
SIMRAD
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M A N U A L

# Simrad IS12

## Wind Instrument

# CONTENTS

# 1 GENERAL

## 1.1 Introduction

The Simrad IS12 System is a flexible modular series of instruments that offer large, clear displays, easy to operate functions and robust, weatherproof construction. Whether as a stand alone instrument, or as part of a networked navigation system, the IS12 Wind system will offer superb performance.


*Fig 1.1 - IS12 Wind Speed/Angle Instrument*

The IS12 Wind system is supplied complete with a masthead transducer, a power cable and a 30m (98') transducer cable. All functions are easily accessed, thanks to IS12's intuitive, user friendly control system.

**Thank you for choosing Simrad.**

If you are pleased with your instrument we hope you will be interested in our range of marine electronic equipment, which is manufactured to the same high standards as IS12. Please contact your nearest Simrad agent for a catalogue showing our increasing range of high tech navigational instruments, GPS, Autopilots, Radar, Fishfinders and VHF radio sets.

Simrad operate a policy of continual development and reserve the right to alter and improve the specification of their products without notice.

## 1.2 IS12 Network System

The IS12 system is built around a high speed bus networking system that allows instruments to be easily interconnected and share data.

All units are interconnected and powered using a standard single cable (Fig 1.2) -

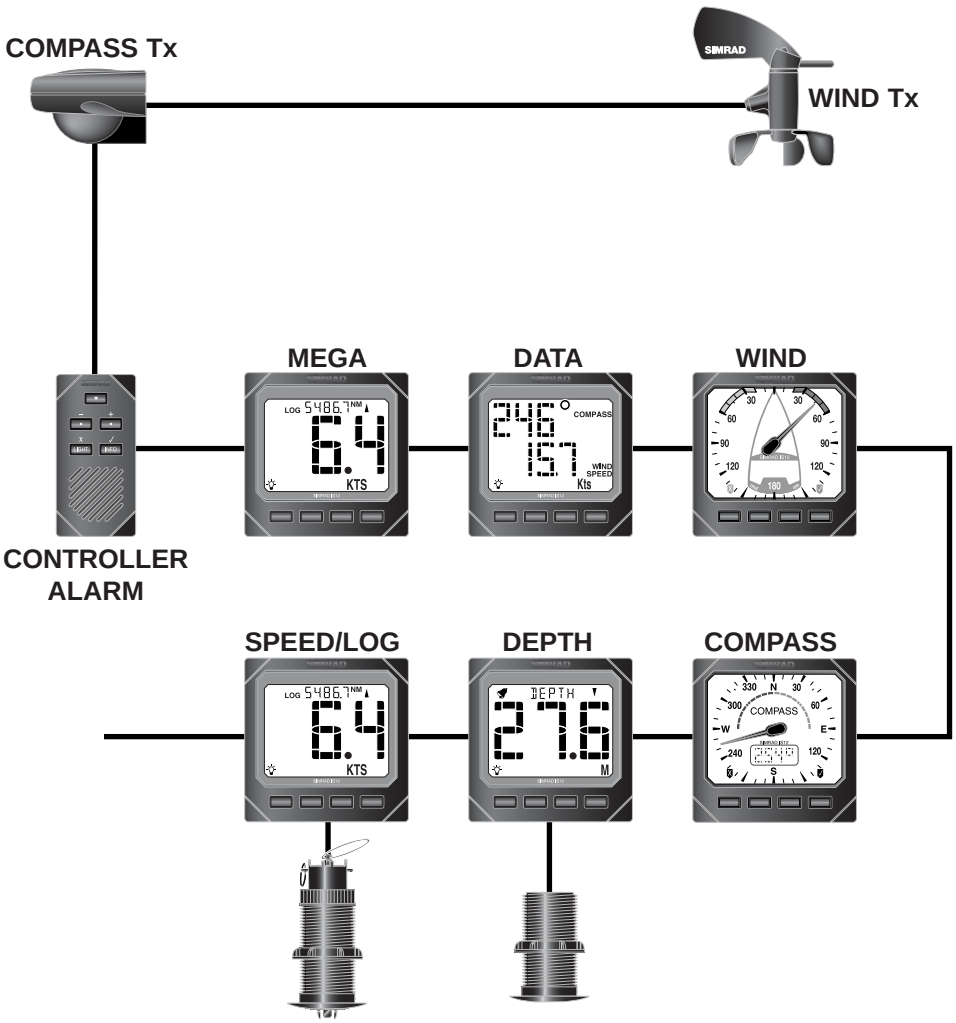



*Fig 1.2 - IS12 Network System*

Additional instruments can be added to the system to act as repeaters, for example at the chart table of a sailboat or the flybridge of a powerboat. Thus, as shown in the example above, the Mega and Data Repeater instruments repeat the information from the main instruments. Additional analogue wind instruments can also be added to the system.

# 2 OPERATION

## 2.1 Apparent Wind Angle

When the IS12 Analogue Wind instrument is switched on, the apparent wind angle is shown as an analogue readout (Fig 2.1) -


*Fig 2.1 - Analogue Wind Angle Display*

The pointer indicates the direction that the wind is coming from, relative to the boat (indicated by the "boat shape" on the fascia). In this example, the wind angle is 45º from the starboard bow. The wind angle can also be displayed digitally - see Section 2.5 for further details.

**NOTE**

As a standalone instrument, the Analogue Wind instrument can only show the apparent wind angle - this is the direction the wind appears to be coming from, which is distorted by the forward velocity of the boat. In practical terms, this is the correct wind angle to trim to, but true wind angle and speed information can also be displayed if there is input from an IS12 Speed Log or Combi instrument. See Section 2.4 for more details.

## 2.2 Apparent Wind Speed

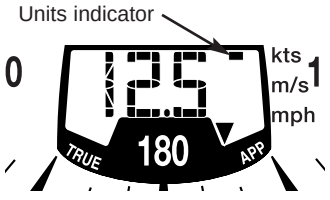



*Fig 2.2 - Apparent Wind Speed*

The apparent wind speed is shown on the digital display. This can be shown in knots, metres / sec, miles per hour or Beaufort (selected in the Units calibration function - see Section 3.1). A digital marker indicates the units selected (Fig 2.2).

See note above regarding true wind speed information.

## 2.3 High Wind Alarm

The Analogue Wind instrument features an alarm that can be set to sound if the wind speed goes above a specified value.

Press the **WIND ALARM** key. The display will show ALM briefly, then change to the current wind alarm setting (Fig 2.3) -

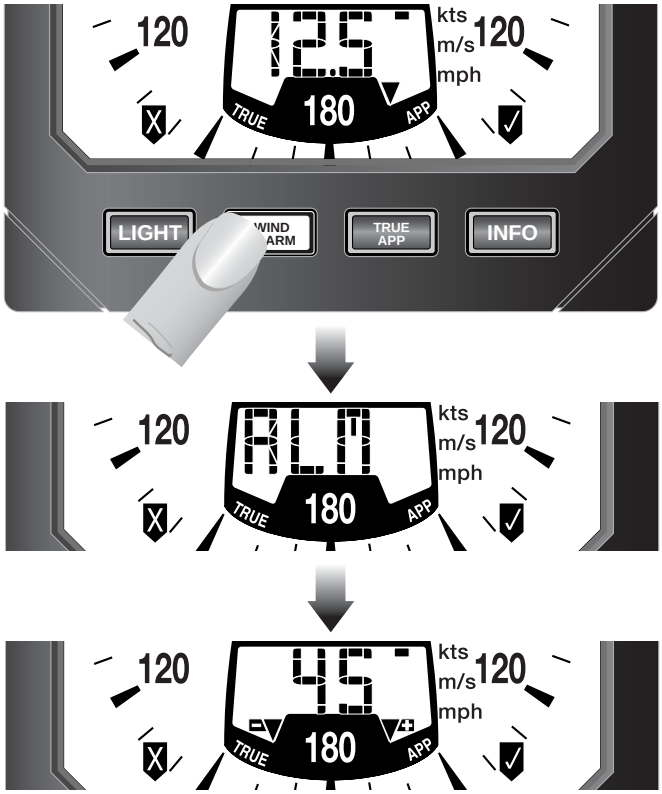



*Fig 2.3 - Wind Alarm*

Two icons (▼ and ▼) appear at the bottom of the display - these correspond with the **WIND ALARM** and **TRUE/APP** keys, indicating that pressing **WIND ALARM** will decrease the setting and pressing **TRUE/APP** will increase it. The **LIGHT** and **INFO** keys also have icons printed on the fascia above them (✗ and ✓ respectively) - pressing ✗ (**LIGHT**) will cancel or abort an entry and ✓ (**INFO**) will confirm or accept it.

Press the ▼ or ▼ keys to adjust the wind alarm value to the required setting.

Press ✗ to turn the alarm off.

Press ✓ to confirm and return to the main display.

**NOTE**

If no key is pressed within 5 seconds, the display will exit to the default display and any changes will be ignored.

If the alarm sounds, press **WIND ALARM** to cancel it.

## 2.4 True Wind Angle & Speed

The Analogue Wind instrument can also show true wind angle and wind speed information, but boat speed information will be required in order for this to be calculated, which can be supplied by an IS12 Speed Log or Combi instrument (Fig 2.4) -

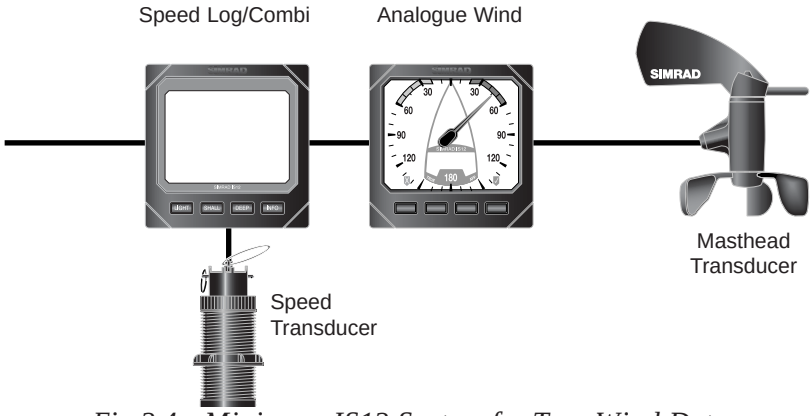



*Fig 2.4 - Minimum IS12 System for True Wind Data*

When boat speed data is supplied to the Analogue Wind instrument, pressing the **TRUE/APP** key will toggle between Apparent Wind Angle / Speed and True Wind Angle / Speed display. The arrow on the LCD display will point to either APP or TRUE indicating which type of data is currently being displayed (Fig 2.5) -

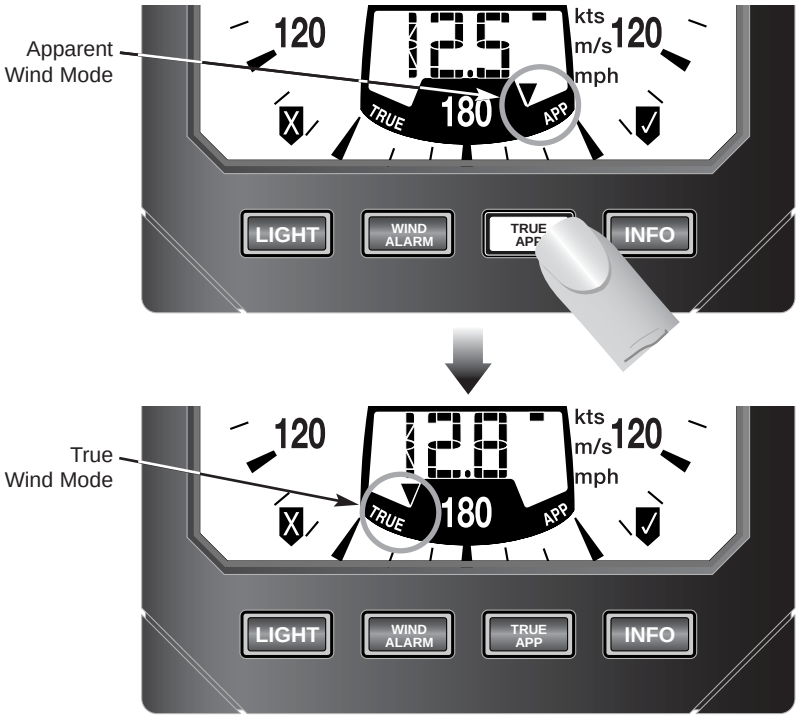



*Fig 2.5 - Apparent and True Wind Mode Indicators*

## 2.5 Digital Close Hauled Display

The Wind Angle can also be displayed digitally - pressing the **INFO** key switches between the wind speed and close hauled wind angle digital displays (Fig 2.6) -

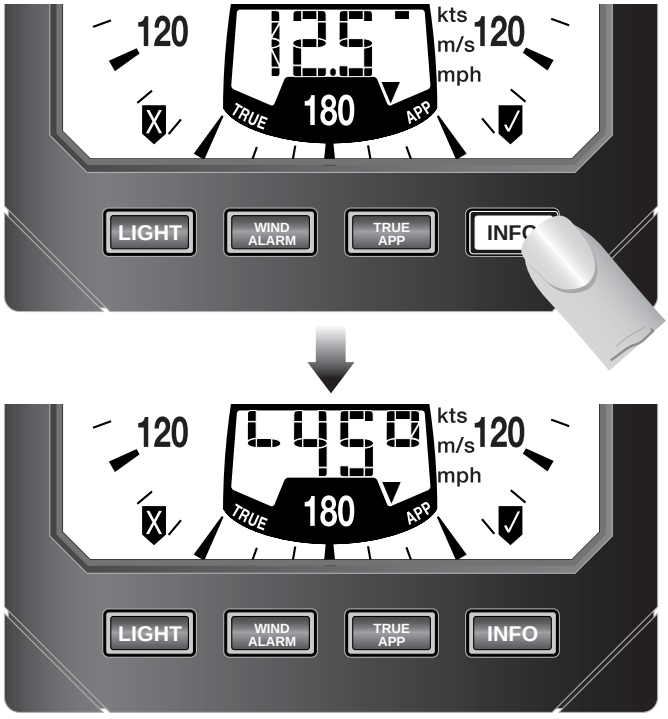



*Fig 2.6 - Switching to Digital Close Hauled Display*

When showing the close hauled wind angle, the graphic on the left of the display indicates the direction of the wind.

When sailing close hauled, the digits show the wind angle measured from the bow of the boat (Fig 2.7) -

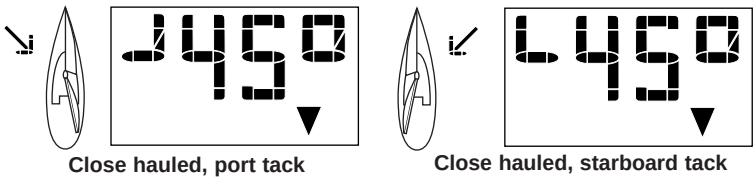



*Fig 2.7 - Wind Direction Indicator - Close Hauled*

When running, the digits show the wind angle measured from the stern, indicating how close the boat is to gybing (Fig 2.8) -

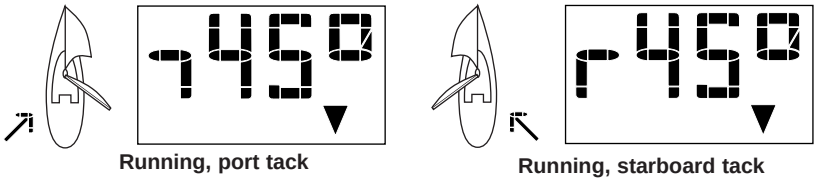



*Fig 2.8 - Wind Direction Indicator - Running*

When boat speed data is being received (see Section 2.4), pressing **TRUE/APP** will switch the digital display between apparent and true wind angle.

## 2.6 Backlighting

The backlighting illuminates the display and the keys, with five levels of brightness.

To switch the backlighting on, press the **LIGHT** key. The display will illuminate and the digital display will show the current lighting level (Fig 2.9) -

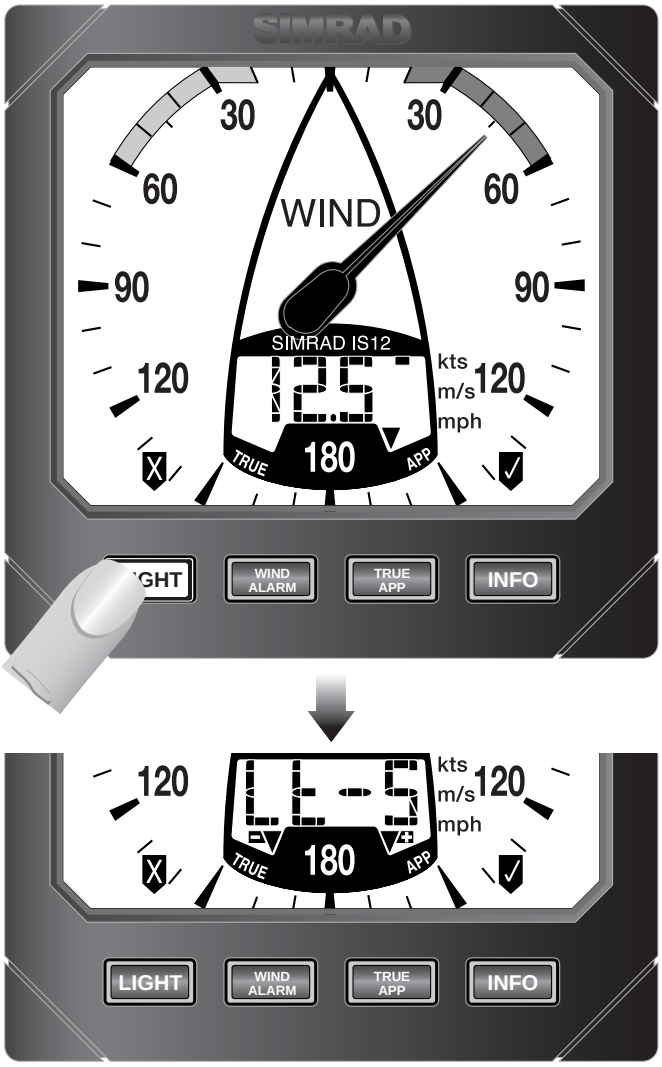



*Fig 2.9 - Turning Backlighting On*

Two icons will be shown on the bottom line of the display (▫▼ and ▼▫), corresponding to the **WIND ALARM** and **TRUE/APP** keys. Press ▼▫ to increase the brightness (max 5), ▫▼ to decrease it (min 1), ✓ (**INFO**) to confirm the selected brightness or ✗ (**LIGHT**) to turn the backlighting off.

The backlighting can either be *Local* or *Network* controlled. Local control means that any adjustments to lighting will only affect this specific display. With Network control, all instruments in the network will be affected. See Section 3.4 for more details.

## 2.7 Remote Control / Alarm Option

The optional remote control allows all functions of each instrument to be remotely controlled. Any alarms sounded are also repeated on this unit. See Section 3.6 regarding enabling and disabling remote control functionality for this instrument.

As this unit is intended to control all instruments in the IS12 range, the keypad is a generic design. Fig 2.10 indicates the respective key positions -

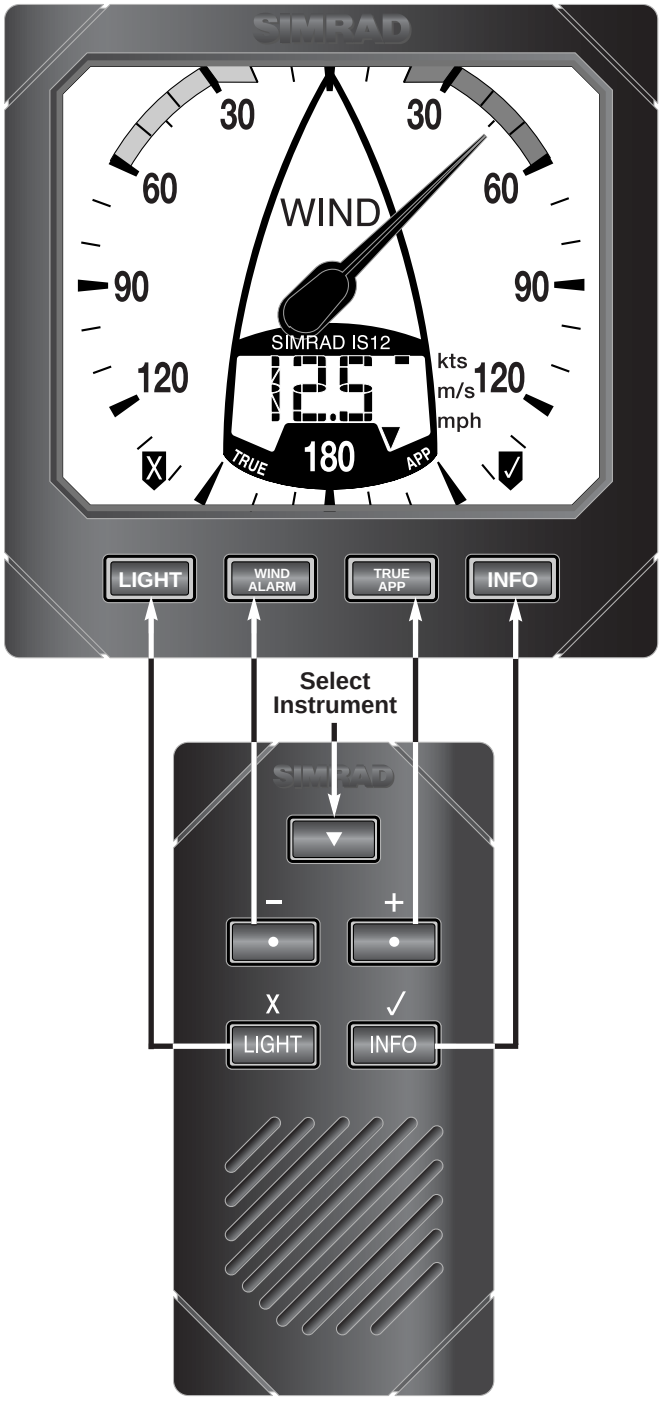



*Fig 2.10 - Remote Control Key Positions*

# 3 CALIBRATION

To protect the calibration functions, these are held in a hidden menu. To enter calibration mode, press and **hold** the **LIGHT** key. The digital display will show CAL briefly, then change to UNIT (Fig 3.1) -

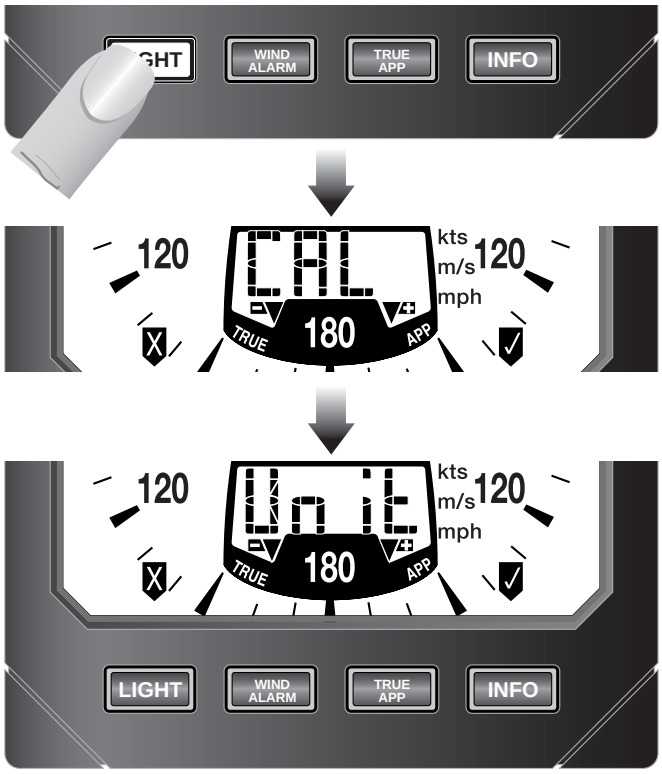



*Fig 3.1 - Entering Calibration Mode*

Once in calibration mode, pressing the ▼ (**WIND ALARM**) or ▼ (**TRUE/APP**) keys will cycle through the available calibration options -

- Units (Section 3.1)
- Fore / Aft Transducer Mounting (Section 3.2)
- Wind Angle Offset (Section 3.3)
- Local / Network Backlighting (Section 3.4)
- Shop Mode (Section 3.5)
- Disabling Remote Control Facility (Section 3.6)

To exit calibration mode, press and hold (**LIGHT**).

## 3.1 Selecting Units

Enter calibration mode and press ✓ (**INFO**). The wind speed units can then be selected (knots, metres / sec, miles per hour or Beaufort) by pressing the ▼ or ▲ keys (Fig 3.2) -

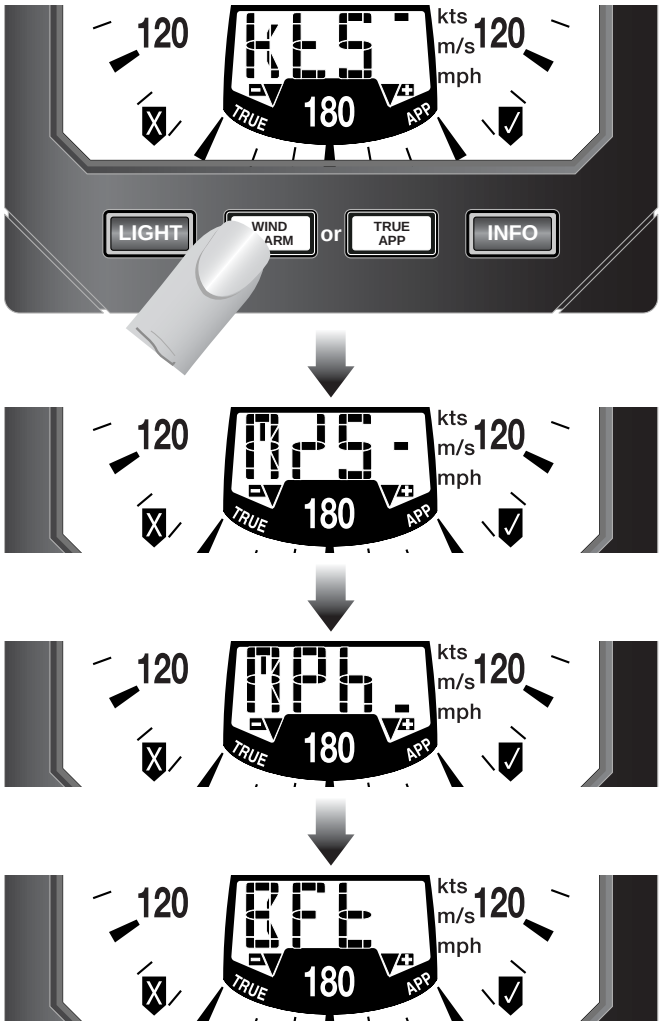



*Fig 3.2 - Selecting Wind Units*

Press ✓ (**INFO**) to set the selected wind units.

**NOTE** Press ✗ (**LIGHT**) to exit to the main calibration menu at any point.

## 3.2 Transducer Orientation

For some installations, it may be necessary to mount the masthead transducer facing aft, rather than forward as is usual. If this is the case, the following procedure should be followed to avoid the displayed wind angle being 180º out.

Enter calibration mode, press ▼ once (the display will show ADJ) and press ✓ (**INFO**).

The display will show FORE, indicating that the Analogue Wind instrument is calibrated for the standard masthead installation. Press ▼, and the display will change to AFT (Fig 3.3) -

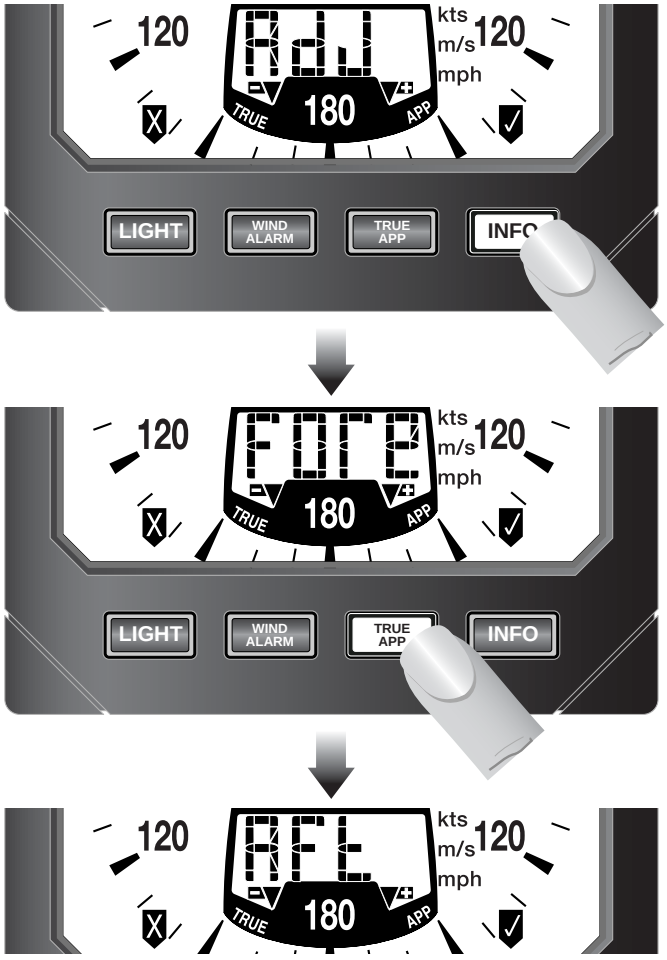



*Fig 3.3 - Adjusting Transducer Orientation*

Press ✓ to confirm - the Analogue Wind instrument is now calibrated for an aft mounted masthead transducer.

The display will then return to the main calibration menu.

**NOTE** Press ✗ to exit to the main calibration menu at any point.

## 3.3 Wind Angle Offset

If the masthead transducer has not been fitted so that it is pointing precisely fore-aft, it will be necessary to adjust the displayed wind angle so that it is correct.

Enter calibration mode, press ▼ twice (the display will show OFST - Fig 3.4) and press ✓ (**INFO**).

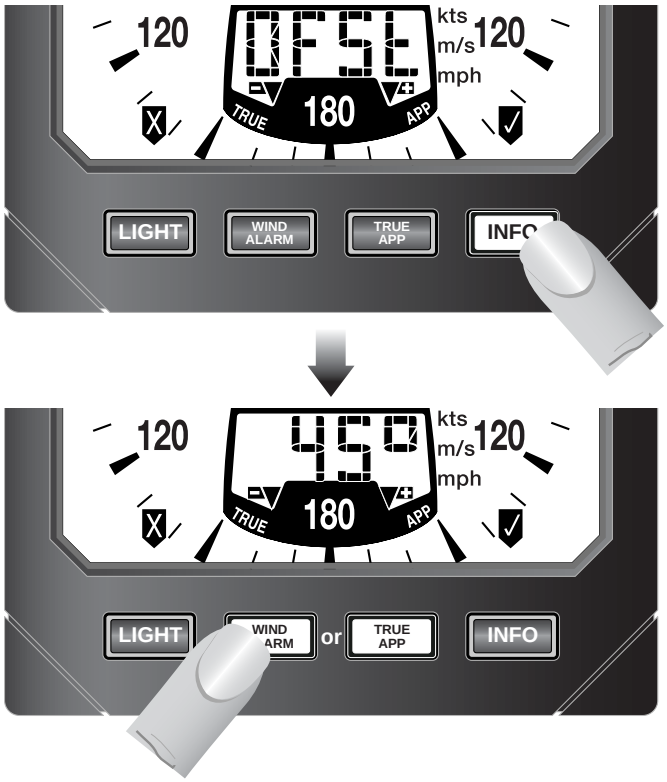



*Fig 3.4 - Entering Wind Angle Offset*

The display will show the current wind angle as read from the masthead transducer. Use the ▲ and ▼ keys to adjust the displayed angle to compensate for the mounting error until the displayed wind angle is correct.

Press ✓ to confirm - the Analogue Wind display is now calibrated.

The display will then return to the main calibration menu.

**NOTE** Press ✗ to exit to the main calibration menu at any point.

## 3.4 Local & Network Backlighting

The instrument backlighting can be set so that any changes to the backlighting are duplicated across all IS12 instruments installed on the boat (*Network*), or so that any changes are limited to this specific instrument only (*Local*).

**NOTE** The IS12 instruments are set to Networked lighting as default.

Enter calibration mode, press ▼ three times (the display will show LIGHT) and press ✓ (**INFO**).

The digital display will show the current setting - NET for Networked or LOC for Local. The setting can be changed using the ▽ or ▼ keys (Fig 3.5) -

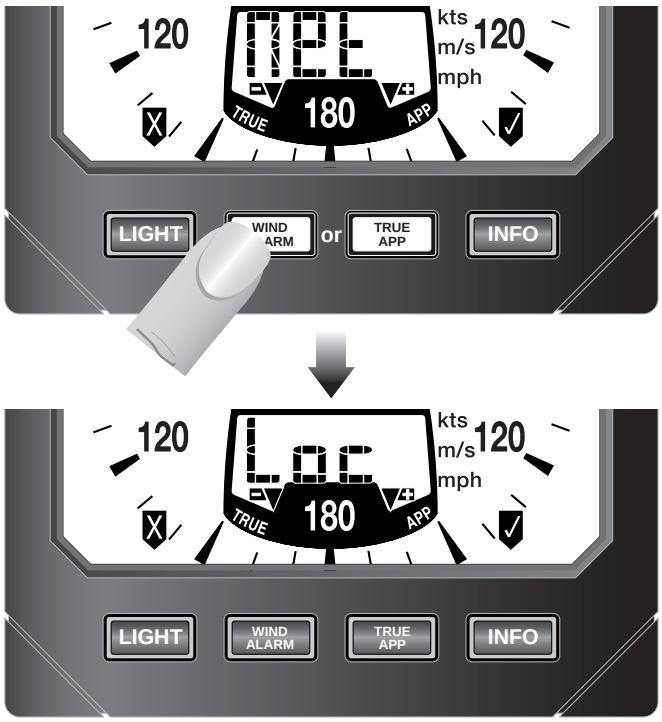



*Fig 3.5 - Local and Network Backlighting*

To set the selected backlighting, press ✓. The display will then return to the main calibration menu.

**NOTE** Press ✗ to exit to the main calibration menu at any point.

**NOTE** Any changes will affect this specific instrument only.

## 3.5 Shop Mode

This is a simulation mode for in-store demonstration - do not use.

## 3.6 Disable Remote Control

On some installations which includes the IS12 Remote Control, it may be more convenient to limit remote control access to only some instruments on the network - for example on a sailboat with a set of cockpit instruments and chart table repeaters, it would not be desirable to be able to remote control the instruments on the chart table (Fig 3.6) -

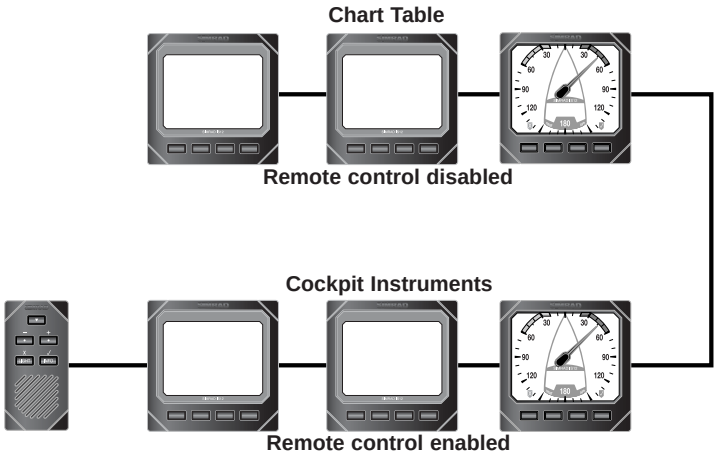



*Fig 3.6 - Sailboat system with Remote control of cockpit instruments only*

To disable remote control functionality on this instrument, enter calibration mode, press ▼ five times (the display will show CTRL) and press ✓ (**INFO**).

The display will show the current setting - ON for remote control enabled or OFF for remote control disabled. The setting can be changed using the ▼ or ▼ keys.

To set the selected mode, press ✓. The display will then return to the main calibration menu.

**NOTE** Press ✗ to exit to the main calibration menu at any point.

**NOTE** Any changes will affect this specific instrument only.

For further information on Remote Control operation, please refer to the user manual supplied with the Remote Control / Alarm unit.

# 4 INSTALLATION

## 4.1 Instrument Head Installation

All IS12 instrument heads are a standard 110 x 110mm (4.3 x 4.3in) size, and can be mounted either from the front or the rear.

### 4.1.1 Front Mounting

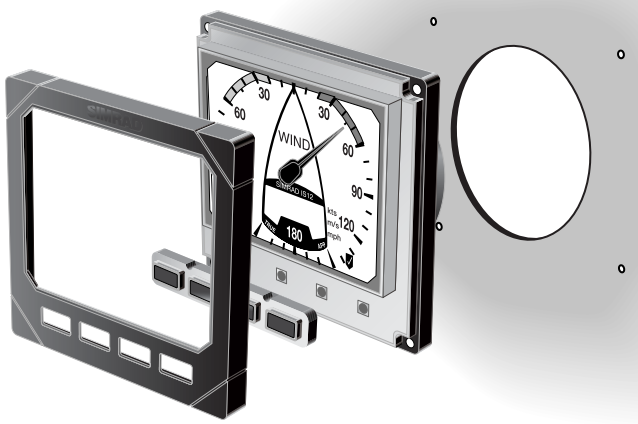



*Fig 4.1 - Front Mounting*


*Fig 4.2 - Clearance Required Behind Bulkhead*

Front mounting (Fig 4.1) is the standard method of fitting and is the most straightforward. When mounting the instrument head it is important to ensure that there is adequate clearance behind the bulkhead for the rear of the instrument with the cables inserted - allow at least 35mm (1.4 in) clearance (Fig 4.2).

Additionally, the instrument should not be fitted to a surface that has a curve greater than 1mm (1/25 in) across the mounting area. If fixing to an uneven surface, care should be taken not to overtighten the screws. When choosing a location, consideration should be given to the water integrity of the gasket seal if the surface is not flat. IS12 is designed to be weatherproof, but the rear of the instrument case with its electrical connections should be protected from moisture as far as possible.

Tools required for installation -

-Drill
- 86mm (3.4in) hole saw
- 2.5mm (0.09in) drill bit
- Countersinking bit

Using the self adhesive template supplied, drill the central aperture for the instrument case using the hole saw, then the four fixing holes as indicated on the template. If the instruments are to be fixed to a GRP bulkhead, the fixing holes should be countersunk after drilling, to stop the screws splitting the gelcoat. *ctd* -

The instrument is 110mm (4.33 in) square, but a distance of at least 6mm (0.25 in) should be allowed between adjacent units for the protective instrument cover supplied.

**NOTE**

Long term exposure to direct sunlight can damage the liquid crystal display if left unprotected when not in use - always use the instrument cover supplied.

The easiest way to fit the keypad and the bezel to the installed instrument head is to locate the keypad in the keyholes in the bezel and then offer this up to the instrument head, angling the bezel back slightly to prevent the keypad falling out. The bezel should click into place when located correctly (Fig 4.3) -

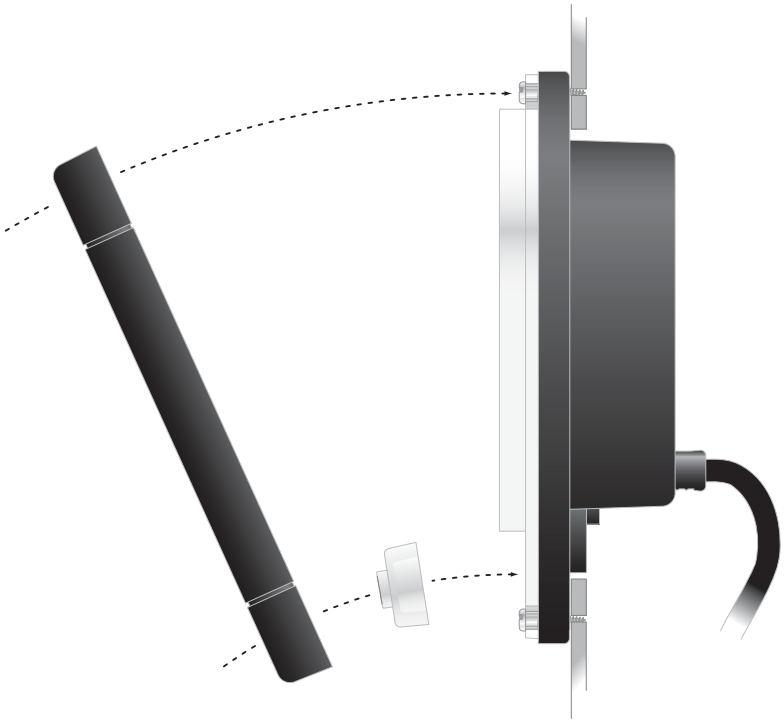


*Fig 4.3 - Fitting Keypad and Bezel*

To remove the bezel, simply lift the top edge of the bezel slightly to disengage the locking clips and pull away from the instrument head (Fig 4.4) -

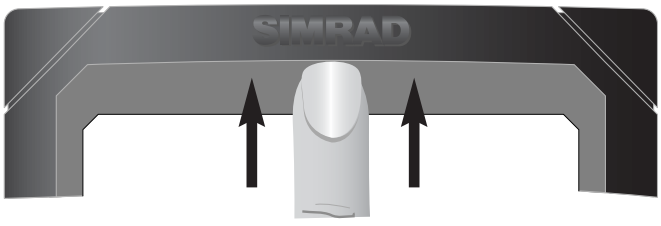



*Fig 4.4 - Removing Bezel*

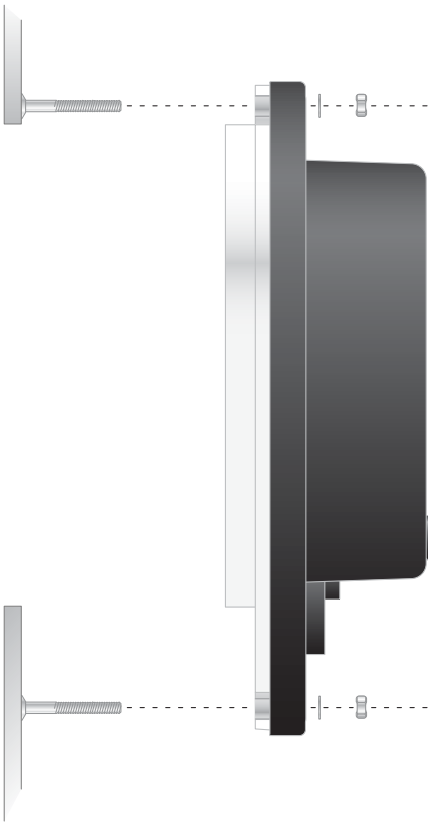


*Fig 4.5 - Rear Mounting*

## 4.1.2 Rear Mounting

When the instrument is rear mounted, only the display can be seen - the main body of the instrument, including the keypad is hidden behind the panel. This is a more elegant method of installation, but does require precise cutting of the apertures into the bulkhead or dashboard. **Therefore, it is recommended that installation is done by a professional marine installer.**

The instrument can be fixed to the panel using either the self tapping screws supplied (if the panel is thick enough), or using 2mm studs fixed to the rear of the panel which align with the four fixing holes (Fig 4.5).

Tools required for installation -

- Drill
- 5mm (0.2in) drill bit
- Fretsaw
- A fine toothed file.

To assist in cutting a precise aperture for the display, a self adhesive template is supplied with the unit (Fig 4.6) -

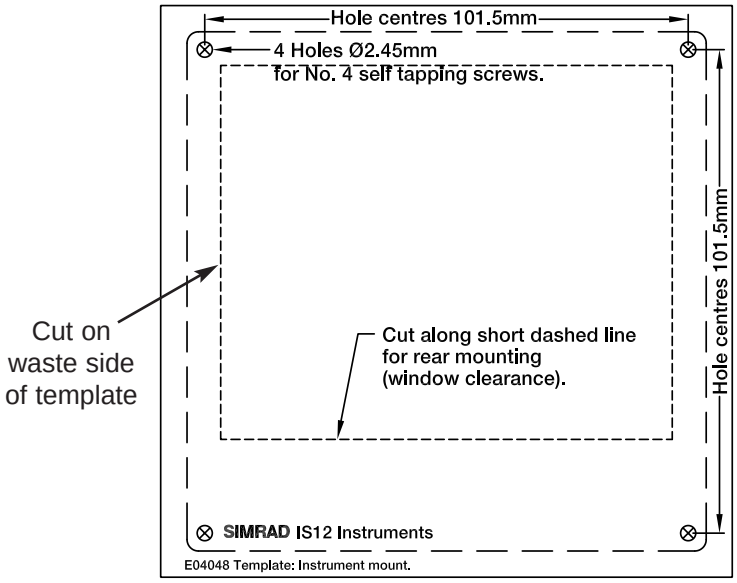



*Fig 4.6 - Cutting Aperture*

Fix the template in the correct position and drill four 5mm holes on the waste side of the four corners of the aperture. Starting from one of these holes, **carefully** cut along the dotted line around the four edges. To ensure the hole is a good fit, cut slightly inside the line (on the waste side) and then use the file to smooth the edges until the display fits precisely.

**NOTE**

Because the keypad is not accessible with this method of mounting, the Remote Control unit (see Section 2.7) will be required to enable control of instrument functions.

# 4.2 Transducer Installation

## 4.2.1 Running the Cable

It is easiest to run the transducer cable if the mast is stepped. If this is not possible, all necessary precautions should be taken - always use a bosuns chair and ensure all tools are securely attached when working aloft.

Apply the self-adhesive template supplied to the masthead, pointing fore-aft. Drill the fixing and cable exit holes as marked - the masthead bracket incorporates a cable clamp to secure the transducer cable and provide strain relief (Fig 4.7) -

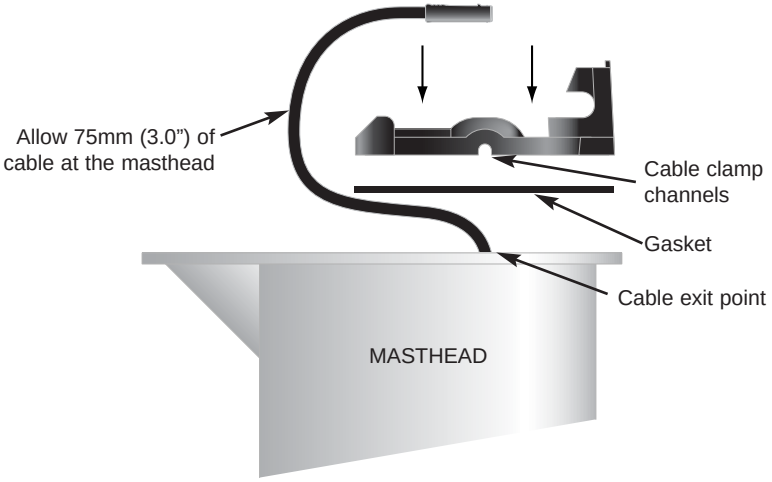



*Fig 4.7 - Drilling Exit Hole for Transducer Cable*

**NOTE**

The cable can be fed through the side of the mast if this is more convenient.

It is recommended that a grommet is used to avoid damage the cable where it passes through the mast. Allow at least 75mm (3.0”) of cable at the masthead for the transducer connection.

For boats with an aluminium mast, a channel is normally provided inside the mast Section for running electrical cables. This will usually have a tag line, or “mouse” - a length of line running the length of the mast to assist in pulling through cables. If not, the cable will need to be fed down and drawn out the bottom by hand.

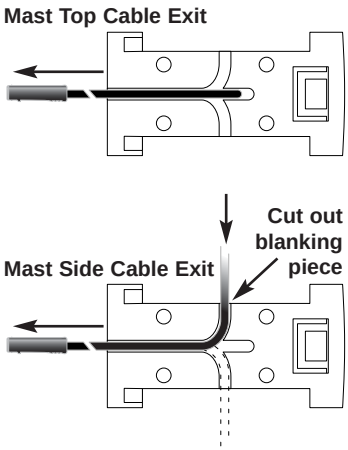



*Fig 4.8 - Cable Channel Exit Points*

For boats with a wooden mast, the cable can be run down the outside of the mast, held in place with galvanised cable clips.

## 4.2.2 Fitting the Masthead Bracket

Route the transducer cable in the strain relief channels in the bracket and out the back. If the cable exits through the side of the mast, route the cable in one of the blanked off side channels and out the back (Fig 4.8). Use a sharp knife or scalpel to remove the blanking piece and open up the channel.

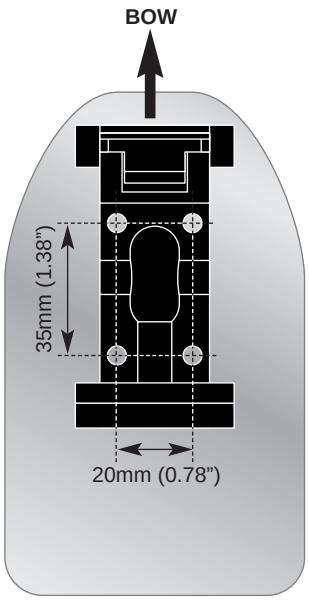



*Fig 4.9 - Fitting Masthead Bracket*

Attach the masthead bracket with the screws provided. Ensure the bracket is mounted the right way round, so that the wand will be pointing in the correct direction (Fig 4.9). The transducer can be mounted facing aft if required, but it will be necessary to set the transducer orientation to AFT in the calibration menu (see Section 3.2 for more details).

## 4.2.3 Assembling the Transducer

The vane and cups assemblies are packed separately - fit the vane to the transducer so that the shaft on the top of the transducer fits correctly into the vane (the shaft is keyed so that it will be aligned correctly). Screw the counterweight in just far enough to lock the vane into place (Fig 4.10) -

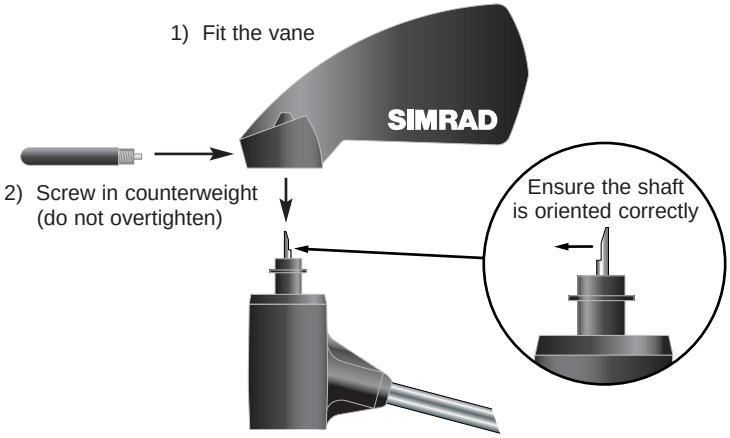



*Fig 4.10 - Attaching Wind Vane*

**NOTE** Check that the vane rotates freely - do not overtighten the counterweight or it may restrict the vane's movement.

The anemometer cups fit to the base of the transducer body in a similar way (Fig 4.11). Once fitted, they are held in place by a grub screw, which should be tightened (using the allen key supplied) enough to hold the cups in place without restricting their movement.

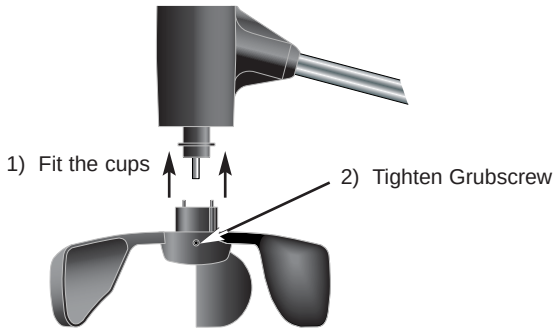



*Fig 4.11 - Attaching Anemometer Cups*

**NOTE** Check that the cups rotate freely.

### 4.2.4 Attaching / Removing the Transducer

The masthead transducer is attached to the masthead bracket using a simple quick-release clamp system.

**1** - Slide the locating pegs on the rear of the transducer base into the slots on the masthead bracket.

**2** - Rotate the transducer down onto the masthead bracket.

**3** - The transducer base will then lock into place (Fig 4.12) -

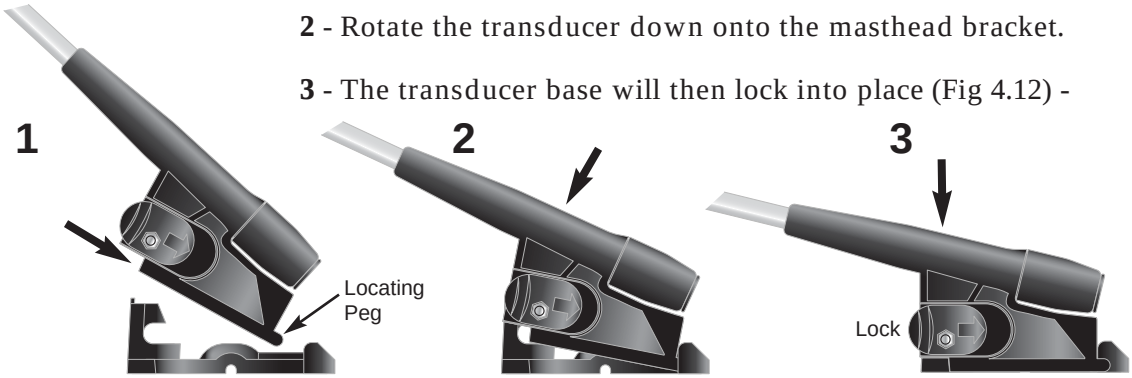



*Fig 4.12 - Attaching Masthead Transducer*

**WARNING** Ensure the quick release clip is properly engaged by pulling it fully forward.

Fit the transducer cable to the socket in the back of the masthead transducer.

**NOTE** To avoid damage, it is recommended that the masthead transducer be taken down at the end of the season if the boat is to be laid up or lifted out.

Simply remove the transducer cable, pull the release clip back and lift the transducer off the masthead bracket (Fig 4.13) -

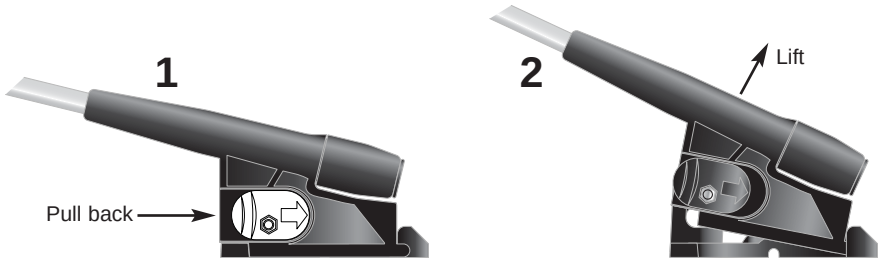



*Fig 4.13 - Removing Masthead Transducer*

**WARNING** To avoid corrosion of the electrical contacts, always fit the cover supplied over the end of the masthead cable.

## 4.3 Electrical Installation

IS12 instruments are 'daisy chained' together, with each instrument linking to the previous one by a single cable carrying power and data (Fig 4.14). The cable plugs into either of the two circular network ports on the rear of the instrument.

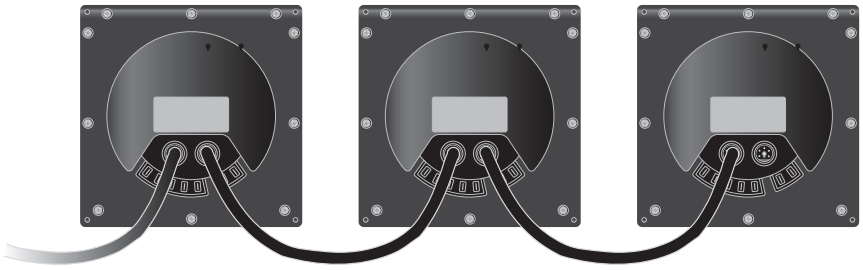


*Fig 4.14 - IS12 "Daisychain" Cable System*

The cable connectors are keyed so that they will always be correctly oriented when inserting the cable into the instrument - the flattened edge of the connector should be facing down when inserting (Fig 4.15) -

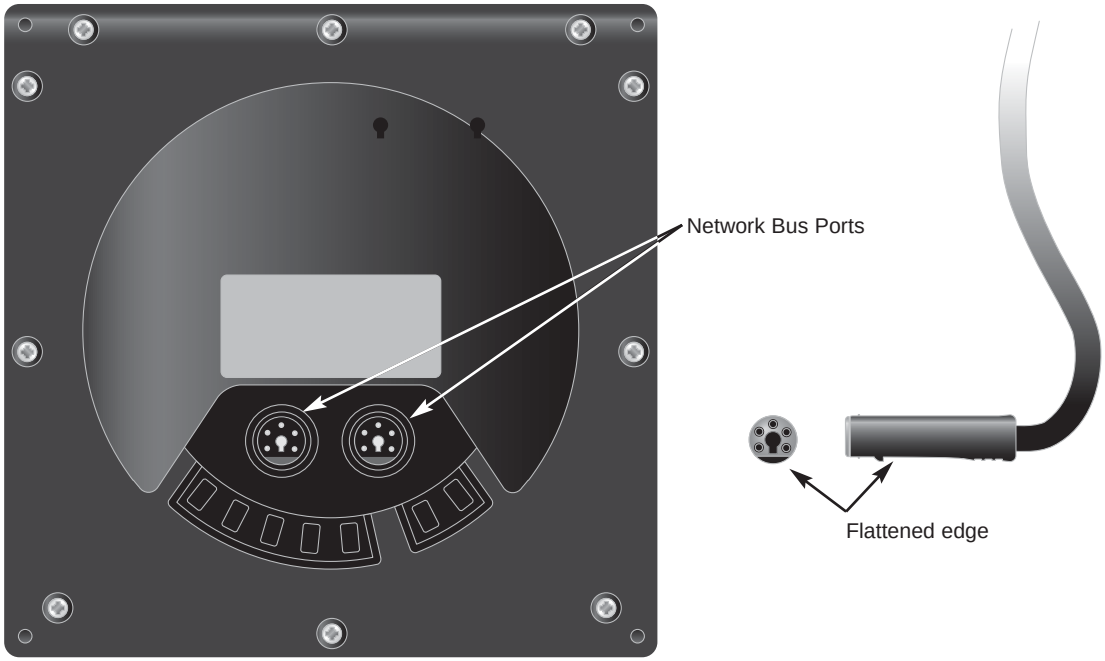



*Fig 4.15 - Rear Connections*

The first link in the IS12 system is the power cable, which should be connected to the boat's 12v DC supply via a 3 Amp breaker or fuse as follows -

**Red wire - 12v DC**
**Black wire - 0v**

**NOTE** Only one power cable is required in an IS12 system, but power *must* be supplied via an IS12 power cable (with a red connector end), or the system will not function.

A three way joiner (part no. **SDJ**) is available as a separate accessory (Fig 4.16) -

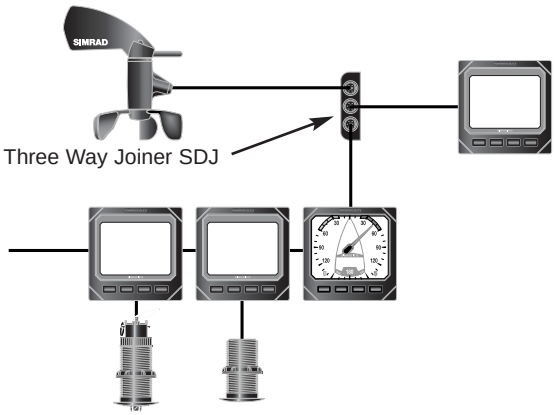



*Fig 4.16 - Three way joiner*

The transducer is connected to the instrument using the spare network port on the rear of the instrument (Fig 4.17) -

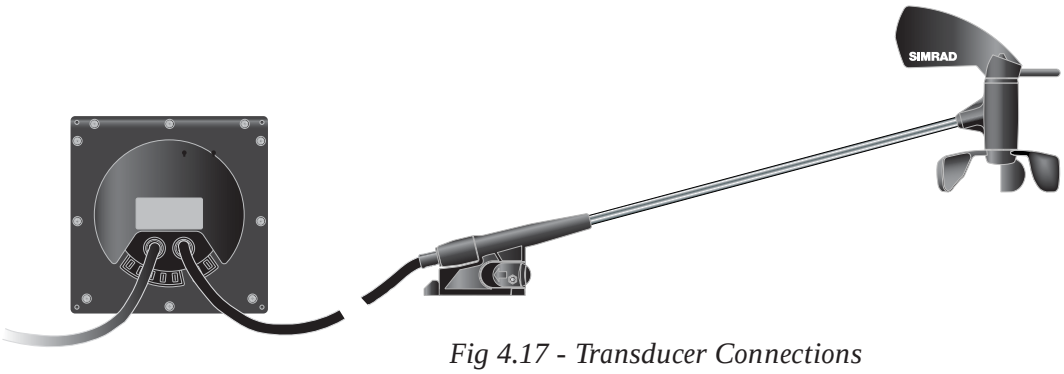



*Fig 4.17 - Transducer Connections*

**NOTE** If the boat is fitted with more than one IS12 instrument, it should be noted that it is not necessary to plug the wind transducer cable directly into the back of the wind instrument - any spare network port can be used.

**NOTE** If the Wind system is being added to an existing IS12 installation with a network terminator fitted, this should be removed as the masthead transducer already has an inbuilt terminator.

## 4.4 Electronic Interference Suppression

IS12 has been designed to minimise the effects of interference generated by the engine alternator. However, precautions should still be taken by routing the cables away from the engine compartment. Do not run the cables down trunking carrying high current cables. The transducer cable should also be kept separate from the boat's radio antenna cable if possible.

Engines with spark ignition, also some refrigerators should be fitted with suppressors. Your local agent should be able to advise on this and supply suppression kits where necessary.

# 5 APPENDIX

## 5.1 Fault Finding

| Symptom | Possible Cause | Remedy |
|---|---|---|
| No display on any heads in the system | • Faulty connection to power<br>• Fuse has blown | • Check power connection<br>• Replace fuse and check power supply current |
| No display on one or more heads in system | • IS12 data cable loose or broken | • Check cable linked to first faulty unit. Replace if necessary |
| Occasional poor performance | • Electrical interference from other equipment on boat (see Section 4.4) | • Fit interference suppressors to equipment responsible |
| Display shows "---" | • Faulty connection to transducer | • Check transducer connection |

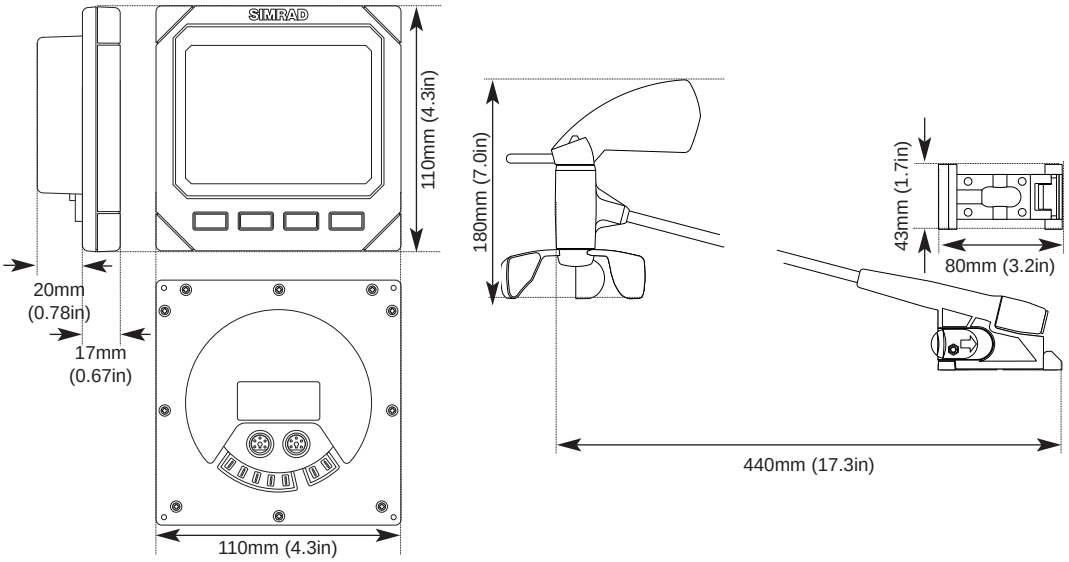
These simple checks should be carried out before seeking technical assistance and may save time and expense. Before contacting your servicing agent please note the unit's serial number.

## 5.2 Spares & Accessories

The following spares and accessories are available from local Simrad agents. Please quote part number when ordering -

| | |
|---|---|
| **IS12Wind:R** | Analogue Wind Repeater |
| **IS12Mega:R** | Digital Repeater |
| **IS12Remote:F** | Remote Controller |
| **SPC2M** | Power Cable 2m |
| **SDC0.3M** | IS12 Cable 0.3m |
| **SDC02M** | IS12 Cable 2m |
| **SDC05M** | IS12 Cable 5m |
| **SDC10M** | IS12 Cable 10m |
| **SDC30M** | IS12 Mast Cable 30m |
| **SDJ** | Three Way Cable Joiner |
| **IS12TW** | Spare Transducer |
| **ISPK08** | Spare Wind Vane Pack |
| **ISPK09** | Spare Anemometer Cups Pack |
| **PIC** | Spare Sun Cover |
| **ISPK03** | Spare Bezel & Keypad Pack - Wind |

## 5.3 Dimensions




## 5.4 Specification

| | |
|---|---|
| Supply Voltage | 12v (9-16v) DC |
| Current Consumption | Light Off - 40mA Light On - 60mA |
| Wind Speed Range | 0-99.9 Kts, m / s, Km / h (0-12 BFT) |
| Max Resolution | 1º |
| Max units per system | 32 |
| Ambient Temp Range | -10ºC to +55ºC (14ºF to 140ºF) |

## 5.5 Service & Warranty

Your equipment should seldom need servicing, although it will benefit from an application of silicone or Teflon grease to the contacts each season. The transducer should be removed at the send of the season and stored.

The unit is guaranteed for 2 years from date of retail sale. If it is necessary to have the unit repaired, return it carriage prepaid to the agent in the country of purchase with a copy of the receipted invoice showing the date of purchase. Where possible, return all the components unless you are certain that you have located the source of the fault. If the original box is not available, ensure that it is well cushioned in packing; the rigours of freight handling can be very different from the loads encountered in the marine environment for which the unit is designed.

For Worldwide Warranty details, please refer to the Warranty Card supplied with this unit.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