

DMXStreamer

DMX512 Real Time Recorder

User Manual



ENTTEC

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Package Contents

Your DMXStreamer package should contain these items:

- DMXStreamer (Part No. 70015)
- Compact Flash Memory expansion module (if ordered)
- DB9 to DB9 1.8m cable (Part No. 79103)
- 2 x mounting brackets (Part No. 79105)
- Streamer Utilities for Windows™ software on the Enttec CD-ROM (Part No. 79106)
- DC power pack (Part No. 79104)
- This user manual (Part No. 79108)

If any item is missing or damaged, please contact your supplier immediately.

To be sure that you are using the latest revision of Streamer Utilities software with your DMXStreamer, please visit the **Downloads** section of the Enttec website at www.enttec.com to get the current version.

Safety Instructions

Do not expose this device to rain and moisture, or expose it to the risk of dripping or splashing.

Do not use this device near water.

Do not block any ventilation apertures on this device.

Do not install this device near heat sources such as heaters, stoves, monitors, amplifiers, dimmers, luminaires or any other equipment that produces heat.

Do not expose the power adapter or power cables of this device to damage from being, crushed, walked on or being pinched by protective cabinets, enclosures or cases.

Use only attachments, accessories or fixings specified by ENTTEC.

Unplug this device from the mains supply and external data links during electrical storms or when the device will not be used for a long time.

Servicing this device should be undertaken only by suitably qualified service technicians.

Contacting ENTTEC

Email: contact@enttec.com
Telephone: +61 3 9819 2433 GMT+10
Facsimile: +61 3 9819 2733
Postal Address: ENTTEC Pty Ltd
PO Box 282
Kew
Vic 3101
Australia

Getting Support

If you require support for the DMXStreamer or the Streamer Utilities software, please visit the Support area of our website at www.enttec.com. There you can fill out a support request ticket for prompt assistance with your enquiry.

DMXStreamer User Manual

Firmware V2.46

Streamer Utilities V1.66

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Glossary of DMXStreamer Terms

Show: A recorded DMX512 data sequence that forms a lighting presentation.

Event: An entry in the DMXStreamer's schedule that specifies a Show and the times it is to be replayed.

Channel: A single 8-bit (0-255) slot of DMX512 data.

Frame: A packet of DMX512 data containing the levels (0-255) for up to 512 data slots.

Start Frame: The DMX512 frame that is output by the DMXStreamer at startup.

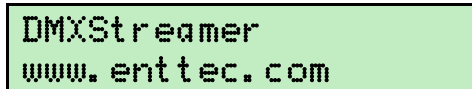
Typographic conventions used in this manual

Buttons: Software button names and menu command options appear in a special typeface. E.g., The name of the Windows™ "Start" button is printed as *Start*.


Data boxes: The names of the boxes where data is entered appear in a different typeface. E.g., the name of the "Frame Rate" entry box is printed as **Frame Rate**.


Menu buttons: The names of the front panel buttons used to navigate the DMXStreamer's menu system appear in a different typeface. E.g., the name of the "Menu" button is printed as **MENU**.

DMXStreamer Screens: The messages displayed on the LCD display are printed in a different typeface, in a shaded box. E.g.



```
DMXStreamer  
www.enttec.com
```

 This process may take a few minutes, possibly long enough to take a coffee break.

 This process could take some time, quite possibly enough time to make and eat a snack.

Getting to know your DMXStreamer

Thank you for purchasing the DMXStreamer. At Enttec we are proud of our products and we hope you will enjoy using them as much as we enjoy designing and building them.

The DMXStreamer is a streaming DMX512 record and replay tool (like a video recorder for DMX). It records the entire DMX data stream produced by a lighting control system during a show. Once recorded, the show can be played back either by manual or remote triggering, or at times set with the scheduler.

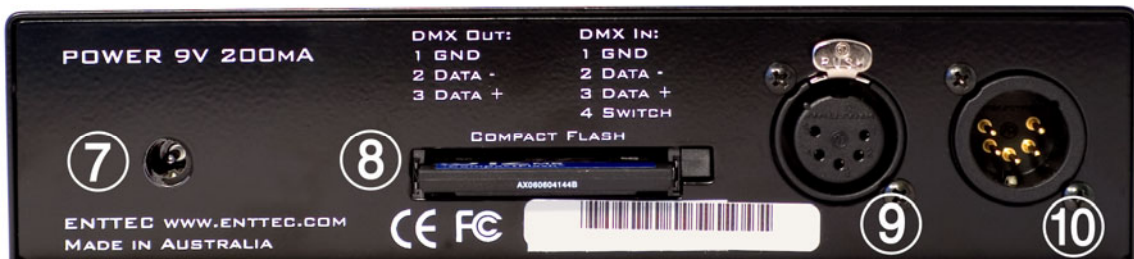
Layout

The DMXStreamer case is 1 Rack unit (44.45mm) in height, 241mm (9.5 inches) wide and 105mm deep. Two devices of this size can be mounted side-by-side in a standard 19-inch equipment rack using the optional Rack Mounting Kit available from Enttec.



DMXStreamer front panel

1. **LCD status display window**
Indicates operational status and Show information.
2. **MENU button**
3. **SCROLL button**
4. **ENTER button**
5. **DB9 RS-232 socket**
Serial data connector for programming and control.
6. **Power switch**



DMXStreamer back panel

7. **Power input socket (2.1mm)**
Accepts AC or DC inputs in the range 7V – 16V and a minimum current of 300mA.
8. **Compact Flash memory card slot**
Optional external memory storage device.
9. **XLR 5pin Female**
DMX512 Output. Connects to your DMX512 network of fixtures, dimmers, etc.
10. **XLR 5pin Male**
DMX512 Input. Connects to a DMX512 lighting controller.
(Pin 4 is used for the remote switch function)

Features

The DMXStreamer provides:

- Full 512 channel universe of DMX512 recording and replay
- Up to 26 shows
- Up to 23 hours of recording
- Show replay can be triggered on:
 - ◆ power up
 - ◆ DMXPlayBackRemote
 - ◆ external switch closure
 - ◆ date and time of day
 - ◆ remote serial command
 - ◆ astronomical clock
- Automatic console backup mode
- Battery-backed real time astronomical clock
- Named shows
- Complete standalone operation
- Full remote control via RS232
- Easy firmware upgrades
- Save and restore data from a standard Windows™ computer.

Fast track guide to the DMXStreamer

To record and replay a show on a DMXStreamer:

- Connect the DMXStreamer to your computer, a power supply and the DMX512 control network.
(see *Connecting the DMXStreamer* on page 38)
- Configure the DMXStreamer for operation.
(see *Setting up the DMXStreamer* on page 39)
- Install the Streamer Utilities software on your Windows™ computer.
(see *Installing Streamer Utilities* on page 43)
- Set the recording frame rate and number of channels to record.
(see *Record/Play Show* on page 30)
- Record the DMX stream from the lighting controller.
(see *Record/Play Show* on page 30)
- Schedule the recorded Show for replay.
(see *Playlist* on page 32)
OR
- Start the replay manually.
(see *Record/Play Show* on page 30)
- Watch it run.
(see *Monitoring Show playback* on page 39)

Menu System

Menu navigation on the DMXStreamer is via three buttons:

MENU

Moves up one level in the menu system.
Cancels the current action when editing.

SCROLL

Scrolls forward through menu options.
Scrolls forward through values when editing.

Scrolling is wrap-around. When the last option or value is reached, the next key-press returns to the first option and starts again.

ENTER

Enters the selected menu option.
Accepts the current setting when editing.

Menu Structure

1-Select Show

2-Show

2-1-Play

2-2-Record/ReRecord

2-3-Erase

2-4-Name

2-5-Frame Rate

2-6-Number of Channels

2-7-Final Cross Fade Time

3-Memory Used

4-Playlist

4-1-Edit Event

4-2-Goto Event

4-3-Edit Season

4-4-Conflict Check

5-Setup

5-1-Erase All

5-2-Set Time

5-3-Set Date

5-4-Local Time

5-5-Latitude

5-6-Longitude

5-7-Start Frame

5-8-Start Delay

5-9-Backup Show

5-10-Playlist Resume

6-Auto Backup

7-Test DMX

8-Stop

Menu Navigation

Pressing the **MENU** button takes you to the top item of the menu system and displays the screen:

```
1-Select Show
A: (empty)
```

To step through the menu options, press the **SCROLL** button repeatedly until the required item appears.

Some menu options are only available at specific times. E.g., the **Stop** option is only available if a Show is currently running.

If you go past the required option, as the menu system is wrap-around, keep pressing the **SCROLL** button until the option appears again.

To select a menu option or enter a sub-menu, press the **ENTER** button.

To step through sub-menu options, press the **SCROLL** button repeatedly until the required item appears.

To exit a sub-menu and return to the top item of the menu system, press the **MENU** button.

Entering Data into the DMXStreamer

Where data needs to be entered into the DMXStreamer, a flashing block cursor will appear over the value to be entered.

```
5-2-Set Time
00: 00: 00 HOURS
```

Where there are multiple data fields, a description of the data is displayed on the right of the screen. In this example, the first field in the Set Time screen is for hours.

Pressing the **SCROLL** button will move through the list of possible values for the field, in this case 0 to 24. Scrolling is wrap-around. When the last value is reached, the next key-press returns to the first value and starts again.

Holding the **SCROLL** button down will move through the list of values at a higher speed.

Pressing the **ENTER** button stores the current value for the data, then steps on to the next field.

```
5-2-Set Time
16: 00: 00 MINUTES
```

To step on to the next field, without changing the value of the current field, press the **ENTER** button only.

Pressing the **MENU** button at any point during data entry will cancel all changes made since entering the current menu option, then move back to the previous level of the menu system.

Types of Data

The basic types of values available in data fields are:

Selection

All available valid options, such as Show names, Yes or No, A to Z, North or South, etc, are displayed in alphabetic or numeric sequence.

Numbers

The entire range of valid numbers are displayed in numeric sequence.

Text

(blank space), UPPERCASE letters A to Z, digits 0 to 9.

Menu Contents

1-Select Show

Allows selection of which of the 26 Show slots [A to Z] will be acted on by other menu options.

```
1-Select Show
A: (empty)
```

Each slot will contain either the name of the Show stored in it or (*empty*) if it contains no Show data.

The **SCROLL** button moves through list of Show slots.

The **ENTER** button selects the Show and returns to the 1-Select Show menu.

2-Show

The Show menu section contains the commands relating to the currently selected Show (see *1-Select Show* above).

The **SCROLL** button moves through list of Show options.

The **ENTER** button selects the option.

The **MENU** button exits the Show menu.

2-1-Play

This option is only available if a Show is already recorded in the selected slot.

Selecting this option with the **ENTER** button immediately starts playing the currently selected Show. The Show will loop continuously until explicitly stopped by:

- the **8-Stop** menu, or
- the **Stop** button on the *Record/Play Show* screen of Streamer Utilities, or
- a remote RS232 serial command received from such devices as a DMXPlaybackRemote, or a custom-programmed RS232 transmitter.

If the selected Show was already playing, it will be re-started from the first frame.

The DMXStreamer then returns to the Show menu, and if no key is pressed during the following three seconds, will exit the menu system.


If a Show is playing when Show parameters or system settings are changed, the show will be stopped and the screen will display:

```
SHOW STOPPED DUE
TO CONFIG CHANGE
```

2-2-Record/ReRecord

This option is labelled Record if there is no Show recorded in the selected slot. The label changes to ReRecord if a Show is already recorded in the slot.

Selecting this option with the **ENTER** button starts recording the currently selected Show.

 When ReRecording, there may be a delay before recording begins, while the Show memory is erased and defragmented.

The status display shows:

- ♦ the number of unique DMX frames recorded
- ♦ the time elapsed in the current recording session
- ♦ the percentage of memory used by all Shows

```
Rec: 2455   00: 21
Memory used: 12%
```

To end recording, either press the **MENU** or **ENTER** button. Recording will stop automatically when all

available memory has been used.

The DMXStreamer optimises the recording process by not recording the duplicate DMX frames generated by a lighting controller when the lighting is not changing.

On completion of recording, the menu system returns to the 2-2-ReRecord option, ready for another recording session.

2-3-Erase


This option allows deletion of the currently selected Show.

```
2-3-Erase
Erase show: NO
```

To exit this option without erasing the Show, press the **MENU** button or press the **ENTER** button while **NO** is displayed.

To erase the Show, use the **SCROLL** button to enter **YES**, then the **ENTER** button to confirm erasure. The display will show:

```
Show Erased
Erasing...
```

 As the DMXStreamer defragments the vacant memory after deleting the Show, this process may occasionally take up to several minutes.

On completion of erasing the Show, the menu system returns to the 2-3-Erase option.

2-4-Name

This option edits the name of the selected Show.

```
2-4-Name
PARIS LAUNCH 03
```

The name is a Text field with a maximum length of 16 characters.

The default name for a blank show is "*Show #*" where # is the letter [A-Z] identifying the current slot.

The **SCROLL** button changes the character under the cursor block through the list of available characters [space, A-Z,0-9].

The **ENTER** button accepts the current character and steps the cursor on to the next character.

To move to the next character without changing the character under the cursor, press the **ENTER** button only.

Although names from this menu may only be entered in UPPERCASE, when a Show is recorded using the Streamer Utilities software, its name may contain any character on the keyboard. (See *Record/Play Show* on page 30)

The **MENU** button exits the name editor and returns to 2-4-Name menu option.

2-5-Frame Rate

This option allows selection of the DMX frame rate to be used for recording the selected Show. The default speed is 25.

```
2-5-Frame Rate
25 frames/sec
```

The **SCROLL** button changes the setting through the list of available speeds [10 | 15 | 20 | 25 | 30 | 35 | 40].

The DMXStreamer generates a DMX512 data stream at a fixed rate of 40 frames per second. The recorded frame rate only sets the frequency at which updates are made to this stream.

As every DMX512 data frame recorded by the DMXStreamer occupies some of the available memory, it is advisable to record as little data as practicable to accurately capture the look of your presentation.

While the maximum refresh rate for the DMX512-A protocol is 44 frames per second, it may not be

necessary to record a Show at high frame rates for accurate replay. Many widely used lighting consoles generate DMX512 at 25 frames per second, which is the default recording rate for the DMXStreamer.

If the changes in a Show are slow or very rapid, recording at lower frame rates may have no impact on the presentation, while conserving memory in the DMXStreamer. It is advisable to verify that your selected frame rate does not cause any problems with the look of the presentation.

If memory usage is a serious problem, it may prove useful to measure the frame rate of the controller that will be feeding it the DMX data. The majority of DMX test tools can measure the frame rate of a DMX512 data stream.

The **ENTER** button selects the current frame rate and returns to the 2-5-Frame Rate menu option.

The **MENU** button exits this option without changing the current frame rate.

2-6-Number of Channels

This option allows selection of the number of DMX channels (slots) recorded in each frame of the selected Show. The default is 64.

```
2-6-Number Of  
Channels 204
```

The **SCROLL** button steps through the values of the hundreds digit [1-5] of the number of channels to be recorded. The **ENTER** button selects the current value and steps on to the tens digit.

The **SCROLL** button then steps through the values of the tens digit [0-9] of the number of channels to be recorded. The **ENTER** button selects the current value and steps on to the units digit.

The **SCROLL** button then steps through the values of the units digit [0-9] of the number of channels to be recorded.

The **ENTER** button selects the current number of DMX channels and returns to the 2-6-Number of Channels option.

To ensure that all necessary channel data is recorded by the DMXStreamer, the number selected should not be less than the highest DMX channel used in the connected control system.

Recording channels beyond this range is not necessary, as the DMXStreamer always outputs 512 channel frames.

The most frequent support requests to Enttec are the result of inadvertently setting the number of recorded channels below the number of actual channels in the control system.

The **MENU** button exits this option without changing the current number of channels.

2-7-Final Cross Fade Time

This option sets the transition time to be used in looped play mode between the last frame of the current Show, and the reappearance of its first frame.

```
2-7-Final Cross  
Fade Time 16
```

The **SCROLL** button steps through the fade time [0-63] seconds.

The **ENTER** button selects the fade time and returns to the 2-7-Final Cross fade Time option.

The **MENU** button exits this option without changing the current crossfade time.

3-Memory Used

This option displays the percentage of memory occupied by recorded shows and the memory type currently being used.

```
3-Memory Used  
47% UNREMOVABLE
```

The display will show UNREMOVABLE when the internal base memory is in use and REMOVABLE when a Compact Flash memory card is inserted.

```
3-Memory Used
 9% REMOVABLE
```

After displaying memory usage for five seconds the display exits the menu system.

4-Playlist

The Playlist menu section contains the commands relating to the scheduled replay of recorded Shows.

The Playlist schedule is deactivated when using the menu system to setup and control the DMXStreamer.

The DMXStreamer's Playlist schedule holds 100 entries. An entry can be either an Event or a Season.

An Event consists of the name of a Show and details of when it is to be replayed.

A Season is a selected range of Events that only occur during a specified part of the year.

The **SCROLL** button moves through list of playlist options.

The **ENTER** button selects the option.

The **MENU** button exits from Playlist menu

4-1-Edit Event

This option selects a scheduled Event from the Playlist [1 - 100] for editing.

```
1: (unused)
```

Undefined Events are identified by their Playlist number.

```
Q: 07: 30 SUNDAY
loop 42 times
```

Where an Event has already been defined, the display shows the letter label of the selected Show and the start and stop times for the Event.

The **SCROLL** button moves through the list of Events.

The **ENTER** button begins the process of defining the currently selected Event.

The **MENU** button exits to the Playlist menu without making any changes.

Select Show

This section selects which of the 26 recorded Shows [A to Z] will be associated with the current Event.

```
Select Show
L: Rio Launch
```

Each slot contains either the name of the stored Show or (*empty*) if it contains no Show data.

The **SCROLL** button moves through list of Show slots.

The **ENTER** button selects the show then advances to the Timing option.

Removing an Event

Selecting (*no show*) from this option removes the Event from the playlist.

```
Select Show
(no show)
```

Timing

An Event can be started and stopped by a range of methods that enable very flexible scheduling.

Examples of scheduling possibilities using these methods include:

- Starting a Show at midnight every night and having it repeat continuously until 45 minutes before dawn. (Using the *Timed Auto Play* option.)
- Starting a Show whenever the lighting system is powered up. (Using the *Power On* option.)

- ♦ Starting a Show each time a new customer enters a showroom, even if the previous Show has not yet completed. (Using the *Switch Closed* option.)
- ♦ Starting a Show at 18:15:32 on July 4th and repeating it four times. (Using the *Looped Auto Play* option.)
- ♦ Starting a Show and repeating it continuously, whenever the building management computer system draws the blinds. (Using the *Remote Command* option.)
- ♦ Starting a Show at sunrise every Tuesday and repeating it continuously until an hour and five minutes after sunset. (Using the *Timed Auto Play* option.)

```
Timing
Looped Auto Play
```

The **SCROLL** button steps through the list of Timing options [Looped Auto Play | Timed Auto Play | Power ON | Switch Closed | Remote Command]

The **ENTER** button accepts the selected Timing method and then advances to the Time or Loop option.

As Events may overlap, it is important to understand the priority of scheduled Events in the DMXStreamer. See *Replay Priority* on page 41.

Looped Auto Play

```
Timing
Looped Auto Play
```

The Show will start at a specified time, loop for the programmed number of repetitions and then stop.

- The Event's start time and the number of loop repetitions must be entered.

Timed Auto Play

```
Timing
Timed Auto Play
```

The Show starts at a specified time and loops continuously until a specified finish time.

- The Event's start time and end time must be entered.

Power ON

```
Timing
Power On
```

The Show will start when the DMXStreamer has completed its power-up sequence, loop for the programmed number of repetitions and then stop.

- The number of loop repetitions must be entered.

Switch Closed

```
Timing
Switch Closed
```

The Show will start when an electrical connection is made between Pin 4 (Switch) and Pin 1 (Ground) of the DMX Input connector, on the back panel of the DMXStreamer. It will loop for the programmed number of repetitions and then stop.

A switch closure Show preempts any scheduled Event currently running.

- The number of loop repetitions must be entered.

Remote Command

```
Timing
Remote Command
```

The Show will start on a command received through the RS232 serial data link from such sources as a DMXPlaybackRemote, or any custom-programmed RS232 transmitting device. It will loop for the

programmed number of repetitions and then stop. (See *RS232 Commands supported by the DMXStreamer* on page 50 for more details.)

- The number of loop repetitions must be entered.

Start / End Time

This section allows you to set the time for an event. The process is identical for Start and End times.

Times relative to Sunrise and Sunset

Where scheduled times are before or after Sunrise or Sunset, the Start or End time should be set to the number of hours from that astronomical event.

If the Event is to be scheduled for one hour before Sunrise, the time should be set to **01:00:00**. An Event scheduled at Sunset is set as **00:00:00**.

```
Start Time
19: 00: 00 HOURS
```

The **SCROLL** button steps the hours through the range of possible values [0-23].

The **ENTER** button accepts the current value, and steps the cursor on to the minutes field.

To move to the next field without changing the current value, press the **ENTER** button only.

```
Start Time
19: 43: 00 MINUTES
```

The **SCROLL** button steps the minutes through the range of possible values [0-59].

The **ENTER** button accepts the current value, and steps the cursor on to the seconds field.

```
Start Time
19: 43: 35 SECONDS
```

The **SCROLL** button steps the seconds through the range of possible values [0-59].

The **ENTER** button accepts the current value for the time and then advances to the Start / End Day section.

Start / End Day

This section allows selection of the Start or End day for an Event.

The **SCROLL** button steps through the list of Days [Any Day | Sunday - Saturday | Special]

The **ENTER** button accepts the selected day and then advances to the Time Type section.

Any Day

```
Start Day
Any Day
```

Events scheduled for ANY DAY will start (end) at the selected time on every day of the year.

Sunday - Saturday

```
Start Day
Tuesday
```

Events scheduled for a particular day of the week, will start (end) only on that day of every week.

Special

```
Start Day
Special
```

Events scheduled for a special day will start (end) only on the specified date.


```
Start Date
01 Jan
```

The **SCROLL** button steps through the months [Jan - Dec].

The **ENTER** button accepts the current month and steps the cursor over to the day field.

```
Start Date
01 Mar
```

The **SCROLL** button steps through the valid dates for the selected month [01- 28 | 29 | 30 | 31].

The **ENTER** button accepts the current date and advances to the Time Type section.

Start / End Time Type

This section allows selection of the Start or End Time Type for an Event.

```
Start Time Type
Normal
```

The **SCROLL** button steps through the Time Types [Normal | Before Sunrise | After Sunrise | Before Sunset | After Sunset]

Normal

Normal time is the time kept by the internal clock in the DMXStreamer. (See 5-2-Set Time on page 20)

Before or After Sunrise or Sunset

Times relative to sunrise and sunset are calculated daily by the DMXStreamer from the Latitude, Longitude and Local Time information entered during system setup. (See 5-5-Latitude on page 22)

The offset relative to Sunrise or Sunset is set in the Start / End time section. A two hour and five minute offset is set as **02:05:00**. An Event scheduled at Sunset is set as **00:00:00**. (See Start / End Time on page 16).

Times are displayed on the screen as an offset time from Sunrise (SR) or Sunset (SS). An Event scheduled to run from 1 hour and 30 minutes after Sunrise until two hours before Sunset every day is displayed as:

```
A: SR+01: 30 Any
t oSS-02: 00 Any
```

When the Event is scheduled, the display shows the actual start time that has been calculated for that day.

```
A at 17: 28: 19
13: 47: 38 01APR08
```

The **ENTER** button accepts the selected Time Type and proceeds with Event editing.

Loop

This section sets the number of times that the selected show will be repeated. A show may be repeated a fixed number of times before ending, or set to repeat continuously.

```
Loop
42 times
```

The **SCROLL** button steps the range of possible values [0-100 or forever]. (Looping zero times means that the Show runs only once.)

```
Loop
forever
```

The **ENTER** button accepts the current number of loops, then returns to the 4-1-Edit Event menu option.

4-2-Goto Event

This option allows direct access to Events on the Playlist.

```
4-2-Goto Event
1
```

The **SCROLL** button steps through the range of Event numbers [1-100].

The **ENTER** button accepts the current event number and enters the Edit Event process for the selected Event

The **MENU** button returns to the 4-2-Goto Event menu.

4-3-Edit Season

This option allows the creation and editing of Seasons of Playlist Events.

A Season is a group of Playlist Events that are enabled to play only during a specified part of the year.

Using Season scheduling it is possible to have different Events scheduled for the same time of day at different times of the year or to schedule Events that happen on a regular basis for only one part of the year.

Examples of scheduling possibilities using Seasons include:

- Running different versions of the nightly exterior lighting Show for when there is foliage on the trees in the garden and when they are bare.
- Scheduling a weekly cycle of Shows that run only during the month of December.
- Running a Show at Sunset every night during the ski season.

Each Season is defined by a start time and date, an end time and date, and a range of Playlist Events.

Playlist Events which are allocated to Seasons are not active outside the times of those Seasons.

Select Season

This option selects a Season [1-100] from the Playlist for editing.

```
34: (unused)
```

Seasons are identified by their Season number and *(unused)* if currently undefined.

```
35: 10: 30: 00 15Mar
to 19: 00: 00 14Jul
```

Where a Season has already been defined, the display shows the Season number and its start and end times.

The **SCROLL** button moves through Season list.

The **ENTER** button begins the process of editing the currently selected Season.

The **MENU** button exits to the Playlist menu without making any changes.

Edit the Season

```
Season
34: (unused)
```

The **SCROLL** button toggles between disabling the selected Season and selecting it for editing.

```
Season
34: edit
```

The **ENTER** button accepts the selected status and either returns to the Season selection option or begins the process of editing the Season.

The **MENU** button exits to the 4-3- Edit Season menu without making any changes.

Deleting a Season

Selecting *(unused)* from this option deletes the Season definition from the Playlist.

```
Season
34: (unused)
```

Season Start / End Time

This section allows you to set the time for a Season. The process is identical for Start and End times.

```
Seas Start Time
19: 00: 00 HOURS
```

The **SCROLL** button steps the hours through the range of possible values [0-23].

The **ENTER** button accepts the current value, and steps the cursor on to the minutes field.

To move to the next field without changing the current value, press the **ENTER** button only.

```
Seas Start Time
19: 43: 00 MINUTES
```

The **SCROLL** button steps the minutes through the range of possible values [0-59].

The **ENTER** button accepts the current value, and steps the cursor on to the seconds field.

```
Seas Start Time
19: 43: 35 SECONDS
```

The **SCROLL** button steps the seconds through the range of possible values [0-59].

The **ENTER** button accepts the current value for the time and then advances to the Start / End Date section.

Season Start / End Date

This section allows selection of the Start or End date of the Season.

```
Seas Start Date
01 Jan
```

The **SCROLL** button steps through the months [Jan - Dec].

The **ENTER** button accepts the current month and steps the cursor over to the day field.

```
Seas Start Date
01 Mar
```

The **SCROLL** button steps through the valid dates for the selected month [01- 28 | 29 | 30 | 31].

The **ENTER** button accepts the current date and advances to the Event selection section.

Playlist Event Selection

This section allows selection of the range of Playlist Events that make up the Season.

```
Playlist Start
Event:      22
```

The **SCROLL** button moves through list of Playlist Events [1-100].

The **ENTER** button selects the start Event then advances to the End Event option.

```
Playlist End
Event:      27
```

The **SCROLL** button moves through list of Playlist Events [1-100].
The **ENTER** button selects the end Event then returns to the 4-3-Edit Season menu.

4-4-Conflict Check

The DMXStreamer has an inbuilt Playlist conflict checking utility that advises if any events are scheduled at overlapping times.

It is advisable to run a conflict check after editing each Playlist Event.

Selecting this option with the **ENTER** button starts the conflict checker.

```
Playlist is OK
```

If there are no Playlist events with time overlaps the screen displays a message, then returns to the 4-4-Conflict Check menu.

```
Conflict found  
in events 34, 42
```

If time overlaps are located the screen displays a list of the Playlist Events with conflicting times.

Pressing any button will return to the 4-4-Conflict Check menu.

5-Setup

The Setup menu section contains the system commands for configuring the DMXStreamer for operation.

The **SCROLL** button moves through list of Setup options.

The **ENTER** button selects the option.

5-1-Erase All

Selecting this option allows the deletion of all Shows from the memory.

```
5-1-Erase All  
Erase shows: NO
```

To exit this option without erasing the memory, press the **MENU** button or press the **ENTER** button while **NO** is displayed.

To erase the memory, use the **SCROLL** button to enter **YES**, then the **ENTER** button to confirm erasure. The DMXStreamer then steps through erasing Shows 1 to 26.

```
Erasing All  
show 14
```

On completion of erasure, the screen displays the following message then returns to the 5-1-Erase All option:

```
Memory empty
```

5-2-Set Time

This option sets the time in the DMXStreamer's internal clock.

```
5-2-Set Time  
19:00:00 HOURS
```

The **SCROLL** button steps the hours through the range of possible values [0-23].

The **ENTER** button accepts the current value, and steps the cursor on to the minutes field.

To move to the next field without changing the current value, press the **ENTER** button only.

```
5-2-Set Time
19:43:00 MINUTES
```

The **SCROLL** button steps the minutes through the range of possible values [0-59].

The **ENTER** button accepts the current value, and steps the cursor on to the seconds field.

```
5-2-Set Time
19:43:35 SECONDS
```

The **SCROLL** button steps the seconds through the range of possible values [0-59].

The **ENTER** button accepts the current value for the time then returns to the 5-2-Set Time menu option.

To exit this option without changing the system time, press the **MENU** button.

5-3-Set Date

This option sets the date in the DMXStreamer's internal clock.

```
5-3-Set Date
15Mar00 YEAR
```

The **SCROLL** button steps the year through the range of possible values [00-99](ie. 2000-2099).

The **ENTER** button accepts the current value, and steps the cursor on to the month field.

To move to the next field without changing the current value, press the **ENTER** button only.

```
5-3-Set Date
15Apr02 MONTH
```

The **SCROLL** button steps the month through the range of possible values [Jan-Dec].

The **ENTER** button accepts the current value, and steps the cursor on to the day field.

```
5-3-Set Date
01Apr02 DAY
```

The **SCROLL** button steps the day through the range of possible values [01-31]. Only valid day values are available for months with less than 31 days.

The **ENTER** button accepts the current value for the date then returns to the 5-3-Set Date menu option.

To exit this option without changing the system date, press the **MENU** button.

5-4-Local time

This option sets the local time zone offset from GMT (UTC) for the internal astronomical clock used for scheduling events relative to sunrise and sunset times. Setting the local time value is only required if this scheduling option will be used.

Resources for ascertaining your local time zone are described in Appendix 2 - Location Information on page 50.

Note: If daylight savings time is operating in the local time zone, the value entered should include this offset.

```
5-4-Local Time
GMT+00:00
```

The **SCROLL** button steps the sign through the range of possible values [+ or -] (ahead of or behind GMT/UTC).

The **ENTER** button accepts the current value, and steps the cursor on to the hour field.

To move to the next field without changing the current value, press the **ENTER** button only.

```
5-4-Local Time
GMT+07: 00 HOURS
```

The **SCROLL** button steps the hours through the range of possible values [0-23].

The **ENTER** button accepts the current value, and steps the cursor on to the minutes field.

```
5-4-Local Time
GMT+07: 30 MINS
```

The **SCROLL** button steps the minutes through the range of possible values [0-59].

The **ENTER** button accepts the current value for the time then returns to the 5-4-Local Time menu option.

To exit this option without changing the local time, press the **MENU** button.

5-5-Latitude

This option sets the local latitude for the internal astronomical clock used for scheduling events relative to sunrise and sunset times. Setting the latitude is only required if this scheduling option will be used.

Resources for ascertaining your local latitude are described in

Appendix 2 - Location Information on page 50.

```
5-5-Latitude
N 00: 00: 00
```

The **SCROLL** button steps the direction through the possible values [N or S] (North or South of the equator).

The **ENTER** button accepts the current value, and steps the cursor on to the degrees field.

To move to the next field without changing the current value, press the **ENTER** button only.

```
5-5-Latitude
N 51: 00: 00 DEG
```

The **SCROLL** button steps the degrees of latitude through the range of possible values [0-90].

The **ENTER** button accepts the current value, and steps the cursor on to the minutes field.

```
5-5-Latitude
N 51: 23: 00 MIN
```

The **SCROLL** button steps the minutes of latitude through the range of possible values [0-59].

The **ENTER** button accepts the current value, and steps the cursor on to the seconds field.

```
5-5-Latitude
N 51: 23: 11 SEC
```

The **SCROLL** button steps the seconds of latitude through the range of possible values [0-59].

The **ENTER** button accepts the current value for the latitude then returns to the 5-5-Latitude menu option.

To exit this option without changing the latitude, press the **MENU** button.

5-6-Longitude

This option sets the local longitude for the internal astronomical clock used for scheduling events relative to sunrise and sunset times. Setting the longitude is only required if this scheduling option will be used.

Resources for ascertaining your local longitude are described in

Appendix 2 - Location Information on page 50.

```
5-6-Longitude
E 00: 00: 00
```

The **SCROLL** button steps the direction through the possible values [E or W] (East or West of the prime

meridian).

The **ENTER** button accepts the current value, and steps the cursor on to the degrees field.

To move to the next field without changing the current value, press the **ENTER** button only.

```
5-6-Longitude
E 30: 00: 00 DEG
```

The **SCROLL** button steps the degrees of longitude through the range of possible values [0-180].

The **ENTER** button accepts the current value, and steps the cursor on to the minutes field.

```
5-6-Longitude
E 30: 06: 00 MIN
```

The **SCROLL** button steps the minutes of longitude through the range of possible values [0-59].

The **ENTER** button accepts the current value, and steps the cursor on to the seconds field.

```
5-6-Longitude
E 30: 06: 55 SEC
```

The **SCROLL** button steps the seconds of longitude through the range of possible values [0-59].

The **ENTER** button accepts the current value for the longitude then returns to the 5-6-Longitude menu option.

To exit this option without changing the local longitude, press the **MENU** button.

5-7-Start Frame

This option sets the DMX frame that is output by the DMXStreamer on startup. This frame is sent continuously for the period set in option 5-8-Start Delay below.

This function may be useful for resetting robotic devices, triggering lamp strike sequences, etc.

Selecting this option with the **ENTER** button displays an indication of the presence of valid DMX512 data on the DMXStreamer's input. If no DMX512 data is available the screen displays:

```
Rec start frame
DMX input ERR
```

If valid DMX512 data is present the screen displays:

```
Rec start frame
DMX input OK
```

To exit this option without changing the startup frame, press the **MENU** button.

The **ENTER** button stores the current DMX frame in memory for use at startup and displays the confirmation message:

```
Rec start frame
Frame Captured !
```

The menu system then returns to the 5-7-Start Frame option.

5-8-Start Delay

This option sets the time for which the Startup Frame will be output after startup.

```
5-8-Start Delay
00: 00: 00 HOURS
```

Entry of the Start Delay period is the same as for 5-2-Set Time on page 20.

If the start delay is above zero, when the DMXStreamer is switched on, it counts down through the delay period.

```
Start frame to
end in 11 secs
```

At the end of the start delay period (a maximum of 23 hours, 59 minutes and 59 seconds) any Show scheduled in the Playlist will start.

A Start Delay time of zero will allow scheduled Events to start immediately.

To exit this option without changing the start delay period, press the **MENU** button.

5-9-Backup Show

This option allows selection of the Show slot [A-Z] that will be replayed in Auto Backup mode if DMX512 is not detected on the DMX Input.

```
5-9-Backup Show
(no show)
```

Selecting (*no show*) disables the Auto Backup mode.

The **SCROLL** button moves through list of Show slots.

To exit this option without changing the backup show, press the **MENU** button.

The **ENTER** button accepts the selected Show, then returns to the 5-9 Backup Show option.

5-10-Playlist Resume

This option activates the resumption of scheduled Playlist Events on startup.

When Playlist Resume is enabled, the DMXStreamer checks the Playlist on startup, and if an Event is scheduled to be running at the current system time, that Event will be triggered, and normal Playlist scheduling will continue.

```
5-10-Playlist
Resume: OFF
```

The **SCROLL** button alternates between ON and OFF.

To exit this option without changing the Playlist Resume setting, press the **MENU** button.

The **ENTER** button accepts the setting, then returns to the 5-10-Playlist Resume option.

6-Auto Backup

Selecting this option with the **ENTER** button activates the Auto Backup mode if a Show has been set in option *5-9-Backup Show* above.

When Auto Backup is active, the DMXStreamer acts as a simple DMX512 repeater between its DMX input and DMX output connectors, while monitoring the DMX input for the presence of a DMX512 signal.

If the DMX input signal is absent for more than two seconds, the DMXStreamer automatically starts the Backup Show. The Backup Show will play continuously until manually stopped.

On activation, if there is a valid DMX input to the DMXStreamer, the screen displays:

```
6-Auto Backup
DMX input OK
```

If there is no valid DMX input the Backup Show starts playing immediately and the screen displays:

```
6-Auto Backup
DMX input ERR
```

If no Backup Show has been selected, the screen displays:

```
No backup show
has been setup
```

If the DMXStreamer is turned off, or loses power, it will re-enter Auto Backup mode on startup.

Exit Auto Backup mode

To exit Auto Backup mode, the value (**no show**) must be selected in option *5-9-Backup Show* on page 24.

7-Test DMX

This option enables the DMXStreamer to be used as a simple DMX512 data generator. Any channel in the DMX frame can be adjusted to any level.

```
7-Test DMX
Chan: 001 Val: 063
```

The **SCROLL** button steps through the DMX channels [1-512] in the DMX frame.

The **ENTER** button accepts the current channel number and steps the cursor on to the value field.

```
7-Test DMX
Chan: 452 Val: 172
```

In the value field, the **SCROLL** button steps through the possible decimal data values [0-255] of the selected DMX channel.

Channel values are entered as decimal values to enable full data precision for robotic equipment.

The **ENTER** button accepts the current channel value and steps the cursor back to the channel number field.

Levels adjusted by the Test DMX option remain at their adjusted value until new data is received or generated by other functions.

The **MENU** button exits this option and then exits the menu system.

8-Stop

This option is only available if a Show is currently playing.

Selecting this option with the **ENTER** button immediately stops playing the currently selected Show or Backup Show, and freezes the DMX output. The display then exits the menu system.

Stopping a Backup Show does not exit Auto Backup mode.

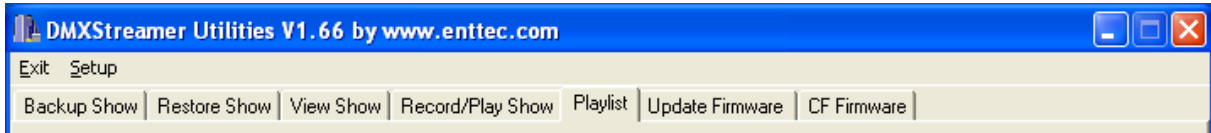
Streamer Utilities

Streamer Utilities is the Windows™ based companion software package for DMXStreamer that gives remote control of all DMXStreamer record, replay and scheduling functions. It also provides off-line schedule editing and enables updates to the unit's firmware (internal software).

To install and configure Streamer Utilities on your computer see *Installing Streamer Utilities* on page 43.

Screen Format

Streamer Utilities appears as a single window with a row of tabs giving access to each of its functions.



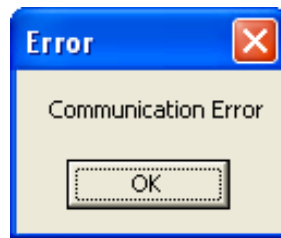
The version number of the program is located at the top of the main screen. To be sure that you are using the most up-to-date revision, please visit the **Downloads** section of the Enttec website at www.enttec.com.

Backup Show

The Backup function allows any of the Shows currently in memory to be downloaded from the DMXStreamer to the Streamer Utilities computer for archival storage and editing.

To get a current list of the Shows in the DMXStreamer, select the **Update List** button. (This action also serves as a quick test of the link between the computer and the DMXStreamer).

If the link between the computer and the DMXStreamer is not functioning, an error message will be displayed.

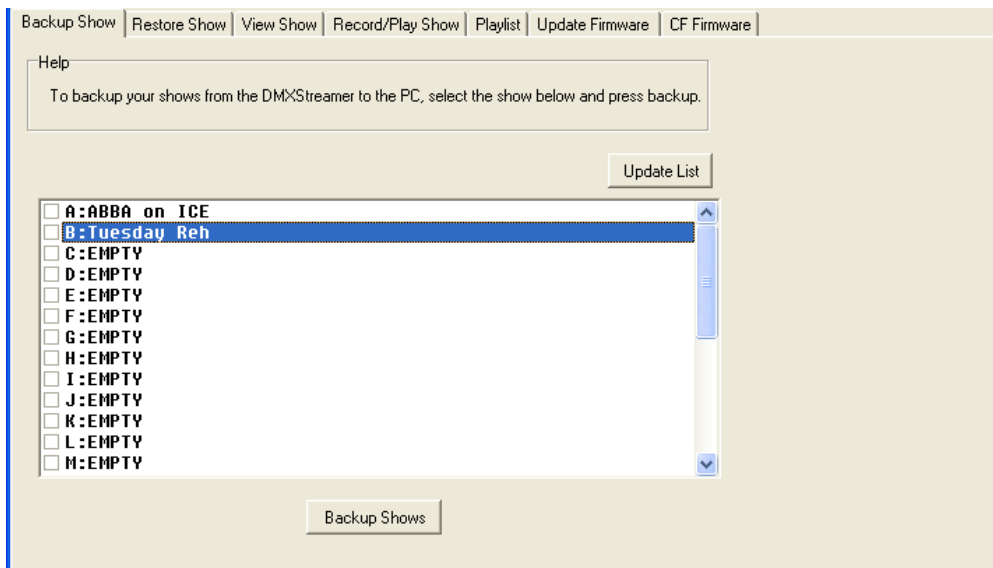


If this message appears:

- Check that the DMXStreamer is switched on and running.
- Confirm that the RS232 cable is connected at each end.
- Check that the correct serial port has been selected from the **Setup** option in the main menu.
- Check that the DMXStreamer is at the top of the menu system. Press the **MENU** button repeatedly until 1-Select Show appears.
- Switch the DMXStreamer off, then switch it on again, to give the devices an opportunity to re-establish the link.

Selecting Shows for backup

Select each Show to be saved by ticking the check box next to its letter [A-Z] on the list of Show slots.




Downloading Show data

Selecting the **Backup Shows** button brings up a prompt for the destination folder for the Show files. The default location is the folder containing the Streamer Utilities program, but it can be any valid folder, including a network file server or a removable storage device, such as a flash memory device or a portable media player.

The names of the files created for the saved Shows are based on the Show's name. (E.g. "Tuesday Reh.shw" and "Tuesday Reh.dat")

The status of the transfer is indicated by a progress bar that appears at the bottom of the window, together with a message indicating the name of the Show being backed up.

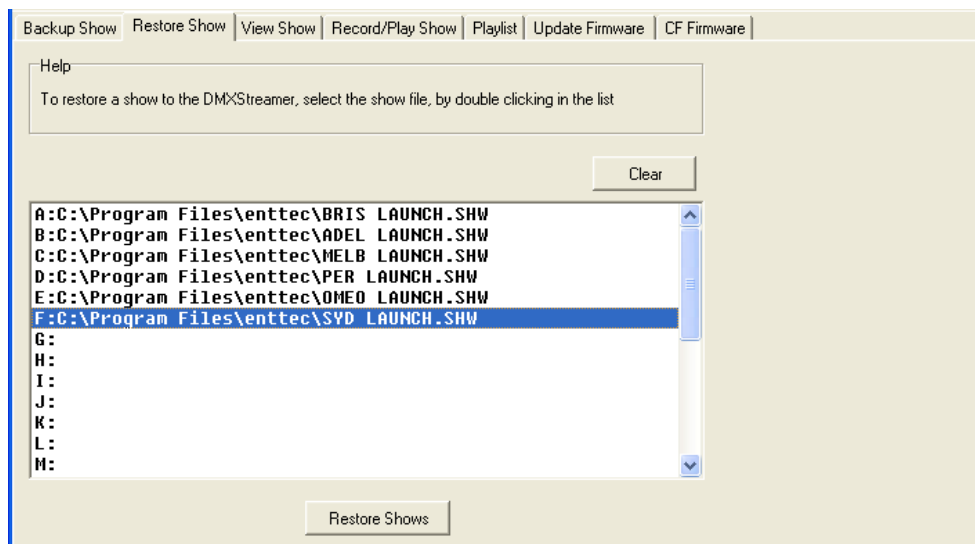


 If the volume of Show data being backed up is large, this process can take some time.

The status message will change to **Done** at the completion of the file transfers.

Restore Show

The Restore function allows backed up Shows to be loaded into any of the Show slots [A-Z] on the DMXStreamer.



Selecting Shows to be restored

To restore a Show to a slot, double-click on the slot letter and a list of available Show files is displayed. The default location for Show files is the folder containing the Streamer Utilities program, but it can be any valid folder, including a network file server or a removable storage device, such as a flash memory device or a portable media player.

To change the Show to be loaded in a particular slot, double-click on the slot and re-select the Show.

Clearing the list of Shows

To clear the selected Shows from all slots, select the *Clear* button.

Avoiding memory fragmentation

When Show data is loaded into the DMXStreamer, the memory required for each Show slot may change significantly. To maintain optimum recording and playback performance, the DMXStreamer defragments its memory after major changes in memory allocation. This process may add significantly to the time taken to restore Shows to the DMXStreamer.

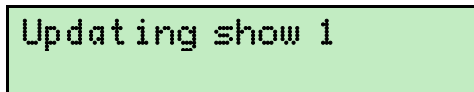
Where possible, before restoring Shows, the DMXStreamer's memory should be totally cleared with the *5-1-Erase All* option from the front panel. (See page 20)

Restoring Show data

The Restore Shows button initiates the transfer of the selected Shows to the DMXStreamer. The status of the transfer is indicated by a progress bar that appears at the bottom of the window, together with a message indicating the name of the Show being restored.



The status display on the DMXStreamer will display a message indicating which Show slot is being restored.



If the volume of Show data is large and DMXStreamer needs to defragment its memory after restoring Shows, this process may take some time.

The status message will change to **Done** at the completion of the transfer process.

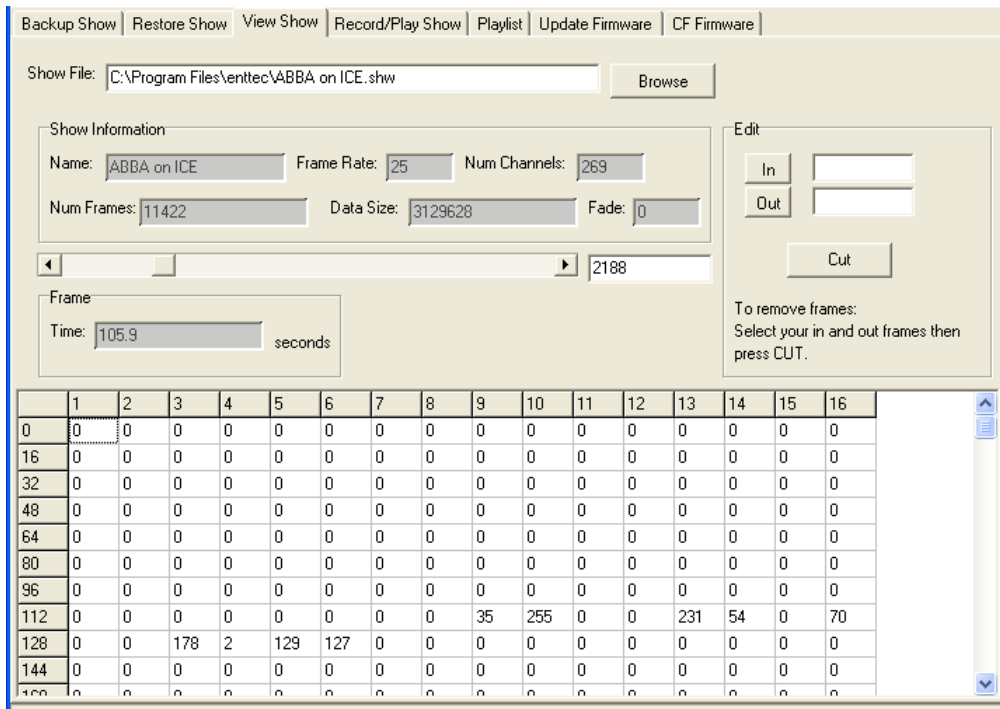
The DMXStreamer must be switched off and re-started to update the memory status display.

View Show

The View function provides a frame by frame view of every stored Show, together with a simple frame removal tool.

Loading a Show for viewing

The *Browse* button brings up a list of Show files to open for viewing. The default location for Show files is the folder containing the Streamer Utilities program, but it can be any valid folder, including a network file server or a removable storage device, such as a flash memory device or a portable media player.



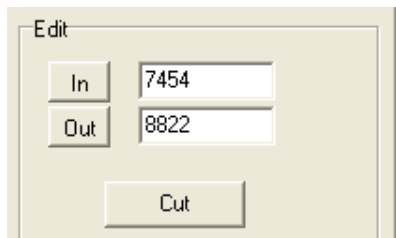
Viewing frame contents

The **Frame** scroll bar and **Frame** selection box allow any specific frame from a Show to be examined in detail.

The Time box shows the elapsed time (in seconds) since the start of the show and channel data panel displays the levels for all recorded channels.

Frame editor

The **Edit** panel provides a basic editing tool that can delete a range of unwanted frames from any point in the Show.



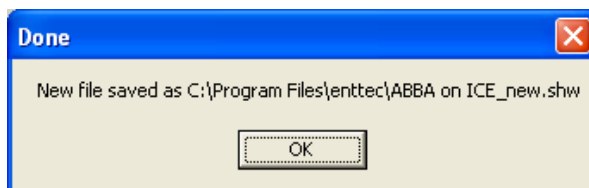
The start point for the deletion range is selected either by entering the required start frame number into the **In** box or by selecting the **In** button when the start frame is in the viewing window.

The End point for the deletion range is selected either by entering the required end frame number into the **Out** box or by selecting the **Out** button when the end frame is in the viewing window.

Selecting the **Cut** button deletes all frames in the range defined by the **In** and **Out** boxes.

The status of the edit process is indicated by a progress bar that appears at the bottom of the window.

When the edit is complete a window is displayed showing the name and file path for the edited Show files.



The edited files are stored in the same folder as the original Show files, but the file names have "*_new*" appended.

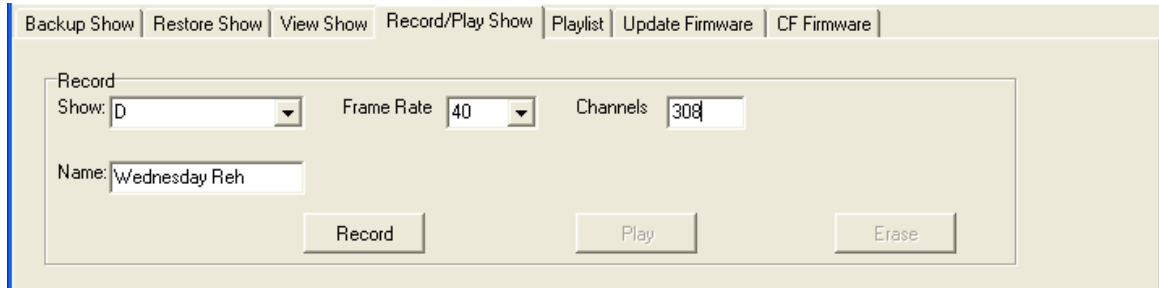
As the original Show files are not changed, the newly created Show files must be loaded to enable viewing

and editing the modified version of the Show data.

Record/Play Show

The Record/Play screen offers full remote control of the recording and playback of Shows on the DMXStreamer.

Recording a Show



Show slot

The destination slot [A-Z] for a Show recording is selected from the drop-down **Show** list.

Streamer Utilities can only record Shows into vacant slots. To replace the Show in an occupied slot, select the **Erase** button to clear the slot before recording.

Show Name

The Show name is limited to 15 characters. Although a longer name may be entered in to the **Name** box, only the first 15 characters are stored in the DMXStreamer.

Frame rate

The DMXStreamer generates a DMX512 data stream at a fixed rate of 40 frames per second. The recorded frame rate only sets the frequency at which updates are made to this stream. Available record rates selectable from the drop-down **Frame Rates** list are 10, 15, 20, 25, 30, 35 and 40 frames per second.

As every DMX512 data frame recorded by the DMXStreamer occupies some of the available memory, it is advisable to record as little data as practicable to accurately capture the look of your presentation.

It may not be necessary to record a Show at high frame rates for accurate replay. Many widely used lighting consoles generate DMX512 at 25 frames per second, which is also the default recording rate for the DMXStreamer.

If the changes in a Show are slow or very rapid, recording at lower frame rates may have no impact on the presentation, while conserving memory in the DMXStreamer. It is advisable to verify that your selected frame rate does not cause any problems with the look of the presentation.

If memory usage is a serious problem, it may prove useful to measure the frame rate of the controller that will be feeding it the DMX data. The majority of DMX test tools can measure the frame rate of a DMX512 data stream.

Number of channels

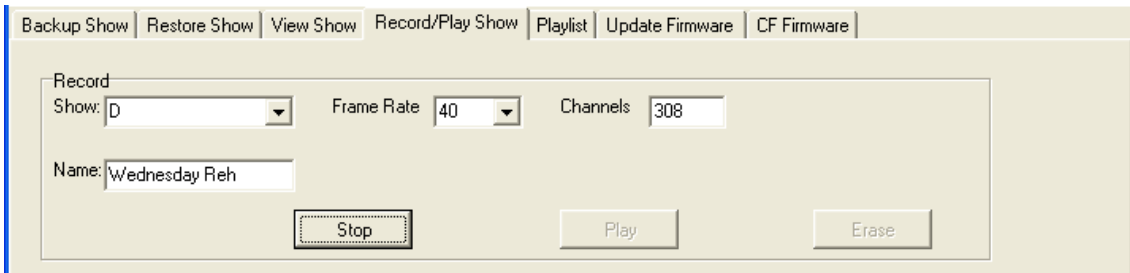
The **Channels** box allows selection of the number of DMX channels [1 - 512] to be recorded for each DMX frame. The default is 64 channels.

To ensure that all necessary channel data is recorded by the DMXStreamer, the number selected should not be less than the highest DMX channel used in the connected control system.

Recording channels beyond this range is not necessary, as the DMXStreamer always outputs 512 channel frames.

The most frequent support requests to Enttec are the result of inadvertently setting the number of recorded channels below the number of actual channels in the control system.

Recording the DMX data.



To start recording the Show, select the **Record** button. To end the recording session, select the **Stop** button.

During recording, the LCD status display on the DMXStreamer shows:

- ♦ the number of unique DMX frames recorded
- ♦ the time elapsed in the current recording session
- ♦ the percentage of memory used by all Shows

```

Rec: 2455   00: 21
Memory used: 12%
    
```

Playing back a Show

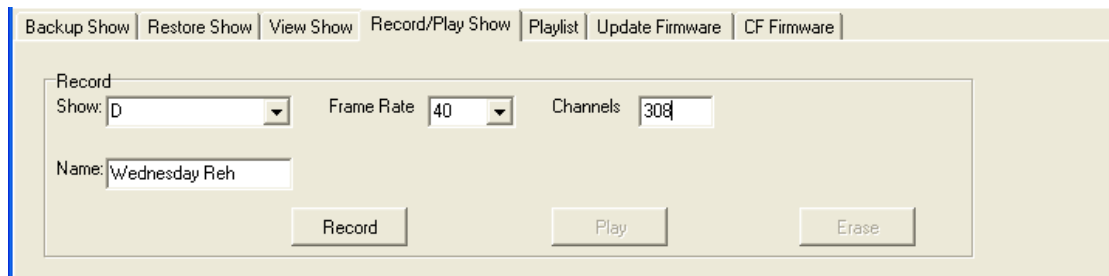
Show slot

The source slot [A-Z] for Show playback is selected from the drop-down **Show** list. Streamer Utilities only plays Shows in occupied slots.

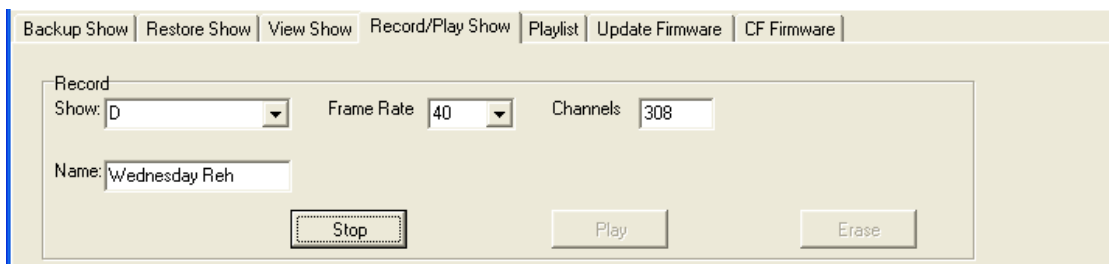
The Name, Frame Rate and number of Channels cannot be modified for recorded Shows.

Playing the DMX data

To start Show playback, select the **Play** button.

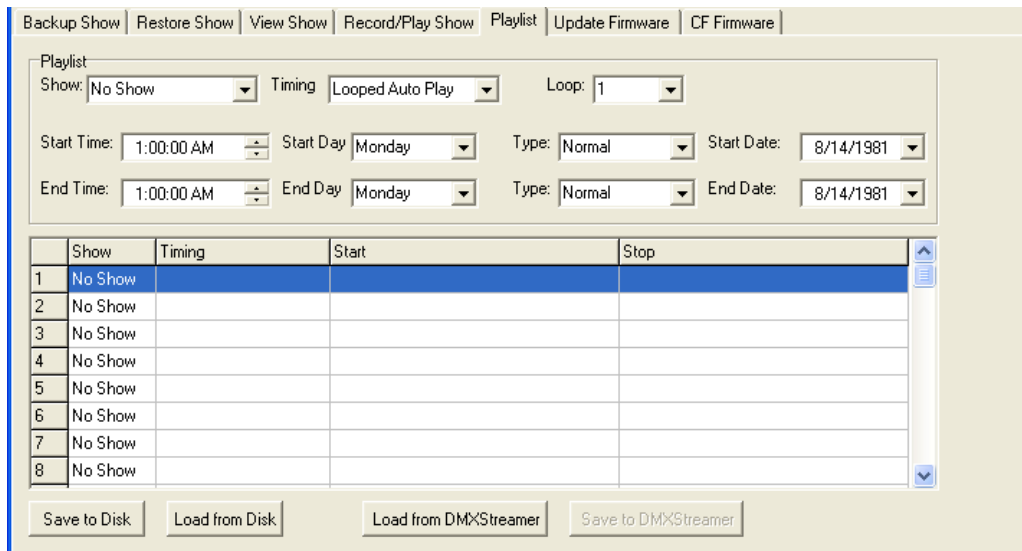


To end Show playback, select the **Stop** button.



Playlist

The Playlist function enables scheduling the replay of recorded Shows.

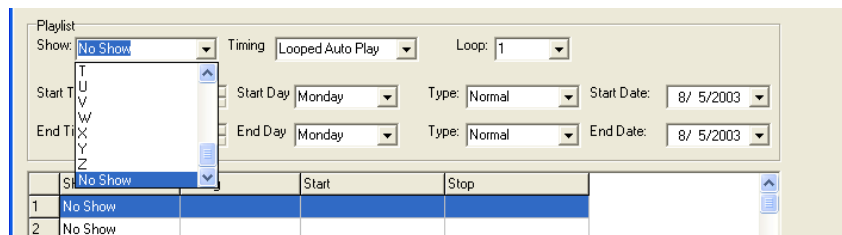


The DMXStreamer's Playlist holds 100 schedule entries. An entry can be either an Event or a Season, although only Events can be scheduled in the current release of Streamer Utilities. Seasons can be scheduled from the **4-3-Edit Season** menu on the DMXStreamer.

Each Event consists of the slot identifier of a Show and details of when and how it is scheduled to be replayed.

A Season is a selected range of Events that only occur during a specified part of the year.

Selecting the Show



The **Show** selection box allocates a recorded Show [A to Z] to the current Event. Each Event contains either the name of the stored Show or **No Show** if the Event is not defined.

Removing an Event

Selecting **No Show** removes the Event from the Playlist.

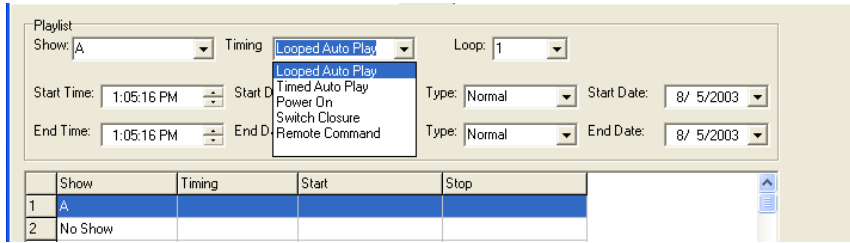
Event Timing

An Event can be started and stopped by a range of methods that enable very flexible scheduling.

Examples of scheduling possibilities using these methods include:

- ♦ Starting a Show at sunset every night and having it repeat continuously until midnight. (Using the Timed Auto Play option.)
- ♦ Starting a Show whenever the lighting system is powered up. (Using the *Power ON* option.)
- ♦ Starting a Show each time a new customer enters a showroom, even if the previous Show has not yet completed. (Using the *Switch Closed* option.)
- ♦ Starting a Show at 18:15:32 on July 4th and repeating it four times. (Using the *Looped Auto Play* option.)
- ♦ Starting a Show and repeating it continuously, whenever the building management computer system draws the blinds. (Using the *Remote Command* option.)
- ♦ Starting a Show at sunrise every Tuesday and repeating it continuously until an hour and five minutes after sunset. (Using the *Timed Auto Play* option.)

As Events may overlap, it is important to understand the priority of scheduled Events in the DMXStreamer. (See *Replay Priority* on page 41).



The **Timing** selection box allocates a timing method to the selected Event.

Looped Auto Play

The Show will start at a specified time, loop for the programmed number of repetitions and then stop.

- The Event's start time and the number of loop repetitions must be entered.

Timed Auto Play

The Show starts at a specified time and loops continuously until a specified finish time.

- The Event's start time and end time must be entered.

Power ON

The Show will start when the DMXStreamer has completed its power-up sequence, loop for the programmed number of repetitions and then stop.

- The number of loop repetitions must be entered.

Switch Closed

The Show will start when an electrical connection is made between Pin 4 (Switch) and Pin 1 (Ground) of the DMX Input connector, on the back panel of the DMXStreamer. It will loop for the programmed number of repetitions and then stop.

A switch closure Show preempts any Event currently running.

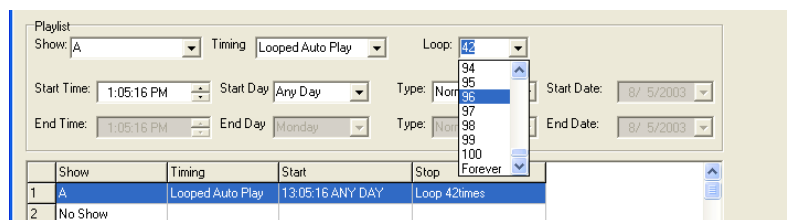
- The number of loop repetitions must be entered.

Remote Command

The Show will start on a command received through the RS232 serial data link from such sources as a DMXPlaybackRemote, or any custom-programmed RS232 transmitting device. It will loop for the programmed number of repetitions and then stop. (See *RS232 Commands supported by the DMXStreamer* on page 50 for more details.)

- The number of loop repetitions must be entered.

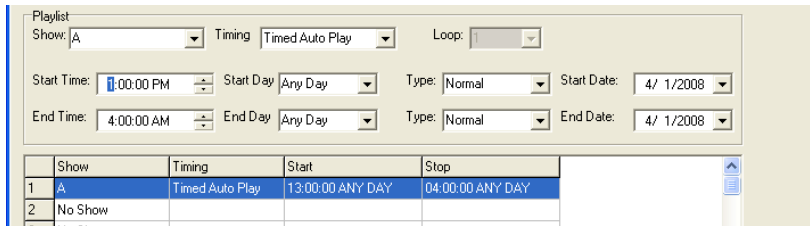
Loop



The **Loop** selection box sets the number of times that the selected Show will be repeated. A show may be repeated a fixed number of times before ending [0-100], or set to repeat forever.

Looping zero times means that the Show runs only once.

Event Start / End Time



The **Start Time** and **End Time** boxes set the scheduled times for the event.

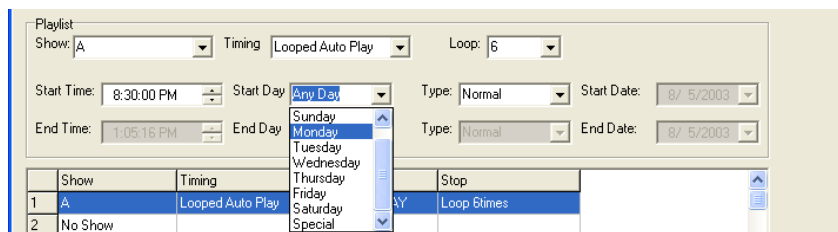
The hours, minutes, seconds and AM/PM fields can be set either by using the scroll arrows to increase or decrease the value, or by directly entering the required value.

Times relative to Sunrise and Sunset

Where scheduled times are before or after Sunrise or Sunset, the Start or End time should be set to the number of hours from that astronomical event.

If the Event is to be scheduled for one hour before or after Sunrise or Sunset, the time should be set to **01:00:00**.

Start / End Day



The **Start Day** and **End Day** boxes set the days on which the Event will run.

Any Day

Events scheduled for Any Day will start or end at the selected time on every day of the year.

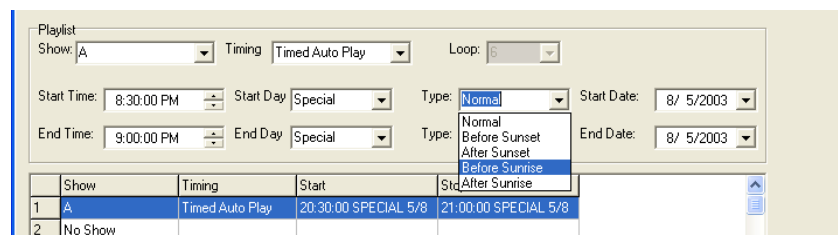
Sunday - Saturday

Events scheduled for a particular day of the week, will start or end only on that day of every week.

Special

Events scheduled for a Special day will start or end only on the specified date.

Time Type



The **Type** box allows selection of the time reference between standard clock times and astronomical time, based on the arrival and departure of the sun on any day.

Normal

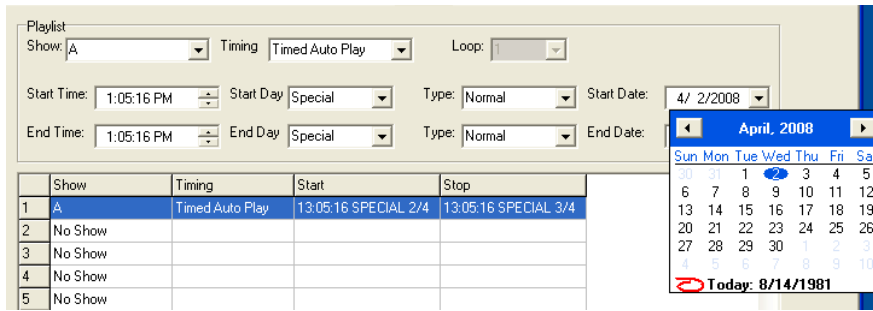
Normal time is the time kept by the internal clock in the DMXStreamer.

Before or After Sunrise or Sunset

Times relative to Sunrise and Sunset are calculated daily by the DMXStreamer from the Latitude, Longitude and Local Time information entered during system setup.

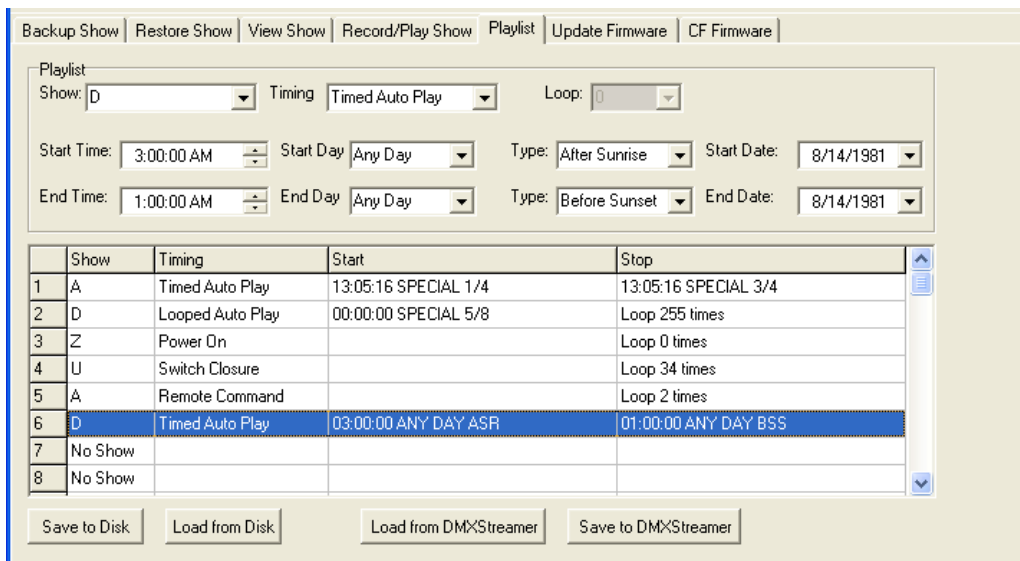
The offset relative to Sunrise or Sunset is set in the Start / End time section. A two hour and five minute offset is set as **02:05:00**. An Event scheduled at Sunset is set as **00:00:00**. (See *Event Start / End Time* above).

Start / End Date



The **Start Date** and **End Date** selector boxes set the dates for Events scheduled for Special days.

Playlist Files



Streamer Utilities provides a facility for DMXStreamer Playlists to be downloaded and backed-up to any file storage medium and later reloaded and restored to the DMXStreamer.

Save Playlist to Disk

Selecting the **Save to Disk** button brings up a prompt for the name and destination folder for the Playlist file. The default location is the folder containing the Streamer Utilities program, but it can be any valid folder, including a network file server or a removable storage device, such as a flash memory device or a portable media player. Playlist files have the file type *.ply*

Load Playlist from Disk

Selecting the **Load from Disk** button brings up a prompt for the name and folder of the Playlist file to load. The default location is the folder containing the Streamer Utilities program, but it can be loaded from any valid folder, including a network file server or a removable storage device, such as a flash memory device or a portable media player. Playlist files have the file type *.ply*

Load Playlist from DMXStreamer

The **Load from DMXStreamer** button initiates the transfer of the DMXStreamer Playlist to the Streamer Utilities computer. The status of the transfer is indicated by a progress bar that appears at the bottom of the window.



The downloaded Playlist replaces the contents of the Playlist window.

Save Playlist to DMXStreamer

The **Save to DMXStreamer** button initiates the transfer of the current Playlist to the DMXStreamer. The

status of the transfer is indicated by a progress bar that appears at the bottom of the window.

Note: The DMXStreamer should not be switched off while recording or data transfer operations are in progress.

Update Firmware

The Update Firmware function provides a facility to update the firmware (internal software) of a DMXStreamer.

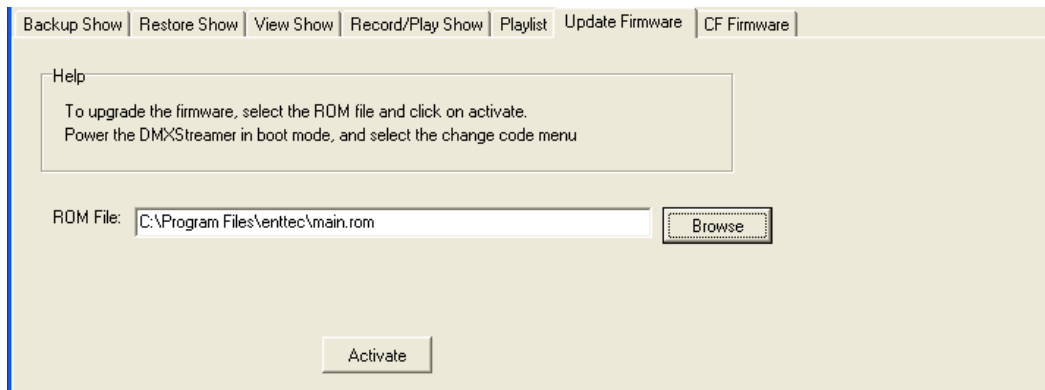
Downloading new firmware

To obtain the latest revision of the DMXStreamer firmware, visit the DMXStreamer page in the **Downloads** section of the Enttec website at www.enttec.com.

The firmware file (*main.rom*) must be extracted from the downloaded Zip archive before it can be installed. The preferred location for the file is in the Streamer Utilities folder.

ROM File

The firmware upgrade file must be selected with the **Browse** button before commencing the update process.

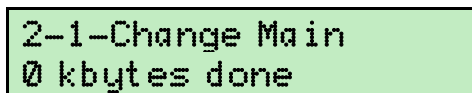


Preparing the DMXStreamer

The DMXStreamer must be started in System Mode in readiness to load the updated firmware. (See *System Mode* on page 46).

Loading the new firmware

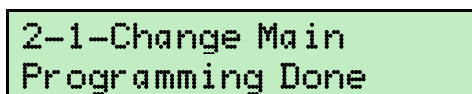
1. Select the **Activate** button in Streamer Utilities.
2. Select and enter option **2-1-Change Main** on the DMXStreamer.
3. The LCD status display on the DMXStreamer shows the progress of the data transfer.



A progress bar also appears at the bottom of the Streamer Utilities window



4. When loading is complete, the LCD status display shows:



5. The DMXStreamer should be re-started.

Note: The DMXStreamer should not be switched off while recording or data transfer operations are in progress.

Compact Flash Firmware

The Update Flash Firmware function provides a facility to update the firmware (internal software) in the Compact Flash module of a DMXStreamer.

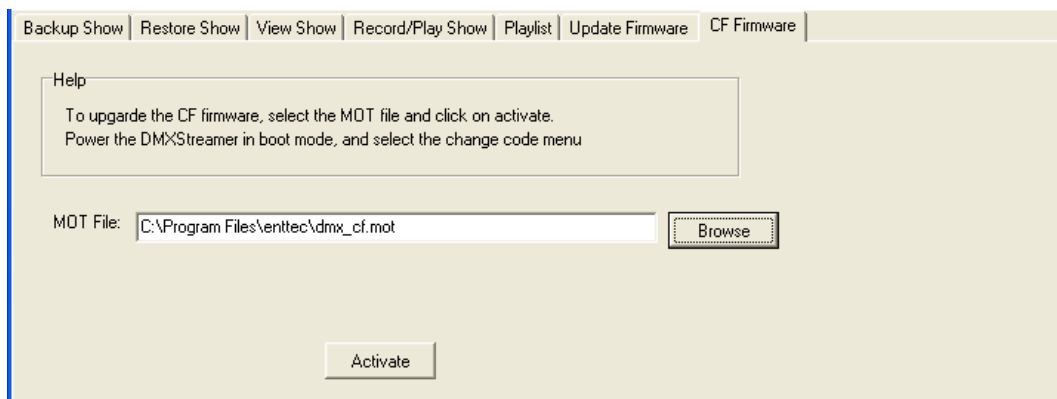
Downloading new firmware

To obtain the latest revision of the DMXStreamer Compact Flash firmware, visit the DMXStreamer page in the **Downloads** section of the Enttec website at www.enttec.com.

The firmware file (*dmx_cf.mot*) must be extracted from the downloaded Zip archive before it can be installed. The preferred location for the file is in the Streamer Utilities folder.

Compact Flash ROM File

The Compact Flash module firmware upgrade file must be selected with the **Browse** button before commencing the update process.

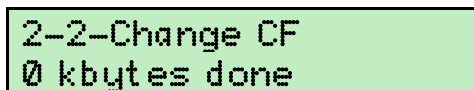


Preparing the DMXStreamer

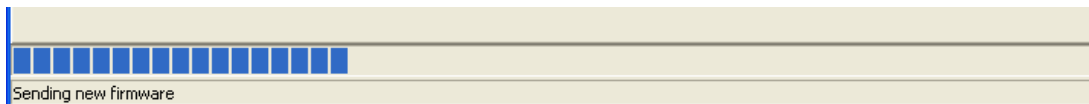
The DMXStreamer must be started in System Mode in readiness to load the updated firmware. (See *System Mode* on page 46).

Loading the new firmware

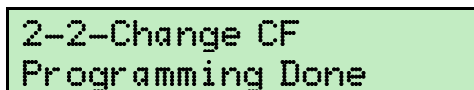
1. Select the **Activate** button in Streamer Utilities.
2. Select and enter option **2-2-Change CF** on the DMXStreamer.
3. The LCD status display on the DMXStreamer shows the progress of the data transfer.



A progress bar also appears at the bottom of the Streamer Utilities window



4. When loading is complete, the LCD status display shows:



5. The DMXStreamer should be re-started.

Note: The DMXStreamer should not be switched off while recording or data transfer operations are in progress.

Connecting the DMXStreamer

Power supply

The DMXStreamer requires a low voltage supply (nominally 9V DC) from the included power pack unit. This should be plugged in to an appropriate mains outlet and the Power Supply socket on the back of the DMXStreamer.

The DMXStreamer must be connected to the power supply and switched on before attempting to establish DMX512 or Serial Data links.

RS232

The DMXStreamer can be controlled and updated through an RS232 serial link to a computer running the Streamer Utilities software.

The supplied serial data cable can be used to connect the RS232 socket on the DMXStreamer to a serial port on the Streamer Utilities computer. It is advisable to keep a record of which serial port has been used.

If there are no serial ports on the Streamer Utilities computer, it is possible to use a USB to RS232 adaptor to make the connection. Most varieties of adaptor work reliably, most of the time. Those based on FTDI's USB chip have proved to be the most stable. Be sure to install the adaptor and its driver software **exactly** as described in the product documentation.

Due to the wide variety of USB to RS232 adaptors available, Enttec are unable to offer technical support for these devices when used with DMXStreamer.

DMX Out

The DMX Out socket is connected to the network of DMX512 devices that are to be controlled by the DMXStreamer.

It is not necessary to have any connection to the DMX Out socket while programming the DMXStreamer.

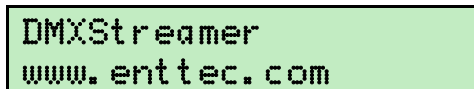
DMX In

The DMX In socket is connected to the DMX512 controller whose output is to be recorded by the DMXStreamer.

It is not necessary to have any connection to the DMX In socket while playing back Shows from the DMXStreamer.

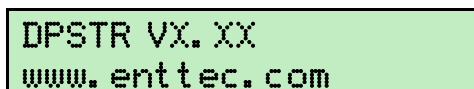
Powering up the DMXStreamer

When the DMXStreamer is switched on, the backlight on the LCD status display illuminates, and after a short pause for an internal system test, the Startup Frame will be output, and the LCD window briefly displays a message similar to:



```
DMXStreamer
www.enttec.com
```

Followed immediately by:



```
DPSTR VX.XX
www.enttec.com
```

The version number VX.XX indicates the version of firmware (internal operating software) installed in the DMXStreamer unit.

If the start delay is more than zero, the display then counts down through the remaining delay period.

```
Start frame to  
end in 137 secs
```

At the end of the start delay period (a maximum of 23 hours, 59 minutes and 59 seconds), replay operations will commence in accordance with the programmed Playlist.

If nothing is configured to run at Startup, the number of Shows currently stored in the DMXStreamer's memory are displayed, together with the current date and time according to the DMXStreamer's internal clock.

```
0 shows in mem  
13:47:38 01APR08
```

The date display alternates with the day of the week every two seconds.

```
0 shows in mem  
13:47:40 TUE
```

If the time and date have not yet been set, or if the Self Test has recently been run, the display instead shows:

```
0 shows in mem  
TIME NOT SET
```

If there is a Show in memory configured to run at startup, the screen then displays the name of the running Show.

(See *Monitoring Show playback* below)

If there is an Event scheduled to run, the screen displays the letter label of the Show slot and the start time of the Event.

```
Q at 18:15:00  
13:47:38 01APR08
```

Note: The DMXStreamer should not be switched off while recording or data transfer operations are in progress.

Monitoring Show playback

The LCD status screen displays the details of the Show currently playing.

```
ABBA on Ice  
13:47:40 TUE
```

The top line of the window displays the name of the Show,

```
Playing 1337  
13:47:38 01APR08
```

alternating every two seconds with the number of the frame currently being played.

Setting up the DMXStreamer

Clock settings

Before using the DMXStreamer, it is advisable to set all time-related parameters. In addition to the usual date and time, the astronomical clock system also requires the location and time zone of the DMXStreamer, to allow for scheduling to include seasonally-adjusted times relative to sunrise and sunset on any given day.

The required settings are:

Time

Set from menu item *5-2-Set Time* (see page 20).

Date

Set from menu item *5-3-Set Date* (see page 21).

Local Time

Set from menu item *5-4-Local time* (see page 21)

Latitude

Set from menu item *5-5-Latitude* (see page 22)

Longitude

Set from menu item *5-6-Longitude* (see page 22)

Start frame

On startup, the DMXStreamer continuously outputs a designated start frame for a preset period.

The content of the start frame is set from menu item *5-7-Start Frame* on page 23.

The period for which the start frame is output is set from menu item *5-8-Start Delay* on page 23.

Compact Flash Memory

If the optional Compact Flash (CF) Memory Expansion Module is installed, the DMXStreamer accepts CF memory cards with capacities ranging from 1 Megabyte to 2 Gigabytes (2,048 MB).

Note: CF cards should only be inserted or removed when the DMXStreamer is switched off.

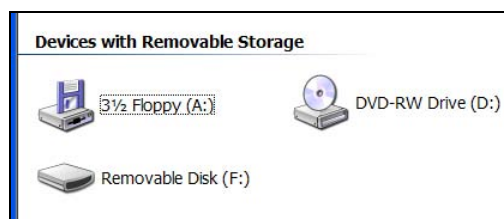
If a CF card is inserted in a DMXStreamer, the internal memory is bypassed and all data storage, show configuration and replay information is stored exclusively in the CF card. All information moves with the CF card when it is moved to a different DMXStreamer unit.

Before being used in a DMXStreamer, a CF card must be initialised as a FAT (File Allocation Table) disk, using either the FAT12, FAT16 or FAT32 format.

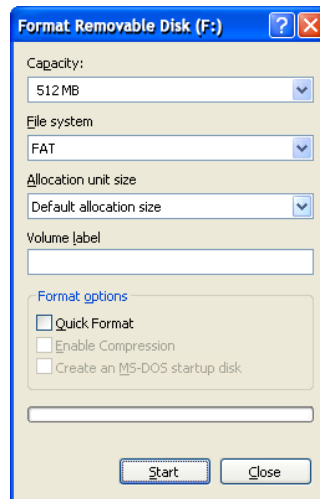
Formatting a CF card

Insert the card in the CF card adapter slot or CF card reader of a Windows™ computer. It will appear as an additional disk drive.

In the *MyComputer* window, right-click on the symbol for the CF card in the list of *Devices with Removable Storage*.



Select **Format...** from the list of available options



Format the CF card using the FAT file system with the default size for the allocation unit.

Note: Formatting erases all existing data from the CF card.

Internal Battery

To run the system clock while not connected to power, the DMXStreamer uses a 3 Volt, long-life lithium coin cell (CR2032). If the TIME NOT SET message appears regularly when switching on the DMXStreamer, it is likely that this battery needs replacing.

The cell is easily replaced by opening the DMXStreamer (the two lowest Philips screws on each end of the case) and sliding the coin cell from its vertical slot.

Replay Priority

As there is a multitude of ways to start Show replay, it's important to be aware of the priority of the different event types in the DMXStreamer.

Manual Show (highest priority)

No scheduled Event can preempt manual Show replay.

A Show started manually from:

- the **2-1-Start Show** menu on the DMXStreamer, or
- the **Play** button on the **Record/Play Show** screen of Streamer Utilities, or
- a remote RS232 serial command received from such devices as a DMXPlayBackRemote, or a custom-programmed RS232 transmitter.

will loop continuously unless explicitly stopped from:

- the **8-Stop** menu on the DMXStreamer, or
- the **Stop** button on the **Record/Play Show** screen of Streamer Utilities, or
- a remote RS232 serial command received from such devices as a DMXPlayBackRemote, or a custom-programmed RS232 transmitter.

Scheduled Events

Switch Closed Events are the highest priority scheduled Events.

Events that have a Special (i.e. Calendar date) start time have priority over Events that have a standard (i.e. Sun-Sat or Any Day) start time.

Interrupted Events

Where Event times overlap, the new Event will interrupt the running Event.

On completion of the new Event, the most recently interrupted Event will then be played again, from the start of the Show. The DMXStreamer stores details only of the last interrupted event.

Memory usage

The recording time possible on a DMXStreamer varies with the number of channels being recorded, the frame refresh rate and the amount of change taking place in the DMX data.

The first table below gives an indication of the minimum recording times possible with the 8 Megabyte memory in the basic model of the DMXStreamer.

The second table gives the minimum times for a Compact Flash model DMXStreamer, fitted with a 512 Megabyte CF card. To calculate the minimum recording times for other sizes of CF card, you can download the *streamer_calc* spreadsheet (in MS Excel format) from the Downloads section of the Enttec website at www.enttec.com.

As the DMXStreamer uses aggressive data compression techniques to minimize the memory required to store a DMX data stream, the actual recording time will generally be substantially longer than figures in the tables.

Minimum recording time (h:m:s) with the **internal 8MB** memory

Channels	Frames per second						
	10	15	20	25	30	35	40
16	14:33:49	09:42:33	07:16:54	05:49:32	04:51:16	04:09:40	03:38:27
32	07:16:54	04:51:16	03:38:27	02:54:46	02:25:38	02:04:50	01:49:14
48	04:51:16	03:14:11	02:25:38	01:56:31	01:37:05	01:23:13	01:12:49
64	03:38:27	02:25:38	01:49:14	01:27:23	01:12:49	01:02:25	00:54:37
80	02:54:46	01:56:31	01:27:23	01:09:54	00:58:15	00:49:56	00:43:41
96	02:25:38	01:37:05	01:12:49	00:58:15	00:48:33	00:41:37	00:36:25
112	02:04:50	01:23:13	01:02:25	00:49:56	00:41:37	00:35:40	00:31:12
128	01:49:14	01:12:49	00:54:37	00:43:41	00:36:25	00:31:12	00:27:18
144	01:37:05	01:04:44	00:48:33	00:38:50	00:32:22	00:27:44	00:24:16
160	01:27:23	00:58:15	00:43:41	00:34:57	00:29:08	00:24:58	00:21:51
176	01:19:26	00:52:58	00:39:43	00:31:47	00:26:29	00:22:42	00:19:52
192	01:12:49	00:48:33	00:36:25	00:29:08	00:24:16	00:20:48	00:18:12
208	01:07:13	00:44:49	00:33:36	00:26:53	00:22:24	00:19:12	00:16:48
224	01:02:25	00:41:37	00:31:12	00:24:58	00:20:48	00:17:50	00:15:36
240	00:58:15	00:38:50	00:29:08	00:23:18	00:19:25	00:16:39	00:14:34
256	00:54:37	00:36:25	00:27:18	00:21:51	00:18:12	00:15:36	00:13:39
272	00:51:24	00:34:16	00:25:42	00:20:34	00:17:08	00:14:41	00:12:51
288	00:48:33	00:32:22	00:24:16	00:19:25	00:16:11	00:13:52	00:12:08
304	00:45:59	00:30:40	00:23:00	00:18:24	00:15:20	00:13:08	00:11:30
320	00:43:41	00:29:08	00:21:51	00:17:29	00:14:34	00:12:29	00:10:55
336	00:41:37	00:27:44	00:20:48	00:16:39	00:13:52	00:11:53	00:10:24
352	00:39:43	00:26:29	00:19:52	00:15:53	00:13:14	00:11:21	00:09:56
368	00:38:00	00:25:20	00:19:00	00:15:12	00:12:40	00:10:51	00:09:30
384	00:36:25	00:24:16	00:18:12	00:14:34	00:12:08	00:10:24	00:09:06
400	00:34:57	00:23:18	00:17:29	00:13:59	00:11:39	00:09:59	00:08:44
416	00:33:36	00:22:24	00:16:48	00:13:27	00:11:12	00:09:36	00:08:24
432	00:32:22	00:21:35	00:16:11	00:12:57	00:10:47	00:09:15	00:08:05
448	00:31:12	00:20:48	00:15:36	00:12:29	00:10:24	00:08:55	00:07:48
464	00:30:08	00:20:05	00:15:04	00:12:03	00:10:03	00:08:37	00:07:32
480	00:29:08	00:19:25	00:14:34	00:11:39	00:09:43	00:08:19	00:07:17
496	00:28:11	00:18:48	00:14:06	00:11:17	00:09:24	00:08:03	00:07:03
512	00:27:18	00:18:12	00:13:39	00:10:55	00:09:06	00:07:48	00:06:50

Minimum recording time (h:m:s) with a **512MB Compact Flash** card

Channels	Frames per second						
	10	15	20	25	30	35	40
16	932:04:03	621:22:42	466:02:02	372:49:37	310:41:21	266:18:18	233:01:01
32	466:02:02	310:41:21	233:01:01	186:24:49	155:20:41	133:09:09	116:30:30
48	310:41:21	207:07:34	155:20:41	124:16:32	103:33:47	88:46:06	77:40:20
64	233:01:01	155:20:41	116:30:30	93:12:24	77:40:20	66:34:35	58:15:15
80	186:24:49	124:16:32	93:12:24	74:33:55	62:08:16	53:15:40	46:36:12
96	155:20:41	103:33:47	77:40:20	62:08:16	51:46:54	44:23:03	38:50:10
112	133:09:09	88:46:06	66:34:35	53:15:40	44:23:03	38:02:37	33:17:17
128	116:30:30	77:40:20	58:15:15	46:36:12	38:50:10	33:17:17	29:07:38
144	103:33:47	69:02:31	51:46:54	41:25:31	34:31:16	29:35:22	25:53:27
160	93:12:24	62:08:16	46:36:12	37:16:58	31:04:08	26:37:50	23:18:06
176	84:44:00	56:29:20	42:22:00	33:53:36	28:14:40	24:12:34	21:11:00
192	77:40:20	51:46:54	38:50:10	31:04:08	25:53:27	22:11:32	19:25:05
208	71:41:51	47:47:54	35:50:56	28:40:44	23:53:57	20:29:06	17:55:28
224	66:34:35	44:23:03	33:17:17	26:37:50	22:11:32	19:01:18	16:38:39
240	62:08:16	41:25:31	31:04:08	24:51:18	20:42:45	17:45:13	15:32:04
256	58:15:15	38:50:10	29:07:38	23:18:06	19:25:05	16:38:39	14:33:49
272	54:49:39	36:33:06	27:24:50	21:55:52	18:16:33	15:39:54	13:42:25
288	51:46:54	34:31:16	25:53:27	20:42:45	17:15:38	14:47:41	12:56:43
304	49:03:22	32:42:15	24:31:41	19:37:21	16:21:07	14:00:58	12:15:51
320	46:36:12	31:04:08	23:18:06	18:38:29	15:32:04	13:18:55	11:39:03
336	44:23:03	29:35:22	22:11:32	17:45:13	14:47:41	12:40:52	11:05:46
352	42:22:00	28:14:40	21:11:00	16:56:48	14:07:20	12:06:17	10:35:30
368	40:31:29	27:00:59	20:15:44	16:12:36	13:30:30	11:34:43	10:07:52
384	38:50:10	25:53:27	19:25:05	15:32:04	12:56:43	11:05:46	09:42:33
400	37:16:58	24:51:18	18:38:29	14:54:47	12:25:39	10:39:08	09:19:14
416	35:50:56	23:53:57	17:55:28	14:20:22	11:56:59	10:14:33	08:57:44
432	34:31:16	23:00:50	17:15:38	13:48:30	11:30:25	09:51:47	08:37:49
448	33:17:17	22:11:32	16:38:39	13:18:55	11:05:46	09:30:39	08:19:19
464	32:08:25	21:25:37	16:04:12	12:51:22	10:42:48	09:10:59	08:02:06
480	31:04:08	20:42:45	15:32:04	12:25:39	10:21:23	08:52:37	07:46:02
496	30:04:00	20:02:40	15:02:00	12:01:36	10:01:20	08:35:26	07:31:00
512	29:07:38	19:25:05	14:33:49	11:39:03	09:42:33	08:19:19	07:16:54

To calculate the minimum recording times for other sizes of CF card, you can download the *streamer_calc* spreadsheet (in MS Excel format) from the Downloads section of the Enttec website at www.enttec.com.

Installing Streamer Utilities

Streamer Utilities is the Windows™ based companion software package for DMXStreamer that gives remote control of all DMXStreamer record, replay and scheduling functions. It also provides off-line schedule editing and enables updates to the unit's firmware (internal software).

Streamer Utilities is provided in a Zip archive file on the Enttec CD-ROM supplied with your DMXStreamer. However, to be sure that you are using the latest revision, please visit the **Downloads** section of the Enttec website at www.enttec.com to get the current version.

Installing Streamer Utilities is as simple as dragging the file *streamer_util.exe* out of its zip archive and into any folder of your choosing. In keeping with standard practice on Windows systems, we recommend that you create the folder "C:\Program Files\DMXStreamer" and drag *streamer_util.exe* into this folder.

Putting a Streamer Utilities icon on the desktop

To create an icon for Streamer Utilities on your desktop, right-click on the *streamer_util.exe* icon and select **Send to** then **Desktop**.

It is preferable to have the DMXStreamer linked to the computer before launching Streamer Utilities.

Connecting Streamer Utilities to a DMXStreamer

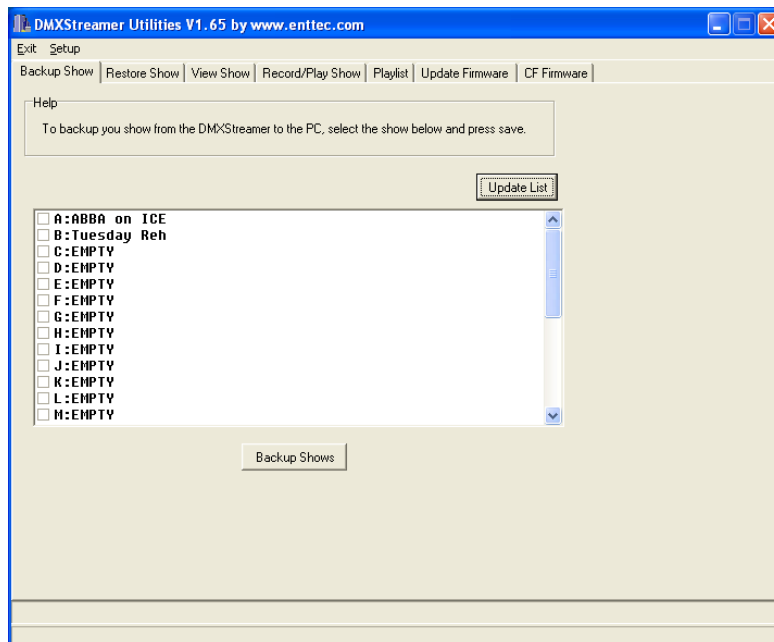
When Streamer Utilities is launched, it attempts to contact a DMXStreamer over the selected RS232 serial link. The first time Streamer Utilities is run, it tries to connect via COM 1 (communications port No. 1).

To configure communications between Streamer Utilities and the DMXStreamer, select **Setup** from the main program menu and select which serial port is connected to the DMXStreamer.

Streamer Utilities automatically manages the speed of the RS232 connection to optimise for maximum transfer speed and link reliability. If communications should become intermittent, it is advisable to switch the DMXStreamer off, then on again, to re-synchronize the link.

Testing the RS232 link

To confirm that there is a working data link to the DMXStreamer, select the **Backup Show** tab, then click on the **Update List** button.



If communications are working, the window will display a list of the shows (possibly all empty) currently stored in the DMXStreamer.

If an RS232 link cannot be established, an error message will be displayed.



If this message appears:

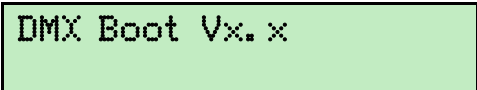
- Check that the DMXStreamer is switched on and running.
- Confirm that the RS232 cable is connected at each end.
- Check that the correct serial port has been selected from the **Setup** option in the main menu.
- Check that the DMXStreamer is at the top of the menu system. Press the **MENU** button repeatedly until **1-Select Show** appears.
- Switch the DMXStreamer off, then switch it on again, to give the devices an opportunity to re-establish the link.

System Mode

The DMXStreamer has a system maintenance mode which enables firmware upgrades, system tests and firmware checksum validation.

System mode is activated by simultaneously holding down both the **MENU** and **SCROLL** buttons when turning on the DMXStreamer.

On startup, the LCD status screen displays:



DMX Boot Vx. x

The version number VX.X indicates the version of the system firmware (internal system software) installed in the DMXStreamer.

To return to normal operating mode requires switching off the DMXStreamer and switching it back on again.

System Menu Structure

1-Self Test

2-Firmware

2-1-Change Main

2-2-Change CF

3-Checksum

System Menu Navigation

The System menu of the DMXStreamer is navigated in the same way as the main operating menus. (See *Menu Navigation* on page 10)

System Menu Contents

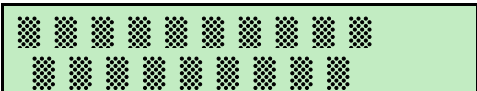
1-Self Test

The DMXStreamer has an extensive system test routine that checks all internal components and connections. Running the full test set requires a loopback cable, which is just a standard DMX512 XLR 5 pin male to female lead.

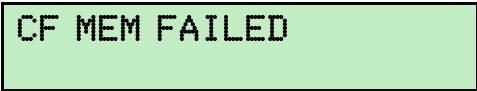
Note: The self test process erases all shows in the DMXStreamer and resets the internal clock.

Disconnect the DMXStreamer from any DMX512 networks before entering the self test sequence.

During the initial tests the LCD screen displays a series of alternating blocks in changing patterns.



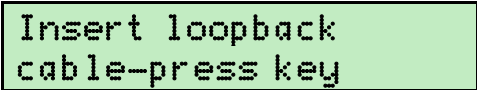
If the DMXStreamer does not have the optional Compact Flash (CF) card installed, the screen will display:



CF MEM FAILED

This message is not relevant if the CF card is not installed.

The screen will then prompt for the loopback cable to be connected between the DMX In and DMX Out ports.



Insert loopback
cable-press key

Once the DMX ports have been tested, the screen then prompts for the loopback cable to be removed, to allow the test cycle to continue.

```
Remove loopback  
cable—press key
```

When the internal test process has been successfully completed, the screen will read:

```
TEST DONE
```

On entering the key test sequence, the screen will display:

```
Keys Down: none
```

Pressing the **SCROLL** button will produce the message:

```
Keys Down: 2
```

Pressing the **ENTER** button will produce the message:

```
Keys Down: 3
```

Pressing the **MENU** button will exit the self test and return to the top level of the system menu.

If any other screen messages are displayed, please visit the Support area of our website at www.enttec.com and fill out a support request ticket detailing the error message.

The time and date will now need to be reset through the **Setup** option on the main operating menu system (see *5-Setup* on page 20)

2-Firmware

The firmware options prepare the DMXStreamer for a firmware (internal system software) update.

2-1-Change Main

On selecting this option with the **ENTER** button, the DMXStreamer enters update mode and waits for data on the RS-232 port from a Windows™ computer running the Streamer Utilities software.

```
2-1-Change Main  
0 kbytes done
```

The completion counter increments during loading of the firmware.
(see *Update Firmware* on page 36)

To exit upgrade mode without upgrading the firmware - do nothing at all on the Windows™ computer - just switch off the DMXStreamer and re-start it.

2-2-Change CF

This option is only available if the optional Compact Flash card module is installed.

On selecting this option with the **ENTER** button, the DMXStreamer enters Compact Flash update mode and waits for data on the RS-232 port from a Windows™ computer running the Streamer Utilities software.

```
2-2-Change CF  
0 kbytes done
```

The completion counter increments during loading of the firmware.
(see *Compact Flash Firmware* on page 37)

To exit Compact Flash upgrade mode without upgrading the CF firmware - do nothing at all on the Windows™ computer - just switch off the DMXStreamer and re-start it.

3-Checksum

This option displays a hexadecimal checksum of the firmware in the DMXStreamer, to aid with advanced system diagnosis.

Enttec support may require the checksum data for troubleshooting purposes.

Warranty

ENTTEC warrants that the product that it manufactures will be free from defects in materials and workmanship for a period of one year from the date of shipment from an authorised ENTTEC wholesaler. If the device proves defective within the warranty period, ENTTEC will repair or replace at its sole discretion, the defective hardware.

Any unauthorized repair or opening the case of the unit for any purpose other than changing the internal battery, voids the warranty as described above.

Damages caused by the following conditions are excluded from coverage under this warranty:

- Improper handling, neglect or failure to use the product in compliance with instructions in the accompanying ENTTEC operator's manuals and user guides.
- Operation or connection of the product in a manner that is not compliant with safety or technical regulations in force in the region where the product is used.
- Damage resulting from force majeure or any other event or condition beyond the control of ENTTEC

To obtain warranty service, the buyer must contact ENTTEC, or an authorised wholesaler, during business hours to obtain a Return Authorization Number. Enquiries must be accompanied by description of the problem for evaluation by ENTTEC.

Authorized returns must be returned at the buyer's expense to ENTTEC, or its designated service agent, in the original packaging (or its functional equivalent) together with the Return Authorization Number. Products received without prepaid freight will not be processed.

If the failure is subsequently determined to be due to an operator error, the buyer accepts the responsibility to pay any costs incurred in the diagnosis, parts or shipping from the service facility.

ENTTEC makes no warranty of any kind, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose. In no event shall ENTTEC be liable for indirect, special or consequential damages.

Appendix 1 - RS232 Commands

RS232 Commands supported by the DMXStreamer

Command Description	Command Letter
Read RAM Command	D
Write RAM Command	W
Version Command	V
Show Command	H
DMX Properties Command	S
Set Speed Command	R

Most functions on the DMXStreamer, including starting and stopping Shows, capturing streams and loading data files can be controlled via the RS232 serial port. The complete RS232 protocol definition document is available from the *Download* section of the Enttec website at www.enttec.com.

Appendix 2 - Location Information

Major Cities - locations and time zones

For information about a place where a DMXStreamer will be located, *time and date.com* maintain a really useful internet resource that lists the time zones, latitude and longitude for a large number of cities across the world.

Appendix 3 - Connector Pinouts

DMX OUT

Pin 1	Ground
Pin 2	Data -
Pin 3	Data +
Pin 4	NC
Pin 5	NC

DMX IN

Pin 1	Ground
Pin 2	Data -
Pin 3	Data +
Pin 4	Switch*

Using the remote switch

*The switch function is activated by making an electrical connection between Pin 4 (Switch) and Pin 1 (Ground) of the DMX Input.

RS232

Pin 2	TX
Pin 3	RX
Pin 5	Ground

Appendix 4 - FCC Declaration

Federal Communications Commission (FCC) Declaration of Conformity

Responsible Party: ENTTEC Pty/Ltd
PO Box 282,
Kew, Vic, 3101
Australia

declares that the product DMXStreamer, complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

*In order to maintain compliance with FCC regulations shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and television reception.

Appendix 5 - EEC Declaration

We

ENTTEC Pty Ltd
PO Box 282,
Kew, Vic, 3101
Australia

declare under our sole responsibility that our product DMXStreamer, conforms to the requirements of Council Directives 89/336/EEC and 73/23/EEC and therefore complies with the requirements of Council Directive 73/23/EEC, (The Low Voltage Directive) on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits as amended by Article 13 of Council Directive 93/68/EEC

- EN 55103-1
- EN 50103-2
- EN 60065/AS 3650

Signed Nicolas Moreau

Date: 5/01/2003

Position: Technical Director