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DMXStreamer



User Manual

Firmware V2.0

16-Feb-2004

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Contents

When you open the packaging, you should find these items in the box:

- DMXStreamer
- Compact Flash Memory Expansion Module (if ordered)
- DB9 to DB9 1.8m cable
- 2 x Mounting brackets
- DC Power pack (Australia only)
- User Manual

If you did not receive a plug pack in the box, we recommend you purchase one rated for 9V 500mA. If you are using an old one, please make sure it is in good working order. We can recommend in the USA DIGIKEY PN: T405-ND

Please download the software from our website, this ensures you have the latest version available.

Warranty

ENTTEC warrants that the product that is manufactures and sells will be free from defects in materials and workmanship for a period of 1 year from the date of shipment from an authorized ENTTEC wholesaler. If the device proves defective within the respective period, ENTTEC will repair or replace at its sole discretion, the defective hardware. If the failure is due to an operator error, the users accepts to pay for any charge relating to the diagnosis of the hardware, faulty parts or shipping from our factory.

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.

Opening the unit for any other reason than changing the battery voids the warranty as described above.

Introduction

Thank you for buying the DMXStreamer. At ENTTEC we are proud of our products and we hope you will enjoy them as much as we enjoy making them.

Firstly, un-pack the unit from the box, the DMXStreamer is a 1U 9.5 inch rack, you can mount 2 together to form a standard 19 inch rack.

Physical size: 182x44x105mm

On the front panel, you will find :

- DB9 RS232 Connector for programming
- MENU Button
- SCROLL Button
- ENTER Button
- Power switch

On the back of the rack you will find:

- Power input Jack (2.1mm), you can insert any AC or DC source MAX 16V
- DMX512 Input (5 pin Male XLR)
- DMX512 Output (5 pin Female XLR)
- Slot to accept a Compact Flash memory card

If at any moment you require support for the DMXStreamer, please go to our website, we regularly update the support pages with problems solved by our technical support. The answer to your questions might already be there.

Features

The DMXStreamer provides the following features:

- Full 512 channel streaming recorder
- Up to 26 shows
- Up to 23 hours of recording
- Show scheduling: Time of day, power up and switch closure
- Internal battery backed real time clock
- Shows can be given names
- Automatic backup mode
- Complete standalone operation
- RS232 remote controlled
- Bright back lit LCD screen
- Easy firmware upgrades
- Save data to PC.
- Restore saved data from PC.

Basic Concepts

The DMXStreamer

The DMXStreamer is a streaming recorder, that means it works like a VCR. Once you have pressed record the DMXStreamer will record each DMX512 frame on its input. That light show is now stored in memory and can be played back manually or automatically using the inbuilt real time clock and scheduler.

Connector Pin out

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

To activate the switch input, you must make an electrical contact between PIN4 (switch) and PIN1 (ground) of the DMX input. The switch input is edge sensitive, and is only activated when the switch input changes from open circuit to grounded.

RS232:

Pin 2: TX

Pin 3: RX

Pin 5: Ground

The Menus

To access the menus the DMXStreamer offers 3 buttons on the front panel:

MENU, SCROLL, ENTER

MENU is used to cancel the current action or go up one level in the menus

SCROLL is used to scroll through the menus or scroll through values

ENTER is used to validate the current setting, or enter the selected menu.

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

3-Memory Used

4-Playlist

4-1 Edit

4-2 Goto Line

4-3 Conflict Check

4-4 Enter Show

4-5 Timing

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

6-Auto Backup

7-Test DMX

8-Stop

Getting Started

Start by connecting the power pack to the DMXStreamer, switch it on. The LCD screen will light up and the product name and version number will appear.

The DMXStreamer will probably display NO TIME SET, meaning you have to set the time for the first time.

Setting the time

To set the time:

1-Press SCROLL until you select the Setup menu

2-Press ENTER

3-Press SCROLL until you select Set Time

4-Press ENTER

5-Press SCROLL to select the the current hour

6-Press ENTER

7-Press SCROLL to select the the current minute

8-Press ENTER

9-Press SCROLL to select the the current second

10-Press ENTER

The time is set.

To go back up to the top menu press MENU

You can also set the date in the same way you set the time.

Now connect the DMX512 network to the DMX OUT connector of the DMXStreamer and your lighting console to the DMX IN.

Memory usage

The basic DMXStreamer is equipped with 8 Mbytes of FLASH memory. The actual recording time can vary a lot depending on the number of channels that are recorded and the frame rate.

This table will give you an indication of the minimum recording time you will achieve.

Please keep in mind that the DMXStreamer will save memory by not recording frames that it does not need to. The time estimates below are the absolute minimum times you will be able to record.

Channels	Frame Rate						
	10	15	20	25	30	35	40
10	23:18:06	15:32:04	11:39:03	09:19:14	07:46:02	06:39:27	05:49:32
20	11:39:03	07:46:02	05:49:32	04:39:37	03:53:01	03:19:44	02:54:46
30	07:46:02	05:10:41	03:53:01	03:06:25	02:35:21	02:13:09	01:56:31
40	05:49:32	03:53:01	02:54:46	02:19:49	01:56:31	01:39:52	01:27:23
50	04:39:37	03:06:25	02:19:49	01:51:51	01:33:12	01:19:53	01:09:54
60	03:53:01	02:35:21	01:56:31	01:33:12	01:17:40	01:06:35	00:58:15
70	03:19:44	02:13:09	01:39:52	01:19:53	01:06:35	00:57:04	00:49:56
80	02:54:46	01:56:31	01:27:23	01:09:54	00:58:15	00:49:56	00:43:41
90	02:35:21	01:43:34	01:17:40	01:02:08	00:51:47	00:44:23	00:38:50
100	02:19:49	01:33:12	01:09:54	00:55:55	00:46:36	00:39:57	00:34:57
110	02:07:06	01:24:44	01:03:33	00:50:50	00:42:22	00:36:19	00:31:47
120	01:56:31	01:17:40	00:58:15	00:46:36	00:38:50	00:33:17	00:29:08
130	01:47:33	01:11:42	00:53:46	00:43:01	00:35:51	00:30:44	00:26:53
140	01:39:52	01:06:35	00:49:56	00:39:57	00:33:17	00:28:32	00:24:58
150	01:33:12	01:02:08	00:46:36	00:37:17	00:31:04	00:26:38	00:23:18
160	01:27:23	00:58:15	00:43:41	00:34:57	00:29:08	00:24:58	00:21:51
170	01:22:14	00:54:50	00:41:07	00:32:54	00:27:25	00:23:30	00:20:34
180	01:17:40	00:51:47	00:38:50	00:31:04	00:25:53	00:22:12	00:19:25
190	01:13:35	00:49:03	00:36:48	00:29:26	00:24:32	00:21:01	00:18:24
200	01:09:54	00:46:36	00:34:57	00:27:58	00:23:18	00:19:58	00:17:29
210	01:06:35	00:44:23	00:33:17	00:26:38	00:22:12	00:19:01	00:16:39
220	01:03:33	00:42:22	00:31:47	00:25:25	00:21:11	00:18:09	00:15:53
230	01:00:47	00:40:31	00:30:24	00:24:19	00:20:16	00:17:22	00:15:12
240	00:58:15	00:38:50	00:29:08	00:23:18	00:19:25	00:16:39	00:14:34
250	00:55:55	00:37:17	00:27:58	00:22:22	00:18:38	00:15:59	00:13:59
260	00:53:46	00:35:51	00:26:53	00:21:31	00:17:55	00:15:22	00:13:27
270	00:51:47	00:34:31	00:25:53	00:20:43	00:17:16	00:14:48	00:12:57
280	00:49:56	00:33:17	00:24:58	00:19:58	00:16:39	00:14:16	00:12:29
290	00:48:13	00:32:08	00:24:06	00:19:17	00:16:04	00:13:46	00:12:03
300	00:46:36	00:31:04	00:23:18	00:18:38	00:15:32	00:13:19	00:11:39
310	00:45:06	00:30:04	00:22:33	00:18:02	00:15:02	00:12:53	00:11:17
320	00:43:41	00:29:08	00:21:51	00:17:29	00:14:34	00:12:29	00:10:55
330	00:42:22	00:28:15	00:21:11	00:16:57	00:14:07	00:12:06	00:10:36
340	00:41:07	00:27:25	00:20:34	00:16:27	00:13:42	00:11:45	00:10:17
350	00:39:57	00:26:38	00:19:58	00:15:59	00:13:19	00:11:25	00:09:59
360	00:38:50	00:25:53	00:19:25	00:15:32	00:12:57	00:11:06	00:09:43
370	00:37:47	00:25:11	00:18:54	00:15:07	00:12:36	00:10:48	00:09:27
380	00:36:48	00:24:32	00:18:24	00:14:43	00:12:16	00:10:31	00:09:12
390	00:35:51	00:23:54	00:17:55	00:14:20	00:11:57	00:10:15	00:08:58
400	00:34:57	00:23:18	00:17:29	00:13:59	00:11:39	00:09:59	00:08:44
410	00:34:06	00:22:44	00:17:03	00:13:38	00:11:22	00:09:45	00:08:32
420	00:33:17	00:22:12	00:16:39	00:13:19	00:11:06	00:09:31	00:08:19
430	00:32:31	00:21:41	00:16:15	00:13:00	00:10:50	00:09:17	00:08:08
440	00:31:47	00:21:11	00:15:53	00:12:43	00:10:36	00:09:05	00:07:57
450	00:31:04	00:20:43	00:15:32	00:12:26	00:10:21	00:08:53	00:07:46
460	00:30:24	00:20:16	00:15:12	00:12:09	00:10:08	00:08:41	00:07:36
470	00:29:45	00:19:50	00:14:52	00:11:54	00:09:55	00:08:30	00:07:26
480	00:29:08	00:19:25	00:14:34	00:11:39	00:09:43	00:08:19	00:07:17
490	00:28:32	00:19:01	00:14:16	00:11:25	00:09:31	00:08:09	00:07:08
500	00:27:58	00:18:38	00:13:59	00:11:11	00:09:19	00:07:59	00:06:59
510	00:27:25	00:18:17	00:13:42	00:10:58	00:09:08	00:07:50	00:06:51

1-Select Show

This menu will let you select the show you want to act upon.

To select the show simply press ENTER, and use SCROLL to select the desired show. Press ENTER to validate or MENU to cancel.

2-Show

The Show menu will let you record, playback and setup various parameters. Some menus may not appear when scrolling through, this means that this option is not available e.g: The 2-1-Play menu does not appear when the show is empty.

2-1 Play

This menu will enable you to start playback of the current selected show.

2-2 Record/ReRecord

The menu will show Record (record new show) when the current selected show is empty, or ReRecord (replace existing show) when the current selected show already exists.

This menu will enable you to start recording of the current selected show. When recording the memory indicator will display how much memory you have left.

2-3 Erase

This menu will erase the current show from memory.

2-4 Name

Each show can be given a 16 character name, that is displayed while the show is running.

2-5 Frame Rate

This menu will let you select the recording frame rate for this show. The frame rate can vary between 10 and 40 frames/sec.

A higher frame rate will use more memory but fades will be smoother. You will have to find the setting that best suits your needs.

The default frame rate is 25 frames per second. The majority of lighting control systems do not generate more than 25 frames per second, so keeping the default value will yield the best results.

2-6 Number of Channels

This menu will let you select how many DMX channels the DMXStreamer should record at each frame. Setting this to 64 will record the first 64 channels of the DMX input. Only record the channels you are actually using. Storing the full 512 byte frame each time uses a lot of memory space.

3-Memory Used

The percentage of memory which contains recorded shows is displayed. When this reaches 100%, no more shows can be recorded unless an existing show is erased (or re-recorded).

This menu also indicates whether the basic memory (UNREMOVABLE) or the Compact Flash Expansion memory (REMOVABLE) is being used for data storage.

4-Playlist

The Playlist in the DMXStreamer has 100 entries, each entry contains a : show, start and stop time.

4-1 Edit

This menu will let you select the playlist entry you want to edit.

To select the show simply press ENTER, and use SCROLL to select the desired show. Press ENTER to edit or MENU to cancel.

While scrolling the DMXStreamer will display in short form the show number, and show start and stop time associated with each entry. To edit that entry press ENTER

4-2 Goto Line

This menu can be used to quickly access a specific line in the playlist, you can also scroll through the lines using the Edit menu.

4-3 Conflict check

The DMXStreamer has an inbuilt conflict checker for the playlist. It will check that no shows times overlap.

Please check your playlist after each modification.

4-4 Enter Show

Select the show that will be associated with the selected playlist entry.

4-5 Timing

The show can be setup to start and stop at specified times, the options are:

Each playlist entry has the following time types:

Looped Auto Play

The show will start at a specified time, loop for the programmed times and then stop.

Timed Auto Play

Using this option you can schedule your show to start on a preset time, and day of week.

<i>Step</i>	<i>Value</i>	<i>Description</i>
1	14:00:00	Show start time (24 hour time)
2	MONDAY	Start day (ANYDAY, SUN->SAT, or SPECIAL) Anyday indicates a time which occurs once every day. Special indicates a special date, which occurs once in a year. This is entered as a day of month and a month.

<i>Step</i>	<i>Value</i>	<i>Description</i>
3	NORMAL	Time type (NORMAL, BEFORE SUNRISE, AFTER SUNRISE,BEFORE SUNSET, AFTER SUNSET) Normal indicates that the show will start at 14:00:00 Before sunrise indicates that the show will start 14 Hours before sunrise After sunrise indicates that the show will start 14 Hours after sunrise
4	20:00:00	Show end time (24 hour time)
5	MONDAY	
6	NORMAL	

Power ON

The Show will start once the unit is powered.

Switch Closed

The Show will start when the Switch input of the DMX INPUT connector, is activated. Any show that was already in progress will be preempted by the new show.

5-Setup

5-1 Erase All

This command will erase every show in memory.

5-2 Set Time

This menu can be used to set the system time

5-3 Set Date

This menu can be used to set the system date

5-4 Local time

This menu can be used to set your current time zone, this is only needed for sunrise/sunset scheduling.

5-5 Latitude

This menu can be used to set the latitude of your current location, this is only needed for sunrise/sunset scheduling.

5-6 Longitude

This menu can be used to set the longitude of your current location, this is only needed for sunrise/sunset scheduling.

5-7 Start Frame

You can set the DMX frame that is used as default when the unit powers up.

This can be very useful to strike lamps or perform any one-off task. To program this frame, press ENTER to select the menu, the DMXStreamer will indicate if it has a valid DMX512 signal on the

input. To capture that frame press ENTER.

The DMXStreamer will record that frame in memory and use it each time it starts up.

5-8 Start Delay

The start frame can be activated for a set time. After that time lapses, the DMXStreamer will continue normal operation and run the playlist as programmed.

During the start delay no shows will start.

5-9 Backup Show

To enable the show backup, you must program which show you want to start when the DMX fails.

Use the SCROLL key to select any of the 26 shows, and confirm with ENTER.

6-Backup

The backup mode will enable you to play a show automatically in case of a DMX failure.

The DMXStreamer will monitor the DMX input, if the DMX drops out for more than 2 seconds, the selected show will automatically start.

The DMXStreamer can be inserted into any DMX512 link and will remain transparent until the DMX signal fails.

If the DMXStreamer is turned off or loses power, it will re enter backup mode on power up.

To exit backup mode, you must go to the 4-9 menu (backup show) and select (no show).

7-Test DMX

Using this menu, the DMXStreamer can be used as a simple tester to check your lamps.

Connect the DMX network to the DMX output of the DMXStreamer.

Press SCROLL key to select the channel

Press ENTER

Press SCROLL to modify the value

Press ENTER to select the channel again.

8-Stop

This menu will stop the current running show.

Solar Clock

The DMXStreamer is equipped with solar clock calculations. The Solar clock will enable scheduling of shows based around sunrise and sunset times.

For this to be accurate you must enter your current geographical location and time zone in the setup menu.

To find out the location and time zone of your location please go to appendix 2

To program your show according to sunrise & sunset times please go to section 2-5-3

Internal Battery

The internal real time clock runs on a standard lithium coin type battery CR2032. If the clock loses its time when the DMXStreamer is switched off the battery is probably flat.

To replace the battery simply open the unit and replace with a new battery.

Compact Flash Memory

This section is only applicable if the DMXStreamer has the optional Compact Flash (CF) Memory Expansion Module fitted.

The following cautions apply when using the CF, to avoid corrupting files stored on the CF card:

1. Ensure the DMXStreamer is powered off while inserting or removing the CF card.
2. Do not power off the DMXStreamer while recording a show. After recording is finished and the display shows the next show set to play, it is safe to power off the DMXStreamer.

The DMXStreamer accepts standard CF cards with a capacity between 1Megabyte and 2Gigabytes inclusive.

The CF card must be formatted as a FAT disk (FAT12, FAT16 or FAT32) before the CF card can be used with the DMXStreamer. To format the CF card, install the CF card in the PCMCIA slot of a PC and use the disk format command of the PC to format the CF card. This will erase all data from the CF card.

Insert the CF card into the Compact Flash slot at the back of the DMXStreamer. At this point, the DMXStreamer is ready to use.

When no CF card is present in the DMXStreamer, the DMXStreamer uses internal memory for storing data. When a working CF card is inserted into the DMXStreamer, the DMXStreamer uses the CF card for storing data. The Memory Used menu indicates which memory is being used.

The basic memory and the CF memory operate totally separately as the following example describes.

Example:

No CF card is present. The user sets configuration parameters and records shows, in basic memory.

A CF card is then inserted. The DMXStreamer now uses the configuration parameters and shows from the CF card, not those in the basic memory. The user sets configuration parameters and records shows, in CF memory.

The CF card is removed. The DMXStreamer now uses the configuration parameters and shows from the basic memory, that were stored when no CF card was present..

The CF card is inserted in the same DMXStreamer or a different DMXStreamer. The DMXStreamer now uses the configuration parameters and shows from the CF card, not those in the basic memory.

Boot Software

The DMXStreamer offers a special operating mode which allows you to upgrade the firmware or perform a self test, this is the boot software.

To enter this special operating mode, hold down the MENU and SCROLL keys simultaneously when turning on the DMXStreamer.

The display will show BOOT V1.2

You can use the scroll keys to scroll through the menu:

- 1 - Self test
- 2 - Firmware
- 3 - Checksum

1-Self test

The self test will check correct operation of all the internal electronic components and connections.

Warning: Running the self test will erase any shows you have in memory

To run the self test you must connect a DMX cable between the input and output of the DMXStreamer when prompted, and remove the cable when prompted.

Once activated the test will run on its own, except for the DMX and key tests. If a test fails it will be displayed in the LCD. If any test

fails unexpectedly, please contact the support department.

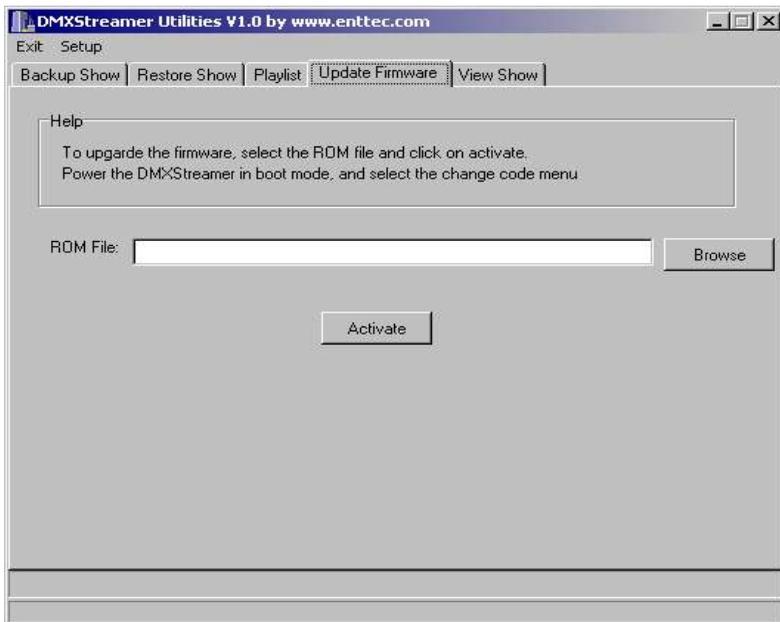
If the DMXStreamer does not have the optional Compact Flash (CF) card installed, the error "CF MEM FAILED" will display and this error should be ignored.

2-Firmware

Upgrading the firmware is very easy, you will need a Windows PC running Streamer Utilities available from the ENTTEC website.

Connect the PC and the DMXStreamer together

1. Start Streamer Utilities
2. Select the correct Com port using the Setup menu.
3. So to the Update Firmware tab
4. Slect the new ROM file using the browse button
5. Click on Activate
6. Scroll to menu option 2-1 Change code and press ENTER.



Uploading will start immediately. Monitor the display on the DMXStreamer, if any errors occur please restart the process from point 5.

If the programming is successful the display will show “Programming done”

It is recommended that you scroll to the checksum menu on the DMXStreamer and check the checksum of the uploaded file against the reference number on our website.

3-Checksum

This menu will display the checksum on the boot and application software. The reference numbers for each versions are displayed on our website.

Appendix 1

RS232 Commands supported by the DMXStreamer

Description	Command Letter
Read Ram Command	D
Write Ram Command	W
Version Command	V
Show Command	H
DMX Read Command	C
Set Speed Command	R

Appendix 2

Major Cities Location and time zones

Please go to <http://www.timeanddate.com/worldclock/full.html> for a full time zone / location table.

Appendix 3

Federal Communications Commission (FCC) Declaration of Conformity

Responsible Party: ENTTEC Pty/Ltd
110 Auburn Rd
Hawthorn, Vic, 3122
Australia

declares that the products:

Product Name: 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 & television reception.

Appendix 4

We

ENTTEC Pty Ltd
110 Auburn Rd,
Hawthorn, Vic, 3122
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