Sentek sensor technologies

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EnviroSCAN Plus NextG CDMA Upgrade Guide

Version 2.0

ENVIROSCAN PLUS NEXTG CDMA UPGRADE GUIDE

VERSION 2.0
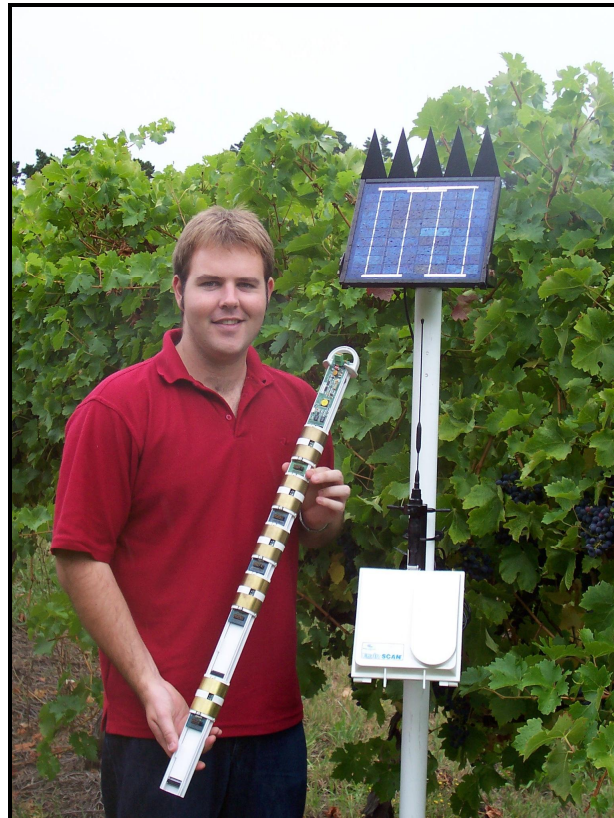
This guide describes the procedures required to upgrade an EnviroSCAN Plus CDMA system to an EnviroSCAN Plus NextG system.

This upgrade is required for any CDMA system installed and must be completed shortly after 28th Jan 2008 as Telstra have advised this is the date that the CDMA network will be switched off.

The upgrade is completed in 4 stages:

o Preparation

o Installing the NextG CDMA Upgrade Kit

o Updating the interface

o Confirm upgrade

To complete the upgrade, you will require the following:

o NextG CDMA Upgrade Kit (Comprising of ETM9800 NextG Modem, Aluminium Bracket, Data Cable, Power Cable, Spare fuses and cable ties, Unactivated NextG SIM Card)

o Activated NextG SIM Card. (Not Supplied – Contact your Telstra representative)

o Small (2mm) and Medium (3mm) slot screwdriver.

o Medium sized Phillips screwdriver.

o Side cutters.

o Probe Configuration Cable.

o Laptop or computer with an onboard serial port.

   Note, if you are using a USB to 232 adaptor, you may have trouble updating the firmware. You may need to repeat this process several times before you successfully upload the firmware, or depending on what brand of adaptor, you may not be able to upload the firmware at all.

o Laptop or computer capable of running Probe Configuration Utility 1.7.2, Firmware Upload Wizard 2.0.1 and possibly IrriMAX.

   Please download and used the latest version of Probe Configuration Utility 1.7.2 for all steps in this guide.

PREPARATION

Before upgrading a system, you will need to prepare your laptop with the appropriate software and ensure the system uploads data.

Software Installation

You will need to install the software shown below.

All of this software is available on the Sentek website http://www.sentek.com.au

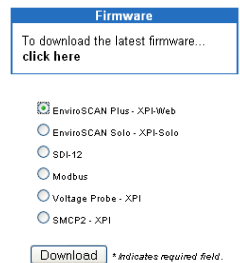### Install Probe Configuration Utility 1.7.2

Download a copy of PConfig_Setup.exe.

Run the installer to install the latest version of Probe Configuration Utility 1.7.2

Download the latest EnviroSCAN Plus firmware

Download the EnviroSCAN Plus firmware package.

The downloaded file FWUploadWiz XPI-Plus 1.2.3.zip contains:

EnviroSCAN Plus Firmware - Important Information.pdf
ETM9800.cfg
ETM9800PIN.cfg
FWUploadWiz XPI-Plus 1.2.3.exe
UploadWiz_ReadMe.txt
WavecomSupreme.cfg
WavecomSupremePIN.cfg

Create a folder (e.g. XPI-Plus 1.2.3) and unzip the downloaded file to this folder.

Running FWUploadWiz XPI-Plus 1.2.3.exe will upgrade the firmware in your probe. See the Updating Interface section, which uses these files.

Install IrriMAX

This step is not required if IrriMAX 7 or later is installed.

IrriMAX is required only if you need to ensure the probe data is uploaded and are unable to manually upload the data due to some failure on the Network or Modem. Installing IrriMAX will let you run Data Exchange and download the data manually

Download a copy of IrriMAX71_Setup.exe.

Run this installer to install IrriMAX, or insert a CD Copy of IrriMAX.
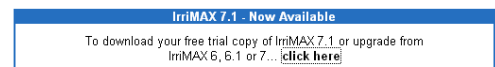
Before upgrading, the existing probe configuration must be backed up and data should be uploaded.

Backup using PConfig

Using the Probe Configuration Cable, connect to the probe using PConfig.

Once connected, Click on the "Backup Configuration" button at the bottom to backup the probe configuration to a file.
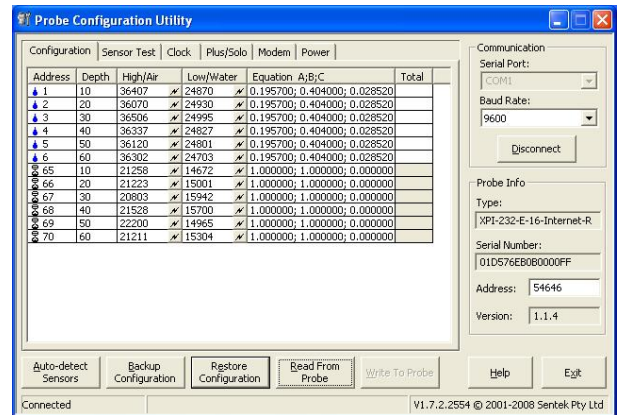
Uploading using PConfig

While connected, select the Modem tab along the top. Click on the "Upload" button to upload existing data in the probe.

If there is a permanent network failure or the modem is having difficulty uploading and the data is important, the next section describes how to manually transfer the data from the probe to the server. You will need to copy the Destination URL from the Plus/Solo Tab.
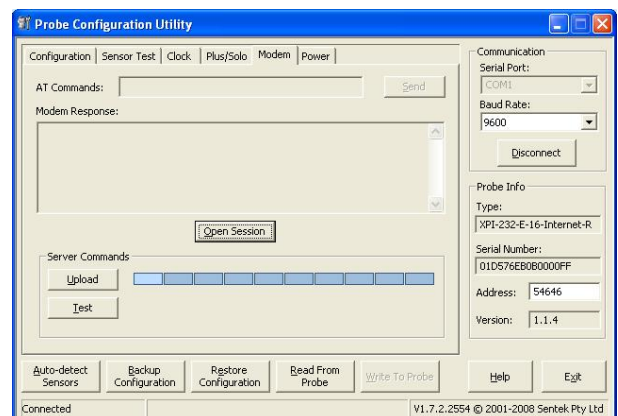
Uploading data using Data Exchange

Download data manually

If you are unable to upload the data, you can download data from the probe using data exchange and upload it to the internet folder manually using windows explorer.

Data will need to be manually downloaded after 28th Jan 2008 as Telstra have advised this is the date that the CDMA network will be switched off. After this date, the probe will only be able to store 2000 samples since the last successful upload. If you are using a 15 minute sample interval, this equates to approximately 20 days. If the upgrade is not completed by this time, data will be lost.

Run Data Exchange and set the Source to EnviroSCAN Plus/Solo (Cable) and the Destination to EnviroSCAN Plus/Solo (Folder).

Choose a folder location (on your computer) to store the downloaded files.

Click on the "Start" button to download data directly from the probe to the folder.
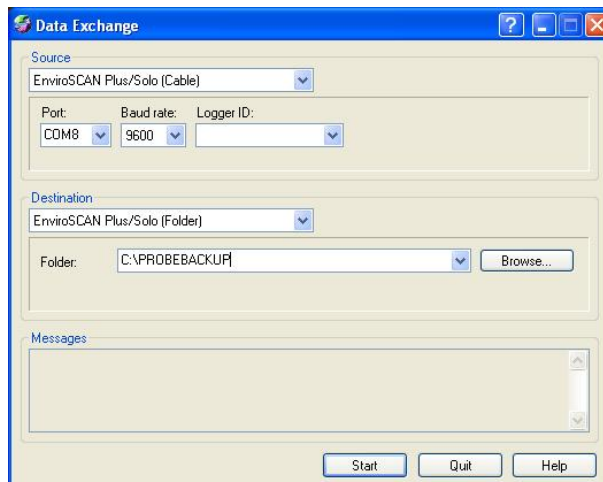

Manually upload data to server

To manually upload data to the server open the Folder you specified in Data Exchange, select all the files in that folder for the probe you have copied and choose Cut from the Edit menu.

Now in the Address field, type in the Destination URL as is specified on your Solo/Plus tab for the probe.

You should end up connected to your server with the window showing all your data files for your probe. You can check to ensure you have the right server by looking at the files in the folder. If there are files from the probe, they will be the files that begin with the Logger ID.

Choose Paste from the Edit menu. This will move the files you selected to the server.
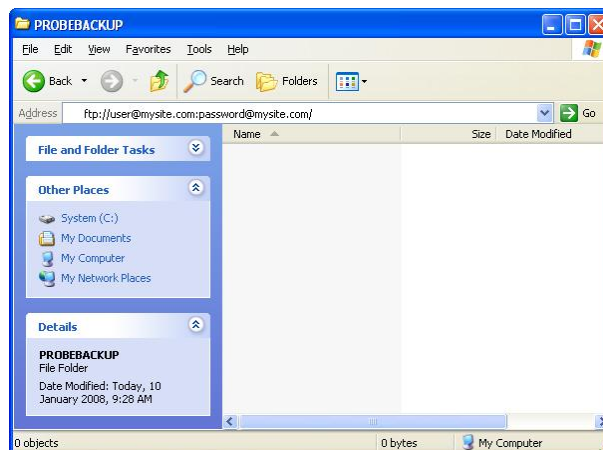
INSTALLING THE NEXTG CDMA UPGRADE KIT

Once the preparation stage has been completed, you are now ready to physically upgrade the CDMA system.

Upgrade Kit Contents

Along with this guide, you would have received the Upgrade Kit which consists of (Shown in photo from left to right):

- ETM Pacific ETM9800 NextG Modem

- Mounting Plate

- Modem Power Cable

- Modem Data Cable

- 2x Small cable ties

- 2.5A M205 Fuse

- 1.0A M205 Fuse

- 2x Large cable ties

- Unactivated NextG SIM Card (This will need to be activated by Telstra)
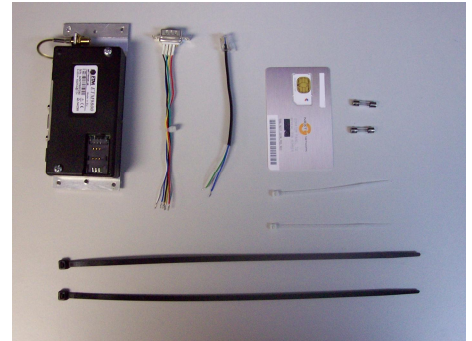
Upgrade Tool Requirements

You will require the following tools to complete this upgrade:

- Small (2mm) and Medium (3mm) slot screwdriver.

- Medium sized Phillips screwdriver.

- Side cutters.

Upgrade Procedure

1. Set the Front Panel switch to the OFF position.

2. Open Plus DTU and using a Phillips screwdriver remove the 4 front panel screws.

3. Lift out the Main board and lay flat as shown in diagram. Note some wiring cable positions may be different to that shown in this diagram.

4. Disconnect the Battery and Solar Panel plugs.

5. Disconnect the Antenna connector from the modem. If there is a right angle connector screwed onto the antenna cable, remove that also. The right angle connector will not be needed for the upgrade.
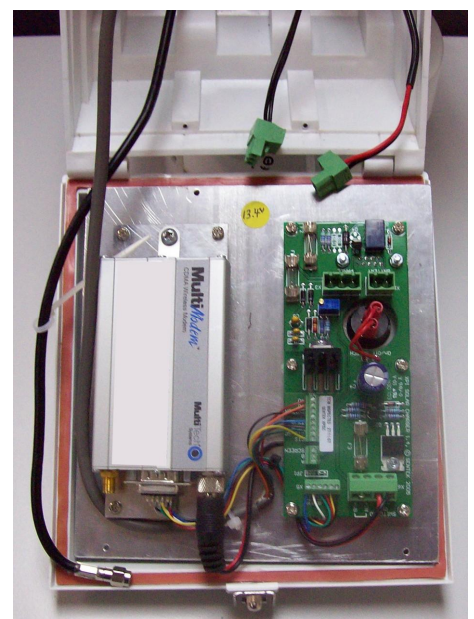
6. Using the slot screwdrivers on the screw terminal blocks X5 and X6, disconnect the Modem Data Cable and Modem Power Cable from the solar charger board. Do not remove the wire link in the large screw terminal.

7. Using a Phillips screwdriver, remove the modem plate by removing the 4 screws at each corner of the modem plate. Note, you will need to remove the drain wire that will be attached to one of the screws.
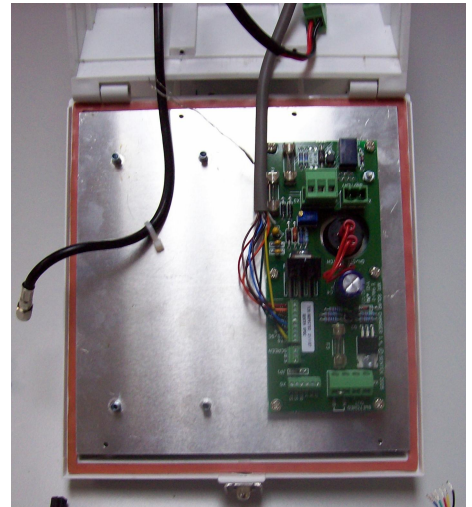
8. Attach the Antenna to the ETM9800 NextG Modem as shown.

Antenna

9. Mount the ETM9800 Modem Plate onto the mainboard using the 4 screws removed from the CDMA Modem plate.

10. Reattach the drain wire from the Probe cable back under the top right (in diagram) screw on the modem plate.
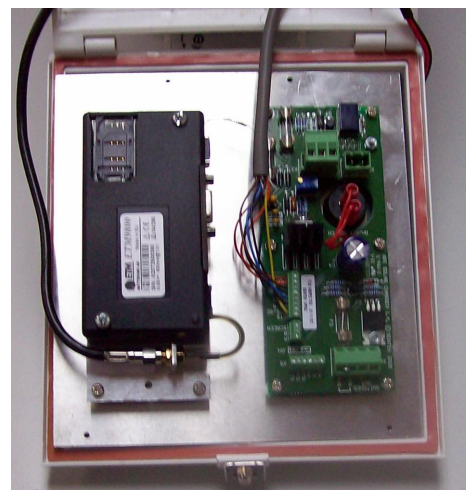

11. Using a small cable tie, tie the Antenna lead to the top left mount under the modem plate.
    Ensure that the Antenna cable is not bent too tightly around the corner of the modem.
    Remove excess cable tie tail.

12. Connect the bare wires on the Modem Power cable to the Switched Out connectors of the large terminal block X6. The White/Green wires go to the terminal marked "+", the Blue wire goes to the terminal marked "-".

Plug the Modem Power cable into the Modem.
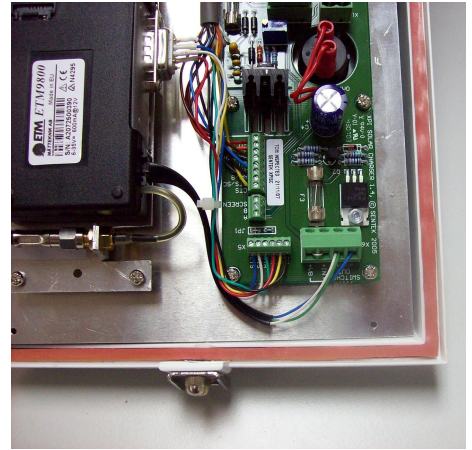
13. Connect the bare wires on the Modem Data Cable to the small screw terminal block X5. The wires are connected as per the table below.

Plug the Modem Data Cable into the Modem.

Screw Terminal Marking	Wire Colour
0V	Black
TX	Yellow
RX	Red
DTR	Green
RTS	White
CTS	Blue

14. Remove the SIM Holder cover by using your thumb. Do not push on the cover past the centre, as this may damage the locking mechanism.

15. Open the SIM Holder by sliding the plastic carrier down, then lift the carrier up. (See photo)

16. Insert SIM Card into holder so that the notched corner of the SIM Card is up and the SIM Contacts would be facing down once the SIM Holder is closed.

17. Close the SIM Holder and lock it into place by sliding it back up. You may need to slide the SIM Holder down to fully close the holder with the SIM Card inserted.

18. Reinstall SIM Holder cover.

19. Reconnect Solar Panel and Battery connectors.

20. Reinstall front panel back into DTU housing. Ensure all cables are positioned to avoid any pinching and screw panel back in place.

    Note you may wish to complete the following stages (Updating Interface and Confirming the Update) before screwing the panel back in place.

21. Installation complete.

UPDATING INTERFACE

To use a NextG modem the firmware and settings on the interface need to be updated. Firmware is updated using the Firmware Upload Wizard and settings are modified using Probe Configuration Utility.

Updating Firmware

This must be done using the firmware upload wizard (FWUploadWiz XPI-Plus 1.2.3.exe) you downloaded and unzipped in the Preparation stage.

1.   Ensure that the DTU switch is in the Off state

2.   Connect your Probe Configuration Cable to the appropriate connector for your Probe. (EnviroSMART connector is located on the Edge of the Interface approximately 6cm from the top, EasyAg connector is located at the top edge of the Interface)

3.   Run the program FWUploadWiz XPI-Plus 1.2.3.exe from the folder where you unzipped the download file.

4.   Accept the licensing agreement and click Next.
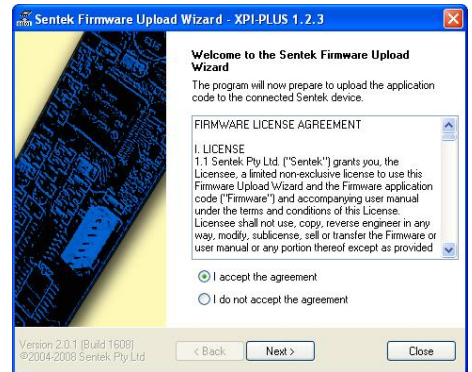
5.   Ensure that the appropriate COM Port is selected and Click the Next button.

If you are having difficulty connecting to the probe, try selecting the "Slow Mode" option. This will take longer to upload firmware, but may be more successful.
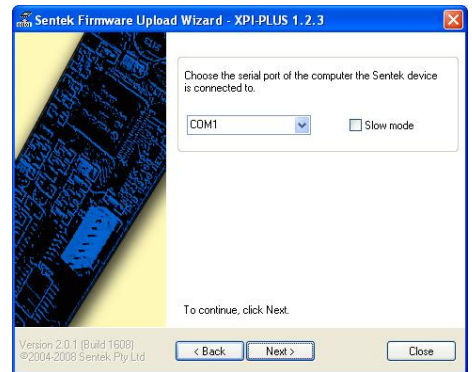
6.   Once prompted, turn on the Probe Interface by switching the DTU switch On.
Note: If the next screen, Bootloader Activated, does not appear you should try switching Off and switching On again.
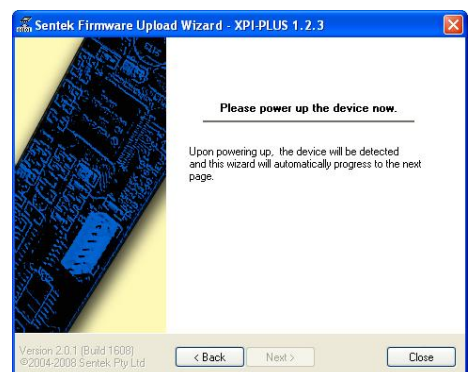
7. Once successfully connected to the Probe Interface, the following screen will appear briefly before advancing onto the firmware verify page.
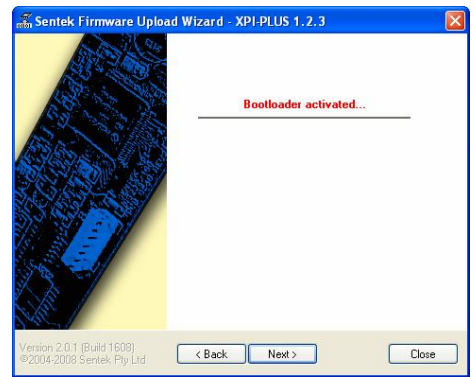
8. Confirm that everything looks ok on the firmware verify page and click Next. There should be no red warning messages at the bottom of the page.
Note if the current firmware version reported on this page is the same as the one you are attempting to upload then you have already updated the firmware and should not need to do so again.

If there are any warnings or information missing on this page, it is possible that the Firmware Upload Wizard was unable to fully identify the Probe Interface.
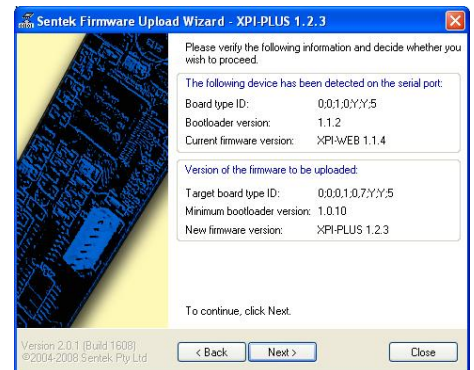

You can repeat this process by switching the DTU switch Off, clicking the Back button, clicking the Next button and switching the DTU back on.

Note: If you are using a USB to 232 adaptor, you may have trouble updating the firmware. You may need to repeat this process several times before you can succeed. This applies to the actual upload process in the next step.

9. The firmware update will take approximately 1 ½ minutes to complete. Once completed, the message "Firmware transfer and initialisation completed" will appear.

If there is any failure to upload the firmware, you can repeat the process by switching the DTU switch Off, clicking the Back button, clicking the Next button and switching the DTU back on.
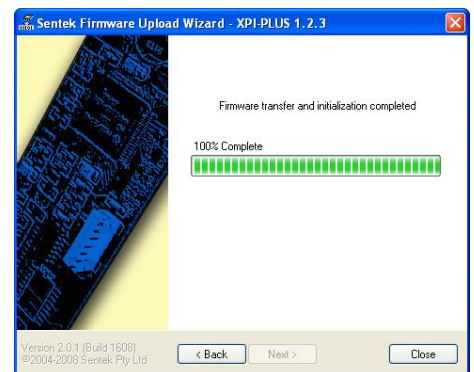
Restoring Settings

Updating the firmware erases all probe configuration and logged data. This should have been backed up in the Preparation stage.

To restore old settings and appropriately configure your Probe you will need to:

10. Immediately following the firmware update, run Probe Configuration Utility.

11. Connect to the probe.

12. You will need to Auto-detect Sensors by clicking on the button in the bottom left hand corner of PConfig.
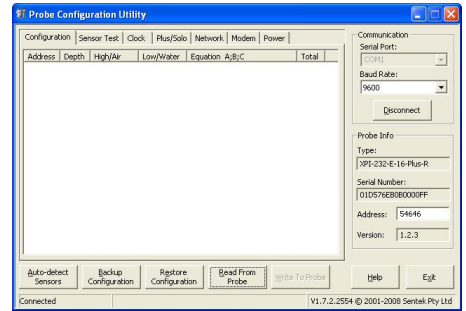
13. Restore your Probe Configuration backup by clicking on "Restore Configuration" and selecting the backup file you created in the Preparation stage.
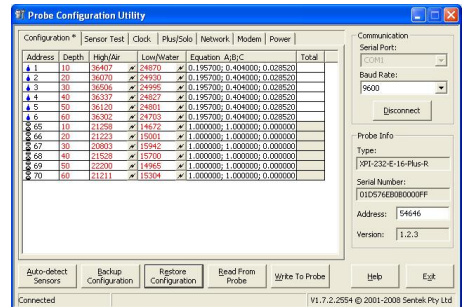

If you get a warning that the number of sensors in the configuration file is different from the number in the probe, you may have selected the wrong backup file. Check the detected sensors for any expected missing sensors.
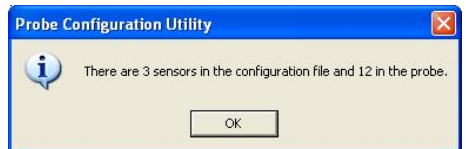
14. Confirm your Sample Interval by checking the Clock Tab. You may wish to resynchronise your clock if needed.

15. Confirm your Plus settings in the Plus/Solo Tab.

16. Ensure that the Modem Parity is set to "None".

   All CDMA systems should have previously been configured as Odd Parity, this should be changed for NextG Modems.
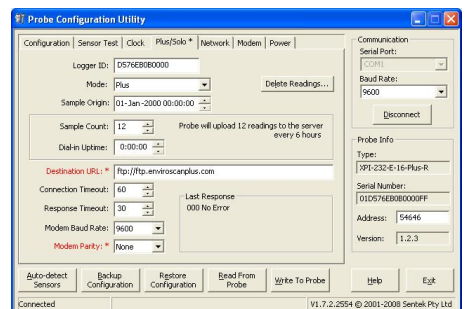
17. Click on Write To Probe to write all these settings to the probe.

Setting up NextG Settings

NextG SIM Card

You need to have a NextG SIM Card to access the NextG network. An unactivated SIM card is supplied in the Upgrade Kit. You will need to contact a Telstra representative you activate this card.

Note, it is not currently possible to disable the PIN feature using a Plus NextG modem. To disable the PIN feature, you will need to put the SIM Card into a normal mobile phone and disable it. Any NextG or GSM Mobile phone should be able to do this.

Alternatively, it is possible to configure the probe to supply the PIN number at each upload. Configuration with a PIN number is described further on in this document.

NextG Probe Interface Configuration

By default, the firmware is configured for use with a Wavecom GSM/GPRS modem with the PIN disabled on the SIM Card.

While connected with PConfig, you will need to use the downloaded ETM9800.cfg or ETM9800PIN.cfg file appropriate for your setup and restore it into the probe. This configuration file will not overwrite any settings other than those in the Network tab.
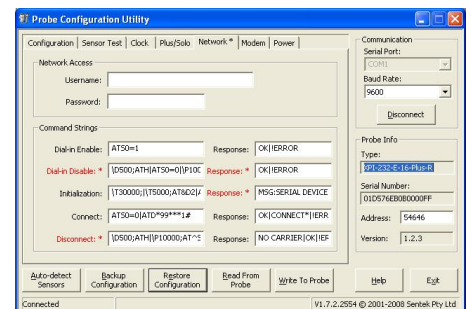
NextG SIM Card with PIN disabled.

Click on Restore Configuration and choose the file ETM9800.cfg. This file was supplied in the firmware update package you should have downloaded and unzipped at the Preparation stage.

Restoring the configuration file will bring up a notice that there are 0 sensors in this configuration file. You can ignore this message.

You can confirm the settings by looking at the Network tab. You should see modified strings highlighted in Red. If not, you may have selected the wrong file for restoring.

Click Write to probe.


NextG SIM Card with PIN enabled.

Click on Restore Configuration and choose the file ETM9800PIN.cfg. This file was supplied in the firmware update package you should have copied at the preparation stage.

Restoring the configuration file will bring up a notice that there are 0 sensors in this configuration file. You can ignore this message.

The default Initialization string will not be complete.

You will need to edit the string and replace the "XXXX" in the AT+CPIN=XXXX command to the PIN number of your SIM Card.
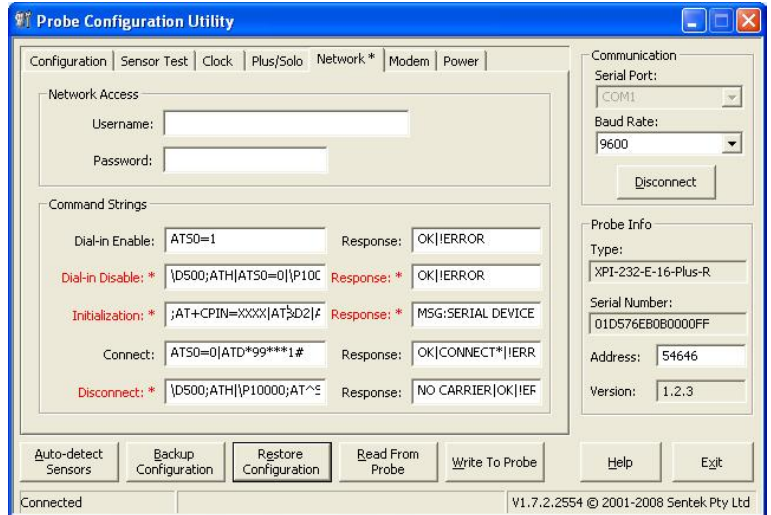
Click Write to probe.

CONFIRM UPGRADE

You can confirm the upgrade is complete by requesting a Test Upload.

Click on the Test button in the Modem Tab.

When complete, the server response should show "040 Success"