Tritech International Limited

Seanet System (Subsea Junction Box)

Operator & Installation Manual

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Handling of Electrostatic-Sensitive Devices

Attention

Observe Precautions for handling Electrostatic Devices

Caution

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 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 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

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.

INTRODUCTION

The Tritech **Subsea Junction Box** provides the connection interface to the Tritech range of networked survey suites. The Junction box provides the main telemetry link to the surface and acts as the splitter for connecting several networked sensors together to be controlled from this single telemetry link to the surface. At the surface, the Tritech **Surface Control Unit** (SCU) provides the user interface for controlling and displaying the array of sensors connected together on the ROV / deployment vessel. This range of networked sensors includes **Imaging Sonars**, **Profilers** and **Bathymetry & Oceanographic** packages.

The Junction Box can be connected to a Tritech Seanet survey package which offers ARCNET, a long-line, high-speed telemetry interface (**ARCNET**) providing the capacity for transferring larger streams of sensor data that is prevalent from the increase in sample data that is a result of the higher resolution of SeaKing sensors. The Junction box's telemetry link to the surface can be configured to either (2-wire) ARCNET or (3-wire) **RS-232** [#].
[#] *The J-box can be configured to communicate to the surface using RS-232 or ARCNET, whilst communicating to each of the connected Sensor heads over the ARCNET LAN.*

KEY FEATURES:

Functionality

The J-box is pressure rated to a maximum depth of **4000 metres** and can be installed in any suitable location on the ROV. It provides the subsea split to the SeaKing sensor suites, with connection for up to a maximum of 4 sensors comprising Sonars, Profilers and Bathy.

Telemetry Options

The J-box communicates with the surface control card (**AIF card**) over 2-wire ArcNet / RS-485 or 3-wire RS-232 telemetry link.
ARCNET communications require **termination resistors** to be installed surface and subsea. The subsea termination resistor is installed in a (yellow) colour coded connector on the J-box.

Power Distribution

The J-box is powered from a DC supply of range **+21 to +30VDC**. This DC supply is then distributed to the SeaKing Sensor heads via each head's connection port on the J-box.

Sensor heads will require 24VDC and a 4-head sensor suite would require approx. 2A at this voltage level.

Fuse Protection
Each of the head connection ports have an internal fuse on the 24 V power rail. These fuses are rated to 3Amps and are included to help protect the head and J box in the event of water ingress to cable or connectors. Details can be found in Appendix 2 at the end of this document.

System Compatibility

The J-box can be used in a Seanet survey package to connect together SeaKing sensors.

Seanet uses ARCNET networked communications at 156.2 or 78.1 kbaud. At the 156.2 kbaud rate, the ARCNET will drive over unshielded twisted pair cabling up to 1.5 kilometres in length. Lowering the telemetry rate to 78.1 kbaud will extend this line drive to approximately 2.5 kilometres.

Configuration

All telemetry and power options on the J-box are configurable via a pressure rated **dial switch** on the outside face of the J-box. Later models will have a Blue cap fitted over the switch to allow improved immunity to water ingress, see below for detail on how to access and set the switch.

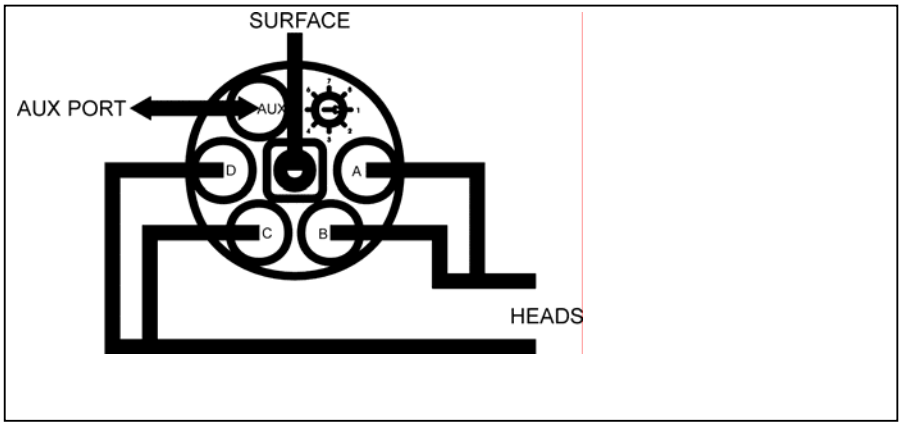
Caution!

J-box power supply must be removed before dial switch adjustment.

OPERATIONAL OVERVIEW

The **Junction box** can be installed at any convenient location on the ROV, preferably central to the SeaKing heads that will be connected. There are 4 mounting holes (**M8 x 1.25-6H**) located on the base of the box *(see Appendix)* to assist with installation. The unit should be provided with adequate lengths of interconnect cables in order to connect the SeaKing heads. These interconnect cables (**Part No. S1086**) are available from Tritech in lengths of **1**,**2**,**4** and **6 metres**, with other lengths available on request.

The junction box provides the power and telemetry interface for up to **4 x SeaKing heads**.



Junction Box Connection Ports

Surface telemetry to and from the Surface Control Unit (**SCU**) is connected through the central **8-pin Burton** connector (**Input 'Surface' Port**). This telemetry can be either asynchronous RS-232 or ARCNET LAN. The telemetry settings are selectable via an external dial on the façade of the unit, see '**Switch Options**' below.

The 8-pin Burton connector also doubles as the input port for system power. The Junction box requires to be powered from a **21-30VDC** local PSU. This power input is then distributed to all four of the **6-pin Tritech** head interface ports (**Output 'Head' Ports A, B, C, D**).

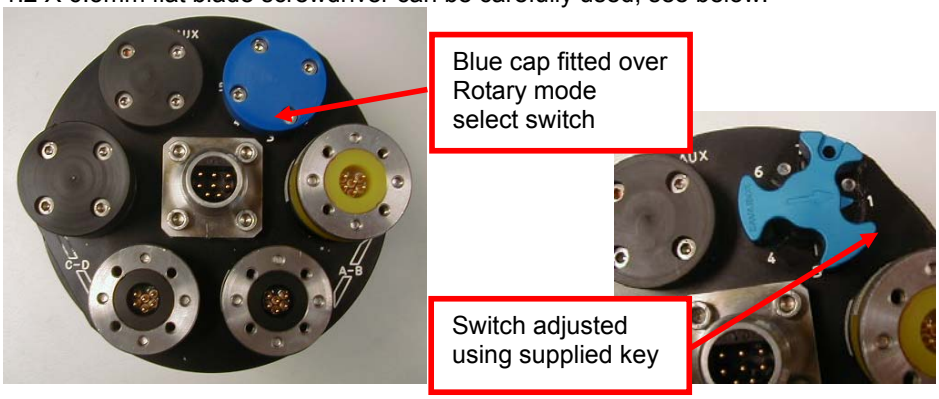
Output Ports A, B, C & D have 5 active pins;
i) 2 x pins for providing DC power supply for SeaKing heads.
ii) 2 x pins for ARCNET telemetry.
iii) 1 x pin used for Profiler Handshaking link.

N.B. *Full Wiring details can be found in later sections.*

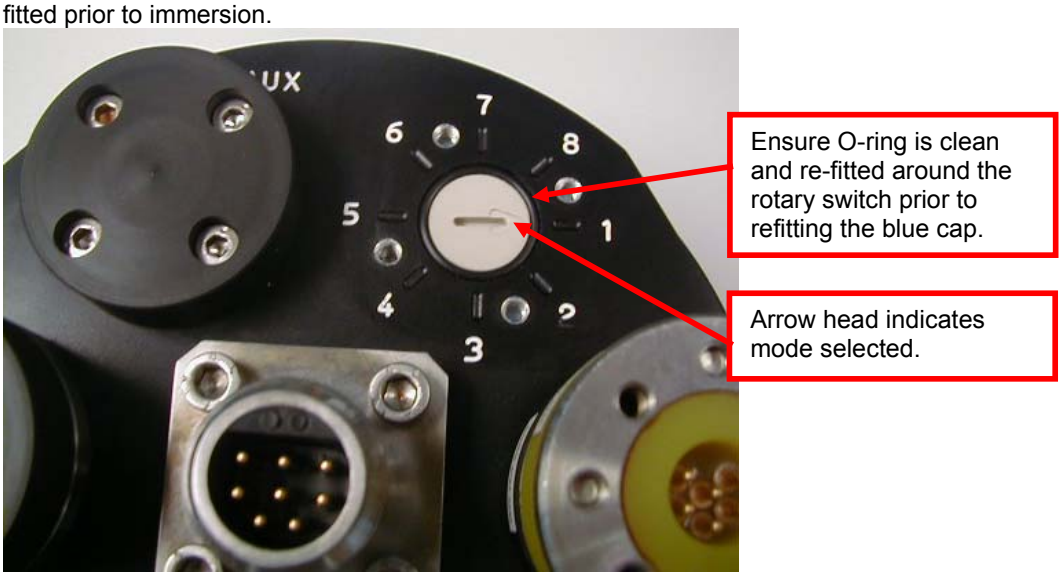
SWITCH OPTIONS

The Rotary dial switch on earlier models was exposed and can easily be set.

Newer models have a blue pressure cap over this switch.
To access the switch, remove the 4ea M4 socket cap bolts which fit the cap to the J-Box lid.
The cap can be lifted off and access to the dial obtained.
The switch should be adjusted with the key provided or if this is not available then a suitable 1.2 X 6.5mm flat blade screwdriver can be carefully used, see below.



On models factory fitted with the blue cap, always ensure that the O-ring and blue cap are re-fitted prior to immersion.



The external rotary dial located on the face of the Junction Box provides 8 operational modes...

Switch Option	Input 'Surface' 21-30VDC	Output 'A-D' 21-30VDC	AUX Port	
			232/485	Power O/P
1	SeaKing RS-232	Local ARC-NET	RS-232	21-30VDC
2	SeaKing RS-232	Local ARC-NET	RS-485	21-30VDC
3	SeaKing RS-232	Local ARC-NET	RS-232	12VDC
4	SeaKing RS-232	Local ARC-NET	RS-485	12VDC
5	ARC-NET	ARC-NET	N/A	21-30VDC
6	ARC-NET	ARC-NET	N/A	21-30VDC
7	ARC-NET	ARC-NET	N/A	12VDC
8	ARC-NET	ARC-NET	N/A	12VDC

USE OUTPUT PORTS A-B OR C-D FOR DUAL PROFILER PAIRS

Caution!

- *ENSURE POWER ISOLATED BEFORE CHANGING OPTION SWITCH.*
- *OPTIONS 5-8, AUX PORT NOT IN USE BUT OUTPUT VOLTAGE STILL PRESENT ON THIS PORT.*
- *ENSURE TO FIT THE PRESSURE RATED, O-RING SEALED BLANKING CAPS TO ANY PORTS NOT IN USE.*

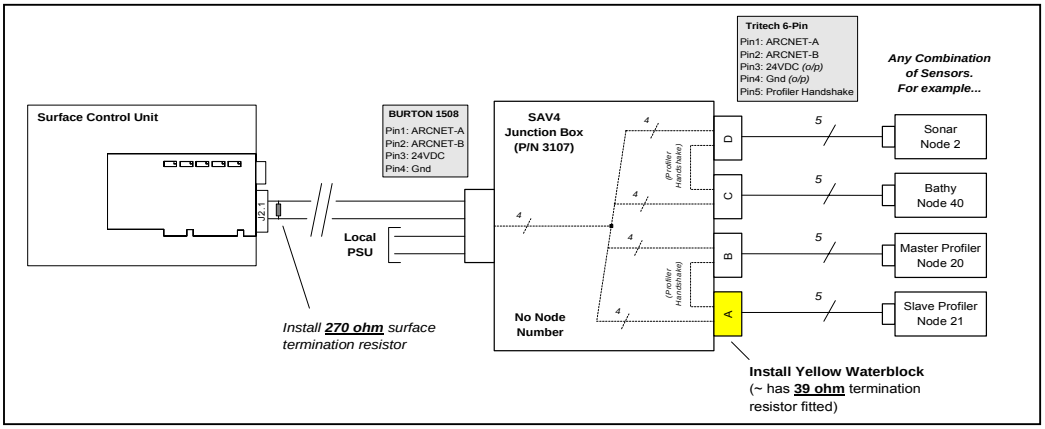
SEANET OPERATION

The Junction Box can be configured to communicate with the Surface Control Unit (SCU) over **RS-232** or **ARCNET** telemetry. ARCNET should be the preferred option as this provides a higher capacity data link which will allow for connection of a larger number of Sensors without affecting the update rates of these Sensors. RS-232 should only be used when running through a Data Multiplexer that does not include an ARCNET interface.

The connection options for a SeaKing connection are as follows;

1. ARCNET TO SURFACE / ARCNET TO SUBSEA SENSORS

In this mode, the Junction Box is a **dumb terminal** distributing Local Power Input and ARCNET Telemetry to each of the connected SeaKing Sensor heads. The Junction Box does NOT have a Node Number when operating in this mode. Also the Aux port is disabled.



 # Larger representation diagram in Appendix.

Select Switch Options 5, 6, 7, 8

System Power

For the distribution of power to the heads, a voltage input of **21- 30VDC** must be supplied on the **Input 'Surface' port**. For connection of a full suite of Dual Profilers, Sonar and Bathymetric Sensor, the local PSU must be capable of supplying at least **2 Amperes** at a nominal **24VDC**.

System Telemetry

The ARCNET telemetry link requires **termination resistors** to be installed at either end of the cable in the same way as a standard ARCNET system;

- The surface **270 ohm** resistor can be located within the **15-way 'd'** connector shell. This is the connector that mates at the rear end of the SCU. This resistor should be fitted between pins **8** and **15** on this connector.
- The subsea **39 ohm** resistor is fitted in the **Yellow Waterblock** adapter that is supplied with the Junction box. For SeaKing operation, this adapter MUST be installed at all times and fitted to any of the Output Head ports (A,B,C or D).

Junction Box Wiring - *SeaKing* ARCNET In & ARCNET Out

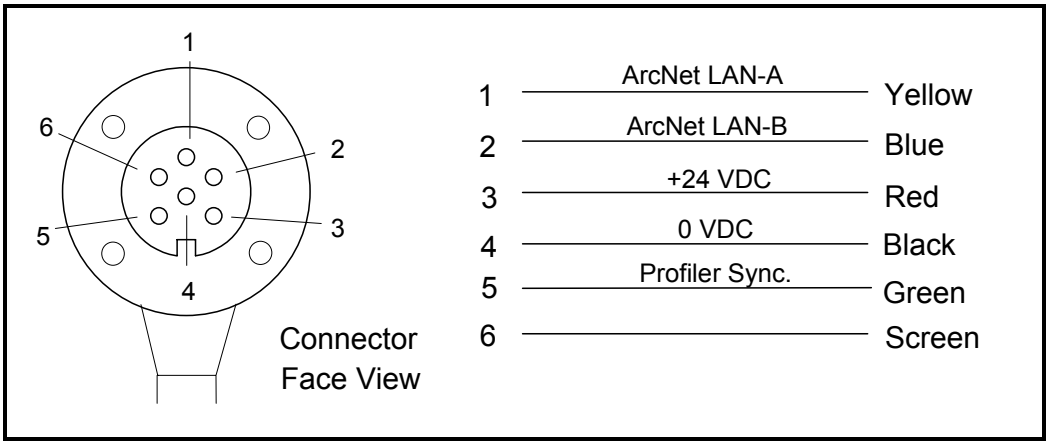
Burton 1508 Bulkhead Connector (Input Port I)	
Pin 1	**ARCNET LAN-A**
Pin 2	**ARCNET LAN-B**
Pin 3	**24VDC Input**
Pin 4	**0VDC Input**
Pin 5	N/A
Pin 6	**Chassis Ground**
Pin 7	N/A
Pin 8	N/A

Internal Box Fixed Links

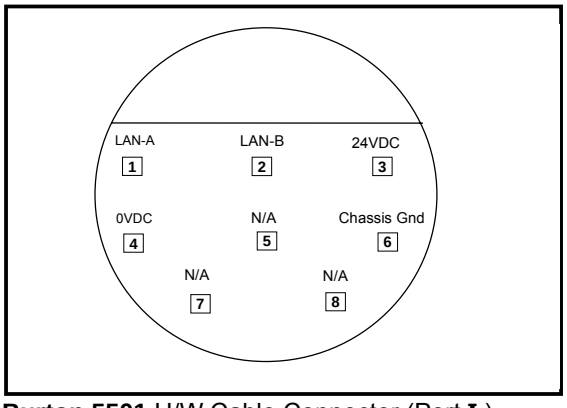
Tritech 6 Way Bulkhead Connector (Output Ports A, B, C, D)	
Pin 1	**ARCNET LAN-A**
Pin 2	**ARCNET LAN-B**
Pin 3	**24VDC Output**
Pin 4	**0VDC Output**
Pin 5	**Profiler Sync.** #
Pin 6	**Case**

Internal Box Links between A-B and C-D.

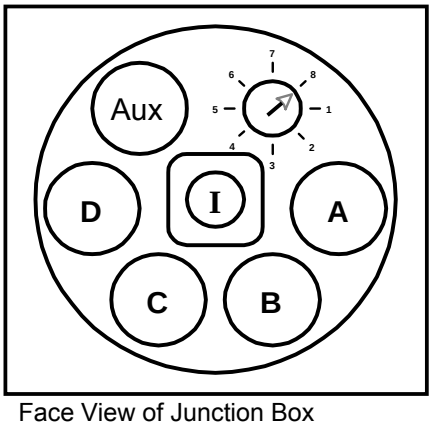
Mating Connector Wiring



***Tritech 6 Way** Underwater Cable Connector (Ports **A**,**B**,**C**,**D**)*



Burton 5501 U/W Cable Connector (Port **I**)

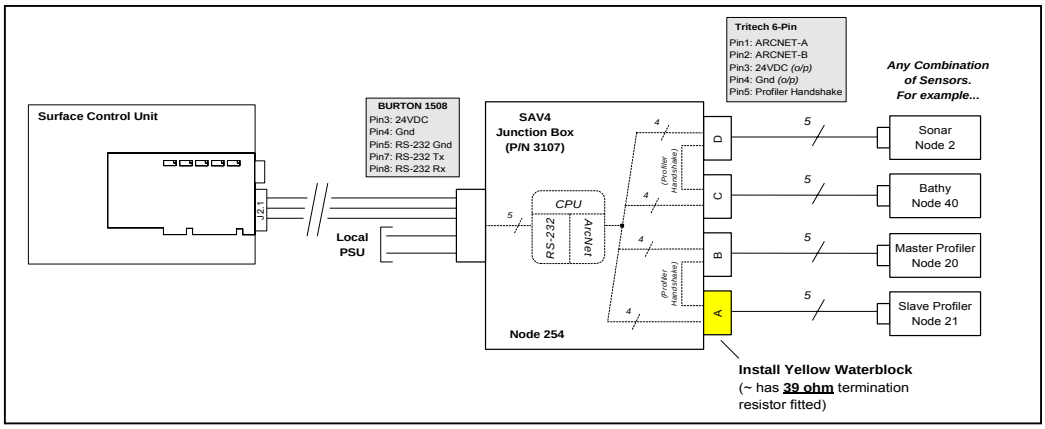


Face View of Junction Box

2. RS-232 TO SURFACE / ARCNET TO SUBSEA SENSORS

In this mode, the Junction Box is an **intelligent terminal** which communicates with each of the connected ARCNET SeaKing Sensors whilst translating this data for transmission to the **surface node** via the 3-wire RS-232 link. The surface node is the **AIF** interface card which is assigned the **Node number 255**. This card is installed inside the SCU Processor unit.

The Junction box is programmed with the **Node number 254** and will communicate with the surface node using this I.D. It will receive data packets from each of the connected SeaKing Sensors over the ARCNET LAN and attach these in its own data packets addressed to the surface node and sent over the RS-232 link.
In the opposite direction, the surface node will communicate through the Node 254 Junction Box in order to send any data commands to the SeaKing Sensors. The Junction Box will receive its own addressed data packets from the surface node and strip off the contained data commands. These data commands are then relayed to the intended SeaKing Sensor over the ARCNET LAN. Each SeaKing Sensor is programmed with it's own unique Node number which is factory set and follows the Node number assignments which are fixed in the SeaKing surface control software [Imaging Sonar = Node 2, Master Profiler = Node 20, Slave Profiler = Node 21, Bathymetric Sensor = Node 40].
In this mode the Junction Box Aux port is active. See the *"J-Box Aux interface"* supplement for application, setup and wiring details.



 # Larger representation diagram in Appendix.

Select Switch Options 1, 2, 3, 4

System Power

For the distribution of power to the heads a voltage input of **21- 30VDC** must be supplied on the **Input 'Surface' port**. For connection of a full suite of Dual Profilers, Sonar and Bathymetric Sensor, the local PSU must be capable of supplying at least **2 Amperes** at a nominal **24VDC**. The Junction Box *itself* will require approximately 150mA @ 24VDC.

System Telemetry

The ARCNET telemetry link between the SeaKing Sensor heads and the Junction Box requires a single **termination resistor** to be installed between the 2 LAN wires. This termination resistor should be of value between 39 and 100 ohms.

N.B. For this purpose, a **39 ohm** termination resistor is fitted in the **Yellow Waterblock** adapter that is supplied with the Junction box. For SeaKing operation, this adapter MUST be installed at all times and fitted to any of the Output Head ports (A,B,C or D).

Maintain the factory default **ARCNET** Baud rate of **156.2kBaud**. There is no need to lower this rate as only short interconnect cables will be installed between the Junction Box and the connected SeaKing Sensor heads.

The **RS-232** telemetry link to the surface can be adjusted to suit the Modem / Multiplexer that will be used on the system. It is recommended that the factory default setting of **115.2kBaud** be used whenever possible as this will provide enough bandwidth to run multiple SeaKing Sensors at optimum speeds and resolutions.

Details on changing the RS-232 Baud rate can be found in the next few pages.

Junction Box Wiring - *SeaKing* RS232 In & ARCNET Out

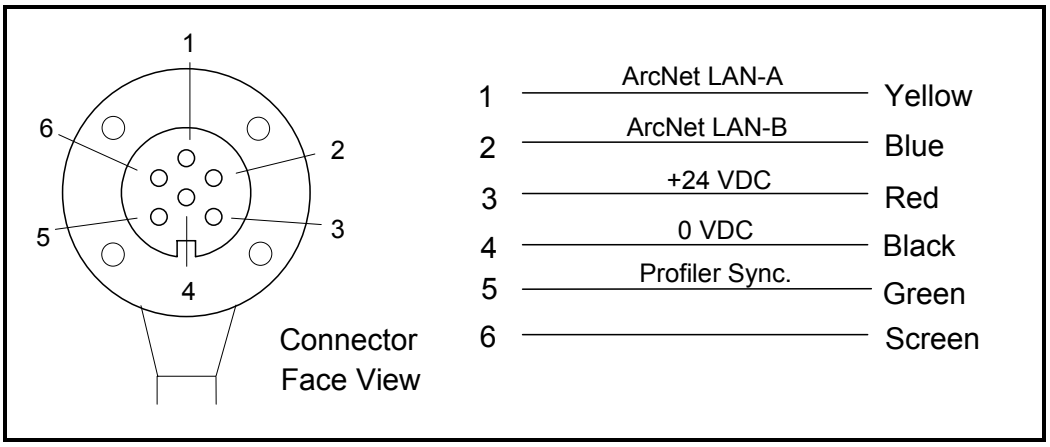
Burton 1508 Bulkhead Connector (Input Port I)	
Pin 1	N/A
Pin 2	N/A
Pin 3	**24VDC Input**
Pin 4	**0VDC Input**
Pin 5	**RS-232 Ground**
Pin 6	**Chassis Ground**
Pin 7	**RS-232 Tx**
Pin 8	**RS-232 Rx**

Internal Box Fixed Links

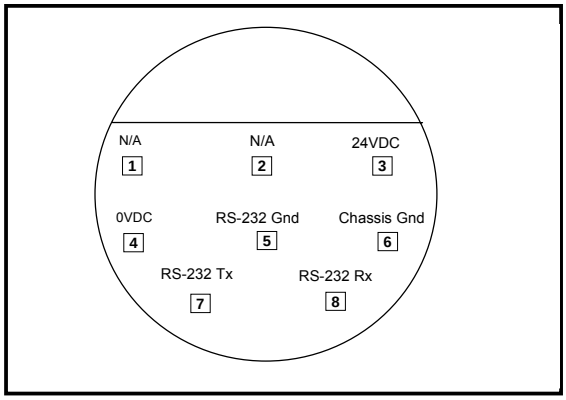
Tritech 6 Way Bulkhead Connector (Output Ports A, B, C, D)	
Pin 1	**ARCNET LAN-A**
Pin 2	**ARCNET LAN-B**
Pin 3	**24VDC Output**
Pin 4	**0VDC Output**
Pin 5	**Profiler Sync.** #
Pin 6	**Case**

Internal Box Links between A-B and C-D.

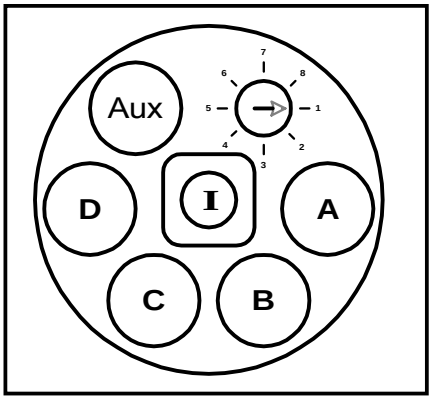
Mating Connector Wiring



***Tritech 6 Way** Underwater Cable Connector (Ports **A**,**B**,**C**,**D**)*



Burton 5501 U/W Cable Connector (Port **I**)

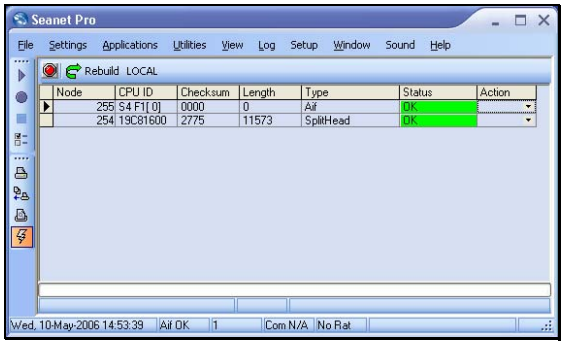


Face View of Junction Box

Checking Connection in the Seanet Setup program

STEP 1:
After the above wiring has been followed and Junction box RS-232 telemetry to the surface is connected to the Seanet SCU Processor, apply power to the J-box.

STEP 2:
Check the RS-232 telemetry connection between the Seanet surface control unit (SCU) and the Junction box. On the SeaNet SCU, run the **Seanet Setup** utility program and check that the following Node table entries appear;



- **Node 255** is the surface **AIF** interface card.
  (This node should always appear in the table)
- **Node 254** is the **Junction box** under RS-232 surface telemetry control.

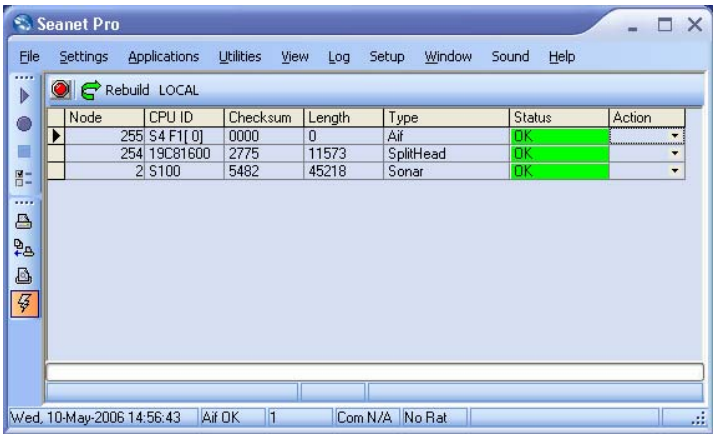
If Node 254 does not appear, first check connections and power, then refer to the 'Changing RS-232 Baud Rate' and 'Establishing RS-232 link using (Recovery) 9600 Baud Speed' sections further on.

All Nodes in the table should appear with the **Status** column displaying "**OK**". If "**Update**" is displayed instead, highlight the row of this Node and click on '**Action'** -> **'Program'**. Click 'OK' at the dialog, wait until "Prog Done OK" status appears and then press the '**Rebuild**' button, confirming program Status now changed to "OK".

STEP 3:
With Junction box (Node 254) detected in the SETUP table, now connect any SeaKing Sensor head to any of the Head Ports (A, B, C, D) of the Junction box.

Ensure that the Yellow Waterblock adapter, which includes the ARCNET termination resistor, is installed on any one of the Head Ports.

The SETUP table should immediately display the Node number of the connected SeaKing Sensor.



• For example an **Imaging Sonar** will appear as **Node 2** when connected through the Junction Box.

(Ensure program 'Status' is "OK" - refer to Step 2)

Any connected SeaKing Sensor heads must be set to ARCNET with the Full Baud Rate of 156.2kBaud.
(Refer to 'System' section of Seanet Operator's manual for more details on configuring Baud Rate switches)

Changing RS-232 Baud Rate

On the SeaNet surface control unit (SCU), the **Seanet Setup** utility program can be used to change the RS-232 telemetry speed between the SCU and the Junction Box. This will normally be left at the factory setting of **115.2kBaud**, however there may be cases that this speed has to be lowered to accommodate system Modems and Multiplexers.

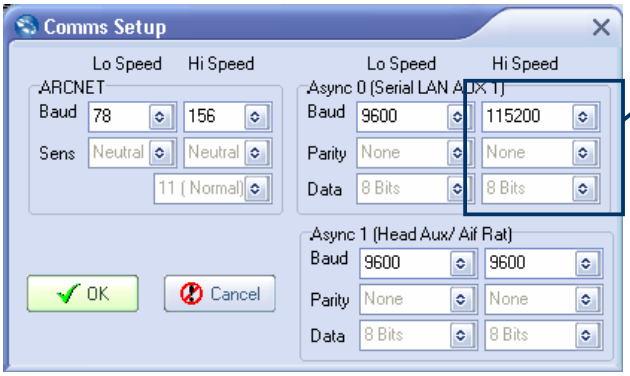
STEP 1:
First establish that the **Junction Box** appears in the SEANET SETUP table as **Node 254** and it's program 'Status' displays "OK" - R*efer to the previous section 'Checking Connection in the SETUP program'.*

STEP 2:
Configuring the **Junction Box** with the desired RS-232 Baud rate.

i) In the SETUP table, highlight the row of **Node 254**.

ii) Click on '**Action**' –> '**Setup**', click '**OK**' at the warning dialog and then click on the '**Baud Rates**' button.

iii) The following panel will appear…



These are the settings for the RS-232 telemetry link to the surface control unit (SCU).

iv) The **Async 0 (LAN)** panel includes the settings for the RS-232 telemetry link to the SCU. It is the **Right channel** that needs to be set with the desired link speed.

v) After changes have been made, press the 'OK' button and click 'OK' to exit Setup.

vi) Press the '**Rebuild**' button. Only the surface AIF card (Node 255) will appear in the list and this will confirm that telemetry with the Node 254 Junction box has been lost. The AIF will still try to communicate with the Junction box and will display TMO errors, do not worry as this is because both Nodes are operating at different baud rates at this stage.

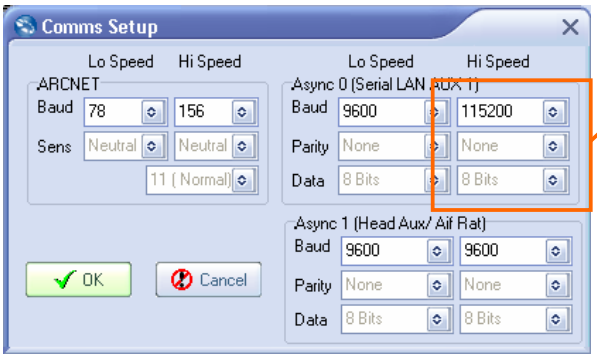
Now proceed with Step 3 and set the AIF card (Node 255) telemetry to the same baud rate that has just been set for the Node 254 Junction box.

STEP 3:
Configuring the surface **AIF interface card** with the desired RS-232 Baud rate.

i) In the SETUP table, highlight the row of **Node 255**.

ii) Click on '**Action**' –> '**Setup**', click '**OK**' at the warning dialog and then click on the '**Baud Rates**' button.

iii) The following panel will appear…



These are the settings for the RS-232 telemetry link to the Junction Box.

Ensure 'Lan' and 'Async 1 (AUX)' settings appears as indicated left.

iv) The **Async 0 (LAN)** panel includes the settings for the RS-232 telemetry link to the SCU. It is the **Right channel** that needs to be set with the desired link speed.

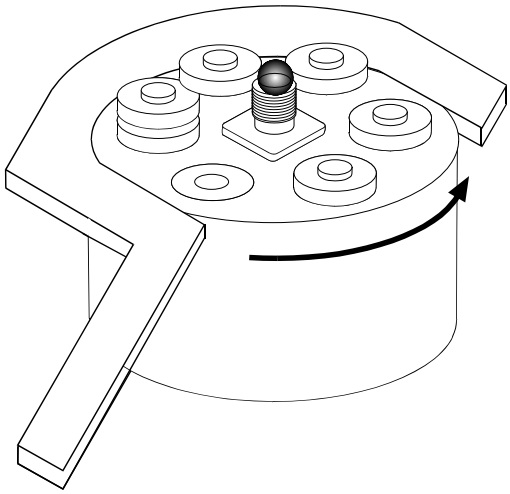
v) After changes have been made, press the '**OK**' button and click 'OK' to exit Setup.

vi) If the Seanet Setup Node list does not update after 10 seconds, press the '**Rebuild**' button. Node 254 should re-appear confirming that the surface AIF card (Node 255) is communicating with the Node 254 Junction box over the new telemetry baud rate.

Establishing RS-232 link using (Recovery) 9600 Baud Speed

N.B. *This requires a switch change to be made inside the Junction Box. This recovery should only be attempted as a last resort measure.*

STEP 1:
Remove the lid of the Junction box using the special spanner provided with the unit.



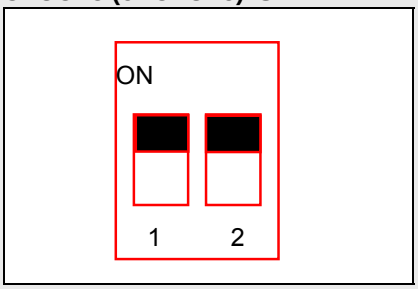
N.B. The lid has no internal hardware connections that will break whilst screwing off the lid.

STEP 2:
There are 2 circular PCBs fixed to the lid. The smaller of these is the **CPUCV3** PCB. This is this board that contains the Baud Speed switch (**'SW1' Switch 1**).

i) Set **'SW1' Switch 1** to the **On** position to set the Junction Box with the **Recovery 9600 Baud Speed**.

'SW1' Switch 1 is used to select between the 2 pre-set communication rates for ARCNET and RS-232. Since the Junction Box operates ARCNET and RS-232 simultaneously, 'SW1' Switch 2 will change both these telemetry speeds at the same time.

CPUCV3 (or CPUV5) 'SW1'



SW2 in Recovery 9600 Baud Position

The switch settings are as follows…

Switch 1 *(RS-232)*	Off = 115,200	**On = 9,600**
Switch 1 *(ArcNet)*	Off = 156,200	On = 78,100
Switch 2	On = Normal *	Off = Boot

***** *Switch 2 = On is factory setting, do not touch.*

Switch 1 = Off is the Normal Operating setting.
N.B. This relates to the Async 0 (LAN) Right channel described in the 'Changing RS-232 Baud Rate' section.

Switch 1 = On is the Recovery 9600 Baud Speed position.
N.B. This relates to the Async 0 (LAN) Left channel described in the 'Changing RS-232 Baud Rate' section.

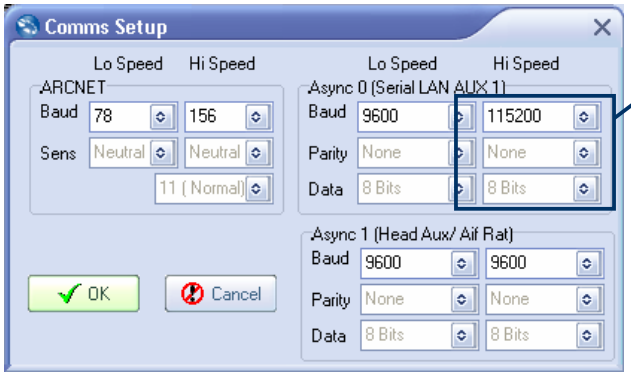
ii) Leave the Junction Box lid for now. Do not re-screw the lid back into the main housing as the switch will need to be reset after recovery of communications.

STEP 3:
Configure the surface **AIF interface card** to the **9600 Baud** rate.

i) In the SETUP table, highlight the row of **Node 255**.

ii) Click on '**Action**' –> '**Setup**', click '**OK**' at the warning dialog and then click on the '**Baud Rates**' button.

iii) The following panel will appear…



These are the settings for the RS-232 telemetry link to the Junction Box.

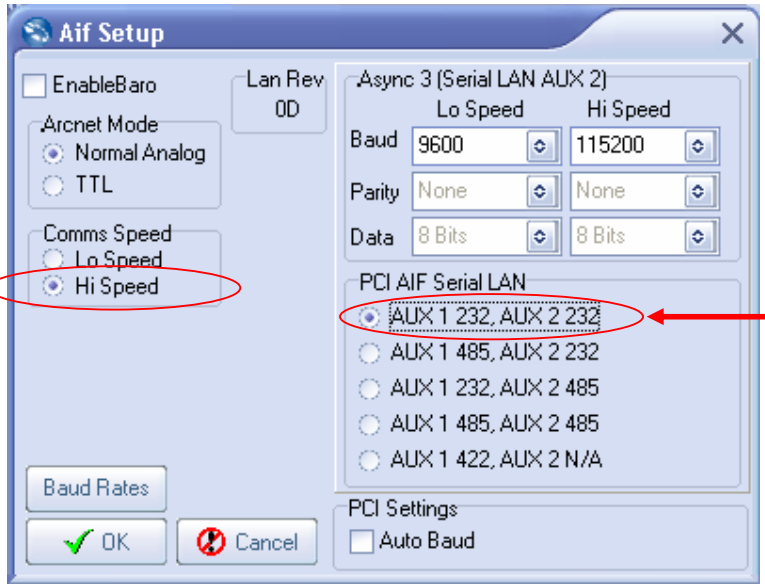
Ensure 'Lan' and 'Async 1 (AUX)' settings appears as indicated left.

iv) The **Async 0 (LAN)** panel includes the settings for the RS-232 telemetry link to the SCU. Set the **Right channel** to **9600 Baud** speed for emergency recovery.

v) After changes have been made, press the '**OK'** button

STEP 4:
If your surface unit has a PCI card fitted then the output is configurable between RS232, RS485 and RS422. This **MUST** be set to RS232 to communicate with the Junction Box.

i) In the AIF setup panel (PCI example shown below) ensure that the radio button is set to default **(AUX 1 232, AUX 2 232)**
(Aux 1 is the channel used for comms to the Junction box.)



ii) Ensure the Comms Speed is set to **Hi Speed**

iii) Click on 'OK' to exit Setup.

STEP 5:
Re-connect the RS-232 telemetry between the surface control unit (SCU) and the Junction box and **apply power** to the box.

STEP 6:
In the **Seanet Setup** Node list, the Node 254 Junction should now appear, press the '**Rebuild**' button if this is not the case. The appearance of Node 254 in the list will confirm that the surface AIF card (Node 255) is communicating with the Node 254 Junction box using the **9600 Baud** rate.

STEP 7:
Refer to the '**Changing RS-232 Baud Rate**' Section and follow **Step 2** ***(Parts i -> v)*** in order to set the RS-232 telemetry rate. (*Remember that the Junction box is still operating over the Recovery 9600 Baud rate at the moment)*

STEP 8:
Set **'SW1' Switch 1** back to the **Off** position to set the Junction Box back with the Normal Operating Baud Speed that has just been set in Step 6 above.

STEP 9:
Refer to the '**Changing RS-232 Baud Rate**' Section and follow **Step 3** ***(Parts i -> vi)*** in order to set the RS-232 telemetry rate for the Node 255 AIF card. This will match the Baud rate that was set in Step 6 above.

APPENDIX 1.

Figure 1: Junction Box Dimensions

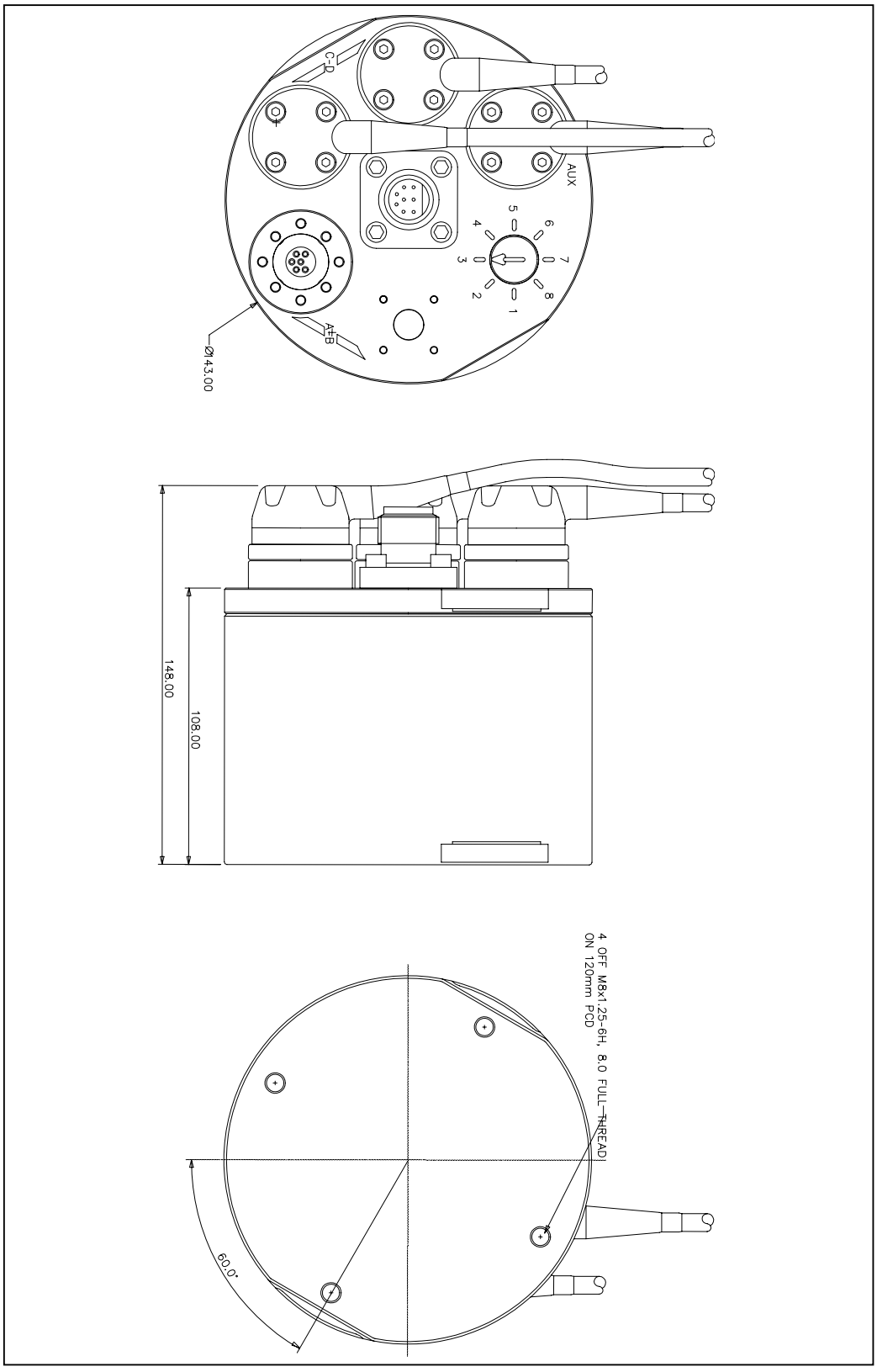


Figure 2: SeaKing Connection Option 1

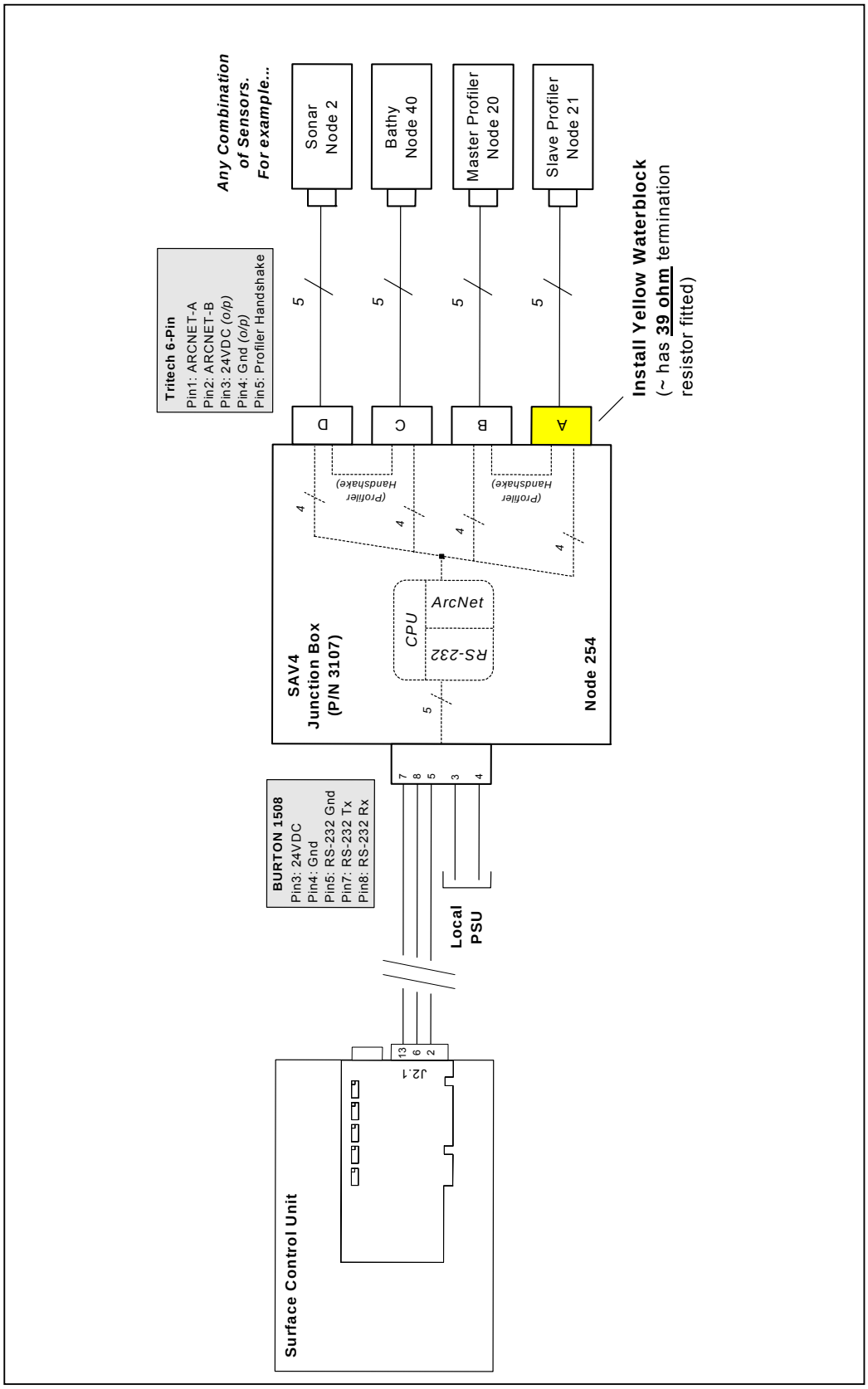


Figure 3: SeaKing Connection Option 2

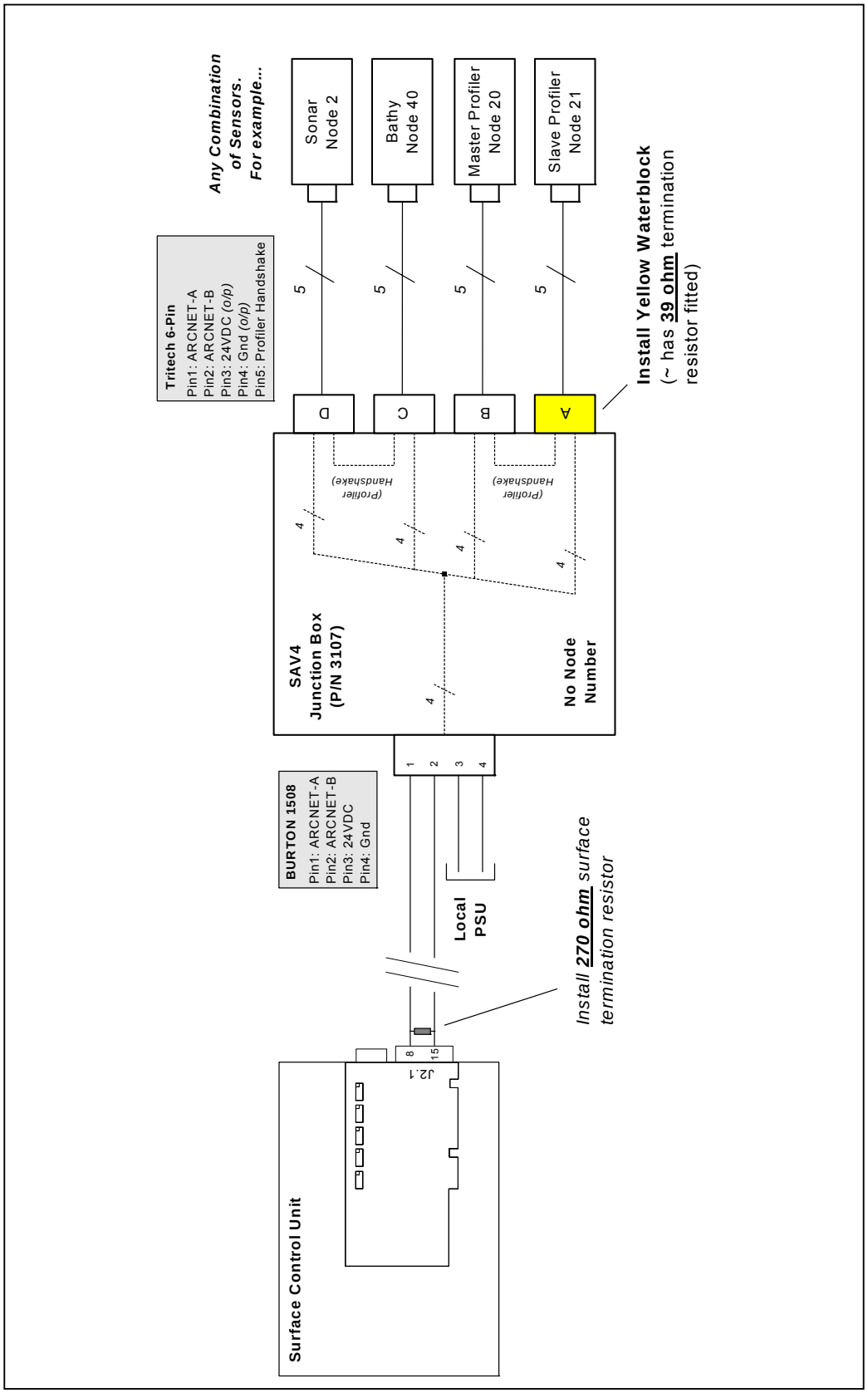
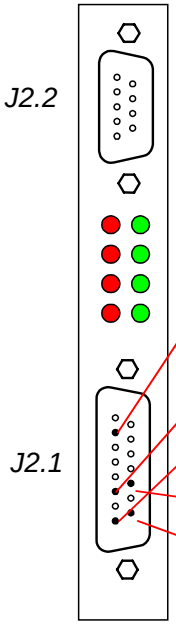


Figure 4: SeaKing AIF Card Communications Port



J2.1 - Communications D15F Rear Panel Socket

Pin	Signal Name	Usage
1	Supply -12V F0.3A	For Options
2	**Ground**	**RS-232 Ground**
3	SparePort	For Options
4	Lan.RxInB	N/A
5	Aux.CTS	N/A
6	**Aux.TX**	**RS-232 Tx**
7	Lan.Pulse2	For Lan Modem
8	**Lan.A**	**ARCNET LAN-A**
9	Supply +12V F0.3A	For Options
10	Supply +5V F0.3A	For Options
11	Lan.Enable	N/A
12	Aux.RTS	N/A
13	**Aux.RX**	**RS-232 Rx**
14	Lan.Pulse1	For Lan Modem
15	**Lan.B**	**ARCNET LAN-B**

APPENDIX 2.

SUBSEA JUNCTION BOX INTERNAL FUSES.

The Junction box is fitted internally with a 3Amp fuse on each of the head connection ports. In the event of water ingress to cabling or connectors the fuse will blow and prevent further damage to heads or the Junction box. Subsequently continued operation can resume on the remaining ports if required until such time as the fuse can be replaced.

The junction box should be opened using the supplied spanner and holding the base in a suitable soft jawed vice.

Caution!

As for the opening of any subsea pressure housing precautions should be taken to ensure o-seals are not damaged or fouled prior to reassembly. Keep the equipment in a clean environment during the time that it is open and inspect all seals and sealing surfaces prior to closure.

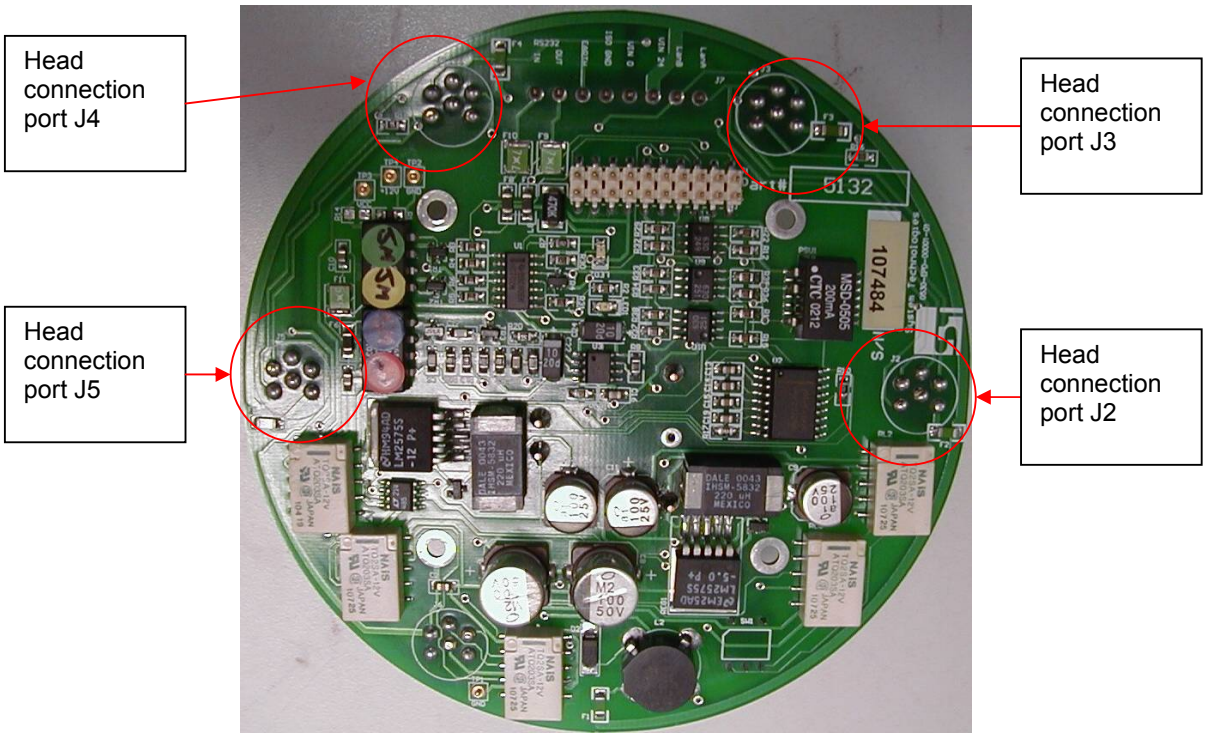
Caution!

Maintaining water-tight integrity is the responsibility of the user. Internal damage caused by water ingress is not covered by product warranty unless the cause can clearly be identified as a manufacturing defect.

There is no requirement to remove the CPU board from the pcb stack in order to access the fuses, although the pictures below have the pcb removed for clarity.

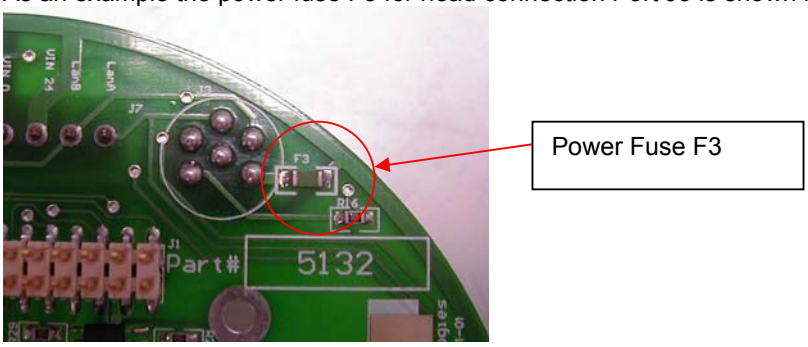
Fuse Location

The main output ports are J2 through J5 around the circumference of the main pcb (J6 is the Aux port) See below



The power fuses are labelled F2 to F5 and are numbered with respect to their relevant port

As an example the power fuse F3 for head connection Port J3 is shown below



These fuses are not the re-settable type

The damaged fuse should be replaced with the same or similar type as below…

Fast Acting
Case Size 1206
3Amp Fuse rating
63V DC Voltage Rating

Or contact Tritech International Limited customer support for replacements.