Micron OEM (Analogue) Sonar

Operator & Installation Manual

Supplied by

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F063.1

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Warranty Statement

Tritech International Limited herein after referred to as **TIL**

TIL warrants that at the time of shipment all products shall be free from defects in material and workmanship and suitable for the purpose specified in the product literature.

The unit/system warranty commences immediately from the date of customer acceptance and runs for a period of 365 days. Customer acceptance will always be deemed to have occurred within 72 hours of delivery.

Note: Any customer acceptance testing (if applicable) must be performed at either TIL premises or at one of their approved distributors unless mutually agreed in writing prior to despatch.

Conditions:

These include, but are not limited to, the following:

1   The warranty is only deemed to be valid if the equipment was sold through TIL or one of its approved distributors.

2   The equipment must have been installed and commissioned in strict accordance with approved technical standards and specifications and for the purpose that the system was designed.

3   The warranty is not transferable, except or as applies to Purchaser first then to client.

4   TIL must be notified immediately (in writing) of any suspected defect and if advised by TIL, the equipment subject to the defect shall be returned by the customer to TIL, via a suitable mode of transportation and shall be freight paid.

5   The warranty does not apply to defects that have been caused by failure to follow the recommended installation or maintenance procedures. Or defects resulting from normal wear & tear, incorrect operation, fire, water ingress, lightning damage or fluctuations in vehicles supply voltages, or from any other circumstances that may arise after delivery that is outwith the control of TIL.
(**Note:** The warranty does not apply in the event where a defect has been caused by isolation incompatibilities.)

6   The warranty does not cover the transportation of personnel and per diem allowances relating to any repair or replacement.

7   The warranty does not cover any direct, indirect, punitive, special consequential damages or any damages whatsoever arising out of or connected with misuse of this product.

8   Any equipment or parts returned under warranty provisions will be returned to the customer freight prepaid by TIL

9   The warranty shall become invalid if the customer attempts to repair or modify the equipment without appropriate written authority being first received from TIL.

10   TIL retains the sole right to accept or reject any warranty claim.

11   Each product is carefully examined and checked before it is shipped. It should therefore be visually and operationally checked as soon as it is received. If it is damaged in anyway, a claim should be filed with the courier and TIL notified of the damage.

Note: TIL reserve the right to change specifications at any time without notice and without any obligation to incorporate new features in instruments previously sold.

Note: If the instrument is not covered by warranty, or if it is determined that the fault is caused by misuse, repair will be billed to the customer, and an estimate submitted for customer approval before the commencement of repairs.

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Intel and Pentium is a trademark of the Intel Corporation

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Safety Statements

<table>
<tr>
<td>⚠ <strong style="color:red">Caution!</td>
<td>Throughout the manual certain safety or operational related comments and requirements will be highlighted to the operator by indications identified by the adjacent symbol and text.</td>
</tr>
</table>

Technical Support

Contact your local agent or Tritech International Ltd

✉	**Mail**	**Tritech International Ltd.** Peregrine Road, Westhill Business Park, Westhill, Aberdeen, AB32 6JL, UK
☎	**Telephone**	++44 (0)1224 744111
	Fax	++44 (0)1224 741771
💻	**Email**	support@tritech.co.uk
	Web	www.tritech.co.uk

An out-of-hours emergency number is available by calling the above telephone number

If you have cause to use our Technical Support service, please ensure that you have the following details at hand **prior** to calling:

- System Serial Number (if applicable)
- Serial Numbers of all scanning / profiling heads
- Software Revision Number
- Fault Description
- Any remedial action implemented

Due to the expansion of equipment capabilities and the fact that new sub-modules are continually being introduced, this manual cannot detail every aspect of the operation.

The name of the organisation which purchased this system is held on record at *Tritech International Ltd*. Details of new software and hardware packages will be announced at regular intervals. Depending on the module, free upgrades will be offered in keeping with our policy of maintaining the highest levels of customer support.

PART 1. SOFTWARE INSTALLATION (WIN98/2000/XP)

PC Hardware Requirements:
- *Pentium PC*
- *32MB RAM (Win98), 128MB (Win2000/XP)*
- *10MB Hard Disk Space (Installation)*
- *Available COM Port (115.2kBaud capable)*
- *16-Bit Colour Graphics Card at 800x600 Resolution*

1) Insert the 'Micron Sonar' Installation CD into drive and run SETUP.EXE.

2) The Installation will place 2 shortcuts on the Desktop; i) Micron Setup ii) Micron Sonar.

3) The Micron Sonar software is pre-configured to communicate with the Sonar via **the COM1 Port @ 115,200** Baud, **8** Data, **No** Parity, **1** Stop.

4) Consult the Micron Sonar software manual for operating instructions and details on how to re-configure COM Port assignment and telemetry settings.

PART 2. HARDWARE INSTALLATION

Power

*The Sonar head should be powered from a clean DC Supply or Battery pack capable of supplying **12 - 50Vdc @ 4.5VA**. To reduce damage to the sonar head in the event of overvoltage it is recommended that an appropriate fuse is included in the power supply connection.*

Handling

Caution! *The Micron Sonar head is an oil-filled product and under NO circumstance should it be opened up or tampered with in any way. There are no user-serviceable parts or internal switches which would necessitate disassembly.*

Caution! The 'Seal Screw' should never be unscrewed as this may result in oil loss. The blue/yellow diaphragm on the top of the Sonar head is to allow for volume changes in the oil at different operating temperatures. This diaphragm should never be poked or stabbed with sharp instruments.

Caution! *The Sonar may be lowered to depths of **NO MORE** than 500 metres.*

Caution! The connector socket is not usable "open face" and should always be sealed with either a plug or the blanking-plug provided.

⚠️ **Caution!** | The 'AUX' Port should be blanked off at all times when not in use.

Please also refer to the point listed under the "Further Information" section, when handling or operating.

Communication protocol

The Micron sonar is supplied with two communication ports labelled "Main" and "Aux". All communication to the control PC on the surface should be via the "Main" port, while the "Aux" port is used for daisy chained communication links to other Tritech sensors.

The communication configuration of the "Main" and "Aux" ports can be **FACTORY SET** to one of the three options shown in the table below. A punched hole in the serial number label on the bottom of the product will identify which option has been selected.

Configuration Letter
Main Port Function
Aux Port Function

A
RS485
RS485

B
RS232
RS485

C
RS485
RS232

In this example, the hole shows that configuration B has been selected

- The RS232 telemetry is Bi-directional, 3-wire (Tx, Rx and Gnd) between the Sonar head and the PC / Laptop RS232 COM Port. This may be via an RS232 Modem or Multiplexer.

- The RS485 telemetry is Half-duplex, 2-wire (RS485+ & RS485-) between the Sonar head and surface RS485 connection. Typically, the surface RS485 connection can be an RS485 serial COM Port installed in the PC or it can be an "RS485 to RS232" signal converter that is attached to the PC / Laptop's standard RS232 COM Port.
The RS485 circuit inside the head has a factory supplied 150 ohm termination fitted, a matching 150 ohms may be fitted to the surface if the twisted pair length dictates.

By the above methods, the Sonar Head should be connected through to an available Serial COM Port on the PC / Laptop installed with the Micron Sonar software.

Third Party Communication Devices

RS485 to RS232 converter

If a Micron system is supplied configured RS485 it may be necessary to use an RS232 to RS485 converter to allow interface with a standard PC com port, as stated above.

- The converter must be capable of Half-duplex operation and able to support speeds of at least 115,200 baud.
- It is not recommended to use a unit which is powered from the PC com port as this can reduce the maximum length of twisted pair which the system will operate through.
- It is advised that the RS485 circuitry on the converter is optically-isolated to protect both the PC and the converter from high voltages, which may become present in a fault condition on an ROV umbilical.

NOTES WHEN USING "ADAM 4520" RS232 TO RS485 CONVERTER

Tritech International recommend the use of the above converter. This device can be purchased from Tritech International Ltd if required. Contact Tritech Technical Support for details.
The Device is externally powered with an input range of 10-30VDC, we recommend the use of 24 volts.
Internal switches are used to set baud rate, their function is detailed on the external case of the unit. *It is imperative that the internal switch is set to match the system baud rate between the head and the PC.*

Electrical connection
Whilst wiring up and connecting the converter, adhere to the following;

- RS485+ connects to Pin 1 of the Micron Sonar head.
- RS485- connects to Pin 2 of the Micron Sonar head.

NOTES WHEN USING "B&B ELECTRONICS 485OT9L OR 485OTLED" RS232 TO RS485 CONVERTER

This is a commonly used RS232 to RS485 interface that provides optical-isolation between the ports. The Device is externally powered with an input range of 10-30VDC, we recommend the use of 24 volts.

The internal switches and jumpers are used to select the baud rate and communications mode.
It is imperative that the internal switches are set to match the system baud rate between the head and the PC. Consult the interface documentation on the switch settings.

JP1 should be set to "SD" for the Half-Duplex control method

For half duplex, RS485 operation at 115.2KBaud, we recommend the following setup;

- Switches 1 to 4 off,
- Switches 5 to 8 on
- JP1 set to "SD"
- R21 fitted as 4.7KΩ.

Electrical connection

Whilst wiring up and connecting the converter, adhere to the following;

- TB1 Pin 2 (Labelled "TDB+") is RS485+ and connects to Pin 1 of the Micron Sonar head.
- TB1 Pin 1 (Labelled "TDA-") is RS485- and connects to Pin 2 of the Micron Sonar head.

NOTES WHEN USING USB TO RS232 COM PORT ADAPTERS

It is common for new laptops to be supplied <u>without</u> standard COM port hardware.
In this instance a USB to Serial adapter may be used to obtain a "virtual" COM port on such machines.
There are many different types of this adapter available on the market, however ***note the following prior to purchase…***

Because of the requirement to support half duplex operation, the timeout on the data link is critical.
This means that no delays can be introduced between the PC and the Head, and the strings sent must arrive complete.
Certain USB adapters buffer the data, which means the Micron Sonar strings get broken up when passing through such adapters. When this is the case the following symptoms are common…
The Sonar head (Node2) can be detected in the "Micron Setup" program, but when running the "Micron Sonar" program the Sonar head is intermittent or does not scan.

If problems are experienced with the USB adapters, try first to load the system on a PC with a normal COM port to confirm that the Sonar head (and, if applicable, RS485 converter) are operational.

A proven USB serial adapter device can be purchased from Tritech International Ltd if required, contact Tritech Technical Support for details.

System Interconnect Cabling

The Standard Underwater Connector supplied is a Tritech 6-way "Micron" connector, the wiring code is shown below including pin-outs for RS232/RS485 and power connections.
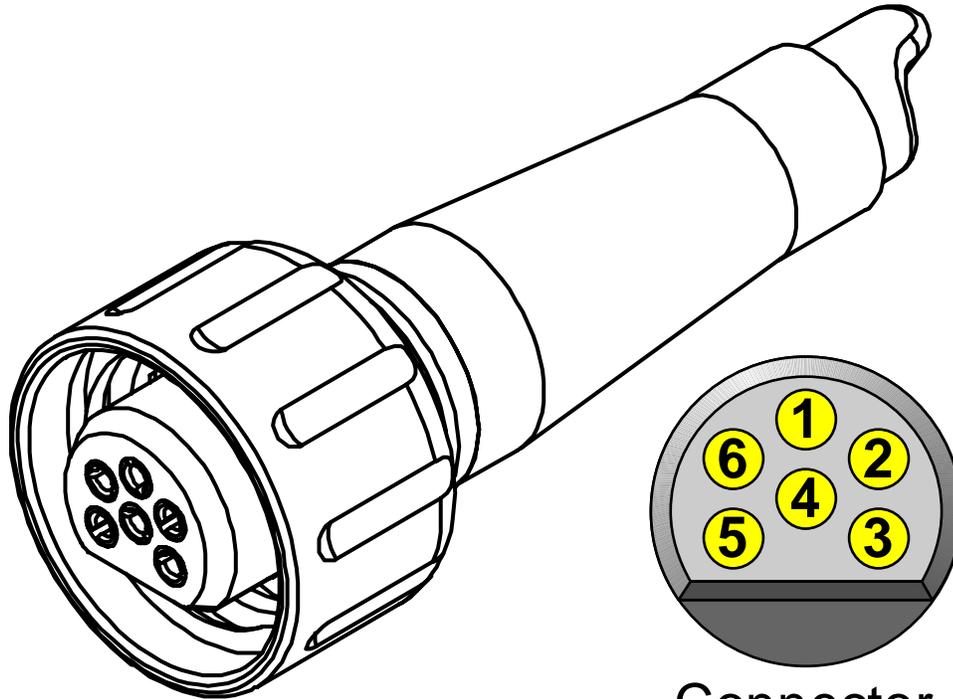
Connector Face View

Pin Number	Cable Whip Colour	Wire Function
1	Yellow	RS485 Comms A or RS232 Comms TX
2	Blue	RS485 Comms B or RS232 Comms RX
3	Red	Supply Positive Voltage
4	Black	Supply Ground
5	Green	RS232 Comms Ground or Analogue Output (where applicable)
6	**Drain Wire** with Black 'Heat-shrink' Insulation	Earth

Caution!

Please Note: The connector wiring information can be applied to both the "Main" or "Aux" communication ports. However, the function of pins 1, 2 and 5 depends on the capabilities, configuration and port of the device connected

> ⚠️ **Caution!**
>
> **Please Note:** The sonar head is protected against voltage surges on the power and comms. lines using internal suppressers. Sustained over voltage will damage the head. To reduce risk it is strongly recommended that 100mA fuses are used in the comms. lines and an appropriate fuse used in the power supply (e.g. 1A@12V or 500mA@24V)

A. RS232 Micron Sonar ("Main" Port):

Communications between the Micron Sonar "Main" port and the PC serial port is 3-wire RS232. Configuration is as follows;
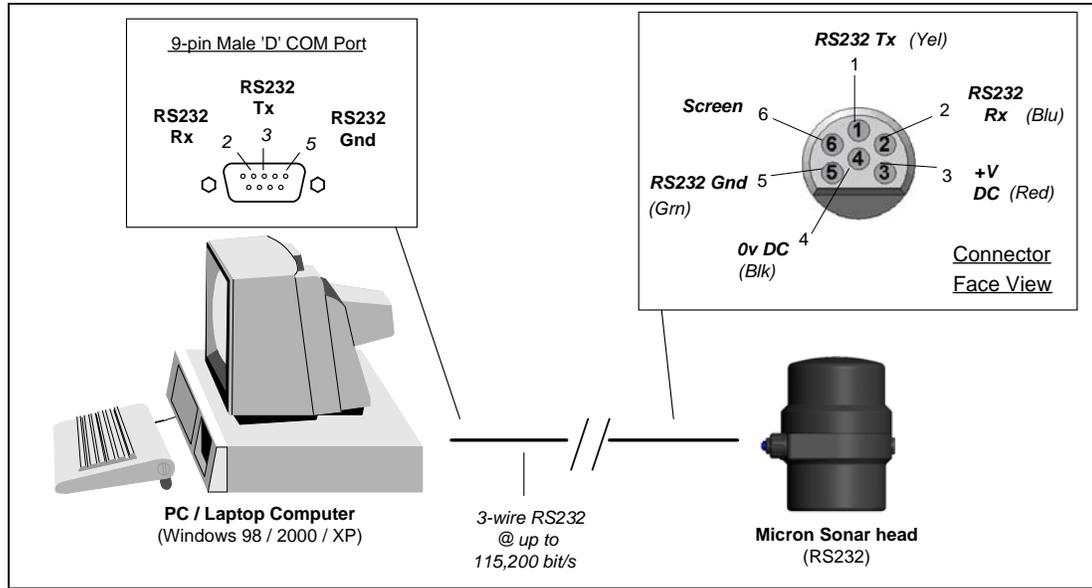

Depending on the type of conductors used, the RS232 may only drive up to 20 metres of copper cabling. For longer cable lengths it is necessary to run through a repeater or converter, or switch to optical fibre with an RS232 telemetry option.

A method to operate the (RS232) Micron Sonar head over longer cable lengths would require a pair of RS232 to RS485 converters installed surface and subsea;
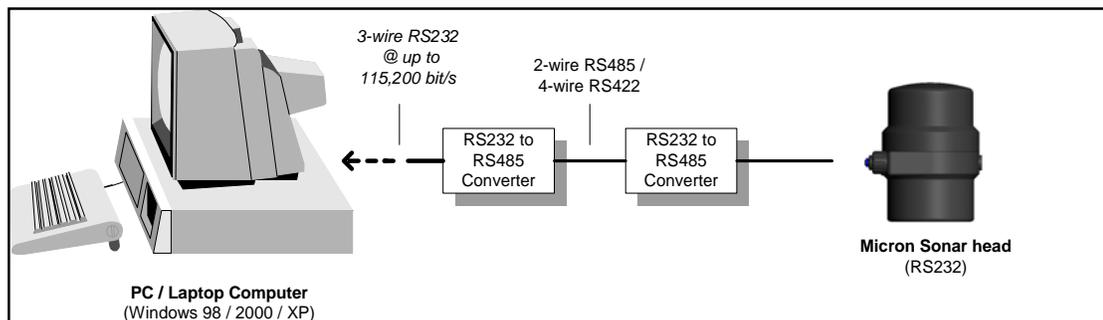
> ⚠️ **Caution!**
>
> *NB: Select converters with an optically-isolated RS485 interface, to protect the PC serial port.*
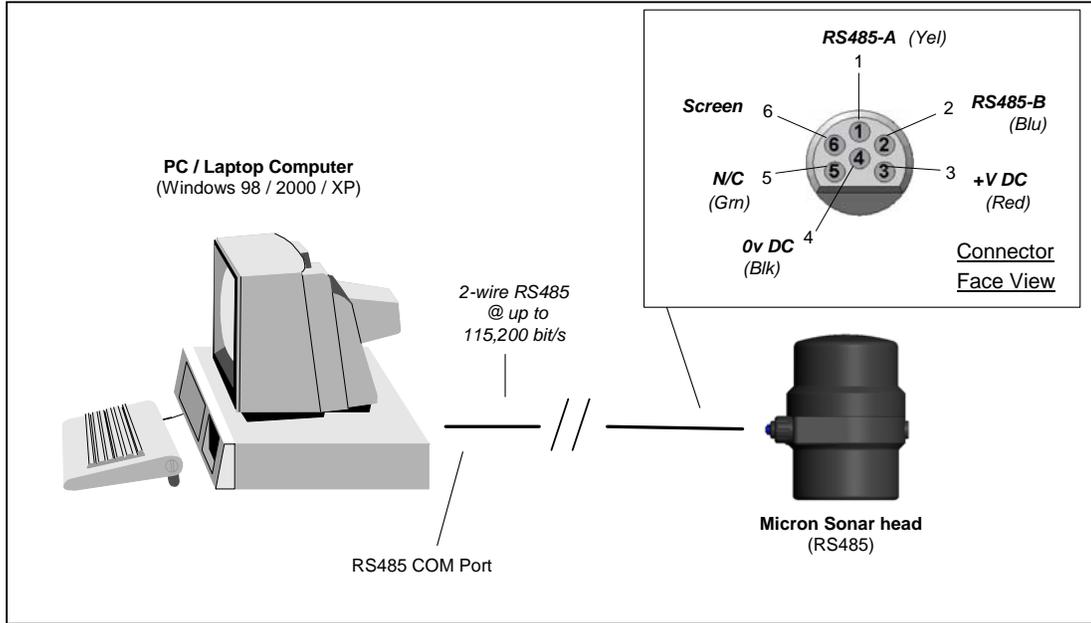
Connector
Face View
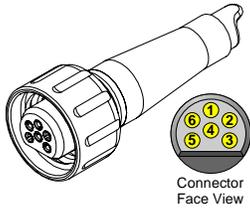
SUMMARY

- **<u>Pin 1</u>** on the Sonar 6-pin "Main" connector port is the RS232 Tx that should be connected to the RS232 Rx on the PC serial port.
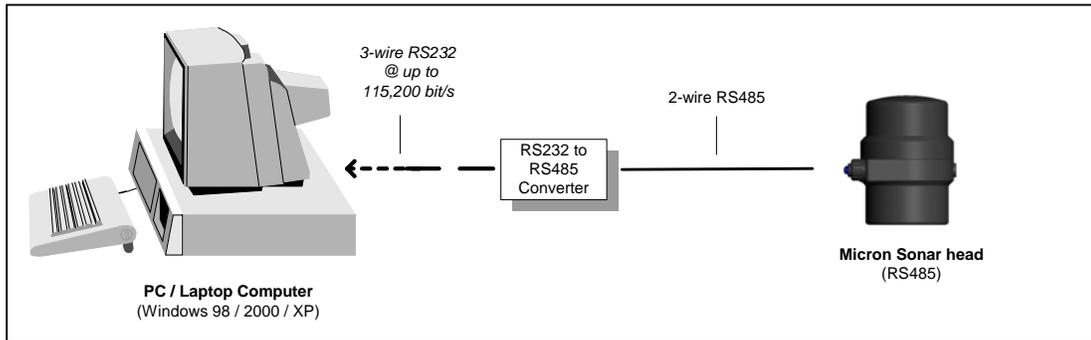
- **<u>Pin 2</u>** on the Sonar 6-pin "Main" connector port is the RS232 Rx that should be connected to the RS232 Tx on the PC serial port.

- **<u>Pin 5</u>** on the Sonar 6-pin "Main" connector port is the RS232 Gnd. This should be connected to the RS232 Common Gnd on the PC serial port.

B. RS485 Micron Sonar ("Main" Port):

For the RS485 telemetry option, this can run directly over a twisted pair cable of typical length up to as much as 2km. The first option would be to run the telemetry straight into the PC but for this an RS485 Serial Comms card would need to be fitted inside the PC;

Alternatively, the RS485 Micron Sonar can be connected to the PC RS232 Port via an RS485 to RS232 external converter;

SUMMARY
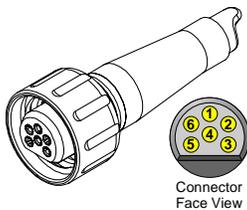
- **Pin 1** on the Sonar 6-pin "Main" connector port is the RS485 + that should be connected to the RS485 + on the PC RS485 serial port or signal converter box.

- **Pin 2** on the Sonar 6-pin "Main" connector port is the RS485 - that should be connected to the RS485 - on the PC RS485 serial port or signal converter box.

Further Information

General

- The Micron Sonar head is an oil-filled product and under NO circumstance should it be opened up or tampered with in any way. There are no user-serviceable parts or internal switches which would necessitate disassembly.

- The 'Seal Screw' should never be unscrewed as this may result in oil loss. The blue/yellow diaphragm on the top of the Sonar head is to allow for volume changes in the oil at different operating temperatures. This diaphragm should never be poked or stabbed with sharp instruments.

- The Sonar may be lowered to depths of NO MORE than 500 metres.

Connector

- The connector socket is not usable "open face" and should always be sealed with either a plug or the blanking-plug provided.

- The 'AUX' Port should be blanked off at all times when not in use.

- Care should be taken when mating the connector, with either a plug or a blanking-plug, to ensure both mating ends are clean and dry.

- Special attention should be given to checking the O-ring for dirt. The O-ring is located under the lock-ring on both the plug and the blanking plug.

- When mating the connector, first locate the plug on its 'D' profile, push together as far as possible and then tighten the lock-ring. The action of tightening the lock-ring draws the two mating ends fully together.

- The connector lock-ring needs only to be finger tight. The use of any tools to tighten the lock-ring further is not necessary and could result in damage to the connector.

Telemetry

- The Micron Sonar head should be programmed to communicate at a default Baud Rate of 115,200 @ 8 Data, No Parity, 1 Stop. This can be re-configured through the Setup program *(consult Software Manual)*.

- It is recommended that a Baud Rate of 57,600 or above be maintained wherever possible to provide enough system bandwidth to operate the Sonar at its maximum resolution.

- For the RS232 telemetry option, if a direct RS232 cable is to be used then this will have a limit of typically 10 to 15 metres in length. Otherwise, a modem with fibre optic interface should be used to increase telemetry distances.

- To prevent damage to the PC / Laptop it is best to use an RS232 / RS485 Serial Port (or Signal Converter) that has optically isolated inputs for protection.

Mechanical Mounting

Four brass M3x0.5mm tapped inserts are provided on the bottom of the Micron Sonar to ease mounting on flat surfaces, alternately the Micron may be gently gripped by a 50mm diameter clamping mechanism around the bottom part of its housing.
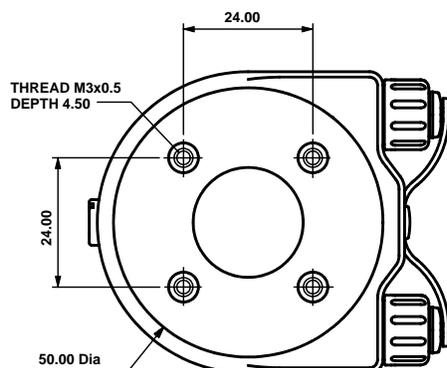
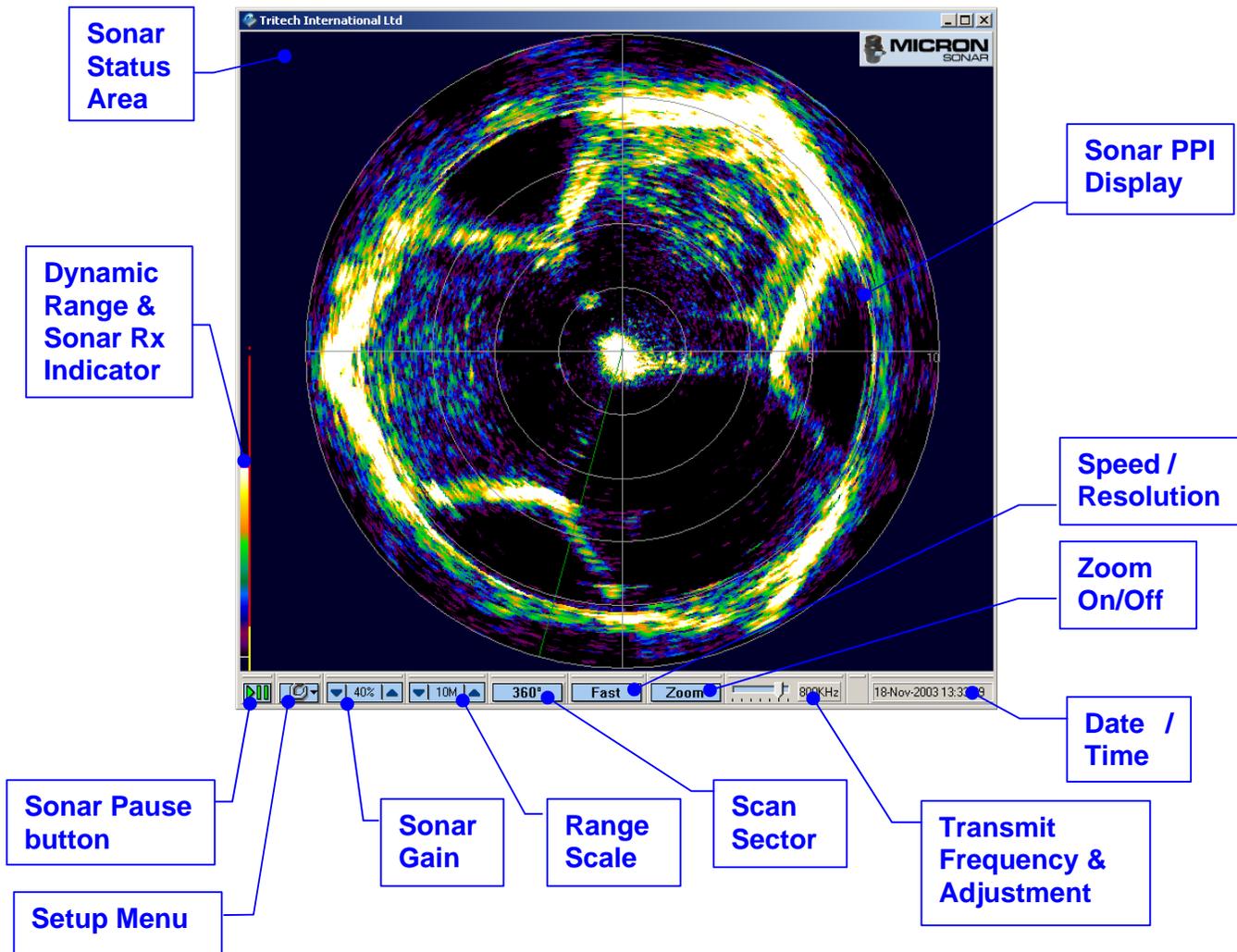
All dimensions are in millimetres.

Specification

Operating Frequency	650KHz to 950KHz
	3:2 Composite Transducer
Beamwidth, vertical	40° (at 650KHz)
	35° (at 800KHz)
	30° (at 950KHz)
Beamwidth, horizontal	3.0° (at 650KHz)
	2.5° (at 800KHz)
	2.0° (at 950KHz)
Range Settings	From 5m (6.5ft) to 100m (320ft)
Scan Sectors	User selectable up to 360° continuous
Step Speed	Normal, Fast or Very Fast
True Acoustic Zoom	Yes
Instant Reversal	Yes
Image Measurement	Yes
Inverted Head Operation	Yes
Power Requirements	12V - 50V @ 4.5VA DC
Data Communication	RS485 (twisted pair), RS232 (via modem up to 115Kbps)
Communication Requirements	Maximum cable length 1000 meters (using RS485)
Topside Control	Customer supplied PC or Laptop using standard serial comms port.
	Windows 98, 2000 or XP operating system.
	Also PDA with Pocket PC Operation System.
Software	Tritech SeaNet(OEM) display and control or low level direct command protocol, or "Pocket SeaNet" for PDA's
Maximum diameter	56mm (2.20 inches)
Maximum height	78.5mm (3.09 inches)
Weight in air	290g (10.25 ounces)
Weight in water	145g (5.12 ounces)
Operational Depth	500m (1,650ft) standard
Operating Temperature	-10°C to +35°C
Storage Temperature	-20°C to +50°C

PART 3. OPERATION OF THE MICRON SONAR APPLICATION

The **Micron Sonar** application can be run from the 'Programs' group in the Windows 'Start' menu or from the desktop by double clicking on the shortcut icon as shown below…

The Micron Sonar screen display is a Single Sonar application as shown below…

Sonar Status Area

Sonar PPI Display

Dynamic Range & Sonar Rx Indicator

Speed / Resolution

Zoom On/Off

Sonar Pause button

Setup Menu

Sonar Gain

Range Scale

Scan Sector

Transmit Frequency & Adjustment

Date / Time

MAIN FUNCTION BUTTONS

There are 7 buttons / controls on the bottom of the screen display that are used to configure the Sonar and to setup the screen layout;

'Setup Menu' button

When this button is clicked a Popup menu will appear where the Sonar and display settings can be configured via a number of menu items. These will be explained later.

'Sonar Gain' button

This sets the sonar receive gain (0 – 100%) as required – typically this is around 20% but is varied according to water and target conditions and user preference.

'Range Scale' button

This sets the maximum range (5m – 100m) the sonar will scan. Long ranges are scanned more slowly than short ranges due to the limit imposed by the velocity of sound in water.

'Scan Sector' button

This sets the width of the scanned sector. Typically this will be adjusted according to the required seabed coverage. There are several sector settings including 360°, 180°, 135° and 90°.

'Speed / Resolution' button

This button will toggle through 3 preset settings which will vary the Sonar scan speed and image detail. Use the 'Normal' settings in most cases which will produce the best resolution. However, toggle to 'Fast' or 'Very Fast' settings if a higher scan speed is required. In normal operations, select 'Normal' for detailed examination of static targets where a slower scan update will not pose a problem. Select 'Fast' if a fast scan update is required at the cost of a little image detail. The 'Very Fast' setting will produce the lowest resolution and image quality but will produce the fastest scanning.

'Zoom On/Off' button

Toggles a zoom box on the display which can then be positioned by the cursor. This is a true acoustic zoom magnifier that will give more image detail in the area surrounded by the zoom box. The Zoom window size and magnification can be adjusted in the 'Setup Menu'.

'Transmit Frequency' button

This will adjust the frequency of the Sonar transmit pulse. Higher frequencies will produce more clarity and definition of the target but at the expense of maximum operating range. To extend range to absolute maximum, use the lowest available frequency. To achieve the best Sonar resolution, set the Transmit frequency to the highest option available.

'Dynamic Range' / Contrast slider

This is on the left hand side of the Sonar display and sets the contrast between hard and soft targets. Usually set to user preference, it can help find small features in generally featureless situation or exclude clutter from a heavily featured seabed. More details concerning the usage of this control can be found in later pages of this manual.

SETUP MENU

Popup menu that appears when button clicked

Setup Menu button
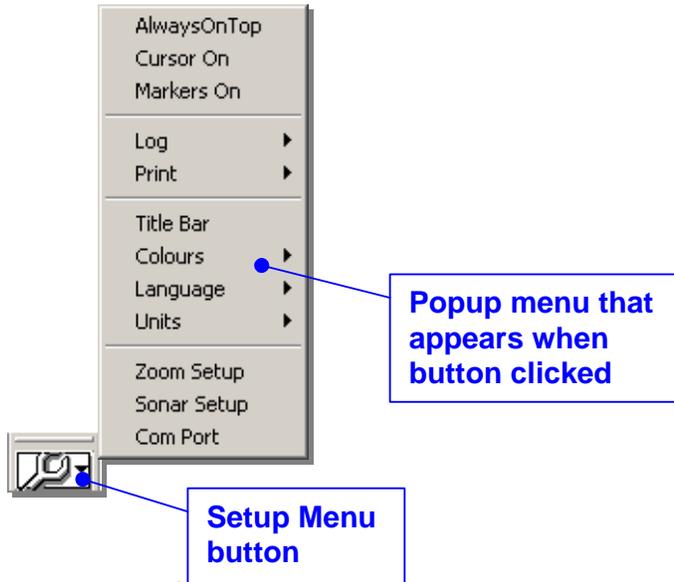
AlwaysOnTop – Select this function to bring the Micron display to the front of the Windows desktop. This will place the Sonar display On Top of other open applications.

Cursor On – Adds the cursor position panel to the sonar display.
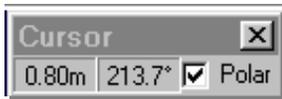
'Polar' – Check <u>on</u> to display co-ordinates in Polar or <u>off</u> to display co-ordinates in Cartesian format.

Markers On – Adds A (⊙) and B (+) markers under left button control. The range and bearing to each marker & separation and relative bearing are shown.
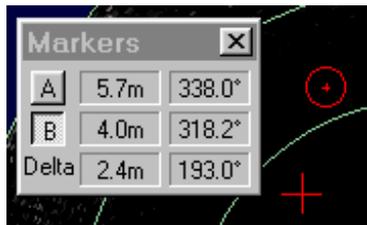
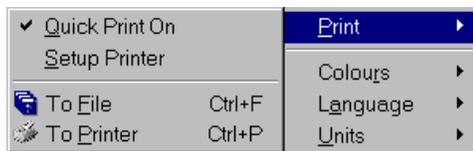Select **A** or **B** on the Marker panel and then click on the main display to position marker.

Log…

> **… Play** – Use to play back recorded log data.
>   Follow the on screen display.
>
> **… Record** – Use to record Sonar data.
>   Follow the on screen display.

Print…

> **… Quick Print On –** This has 2 effects;
>
> When printing 'To File' then a bitmap will be saved to the Log directory with bitmap name having time format.
> When printing 'To Printer' then Print Setup dialog box will not appear and default printer and it's settings are chosen.
>
> **… Setup Printer** – Select and setup the Windows Printer.
>
> **... To File** – Print screen to a bitmap file. When 'Quick Print On' = Off, a dialog box will appear allowing the user to select file path (Log directory) and bitmap name.
>
> **… To Printer** – Print to Windows Printer. When 'Quick Print On' = Off, a setup dialog will appear allowing the user to select printer and set it's options before printing.

Title Bar – This is used to edit the text that is displayed on the title bar (top) of the Sonar display.

Colours – Use to select from several preset colour schemes for the Sonar display.
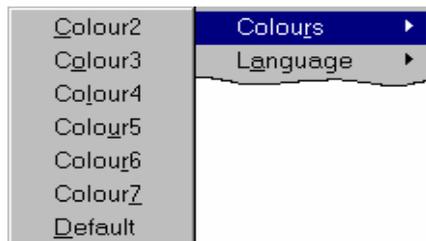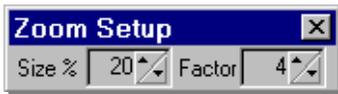
Language – Select from several international languages. Currently only UK and US English are available.
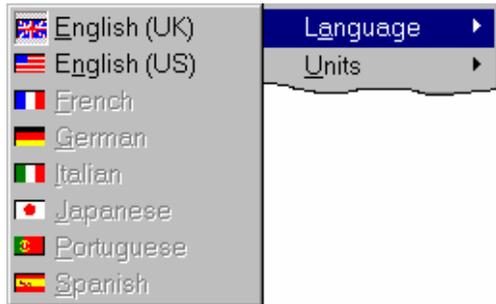
Units – Select the units for the Sonar Range labelling and cursor co-ordinates. Metres and Feet are the available options.
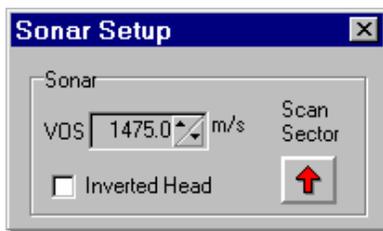

Zoom Setup – Sets the size and magnification factor of zoom box.

The **Size** shows the normal display screen zoomed area as a percentage of the zoom display window.

The **Factor** shows the number of zoomed range bins for each normal range bin.

Sonar Setup – Sets various head options.

'**VOS**' – used to enter a **V**elocity **O**f **S**ound value that will be applied in the Sonar display.

'**Inverted Head**' - swaps the display from left to right. Enable if mounted boot up.

'**Scan Sector**' – Use this control to select the scanning sector when the display is in a 180 degree sector view. There are 4 sectors indicated by the arrow position; Up = forward, Right = Starboard, Left = Port, Down = Aft.

Com Port – Select and configure the COM port that the Micron Sonar will be connected to on the PC/Laptop.

'Port' – select the COM Port number that the Sonar head is connected to.

'Baud' – Set the COM Port baud rate to match the setting of the Micron Sonar head. The default factory setting for Sonar is 115,200 baud.

OTHER CONTROLS :-

Instant Scan Reversal

Double-click on the Sonar PPI display to instantly switch the direction of scanning

Sonar Pause Button

This has 3-states;

Grey: The button is disabled whenever the Sonar is not connected or telemetry with the Sonar has not yet been established.

Green: The Sonar is active and scanning. The button is now active and can be de-pressed to pause the Sonar scanning.

Red: The Sonar is paused. Clicking on the Pause button will re-start the Sonar.

Dynamic Range and Sonar Rx Indicator

The dynamic range bar is the A/D sample window (with 64-colour mapping) for the Sonar receive signal (which extends from 0 to 80dB). To the right of the dynamic range bar is the Sonar receive signal strength indicator (Yellow = Average amplitude over scan-line, Red = Maximum amplitude echo for scan-line).

Normally the sampling window should not need to be adjusted from its default position (as shown on the left). However, if used properly, adjusting the sample window can produce better quality imaging.

The dynamic range bar can be adjusted to change Sonar display contrast and sensitivity. Adjustment is made using the left and right mouse buttons.

1) **Contrast** adjustment – **Right-click** on the bar and whilst **hold**ing down the right button, move the mouse up/down to increase/decrease the size of the bar. The sampling window can be any size between a range of 9 - 25dB. Decrease the size of the sampling window to increase the sonar display contrast. Ideally the control should be set somewhere in the centre of the allowed range (16 - 18 dB) to give the best results under most conditions. Select a high value to reduce the contrast of the sonar display.

2) **Sensitivity** adjustment – **Left-click** on the bar and whilst **hold**ing down the left button, move the mouse up/down to decrease/increase the Sensitivity of the Sonar receiver. Increasing the Sensitivity (move bar down) will produce a more saturated display with greater weak-return content. Decreasing the Sensitivity (move bar up) will omit background noise and low level returns seen at the receiver
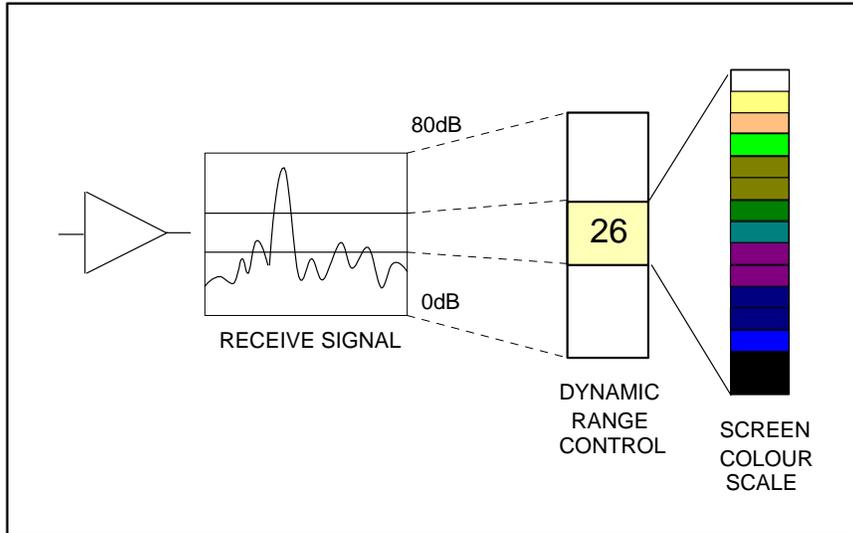

The sonar receiver will accept a return signal in the region of 0 - 80dB. The dynamic range controls are used to adjust the position of a sampling window within the 0-80dB dynamic range band of the receive signal.

Idealised representation of A/D Sample window

Sonar Status

Various error codes are reported in the Sonar Status Area. These help the user determine any faults with equipment or cabling, as a guide to making any corrections or replacements.
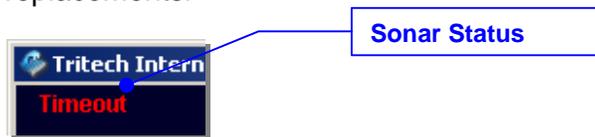
Status Codes are as follows…

'**Centre**'	:	The transducer is not passing through the Ahead position at the correct sequence point. Physical damage internal to the Boot is the most likely cause of this.
'**Timeout**'	:	There is no communication with the Sonar head. Check the cable wiring is okay, the Sonar is powered and the correct COM Port and baud rate are configured in the Tools Menu.
'**Log xxx k**'	:	This is displayed when the log record facility is ON and shows the current size of log file.
'**Play xxx**'	:	This is displayed when the log play facility is ON and shows the current record number within the log file for reference.

MAINTENANCE

Head maintenance

Wash down with fresh water each time a unit is recovered from the water, paying particular attention to the boot and connector areas.
Although units are designed for a wide temperature range it is best to avoid temperature extremes for long periods and protect units from bright sunlight.

Repairs are by major unit change out which may involve reprogramming a head. In these cases instructions will be supplied.

It is recommended that usage logs are maintained and that the heads are returned to vendor at 4000-hour intervals for routine inspection/replacement of slip rings, compensation oil and O ring seals

Underwater cables are not normally within the scope of supply, but will also require regular inspection.

Cables

The cables are high quality with low halogen jackets which should provide long service life without problems. Care should be taken to ensure that they are properly sited during installation to avoid movement and fatigue, but otherwise no maintenance is required.

Computer

The PC / Laptop computer should be loaded with a standard version of Windows 98 / 2000 or XP. If for any reason it is necessary to reload the Sonar system this should be done using the CD supplied. Follow the setup dialog during installation.

The Sonar software can be reloaded as follows…

1) Insert the Sonar CD into the CD ROM drive.

2) Browse the CD ROM drive and run Setup.exe from the root. Follow the on screen directions. This will automatically install the Sonar software to the Program Files directory on the C:\ drive.

3) The Registry retains any user-configured changes. When Setup.exe is run the registry will be set back to a factory default setting.

4) Shortcut(s) will automatically be created on the Windows Desktop to run the Sonar software and any utility programs that may have been supplied.

To Remove the Sonar software, use "Settings\ControlPanel" from the Windows Start Menu…

1) Run Add/Remove Programs and select SeaNet.

2) Follow the on screen directions and choose Uninstall from the options.

3) On completion all the above installation will be removed, including the Registry settings and Desktop Shortcuts

4) The Screen resolution should be set to maximum 1024x768 at either 16-bit or 32-bit colours. A resolution of 800 x 600 is optimal for display purposes.

APPENDIX A : MICRON SETUP PROGRAM

Important: *The Setup program forms part of the SeaNet software suite which includes control and display of other, multiple devices such as Sidescan, Profiler and Bathy. This Setup utility therefore includes options such as Sound, GPS, TCM-2 that are only available with other displays in the SeaNet suite and not intended for Micron OEM software which is a Sonar only program.*

CHANGING MICRON SONAR BAUD RATE
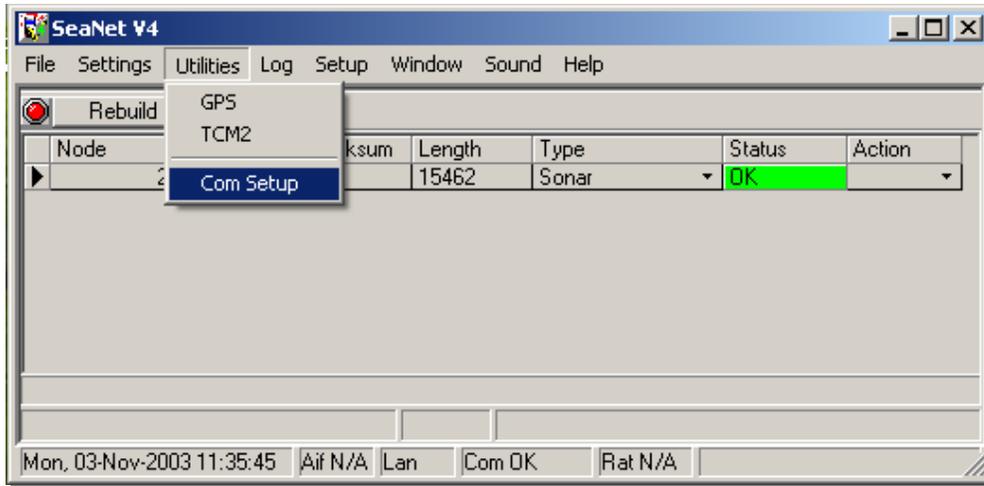
The system has been factory set and should not need to be altered in most circumstances. However, there may be times when the Baud rate may need to be changed to satisfy field requirements. These changes can be made from the **SeaNet Setup** / **Micron Setup** Program;

There are only 2 areas within the Setup program that will need to be entered for Micron Sonar operation…

1. The '**Utilities**' – '**Com Setup**' menu item (shown above) is used to change the Settings of the Surface computer COM Port. This needs to be configured correctly to initially communicate with the Micron Sonar so that new Baud Rate settings can then be downloaded to the Sonar head.

2. Clicking on '**Setup**' – '**Aif Card**' will open the 'Aif Setup' pop-up panel with settings for the Aif (Acoustic interface) card. In the case of the Micron system, the Acoustic interface is via a COM port. Always ensure that the 'Enabled' check-box is checked / ticked to enable the COM port. This is only applicable for communicating with the Micron Sonar through the Setup program and does not affect the main Micron display program.

Configuring New Baud Rates

This should only ever be necessary to communicate over a longer RS232 serial cable (>10metres), installed between the PC and the Micron Sonar head (or signal converter) or over a modem system that can only handle lower rates. In this event, the Baud Rate should be kept as high as possible to give enough system bandwidth for the Sonar head to operate at full speed and resolution.

The first step is to communicate with the Micron Sonar head which involves setting the COM Port settings within the Setup program to match the Micron head's Baud rate and COM port connection.
It may be necessary to use a short serial cable to first communicate with and re-program the Micron Sonar head before it is then installed on the longer cable or modem system.

First change the COM Port Baud Rate to match current Sonar settings…

<u>N.B.</u> The Setup program default will be COM1 @ 115.2K which matches the Micron display software defaults.

a)   Click on the **Utilities** menu item and select **Com Setup** from the drop-down list.

b)   The **Channel Setup** panel will appear as follows. Click on the '**Settings**' ellipsis ('**…**') to open the **AifSetupForm** to change the **Baud** setting.


Click here to change the Serial Port Baud Rate.
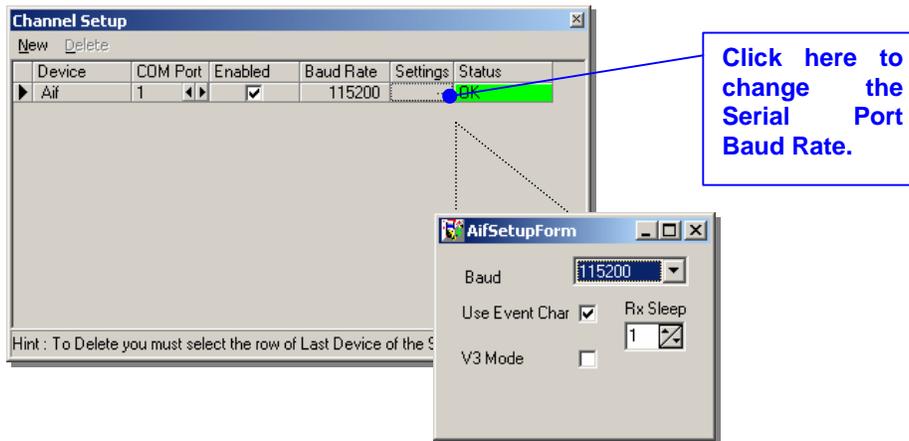
c)   Ensure that 'V3 Mode' is disabled, 'Use Event Char' is enabled and 'Rx Sleep' = 1.

d)   Close the Form via the 'X' button for settings to be applied.

Then, if necessary, change the PC's Serial COM Port

e)   In the **Channel Setup** panel (shown above), change the '**COM Port**' to match the Micron port connection. Also ensure that the '**Enabled**' check-box is checked / ticked.

f)   Close down the Channel Setup by clicking on the 'X' button on the top-right. New settings will be saved and applied.

To Program the new Serial Baud Rate into Sonar…

a) First ensure that the Micron Sonar head (Node 2) is detected and displayed in the Setup program table…
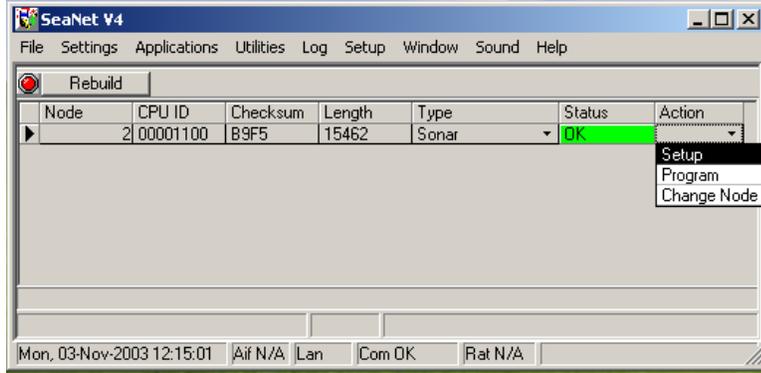
b) Click on the **Action** column for Node 2 and then select **Setup**, as shown…

c) Then Click on the **Baud Rates** button in the next panel to open the **Comms Setup** panel…
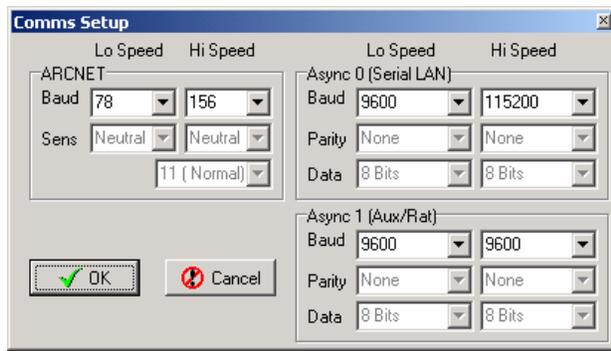
d) The **Async 0 (Serial LAN)** -> **Hi-Speed** column is the setting that needs to be altered. It will be at the factory default 115200 Baud setting. Change this to the desired Baud Rate then click **OK**.

e) Then, **OK** the next panel and the new Baud Rate will be programmed into the Micron Sonar. This will only take several seconds.

f) Close the Setup Program and re-open the **Micron display software**. Change the Baud rate of the PC COM Port to match the new Micron sonar settings. This is performed in **Tools Menu** – **Com Port**.