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ST50 DEPTH
Installation and Operation

Autohelm™

Contents

pecifications

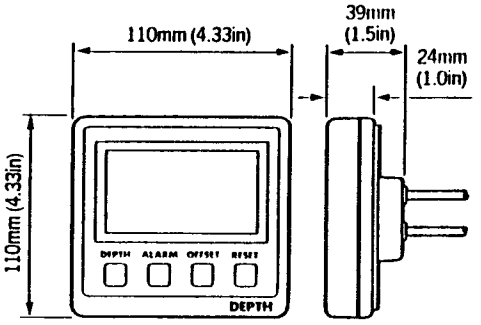
Depth can be used as a stand-alone nt, or when connected to the SeaTalk upply information to the Multifunction a Tridata Repeater.
play can be set in either feet or metres. ns in this manual correspond to an nt set up to display feet. For an nt set up to display metres, all displays r in metres.
rrows indicate significant changes in th.

not possible to use the ST50 Depth as r unit without a transducer input. dedicated repeater is required use Multi Function Display.

Specifications

- Power supply
  - 11V to 16V DC at 50ma (illumination off).
- 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 dot matrix/7 segment liquid crystal display (LCD).
- Depth
  - 0.8 to 180 metres
  - 2.5 to 600 feet (0.4 to 100 fathoms).
- Shallow Alarm
  - Audible and Visual, 2 minute inhibit, 1 to 10 metres (3 to 33 feet), user resettable, permanently stored.
- Deep Alarm
  - Audible and Visual, 30 second auto cancel, sounds on crossing 3 to 120 metres (10 to 400 feet), user resettable. Resets and cancels on power down.
- Anchor Watch
  - Combined Shallow/Deep alarm.
- Offset
  - Keel or Waterline, 0 to 3 metres (0 to 10 feet), user resettable, permanently stored.
- Illumination
  - 3 levels and OFF, user selectable.
- Display Unit Selection
  - Feet/Fathoms or Metres, user selectable, permanently stored.

2. Control Head Installation



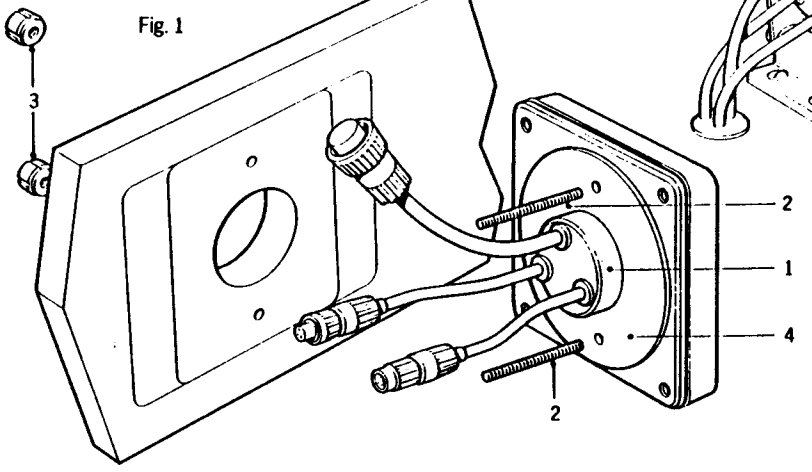
2.1 Siting

The ST50 depth 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.
- Normally viewed straight on for best display legability.

Fig. 1



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

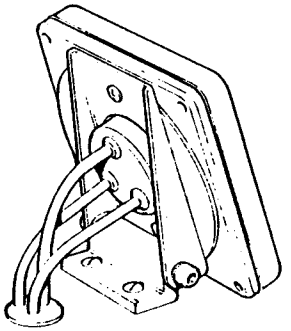
Note: Adjacent units should have a 6mm (1/4in) separation to allow room for the protective covers.

- 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).

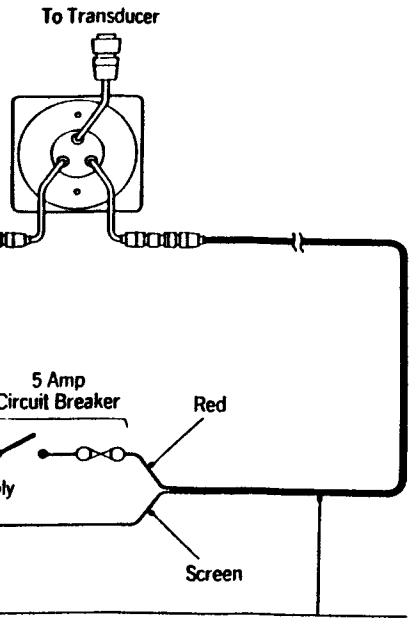
Bracket Mounting (Fig. 2)

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



Power Supply (Fig. 3)

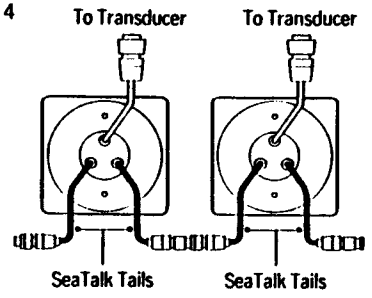


upply Cable	
	+12V
	0V

stallations only require one connection to power supply.
s connected to the first SeaTalk ent using the 2 metre cable supplied. he connector into the instrument and other end back to the vessel's tion panel. Cut the cable to length, directly to the distribution panel and with a 5A circuit breaker. Connect the to +12V and the screen to 0V. The ire should be cut back and insulated. r runs to the power supply can be made e SeaTalk Extension Cable (Cat. No. hich is 9m (30ft) long.

2.4 Connection to Adjacent Instruments (Fig. 4)

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.

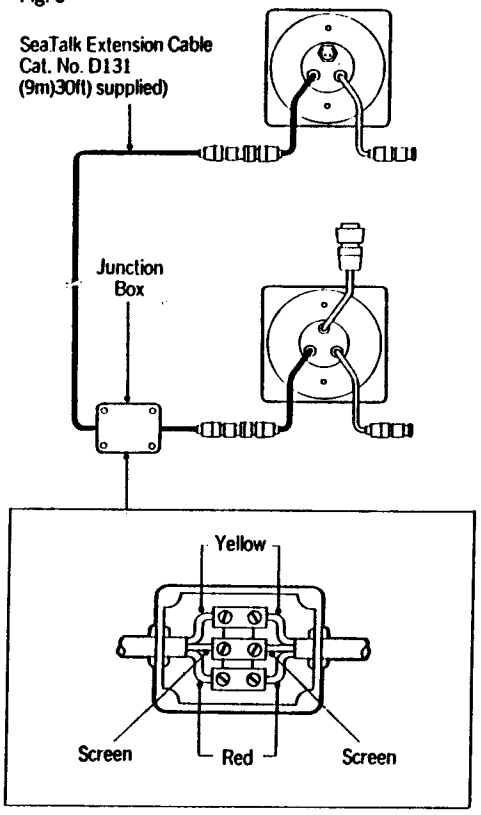
2.5 Connection to Separated Instruments (Fig. 5)

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
Screen	0.5mm^2
2 Cores	0.5mm^2

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 the Power Supply to avoid excessive voltage drops. This can be checked using the table below:-

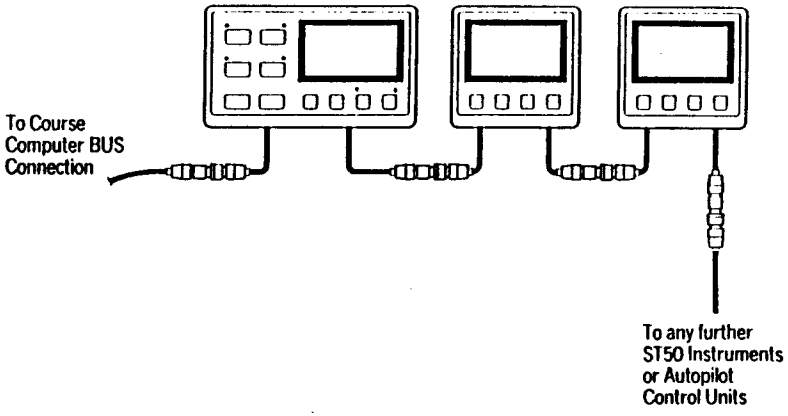
SeaTalk Cable Length	Max. Number of Units	
	Single Connection	Second Connection
Up to 10m (33ft)	13	26
Up to 20m (66ft)	7	13

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 vessels 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.

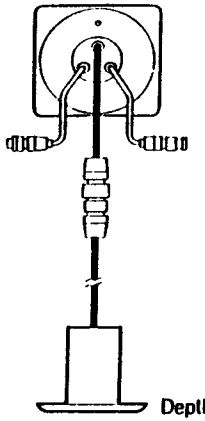
Fig. 6



ransducer Installation

onnection to Instrument

50 depth instrument has a transducer with connector. Each transducer is with 14m (45ft) of cable and simply o the instrument cable tail (Fig. 7).



96) with Transducer

ansducer Selection

transducers are selected depending l material:-

aterial	Depth Transducer
Aluminium	Z091, Through Hull Plastic
	Z118, Through Hull Bronze

tallation

read the instructions supplied with ucer completely before proceeding stallation.

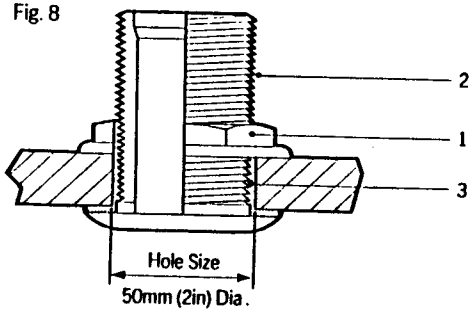
nsducer must be within 10° of vertical e and aft and athwartships.

n (Fig. 8)

mm (1/8in) pilot hole in the selected and check both inside and out that g is good.

- Use a 50mm (2in) diameter cutter to drill the hole from the outside.
- Emery to remove burrs and roughen the surface to provide a good key. Clean inside and outside the hull removing any grease with a weak solvent cleaner or household detergent.

Fig. 8



- Remove the nut 1 from the through hull fitting 2 and apply sealing compound 3 to the mating flange and up the thread 6mm (1/4in) greater than the hull thickness.
- Assemble the through hull fitting making sure not to overtighten the nut 1.
- Remove excess sealing compound.
- Remove 'warning' label from transducer face and clean with a household detergent.
- Check for leaks immediately the vessel is launched. Recheck within 8 to 24 hours.

Cabling

Avoid running the transducer cable close to other signal cables as it may cause interference. This includes the speed transducer cable. Generally 0.2m (8in) clearance will be sufficient.

- The depth transducer cable length (including Triducers) must not be extended or shortened as this will affect performance. Excess cable should be coiled.

Maintenance

- Clean the external transducer face with a stiff brush and protect with a single coat of antifouling.

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 Depth 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
Depth reading continuously flashes (Depth greater than 3 feet)	Transducer Cable/Connector problem	Check cabling and security of Transducer Connector
Depth reading flashes whilst underway	Aerated water Boat wakes Prop wash etc.	Normal reading will return when clear of disturbed water

Maintenance

Control Head

rtain conditions, condensation may
ar on the window. This will not harm the
ument, and can be cleared by switching
e illumination to the brightest level.
r use any chemical or abrasive materials
an your ST50 Depth Instrument. If the
ument becomes dirty wipe clean with a
cloth.

hrough Hull Transducers

dically check the through hull fitting for

the outside of the through hull fitting
, or external transducer face with a stiff
and protect with a single coat of
uling.

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

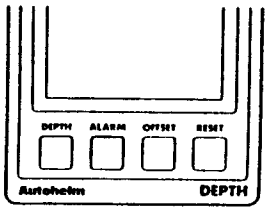
The ST50 depth instrument can be used as an individual module or connected to other instruments to provide part of a fully intergrated instrumentation system which can be linked to any of the Autohelm SeaTalk compatible autopilots.

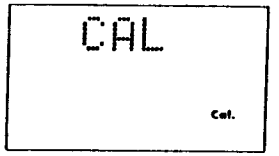
6.1 Set Up

The ST50 depth is set up in the factory to:-

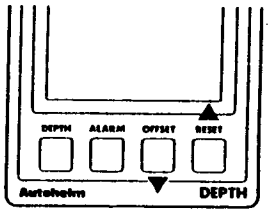
- Display depth in Feet/Fathoms.
- Have Deep Alarm switched off.
- Have Shallow Alarm set to 10 feet.
- Keel/Waterline offset set to zero.
- Display Contrast adjustment set to suit viewing normal to instrument face. These can be changed to suit your preferences as follows:-

- Push and hold down for 2 seconds **Depth** and **Alarm** together to select calibration mode.



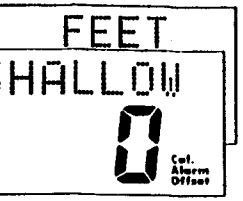


- Push **Depth** to select shallow/deep alarm or keel offset required.
- The selected value is adjusted using **Reset** (▲) to increase, **Offset** (▼) to decrease. 1 second hold down provides fast scroll.

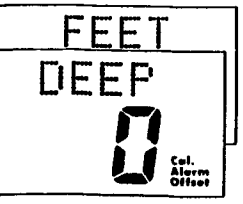


Alarm Set Up

v Alarm



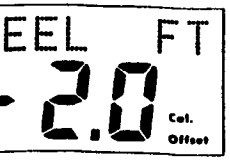
Alarm



switch alarms off set to 0 (as strated).

Offset Set Up

el:-

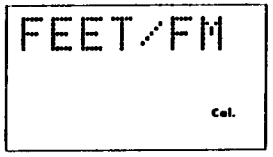


n Depth of Keel below Transducer.
l offset reduces displayed depth.

Or Waterline:-

- Set in Depth of Transducer below waterline.
- Waterline offset increases displayed depth.

6.1.3 Measurement – Unit Selection

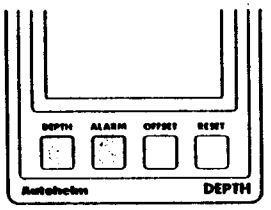


- Push **Offset** or **Reset** to change display units between FEET/FM and METRES.

- Push and hold down for 2 seconds **Depth** and **Alarm** together to exit calibration mode and store the alarm, offset, and measurement unit selection values.

6.1.4 Display Contrast Adjustment

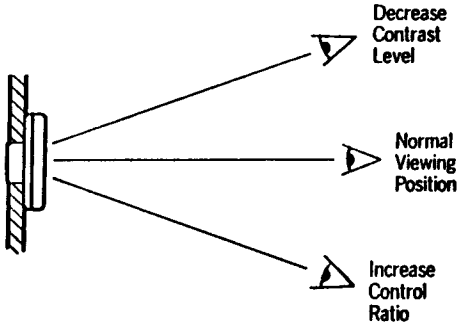
The LCD viewing angle can be user set to achieve optimum display legability.



- Momentarily push **Depth** and **Alarm** together.

- Push **Reset** to increase and **Offset** to decrease the contrast level.
- Adjust for optimum contrast.
- Momentarily push **Depth** and **Alarm** together to store the display setting.

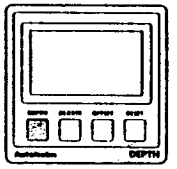
Note: Increasing the display setting will suit installations where the instrument is normally viewed from below.

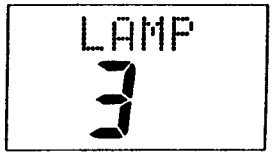


6.2 Illumination

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 **Depth** button for 1 second to switch ON (if OFF), or to display current illumination level (if already on).





- Push **Depth** button within 8 seconds to select required illumination level.

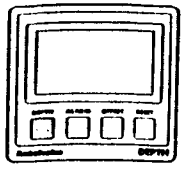
Lamp 3	High
Lamp 2	Medium
Lamp 1	Low
Lamp OFF	Off

The display will return to previous status after 8 seconds.

Depth

Fathoms

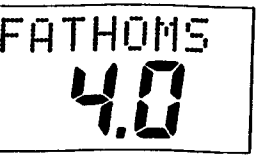
ay Sequence: DEPTH



th in Feet

DEPTH

h in Fathoms



DEPTH

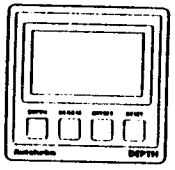
num Depth*

nimum depth from power up or Reset.
sh Reset to reset.

returns to current water depth after 8

Metres

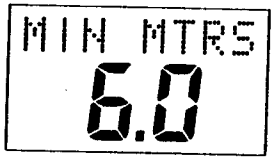
Display Sequence: DEPTH



- Depth in Metres

DEPTH

- Minimum Depth*



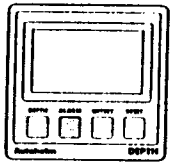
– Minimum depth from power up or Reset.
– Push Reset to reset.

*Display returns to current water depth after 8 seconds.

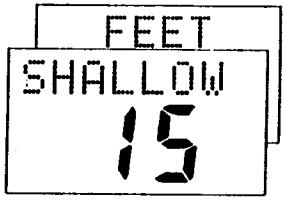
Note: Feet/Fathoms or Metres displayed according to calibration selection.

6.4 Shallow/Deep Alarms

Display Sequence: ALARM

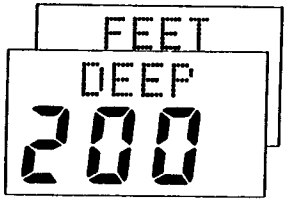


- Shallow Alarm*



ALARM

- Deep Alarm*



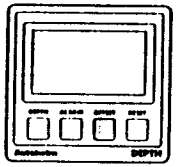
Note: Feet or Metres displayed according to calibration selection.

Depth Alarm Operation
When an alarm condition exists, the alarm is displayed, the buzzer sounds and the alarm legend flashes.

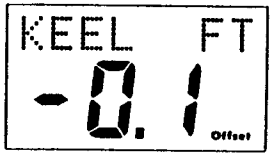
- **Shallow Alarm**
  – Sounds when depth falls below the selected value.
  – Push **Alarm** to silence alarm. If the alarm condition exists after 2 minutes the alarm will sound again.
- **Deep Alarm**
  – Sounds when depth crosses the selected value (can be increasing or decreasing).
  – Push **Alarm** to silence and switch off alarm. If left the alarm will automatically switch off after 30 seconds.

6.5 Keel/Waterline Offsets

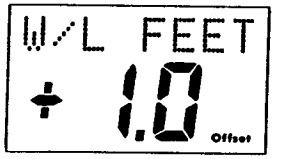
Display Sequence: OFFSET



- Keel Offset/Waterline Offset*



– Keel offset reduces displayed depth.



– Waterline offset increases displayed depth.

Display will show either Keel offset or W/L offse according to calibration offset selected.

*Display returns to current water depth after 8 seconds.