

ST50

WIND & CLOSE HAULED/VMG

Installation and Operation

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AutohelmTM

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1. Specifications

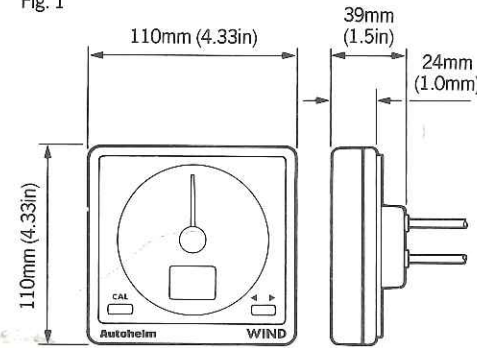
The ST50 Wind can be used as a stand alone instrument or when connected to the Sea Talk bus can supply wind information to a second Wind Unit, the Multifunction Display or any Sea Talk compatible Autohelm Autopilot.

Specifications

- Power Supply
 - 11V to 16V DC.
- Current Consumption
 - 90mA (Illumination off)
 - 215mA (At maximum Illumination)
- Operating Temperature
 - 0°C to +70°C.
- Size 110mm (4.33in) x 110mm (4.33in) x 24mm (1in). Overall depth 39mm (1.5in).
- Computer
 - 8 bit Intel Microprocessor +8K Rom.
- Display
 - Custom 7 segment Liquid Crystal Display (LCD).
- Apparent Wind Angle
 - Scale from 20° to 180°, Port and Starboard.
- Close Hauled Section
 - 20° to 60°.
- Apparent Wind Speed
 - 0 to 60 knots (0 to 30 metres/second), user selectable, permanently stored.
- Windvane Alignment
 - User adjustable, permanently stored.
- Illumination
 - 3 levels and OFF, user selectable, backlit dial with illuminated pointer.

2. Control Head Installation

Fig. 1



2.1 Siting

The ST50 Wind Instrument is designed for above or below deck installation.

Position where it is:-

- Easy to read by the helmsman.
- Reasonably well protected from physical damage.
- At least 230mm (9in) from a compass.
- At least 500mm (20in) from radio receiving equipment.
- Accessable from behind to secure in place and run cables.

Note: The back cover is designed to breath through a duct in the cable boss to prevent mositure accumulation.

2.2 Mounting Procedure (Fig. 1)

The mounting surface must be smooth and flat.

- Use the template provided to mark the centres of the two fixing holes and central boss.

Note: Adjacent units should have a 6mm (1/4in) separation to allow room for the protective covers.

- Drill to 4mm (5/32in) diameter.
- Use a 50mm (2in) diameter cutter to drill the hole for the central boss 1.
- Screw the two fixing studs 2, into the back cover.
- Pass the cable tails through the central hole and secure the instrument with the thumb nuts provided 3. (A sealing gasket 4 is already attached to the back cover).

Bracket Mounting (Fig. 2)

As an alternative to surface mounting, a bracket mounting kit (Cat. No. D130) is available to allow the instruments to be bracket mounted.

Fig. 2

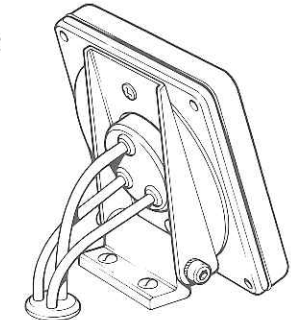
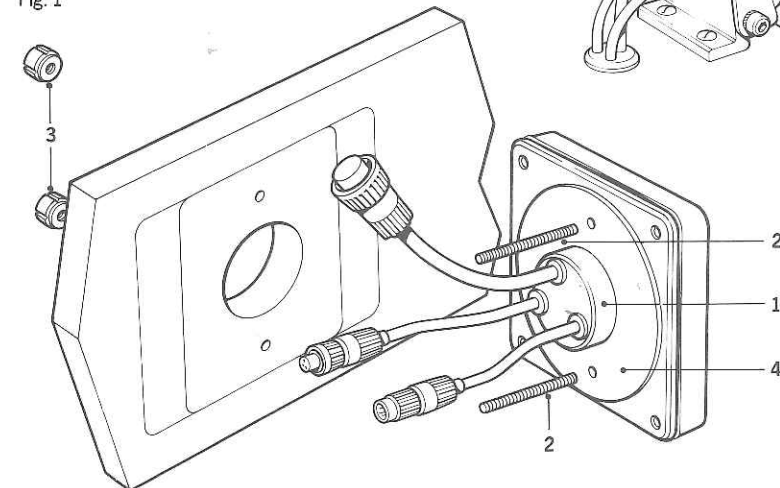
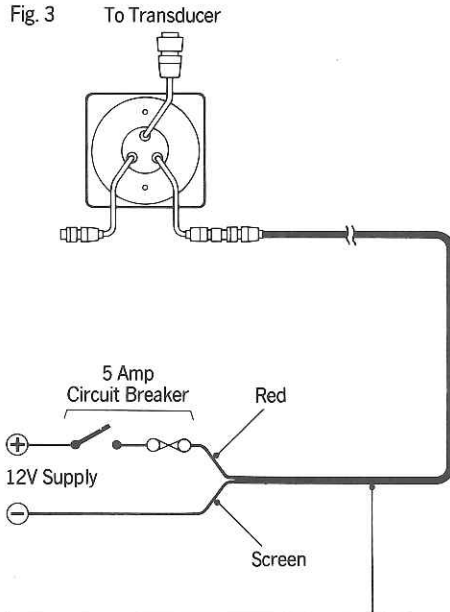


Fig. 1



2.3 Power Supply (Fig. 3)



Power Supply Cable	
2m (6ft)	
Red	+12V
Screen	0V

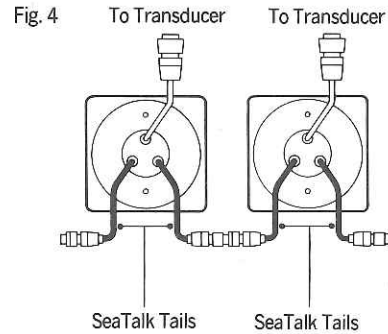
Most installations only require one connection to the 12V power supply.

This is connected to the first SeaTalk Instrument using the 2 metre cable supplied.

Plug the connector into the instrument and lead the other end back to the vessel's distribution panel. Cut the cable to length, connect directly to the distribution panel and protect with a 5A circuit breaker. Connect the red wire to +12V and the screen to 0V. The yellow wire should be cut back and insulated.

Longer runs to the power supply can be made using the SeaTalk Extension Cable (Cat. No. D131) which is 9m (30ft) long.

2.4 Connection to Adjacent Instruments (Fig. 4)



All instruments receive both power and information from the SeaTalk bus. Each instrument has two SeaTalk connectors (3 pin) on short 150mm (6in) tails to allow adjacent units to simply plug together.

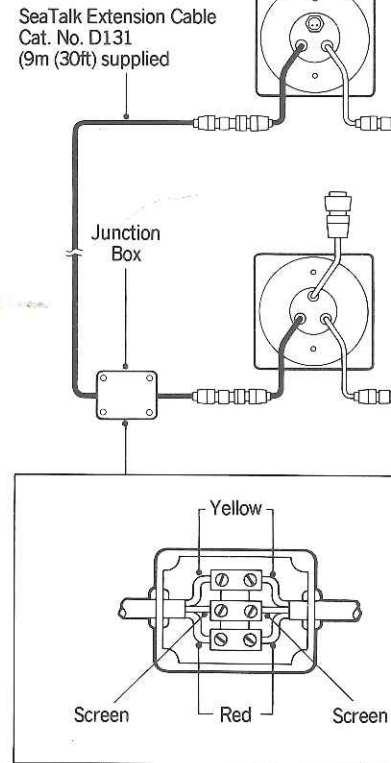
2.5 Connection to Separated Instruments (Fig. 5)

Separated instruments are connected using the SeaTalk Extension Cable (Cat. No. D131). This is supplied with a SeaTalk connector fitted to each end and with a junction box to rejoin the cable if it is cut to ease routing or for shortening.

If preferred, any 2 core screen cable which has the following specification may be used in the place of the SeaTalk cable.

	Minimum Copper Area	AWG
Screen	0.5mm ²	22
2 Cores	0.5mm ²	22

Fig. 5



2.6 Ring Connection

Installations with a large number of instruments on the SeaTalk bus may require a second ring main connection to Power Supply to avoid excessive voltage drops. This can be checked using the table below:-

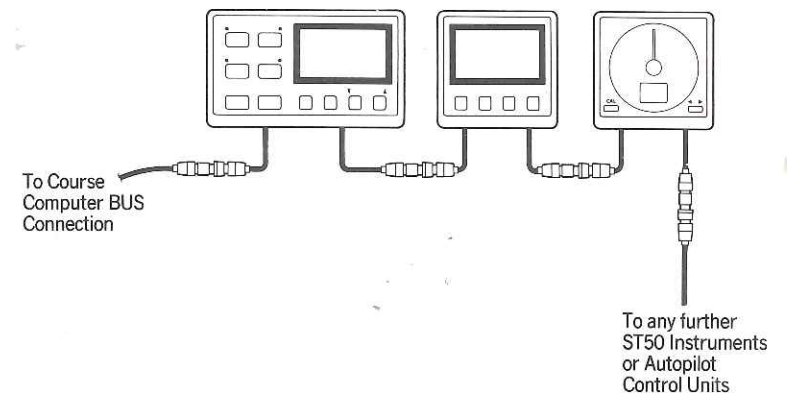
SeaTalk Cable Length	Max. Number of Units	
	Single Connection	Second Connection
Up to 10m (33ft)	13	26
Up to 20m (66ft)	7	13

The second connection should be made to the spare lead on the last instrument and led back to the circuit breaker.

2.7 Connection to SeaTalk Compatible Autopilots (Fig. 6)

If the vessel's installation includes a SeaTalk Compatible Autopilot the ST50 instruments may be connected into the SeaTalk bus at any point. No separate connection to the 12V power supply is necessary as the instruments will receive power via the bus from the autopilot course computer.

Fig. 6



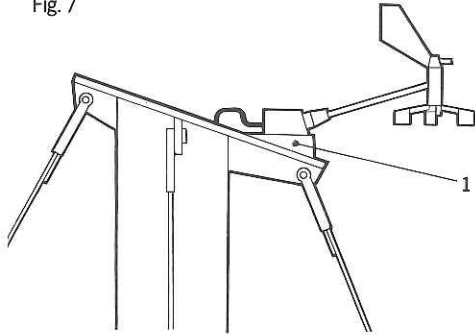
3. Transducer Installation

3.1 Connection to Instrument

Each ST50 wind instrument has a transducer cable tail with connector. Each masthead transducer is supplied with 30m (100ft) of cable and the connector fitted on the end simply plugs into the instrument cable tail.

3.2 Masthead Transducer Installation

Fig. 7



For the best performance, the mounting block must be fixed to a horizontal surface. If the mastop is not horizontal, make up a wedged packing piece 1 to suit (Fig. 7).

- With the threaded end of the mounting block 2 facing forward mark the position for the 2 self tapping screws. (Fig. 8).
- Drill the holes using the 4.0mm (5/32in) drill bit supplied.
- Attach the mounting block using sealing compound.
- **Tighten the locking ring 3 very securely.**

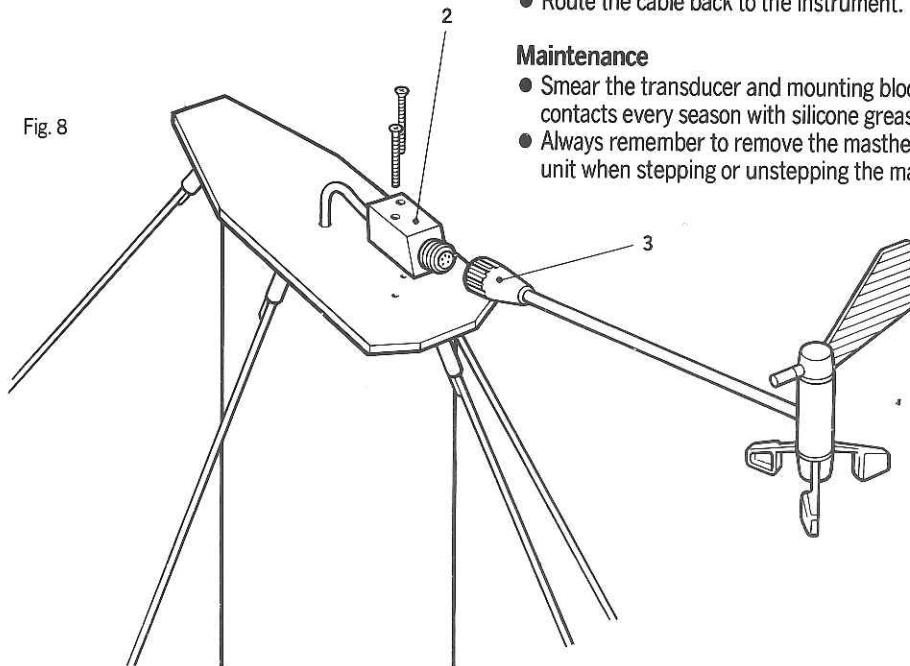
Cabling

- Cut the cable with sufficient length to route from the mounting block to the below deck junction box.
- Feed the cable down the mast. If the mast is deck stepped the cable should be passed through the deck and sealed using a proprietary gland fitting.
- Connect the cable to the junction box supplied close to its entry to the vessel to allow mast unstepping.
- Route the cable back to the instrument.

Maintenance

- Smear the transducer and mounting block contacts every season with silicone grease.
- Always remember to remove the masthead unit when stepping or unstepping the mast.

Fig. 8



4. Fault Finding

All Autohelm products are subject to a comprehensive test procedure prior to packing and shipment. In the unlikely event that a fault does arise the following check list should help cure the problem.

Fault	Course	Action
Instrument Display Blank	No Supply	Check Supply Check Cabling and security of SeaTalk connectors Check fuse/breaker Return ST50 Instrument for repair
No exchange of information between SeaTalk Instruments (i.e. illumination levels)	SeaTalk Cabling/Connector problem	Check security of SeaTalk Connectors Remove Instruments one by one to isolate faulty unit
Failure of a group of Instruments in the SeaTalk chain	SeaTalk Cabling/Connector problem	Check security of SeaTalk Connectors between functioning and non-functioning instruments

5. Maintenance

5.1 Control Head

- In certain conditions, condensation may appear on the window. This will not harm the instrument, and can be cleared by switching on the illumination to the brightest level.
- Never use any chemical or abrasive materials to clean your ST50 Wind. If the Instrument becomes dirty wipe clean with a damp cloth.

5.2 Masthead Transducer

- Smear the transducer and mounting block contacts every season with a silicone based grease.
- Always remove the transducer when stepping or unstepping the mast.
- Check the transducer locking ring is greased and securely tightened.
- Check mounting block securing screws are tight.
- Ensure vane and anemometer rotate freely.

5.3 Cabling

- Avoid running cables through bilges where possible and secure any coiled lengths at regular intervals.
- Avoid running cables close to fluorescent lights, engine, radio transmitting equipment etc.
- Check cabling for chafing or damage to outer casing, replace where necessary and re-secure.

Advice

Should any difficulties arise, please consult Nautech Product Support Department in the U.K. or your own National Distributor who will be able to provide expert assistance.

6. Operation

The ST50 Wind can be connected to other ST50 Instruments to provide a fully integrated instrumentation system that can be linked to any of the Autohelm SeaTalk compatible autopilots.

6.1 Set Up

As supplied all ST50 Instrument Modules are Tested and Calibrated to factory standards. It is important that before using these instruments for Navigation purposes the following calibration procedures described in this manual are carried out for your specific installation.

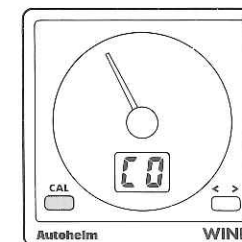
6.1.1 Windvane Alignment

This allows the windvane transducer to be accurately aligned to the vessel. Before it is carried out the windvane should be linearised as follows:-

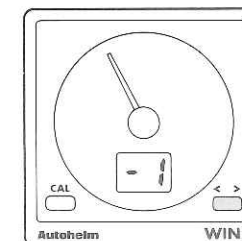
- Power up the Instrument.
- Turn the vessel through two complete circles making sure the windvane remains aligned to the wind. The wind instrument will automatically linearise the windvane.

Alignment Procedure

- Push and hold down **CAL** for 2 seconds until **CO** is displayed on the LCD.



- Push the rocker button to drive the pointer to correct wind angle.



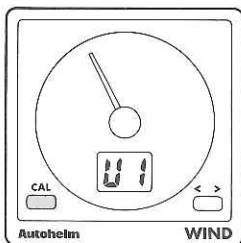
- Push once to move pointer 1°.
- Push and hold down for one second to move pointer at 10° per second.

Note: The LCD will show the applied correction.

- Push and hold down **CAL** for 2 seconds to exit windvane alignment and store the correction.

6.1.2 Windspeed Unit Selection

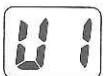
- Push and hold down **CAL** for 5 seconds until U1 or U2 is displayed.



- Push **CAL** within 8 seconds to change windspeed unit selection.



Metres per second

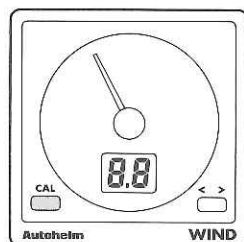


Knots

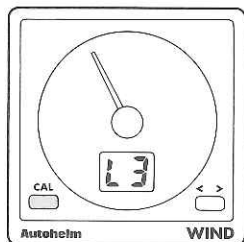
- After 8 seconds the Wind Module automatically returns to normal operation.

6.2 Illumination

Control of Illumination levels is common to all ST50 Instrument Modules. The control is always selected using the **left-hand** push button.



- Push and hold down the **CAL** button for 1 second to switch ON (if OFF), or to display current illumination level (if already on).



- Push **CAL** button within 8 seconds to select required illumination level.*
 - L3 High
 - L2 Medium
 - L1 Low
 - L0 Off

*Display returns to previous status after 8 seconds.

Close Hauled/VMG

1. Specifications

The ST50 Close Hauled/VMG provides an expanded close hauled display on the dial and when boat speed information is available on Sea Talk bus, the LCD provides a continuous readout of Velocity Made Good (VMG).

The left hand button (lamp) is used for switching illumination and the right hand button is a dummy and has no function.

Control Head Installation and Maintenance for the ST50 Close Hauled/VMG is identical to the ST50 Wind. Please refer to the relevant Wind sections in this handbook.

Specifications

- Power Supply
 - 11V to 16V at 90ma (no illumination).
- Current Consumption
 - 90mA (Illumination off)
 - 215mA (At maximum illumination)
- Operating Temperature
 - 0° to +70°C.
- Size
 - 110mm (4.33in) x 110mm (4.33in) x 24mm (1in). Overall depth 39mm (1.5in).
- Computer
 - 8 bit Intel Microprocessor +8K Rom.
- Display
 - Custom 7 segment Liquid Crystal Display (LCD).
- Close hauled display over 20° to 60°.
- Display of V.M.G.
 - (An ST50 Speed Unit also needs to be present on the SeaTalk bus).
- Illumination
 - 3 levels and OFF. User selectable, backlit dial with illuminated pointer.

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