Superseded

Seanet SKIM-100 Interface

Operator & Installation Manual

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Handling of Electrostatic-Sensitive Devices

Certain semiconductor devices used in the equipment are liable to damage due to static voltages.

Observe the following precautions when handling these devices in their unterminated state, or sub-units containing these devices:

- Persons removing sub-units from any equipment using electrostatic sensitive devices must be earthed by a wrist strap via a 1MΩ resistor to a suitable discharge reference point within the equipment.
- Soldering irons used during any repairs must be low voltage types with earthed tips and isolated from the Mains voltage by a double insulated transformer. Care should be taken soldering any point that may have a charge stored.
- Outer clothing worn must be unable to generate static charges.
- Printed Circuit Boards (PCBs) fitted with electrostatic sensitive devices must be stored and transported in appropriate anti-static bags/containers.

F110.0

Warranty Policy

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 out with 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.

F167.1

Safety Statements

Caution!

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.

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)
- 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.

Tritech International Ltd can only undertake to provide software support for systems loaded with Operating System and Tritech Seanet software in accordance with the instructions given in the System Re-installation section of this manual. It is the customers responsibility to ensure the compatibility of any other package that they may choose to load unless with the prior consent of *Tritech*.

SECTION 1

1.1 GENERAL OVERVIEW

The SKIM-100 module can be used in areas where excessive cable length prevents the use of direct RS-232 transmissions. The SKIM-100 module provides a serial port interface for the Tritech SeaKing range of ArcNet Sensors.

The SKIM-100 module should be connected to an available COM port on the designated PC/Laptop from which the Sensors(s) shall be operated. The Seanet control and display software will be installed on this PC/Laptop and as default will be factory configured to communicate with the SKIM-100 through the COM1 serial port. Other serial ports can be configured as necessary, as explained within this document.

The SKIM-100 is pre-set to communicate with the PC/Laptop's RS-232 serial port at a baud rate of 115,200. The SeaKing ArcNet Sensor(s) is/are configured to communicate with the SKIM-100 module using the ARCNET LAN telemetry protocol. This is the standard protocol that is used in all SeaKing devices and provides high bandwidth at a default communications rate of 156kBaud.

The Tritech ArcNet telemetry will communicate over up to 2.5 kilometres of copper cable length, far exceeding what is possible with RS-232. The ArcNet can operate at either of 2 speeds with the lower speed option allowing for longer cable length operation up to 2.5km.

The SeaKing ArcNet network of Sensors can thus be controlled via a PC/Laptop serial port. This is also particularly useful when it is not possible to install the SeaKing AIF interface card into the desired host computer or laptop. The sensors are connected to the serial port via the SKIM-100 Translator box. This external box is supplied by Tritech and provides the RS-232 interface to the PC serial port whilst communicating to the SeaKing heads over the ARCNET communications link.

Installed on the surface PC/Laptop is the 'Seanet' software package. This is used to configure the SKIM-100 interface box and also to control and display the connected Sensors. The 'Seanet' software is Windows® based and will run best on a display of resolution 800x600 or 1024x768 with 16-bit / 32-bit colour resolution.

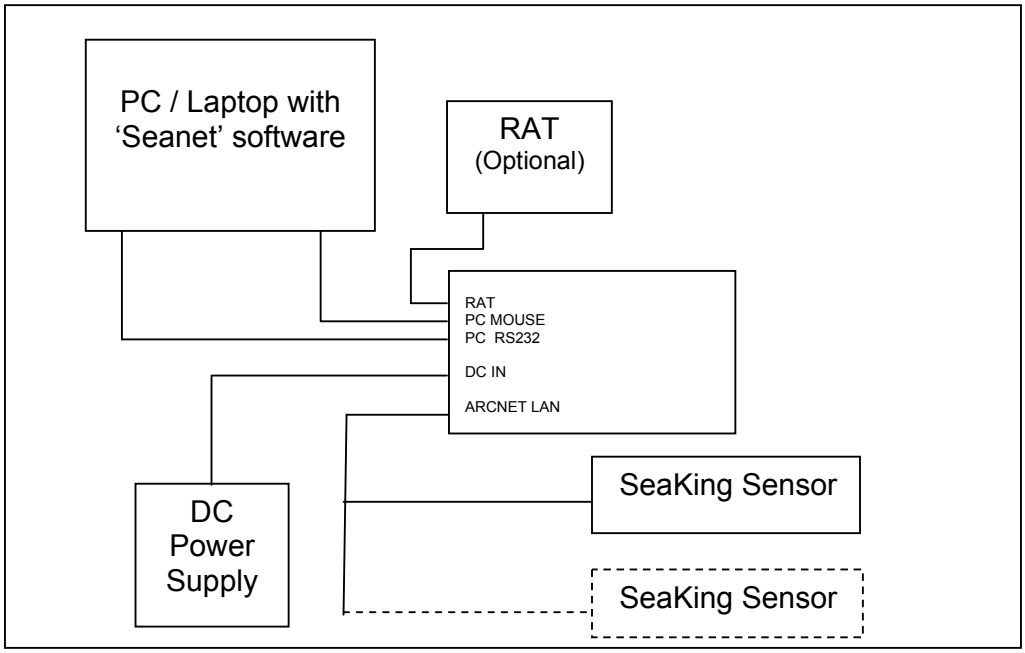


Fig. 1.1 General Installation Diagram

1.2 SKIM-100 MODULE SPECIFICATION

External Case Dimensions	174 x 133 x 54 mm
Weight	0.5 kg
Power	9 – 35 VDC (nominal 24 VDC)
Operating Temperature	0°C to +50°C
Communication with Sensor(s)	ArcNet
Communication with PC	RS-232 @ 115.2 kBaud

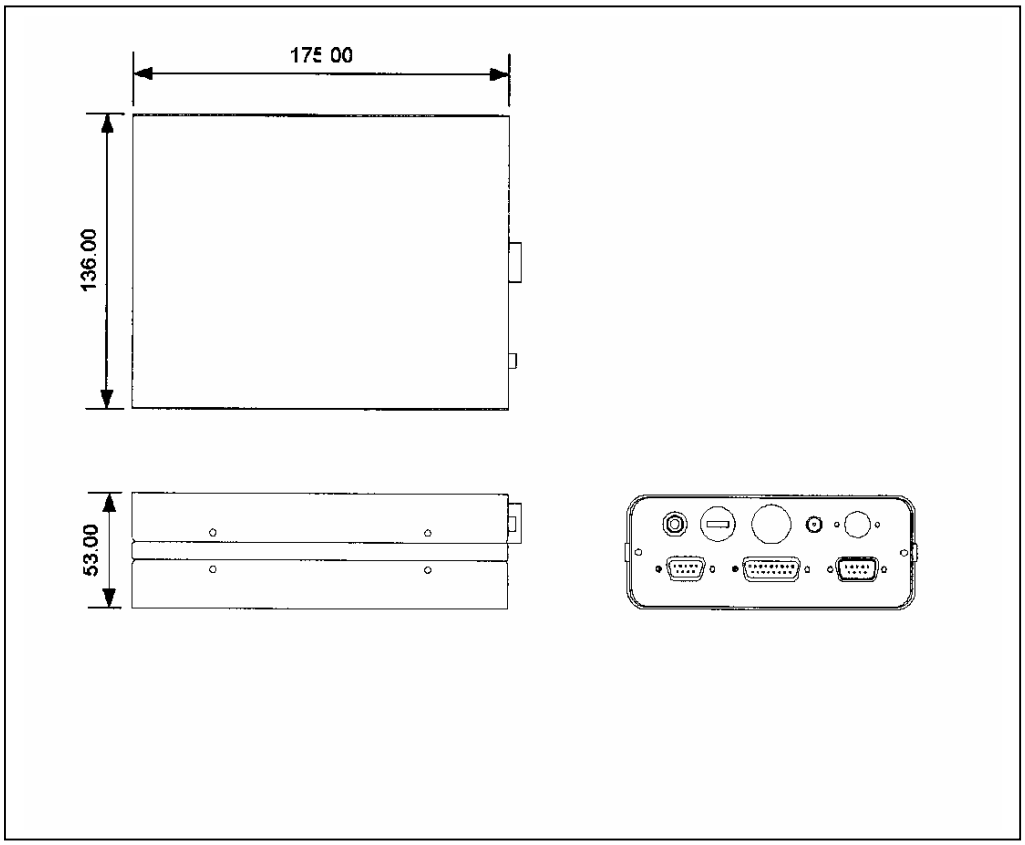


Fig. 1.2 SKIM-100 dimensional drawing

SECTION 2

2.1 INSTALLATION & CONFIGURATION DETAILS

The SKIM-100 provides multiple Sensor unit control from a PC or Laptop computer port via an RS-232 to ARCNET translator board fitted within the unit.

The unit also provides a long line telemetry option for operating from a PC / Laptop serial port over a twisted pair cable to the Sensor head(s). The SeaKing sensor(s) must be configured for ARCNET communications.

The SKIM-100 should be located within reasonable distance of the PC / Laptop. A serial interface cable provides the interface between the SKIM-100 and the PC / Laptop and the specification of this including cable length should be sufficient to support bi-directional RS-232 telemetry at 115.2kBaud.

On the PC / Laptop should be installed the 'Seanet' surface software program. This program includes full control and display of the Sensors in addition to a Setup utility that may be used to verify and update SKIM-100 and Sensor status.

2.1.1 Seanet Software

The SEANET Windows® software is provided on an Installation CD. If the CD Setup does not auto-run on disc insertion, run the SETUP.EXE file from the disc to start the installation. Select the 'Serial RS232 Installation' type from the menu page.

The SEANET software requires around 30MB disk space for installation with further disk space required for logging of the Sensor data. The software is able to run on a SVGA monitor at up to 1280 x 1024***** screen resolution. The Seanet operating software will run on any number of display colours – this is a marked improvement on the SONV3 revision of software which required a fixed 256-colour display setting.

***** *For clarity, a resolution of 800 x 600 is recommended.*

The SEANET software can simultaneously run combinations of Imaging Sonar, Profiling Sonar, Bathymetric & Oceanographic package and Sidescan together. All this data can be recorded / logged and replayed back. As well as sonar and bathymetric data, other data including NMEA 1083 may be recorded.

All data collected by devices such as Profiling Sonar and Bathymetric heads can be made available on one or more RS-232 ports for survey purposes.

All SeaKing subsea sensor software is stored in Flash RAM that enables the head to have its software upgraded without dismantling the unit and replacing EPROM's etc. The Seanet Setup program is used to provide these program updates.

Further details for installing or re-installing software onto the PC / Laptop can be found in the Maintenance section of this manual.

2.1.2 SKIM-100 Module Connections

The module has several connection Ports;

- **PC-RS232** Port: This is the RS-232 interface port for connection to the host computer.
- **ARCNET-LAN** Port: This is the ARCNET interface port for connection to the SeaKing range of Sensors.
- **RAT** Port: This is the connection port to which the RAT Extension Lead plugs into.
- **PC-MOUSE** Port: This is for the RAT pointing device operation. Connect the PS/2 interconnect cable between this port and the PS/2 port on the PC. The RAT pointing device will be loaded automatically as a Plug 'n' Play device on PC power up. If using a Laptop with a PS/2 Touchpad, whilst the RAT is connected, it's PS/2 pointing device may over-ride and disable the Laptop's Touchpad.

For ARCNET connection, the 15-way D-type **ARCNET-LAN** connector has the same pin configuration as standard Tritech AIF interface cards.

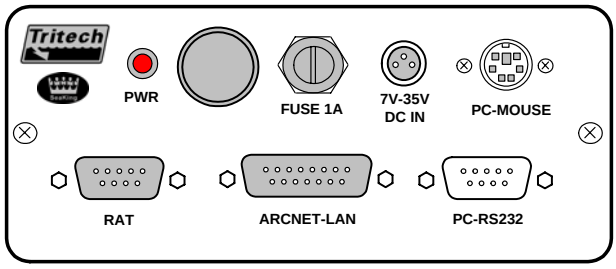


Fig. 2.1 Face View of Translator Box

PC-RS232		ARCNET-LAN	
Pin 2	Rx	Pin 8	LAN-A
Pin 3	Tx	Pin 15	LAN-B
Pin 5	Gnd		

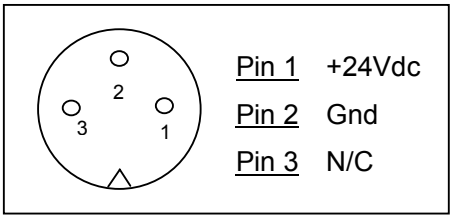


Fig 2.2 Pin view of 'DC IN' module port

2.2 SKIM-100 COMMUNICATION CONFIGURATION

The SKIM-100 will communicate with the PC/Laptop's RS-232 serial port at a default baud rate of 115,200. The interface cable should be of sufficient standard and length to support this communications. It is recommended that the length be kept below 10 metres. If there are problems communicating with the SKIM-100 box at the 115,200 default baud rate then it is possible to lower this rate, although a resultant reduction in system bandwidth may affect sonar performance and is not recommended. Details on altering the RS-232 baud rate are contained within this document.

The SeaKing ArcNet Sensor(s) will communicate with the SKIM-100 module using ArcNet LAN telemetry. This is the standard protocol that is used in all SeaKing devices and provides high bandwidth at a default communications rate of 156kBaud. The **ARCNET LAN** is a 2-wire terminated link, installed between the SKIM-100 module and Sonar head. A good twisted pair of up to **1.5km** in length can be used for this link to handle the ARCNET default transmission rate of **156kBaud**. It is possible to re-configure SKIM-100 and Sidescan Towfish to communicate at the lower rate of **78kBaud**. This would achieve communications over longer cable lengths, approaching **2.5km** (or sometimes over) although this would be to the detriment of system bandwidth.

The ARCNET 2-wire link must be suitably terminated with resistors fitted between the twisted pair at the cable end points. This is described in more detail later in this document.

2.2.1 RS-232 Wiring Configuration

The RS-232 connection between SKIM-100 module and the PC / Laptop Serial port is 3-wire as follows…

Pin 3 on the SKIM-100 'PC-RS232' 9-way D is the **RS-232 Tx**. This should be connected to the RS-232 Rx on the PC serial port.

Pin 2 on the SKIM-100 'PC-RS232' 9-way D is the **RS-232 Rx**. This should be connected to the RS-232 Tx on the PC serial port.

Pin 5 on the SKIM-100 'PC-RS232' 9-way D is the **RS-232 Gnd**. This should be connected to the RS-232 Common Gnd on the PC serial port.

2.2.2 ArcNet Wiring Configuration

The telemetry link between SKIM-100 module and the SeaKing range of Sensor heads is 2-wire ArcNet as follows…

Pin 1 on the SeaKing Sensor MAIN port is the **ARCNET LAN-A**. This should be connected to Pin8 on the SKIM-100 'ARCNET-LAN' 15-way D port.

Pin 2 on the SeaKing Sensor MAIN port is the **ARCNET LAN-B**. This should be connected to Pin15 on the SKIM-100 'ARCNET-LAN' 15-way D Port.

2.2.2 Subsea Sensor Electrical Installation

The SeaKing range of Subsea Sensors are designed to work from a smoothed DC power supply of 18v-36v DC (Absolute Maximum 36v DC).

If using a rectified transformer PSU, the output of the PSU must have a filter capacitor of not less than 470μF, for each head being powered. If an unregulated PSU is used, then make sure that the voltage value measured at the head is in the range 18-36v DC, in power on/off and running conditions. If powering the head(s) down a long lead or umbilical, the maximum recommended loop resistance of the power line must not exceed 10Ω for one head, 5Ω for two heads, and 3Ω for three heads. If the supplied voltage is less than 18v dc the head may not operate correctly.

Never try to make SeaKing sensor heads work down a long cable by increasing the PSU output voltage above 36v DC.

For operation of a Sidescan Towfish, this type of Sensor will require a launch voltage of at least **30VDC** at the surface to guarantee operation beyond 30 metres range.

2.2.3 ST Head Subsea Interconnect Cabling

The Standard Underwater Connector supplied is Tritech 6 way. Telemetry to the SeaKing Sensor heads is **ARCNET** which requires the installation of **termination resistors** between the ARCNET LAN A + B lines. The wiring for this is shown below.

Caution!

The numbers shown relate to all schematic diagrams (not a DIN style format).

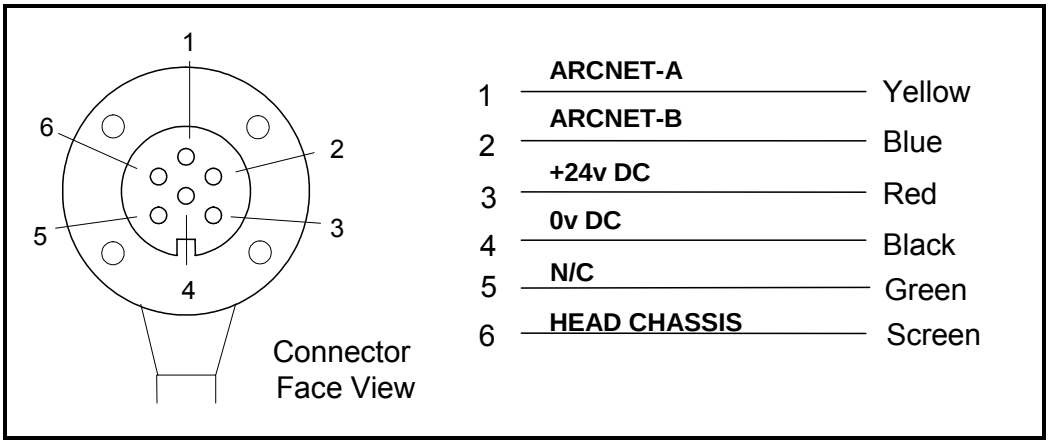


Fig. 2.3 Tritech 6 Way Underwater Connector - ARCNET Wiring Configuration

2.2.4 ArcNet Line Termination

The ArcNet communication link normally requires termination resistors to be installed at each end of the umbilical cable. These resistors are fitted between each line of the twisted pair and will normally have been installed when supplied.

Mode 1. For twisted pair cables that are below **100** metres in length, it is only necessary to install one termination resistor of value between 47 to 100 ohms (68 ohms nominally). This would normally be installed inside the 15-way 'D' connector shell which connects to the SKIM-100 'ArcNet LAN' port.

Mode 2. For twisted pair cables that are between **100 to 1200** metres in length, two termination resistors should be installed, one at either end of the cable. At the surface AIF / SKIM-100 connection point, a **270 ohm** resistor should be fitted, normally inside the 15-way 'D' connector shell. At the subsea end of the cable, a **39 ohm** resistor should be fitted – if there is more than one Sensor connected then this resistor should be fitted at the junction / splice point of the cable, else this may be installed within a **Yellow terminated waterblock** adapter on one of the Sensors (this is more particular with operation of single Sensors applications such as the Sidescan Towfish unit).

Mode 3. For twisted pair cables that are between **1200m to 2500** metres, install 270 and 39 ohm resistors as per Option 2 above.

(Modes **1 & 2** = Normal ArcNet Baud Rate, Mode **3** = Half ArcNet Baud Rate)

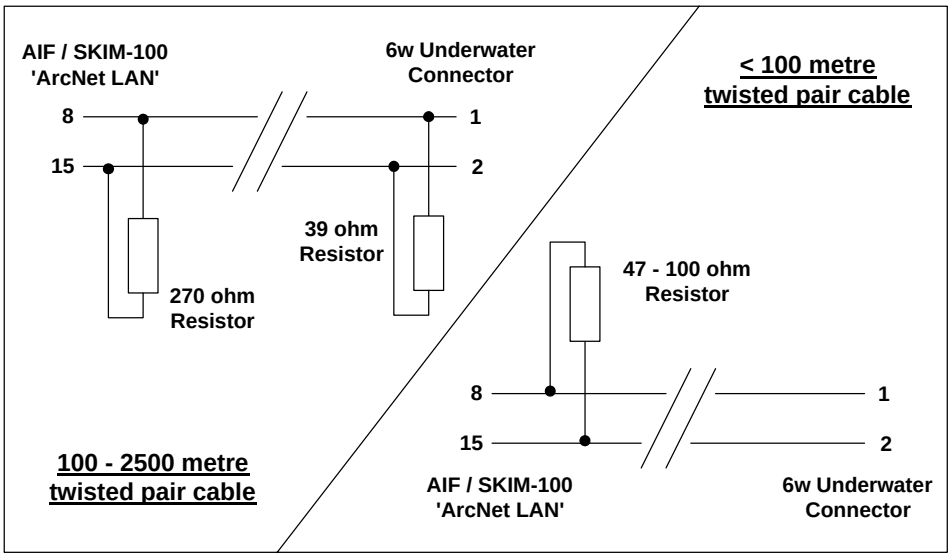


Fig. 2.4 ArcNet Termination Resistors

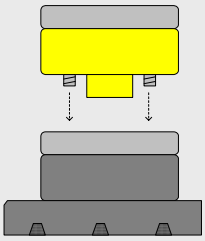
Note on Subsea Termination Resistor:
(as shown in diagram above)

This will normally be installed in the Junction point on the vehicle where the communications pair splits off to each SeaKing device that is connected; i.e. this junction point would normally be inside the vehicle Junction box/pod.

There are circumstances where it is not possible to install a permanent subsea termination resistor for the SeaKing communications; i.e. when operating over a single run of cable.

In these cases, a Yellow Waterblock Adapter (Part No. 2648) is available which has a 39 ohm termination resistor installed internally.

These Yellow adapters are now supplied with each SeaKing system (SCU surface unit or PC Install kit) as supplied from mid-2000 onwards. For systems purchased before this date and which do not therefore include this Yellow adapter, they can be obtained from Tritech or through a local agent.



The Yellow terminated waterblock should be installed directly onto the 'Main' connector port on one of the SeaKing heads attached to the network *(as indicated left)*.

Important:

(1) *Only one yellow 39Ω terminated waterblock to be used per system.*

(2) *Check that there are no other termination resistors present – other than 270Ω at surface – prior to installation.*

2.4 TYPICAL SERIAL PORT INTERFACES

The SKIM-100 box can be used to connect one or more SeaKing ArcNet devices to the PC/Laptop serial port. The more common applications will be to connect a network of SeaKing survey sensors including Sonar, Profiler, Bathy and ROV Sidescan. Else, the SKIM-100 may be used to connect a Sidescan Towfish unit.

i) SeaKing Survey Sensor Network

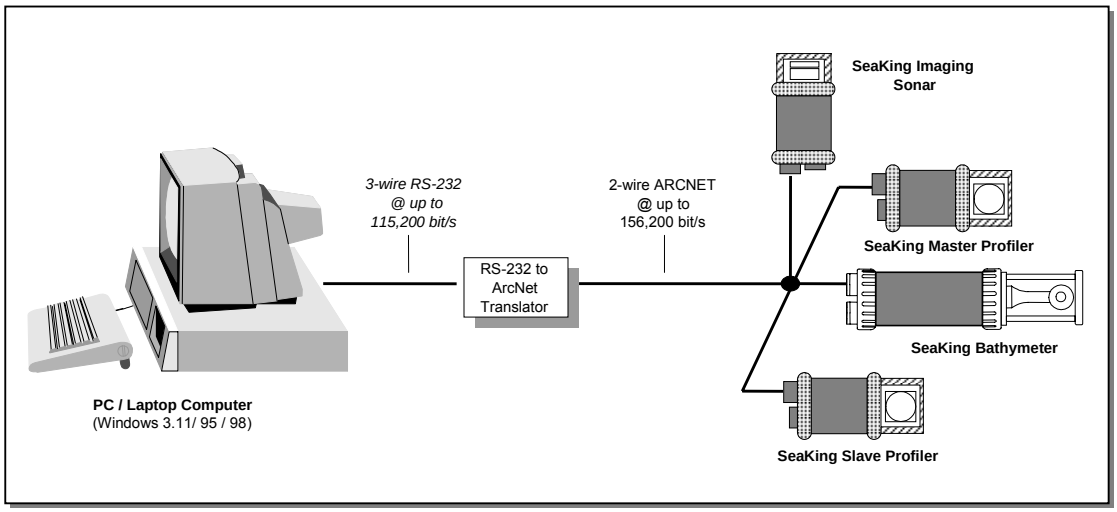


Fig. 2.5 SeaKing Sensor Network SKIM-100 interface

ii) Sidescan Towfish

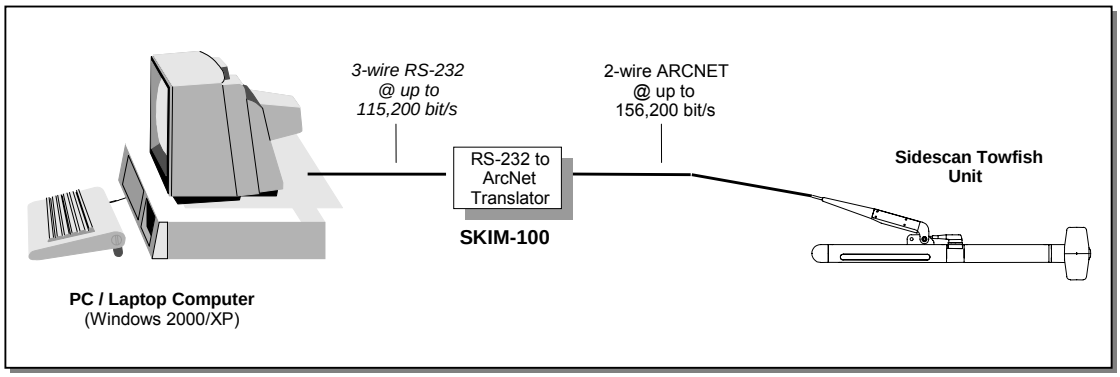


Fig. 2.6 SeaKing Sidescan Towfish SKIM-100 interface

SECTION 3

3.1 GENERAL INFORMATION & OPERATING DETAILS

Once a system has been installed in conjunction with the relevant sections of this manual and the sensor manuals, it can be tested in air by powering up the system and observing that communications with the subsea device(s) is established.

Until the SKIM-100, optional Remote Access Terminal (RAT), and subsea elements are communicating correctly, the Status Bar will display a Timeout ('Timeout Node xx') message for each Node that it is trying to communicate with the SKIM-100. These messages will disappear as each subsea element checks out okay.

If the RAT (optional) or subsea elements are not powered up, not present, or have a fault somewhere, then error messages will be shown in the Status Bar boxes on the bottom of the display. If error messages appear, check that all the system parts are connected and that all leads/cables are correctly installed. When error messages continue to appear then there is a fault and the Troubleshooting section should be referred to.

The following sections of this manual will describe the general software controls in addition to installation and connection instructions. Further, separate manual sections will describe operation of each of the subsea Sensors and their connection details.

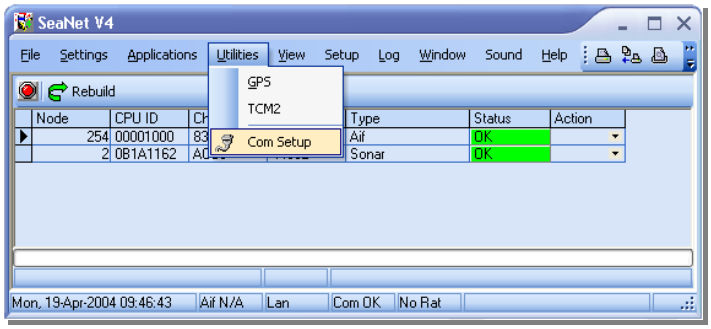
3.2 SEANET SYSTEM DISPLAY

Full details of the Seanet Pro and Seanet Setup operation can be found in the Seanet Pro Users Manual. There are a number of devices that can be connected to the Seanet SCU including Imaging Sonar, Profiler, Bathy and Sidescan. Refer to the Operator's manual section that was supplied with each of these devices for specific details on their screen controls and functions.

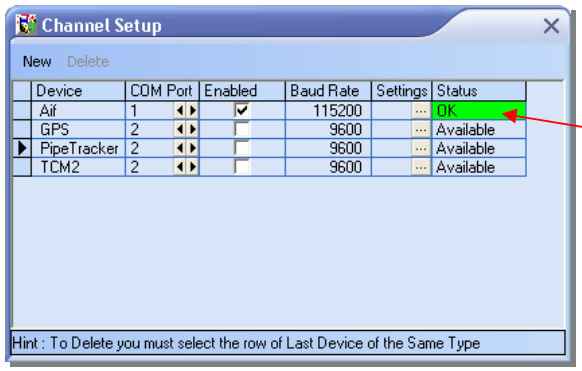
SECTION 4

4.1 CONFIGURING PORT FOR SKIM-100 CONNECTION

In the Seanet Setup Program, if the Node 254 node does not appear then this may indicate that the COM Port has been incorrectly configured for the SKIM-100 connection. The COM Port can be configured by clicking on **Utilities** – **Com Setup**…



This will open the Channel Setup panel where the SKIM-100 can be configured by setting the properties for the **Aif** device (Aif stands for **A**coustic **I**nter**F**ace).

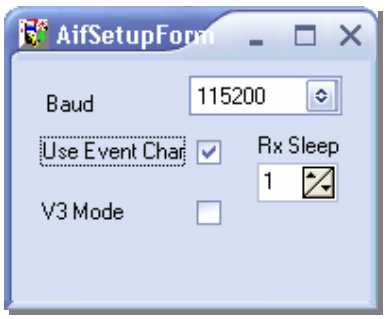


The 'Aif' device is where the SKIM-100 Port should be configured

The SKIM-100 will be factory set to **115,200** Baud and this should not be changed unless under unusual circumstances the SKIM-100 is known to be programmed with a different Baud Rate to this.

If the Status displays '**OK**' in green, as shown above, then this port should be opened OK for the SKIM-100 connection. If a Port Status displays '**Available**' when <u>not</u> Enabled, then this Port should be available for use whereas if '**Not Available**' then try a different COM Port number.

Click on the **Settings** button ('…') to open the **Communication Settings** panel to configure the Port, i.e. the COM Port number and Baud rate can also be viewed/changed here…



Caution! ***** Do not change any of these settings unless instructed by Tritech *****

4.2 Configuring System Baud Rates

Changing ArcNet Baud Rate (i.e. SKIM-100 module to Subsea Sensors)

This may be necessary to communicate over cable lengths in excess of around 1.5km. By lowering the ArcNet Baud Rate from the factory default 156kBaud down to 78kBaud (sometimes termed 'Half Baud Rate') the ArcNet will communicate over lengths of twisted pair cabling up to around 2.5km.

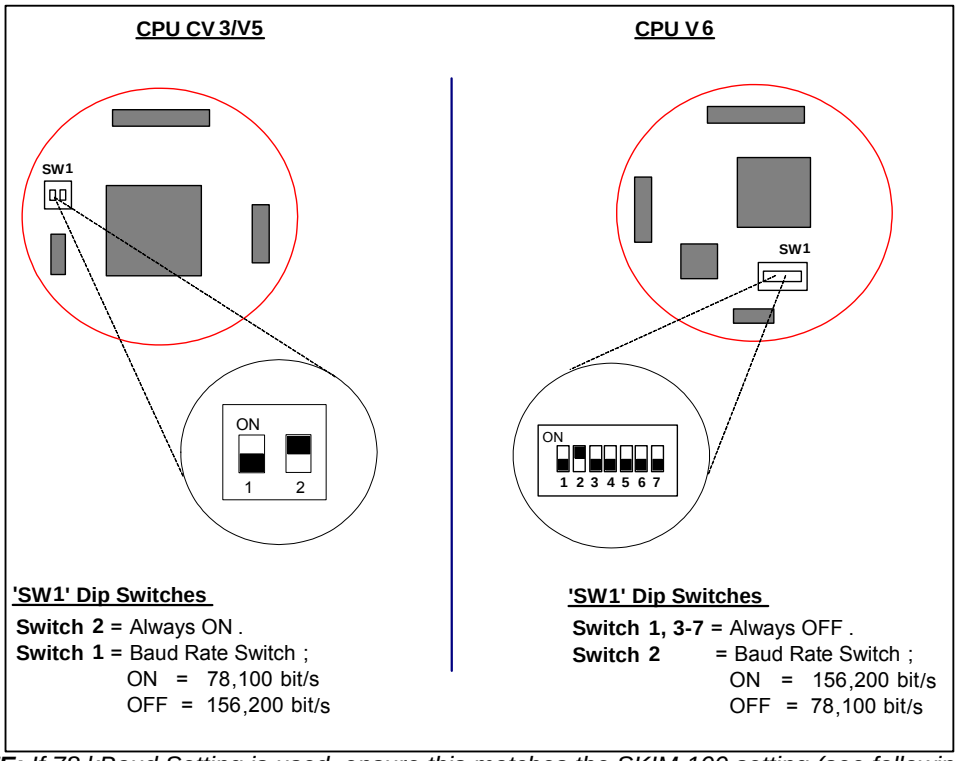
The First step is to change the Baud Rate of the Subsea Sensor and this is accomplished through changing the position of a dip switch within the Sensor head…

To change the Sensor Head's ArcNet Baud Rate…

a) The Baud Rate switch is located on the CPU PCB, within the Sensor housing. To access the PCB board-set installed within the Sensor, undo the locking ring situated at the connector end of the Sensor; the locking ring is removed by anti-clockwise rotation. Then remove the connector endcap by pulling on the endcap handle.

b) The CPU PCB is central within the PCB board-set (4 PCBs for Sonar/Profiler, 3 for Bathy) that is mounted on the removable connector endcap.

c) With a small screwdriver, toggle **Baud Rate Switch** of **'SW1'** to the desired position to set the Sensor for ArcNet communications at the new Baud Rate.

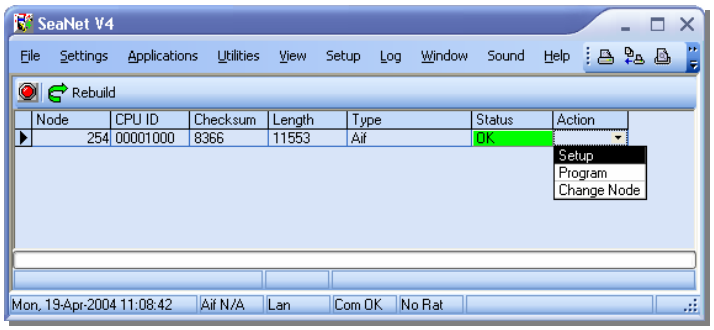


NOTE: *If 78 kBaud Setting is used, ensure this matches the SKIM-100 setting (see following). It is recommended that all devices be labelled accordingly with the configured speed setting.*

To change the SKIM-100 Module ArcNet Baud Rate…

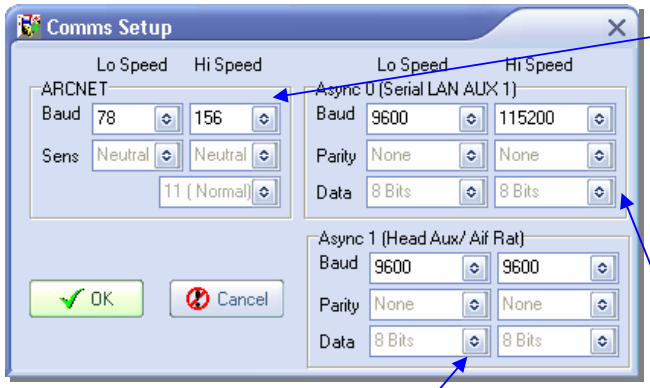
a) Open the 'Seanet Setup' program and ensure that **Node 254** is detected in the table.

b) Click on the **Action** column for Node 254 and then select **Setup**, as shown…



c) This will open the Aif Setup panel. Click on **Baud Rates**…

d) The **Comms Setup** panel will open, where you can view the **Lo** and **Hi Speeds** settings…



SKIM-100 ArcNet Lo and Hi Speed settings. ('Hi Speed' = used). Change 'Hi Speed' to '78' kBaud if cable length exceeds 1.5km.

RS-232 settings for SKIM-100 serial port connection. ('Hi' = used).

RS-232 settings for RAT. ** do not change **

e) It is the ARCNET '**Hi Speed**' setting that is used by the SKIM-100 module to communicate with the Sensor heads. If the twisted pair cable length between SKIM-100 and Sensor heads exceeds around **1.5km**, then lower the Hi Speed setting from '156' to '78' kBaud. Ensure that the Sensor head settings match this as described in the previous section.

f) **OK** any new settings or simply Cancel if no changes were made. Then **Close down** and **re-open** the **Seanet Setup** program to check that the Sensor node(s) are now re-detected in the table at the new Baud Rate.

SECTION 5

5.1 MAINTENANCE

5.1.1 SKIM-100

The SKIM-100 has no user serviceable parts and other than maintaining it clean and dust free should require no special attention.

5.1.2 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.

5.2 TROUBLE SHOOTING

Symptoms:

1. *Failure to boot-up.*
Check that all internal boards and connectors are correctly in place and firmly secured.
Particularly if the system has been recently moved or subjected to any shock loads.

2. *Continuous Status "Timeout" messages.*
This indicates that there is no communication with the device flagged.
Check the power and communications links to the Subsea Sensor for continuity and for correct polarity, voltage and ensure that the power supply can provide sufficient current to power all devices. If necessary refer to the service section to check that the head internal fuses have not blown. If this occurs on first installation pay particular attention to cable terminations and check that you are not exceeding the recommended cable length (1200m using the standard Baud rate).

If a cable flood is suspected, then the conductors will need to be insulation tested; the subsea units and SEANET SCU must be disconnected.

This is especially critical if a cable insulation tester is used to check resistance between conductors, as serious damage to the Scanning/Profiling heads and SEANET SCU will occur if the correct procedure is not followed.

3. *Other Status Messages.*
Refer to the STATUS BAR Status Codes.

5.2.1 SeaKing Head Status Codes

Code	Possible Reason or Fault giving Error Code
'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.
'Ping Sync'	This is pertinent to Dual Profiler operation and usually points to a fault with the dedicated wire link that should be present between Pin 5 on the Master and Slave Profiler heads.

SECTION 6

6.1 SYSTEM SOFTWARE CONFIGURATION

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

The Seanet Pro sonar software can be reloaded as follows…

1) Insert the Tritech CD to the CD ROM drive.

2) Browse the CD ROM drive and run Setup.exe from the root. Select the 'Serial RS232 Installation' type and follow the on screen directions. This will automatically install the Seanet software to the Program Files directory on the C:\ drive.

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

4) Two shortcuts will automatically be created on the Windows Desktop if these are not already present. N.B. The "Seanet Setup" Shortcut is for node configuration only whilst the other Seanet shortcut is the main display program.

5) The Screen resolution should be set to maximum 1024x768 at either 16-bit or 32-bit colours.

To Remove the Seanet software, open the "Settings \ Control Panel" box 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 Seanet Registry settings and Desktop Shortcuts.