ARCNET & Serial Communication Settings

for SeaPrince and SeaKing Imaging Sonar, Profiling Sonar, Hammerhead or 700 Series

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Tritech

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Help & Support

First please read this manual thoroughly (particularly the Troubleshooting section, if present). If a warranty is applicable, further details can be found in the Warranty Statement, 0080-STF-00139, available upon request.

Tritech International Ltd can be contacted as follows:

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2. Software or firmware revision numbers.
3. A clear fault description.
4. Details of any remedial action implemented.

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If the product has been used in a contaminated or hazardous environment you *must* de-contaminate the product and report any hazards *prior* to returning the unit for repair. *Under no circumstances should a product be returned that is contaminated with radioactive material.*

The name of the organisation which purchased the system is held on record at *Tritech International Ltd* and details of new software or hardware packages will be announced at regular intervals. This manual may not detail every aspect of operation and for the latest revision of the manual please refer to www.tritech.co.uk

Tritech International Ltd can only undertake to provide software support of systems loaded with the software in accordance with the instructions given in this manual. It is the customer's responsibility to ensure the compatibility of any other package they choose to use.

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Warning Symbols

Throughout this manual the following symbols may be used where applicable to denote any particular hazards or areas which should be given special attention:

Note

This symbol highlights anything which would be of particular interest to the reader or provides extra information outside of the current topic.

Important

When this is shown there is potential to cause harm to the device due to static discharge. The components should not be handled without appropriate protection to prevent such a discharge occurring.

Caution

This highlights areas where extra care is needed to ensure that certain delicate components are not damaged.

Warning

DANGER OF INJURY TO SELF OR OTHERS

Where this symbol is present there is a serious risk of injury or loss of life. Care should be taken to follow the instructions correctly and also conduct a separate Risk Assessment prior to commencing work.

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1. Introduction

SeaKing products communicate using an ARCNET LAN protocol at 156kbit·s^{-1} as standard. RS232 and RS485 serial protocols are available as an alternative to ARCNET and can be used when connecting a single sonar head. RS232 and RS485 cannot be used for a network of SeaKings comprising multiple heads - each head has to have its own communications line.

This document gives step-by-step instruction to:

- Configure a system from ARCNET to Serial.
- Configure a system from Serial to ARCNET.
- Configure a sensor head to run directly from a SCU COM port.
- Configure the Serial baud rates to match a modem.

Caution

It is possible to run a single sensor head from a PC COM port instead of a SCU COM port but these usually are not fitted with ESD protection and as a result could cause damage to the hardware.

Note

Older SeaKing heads will only communicate over either ARCNET or RS232. Units that have a V6 COM PCB fitted will be able to communicate using ARCNET, RS232 and RS485 on both Main and Aux ports.

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2. Prior to Starting Work

Warning

In the unlikely event that the subsea housing has suffered water ingress at depth there may be internal pressurization. This could forcibly eject the end-cap when the lock ring is removed.

If wishing to dismantle the unit, for any reason, due care and attention should be taken to prevent damage or injury.

Ensure that the following is available to hand:

1. Suitable work area with good light and anti-static pads, bags and wrist-strap, etc.
2. Fine-point tweezers for removal of jumpers and changing small dip-switches.
3. One or more of the test cables identified in Section 2.2, “Test Cable Pin-Out Diagrams”

2.1. Basic Procedure

For all the activities in this manual the basic procedure for changing from one communication protocol to another is as follows:

1. Ensure all the required equipment is available and is working
2. Identify the hardware that is to be changed.
3. If the sensor can be changed within software:
   - Using the existing communication protocol, connect the sensor head to the surface hardware.
   - Change the protocols in the sensor head using the Seanet Setup software (at which point the sensor head should disappear from the display).
   - Change the protocols in the surface hardware (at which point the sensor should automatically re-connect).
4. If the sensor has to be changed using hardware settings:
   - Open up the sensor head and identify the COMS PCB within the unit
   - Select the correct jumper, or DIP switch settings.
   - Change the surface hardware to match the new settings.
   - Connect the surface hardware to the sensor to verify the settings are correct.

2.2. Test Cable Pin-Out Diagrams

To construct test cables please refer to these pin-out charts for each connector.

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Note

For the DE-9 and DA-15 connectors to a *Tritech International Ltd* 6-pin cable, power will have to be provided from an external source. This should be connected to the Tritech connector with +V DC on pin 3, 0V DC on pin 4 and earth/ground on pin 6 (the DIN-45322 connector from a SeaHub provides its own power).

Table 2.1. DA-15 Connector (SCUv4, SCUv5, SeaHub)

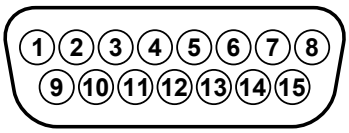
Pin-out Diagram	DA-15	Function	DA-15	Function
 *DA-15 female connector*	1	nc	9	nc
	2	nc	10	nc
	3	nc	11	nc
	4	nc	12	nc
	5	nc	13	nc
	6	nc	14	nc
	7	nc	15	LAN B
	8	LAN A		
	nc = not connected			

Table 2.2. RS232 DE-9 (for SeaHub, SCUv5)

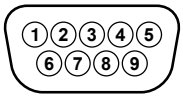
Pin-out Diagram	DE-9 Pin	Function
 *DE-9 male connector*	1	nc
	2	RS232 RX
	3	RS232 TX
	4	nc
	5	Ground
	6	nc
	7	RTS
	8	CTS
	9	nc
	nc = not connected	

Table 2.3. RS485 DE-9 (for SeaHub, SCUv5)

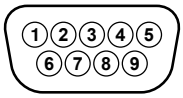
Pin-out Diagram	DE-9 Pin	Function
 *DE-9 male connector*	1	nc
	2	RS485 A
	3	RS485 B
	4	nc
	5	Ground
	6	nc
	7	nc
	8	nc
	9	nc
	nc = not connected	

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Table 2.4. RS232 DIN-45322 (for SeaHub)

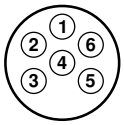
Pin-out Diagram	DIN-45322	Function
 *DIN-45322 6 pin male connector*	1	RS232 RX
	2	RS232 TX
	3	+ DC
	4	Power Ground
	5	Communications Ground
	6	Screen

Table 2.5. RS485 DIN-45322 (for SeaHub)

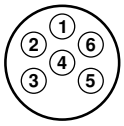
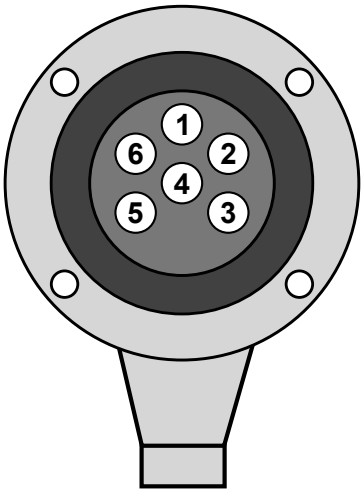
Pin-out Diagram	DIN-45322	Function
 *DIN-45322 6 pin male connector*	1	RS485 A
	2	RS485 B
	3	+ DC
	4	Power Ground
	5	Communications Ground
	6	Screen

Table 2.6. Tritech Cable Connnector

Pin-out Diagram	Waterblock	Function
 *Tritech 6-pin female connector*	1	RS232 TX RS485 A ARCNET A
	2	RS232 RX RS485 B ARCNET B
	3	+ DC
	4	Power Ground
	5	RS232 Ground
	6	Screen

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3. Subsea Head Setup

3.1. Programming the Sensor Head Baud Rate

Caution

Only re-program heads over short lengths of test cable (1m lengths are available from *Tritech International Ltd* if not already supplied with the sonar head at time of purchase). Longer cables increase the risk of the data becoming corrupted in transit and could result in the sonar head becoming unusable after the update.

3.1.1. Version 5 Boards

Note

This is only applicable to changing the baud rate of the communications. For changing the communications protocol open the head and change the jumper settings. (see Appendix A, *ARCNET Jumper Settings* or Appendix B, *RS232 Jumper Settings*).

Click on Action from the Sensor Head's row and a drop down menu will appear – select the Setup menu item to open the Setup panel (as shown below).

The Setup panel for the particular head will appear inside which will be a Baud Rates button.

Below is an example of a SeaKing Dual Frequency Sonar head pane.

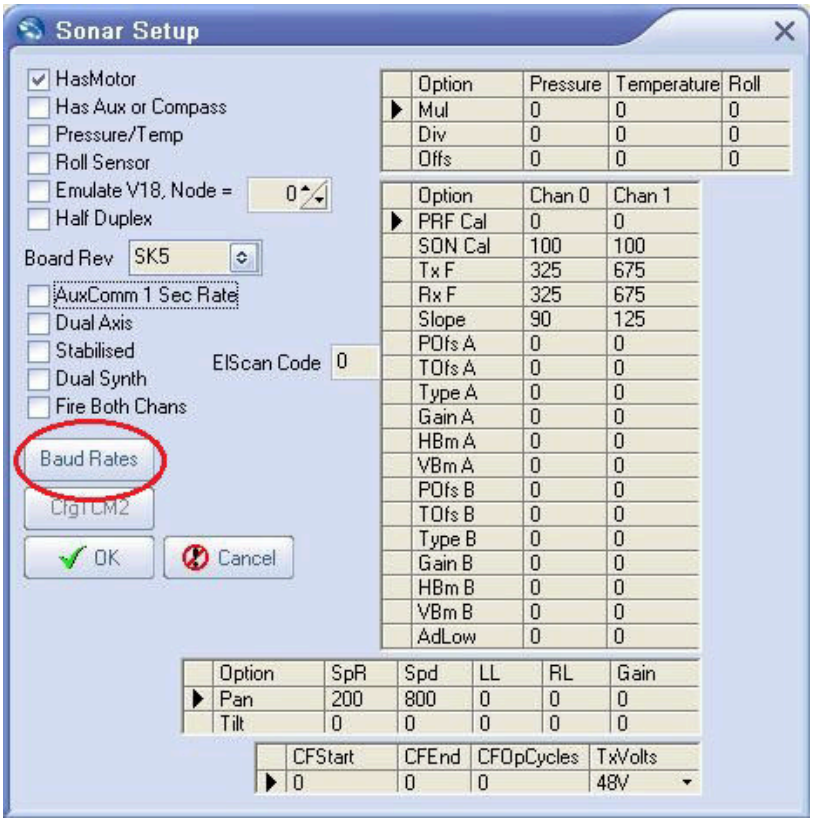

Figure 3.1. CPU v5 Setup

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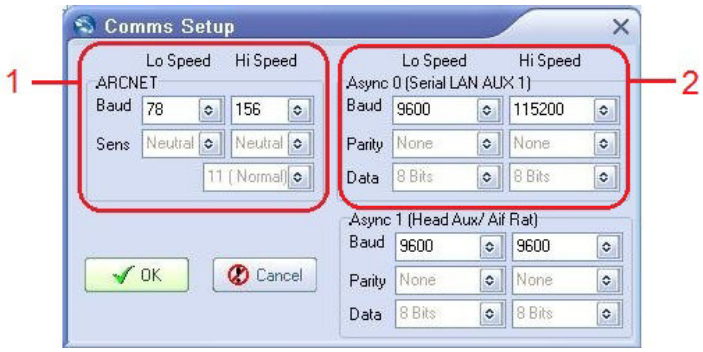

Figure 3.2. Comms Setup Dialog for ARCNET & RS232

1. ARCNET settings

2. RS232 settings

Note

Make sure that the selected values are the same as the desired surface settings. The default values are shown.

Pressing `OK` twice exits the panels and the head will automatically be reprogrammed with any changes. At this point it may disappear from the `Seanet Setup` screen until the surface hardware is re-programmed.

3.1.2. Version 6 Boards

Note

This will only work with a V6 COM PCB. Not all V6 DST Sonars have are fitted with such a board and many have the older V5 boards.

Click on Action from the Sensor Head's row and a drop down menu will appear – select the Setup menu item to open the Setup panel (as shown below).

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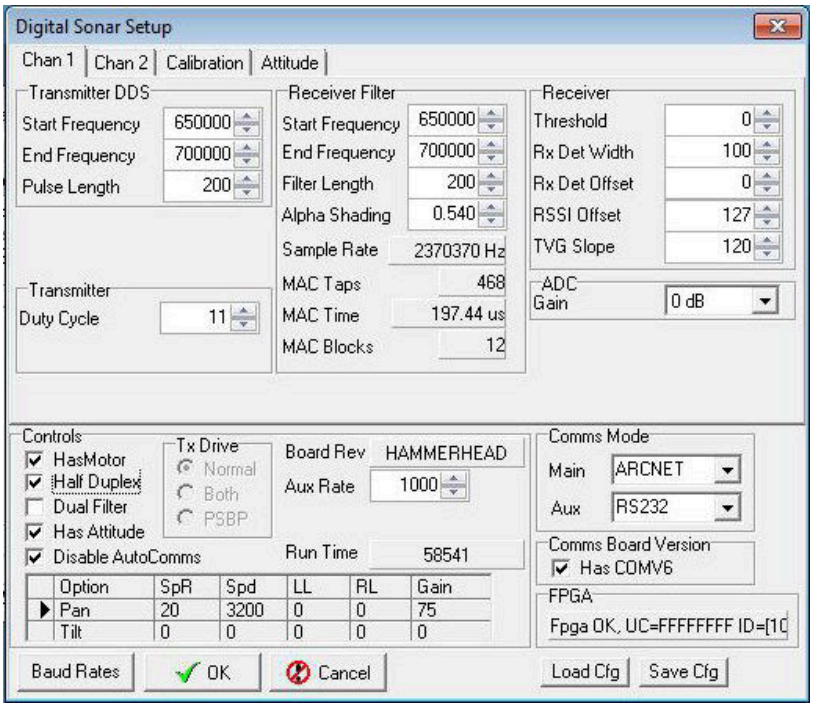

Figure 3.3. CPU v6 Setup

Baud Rates — This button will bring up the `Baud Rates` dialog which is the same as the CPUv5 dialog shown above.

Comms Mode — These drop-down boxes allow the selection of different comms modes for the different ports.

Caution

Make sure that there is appropriate equipment to hand (i.e. capable surface unit and correct cabling) for the selected `Comms Mode` protocol otherwise it will not be possible to re-connect to the sonar.

Pressing `OK` once exits the setup dialog and the head will automatically be reprogrammed with any changes. At this point it may disappear from the `Seanet Setup` screen until the surface hardware is re-programmed.

3.2. Removing the Circuit Boards

Warning

In the unlikely event that the subsea housing has suffered water ingress at depth there may be internal pressurization. This could forcibly eject the end-cap when the lock ring is removed.

If wishing to dismantle the unit, for any reason, due care and attention should be taken to prevent damage or injury.

Important

Appropriate precautions should be taken to protect against static discharge while handling the circuit boards.

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It is possible to remove the circuit boards from a SeaKing head by following these steps:

1. First unscrew the lock-ring on the top of the SeaKing head. If it is secured tightly a gentle heat may be applied to loosen it.

2. With the lock-ring removed grasp the SeaKing firmly by the body and pull on the board stack puller (located between the two ports).

3. The SeaKing board stack will be secured very tightly and may come out suddenly - after the initial release, gently raise the stack until it is clear of the body. Note that on SeaKing 700 Series devices there will be a couple of cables to un-clip before the board stack is completely free.

4. Set the body tube aside and place the end plug with the board stack onto an anti-static pad.

5. With the SeaKing board stack resting upright on the waterblocks remove all four retaining nuts (two of these will have locating bullets on).

6. Place the nuts in a safe location and pull the first board vertically off the stack. It will be quite stiff initially. This board should be placed into an anti-static bag for safety and lay to one side (for a four board stack, set aside the first two boards).

7. The lower two boards will be the CPU board and the communication board. The communication board is the last one in the stack and cannot be removed from the end plug.

For re-assembly follow the procedure in reverse - note that care should be taken to line up the boards, since there is only one way that they will fit back together.

Caution

Make sure to place the locating bullets back in their original place (the nuts should have a hexagonal outline on the uppermost PCB, while the locating bullets have a round outline). Also take care when re-inserting the board stack into the body tube that the locating bullets are correctly aligned.

3.3. Sensor Head CPU Baud Rate Channel

There is a hardware switch inside the sensor head located on the CPU board and this is used to select between (dependent on the COM mode the sensor is set to):

1. High and low COM baud rate for Serial communications (default high is 115kbit·s^{-1}, low is 9.6kbit·s^{-1})

2. Normal and half ARCNET baud (Normal is 156kbit·s^{-1}, half is 78kbit·s^{-1})

Important

In order to access the CPU board it will be necessary to dismantle the sonar head. Appropriate protection should be taken to prevent static discharges from occurring. Follow the instructions in Section 3.2, “Removing the Circuit Boards” to dismantle the head.

The dip-switches should be changed to the desired settings as indicated:

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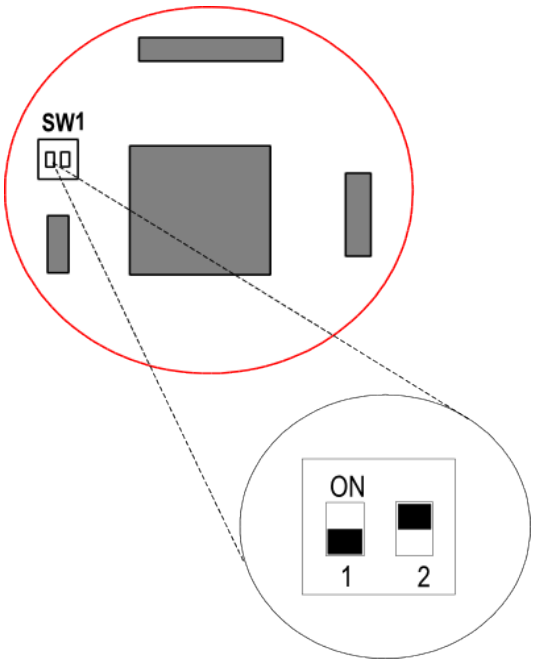
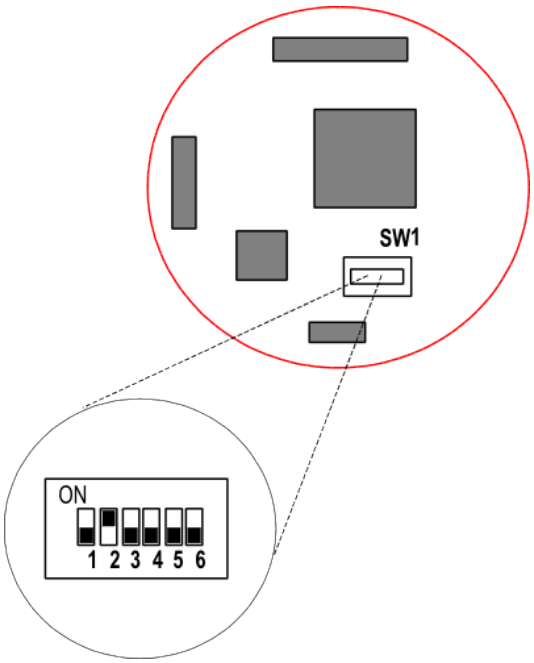
Table 3.1. Dip Switches on the CPU Board

CPU V3 and V5	CPU V6
	
Switch 1 ON = Low Speed OFF = High Speed Switch 2 Always ON	Switch 1, 3-6 Always OFF Switch 2 ON = High Speed OFF = Low Speed

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4. Surface Control Unit Settings

4.1. SCUv4 or Custom PC Setup

4.1.1. ARCNET to RS232 - AIFv4 ISA Card

Note

The AIFv4 ISA card will only work with Microsoft Windows 98 (upto Seanet Pro v1.17) and is therefore considered a legacy product.

Note

Refer to Chapter 2, *Prior to Starting Work* for details of the correct test cables which will be required and for the correct jumper settings please refer to Appendix B, *RS232 Jumper Settings*.

Setting up the card

First launch the `Seanet Setup` utility.

You will see a table showing the different devices connected to the network. If there are NO entries in the table then carry out the following checks.

Select Aif Card from the Setup menu option:

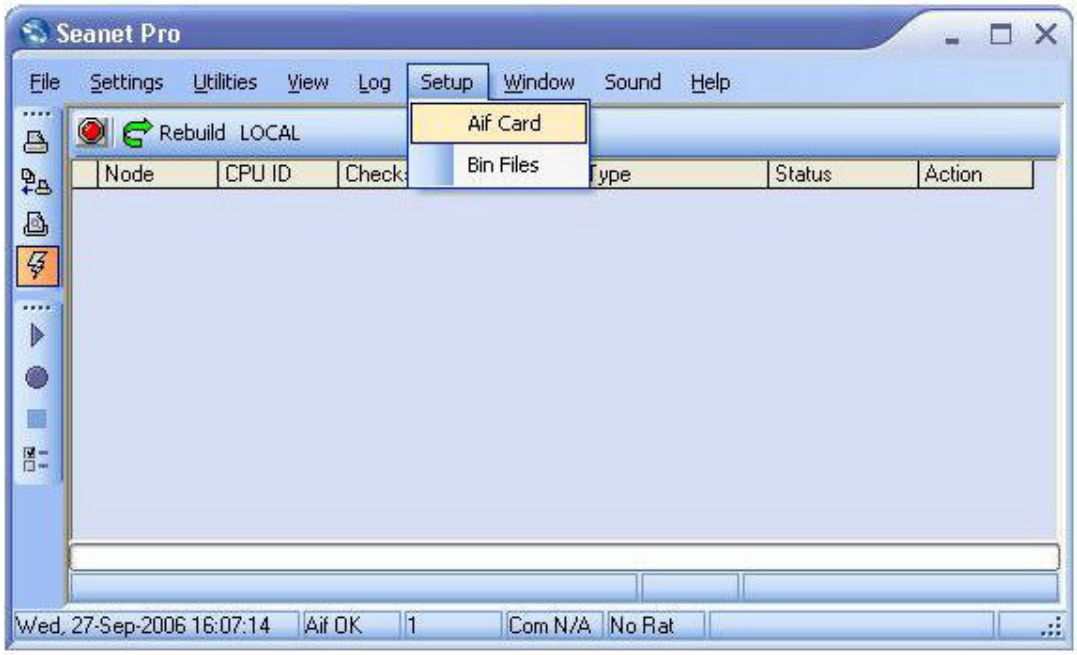

Figure 4.1. Seanet Setup, Setup menu

This will open the Aif Setup panel:

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Figure 4.2. AIF Setup Dialog

Ensure that the AIF card is Enabled. Io Base address and IRQ should be set as shown.

If there are still no nodes in the table then it is likely that there is an IRQ or base address clash on the PC or SCU.

1. Check that IRQ 10 is not assigned to Plug and Play in the BIOS.
2. Reserve the IRQ 10 and I/O address range 0330 to 034F in the Windows Control Panel/ System

When the AIF is detected then the table should look as below:

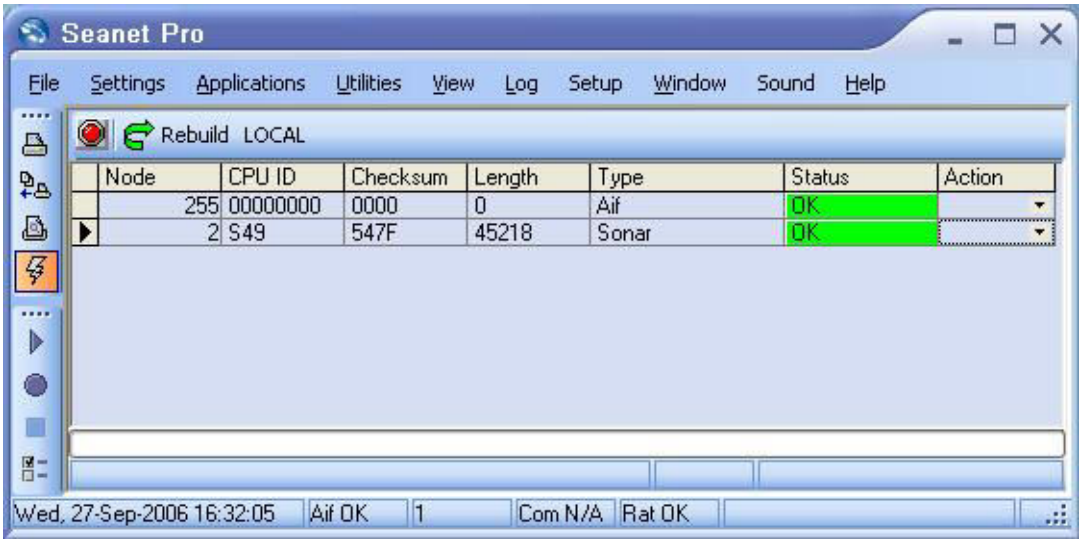

Figure 4.3. Populated Node Table

Note

Node 255 represents the surface AIF communications card, the sensor head units will have other node numbers depending on the head type.

The right-most column is labeled Action and allows specific setting for that node to be changed.

Programming the AIF V4 ISA card

The ISA version of the V4 card has only one Aux channel and this can only communicate using RS232.

To program the AIF baud rate click on Action from the AIF's row (Node 255) and a drop down menu will appear. Then select Setup.

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The Aif Setup panel for the AIFV4 ISA card will open, inside which will be a Baud Rates button, as shown:

Figure 4.4. AIF ISA Card Setup

Click on Baud Rates and the standard baud panel will appear.

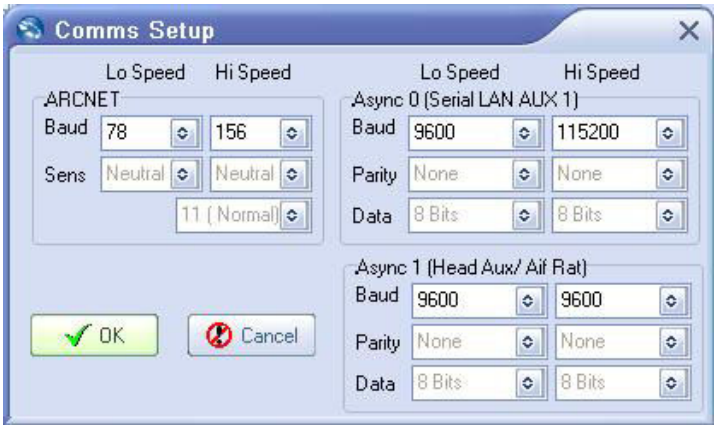

Figure 4.5. AIF ISA Card Baud Rates

In the Async 0 (Serial LAN) section, set the Hi Speed 'Baud' column to the desired comms rate. (115,200 baud is default).

Note

AIFv4 cards have a radio button in the `AIF Setup` panel marked `Comms Speed`, this performs the same function as dip switch 1 ('SW1') on the Sensor head's CPU board.

4.1.2. ARCNET to Serial - AIFv4 PCI Card

Note

The PCI cards will only work with 32 bit versions of Microsoft Windows.

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Note

Refer to Chapter 2, *Prior to Starting Work* for details of the correct test cables which will be required and for the correct jumper settings please refer to Appendix B, *RS232 Jumper Settings*. For older units using a COM V6 PCB please refer to Section E.1, " DIP Switch settings " for the internal DIP switch settings.

Setting up the card

First launch the `Seanet Setup` utility.

You will see a table showing the different devices connected to the network. If there are NO entries in the table then carry out the following checks.

Select Aif Card from the Setup menu option:

Figure 4.6. Seanet Setup, Setup menu

This will open the Aif Setup panel:

Figure 4.7. AIF Setup Dialog

Ensure that the AIF card has the above check box ticked. The Irq and Io Base settings are not relevant to the PCI card.

If there are still no nodes in the table then it is likely that the drivers are not installed or there is a conflict. Check Windows Control Panel \ Device manager for any conflicts, re–install the driver if necessary.

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When the AIF is detected then the table should look like this:

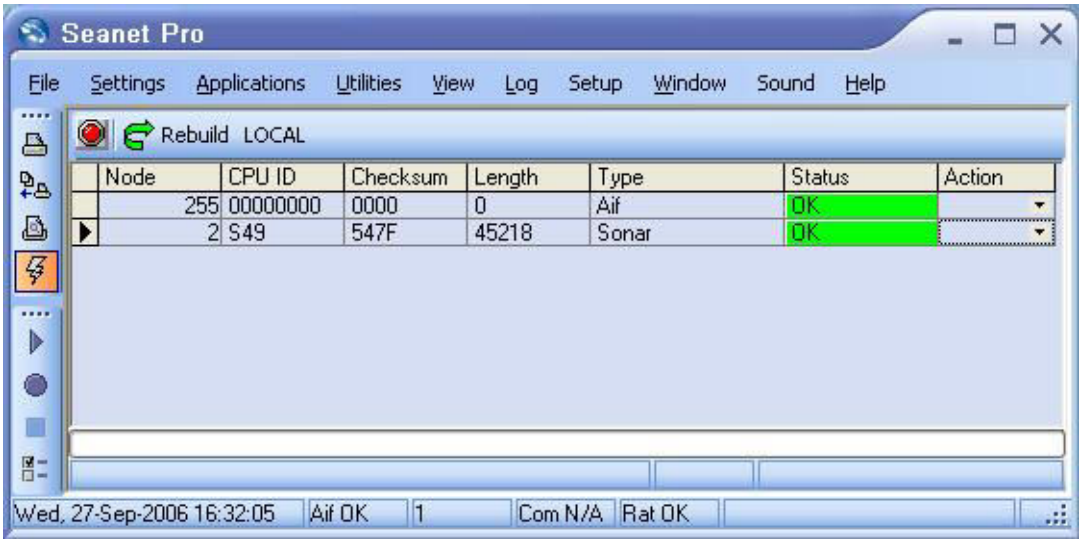

Figure 4.8. Populated Node Table

Note

Node 255 represents the surface AIF communications card and the other node corresponds to the sensor head. The head number will vary depending on which sonar is connected.

The right-most column is labeled Action and allows specific setting for that node to be changed.

Programming the AIFV4 PCI card

Unlike the AIFV4 ISA card, the AIFV4 PCI card has 2 Async channels which can be used for sensor communications, AUX1 and AUX 2. This means that the PCI setup panel is slightly different allowing an extra baud rate panel to cater for the second channel.

To configure the Aux channels the AIF baud rate click on Action from the AIF's row (Node 255) and a drop down menu will appear. Then select Setup.

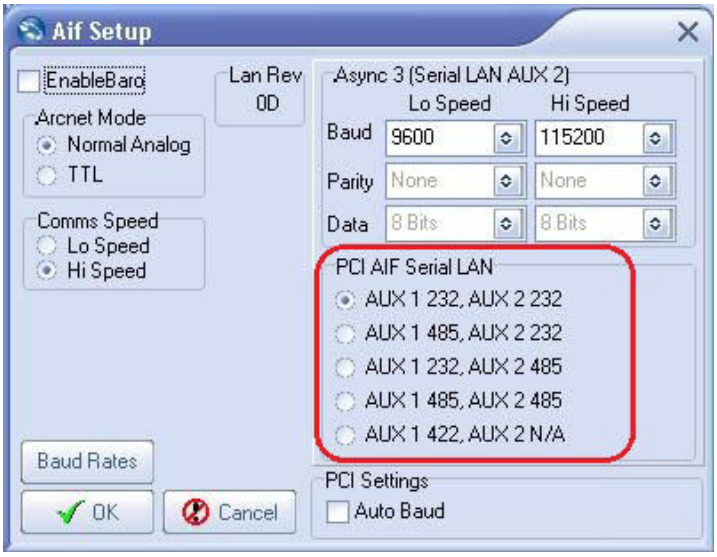

Figure 4.9. AIF PCI Card Setup, Channel Selection

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The Aux signal selection allows RS485, RS232 or RS422 interfaces to be made to Tritech sensors.

Note

SeaKing heads fitted with COM v5 boards cannot communicate over RS485. None of the SeaKing range of sensors can communicate over RS422.

Baud rate selection for Aux Channels – AUX 1

To configure the Aux 1 channel baud rates click on Action from the AIF's row (Node 255) and a drop down menu will appear. Then select Setup.

The Aif Setup panel for the AIF card will open, as below

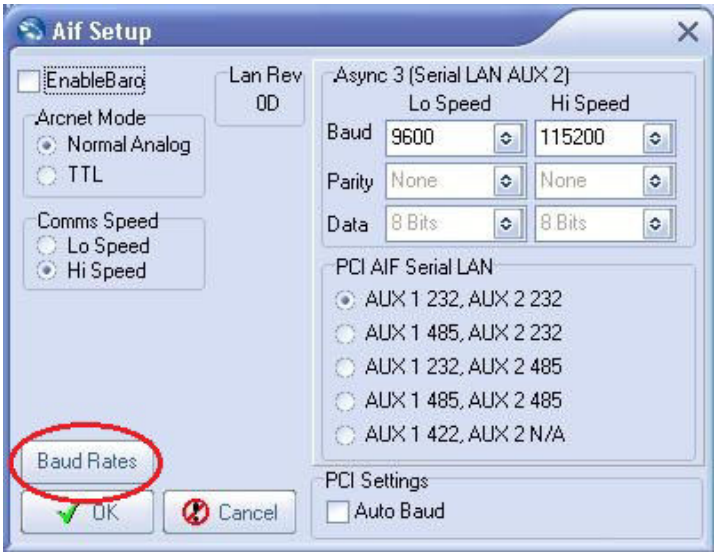

Figure 4.10. AIF PCI Baud Rates Button

Click on Baud Rates and the standard baud panel will appear.

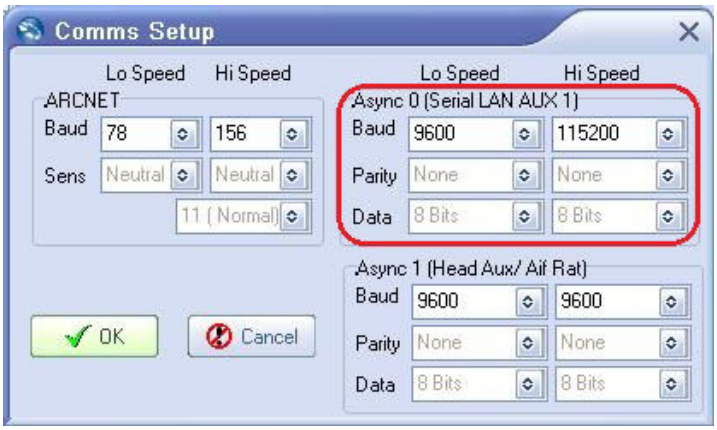

Figure 4.11. AIF PCI Card Baud Rates, AUX 1

If the Async 0 (AUX 1) is to be used, set the Hi Speed 'Baud' column to the desired comms rate; 115,200 baud should be default

Baud rate selection for Aux Channels – AUX 2

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To configure the Aux 2 channel baud rates click on Action from the AIF's row (Node 255) and a drop down menu will appear. Then select Setup.

The Aif Setup panel for the AIF card will open, as below

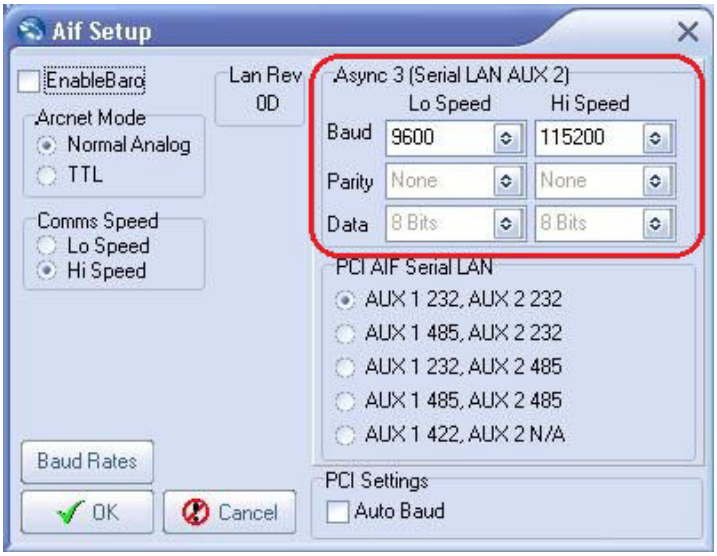

Figure 4.12. AIF PCI Card Baud Rates, AUX 2

If Async 3 (AUX 2) channel is to be used then the High Speed baud is on the Right side, set this column to the desired comms rate, 115,200 baud is default.

4.1.3. Serial to ARCNET - AIFv4 PCI and ISA Cards

Note

The AIFv4 ISA card will only work with Microsoft Windows 98 (upto Seanet Pro v1.17) and is therefore considered a legacy product. The PCI cards will only work with 32 bit versions of Microsoft Windows.

Note

Refer to Chapter 2, *Prior to Starting Work* for details of the correct test cables which will be required and for the correct jumper settings please refer to Appendix A, *ARCNET Jumper Settings* or Section E.1, " DIP Switch settings " if the unit is fitted with a V6 COM PCB.

Programming the AIF card

You may see slightly different panels displayed from that shown depending on whether the PCI card or the ISA card is used

Regardless of the type of AIF card in use check the AIF baud rate by clicking on Action from the AIF's row (Node 255), a drop down menu will show. Select Setup from this menu.

The Aif Setup panel for the AIF card will appear, inside which will be a Baud Rates button, as below (this pane is only half the size when using an ISA card).

 © Tritech International Ltd.

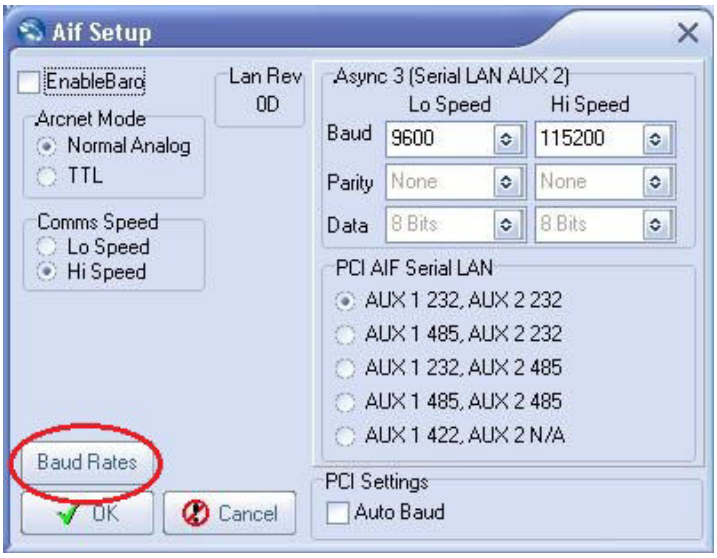

Figure 4.13. AIF PCI Baud Rates Button

Click on Baud Rates and the standard baud panel will appear.

In the ARCNET section, check that the `Hi Speed` and the `Lo Speed` column are set to match the settings previously used in the sonar head (in the example below these are the default values of 78 and 156).

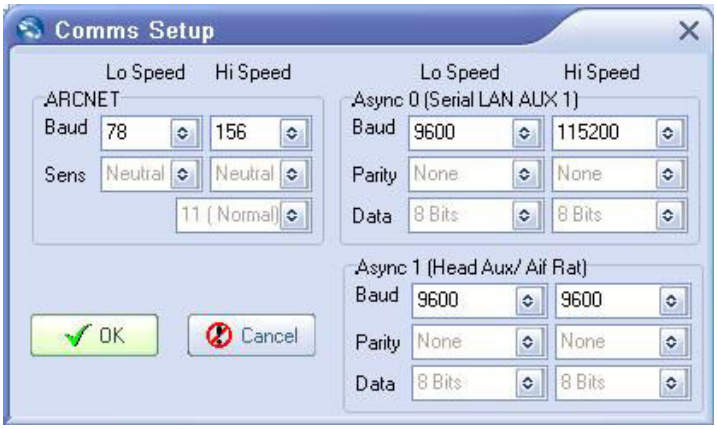

Figure 4.14. Comms Setup Dialog

4.1.4. To Change the Surface Baud Rate

Launch `Seanet Setup` and in the Node Table locate the `Aif` device.

In the `Action` column, select `Setup`.

 © Tritech International Ltd.

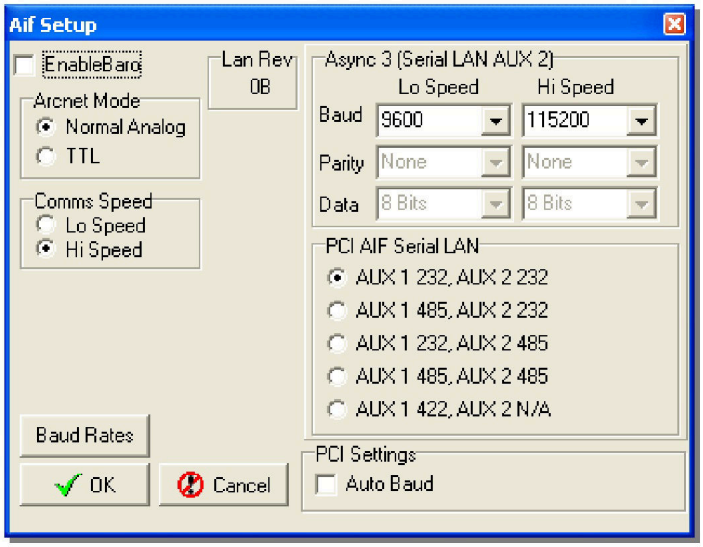

Figure 4.15. Aif Comms Speed

AIFv4 cards have a radio button in the `AIF Setup` panel marked `Comms Speed`, this performs the same function as dip switch 1 ('SW1') on the Sensor head's CPU PCB.

Note

Refer to Section 3.3, "Sensor Head CPU Baud Rate Channel" for details on how to configure the hardware to match the software channel selection.

4.2. SCUv5 or SeaHub Setup

The SeaHub uses slightly different technology to the older AIFv4 cards to provide the same functionality. The ARCNET interface inside of the SCUv5 is an adaptation of the SeaHub technology and so the setup of these units is similar. Important differences from an AIFv4 SCUv4 and a SeaHub or SCUv5 are:

1. Ports A and B are now serial connection only.

2. Ports C and D can drive serial or ARCNET (these are DE-9 on the SCU and DIN-6 on the SeaHub).

4.2.1. To Change the Surface Baud Rate

If a different baud rate is required for the sonar, navigate to the `Utilities` menu and select `Com Setup`.

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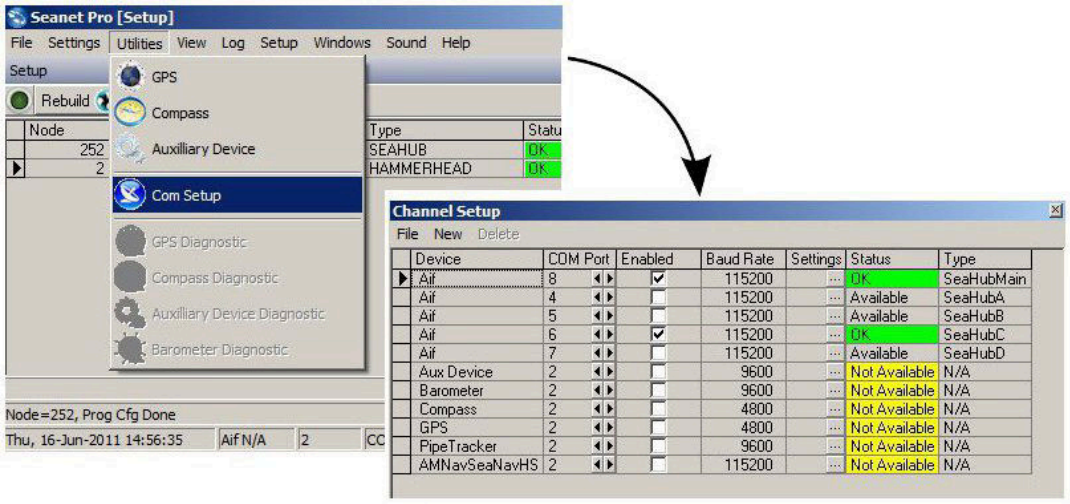

Figure 4.16. Seanet Setup, channel setup

Note

`ScuMain` and `ScuAux` are the internal connection between the motherboard and the ARCNET interface board and they should not be changed. Likewise for the SeaHub there may be a `SeaHubMain` and `SeaHubAux` listed.

From the table find the port to which the device is to be connected. The port can be found in the `Type` column - for example for Port A it will either be listed as `ScuA` or `SeaHubA`. Once the correct port has been located click on the ellipses under the `Settings` tab which will bring up the baud rate settings.

Figure 4.17. Seanet Setup, Aif Setup Form

Choose the required value from the list and click `OK`. The `Baud Rate` column will now be updated to the new value and if the port is working the status table will change to OK.

If the port is not listed

Select the `New` menu and click on `Aif`. This will place a new device on the table. Using the arrows under the `COM Port` column select the appropriate COM Port to bring up the correct port under the `Type` column. Finally click on the `Enabled` check box. If the port is working the status should change to `OK`.

4.2.2. ARCNET to Serial and Back

Note

Refer to Chapter 2, *Prior to Starting Work* for details of the correct test cables which will be required.

Note

For the correct jumper settings please refer to Appendix A, *ARCNET Jumper Settings* or Appendix B, *RS232 Jumper Settings* or Section E.1, " DIP Switch settings ".

From the Seanet Setup program locate the line which corresponds to the SCU or SeaHub and then click the `Action` column and select `Setup`.

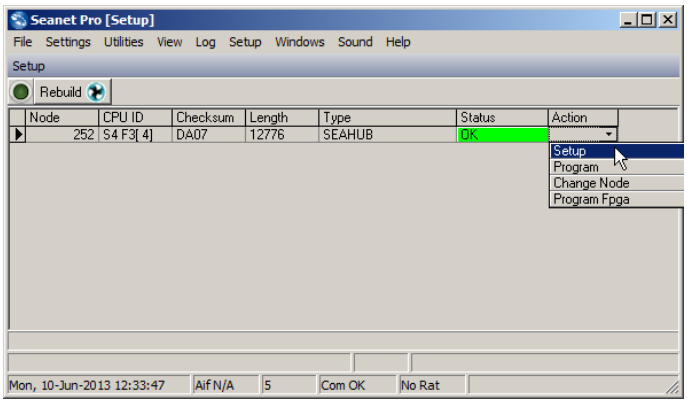

Figure 4.18. SeaHub Action Menu in Node Table

This will bring up the Setup dialog to allow the port communication protocols to be configured. Figure 4.19, "SeaHub setup" shows an example from a SeaHub - the SCUv5 will have the same layout.

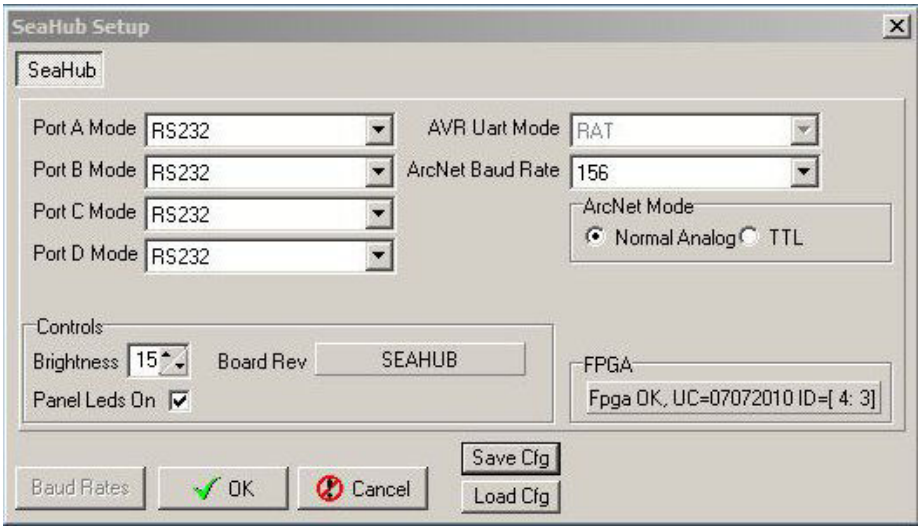

Figure 4.19. SeaHub setup

Find the port which is to be used in the drop down lists on the left and select the appropriate communication protocol.

Click on the `OK` button and the window should close. The SCU circuitry should re-set and there will briefly be a `Timeout` message displayed in the Node Table. Once the reset is complete the `Status` column will show `OK`.

Note

If the sonar is already connected to the port which is changed it will disappear until it is reconfigured to match the new settings.

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The LED panel on the front of the SCU or SeaHub will also now show the new settings.

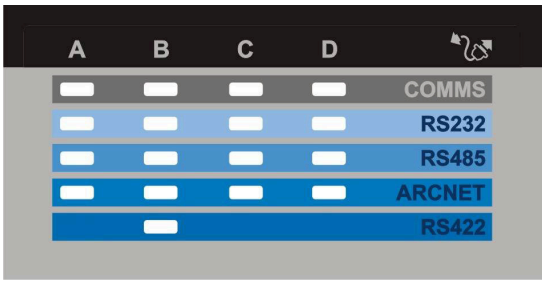

Figure 4.20. SeaHub LED panel

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5. AutoComms Feature

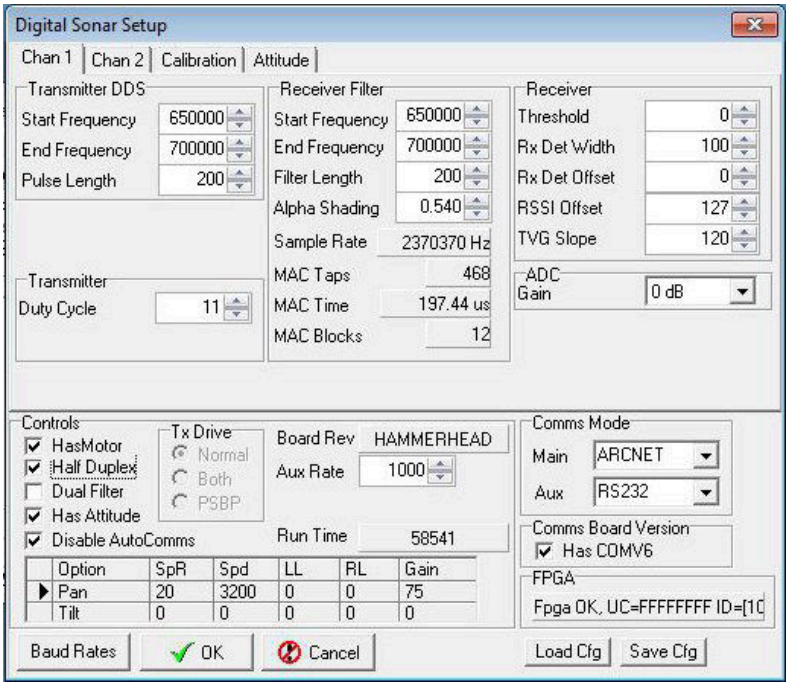
The AutoComms feature has been developed in order to simplify and automate the installation of SeaKing heads into new and exisiting systems.

In order to operate, the SeaKing head must have both a v6 CPU and V6 COM PCB fitted. However when using the AutoComms feature only one head can be attached to the system at any one time.

The AutoComms function actively scans all possible communications protocols looking for the active messages that a surface unit broadcasts. However this process will be interrupted if other units are connected and communicating with the surface unit at the same time, therefore these units need to be disconnected before attempting to fit the new sensor head.

The following procedure describes the process of adding a head with this feature onto an existing system.

1. Ensure that the cable connected to the surface unit is correctly configured for the expected communications, i.e. ARCNET, RS232 or RS485
2. Ensure that Seanet Pro is running on the surface unit and is set to the `Setup` application
3. Disconnect all other sensor heads currently connected to the surface unit
4. Connect the new sensor head to the surface unit and apply power
5. Wait up to 30 seconds for the new sensor head to scan through the available communication protocols
6. The new sensor head will detect the protocol being used and update itself
7. The new sensor head will connect to the surface unit and appear in the `Node Table`
8. Open on Action from the new sensor head's row and from the drop down menu select Setup
9. In the Setup panel ensure the `Disable AutoComms` option is checked



10. Click `OK` in order to update the sensor head

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11. The head will reset and reappear within the `Node Table`
12. Re-connect all the other sensor heads that were connected to the system
13. Confirm that all expected Node numbers now appear

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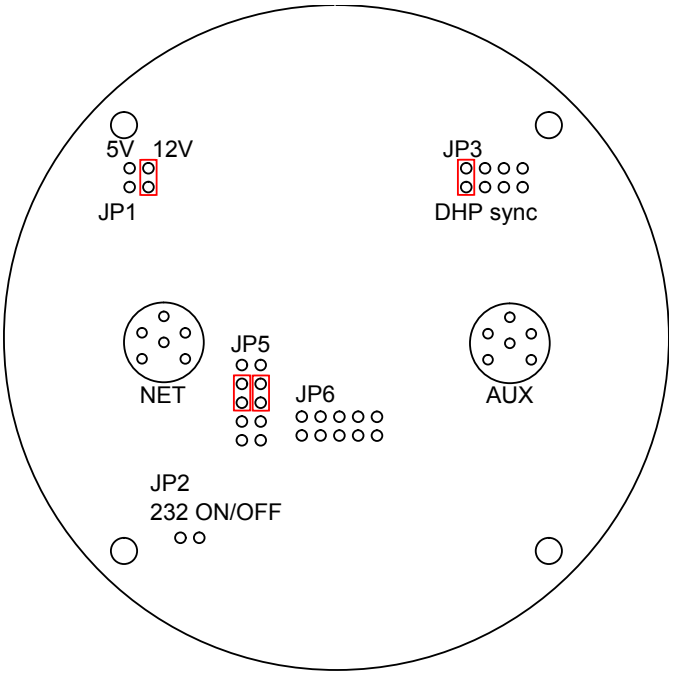
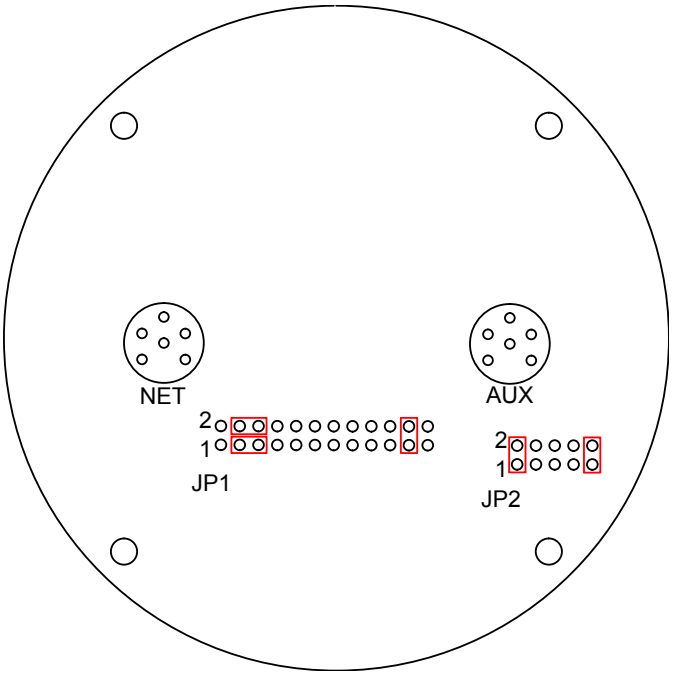
Appendix A. ARCNET Jumper Settings

A.1. ARCNET Jumper Links for DFP

Profiler ARCNET COM DV3 and FV3



Profiler ARCNET COM GV3 and V5



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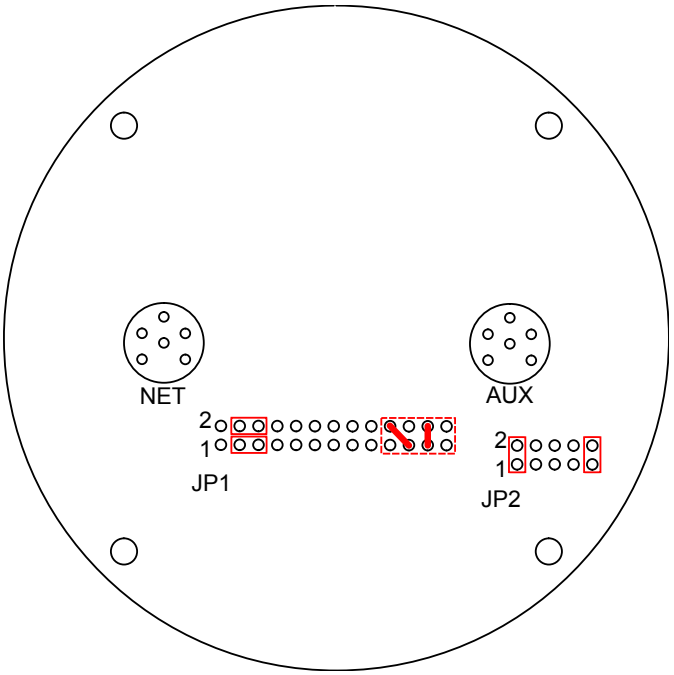
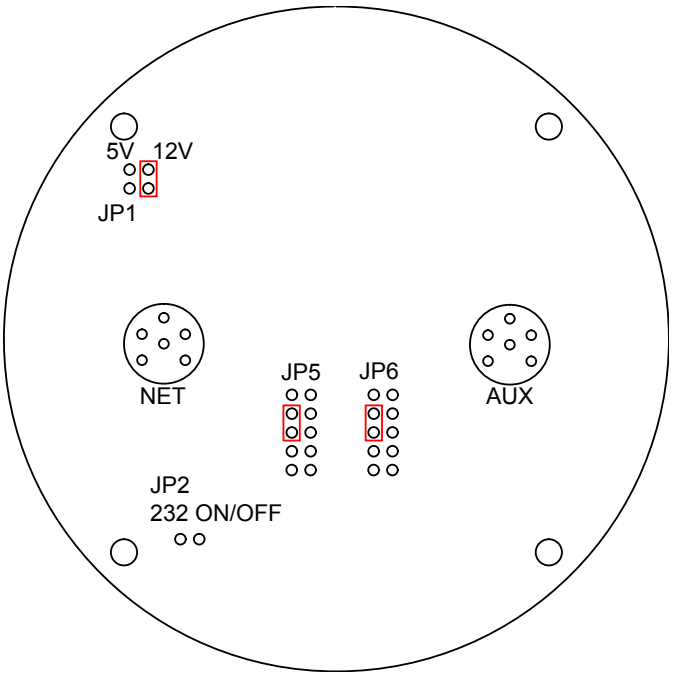
Profiler ARCNET COM V5 mod A



A.2. ARCNET Jumper Links for DFS, DST, ROV Sidescan & Sub-bottom Profiler

Sonar ARCNET COM CV3



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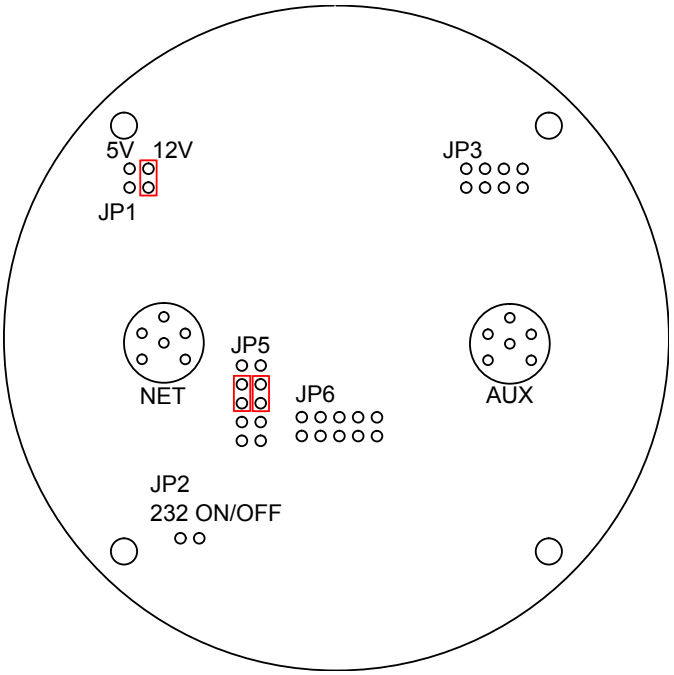
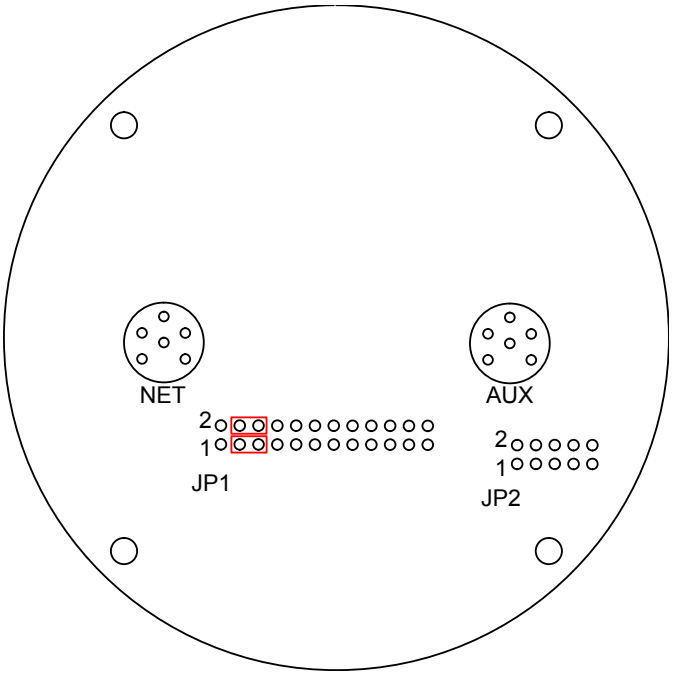
Sonar ARCNET COM DV3 and FV3



Sonar ARCNET COM GV3 and V5



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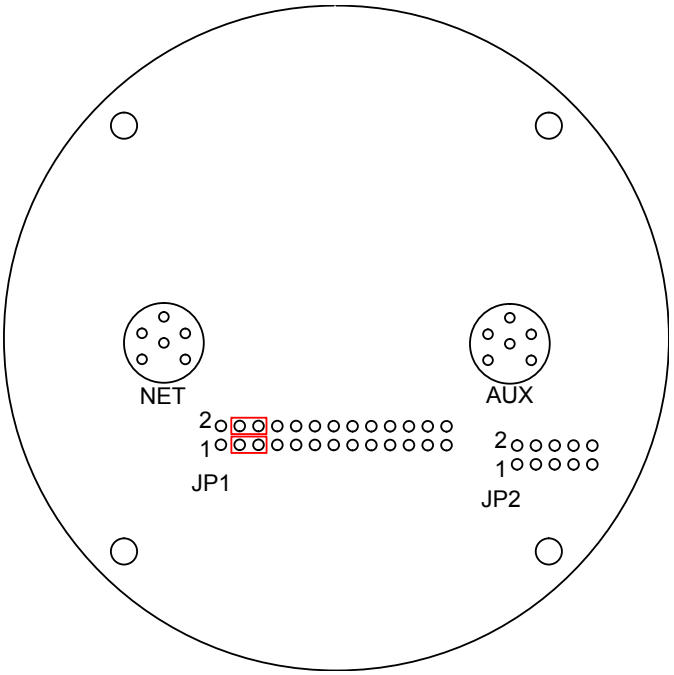
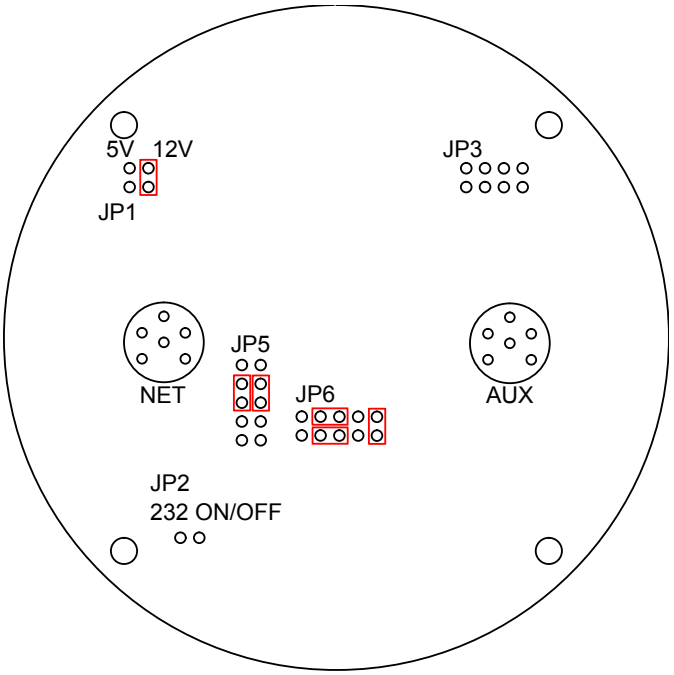
Sonar ARCNET COM V5 mod A



A.3. ARCNET Jumper Links for SeaKing 700 Series (Bathy)

SeaKing 700 Series ARCNET
COM DV3 and FV3



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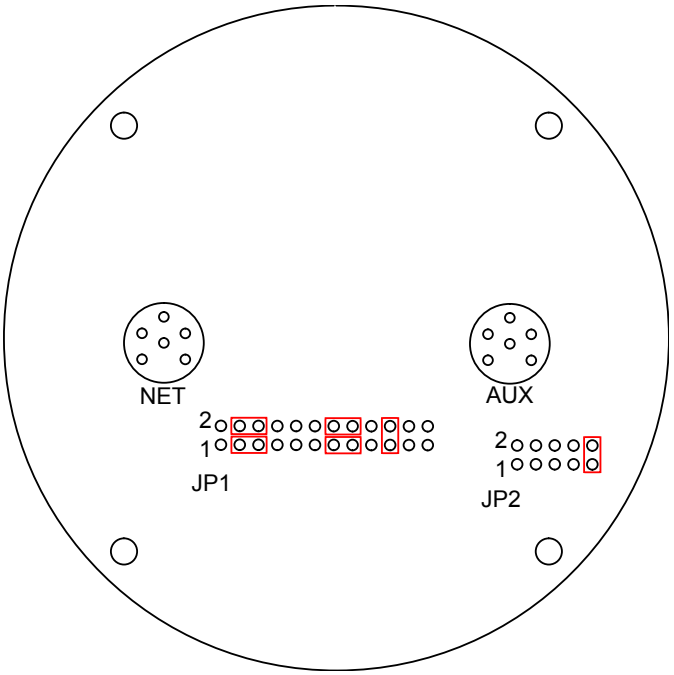
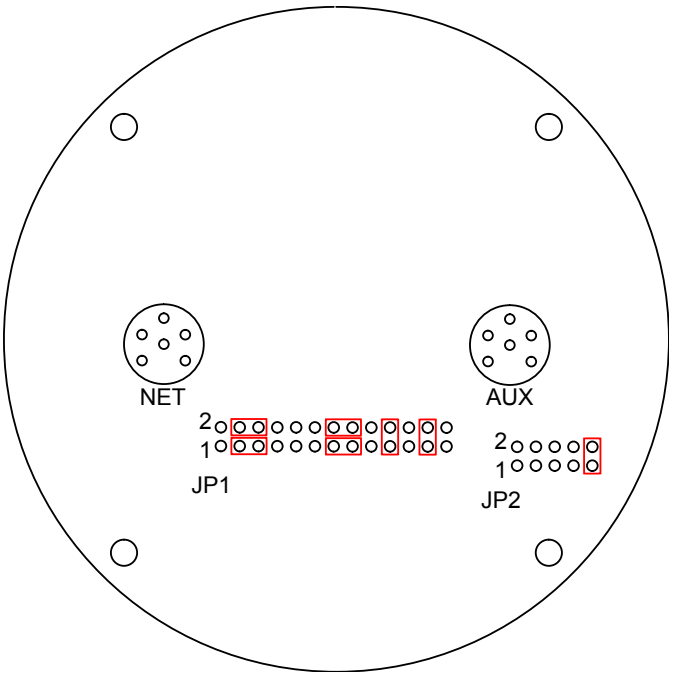
SeaKing 700 Series ARCNET COM GV3 and V5



SeaKing 700 Series ARCNET COM V5 mod A



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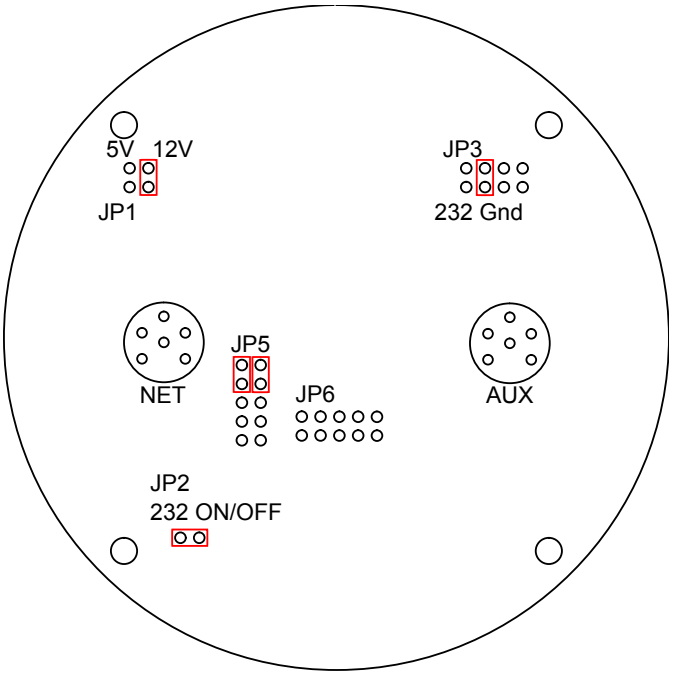
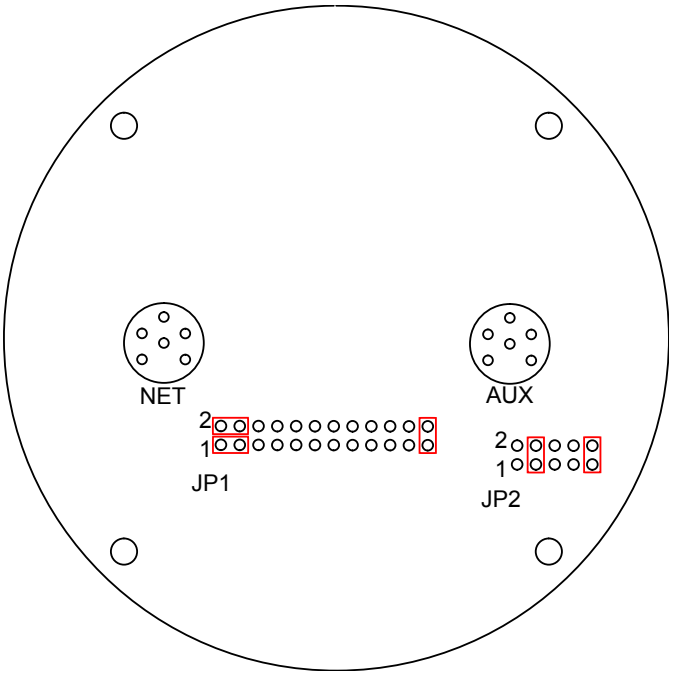
Appendix B. RS232 Jumper Settings

B.1. RS232 Jumper Links for DFP

Profiler RS232 COM DV3 and FV3



Profiler RS232 COM GV3 and V5



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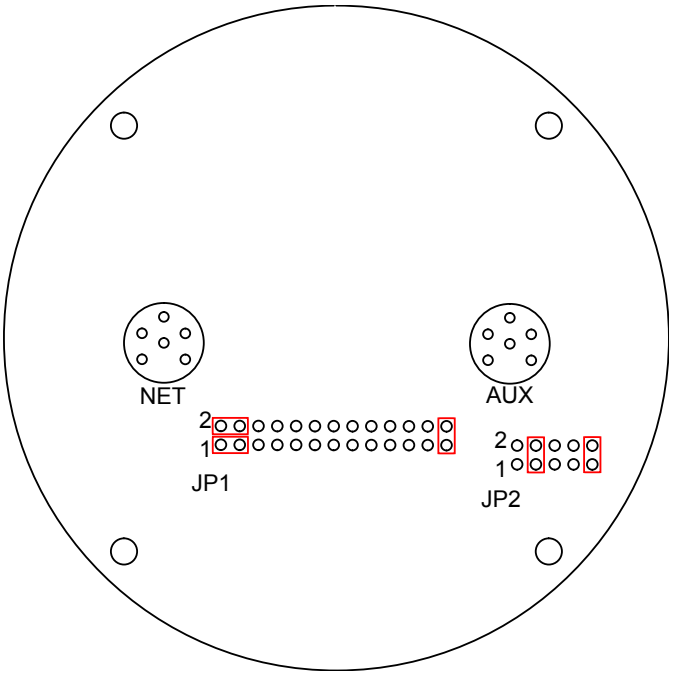
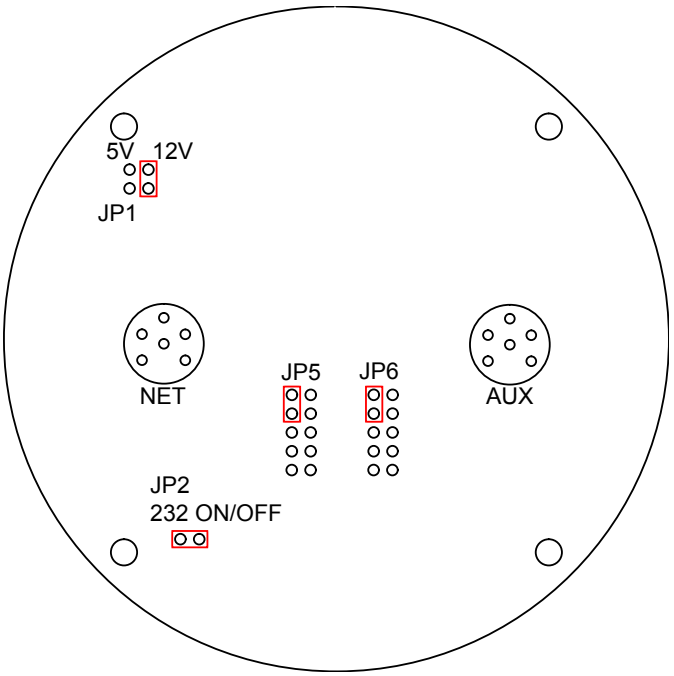
Profiler RS232 COM V5 mod A



B.2. RS232 Jumper Links for DFS, DST, ROV Sidescan & Sub-bottom Profiler

Sonar RS232 COM CV3



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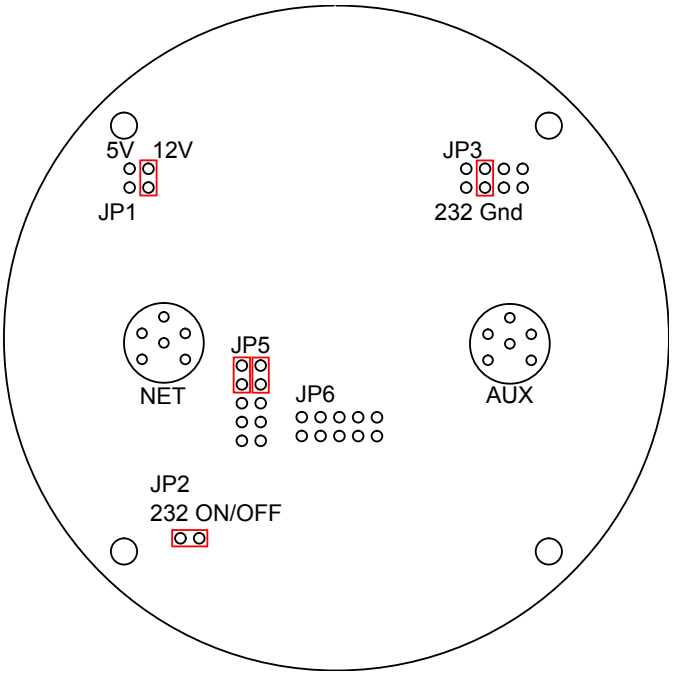
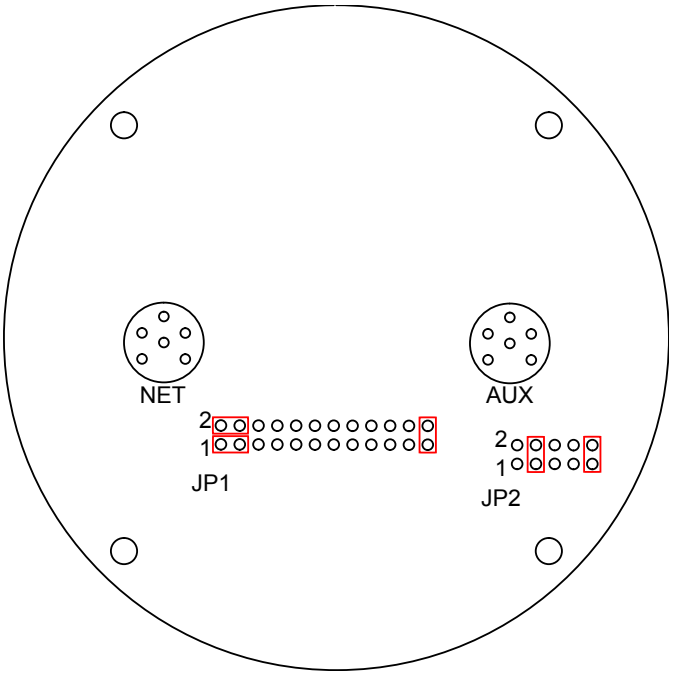
Sonar RS232 COM DV3 and FV3



Sonar RS232 COM GV3 and V5



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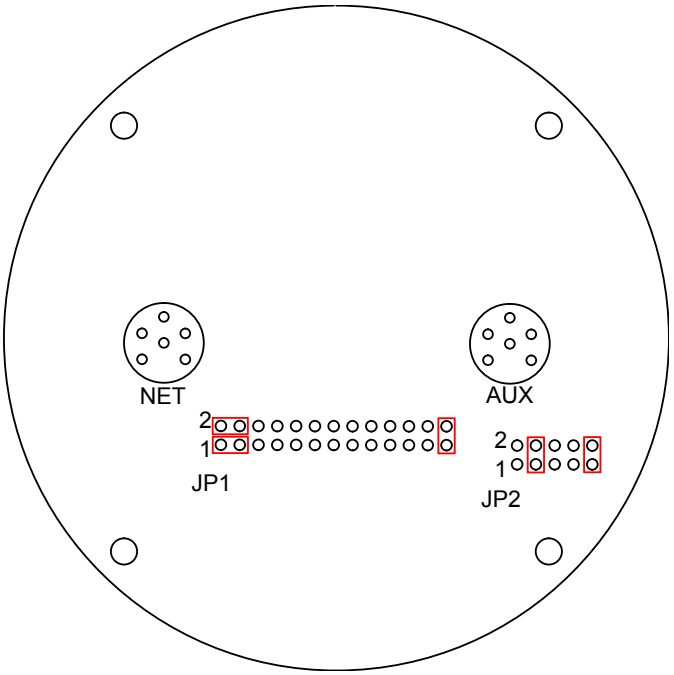
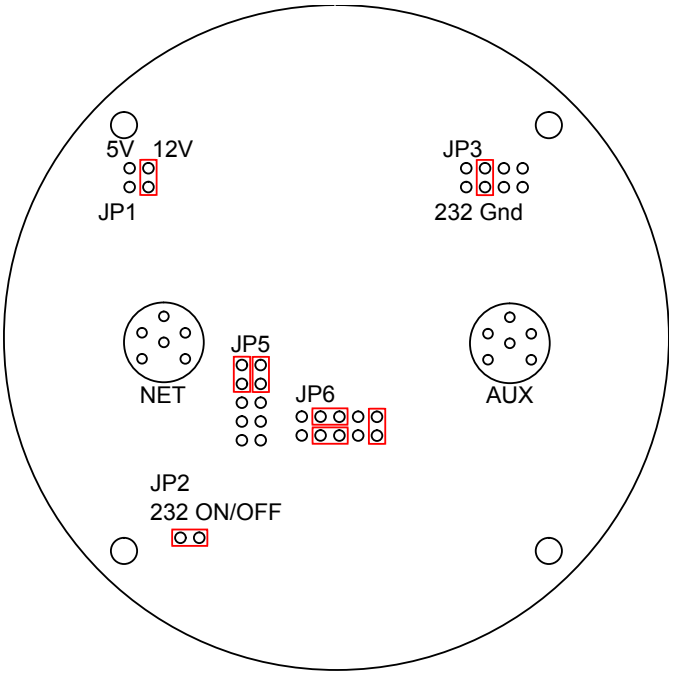
Sonar RS232 COM V5 mod A



B.3. RS232 SeaKing 700 Series (Bathy) Jumper Settings

SeaKing 700 Series RS232
COM DV3 and FV3



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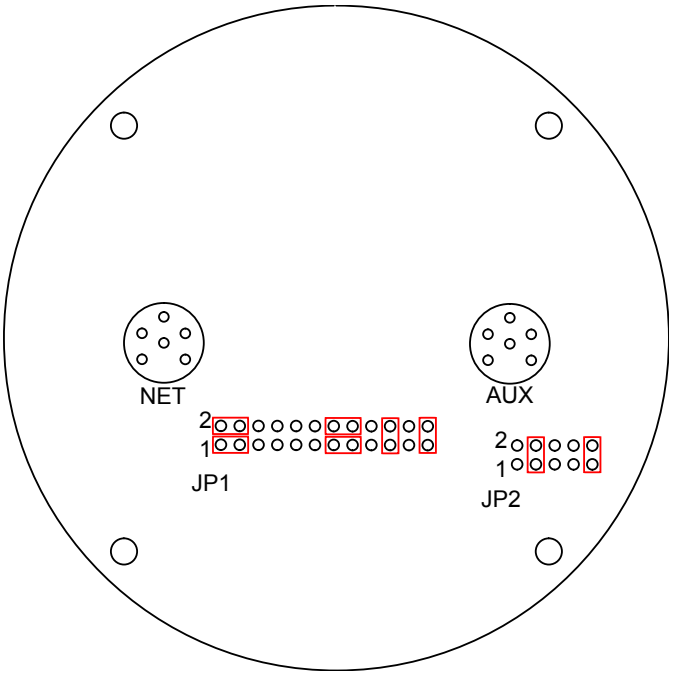
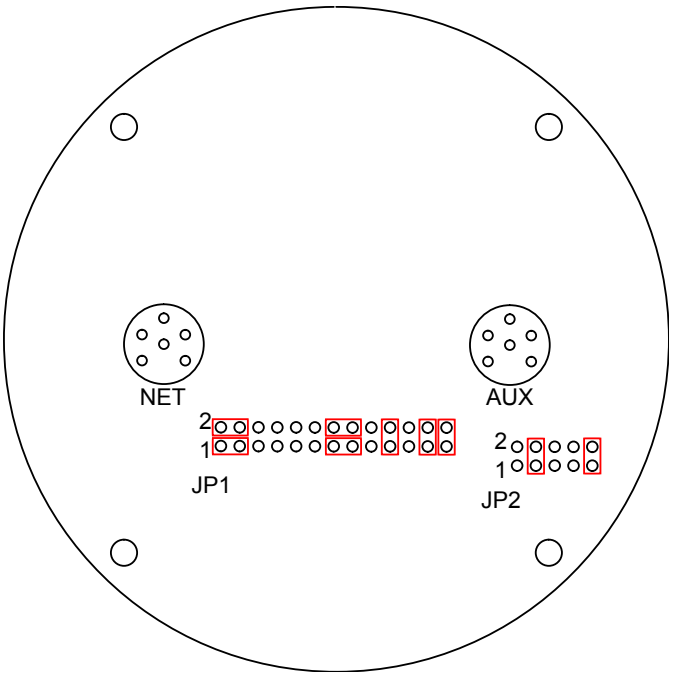
SeaKing 700 Series RS232
COM GV3 and V5



SeaKing 700 Series RS232
COM V5 mod A



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Appendix C. SeaKing Aux Port Jumper Settings

For units with out a V6 COM PCB adding a device on to the Aux Port of the SeaKing unit will mean altering the jumper settings.

Note
The application notes given are intended for generic devices.

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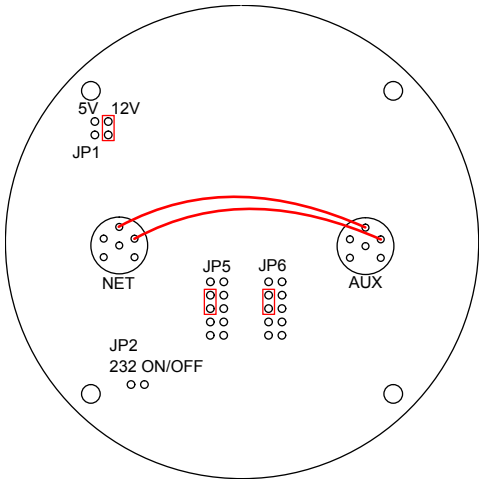
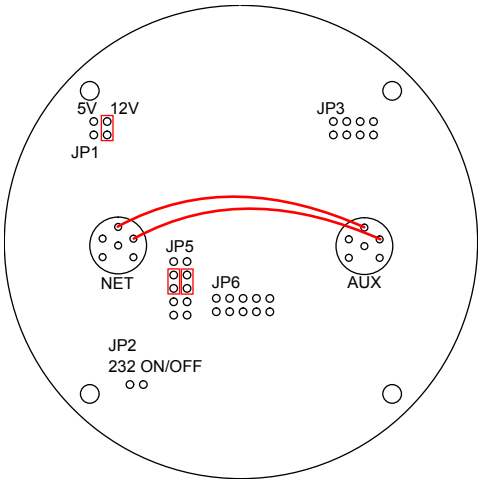
C.1. Aux Port settings for ARCNET heads

ARCNET Sonar with ARCNET Aux Port

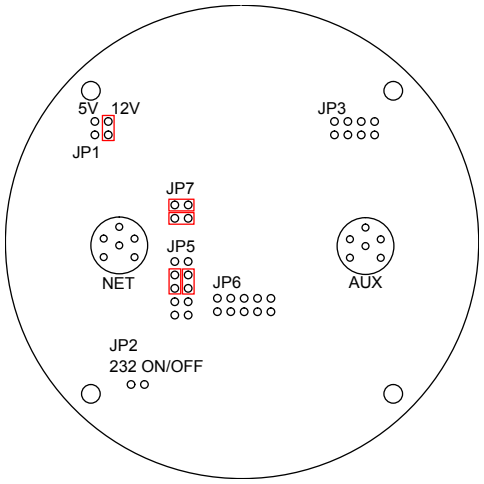
COMCV3



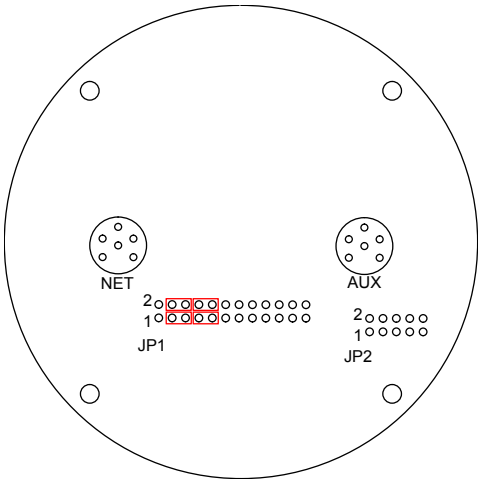
COMDV3



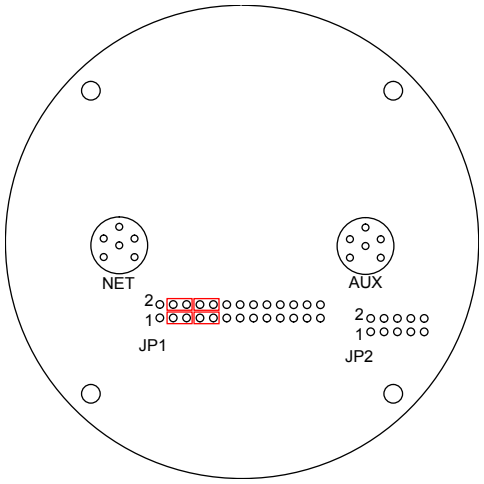
COMFV3



COMGV3/COMV5



COMV5 Mod A



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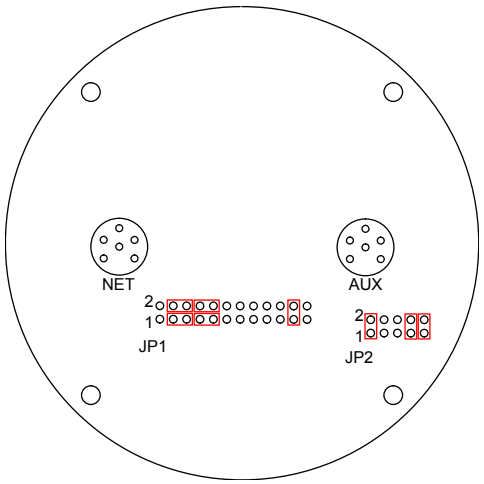
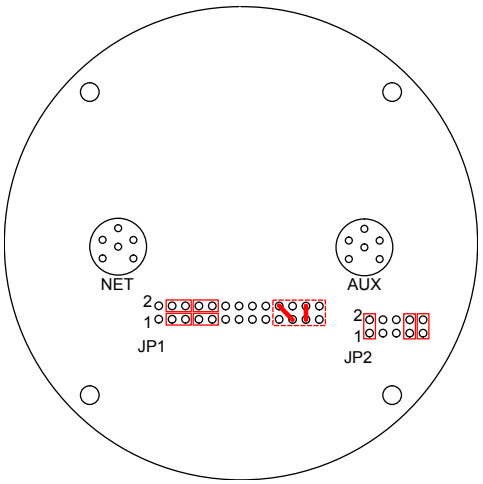
ARCNET Profiler with ARCNET Aux Port

COMGV3/COMV5

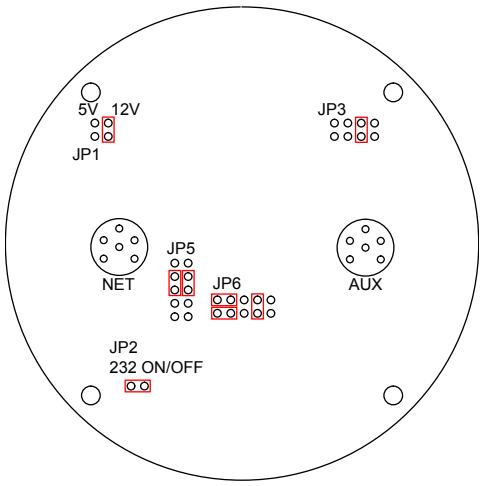


COMV5 Mod A

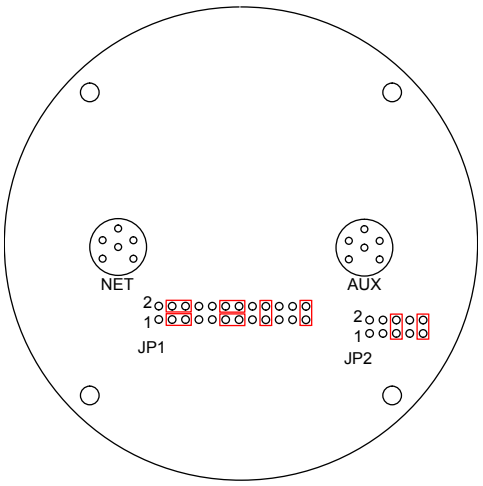


ARCNET Sonar with RS232 Aux Port

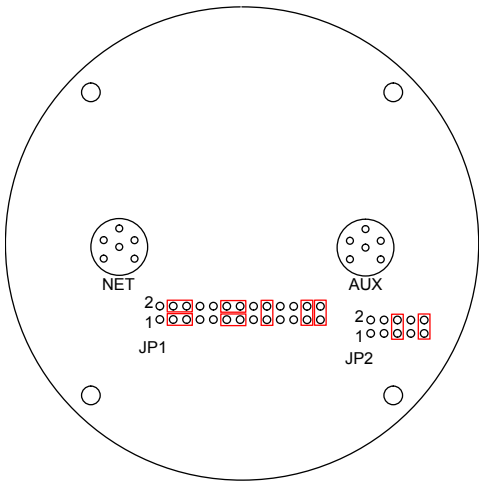
COMDV3/FV3



COMGV3/COMV5



COMV5 Mod A



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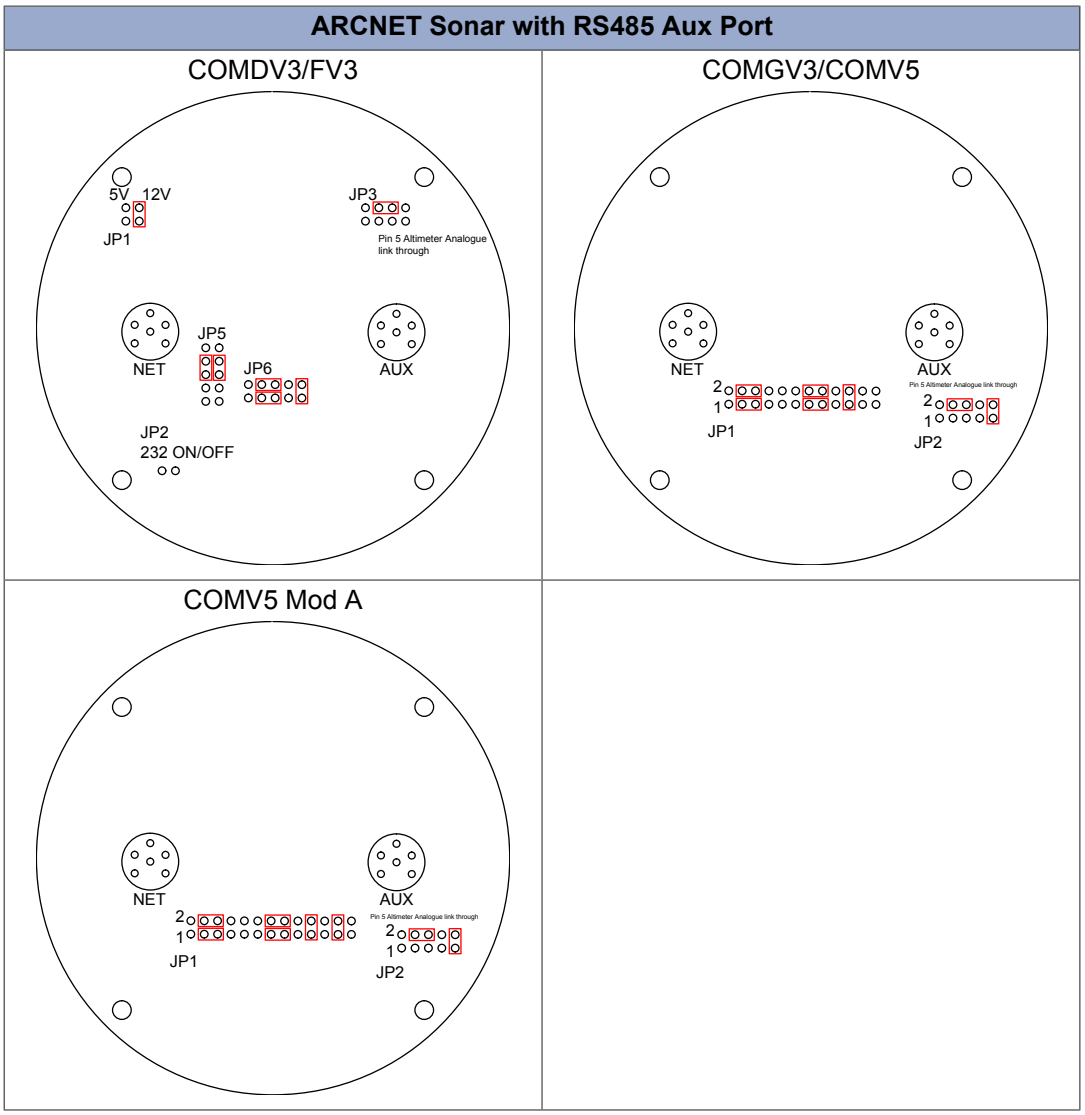

C.2. Aux Port settings for RS232 heads

Note

When using a PA Altimeter with a SeaKing head it is recommended that RS485 communications is used on the Aux Port. This is due to the Analogue output that may be present on the Altimeter potentially coupling onto RS232 Ground. For more details, please see the product manual 0286-SOM-00001.

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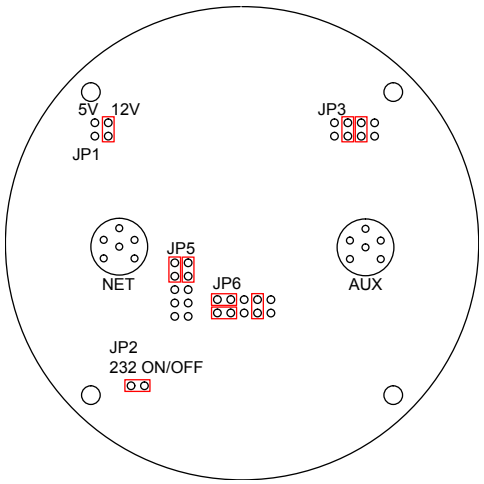
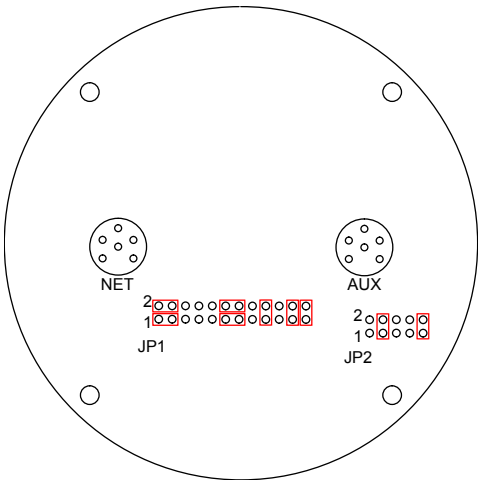
RS232 Sonar with RS232 Aux Port

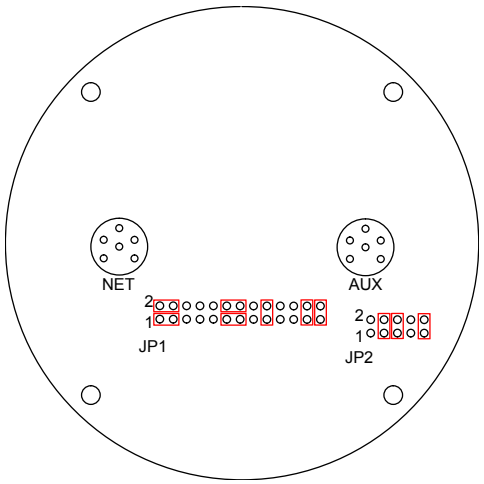
COMDV3/FV3



COMGV3/COMV5



COMV5 Mod A



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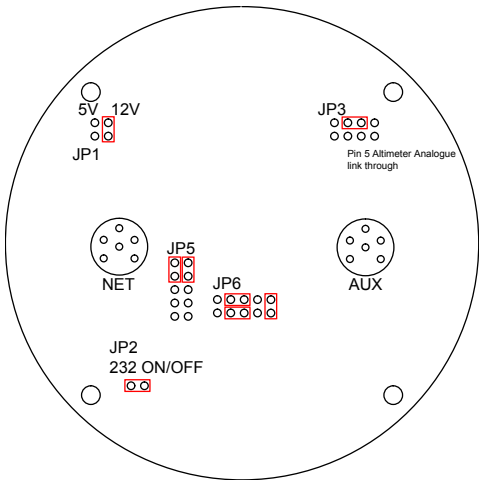
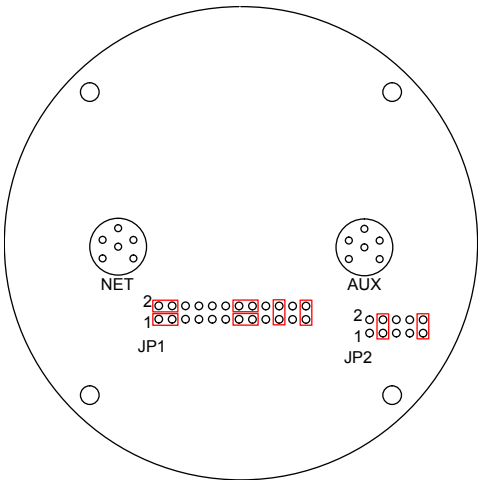
RS232 Sonar with RS485 Aux Port

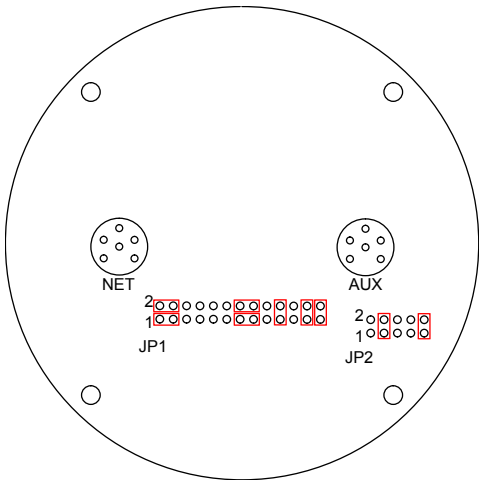
COMDV3/FV3



COMGV3/COMV5



COMV5 Mod A



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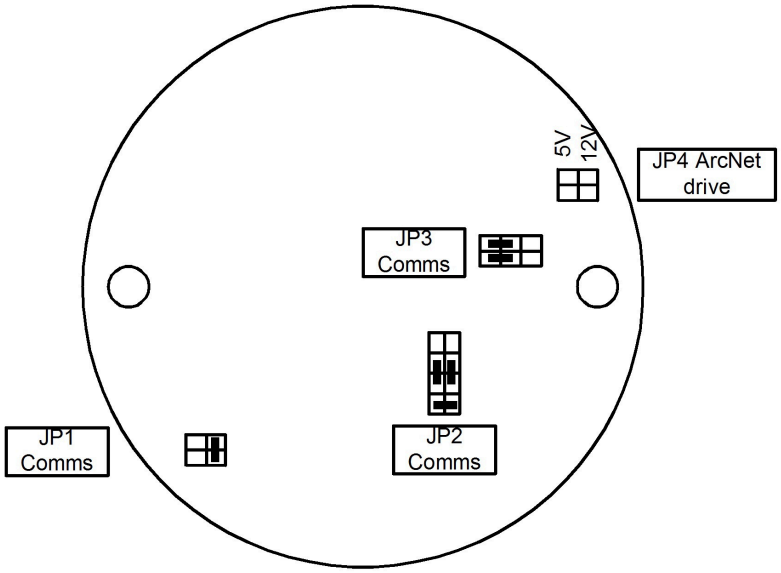
Appendix D. SeaPrince Jumper Settings

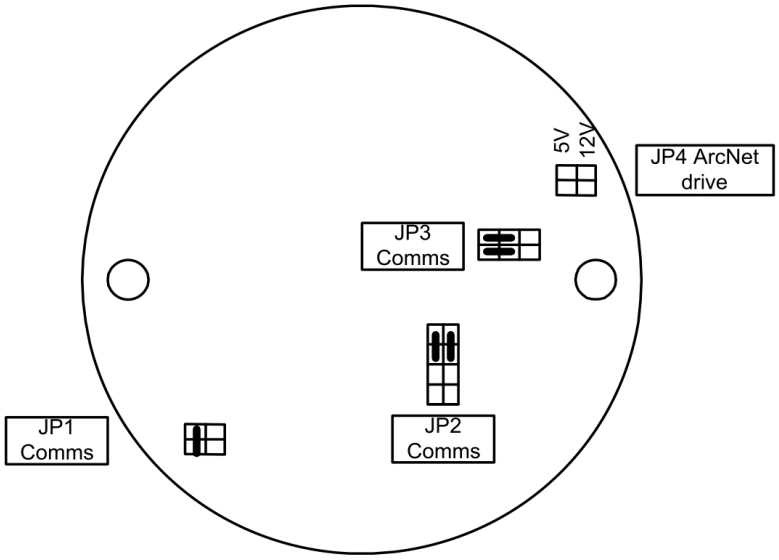
Note

The following settings do not apply to the later revision SeaPrince models known as the "Super" SeaPrince. For a Super SeaPrince all the changes should be done in software.

SeaPrince RS232



SeaPrince RS485



Note

RS485 can only be used with SCU-3 WINSON systems. The head requires special software and WINSON needs a special setup. Contact *Tritech International Ltd* for more details.

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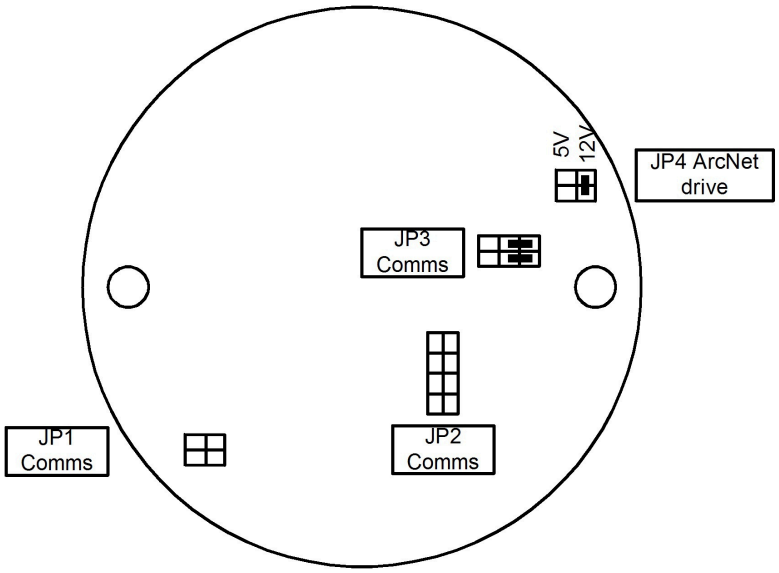
SeaPrince ARCNET



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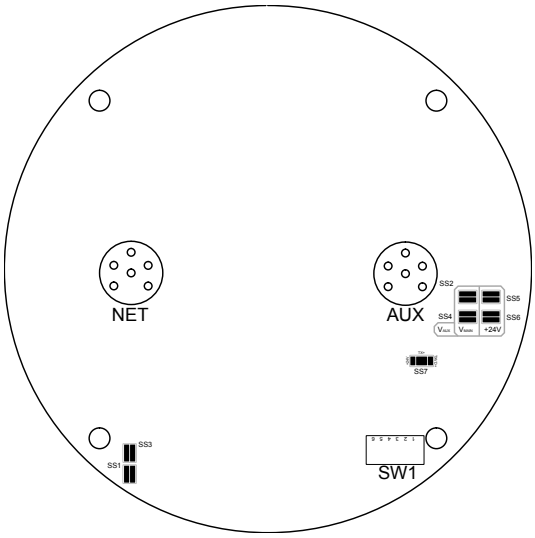
Appendix E. COM V6 PCB Options

E.1. DIP Switch settings

The COM V6 PCB enables the SeaKing range of units to use software selectable communications. This feature is only available for SeaKing units that have a V6 CPU PCB installed.

For units that do not have a V6 CPU PCB you can use the DIP Switches on the COM V6 PCB to set both the Main and Aux communications.



COMMS Protocol		SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6
Main Port	ARCNET	ON	OFF	x	x	x	N/C
	RS232	OFF	ON	x	x	OFF	N/C
	RS485	OFF	OFF	x	x	x	N/C
Aux Port	ARCNET	x	x	ON	OFF	x	N/C
	RS232	x	x	OFF	ON	OFF	N/C
	RS485	x	x	OFF	OFF	x	N/C

Where *'x'*=Don't care and *'N/C'*=Not connected termination.

Switch **SW1.5** controls the Ping-Sync function, normally associated with the Super SeaKing Dual Frequency Profiler, and so must be set to `OFF` whenever serial based communications are used on either the `MAIN` or `AUX` port.

The following settings are an example of a Profiler configuration, which has ARCNET on both Main and Aux ports with the Ping-Sync enabled.

COMMS Protocol	SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6
Example	ON	OFF	ON	OFF	ON	N/C

For units with a V6 CPU PCB, the DIP switches must be set to the following configuration in order to activate the software selectable communications feature.

COMMS Protocol	SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6
Software Selectable	OFF	OFF	OFF	OFF	OFF	N/C

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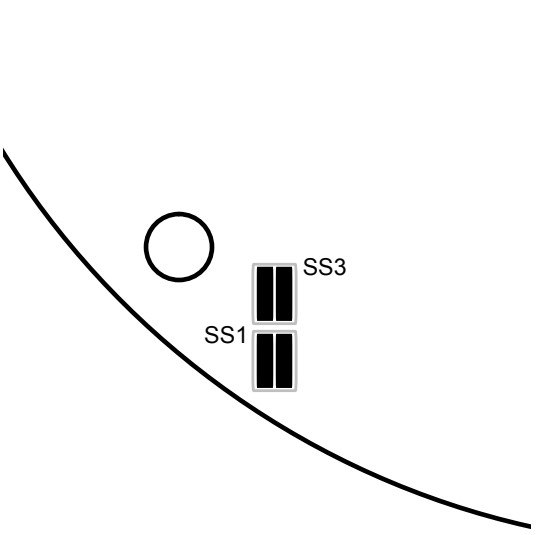
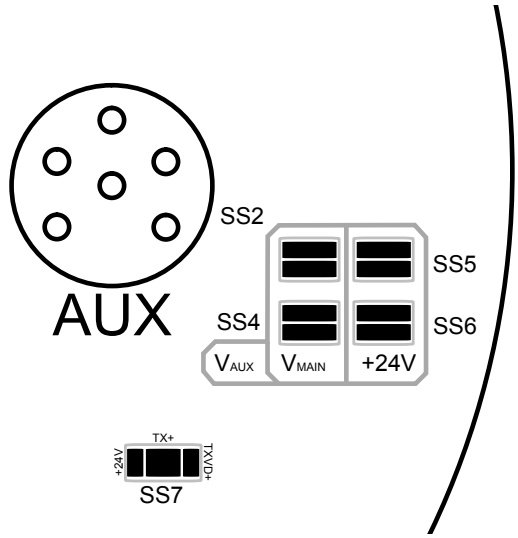
Where *'x'*=Don't care and *'N/C'*=Not connected termination.

E.2. Solder Splash settings

In addition to the DIP Switch settings, the operation of the COM V6 PCB can be altered by changing the solder splashes on the PCB itself.



SS1 and SS3 are located in the lower left section of the PCB.



SS2, SS4, SS5, SS6 and SS7 are located near the Aux connector.

The solder splashes can be divided into three main categories:

- Voltage selection
- Transmit Voltage Source selection
- AUX Port Voltage selection

Voltage Selection

Solder splashes SS1 and SS3 control the source voltage being applied to different PCBs within the electronics block. This voltage level depends on the type of unit that the COM V6 PCB is being fitted to.

- For Hammerhead units SS1 should be selected
- For *all* other units SS3 should be selected

Transmit Voltage Source selection

Solder splash SS7 is a two way selection and will affect the drive voltage being supplied to the transmitter of the SeaKing unit. Incorrect selection can cause irrepairable damage.

- For Parametric Sub-Bottom Profilers the *+24V* option should be selected
- For all other units, the *TXVD+* option should be selected

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AUX Port Voltage selection

Solder splashes SS2, SS4, SS5 and SS6 help determine what voltage should appear on the power pins of the AUX Port. The correct selection is essential when connected voltage sensitive devices.

- SS2 and SS4 should be selected in order to pass the voltage supply on the Main port through to the Aux port
- SS5 and SS6 should be selected in order to supply a regulated 24VDC supply to the Aux port, regardless of the voltage supplied to the Main port

Bathymetric units should have SS5 and SS6 selected as default, as the connected PA unit will be damaged if supplied with voltages over 28VDC.

E.3. Standard solder splash settings

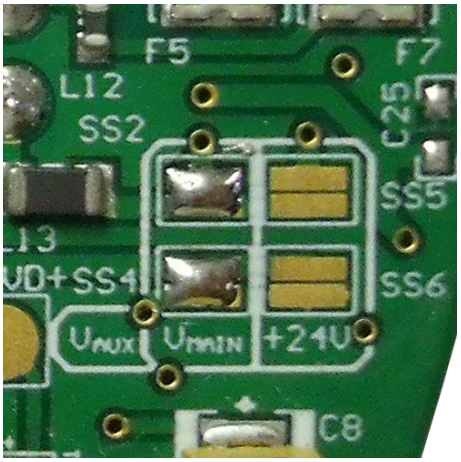
The following table details the factory default solder splash settings for each major product. Please contact *Tritech International Ltd* if you require more information.

Unit type	SS1	SS2	SS3	SS4	SS5	SS6	SS7	
							TXVD+	+24
Hammerhead	X				X	X	X	
DST Sonar		X	X	X			X	
Profiler (DFP)		X	X	X			X	
Sub-Bottom Profiler (PSBP)		X	X	X				X
ROV Sidescan		X	X	X			X	
Bathy			X		X	X	X	

Note

An *'X'* denotes that the solder connection will be made between the appropriate solder points

The example, opposite, shows solder points SS2 and SS4 made. SS5 and SS6 are unmade.



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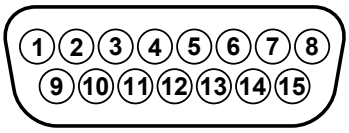
Appendix F. AIFv4 DA-15 Complete Pin-out

Pin-out Diagram	Pin	Signal name	Usage	Notes
	1	Supply - 12V F0.3A	For options	
	2	Ground	RS232 Ground	
	3	Spare Port	For options	
	4	Lan.Rx In B	Not used	
	5	Aux2.Rx/A	AUX 2 Comms	PCI card only
	6	Aux1.Tx/B	AUX 1 Comms	
	7	Lan.Pulse2	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	Not used	
	12	Aux2.Tx/B	AUX 2 Comms	PCI card only
	13	Aux1.Rx/A	AUX 1 Comms	
	14	Lan.Pulse1	LAN Modem	
	15	Lan.B	ARCNET LAN B	

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Glossary

ARCNET	Attached Resource Computer NETwork - a network protocol similar to Ethernet but with the advantage of working over much longer ranges.
AutoComms	Hardware developed by *Tritech International Ltd* for use in sonar heads which enables the sonar to automatically switch to the correct communication protocol to match that of the surface controller.
COM	Short for "communications". When used in the context of computers typically it refers to the Microsoft Windows designation of a serial communications port (in this instance it may be given a number, "COM3", for example). In the context of sonar hardware it can be used to refer to the circuit board that controls the communication to the surface.
DA-15	A 15 pin D shaped connector used mainly for the ARCNET connection on the SCU and SeaHub.
DC	Direct Current
DE-9	A 9 pin D shaped connector commonly used for serial communications on computers.
DIN	Deutsches Institut für Normung e.V. (German Institute for Standardisation)
LAN	Local Area Network
PC	Personal Computer
PCB	Printed Circuit Board
RS232	Traditional name for a series of standards for serial binary data control signals.
RS485	A standard for defining the electrical characteristics of drivers and receivers for use in a balanced digital multipoint system (also known as EIA-485).
SCU	Surface Control Unit - a specially manufactured computer which is rack mountable and capable of processing the data from the sonar equipment running either Windows XP Embedded or Windows 7 and Seanet Pro or Gemini software.

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