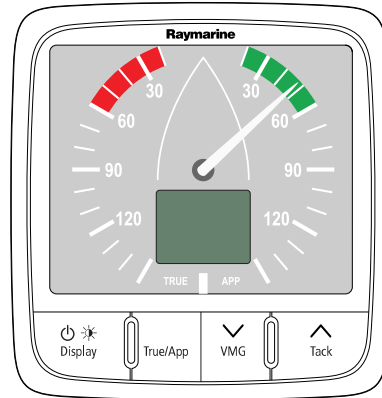


i60 Wind i60 CH Wind



Installation and operation instructions

English

Date: 06-2014

Document number: 81342-2-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

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.



Warning: Switch off power supply

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



Warning: 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.

Caution: Transducer cable

- 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: Service and maintenance

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

Water ingress

Water ingress disclaimer

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

Disclaimer

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

Raymarine is not responsible for damages or injuries caused by your use or inability to use the product, by the interaction of the product with products manufactured by others, or by errors in information utilized by the product supplied by third parties.

EMC installation guidelines

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

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

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

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

- Raymarine equipment and cables connected to it are:

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

Caution: Sun covers

- To protect your product against the damaging effects of ultraviolet (UV) light, always fit the sun covers when the product is not in use.
- Remove the sun covers when travelling at high speed, whether in water or when the vessel is being towed.

Caution: Cleaning

When cleaning this product:

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

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.

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: Handbook information

Chapter contents

- [2.1 Document information on page 12](#)
- [2.2 Parts supplied on page 13](#)
- [2.3 i60 Product overview on page 13](#)

2.1 Document information

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

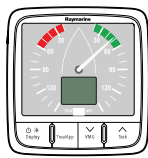

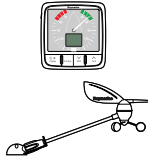
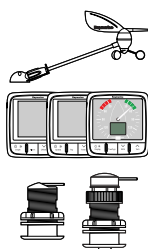
The document includes information to help you:

- 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:

Item	Model	Part number	Hardware
	i60 Wind	E70061	i60 Wind SeaTalk ^{ng} instrument display
	i60 Close Hauled Wind	E70062	i60 Close Hauled Wind SeaTalk ^{ng} instrument display (repeater)
	i60 Wind system pack	E70150	<ul style="list-style-type: none"> • i60 Wind SeaTalk^{ng} instrument display • Short arm wind vane transducer
	i50 & i60 Depth, Speed & Wind system pack	E70153	<ul style="list-style-type: none"> • i50 Depth SeaTalk^{ng} instrument display • P319 Thru-hull Depth transducer • i50 Speed SeaTalk^{ng} instrument display • P120 Thru-hull Speed and Temp transducer • i60 Wind SeaTalk^{ng} instrument display • Short arm wind vane transducer

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.

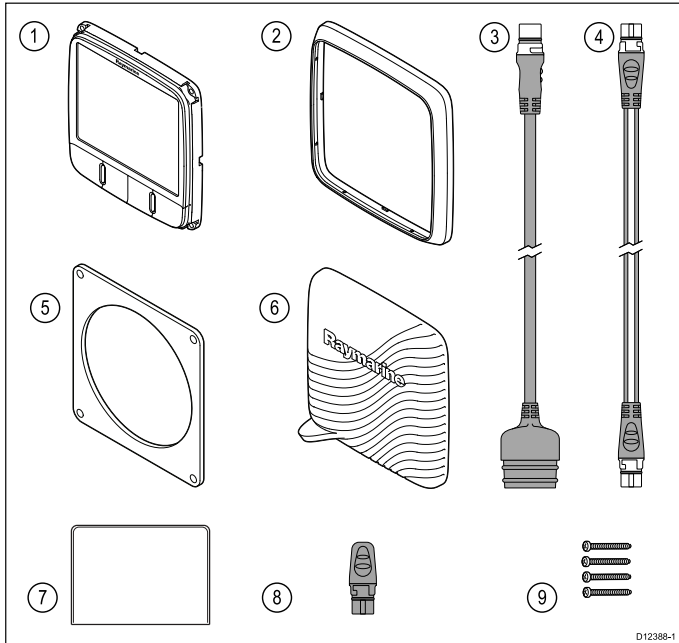
Product documentation

The following handbooks are applicable to your product:

Handbooks

Description	Part number
i60 Installation and operation instructions Installation and operation instructions for the i60 instrument display	81342 / 88010
i60 Mounting template Surface mounting template for the i60 instrument display	87130
Rotavecta Installation instructions Installation instructions for the Rotavecta wind transducer	87221 / 88036
Short & long arm wind vane Installation instructions Installation instructions for the short and long arm wind vane transducers	87220 / 88035

2.2 Parts supplied

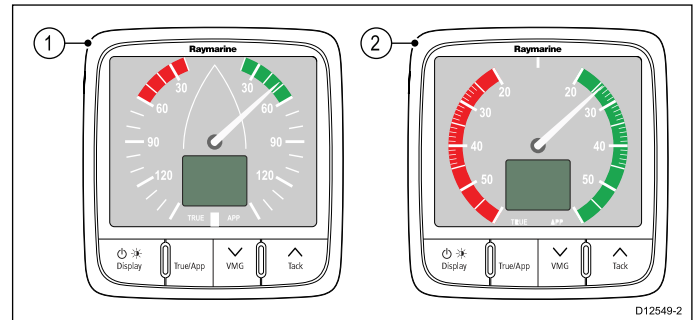


1	i60 instrument
2	Front bezel
3	SeaTalk to SeaTalk ^{ng} adaptor cable
4	SeaTalk ^{ng} spur cable
5	Gasket
6	Sun cover
7	Documentation pack
8	SeaTalk ^{ng} blanking plug
9	4 x fixing screws

2.3 i60 Product overview

The i60 range of SeaTalk^{ng} instrument displays can be connected directly to the compatible wind transducers. The data can be transmitted on the SeaTalk^{ng} network to other compatible displays.

Raymarine's i60 instrument range consists of the following variants:



1. **i60 Wind** — The i60 Wind instrument provides a 360° wind direction scale and can be used as a stand alone unit or as part of a SeaTalk or SeaTalk^{ng} network.
2. **i60 Close Hauled (CH) Wind** — The i60 Close hauled wind instrument is a repeater display which provides an expanded indication from 20° to +60° about the bow and stern of the vessel. The i60 Close hauled repeats wind data available on the SeaTalk or SeaTalk^{ng} network.

The i60 instrument display range offers the following features:

- Integrates with Raymarine autopilots and navigation equipment on the SeaTalk^{ng} network
- Analogue and digital display read outs.
- Surface mountable
- Provides good visibility in all lighting conditions
- Low power consumption

Chapter 3: Planning the installation

Chapter contents

- [3.1 Installation checklist on page 16](#)
- [3.2 Compatible transducers on page 16](#)
- [3.3 Typical systems on page 17](#)
- [3.4 System protocols on page 19](#)
- [3.5 Tools required on page 19](#)
- [3.6 Selecting a display location on page 20](#)
- [3.7 Product dimensions on page 21](#)
- [3.8 Wind vane transducer / rotavecta location requirements on page 21](#)

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 transducers

Instrument Wind Vane transducer

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

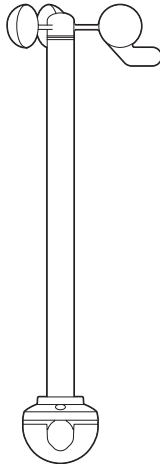
- i60 Wind
- i70 via iTC-5 converter

Part number	Image	Housing	Mounting
E22078		Short arm wind vane	Surface mount
E22079		Long arm wind vane	Surface mount

Instrument Rotavecta transducer

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

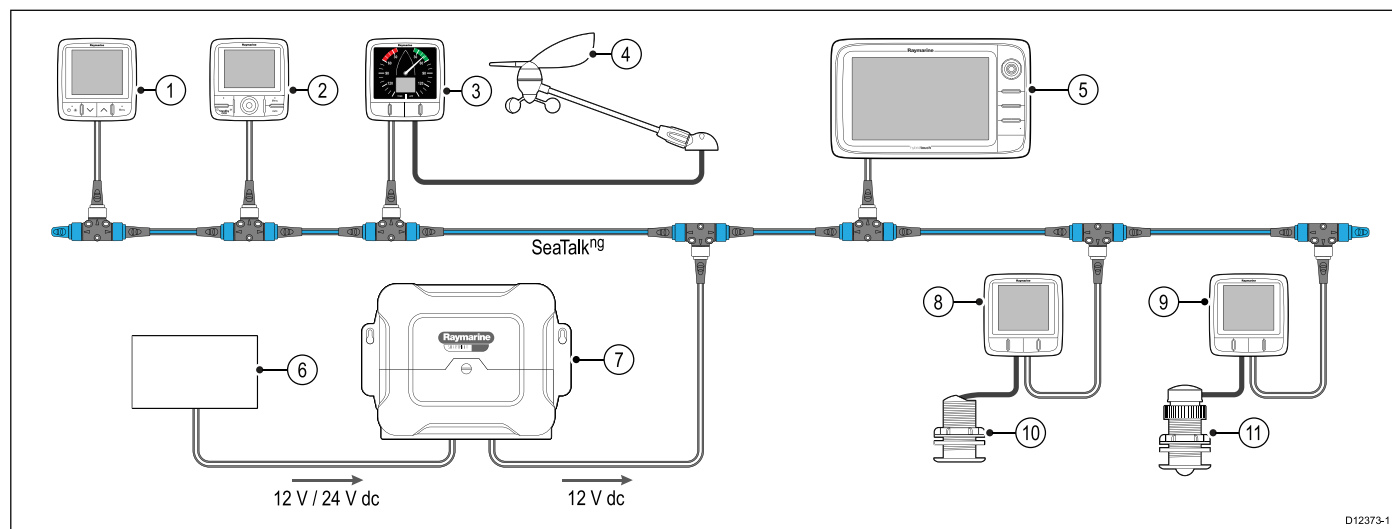
- i40 Wind
- i60 Wind
- i70 via iTC-5 converter

Part number	Image	Housing	Mounting
Z195		Rotavecta transducer	Surface mount

3.3 Typical systems

The instrument range can be connected directly to a SeaTalk^{ng} network. The instrument range can also be connected to a SeaTalk system using the SeaTalk to SeaTalk^{ng} adaptor cable.

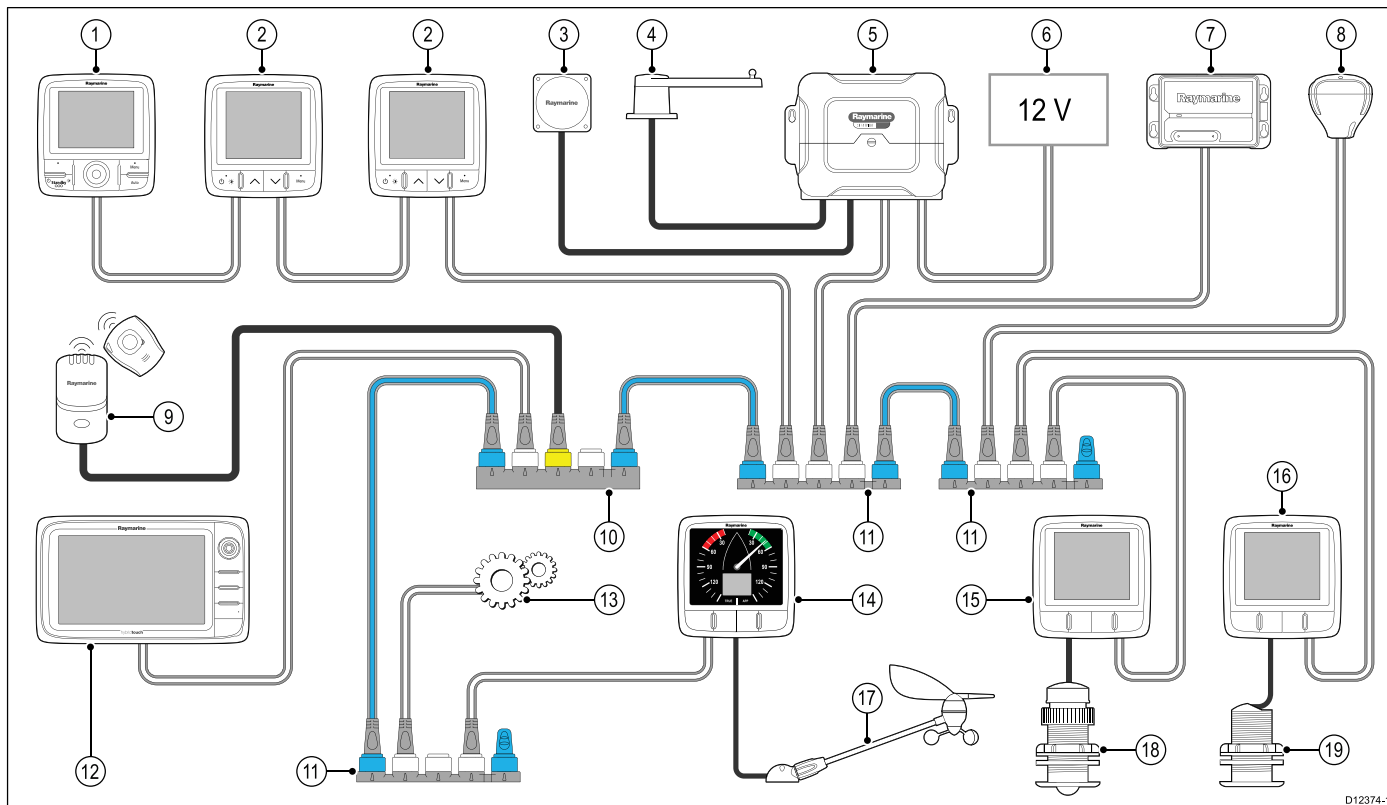
Basic SeaTalk^{ng} system example



D12373-1

1	SeaTalk ^{ng} instrument display
2	SeaTalk ^{ng} pilot controller
3	i60 Wind instrument
4	Raymarine wind vane transducer
5	Raymarine multifunction display
6	12 / 24 V dc power supply
7	Raymarine course computer (providing 12 V dc power supply to the SeaTalk ^{ng} network.)
8	i50 Speed instrument
9	i50 Depth instrument
10	Speed transducer
11	Depth transducer

Extended SeaTalk^{ng} system example



D12374-1

1	SeaTalk ^{ng} pilot controller
2	SeaTalk ^{ng} instrument displays
3	Fluxgate compass
4	Rudder reference
5	Raymarine course computer (providing 12 V dc power supply to SeaTalk ^{ng} network.)
6	12 / 24 V dc power supply
7	Raymarine AIS transceiver
8	Raymarine SeaTalk ^{ng} GPS
9	Man over board
10	SeaTalk to SeaTalk ^{ng} converter
11	SeaTalk ^{ng} 5 way blocks
12	Raymarine multifunction display
13	Engine data (via devicenet adaptor cable.)
14	i60 Wind instrument
15	i50 Depth instrument
16	i50 Speed instrument
17	Raymarine wind vane transducer
18	Depth transducer
19	Speed transducer

3.4 System protocols

Your product can be connected to various products and systems to share information and so improve the functionality of the overall system. These connections may be made using a number of different protocols. Fast and accurate data collection and transfer is achieved by using a combination of the following data protocols:

- SeaTalk^{ng}
- NMEA 2000
- SeaTalk

Note: You may find that your system does not use all of the connection types or instrumentation described in this section.

Seataalk^{ng}

SeaTalk^{ng} (Next Generation) is an enhanced protocol for connection of compatible marine instruments and equipment. It replaces the older SeaTalk and SeaTalk² protocols.

SeaTalk^{ng} utilizes a single backbone to which compatible instruments connect using a spur. Data and power are carried within the backbone. Devices that have a low 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 and SeaTalk / SeaTalk² devices can also be connected using the appropriate interfaces or adaptor cables as required.

NMEA 2000

NMEA 2000 offers significant improvements over NMEA 0183, most notably in speed and connectivity. Up to 50 units can simultaneously transmit and receive on a single physical bus at any one time, with each node being physically addressable. The standard was specifically intended to allow for a whole network of marine electronics from any manufacturer to communicate on a common bus via standardized message types and formats.

SeaTalk

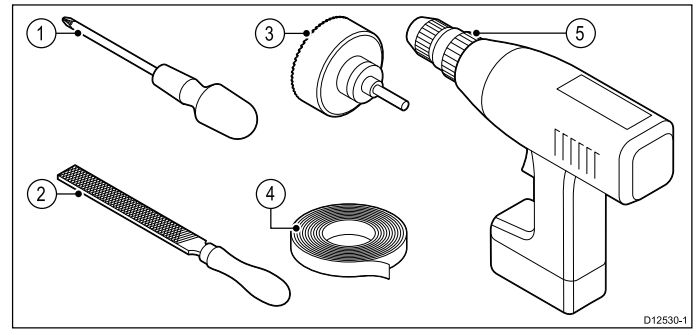
SeaTalk is a protocol which enables compatible instruments to connect to each other and share data.

The SeaTalk cable system is used to connect compatible instruments and equipment. The cable carries power and data and enables connection without the need for a central processor.

Additional instruments and functions can be added to a SeaTalk system, simply by plugging them into the network. SeaTalk equipment can also communicate with other non-SeaTalk equipment via the NMEA 0183 standard, provided a suitable interface is used.

3.5 Tools required

Tools required for installation



1	Pozi-drive screwdriver
2	File
3	92 mm (3.62 in) hole cutter
4	Adhesive tape
5	Power drill

3.6 Selecting a display location



Warning: Potential ignition source

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

General location requirements

When selecting a location for the unit it is important to consider a number of factors.

Ventilation requirements

To provide adequate airflow:

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

Mounting surface requirements

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

Cable routing requirements

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

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

Electrical interference

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

Magnetic compass

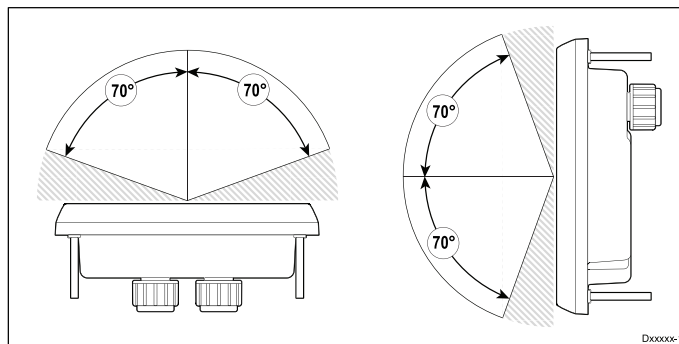
When choosing a suitable location you should aim to maintain the maximum possible distance between the unit and any compasses.

To prevent potential interference with the vessel's magnetic compasses, ensure that a minimum distance of 230 mm (9 in) between the unit and any installed compasses is maintained.

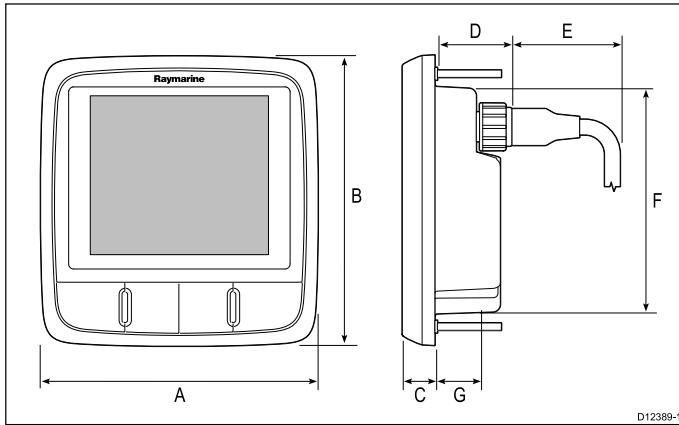
Viewing angle considerations

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

Viewing angle



3.7 Product dimensions



A	110 mm (4.22")
B	115 mm (4.52")
C	14 mm (0.55")
D	30 mm (1.18")
E	35 mm (1.38")
F	90 mm (3.54")
G	17 mm (0.67")

3.8 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).

Wind vane transducer and rotavecta mounting

Ensure that the wind transducer or rotavecta is installed in accordance with the instructions supplied with the unit.

Chapter 4: Cables and connections

Chapter contents

- [4.1 General cabling guidance on page 24](#)
- [4.2 Power connection on page 24](#)
- [4.3 SeaTalk^{ng} connections on page 25](#)
- [4.4 Transducer connections on page 26](#)
- [4.5 iTC-5 connection on page 26](#)
- [4.6 SeaTalk connection on page 27](#)
- [4.7 NMEA2000 connection on page 28](#)

4.1 General cabling guidance

Cable types and length

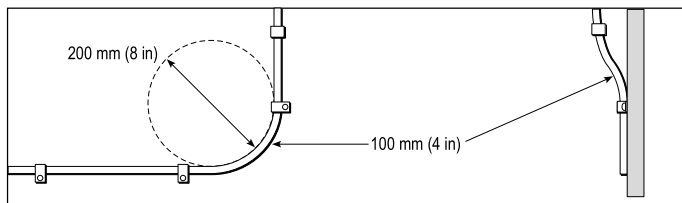
It is important to use cables of the appropriate type and length

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

Routing cables

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

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



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

Always route data cables as far away as possible from:

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

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).

4.2 Power connection

Power is supplied to the product over the SeaTalk^{ng} network.

A SeaTalk^{ng} system requires one 12 V dc supply, connected to the SeaTalk^{ng} backbone. This can be provided:

- By a battery via the distribution panel, or
- From a Raymarine course computer, via a SeaTalk or a SeaTalk^{ng} system.



Warning: Grounding not required

This product is fully insulated and does NOT require separate grounding.

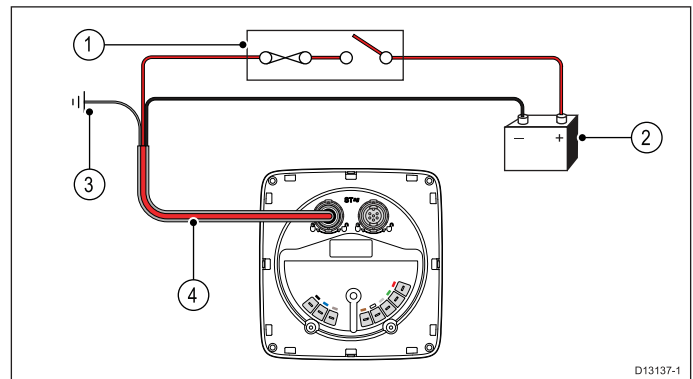


Warning: Positive ground systems

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

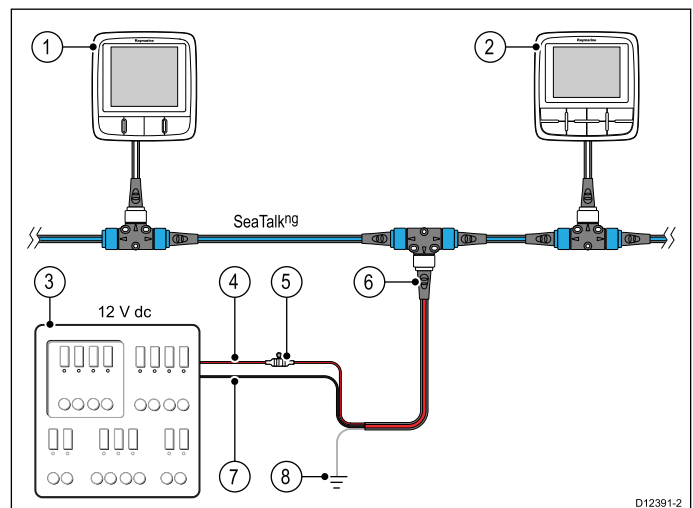
Power connection

Direct power connection



1	3 A circuit breaker or fuse
2	12 V dc vessel power supply
3	Vessel's RF ground
4	SeaTalk ^{ng} power cable

Example



1	SeaTalk ^{ng} instrument
2	SeaTalk ^{ng} Pilot controller
3	12 V dc vessel power supply.

4	12 V dc positive (+)
5	In-line 5 A fuse
6	SeaTalk ^{ng} power cable
7	12 V dc negative (-)
8	Vessel's RF ground

SeaTalk^{ng} power protection

The power supply must be protected by a 5 A fuse or a circuit breaker providing equivalent protection.

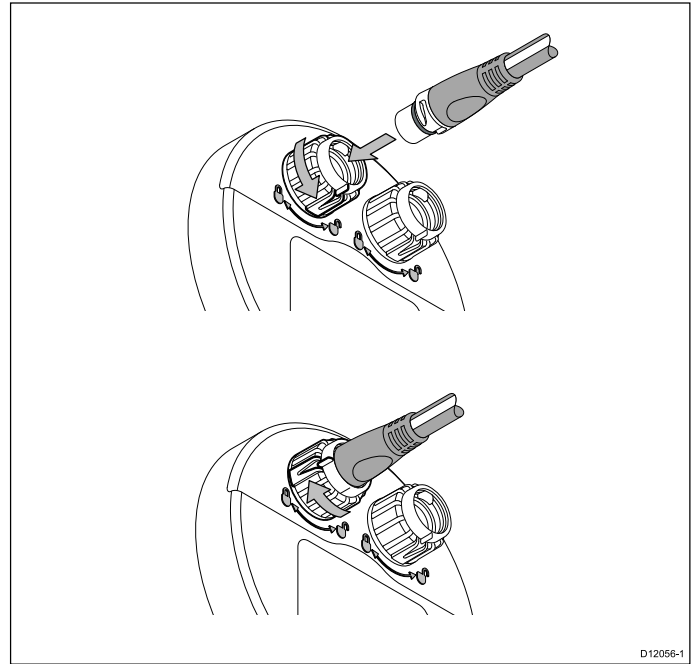
Raymarine recommends that the power is connected to a SeaTalk^{ng} system in such a way that the current drawn on each side of the power connection point is equal.

SeaTalk^{ng} power cables

Part number	Description
A06049	SeaTalk ^{ng} power cable

4.3 SeaTalk^{ng} connections

The unit has 2 x SeaTalk^{ng} connectors on the rear for connecting to a SeaTalk^{ng} network.



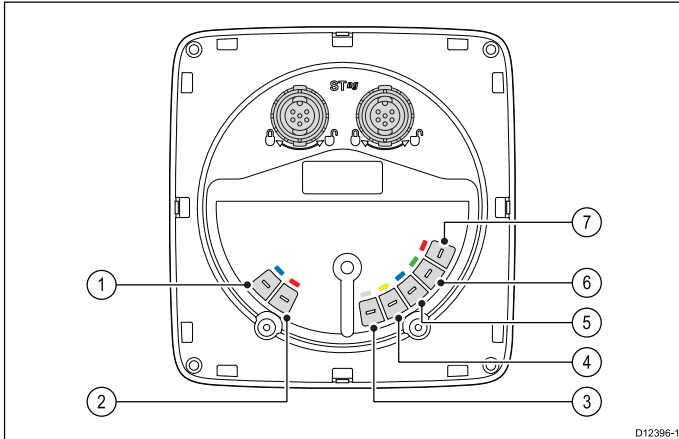
Connecting SeaTalk^{ng} cables

1. Rotate the locking collar on the back of the unit to the UNLOCKED position.
2. Ensure the spur cable end connector is correctly oriented.
3. Fully insert the cable connector.
4. Rotate locking collar clockwise (2 clicks) until it snaps into the LOCKED position.

4.4 Transducer connections

Transducer connections only apply to the i60 Wind instrument, the i60 Close hauled wind does not include transducer connections as it is a repeater display.

i60 transducer connections

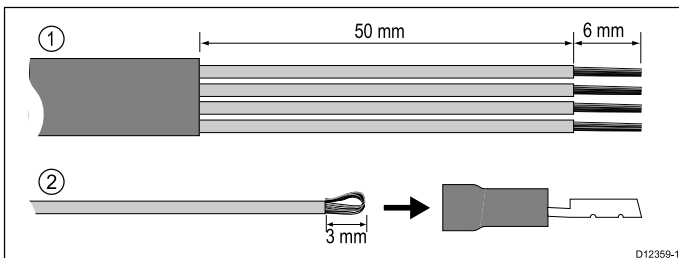


1	Blue	Rotor + (Rotavecta)
2	Red	Rotor - (Rotavecta)
3	Grey	Wind 0 V (Shield)
4	Yellow	Anemometer (signal)
5	Blue	Cosine wind direction
6	Green	Sine wind direction
7	Red	Wind V+

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

Making transducer connections

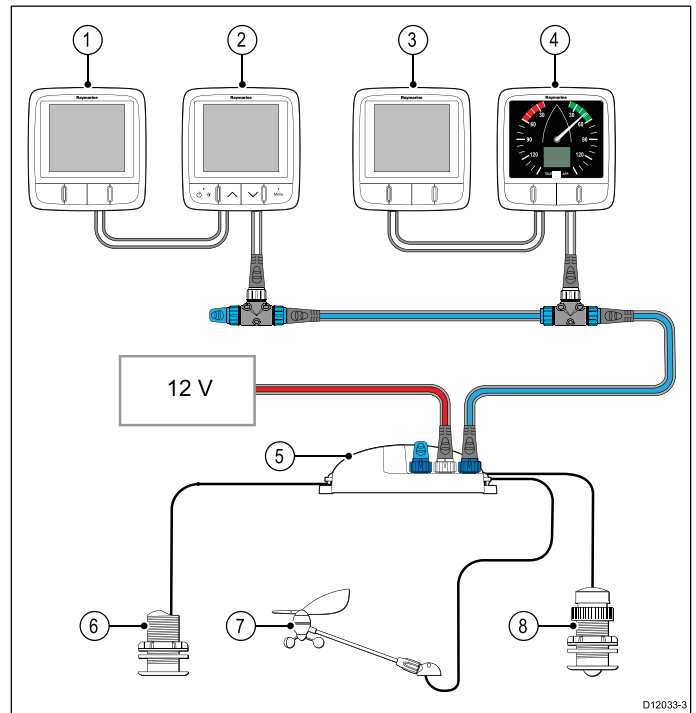
Although the transducer cable is fitted with spade connectors for direct connection to the rear of the unit, it may be necessary to remove these to facilitate installation, e.g. if the cable has to be routed through narrow apertures. 1/8th spade terminals will be required (not supplied), to replace those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

4.5 iTC-5 connection

Transducers can be connected to a SeaTalk^{ng} network using Raymarine's Instrument transducer converter (iTC-5) and an i70 instrument, the data can then be repeated on an i50 / i60 unit.



1	i50 Depth (Repeater)
2	i70 Instrument (Master)
3	i50 Speed (Repeater)
4	i60 Wind (Repeater)
5	iTC-5
6	Depth transducer
7	Wind vane transducer
8	Speed transducer

Note: Transducers connected to the iTC-5 must be calibrated using an i70 (master) unit. Transducers connected to the iTC-5 cannot be calibrated using an i50 / i60.

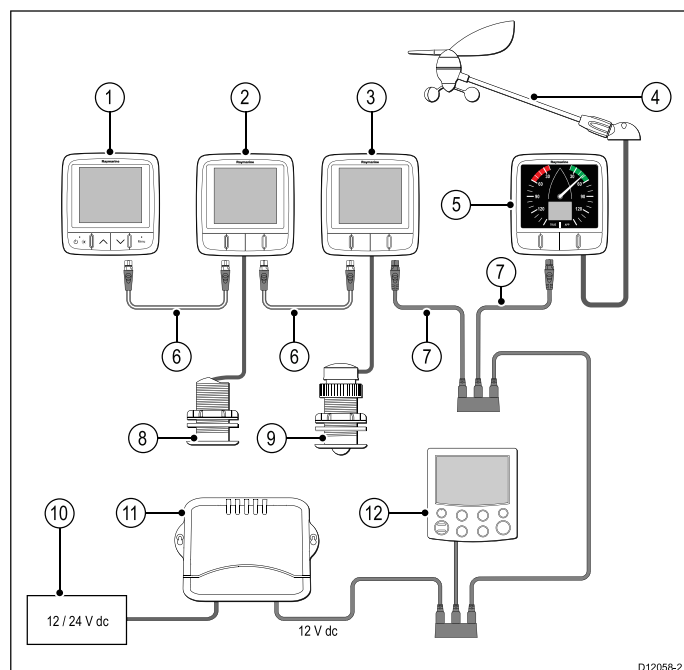
Making iTC-5 transducer connections

For instructions on connecting transducers to your iTC-5 refer to the iTC-5 handbook.

4.6 SeaTalk connection

Connections to an existing SeaTalk system must be made using a SeaTalk to SeaTalk^{ng} adaptor cable.

Basic SeaTalk system example



D12058-2

1	i70 Instrument display (SeaTalk ^{ng})
2	i50 Speed instrument (SeaTalk ^{ng})
3	i50 Depth instrument (SeaTalk ^{ng})
4	Raymarine wind vane transducer
5	i60 Wind instrument (SeaTalk ^{ng})
6	SeaTalk ^{ng} cables
7	SeaTalk to SeaTalk ^{ng} adaptor cables
8	Speed transducer
9	Depth transducer
10	12 / 24 V dc power supply
11	SeaTalk Course computer (providing 12 V dc power to SeaTalk network.)
12	ST6002 pilot controller (SeaTalk)

SeaTalk power protection

The power supply must be protected by a 5 A fuse or a circuit breaker providing equivalent protection.

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

SeaTalk power cables

Part number	Description
D229	SeaTalk power cable.

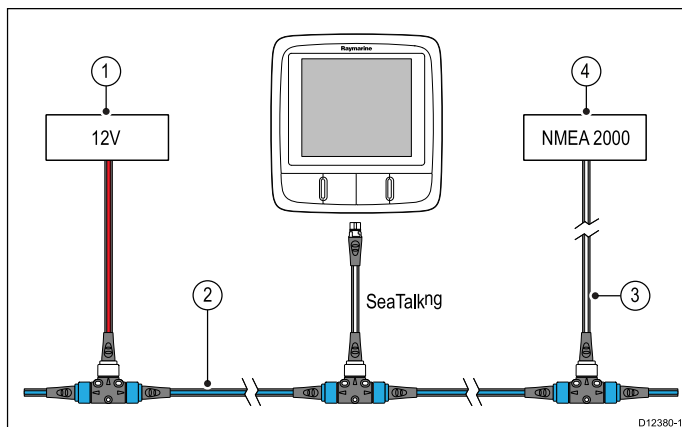
4.7 NMEA2000 connection

You can either:

- Use your SeaTalk^{ng} backbone and connect each NMEA2000 device on a spur, OR
- connect the instrument display on a spur into an existing NMEA2000 backbone.

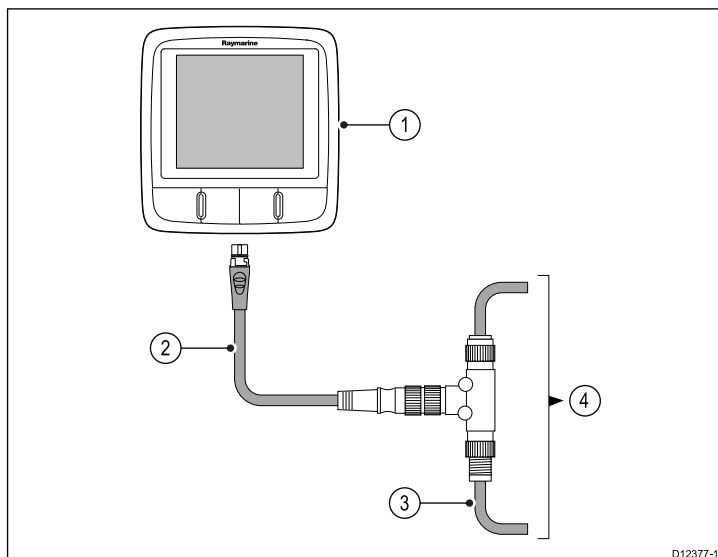
Important: You cannot have any 2 terminated backbones connected together, unless you have an isolation gateway between the two backbones.

Connecting NMEA2000 equipment to the SeaTalk^{ng} backbone



1. 12 V dc power supply into backbone.
2. SeaTalk^{ng} backbone.
3. SeaTalk^{ng} to DeviceNet adaptor cable.
4. NMEA2000 equipment.

Connecting the unit to an existing NMEA2000 (DeviceNet) backbone



1. SeaTalk^{ng} instrument display
2. SeaTalk^{ng} to DeviceNet adaptor cable.
3. DeviceNet backbone.
4. NMEA2000 equipment.

Chapter 5: Mounting

Chapter contents

- [5.1 Mounting on page 30](#)
- [5.2 Front bezel on page 31](#)

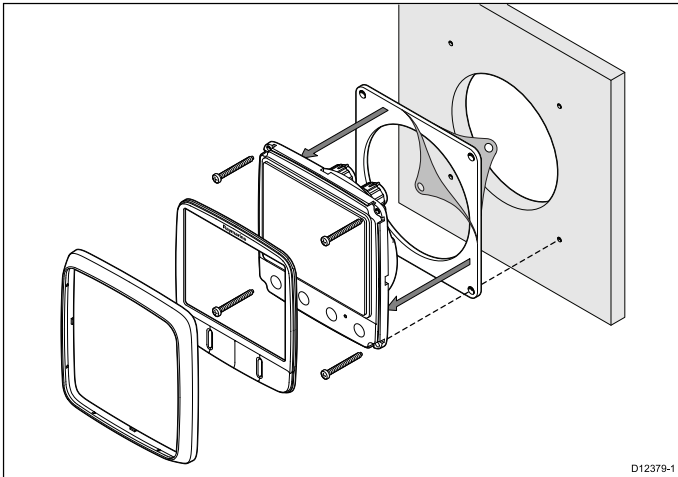
5.1 Mounting

Pre-mounting check

The product is designed to be surface mounted. Before mounting the unit, ensure you have:

- Selected a suitable location.
- Identified the cable connections and route that the cables will take.
- Detached the front bezel.
- Remove the keypad mat.

Mounting diagram



Mounting instructions

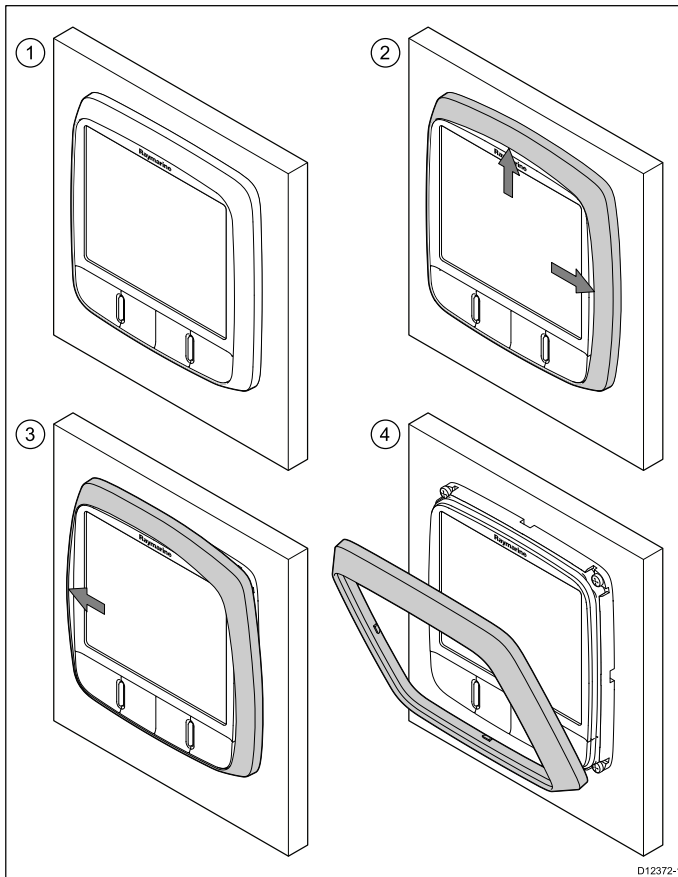
1. Check the selected location for the unit, a clear, flat area with suitable clearance behind the panel is required.
2. Fix the mounting template supplied with the product, to the selected location, using masking or self adhesive tape.
3. If possible use an appropriate size hole cutting saw and cut out the centre hole cut out 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. Drill any required holes as indicated on the mounting template for the securing screws.
7. Connect the relevant cables to the unit.
8. Peel the backing off of the supplied gasket and place the adhesive side of the gasket onto the display unit and press firmly onto the flange.
9. Slide the unit into place and secure using the screws provided.
10. Refit keypad mat and front bezel.

Note: The supplied gasket provides a seal between the unit and a suitably flat and stiff mounting surface or binnacle. The gasket should be used in all installations. It may also be necessary to use a marine-grade sealant if the mounting surface or binnacle is not entirely flat and stiff or has a rough surface finish.

Note: Drill, tap size and tightening torques are dependant upon the material type and thickness of the mounting surface.

5.2 Front bezel

Removing the front bezel



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

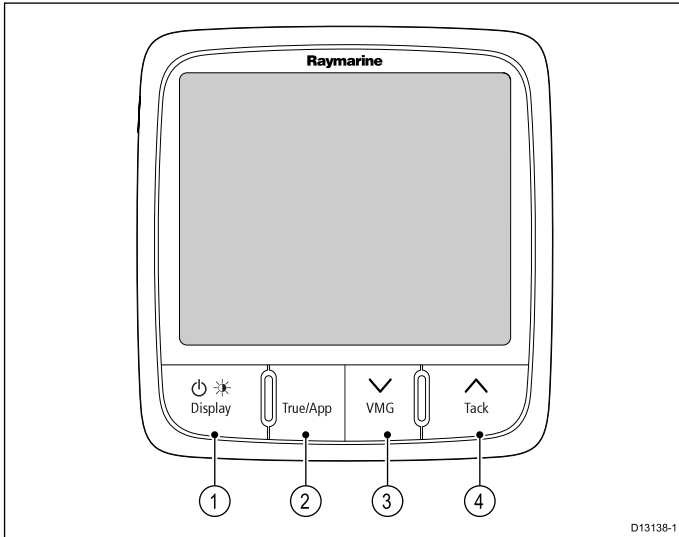
1. Using your fingers pull the bezel away from the unit at the top and side, as shown in 2.
The bezel will start to come away from the unit at the top and side.
2. Now pull the bezel away from the unit on the opposite side, as shown in 3.
The bezel will now come free from the unit, as shown in 4.

Chapter 6: Getting started

Chapter contents

- [6.1 Controls on page 34](#)
- [6.2 Power on page 34](#)
- [6.3 Data master on page 35](#)

6.1 Controls



1	Display / Power — Select to access Depth information on the digital display, adjust backlight, adjust contrast and power the display On and Off
2	True / App — Switch between true and apparent wind direction
3	VMG / Down — Display Velocity made good. Use to move down through menu options or to decrease numeric values
4	Tack / Up — Tack heading. Use to move up through menu options or to increase numeric values

6.2 Power

Powering on the unit

With power to the unit turned on but the unit switched off:

1. Press and hold the **Power** button until the unit powers on and data is displayed (approximately 2 seconds).

Note: When power to the unit is turned on the unit will switch on automatically.

Powering off the unit

1. Press and hold the **Power** button until the power count down timer is displayed and reaches zero (approximately 6 to 8 seconds).

Calibration alert

If the **CAL** legend on the digital display flashes for the first 30 seconds after power up, refer to the *Calibration* section to calibrate your unit.

6.3 Data master

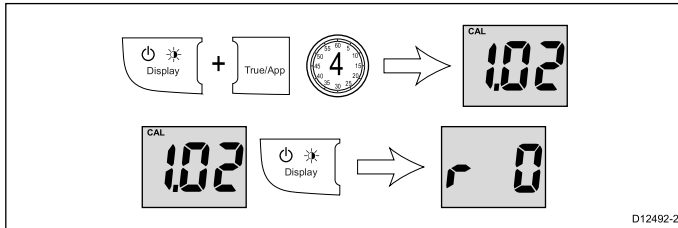
Where a system contains more than one unit capable of displaying a data type, the unit physically connected to the transducer must be set as the data master and any other units set as a repeater.

Checking the software version and instrument status

You can check the instrument display's software version and status by following the steps below.

Note: The i60 CH Wind instrument is a repeater display. You cannot check or change the instrument status of an i60 CH Wind display

From the software version page:



During normal operation:

1. Press and hold the **Display** and **True / App** buttons at the same time for approximately 4 seconds, until the Software Version page is displayed.
2. Press the **Display** button to show the Instrument Status page.

The instrument status is displayed (r 0 = master and r 1 = repeater).

Note: The Software Version and Instrument Status pages are temporary pages and will time-out automatically after 8 seconds of inactivity.

Chapter 7: Calibration

Chapter contents

- [7.1 User calibration on page 38](#)
- [7.2 Intermediate calibration on page 39](#)
- [7.3 Dealer calibration on page 39](#)

7.1 User calibration

The i60 CH instrument display is a repeater display and as such does not require calibration, the steps below apply to the calibration of the i60 Wind instrument only.

User calibration options include:

- Wind angle offset — Assigns an offset to the wind angle readings.
- Units for Wind speed readings — Assigns the unit of measure used for wind speed related readings

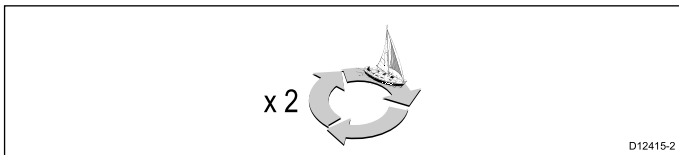
Automatic Linearization

The wind transducer can linearize itself automatically under certain conditions.

For Automatic Linearization to be performed **CAL** must be flashing on the digital display. **CAL** is displayed for approximately 30 seconds after power on under the following conditions:

- At first power on, after installation
- At power on, after a factory reset.

To perform the automatic linearization the vessel will need to be underway, with sufficient space to turn in large circles unhindered. The wind speed must be sufficient to hold the vane to wind whilst the vessel is turning. The vessel must be turned slowly through at least 2 complete circles.



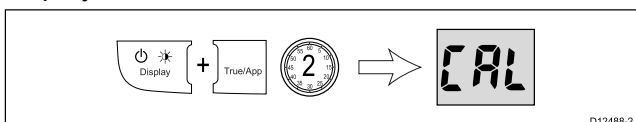
This procedure automatically linearizes the wind vane. A successful linearization is indicated by the digital display flashing and a buzzer sounding three beeps

Accessing the User Calibration Menu

The User Calibration Menu can be accessed by following the steps below.

During normal operation:

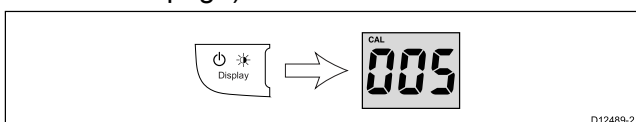
1. Press and hold the **Display** and **True / App** buttons at the same time for approximately 2 seconds, until the User Calibration page is displayed.



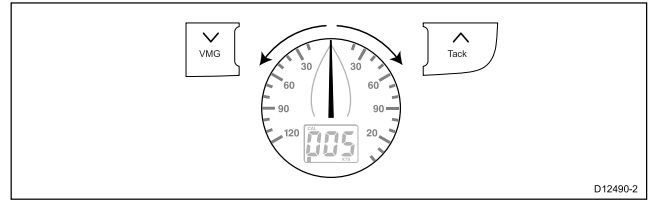
Aligning the wind transducer

From the User Calibration Menu:

1. Press the **Display** button until the **Wind Angle Offset** page is displayed (1 press from the **User Calibration** page).



2. Sail your vessel directly into the wind and adjust the analog pointer to zero, using the **VMG** and **Tack** buttons.



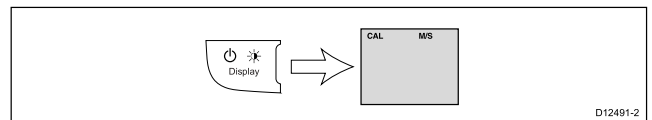
The **VMG** button will decrease the current value and the **Tack** button will increase the current value. As you do this, the wind angle offset shows the amount of correction you have applied.

3. To exit the User Calibration Menu at any time press and hold the **Display** and **True / App** buttons at the same time for approximately 2 seconds.

Selecting the unit of measure for wind speed readings

From the User Calibration Menu:

1. Press the **Display** button until the **Wind Speed Units** page is displayed (2 presses from the **User Calibration** page).



2. Use the **VMG** or **Tack** buttons to select the required unit of measure for wind speed readings. The available units of measure for wind speed are:

- KTS (default) — Knots
- M/S — Meters per second

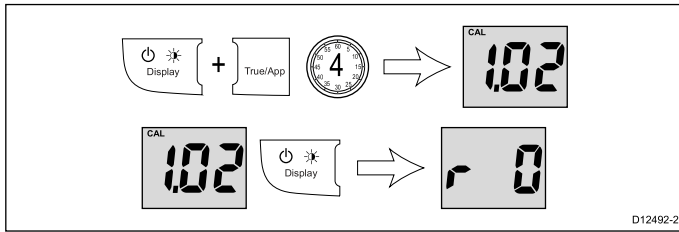
3. To exit the **User Calibration** pages at any time press and hold the **Display** and **True / App** buttons at the same time for approximately 2 seconds.

7.2 Intermediate calibration

Intermediate calibration allows you to:

- Check instrument software version
- * Check the instrument status (either master or repeater)

Note: * Not available on i60 CH Wind.

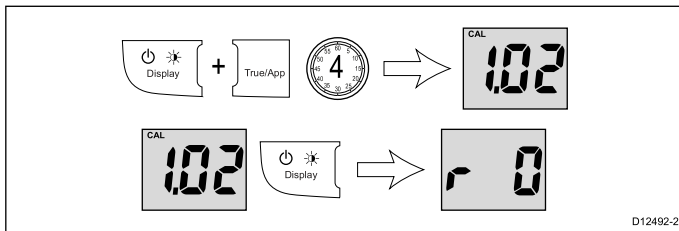


Checking the software version and instrument status

You can check the instrument display's software version and status by following the steps below.

Note: The i60 CH Wind instrument is a repeater display. You cannot check or change the instrument status of an i60 CH Wind display

From the software version page:



During normal operation:

1. Press and hold the **Display** and **True / App** buttons at the same time for approximately 4 seconds, until the Software Version page is displayed.
2. Press the **Display** button to show the Instrument Status page.
The instrument status is displayed (r 0 = master and r 1 = repeater).

Note: The Software Version and Instrument Status pages are temporary pages and will time-out automatically after 8 seconds of inactivity.

7.3 Dealer calibration

The dealer calibration procedures include:

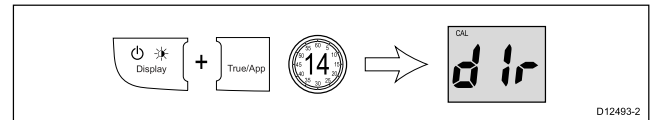
- User calibration menu access On (default) and Off.
- Display Response for wind angle readings — Dictates the rate at which the instrument display responds to changes in wind angle data.
- Display Response for wind speed readings — Dictates the rate at which the instrument display responds to changes in wind speed data.
- Display Response for VMG readings — Dictates the rate at which the instrument display responds to changes in VMG data.
- * Boat show mode On and Off (default) (Boat show mode is only available on displays set as repeaters).
- Reset to factory defaults.

Note: Not available on the i60 CH wind instrument.

Accessing the Dealer Calibration Menu - i60

During normal operation:

1. Press and hold the **Display** and **True / App** buttons at the same time for approximately 14 seconds, until the **Dealer Calibration** page is displayed.

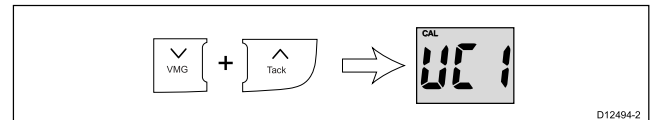


Note: To exit the Dealer Calibration pages at any time, press and hold the **Display** and **True/App** buttons at the same time for approximately 2 seconds.

Setting access to the User Calibration Menu - i60

From the **Dealer Calibration** page:

1. Press the **VMG** and **Tack** buttons at the same time to display the **User Calibration Menu Access** page.



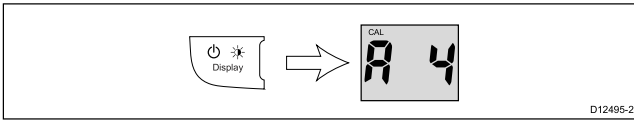
2. Use the **VMG** or **Tack** buttons to switch access to the **User Calibration Menu** On and Off.
 - UC1 (default) — User Calibration menu enabled
 - UC0 — User Calibration menu disabled

Note: To exit the Dealer Calibration pages at any time, press and hold the **Display** and **True/App** buttons at the same time for approximately 2 seconds.

Setting the response delay for Wind Angle readings

From the **User Calibration Menu Access** page:

1. Press the **Display** button until the **Wind Angle Response** page is displayed (1 press from the **User Calibration Access Menu** page).



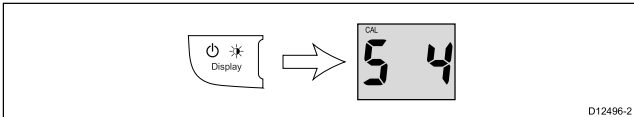
2. Use the **VMG** and **Tack** buttons to set the required level for Wind Angle Response. The default level is 12. The levels available are 1 to 15 with level 1 being the slowest update rate and level 15 the quickest.

Note: To exit the Dealer Calibration pages at any time, press and hold the **Display** and **True/App** buttons at the same time for approximately 2 seconds.

Setting the response delay for Wind Speed readings

From the **User Calibration Menu Access** page:

1. Press the **Display** button until the **Wind Speed Response** page is displayed (2 presses from the **User Calibration Access Menu** page).



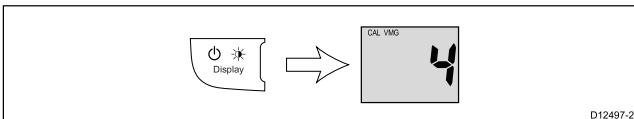
2. Use the **VMG** and **Tack** buttons to set the required level for Wind Speed Response. The default level is 12. The levels available are 1 to 15 with level 1 being the slowest update rate and level 15 the quickest.

Note: To exit the Dealer Calibration pages at any time, press and hold the **Display** and **True/App** buttons at the same time for approximately 2 seconds.

Setting the response delay for VMG readings

From the **User Calibration Menu Access** page:

1. Press the **Speed** button until the **VMG Response** page is displayed (3 presses from **User Calibration Menu Access** page).



2. Use the **VMG** or **Tack** buttons to set the required level for VMG response. 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.

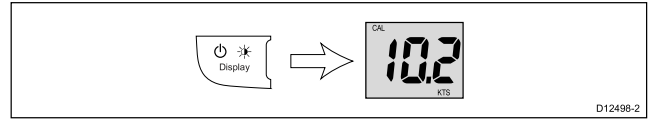
Note: To exit the Dealer Calibration pages at any time, press and hold the **Display** and **True/App** buttons at the same time for approximately 2 seconds.

Setting the wind speed Calibration Factor

If you find that your wind speed readings deviate from a referenced wind speed source then a Calibration Factor can be applied to reduce the deviation.

From the **User Calibration Menu Access** page:

1. Press the **Display** button until the **Current Wind Speed** page is displayed (4 presses from the **User Calibration Menu Access** page).



2. Use the **VMG** and **Tack** buttons to adjust the Calibration Factor to the desired value.

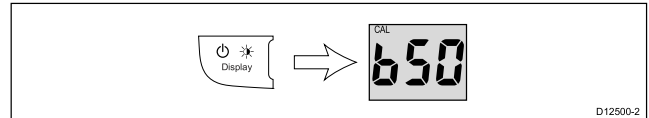
When the **VMG** and **TACK** buttons are not being pressed the screen will revert back to **Current Wind Speed** page to enable you to see what change the Calibration Factor has on the display's Wind Speed reading.

Note: To exit the dealer calibration pages at any time press and hold the **Display** and **True / App** buttons at the same time for approximately 2 seconds.

Enabling and disabling Boat Show Mode - i60

From the **User Calibration Menu Access** page:

1. Press the **Display** button until the **Boat Show Mode** page is displayed (5 presses from the **User Calibration Menu Access** page).



2. Use the **VMG** or **Tack** buttons to switch the Boat Show Mode On and Off (default). Selecting On will put the display into boat show mode.

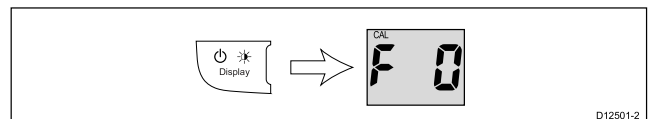
Note: Boat show mode is only suitable for demonstration purposes and should NOT be used whilst your vessel is in use.

Note: To exit the dealer calibration pages at any time press and hold the **Display** and **True / App** buttons at the same time for approximately 2 seconds.

Resetting the display to factory defaults - i60

From the **User Calibration Menu Access** page:

1. Press the **Display** button until the **Factory Reset** page is displayed (5 presses from the **User Calibration Menu Access** page).



2. To reset the display to factory default settings:
 - i. Use the **VMG** or **Tack** buttons to change the reset option to F 1 (default).
 - ii. Press the **Display** button to reset your display to factory default settings.

Note: To exit the dealer calibration pages at any time press and hold the **Display** and **True / App** buttons at the same time for approximately 2 seconds.

Chapter 8: Using your display

Chapter contents

- [8.1 Pages on page 44](#)
- [8.2 i60 Wind operation on page 44](#)
- [8.3 Illumination on page 46](#)

8.1 Pages

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

i60 Wind	i60 Close hauled wind
Wind speed	Wind speed
*Beaufort wind speed	*Maximum wind speed
*Maximum wind speed	VMG
*Maximum true wind speed alarm	Tack
*Low true wind speed alarm	
*High apparent wind angle alarm	
*Low apparent wind angle alarm	
VMG	
Tack	

Note: *These pages are temporary pages and will time-out to the previous permanent page after 8 seconds of inactivity.

Changing pages

During normal operation:

1. Press either the **Display** button to cycle through the wind pages.
2. Press the **VMG** button to display VMG information.
3. Press the **Tack** button to display tack information.

8.2 i60 Wind operation

When connected to a relevant rotavecta or wind vane transducer the i60 provides:

- True and apparent wind direction and speed. Wind speed is displayed either in knots, meters per second or as Beaufort scale values.
- Velocity made good (VMG) information, when vessel speed information is available on the network.
- Tack angle, when heading information is available on the network.
- Maximum wind speed.
- High and low true wind speed alarms.
- High and low apparent wind angle alarms.

Note: Alarms are only available on the i60 Wind instrument, when set as a master unit. No alarms are available on the i60 Close hauled wind instrument.

i60 display information

The i60 instrument's display consists of an analogue pointer and digital display.

Analogue display

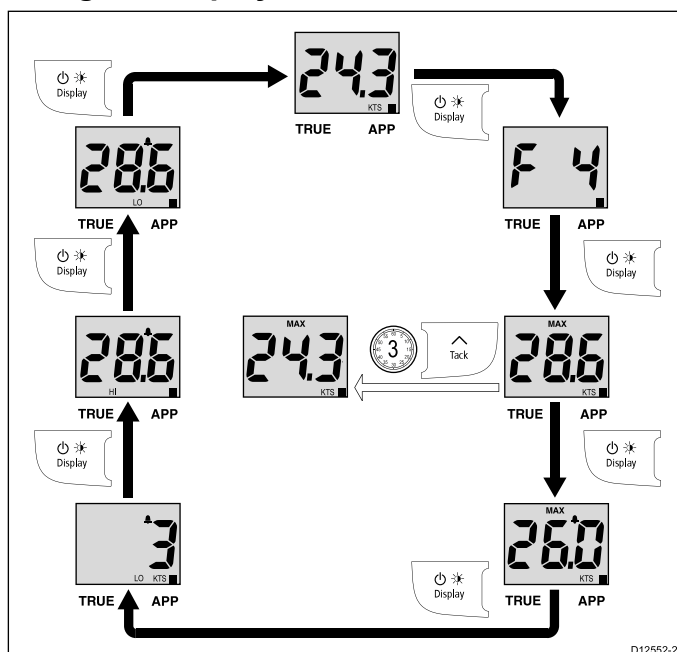
The analogue display pointer shows either true or apparent wind direction (Depending on setting).

Digital display

The digital display LCD shows the following wind information.

- Beaufort wind speed
- True / apparent wind speed
- Velocity made good (VMG)
- Tack heading
- Maximum wind speed
- Wind alarm data

Using the display button

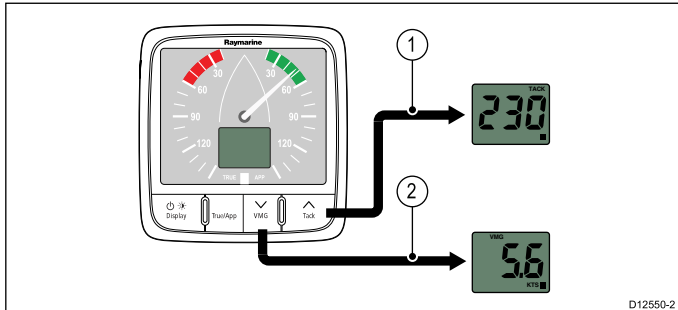


During normal operation:

1. Use the **Display** button to cycle through the available pages.
2. Press and hold the **Tack** button for 3 seconds to reset the maximum wind speed to the current wind speed values.

Note: All pages except for the **Current wind speed** page are temporary and will time-out after 8 seconds.

Using Tack and VMG buttons



During normal operation:

1. Press the **VMG** button to show the **VMG** page on the digital display.

Note: **VMG** information is only available when vessel speed information is available.

2. Press the **Tack** button to show the **Tack** page on the digital display.

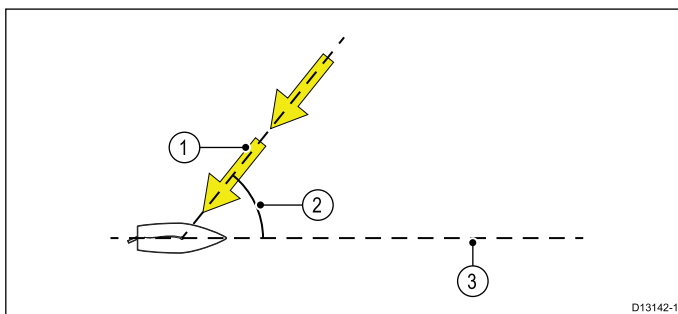
Note: **Tack** information is only available when vessel heading and speed information is available.

True and Apparent wind

Wind angle, direction and speed are reported as either 'True' or 'Apparent' wind measurements.

- **True wind** — True wind measurements assume the vessel is motionless in the water. True wind readings are calculated using Apparent Wind and STW values.
- **Apparent wind** — Apparent wind is the wind felt on deck when the vessel is in motion which is affected by vessel angle and speed.

With the vessel tied along side, True and Apparent wind readings should be identical.



1. Wind direction (specified using compass points)

True Wind Direction (TWD) — The compass direction that wind would appear to be blowing across the vessel if it was not making any way.

Apparent Wind Direction (AWD) — The compass direction that wind would appear to be blowing across the vessel when it is making way.

2. Wind angle (specified in degrees)
 - True Wind Angle (TWA)** — The angle between the TWD and the center line of the vessel.
 - Apparent Wind Angle (AWA)** — The angle between the AWD and the center line of the vessel.
3. Wind speed (specified in the chosen speed units)

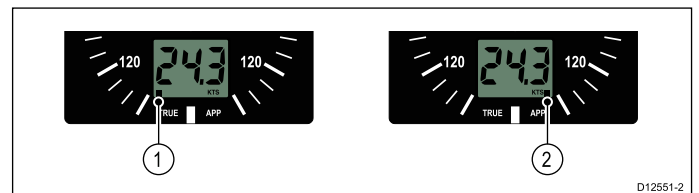
True Wind Speed (TWS) — The speed that the wind would appear to be blowing across the vessel if it was not making any way.

Apparent Wind Speed (AWS) — The speed that the wind would appear to be blowing across the vessel when it is making way.

Note: True Wind readings require Speed Through Water (STW) data to be available.

Switching between true and apparent wind information

You can switch the unit between displaying True or Apparent wind information.



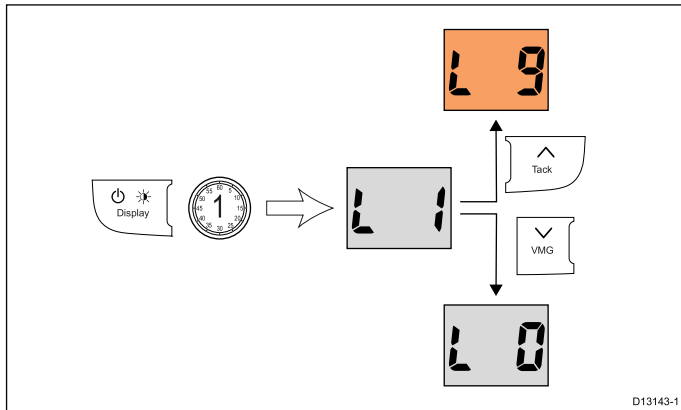
During normal operation:

1. Press the **True / App** button to switch between true or apparent wind information.
 - In **True** mode the indicator shown in 1 above will be displayed.
 - In **Apparent** mode the indicator shown in 2 above will be displayed.

8.3 Illumination

Adjusting the backlight level

The backlighting can be adjusted using the power button.



During normal operation:

1. Press and hold the **Display** button for approximately 1 second until the backlight page is displayed.
L and the current illumination level is displayed.
2. Use the **VMG** button to decrease the illumination level.
3. Use the **Tack** button to increase the illumination level.

The illumination level can be adjusted from 0 (default) (Off) to 9 (Max)

Note: The backlight page will time-out after 8 seconds of inactivity.

Adjusting the contrast — i60

The contrast level can be accessed using the Speed button.

During normal operation:

1. Press and hold the **Display** button for approximately 4 seconds to display the Contrast page.
C is displayed on-screen and the current contrast level.
2. Use the **Display** button to cycle through the available contrast levels.

The contrast level can be adjusted from level 0 (default) to 3.

Note: The contrast page will time-out after 8 seconds of inactivity.

Group illumination

Group illumination is used to synchronizes and control the backlighting level of multiple units assigned to the same group.

The unit can participate in shared illumination via a SeaTalk network or group illumination via a SeaTalk^{ng} network.

When connected on a SeaTalk network all compatible units will share their backlight level (when 1 unit's backlighting level is adjusted all other units backlight level will also change).

When connected on a SeaTalk^{ng} network the unit can participate in group illumination and be assigned to a group of units which will share their backlighting levels. Available groups are as follows:

- OFF (default) — Group illumination is switched off
- HL1 — Helm 1
- HL2 — Helm 2
- CPt — Cockpit
- FLY — Flybridge
- NST — Mast
- GP1 to GP5 — User defined groups

When assigned to a group, when the backlighting of 1 unit is adjusted the backlighting level of all units assigned to the same group will also change.

Assigning the unit to a group

To assign the unit as part of a group so that it can participate in group illumination follow the steps below.

During normal operation:

1. Press and hold the **Display** and **True / App** buttons a the same time for approximately 6 seconds, until the Group Illumination page is displayed.

GrP is displayed on-screen

Note: The Group Illumination page is a temporary page and will time-out to the previous page after 8 seconds.

2. Press the **Display** button to display the current group illumination setting.
3. Press the **VMG** and **Tack** buttons at the same time to change the current setting.
The current group setting will flash.
4. Use the **Tack** button to cycle upwards through the list of available groups.
5. Use the **VMG** button to cycle back down through the list.
6. Press the **VMG** and **Tack** buttons at the same time to assign the display to the selected group.
The group setting will stop flashing.
7. Press and hold the **Display** and **True / App** buttons a the same time for approximately 2 seconds to return to normal operation.

Chapter 9: Alarms

Chapter contents

- [9.1 Alarms on page 48](#)

9.1 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

Alarms available on the i60 Wind are listed below.

- High true wind speed
- Low true wind speed
- High apparent wind angle
- Low apparent wind angle

Note: Alarms are not available on the i60 Close Hauled wind.

Alarm indications

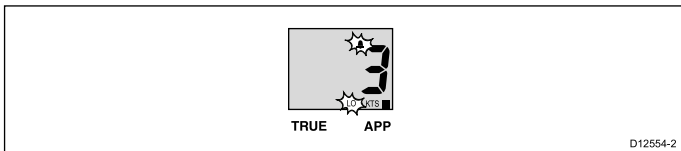
An alarm event is indicated by both audible and visual warnings.

High true wind speed alarm



The **High true wind speed alarm** sounds when the true wind speed is equal to or more than the **High true wind speed threshold**. The alarm sounds until silenced manually.

Low true wind speed alarm



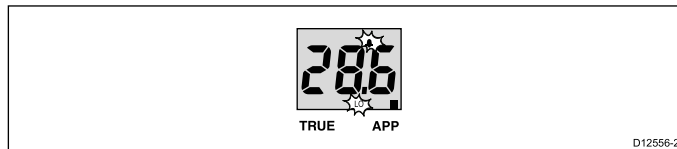
The **Low true wind speed alarm** sounds when the true wind speed is equal to or less than the **Low true wind speed threshold**. The alarm sounds until silenced manually.

High apparent wind angle alarm



The **High apparent wind angle alarm** sounds when the apparent wind angle equal to or more than the **High apparent wind angle threshold**. The alarm sounds until silenced manually.

Low apparent wind angle alarm



The **Low apparent wind angle alarm** sounds when the apparent wind angle is equal to or less than the **Low apparent wind angle threshold**. The alarm sounds until silenced manually.

Silencing alarms

1. Press any button to silence an active alarm.

Enabling / Disabling alarms

Alarms can be enabled or disabled at any time.

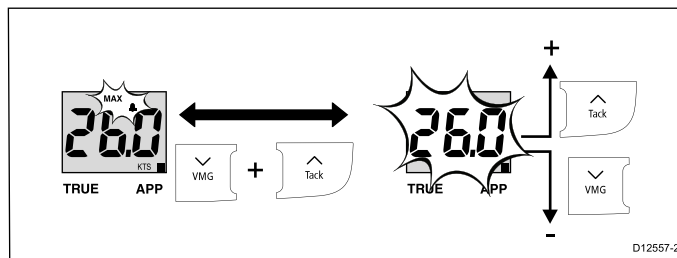
With the relevant alarm page displayed:

1. Press and hold the **Tack** button for 1 second to switch the alarm on or off.

When the alarm is on the alarm threshold is displayed.

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 **VMG** and **Tack** buttons at the same time to enter adjust mode. The current threshold will start to flash.
2. Use the **Tack** button to increase the alarm threshold.
3. Use the **VMG** button to decrease the alarm threshold.
4. Press the **VMG** and **Tack** buttons at the same time to save the new alarm threshold and exit adjust mode.

Note: The illustration above is an example depicting setting the Maximum true wind speed alarm threshold.

Chapter 10: Maintaining your display

Chapter contents

- 10.1 Service and maintenance on page 50
- 10.2 Condensation on page 50
- 10.3 Routine equipment checks on page 51
- 10.4 Cleaning on page 51
- 10.5 Cleaning the display case on page 52
- 10.6 Cleaning the display screen on page 52

10.1 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.

10.2 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.

10.3 Routine equipment checks

Raymarine strongly recommends that you complete a number of routine checks to ensure the correct and reliable operation of your equipment.

Complete the following checks on a regular basis:

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

10.4 Cleaning

Best cleaning practices.

When cleaning this product:

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

10.5 Cleaning the display case

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

1. Switch off the power to the display.
2. Wipe the display with a clean, soft cloth (a microfibre cloth is ideal).
3. If necessary, use a mild detergent to remove grease marks.

Note: Do NOT use solvents or detergents on the screen itself.

Note: In certain conditions, condensation may appear inside the display screen. This will not harm the unit, and can be cleared by powering on the display for a short time.

10.6 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 (available from an opticians).

Chapter 11: Troubleshooting

Chapter contents

- [11.1 Troubleshooting on page 54](#)
- [11.2 Instrument troubleshooting on page 55](#)
- [11.3 Power up troubleshooting on page 56](#)
- [11.4 Miscellaneous troubleshooting on page 57](#)

11.1 Troubleshooting

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

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

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

11.2 Instrument troubleshooting

Fault	Cause	Action
Blank display.	No power supply.	<ul style="list-style-type: none"> • Check fuse / circuit breaker. • Check power supply. • Check SeaTalk / SeaTalk^{ng} cabling and connector security.
SeaTalk / SeaTalk ^{ng} information not being transferred between instruments.	SeaTalk / SeaTalk ^{ng} cabling or connector fault.	<ul style="list-style-type: none"> • Check security of SeaTalk / SeaTalk^{ng} connections between units. • Check condition of SeaTalk / SeaTalk^{ng} cables. • Isolate faulty unit by disconnecting units one by one.
A group of SeaTalk / SeaTalk ^{ng} units not working.	SeaTalk / SeaTalk ^{ng} cabling or connector fault.	<ul style="list-style-type: none"> • Check the security of SeaTalk / SeaTalk^{ng} connectors between functioning and non-functioning units. • Check the condition of SeaTalk / SeaTalk^{ng} cable between functioning and non-functioning units.

11.3 Power up troubleshooting

Problems at power up and their possible causes and solutions are described here.

Problem	Possible causes	Possible solutions
The system (or part of it) does not start up.	Power supply problem.	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.

11.4 Miscellaneous troubleshooting

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

Problem	Possible causes	Possible solutions
Display behaves erratically: <ul style="list-style-type: none"> • Frequent unexpected resets. • System crashes or other erratic behavior. 	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 www.raymarine.com and click on support for the latest software downloads.
	Corrupt data / other unknown issue.	Perform a factory reset. <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>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.</p> </div>

Chapter 12: Technical support

Chapter contents

- [12.1 Raymarine customer support on page 60](#)
- [12.2 Checking the software version on page 60](#)

12.1 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.

12.2 Checking the software version

Follow the steps below to identify the software version of your unit.

During normal operation:

1. Press and hold the **Display (Power)** and **True / App** buttons simultaneously for 4 seconds.

The software version will be displayed on the screen.

Chapter 13: Technical specification

Chapter contents

- [13.1 Technical specification on page 62](#)

13.1 Technical specification

Nominal supply voltage	12 V dc
Operating voltage range	10 V dc to 16 V dc
Power consumption	<ul style="list-style-type: none">• < 1 W Typical (Display only)• 2.4 W Maximum (Transducer connected)
Current	<ul style="list-style-type: none">• 45 to 65 mA Typical (Display only)• 200 mA Maximum (Transducer connected)
LEN (Refer to SeaTalk ^{ng} reference manual for further information.)	4
Environmental	Operating temperature: -20°C to +55°C Storage temperature: -30°C to +70°C Relative humidity: 93% Water proofing: IPX6
Connections	<ul style="list-style-type: none">• 2 x SeaTalk^{ng} connections (compliant with SeaTalk)• Transducer connections
Conformance	Europe 2004/108/EC

Chapter 14: Spares and accessories

Chapter contents

- [14.1 Spares on page 64](#)
- [14.2 SeaTalk^{ng} cables and accessories on page 64](#)
- [14.3 Converters on page 65](#)

14.1 Spares

The table below lists the spare parts available for i60 instrument displays

Description	Part number	Note
i50 / i60 / i70 front bezel	R22168	
i50 / i60 / i70 Sun cover	R22169	
i60 Keypad	R70133	

14.2 SeaTalk^{ng} cables and accessories

SeaTalk^{ng} cables and accessories for use with compatible products.

Description	Part No	Notes
SeaTalk ^{ng} starter kit	T70134	Includes: <ul style="list-style-type: none"> • 1 x 5 Way connector (A06064) • 2 x Backbone terminator (A06031) • 1 x 3 m (9.8 ft) spur cable (A06040) • 1 x Power cable (A06049)
SeaTalk ^{ng} Backbone Kit	A25062	Includes: <ul style="list-style-type: none"> • 2 x 5 m (16.4 ft) Backbone cable (A06036) • 1 x 20 m (65.6 ft) Backbone cable (A06037) • 4 x T-piece (A06028) • 2 x Backbone terminator (A06031) • 1 x Power cable (A06049)
SeaTalk ^{ng} 0.4 m (1.3 ft) spur	A06038	
SeaTalk ^{ng} 1 m (3.3 ft) spur	A06039	
SeaTalk ^{ng} 3 m (9.8 ft) spur	A06040	
SeaTalk ^{ng} 5 m (16.4 ft) spur	A06041	
SeaTalk ^{ng} 0.4 m (1.3 ft) elbow spur	A06042	
SeaTalk ^{ng} 0.4 m (1.3 ft) backbone	A06033	
SeaTalk ^{ng} 1 m (3.3 ft) backbone	A06034	
SeaTalk ^{ng} 3 m (9.8 ft) backbone	A06035	
SeaTalk ^{ng} 5 m (16.4 ft) backbone	A06036	
SeaTalk ^{ng} 9 m (29.5 ft) backbone	A06068	
SeaTalk ^{ng} 20 m (65.6 ft) backbone	A06037	
SeaTalk ^{ng} to bare ends 1 m (3.3 ft) spur	A06043	
SeaTalk ^{ng} to bare ends 3 m (9.8 ft) spur	A06044	

Description	Part No	Notes
SeaTalk ^{ng} Power cable	A06049	
SeaTalk ^{ng} Terminator	A06031	
SeaTalk ^{ng} T-piece	A06028	Provides 1 x spur connection
SeaTalk ^{ng} 5-way connector	A06064	Provides 3 x spur connections
SeaTalk ^{ng} backbone extender	A06030	
SeaTalk to SeaTalk ^{ng} converter kit	E22158	Allows the connection of SeaTalk devices to a SeaTalk ^{ng} system.
SeaTalk ^{ng} Inline terminator	A80001	Provides direct connection of a spur cable to the end of a backbone cable. No T-piece required.
SeaTalk ^{ng} Blanking plug	A06032	
ACU / SPX SeaTalk ^{ng} spur cable 0.3 m (1.0 ft)	R12112	Connects an SPX course computer or an ACU to a SeaTalk ^{ng} backbone.
SeaTalk (3 pin) to SeaTalk ^{ng} adaptor cable 0.4 m (1.3 ft)	A06047	
SeaTalk to SeaTalk ^{ng} spur 1 m (3.3 ft) spur	A22164	
SeaTalk2 (5 pin) to SeaTalk ^{ng} adaptor cable 0.4 m (1.3 ft)	A06048	
DeviceNet adaptor cable (Female)	A06045	Allows the connection of NMEA 2000 devices to a SeaTalk ^{ng} system.
DeviceNet adaptor cable (Male)	A06046	Allows the connection of NMEA 2000 devices to a SeaTalk ^{ng} system.
DeviceNet adaptor cable (Female) to bare ends.	E05026	Allows the connection of NMEA 2000 devices to a SeaTalk ^{ng} system.
DeviceNet adaptor cable (Male) to bare ends.	E05027	Allows the connection of NMEA 2000 devices to a SeaTalk ^{ng} system.

14.3 Converters

Part number	Description
E22158	SeaTalk to SeaTalk ^{ng} Converter

Appendix A NMEA 2000 sentences

The i60 instrument range supports the following NMEA 2000 Parameter Group Number (PGN) sentences.

PG name	PGN	i60 Wind Transmit	i60 Wind Receive
ISO Acknowledgement	59392	•	
ISO Request	59904		•
ISO Address claim	60928	•	•
ISO Commanded address	65240		•
NMEA Request group function	126208		•
NMEA Command group function	126208		•
NMEA Acknowledge group function	126208	•	
PGN list — Transmit PGN's group function	126464	•	
PGN list — Received PGN's groupfunction	126464	•	
Product information	126996	•	•
Heading / Tack	127237		•
Vessel heading	127250		•
Magnetic variation	127258		•
Speed	128259		•
COG & SOG rapid update	129026		•
GNSS Position data	129029		•
Wind data	130306	•	•

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