FIRESTORM AP1 AUDIO PLAYER

USER GUIDE

FIRESTORM AP1 AUDIO PLAYER USER GUIDE

Introduction

The FireStorm AP1 Audio Player is an Audio Player for the FireStorm Firing System. The Audio Player allows you to easily play a music track in perfect synchronisation with your scripted firework show. This guide assumes some familiarity with the FireStorm Firing System. Please see our other documentation or contact us for support if you are unsure.

The Audio Player must be used with the TX2 Control Desk transmitter and only when firing a SCRIPTED show. A scripted show is where you provide a script file and the TX2 Control Desk automatically fires the firework show.

The Audio Player provides professional balanced Left and Right XLR Audio outputs to connect to a wide variety of PA systems, amplified speakers, mixing desks and other professional sound equipment. The Audio Player also provides an unbalanced ¼" headphone output for professional headphones. This can also be used to connect to equipment without a balanced input connection.

Audio Connections

- 1 x ¼" **unbalanced** headphone jack for audio monitoring.
- 1 x USB for flash memory stick for audio files. Do not use this port for charging phones.
- Left and Right **balanced** XLR audio outputs for connecting to PA system / mixing desk / amplifier. Note that balanced audio outputs offer better performance over longer cable runs and are used in a professional environment. For example it is acceptable to use long XLR cables to site the Audio Player far away from the mixing desk or PA system to achieve good radio performance.

Power

- 4 x AA alkaline batteries (approximately 2 hour battery life). Normal battery voltage when on battery power should be between 5 and 6.5 volts. The battery flash is calibrated to show approximate voltage levels for this range.
- External power 9 - 12V DC jack. We recommend using an external power supply when mains power is available. An external 12V lead acid battery can also be used.
- Note that the voltage is displayed on start up. Pay attention and ensure it is in the correct range.

Acceptable Fire Format

The AP1 Audio Player accepts 8 x **.mp3** files with **CBR encoding**. This means Constant Bit Rate. If VBR (Variable Bit Rate) files are used, operation will not be as expected! The audio tracks may skip.

You can check if your files are CBR or VBR by following the instructions in the next section.

Files **must be named**

- t01.mp3
- t02.mp3
- t03.mp3
- t04.mp3
- t05.mp3
- t06.mp3
- t07.mp3
- t08.mp3

The files must be stored in the **root directory** (no subfolders) of the USB memory stick.

FIRESTORM AP1 AUDIO PLAYER USER GUIDE
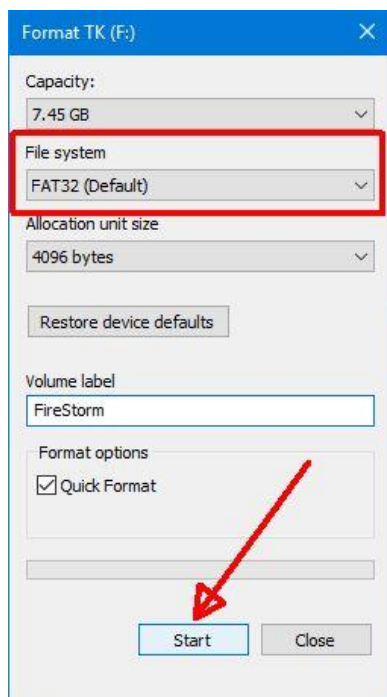
USB File System

The USB memory stick must have a **fat32 file system**. A USB memory stick for use with Windows will normally have a fat32 or NTFS file system.

You can check and format the USB memory stick to a fat32 file system by following the steps below.

1. In Windows Explorer, right click on the USB drive.
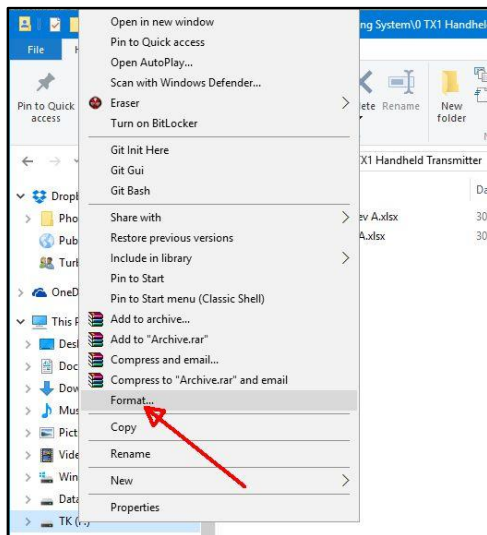
2. Click **Format**.

3. Make sure the File System is selected as FAT32 or NTFS.

4. Give the drive a suitable name if desired e.g. FireStorm.

5. Click **Start**.

Note: The contents of the memory stick will be erased. Ensure contents of drive are backed up.

FIRESTORM AP1 AUDIO PLAYER USER GUIDE

Check or change audio track name

The track name displayed on the Audio Player screen will be the "Title" field of the description metadata. This can be checked or changed by Selecting the file > Right Click > Properties > Details tab under Windows operating system. The title can then be changed as appropriate.
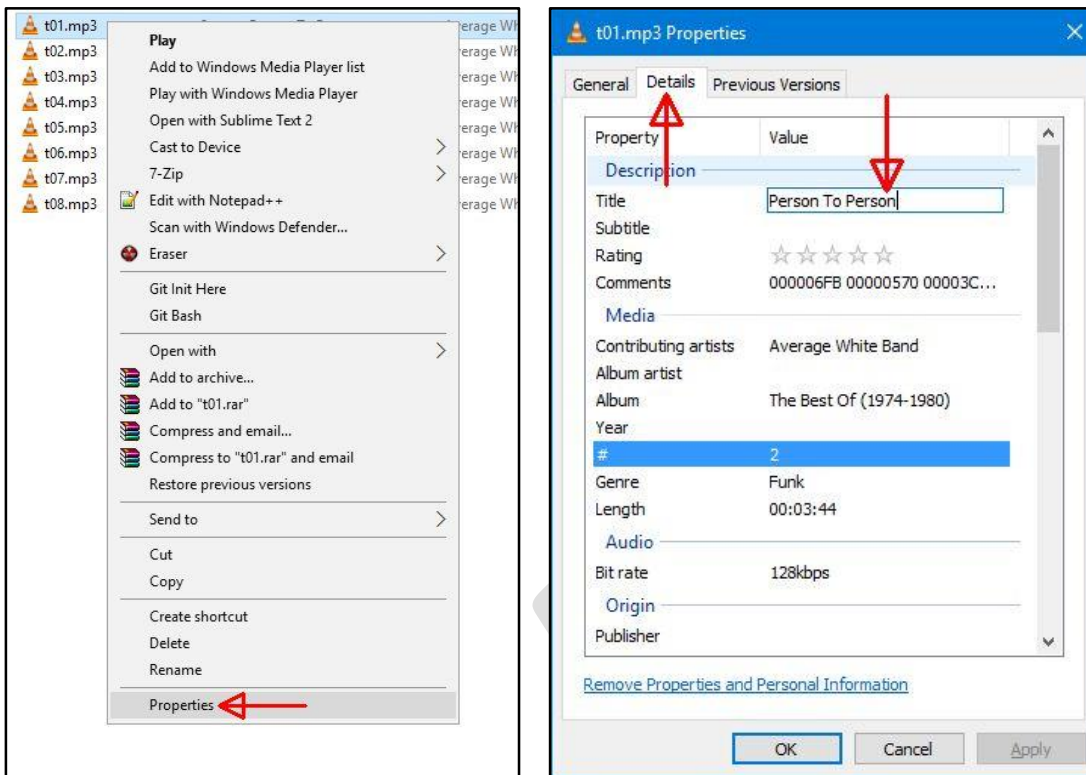
FIRESTORM AP1 AUDIO PLAYER USER GUIDE

Convert VBR to CBR audio files

CBR = Constant Bit Rate
VBR = Variable Bit Rate

The Audio Player will only operate correctly with CBR .mp3 audio files.

The easiest way to check if the file is CBR is simply to load it into the Audio Player. If the counters are scrambled when jogging through the track then the file is VBR and must be converted. If the counters are OK, you have a perfectly formatted file ☺

It is best to start with CBR files and avoid this conversion process. However, sometimes only a VBR file will be available.

To check or convert a VBR file to CBR:

1. Download WinMP3Packer from http://jaybeee.themixingbowl.org/winmp3packer/WinMP3Packer-1.0.18-alpha-2.04.7z
2. Extract the folder.
3. Launch the program by double-clicking the file called 'WinMP3Packer.exe'.
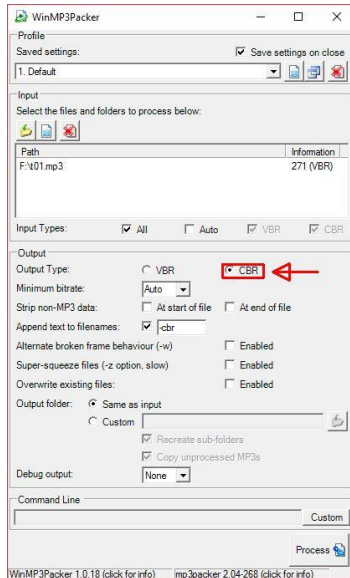4. Click on this button and import your file(-s).
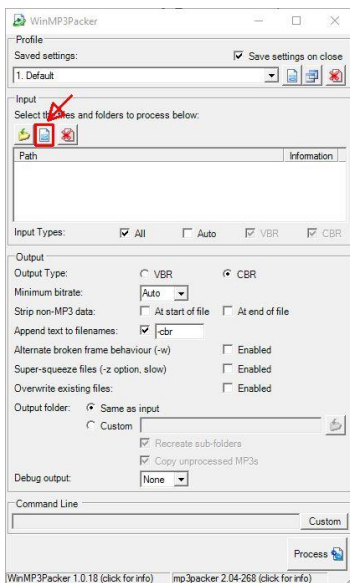
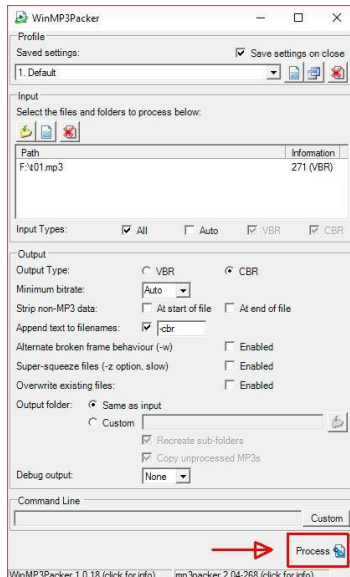5. Make sure the input type is set to 'All'.
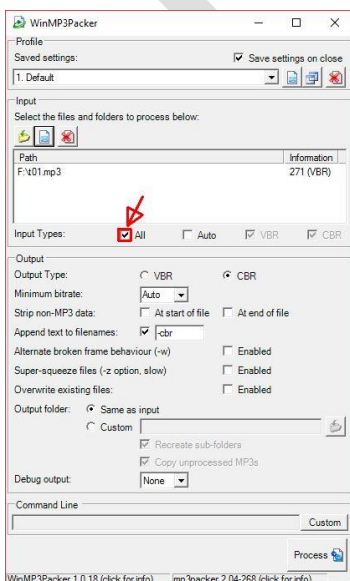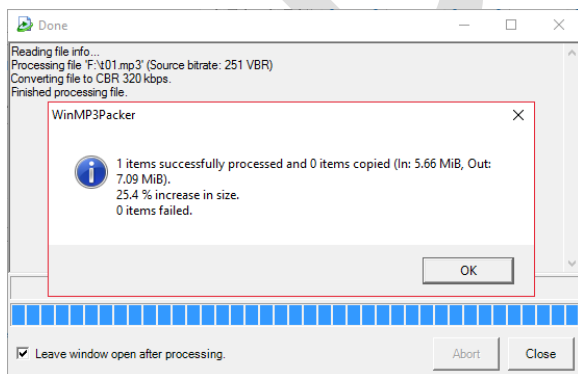
6.   Select 'CBR' as the output type.

7.   Click on 'Process' to start the conversion.

8.   A window similar to this will appear notifying you that files have been successfully converted.

9.   You should see the new file in the directory with the old file and with the '-cbr' added to the filename.

| ♪ t01.mp3 | 01-Feb-17 2:39 PM | MP3 Format Sound | 5,793 KB |
| ♪ t01-cbr.mp3 | 01-Feb-17 3:25 PM | MP3 Format Sound | 7,263 KB |

Remember to **remove the "-cbr" extension** before loading the file into the Audio Player. You may wish to rename and keep the original VBR file as a backup in case the conversion needs to be done again.

FIRESTORM AP1 AUDIO PLAYER USER GUIDE

Controls

		JOG << JOG >>	Move selected track forward and backward to ensure audio plays smoothly and at correct volume. Hold buttons, do not press them rapidly. This is just for setup and will not affect where the audio starts to play from.
		OK	OK to make selections.
		PLAY STOP	Play or Stop the selected audio track when setting up.
		VOLUME UP VOLUME DOWN	Adjust the volume by holding the volume buttons. Do not press them rapidly.
		BOND	Bond the Audio Player to a channel on the TX2 control desk transmitter.
		REMOTE MODE	Place the Audio Player in REMOTE mode. The unit is now under the control of the TX2. All manual controls are now locked out.

Indicators

	BATTERY LEVEL INDICATOR 3 flash = full. 2 flash = medium. 1 flash = change batteries.	Will always be 3 flashes when on external power supply. The voltage is also shown on the screen during start up.
	ARM INDICATOR	Will be RED when TX2 is Armed and in range.
	PLAY / STOP	GREEN = Track is playing. RED = Track is stopped.
	REMOTE INDICATOR	RED = Audio Player is in remote mode. It can only be controlled from the TX2 Control Desk. OFF = Audio Player is in local mode. It can be controlled from the front panel buttons. It will not be controlled from the TX2 Control Desk.

FIRESTORM AP1 AUDIO PLAYER USER GUIDE

Audio Connection

We recommend the use of active speakers with balanced XLR audio inputs. Normally these type of speakers have an input and an output for balanced audio. This means they can be daisy-chained together. For true stereo audio we recommend using both the Right and Left audio outputs of the Audio Player.

Alternatively one channel can be used and the speakers can be connected in one line. In this case the audio file should be converted to mono using audio software such as Audacity.
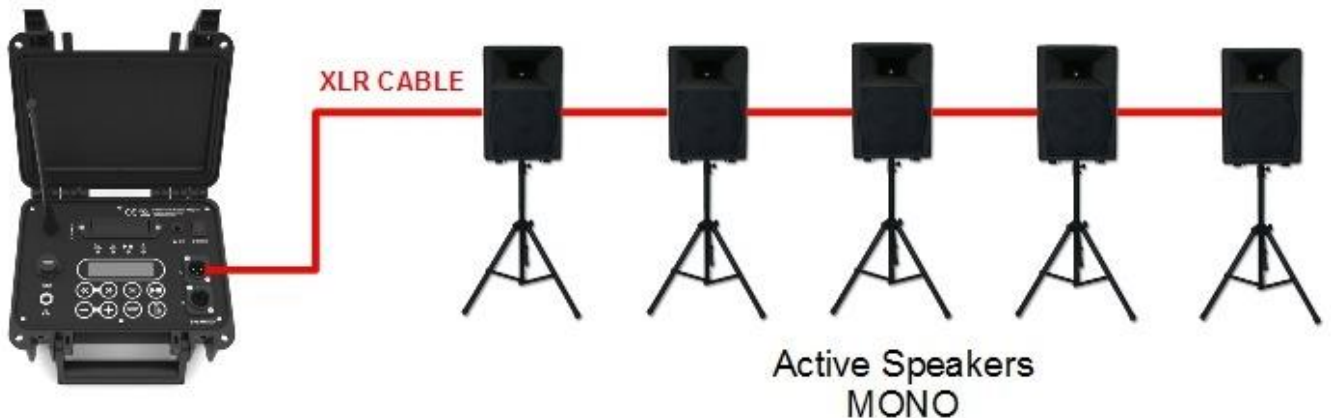
FIRESTORM AP1 AUDIO PLAYER USER GUIDE

Bond Audio Player to TX2 Control Desk

The Audio Player needs to be bonded to the TX2 Control Desk. This is done in exactly the same was as any other firing module is bonded to the system.

On AP1 Audio Player

1. Switch unit ON. Ensure unit is not in Remote Mode. The Remote Indicator should be off.
2. Wait for unit to start. It will show the home screen (track listing). This takes about 5 seconds.
3. Press and HOLD the Bond Button for 3 seconds until the Arm Indicator illuminates yellow.
4. Release Bond Button.

On TX2 Control Desk

1. Switch unit ON. Ensure the TX2 is not ARMED. The Arm Indicator should be off.
2. Wait for unit to start. It will show the home screen.
3. Set the desired channel the Audio Player should respond to using the Channel UP / DN buttons.
4. Press and release the Fire Button.

On AP1 Audio Player

The Bond Indicator on the Audio Player will go out. The display will show the Channel the Audio Player is bonded to.

Example:

```
Channel: 01
```

The Channel is then always displayed on the home screen.

Example:

```
1/8 Unavailable
Channel: 01
```

Clear Audio Player from TX2 Control Desk
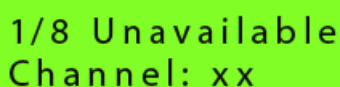
You can clear all bonding information from the Audio Player in the same was as you would a normal firing module.

On AP1 Audio Player

1. Press and HOLD Bond Button for 3 seconds until Bond Indicator has lit yellow. CONTINUE to HOLD Bond Button for 10 seconds until the Bond indicator goes out.

All bond information (which TX2 Control Desk the Audio Player will respond to) has now been cleared from the Audio Player.

Example:

```
1/8 Unavailable
Channel: xx
```

FIRESTORM AP1 AUDIO PLAYER USER GUIDE

General operation

The Audio Player will behave as an **8 Cue Firing Module**.

The Audio Player can play up to 8 individual audio tracks.

When you bond the Audio Player to a channel, the first 8 cues of that channel correspond to the 8 possible audio tracks.

When the Channel and Cue combination of an Audio File is fired in a Script, the Audio File will play.

Example:

Assume Audio Player is bonded to **Channel 1**.

Fire Channel 1, Cue 1 will cause audio file t01.mp3 to play on the Audio Player.

Fire Channel 1, Cue 7 will case audio file t07.mp3 to play on the Audio Player.

When a new Audio File is played, the previous Audio File will immediately stop.

Cue Continuity

The Audio Player will show **Good Continuity (green light)** on the TX2 Control Desk for each audio track that is present and **Bad Continuity (Red light)** on the TX2 Control Desk for each track that is not present.

In the following example we assume the Audio Player is bonded to **Channel 1**.

Audio file on USB Memory Stick	Channel & Cue on TX2 Control Desk	Continuity	Comment
t01.mp3	Channel 1, Cue 1	Good (Green light)	Audio track present
t02.mp3	Channel 1, Cue 2	Good (Green light)	Audio track present
t03.mp3	Channel 1, Cue 3	Good (Green light)	Audio track present
…	Channel 1, Cue 4	Bad (Red light)	No audio track present
…	Channel 1, Cue 5	Bad (Red light)	No audio track present
…	Channel 1, Cue 6	Bad (Red light)	No audio track present
…	Channel 1, Cue 7	Bad (Red light)	No audio track present
t08.mp3	Channel 1, Cue 8	Good (Green light)	Audio track present

Radio Range Indicator

The Radio Link Light on the TX2 Control Desk shows if the Audio Module is in range.

The operation is the same as the other Firing Modules.

Colour	Description
OFF	Nothing bonded to this channel and cue combination.
GREEN	Good link to **ALL** modules bonded to this channel and cue combination.
YELLOW	Good link to **SOME** modules when multiple modules are bonded to this cue and channel combination.
RED	Bad link to **ALL** modules bonded to this channel and cue combination.

We recommend only one single Audio Module per channel. It is possible to also bond Firing modules to the same channel, but it will make error checking confusing if Cues are shared between Audio Tracks and Fireworks.

FIRESTORM AP1 AUDIO PLAYER USER GUIDE

Remote / Local Mode

Pressing the Remote Button will toggle the Audio Player between LOCAL and REMOTE modes.

Remote Indicator is …	Mode	Description
ON (RED)	Remote Control Mode is ON	Unit is under remote control from the TX2 Control Desk. All local controls are locked out. The Audio Player can only be sent a script from the TX2 when Remote Control Mode is ON. This is to ensure the Audio Player is in Remote Control Mode and ensure everything has been set up correctly by the time you are ready to send it a Show Script.
OFF	Local Control Mode is ON	Unit is under local control. Buttons can be used. Unit will not respond to commands from TX2 Control Desk. Unit will not accept a Show Script.

Audio Synchronisation

The Audio Player will keep the audio perfectly synchronised with your Show Script.

This allows you to stop, play and skip through your Show Script and the Audio will stay synchronised. The Audio Player makes it incredibly easy and reliable to fire a Pyro Musical Firework Show.

- When a cue corresponding to an Audio Track is fired in the Show Script, the audio track will play.
- When the next Audio track (if any) is played, the previous audio track will stop.
- When the Script is Paused or Stopped from the TX2 Control Desk, the Audio will pause.
- When the Script Segment is skipped from the TX2 Control Desk, the Audio will move to the correct point in time.
- When the Script is advanced to the next Cue (by pressing the play button again on the TX2 Control Desk), the Audio will move to the correct point in time.
- When the TX2 Control Desk is DISARMED, the Audio will stop.

FIRESTORM AP1 AUDIO PLAYER USER GUIDE

Show Script Example

The Audio Track will start to play when the corresponding cue is fired in a Show Script. A simple example is shown below.

Example:

1 x RX18 firing Module bonded to Channel 1.
1 x AP1 Audio Player bonded to Channel 2, with 2 audio tracks loaded, called "t01.mp3" and "t02.mp3".

Example Script
#START OF SHOW
#1 x RX18 FIRING MODULE BONDED TO CHANNEL 1
#1 x AUDIO PLAYER BONDED TO CHANNEL 2
Segment,1
Time, Channel, Cue, Description
00:00.0, 2, 1, Audio track 1 starts (t01.mp3)
00:00.0, 1, 1, firework 1
00:02.0, 1, 2, firework 2
00:15.0, 1, 3, firework 3
02:30.0, 1, 4, firework 4
#START THE NEXT AUDIO TRACK
03:00.0, 2, 2, Audio track 2 starts (t02.mp3)
03:10.0, 1, 5, firework 5
03:45.5, 1, 6, firework 6
#FINALE
04:00.0, 1, 7, firework 7 FINALE
04:00.0, 1, 8, firework 8 FINALE
04:00.0, 1, 9, firework 9 FINALE
04:00.0, 1, 10, firework 10 FINALE
#DUMMY CUE TO KEEP AUDIO PLAYING
05:00.0, 1, 18, Dummy cue nothing connected
#END OF SHOW

Note that the Audio will stop playing when the Show Script ends. This is at the time the final cues fires in the Show Script. If you want the audio to keep playing after the final cue has fired, you must put a DUMMY CUE into your Show Script AFTER the last firework cue.

In the above example the last fireworks fire at **time=04m00.0s**. However we insert one more cue into the script at **time=05m00.0s** to keep the audio playing for a further one minute after the last firework is fired.

FIRESTORM AP1 AUDIO PLAYER USER GUIDE

How to use the Audio Player

Procedure on Audio Player

1. Switch unit ON.
2. Check battery level or connect external power supply (recommended).
3. Connect Right and Left balanced XLR audio outputs to amplifier / mixing desk / active speakers etc.
4. Insert USB memory stick. A list of track name will instantly appear.
5. Use the JOG>> and JOG<< buttons and the VOL+ VOL- buttons to check audio plays correctly and to set volume levels.
6. Bond Audio Player to desired Channel by following the **Bond Audio Player** instructions (same procedure as any other Firing Module). The Audio Player will store the bonded channel for future use.
7. **PLACE AUDIO PLAYER IN REMOTE CONTROL MODE BY PRESSING THE "REMOTE" BUTTON. THE REMOTE INDICATOR WILL ILLUMINATE RED.**

You are now ready to leave the Audio Player and take control at the TX2 Control Desk!

Procedure on TX2 Control Desk

1. Switch unit ON.
2. Wait for discovery of all expected modules. Press OK to proceed if the expected number is displayed.
3. Select Channel the Audio Player is bonded to.
4. Check for green signal light to show Audio Module is in range (same as any other Firing Module).
   It is normal for the signal light to change between green and red at the extremes of radio range. However if the Audio Player is discovered at TX2 Switch On and the Show Script is sent OK, then you can be assured that it will work. This is the same as for any Firing Module
5. Step through Cues 1 - 8 to check for a green continuity light corresponding to each audio file you have loaded onto the Audio Player.
6. Insert the USB memory stick with the Show Script.
7. Follow the normal procedure for sending a Show Script to a module (see TX2 Script Instructions).

Firmware Upgrade

To upgrade the firmware on the Audio Player:

1. Put the upgrade file on a USB memory stick. The file must be called "**audio.bin**".
2. Insert the USB memory stick.
3. Hold both JOG>> and JOG<< buttons at the same time and switch the unit on.
4. The display will show "**Upgrade Done**" when complete.
5. Restart the Audio Player. The new firmware version will be shown in the display.

The upgrade is now complete.

Troubleshooting

Script file will not send to the Audio Player	Ensure Audio Player is set to REMOTE MODE by pressing the Remote Button.
Audio timer skips / jumps when jogging through track	Audio file is VBR (Variable Bit Rate). Audio file must be CBR (Constant Bit Rate). See conversion instructions.
Audio tracks will not show on Audio Player	Audio tracks **MUST** be named "t01.mp3", "t02.mp3", "t03.mp3" … "t08.mp3". Audio tracks **MUST** be in the root directory.
USB memory stick will not read	USB memory stick must be formatted with fat32 file system. See instructions to check / change file system.