emutel™ | **Maestro**

xDSL Simulator

Installation and Trouble Shooting Guide

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INTRODUCTION

The emutel™Maestro

Thank you for choosing emutel™**Maestro**, a powerful tool for developers, manufacturers and resellers of xDSL products. emutel™**Maestro** replaces the requirement for an xDSL (ADSL, SHDSL or VDSL) line from a Central Office DSLAM.

emutel™**Maestro** is available with several different manufacturer Central Office interfaces and connection to an external baseband telephone system via the LINE interface.

emutel™**Maestro** allows ADSL and POTS/ISDN terminals to be connected simultaneously, via an external splitter, to allow full interoperability testing and demonstration.

The POTS and ISDN interfaces can be provided by an external POTS\IDSN (U interface) device connected via an external splitter to the LINE# ports. There are no user serviceable parts inside emutel™**Maestro**. The unit should only be opened by approved maintenance staff; otherwise the warranty will be invalidated.

xDSL Connections

The emutel™ **Maestro** xDSL Central Office (CO) interfaces can be configured to operate in various modes, however these may change depending on the chipset currently fitted within the unit. Multimode operates by choosing the best mode for operation with the connected Customer Premise Equipment (CPE). Other operational parameters and data can be altered or read with the Configuration Software.

The CPE can be connected directly to the interface or through a splitter if POTS/ISDN terminal equipment is to be connected simultaneously.

LED's indicate the operating status of each interface. For example, LED1 indicates configuration parameters have been accepted and the chipset is attempting to make a DSL connection. LED2 indicates 'Showtime' has been achieved between the module and the external modem equipment. LED 5 and 6 indicate traffic passing through the Maestro. They can be made to operate for either any data being received/transmitted over the xDSL ports or just for configured channels. LED 5 indicates data being received and LED 6 indicates data being transmitted. LEDs 3 & 4 will be used for future development. The LINE LED refers to the unit being configured to accept an external baseband telephone system via the LINE port (POTS or ISDN).

LINE Connections

The emutel™ **Maestro** provides the option for either 1 Plain Old Telephone System (POTS) or 1 ISDN connection and 1 ADSL simulation concurrently on the same CO port.
POTS/ISDN equipment can be connected directly to the CO interface or through a splitter if ADSL terminal equipment is to be connected simultaneously.

UTOPIA Connections

The emutel™ **Maestro** provides a Level 2 Direct Status Indication UTOPIA interface. The PHY addresses are configurable using the Configuration Software. These connections allow direct access to the ATM data stream in and out of each xDSL CO port.

Terminal Port

A V.24 port is provided allowing the connection of the

Configuration Software via PC with a serial port.

Ethernet Port

An IEEE 802.3 Ethernet port is provided for connection to the Configuration Software using a local area network running TCP/IP protocol.

LEDs indicate (1) network present, (2) network activity.

Unpack the emutel™**lMaestro**

First unpack the emutel™**lMaestro** and check for signs of damage in transit. If the unit or packaging is damaged this should be reported immediately to **arca technologies**.

Take an Inventory

Take an inventory of the parts supplied. Check that the items ordered were actually received. The list below should be of help in identifying each part.

- emutel™**lMaestro** –
- Cable for serial connection- RS232
- 2 off RJ11 Modem Leads
- Mains Cable
- This Manual
- Configuration Software CDROM

Connect to a PC or terminal

Plug the serial cable into the Terminal port at the rear of the unit and connect to a PC. (emutel™**lMaestro** default terminal settings are 19200 baud, 8 data bits, no parity, 1 stop bits.)

Power

The emutel™**lMaestro** will operate on a mains voltage of 110-240V a.c. (50-60Hz).

Connect power

Plug the power cable into the rear of the unit and power on using the switch located on the mains inlet. Power should be supplied via an IEC mains lead (supplied).

Warning: The power supply must have a protective ground (earth). If not, the mains filter will force the metal case to a voltage equal to half the mains supply voltage.

Configure emutel™**lMaestro**

Install the Configuration Software from the CDROM provided (refer to Configuration Software section). From the Comms menu select Connect. A pop-up screen will appear showing the progress as the Configuration Software reads the unit's configuration data. The unit should have the factory default settings, but to be certain reset the unit using the Reset command in the System menu. During this procedure there will be two pop-up screens, the first indicating a Reset command and the second showing the new settings being read from the unit.

Connecting Terminal Equipment

The connections on xDSL CO1 and xDSL CO2 allow the user four possible connection scenarios:

- Direct connection of xDSL CPE
- Combined connection of ADSL CPE and POTS Equipment using a Splitter (Annex A)
- Combined connection of ADSL CPE and ISDN Terminal Equipment using a Splitter (Annex B)
- Connection of an external baseband POTS\ISDN telephone system with external splitter.

N.B. Make sure that the equipment is compatible with the interface it is connected to.

Connecting an External Baseband Analogue Telephone System

If you require the use of an external POTS system, , connect the external POTS system to the corresponding Line port via an external POTS splitter.

Connecting an External Baseband ISDN Telephone System

If you require the use of an external ISDN system,, connect the external ISDN system to the corresponding Line port via an external ISDN splitter.

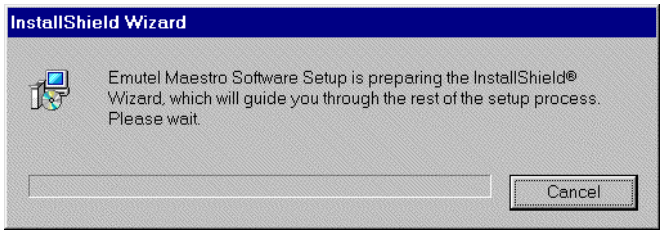
Connecting UTOPIA Equipment

If you require connection to the UTOPIA bus then two 80 way High Density connectors should be used. The connections are shown in the Appendix. Go to the *System* menu option and select *xDSL->Utopia.* All data will be directed to the Utopia ports at the back of the unit

Installing the Configuration Software

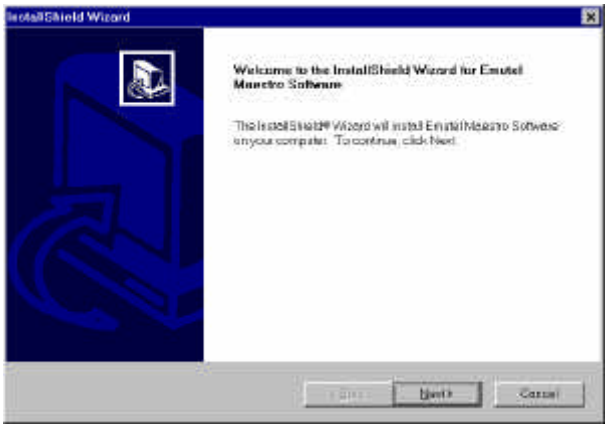
1 Insert the emutel™ **Maestro** Software CD into the CD drive of your machine. If autorun is enabled on your PC then the installation will begin automatically. Otherwise, read the contents of the CD via Windows Explorer and double click setup.exe.

2 The following dialog will appear.

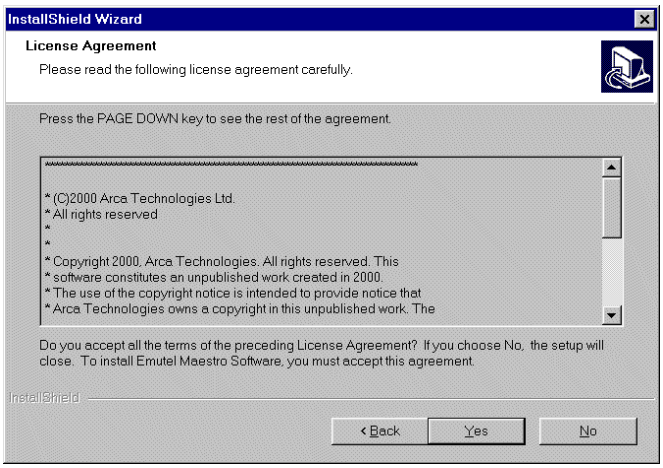


Wait until the status bar at the bottom of the dialog has completely filled.

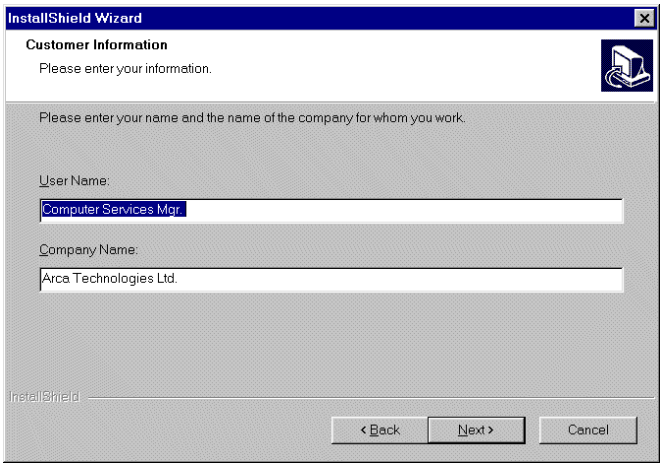
3 The welcome screen will appear. Click the Next button at the bottom of the window.



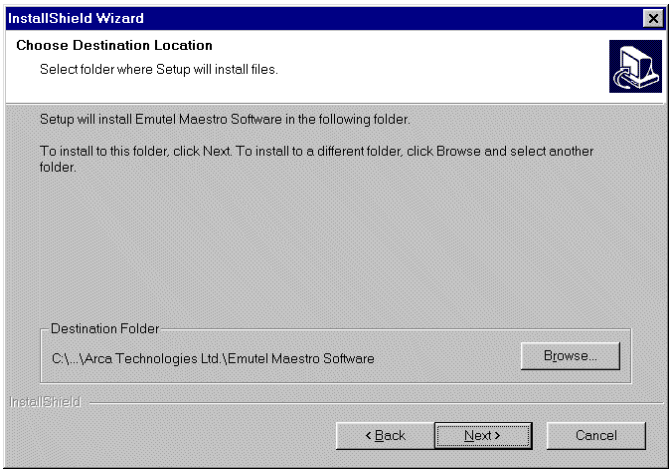
4 The License agreement will appear. Click Yes to accept.



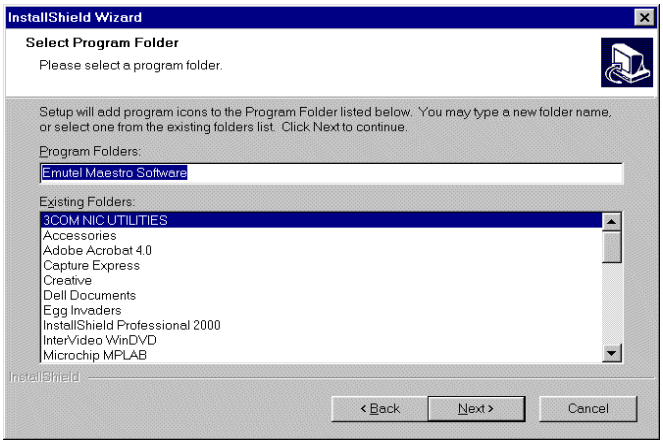
5 The Customer Information Dialog will appear. Enter your name and your company name into the boxes provided. This information must be entered before you can proceed. Click on the Next button to continue the installation.



6 The next dialog that appears will allow you to choose the directory into which the software will be installed. The default directory is 'C:\Program Files\Arca Technologies'. Click browse to select a different directory to install to. Click Next to continue.

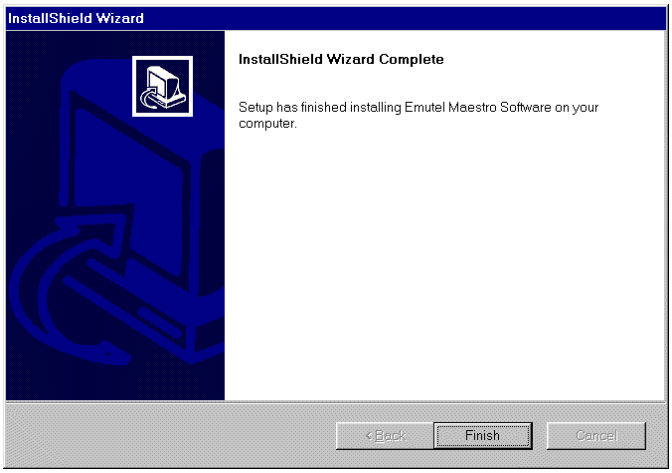


7 The Select Program Folder dialog will appear. Click Next to continue.



8 The installation will then begin as the following dialog appears. The dialog will disappear when set-up has been completed.

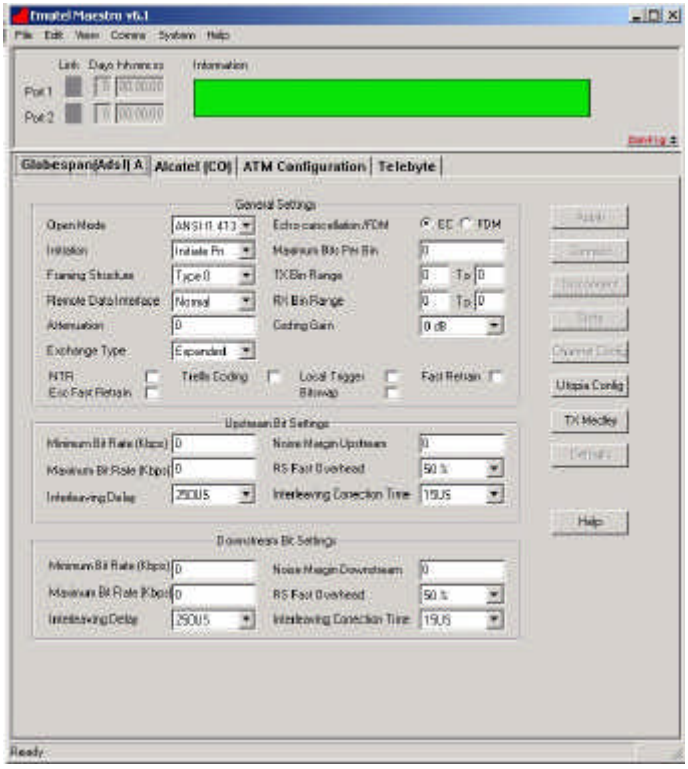
9 Finally, a dialog shall appear to indicate the installation has been completed.



10 Click Finish to dismiss the dialog.

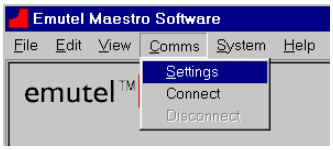
Running the Configuration Software

From the Start Menu, go to the Programs Directory and select emutel™**IMaestro** Software from the sub-menu. The Software will then load and the main application window will be displayed.

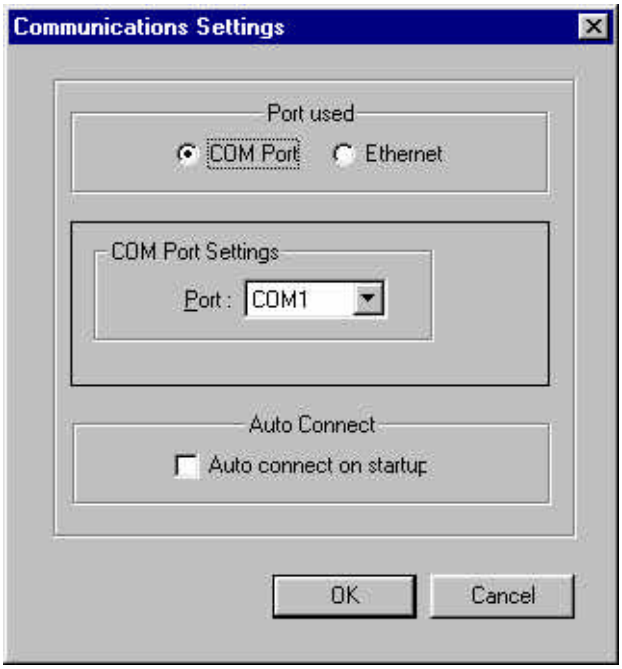


Connecting via serial port

Ensure that the emutel™ **lMaestro** is connected to your PC via RS232 connection. Click on the Comms drop-down menu and select Settings.



The Communications Settings Dialog will appear. Select COM port as the Port used by clicking the radio button and ensure that the baud rate, stop bits, parity and data bits are as shown below.

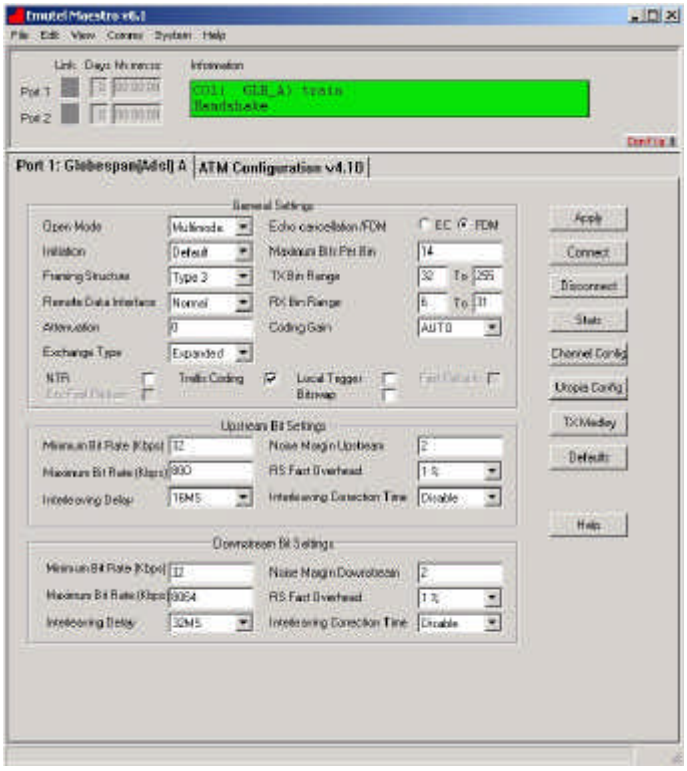


Choose the COM port on your PC that the emutel™ **lMaestro** is connected to.

Click OK to confirm these settings. These settings take effect immediately and will be saved when the Configuration Software is closed. Therefore it is only necessary to configure the settings once, and the above steps are not necessary for subsequent connection attempts.

Finally, go to the Comms drop-down menu and this time select Connect. Your PC will then attempt to communicate with the emutel™**IMaestro** via the RS232 connection and the configuration settings will be read from the unit.

The online help describes in detail all of the parameters that can be configured. Refer to the online help for full descriptions of these parameters.



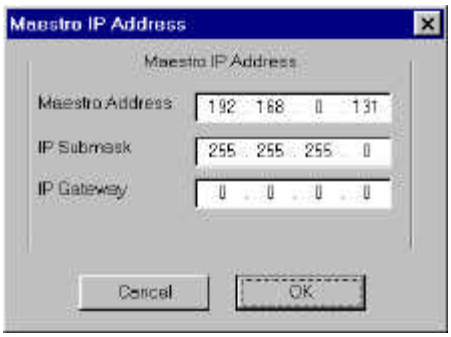
Connecting via Ethernet

In order to connect to the emutel™**IMaestro** via the LAN interface you must configure the appropriate IP settings.

In order to change the emutel™**IMaestro** IP settings it is necessary to connect via the RS232 port, as described above.

Once connected, go the System drop-down menu and select Set Maestro IP.

The emutel™|**Maestro** IP address dialog will appear.



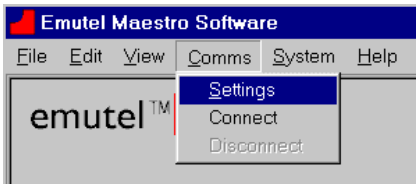
The default IP address, submask and gateway settings are as shown. These can be edited. Clicking OK will update the emutel™|**Maestro** IP settings.

N.B. In order for the settings to take effect it is necessary to switch the emutel™|**Maestro** off then on again.

Go to the Comms Menu and select Disconnect to end the serial communication between the **emutel™|Maestro** and your PC.

With the emutel™|**Maestro**'s IP settings fully configured, you must change the communication settings for the applications to communicate with the emutel™|**Maestro** via the Ethernet port.

Select Settings from the Comms Menu.



The Communications Settings Dialog will appear. Select Ethernet as the port used by clicking the Ethernet radio button.

Enter the IP address of the emutel™**lMaestro**. Clicking OK will confirm the new configuration settings. These settings will be saved when the application is terminated.

Finally, go to the Comms drop-down menu and this time select Connect. Your PC will then attempt to communicate with the emutel™**lMaestro** via the Ethernet connection and the configuration settings will be read from the unit.

Using the Configuration Software

For further details on using the emutel™**lMaestro** software, please refer to the on-line help file. You can select this from the Emutel Maestro program group or via the Help menu within the configuration software.

Introduction

This section seeks to provide some guidance on solving common problems encountered in using emutel™**lMaestro**.

Unit does not power up

Check to see if the internal cooling fan is operating. If the fan is working correctly you should hear a whirring sound.

If the fan is not operational then look at the LEDs and LCD. If these are also off then check the mains lead is connected properly. If the mains lead is connected properly then check that the mains switch on the rear of the emutel™**lMaestro** is on. If so then test your mains supply by plugging in another piece of equipment i.e. use a table lamp. If the power supply is present then try a new supply lead.

Showtime does not occur

Assuming the emutel™**lMaestro** and CPE are powered on, set the connection variables to default by following the procedure for a system reset detailed in the Quick Reference Guide section. If the CPE does not achieve Showtime after this check that the CPE being connected is compatible with the chipset installed in the emutel™**lMaestro**. If the CPE still does not achieve Showtime then try the other port. If this fails try another CPE or another RJ11 lead.

Configuration Software does not connect to the emutel™lMaestro using the LAN port.

In the event that the Configuration Software fails to connect to the emutel™**lMaestro** through the Ethernet port then first check that the unit is on. If the unit is on then check that the correct leads are connected to the correct ports; for example, LAN port and not the 10Baset port. If you are connecting your PC directly to the LAN interface you will require a cross over cable, whereas if you are connecting via a hub you will require a straight through cable. If the unit still does not respond then check the connection setup in the Configuration Software by referring to the online Help. If this fails try connecting using the serial port. If this fails refer to the section below.

Configuration Software does not connect to the emutel™lMaestro using Terminal Port

In the event that the Configuration Software fails to connect to the emutel™**lMaestro** using the Terminal port then first check that the unit is on. If the unit is on then check that the correct leads are connected to the correct ports. If the unit still does not respond

then check the connection setup in the Configuration Software by referring to the online Help. If this fails execute the Restoring Default Settings procedure given in the Quick Reference Guide section.

Unit fails to display status of module

If the LCD does not display the status of a module then the module has not been recognised by the unit. Try powering the unit off then wait a few seconds and power it on again. If the LCD displays "Inactive" beside the CO port, this indicates that the firmware currently installed is not compatible with the current module configuration. Refer to the compatibility table in the appendices.

emutel™ **IMaestro fails to respond after a setting is changed**

If this occurs the simplest method to recover is to follow the Restoring Defaults procedure given in the Quick Reference Guide section. Settings will only be applied once the "Apply" button has been selected.

Traffic is not being passed through to the ATM port.

Check that the appropriate ATM settings have been setup within the ATM configuration tab. Settings that have been used by Arca Technologies are as follows:
For connection through to the ATM port:
VPI=8
VCI=80
MPHY=MOD1 or 2
AAL Type=AAL0
Cell Rate=10000

VPI=0
VCI=80
MPHY=ATM
AAL Type=AAL0
Cell Rate=10000

For connection through to the Ethernet port:
VPI=8
VCI=35
MPHY=MOD1 or 2

AAL Type=AAL5
Cell Rate=10000

Ensure that the correct ATM connection is being used, Multimode and Single Mode ATM boards are available.

Restoring default settings

To restore the emutel™ **lMaestro** to factory defaults you can use either of two methods.

The first method uses the Configuration Software. Select the SYSTEM pull down tab and click on the RESET option. A dialog box will appear instructing you to power cycle the unit. This will reset the emutel™ **lMaestro** to the factory default settings and will re-establish communication with the emutel™ **lMaestro**.

The second method needs a Communication package such as Hyper Terminal. The procedure is as follows:

1. Set the com port to 19200 baud, No parity, 1 Stop bit, 8 Data bits
2. Hold down <CTRL> and <C> on the keyboard
3. Switch on the emutel™ **lMaestro**
4. Wait until the screen appears with a number of RESET commands.

When the unit is first switched on the terminal port will search for a <CTRL-C> being transmitted to the emutel™ **lMaestro**. If this occurs the emutel™ **lMaestro** will restore the factory defaults otherwise it will use the previously stored settings.

Accessing online Help

Type <F1> at any stage and the help screen shall appear.

Uploading Maestro Code using the Configuration Software

In order to uploadthe **Maestro** code the user will first need to start the Configuration Software.

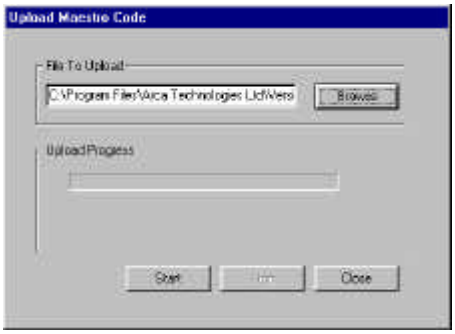
Please ensure that all cables are disconnected from the unit, except for the power and serial cables.

Ensure that the emutel™**IMaestro** is connected to your PC via the RS232 connection and that communication has been established using the Comms pull-down tab and the Connect option – see section "Connecting via serial port"

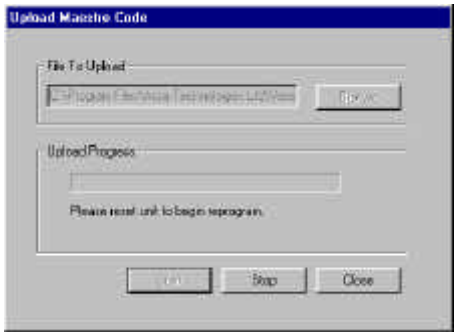
Maestro code

Maestro code is for the main part of the emutel™**IMaestro**. Whereby you are required to load the appropriate Maestro code which matches the module type fitted into the unit. There are seven versions of Maestro code which are listed within the Appendices section, "Module Cross Reference table". To load new Maestro code, select the SYSTEM pull-down tab followed by the Upload Maestro Code option.

Either enter the full file name and path or use the Browse button to select the file for uploading into the emutel™**IMaestro. The default installation directory is C:\program files\arca technologies\Emutel maestro Software\Firmware.**

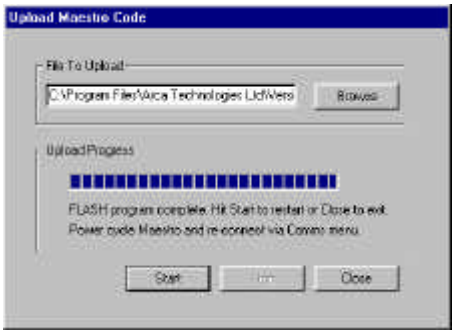


Once the file has been selected click on the START button.



In order to start the re-programming process please switch the emutel™ **IMaestro** off and back on again.

You should now see the six LEDs of Port 1 on the front of the emutel™ **IMaestro** rotating in sequence. You should also see the Upload Progress bar slowly moving across. Do not switch the emutel™ **IMaestro** off.



Once the above message appears you should click on the Close button and switch the emutel™ **IMaestro** off and back on to complete the reprogramming.

Re-connect to the emutel™ **IMaestro** using the Comms pull down tab and the Connect option.

Now check that the software has been correctly recognised by the emutel™ **IMaestro** by using the System pull down tab and the Configuration option.

Finally perform a System Reset using the System pull down tab and the Reset option. After waiting for the reset process to finish please switch the emutel™ **IMaestro** off and back on.

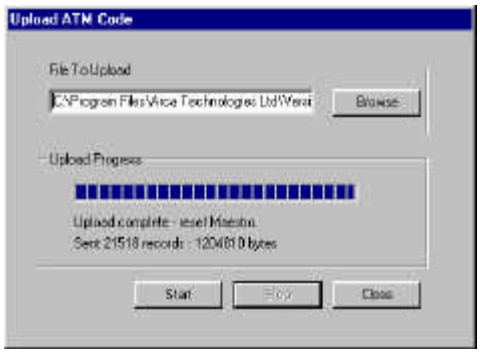
Upgrading ATM Code

ATM code is for the ATM board within the emutel™ **lMaestro**. To load new ATM code select the SYSTEM pull-down tab followed by the Upload ATM Code option.

As before, either enter the full file name and path or use the Browse button to select the file for uploading into the emutel™ **lMaestro.**

Once the file has been selected click on the START button.

You should now see 4 LEDs (1, 2, 4 and 5) of Port 1 on the front of the emutel™ **lMaestro** rotating in sequence. You should also see the Upload Progress bar slowly moving across. Do not switch the emutel™ **lMaestro** off.



Once the above message appears you should click on the Close button and then switch the emutel™ **lMaestro** off and back on to complete the reprogramming.

Re-connect to the emutel™ **lMaestro** using the Comms pull down tab and the Connect option.

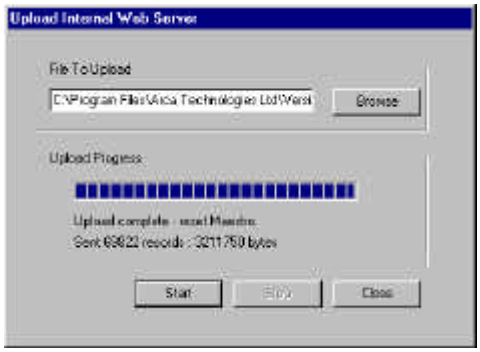
Now check that the software has been correctly recognised by the emutel™ **lMaestro** by using the System pull down tab and the Configuration option.

Finally perform a System Reset using the System pull down tab and the Reset option. After waiting for the reset process to finish please switch the emutel™ **lMaestro** off and back on.

Upgrading Web-site code

Web Site code is for the Internal Web Server within the ATM part of the emutel™**lMaestro**. To load new Web Site code select the SYSTEM pull-down tab followed by the Upload Internal Web Server option. Either enter the full file name and path or use the Browse button to select the file for uploading into the emutel™**lMaestro.** Once the file has been selected click on the START button.

You should now see 4 LEDs (2, 3, 5 and 6) of Port 1 on the front of the emutel™**lMaestro** rotating in sequence. You should also see the Upload Progress bar slowly moving across. Do not switch the emutel™**lMaestro** off.



Once the above message appears you should click on the Close button and then switch the emutel™**lMaestro** off and back on to complete the reprogramming.

Re-connect to the emutel™**lMaestro** using the Comms pull down tab and the Connect option. Now check that the software has been correctly recognised by the emutel™**lMaestro** by using the System pull down tab and the Configuration option.

Finally perform a System Reset using the System pull down tab and the Reset option. After waiting for the reset process to finish please switch the emutel™**lMaestro** off and back on.

DSL Module Replacement

Introduction

Due to the nature of the APIs it is not possible to have **Maestro** code to support plug 'n' play. For this reason the procedure for replacing a module shall also require a firmware upgrade.

Equipment Requirements

1 off Pozidrive screwdriver
1 off RS-232 9-9 way lead
1 off Electric Power lead
1 off PC with emutel™**Maestro** Configuration Software

Important Note

Please ensure that all fixings removed during disassembly of the **emutel™Maestro** are retained for refitting during reassembly!

Procedure

The first stage shall be to remove the lid off the emutel™**Maestro**.

HAZARD WARNING

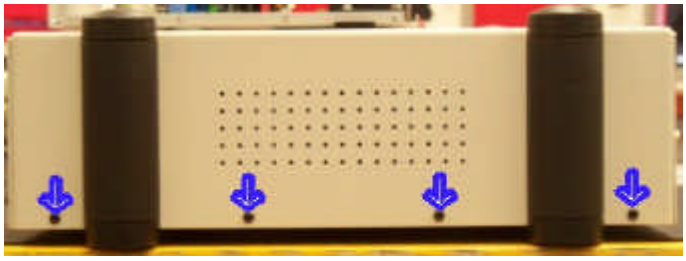
The mains supply must be switched off and the power lead disconnected before the lid is removed as there are hazardous voltages present!

1. Looking at the front panel of the emutel™**Maestro** as in Figure 1, remove the 5 screws indicated.

Figure 1
Front Panel Fixings

2. Rotate the emutel™**Maestro** 90 degrees. Now looking at the side panel of the emutel™**Maestro** as in Figure 2, remove the 4 screws indicated.

Figure 2
Side Panel Fixings



3. Rotate the emutel™**lMaestro** 90 degrees. Now looking at the rear panel of the emutel™**lMaestro** as in Figure 3, remove the 4 screws indicated.

Figure 3
Rear Panel Fixings

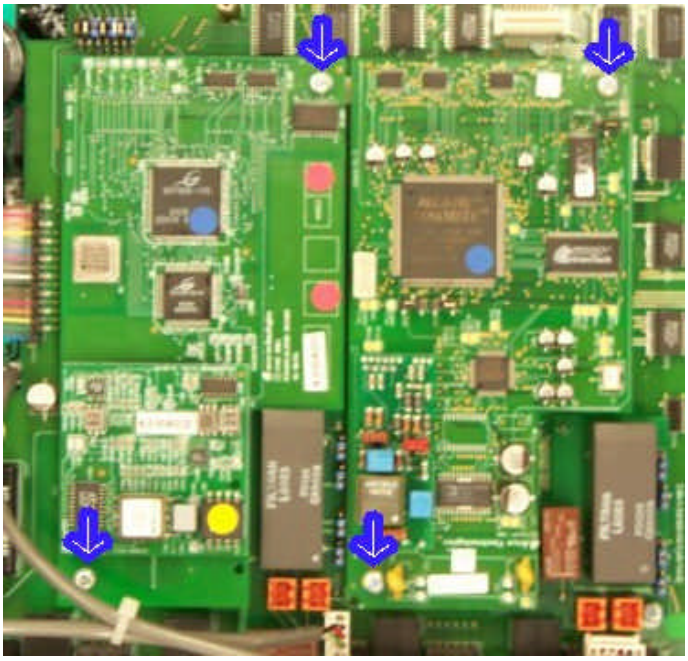
4. Rotate the emutel™**lMaestro** 90 degrees. Now looking at the side panel as in Figure 2, remove the 4 screws indicated.

5. Taking care not to scratch the lid, lift it straight up leaving the base on the worktop.

6. Remove the two fixing screws off the particular module you wish to replace. Figure 4 indicates both modules fixing screws.

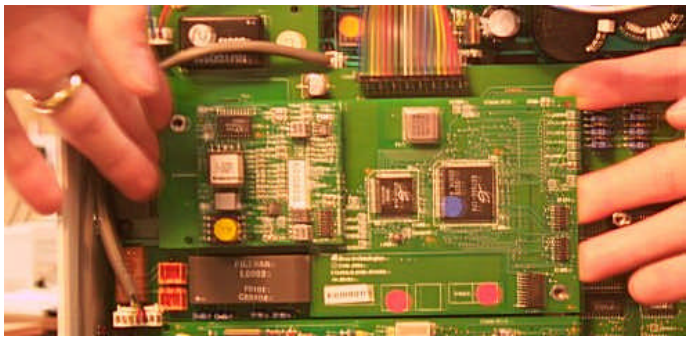
Important Note Please refer to the Modules cross Reference Table for valid module configurations.

Figure 4
DSL Module Fixings



7. Placing your fingers firmly under the back and front edges of the module prise gently to extract the module. See Figure 5.

Figure 5
DSL Module Removal



Important Note

Please ensure that when the module is being extracted that both ends are lifted simultaneously. This will avoid damage to the connectors!

8. Place the new module in exactly the same position taking care to align the connectors. Press the module firmly above each connector to feel the positive fit of the connectors. It may be necessary to place finger below the motherboard for support and to ensure a good contact.

9. Inspect the connections to ensure they are correctly seated.

10. Refit the two fixing screws back into place as in Figure 4.

11. Replace the lid taking care to align the feet on the base correctly.

12. Refit one screw on each of the sides of the enclosure.

13. Reconnect the electric power lead.

14. Connect the Maestro to a PC using the RS-232 lead

15. Upload the Maestro code supplied for the DSL module' using the Configuration Software.

16. Power off the emutel™l**Maestro**.

17. Power on the emutel™l**Maestro** taking note of the module description on the front panel display.

18. If the module has been identified correctly and goes into TRAINING then the uploadwas successful and the remaining screws should be fitted to the enclosure.
19. Place the old module into the protective packaging that the new module was supplied in.

Telebyte 458-2SL 2-port Line Simulator

The emutel™**lMaestro** is capable of controlling the 2-port Line Simulator from Telebyte, Inc., of Greenlawn, New York – www.telebyteusa.com . The Telebyte is connected to the emutel™**lMaestro** using a serial lead which means that the emutel™**lMaestro** must be controlled from the Windows Application using it's 10Base-T Ethernet port. See the section above marked **Communicating via Ethernet port** on how to set this up.

The Telebyte is connected to the emutel™**lMaestro** using a Male-Male 9-way 'D' serial cable with the following wiring:

Maestro	Telebyte
Pin 1	Pin 6 and Pin 8
Pin 2	Pin 3
Pin 3	Pin 2
Pin 5	Pin 5

The 9-way 'D' with the loop between pins 6 & 8 should be connected to the Telebyte.

Power-on sequence

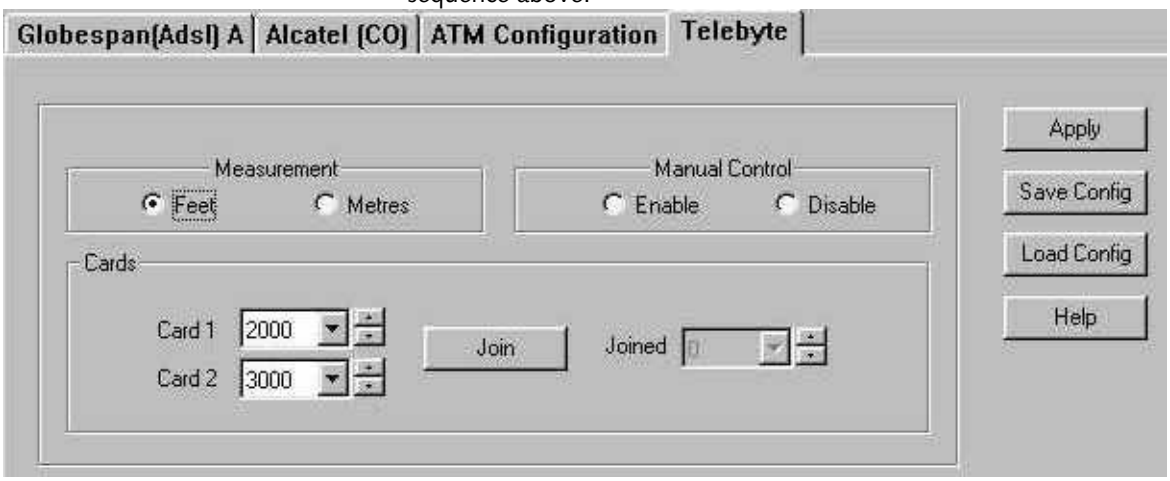
- Power on the Telebyte
- Connect using the above serial cable
- Connect the emutel™**lMaestro** to the PC using an Ethernet cable
- Power on the emutel™**lMaestro**
- Start the Windows Application on the PC and 'Connect' to the emutel™**lMaestro** using Ethernet

If the two units are already connected then power on the Telebyte, wait until its display shows the current distance configurations of the line cards and then power on the emutel™**lMaestro**. This sequence allows the emutel™**lMaestro** to check for the presence of the Telebyte at power on. If the emutel™**lMaestro** is powered on first it will not detect the Telebyte when it is switched on.

If you wish to remove the connection to the Telebyte and communicate with the emutel™**lMaestro** using the serial lead it is necessary to power-down the emutel™**lMaestro**, connect the emutel™**lMaestro** to the PC using the supplied serial lead and then power-on the emutel™**lMaestro**. The emutel™**lMaestro** determines its configuration of the serial port for communication with the Telebyte or PC only at power-on.

Whenever the Windows Application is started and communications with the emutel™**lMaestro** has been established there will be a tab

for the Telebyte if it has been correctly detected. If the tab is not present then check the connections and repeat the power-on sequence above.



The above is an example of the Telebyte tab within the Windows Application. For more information on the operation of the Telebyte see the relevant section of the Windows Application Help. Not all of the commands in the Telebyte manual are supported so for Command Line Interface (CLI) please refer to the CLI manual and use the commands detailed there.

If the display on the Telebyte and the emutel™**lMaestro** do not show the same information then click on the REFRESH button. This updates the emutel™**lMaestro** with the settings already in the Telebyte.

After changing any parameters in the Telebyte tab it is necessary to click on the APPLY button to send the new settings to the Telebyte.

Pin Outs

xDSL CO Pin-out

The following table shows the pin-out of the RJ11 connector for the ADSL CO interfaces.

	RJ11 connector
1	NC
2	TIP
3	TIP
4	RING
5	RING
6	NC

LINE Pin-out

The following table shows the pin-out of the RJ11 connector for the LINE (external baseband telephone system) interfaces.

	RJ11 connector
1	NC
2	NC
3	TIP
4	RING
5	NC
6	NC

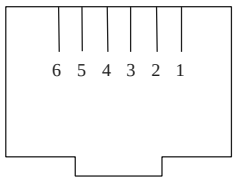


Figure 1 RJ11 plug (front view)

Ethernet interface Pin-out

The following table shows the pin-out of the RJ45 connector for the Ethernet interface.

	RJ45 connector
1	T+
2	T-
3	R+
4	NC
5	NC
6	R-
7	NC
8	NC

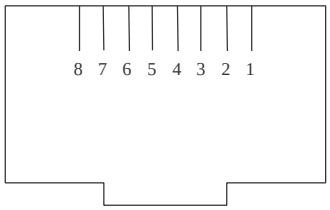


Figure 2 RJ45 plug (front view)

UTOPIA TX Pin-out

The following table shows the pin-out of the 80 way High Density connector UTOPIA.

1	Not Connected	2	Ground
3	Not Connected	4	Ground
5	Not Connected	6	Ground
7	Not Connected	8	Ground
9	Not Connected	10	Ground
11	Not Connected	12	Ground
13	Not Connected	14	Ground
15	Not Connected	16	Ground
17	UTOPIA TX DATA 0	18	Ground
19	UTOPIA TX DATA 1	20	Ground

21	UTOPIA TX DATA 2	22	Ground
23	UTOPIA TX DATA 3	24	Ground
25	UTOPIA TX DATA 4	26	Ground
27	UTOPIA TX DATA 5	28	Ground
29	UTOPIA TX DATA 6	30	Ground
31	UTOPIA TX DATA 7	32	Ground
33	Not Connected	34	Ground
35	Not Connected	36	Ground
37	Not Connected	38	Ground
39	Not Connected	40	Ground
41	Not Connected	42	Ground
43	Not Connected	44	Ground
45	Not Connected	46	Ground
47	Not Connected	48	Ground
49	Not Connected	50	Ground
51	UTOPIA TX SOC	52	Ground
53	UTOPIA TX ENB	54	Ground
55	UTOPIA TX ADDRESS 0	56	Ground
57	UTOPIA TX ADDRESS 1	58	Ground
59	UTOPIA TX ADDRESS 2	60	Ground
61	UTOPIA TX ADDRESS 3	62	Ground
63	UTOPIA TX ADDRESS 4	64	Ground
65	UTOPIA TX CLAV 0	66	Ground
67	UTOPIA TX CLAV 1	68	Ground
69	UTOPIA TX CLAV 2	70	Ground
71	UTOPIA TX CLAV 3	72	Ground
73	UTOPIA TX CLK	74	Ground
75	Do not use	76	Ground
77	Do not use	78	Ground
79	Do not use	80	Ground

UTOPIA RX Pin-out The following table shows the pin-out of the 80 way High Density connector UTOPIA.

1	Not Connected	2	Ground
3	Not Connected	4	Ground
5	Not Connected	6	Ground
7	Not Connected	8	Ground
9	Not Connected	10	Ground
11	Not Connected	12	Ground
13	Not Connected	14	Ground
15	Not Connected	16	Ground
17	UTOPIA RX DATA 0	18	Ground
19	UTOPIA RX DATA 1	20	Ground
21	UTOPIA RX DATA 2	22	Ground
23	UTOPIA RX DATA 3	24	Ground
25	UTOPIA RX DATA 4	26	Ground
27	UTOPIA RX DATA 5	28	Ground
29	UTOPIA RX DATA 6	30	Ground
31	UTOPIA RX DATA 7	32	Ground
33	Not Connected	34	Ground
35	Not Connected	36	Ground
37	Not Connected	38	Ground
39	Not Connected	40	Ground
41	Not Connected	42	Ground
43	Not Connected	44	Ground
45	Not Connected	46	Ground
47	Not Connected	48	Ground
49	Not Connected	50	Ground
51	UTOPIA RX SOC	52	Ground
53	UTOPIA RX ENB	54	Ground
55	UTOPIA RX ADDRESS 0	56	Ground
57	UTOPIA RX ADDRESS 1	58	Ground
59	UTOPIA RX ADDRESS 2	60	Ground
61	UTOPIA RX ADDRESS 3	62	Ground
63	UTOPIA RX ADDRESS 4	64	Ground

65	UTOPIA RX CLAV 0	66	Ground
67	UTOPIA RX CLAV 1	68	Ground
69	UTOPIA RX CLAV 2	70	Ground
71	UTOPIA RX CLAV 3	72	Ground
73	UTOPIA RX CLK	74	Ground
75	Do not use	76	Ground
77	Do not use	78	Ground
79	Do not use	80	Ground

Terminal port pin-out

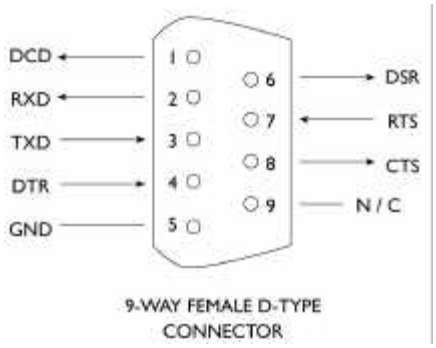


Figure 3 V.24 Terminal Port

Pin	Function	Description
1	DCD	Data Carrier Detect (always active)
2	RXD	Received Data (output)
3	TXD	Transmitted Data (input)
4	DTR	Data Terminal Ready (input - ignored)
5	GND	Ground
6	DSR	Data Set Ready (always active)
7	RTS	Request to Send (input - active to allow emutel™ **Maestro** to send Data)
8	CTS	Clear to Send (output - active when emutel™ **Maestro** can receive Data)

LEDs

This a description of the LED indicators on the front and back panels

LED	Description
LINE	This port is used to connect to the external POTS\ISDN network
LED1	The xDSL module has been detected
LED2	The port is in the showtime state
LED3	Future development
LED4	Future Development
LED5	Indicates data being transmitted from xDSL
LED6	Indicates data being received by xDSL
	System Alarm
	Power On

Definitions

AAL0	ATM Adaption Layer 0
AAL5	ATM Adaption Layer 5
ADSL	Asymmetric Digital Subscriber Line
ANSI	American National Standards Institute
ATM	Asynchronous Transfer Mode
ATU-C	ADSL Transceiver Unit – Central Office
ATU-R	ADSL Transceiver Unit – Remote
BER	Bit Error Rate
BRI	Basic Rate Interface
CO	Central Office
CPE	Customer Premise Equipment
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
FTP	File Transfer Protocol
HTML	HyperText Markup Language
IP	Internet Protocol
ISDN	Integrated Services Digital Network
LAN	Local Area Network
LCD	Liquid Crystal Display
PC	Personal Computer
POTS	Plain Old Telephone Service over PSTN
PSTN	Public Switched Telephone Network
SHDSL	Symmetric High speed DSL
VCI	Virtual Channel Identifier
VDSL	Very high speed DSL
VPI	Virtual Path Identifier