

Delta Series, DPA Series

How to use the "PIC" programmer to update the front panel firmware.

Introduction

The front panel of the Delta DSP and DPA amplifiers both utilise a "PIC" microprocessor to control the LED driver and LCD and also to read and interpret all buttons and encoder actions. An update to the firmware has been required to fix an issue during start-up during initial communication with the main host processor which could cause the "PIC" to become unresponsive and so prevent the front panel from booting up correctly in sync with the main amplifier.

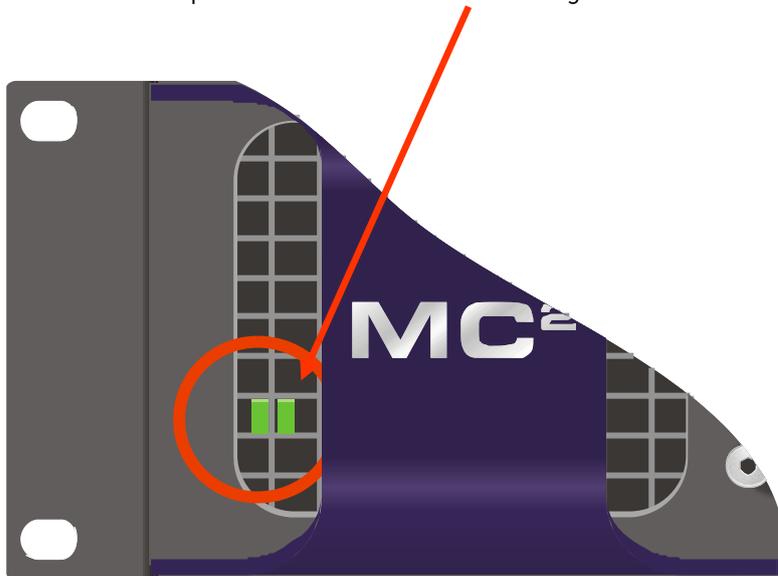
This would manifest itself as an illuminated LCD backlight but no characters on-screen or garbage on screen and the buttons not working. It is also possible that the PIC will partially boot and so display an XTA/MC2 message on screen which details the "PIC" firmware. In any case, the buttons will not function, and metering will not run.

The procedure to update the front panel is quick and simple, but does require access to the internal circuitry of the unit, as well as a programming tool.

Do not undertake this procedure unless qualified to do so.

Disconnect your amplifier completely from the incoming mains supply.

Ensure that the HT present LEDs visible here through the front left vent with the foam removed...



...are fully extinguished before continuing. This will take **at least five minutes** so please be patient for your own safety.

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The "PIC" programmer

The supplied programmer will also have a 6 pin header to facilitate temporary connection to the front panel circuit board. The programmer requires power from a 5V source – this is normally a PC when the device is itself programmed, but in the circumstances of stand-alone use as in this case, power can be supplied from a USB power-bank.



If not already inserted, plug in the 6 pin header as shown here. Also, note the marker to show pin 1 of the interface – this is required to align with the correct polarity of the programming interface on the front panel circuit board.

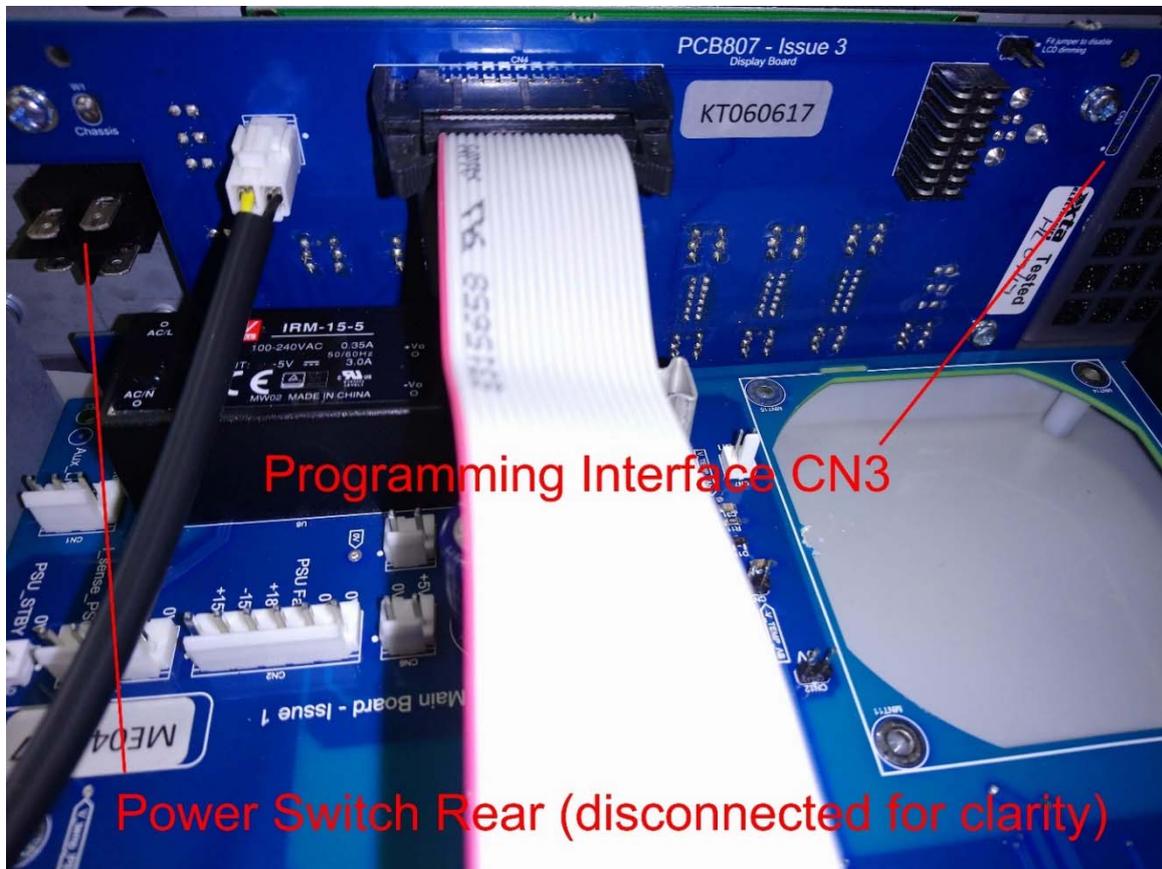
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Locating the programming header (interface) on the front panel

It is now safe to remove the top cover of your amplifier – there are four screws (Torx on Delta amps) along each side and eight on the top of the cover. Be careful not to drop any screws inside!



The header (programming interface) is a column of 6 blank holes on the rear of the front panel circuit board, labelled CN3. This is located on the extreme right of the amplifier (with the front panel facing away from you). **Photos shown are of Delta amplifier circuit boards – DPA amplifiers and OEM derivatives are broadly the same except for the orientation of CN3 – it is located horizontally on these amplifiers.**



The lowest hole (one nearest the bottom, by the tested sticker) is marked with a dot – this is pin 1.

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Powering up and connecting the programmer

It is easier to power up the programmer before inserting it into the header CN3. Once power is applied, the green "POWER" LED on the programmer will illuminate, and the blue "ACTIVE" will begin to flash slowly. This is now ready to program.



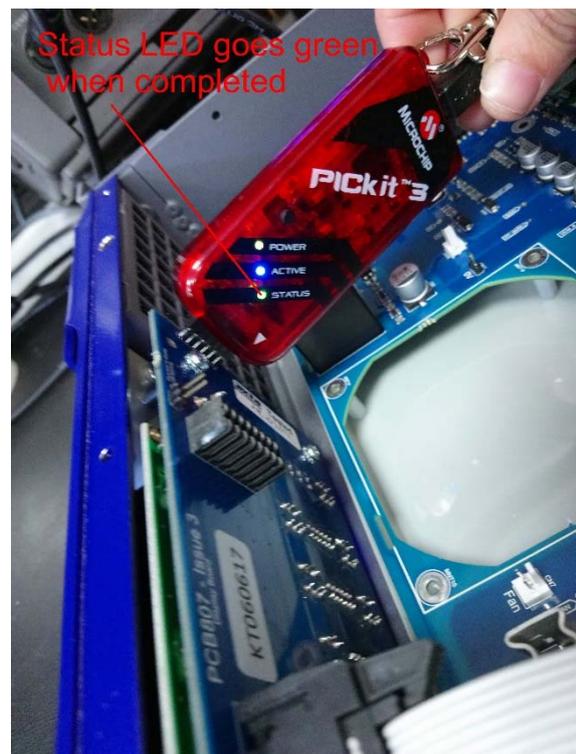
Insert the programmer into the header as shown, so that pin 1 on the programmer is connected to the lowest hole. **It is NOT necessary to remove the fan as in the photographs – this has been removed for clarity.**

As this is designed as a temporary connection, it will be necessary to tilt the device away from the board slightly to ensure the pins make contact.

Re-programming the "PIC"

The amplifier must have the power ON for programming to start. Power up the amplifier now!

Holding the programmer carefully in position, press the button on the front of the programmer as shown. The "STATUS" LED will illuminate red. After a few seconds, this will change to green to show the procedure is complete, and the programmer can be removed.



The top cover can now be refitted – the internal update is complete.

Firmware Update

The main firmware in the amplifier will also have to be updated if it is before version 1.27. The amplifier will function with older firmware, but the LCD operation will be compromised. If the display shows something similar to that shown below during the wake-up phase, a firmware update will be required.



Loading new firmware or presets uses the same "Flash Loader" utility that is bundled with the firmware or presets "bin" (binary) file. Firmware (or Program) files have the prefix "LTAM", and preset files have the prefix "LTAR".

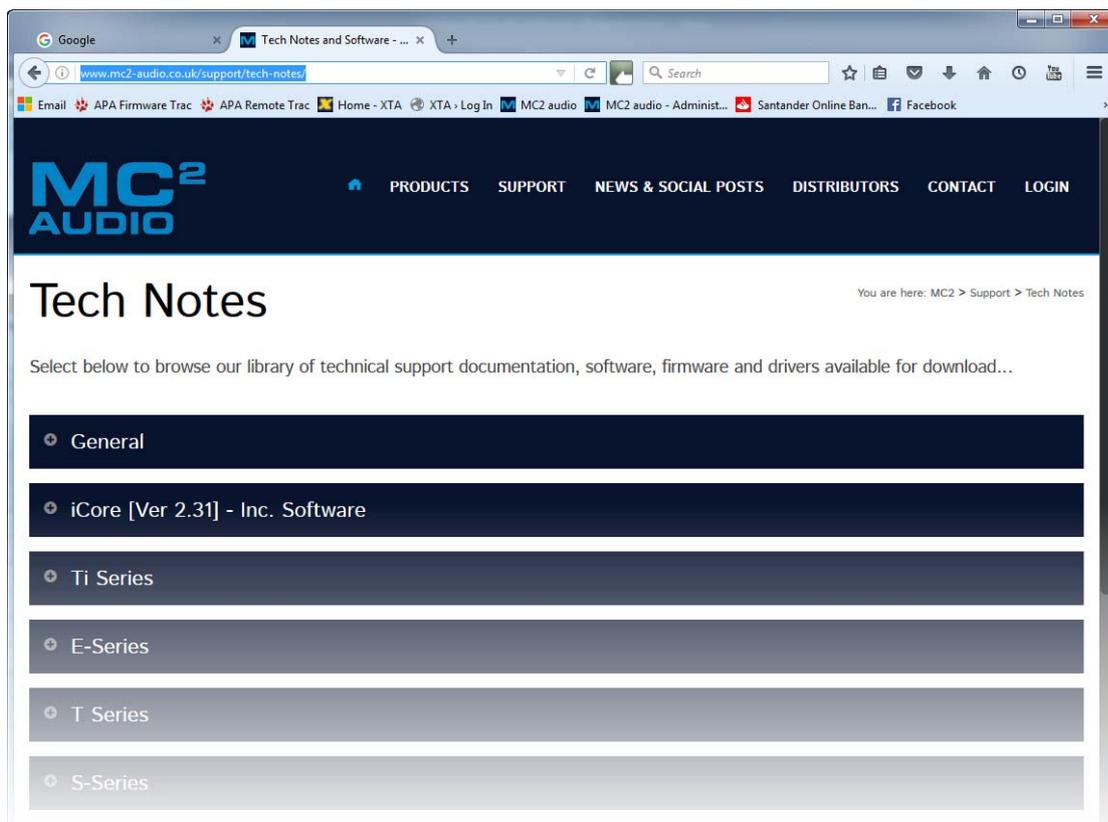
Amplifier Communications Set-up

Updates can be performed through an Ethernet, US or RS485 connection. Choose the correct port on the amplifier and configure it accordingly through the Interface Sub-menu.

Download the Files

Go to the Support > TechNotes section of the MC2 website to find the latest firmware or presets – these will be bundled with the "Flash Loader" application that is used to connect and update your amplifier.

<http://www.mc2-audio.co.uk/support/tech-notes/>

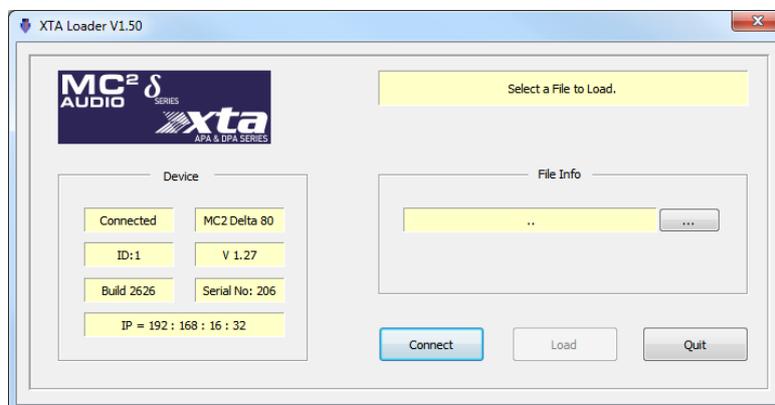


Unzip the files – you will have the loader application, and the firmware (or preset file) as appropriate. **If you are updating an OEM version of the amplifier, the firmware files will NOT be on the website – please contact us for the required firmware.**

Connect To The Amplifier

Plug in the appropriate cable according to your chosen connection method. Remember – if you are connecting via an USB or RS485, you will need to make sure your amplifier is set to ID1 for the loader to find it.

Start the loader application:



Press the "Connect" button to scan all USB and Ethernet connections.

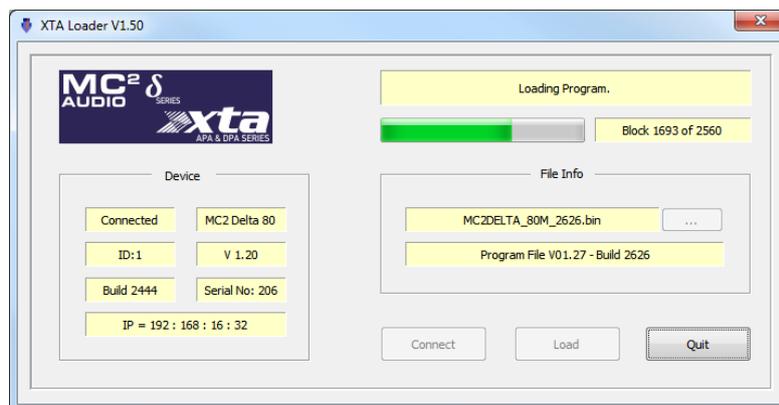
We recommend you choose either a USB or wired Ethernet connection, as opposed to RS485 or wireless Ethernet.

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After a few seconds, the unit should be located and its status and type should be displayed, along with the current firmware and some other information.

Choose What To Load

Locate the firmware file by pressing the "..." button and then from the drop-down list choose "program" (firmware).

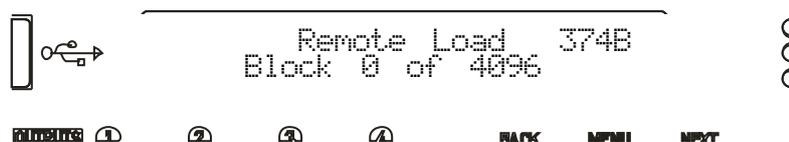


The file type will have been filtered for you – LTAM*.bin for firmware (program) files or LTAR*.bin for preset files.

Start The Update!

Just before you press the "Load" button – please close any other applications running on the PC – interruptions in the process could render your amplifier inoperable. Do not disconnect the cable, turn off the power or attempt to close the loader app once loading has begun!

Now that you have been warned (!) – press the "Load" button. Confirm the load, and the amplifier will switch to Standby and begin to load the new firmware. A message detailing progress will accompany the bar on the loader app:



Upon completion, the app will close and your amplifier will restart – that's it!