LSC LIGHTING SYSTEMS

maXim

Lighting Control Desks
Models S & M
Operator Manual

maXim M

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CONTENTS

1 maXim S & M QUICK REFERENCE

1.1 RECORD A SCENE

To record the output as a Scene, press;
[**record scene**] [**f/a**] (scene number) (any of the red bank flash/assign buttons).

1.2 GRAB THE OUTPUT IN GRAB MASTER

To record the output in the Grab master, press;
[**record scene**] [**f/a**] (grab master)

1.3 RECORD A CHASE

To record a Chase press;
[**record chase**] [**f/a**] (chase number) (any red bank flash/assign buttons) (or the grab f/a).
Each step of a chase consists of either a previously recorded scene or a snapshot of the ***maXim*** output.

- To add a scene as a step, press;
  [**f/a**] (scene number) (any of the red bank flash/assign buttons).
- To record a snapshot (of the current ***maXim*** output) as a step, press; [**record scene**]

Continue to add steps as above.
When all steps have been recorded, complete the chase by pressing;
[**record chase**].

1.4 PLAYBACK A SCENE OR CHASE

Select "Playback" mode by pressing;
[**mode red bank**]
until the "p'back" LED lights.
If necessary, select the page containing the scene or chase by tapping [**page red bank**]. Fade up the red Playback containing the scene or chase and also fade up the red master.

1.5 CONTROLLING A SCENE OR CHASE

Use [**select**] to alter a playback without affecting the recorded memory.
Press;
[**select**], [**f/a**] (playback to control).
Repeatedly press [**function**] to cycle though the control parameters. See "Chase Modes" below for details.
When finished, press;
[**select**].

Use [**edit**] to permanently change the contents of a memory. The changes are also seen live on the playback if the playback fader is up.
Press;
[**edit**], [**page**] (optional), [**f/a**] (memory to edit).
Repeatedly press [**function**] to cycle though the parameters that you can edit. See "Chase Modes" below for details.
When finished, press;
[**edit**].
Changes are automatically saved.

1.6 CHASE MODES

To change the settings of a chase, press either;
[**select**] or [**edit**] (see above for differences), [**f/a**] (Chase number).
To set the **SPEED,** rotate the **EDIT wheel**.
To set the **FADE** between steps, press [**function**] until both the "in" & "out" LEDs light, then rotate the **EDIT wheel**.

To change the **MODE** or **DIRECTION** of a chase use the 3 buttons below the EDIT wheel.

BUTTONS	**ACTION**
[**step/stop**]	**STOPS** a running chase then **STEPS** a stopped case
[**>**] (Forward)	**RUNS** A CHASE **FORWARD**
[**<**] (Reverse)	**RUNS** A CHASE **REVERSE**
Hold [**>**] **Tap** [**<**]	Selects **BOUNCE** mode
[**>**] **or** [**<**]	De-selects BOUNCE mode
Hold [**step/stop**] **Tap** [**>**]	Selects **SINGLE SHOT** mode
[**>**] **or** [**<**]	**RUNS** A **SINGLE SHOT**
Hold [**step/stop**] **Tap** [>]	De-selects single shot mode

When finished, press [**select**] or [**edit**].
To step a chase press its [**f/a**] button.

1.7 RECORD A STACK

To record a stack, press;
[**record stack**],
[**page**] (optional),
[**f/a**] (stack number) (any red bank f/a buttons).
To add a scene or chase as a step, press;
[**page**] (optional),
[**f/a**] (scene or chase number) (any of the red bank f/a buttons).
To add a snapshot (of the output) as a step, press; [**record scene**].
As each step is added, you can repeatedly press [**function**] to set the fade IN time, OUT time and LINK (automatically to next step) time.
Pressing [**function**] again shows the current step number and allows you to record the next step. Continue to record steps as above.
When all steps have been recorded, complete the stack by pressing;
[**record stack**].

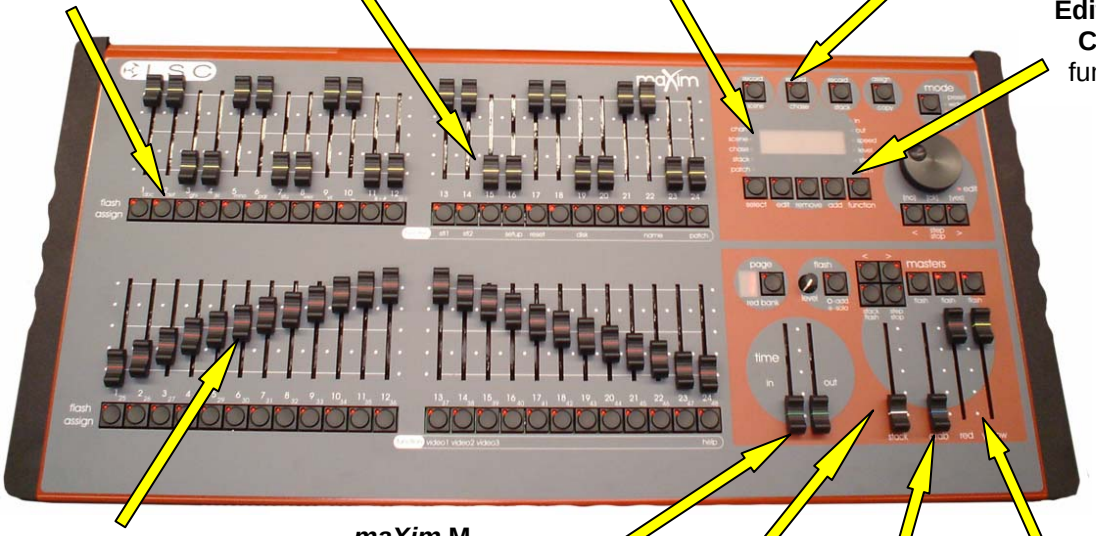
1.8 PLAYBACK A STACK

To assign a stack to the stack master, press
[**assign**],
[**page**] (optional),
[**f/a**] (stack number),
[**stack flash**].
Fade up the stack master to reveal the first step.
To crossfade to the *next* step, press [**>**].
To stop a crossfade press [**step/stop**].
To start a stopped crossfade press [**>**].
To momentarily start hold [**step/stop**].
To reverse a stopped crossfade press **[<]**.
To fade back one step, press **[<]** (reverse).
You may only crossfade back one step but you may "step" back to any step.
To instantly step a stack in the forward direction, hold [**step/stop**], tap **[>]**.
To instantly step a stack in the reverse direction, hold [**step/stop**], tap **[<]**.
To randomly select a step **HOLD** [**step/stop**] and rotate the **EDIT wheel**.
To clear the stack master, press;
[**remove**], [**stack flash**], [**yes**].

2 PRODUCT DESCRIPTION

2.1 INTRODUCTION

The **maXim–S** and **maXim-M** models are the smaller desks in the extensive **maXim** family of fader based lighting controllers. Both models offer manual and memory operation with enough power within to allow the advanced user to create more complex shows – concurrently running multiple scenes and sequences and also incorporating a **theatrical style cue Stack** and In and Out **Time Masters**.



The **S** and **M** models are very similar, varying only in their number of faders and memories. At any point in this manual where the model affects the specification, the text will describe the ***maXim* S** followed by the ***maXim* M** in brackets.
For example; “The Yellow bank has faders for channels 1 to 12 (24)”.

2.2 FEATURES

The ***maXim*** incorporates the following features;

- Manual faders for all channels with associated Flash buttons.
- “Preset”, “Wide” and “Playback” modes of operation.
- 9 pages of non volatile memory.
- Separate In (up) and Out (down) fade times (0 to 999 seconds).
- Scene Fade Times can be derived from the Time Faders or from Memory.
- Electronic labelling of all scenes, chases, stacks and stack steps.
- Fully proportional Softpatch.
- Flash level control, with associated Add or Solo mode button.
- Page freeze retains active output when pages or modes are changed.
- User prompts appear on the display and active buttons flash to make operations simple.
- Different languages are available.
- Optional Multi display SVGA colour video output.
- Fully Isolated DMX512/1990 output signal.
- Power supply is auto selecting, 90–260 volts, 47/63Hz.

2.3 SPECIFICATIONS

Model	S	M
Fader Channels (Preset Mode)	12	24
Fader Channels (Wide Mode)	24	48
Playbacks (Playback Mode)	12	24
Pages of Playback memory	9	9
Grab Master	1	1
Maximum number of Scenes	108	216
Maximum Fade times (minutes)	>16	>16
Maximum number of Chases	108	216
Steps per chase	250	250
Chase speed (Beats Per Minute)	0-999	0-999
Global Speed Control	Yes	Yes
"SyncoBEAT" Learn the beat	Yes	Yes
STL Chase Step	Yes	Yes
Maximum number of Stacks	109	217
Steps per Stack	500	500
DMX512 Output Channels	512	512
Video output SVGA Colour	Option	Option
USB connectors	Option	Option
MIDI In, Out and Thru	Option	Option
15" Halogen Desk Light Port	1	1
Dimensions Height (mm)	115	115
Width (mm)	500	716
Depth (mm)	340	340
Weight packed (kgs)	9.0	13.0

2.4 OPTIONS

The following options are available.

- **MAX/V**
  Video and **USB connection** add-on pack.
- **MIDI**
  Musical Instrument Digital Interface
- **"Capture"** lighting simulation software with "dongle" built into the maXim.
- **MAXLITE**
  15" Gooseneck desk light.
- **Dustcover**
  Sizes available for all models.
- **Flight case**
  Custom flight cases for all models are available to house the ***maXim***, 12V gooseneck lamps, manual and power lead.

2.5 CARING FOR YOUR MAXIM

The ***maXim*** is manufactured from quality components and will give many years of service if you take some basic precautions.

- Do not allow any liquids or foreign objects to enter the ***maXim***. If any liquids are spilt onto the ***maXim,*** the inside should be cleaned and dried as soon as possible. Only suitably qualified personnel should remove the covers and perform any such maintenance.
- Do not apply excessive force to any of the controls. Spare parts and service are available from your LSC agent, but prevention is better than cure.
- When connecting any devices to the ***maXim***, make sure that all connections are correct before switching on the power. If any doubt exists, obtain the assistance of qualified personnel.
- If your ***maXim*** is to be used "on the road", you should use the optional flight case to protect it. Transport the ***maXim*** with all faders in the fully down position. This gives the faders maximum protection from probable damage.
- When your ***maXim*** is not in use, cover the upper surface with the optional dust cover.
- If the surface of your ***maXim*** becomes soiled, clean it with a damp cloth. Do not use any powerful solvents. An alcohol swab may be used to remove any gum from labelling tape.

2.6 LABELING YOUR MAXIM

Areas are provided below the faders for you to write identifying labels. To prevent permanent marking of your ***maXim***, LSC recommends that you place strips of "write on" tape in these areas.

2.7 TERMINOLOGY

Certain button stroke terminology is used throughout this manual to describe the particular operations being undertaken.

Any text enclosed in these symbols [ ]**,** refers to when that particular button needs to be **pressed**.
For example; Press [**record scene**], means to press the record scene button.

Flash/assign buttons are often abbreviated to [**f/a**].
If the button to be pressed is a Flash/Assign button (of which there are many) then it will be identified by naming it as follows;
[**f/a**] (Name).
Any information that appears on the LED display is printed in "`quotes`".
See also the "TERMINOLOGY" section for definitions of the terms used in this manual.

2.8 SECONDARY FUNCTIONS

Some **f/a** buttons have **secondary functions** that are activated by holding down the [**function**]

button and tapping an [**f/a**] button. These secondary functions are printed on the front panel below their **f/a** buttons.

Some flash buttons have *hidden* **secondary functions** that are activated by **holding** down the [**function**] button and tapping the [**ok**] button. These secondary functions are not labelled but are described in the "Diagnostics" section of the "UTILITIES" section.

The buttons below the **EDIT** wheel have **secondary functions** in that they are used to answer either "Yes", "No" or "OK" to questions that appear on the display when you are performing certain actions. They are typically used to confirm or abort the action that you have selected.

2.9 SOFTWARE

LSC has a policy of continuous improvement of its products. As the ***maXim*** is a computerised lighting desk, its software is subject to this policy as new features are added and existing features improved.
The software version of your ***maXim*** is momentarily displayed on the LED display when the ***maXim*** is switched on. The latest version can be downloaded from the ***maXim*** forum.

http://forums.lsclighting.com.au

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Whilst every care is taken in the preparation of this manual, LSC takes no responsibility for any errors or omissions.

2.10 NEW FEATURES IN VERSION 2 SOFTWARE

2.10.1 Global Chase Speed

It is now possible to take Global control of all running chases at one time.
See "GLOBAL SPEED CONTROL" in the "CHASE" section for details.

2.10.2 Chase Control

The [**f/a**] button of the chase playback can be used to manually step the chase. This works best if the chase speed is set to 0.
If a chase is in "one shot" mode, the [**f/a**] button of a chase playback can be used to trigger a one shot.

2.10.3 Sound To Light

The STL operation has been enhanced and improved.
See the "STL" section for details.

2.10.4 SYNCOBEAT

SyncoBEAT is a 'Tap To The Beat' feature to control chase stepping. See the "SyncoBEAT MODE" section for details.

2.10.5 Stack Step Random Selection

You can now instantly jump to any step in a stack.
HOLD [**step/stop**] and rotate the **EDIT** wheel.
The display shows the step numbers and a + or – sign before the number shows if the selected step is after (+) or before (-) the current (no sign) step.
When the desired step number is shown, **release** [**stop/step**] and the stack instantly **jumps** to that step.

2.10.6 Stack Step Display

When a STACK is stepped, the display momentarily shows the step number. Version 2 allows you to momentarily see the step number again by holding down [**stop/step**] (stack master).
To continuously see the step number on the display press [**select**], [**stack flash**]. To turn off the display press [**select**].
The optional video 3 display now shows a percentage countdown of the link time (if the step has a link time) to show how much of the link time (to the next step) has expired.

2.10.7 Stack Recording

When recording a STACK, it is possible to enter a range of memories (scenes or chases). Any memory in the selected range that is empty or contains a stack will be ignored.

2.10.8 Scene Edit

When a scene is selected for editing;
[**edit**], [**f/a**] (scene number),
simply pressing a channel [**f/a**] will automatically select that channel/fixture for level editing. The [function] button does not need to be pressed.

2.10.9 SELECT

When a playback is **altered** via [**select**], it is now possible to reload its original memory by pressing [**copy**], [**f/a**], (to same) [**f/a**].
The [**select**] function automatically "pins" and reveals a video display of the selected playback .

2.10.10 Minor Changes

Files on disk are sorted alphabetically

Dimmers on the yellow faders can be named with the names appearing on video 1.

The Video 3 window is now persistent, so it remains on display even if no stack is loaded.

There is now a Link 'percentage completed' display in the Video 3 window, to show how long before the Link is performed.

2.10.11 Diagnostics error code report.

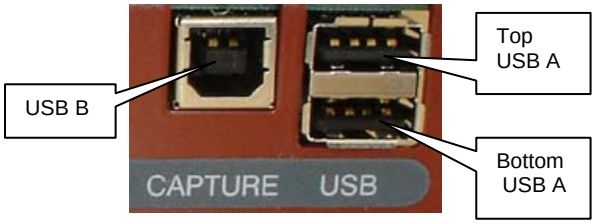
In diagnostic mode, you can select a video window to show error codes. In the event of any

problems, these codes can be reported to LSC to assist in problem solving.

2.11 NEW FEATURES IN VERSION 3 SOFTWARE

2.11.1 USB Connectors

The floppy disk drive has been replaced by two **USB** "A" (Universal Serial Bus) connectors and one **USB** "B" connector.



The top **USB** "A" connector can be used for connecting USB "flash disk" memory devices and thus replaces all of the functions previously performed by the Floppy Disk Drive.

The bottom **USB** "A" connector is not used in the maXim S and M models.

The USB "B" connector is labelled "**Capture**" and is used to connect the maXim to a computer running "Capture" software. "Capture" is a lighting simulation program that allows you to see a virtual stage and lights on your computer with the lights controlled by your maXim.
See the separate section on "Capture" for details.

2.11.2 MIDI

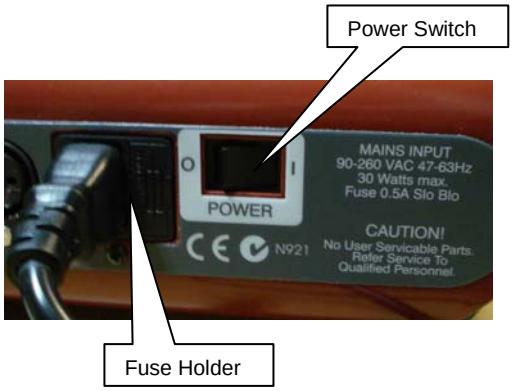
MIDI (**M**usical **I**nstrument **D**igital **I**nterface) is an international standard for data communication between musical instruments, computers and other equipment such as lighting desks.
The maXim S and M models offer MIDI as an option and so the possibility exists to either control lighting channels from a MIDI keyboard or a computer with a MIDI output and suitable sequencing software or to control a MIDI device from the maXim.

Three MIDI connectors are provided on the rear of the maXim.

3 GETTING CONNECTED

3.1 POWER INPUT

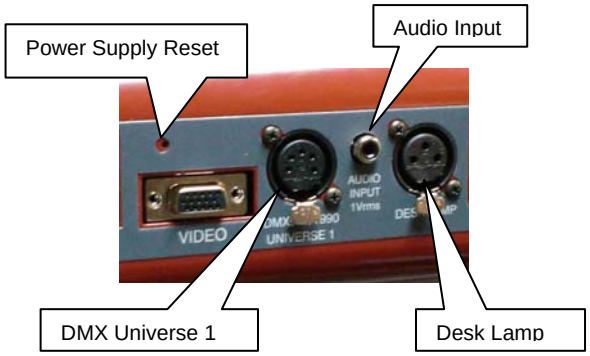
An IEC mains input socket is located on the rear panel and a POWER switch is beside the power input. The ***maXim*** has a universal power supply that will operate on voltages between 90 volts and 260 volts with a frequency range from 47 to 63 Hz.



3.2 DMX DIGITAL OUTPUT (DMX 512)

The ***maXim*** **S** and **M** models have a single DMX512 output connector located on the rear panel. Connect a DMX data cable from the DMX512 output of the ***maXim*** to the DMX512 input of your equipment (dimmers, moving fixtures etc) and set the required DMX slot address on your equipment.

Note: DMX512A together with some typical setups and address settings are described in the "DMX-512"section.



3.3 VIDEO MONITOR

If your maXim is fitted with the optional VGA output, connect a SVGA (or better) computer monitor to the 15 pin VIDEO connector on the rear of the ***maXim***. See "VIDEO" in the "UTILITIES" section for more details.

3.4 SWITCHING ON

At this point, with the mains power and DMX connected, the ***maXim*** is ready to be operated. Simply switch on the "POWER" switch located near the mains input connector on the rear of the maXim.

The ***maXim*** will commence its start up procedure. After briefly displaying the opening message, the ***maXim*** will commence operating in exactly the same state that it was in when it was last switched off. All the scenes, stacks, chases, patches etc will be as they were.

3.5 SWITCHING OFF

The maXim has an inbuilt back up power supply. When the power is switched off (or there is an unexpected blackout), you will hear a click followed a few seconds later by another click. The maXim keeps operating on its own power supply until the second click is heard. During this time all memories are automatically saved to non volatile storage.

NOTE: In the event of a short loss of mains power (a "brown out") the maXim will continue to operate for a few seconds due to the storage capacity of its internal power supply.

3.6 POWER SUPPLY RESET

In the unlikely event that your maXim does not shut down after the second click you can force it to do so by momentarily pressing the **power supply reset** switch. Remove the power then insert a small insulated pointer into the small hole to the left of the "DMX UNIVERSE 1" connector.

3.7 FUSE

A 0.5Amp slow blow fuse is located in a slide out tray beside the mains input socket.

Should the fuse blow, remove the mains lead and slide out the fuse tray. Pop out the blown fuse and replace it with a 0.5 Amp slow blow fuse. A **spare fuse** is provided in the slide out fuse tray. Replace the spare fuse if you use it.

3.8 AUDIO INPUT

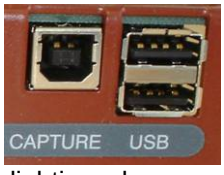
The audio input is used for "Sound To Light" effects. See the "STL" section for details.

3.9 DESK LAMP

A goose-neck desk lamp may be connected to this socket. The socket provides both power and mounting for the lamp. There is an internal self-resetting thermal fuse for the power to the lamp.

3.10 USB CONNECTORS (OPTIONAL)

You can plug a USB "flash disk" memory device into the top USB connector for the external storage of your maXim shows and also for software upgrades. The bottom USB is not used on S and maXim models.

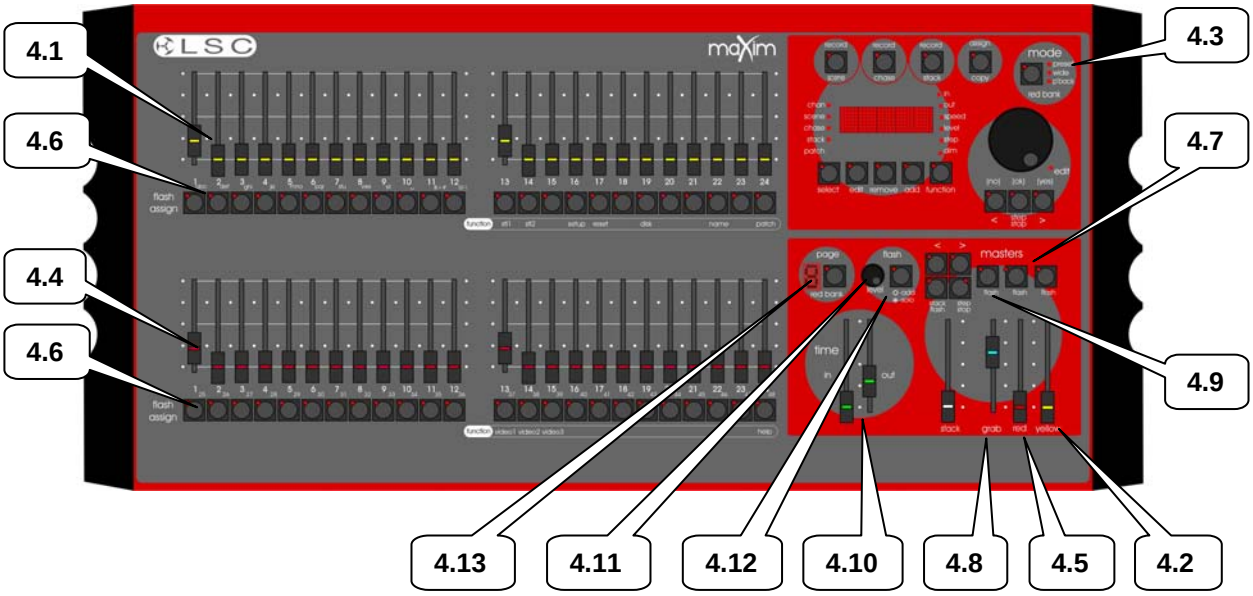


3.11 CAPTURE (OPTIONAL)

Capture is a programme that lets you simulate your lighting shows on a computer. See the separate "Capture" section for details.

4 FRONT PANEL TOUR

The diagram below shows a maXim M. The maXim S is similar but has fewer red and yellow faders.



4.1 YELLOW BANK FADERS

Control the levels of channels 1 to 12 (24) respectively.

4.2 YELLOW BANK MASTER

- Controls the overall level of the Yellow bank faders.
- In WIDE mode, it controls the overall level of the single wide preset consisting of the Yellow bank faders and the Red bank faders.

4.3 MODE RED BANK BUTTON

Selects the current function for the RED bank faders. The choices are;

- preset.
- wide.
- p'back (playback).

4.4 RED BANK FADERS

The Red bank of faders has different functions depending upon the current “MODE” as selected by the mode red bank button.

- PRESET mode. The Red bank of faders control the levels of channels 1 to 12 (24). A duplicate of the Yellow bank.
- WIDE mode. The Red bank of faders control the levels of channels 13 (25) to 24 (48).
- PLAYBACK mode. The Red bank of faders become PLAYBACKS. Each Playback can control the level of a recorded **Scene** or **Chase** (or it may be **empty)**. There are 9 pages of memory for the red playbacks and the function of each playback depends upon the contents of the currently selected red page. You determine what each page contains when you **record** (or copy) scenes, chases or stacks into them. Although stacks can be recorded on the red bank (stored in red bank memory), they can only be played back by copying them to the stack master.

4.5 RED MASTER

- In PRESET mode, it controls the overall level of the Red bank.
- In WIDE mode it has no function.
- In PLAYBACK mode it controls the overall level of the Red Playbacks (Scenes or Chases).

4.6 FLASH ASSIGN F/A BUTTONS

Below each fader in the fader section is a FLASH/ASSIGN button with an integral red indicator LED.

As their name implies, these are multi purpose buttons.

They may be used to:

- FLASH (or bump) the contents of their particular fader, be it a channel, chase or a scene. (See also FLASH level and ADD/SOLO button below).
- Provide a NUMERIC SELECTION function. When the “number” of a channel, scene, stack, chase, etc needs to be entered, the appropriate Flash/Assign button “number” is pressed. To assist you in making a selection, valid buttons will flash when an entry is required.
- In conjunction with the FUNCTION button, select various *secondary functions* such as PATCH, SETUP, etc as indicated **below** the f/a buttons.
- Provide alphanumeric entry when typing names.

BUTTON NUMBERING

Between each fader in the **Yellow** bank and its associated f/a button is a number that indicates the channel that the fader and f/a button control. (Letters of the alphabet are also printed and are used when entering names).
Between each fader in the **Red** bank and its associated f/a button are two numbers;

- The **LARGER** font indicates the channel number of the fader and f/a button when in PRESET mode.
- The **SMALLER** font indicates the channel number of the fader and f/a button when in WIDE mode.
- The **LARGER** font also indicates the number of any SCENE, STACK or CHASE that you can record in that memory location.
- The **SMALLER** font also indicates **channel numbers** when editing scenes or chase or stack steps, when viewing channel levels on the f/a button LED indicators (refer below) or when patching.

LED INDICATORS

The LED indicators in each f/a button are also multi-purpose. They can act as;

1. Channel Level indicators
The brightness of each LED indicator is proportional to the level of its channel.

- In normal operation, they indicate the level of their particular channel at the *output* of the ***maXim***.
- In edit mode they indicate the level of their particular channel in the Scene, Grab or Step of a Chase or Stack that is being edited.

2. Valid entry button indicators:
When you are required to make a numeric entry or Secondary Function selection, only valid buttons will be active and their LED indicators will light to indicate to you that an entry is required.

3. Fade in progress indicators:
The indicator for each Playback flashes *slowly* whilst a timed fade is in progress.

4.7 MASTERS FLASH BUTTONS

Used to FLASH (bump) the contents of their particular master. (See also FLASH level and ADD/SOLO button below). The brightness of their LED indicators shows the level of the master at the output of the ***maXim***. It also will flash *slowly* whilst a timed fade is in progress.

4.8 GRAB MASTER

Controls the overall level of the contents of the Grab master. This may be a Grab, a Scene or a Chase. The Grab master can also be used as a memory location for a stack.

4.9 GRAB F/A BUTTON

Flash's (or bumps) the contents of the Grab master. (See also FLASH level and ADD/SOLO button below). In conjunction with the RECORD SCENE button, it performs the "GRAB" function, or selects the grab master when required for other various functions. The brightness of its LED indicator shows the level of the Grab master at the output of the ***maXim***. It also will flash *slowly* whilst a timed fade is in progress.

4.10 IN AND OUT TIME FADERS

Control the IN and OUT fade times of the masters. They may also be individually assigned to control the IN or OUT fade times of any scene or step of a stack. The current time setting of each fader is shown on the display when its fader is moved or presses of the FUNCTION button will toggle through the two time settings.

4.11 FLASH LEVEL CONTROL

Sets the level to which any Channels, Playbacks, or Masters will be flashed when their respective Flash/Assign button is pressed.

4.12 ADD/SOLO BUTTON

Toggles the Add/Solo mode between "Add" and "Solo" as shown by a red indicator in the Add/Solo button which flashes in SOLO mode.

- In ADD mode, when a FLASH/ASSIGN button is pressed, the channels that are being flashed will come on (at the level of the FLASH level master), and normal output is not affected.
- In SOLO mode, when a FLASH/ASSIGN button is pressed, the channels that are being flashed will come on (at the level of the FLASH level master), and the normal output of the ***maXim*** will be blacked out, leaving only the channels that are being flashed on stage.

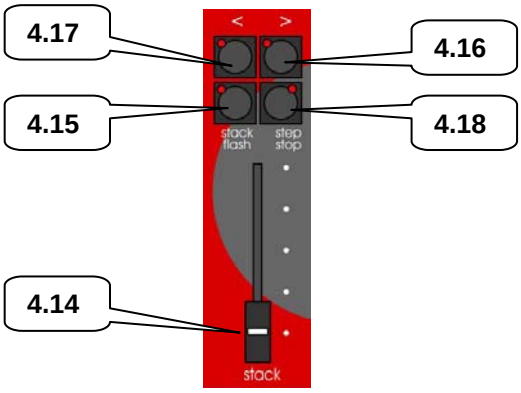
Note: Multiple Flash/Assign buttons may be pressed at the one time.

4.13 PAGE RED BANK BUTTON AND DISPLAY

- In PLAYBACK mode it is used to select the current page (1 to 9) of red memory that is loaded into the red bank of playbacks.
- When recording, editing or copying scenes, stacks or chases, it is used to select the required red page (1 to 9) for the scene, stack or chase.

Repeated presses of the Page button will step through the pages.
To *directly select* a page;
Hold [**page**] then quickly tap [**f/a**] (red 1 to 9).
The displays beside the "page red bank" button shows the red page number.

Hint: The maXim can show the types of object recorded in each page. If you press and hold [page], playback flash/assign buttons containing Scenes will light, playbacks containing Chases flash quickly, playbacks containing Stacks flash slowly and empty playbacks are not lit. The contents of all pages are also shown on the optional video screen.



4.14 STACK MASTER
It controls the overall level of the Stack Playback.

4.15 STACK FLASH
It is a multi purpose button and can be used to;

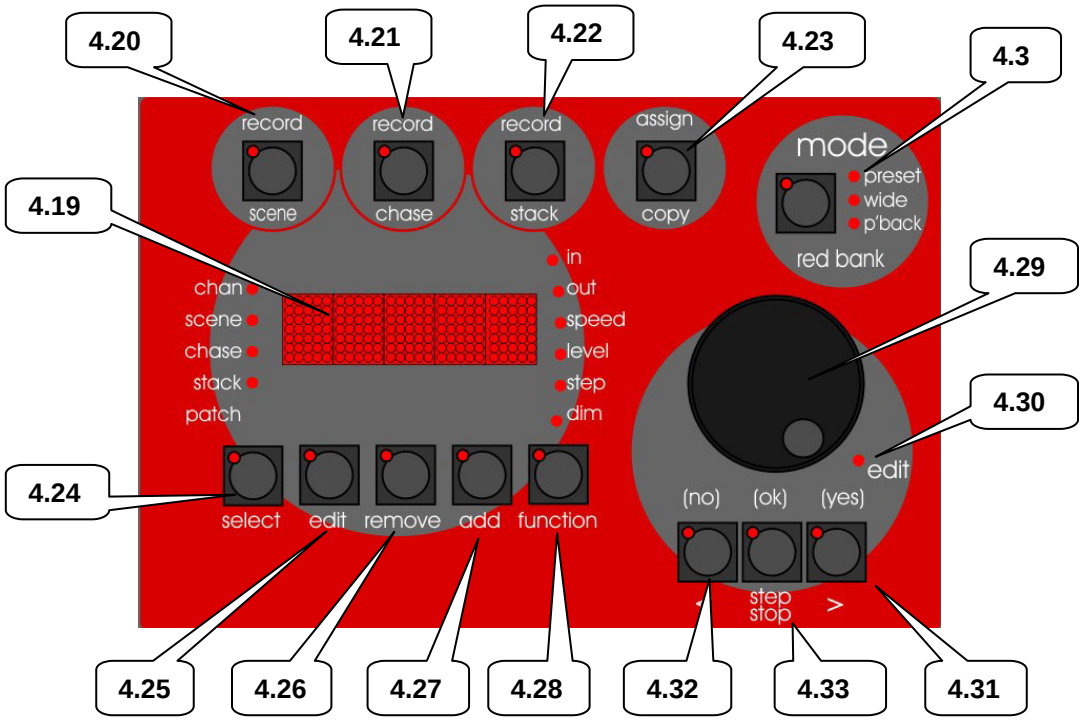
- Select the Stack Master when assigning, editing or copying a stack.
- FLASH (bump) the contents of the Stack Master. (See also FLASH level and ADD/SOLO button).

The brightness of its LED shows the level of the master at the output of the ***maXim.***

4.16 > (STACK)
It starts a crossfade from the current step to the next step. In conjunction with the step/stop button (below) it steps (snaps) a stack in the forward direction.

4.17 < (STACK)
It starts a crossfade from the current step to the previous step. Only one reverse *crossfade* is allowed. In conjunction with the step/stop button (below) it steps (snaps) a stack in the reverse direction.

4.18 STOP/STEP (STACK)
It stops a crossfade. It momentarily runs a stopped crossfade when held down. In conjunction with the > and < buttons it steps (snaps) a stack in the either direction. In conjunction with the EDIT wheel, it allows you to instantly jump to any step.



4.19 DOT MATRIX DISPLAY AND LEDS
The display is used to scroll messages and prompts and to show names and numbers. The small labelled LEDS beside the display are used to *define* the numbers shown on it. For example;

- If the CHAN LED is lit, then the number displayed is a *channel* number.
- If the LEVEL LED is lit, then the number displayed is a *channel level*.

Comprehensive information (including these messages) are also shown on the optional video output.

4.20 RECORD SCENE BUTTON
Used to select RECORD SCENE mode or to record a snapshot of the output of the ***maXim*** as a step in a stack or a chase or into the Grab master.

4.21 RECORD CHASE BUTTON
Used to select RECORD CHASE mode and to complete the recording of a chase when all the desired steps have been added.

4.22 RECORD STACK BUTTON
Used to select RECORD STACK mode and to complete the recording of a stack when all the desired steps have been added.

4.23 ASSIGN COPY BUTTON
Used to:
- Assign a stack to the stack master.
- Copy scenes, chases or stacks from one memory location to another.
- Copy scenes, chases or stacks to or from the Grab master.
- Copy a Snapshot from the Grab master to a memory.

4.24 SELECT BUTTON
Used to take control of a playback. The recorded memory is not changed, only the way that it is currently being played back.
Press [**select**] [**f/a**] (playback to control). Repeatedly press [**function**] to cycle though the parameters that you can control as indicated by the LEDs beside the display.
When finished, press [**select**] again to de-select it. The changes that you have made are retained in the Playback until such time as the scene or chase is replaced on that Playback (by changing pages or mode).
To restore the original memory to the playback press [**copy**], [**f/a**] to the same [**f/a**].

"Select" is most useful for making one off changes during a performance or for experimenting with changes without affecting the memory.

4.25 EDIT BUTTON
When pressed, it selects Edit mode. You may then choose to Edit any Scene, Chase, Stack, the contents of the Grab master or the Patch (if previously selected via the function button).

4.26 REMOVE BUTTON
Used to:
- Remove the contents of the Stack and Grab.
- Delete memories, patches or steps of stacks or chases.
- Remove characters from names.

4.27 ADD BUTTON
Used to:
- Insert steps in a stack or chase when editing.
- Add a 1 to 1 patch
- Insert spaces in names

4.28 FUNCTION BUTTON
- When pressed during normal operations, it causes the display to momentarily show the current time "IN" or "OUT" settings of the time faders, whilst it is held down. Subsequent presses will toggle between the two time settings.
- When editing, pressing [**function**] steps through the various parameters that can be changed as indicated on the LEDs above the function button.
- After pressing [**select**], [**f/a**], pressing [**function**] steps through the various parameters that can be changed on the selected playback
- It accesses the secondary functions such as reset, (USB) disk or patch etc as indicated **below** the yellow and red bank [**f/a**] buttons.
  To perform secondary functions;
  HOLD [**function**] tap [**f/a**] (secondary function as printed below red and yellow bank "f/a" buttons).

4.29 EDIT WHEEL
Continuously rotatable in either direction and can be used to:
- Set fade and link times plus chase speed and crossfade when recording or editing.
- Adjust the level of channels when editing.
- Adjust Sound To Light parameters.
- Select DMX address numbers when patching.
- Select characters for names.
- Scroll the V1 or V2 optional video displays.

4.30 EDIT WHEEL INDICATOR
Lights when the EDIT Wheel is active.

4.31 > (YES) BUTTON
- Runs a selected or edited chase in the FORWARD direction.
- Steps a stack forward when editing.
- Increments through the DMX address numbers when patching.
- Answers "YES" to a request from the ***maXim***.

4.32 < (NO) BUTTON
- Runs a selected or edited chase in the REVERSE direction.
- Steps a stack backwards when editing.
- Decrements through the DMX address numbers when patching.
- Answers "NO" to a request from the ***maXim***.

4.33 STEP STOP (OK) BUTTON
- Used to STOP a selected or edited chase or STEP a stopped chase.
- Answers "ok" to a request from the ***maXim***.

Note: Combinations of buttons 35, 36 and 37 are used to set and control various chase modes such as bounce and single shot. See the "CHASE" section for details.

5 MODES OF OPERATION

5.1 OVERVIEW

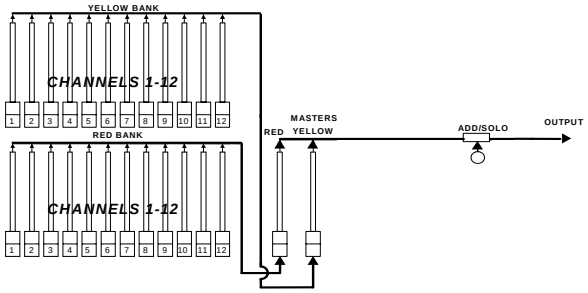
The ***maXim*** has several banks of faders.

- The Yellow bank always controls the levels of channels/fixtures 1 to 12 (24).
- The Red bank has different functions as selected by the "mode red bank" button.
  - **PRESET** mode. The Red bank controls the levels of channels 1 to 12 (24). (A **duplicate** of the Yellow bank).
  - **WIDE** mode. The Red bank controls the levels of channels 13 (25) to 24 (48). (An **extension** of the Yellow bank providing **double** the number of channel faders).
  - **PLAYBACK** mode. The Red bank faders become **PLAYBACKS** and control the levels of recorded Scenes or Chases.

You may freely change red modes at any time during your operation of the ***maXim*** and the current red mode is **always shown** by the "LED" MODE indicators.

Each mode has its particular advantage for different types of operations.

5.2 PRESET MODE



*Simplified diagram of a **maXim S** in **PRESET** mode.*

You can create a lighting look by fading up your required channels on one of the colour coded banks and fading up the same colour master. By keeping the other master faded down, another look can be **preset** on the duplicate set of channel faders without the channels being revealed on stage. The new look is revealed by fading up its master whilst the first look is faded down with its master. The *next* look may now be "preset" on the bank that has just been faded down. The fade times of the masters are set by the IN and OUT time faders.

5.2.1 PRESET ADVANTAGE

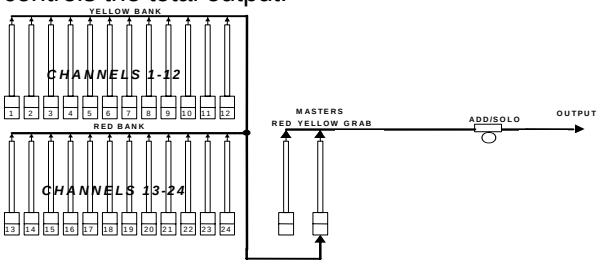
This simple mode of operating is most useful in unrehearsed situations where the next "look" needs to be created "on the fly". The channel faders provide instant "hands on".

5.2.2 PRESET DISADVANTAGE

Only half of the possible **maXim** channels can be intensity controlled by dedicated faders and any look that needs to be used at a later time must be manually reproduced.

5.3 WIDE MODE

Wide mode utilises both the red *and* yellow banks as a *single* wide bank thus doubling the number of channel faders. The yellow faders control the low numbered channels and the red faders control the high numbered channels. The yellow master controls the total output.



*Simplified diagram of a **maXim** S in **Wide** mode.*

5.3.1 WIDE ADVANTAGE

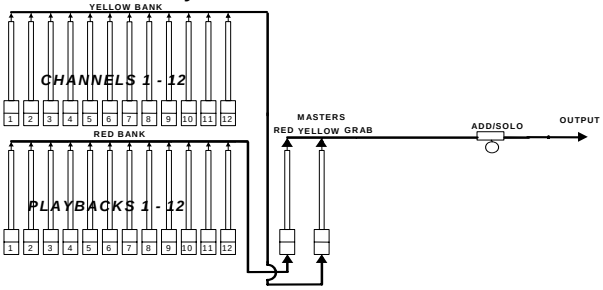
You have individual access to **all** of the **channels** that are available on the ***maXim***. This is most useful when you are RECORDING scenes as you can utilise all channels to create your scenes. (See "Playback Mode" below).

5.3.2 WIDE DISADVANTAGE

You do not have a second "preset" bank on which to create the next look.

5.4 PLAYBACK MODE

Selecting Playback mode only changes the operation of the red bank. The faders of the red fader bank become Playbacks containing **scenes** or **chases** that you have recorded.



*Simplified diagram of a **maXim S** in **Playback** mode.*

Scenes, stacks and chases can be *recorded or edited* whilst operating in any modes but scenes and chases can only be played back on the Red bank when it is in Playback mode.

5.4.1 PLAYBACK ADVANTAGE

During rehearsal (in any mode), each lighting look can be created and "recorded" into a Scene, (with its own IN and OUT fade times if required). During the show (in Playback mode), the Playback containing each scene is faded up when required. The ***maXim*** remembers all the channels and their levels together with the fade times. You may also use the Red Playbacks to playback chases that you have recorded.

6 QUICKSTART TUTORIAL

It is assumed that you have your maXim connected and turned on as described earlier and that you are familiar with basic lighting terminology. If not, see the "Terminology" section.

6.1 RESET

When the ***maXim*** is switched on, it displays an initial message on the display and then configures itself exactly as it was when it was last switched off. All the scenes, chases, patches, mode etc will be exactly as they were.

When you start a ***new lighting session*** (a new show) it is preferable to perform a TOTAL RESET of the ***maXim*** so that you are not confused by any previous recordings or settings that may have been made. A TOTAL RESET will **erase everything** that has been "RECORDED" into the ***maXim*** and select Preset mode. If the current recordings are needed in the future, you should save them onto a USB memory device (optional) before resetting. A total reset will also erase the patch and automatically perform a 1 to 1 patch. See the "Patch" section for details.

To perform a **TOTAL** reset;

Press and **HOLD** [**function**], tap [**f/a**] (RESET).

The display asks you,

"`Do System Reset?`". Press [**no**].

The display asks you,

"`Do Total Reset?`". Press [**yes**].

The display warns you,

"`Reset will clear all memories, Continue?`". Press [**yes**].

All memories are erased, and Preset mode is selected.

See "RESET" in the "UTILITIES" section for more details on "System" and "Total" resets.

6.2 CONTROLLING LIGHTS

6.2.1 Creating A "Look" On Stage

Place every fader on the ***maXim*** to its lower limit. Now fade up the Yellow master to maximum (top). Fade up channel 1 on the Yellow fader bank. The fixture(s) connected to DMX slot 1 fades up on stage. Fade up channel 3 on the Yellow bank and the fixture(s) connected to DMX slot 3 come on. You can "balance" the look that you are creating by adjusting the intensities of the individual channels. This is done by setting the positions of the individual channel faders of the yellow bank. The brightness of the red indicator in each channels f/a button also gives you a visual indication of that channels intensity. You have now created your first lighting "look". You can control the overall level of this look with the Yellow master.

6.2.2 Presetting The Next Look

The next look can now be "preset" on the Red bank, which, in "Preset mode" provides a *duplicate* set of channel faders. The Red master is in the faded down position so any channels that are faded up on the Red bank will not be revealed on stage. Fade up channels 2 and 5 on the Red bank and set them to the levels that you desire.

6.2.3 Crossfading To The Next Look

To perform a crossfade from the Yellow bank to the Red bank, simply fade UP (in) the Red master and, at the same time fade DOWN (out) the Yellow master. Channels 2 and 5 will fade up on stage whilst channels 1 and 3 will fade down.

As the Yellow master is now down, the next look may be preset on the Yellow channel faders without being revealed on stage. On the Yellow bank, fade down channels 1 and 3 and fade up channels 4 and 7. Crossfade to this new look by fading UP the Yellow master and fading DOWN the Red master.

In this manner, whilst one bank is faded UP, a new look can be preset on the bank that is faded DOWN and then the crossfade to the next look is performed with the Red and Yellow masters. The entire show may be performed by fading between the varying looks on the red and yellow presets.

Hint: You can obtain different effects by simply varying the timing of your IN fades and OUT fades. If you fade IN fully before commencing your OUT fade, you will have a period where both looks are on at the same time. If you fully fade OUT before commencing your IN fade, then the stage will dip to black between the two looks. The most pleasing crossfades are often accomplished by starting with the IN fade, then commencing the OUT fade when the incoming look is just starting to become visible on stage.

6.3 TIMED FADES BETWEEN BANKS

The fades that you have been performing on the Red and Yellow masters have been "manual" fades. That is, they have directly followed the actual positions of the Red and Yellow masters. The speed that you move the fader determines the time of the fade. This is because the IN and OUT time faders were set to 0 seconds. You can **accurately** control the IN time and the OUT time of these fades by using the IN and OUT time faders to set the required duration. By default, the IN and OUT time faders control the fade times of the Bank masters. Fixed fade times may also be set via the [**select**] button. See the "Fade Times" section for details.

When a Master is moved in an upward direction, the fade will always progress toward the current position of that Master at a rate determined by the IN time. When a Master is moved in a downward direction, the fade will always progress toward the current position of that Master at a rate

determined by the OUT time. If the IN time is set to say 5 seconds, and a Master is quickly faded from fully down to fully up, then the actual fade up will take 5 seconds. If you do not bring the Master fully up, then the fade will only fade up to the level of the Master and then stop. If the Master was only faded up half way, and the IN time was set to 5 seconds, then the fade up would reach the Masters position and stop in 2.5 seconds.

The manual fades that you performed earlier were achieved by simply setting the IN and OUT time faders to a time of 0 seconds. At 0 seconds, the fades will *instantly* follow the position of the Bank masters. When a Time fader is moved, the display automatically shows its setting. Set the IN time fader to 3 seconds and the OUT time fader to 5 seconds.

Hint: To check the current time settings of the Time faders, press [function]. When pressed during normal operations, it causes the display to momentarily show the current time IN or OUT settings of the time faders whilst it is held down. Subsequent presses will toggle between the two time settings.

Quickly perform a crossfade between the Red and Yellow masters. The IN-coming bank fades up in 3 seconds whilst the OUT-going bank fades down in 5 seconds. Notice that the LED's in the f/a buttons for the Red and Yellow masters flash whilst the crossfade is occurring. The flashing indicates that a timed fade is in progress.

Note: Bank masters, Playbacks and the Grab master all flash their f/a buttons when they have a timed fades in progress. This flashing is especially useful when a LONG fade time is being executed, because the physical position of a master does not necessarily represent the actual level of the masters output. If you have some unexplained output from the maXim, check to see if any master's FLASH/ASSIGN button is flashing, indicating that a timed fade is in progress.

All of the "looks" that you have created have been made on a "one off" basis. That is, they have not been recorded into the memory of the ***maXim***. If you needed to re-use a look that you had previously created, then you need to take a note of all the channels and their respective levels together with the fade times (if any), and then manually setup the faders for the look and fade times.
The ***maXim*** allows you to "RECORD" any of the looks and fade times that you create. When you record a look it is known as a **Scene** and it may be played back from memory.

6.4 RECORDING A SCENE

Scenes are created on the ***maXim*** by establishing the lighting look that you require on the OUTPUT and then recording this look into the memory in a **page** (1 to 9) and **scene number** (1 to 12, 24).

Note; Recording a scene in a different page of memory is not covered in this "QUICKSTART TUTORIAL". See the "MEMORY STRUCTURE" and "SCENES" sections for details.

6.4.1 Rapid Scene Recording

To Record a Scene, first create a look on the output as described earlier, then press;
[**record scene**].
The f/a buttons below the Red fader bank will flash twice. They flash to indicate possible scene *numbers* and to prompt you to press one of them to select a scene number. The display scrolls a message,
"`Pick Scene Number`".
To complete the recording as scene 1, press;
[**f/a**] (1) (Red bank).
The display briefly displays:
"**`r1.01`**" (**r**ed bank, page **1**, scene number **01**) confirming the recording. This is the quickest method of recording a scene. It uses the **default values** of;

- Page number = the current page.
- IN fade time = controlled by the IN time fader.
- OUT fade time = controlled by the OUT time fader.

6.4.2 Recording With Fade Times

When you record a scene, you may set exclusive IN and OUT fade times for that scene (independent of the Time faders). Create another "LOOK" using the channel faders. We will now record it in Page 1, Scene 2 with a **recorded** IN time of 5 second and OUT time of 10 seconds.
Press; [**record scene**], [**function**].

> The "in" LED lights and the display reads "`IN time-Set with Wheel`", then shows the default setting (time **fad**er).

Rotate the **EDIT wheel** and use it to set the IN time to 5.0 seconds.
Press; [**function**] again.

> The "out" LED lights and the display reads "`OUT time-Set with Wheel`" ", then shows the default setting.

Rotate the **EDIT wheel** and use it to set the OUT time to 10.0 seconds.
To complete the recording, give the scene a number by pressing;
[**f/a**] (2).
The display briefly displays "`r1.02`" (the recorded Bank/Page/Scene number).

Note; When the RECORD button is pressed, all Playback flash/assign buttons flash twice, then Playbacks containing Scenes remain lit, Playbacks containing Chases flash quickly, Playbacks containing Stacks flash slowly and empty Playbacks are not lit.

6.5 REPLAYING A SCENE

To playback the scenes that you recorded you must select PLAYBACK mode. This changes the faders of the Red bank into PLAYBACKS. The function of each Playback depends upon the contents of the currently selected page. You determine what each page contains when you **record** (or copy) scenes, chases or stacks into them. Hence each Playback may control a **scene** or a **chase**. (Stacks are also stored in playback memory locations but may only be replayed by assigning them to the stack master). When you select PLAYBACK mode or change pages in PLAYBACK mode, the scenes (and/or chases) in the selected page are copied, in order, to their respective red bank Playbacks, 1 to 12 (24).
The output from all of the red Playbacks is under the control of the Red master.
Fade down all of the faders on the RED bank and both of the Time faders to their lower limit.
To change to PLAYBACK mode, repeatedly press [**mode red bank**] until the "p-back" indicator is lit.
Earlier you recorded scenes in Red Page 1 Scene 1 (r1.01) and Red Page 1 Scene 2 (r1.02). These scenes are now available on Red Playbacks 1 and 2 respectively because Page 1 is shown as the current red page. Fade up the Red master, then to reveal scene r1.01 on stage, fade up red Playback 1(Red fader 1).

Scene r1.01 uses the IN and OUT time faders as its time sources for fades. Scene r1.02 has recorded fade times. To crossfade from scene r1.01 to scene r1.02, quickly fade up red Playback 2, whilst at the same time fading down red Playback 1. Scene r1.02 ignores the Time fader settings and uses its own recorded fade times.
Notice that Playback f/a buttons flash whilst a timed fade is in progress.
The ***maXim*** also provides the following facilities when working with scenes;

- The channel levels and the fade times in a scene may be edited (modified).
- Scenes may be copied to other Playbacks and or pages and to or from the Grab master.

For descriptions of these operations, see the "SCENES" and "GRABMASTER" sections.

6.6 RECORDING A CHASE

Each step of a chase consists of either a previously recorded scene or a snapshot of the ***maXim*** output.
For simplicity, let's record a simple 3 step chase consisting only of snapshots. Make step 1 consist of only channel 1, step 2 channel 2 and step 3 channel 3. Record it in Playback 12 using the following steps.
Press [**record chase**], [**f/a**] (red 12).
For the first step of the chase, fade up only channel 1 on the output, then record the step by pressing; [**record scene**].
For the next step of the chase, fade up only channel 2 on the output, then press [**record scene**].
For the last step of the chase, fade up only channel 3 on the output, then press [**record scene**].
To complete the chase press [**record chase**].

6.7 REPLAYING A CHASE

The red bank must be in PLAYBACK mode to replay chases. When you select PLAYBACK mode or change pages in PLAYBACK mode, the chases (and/or scenes) in the selected red page are copied, in order, to their respective red Playbacks. To replay a chase, ensure that you are in PLAYBACK mode and that the Red master is up. To reveal the chase, fade up its Playback.

6.7.1 Controlling A Chase

To control a chase on a playback, press;
[**select**], [**f/a**] (playback to be controlled).
To control the **SPEED**, rotate the **EDIT wheel**. The speed is shown on the display in BPM (Beats Per Minute).
To **STOP** the chase, press [**step/stop**].
To manually **STEP** the stopped chase, press [**step/stop**] or the [**f/a**] button of the playback.
To **RUN** the chase press either **[>]** (Forward) or **[<]** (Reverse).
When finished controlling, press [**select**].
The changes you have made (if any) are retained in the playback, but the original chase memory remains unaltered. To reload the original chase you copy it from memory to the playback.
Press [**copy**], [**f/a**] to same [**f/a**].
The ***maXim*** also provides the following facilities when working with chases;

- Chases may be run in "Bounce" mode or as "Single Shot" chases.
- The transition between steps may be set as a crossfade.
- The channel levels in each step may be edited (modified).
- Steps may be inserted or deleted.
- Chases may be created or run on the Grab master.
- Chases may be copied to other banks/playbacks/pages and to or from the Grab master.
- Chases may be used as steps in a stack.
- You can tap your own beat pattern via the SyncoBEAT function.
- Chase stepping can be controlled by an audio input (Sound To Light)

For descriptions of these operations, refer to the "CHASES" and "STL" sections.

6.8 RECORDING A STACK

A Stack is a list of steps consisting of scenes or chases or snapshots (of the ***maXim*** output) that are arranged in the order that they are to be replayed. A Stack is designed to be played one

step at a time with the transitions being a timed DIPLESS CROSSFADE executed by pressing the stack masters **>** (forward) button. Individual IN and OUT fade times may be recorded for every step. A step may be programmed to automatically "LINK", to the next step after a set time.

If all the lighting cues in a "show" have been recorded into a "stack", then the entire show may be performed on the stack master by simply pressing the forward " **>** " button for each lighting cue.

To record a stack, press;
[**record stack**], [**page**] (optional) (select a page in the red bank), [**f/a**] (stack number) (any of the red bank flash/assign buttons) (or the grab f/a button).
Each step of a stack consists of either a previously recorded scene, chase or a snapshot.

- To select a scene or chase as a step, press;
  [**page**] (optional), [**f/a**] (scene or chase number).

The fade times from the scene will be used for the step in the stack.

- To record a snapshot (of the current ***maXim*** output) as a step, press; [**record scene**].

As each step is added, you can repeatedly press [**function**] to set the fade IN time, fade OUT time and LINK time (automatically links to next step after link time expires).
Pressing [**function**] again shows the current step number and allows you to record the next step. Continue to record steps as above.
When all steps have been recorded, complete the stack by pressing [**record stack**].

6.9 REPLAYING A STACK

Stacks can only be played back on the stack master.
To assign a stack to the stack master, press;
[**assign copy**],
[**page**] (optional) (select the page in the red bank containing the stack),
[**f/a**] (stack number),
[**stack flash**].
Fade up the stack master to reveal the first step.

6.9.1 STARTING A CROSSFADE

To crossfade from the *current* step to the *next* step, press;
[>] (forward).
While the crossfade is *in progress*, the **>** (forward) button flashes for the duration of the IN fade and the **<** (reverse) button flashes for the duration of the OUT fade.
The display momentarily shows the step number of the incoming step.

To momentarily see the step number again, hold down [**stop/step**] (stack master).

6.9.2 STOPPING A CROSSFADE

To stop a crossfade *in progress,* press; [**step/stop**].
The **>** (forward) button, **<** (reverse) button and step/stop buttons all flash.

6.9.3 STARTING A CROSSFADE

To start a stopped crossfade in the forward direction, press;
[>] (forward).
To start a stopped crossfade in the reverse direction, press;
[<] (reverse).
The crossfade can also be *momentarily* re-started by holding down [**step/stop**]

6.9.4 CLEAR THE STACK MASTER

To clear the stack master, press;
[**remove**], [**stack flash**], [**yes**].

7 MEMORY STRUCTURE

7.1 OVERVIEW

Scenes, Chases and Stacks can be recorded in any of the "PLAYBACK" memories. The memories are organised in 9 pages with each page containing 12 (24) memories giving a total of 108 (216) memories. Access is via the red bank's 12 (24) f/a buttons in conjunction with the [**page**] number. You determine what each page contains when you **record** (or copy) scenes, chases or stacks into the f/a numbers of that page. Each memory can only be used to hold one object. For example, if a memory has been used for a scene, a chase or stack recorded in the same location would overwrite the scene.

To see the type of object recorded in each memory; **HOLD** [**page red bank**].
A window pops up on the optional video showing memory usage and the playback flash/assign buttons indicate their contents as follows;

Playback Contents	Playback f/a LED
Scene	On steady
Chase	Fast Flash
Stack	Slow Flash
Empty	Off

When you press [edit], [assign copy] or any [record] button, all Playback f/a buttons flash twice (to indicate that they are possible choices), then they show their contents as above.
If you change pages whilst in "edit", "assign copy" or "record" modes, the contents of the selected page is also shown.

7.2 "PLAYBACK" MEMORY ACCESS

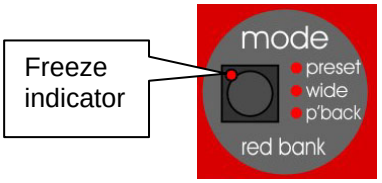
When the red bank is changed to "**p'back**" mode or when a red bank **page** is changed whilst in p'back mode, the contents of the indicated red page are COPIED (subject to any "Page Freeze" below) into the red playbacks.
Stacks occupy memory locations on the red pages but do not load onto playbacks. They must be individually COPIED from red memory to the stack master for playback.

7.3 MODE/PAGE FREEZE

A "MODE/PAGE FREEZE" feature prevents the contents of a "live" fader from being changed if its level is above 5% when a mode or page is changed. The current contents of any *live* fader is held until such time as that fader is faded down below 5% when it will be automatically updated with its **pending** assignment for the new mode or page. This prevents scenes, chases or channels "crashing in" on stage if their fader is contributing to the output when a different mode or page is selected.

7.4 FREEZE INDICATOR

Whenever there is a pending scene, chase or channel change due to a 'Mode or Page freeze', the "LED" indicator in the "**mode red bank**" button will flash.



This acts as a warning to you that the contents of a fader on the Red bank may change after it is faded down.

The optional video screen also shows the current page number loaded on each playback.

7.5 "RECORD" MEMORY ACCESS

During recording, storing, editing or copying, you can directly access any of the memory locations on any page by using the [**page red bank**] and [**f/a**] buttons. Changing pages when recording, editing or copying does not affect the current contents of a playback.
If you attempt to record, store or copy over an existing memory a warning will appear on the ***maXim*'s** display. To overwrite the memory either press [**yes**] or press the locations [**f/a**] button a second time. To pick a different memory location press [**page**] (optional), [**f/a**] (new location).

7.6 SELECT PLAYBACK

When [**select**], [**f/a**] is pressed, the copy of a scene or chase in a playback can be varied without affecting the original memory.

When [**select**] is de-selected, the changes are retained in the playback until a new memory is loaded onto the playback by a page change or a copy operation.
To reload the original memory into a playback press; [**copy**], [**f/a**] (to same) [**f/a**].

7.7 EDIT MEMORY

When [**edit**], [**f/a**] is pressed, the copy of a scene or chase in a playback **and** the original memory are edited.

When [**edit**], [**page**], [**f/a**] is pressed, if the page you select is not currently loaded on a playback, the original memory can be edited.

7.8 EXTERNAL STORAGE

The *optional* USB connector allows you to plug in a USB "flash disk" memory device and then save or load a "show" using the USB disk. A "show" contains the entire contents of the ***maXim's*** memory. This includes all Scenes, Chases, Stacks, SyncoBEATs and the Patch.

8 FADE TIMES

8.1 TIME FADERS

The **time faders** allow individual IN (up) and OUT (down) fade times to be set. The times may range from 0 seconds up to 190 seconds (**3 minutes 10 seconds**).

- When either Time fader is moved, its current time setting is shown on the display.
- Holding [**function**] during normal operations causes the display to momentarily show the current IN or OUT time setting of the time faders. Subsequent presses will toggle between the two time settings.

8.2 TIMED FADES

When a Master or Playback fader is moved, the output level of that fader will always progress towards the current physical position of that fader at a rate set by the relevant time setting.

- On *upward* movements of masters the IN time will be used
- On *downward* movements of masters the OUT time will be used.

For example, if an IN fade time of 3 seconds has been set, then to execute a fade in exactly 3 seconds, the master must be moved from bottom to top in less than 3 seconds. If you take longer than 3 seconds to move the master, then the fade will keep pace with the fader movement. If the master were only faded to the half way position, then the fade would take 1.5 seconds to reach that point and then stop. If the master were then moved to the end of its travel, the fade would take another 1.5 seconds to complete.

8.3 MEMORY TIMES

Individual IN (up) and OUT (down) fade times may be **recorded** for every scene and every step in a stack. The times may range from 0 seconds up to **16 minutes 39 seconds** (999 seconds).

8.4 MANUAL FADES

A manual fade is achieved by setting the fade times to 0 seconds. The fade will then *instantly* follow the position of the fader as you move it.

8.5 CHANNELS FADE TIMES

All individual channel faders perform manual fades.

8.6 MASTERS FADE TIMES

The In and Out fade times of the masters are by default controlled by the Time faders. You can also set individual fixed in and out times. To change the fade time of each master, press;
[**select**], [**flash**] (master to set), [**function**].
The "**in"** LED lights. The IN fade time may be set by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "in time" manual fader.
Press [**function**].
The "**out**" LED lights. The OUT fade time may be set by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "out time" manual fader.
To end the process, press [**select**].

8.7 PLAYBACK FADE TIMES

8.7.1 SCENES

When a Playback contains a **Scene**, its in and out fade times may be controlled by the Time faders (default) or its In and Out fade times may be recorded in memory as part of the scene. Pressing [**select**], [**f/a**] (playback to change), [**function**] allows you to *change* the RUN TIME conditions (in time and out time) on the *selected Playback*. The "**in"** LED lights. The IN fade time may be set by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "in time" manual fader. Press [**function**]. The "**out**" LED lights. The OUT fade time may be set by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "out time" manual fader. To end the process, press [**select**]. When you have finished adjusting the time, the original memory is not affected, but the changes that you have made are retained in the Playback until such time as the scene is replaced on that Playback (by changing pages or mode).

8.7.2 CHASES

When a Playback contains a **Chase**, its *overall level* fade times are controlled manually by the movement of the playback fader. The transitions between steps of a chase may be instantaneous (snaps) or crossfades. See the "Chase" section for details.

8.8 GRAB MASTER FADE TIMES

When the Grab master contains a "grab", its In and Out fade times are controlled by the Time faders but, as with scenes, you may Edit the Grab master to set individual times.
When a "Scene" is copied to the Grab master, it's In and Out fade times are controlled by the settings recorded in that scene.

8.9 STACK FADE TIMES

When a stack is assigned to the stack master, the times of the crossfade from one step to the next are determined by the settings that have been *recorded* for each step.
See the "Stack" section for details.

9 SCENES

9.1 OVERVIEW

A SCENE is a recorded snapshot of the ***maXims*** *output*, together with In and Out fade time settings and a descriptive name, that is stored in non volatile memory. Scenes are recorded by page/scene number. Page numbers are selected with the [**page red bank**] button and scene numbers are selected with the red [**f/a**] buttons.
See the "MEMORY STRUCTURE" section for more details on banks and pages.
Scene Playback fade times may come from the Time faders or may be recorded in memory as part of the scene. Individual IN, and OUT fade times may be recorded for every scene.

9.2 SCENE RECORDING

The ***maXim*** provides a *variable* method of recording scenes. The fastest method takes just 2 button strokes and uses the default times and current page or you can choose to record in a different page or to set separate IN and OUT fade times. You ***complete*** the recording by giving the scene a number (via the red [**f/a**] buttons). You can complete the recording at any time in the process regardless of whether you have set each parameter or not. If a parameter has not been set, it will be recorded with its default value.
The **DEFAULT** values are;

- Page = The number on the red page Indicator.
- IN time = Controlled by the IN time fader.
- OUT time = Controlled by the OUT time fader.

9.2.1 Rapid Scene Recording

To record a scene with default settings (above), create the desired look on the output, then press;
[**record scene**],
[**f/a**] (Scene number).

9.2.2 General Description

To record a scene, create the desired look on the output, then press [**record scene**].
The Record Scene button flashes and the display scrolls "Pick Scene Number".
The page buttons and the function button flash to show that they are active. All Playbacks will flash twice to indicate possible memory location choices, then Playbacks already containing scenes in that page will light. (Playbacks containing chases flash quickly, stacks flash slowly and empty playbacks are not lit.) This acts as a warning to you of existing scene (and chase or stack) numbers and unused numbers in each page.

9.2.3 Page Selection

Repeated presses of either [page] button will cycle through the 9 pages of memory. To switch directly to a page;
HOLD [**page red bank**], tap [**f/a**] (Page number).
As you select each page, all Playbacks will flash twice then indicate their contents as above.
When a page is selected, if you **HOLD** the [**page red bank**] button, a window pops up on the optional video screen showing you the contents and name of every memory location.
Choose a Page number for the scene.

9.2.4 Fade Times

Both the IN time and the OUT time may be individually recorded as being either controlled by their respective "time" fader (default setting) or they may have a time set in memory.

- If a time fader is selected, then when the scene is replayed, the playback controlling the scene will use the *current* setting of the appropriate time fader. This allows you to use the IN and OUT time faders to adjust fade times "on the fly".
- If a set time is recorded, this is a fixed time exclusive to that scene. A scene may even have a set IN time and a Fader OUT time or vice versa.

See "FADE TIMES" in the "FADE TIMES" section for more details on the operation of fade times.

Repeated presses of [**function**] will cycle the display through the IN time setting, the OUT time setting and the prompt for you to enter a Scene number.
When either of the time settings are indicated, the EDIT wheel lights to show that it is active. Rotate the **EDIT wheel** to set the desired time. The maximum time is 16 minutes and 39 seconds and the minimum time is 0 seconds. When a time is set *lower* than 0 seconds, it reverts to "Fader" (IN or OUT time Fader) control. Set the desired times then ensure that the lighting "Look" on the output of the ***maXim*** is as you require and complete the recording (take a snapshot of the ***maXims*** output), by pressing [**f/a**] (Scene number).

If the selected memory location has already been used, the display will read "WARNING memory exists – overwrite?" You now have two options.

- To erase the existing memory and replace it with the current output either press [**yes**] or [**f/a**] (existing memory to overwrite).
- To pick another memory location press [**f/a**] (new memory location).

Note; The maXim will not record a scene if all channels are at zero level.

9.2.5 NAMING A SCENE

Each scene is by default given its bank, page and **f/a** number as a name. For example, r1:01 (red bank, page 1, scene 1).
To enter or change a name;
HOLD [**function**], tap [**f/a**] (name).

The display says "`Pick Object to Name`".
Press [**page red bank**] (optional), [**f/a**] (scene number).
Either rotate the **EDIT wheel** or press the yellow bank [**f/a**] buttons for the desired characters or the red bank [**f/a**] buttons for numbers 1 to 10 (0) as labelled below the buttons. Where several characters are printed below each button, multiple presses select the next character in a similar fashion to a mobile telephone keypad. Press **[<]** or **[>]** to move the cursor and press [**remove**] or [**add**] to remove or add characters or spaces.
Names may be up to 15 characters long.
When finished, press [**ok**].

9.3 SCENE PLAYBACK

9.3.1 PLAYBACK Mode AND PAGES

When you set the red bank **mode** to "p'back", the scenes (and chases) in the current page are copied, in order, to their respective red playbacks.
If you change pages, the scenes (and chases) in the selected page are copied, in order, to their respective red playbacks.

Note; Mode/Page freeze rules apply. See the "MEMORY STRUCTURE" section for more details.

9.3.2 CONTROLLING A SCENE

To reveal a scene recorded on the red bank on the output, press [**mode red bank**] until its "**p-back**" LED lights. If necessary, select the page containing the scene using the [**page red bank**] button. Fade up the red Playback containing the scene and also the red master.

The scenes can be faded in or out as required or they may be "Flashed" (soloed or bumped) via their [**f/a**] buttons.

9.3.3 FADE TIMES

To control the fade times of the scene you can either [**select**] the *playback* controlling the scene or [**edit**] the *memory* containing the scene.
"**Select**" allows you to *change* the in and out fade times in the selected PLAYBACK without affecting the original scene *memory*.
Press [**Select**], [**f/a**] (playback to control), [**function**].
The **"in"** indicator lights. The display prompts you then shows the IN fade time. The fade time may be changed by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "in time" manual fader.
Press [**function**] until the **"out"** indicator lights. The display prompts you then shows the OUT fade time. The fade time may be changed by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "out time" manual fader.
When you have finished adjusting the times, press [**Select**].
The changes that you have made are retained in the Playback until such time as the scene is replaced on that Playback (by changing pages or mode).
To restore the original memory to the playback press [**copy**], [**f/a**] to the same [**f/a**].

"**Edit**" allows you to directly change the memory settings of the scene. In addition to changing the fade times you can edit the channel levels of the scene. These changes are automatically saved to memory as you edit. If the scene is currently on a Playback, then these changes are also seen live on that Playback. Edit is described below.

9.4 EDITING A SCENE

You may **edit** a scene live or blind (faded down) on its Playback or directly in its memory location. If the scene is faded up on stage you will see the changes. When you edit the scene its channel levels are shown on LED indicators and on the optional VGA monitor. The LEDs *intensity* reflects the levels of those channels in the scene.

- To edit a scene on a Playback, press; [**edit**], [**f/a**] (scene number).
- To edit a scene (in the Grab master), press; [**edit**], [**f/a**] (Grab master) (MP model only).
- To edit a scene in a different page, press; [**edit**], [**page**], [**f/a**] (Scene number).

The FUNCTION button flashes to show that it is active. It allows you to read and edit actual channel levels and fade times for the scene (see below). Repeated presses of [**function**] will cycle the display through channel LEVEL(%), IN time setting, OUT time setting and the page/scene number. These editing processes are described below.

9.4.1 Channel Levels

To read and/or edit the level of any channel in a scene, edit the scene (above) then press a channels [**f/a**] button. Whilst the **f/a** button is held down, the display shows the channel number.
When the **f/a** button is released, the display shows the level of that channel in the scene.
To edit the level of the selected channel, rotate the **EDIT wheel**.
If the level is varied **above** its recorded value it is prefixed by a + sign. When a parameter is varied **below** its recorded value it is prefixed by a - sign. If the level is restored to its original value no sign is shown.
Press and release further channel [**f/a**] buttons to read and/or edit their levels.
When finished editing press [**edit**].
All changes are automatically saved.

9.4.2 Fade Times

To read and/or edit the IN or OUT fade times in a scene, edit the scene as described above then use the function button to select each time.

- **IN TIME.**

Repeatedly press [**function**] until the **"in"** indicator lights. The display prompts you then shows the IN fade time. The fade time may be edited by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "in time" manual fader.

- **OUT TIME.**

Repeatedly press [**function**] until the **"out"** indicator lights. The display prompts you then shows the OUT fade time. The fade time may be edited by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "out time" manual fader.

9.4.3 Ending Edit

Edit may be ended at any time by pressing [**edit**].
Any changes that you have made will automatically be saved in memory.

9.4.4 EDITING A SCENE NAME

Names are edited in the same way as they are recorded, not from edit mode. See "NAMING A SCENE" above for details.

9.5 COPYING A SCENE

To copy a scene, press [**assign/copy**].
The display reads "`Pick memory to copy from`". If the source is not in the current page, use the [**page red bank**] to select the **source** page number.
Press [**f/a**] of the source scene number, the display will briefly read, "`Pick location to copy to`". Memories containing scenes are lit. Memories containing chases flash rapidly. Memories containing stacks flash slowly. Empty memories are not lit. This acts as a warning to you of existing scene, stack and chase numbers in each page.
If the destination is not in the current page, use the [**page red bank**] button to select the **destination** page number.
Press [**f/a**] of the destination scene number.

If the selected memory location has already been used, the display will read "`WARNING memory exists – overwrite?`". You now have two options.

- To erase the existing memory and replace it with the copy either press [**yes**] or [**f/a**] (existing memory to overwrite).
- To pick another memory location press [**f/a**] (new memory location).

The copy process may be abandoned at any time prior to entering the destination scene number by pressing [**assign/copy**] a second time.

Hint; In a show or performance, the transition from one scene to the next will sometimes only involve a change of a few channels. The majority of channels will remain the same. If this is the case, it is quickest to make a copy of the first scene and then edit the copy to create the next scene. This method ensures that any channels that are to be the same in both scenes will have identical levels.

9.6 REMOVING (DELETING) A SCENE

To remove (delete) a scene from memory, press [**remove**].
If required, repeatedly press either [**page**] button until the required page number is displayed, then press [**f/a**] (Scene number) of the scene to be removed.
The display asks you to confirm your action.
Press [**yes**].

10 CHASES

10.1 OVERVIEW

A chase is a recorded list of steps that are to be replayed in order, stepping continuously from one step to the next and automatically repeating the list when it has reached the end. Each step in a chase can consist of a previously recorded scene or a snapshot of the output (which is taken when that step is added to the chase). Up to 250 steps may be recorded for each chase.
The chase stepping can be controlled by an audio input or by a beat pattern that you teach the maXim. See the "STL and SyncoBEAT" section for details.
Chases are recorded by page/chase number. Page numbers are selected with the [**page red bank**] button and chase numbers are selected with the red [**f/a**] buttons.
Chase mode, speed in BPM (Beats Per Minute) and crossfade times are recorded in memory as part of each chase.

10.2 CHASE TERMINOLOGY

10.2.1 BOUNCE

The chase automatically changes direction when it reaches the last or first step. In this manner, it continuously "bounces" from end to end.

10.2.2 SINGLE SHOT

The chase is normally stopped. When it is started, it will run through its recorded steps **once** in the direction in which it is started. It will then stop and wait until it is manually started again in either direction.

10.2.3 CHASE CROSSFADE

Traditionally chases will snap (instantly switch) from step to step but in the ***maXim*** you may also set a crossfade value so that it will fade from step to step. The Crossfade is set as a percentage of the chase speed.
For example, if the chase speed is set at 60 BPM (which is one step per second), then with crossfade set at 0% (that is, no fade), the chase will wait for one second, then snap to the next step. None (0%) of the available speed time will be used for crossfading.
If the crossfade is set to 50%, then the chase will perform a 0.5 second crossfade to the next step, wait for 0.5 seconds and then perform the next crossfade. That is, 50% of the time is used to perform a crossfade and 50% of the time is spent waiting before starting the next crossfade.
If the crossfade is set to 100%, then the Chase will use all of the time performing a crossfade to the next step. When the crossfade is complete, the next crossfade will commence immediately.

10.3 CHASE RECORDING

To record a chase, press;
[**record chase**],
Select a memory number for the chase, press;
[**page**] (optional),
[**f/a**] (memory number) (any red **f/a** number).
Each step of a chase consists of a either a previously recorded scene or a snapshot.

- To select a scene as a step, press; [**page red bank**] (optional),
  [**f/a**] (scene number).
- To record a snapshot (of the current ***maXim*** output) as a step, press; [**record scene**].

Continue to record steps as above. You may mix snapshots or scenes in any order.
When all steps have been recorded, complete the chase by pressing;
[**record chase**].

10.3.1 REMOVING STEPS

Whilst recording (above), if the step that you add is not correct, the last step may be deleted by pressing [**remove**].

10.3.2 CHASE SPEED

At any point after giving the chase a memory number (above), repeated presses of [**function**] will toggle the display between the STEP number, the SPEED in BPM (Beats Per Minute) and the CROSSFADE percentage. When the SPEED is displayed, the **EDIT wheel** may be used to set the desired speed. The default setting is 100 BPM but you may change this in the "Setup Preferences". See the "UTILITIES" section.

10.3.3 CHASE CROSSFADE

At any point after giving the chase a memory number, repeated presses of the [**function**] button will toggle the display between the STEP number, the SPEED setting in BPM (Beats Per Minute) and the CROSSAFDE percentage. When the **IN & OUT** indicators are lit, the **EDIT wheel** may be used to set the percentage of the chase speed time that is used for the crossfade.
The default setting is 0% (no crossfade) but you may change this in the "Setup Preferences".

10.3.4 COMPLETING THE CHASE

When all steps have been recorded, and the speed and crossfade have been set, complete the chase by pressing [**record chase**].
The chase will be a conventional forward running chase. To select other chase modes either [select] or [edit] the chase as described below.

10.3.5 NAMING A CHASE

Each chase is by default given its bank, page and **f/a** number as a name. For example, r1:02 (red bank, page 1, chase 2).

To enter or change a name, **HOLD** [**function**], tap [**f/a**] (name) (a yellow bank **f/a** button). The display says "`Pick Object to Name`". Press [**page**] (optional) [**f/a**] (memory number). Either rotate the **EDIT wheel** or press the yellow bank [**f/a**] buttons for the desired characters or the red bank [**f/a**] buttons for numbers 1 to10 (0) as labelled below the buttons. Where several characters are printed below each button, multiple presses select the next character in a similar fashion to a mobile telephone keypad.
Press **[<]** or **[>]** to move the cursor and press [**remove**] or [**add**] to remove or add characters or spaces. When finished, press [**ok**].

10.4 CHASE PLAYBACK

Chases may me replayed on the:

- Red Bank (in Playback mode).
- Grab master.
- As a step in a stack.

10.4.1 PLAYBACK Mode AND PAGES

When you set the red bank **mode** to "p'back", the chases (and scenes) in the current page are copied, in order, to their respective red playbacks.
If you change pages, the chases (and scenes) in the selected page are copied, in order, to their respective red playbacks.

Note; Mode/Page freeze rules apply. See the "MEMORY STRUCTURE" section for more details.

10.4.2 CHASE INTENSITY

The OVERALL level of a chase is controlled by the Playback containing the chase.
The chase can be faded in or out as required (its fade times are controlled manually) or the chase may be "Flashed" (soloed or bumped) via its [**f/a**] button.
If the chase is faded down to zero, the chase automatically stops.

10.4.3 CONTROLLING A CHASE

"**Select**" allows you to change the speed, crossfade, mode and direction of the *copy* of the chase in the selected PLAYBACK without affecting the original chase *memory*. To make permanent changes to a chase see "Editing a Chase" below.
Press [**select**], [**f/a**] (chase to control), [**function**].

- To control the **SPEED**, rotate the **EDIT wheel**. The display shows the speed in Beat Per Minute.
- To change the **CROSSFADE** between steps, press [**function**] until both "**in**" & "**out**" LEDs light, then rotate the **EDIT wheel**. The display indicates the percentage of time between steps to be used for the crossfade. See CROSSFADE for more details
- To change the **MODE** or **DIRECTION** use the 3 buttons below the **EDIT wheel** as follows;

BUTTON	ACTION
[**step/stop**]	**STOPS** a running chase or **STEPS** a stopped case
[**>**] (Forward)	**RUNS** A CHASE **FORWARD**
[**<**] (Reverse)	**RUNS** A CHASE **REVERSE**
Hold [**>**] **Tap** [**<**]	Selects **BOUNCE** mode
[**>**] **or** [**<**]	De-selects BOUNCE mode
Hold [**step/stop**] **Tap** [**>**]	Selects **SINGLE SHOT** mode
[**>**] **or** [**<**]	**RUNS** A **SINGLE SHOT**
Hold [**step/stop**] **Tap** [>]	De-selects single shot mode

When finished controlling press [**select**].

The changes that you have made are retained in the Playback until such time as the chase is replaced on that Playback (by changing pages or mode).
To restore the original memory to the playback press [**copy**], [**f/a**] to the same [**f/a**].

10.4.4 STEPPING A CHASE

A chase may be manually stepped at any time by pressing its [**f/a**] button. If the chase is already running, this will immediately step it to the next step.
To manually step a chase, stop the chase (above), then step it by pressing its [**f/a**] button.

10.4.5 RUNNING A SINGLE SHOT

If a chase has been set to "single shot" mode (above), pressing its [**f/a**] button will run a single shot.

10.4.6 GLOBAL SPEED CONTROL

Global speed control allows you to speed up or slow down all chases that are running on the output of the *maXim* whilst still retaining any different relationships in speed that might exist between each other.
To activate "Global Speed Control" **HOLD** [**select**] for **1 second** then release.
Rotate the **EDIT wheel** to speed up or slow down all running chases.
The speed can be increased by up to 1999% of its original value. The maximum speed is limited to 999 BPM.
The speed can be decreased to 0% of its original speed.
For example:

- r1.01 has a recorded speed or 120BPM and its fader is at 100%.
- r1.02 has a recorded speed or 200BPM and its fader is at 0%.
- r1.03 has a recorded speed or 60BPM and its fader is at 10%.

Hold down [**select**] for 1 second to activate "Global Speed Control". This will assign r1.01 and r1.03 to Global Speed Control.
Now fade up chase r1.02. As it was not active when global speed was selected, it will not be affected when the global speed is varied.

Rotate the **EDIT wheel** until the display reads 50%.

- r1.01 is now running at 60 BPM.
- r1.02 is still running at 200 BPM.
- r1.03 is now running at 30 BPM

Rotate the **EDIT wheel** until the display reads 200%;

- r1.01 is now running at 240 BPM.
- r1.02 is still running at 200 BPM.
- r1.03 is now running at 120 BPM

Tapping [**function**] resets all selected chases to the "default" chase speed as set in the "Setup", "Preferences" menu.
If the default is set to 100 BPM, then in this example, tapping [**function**] results in;

- r1.01 is now running at 100 BPM.
- r1.02 is still running at 200 BPM.
- r1.03 is now running at 100 BPM

Rotate the **EDIT wheel** until the display reads 150%;

- r1.01 is now running at 150 BPM.
- r1.02 is still running at 200 BPM.
- r1.03 is now running at 150 BPM

To exit Global Speed press [**select**].
All chases remain at their modified speed. The original speed of the chase can be restored by copying the chase from its memory back to the playback. Press [**copy**], [**f/a**], to the same [**f/a**].

10.5 EDITING A CHASE

"Edit" allows you to permanently change the speed, crossfade, mode and direction plus you can add or delete steps, connect or disconnect the STL (Sound To Light) processors and edit the contents of each step.

These changes are applied to the chase memory and if the chase is currently on a playback, they will also be applied to the playback. If the chase is faded up on stage you will see the changes. If the chase is not live on stage, its steps are displayed on the channel LED indicators and on the optional SVGA monitor.

- To edit a chase on a Playback, press; [**edit**], [**f/a**] (chase number).
- To edit a chase in the Grab master, press; [**edit**], [**f/a**] (Grab master) (MP model only)
- To edit a chase in a different page, press; [**edit**], [**page red bank**] [**f/a**] (chase number).

The indicators in the channel **f/a** buttons show the channels of the running chase. Their *intensity* reflects the levels of the channels in each step.

- To control the **SPEED**, rotate the **EDIT wheel**.
- To change the **CROSSFADE** between steps, press [**function**] until both "**in**" & "**out**" LEDs light, then rotate the **EDIT wheel**.
- To change the **MODE** or **DIRECTION,** use the 3 buttons below the EDIT wheel as described above.
- To connect or disconnect a STL (Sound To Light or SyncoBEAT) from the chase, repeatedly **HOLD** [**function**] until the STEP number(s) are shown on the display and the STL button LEDs flash. Whilst **holding** [**function**] tap either [**STL1**] or [**STL2**]. Press [**yes**] to connect or disconnect the selected STL. See the "STL and SyncoBEAT" section for more details.

10.5.1 ADD A STEP

To add a step, first edit the chase (above), then press [**step/stop**] to ***stop*** the chase and continue pressing to step the chase to the step **prior** to the point where the new step is to be added.
Press [**add**] then either;

- Create the look for the new step on the output and press [**record scene**].

or

- To add a scene as a step, press;
  [**page red bank**] (optional),
  [**f/a**] (scene number).

or

If necessary press **[>]** or **[<]** to start the chase again in the desired direction.
When finished editing press [**edit**].
All changes are automatically saved.

10.5.2 REMOVE A STEP

To remove a step, first edit the chase (above), then press [**step/stop**] to *stop* the chase and continue pressing to select the step to be removed.
To remove the step, press [**remove**], [**yes**].
If necessary, press **[>]** or **[<]** to start the chase again in the desired direction.
When finished editing press [**edit**].
All changes are automatically saved.

10.5.3 MODIFY A STEP

To modify the channel levels of a step, first edit the chase (above), then press [**step/stop**] to *stop* the chase and continue pressing to select the step to be modified. Press [**function**] until the "chan" LED indicator lights and the display reads;
"`Pick channel to edit`".
To see the level of any channel, press its [**f/a**] (channel number) button.
Whilst the channels **f/a** button is held down, the display shows the channel number.
When the **f/a** button is released, the display shows the level of that channel in the step.
To edit the level of the selected channel, rotate the **EDIT wheel**.
If the level is varied **above** its recorded value it is prefixed by a + sign. If it is varied **below** its recorded value it is prefixed by a - sign. If the level is restored to its original value no sign is shown.

Press and release further channel [**f/a**] buttons to read and/or edit their levels.

NOTE: If the chase step that you modify is a scene, then that actual scene memory is edited, not just the chase step. If you directly edit a scene memory and that scene is a step in a chase, then the changes will be seen in the chase.

To modify other steps, press [**step/stop**] to step the chase then again select any channels to be modified with their **f/a** buttons.
If necessary press **[>]** or **[<]** to start the chase again in the desired direction.
When finished editing press [**edit**].
All changes are automatically saved.

10.5.4 EDITING A CHASE NAME

Names are edited in the same way as they are recorded, not from edit mode. See "NAMING A CHASE" above for details.

10.6 COPYING A CHASE

To copy a chase, press;
[**assign/copy**].
[**page red bank**] (optional source page)
[**f/a**] (source chase number)
[**page red bank**] (optional destination page)
[**f/a**] (destination chase number).

If the selected memory location has already been used, the display will read "`WARNING memory exists – overwrite?`". You now have two options.

- To erase the existing memory and replace it with the copy either press [**yes**] or [**f/a**] (existing memory to overwrite).
- To pick another memory location press [**f/a**] (new memory location).

The copy process may be abandoned at any time prior to entering the destination scene number by pressing [**assign/copy**] a second time. That is, de-selecting it.

Hint: If you have recorded a chase and you want to experiment with some changes, make a copy of the chase and edit the copy. In the event that your changes are unsatisfactory, the original remains unaltered.

10.7 REMOVING A CHASE

To remove (delete) a chase from memory, press [**remove**].
If required, repeatedly press [**page**] until the required page number is displayed, then press [**f/a**] (chase number) of the chase to be removed.
The display asks you to confirm your action. Press [**yes**].

11 GRAB MASTER

11.1 OVERVIEW

The Grab master is a multi function master. It can be used as either;

- A Grab master.
- A Scene master.
- A Chase master.
- A storage location for a stack.

You change its function by *recording* or *copying* either a Grab, a Scene, a Chase or a Stack into it.

11.2 GRAB AS A GRAB MASTER

The Grab master allows you to "GRAB" and maintain the current output of the ***maXim*** by taking a "snapshot" of the output and holding it the Grab master, thus freeing the rest of the ***maXim*** for other operations.
To "Grab" the output of the ***maXim***, press;
[**record scene**],
[**f/a**] (grab).
The contents of the Grab master (including its fade times), may be edited and named in exactly the same manner as a scene.
See the "SCENES" section for details.

11.2.1 Typical Grab Operations

When you perform a "Grab" and then fade up the Grab master, it allows the Bank masters currently producing the output to be faded down whilst the Grab master maintains the output. This allows the next look to be preset *blind* (not faded p) on either of the preset banks. This is most useful in Wide and Playback modes as the Grab master effectively provides a second (or "Phantom") bank.

In a typical operation, the current look is created on any of the channel faders or Playbacks. To enable the next look to be created, take a "Grab" of the output, fade up the Grab master and then fade down the Bank masters. The look is maintained by the Grab master. Preset the next look using any of the channel faders or Playbacks. To crossfade to the next look, simply fade up the Bank masters and fade down the Grab master.
You may continue to "Grab" and "Preset" for every new look that you require.

11.3 GRAB AS A SCENE MASTER

To copy a scene to the Grab master, press;
[**assign/copy**].
[**page red bank**] (optional)
[**f/a**] (scene number).
[**f/a**] (grab).

11.4 GRAB AS A CHASE MASTER

Any existing Chase from any Page may be copied to the Grab master, or a chase may be recorded directly into the Grab master. The Grab master then performs like any other Playback containing a chase. See the "CHASES" section for details on how to control the chase.

To copy a chase from any page of memory to the Grab master, press;
[**assign/copy**],
[**page red bank**] (optional)
[**f/a**] (chase number).
The display will briefly scroll,
"`Pick location to copy to`".
Press; [**f/a**] (grab).
The Chase in the Grab master may be edited in exactly the same way as a Chase in a Playback. Refer to "EDITING A CHASE" in the "CHASE" section.

11.4.1 Recording A Chase On The Grab Master

This is the same procedure as recording a chase on a Playback except that the Grab master is selected as the chase number.

11.5 GRAB AS A MEMORY

11.5.1 Copying A STACK To The Grab Master

Any existing stack from any Page may be copied to the Grab master. The Grab master cannot replay the stack but does provide another storage location for a stack.
To copy a stack to the Grab master, press;
[**assign/copy**].
[**page red bank**] (optional),
[**f/a**] (stack number).
[**f/a**] (grab).

11.5.2 Copying FROM The Grab Master

A grab (snapshot), a scene, a chase or a stack in the Grab master can be copied to any memory location. Press;
[**assign/copy**],
[**f/a**] (grab)
[**page red bank**] (optional),
[**f/a**] (destination)
A stack in the Grab master can be also copied to the stack master.
Press [**assign/copy**],
[**f/a**] (grab),
[**stack flash**].

12 STACKS

12.1 OVERVIEW

A stack is a recorded list of steps that are to be replayed in order. Each step consists of either a scene, a chase or a snapshot of the output (which is taken when that step is added). Stepping from one step to the next is a Dipless Crossfade and is usually executed manually but can be automatic. Each Stack and each step can be named.
Up to 500 steps may be recorded in each stack and up to 109 (217) separate stacks may be recorded into memory. If all the lighting cues in a "show" have been recorded into a "stack", then the entire show may be performed on the stack master by simply pressing the forward " **>** " button for each lighting cue.

Stacks are recorded by page/stack number. Page numbers are selected with the [page] button and stack numbers are selected with the red [**f/a**] buttons. Stacks may be randomly recorded into any page, f/a number, however scenes, chases and stacks use the same memory locations. A stack recorded in a previously used number will overwrite the previous contents.
Stacks may only be replayed on the Stack Master, which provides comprehensive facilities to control the replay of the Stack. Crossfade times for each step are recorded into memory or can be under control of the time faders. Each step can be given a "link" time causing it to automatically step after an elapsed link time.

A stack may be edited. The contents of any step may be changed, the fade and link times varied and steps may be inserted or deleted. A stack may be *copied* onto another page/ f/a number or onto or from the Grab master.

12.2 RECORDING A STACK

To record a stack, press;
[**record stack**],
[**page red bank**] (optional),
[**f/a**] (stack number) (any red f/a).
Adding steps:

- To select a **scene** as a step press;
  [**page red bank**] (optional),
  [**f/a**] (scene number).
- To select a **chase** as a step press;
  [**page red bank**] (optional),
  [**f/a**] (chase number).
- To record a **snapshot** (of the current ***maXim*** output) as a step press;
  [**record scene**].
  A blackout can be recorded as a step
- To add a **range** of **memories** (scenes and or chases) select the [**page**] (optional) then **HOLD** [**f/a**] (first memory in range), and **tap** [**f/a**] (last memory in range). Any memory in the selected range that is empty or contains a stack will be ignored

Continue to add steps. You may mix snapshots, chases or scenes in any order.
When all steps have been added, complete the stack by pressing;
[**record stack**].

12.2.1 REMOVING STEPS

Whilst recording the stack (above), the last step may be deleted by pressing; [**remove**].

12.2.2 FADE AND LINK TIMES

As each step is added (above) you may set the fade IN, OUT and LINK times (automatically links to next step after link time expires) for that step.

After each step has been added, repeatedly press [**function**] to cycle through the fade IN time, fade OUT time and LINK time. When any of the time settings are indicated, rotate the **EDIT** wheel to set the desired time. The maximum time is more than 16 minutes and the minimum time is 0 seconds. When a time is set *lower* than 0 seconds, it reverts to "Fader" control (IN or OUT time fader).
If you do not enter a time then the default settings will be used. The default step times are;

- SCENE = The fade times from that scene.
- LINK = No link.
- SNAPSHOT = In time and Out time faders.

(You can change the default times with the "Setup Preferences" function. See the "UTILITIES" section).

See REPLAYNG STACKS below for more details on fade and link times.

12.2.3 NAMING A STACK

Each stack is by default given its bank, page and **f/a** number as a name. For example, r1:03 (red bank, page 1, stack 3).

To enter or change a name, **HOLD** [**function**], tap [**f/a**] (name).
The display says "`Pick Object to Name`". Press [**page red bank**] (optional) [**f/a**] (stack number)
Either rotate the **EDIT wheel** or press the yellow bank [**f/a**] buttons for the desired characters or the red bank [**f/a**] buttons for numbers 1 to10 (0) as labelled below the buttons. Where several characters are printed below each button, multiple presses select the next character in a similar fashion to a mobile telephone keypad.
Press **[<]** or **[>]** to move the cursor and press [**remove**] or [**add**] to remove or add characters or spaces. When finished, press [**ok**].

12.2.4 NAMING EACH STEP IN A STACK

See "EDITING A STACK" below.

12.3 STACK PLAYBACK

To playback a stack, it must be copied from its memory location to the stack master. Press;
[**copy**],
[**page red bank**] (optional),
[**f/a**] (source stack number),
[**stack flash**]
Fade up the stack master to reveal the first step.
When a stack is idle, its output comes from the *current* step. The step that will follow this step is called the *next* step. When a crossfade is initiated, the stack master performs a Dipless Crossfade from the current step to the next step. When the stack reaches the last step, it will wrap around to the start.

12.3.1 STACK INTENSITY LEVEL

The OVERALL output level of a stack is controlled by the stack master. The stack can be manually faded in or out as required or the stack may be flashed via its [**stack flash**] button.

12.3.2 STACK VIDEO

To see a comprehensive display of the status of the stack on the optional video output,
HOLD [**function**], tap [**f/a**] (video 3).

12.3.3 STARTING A CROSSFADE

To crossfade from the *current* step to the *next* step, press;
[>] (forward).
The crossfade will occur with the *incoming* step fading in, in its IN time and the *outgoing* step fading out in its OUT time. The display momentarily shows the step number of the incoming step.

To momentarily see the step number again, hold down [**stop/step**] (stack master).

To continuously see the step number on the display press [**select**], [**stack flash**]. To turn off the display press [**select**].

While the crossfade is *in progress*, the **>** (forward) button flashes for the duration of the IN fade and the **<** (reverse) button flashes for the duration of the OUT fade.
Each press of the **[>]** (forward) button will start the crossfade to the next step.

Note: You do not have to wait for a step to complete before starting the next step.

12.3.4 CROSSFADING TO THE PREVIOUS STEP

To crossfade from the *current* step to the *previous* step, press;
[<] (reverse).
You may only **crossfade** back one step. You may however **STEP** back to any step. See "STEPPING A STACK" below.

12.3.5 STOPPING A CROSSFADE

To stop a crossfade *in progress* press;
[**step/stop**].
When a crossfade has been stopped, the **>** (forward) button, **<** (reverse) button and step/stop buttons all flash.

12.3.6 STARTING A STOPPED CROSSFADE

To start a stopped crossfade in the **forward** direction, press;
[>] (forward).
To start a stopped crossfade in the **reverse** direction, press;
[<] (reverse).

To **momentarily** run a stopped crossfade in the current direction;
HOLD [**step/stop**].
The crossfade only progresses whilst [**stop/step**] is held down.

12.3.7 REVERSING A CROSSFADE

To reverse a crossfade *in progress* and return to the previous step, press;
[<] (reverse).

12.3.8 STEPPING A STACK

If a stack is stationary (idle between steps), you may step (instant change, no times executed) through the stack in either direction.

To instantly step a stack in the forward direction;
HOLD [**step/stop**], tap **[>]** (forward).

To instantly step a stack in the reverse direction;
HOLD [**step/stop**] ,tap **[<]** (reverse).

12.3.9 RANDOM STEP SELECTION

To randomly jump to any step in a stack;
HOLD [**stop/step**] and rotate the **EDIT** Wheel.
The display shows the selected step number. A + or – sign indicates that the selected step is higher or lower than the current step. The current step has no sign.
When the [**stop/step**] button is **released**, the stack **jumps** to the selected step.

12.4 STACK TIMES

12.4.1 FADE TIMES

The times of the crossfade from one step to the next are determined by the settings that have been *recorded* for each step. This can be the manual time faders as well as a set time. The transition from one step to the next is in the form of a DIPLESS CROSSFADE. The incoming step will fade *up* in the IN time for that step and the outgoing step will fade *down* in the OUT time for that step.

12.4.2 LINK TIMES

If a step contains a LINK time, then when that step is played, its link time starts counting down. At the completion of the link time, the stack will

automatically step to the next step. If every step has a link time, then the stack will play like a chase, but with the following differences.

- The duration of every step may be individually set by its link time.
- The in and out fade times of every step may be individually set.
- A step may be a chase.

This allows you to create very complex and interesting chases.

Hint: If you need a link time in every step of a stack (to make it chase) it is much quicker to set the default link time using the preference function rather than setting every individual step. See the "UTILITIES" section for details.

12.5 EDITING A STACK

You may edit a stack live or blind (faded down) on the stack master or directly in its memory location. If the stack is faded up on stage you will see the changes. If the stack is not live on stage, its steps are displayed on the channel LED indicators and on the video monitor. You can add or delete steps, change fade and link times and edit the contents of each step (including channels not already on in the step).

- To edit the stack on the stack master, press; [**edit**], [**stack flash**].
- To edit a stack in memory, press; [**edit**], [**page red bank**] (optional), [**f/a**] (stack number)

The display momentarily shows the bank/page/stack number or name and then it shows step number and its contents.
If you edit the stack on the stack master, the current step will be selected. If you edit a stack in memory, step 1 will be selected.
Step through the stack using the **[<]** or **[>]** buttons **below the EDIT wheel**.
The indicators in the channel **F/A** buttons show the channel levels in each step.
The [**function**], [**remove**] and [**add**] buttons also flash to show that they are active.
Their uses are described below.
When finished editing, press [**edit**].
Changes are automatically saved.

12.5.1 ADD A STEP

To add a step to a stack, first edit the stack (above) then step through the stack using the **[<]** or **[>]** buttons **below the EDIT wheel**.
Select the step after which the new step is to be inserted, then press [**add**].

- To select a **scene** as the added step, press; [**page red bank**] (optional), [**f/a**] (scene number).
- To record a snapshot (of the current ***maXim*** output) as the added step press; [**record scene**].
- To select a chase as the added step, press; [**page red bank**] (optional), [**f/a**] (chase number).

When finished editing, press [**edit**].
Changes are automatically saved.

12.5.2 REMOVE A STEP

To remove a step from a stack, first edit the stack (above) then step through the stack using the **[<]** or **[>]** buttons **below the EDIT wheel**.
Select the step that is to be deleted, then press [**remove**], [**yes**].
When finished editing, press [**edit**].
Changes are automatically saved.

12.5.3 EDIT THE TIMES OF A STEP

To edit the times of a step in a stack, first edit the stack (above) then step through the stack using the **[<]** or **[>]** buttons **below the EDIT wheel** to select the step to be edited.

- To edit the **IN** time, press [**function**] until the "**in**" LED lights. The display prompts you then shows the IN fade time. The fade time may be edited by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "in time" manual fader.
- To edit the **OUT** time, press [**function**] until the "**out**" LED lights. The display prompts you then shows the OUT fade time. The fade time may be edited by rotating the **EDIT wheel**. When a time is set *lower* than 0 seconds, it is controlled by the "out time" manual fader.
- To edit the **LINK** time, press [**function**] until the "**in**" and "**out**" LED lights. Use the **EDIT wheel** to set the "link" time. A link time causes the stack to automatically step to the next step after link time expires.

When finished editing, press [**edit**].
Changes are automatically saved.

12.5.4 EDIT THE CHANNELS LEVELS OF A STEP

If the step is a snapshot or a scene you can edit the channel levels of the step.

NOTE: If the step that you are editing is a scene, the channel levels in the original scene are edited, not just the step. Likewise, if you edit the actual scene, the changes will also be seen in the step of the stack that contains that scene.

To edit the channel levels of a step in a stack, first edit the stack (above) then step through the stack using the **[<]** or **[>]** buttons **below the EDIT wheel** to select the step to be edited.
Repeatedly press [**function**] until the "**level**" LED lights and the display reads
"`Pick Channel to edit`".
To see the level of any channel, press its [**f/a**] button. Whilst the channels' **f/a** button is held down, the display shows the channel number.
When the **f/a** button is released, the display shows the level of that channel in the step.

To edit the level of the selected channel, rotate the **EDIT wheel**. If the level is varied **above** its recorded value it is prefixed by a + sign. When a parameter is varied **below** its recorded value it is prefixed by a - sign. If the level is restored to its original value no sign is shown.
Press and release further channel [**f/a**] buttons to read and/or edit their levels.
When finished editing, press [**edit**].
Changes are automatically saved.

12.5.5 NAMING EACH STEP IN A STACK

To name a step in a stack, first edit the stack (above) then step through the stack using the **[<]** or **[>]** buttons **below the EDIT wheel** to select the step to be named. The "step" LED is lit and the display scrolls the step number.
HOLD [**function**], tap [**f/a**] (name), a yellow bank function button.
The display says "`Edit Step Name`".
Either rotate the **EDIT wheel** or press the bank [**f/a**] buttons for the desired characters or the red bank [**f/a**] buttons for numbers 1 to10 (0) as labelled below the buttons. Where several characters are printed below each button, multiple presses select the next character in a similar fashion to a mobile telephone keypad.
Press **[<]** or **[>]** to move the cursor and press [**remove**] or [**add**] to remove or add characters or spaces. When finished, press [**ok**].

12.5.6 ENDING EDIT

Edit may be ended at any time by pressing [**edit**].
Any changes that you have made will automatically be saved in memory.

12.5.7 EDITING A STACK NAME

Stack names are edited in the same way as they are recorded, not from edit mode.
See "NAMING A STACK" above for details.

12.6 COPYING A STACK

To copy a stack, press;
[**assign/copy**].
[**page red bank**] (optional source page),
[**f/a**] (source stack number)
[**page red bank**] (optional destination page)
[**f/a**] (destination stack number).

Note; When you make a copy of a stack, any stack (or scene or chase) that is currently in the destination number will be overwritten by the copy.

If the selected memory location has already been used, the display will read "`WARNING memory exists – overwrite?`". You now have two options.

- To erase the existing memory and replace it with the copy either press [**yes**] or [**f/a**] (existing memory to overwrite).
- To pick another memory location press [**f/a**] (new memory location).

The copy process may be abandoned at any time prior to entering the destination scene number by pressing [**assign/copy**] a second time. That is, de-selecting it.

Hint: If you have recorded a stack and you want to experiment with some changes, make a copy of the stack and edit the copy. In the event that your changes are unsatisfactory, the original remains unaltered.

12.7 REMOVING (DELETING) A STACK

To remove (delete) a stack from memory, press;
[**remove**],
[**page red bank**], (optional),
[**f/a**] (stack number).
The display asks you to confirm your action. Press [**yes**].

12.8 CLEARING THE STACK MASTER

To remove (clear) a stack from the stack master, press
[**remove**],
[**stack flash**].
The display asks you to confirm your action. Press [**yes**].

13 FLASH

13.1 OVERVIEW

The FLASH section of the ***maXim*** utilises the "**f/a**" (Flash/Assign) buttons in the fader bank sections and the "flash" buttons of the Master's to provide extensive flashing control. When a channel is "flashed" it can either "add" to the current output of the desk or it can be "solo" where it becomes the ONLY output of the ***maXim***.
You may Flash any channel, fixture or multiple channels or fixtures, any Playbacks, any master, or any multiple combination of the above at the one time. The only limit is your ability to hold down multiple buttons. The Flash function is a momentary action. As soon as **all** Flash buttons are released, normal output is restored.

There are no times associated with the FLASH function. All actions are instantaneous.

13.2 ADD/SOLO MODE

You may select what effect the Flash buttons have on the *output* of the ***maXim,*** by selecting either ADD mode or SOLO mode.
Pressing the [**ADD/SOLO**] button will toggle from one mode to the other.
SOLO mode is indicated when **LED** in the ADD/SOLO button **flashes**.

- In ADD mode, pressing any FLASH button will add the flashed channels to the output (at the FLASH control level) without having any effect on the current output of the ***maXim***.
- In SOLO mode, pressing any FLASH button will add the flashed channels to the output (at the FLASH control level) and at the same time it will KILL (black out) all other output of the ***maXim***. The flashed object is now the solo output from the ***maXim***.

13.3 FLASH LEVEL

The FLASH level control sets the *percentage level* at the output of the FLASH section for all channels when they are flashed.

- For individual channels and fixtures, the Flash level sets the actual level of any flashed channels.
- For the contents of any Playback it will be the *percentage* of the channels recorded level.

For example, if the Flash level is set to its mid (50%) position;

- Flashed **channels/fixtures** will come on at a level of 50%.
- If a scene is Flashed and it contains a channel at a level of 80% then that channel will come on at 40% (50% of 80%).

If the FLASH level is set to minimum, then no channels will come on when a FLASH button is pressed.

If the ***maXim*** is in ADD mode, and a channel is already ON when it is flashed, the flash level acts together with any existing level for that channel on a Highest Takes Precedence (HTP) basis.

Warning: Setting the FLASH LEVEL control to minimum and the ADD/SOLO mode to SOLO will cause all of the FLASH buttons to act as DBO (Dead Black Out) buttons. Pressing a FLASH button will cause its channel(s) to come on at 0% and all normal output to be killed.

Hint: To safeguard against inadvertently "flashing" any lights on stage or killing the output, you can set the FLASH LEVEL control to minimum and the ADD/SOLO mode to ADD. Pressing any FLASH button will now have no affect.

14 PATCH

14.1 OVERVIEW

The "patch" allows you to patch (connect) DMX slots (addresses) to ***maXim*** channel (fader) numbers enabling the ***maXim*** to control up to 512 DMX slots. Patches are required when;

- A particular ***maXim*** *channel number* is to control a different DMX (dimmer) *slot number*.
- A single ***maXim*** channel is to control several different DMX slots.
- There are more DMX slots to be controlled than there are desk channels.

A direct 1 to 1 connection from ***maXim*** channels to their respective DMX slots can be selected to speed up the patching process.

The patch allows you to patch any DMX slot to any ***maXim*** channel number. A patch **level** may be set for every patch. A single ***maXim*** channel may be patched to multiple DMX slots.

If no patches exist, either due to a "Total Reset" or if all patches have been removed (below) the patch will be automatically bypassed giving a direct 1 to 1 connection between ***maXim*** channel numbers and their matching DMX slot numbers. When any patch is made by the user, the bypass is automatically removed and only the users patches will exist.

14.2 REMOVE ALL PATCHES

To remove **ALL** patches;
HOLD [**function**], tap [**patch**].
Press; [**remove**], [**yes**].
The patch is now automatically bypassed providing a 1 to 1 patch.

14.3 PATCHING

Patching is performed by "editing the patch".
To edit the patch;
HOLD [**function**], tap [**patch**], press [**edit**].
To select the dimmers DMX slot number, press [**<**] or [**>**] or rotate the **EDIT** Wheel.
To patch the selected DMX slot to a channel number, press the [**f/a**] button of the channel number (any yellow or red f/a button). The channel f/a button will flash to show the patch.
To select another dimmers DMX slot number, press [**<**] or [**>**] or rotate the **EDIT** Wheel and patch it to a channel by pressing the channels [**f/a**] button. Continue to select DMX slots and patch them to ***maXim*** channels.
As each patch is made, the optional video output screen "V2 Output & Patch" shows the channel number and name, DMX slot and patch level.
Patched channels f/a buttons remain lit.
When scrolling through the DMX slots, as each slot number is selected, if a channel is patched to that slot, its f/a button will flash.

When finished patching, press; [**edit**].
The patch is automatically saved.

14.4 PATCHING MULTIPLE SLOTS

To automatically patch a sequential range of DMX slots to a sequential range of channels, edit the patch (above), then select the first DMX slot number in the sequence. Press and **HOLD** the [**f/a**] button of the channel number to be patched to that slot then tap the [**f/a**] button of the channel to be patched to last DMX slot number in the sequence. All channels in the selected range are automatically patched to their respective slots.

For example, to patch a rack of 12 dimmers with a starting DMX slot of 100 to ***maXim*** channels 13 to 24 respectively, press [**<**] or [**>**] or rotate the **EDIT Wheel** to select DMX slot 100, then press and **HOLD** [**f/a**] (13) and tap [**f/a**] (24).

14.5 SET A PATCH LEVEL

All patches can have a proportional patch level.
For example, if a patch level is set to 50%, setting a channel fader to 100% will turn on its dimmer at 50%.
When editing the patch (above), select the DMX slot whose patch level you wish to change. The LED in the [**f/a**] button of the channel patched to this slot will flash.
Hold down the [**f/a**] button and the display shows the patch level.
Whilst **holding** down the channels [**f/a**] button, rotate the **EDIT wheel** to set the patch level.
When finished patching, press [**edit**].
The patch is automatically saved.

14.6 UNPATCH A DMX SLOT FROM A CHANNEL

To delete a single patch, edit the patch (above) and select the DMX slot (above) then press [**remove**].
The display scrolls, "`Delete patch to DMX#?`" Press [**yes**].
Alternately, select the DMX slot and set the proportional patch level to zero.

14.7 1 TO 1 PATCH

A 1 to 1 patch is available to speed the patching process. It directly connects each ***maXim*** channel number to its matching DMX slot number.
To add a "1 to 1 patch";
HOLD [**function**], tap [**patch**].
Press [**add**], [**yes**].

Note; Adding a 1 to 1 patch will replace any existing patches.

15 STL (SOUND TO LIGHT) and SyncoBEAT

15.1 OVERVIEW

The **maXim** has two identical STL (Sound To Light) processors called “stl 1” and “stl 2”.

Each STL produces output pulses that can be “connected” to any Playbacks containing a chase. When a STL is connected to a chase, it will trigger a chase step whenever there is a pulse on the STL output.
Each STL has two modes of operation;

- **Sound to Light** mode. The STL pulses are generated by the beat of the music connected to the audio input of the **maXim**.
- **SyncoBEAT** mode. The STL pulses are generated from a beat pattern that you *teach* the maXim.

Each STL may be connected to any number of chases.
Both STL’s may be connected to the same chase to give dual stepping control.
The “Beat” indicator on the video display always shows the stepping of the STL output pulses.

15.2 CONNECT STL TO CHASE

An STL must be “connected” to a chase to enable it to control the chase stepping. There are 2 ways to connect the output of a STL to a chase:

15.2.1 Connect to Playback

This method temporarily connects the STL to the selected playback. The recorded memory is not changed, only the way that it is *currently being played back*.

HOLD [**function**], tap [**f/a**] (stl 1) or (stl 2).
HOLD [**function**] until the display reads “Pick”.
Whilst still **holding** [**function**], **tap** [**f/a**] of the playback(s) to be connected.

- Playbacks already **connected** to STL’s **flash** continuously.
- Playbacks **NOT** connected to STL’s flash, then **pause**, then flash again etc.

If a playback is already connected, tapping its [**f/a**] disconnects it.
Press [**edit**] to finish.

The Playback remains connected to the STL until the chase is replaced on that Playback by either changing pages or changing the red mode.

15.2.2 Connect to Chase.

To permanently connect a STL to a chase memory, whilst recording or editing a chase, repeated presses of the [**function**] button will toggle the display between the STEP number, the SPEED and the CROSSFADE.
When the STEP number is displayed;
HOLD [**function**],
tap either [**stl 1**] or [**stl 2**] (which are flashing).
To connect the STL press [**yes**].
If the STL is already connected, pressing [**yes**] disconnects it.
Finish recording or editing the chase as described in the “CHASES” section.
The chase remains connected to the STL unless it is “edited” to remove the connection.

15.2.3 CONNECTED STL INDICATORS

To see **all** Playbacks that are connected to an STL;
HOLD [**function**], tap [**f/a**] (stl 1) or (stl 2).
HOLD [**function**].
Playback **connected** to the selected STL **flash** continuously.

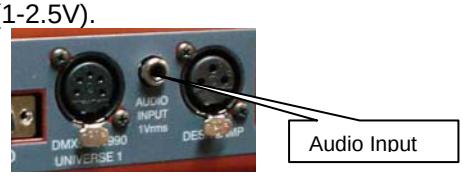
To see if an **individual** playback is connected to any STL press;
[**select**], [**f/a**] (chase number).
The video screen shows a pinned display of the selected chase showing any connected STL’s.
Press [**select**] to exit.

15.3 STL (SOUND TO LIGHT) MODE

When a chase is connected to an STL that is in **STL** mode, the chases own internal speed generator continues to step the chase in addition to the STL stepping from the audio signal. To give the STL total control, set the chase speed to zero.

Hint; Set the chase speed to be slower than the beat of the music. If the music stops, the chase will continue to run.

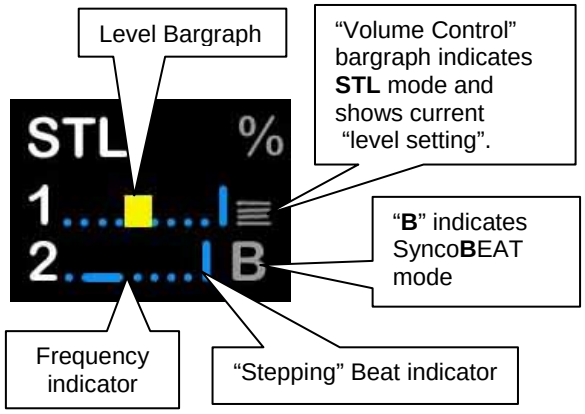
Connect a music source to the RCA audio input connector on the rear of the *maXim*. The best source of audio from your device is the headphone socket as it provides a high level signal (1-2.5V).



To select STL mode;
HOLD [**function**], tap [**f/a**] (stl 1) or (stl 2).
The display scrolls a message showing the current mode of the STL.
Tapping [**yes**], toggles the STL between either **Sound To Light** mode or **SyncoBEAT** mode.
To select STL mode, turn SyncoBEAT **OFF**.
The current mode of each STL is also shown at the bottom of the main video screen. The ”Volume Control” bargraph indicates STL mode as shown for STL1 in the example below.
The audio level and frequency can now be adjusted to make the chase step to the beat of the music.

To adjust the **audio level** press; [**function**].
The display shows "L: ##" where ## (0-100) is the audio level.
Rotate the **EDIT wheel** to adjust the level.
The volume control bargraph on the video also shows the current level. With the music connected, the Level Bargraph will pulse up and down in time with the music.
Set the level so that the bargraph turns **Yellow**. **Green** is too low and **Red** is too high.

To adjust the **audio frequency** press; [**function**].
The display shows "hz ##" where ## (10-600) is the audio frequency.
Rotate the **EDIT wheel** to select the required frequency.
The Frequency indicator on the video also shows the current setting (low to high frequency).



STL Video Screen Display

Select the audio frequency of the dominant beat in the music. Try a low frequency to pick up a bass guitar or set it higher to select a drum or cymbal.

Note: When you select a different frequency, the audio level of that frequency might be different from the previous frequency. You might need to repeat the "level" and "frequency" adjustments to get satisfactory stepping of your chase.

When finished press;
[**edit**].
To step a chase with the STL you have created, the chase must be connected to the STL as described above.

15.4 SYNCOBEAT MODE

SyncoBEAT allows you to teach the ***maXim*** a beat pattern that it will then repeat indefinitely.

When a chase is connected to an STL that is in **SyncoBEAT** mode, the chases own internal speed generator is disconnected and the STL's SyncoBEAT has total control of stepping.

SyncoBEAT allows for a **syncopated** (non regular) pattern to be learned. You tap out a beat pattern and the maXim learns the pattern then repeats it indefinitely. A syncopated pattern allows you to have, for example some rapid steps followed by maybe a long pause and then steps getting faster or possibly slowing down.
Any quantity from 1 to 20 beats can be entered in the beat pattern.

To create a SyncoBEAT;
HOLD [**function**], tap [**f/a**] (stl 1) or (stl 2).
The display scrolls a message showing the current mode of the STL.
Tapping [**yes**], toggles the STL between either **Sound To Light** mode or **SyncoBEAT** mode.
Turn SyncoBEAT **ON**.

The current mode of each STL is shown at the bottom of the video screen. The letter "**B**" indicates Synco**B**EAT mode.

To learn a beat pattern;
HOLD [**add**] until the word "**Learn**" appears on the display.
Whilst **holding** [**add**], enter your beat pattern by **tapping** [**ok**].

The beat pattern starts from the first tap of the [**ok**] button and ends when the [**add**] button is released.
Remember that when the maXim **repeats** your beat pattern, the time between the last tap and the first tap is determined by the time between your **last** tap and when your ***release*** the [**add**] button.

The "stepping beat indicator" on the video screen now moves to the beat that you have created.

If the beat pattern is not correct, create a new SyncoBEAT pattern by **holding** [**add**] and repeating the procedure. The new pattern will replace the old pattern as soon as the [**add**] button is released.

When the beat pattern is correct press;
[**edit**] to exit.

To step a chase with the SyncoBEAT you have created, the chase must be connected to the STL as described above.
If a chase has been set to "Single Shot Mode", triggering the single shot will run the chase once using the SyncoBEAT stepping.
See the "CHASES" section for more details on chases.

16 MIDI

16.1 OVERVIEW

MIDI (**M**usical **I**nstrument **D**igital **I**nterface) is an international standard for data communication between musical instruments, computers and other equipment such as lighting desks.
The maXim S and M models offer MIDI as an option and so the possibility exists to either control the lighting channels from a MIDI keyboard or a computer with a MIDI output and suitable sequencing software or to control a MIDI device from the maXim.
Three MIDI connectors are provided on the rear of the maXim.

- The MIDI IN connector receives signals from other MIDI devices such as a keyboard or sequencer. These signals can be used to perform certain actions on the m as listed below.
- The MIDI THRU connector transmits a duplicate of the signal received at the MIDI in connector.
- The MIDI OUT connector transmits the MIDI
- signals that may be generated by certain buttons that you press on the maXim as listed below.

16.2 MIDI ON/OFF

To utilise the MIDI functions, you must not only connect the maXim to a MIDI device, but you must also turn ON the MIDI function.

HOLD [**function**], tap [**f/a**] (setup).
The display asks "`Lock Console?`
Press [**no**].
The display asks "`Set MIDI on?`"
Press [**yes**].

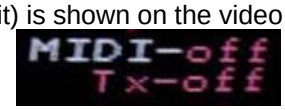
The MIDI function should only be turned on when you want the maXim to respond to the MIDI signals.

16.3 MIDI TRANSMIT ON/OFF

When the MIDI function is turned ON, you can also elect to "Transmit" MIDI from the maXim.

HOLD [**function**], tap [**f/a**] (setup).
The display asks "`Lock Console?`"
Press [**no**].
The display asks "`Set MIDI off?`"
Press [**no**].
The display asks "`Set MIDI transmit?`"
Press [**yes**]"

The current state of the MIDI receive and MIDI Tx (Transmit) is shown on the video screen.



16.4 MAXIM MIDI MAPPING

The MIDI protocol uses many different types of messages. One type of message that MIDI sends is the note ON / OFF message. Each note on the MIDI keyboard has a number assigned to it. The range of MIDI note numbers is 0 to 127. For example, the 88 keys on a grand piano correspond to MIDI note numbers 21 to 108,
Many maXim buttons are mapped to MIDI note numbers (see table below) so that pressing a particular maXim button is the same as pressing the MIDI keyboard note to which the button is mapped.

- A MIDI note ON message is equivalent to pressing the maXim button to which it is mapped.
- A MIDI note OFF message is equivalent to releasing the maXim button to which it is mapped

MIDI signals are sent and received on 16 separate channels on the one cable. The maXim only uses channels 1, 2 and 3.

- MIDI channel 1 is used for the various control buttons as listed below and for EDIT wheel movements.
- MIDI channel 2 is used for the yellow f/a buttons as listed below.
- MIDI channel 3 is used for the red f/a buttons as listed below.

16.5 CONTROLLING THE MAXIM FROM A MIDI DEVICE

MIDI can be used to control many functions on the maXim by emulating maXim button presses. The table below shows the maXim buttons that are controlled by relevant MIDI messages.
Here are a few examples…..

Flashing a channel or scene. If the maXim receives the MIDI "note 48 On" command on MIDI channel 2, it will flash Yellow channel 1 to the level set on the flash master. A MIDI "note 48 Off" command on MIDI channel 2 will turn off Yellow channel 1.

Stepping a stack. If the maXim has a stack on the stack master, and it receives the MIDI "note 53 On" then "note 53 Off" command on MIDI channel 1, it will step the stack to the next step.

Stepping a chase. If the maXim has a chase on a red 9 master and the chase is set to "single step" then if the maXim receives the MIDI "note 56 On" then "note 56 OFF" command on MIDI channel 3, it will step the chase to the next step.

Complex and intricate chases with *varying* rates may easily be created by recording the sequence of notes together with the timing and duration of each note on a MIDI sequencer.

16.6 CONTROLLING A MIDI DEVICE FROM THE MAXIM.

The maXim can send MIDI commands to a MIDI device allowing it to play sounds or trigger other MIDI controlled events when certain maXim buttons are pressed.
When a maXim button is pressed, a MIDI note ON is transmitted for the MIDI note and channel to which the button is mapped (see table below).

When a maXim button is released, a MIDI note OFF is transmitted for the MIDI note and channel to which the button is mapped.

When the EDIT wheel is rotated, a "Pitch Bender" message is transmitted on MIDI channel 1.

- Clockwise EDIT wheel movements = Pitch UP message

Anticlockwise EDIT wheel movements = Pitch DOWN message

The following table shows maXim buttons and their corresponding MIDI note numbers and MIDI channels for both MIDI transmit and receive.
The table shows the buttons of a maXim M. The maXim S only has 12 red f/a buttons and 12 yellow f/a buttons.

MIDI Note	MIDI Channel 1	MIDI Channel 2	MIDI Channel 3
48 (C below middle C)	"blue master" flash	yellow f/a 1	red f/a 1
49	"red master" flash	yellow f/a 2	red f/a 2
50	"yellow master" flash	yellow f/a 3	red f/a 3
51	stack flash	yellow f/a 4	red f/a 4
52	"stack" stop/step	yellow f/a 5	red f/a 5
53	"stack" >	yellow f/a 6	red f/a 6
54	"stack" <	yellow f/a 7	red f/a 7
55	Add/solo	yellow f/a 8	red f/a 8
56	Record scene	yellow f/a 9	red f/a 9
57	Record chase	yellow f/a 10	red f/a 10
58	Record stack	yellow f/a 11	red f/a 11
59	Assign/copy	yellow f/a 12	red f/a 12
60 (Middle C)	mode red bank	yellow f/a 13	red f/a 13
61	select	yellow f/a 14	red f/a 14
62	edit	yellow f/a 15	red f/a 15
63	remove	yellow f/a 16	red f/a 16
64	add	yellow f/a 17	red f/a 17
65	function	yellow f/a 18	red f/a 18
66	no <	Yellow f/a 19	red f/a 19
67	OK step/stop	yellow f/a 20	red f/a 20
68	yes >	yellow f/a 21	red f/a 21
69	page red bank	yellow f/a 22	red f/a 22
70	page blue bank	yellow f/a 23	red f/a 23
71		yellow f/a 24	red f/a 24
Pitch Bender	Edit wheel movements Raising pitch = Edit wheel UP Lowering pitch = Edit wheel down		

17 CAPTURE

17.1 OVERVIEW

"Capture" is a lighting design and visualization computer program for Windows that allows you to see a virtual stage and lighting fixtures on your computer.

When you connect your maXim to the computer (via the "Capture" connector on the maXim and the USB A connector on your computer) you can use the maXim to control the fixtures on your computer screen.

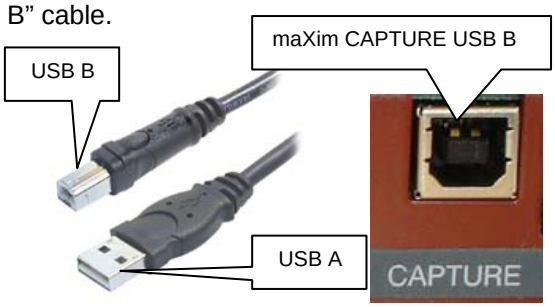
There are three levels of functionality available for maXim Capture operation:

- Capture maXim Training
- Capture Demo.
- Capture Full.

All three levels require the (optional) "Capture" connector on your maXim.
Capture Full also requires the (optional) "Capture Dongle" to be fitted inside your maXim.

17.2 CONNECTING THE CAPTURE PORT

Your computers USB port has a "USB type A" connector. The maXim's Capture port has a "USB type B" connector. To connect the maXim to your computer you require a "USB A to USB B" cable.



Most modern computers will automatically recognise the maXim's Capture port when you connect it to the maXim, however if your computer does not recognise it you will need to download and install the driver for the maXim's USB port. The driver is available from;
www.lsclighting.com.au.
Look in the "Software downloads" section.

17.3 CAPTURE DEMO SHOWS

A "Capture Demo Show" is a computer file that you can download from the LSC website,
www.lsclighting.com
Each "Capture Demo Show" has been specially prepared for the maXim. You do not need to download the Capture program because when you run the capture demo show file on your computer it contains the Capture program **and** the special demo show.
You also need to download the matching maXim "show" that you must load into your maXim. It contains the patch and scenes etc for you maXim that match the capture demo show.

When you connect your maXim to your computer you will be able to control all of the fixtures on your computer using the maXim panel.
The advantage of the demo shows is that you don't have to learn how to create shows on the Capture software because the show has already been created for you. You can concentrate on improving your maXim operating skills.

17.4 CAPTURE DEMO MODE

Capture demo mode uses the full capture programme but with the save and print functions disabled. The Capture program can be downloaded from either;

www.lsclighting.com

or

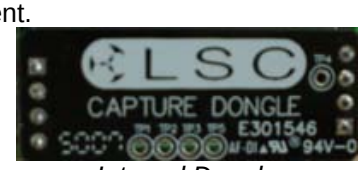
www.capturesweden.com.

On the capturesweden site, look in the downloads page for "console editions" then download the "LSC Edition".
Install the program on your computer then use it to create a show with the fixtures that you want to control.
On your maXim you will need to "patch" all of the fixtures that you have created on "Capture" and then when you connect your maXim to your computer you will be able to control all of the fixtures in your show using the maXim panel.

You cannot save the "Capture" show but it is great for training and familiarisation on your maXim.

17.5 CAPTURE FULL

When you purchase Capture Full for your maXim, you receive the Capture software and the capture dongle which is fitted inside your maXim either in the factory at time of manufacturing or it can be retro-fitted by your LSC agent.



Internal Dongle

When your computer is connected to your maXim, it recognises the dongle and enables the "save" and "print" functions of Capture.
Capture Full lets you design and **save** your shows then open them again to rehearse and enhance them at any time.

Hint: Capture Full is great for showing clients what their show will look like during the pre-production stage. You could even show them optional looks with additional fixtures that they could have in their production if they increased the lighting budget.

18 UTILITIES

18.1 USB DISK OPERATIONS

The ***maXim*** has an *optional* USB connector that accepts a USB "flash disk" allowing you to save or load a "show".
A "show" contains the entire contents of the ***maXim's*** memory. This includes all Scenes, Chases, Stacks, SyncoBEATs and the Patch.

If you are using a computer to manage the files on you USB flash disk, ensure that all files for the maXim reside in the root directory of the disk.

HINT: LSC recommends that you use a dedicated USB flash disk for the storage of your maXim "show" files and that you do not use the same device for general purpose use.

The status of the USB port is displayed on the (optional) video output. The colour of "USB" changes to show the current status.

- GREY= No USB device connected.
- GREEN = Ready
- RED = Busy

18.1.1 SAVE SHOW TO USB DISK

To save a show to USB disk place a flash disk in the TOP USB connector then;
HOLD [**function**], tap [**f/a**] (disk), [**yes**].
By default, the ***maXim*** offers a name of "SHOW1".
To accept the show number, press [**ok**].
To change the show number, rotate the **EDIT wheel** . Up to 99 show numbers may be used.
To save the show number, press [**ok**], [**yes**].
When the save operation is complete press [**ok**].

NOTE: You can change the word "SHOW" to a name of your choice. See "Default File Name" below.

NOTE: Saving a show takes a few moments. During this time normal operation is not possible.

18.1.2 LOAD SHOW FROM USB DISK

When you load a show from USB flash disk, you replace the entire contents of the ***maXim's*** memory with the show data from the USB flash disk.

WARNING: Once a load from USB flash disk is initiated, the current contents of the maXim's memory will be erased and cannot be recovered.

To load a show from USB flash disk;
HOLD [**function**], tap [**f/a**] (disk), [**no**], [**yes**].
Rotate the **EDIT wheel** to select the show number. To load the show, press [**ok**], [**yes**].
When the load is complete press [**ok**].

NOTE: Normal operation is not possible whilst a show is loading.

18.2 RESET

The ***maXim*** provides two types of reset function. SYSTEM reset and TOTAL reset.

18.2.1 SYSTEM RESET

In the unlikely event that the ***maXim*** fails to respond, the operating system may be reset so that the software may recommence normal operation. See also "POWER ON RESET" below. Performing a system reset selects "preset" mode but will **not** affect any of the recorded memory.
To perform a SYSTEM RESET;
HOLD [**function**], tap [**f/a**] (reset), [**yes**], [**yes**].

18.2.2 TOTAL RESET

Total Reset will **ERASE** all the recorded memory from the ***maXim*** *and* reset the operating system.
See also "POWER ON RESET" below.

To perform a TOTAL RESET
HOLD [**function**], tap [**f/a**] (reset), [**no**], [**yes**], [**yes**].

18.2.3 POWER ON RESETS

If the ***maXim*** is not responding you will not be able to perform a reset as described above. In this case, switch off the ***maXim*** and wait for approximately 10 seconds then;

- To perform a "system reset" at switch on; **HOLD** [**function**], switch on, release [**function**].
- To perform a "TOTAL reset" at switch on (also known as a COLD START);
  HOLD [**no**] + [**yes**], switch on the power and when the scrolling message finishes, release [**no**] + [**yes**].

18.3 SETUP MEMU

The "setup" menu allows you to set the following functions……

- Lock/Unlock Console
- MIDI on/off…….MIDI Transmit on/off
- Preferences……
  - Set times and speeds
  - Set language
  - Set File Name
  - Set Yellow master direction

To access the "setup" menu;
HOLD [**function**], tap [**f/a**] (set-up).

18.4 LOCK

The ***maXim*** can be locked to prevent unauthorised changes. Three levels of lock are available.

Hint: Always save your show to disc before locking the maXim.

HOLD [**function**], tap [**f/a**] (set-up).
The display asks "`Lock Console`?" and the PaTPaD shows three options:

-LOCK-	
PATCH	●
SAVE	☼
ALL	●

- Lock **PATCH**. The patch cannot be edited.
- Lock **SAVE.** Memories cannot be saved or edited.
- Lock **All**. The current *maXim* output continues but all controls are locked except for the [function] button which is used to unlock the *maXim*.

You can select any of the three options by pressing its [**PM**] button. The selected option flashes. To accept the flashing option press;
[**yes**].
The display scrolls "`Enter Code`". Two levels of security are available:

- For low level security *without a code* press [**ok**], [**ok**].
- For high level security use the red bank [**f/a**] buttons 1 to 9 (use 10 as 0) to enter a 1 to 4 digit lock code then press [**ok**].

Repeat the same digits then press [**ok**].
The console is now locked.

18.4.1 UNLOCK

To unlock the ***maXim***;
HOLD [**function**], TAP [**f/a**] (set-up).
The display asks "Unlock Console?".
Press [**yes**].
The display scrolls "Enter Code".

- If the console was locked with low level security simply press [**ok**].
- If the console was locked with high level security use red bank [**f/a**] buttons 1 to 9 (use 10 as 0) to enter the same digits used to lock the console then press [**ok**].

The console is now unlocked.

18.4.2 LOST LOCK CODE

If you lock the *maXim* and forget the code you have two choices:

1. email techsupport@lsc.com.au or contact your local LSC agent including the serial number of your ***maXim*** (located on the rear panel). An unlock code will be emailed to you (or your agent).

2. Perform a "Cold Start" which does a total reset and **destroys ALL memories and show information**. To perform a cold start, switch OFF the *maXim* and wait for 30 seconds. **HOLD** down the [**yes**] **+** [**no**] buttons and switch **ON** the *maXim*. **Wait** until the scrolling message finishes then release the two buttons.

18.5 PREFERENCES

18.5.1 DEFAULT FADE AND SPEED TIMES

HOLD [**function**], tap [**f/a**] (setup), Lock? [**no**], MIDI? [**no**], Set Preferences? [**yes**], Fade and Speed times? [**yes**].
Follow the prompts and set the times with the **EDIT** wheel .
You can set default times for the following;

- Scenes - In time, Out time
- Chases – Speed, Crossfade
- Stacks - In time, Out time, Link time

Stack default In and Out times are only used if the step is a snapshot or a chase. If the step is a scene it will use the times from the scene memory. When a fade time is set *lower* than 0 seconds, it is controlled by the "in time" or "out time" buttons.
To accept the setting, press [**ok**].

18.5.2 DEFAULT PARAMETER TIMES

Default parameter times are set from the PaTPaD [**menu**]. See "ADVANCED FIXTURE PROGRAMMING" for details.

18.5.3 LANGUAGE

To set the help language shown on the video display:
HOLD [**function**], tap [**f/a**] (setup), Lock? [**no**], MIDI? [**no**], Set Preferences? [**yes**], Fade and Speed times? [**no**], Language? [**yes**].
Press [**yes**] or [**no**] to cycle through the available "Help Screen" languages as shown on the display. Current choices are English, Spanish, German or Czech. When your selected language is displayed press [**yes**].

18.5.4 DEFAULT FILE NAME

To set the default name for saving shows to the optional USB flash disk;
HOLD [**function**], tap [**f/a**] (setup), Lock? [**no**], MIDI? [**no**], Set Preferences? [**yes**], Fade and Speed times? [**no**], Language? [**no**], File name? [**yes**].
Move the cursor with [**<**] or [**>**] and select characters the **EDIT** wheel .
To save, press [**ok**].

18.5.5 INVERT YELLOW MASTER

The operation of the Yellow Bank master may be inverted so that its output is at maximum when the fader is at the bottom of its travel. This allows crossfades between the Red and Yellow masters to be performed with the Red and Yellow fader knobs always side by side.
To set the Yellow master inversion;
HOLD [**function**], tap [**f/a**] (setup), Lock? [**no**], MIDI? [**no**], Set Preferences? [**yes**], Fade and Speed times? [**no**], Language? [**no**], File name?],

[**no**]. If the Yellow master is not inverted, the display asks “Yellow Master is not inverted – Invert?”
To invert it press [**yes**].
If the Yellow master is inverted, the display asks “Yellow Master is inverted – Set Normal?”
To set normal press [**yes**].

18.6 SOFTWARE UPGRADE

The ***maXim*** operating system can be upgraded via the **USB connector** (if fitted) or if your ***maXim*** is not fitted with the USB option you will need the **CODELINK** kit to upgrade your software.
If you do not have a **CODELINK** kit either contact LSC or an LSC distributor or you can download the software and instructions from the LSC website, www.lsclighting.com.au.

To upgrade your ***maXim*** you will also need the latest version of the ***maXim*** software.
Notification of new versions of the ***maXim*** software are posted on the LSC discussion forum at: http://forums.lsclighting.com.au
Registered users can download from the forum or you can also obtain the software by emailing: techsupport@lsclighting.com.au.

Each ***maXim*** model has its own version of the software. Note which model of ***maXim*** you are upgrading (printed on rear panel)and select the correct one when you download the software from the web site.

Before any software upgrade save any shows that you want to keep to USB flash disk (option).

Un-zip the downloaded file and read the “read me” file for the latest instructions.

- Files for upgrading by **USB** use the file extension “.**prg**”.
- Files for upgrading by **Codelink** use the file extension “.**s19**”.

18.6.1 UPGRADING BY USB

Upgrading by USB uses a .PRG file that you “unzipped” above. The .PRG file can only be used if the optional USB connector is fitted

To upgrade the operating software by USB disk, place the USB flash disk containing only the correct software upgrade file for your model of desk in the top USB connector.
The files are named as follows;

Model	File Name
***maXim* S**.	mx12v???. PRG
***maXim* M**.	mx24v???. PRG
	(??? Will be the version number).

HOLD [**function**], tap [**f/a**] (disk).
Press [**no**], [**no**], [**yes**], [**yes**].
The ***maXim*** will now test the file it finds on the flash disk and displays the message:
"Checking Upgrade File..."
If the upgrade file passes the test the ***maXim*** will now show the message:
"Upgrade takes 3+ mins. YES when ready."
You can now push [**yes**] to continue the upgrade or [**no**] to abort.
If you push [**yes**] the ***maXim*** will start the upgrade process. The desk and the display on the video will go blank during this process. This is normal.

DO NOT REMOVE THE FLASH DISK OR TURN THE POWER OFF DURING THE UPGRADE. If the power fails during an upgrade, the maXim will be disabled. Normal operation can then only be restored by performing a CODELINK upgrade. See below.

During the upgrade, progress of the upgrade can be seen on the yellow bank LEDs as they progressively light.
When the upgrade is complete you must perform a “power on total reset”.
Turn the desk off.
HOLD [**yes**] and [**no**] **together**.
Turn on the desk.
When the sign-on message has **completed release** [**yes**] and [**no**].
The desk is now ready to use.

18.6.2 UPGRADING BY CODELINK

CODELINK is a communication program that runs on a PC based computer. The CODELINK cable connects a personal computer (PC) comm port to the ***maXim*** (DMX512 connector) to enable new software to be loaded into the ***maXim***.
Codelink is free and can be downloaded from;
www.lsclighting.com.au

Install and run the codelink program on your computer. Open the Codelink HELP menu for instructions on how. to make the special cable to connect your computer to the maXim and how to upgrade your maXim.

The files for maXim upgrade by codelink are named as follows;

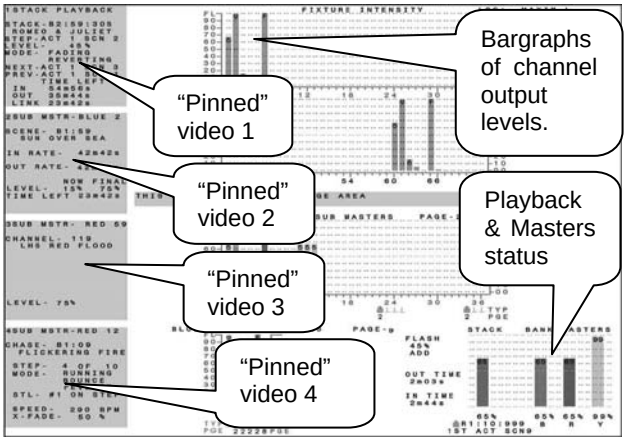
Model	File Name
***maXim* S**.	mx12v???. s19
***maXim* M**.	mx24v???. s19
	(??? Will be the version number).

18.7 VIDEO

18.7.1 VIDEO Monitor

If your ***maXim*** is fitted with the optional VIDEO output connector plug a SVGA monitor into the VIDEO connector to access the following displays.

18.7.2 VIDEO DISPLAYS



Typical video screen.

The video screen is divided into the **main display** (the white area on this simulation) and the **selectable areas** (the dark areas on the left).

18.7.3 MAIN DISPLAY

The main part of the screen shows the fixture intensities (cyan bargraphs) at the top, a message area in the middle and the status of the playbacks and masters at the bottom.
The bargraphs are laid out in a similar fashion to the ***maXim*** faders. Their intensity levels are shown in *tens* on the side axis of the display and in *units* inside each individual bar. The intensity levels are shown prior to the patch.
The contents of each playback are shown in the "TYP" row by a symbol and colour. The colour is repeated in the bargraph.

18.7.4 SELECTABLE AREAS

The left side of the screen is selected by the operator and shows either:

- 1 of 3 selectable video pages (not shown above, see below) or
- If none of the 3 pages are selected it further divides the left side into 4 areas and allows you to select any 4 Playbacks or the stack master and "**pin**" a status display for that Playback or stack into any of the 4 positions (as shown above).

18.7.5 VIDEO 1 TO 3

To turn on one of the 3 video pages on the left of the screen;
HOLD [**function**], tap [**f/a**] (video 1 to 4).

- Video 1 is "**Channel View**"
- Video 2 is "**DMX Output**"
- Video 3 is "**Stack Cue List**"

To turn off the current video page;
HOLD [**function**], tap [**f/a**] (video 1 to 3).

18.7.6 PINNED VIDEO

When a playback or the stack is "selected', a video display is automatically pinned. Press;
[**select**], [**f/a**] (playback or stack to pin).
To select a specific position for the pinned display;
HOLD [**function**], tap [**f/a**] (video 1 to 4).
(Video 1 is at the top left of the screen and video 4 is at the bottom).
Holding [**function**] and tapping [**f/a**] (video 1 to 4) again, turns off (unpins) the display.
Press [**select**] (de-selects select) to finish.
To remove **all** pinned displays press;
[**select**], [**remove**].
During normal operation, when any of the 3 video **pages** (below) are displayed they will cover any displays that you "pin". Up to 4 pinned displays may be viewed at the same time. The currently "selected" pinned display is RED.

18.8 DIAGNOSTICS

The ***maXim*** provides diagnostics which allow you to;

- Test the operation of all buttons, LEDS, faders USB ports and the EDIT wheel.
- Check internal battery voltage and charge condition.
- Check memory capacity and usage.

18.8.1 DIAGNOSTICS MODE

To select diagnostics mode;
HOLD [**function**] tap [**ok**], release [**function**].
Several *unlabelled* red bank [**f/a**] buttons flash to show they are active.

18.8.2 LED AND BUTTON TEST

Enter diagnostics mode (above) then press red bank [**f/a**] (1).
All LEDs should be lit. If a LED is not lit, then there is a possible problem with the LED.
To test a button, press the button and its LED will go off. This indicates a command from that button has been received at the processor and it is operating correctly.
To exit;
HOLD [**function**], tap [**ok**].

18.8.3 FADER TEST

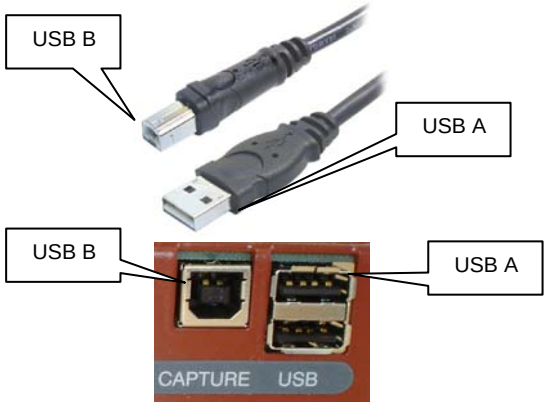
Enter diagnostics mode (above) then press red bank [**f/a**] (2).
To test a fader, press the [**f/a**] button for that fader then move the fader. The display reads from 0 to 255 as the fader is moved through its range. To select the IN fader, or OUT fader, use the [**<**] and [**<**] buttons (respectively) above the Stack master.
To exit;
HOLD [**function**], tap [**ok**].

18.8.4 EDIT WHEEL TEST

Enter diagnostics mode (above) then press red bank [**f/a**] (3).
Rotate the **EDIT** wheel to test it. The display should smoothly count up or down as the wheel is rotated.
To exit;
HOLD [**function**], tap [**ok**].

18.8.5 USB TEST

Using a USB A to USB B cable, connect the cable from the Capture connector (USB B).to the top USB A connector.



Enter diagnostics mode (above) then press red bank [**f/a**] (6).
The ***maXim*** will test both directions of communication between the connectors and report the condition.
Remove the plug from the top USB connector and place it in the bottom USB connector then press red bank [**f/a**] (7).
The ***maXim*** will test both directions of communication between the connectors and report the condition.
To finish press; [**ok**]

18.8.6 BATTERY TEST

Enter diagnostics mode (above) then press red bank [**f/a**] (5).
The display will show the battery voltage.
It should be between *approximately* 5.8 and 6.4 volts. Press [**ok**].
The display will show the state of the battery as either, charging or charged.
To exit, press [**ok**].

18.8.7 SYSTEM ERROR INFORMATION

Enter diagnostics mode (above) then press red bank [**f/a**] (10).
The window pops up on the video screen show showing any system error information. In the event of any problems, this information can be conveyed to LSC to assist in fixing problems.
To exit, press [**ok**].

18.8.8 MEMORY TEST

Enter diagnostics mode (above) then press red bank [**f/a**] (12).
The display will show the percentage of memory used.
Press [**ok**].
The display will show the percentage of heap used. (Technical maintenance use only).
Press [**ok**].
The display will show the memory capacity fitted to the ***maXim***.
To exit, press [**ok**].
To exit diagnostics mode press [**no**].

19 DMX 512A

DMX512A is the industry standard for the transmission of digital control signals between lighting equipment. It utilises just a single pair of wires on which is transmitted the level information for the control of up to 512 DMX slots (addresses or channels). The information for each slot is sent sequentially. The level of slot 1 is transmitted, then the level of slot 2, then 3, etc. up to a maximum of 512 slots. This stream of data containing the levels for all 512 DMX slots is repeated a minimum (generally) of 44 times per second. This provides sufficient updates of channel information for smooth fade transitions.

When good quality data cables are used, DMX512 cable runs may be up to 1,000 metres in length. Most DMX receiving equipment (dimmers, scrollers, moving lights, etc) are provided with a DMX512 input and DMX512 output. This allows the DMX512 feed to be looped through various pieces of equipment. DMX512 splitters may also be employed to provide multiple DMX512 feeds. If a piece of DMX equipment *regenerates* the DMX signal, then the calculation of the 1,000 metre cable length limit begins again from the output of the regenerating device.

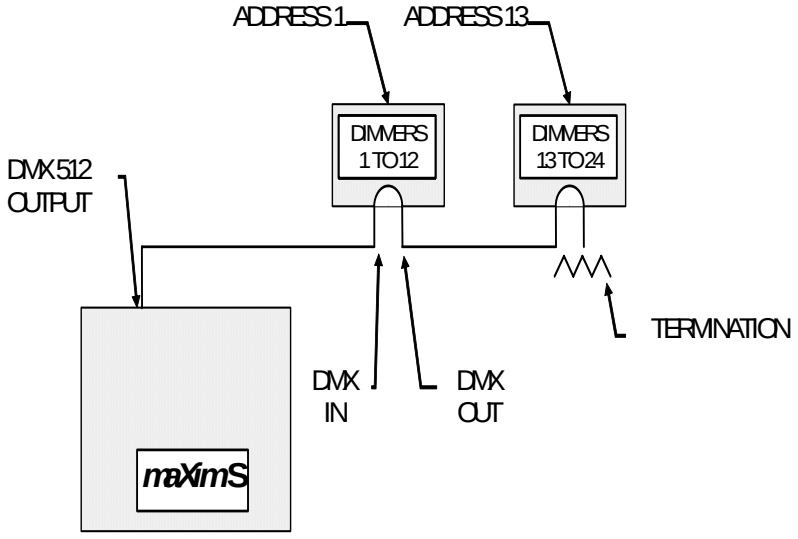
As the DMX512 signal contains the level information for all slots, each piece of equipment needs to be able to read the level(s) of the slots(s) that apply only to that piece of equipment. To enable this, each piece of DMX512 receiving equipment is fitted with an address switch. This address is set to the slot number to which the equipment is to respond. If the equipment is a rack of 12 dimmers, then the address switch is set to the slot number to which the first dimmer in the rack is to respond. The other 11 dimmers will follow on from the slot number on the address switch in numerical order.

DMX512 APPLICATIONS

The following diagram illustrates a simple setup utilising DMX512.

In this setup, the DMX output signal from the ***maXim*** is fed to the DMX input of the first dimmer rack. As the first dimmer in this rack is to be controlled by DMX slot 1, the address switch is set to slot 1. The DMX output connector of the first rack is connected to the DMX input of the second dimmer rack whose address switch is set to 13 because the first dimmer in this rack is to be controlled by slot 13. Further dimmer racks are connected in this daisy chain manner and their addresses set accordingly. Address switches can be set to any desired address. They do not have to follow in numerical order. If a dimmer further along the line is to be also controlled by say slot 13, then simply set its address switch to 13.

The end of the DMX line is terminated (120 Ω) to prevent the signal reflecting back up the line and causing possible errors. The termination might be an external termination or it might be provided by a switch on the equipment.



Simple DMX setup.

20 TERMINOLOGY

20.1 FIXTURE
Fixtures are also known as “Lanterns”, “Luminares”, “Instruments” or “lights”.

20.2 CHANNEL
A Channel is the basic element of a Lighting Control System. The faders on the red and yellow banks are channel faders. Channels are connected to DMX slots via the patch. The number of dimmers and fixtures connected to a channel is variable depending on your installation and/or application. The most basic application will have just one dimmer and fixture patched to a channel.

20.3 LOOK
A lighting “LOOK” is the collection of channels at their various levels (intensities) that are contributing to the output of the ***maXim*** at any one time. A “look” may be made up of a collection of channels or a single scene or a combination of several scenes. It may even be a single channel.

20.4 HIGHEST TAKES PRECEDENCE (HTP)
If a level for a particular channel is emanating from several places at the same time, then the highest of all those levels will be the level at the output.

20.5 DIPLESS CROSSFADE
When a dipless crossfade is performed, the output level of any channel that is on in *both* the OUT fading scene and the IN fading scene will fade directly from its outgoing level to its incoming level and will **not dip** below a level equal to the current sum of the two scenes

20.6 SCENE
A Scene is a *memorised* look of fixtures (at their respective levels) plus “IN” and “OUT” fade times and a name. It can be played back on playback or as a step in a stack or chase.

20.7 CHASE
A Chase is a list of steps consisting of scenes, or snapshots (of the output), that are replayed in order, stepping continuously from one step to the next and automatically repeating when it has reached the end.

20.8 STACK
A Stack is a list of steps consisting of scenes, chases or snapshots (of the ***maXim*** output), that are recorded in the order that they are to be replayed. The transition from step to step is a dipless crossfade.

20.9 PLAYBACK
A Playback provides a means of playing back and controlling the overall level of a scene or a chase.

21 COMPLIANCE STATEMENTS

21.1 C TICK COMPLIANCE STATEMENT
All LSC products with CE Compliance automatically comply with C-Tick requirements as per Section 182 of the Radiocommunications Act 1992. LSC Company Registration number is N921.

21.2 CE COMPLIANCE STATEMENT
The ***maXim*** range of lighting control desks from LSC Lighting Systems (Aust) Pty. Ltd. have been designed and tested to the European Committee for Electrotechnical Standardization (CENELEC) standard– EN55022 (Information Technology Equipment).

21.3 DISCLAIMER
LSC Lighting Systems (Aust) Pty. Ltd. has a corporate policy of continuous improvement, covering areas such as product design and documentation. In light of this policy, some detail contained in this manual may not match the exact operation of your product.
In any event, LSC Lighting Systems (Aust) Pty. Ltd. can not be held liable for any direct, indirect, special, incidental, or consequential damages or loss whatsoever (including, without limitation, damages for loss of profits, business interruption, or other pecuniary loss) arising out the use or the inability to use this product for its intended purpose as expressed by the manufacturer and in conjunction with this operating manual.

Servicing of this product is recommended to be carried out by LSC Lighting Systems (Aust) Pty. Ltd. or its authorised service agents. No liability will be accepted whatsoever for any loss or damage caused by service, maintenance or repair by unauthorised personnel. In addition servicing by unauthorised personnel may void your warranty.

22 COMPANY PROFILE & PRODUCTS

The LSC name is synonymous within the Entertainment Lighting Industry for producing leading edge lighting control products that are innovative, stylish and functional.

Furthermore, its dedication to developing products that are inherently reliable and easily serviceable, has enhanced LSC's reputation with owners and operators alike. A great deal of pride is instilled in the people who design, manufacture and sell LSC products, whereas every sale is regarded as not just a purchase, but an important element in cementing a long term relationship with each customer.

The product range is diverse and covers control desks, digital dimmers and a comprehensive selection of DMX512 and power distribution equipment. LSC has forged a reputation for many years as a pioneer in DMX512 technology and this will be further enhanced with the release of new products in the future.

Our products are distributed through a worldwide sales network of over 52 Distributors in 36 Countries. Users of LSC equipment range from high profile corporate and professional clients to churches, museums, schools, amateur theatre groups, convention and exhibition industries, broadcast industry, production and rental companies; - basically anywhere good entertainment lighting is required.

EKO Installation dimmer in 6, 12 and 24 channel versions with DMX and LSCnet wallplate control.

e-Series – featuring the **ePAK**, **ePRO** and **e1220** rackmount 6 and 12 channel digital dimmers

TEKO – Touring dimmer featuring 3Kw per channel and touch screen control.

i-Series – featuring the **iPAK** and **iPRO** range of professional installation dimmers.

Redback – Cost effective entry level professional dimmer range.

DELTA – DMX512 data splitters and Power Distribution Products.

e24 – **24** channel dimming system with patch bay, monitoring and mains distribution.

maXim – advanced lighting consoles in 6 models from 12 to 120 faders, up to 1024 DMX channels with moving light control

MINIM –entry level lighting console with manual/memory DMX512 control.

monoPAK – single unit portable dimmer

DNA – range of isolated inlets, outlets and power supply's for distributing DMX512.

TDS – 48 channel dimming system with patch bay, digital monitoring and mains distribution.