.com
- Tel: +44 (0)1329 246 932

United States (US):

- E-Mail: rm-usrepair@flir.com
- Tel: +1 (603) 324 7900

Web support

Please visit the "Support" area of the Raymarine website for:

- **Manuals and Documents** — http://www.raymarine.com/manuals
- **Technical support forum** — https://raymarine.custhelp.com/app/home
- **Software updates** — http://www.raymarine.com/software

Worldwide support

United Kingdom (UK), EMEA, and Asia Pacific:

- Help desk: https://raymarine.custhelp.com/app/home
- Tel: +44 (0)1329 246 777

United States (US):

- Help desk: https://raymarine.custhelp.com/app/home
- Tel: +1 (603) 324 7900 (Toll-free: +800 539 5539)

Australia and New Zealand (Raymarine subsidiary):

- E-Mail: aus.support@raymarine.com
- Tel: +61 2 8977 0300

France (Raymarine subsidiary):

- E-Mail: support.fr@raymarine.com
- Tel: +33 (0)1 46 49 72 30

Germany (Raymarine subsidiary):

- E-Mail: support.de@raymarine.com
- Tel: +49 40 237 808 0

Italy (Raymarine subsidiary):

- E-Mail: support.it@raymarine.com
- Tel: +39 02 9945 1001

Spain (Authorized Raymarine distributor):

- E-Mail: sat@azimut.es
- Tel: +34 96 2965 102

Netherlands (Raymarine subsidiary):

- E-Mail: support.nl@raymarine.com
- Tel: +31 (0)26 3614 905

Sweden (Raymarine subsidiary):

- E-Mail: support.se@raymarine.com
- Tel: +46 (0)317 633 670

Finland (Raymarine subsidiary):

- E-Mail: support.fi@raymarine.com
- Tel: +358 (0)207 619 937

Norway (Raymarine subsidiary):

- E-Mail: support.no@raymarine.com
- Tel: +47 692 64 600

Denmark (Raymarine subsidiary):

- E-Mail: support.dk@raymarine.com
- Tel: +45 437 164 64

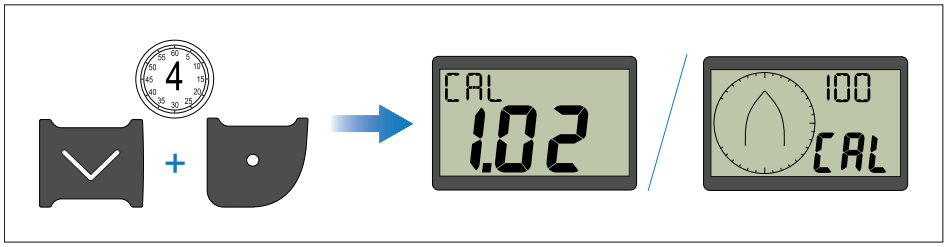
Russia (Distributor):

- E-Mail: info@mikstmarine.ru
- Tel: +7 495 788 0508

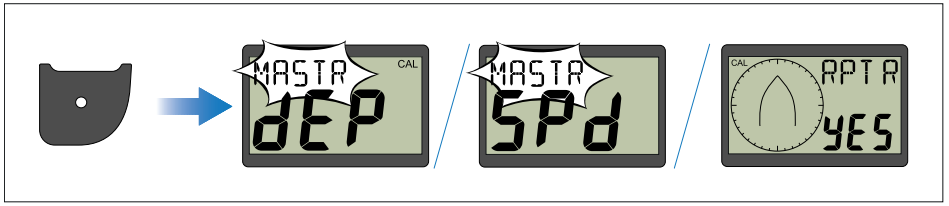
Checking software version and instrument status

During normal operation:

1. Simultaneously press and hold the *[Down]* and *[Action]* buttons for 4 seconds to display the software version.



2. Press the *[Action]* button to display the instrument status.



Note:

The i40 Bidata requires an extra Action button push to switch from depth instrument status and speed instrument status.

3. Use the *[Up]* and *[Down]* buttons to change the instrument status between *Master* and *Repeater*.
4. To save your settings and return to normal operation from any page, simultaneously press and hold the *[Down]* and *[Action]* buttons for 2 seconds.

CHAPTER 22: TECHNICAL SPECIFICATION

CHAPTER CONTENTS

22.1 Physical specification

Specification	
Length:	128 mm (5.04 in).
Height:	72 mm (2.83 in).
Depth:	35 mm (1.40 in).

22.2 Power specification

Specification	
Nominal supply voltage:	12 V dc
Operating voltage range:	10 V dc to 16 V dc
Current	• 35 mA (typical) @ 12 V dc • 100 mA (maximum) @ 12 V dc

22.3 Network specification

Specification	
Data connections:	• **i40 Bidata:** SeaTalk 1, Speed transducer connections and Depth transducer connections. • **i40 Depth:** SeaTalk 1 and Depth transducer connections. • **i40 Speed:** SeaTalk 1 and Speed transducer connections. • **i40 Wind:** SeaTalk 1 and Wind transducer connections.

22.4 Environmental specification

Specification	
Operating temperature:	0°C to +70°C (32°F to 158°F)
Storage temperature:	–30°C to +70°C (–22°F to 158°F)
Relative humidity:	93%
Waterproofing:	IPx6

22.5 Display specification

Specification	
Viewing angle:	+70 / +70

22.6 Operating ranges

i40 Bidata:

Specification	
Speed:	0 to 99.9 knots
Log:	0 to 99999 nautical miles
Trip:	0 to 99 nautical miles
Temperature:	– 0°C to + 40°C
Depth:	0 to 400 feet
Shallow depth alarm:	0 to 29 feet
Deep depth alarm:	30 to 400 feet
Shallow anchor alarm:	1 to 250 feet
Deep anchor alarm:	10 to 400 feet

i40 Depth:

Specification	
Depth:	0 to 400 feet
Shallow depth alarm:	0 to 29 feet
Deep depth alarm:	30 to 400 feet
Shallow anchor alarm:	1 to 250 feet
Deep anchor alarm:	10 to 400 feet

i40 Speed:

Specification	
Speed:	0 to 99.9 knots
Log:	0 to 99999 nautical miles

Specification	
Trip:	0 to 99 nautical miles
Temperature:	– 0°C to + 40°C

i40 Wind:

Specification	
Wind speed:	0 to 60 knots
High wind speed alarm:	0 to 50 knots
Wind angle:	180° port to 180° starboard

22.7 Conformance specification

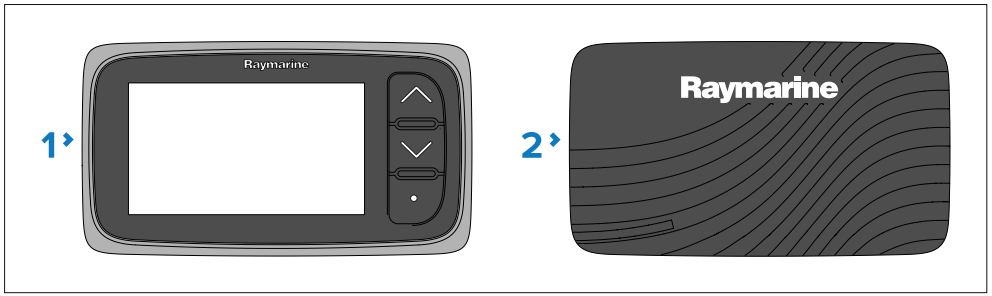
Specification	
Conformance:	Europe 2004/108/EC

CHAPTER 23: SPARES AND ACCESSORIES

CHAPTER CONTENTS

23.1 Spares

The following spares are available for your product.

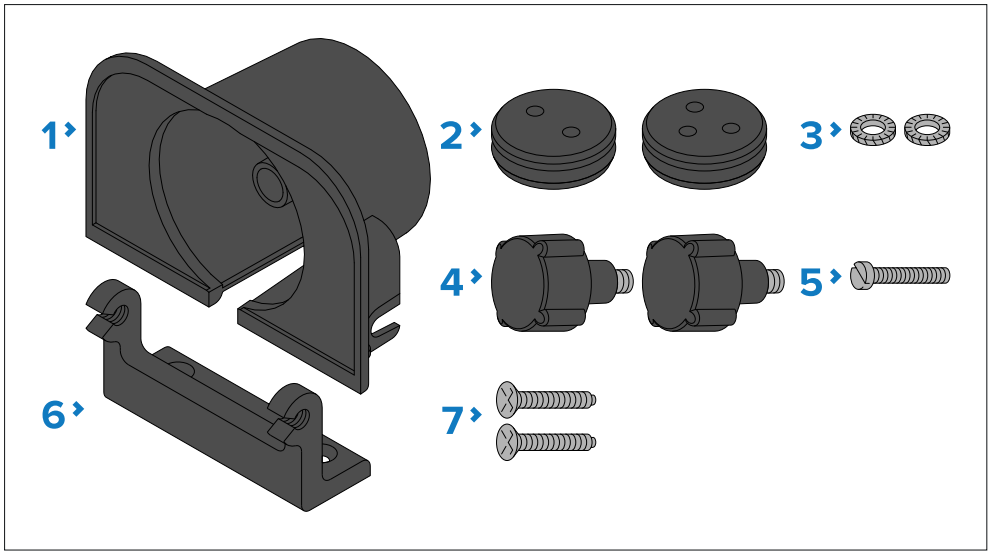


1. 1x i40 front bezel and keypad (part number: **R70113**).
2. 1x i40 sun cover (part number: **R70112**).

23.2 Accessories

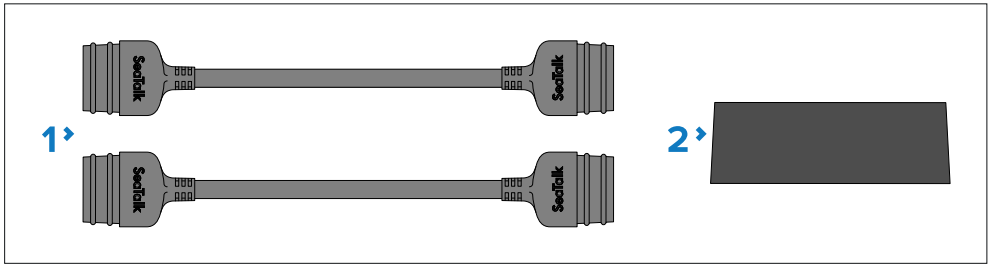
The following accessories are available for your product.

Desktop mounting bracket (part number: E25024), consists of:



1. 1x Instrument cover.
2. 2x Grommets.
3. 2x M6 Lock washers.
4. 2x Knobs.
5. 1x M4 Pan head screw
6. 1x Trunnion mount.
7. 2x No.8 Countersunk screws.

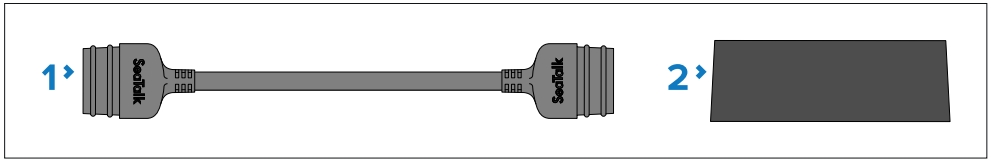
SeaTalk 1 interconnection kit (part number: E25028), consists of:



1. 2x SeaTalk 1 extension cables, 350 mm (13.78 in).
2. 1x SeaTalk 1 3–way junction box.

23.3 SeaTalk 1 accessories

SeaTalk 1 cables and accessories for use with compatible products.



1. SeaTalk 1 extension cables:
   - SeaTalk 1 extension cable 1 m (3.28 ft) (part number: **D284**).
   - SeaTalk 1 extension cable 3 m (9.8 ft) (part number: **D285**).
   - SeaTalk 1 extension cable 5 m (16.4 ft) (part number: **D286**).
   - SeaTalk 1 extension cable 9 m (29.5 ft) (part number: **D287**).
   - SeaTalk 1 extension cable 12 m (39.4 ft) (part number: **E25051**).
   - SeaTalk 1 extension cable 20 m (65.6 ft) (part number: **D288**).
2. SeaTalk 1 3–way junction box (part number: **D244**).

23.4 SeaTalk 1 power cables

SeaTalk 1 power cables for use with compatible products.

1. SeaTalk 1 power cable 1 m (3.28 ft) (part number: **D229**).

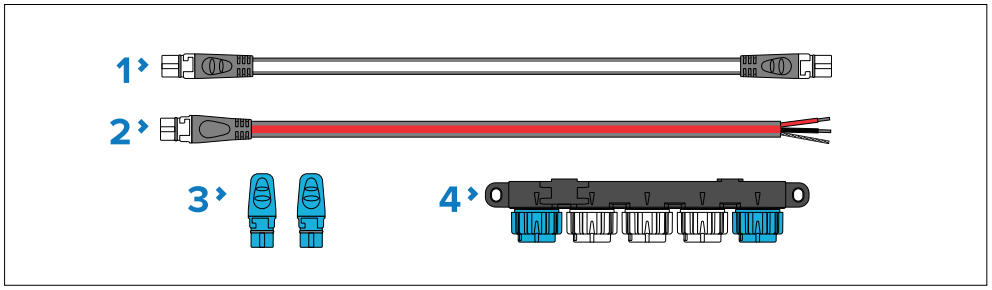
23.5 SeaTalk NG cables and accessories

SeaTalk NG cables and accessories for use with compatible products.

SeaTalk NG kits

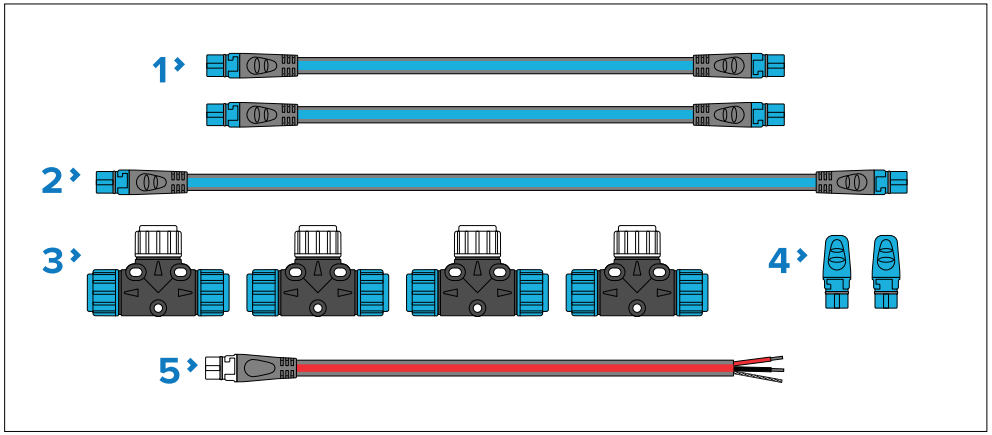
SeaTalk NG kits enable you to create a simple SeaTalk NG backbone.

Starter kit (part number: T70134) consists of:



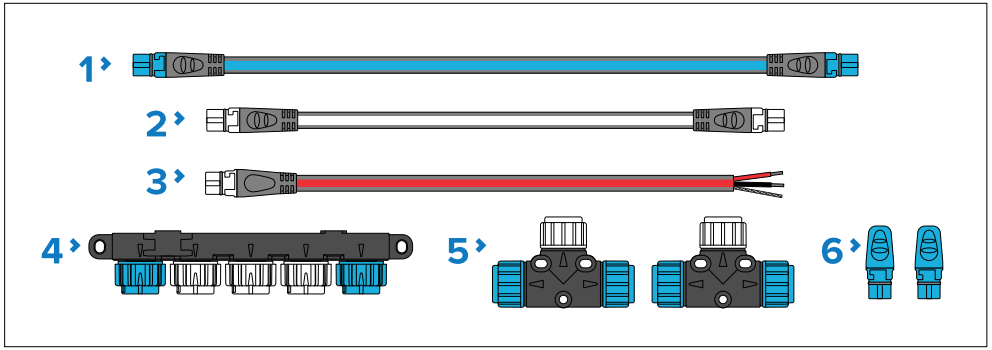
1. 1 x Spur cable 3 m (9.8 ft) (part number: **A06040**). Used to connect device to the SeaTalk NG backbone.
2. 1 x Power cable 2 m (6.6 ft) (part number: **A06049**). Used to provide 12 V dc power to the SeaTalk NG backbone.
3. 2 x Backbone terminators (part number: **A06031**). Terminators must be fitted to both ends of the SeaTalk NG backbone.
4. 1 x 5-Way connector (part number: **A06064**). Each connector block allows connection of up to 3 SeaTalk NG devices. Multiple connector blocks can be 'daisy chained' together.

Backbone kit (part number: A25062) consists of:



1. 2 x Backbone cables 5 m (16.4 ft) (part number: **A06036**). Used to create and extend the SeaTalk NG backbone.
2. 1 x Backbone cable 20 m (65.6 ft) (part number: **A06037**). Used to create and extend the SeaTalk NG backbone.
3. 4 x T-piece (part number: **A06028**). Each T-piece allows connection of one SeaTalk NG device. Multiple T-pieces can be 'daisy chained' together.
4. 2 x Backbone terminators (part number: **A06031**). Terminators must be fitted to both ends of the SeaTalk NG backbone.
5. 1 x Power cable 2 m (6.6 ft) (part number: **A06049**). Used to provide 12 V dc power to the SeaTalk NG backbone.

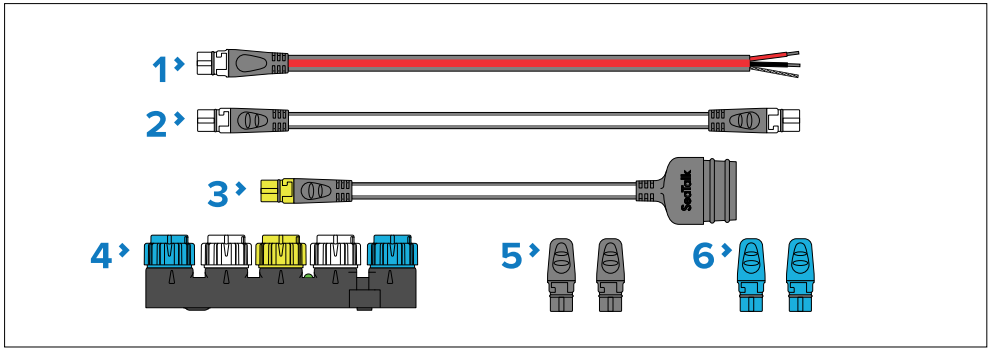
Evolution-Series autopilot cable kit (part number: R70160) consists of:



1. 1 x Backbone cable 5 m (16.4 ft) (part number: **A06036**). Used to create and extend the SeaTalk NG backbone.

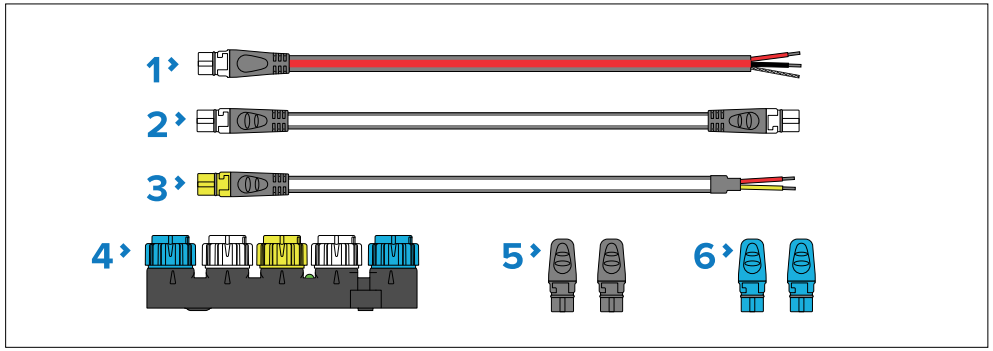
2. 1 x Spur cable 1 m (3.3 ft) (part number: **A06040**). Used to connect device to the SeaTalk NG backbone.
3. 1 x Power cable 2 m (6.6 ft) (part number: **A06049**). Used to provide 12 V dc power to the SeaTalk NG backbone.
4. 1 x 5-Way connector (part number: **A06064**). Each connector block allows connection of up to 3 SeaTalk NG devices. Multiple connector blocks can be 'daisy chained' together.
5. 2 x T-pieces (part number: **A06028**). Each T-piece allows connection of one SeaTalk NG device. Multiple T-pieces can be 'daisy chained' together.
6. 2 x Backbone terminators (part number: **A06031**). Terminators must be fitted to both ends of the SeaTalk NG backbone.

SeaTalk 1 to SeaTalk NG converter kit (part number: E22158) consists of:



1. 1 x Power cable 2 m (6.6 ft) (part number: **A06049**). Used to provide 12 V dc power to the SeaTalk NG backbone.
2. 1 x Spur cable 1 m (3.3 ft) (part number: **A06039**). Used to connect a device to the SeaTalk NG backbone.
3. 1 x SeaTalk 1 (3 pin) to SeaTalk NG adapter cable 0.4 m (1.3 ft) (part number: **A22164**). Used to connect SeaTalk 1 devices to the SeaTalk NG backbone via the SeaTalk 1 to SeaTalk NG converter.
4. 1 x SeaTalk 1 to SeaTalk NG converter (part number: **E22158**). Each converter allows connection of one SeaTalk 1 device and up to 2 SeaTalk NG devices.
5. 2 x Spur blanking plugs (part number: **A06032**). Used to cover unused spur connections in 5-way blocks, T-piece connectors and SeaTalk 1 to SeaTalk NG converter.
6. 2 x Backbone terminators (part number: **A06031**). Terminators must be fitted to both ends of the SeaTalk NG backbone.

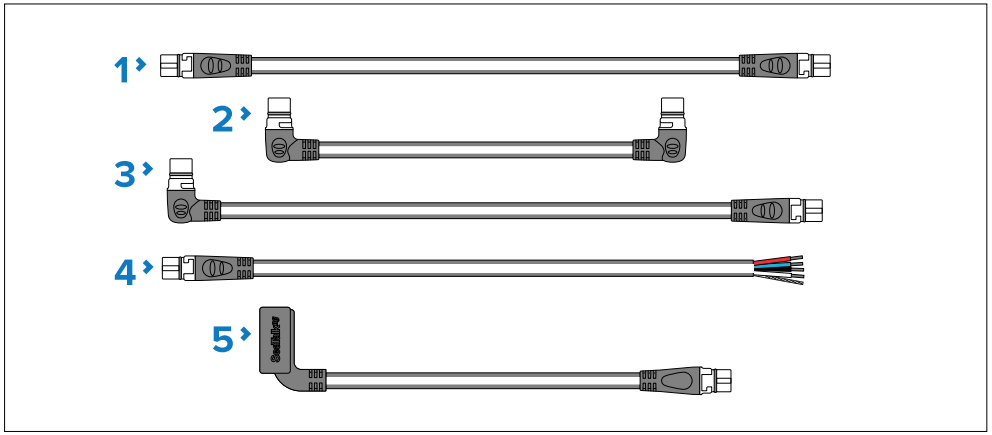
NMEA 0183 VHF 2-wire to SeaTalk NG converter kit (part number: E70196) consists of:



1. 1 x Power cable 2 m (6.6 ft) (part number: **A06049**). Used to provide 12 V dc power to the SeaTalk NG backbone.
2. 1 x Spur cable 1 m (3.3 ft) (part number: **A06039**). Used to connect a device to the SeaTalk NG backbone.
3. 1 x NMEA 0183 VHF stripped-end (2-wire) to SeaTalk NG adapter cable 1 m (3.3 ft) (part number: **A06071**). Used to connect an NMEA 0183 VHF radio to the SeaTalk NG backbone via the NMEA 0183 to SeaTalk NG converter.
4. 1 x SeaTalk 1 to SeaTalk NG converter (part number: **E22158**). Each converter allows connection of one SeaTalk 1 device and up to 2 SeaTalk NG devices.
5. 2 x Spur blanking plugs (part number: **A06032**). Used to cover unused spur connections in 5-way blocks, T-piece connectors, and the SeaTalk 1 to SeaTalk NG converter.
6. 2 x Backbone terminators (part number: **A06031**). Terminators must be fitted to both ends of the SeaTalk NG backbone.

SeaTalk NG spur cables

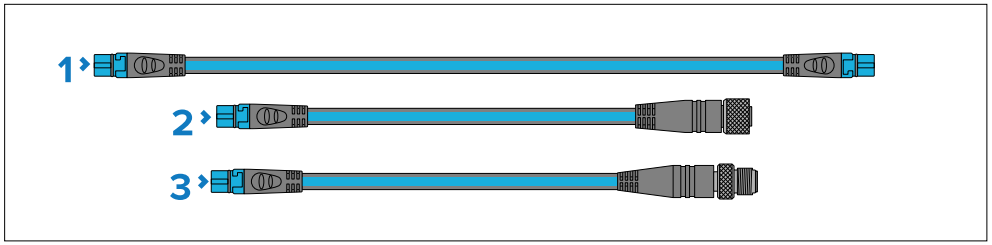
SeaTalk NG spur cables are required to connect devices to the SeaTalk NG backbone.



1. SeaTalk NG spur cables:
   - Spur cable 0.4 m (1.3 ft) (part number: **A06038**).
   - Spur cable 1 m (3.3 ft) (part number: **A06039**).
   - Spur cable 3 m (9.8 ft) (part number: **A06040**).
   - Spur cable 5 m (16.4 ft) (part number: **A06041**).
2. Elbow (right-angled) to elbow (right-angled) spur cable 0.4 m (1.3 ft) (part number: **A06042**). Used in confined spaces where a straight spur cable will not fit.
3. Elbow (right-angled) to straight spur cable 1 m (3.3 ft) (part number: **A06081**). Used in confined spaces where a straight spur cable will not fit.
4. SeaTalk NG to stripped-end spur cables (connects compatible products that do not have a SeaTalk NG connector, such as transducer pods):
   - SeaTalk NG to stripped-end spur cable 1 m (3.3 ft) (part number: **A06043**)
   - SeaTalk NG to stripped-end spur cable 3 m (9.8 ft) (part number: **A06044**)
5. ACU-Series / SPX-Series autopilot to SeaTalk NG spur cable 0.3 m (1.0 ft) (part number **R12112**). Connects the course computer to the SeaTalk NG backbone. This connection can also be used to provide 12 V dc power to the SeaTalk NG backbone.

SeaTalk NG backbone cables

SeaTalk NG backbone cables are used to create or extend a SeaTalk NG backbone.



1. Backbone cables:
   - Backbone cable 0.4 m (1.3 ft) (part number: **A06033**).
   - Backbone cable 1 m (3.3 ft) (part number: **A06034**).
   - Backbone cable 3 m (9.8 ft) (part number: **A06035**).
   - Backbone cable 5 m (16.4 ft) (part number: **A06036**).
   - Backbone cable 9 m (29.5 ft) (part number: **A06068**).
   - Backbone cable 20 m (65.6 ft) (part number: **A06037**).
2. SeaTalk NG to DeviceNet (female) Backbone cable 0.4 m (1.3 ft) (part number: **A80675**)
3. SeaTalk NG to DeviceNet (male) Backbone cable 0.4 m (1.3 ft) (part number: **A80674**)

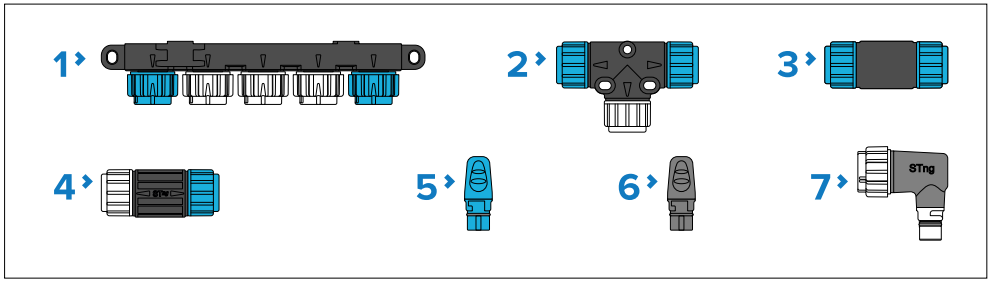
SeaTalk NG power cables

SeaTalk NG power cables are used to provide the SeaTalk NG backbone with a single 12 V dc power source. The power connection must include a 5 amp inline fuse (not supplied).

1. Power cable (straight) 2 m (6.6 ft) (part number: **A06049**).
2. Elbow (right-angled) power cable 2 m (6.6 ft) (part number: **A06070**).

SeaTalk NG connectors

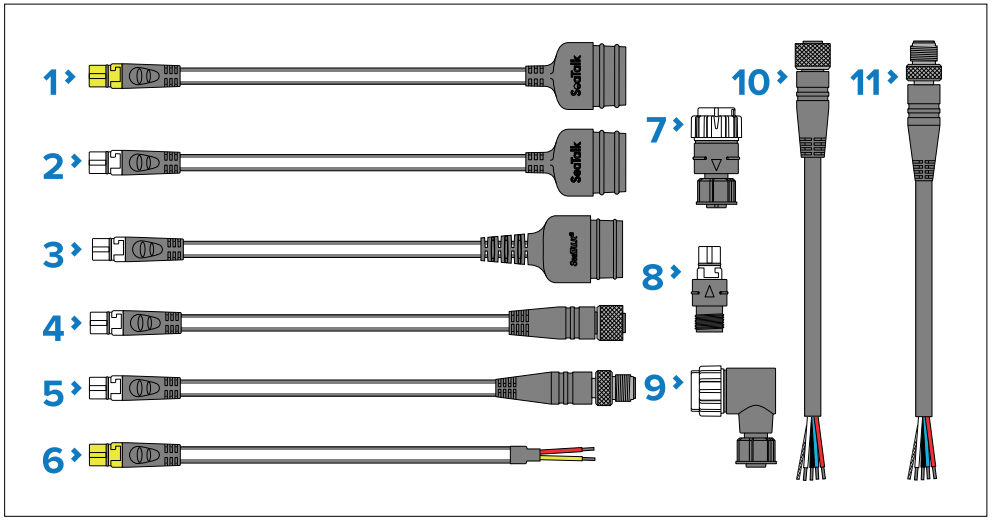
SeaTalk NG connectors are used to connect SeaTalk NG devices to the SeaTalk NG backbone and to create and extend the backbone.



1. 5-Way connector (part number: **A06064**). Each connector block allows connection of up to 3 SeaTalk NG devices. Multiple connector blocks can be ‘daisy chained’ together.
2. T-piece (part number: **A06028**). Each T-piece allows connection of one SeaTalk NG device. Multiple T-pieces can be ‘daisy chained’ together.
3. Backbone extender (part number: **A06030**). Used to connect 2 backbone cables together.
4. Inline terminator (part number: **A80001**). Used to connect a spur cable and SeaTalk NG device at the end of a backbone instead of a backbone terminator.
5. Backbone terminator (part number: **A06031**). Terminators must be fitted to both ends of the SeaTalk NG backbone.
6. Spur blanking plug (part number: **A06032**). Used to cover unused spur connections in 5-Way blocks, T-piece connectors, or the SeaTalk 1 to SeaTalk NG converter.
7. Elbow (right-angled) spur connector (part number: **A06077**). Used in confined spaces where a straight spur cable will not fit.

SeaTalk NG adaptors and adaptor cables

SeaTalk NG adaptor cables are used to connect devices designed for different CAN Bus backbones (e.g.: SeaTalk 1 or DeviceNet) to the SeaTalk NG backbone.



1. SeaTalk 1 (3 pin) to SeaTalk NG converter cable 1 m (3.3 ft) (part number: **A22164 / A06073**). Can be used to connect a SeaTalk 1 device to a SeaTalk NG backbone via the SeaTalk 1 to SeaTalk NG converter, or to connect a SeaTalk NG product directly to a SeaTalk 1 network.
2. SeaTalk 1 (3 pin) to SeaTalk NG adaptor cable 0.4 m (1.3 ft) (part number: **A06047**). Can be used to connect a SeaTalk 1 device to a SeaTalk NG backbone via the SeaTalk 1 to SeaTalk NG converter, or to connect a SeaTalk NG product directly to a SeaTalk 1 network.
3. SeaTalk 2 (5 pin) to SeaTalk NG adaptor cable 0.4 m (1.3 ft) (part number: **A06048**). Used to connect SeaTalk 2 devices or networks to a SeaTalk NG backbone.
4. SeaTalk NG to DeviceNet (female) adaptor cables connect NMEA 2000 devices that use a DeviceNet connector to the SeaTalk NG backbone, or connects SeaTalk NG devices to an NMEA 2000 network. The following cables are available:
   - SeaTalk NG to DeviceNet (female) adaptor cable 0.4 m (1.3 ft) (part number: **A06045**).
   - SeaTalk NG to DeviceNet (female) adaptor cable 1 m (3.3 ft) (part number: **A06075**).
5. SeaTalk NG to DeviceNet (male) adaptor cables. Connect NMEA 2000 devices that use a DeviceNet connector to the SeaTalk NG backbone, or connect SeaTalk NG devices to an NMEA 2000 network. The following cables are available:

- SeaTalk NG to DeviceNet (male) adaptor cable 0.1 m (0.33 ft) (part number: **A06078**).
- SeaTalk NG to DeviceNet (male) adaptor cable 0.4 m (1.3 ft) (part number: **A06074**).
- SeaTalk NG to DeviceNet (male) adaptor cable 1 m (3.3 ft) (part number: **A06076**).
- SeaTalk NG to DeviceNet (male) adaptor cable 1.5 m (4.92 ft) (part number: **A06046**).

6. NMEA 0183 stripped-end (2-wire) to SeaTalk NG adapter cable 1 m (3.3 ft) (part number: **A06071**). Used to connect an NMEA 0183 VHF radio to the SeaTalk NG backbone via the NMEA 0183 to SeaTalk NG converter.
7. SeaTalk NG (male) to DeviceNet (female) adaptor (**A06082***).
8. SeaTalk NG (female) to DeviceNet (male) adaptor (**A06083***).
9. SeaTalk NG (male) to DeviceNet (female) elbow (right-angled) adaptor (**A06084***).
10. DeviceNet (female) to stripped-end adaptor cable (0.4 m (1.3 ft)) (part number: **E05026**).
11. DeviceNet (male) to stripped-end adaptor cable (0.4 m (1.3 ft)) (part number: **E05027**).

Important:

* Do NOT connect the A06082, A06083, or A06084 adaptors directly to a backbone. Only connect as part of a **spur** connection between backbone and device.

Index

N

P

R

S

T

V

W

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