

# **mn100**

## **Digital Display**



*uu034 rev. 8*

## EMC Conformance

All Tacktick equipment is designed to the best industry standards for use in the recreational marine environment. The design and manufacture of Tacktick equipment conforms to the appropriate Electromagnetic Compatibility (EMC) standards. Correct installation is required to ensure that performance is not compromised.



## Important

Due to the wireless communication systems used in Micronet instruments they are only recommended for use on boats up to 14 meters (45 ft.) which are of glass, carbon, or wooden construction. Like any other Electronic instruments your Micronet system is designed to serve only as an aid to navigation and it remains the skippers responsibility to maintain a permanent watch and be aware of developing situations.

## Warranty Information

Tacktick Limited or its authorized Distributors will repair or replace a Tacktick product free of charge where a manufacturing fault becomes apparent within two years of the purchase date provided:

1. No unauthorized attempt has been made to repair the product.
2. The product has not been misused, operated outside of its intended environment or operated in a manner which is incompatible with the written instructions supplied on purchase.

**Proof of purchase date is required for the warranty period to be valid.**

Due to the removable nature of the Tacktick product, on board service will only be available with prior consent from Tacktick or its authorized Distributors.

Failure within the warranty period:

Simply return the product to your nearest authorized Tacktick Distributor, **together with proof of purchase date**.

Failure outside the warranty period:

Simply return your product to the nearest authorized Tacktick Distributor and an estimation for repair will be provided.

Authorized Tacktick Distributor details can be found at [www.tacktick.com](http://www.tacktick.com), or on the back of Tacktick sales brochures.

## 1 Information

1.1	Introduction	-	2
1.2	Specifications	-	2
1.3	Power Management and Battery Life	-	2
1.4	Safety and Disposal	-	4

## 2 Operation

2.1	Instrument Display Information	-	5
2.2	Switching the System On and Off	-	6
2.3	Backlighting	-	6
2.4	Audible Signals and Alarms	-	7
2.5	Chapter and Page Operation	-	8
2.6	Chapter and Page Description	-	10

## 3 Setup and Calibration

3.1	Entering Setup and Calibration Mode	-	16
3.2	Chapter and Page Setup and Calibration	-	16
3.3	Editing Values	-	17
3.4	Setup Page Description	-	18
3.5	Calibration Page Description	-	20

## 4 Seatrial and Calibration

4.1	Depth Offset	-	24
4.2	Speed Calibration	-	25
4.3	Wind Calibration	-	26
4.4	Compass Calibration	-	27

## 5 Installation

5.1	Tools Required and Parts List	-	28
5.2	Precautions and Positioning Advise	-	28
5.3	Bracket Mounting	-	29
5.4	Surface Mounting	-	30
5.5	External Power Connections	-	31

## 6 Maintenance and Fault Finding

6.1	Care and Maintenance	-	32
6.2	Fault Finding and Technical Support	-	32
6.3	Warranty Information	-	36

1 - Information

1.1 Introduction

Your Micronet instrument is powered for life by the environment. Although feature packed and highly visible in all conditions, current demand is so low, and the supply so efficient, that the solar-powered display is self sufficient. Combined with other instruments in the Micronet range this display becomes part of a complete navigational system.

1.2 Specifications


Height of digits:	38mm (1.5")
Backlighting:	3 levels with daylight shutoff System-wide or local control
Power:	Solar Powered 300 hrs autonomy by day, 7 nights at brightest backlighting, 20 nights at economy backlighting without charge
Units of display:	Boat Speed (knots, kilometers per hour, statute miles per hour) Distance (nautical miles, statute miles, kilometers) Depth (meters, feet, fathoms) Wind Speed (knots, meters per second, Beaufort)
Alarm:	Audible Alarm for Depth, Wind and MOB
Weight:	285g (0.63lbs)
Operating Temp.:	-100 to +60OC (140 to 140OF)
Frequency:	868 MHz or 905 MHz

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1.3 Power Management and Battery Life

What makes your mn100 instrument possible is Tacktick’s revolutionary approach to power management. By reducing the amount of power being used by the electronics and maximizing the potential of the sun to provide power, a mn100 instrument becomes a virtually perpetual device.

Power status is indicated by two icons on the instrument display:

Battery Level  and  Charge Rate

Used together these icons will show the condition of your instrument’s power supply.



6.2.10 No NMEA data showing on external instruments.















From any Digital instrument enter Setup and Calibration Mode (page 16) and scroll through to the Health Chapter. Check the signal level and battery status of the NMEA Interface. If the signal level shows a value of greater than 3 then check the data connections and the settings of the NMEA source equipment to ensure that NMEA 0183 is being transmitted correctly.

6.2.11 The Depth Alarm does not sound.

If the actual water depth is shallow and the alarm has not sounded it is most likely that the alarm is switched off. From any Digital instrument enter Setup and Calibration mode (page 16) and scroll through to the Depth Chapter. Ensure the Depth Alarm settings are correct.


\* The “Master Instrument” is the instrument which was used to power up the entire system. This instrument may be different each time the system is used. If you are fault finding and are uncertain which instrument is the master the switch off the system and switch on again. The instrument which you switched on is now the master



Bright Day	Sunny	 and 	Battery is charged and being topped up by the sun. *
		 and 	Battery is low and being charged by the sun.
Overcast Day		 and 	Battery is charged and requires no further charging.
		 and 	Battery is low but maintaining it's level.
Night		 and 	Battery is charged but is not charging.
		 and 	Battery is low with no charging.
LOW Power			It is recommended that the instrument be left in daylight for some time for the battery to recover, or charge from an external 9 - 24V power source. A fully discharged battery will re-charge in approximately 12 hours of direct bright sunlight.
		 and 	

If using the instruments at night power usage can be reduced dramatically by switching the Backlighting to level 1 or Off. If Backlighting is not required on instruments located below decks it is best to set them to “Local” Backlighting control (see page 22 -s31) so that power is not being wasted in instruments which may not be visible from the one being viewed.

\* If the internal battery is fully charged then it does not matter how much the instrument is subjected to bright sunlight no further charging is required and the Charge Rate Indicator will remain low.

 If the instruments are to be stored for a long period of time before next use (Over Winter) ensure that the batteries are fully charged before storage. If necessary connect to a 9 to 24v power supply for 24 hrs prior to storage.

If there is no boat speed or change in heading registered on the system for a period of 12 hours your Micronet instrument will switch off to conserve power. A "POWER SAVE" alarm will sound before the instrument system is switched off. Pressing any button within 10 seconds of the alarm sounding will allow the system to remain switched on.

Backlighting will automatically shut down/off when operated in daylight.



**Artificial light WILL NOT recharge the battery.**

Placing your Micronet instrument close to an artificial light will seriously damage the instrument. Only recharge in natural daylight.

## Applying External Power

In cases where instruments are mounted permanently below decks it will be necessary to apply an external power source to prevent complete discharge of the built in battery.

Connections on the rear of the instrument allow a 9V to 24V DC power source to be connected. Connections can be made to the vessels DC system or a 9V battery pack may be connected. It is recommended that permanent connection is only made when the instruments are permanently fixed to the vessel and not when the clip brackets are used.

Connection to a 9V (PP3) battery will fully recharge the internal battery over a period of 24 hours.

## 1.4 Safety and Disposal

Your Micronet instrument contains Manganese Lithium Dioxide batteries which should be disposed of correctly. Do not dispose of any instrument in domestic waste. Refer to regulations in force in your country.

If in doubt return the instrument to Tacktick Ltd. for correct disposal.

### 6.2.4 Low Battery Alarm sounds.

The power level is low in the Hull Transmitter, NMEA Interface or Wind Transmitter. On any Digital Instrument enter Setup and Calibration mode (Page 18) and scroll through to the Health Chapter. Check the signal levels of the Transmitters and Interface Box. The signal level should show a value of greater than 3 to ensure correct operation. Connect the Hull Transmitter or NMEA Interface to a 9 to 24V power source for 12 hours minimum to recharge the internal battery. Leave the Wind Transmitter in bright sunlight for 12 hours minimum to recharge its internal battery.

### 6.2.5 Data is shown as dashes.

The information is not been transmitted to the instrument Displays. There may be lost communication between the Wind Transmitter or Hull Transmitter and the instrument Displays. On any Digital instrument enter Setup and Calibration mode (page 16) and scroll through to the Health Chapter. Check the signal levels of the Hull and Wind Transmitters. The signal level should show a value of greater than 3 to ensure correct operation.

### 6.2.6 Compass Transducer rattles and/or splashes.

Good! The fluxgate compass is gimballed in a fluid filled container to ensure it is not affected by the boats movement in the water.

### 6.2.7 Compass information displayed on the instrument system does not agree with the main steering compass.

Ensure that the main steering compass has been swung correctly and is showing correct information. Ensure that the instrument system has completed correctly the "Swing" procedure described on page 27. If there are still differences, look for magnetic objects (loud speakers, pumps and motors, etc.) close to the Transducer and try mounting the compass transducer in an alternative location. After changing position of nearby equipment or the Compass Transducer it will be necessary to re-swing the compass following the procedure on page 27.

### 6.2.8 Boat Speed reads 0.

Information being transmitted from the Hull Transmitter is being received with a Zero value. Check the paddle wheel for fouling, clean it and make sure it turns easily.

### 6.2.9 Wind Speed reads 0.

Information being transmitted from the Wind Transmitter is being received with a Zero value. If the anemometer cups at the top of the mast are turning and the Wind Speed reads 0 then there is a problem with your Wind Transmitter.

## 6 Maintenance and Fault Finding

### 6.1 Care and Maintenance

All Micronet products are totally sealed against water and are not serviceable. Any attempt to take a Micronet product apart will invalidate the warranty.

To clean, use only a damp, soft cloth. No detergents, solvents or abrasives should be used. To avoid damaging a Micronet display unit we recommend storing in the supplied soft pack when not in use.



If the instruments are to be stored for a long period of time before next use (Over Winter) ensure that the batteries are fully charged before storage. If necessary connect to a 9 to 24v power supply for 24 hrs prior to storage.

### 6.2 Fault Finding and Technical Support

#### 6.2.1 Power Save Alarm sounds.

There has been no significant data activity on the network. The alarm sounds to indicate that the instrument system will turn itself off. To continue using the system press any button to cancel the alarm.

#### 6.2.2 Lost Network Alarm sounds.

On a single instrument this indicates that the particular instrument has lost communication with the Master\*. Either there is a problem with the Master\* instrument or the instrument in question has been moved out of effective range.

On several instruments this indicates that these instruments have lost communication with the Master\*. Either there is a problem with the Master\* or the Master\* has been moved out of effective range. The instruments will power down shortly after sounding the alarm to save power.

#### 6.2.3 A single instrument flashes the battery symbol and then switches off.

The battery level is low on the particular instrument affected. Connect to a 9 to 24V power source or leave in bright sunlight for 12 hours minimum to recharge the instrument's internal battery. If the particular instrument is the system Master\* then the other instruments will sound the "Lost Network" Alarm. To continue using the rest of the system power down and restart the system from another instrument.

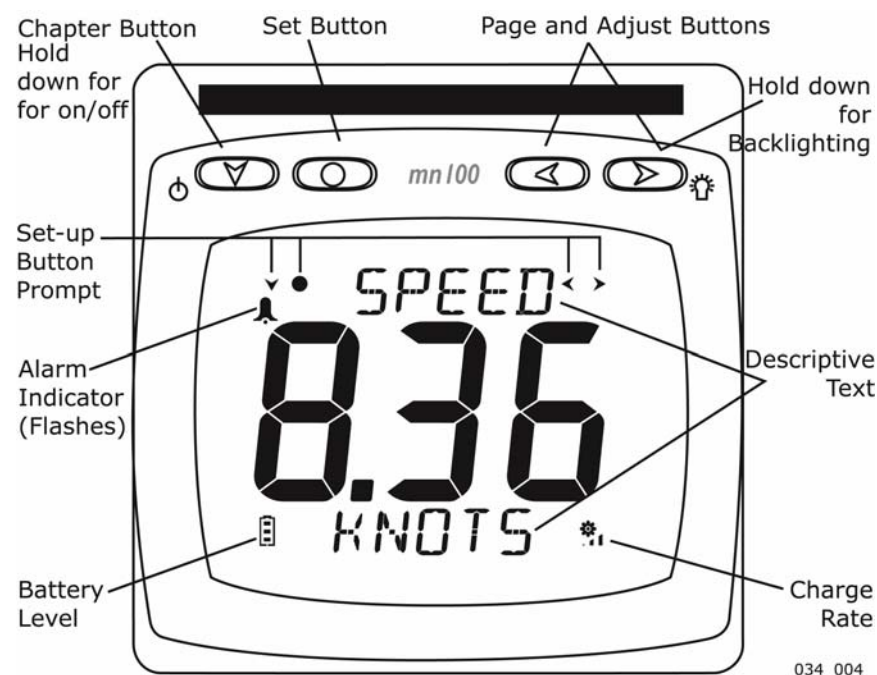
## 2 – Operation



### Important:


Ensure that the "Auto Network" procedure described on the yellow instruction sheet and full Setup and Calibration has been performed correctly before attempting to use your Micronet instruments for navigation purposes.

### 2.1 Instrument Display Information




034\_004

## 2.2 Switching the System On and Off

To switch on your Micronet system select any instrument and press the  button for 2 seconds.






034\_005

To switch off your Micronet system select any instrument and press and hold the  button for 2 seconds.



034\_006

## 2.3 Backlighting

At any stage of the instrument's operation press and hold for 2 seconds the  button to access the lighting control. Pressing the  and  buttons will scroll through setting OFF, 1, 2 and 3 whilst changing the Backlighting. Depending on the instrument setup (see page 22 –s31), Backlighting on the whole system or just the single instrument will be altered.



034\_007

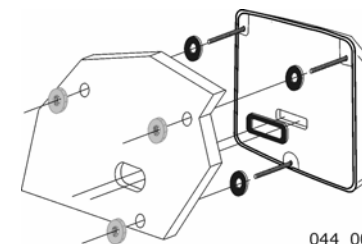


Backlighting is automatically switched off in daylight as part of the instrument's power saving feature and will not operate in daylight.

### 5.4.3 Where access is available to the rear of the mounting surface

This method allows for maximum security of a permanently mounted instrument. Position the supplied Template carefully before starting.

1. Drill three 5mm holes marked "B" on the Template.
2. Stick the 3 supplied gaskets on the back of the instrument.
3. Screw the four M4 brass studs into the rear of the instrument.
4. Place the instrument in position pushing the three studs through the newly drilled holes.
5. Using the three supplied thumb nuts, secure the instrument to the surface making sure the instrument is level before final tightening.



044\_005

## 5.5 External Power Connections

To connect an external 9 to 24 volt power supply to the instrument head from either a portable battery or the vessel's existing power system.

1. Drill two 7mm holes marked "P" on the Mounting Template and smooth them together with a sharp knife or small file.
2. Pass the supply cable through the new hole and attach the supplied crimp spade receptacles.
3. Remove the blanking plug from the rear of the instrument to expose the terminals.
4. Stick the supplied gasket on the back of the instrument.
5. Taking care to connect the correct polarity push the receptacles firmly onto the spades on the rear of the case.
6. Mount the instrument head securely in position following the steps shown above.
7. Clamp the cable securely close to the instrument.

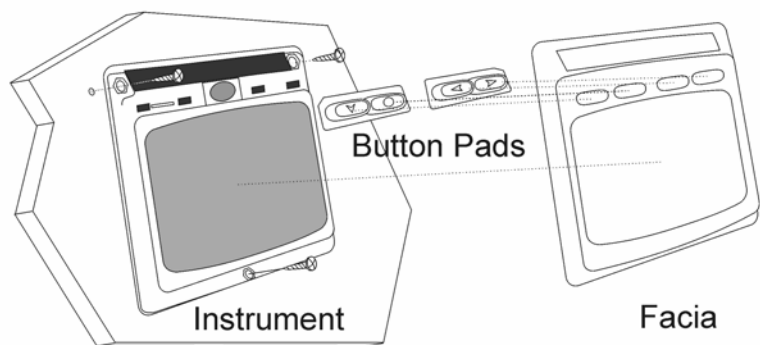


## 5.4 Surface Mounting

### 5.4.1 Where there is no access to the rear of the mounting surface

Easy installation but will allow removal without gaining access to the boat. Position the supplied Template carefully before starting.

1. Drill three 2mm holes marked "SURFACE" on the Template.
2. Carefully snap the facia of the instrument off the main body taking care not to drop the button pads.  
**HINT** – It may be useful to place a piece of sticky tape across the front of the buttons before removing the facia to prevent them from falling out during the installation.
3. Remove the three captive M4 nuts from the plastic moulding and attach the instrument to the mounting surface using the three self tapping screws provided. Take care not to over tighten the screws as this may cause the moulding to crack.
4. Check the instrument is perfectly level; carefully position the button inserts into the correct slots and snap the facia back into position.



034\_010


### 5.4.2 Temporary Mounting


1. Use the double sided tape provided to secure the instrument to a suitable mounting surface. Press the instrument firmly against the surface until secure.


**Note:** This method is recommended for temporary use only.

## 2.4 Audible Signals and Alarms

At stages during its operation your Micronet instrument will beep to indicate alarms or moments of importance.

**Power-up** Once operating as part of a network the instrument will issue a single beep as it is switched on by pressing the  button for 2 second.

**Button Press** A single beep is issued each time a button is pressed. A second beep is issued after a 2 seconds hold down of the  button.

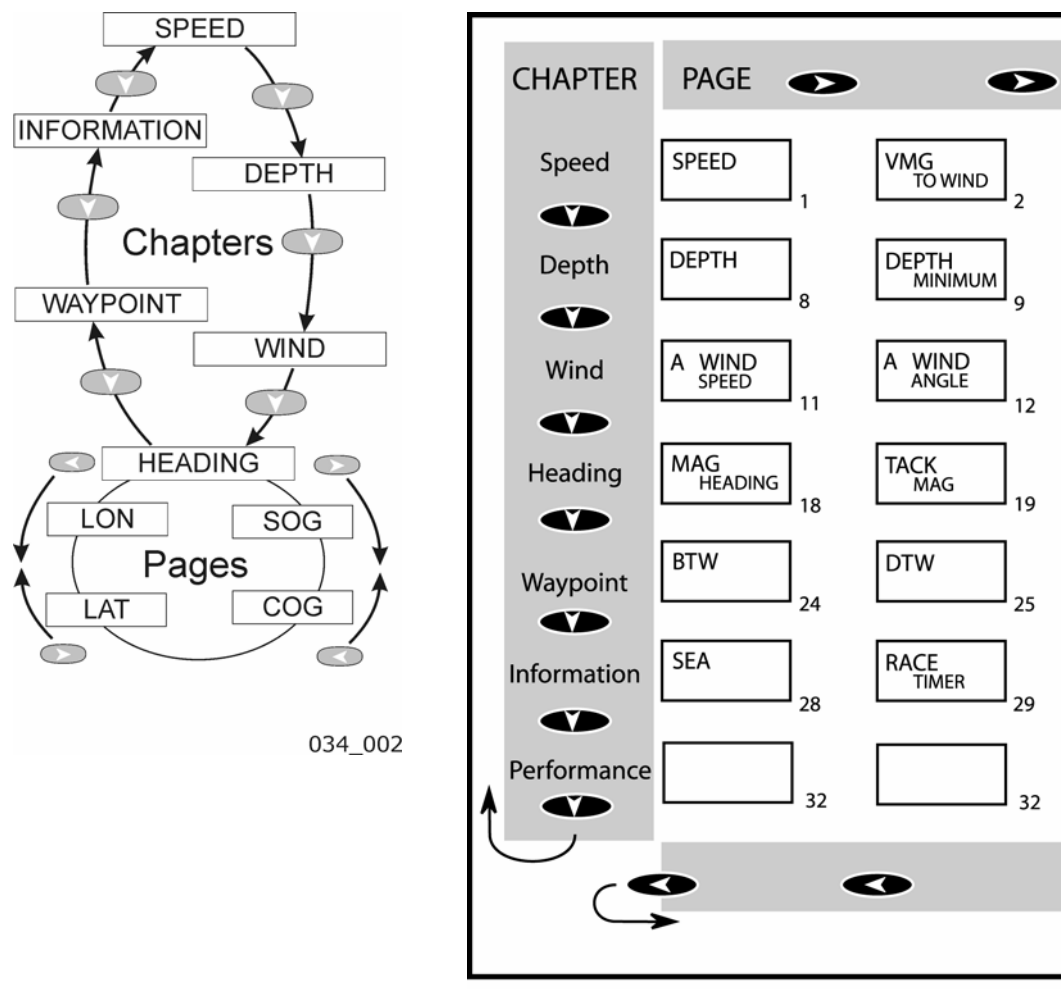
**Alarm** Continuous bursts of three beeps will indicate an alarm. The alarm activated will be indicated on the digital display, accompanied by the flashing  symbol. Pressing any button will silence the alarm.

**Timer** A single beep will be issued at each minute of the countdown. With 1 minute left to go a beep will sound every 10 seconds. With 10 seconds to go a beep will sound every second.

Countdown complete will be indicated by a single burst of three beeps.

## 2.5 Chapter and Page Operation

Instrument information is displayed in a “Chapter and Page” format using the button to scroll through the Chapters and the and buttons to move between Pages. The diagram below shows the information format.



034\_002

Chapters and Pages

## 5.3 Bracket Mounting (Preferred Method)

This method allows for the easy removal of an instrument as and when required, for either security reasons or to prevent damage or discomfort whilst not in use.

1. Using the three supplied M4 bolts attach the back plate to the rear of the instrument (Fig.1).
2. Drill three 2mm holes marked “BRACKET” on the Template and using the supplied self tapping screws, attach the clip bracket to the mounting surface (Fig.2).
3. Place the instrument flat against the bracket slightly higher than the final position and slide gently down into position. There will be a small click as the bracket secures the instrument into position (Fig.3).
4. To release the instrument press lightly on the bracket tab and slide the instrument upwards (Fig.4).

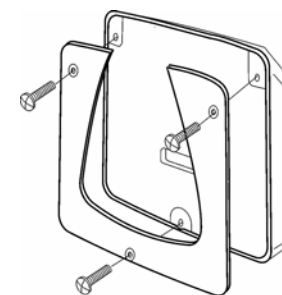


Fig. 1

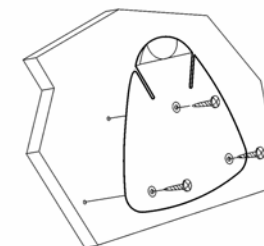


Fig. 2

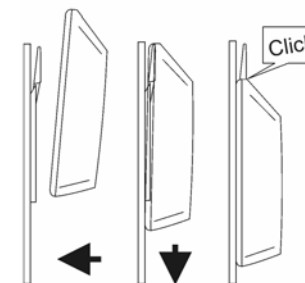


Fig. 3

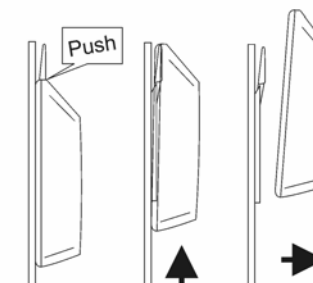


Fig. 4

044-004

## 5 Installation

### 5.1 Tools Required and Parts List

- |  |                             |
|--|-----------------------------|
| 1. 2mm or 5mm Drill Bit (7mm if power connection required) | 1. Mounting Template        |
| 2. Power Drill   | 2. Display Bracket          |
| 3. Cross Head Screwdriver                                  | 3. Mounting Screws (3)      |
|  | 4. Mounting Bolts (3)       |
|  | 5. M4 Studs & Thumbnuts (3) |
|  | 6. Sealing Gaskets (4)      |
|  | 7. Double Sided Tape        |

### 5.2 Precautions and Positioning Advice

Ensure mounting surface is flat.

Leave space between instruments for sun covers.

Leave space to remove instrument from bracket (if used).

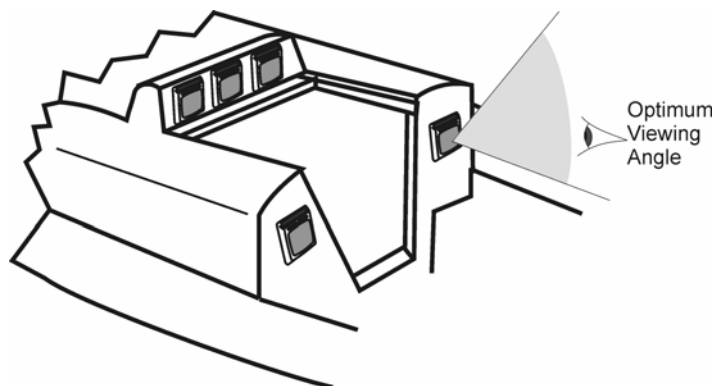
Avoid areas where damage may occur (winch handles, feet, warps etc.)

Select a flat, smooth, surface for mounting and use the Template provided to select a suitable position for mounting your Micronet instrument.


Check for clarity of vision and ease of access to the control buttons, it is recommended that instruments are positioned such that your arm does NOT pass through the spokes of the steering wheel when operating the buttons.

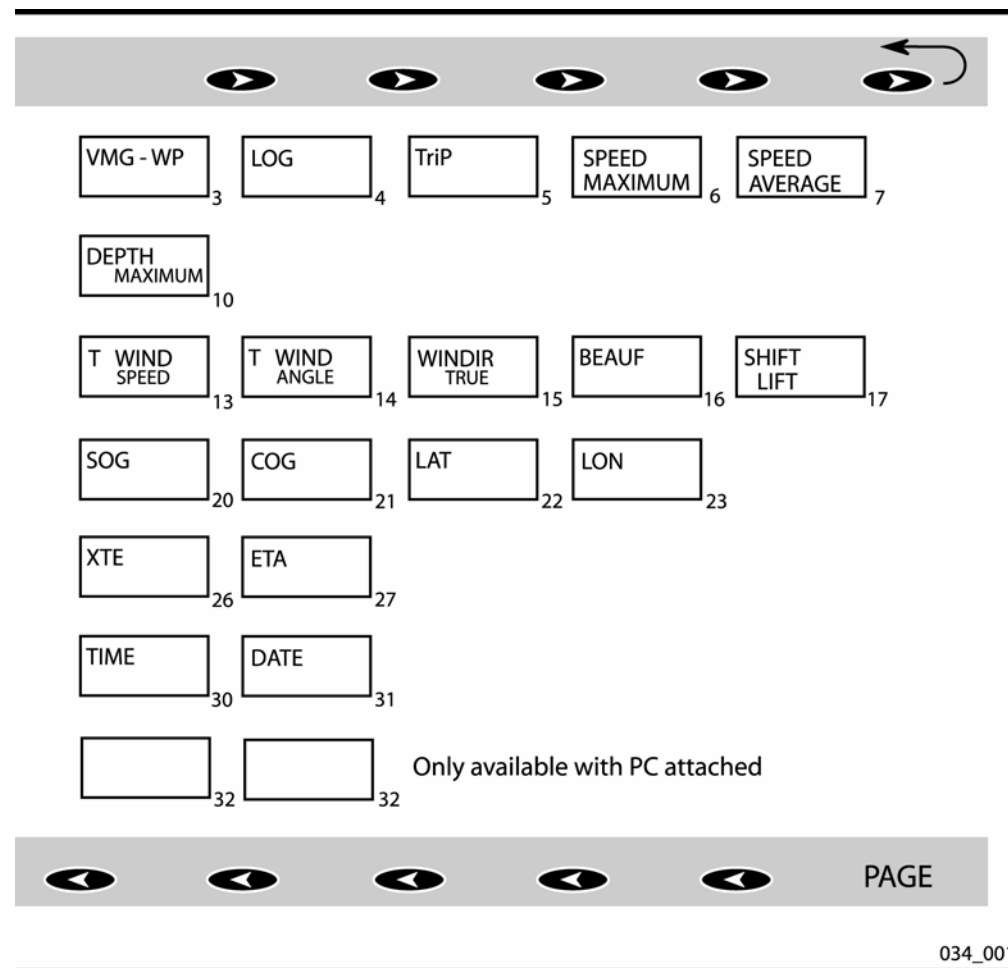


**Contrast is limited at night when an instrument is viewed from beneath. Avoid mounting instruments in a position where you will look upwards to view them.**



034\_009

Pressing the  button at any time will move on to the next Chapter and on scrolling through the Chapters the Page last selected in that Chapter will be displayed. Both Chapter and Page selection will scroll back to the first Page once a cycle has been completed.



034\_001

*Full Chapter and Page Selection*

For a full description of each page refer to items 1 to 32 on the following pages.

## 2.6 Chapter and Page Description

### Speed Chapter



- (1) **SPEED**  
The vessel's Actual Speed through the water as measured by the Speed Transducer.
- (2) **VMG TO WIND**  
The vessel's calculated Speed Directly Upwind. This value is calculated by the instrument from the Boat Speed and Apparent Wind Angle.
- (3) **VMG - WP**  
The vessel's calculated Speed directly towards the active Waypoint. This value is calculated by a GPS receiver or plotter.
- (4) **LOG**  
The total distance travelled by the vessel since installation of the instrument or since a Factory Reset.
- (5) **TRIP**  
The Distance travelled since the last Trip Reset. To Reset see page 18 -s1.
- (6) **SPEED MAXIMUM**  
The Maximum Speed encountered since switch on or since the last Maximum Speed Reset. To Reset see page 18 -s4.
- (7) **SPEED AVERAGE**  
The Average Speed attained since switch on or since the last Average Speed Reset. To Reset see page 18 -s5.

### Depth Chapter



- (8) **DEPTH**  
The Actual Depth beneath the vessel as measured by the Depth Transducer. The displayed value will be affected by any keel or waterline offset added (see page 24).

## 4.4 Compass Calibration

To ensure that inaccuracies caused by metallic and magnetic objects on the boat are kept to a minimum is necessary to calibrate the compass. A deviation caused by surrounding objects will be compensated for and the compass reading may be set to the correct heading.

Press and hold the  button for 2 seconds to enter Setup  
Press the  button repeatedly to scroll to the "SETUP/COMPASS" Chapter

To complete a deviation correction turn:







Press the  button to advance to "DEV<sup>0</sup>" Page  
Press the  button to enter Compass Calibration Mode  
Turn the vessel slowly keeping the speed below 4 knots and taking approximately 2 minutes to complete 360<sup>0</sup>. Keep turning the vessel until the display changes to display a value (usually about 1.25 turns)

**Note:** If the rate of turn of the vessel is too fast the instrument will display "TURN HIGH". It is not necessary to abandon the turn at this stage but do lessen the rate of turn by reducing speed or widening the turning circle.

Continue to align the heading

Steer the vessel on a known heading.

**Note:** Only use the main steering compass as a known heading if you are certain it has been checked and compensated.


Press the  button twice to display HDG / +000  
Press the  button to enter Edit Mode  
Press the  and  buttons to change to the known value. The lower digits will display the offset entered.  
Press the  button to exit Edit Mode  
Press and hold the  button to exit Setup and return to normal operation.


## 4.3 Wind Calibration


Both Wind Speed and Direction can be calibrated to ensure that readings from the Wind Transmitter are displayed accurately.


### 4.3.1 Wind Angle Offset



Motor the vessel directly into the wind.

Press and hold the  button for 2 seconds to enter Setup

Press the  button repeatedly to scroll to the "SETUP/WIND" Chapter


Press the  button to advance to "WIND/+000" Page

Press the  button to enter Edit Mode

Press the  and  buttons to change the displayed value to 000.

The bottom digits will indicate the number of degrees of offset entered.


Press the  button to exit Edit Mode

Press and hold the  button to exit Setup and return to normal operation.


### 4.3.2 Wind Speed Correction



Note: Wind Speed reading is factory calibrated to display correctly and should not be altered unless external factors are thought to be causing incorrect readings. Correction should only be carried out if a known correct Wind Speed is available.

Press and hold the  button for 2 seconds to enter Setup


Press the  button repeatedly to scroll to the "SETUP/WIND" Chapter


Press the  button to advance to "WIND/+0%" Page

Press the  button to enter Edit Mode

Press the  and  buttons to change the displayed value to the required percentage.

The bottom digits will indicate the displayed Wind Speed.

Press the  button to exit Edit Mode

Press and hold the  button to exit Setup and return to normal operation.






- (9) DEPTH MINIMUM  
The Minimum Depth encountered since switch on or since the last Minimum Depth Reset. To Reset see page 18 -s2
- (10) DEPTH MAXIMUM  
The Maximum Depth encountered since switch on or since the last Maximum Depth Reset. To Reset see page 18 -s3.




### Wind Chapter

- (11) A WIND (speed)  
The Actual Wind Speed with respect to the vessel as measured by the Wind Transmitter.
- (12) A WIND (angle)  
The Actual Wind Angle with respect to the vessel as measured by the Wind Transmitter.
- (13) T WIND (speed)  
The True Wind Speed with respect to the vessel, calculated by the instrument taking into account the vessels speed through the water. Both Apparent Wind Speed, Angle and Boat Speed must be available for this calculation.
- (14) T WIND (angle)  
  
The True Wind Angle with respect to the vessel, calculated by the instrument taking into account the vessels speed through the water. Both Apparent Wind Speed, Angle and Boat Speed must be available for this calculation.
- (15) WINDIR TRUE  
The Actual Wind Direction over the water, calculated by the instrument taking into account the vessels speed through the water and compass heading. Apparent Wind Speed, Angle and Compass Heading must be available for this calculation.
- (16) BEAUF  
The Actual Wind Speed over the water displayed using the Beaufort scale, calculated by the instrument taking into account the vessels speed through the water and compass heading. Apparent Wind Speed, Angle and Compass Heading must be available for this calculation.

- (17) **SHIFT HEAD/ LIFT**  
Indicates changes in the wind against a compass heading. Spotting these wind changes is the key to fast sailing upwind.

To set the mean wind angle:

1. If a Wind Transmitter is included in your Micronet system then simply press the  button; (the current wind direction is stored as the mean wind direction and displayed for 5 seconds during which time the  and  buttons may be used to adjust the value.)
2. If you do not have a Wind Transmitter included, sail close hauled and press the  button then tack and, once close hauled, press the  button again.

If the mean wind direction changes then the instrument may be updated by pressing and holding the  button while sailing on port tack, the  button while sailing on starboard tack or the  button while head to wind.

See Tacktick's "Using wind shifts to your advantage" sheet for further information.

## Heading Chapter

- (18) **MAG HEADING**  
Current Magnetic Compass heading of the vessel as measured by the Compass Transducer. The value displayed will be affected by the calibration routine for the compass (see page 27).
- (19) **TACK MAG**  
Magnetic Compass Heading that the vessel will follow should it tack through the wind, calculated by the instrument. Apparent Wind Angle and Magnetic Heading must be available for this calculation to be made.
- (20) **SOG**  
The vessel's Speed Over the Ground as calculated by the GPS Antenna or a GPS receiver.
- (21) **COG**  
The vessel's Course Over the Ground as calculated by the GPS Antenna or a GPS receiver.

## 4.2 Speed Calibration


To ensure that the Boat Speed (and Distance) is accurate it is necessary to calibrate the speed to take into account variations in water flow between different hulls. Adjustment is made by multiplying the Speed through the Water (V) by a percentage Calibration Factor.

It is essential to carry out this procedure at a time where little or no tide is flowing.

### To enter a Log Calibration Factor



With the vessel under power, steer a straight course allowing the Boat Speed reading to settle to a constant value. Check the GPS is showing a constant SOG.

Press and hold the  button for 2 seconds to enter Setup


Press the  button repeatedly to scroll to the "SETUP/SPEED" Chapter

Press the  button to advance to "SPEED/+0%" Page

Press the  button to enter Edit Mode

Press the  and  buttons to change the Calibration Factor until the Speed reading displayed matches the GPS SOG reading

Press the  button to exit Edit Mode

Press and hold the  button to exit Setup and return to normal operation.

Should you be unable to carry out this procedure due to strong tidal conditions or poor GPS information there is further information regarding Speed Calibration using a measured distance on the Tacktick website at [www.tacktick.com](http://www.tacktick.com).

## 4 - Seatrial and Calibration

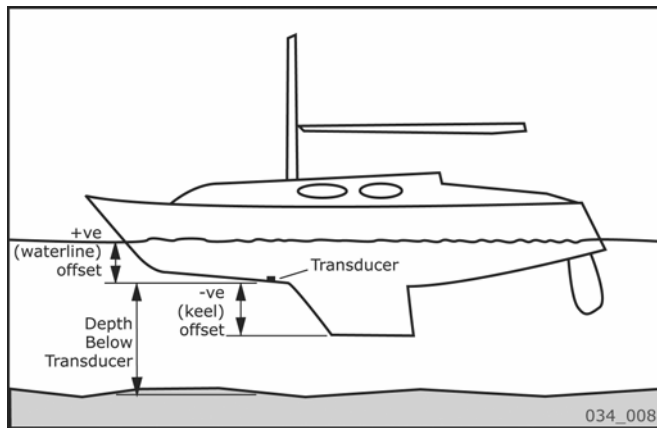
Once the Micronet Instrument system has been installed on the vessel and Auto Networking has been completed it is necessary to carry out Calibration.











**It is not safe to use the instruments for navigational purposes until Calibration has been carried out correctly.**

### 4.1 Depth Offset

The default depth offset is 0.0 making the instrument read the Depth below the Transducer. By adding a +ve or -ve offset the instrument will display the waterline depth or depth below the keel respectively.








Press and hold the  button for 2 seconds to enter Setup  
 Press the  button repeatedly to scroll to the "SETUP/DEPTH" Chapter  
 Press  button to advance to the "KEEL / WLINE" Page  
 Press the  button to enter Edit Mode  
 Press the  and  buttons to change the value  
 Press the  button to exit Edit Mode  
 Press and hold the  button to exit Setup and return to normal operation.

- (22) LAT  
The vessel's current Latitude as calculated by the GPS Antenna or a GPS receiver.
- (23) LON  
The vessel's current Longitude as calculated by the GPS Antenna or a GPS receiver.


### Waypoint Chapter


- (24) BTW  
Bearing To (active) Waypoint. The active Waypoint being the one to which the GPS is currently navigating as defined by a GPS receiver or plotter. The Waypoint Name will be displayed.
- (25) DTW  
Distance To (active) Waypoint. The active Waypoint being the one to which the GPS is currently navigating as defined by a GPS receiver or plotter. The Waypoint Name will be displayed.
- (26) XTE  
The distance away from the direct track to the (active) Waypoint as defined by a GPS receiver or plotter.
- (27) ETA  
The calculated time at which you will arrive at the (active) Waypoint as calculated by a GPS receiver or plotter.

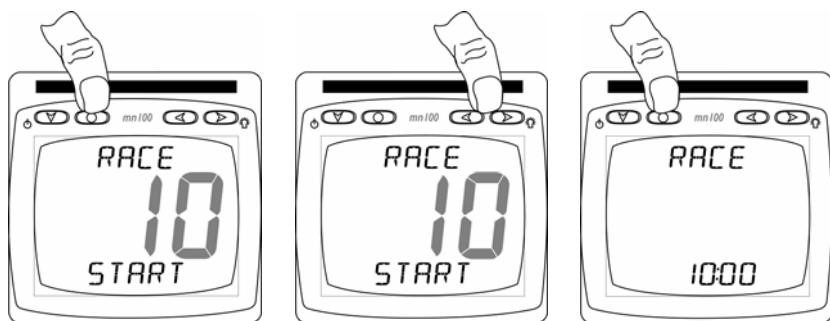
### Environment Chapter

- (28) SEA  
Current Sea Temperature as measured by the sensor in the Speed Transducer.
- (29) RACE TIMER  
Countdown or elapsed time stopwatch.  
Press and hold for 1 second the  button and use the  and  buttons to set the required countdown time in minutes, then press and hold for 1 second the  button to save this time and prepare to start the countdown.  
Press the  button quickly to start the countdown.

## (29) Race Timer (continued)

The instrument will sound a single beep every 30 seconds until 1 minute remains when a beep will sound at 10 second intervals. The final 10 seconds will count down with a beep each second with "START" being indicated by a triple quick beep at 0. The timer will automatically start to count the elapsed time and this will continue until the  button is pressed and held for 2 seconds.

At any time during the countdown a quick press of the  button will resynchronise the timer to the nearest minute and commence countdown from that point.



*Press and hold for 1 second to enter the timer setup*

*Select the desired countdown time*

*Press and hold for 1 second to store the countdown time*



*Press to Start*

*Countdown time in progress*

*Press to resynchronise to nearest full minute (8:00)*

- (s37) WIND / SIGNAL (as above but for Wind Transmitter information)
- (s38) NMEA / SIGNAL (as above but for NMEA Interface information)
- (s39) TYPE4 to TYPE9 / SIGNAL - For possible future use.



## Options Chapter

- (s29) AUTO NETWORK  
**Only available on the instrument which was used to power up the system.** Refer to the "Auto Network" sheet for further information.
- (s30) TIME  
 The number of hours added or subtracted from UTC (GMT) to allow the instrument to display local time.
- (s31) LIGHT  
 Tells the instrument to control the system Backlighting or just its own Backlighting. Network/Local.
- (s32) BOAT SHOW  
 Allows the instrument to display information when NOT installed as part of a Micronet system for demonstration purposes only.  
 Instruments will return to default Off on power down.
- (s33) LCD CONTRAST  
 Adjusts the viewing angle of the LCD display to improve visibility under varied mounting possibilities. 1 - 7 default 4.
- (s34) RESET FACTORY  
 Returns all the Calibration setting to the factory default values.

## Health Chapter

- (s35) VER / NODES  
 Displays the instrument's Software Version, battery level and charge rate to assist in troubleshooting and fault finding. If the instrument is the "Master" (the one used to switch on the system) then the number of items (nodes) in the system will be displayed. If the instrument is a "Slave" (was switched on by the system) then the signal strength to the "Master" will be displayed"
- (s36) HULL / SIGNAL  
 Shows the signal strength and battery level of the Hull Transmitter to assist in troubleshooting and fault finding.


- (30) TIME  
 Current Time as received from the GPS Antenna corrected to local time if an offset has been added (see page 22 - s30).
- (31) DATE  
 Current date as received by the GPS Antenna.

## Performance Chapter

- (32) Performance  
 If you have an NMEA Interface connected to a PC with Tacktick proprietary NMEA output capability (PTAK) then your 4 user defined free format pages will automatically be added to the end of the Information Chapter roll over. Typically used by racing sailboats to show "Time to Layline" or corrected True Wind Direction where the Upwash Correction Table is built into the pc.

### 3 - Setup and Calibration




#### 3.1 Entering Setup and Calibration Mode

To enter the Setup and Calibration menu press and hold for 2 seconds the  button.



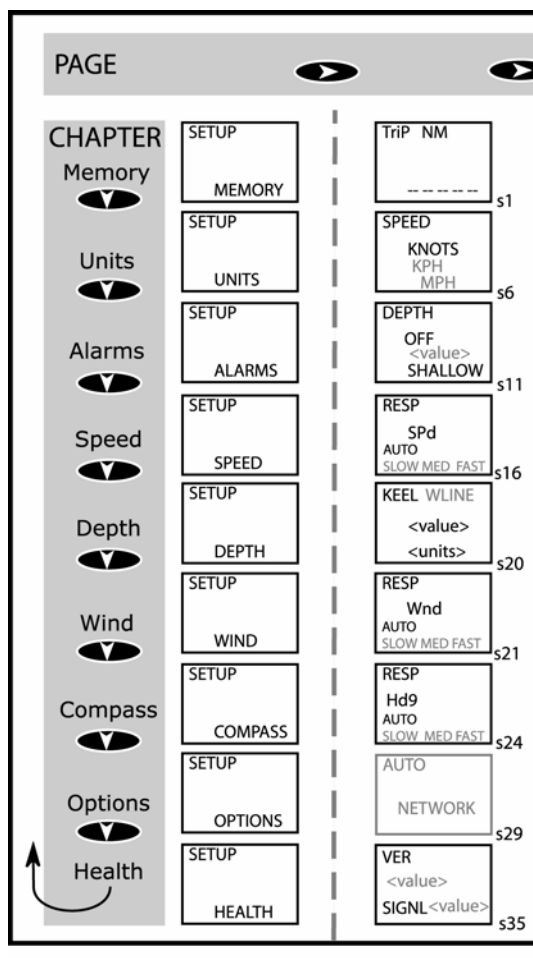
This will not work when in the Race Timer page.

#### 3.2 Chapter and Page Setup and Calibration

Instrument Setup and Calibration is displayed in a "Chapter and Page" format using the  button to scroll through the Chapters and the  and  buttons to move between Pages. The diagram below shows the information format.

Note: Unlike normal operation you must scroll to the Chapter heading page before moving to another chapter.

For a full description of each Page refer to items s1 to s39 on the following pages



#### Wind Chapter





- (s21) RESP Wnd  
Sets the update period of the Wind display.  
**Auto**/Slow/Medium/Fast
- (s22) WIND (Angle)  
Aligns the displayed Apparent Wind Angle with the Actual Wind Direction with respect to the boat. See page 26 for calibration.
- (s23) WIND (Speed)  
The Wind Speed Calibration Factor adds a percentage factor which corrects the information from the wind speed sensor and ensures the apparent wind speed is displayed correctly. See page 26 for calibration.

#### Compass Chapter

- (s24) RESP Hd9  
Sets the update period of the Compass display.  
**Auto**/Slow/Medium/Fast
- (s25) HDG MAG  
Tells the instrument to display heading information in either **Magnetic** or True format.
- (s26) HDG  
Aligns the displayed heading with the Actual Magnetic Heading of the boat. See page 27 for calibration.
- (s27) VAR  
Allows manual entry of local magnetic variation. This setting is ignored if variation information is available from a GPS source.
- (s28) DEV  
However carefully positioned the Compass Transducer is there is always the likelihood of errors being introduced by the vessel and equipment. To remove errors it is necessary to "Swing" the compass by turning the boat slowly until the system can optimize the readings. Once the correction has been completed the deviation correction value will be displayed. See page 27 for calibration.

- (s15) WAYPNT ARRIVAL  
Sets the instrument to alarm if a Waypoint Arrival Alarm is issued by the GPS. On/**Off**.

### 3.5 Calibration Page Description

In each case press the  button quickly to edit, press the  or  to change units and press the  button quickly to select the chosen units. Default values are indicated in **bold**.

#### Speed Chapter

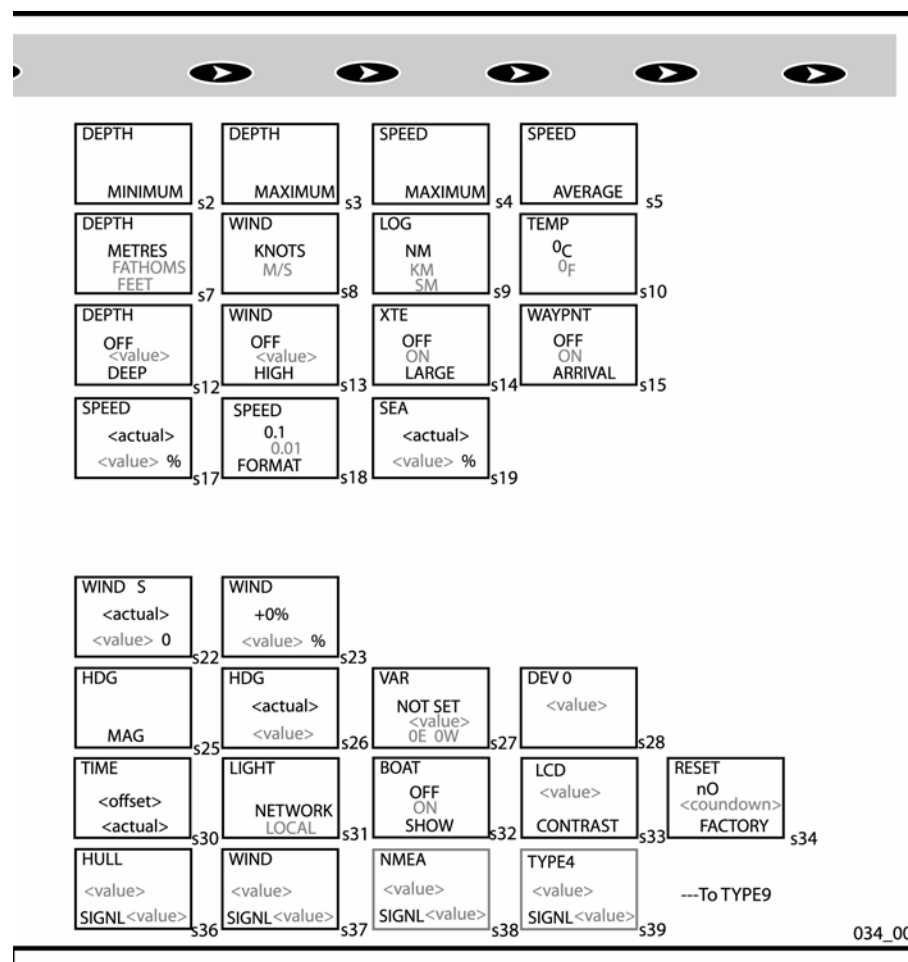
- (s16) RESP Spd  
Sets the update period of the Speed display.  
**Auto**/Slow/Medium/Fast
- (s17) SPEED  
The Boat Speed Calibration Factor adds a percentage factor which corrects the information from the paddlewheel and ensures the boat speed is displayed correctly. See page 25 for calibration.
- (s18) SPEED FORMAT  
Sets the number of decimal places to which the Boat Speed information is displayed. Applies to the units selected on page 18 -s6. Options are **0.1** or 0.01.
- (s19) SEA  
The Sea Temperature Calibration Factor Adds a percentage factor which corrects the information from the temperature sensor and ensures the water temperature is displayed correctly.

#### Depth Chapter

- (s20) KEEL  
Allows a Keel Offset to be added allowing the instrument depth reading to indicate depth below the bottom of the boat, or a Waterline Offset allowing the depth reading to indicate actual water depth. See page 24 for calibration.

### Editing Values

To adjust any settings press the  button. The setting will start to flash and the  and  buttons will change the value.







### 3.4 Setup Page Description

#### Memory Chapter

In each case press the  button quickly to reset.

- (s1) TRIP  
The Distance travelled since the last Trip Reset. Resets to 0.00.
- (s2) DEPTH MINIMUM  
The Minimum Depth encountered since switch on or since the last Minimum Depth Reset. Resets to current depth.
- (s3) DEPTH MAXIMUM  
The Maximum Depth encountered since switch on or since the last Maximum Depth Reset. Resets to current depth.
- (s4) SPEED MAXIMUM  
The Maximum Speed attained since switch on or since the last Maximum Speed Reset. Resets to current boat speed.
- (s5) SPEED AVERAGE  
The Average Speed attained since switch on or since the last Average Speed Reset. Reset to current boat speed.






#### Units Chapter

In each case press the  button quickly to edit, press the  or  to change units and press the  button quickly to select the chosen units. Default values are indicated in **bold**.

- (s6) SPEED  
Sets the units in which ALL Speed related information is displayed. **Knots**, Kilometers per hour (KPH) or Statute Miles per hour (MPH).
- (s7) DEPTH  
Sets the units in which ALL Depth related information is displayed. **Feet**, Meters or Fathoms.
- (s8) WIND  
Sets the units in which ALL Wind Speed related information is displayed. **Knots** or Meters per second (M/S).

- (s9) LOG  
Sets the units in which ALL Distance related information is displayed. **Nautical Miles (NM)**, Kilometers (KM) or Statute Miles (SM).
- (s10) TEMP  
Sets the units in which water temperature information is displayed. **Degrees Celsius (°C)** or Degrees Fahrenheit (°F).

#### Alarms Chapter

In each case press the  button quickly to edit, press the  or  to change values and press the  button quickly to save the entered value. In the case of On/Off selection the  button will toggle the setting On and Off.

- (s11) DEPTH SHALLOW  
Sets the Shallow Depth at which the instrument will alarm. OFF and 0.0 to 25.0 feet (0.0 to 7.6 meters) (0.0 to 4.1 fathoms). Values are displayed in the previously selected units (see page 18 -s7) and are all subject to any keel or waterline offset added (see page 24). This alarm sounds as the depth passes below the set value and NOT as the depth increases past this value.
- (s12) DEPTH DEEP  
Sets the Deep Depth at which the instrument will alarm. OFF and 0.0 to 250 feet (0.0 to 76.2 meters) (0.0 to 41.6 fathoms). Values are displayed in the previously selected units (see page 18 -s7) and are all subject to any keel or waterline offset added (see page 24). This alarm sounds as the depth increases past this value or decreases past this value.
- (s13) WIND HIGH  
Sets the Wind Speed at which the instrument will alarm. OFF and 0.0 to 100 knots (0.0 to 51.4 m/s). Values are displayed in the previously selected units (see page 18 -s8). This alarm sounds as the wind speed increases past the set value and NOT as it decreases past this value.
- (S14) XTE LARGE  
Sets the instrument to alarm if a Large Cross Track Error Alarm is issued by the GPS. On/Off.