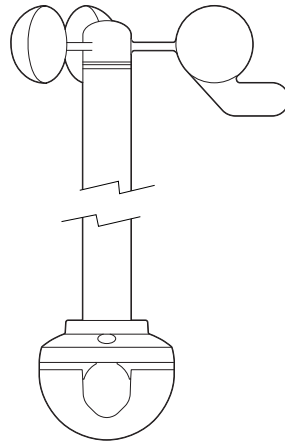


Rotavecta



Installation instructions

English

Date: 06-2014

Document number: 87221-1-EN

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Software updates

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

Product handbooks

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

Please check the website to ensure you have the latest handbooks.

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Chapter 1: Important information

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.

Certified Installation

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



Warning: Product installation and operation

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



Warning: Potential ignition source

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



Warning: Positive ground systems

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

Caution: Power supply protection

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

Caution: Service and maintenance

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

Water ingress

Water ingress disclaimer

Although the waterproof rating capacity of this product meets the stated IPX standard (refer to the product's *Technical Specification*), water intrusion and subsequent equipment failure may occur if the product is subjected to commercial high-pressure washing. Raymarine will not warrant products subjected to high-pressure washing.

EMC installation guidelines

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

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

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

For **optimum** EMC performance we recommend that wherever possible:

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

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

Suppression ferrites

Raymarine cables may be fitted with suppression ferrites. These are important for correct EMC performance. If a ferrite has to be removed for any

purpose (e.g. installation or maintenance), it must be replaced in the original position before the product is used.

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

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.

Declaration of conformity

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

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

Product disposal

Dispose of this product in accordance with the WEEE Directive.



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

Warranty registration

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

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

IMO and SOLAS

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

Technical accuracy

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

Chapter 2: Document and product information

Chapter contents

- [2.1 Document information on page 10](#)
- [2.2 Further information on page 11](#)
- [2.3 Parts supplied on page 11](#)

2.1 Document information

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

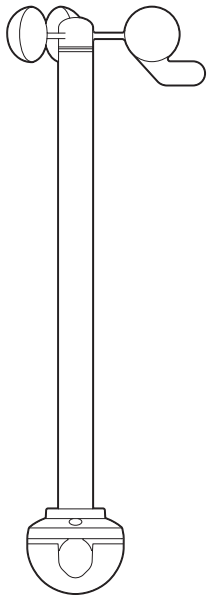
The document includes information to help you:

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

This and other Raymarine product documents are available to download in PDF format from www.raymarine.com.

Applicable products

This document is applicable to the following products:

	Part number	Description
	Z195	Rotavecta wind transducer capable of providing both wind speed and wind direction data.

Product documentation

The following documentation is applicable to your product:

Description	Part number
Rotavecta Installation instructions Installation of a Rotavecta wind transducer and connection to a wider system of marine electronics.	87221 / 88036
i40 Installation and operation instructions Details the connection and operation of the instrument display in conjunction with the Rotavecta.	81340
i60 Installation and operation instructions Details the connection and operation of the instrument display in conjunction with the Rotavecta.	81342
iTC-5 Installation instructions Details the connection of a Rotavecta wind transducer to a wider system of marine electronics	87138

Document illustrations

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

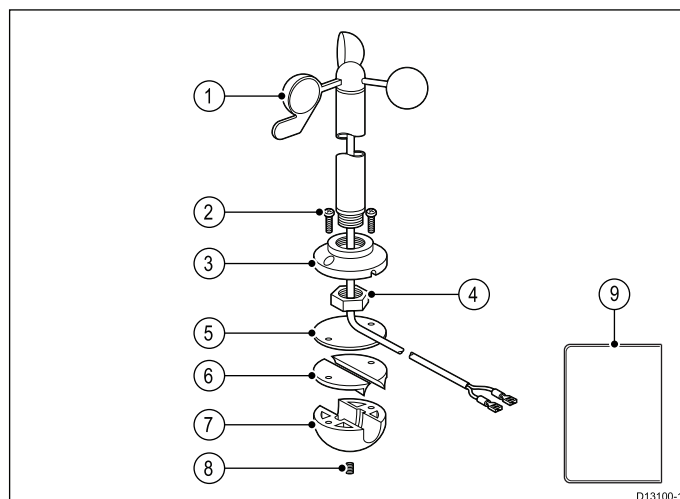
All images are provided for illustration purposes only.

2.2 Further information

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

2.3 Parts supplied

The following items are supplied with your product.



1. Rotavecta assembly (including 20 m / 65.6 ft. cable)
2. Fixings x 2
3. Retaining ring
4. Nut
5. Seal
6. Packing pieces x 2
7. Rail clamp
8. Grub screw
9. Documentation pack

Chapter 3: Planning the installation

Chapter contents

- [3.1 Installation checklist on page 14](#)
- [3.2 Compatible instrument displays on page 14](#)
- [3.3 Typical system on page 15](#)
- [3.4 Tools required on page 16](#)
- [3.5 Warnings and cautions on page 16](#)
- [3.6 Wind vane transducer / rotavecta location requirements on page 17](#)
- [3.7 Product dimensions on page 17](#)

3.1 Installation checklist

Installation includes the following activities:

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

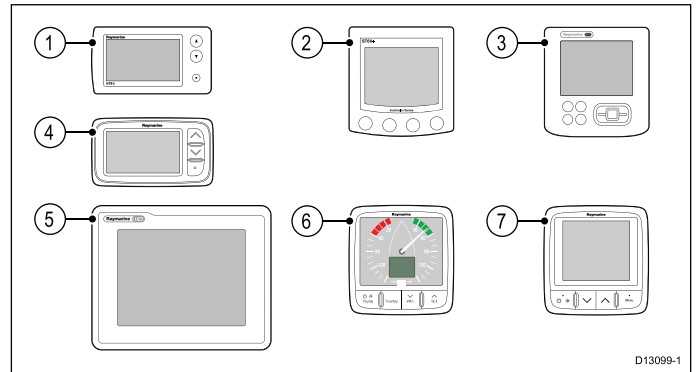
Schematic diagram

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

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

3.2 Compatible instrument displays

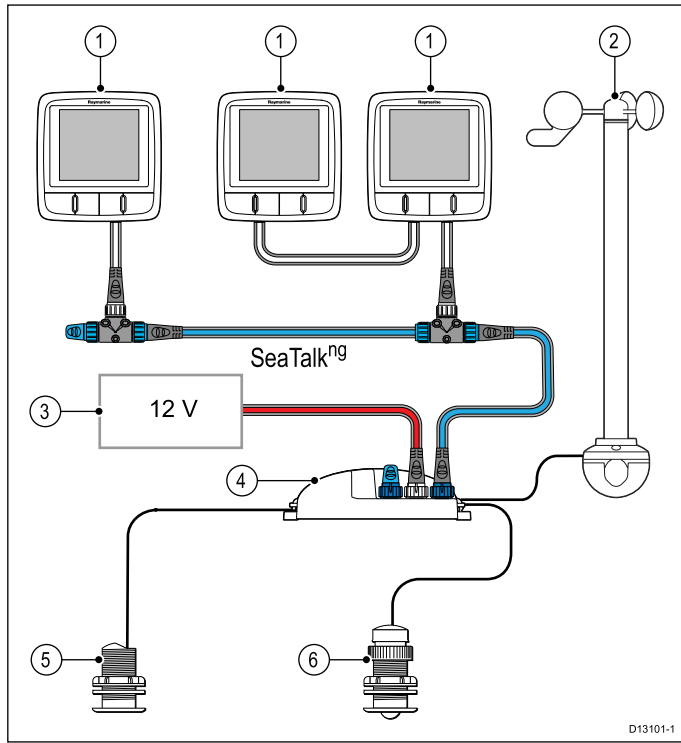
The following instrument displays are compatible with your wind transducer.



	Description	Comments
1	ST40 Wind	Direct connection
2	ST60+ Wind	Direct connection
3	ST70	Via iTC-5 converter or transducer pod
4	i40 Wind	Direct connection
5	ST70+	Via iTC-5 converter or transducer pod
6	i60 Wind	Direct connection
7	i70	Via iTC-5 converter or transducer pod

3.3 Typical system

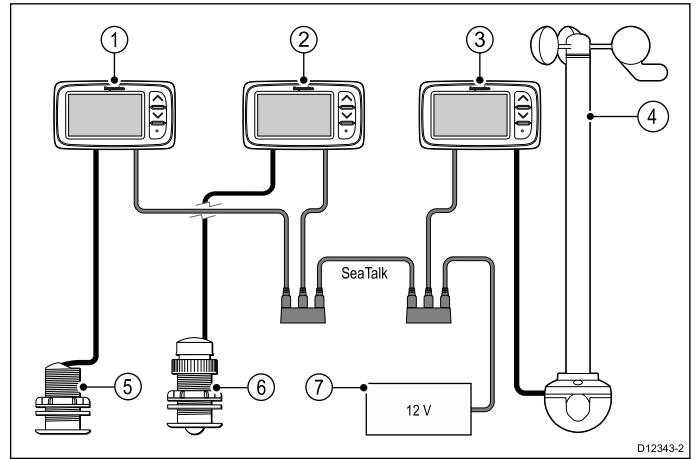
iTC-5 system example



1	SeaTalk ^{ng} instrument displays
2	Rotavecta wind transducer
3	12 V dc power supply
4	iTC-5 converter
5	Depth transducer
6	Speed transducer

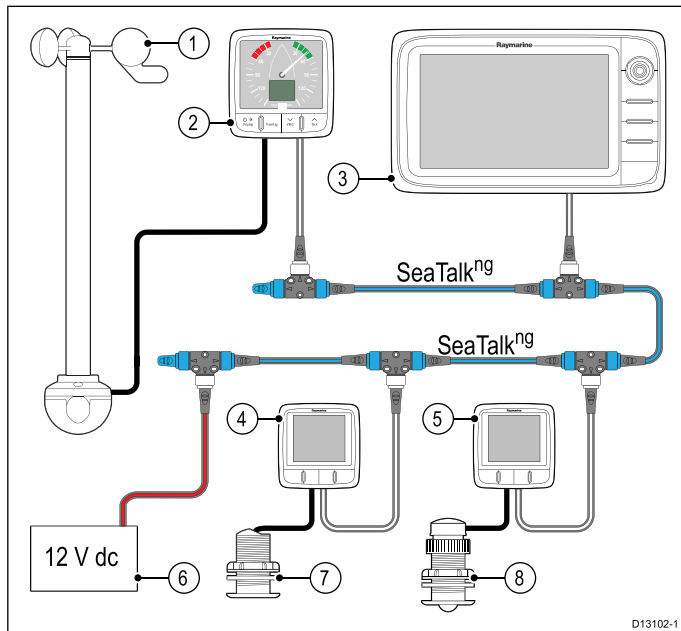
7	Depth transducer
8	Speed transducer

SeaTalk system example



1	Depth instrument display (SeaTalk)
2	Speed instrument display (SeaTalk)
3	Wind instrument display (SeaTalk)
4	Rotavecta wind transducer
5	Depth transducer
6	Speed transducer
7	12 V dc power supply

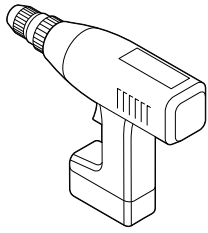
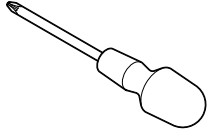
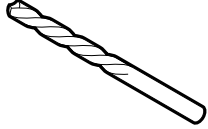
SeaTalk^{ng} system example



1	Rotavecta wind transducer
2	Wind instrument display (SeaTalk ^{ng})
3	Multifunction display
4	Speed instrument display (SeaTalk ^{ng})
5	Depth instrument display (SeaTalk ^{ng})
6	12 V dc power supply

3.4 Tools required

Product installation requires the following tools:

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

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

3.5 Warnings and cautions

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

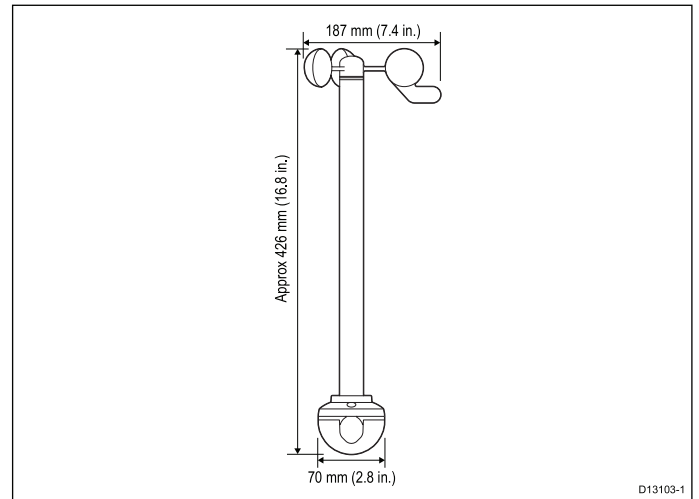
3.6 Wind vane transducer / rotavecta location requirements

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

The transducer's location must:

- Allow reasonable access for installation and servicing.
- Be as high as possible and away from any equipment which may shield the transducer or otherwise disturb the air flow.
- Provide a horizontal mounting surface. If a surface (e.g. mast top) is otherwise suitable but not horizontal, make up a suitable wedged packing piece to provide the necessary horizontal surface.
- There must also be a viable route for the transducer cable to be routed to the product it is to be connected to (i.e. display or converter).

3.7 Product dimensions



Compass safe distance

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

When choosing a suitable location for the product you should aim to maintain the maximum possible distance from any compasses. Typically this distance should be at least 1 m (3 ft) in all directions. However for some smaller vessels it may not be possible to locate the product this far away from a compass. In this situation, when choosing the installation location for your product, ensure that the compass is not affected by the product when it is in a powered state.

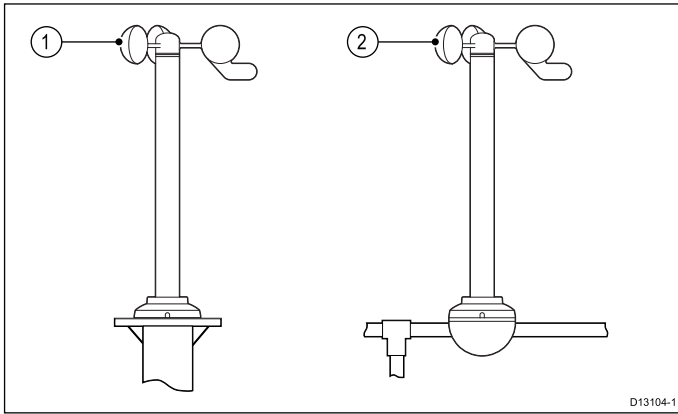
Chapter 4: Mounting

Chapter contents

- [4.1 Mounting options on page 20](#)
- [4.2 Surface mounting on page 20](#)
- [4.3 Rail mounting on page 21](#)

4.1 Mounting options

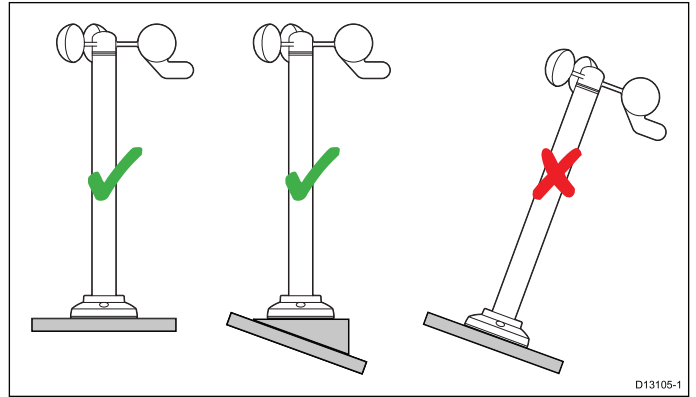
The Rotavecta can be surface or rail mounted.



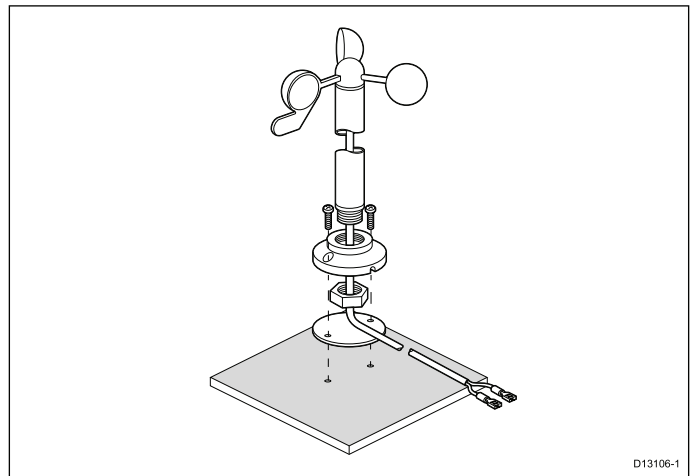
1. Surface mount
2. Rail mount

4.2 Surface mounting

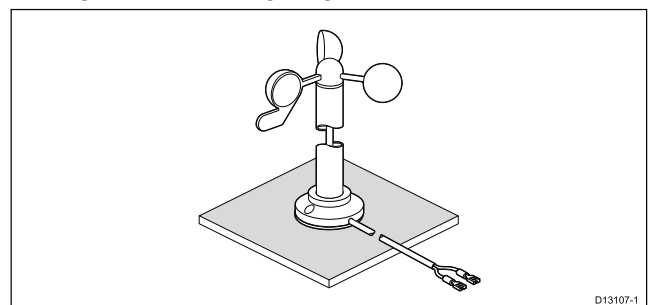
Follow the steps below to surface mount your unit on a mast top or radar arch.



Surface mounting the unit on a horizontal surface will provide optimum performance. If the mounting surface is not horizontal, use a packing wedge (not supplied) to make sure that the unit is vertical.

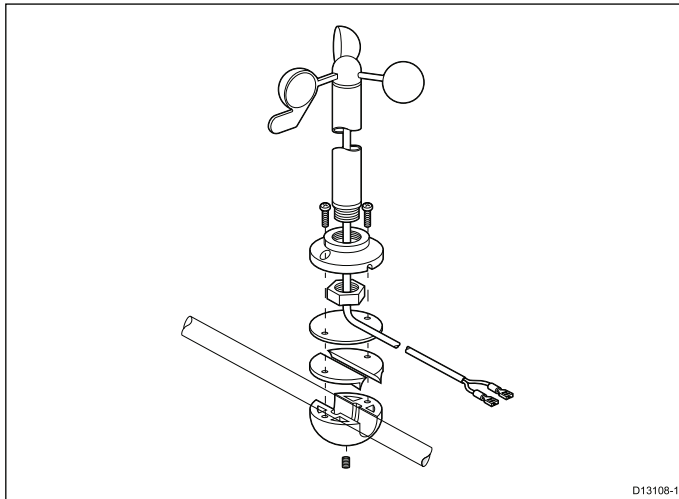


1. Using the retaining ring mark out the location of the screw holes on the mounting surface.
2. Drill the 2 screw holes using a suitable sized drill bit.
3. Pass the cable through the retaining ring and nut.
4. Fit the retaining ring to the base of the unit.
5. Secure the unit to the retaining ring using the nut.
6. Align the screw holes in the seal with the 2 drilled holes in the mounting surface.
7. Place the seal on the mounting surface so that the screw holes line up with the drilled holes in the mounting surface.
8. Position the rotavecta on top of the seal so that the retaining ring holes line up with the drilled holes in the mounting surface.
9. Secure the unit to the mounting surface using the screws provided, ensuring that the cable feeds through the retaining ring's cable channel.

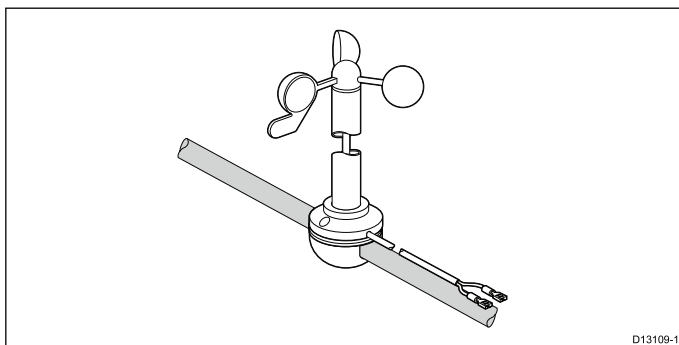


4.3 Rail mounting

Follow the steps below to mount your unit on a 23 mm (0.9 in.) or 25 mm (1 in.) diameter horizontal rail.

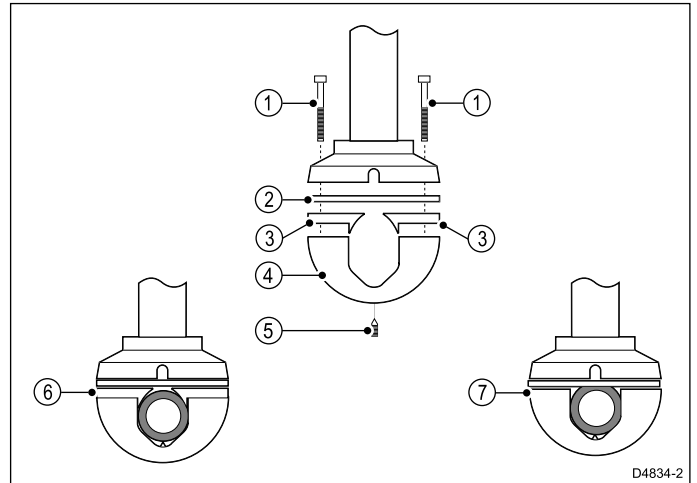


1. Pass the cable through the retaining ring and nut.
2. Fit the retaining ring to the base of the unit.
3. Secure the unit to the retaining ring using the nut.
4. Hold the rail clamp in position.
5. For rails with a diameter of less than 25 mm (1 in.) wedge the packing pieces on top of the rail between the rail and the side of the rail clamp.
6. Align the screw holes in the seal with the 2 screw holes in the rail clamp.
7. Place the seal on top of the rail clamp or packing pieces, if used.
8. Position the Rotavecta on top of the seal so that the retaining ring holes line up with the holes in the seal and rail clamp.
9. Secure the unit to the rail using the screws provided, ensuring that the cable feeds through the retaining rings cable channel.
10. Ensuring that the body of the unit is pointing straight up (vertical), tighten the grub screw against the rail.



Rotavecta rail mount clamp

The rotavecta transducer can be rail mounted using the supplied rail clamp.



1	Fixings x 2
2	Seal
3	Packing pieces x 2
4	Rail clamp
5	Grub screw
6	Rail diameter 23 mm (0.9 in) or more. If less than 25 mm (1.0 in), use packing pieces
7	Rail diameter 25 mm (1.0 in). Do NOT use packing pieces

Chapter 5: Cables and connections

Chapter contents

- [5.1 General cabling guidance on page 24](#)
- [5.2 Cable routing on page 24](#)
- [5.3 Rotavecta connections on page 25](#)

5.1 General cabling guidance

Cable types and length

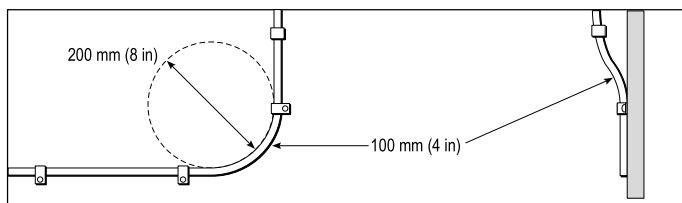
It is important to use cables of the appropriate type and length

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

Routing cables

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

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



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

Always route data cables as far away as possible from:

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

Caution: Pulling cables

Do NOT use cords or ropes, attached to cable connectors, to pull cables through restricted apertures (e.g. as in bulkheads), as this could cause damage to cables.

Strain relief

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

Cable shielding

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

5.2 Cable routing

Routing the cable through the deck mast

Follow the steps below to route cable through a deck mast.

1. Feed the cable down the mast and out through a suitable below-decks aperture.
2. Run the cable back to the display or converter and connect the spade terminals to the relevant connectors.

Routing the cable through a stepped deck mast

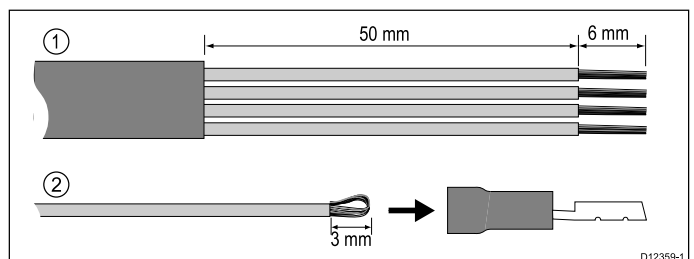
Follow the steps below to route cable through a stepped deck mast.

You will require new 1/8th spade terminals to perform this procedure.

1. Remove the existing spade terminals from the end of the cable.
2. Feed the cable down the mast and out through a suitable above-decks aperture.
3. Fit a suitable cable gland to the deck.
4. Pass the cable through the gland and run it back to the display or converter.
5. Crimp the new spade terminals (not supplied) to the end of the cable.
6. Connect the new spade terminals to the relevant connectors on the unit.

Making transducer connections

Although the transducer cable is fitted with spade connectors for direct connection to the rear of the unit, it may be necessary to remove these to facilitate installation, e.g. if the cable has to be routed through narrow apertures. 1/8th spade terminals will be required (not supplied), to replace those removed. When fitting the new spade connectors, prepare the cables as detailed below:

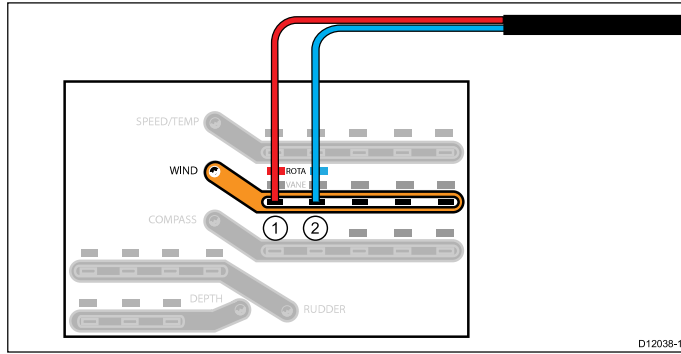


1. Prepare the cable as shown in 1 above.
2. Fold back the wire strands and insert into the new spade connector as shown in 2 above.
3. Ensure the wire strands do not extend beyond the rear of the spade connector insulation.
4. Crimp the connector to the wire.

5.3 Rotavecta connections

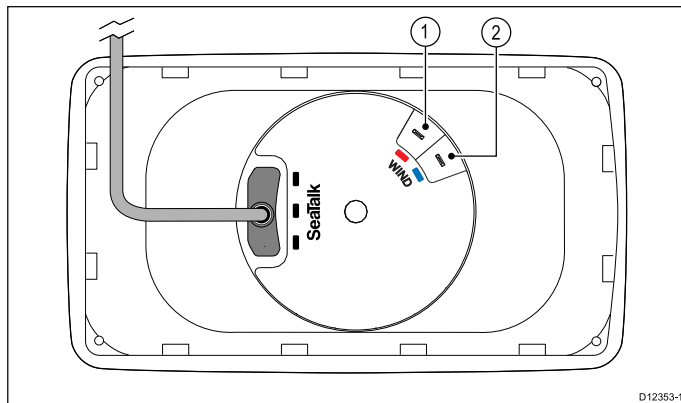
The rotavecta should be connected as shown below.

iTC5 connection



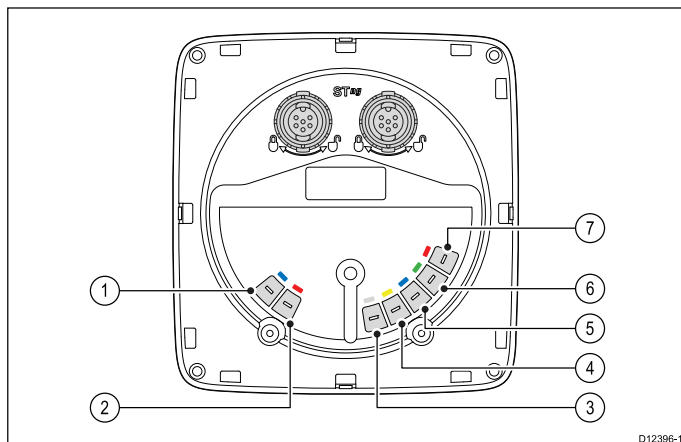
Item	Cable color	Signal name
1.	Red	Rotor +
2.	Blue	Rotor -

i40 / ST40 connection



Item	Cable color	Signal name
1	Red	Rotor +
2	Blue	Rotor -

i60 / ST60 connection



1	Blue	Rotor - (Rotavecta)
2	Red	Rotor + (Rotavecta)

Note: Connectors 1 and 2 are rotavecta connections, connectors 3 to 7 are for wind vane transducers.

Chapter 6: Operation

Chapter contents

- [6.1 Calibration and linearization on page 28](#)
- [6.2 Further information on page 28](#)

6.1 Calibration and linearization

In order to achieve optimum data readings from your transducer it must be calibrated and linearized.

Please refer to the Installation and operation instructions that accompanied your compatible Wind instrument display for calibration and linearization procedures.

6.2 Further information

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

Chapter 7: Maintenance

Chapter contents

- [7.1 Routine checks on page 30](#)
- [7.2 Unit cleaning instructions on page 30](#)

7.1 Routine checks

The following periodic checks should be made:

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

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

7.2 Unit cleaning instructions

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

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

Chapter 8: Technical support

Chapter contents

- [8.1 Raymarine customer support on page 32](#)

8.1 Raymarine customer support

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

Web support

Please visit the customer support area of our website at:

www.raymarine.com

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

Telephone and e-mail support

In the USA:

- **Tel:** +1 603 324 7900
- **Toll Free:** +1 800 539 5539
- **E-mail:** support@raymarine.com

In the UK, Europe, and the Middle East:

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

In Southeast Asia and Australia:

- **Tel:** +61 (0)29479 4800
- **E-mail:** aus.support@raymarine.com

Product information

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

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

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

Chapter 9: Technical specification

Chapter contents

- [9.1 Physical specification on page 34](#)
- [9.2 Conformance specification on page 34](#)

9.1 Physical specification

Dimensions	<ul style="list-style-type: none">• Height (Surface mount): 385 mm (15.2 in).• Height (Including rail clamp): 426 mm (16.8 in).• Cup rotation diameter: 187 mm (7.4 in.)
Weight	<ul style="list-style-type: none">• Boxed: 1.2 Kg (2.6 lbs)• Unboxed (surface mount): 0.68 Kg (1.5 lbs)• Unboxed (Rail mount): 0.77 Kg (1.7 lbs)
Cable length	<ul style="list-style-type: none">• 20 m (65.6 ft.)

9.2 Conformance specification

Conformance	<ul style="list-style-type: none">• EN 60945:2002• EMC Directive 2004/108/EC• Australia and New Zealand: C-Tick, Compliance Level 2
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