MANTRA LITE

Lighting Control
for LEDs, Moving Lights & Dimmers

Operator Manual

Version V 2.01 February 2019

LSC
LIGHTING SYSTEMS

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1   Contents

Conventions Used in this Manual

Throughout this manual, certain conventions have been used to make the meaning clearer.

- A word in **Bold** text represents a virtual button on the touch screen.
- A word in [**Bold**] text with square brackets represents a physical button.
- Emphasis is indicated by <u>underlining</u>.

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2   Introduction

2.1 OVERVIEW

Mantra combines the ease of use of a fader based console, with the power of a touch screen graphical user interface to make control of LED fixtures easy and intuitive while still allowing control of moving lights and conventional dimmers. The software shows you what to do next, ensuring a very easy learning curve for even the novice user.

MantraLite can control 24 lighting fixtures of any type, dimmer, LED, moving LED and moving lights. "Expansion Wings" allow additional fixtures to be controlled. Faders are used to control intensity and the large touch screen has "Apps" that allow you to easily program colour, position or other attributes. The "Home" screen "rig view" has fixture icons showing intensity, colour and position of each fixture. The fixture icons can be positioned on the screen to emulate their actual position in your rig.

MantraLite makes controlling multi-colour LED fixtures easy. The different types of attributes (RGB, RGBA, RGBAW or CMY) are all controlled via a simple touch screen colour picker. Position (Pan and Tilt) is also controlled via the touchscreen and other attributes by virtual faders. This allows the MantraLite to control not just colour, but all the attributes of modern moving lights.

Where MantraLite really shines is in its effects. The unique _Animate_ Apps provides a simple and intuitive way to quickly create chases and patterns in a single cue, usually within just a few seconds. This feature alone makes the MantraLite the most powerful in its class. The Shapes App provides a quick and simple way of creating continuously moving positions on fixtures that have Pan and Tilt attributes by constantly varying those attributes.

An Undo command system and context sensitive Help ensures that MantraLite is easy to use.

When you have adjusted the intensity and colour of your fixtures and possibly created animations or shapes you can record the current output onto any Red Playback fader. Mantra has the capacity to record up to 1,000 cues, across 100 cue-lists or chases. Fixture library updates and new software features are easily installed via USB stick. Show files (that are stored in the console) can be backed up to USB stick for off-site storage.

2.2 LATEST FEATURES

LSC Lighting Systems (Aust) Pty. Ltd. has a corporate policy of continuous improvement covering areas such as product design and documentation. To achieve this goal, we undertake to release software updates for all products on a regular basis. Every software release includes the latest version of the Fixture Library.

This version of the manual covers up to version 2.01 of the software. The new features added in version 2.01 are:

The underlying operating system has been updated. This results in faster boot times, improved show load/save and easier to read fonts and graphics.

The firmware for the hardware interface has been updated. This reduces jitter on faders and provides smoother fader control. Flash button response is also considerably faster.

Multi-patch. You can now patch more than one identical fixture to a yellow fader. See section 5.4

Search function in Patch Window. It is now possible to search the fixture library when trying to find the correct fixture to patch. See section 5.2

Default Fade Time. It is now possible to set the default fade time. See section 18.4

Non-Latin character support. MantraLite now supports non-Latin character sets (eg. Chinese & Japanese).

Larger fonts. A larger easier to read font is now used on the touch screen.

Faster fixture library update. The fixture library now updates in less than 2 seconds, far better than the original 2+ minutes.

"QX1" USB to DMX512A adaptor supported. Connecting an LSC "QX1" provides an additional DMX universe output.

Simple control of Compound Fixtures. RGB colours of compound (multi-cell) fixtures are now controlled from the colour picker. If other colours are selected (e.g. Amber) these are reset to zero when the colour picker is used. If each cell has different colours, they will all change to the same colour. Individual control of cell colours is available from the [Sliders] button in the colour picker app. See section 5.5 for hints on patching compound fixtures.

More Intuitive Colour fader control. All colour faders (colour wheels, Cold White, Warm White, etc) are now located in the sliders window of the colour picker app.

A cursor has been added to text edit windows for easier editing.

See section 18.14 for a list of the features that were added in previous software releases.

2.3 EXPANSION WINGS

The Mantra Wing is an accessory for the MantraLite lighting console.

Up to 2 wings can be connected to a MantraLite console.
Connecting a Mantra Wing provides control of an additional 12 lighting fixtures (25-36) and a further 10 playbacks (11-20) (with 10 pages of memory) as well as a second DMX512 universe (U2) output.

Connecting a second Mantra Wing provides control of an additional 12 fixtures (37-48) and a further 10 playbacks (21-30) (with 10 pages of memory) as well as a third DMX512 universe (U3) output.

See the "Expansion Wing for the MantraLite" manual for more details.

2.4 USB TO DMX NODE

Connecting an LSC "QX1" USB to DMX512A adaptor provides an additional DMX universe output.

QX1

2.5 QUICK START GUIDE

A summary of the information in this "User Manual" can be found in the MantraLite "Quick Start Guide" supplied with your MantraLite and also available for download at www.lsclighting.com.

2.6 SAMPLE SHOW

Mantra comes with a "Sample" show that you can load so that you can familiarise yourself with the controls before patching your own fixtures. To load the sample show from the "Home" screen touch: **Tools/Load/SampleShow**.

If you don't need the sample show and want to patch your own fixtures now, go straight to section 5.

The sample show is perfect for training and demonstration of the console.

The sample show is patched with the following fixtures:

> 6 x Dimmers patched to yellow faders 1-6
> 6 x RGB LED Par cans patched to yellow faders 7-12
> 8 x RGB cyc washes patched to yellow faders 13-20
> 4 Mac Aura moving lights patched to yellow faders 21-24

6 Channel Dimmer
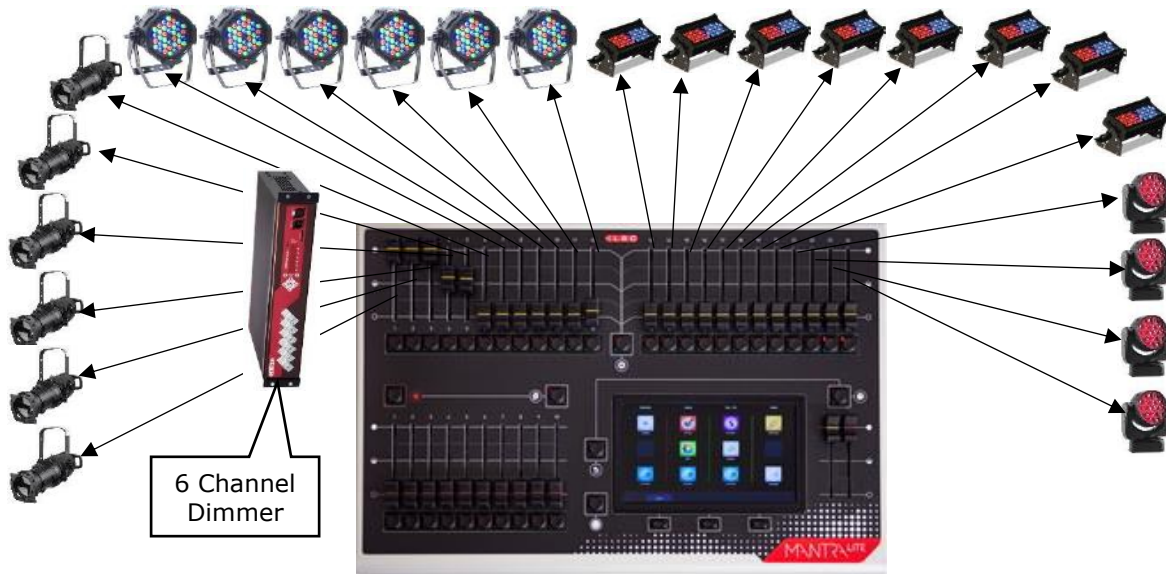
Sample show fixtures

There are some sample memories already recorded on Page 10 for experimentation. The other 9 pages of memory are blank.

2.7 VISUALISER

If you would like to see a simulation of the fixtures in the sample show working on a virtual stage on your computer you can download a 3D visualiser lighting program called "MantraLite Visualisation show". See section 20 for details.

2.8 MODELS

Two models of MantraLite are available to suit world markets:

Model Order Code	Description
MANTRA/LT	MantraLite control console with built-in power supply 90-265V 50-60Hz.
MANTRA/LT/E	MantraLite control console with external power supply - UL Model for the North American market. Also suitable for 12 volt DC operation. External plug pack supplied suitable for use on 90-265V 50-60Hz mains supply.

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2.9 ACCESSORIES

USB to DMX512A adaptor. Provides an additional DMX universe

Model Order Code	Description
MANTRA/LTDC	Dust cover for MantraLite control console.
MANTRA/WG	Expansion wing for MantraLite console. Provides an additional 12 fixtures, 10 playbacks and 1 x DMX-512A output. USB powered.
QX1	USB to DMX512A adaptor. Provides an additional DMX universe.

3 Getting Connected

3.1 REAR PANEL LAYOUT

Two models of MantraLite are available to suit world markets.
- The MANTRA/LT has an inbuilt power supply with a mains input.
- The MANTRA/LT/E (UL Model) uses an external power supply and has a DC Power socket in place of the power switch, fuse and mains input. It is intended for the North American market but can used in any application that requires 12 volt DC operation.

| Power Switch | Fuse | Mains Input | 2 x USB connectors | Ethernet | DMX 512-A output | Kensington Lock |
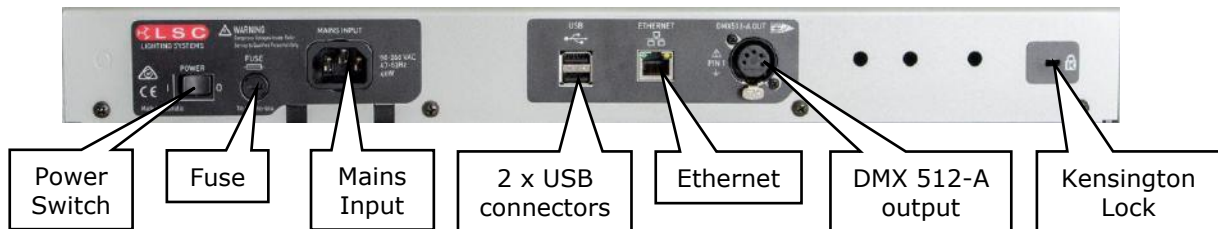
MANTRA/LT Model

3.2 MAINS INPUT

An IEC mains input socket is located on the rear panel and a POWER switch is beside the power input (LT model only). MantraLite 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.

3.3 SWITCHING ON

Switch on the "POWER" switch on the rear of the MantraLite (LT model only). After briefly displaying the opening message, the MantraLite will commence operating in exactly the same state that it was in with all of the cues, animations and patches etc. as they were when the MantraLite was last switched off.

3.4 SWITCHING OFF

The MantraLite has an inbuilt back up power supply. When the power is switched off (or accidentally removed), the MantraLite keeps operating on its own power supply for about 5 seconds to allow it to automatically save your work. If you are resetting the system by removing the power, allow about 15 seconds before re-starting to ensure that the system has fully shut down.

3.5 DMX 512 OUTPUT CONNECTOR

The MantraLite has a 5 pin DMX512-A output connector. Connect a DMX data cable from the DMX512-A output of the MantraLite to the DMX512 input of your equipment (LED fixtures, dimmers, etc.) and set the required DMX address's on your equipment. Only use specific DMX cable (available from your lighting supply company). Never use audio cable. The end of the DMX line must be terminated (120 Ω) to prevent the signal reflecting back up the line and causing possible errors.

See section 5 "Patching Fixtures" for more details.
See section 25.11 for more information on DMX cables.

3.6 USB CONNECTORS

Two USB connectors are provided. They can be used to connect:
- A USB keyboard or mouse.
- A memory stick for show backup and software upgrades.
- A LED USB desk light (up to 250mA).
- Expansion wing. Up to two wings can be connected. Each wing provides an additional DMX universe.
- QX1 node. Provides an additional DMX universe.

3.7 ETHERNET NETWORK CONNECTOR

A RJ45 Ethernet network connector is provided. It can be used to output Streaming ACN (sACN) and ArtNet. These are lighting control protocols that send DMX lighting data over a network. See section 18.6 for more details.

3.8 KENSINGTON LOCK SLOT

The Kensington Lock slot allows you to secure your MantraLite using a commercially available tethering device.

3.9 FUSE

A 0.5 Amp slow blow fuse is located near the mains input socket (LT model only). Always remove the mains lead before replacing the fuse.

4   Help and Undo

4.1 HELP

Context sensitive help is available on the touch screen for most functions. Press the ⑦ button to open the help screen. Press ⑦ or ✳ [**Back**] to close.

4.1.1   Languages

Help pages are available in several languages. To select a language, from the "Home" screen touch **Tools/Setup/Language** then touch the language of your choice.

4.2 UNDO

To quickly undo your last action <u>double tap</u> ↻.

MantraLite remembers most of your actions in a list. Press ↻ once to see the list.

Touch **Undo** to undo an action and step down the list.
Touch **Redo** to redo an action and step up the list
Actions that have been undone turn grey.
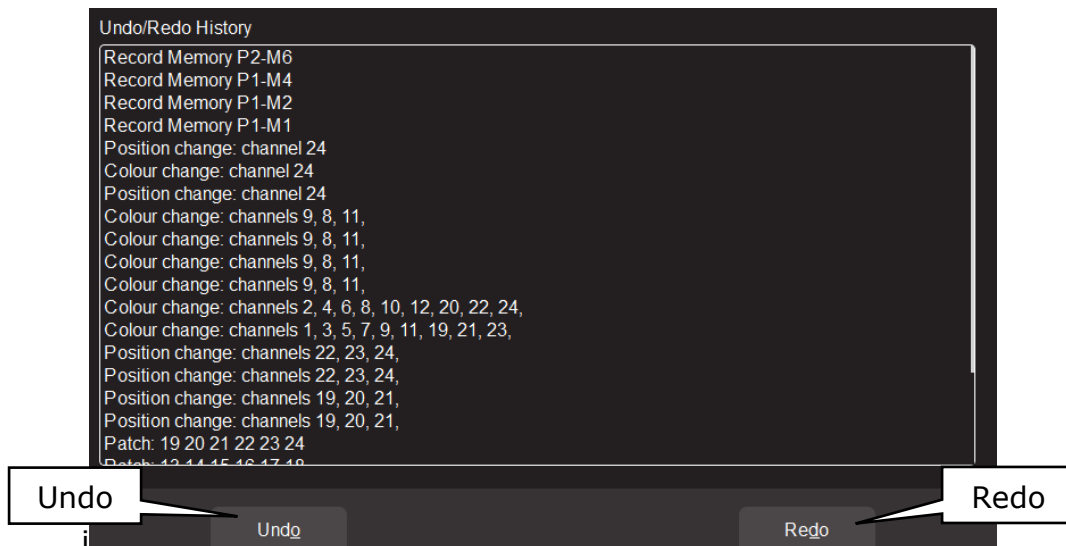
Press ✳ [**Back**] or press ↻ when finished.

Note: The undo list is automatically <u>cleared</u> whenever you save your show, start a new show, load an existing show or switch off the power.

Note: The "Undo" function is not available when editing "Rig View" (section 8), when using the "Fixture Editor" (section 19) or when deleting a memory (section 18.5).

5   Patching Fixtures

5.1 OVERVIEW

The output control signal from the MantraLite is known as DMX512-A. It is an international standard for controlling lighting equipment. Your lighting fixtures and dimmers have a DMX input and usually a DMX output so that you can connect multiple devices in a daisy chain fashion. You set an address on each fixture and use MantraLite to control each fixture based on its address. Each fixture will use a quantity of DMX channels to control its different functions as listed in its specifications. The address that you choose for each fixture must allow for the addresses used by other fixtures so that no overlaps exist. For example, fixture 1 is set to address 001 and this fixture uses 4 DMX channels. Fixture 2 must be set to address 5 (or higher).

The DMX signal is output on the 5 pin XLR connector on the rear of the MantraLite. Each optional wing also has a DMX output. The optional QX1 node provides an additional DMX output. Fixtures can also be controlled via the network connector using either "ArtNet" or "sACN" protocols. See section 18.6 for details.

MantraLite includes a fully integrated fixture library of over 5500 fixtures (most with multiple operating modes) supplied by Carallon, an independent supplier of fixture libraries.

If you do encounter a fixture that is not in the library you have two choices:
1. A fixture request service is available via the LSC web page. This process takes at least one month from the date of request.
2. The inbuilt Fixture Editor allows you to quickly create a template for a new fixture. See section 19

In the Patch menu you tell MantraLite the manufacturer/model and DMX address of each of fixture it is controlling. You choose a fixture number (1 to 24) (yellow fader and button) then patch the fixture to that number. MantraLite then loads a "template" for that manufacturer/model of fixture. The template tells MantraLite how to control that fixture.

The yellow fader of the fixture number that you select now controls the intensity and the touch screen provides the correct controls for that fixture. For example, if the fixture is a multi-coloured LED MantraLite provides a colour picker App to control the colour and the yellow fader will control its intensity. If the fixture has pan and tilt capabilities MantraLite provides a position control App to control the position.

5.2 PATCHING A FIXTURE

Set the DMX address on the fixture to be patched.
On MantraLite, from the "Home" screen, touch **Tools/Setup/Patch**.
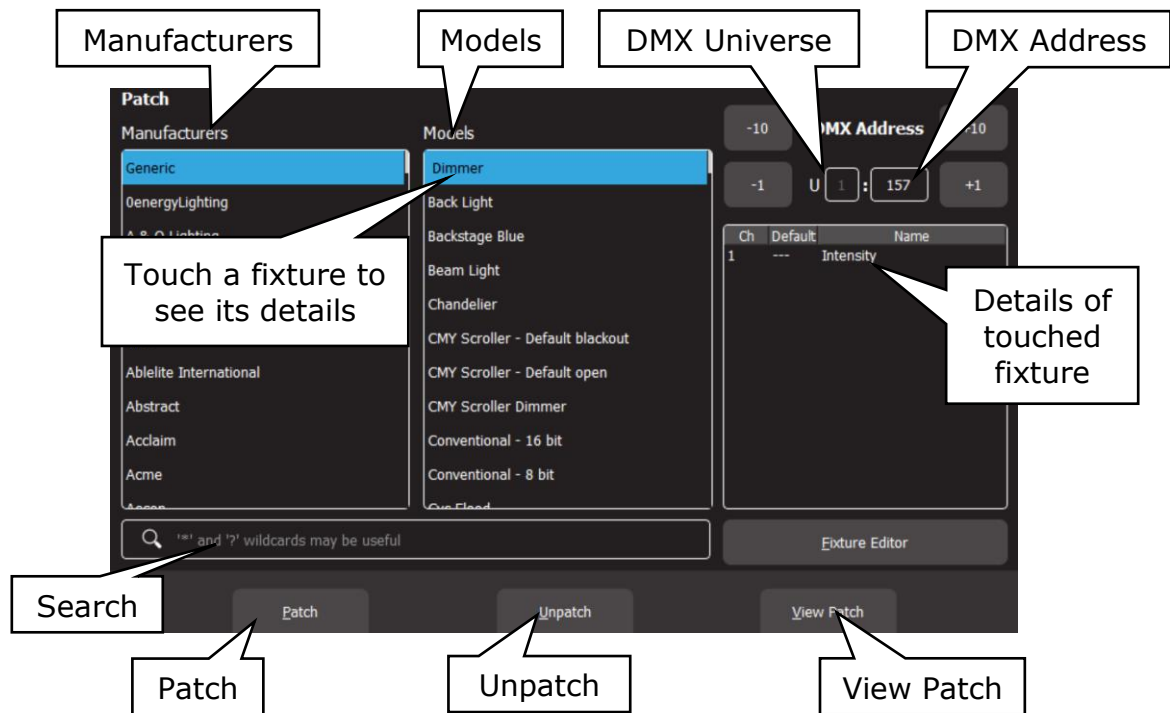
Select the fixture Manufacturer and Model of the fixture to be patched from the lists. Swipe the screen to scroll the list. Dimmers and many LED fixtures can be found in the "Generic" manufacturers listing.

You can touch the "Search" icon and type in a manufacturer or model name using the pop up keyboard. The symbol (*****) can be used as a substitute (wild card) for any string of characters in your search term. You can also use the symbol (?) as a substitute for one character.

When you select a fixture file, the details of the DMX channels for that fixture are shown on the right.

If you have optional wings or a QX1 USB to DMX adaptor or are using ArtNet or sACN you have access to multiple universes. Set the universe to which the fixture is connected by touching the "U" box and using the **+10**, **+1**, **-10** and **-1** buttons. The assigned universes are remembered as long as the wings or nodes are still plugged in when Mantra is switched on. To change the assigned universes unplug the wings or nodes and plug them in in the order that you require. The first plugged in wing or node will be assigned to universe 2, the next to universe 3 etcetera.

Next set the DMX address (to match the DMX address on the fixture) using the **+10**, **+1**, **-10** and **-1** buttons.

Select a fixture number for the fixture by tapping one of the flashing buttons below the yellow faders. The button/fader that you choose will be used to control this fixture.
Touch **Patch** to make the connection.

Repeat the above steps for each different fixture. Fixture numbers that have already been patched at lit.

To see all of the patches you have made touch **View Patch**.

Current Patch Information

	DMX	Fixture
1	1: 9	AMERICANDJ - Flat Par TW12 - 9 channel mode
2	13: 24	MARTIN - Mac 101 (RGB)
3	25: 36	MARTIN - Mac 101 (RGB)
4	37: 48	MARTIN - Mac 101 (RGB)
5	49: 60	MARTIN - Mac 101 (RGB)
6	61: 72	MARTIN - Mac 101 (RGB)
7	73: 84	MARTIN - Mac 101 (RGB)
8	85: 96	MARTIN - Mac 101 (RGB)
	8	MARTIN - Mac 101 (RGB)
	20	MARTIN - Mac 101 (RGB)
	32	MARTIN - Mac 101 (RGB)
	44	MARTIN - Mac 101 (RGB)
	56	MARTIN - Mac 101 (RGB)
	68	MARTIN - Mac 101 (RGB)
	30	MARTIN - Mac 101 (RGB)
	92	MARTIN - Mac 101 (RGB)
	3:204	MARTIN - Mac 101 (RGB)
	16	MARTIN - Mac 101 (RGB)
19	217	MARTIN - Mac 101 (RGB)
20	229:240	MARTIN - Mac 101 (RGB)
21	241:252	MARTIN - Mac 101 (RGB)
22	253:264	MARTIN - Mac 101 (RGB)
23	265:276	MARTIN - Mac 101 (RGB)
24	277:288	MARTIN - Mac 101 (RGB)

Fixture

Ch	Home	Name
1	34	SHUTTER
2	65535	INTENSITY
3,4	32768	PAN
5,6	32768	TILT
7	0	CONTROL
8	0	COLOR
9	0	RED
10	0	GREEN
11	0	BLUE
12	0	CTC

Touch a fixture to see its details in the "Fixture" pane

Details of touched fixture

"Home" values

DMX address range of each fixture

View Patch

If you touch a fixture, the details of the channels for that fixture are shown on the right in the "Fixture" pane.
To return, tap 🔘 [**Back**].
When finished patching double tap 🔘 [**Back**].

5.3 PATCHING MULTIPLE FIXTURES IN ONE OPERATION

If you have multiple fixtures of the same type that are set to contiguous DMX addresses you can patch them all in the one operation. Select the starting address of the first fixture then select each of the fixture numbers by tapping the yellow buttons or to select a range of fixture numbers, **hold** the first number and tap the last number in the range. When you touch **Patch**, MantraLite will patch all of the fixtures to their faders and automatically increment the starting DMX address for each fixture.

5.4 PATCHING MULTIPLE FIXTURE TO THE SAME FADER

Multiple fixtures of the same type and mode but with different DMX addresses can be patched to the same yellow fader. This frees up yellow faders for other fixtures.
Multi-patching is often done when multiple fixtures have a common purpose (such as a colour wash on the stage) and you want to control them all from the same fader.
You could simply set each fixture to the same DMX address and only make one patch but sometimes you might not be able to access the fixtures to change their addresses or do not have permission to change their addresses so you need to use their existing addresses.
Therefore each fixture has a different DMX address but is patched to the same yellow fader. Remember that each fixture must be the same type and be set to the same mode of operation.

5.5 PATCHING COMPOUND FIXTURES

A "compound" fixture is a fixture that contains multiple fixtures within the one fixture. Compound fixtures are also known as "Multi-Cell" fixtures.
For example, many RGB LED strips are compound fixtures because they have multiple RGB cells within the one fixture. The fixture has a menu that allows you to select different "modes" of operation. A simple mode might provide 3 control channels (RGB) that control the entire fixture. Other modes might allow you to divide the fixture into 3 sections and use 9 channels to control the RGB of each section. The most complex mode might allow you to individually control every pixel. Complex modes use a lot of DMX channels and can be difficult to program.
Compound fixtures usually also have modes that allow you to control effects that are built into the fixture such as pixel mapping effects, colour pulsing or chase effects. These modes use some DMX channels to control those effects.

LSC recommends that when patching compound fixtures you select a mode that uses the least amount of channels but <u>includes channels that control the built in effects</u>. For example, a Chauvet DJ COLORband © LED strip fixture has multiple modes available:

    3 channel mode has RGB channels for the whole fixture.
    7 channel mode has RGB channels for the whole fixture plus channels for colour effects, speed, strobe, pulse/snap/fade and intensity.
    12 channel mode splits the fixture into 4 sub-fixtures with RGB for each sub-fixture.
    24 channel mode splits the fixture into 8 sub-fixtures with RGB for each sub-fixture.

In this case LSC recommends patching the fixture in 7 channel mode and utilising the in-built effects of the fixture. This will allow you to create complex effects in a fraction of the time than when operating in the other modes.

5.6 UN-PATCHING A FIXTURE

From the "Home" screen touch **Tools/Setup/Patch**.
To un-patch a fixture, press its fixture number (1 to 24) then touch **Unpatch**.
When finished patching double tap ⚙[**Back**].

5.7 SAVE PATCH

When you save a show, the patch is saved as part of that show. See section 17.
If the patch you have created is to be used on a regular basis such as in a permanent installation or in a touring show that always uses the same lighting rig then you should save it as the "default show". See section 18.9.

5.8 HOME VALUES

When you "Clear" a fixture (see section 9.8), if the fixture has a colour mixing function (RGB or CMY) MantraLite will set its colour to <u>white</u> and if it has a movement function it will <u>centre</u> the pan and tilt. These values are hard coded in the MantraLite software. All other attributes of the fixture will be set to their "home" values that are listed in their fixture template. You can see these values in the "View Patch" screen (above). Typically these values will set a colour wheel to clear, gobo wheel to open, shutter to open etcetera so that the fixture outputs an open white beam.
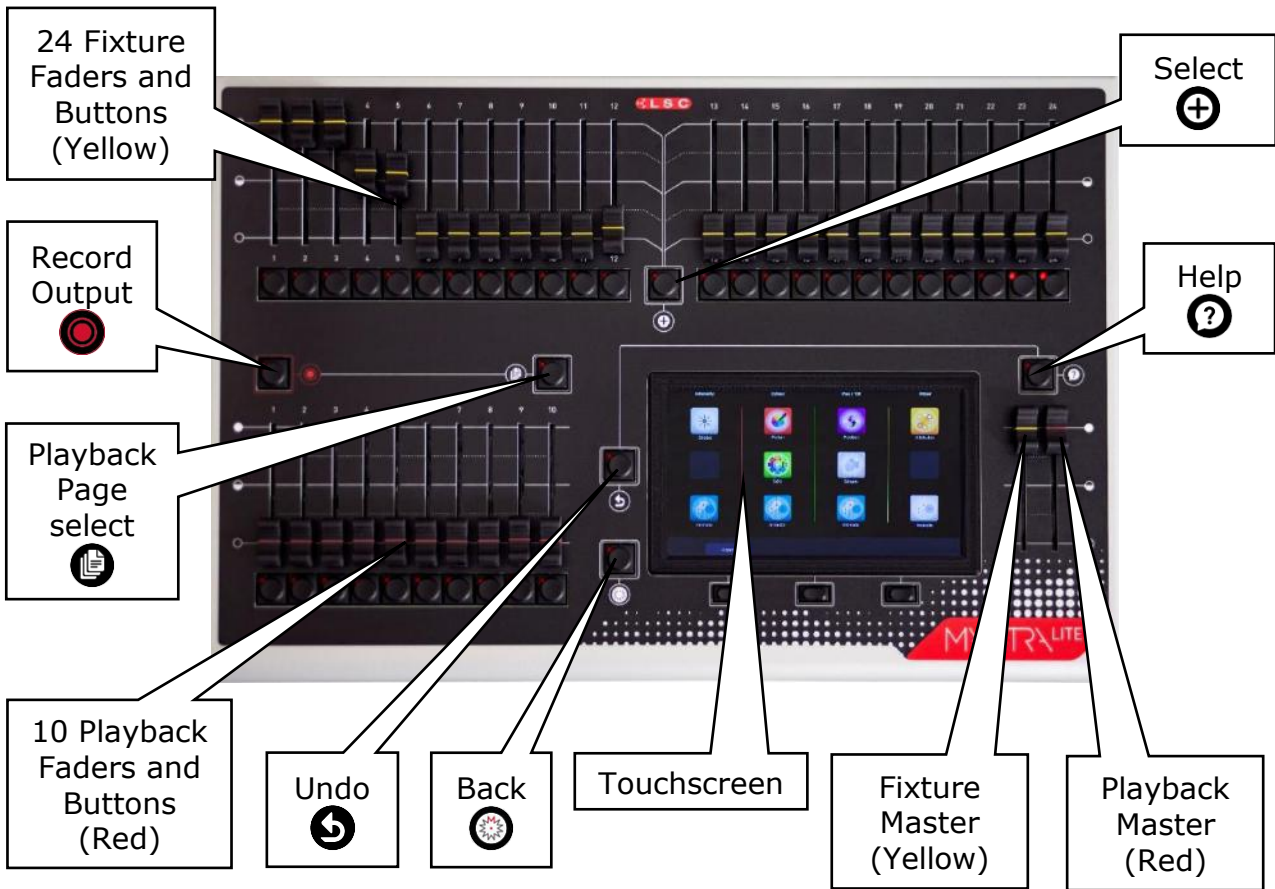
5.9 FIXTURE EDITOR

If you have a new fixture and it is not listed in the MantraLite fixture library you can create a template for it. You can also use the Fixture editor to edit an existing fixture template.
See section 19 for details.

6.1 OVERVIEW

24 Fixture Faders and Buttons (Yellow)	Select ⊕
Record Output ◉	Help ❓
Playback Page select 📖	
10 Playback Faders and Buttons (Red)	
Undo ↩	Back ◉	Touchscreen	Fixture Master (Yellow)	Playback Master (Red)

6.2 BASIC OPERATION

MantraLite can control up to 24 lighting fixtures (up to 48 fixtures with optional wings). The 24 Yellow fixture faders control fixture intensity. Moving a fixture fader automatically selects that fixture allowing its other attributes such as colour or position to be controlled by Apps on the touch screen (see section 7). Moving a fader to zero deselects the fixture.

The ⊕ [**Select**] button provides more fixture selection options.

The Yellow "Fixture Master" has overall intensity control of the yellow fixture faders.

The current output can be recorded into any of the Red playbacks by tapping ◉ [**Record**] then tapping a Red playback button of your choice [**1-10**]. Different looks can be recorded on different Red Playback faders or into a "Cue-list" on a single Red Playback fader so that you can easily change the entire look on stage by using the Red Playbacks. There are 10 red playback faders and 10 pages of memory giving a total of 100 memories.

- Repeated taps of the 📖 [**Page**] button will step through the 10 pages of memory.
- To switch *directly* to a page number HOLD 📖 [**Page**] and tap a Red playback button [**1-10**].

The Red "Playback Master" fader has overall intensity control of the Red playbacks.

7 Touch Screen

7.1 OVERVIEW

Page 1 cuelist.mtr*

- Red Playback Page Number
- Fixture Icons
- Fixtures section
- Contents of the red playbacks (if any)
- Playback section
- Live Speed / Apps / Tools
- Current function of button below
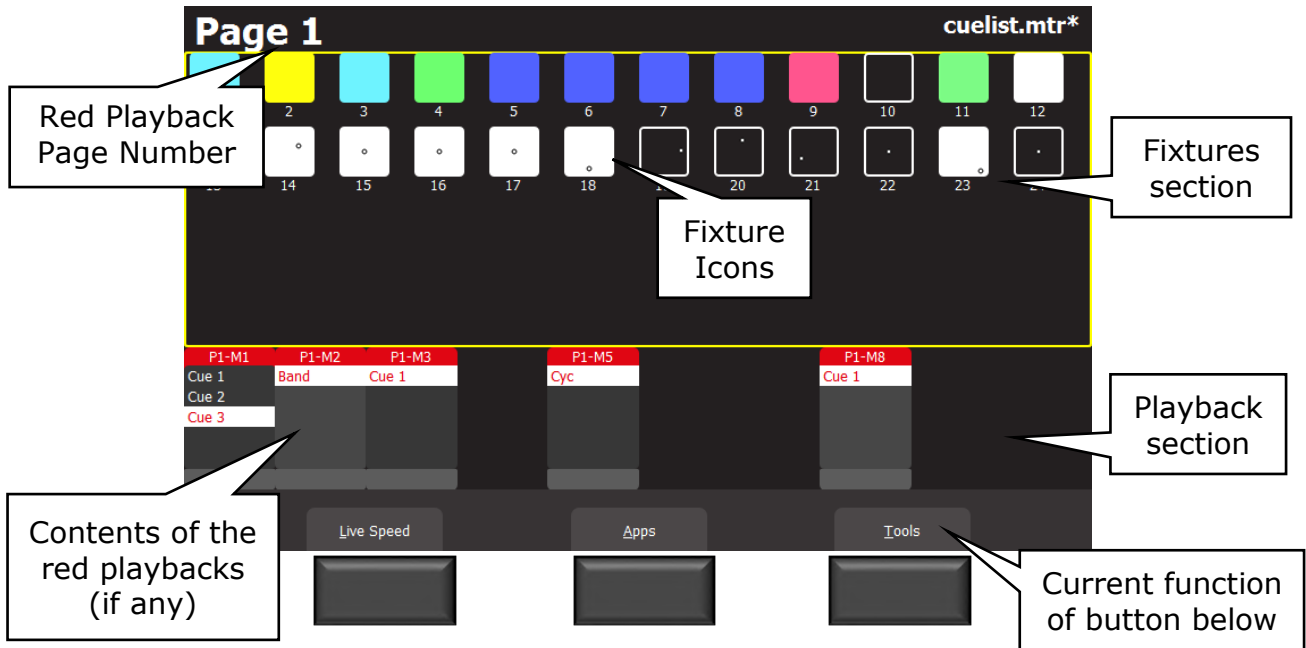
The 3 buttons below the touch screen have different functions for different screens. Their current function (if any) is shown on the screen above each button. You can either tap the button or touch the virtual button on the screen to operate them.

If the touch screen is not on the "Home" screen (as shown above), tapping the ⊛ [**Back**] button steps back through the screens to the "Home" screen.
Double tapping ⊛ [**Back**] quickly returns to the "Home" screen from any screen.

The "Home" screen is divided into two sections:
- The Fixtures section at the top (yellow border) has Fixture icons.
- The Playback section at the bottom has Playback icons (when a recording has been made).

Note: All touchscreen events are triggered when you lift your finger from the screen. This allows you to slide to a different button or no button if you select the wrong item.

An underlined letter on a touch screen button label indicates that the button can also be operated by pressing that letter on a USB keyboard plugged into MantraLite.

Some screens have sliders to adjust values. When you touch a slider you can drag the slider and even let your finger drift off the slider as long as you keep your finger on the screen. If you touch the background, the slider will snap to where you touch.

- Touch the background to snap the slider to that position
- Touch the slider then drag it
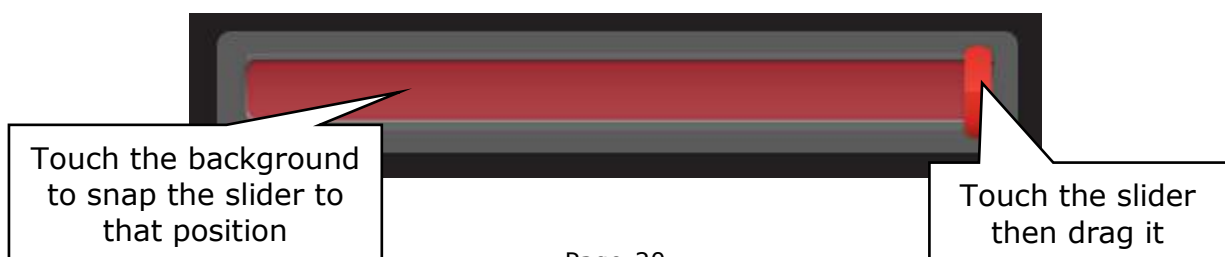
7.2 FIXTURE ICONS

The top section of the "Home" screen has an icon for each of the fixtures that you have patched.
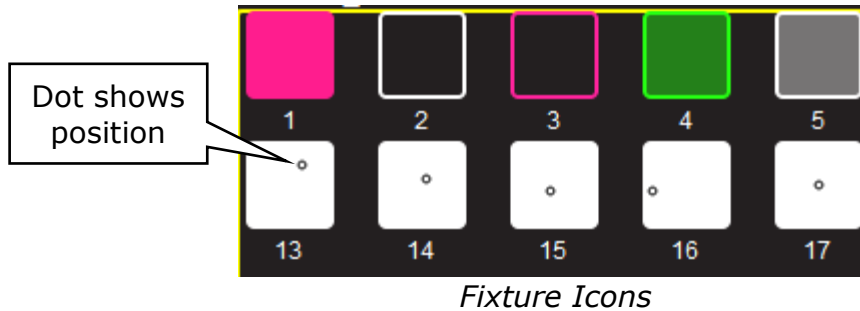
Fixture Icons

- The body of each icon shows the intensity, dark to bright.
- The body and border shows the colour mixing (if the fixture has this capability).
- A dot shows the position (if the fixture has a pan/tilt function).

Note: The colour of the icon represents colours created by RGB (Red, Green, Blue) or CMY (Cyan, Magenta, Yellow) colour mixing in the fixture. Colours created by colour wheels or filters are not shown.

Touching anywhere in the "fixtures section" (or touching **Apps**) opens the "Apps" screen. Apps are used to control the attributes of selected fixtures. Move a yellow fader to automatically select that fixture. Use an App to adjust the attribute.
Touching and holding any fixture icon for 2 seconds opens "Rig View". See section 8.

7.3 PLAYBACK ICONS

The bottom section of the "Home" screen has playback icons that show the contents of the 10 Red Playbacks. Playback icons appear when a memory is recorded into a Page/Playback and show the contents of the Playback.
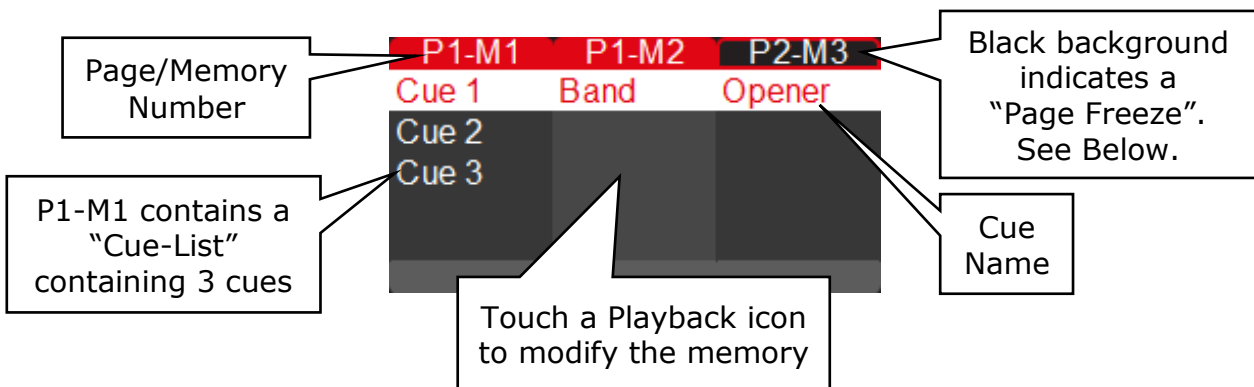
The top part of the icon shows the memory number in the form of "P#" (Page number) and "M#" (Memory number). The 10 memory numbers relate to the 10 playback faders.

There are 10 Pages of memory available. A black background on the page/memory number indicates that a "Page Freeze" has occurred. This means that this playback was active (faded up above zero) when the page number was changed and hence its memory is not from the "current" page. See section 12.2 for more information on "Memories" and section 13.4 for "Page Freeze".

Touching any playback icon opens the "Edit Memory" screen….
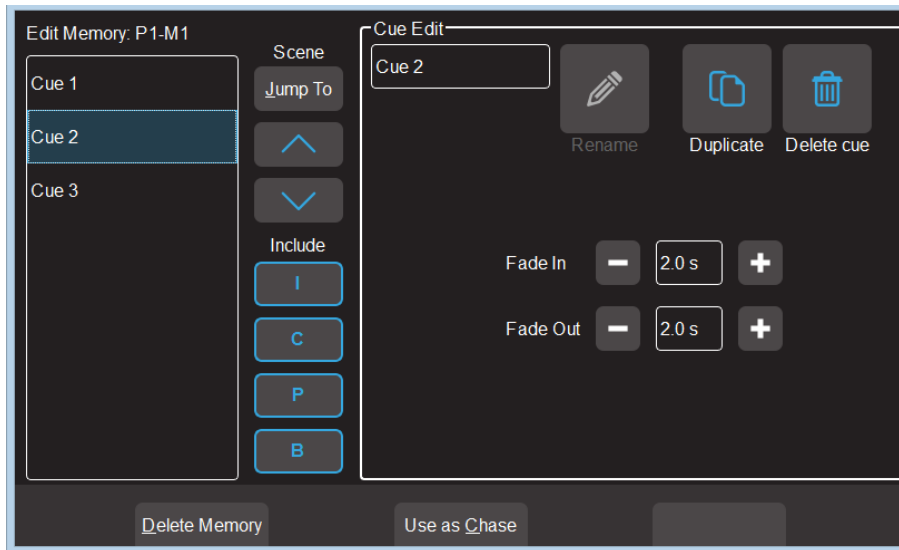
Touch a cue to select/de-select it. Multiple cues can be selected. Using this screen you can:
- Select a Cue then directly **Jump To** that cue. Useful if you have a long cue-list and you want to quickly playback a cue without stepping through all of the intermediate cues.
- Re-order the selected cues using the ∧ or ∨ buttons.
- "Include ICPB". When a memory is recorded it includes all of the Intensity, Colour, Position and Beam (I C P B) attribute groups. Touching an attribute group (**I C P B**) excludes that group from the playback. The selection applies to all cues in the cue-list.
- Change "Fade In" time and a "Fade Out" times of the selected cues.
- Re-name the selected cue.
- Duplicate the selected cue.
- Delete the selected cues.
- Delete Memory (all cues in the list).
- Use the list as a chase or a cue-list.

To edit the contents of a cue see section 16

8   Rig View

8.1 OVERVIEW

The fixture icons on the "Home" screen can be arranged geographically so that they are positioned on the screen in a similar fashion to their position in your rig or stage. This can assist you in quickly identifying fixtures.

8.2 ARRANGING ICONS

To arrange the icons, tap and HOLD any of the fixture icons for 2 seconds. A yellow flashing dotted box appears around the icons. Whilst the yellow box is flashing you can drag and drop individual fixture icons to position them on screen. You can also change the size of the icons or reset to the default positions.
Touch 🔁 to save your layout.
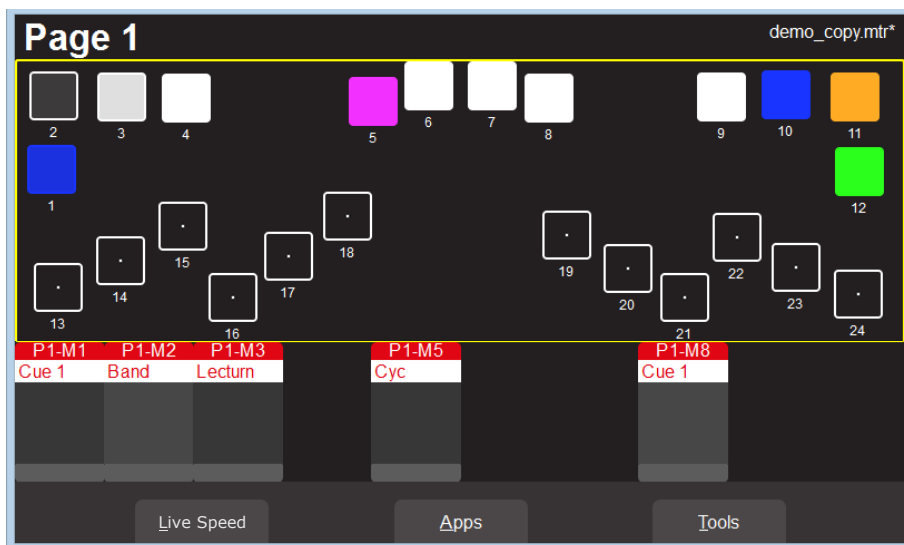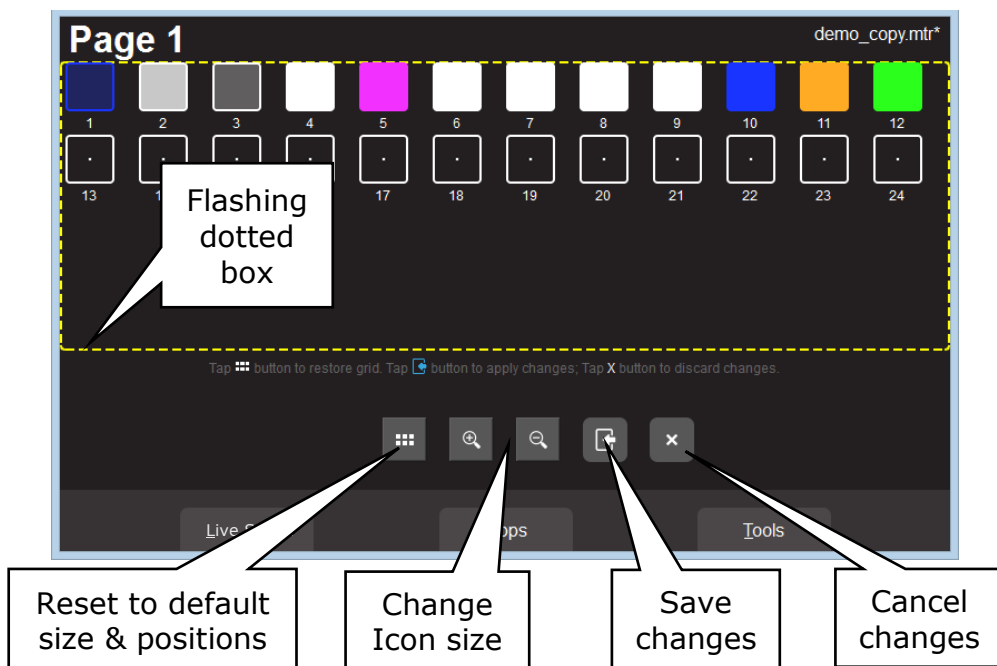
Example of Icons re-positioned to match rig

9   Controlling Fixtures

9.1 INTENSITY

The 24 (yellow) fixture faders (under the overall control of the yellow fixture master) control the intensity of the fixtures that are patched to them. To see the output of a fixture:

- Fade up the Yellow Master.
- Fade up a fixture fader to set its Intensity.

See also "Flash", section 14.

9.2 FIXTURE ATTRIBUTES

MantraLite uses "Apps" on the touch screen to control the attributes (colour, pan/tilt, shutter etcetera) of underlined selected fixtures.

From the "Home" screen, open the "Apps" screen by touching anywhere in the top half of the "Home" screen (within the yellow box) or touching **Apps**.
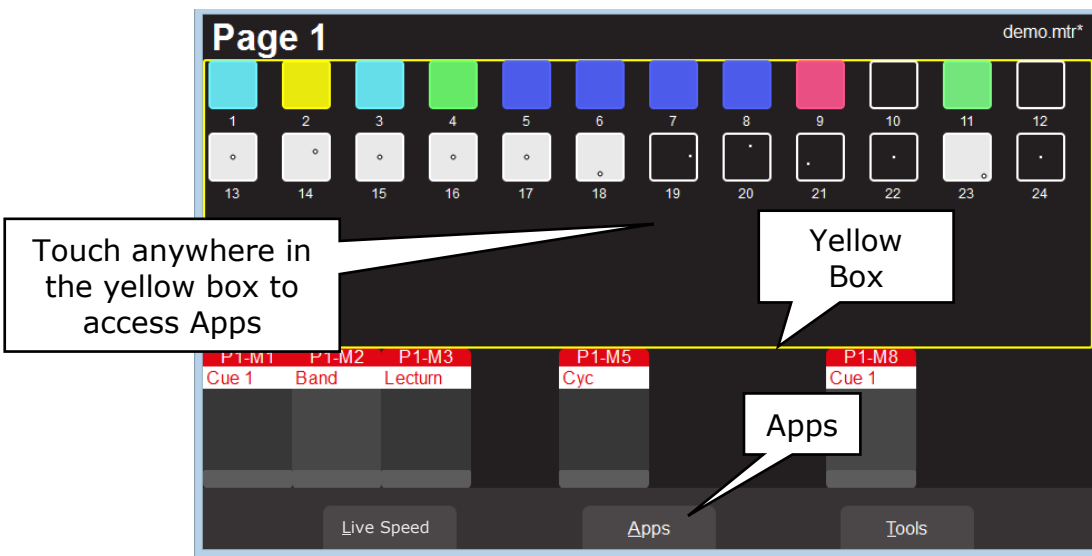
"Home" Screen

The Apps screen opens:
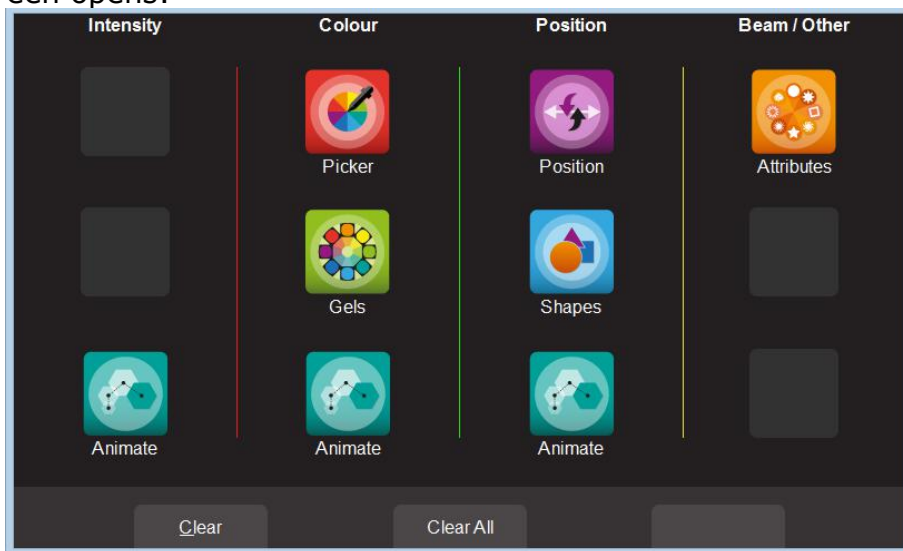
Apps Screen

Touch the App icon for the type of attribute that you want to control then select the fixture(s) to be controlled. Apps are arranged in 4 attribute columns. Each column has Apps for their <u>type</u> of attribute. All Animate Apps are described in section 10.

9.2.1   Intensity Column

The Intensity "Animate" app allows you to create intensity chases and patterns.

9.2.2   Colour Column

The "Picker" apps allow you to control the colour of selected fixtures and to "fan" colours across multiple fixtures.
The "Gels" apps allow you to pick from pre-set colours for selected fixtures
The "Animate" app allows you to create colour chases and patterns.

9.2.3   Position Column

The "Position" app allows you to control the pan and tilt position of selected fixtures and to "fan" positions across multiple fixtures.
The "Shapes" app provides a quick and simple way of creating continuously moving positions.
The "Animate" app allows you to create moving beam effects.

9.2.4   Beam / Other Column

The "Attributes" app allow you to control all beam attributes such as "Gobo", "Colour Wheel", "Shutter" etc. plus any other attributes of the selected fixture.

9.3 SELECTING FIXTURES

When you use an App, you need to select the fixtures that you want to control with that App. Fixtures that have attributes that can be controlled by the selected App will flash their buttons indicating that they are available for selection.
For example, if you select a "Pan/Tilt" App, only fixtures with Pan/Tilt attributes will flash.

There are several methods of selecting fixtures:
- Move a yellow fader to automatically select that fixture. Move the fader to <u>zero</u> to <u>de-select</u> it. Move multiple yellow faders to select a multiple fixtures.
- Tap the button below a yellow fader to select that fixture. Tap again to deselect it. Multiple fixtures can be selected.
- To quickly select a range of fixtures <u>hold</u> the first button and tap the last button in the range. This works in either direction, low number to high number or high number to low number.

When a fixture is selected its button is lit.

Note: When you select multiple fixtures, the order in which you select the fixtures is used by MantraLite when you <u>fan</u> colours or positions and in <u>animations and shapes</u>. You can change the look of a fan, animation or shape by changing the selection order.

To use any previous selections press the ⊕ button (located between the yellow faders). The "Selection" screen opens:
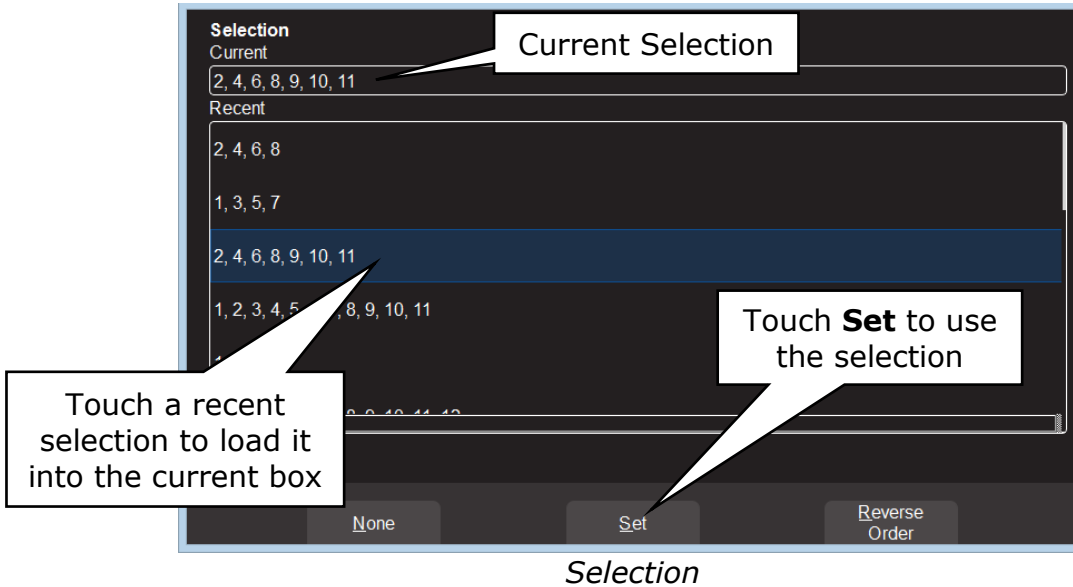
Selection

The "Current" fixture selection is shown at the top.
All "Recent" selections can be viewed. Swipe to see more (if available).

- To use a recent selection, touch it then touch **Set**.
- To reverse the current selection order touch **Reverse Order**.
- To clear the current selection touch **None**.

Once a previous selection is set you can still use the faders or buttons to modify the selection as described above.

Hint: If you select multiple fixtures by pushing up their faders you might get a random selection order. You can always check the current order by tapping ⊕ [**Select**] and then re order the selection using the selection methods described above.

9.4 AUTOMATIC FIXTURE DE-SELECT

When you open an App, fixtures that have attributes that can be controlled by that App flash their buttons indicating that they are available for selection. When you select fixtures their buttons are lit. After you have used the App to change any attribute of the selected fixtures, the buttons of the un-selected fixtures stop flashing. This tells you that selecting another fixture will cancel the previous selection and start a new selection process. This speeds up operations because you don't have to de-select fixtures once you have set their attributes.

For example: Open the Colour Picker App and fade up fixtures 1 and 2. They are automatically selected. Pick a colour. Fade up fixture 3 and 4. This de-selects 1 and 2 and selects 3 and 4. Pick a colour for 3 and 4.

Automatic fixture de-select can be overridden by holding the ⊕ [**Select**] button whilst selecting additional fixtures. This allows you to easily add fixtures to those that you have already adjusted.

9.5 CONTROLLING COLOUR

9.5.1   Picker App

From the "Home" screen, open the "Apps" page (described above) then touch the colour **Picker** app icon. Fixtures that have colour attributes will flash their buttons. Select the fixtures (described above) then drag your finger to change the colour. The final colour is selected when you lift your finger from the screen. The side of the colour picker app shows the recently selected colours (latest at the top). Touch any of the recent colours to re-use them.
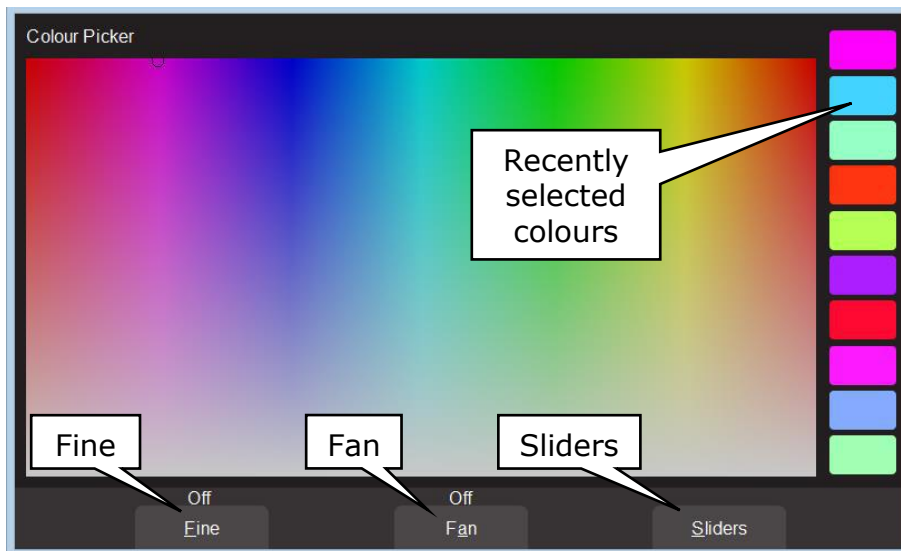
Colour Picker

9.5.2   Fine

Touching **Fine** provides finer control of colour. Touch again for normal control.

9.5.3   Fan

When multiple fixtures are selected you can fan their colours to create rainbow effects.

- Touching **Fan** selects "Directional" fanning. Drag to fan the colours across the selected fixtures. The first fixture in your selection has the colour where you first touched the screen and the last fixture in your selection has the colour where you stopped dragging.
- Touching **Fan** again selects "Symmetrical" fanning. Drag to fan the colours. The first and last fixtures in your selection have the colour where you first touched the screen and your finish colour is in the centre of you fixture selection.
- Touching **Fan** again turns fanning off.
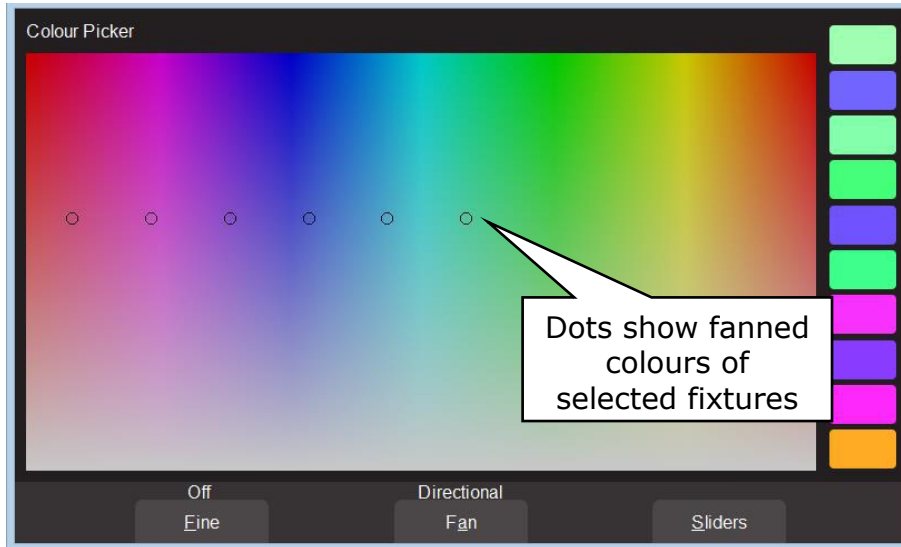
Directional Fanning

Your fixture selection order is used by the Fan App. Experiment with different orders of selection to get different colour effects. Previous selections can be re-used by tapping the ⊕ [**Select**] button.

9.5.4 Sliders

Touching **Sliders** opens the "Colour Sliders" screen that provides individual sliders for all colours. Red, Green and Blue are located in a fixed section at the top of the window. Other colours, White, Amber, UV and Lime, as well as Colour wheels are located in the scrolling bottom half of the screen. Sliding your finger vertically in the bottom half will scroll the sliders up/down allowing access to more sliders if the selected fixture has additional attributes.
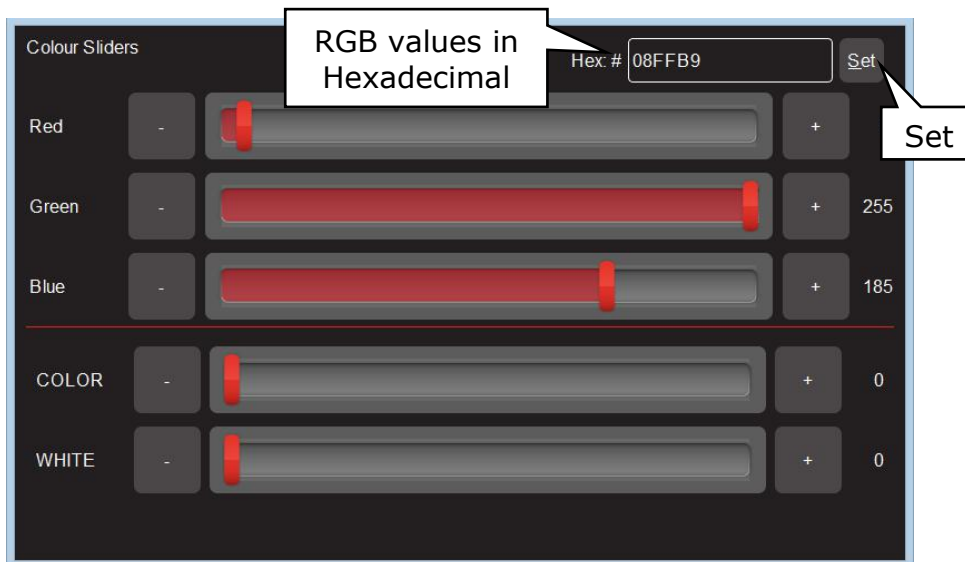
Colour Sliders

- **+** and **−** buttons are provided for small increments.
- The decimal values of each slider is shown on the right.
- The Hexadecimal value of the last selected Red, Green, or Blue slider is shown at the top. If you touch inside the Hex:# box you can enter exact values using the keyboard that appears. Enter your values (in Hex) then touch **Set**.

9.5.5   Gels App

The colour **Gels** app is similar to the "Picker" app but has 100 commonly used colour gels to choose from.

Colour Gels

Touch a colour to apply it to your selected fixtures.

9.6 CONTROLLING POSITION

From the "Home" screen, open the "Apps" page (described above) then touch the "position" app. Fixtures that have Position (pan and tilt) attributes will flash their buttons. Select the fixtures (described above) then drag on the position pad to move the position. You don't have to touch the current position icon to move a fixture, you can touch and drag <u>anywhere on the screen</u> and the selected fixture(s) will follow your movements. You can also make fixtures move continuously in a shape or pattern. See section 11.
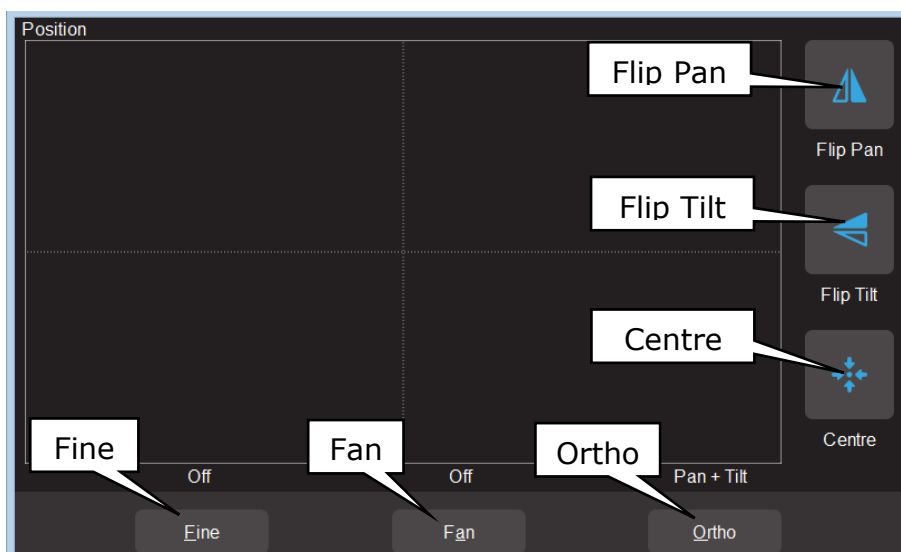
Pan /Tilt Position

9.6.1   Flip Pan/Flip Tilt

Touching **Flip Pan** inverts the pan as you drag.
Touching **Flip Tilt** inverts the tilt as you drag.
A blue border on the icon indicates "Flipped". These settings are useful if the fixture movement is opposite to the movement on the touch screen.

9.6.2   Centre

Touching **Centre** moves the selected fixtures to their <u>centre</u> position.

9.6.3   Fine Control

For finer control touch the **Fine** button. Touch again for normal control.

9.6.4   Ortho Control

Touches of **Ortho** cycles through, "Pan Only", "Tilt Only" and "Pan + Tilt". These settings are useful when making fine adjustments.

9.6.5   Fan

When <u>multiple fixtures</u> are selected you can fan their positions to achieve symmetrical patterns on stage.

- Touching **Fan** selects "<u>Centred</u>" fanning. Drag to fan the positions around the centre fixture.
- Touching **Fan** again selects "<u>Directional</u>" fanning. Drag to fan the positions around the first fixture in your selection.
- Touching **Fan** again selects "<u>V–Shape</u>" fanning. This pan works best when fixtures are already fanned into a line. Drag to pull the line of fixtures into a V shape.
- Touching **Fan** again turns fanning off.
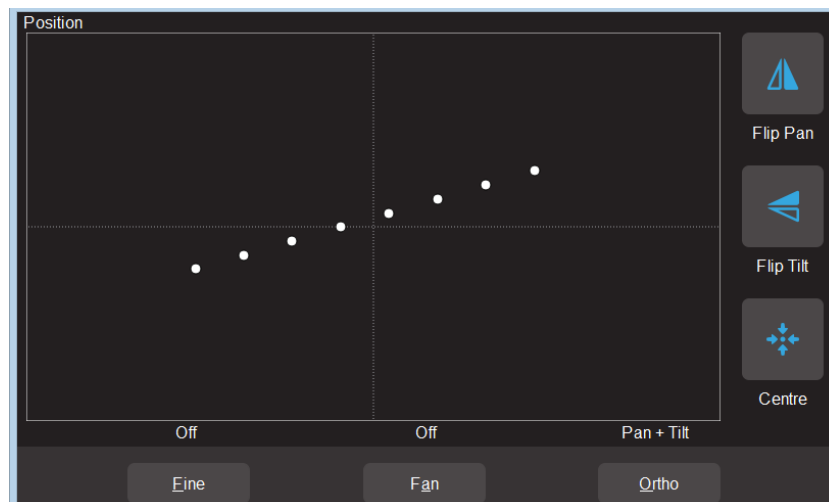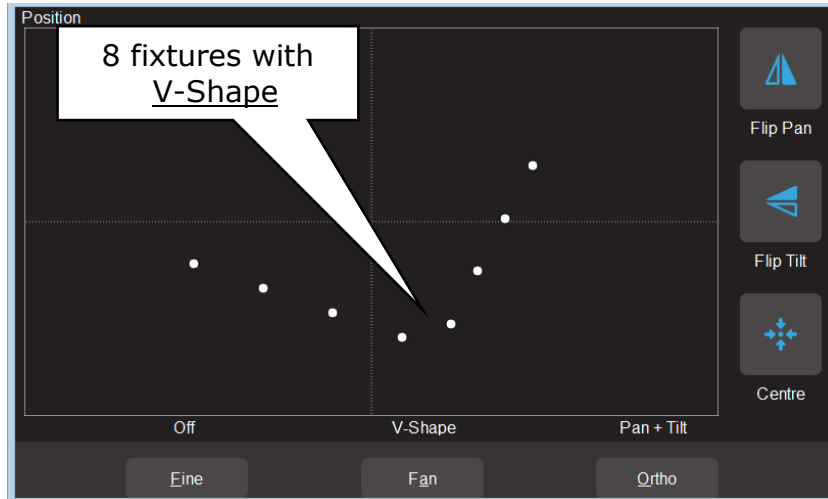
Your fixture selection order is used by the Fan App. Experiment with different orders of selection to get different shapes. Previous selections can be re-used by tapping the ⊕ [**Select**] button.

9.7 CONTROLLING BEAM AND OTHER ATTRIBUTES

From the "Home" screen, open the "Apps" page (described above) then touch the "Attributes" app then select the fixture(s) to be controlled. This app provides slider controls for all attributes not controlled by the Intensity, Colour or Position Apps. The controls will vary depending upon the selected fixture. Typical attributes are colour wheels, gobo wheels, shutter and prisms. Up to 5 other attributes are displayed on a page. Touch **Next** to see more attributes (if available).
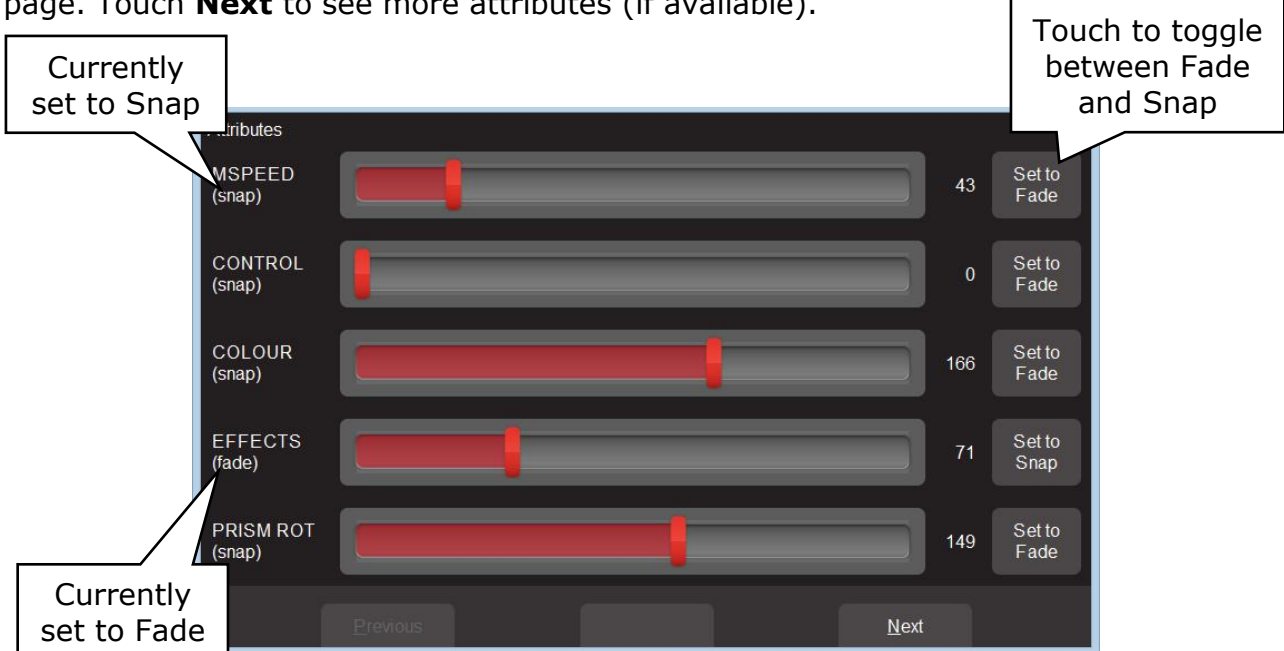
Typical "Other Attribute App"

All "Beam/Other" attributes can be set to either "Fade" or "Snap". When you record a cue that includes the selected fixture(s), this setting will be included. When the cue is played back, attributes set to "Fade" will follow the movement of the red playback fader. Attributes set to "Snap" will go to their recorded value as soon as the red playback fader is raised above zero.

9.8 CLEARING FIXTURES

If you have used any Apps to control fixture attributes such as selecting a colour or position or created an animation(s), you can clear these settings and restore the fixture(s) to its default settings (open, white, centred beam) as well as delete any animations.

From the "Apps" screen, touch **Clear**. The "Clear Fixture Faders" screen appears:
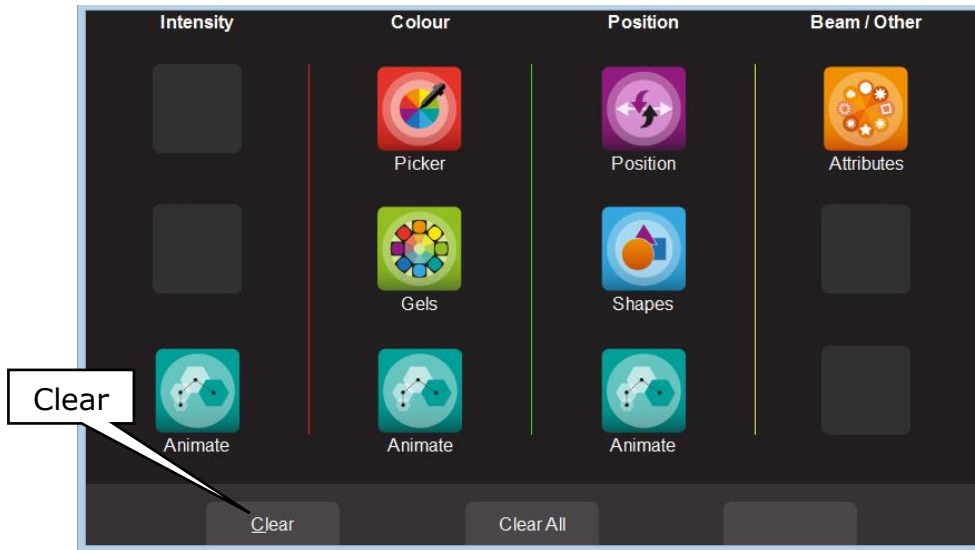
Apps Screen
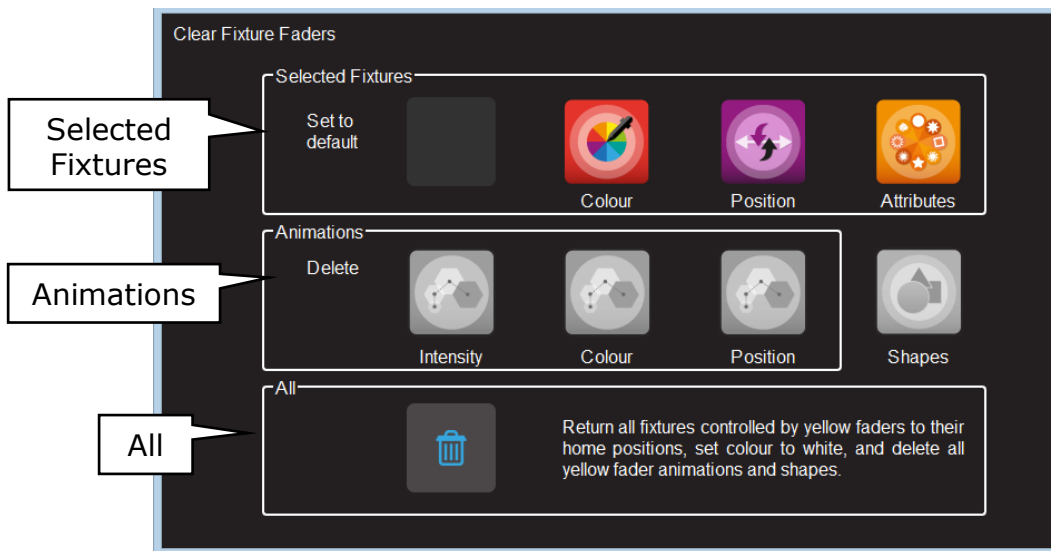
Clear Fixture Faders

The "Clear Fixture Faders" screen has 3 panes:
"Selected Fixtures", "Animations" and "All".

9.8.1 Selected Fixtures

Selected fixtures can be set to their "Default" values. The default values are:
- Colour = White.
- Position = Centre.
- Attributes = The "Home" value from the fixtures template.

To clear a fixture(s), select the fixture(s) then touch the required Icon (Colour, Position or Attributes).

9.8.2   Animations

Intensity, colour and position animations can be selectively deleted by touching the required Icon (Intensity, Colour or Position)

9.8.3   All

Touching the ▮ (trash can) icon will set all fixtures to their default values (listed above) whether they are selected or not.   It will also delete all animations running on the yellow faders. Recorded animations are not affected.

Hint: It is a good idea to **Clear/All** before starting to program your fixtures or whenever you have any unexplained output from the MantraLite.

10.1 OVERVIEW

Animate Apps take the static output of MantraLite and bring it to life by providing a simple and intuitive way of creating moving patterns and colour or intensity chases.

Animations work with 2 or more selected fixtures and they shift the attributes (such as intensity or colour or position) from one fixture to the next and loop the settings of the last selected fixture back to the first. The shifting runs continuously forming a pattern or chase. There must be at least one different setting amongst all of the selected fixtures so that you can see the different setting being shifted from one fixture to the next.

There are Animate Apps for:
- Intensity.
- Colour.
- Pan/Tilt.

Multiple animations can be recorded in a single cue.

10.2 CREATING AN ANIMATION

The basic steps to creating an animation are:
1. Program the output of MantraLite for the static look of the animation. Remember that there must be at least one different attribute setting amongst all of the fixtures. For example, in a 4 fixture colour animation, 3 fixtures might be red and one blue.
2. Open an Animation App (Intensity, Colour or Pan/Tilt), select all of the fixtures for the animation then touch **Create** and the animation runs.
3. You can adjust the animation controls if necessary. See section 10.3.
4. To keep the animation for later playback, record it as a cue. See section 12.

Examples of intensity, colour and pan/tilt animations are described in section 10.4.

Multiple animations can be running simultaneously and all the animations that are running when a cue is recorded will be included in the cue.

Note**:** The order in which you select the fixtures is used by the animation app. You can get different animation patterns by experimenting with different selection orders. The selection order is shown in the animation app when you "create" the animation (see "Animation Controls" below). If you have created an animation and you want to change the selection order, touch **Delete**, select the new fixture order then touch **Create**.

If you select fixtures by moving multiple faders at the same time you might get a random selection order however MantraLite will automatically attempt to arrange the fixtures in numerical order for you.

Note: Recording a cue that contains an animation automatically clears that animation from the yellow faders. Therefore, if you want to keep the animation continuously running on the output you should fade up the red playback fader before tapping its button to make the recording. Fixture attributes such as colour or position are not cleared by recording a cue.

10.3 ANIMATION CONTROLS
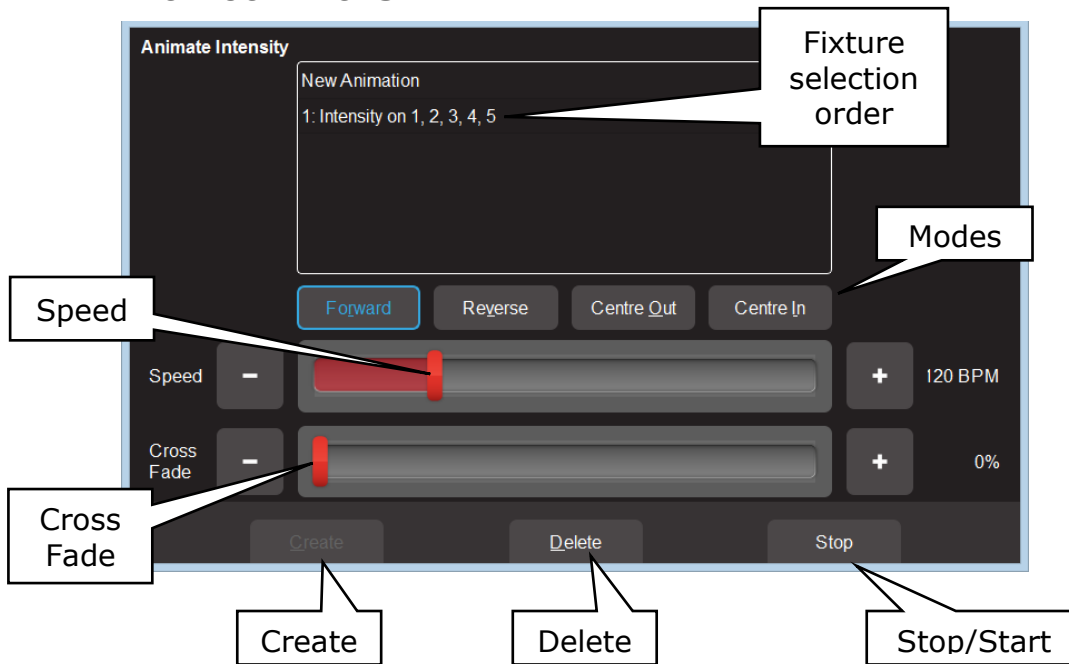
All animation Apps have Slider controls for:
- **Speed** in BPM (Beats Per Minute)
- **Crossfade** between steps (as a percentage of the speed).

For example, if the speed is set at 60 BPM (which is one step per second), then with crossfade set at 0% (that is, no fade), the animation 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 animation 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 animation will use 100% of the time performing a crossfade to the next step. When the crossfade is complete, the next crossfade will commence immediately.

Animations can be run in the following modes. These choices will only be noticeable when 3 or more fixtures are in the animation.
- **Forward** or **Reverse**.
- **Centre Out** or **Centre In**. These choices work best with an odd quantity of fixtures so that the pattern is symmetrical around the centre fixture. If you have an even number of fixtures there is no centre fixture because the centre is the gap between fixtures. You must therefore program a symmetrical static look with at least one different setting on both sides of centre.

You can also **Stop** and **Start** the animation.

Note: Changing modes between Forward (or Reverse) and Centre In (or Centre Out) on a running animation can cause unexpected (and sometimes interesting) results depending upon the position of the animation pattern at the instant that you change modes. For consistent results you should **Stop** the animation, change modes then **Start** the animation again.

10.4 ANIMATION EXAMPLES

The following sections have examples of how to create intensity, colour and Pan/Tilt animations. All animations have the same controls available to vary the animation.

Hint: It is a good idea to clear all fixtures before you start to create your first animation. From the "Home" screen touch **Apps/Clear/All**.
If you already have an animation running that you want to retain, then only clear the type of attribute in the new animation. For example, if you have a colour animation running and you want to create a Pan/Tilt animation. From the "Home" screen touch **Apps/Clear/**"Animations" **Position**.

10.4.1 Intensity Animation

Example 1:
To create a 4 fixture intensity animation with only one fixture on at a time (a chase) using fixtures 1 to 4:
- Use the fixture faders to create the static look of the animation on the output by fading up fixture 1 and fading down all other output.
- Open the "Intensity" **Animate** app.
- Select fixtures 1 through 4 by holding fixture [**1**] button and tapping fixture [**4**] button (or tap them individually in the order that you want them to animate).
- Touch **Create** and the animation runs as an intensity chase on fixtures 1 to 4.
- Use the controls described above to set the rate, crossfade, direction etcetera.

	Fixture 1	Fixture 2	Fixture 3	Fixture 4
Step 1		■	■	■
Step 2	■		■	■
Step 3	■	■		■
Step 4	■	■	■	
Step 1		■	■	■

Example 2:
To create a 6 fixture intensity animation with 5 fixtures on at a time using fixtures 1 to 6:
- Use the fixture faders to create the static look of the animation on the output by fading up fixtures 1, 2, 3, 4 and 5 and fading down all other output.
- Open the "Intensity" **Animate** app.
- Select fixtures 1 through 6 by holding fixture [**1**] button and tapping fixture [**6**] button (or tap them individually in the order that you want them to animate).
- Touch **Create** and the animation runs as an intensity chase on fixtures 1 to 6.
- Use the controls described above to set the rate, crossfade, direction etcetera.

	Fixture 1	Fixture 2	Fixture 3	Fixture 4	Fixture 5	Fixture 6
Step 1						■
Step 2	■					
Step 3		■				
Step 4			■			
Step 5				■		
Step 6					■	
Step 1						■

10.4.2 Colour Animations

Example 1:

To create a red/blue colour animation across fixtures 7 to 10:

10.4.2.1 FADE DOWN ALL OUTPUT.

- Fade up fixtures 7, 8 and 9 then use the "Colour" **Picker** App (section 9.5) to set the fixtures to red.
- Fade up fixture 10 then use the "Colour Picker" App to set the fixture to blue.
- You have now created the static look of the animation.
- Open the "Colour" **Animate** App.
- Select fixtures 7 through 10 by holding fixture [**7**] button and tapping fixture [**10**] button (or tap them individually in the order that you want them to animate).
- Touch **Create** and the colour animation runs.
- Use the controls described above to set the rate, crossfade, direction etcetera.

	Fixture 7	Fixture 8	Fixture 9	Fixture 10
Step 1	RED	RED	RED	BLUE
Step 2	BLUE	RED	RED	RED
Step 3	RED	BLUE	RED	RED
Step 4	RED	RED	BLUE	RED
Step 1	RED	RED	RED	BLUE

Example 2:

To create a fanned colour animation across fixtures 13 to 20:

- Fade down all output.
- Fade up fixtures 13 to 20.
- Open the "Colour" **Picker** App and select "Symmetrical Fan" by touching **Fan** twice then drag to fan the colours across the selected fixtures.
- You have now created the static look of the animation.

Hint: Choosing "Symmetrical" fans the colours around the centre fixture(s) so that the first and last fixtures have similar colours. This gives the animation a smooth colour transition from last fixture to the first fixture.

- Open the "Colour" **Animate** App.
- Select fixtures 13 through 20 by holding fixture [**13**] button and tapping fixture [**20**] button.
- Touch **Create** and the fanned colours animate through the selected fixtures.
- Use the controls described above to set the rate, crossfade, direction etcetera.

10.4.3 Pan/Tilt Animations

Example 1:

To create a Pan/Tilt animation across fixtures 21 to 24:

- Fade down all output.
- Open the "Pan/Tilt" **Position** App.
- Fade up fixture 21 and position it to the front of the stage.

- Fade up fixtures 22, 23 and 24 and position them to the back of the stage.
- You have now created the static look of the animation.
- Open the "Pan/Tilt" **Animate** App.
- Select fixtures 21 through 24 by holding fixture [**21**] button and tapping fixture [**24**] button (or tap them individually in the order that you want them to animate).
- Touch **Create** and the Pan/Tilt animation runs.
- Use the controls described above to set the rate, crossfade, direction etcetera.

Example 2:
To create a <u>fanned</u> Pan/Tilt animation across fixtures 21 to 24:
- Fade down all output.
- Clear any previous Pan/Tilt animations. From the Apps screen touch **Clear, All** (or only clear "Position" animations).
- Open the "Pan/Tilt" **Position** App.
- Fade up fixture 21, 22, 23 and 24.
- Touch **Fan** then drag to fan the fixture positions.
- You have now created the static look of the animation.
- Open the "Pan/Tilt" **Animate** App.
- Select fixtures 21 through 24 by holding fixture [**21**] button and tapping fixture [**24**] button.
- Touch **Create** and the Pan/Tilt animation runs.
- Use the controls described above to set the rate, crossfade, direction etcetera.
- You can return to the **Position** app if needed and reposition the animation.

10.5 MULTIPLE ANIMATIONS

If you already have an animation(s) running you can still create another one of the same type (Intensity, Colour or Position) by touching **New Animation**. Select the fixtures to be included then touch **Create**. All of the animations of the selected type are listed in the box.

When multiple animations are running you can switch the controls to any of them by touching their name.
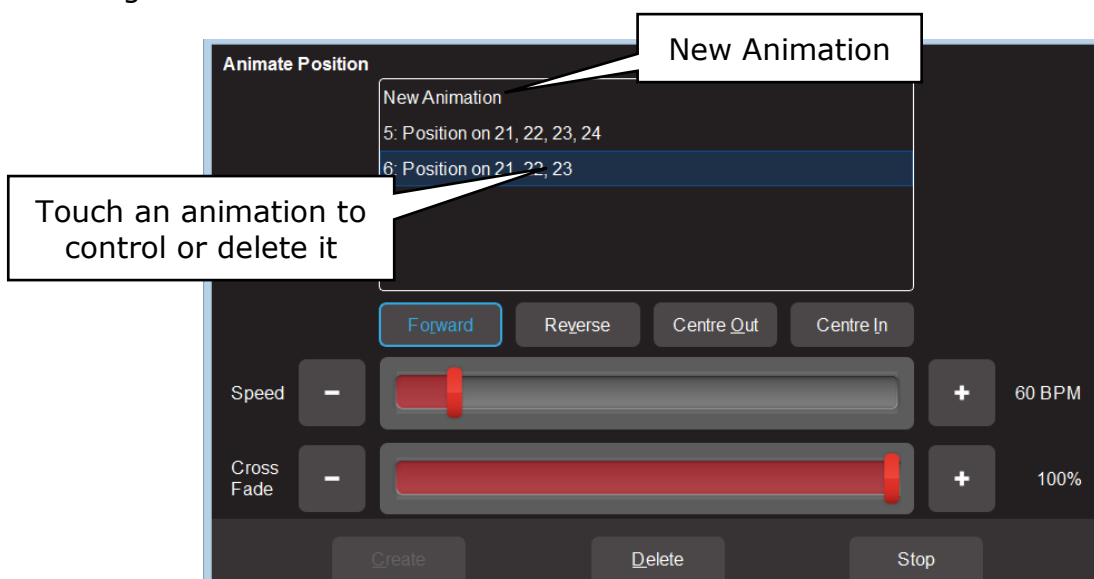
10.6 RECORDING ANIMATIONS

When you record the output of the MantraLite as a cue it includes any animations that are running. Recording an animation will automatically clear that animation from the yellow faders where you created it. If you want to keep the animation running on the output, fade up the red playback fader on which you make the recording and ensure that the Red Master is also up before you record the cue. See section 12 for details on how to record cues.

10.7 DELETING ANIMATIONS

To delete a single animation, open the Animation app in which it is running (Intensity, Colour or Pan/Tilt), touch the animation number then touch **Delete**

To delete all animations of one type (Intensity, Colour or Pan/Tilt), from the "Apps" screen, touch **Clear** then from the "Animations" pane choose to delete either **Intensity**, **Colour** or **Position** animations.

To delete all animations and restore all fixture(s) to default settings (open, white, centred beam), from the "Apps" screen, touch **Clear** then **All** (trash can icon).

10.8 ANIMATIONS IN CHASES

A chase is cue-list that automatically steps from cue to cue. Any cue in a chase can contain animations so complex effects can be easily created by including animations in a chase.

10.9 ANIMATE SPEED

"Live Speed" allows you to override the speed of animations. The changes are only a temporary offset applied to the settings saved in the cue or on the yellow faders. See section 14 for details.

11.1 OVERVIEW

The Shapes App provides a quick and simple way of creating continuously moving positions on fixtures that have Pan and Tilt attributes by constantly varying those attributes.

11.2 CREATING A SHAPE

Hint: You might find it easier to position your fixture(s) before you apply a shape movement to them, however you can still position them after applying the shape.

To create a shape, from the "Home" screen, open the "Apps" page (by touching any fixture icon) then touch the "Position" **Shapes** icon.

Fade up the fixture(s) to which the shape is to be applied. This automatically selects the fixture(s).

You can select the following shapes:
- Ellipse (clockwise or anti-clockwise).
- Rectangle (clockwise or anti-clockwise).
- Triangle (clockwise or anti-clockwise).
- Random.
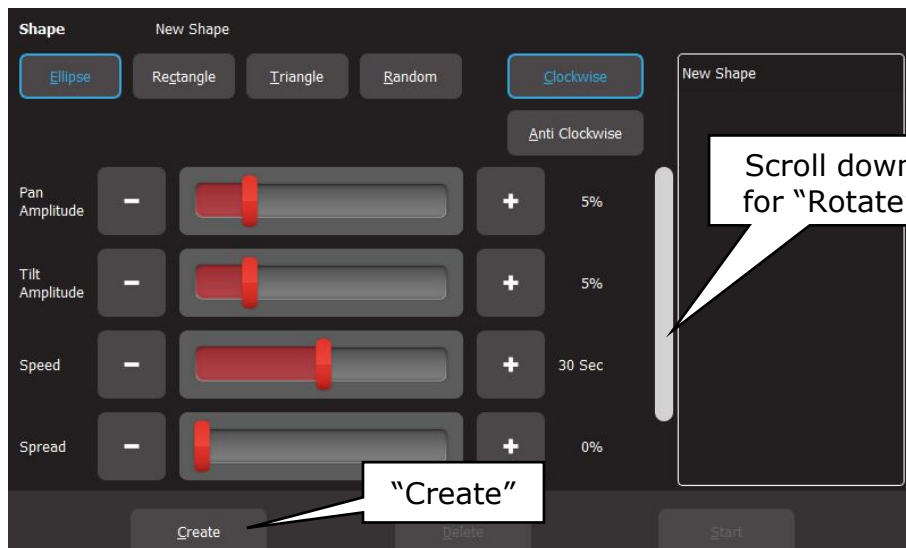
Touch **Create** and the shape runs.

There are controls for:
- Pan Amplitude.
- Tilt Amplitude. (Set pan and tilt to the same amplitude to create a circle when using Ellipse).
- Speed (in seconds).
- Spread (in percentage). Applies when 2 or more fixtures are selected and spreads them around the movement shape. When set to 0%, all fixtures are focused on the same point as they move around the shape. When set to 100% the fixtures are evenly spaced apart as they move around the shape. In between values vary the spread. Does not apply to the "Random" shape.

Scroll down for:

- Rotate (in degrees). Rotates the shape about its axis. Does not apply to the "Random" shape.
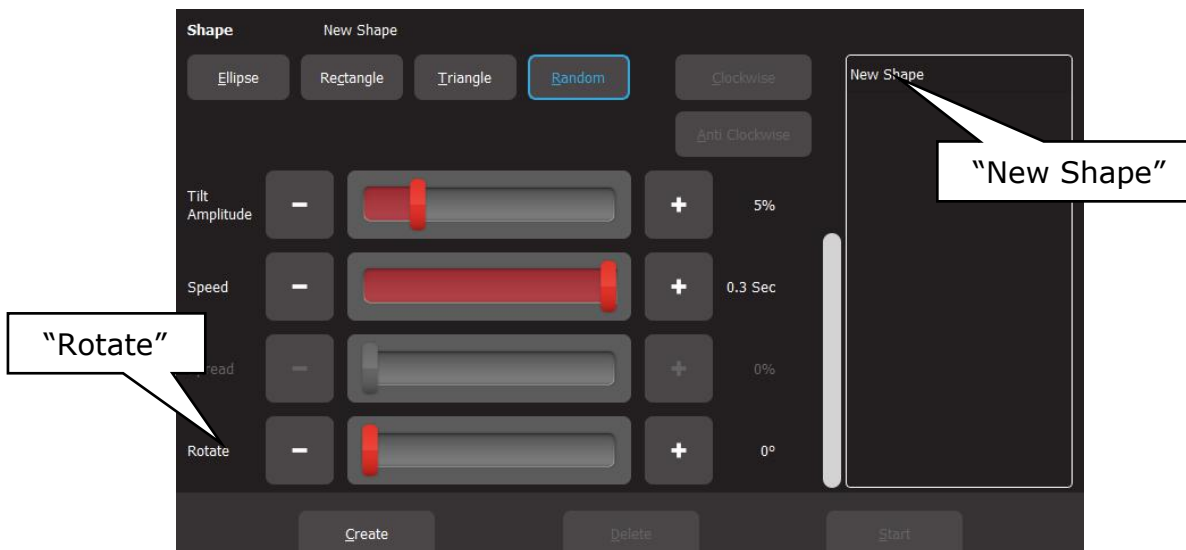
Shapes can be created on other fixtures by selecting **New Shape**, selecting the fixtures and repeating the procedure above.

11.3 RECORDING SHAPES

When you record the output of the Mantra as a cue it includes any shapes that are running.
Recording a shape will automatically clear that shape from the yellow faders. If the Red fader that you record to is at zero, this will stop the shape on the output. If you want to keep the shape running on the output when you record it, fade up the red playback fader before recording the cue.
See section 12 for details on how to record cues.

11.4 SHAPE SPEED

"Live Speed" allows you to override the speed of shapes. The changes are only a temporary offset applied to the settings saved in the cue or on the yellow faders. See section 14 for details.

12 Recording Cues

12.1 OVERVIEW

When you have adjusted the intensity and colour of your fixtures and possibly created an animation(s) or shapes, the current output of the MantraLite can be recorded into a red fader for later playback. This recording is known as a "Cue" and it contains the intensity and all other attributes such as colour, position etcetera plus any animations that are currently running. It has a "fade in" time and a "fade out" time.

If you record a cue to a Red Playback that already contains a single cue and choose "Add", then you automatically create a "Cue-list".

12.2 MEMORIES / PAGES

There are 10 red playback faders and 10 pages of memory giving a total of 100 memories. Each memory can contain a single cue or a "Cue-list" that contains up to 250 cues. A maximum of 1000 cues can be recorded.

- Repeated taps of the 📖 [**Page**] button will step through the 10 pages of memory.
- To switch *directly* to a page number; HOLD 📖[**Page**] and TAP a red fader button [**1** to **10**].

The current page number is shown in the top left corner of the "Home" screen and the contents of the red playback faders (for the current page) are shown along the bottom of the screen.

"Home" Screen

12.3 RECORD A CUE

To record the current output onto a Red Playback fader, tap 🔴 [**Record**] then tap the button below the Red Playback fader of your choice [**1-10**]. The recording is made into the current page. The default fade time is applied to both the "Fade In" and "Fade Out" times. To change the default fade time see section 18.4. To set individual "Fade In" and "Fade Out" times see section 16.1.

All of the attributes of any fixture with an <u>intensity level greater than 0% will be included in the cue</u>. See section 12.5 for details on how to include fixtures with no intensity.

The look on stage can now be played back from the recorded cue. See section 13. This frees up the yellow faders ready for you to create another lighting look and to record it into another cue.

12.4 RECORD A CUE-LIST (OR CHASE)

If you have recorded a cue into a Red Playback fader you can record more cues to it to create a cue-list. A cue-list can be played back by tapping the button below the fader that contains the list. Each time you tap the button, Mantra will perform a crossfade to the next cue in the list. Each cue has its own "fade in" and "fade out" time settings.

To record a cue-list, record the first cue as described in section 12.3. Create the next lighting look on the output of Mantra then record to the same Red Playback fader. Mantra allows you to choose to either:

- **Overwrite**. This deletes the existing cue and replaces it with your new recording. (A cue-list is not created).
- **Add**. This creates a cue-list and adds the new recording to the list. Subsequent recordings to this memory location will automatically be added to the cue-list after the current cue.

If a cue-list has been recorded it can also be run as chase that automatically steps from cue to cue. See section 16.1

12.5 RECORD FIXTURES WITH NO INTENSITY

You can choose to <u>include selected fixtures that have an intensity of 0%</u> when you record a cue. (Normally only fixtures with an intensity level greater than 0% will be recorded in a cue).

To include fixtures with no intensity, tap ⦿ [**Record**], then tap ⊕ [**Select**]. The buttons of all fixtures with intensity greater than 0% are lit. Tap (and light) the buttons of any fixtures with no intensity that you want to include in the cue. Complete the recording in the usual manner by tapping the button below the Red Playback fader of your choice [**1-10**].

Playing back fixtures that have no intensity can be used for a "Move in Black" or for "Solo Cues" described below.

12.5.1 Move In Black

Playing back a cue that includes fixtures with no intensity is often used with pan and tilt fixtures to position the fixtures without seeing the move on stage. This is commonly called a "move in black".

A move in black requires two cues:

To program the first cue, fade up the fixtures and position them on stage. Fade them down then record the cue ensuring that you include these fixtures (with no intensity) as described in section 12.5.

To program the second cue that reveals the fixtures in position, fade them up and record the cue to the same cue-list.

When you playback the first cue, the fixtures move into position but are not seen as they have no intensity. When you playback the second cue (which has intensity and the same position) it reveals the fixtures already in position.

12.5.2 Solo Cue

When you fade up a normal cue it reveals the fixtures in that cue. If you have output from other fixtures that are not in the cue they will not be affected.

If you want the cue you faded up to be the only output you usually need to fade down all other faders. This can be difficult if you have multiple faders active.

You can simplify this process by recording a "Solo" cue. A Solo cue has the fixture(s) that you want to see but it also includes all of the fixtures you don't want to see. These fixtures are recorded in the cue with 0% intensity. See section 12.5.

When a solo cue is faded up it will take control of all of the fixtures that are recorded in the cue. Therefore, any fixtures will intensities of zero will fade out.

Hint: You can create some interesting effects by recording a "solo" cue that has an animation across several fixtures (with intensity) but also includes all other fixtures at zero intensity. Flashing (or fading up) this cue will reveal the animation and black out any other output. Great for highlighting the drummer during a drum solo or other such events.

13.1 OVERVIEW

Different looks can be recorded on different Red Playback faders so that you can easily change the entire look on stage by using the Red Playback faders. There are 10 red playback faders and 10 pages of memory giving a total of 100 memories. A memory can contain a single cue or a cue-list of up to 250 cues. (A maximum of 1000 cues can be recorded).

Cue-List · Single Cue · Cue Name · Page/Memory Number

13.2 PLAYBACK A CUE

To playback a recorded cue, ensure that the Red Playback Master is at full and fade up the Red Playback fader where you recorded the cue (remember to select the correct page).

You might want to "clear all" (see section 9.8) or fade down the Yellow master (or all of the yellow fixture faders) before you bring up the Red playback, so that you only see the recorded look on the output.

Unlike the Yellow Fixture faders that only control intensity, the Red Playback faders control all of the attributes of the fixture that have been recorded in the cue. This allows you to smoothly crossfade from one Playback to another with a smooth transition of intensity, colour and position. See Latest Takes Precedence below.

13.2.1 Cue Fade Times

Every cue has a separate "Fade In" time and a "Fade Out" time. When a playback fader is moved, the output level of that master will always progress towards the current physical position of that fader at a rate set by the fade times for that cue.

- On upwards movements of a fader the "Fade In" time is used.
- On downwards movements of a fader the "Fade Out" time is used.

When a cue is recorded it uses the default in and out fade times (2 seconds). To change the default fade time see section 18.4.To change the individual fade times for a recorded cue see section 16.1.

To perform a timed fade quickly move the fader from one end to the other.

For example, if a "Fade In" time of 3 seconds has been set, then to execute the fade in exactly 3 seconds, the fader must be moved from bottom to top in less than 3 seconds. If the fader is quickly faded to the half way position, the fade will take 1.5 seconds to reach this position and then stop. If the fader is then moved to the top of its travel, the fade will take another 1.5 seconds to complete. If you take longer than 3 seconds to move the master then the fade will keep pace with the fader movement.

A double headed arrow beside the cue name indicates when a timed fade is in progress.


Timed fade in progress

13.3 PLAYBACK A CUE-LIST

If a Red Playback contains a cue-list you can crossfade to the next cue in the list by tapping its playback button (below its fader).
To crossfade in the reverse direction HOLD the ⊕ [**Back**] button whilst tapping the playback button.
The current cue has a white background. A pointer indicates when a fade is in progress.


Fade in progres

Current Cue
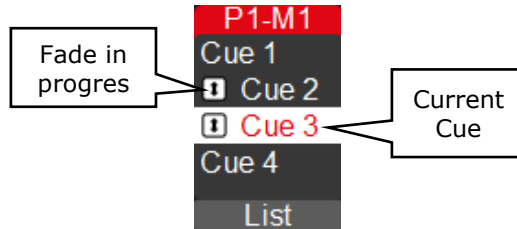
13.3.1 Cue-List Fade Times

Every cue in the cue-list has a separate "Fade In" time and a "Fade Out" time that are used when the playback button is pressed. These fade times are also used if the playback fader is moved. Therefore, the playback fader must be at the top position for the entire fade time to be used. Fade times can be overridden. See section 14.

13.4 PAGE FREEZE

When you change pages, the Cues in the selected page are copied, in order, to their respective red playbacks. A "PAGE FREEZE" feature prevents the contents of a "live" red fader from being changed if its level is above 5% when a page is changed. The current contents are 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 page. This prevents Cues, "crashing in" on stage if their fader is contributing to the output when a different page is selected.

The bottom section of the "Home" screen shows the contents of the 10 Red Playbacks. A "live" playback containing a cue from another page is indicated by a black background.

Black background indicates a "Page Freeze"
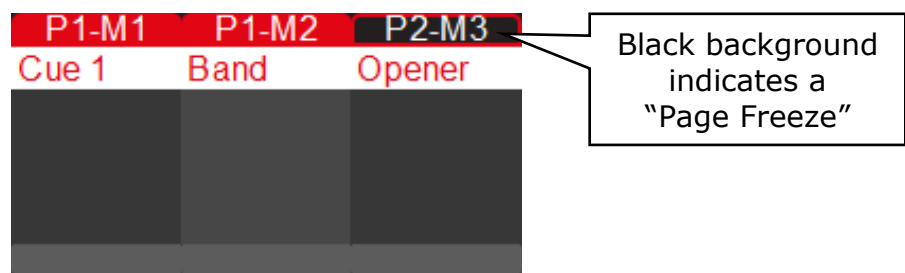
13.5 LATEST TAKES PRECIDENCE

The value for each attribute of a fixture (intensity, colour, position, etc.) could come from multiple places within the console. It might be from a yellow fixture control or it might be from any faded up red playback containing a cue that includes that fixture. The value for each attribute that appears on the output is determined by a method known as LTP (Latest Takes Precedence) and by fader position.

An LTP action occurs when a red fader is raised above zero. When this occurs, the fader will take control of its attributes and they will fade to their levels in that fader following the fader movement. When that fader reaches 100%, it fully overrides all other active

faders containing attribute values for the same fixtures. Whilst this fader remains at full no previously active faders have any influence over its fixture attributes.

If another red fader is raised above zero it becomes the latest action and it will take control of the attributes. As this fader is moved, the existing attributes will fade to the new values provided by the incoming cue. When the fader reaches full it fully overrides previously active faders.

MantraLite keeps a LTP list and remembers the order in which faders have been raised above zero. The latest fader (at the top of the list) will have total control whilst it is at full level. When a fader is faded down to zero it drops off the LTP list and has no influence on the output. If several faders are in the LTP list (faded up from zero but not yet faded down to zero) and the top of the list fader is faded back down to zero, the next LTP fader in the list will take back control.

The LTP rules apply to all attributes of a fixture: intensity, colour, position, etc.
For example:
We have 3 cues recorded on the red playback faders 1 to 3 with a single LED fixture in each cue. In the first fader the fixture is red, in the second it is blue and in the third it is yellow.
- Fade up fader 1 to full and the fixture fades to red.
- Fade up fader 2 to full and the fixture fades to blue.
- Fade down fader 1 and nothing happens because fader 2 is the latest (LTP) and it is at full.
- Fade up fader 3 and the fixture fades to yellow because fader 3 is the latest.
- Fade down fader 3 and the fixture fades back to blue (the previous latest).
Remember that when the latest red fader to be raised from zero is at full, other faders controlling the same fixtures can be faded down without having an effect.

Yellow fixture faders operate slightly differently to red playback faders. Firstly, they only control the intensity of the fixture. Secondly, if the fixture that the yellow fader controls already has intensity on the output from a cue on a red playback, then when its yellow fixture fader is raised above zero it has no effect on the intensity of its fixture until its yellow level matches the current level of that fixture. It then takes total (LTP) control of the fixtures intensity. See section 16 "Edit a Cue".

13.6 ICPB ATTRIBUTES (FILTERS)

When a memory is recorded it includes all of the **I**ntensity, **C**olour, **P**osition and **B**eam (I C P B) attribute groups. You can choose to exclude (filter) attribute groups when a memory is played back. See section 16.1.5
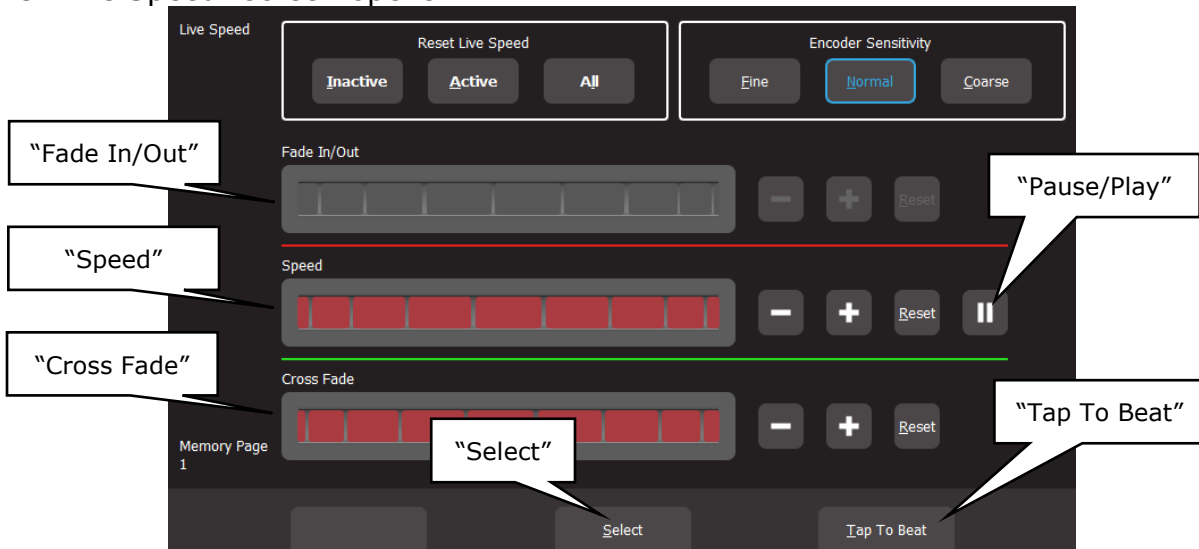
14 Live Speed

"Live Speed" allows you to override the fade times and speeds of cues, chases, animations and shapes. The changes are only a temporary offset applied to the settings saved in the cue or on the yellow faders. The settings in recorded cues are not altered. Live Speed overrides are not saved when you save your show.

From the "Home" screen press **Live Speed**.
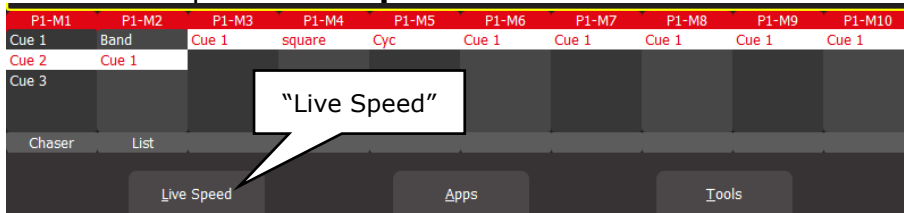
"Home" Screen

The "Live Speed" screen opens:

The "Live Speed" screen has controls to override the following parameters:
- "Fade In/Out" times of a cue.
- "Speed" "Pause/Play" of a chase, animation or shape.
- "Crossfade" of a chase or animation.
- "Tap To Beat" to set the speed of a chase, animation or shape.

Each set of controls only becomes active when one of the above parameters is either active on the output or "selected" as described below.
For example, if a chase is running on the output, then only the "Speed", "Crossfade" and "Tap To Beat" controls are active.

You can use either the encoder wheels or the **+** or **–** buttons to override fade, speed or crossfade. Moving an encoder wheel to the right or touching **+** increases the value by multiplying the recorded value. Moving it to the left or touching **-** decreases the value by dividing the recorded value. Therefore if the recorded value is small it will take a large variation to see the change. If the recorded value is 0 then it cannot be changed.

The sensitivity of the encoder wheels can be set to either **Fine**, **Normal** or **Course**.

14.1 SELECT

When the **Select** button is grey, the controls will override all live output.

If you touch **Select** it turns <u>blue</u> and you can now choose which playback to override by tapping the buttons below the playbacks. Multiple playbacks can be selected and or deselected. The LED in the playback button lights to show it is selected. A playback does not have to be active on the output when you use "Select" allowing you to make blind changes.

Touch **Select** again to return to live output control.

14.2 TAP TO BEAT

You can set the speed of a chase, animation or shape and by tapping the beat.

Play the chase, animation or shape on the output then from the "Home" screen press **Live Speed**.

Tap the **Tap to Beat** button at least 4 times at the desired rate. MantraLite averages all of your taps to set the speed. If you have tapped a speed and then want to change it, pause for 2 seconds then start tapping again (at least 4 taps).

If you have multiple chases, animations or shapes running, you can use **Select** as described above to choose which ones you will affect when you Tap To Beat. This also allows you to set the rate if the red fader is down (not playing on the output).
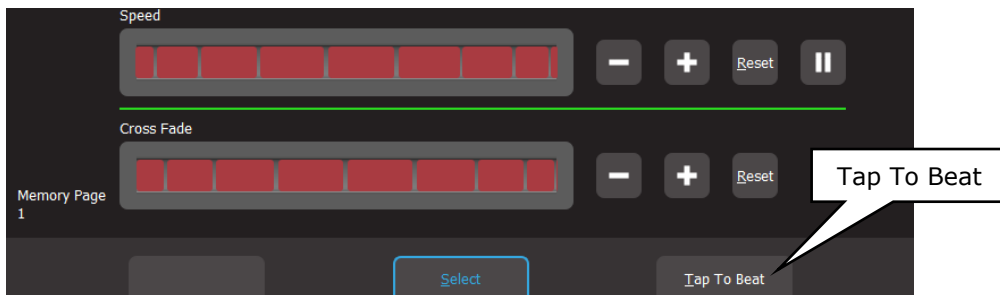
14.3 PAUSE/PLAY

You can "Pause/Play" a chase, animation or shape.

Play the chase, animation or shape on the output then from the "Home" screen press **Live Speed**.

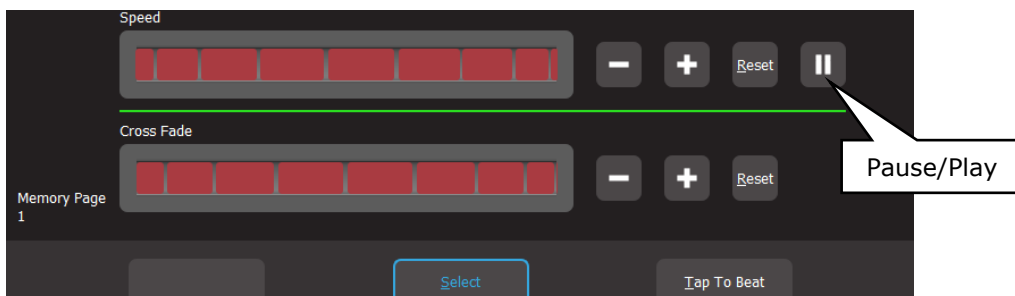Touch ‖ to pause. Touch again to play.

If you have multiple chases, animations or shapes running, you can use **Select** as described above to choose which ones you will affect when you **Pause/Play**.

14.4 OVERRIDE INDICATORS

The playback section of the home screen shows the following symbols when a playback has been overridden by the "Live Speed" controls:

- ">" indicates that the fade, speed and or crossfade has been overridden.
- "‖" indicates that the chase is paused.
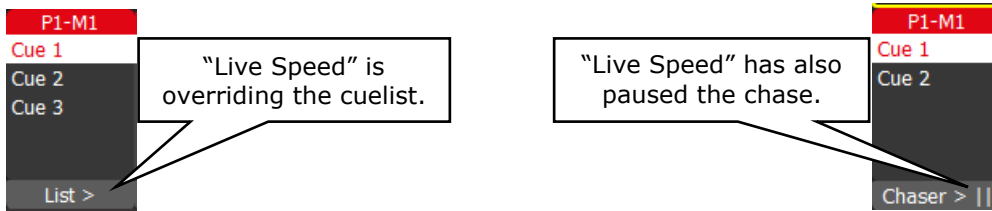
14.5 RESET LIVE SPEED

Any changes made by "Live Speed" can be reset to normal.

You can reset "individual" parameters:
"Fade In/Out", "Speed" and "Crossfade" controls each have a **Reset** button.

You can reset all (Fade In/Out", "Speed" and "Crossfade) parameters:
- When the **Select** button is grey you can choose to reset "Inactive", "Active" or "All".

- When the **Select** button is blue you can choose to reset "Inactive", "Selected" or "All".

15 Flash

You may Flash any fixture or multiple fixtures, any Playbacks 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 and all actions are instantaneous.

- The buttons below the "Yellow" fixture faders act as intensity [**Flash**] buttons ONLY when the "Home" screen is displayed. At other times they act as fixture select buttons.
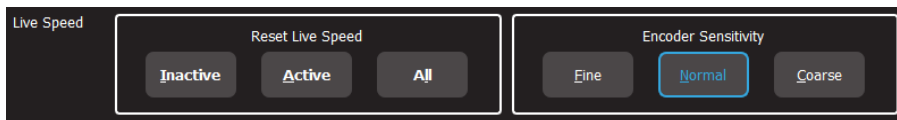
- The buttons below the "Red" playback faders act as playback [**Flash**] buttons ONLY when a single cue is recorded in them. If a red fader contains a cue-list, its button acts as a "go" button to fade to the next cue in the list.

15.1 FLASH LEVEL

To set the flash level, from the "Home" screen press **Tools/Setup**. Drag the virtual "Flash Level" slider to set the level.

- For fixtures (yellow) it sets the intensity level of a fixture when it is flashed.

- For Playback (red) it sets the *percentage* of the intensity levels recorded in the cue. Fixture attributes (colour, position etcetera) are always flashed to their recorded level.
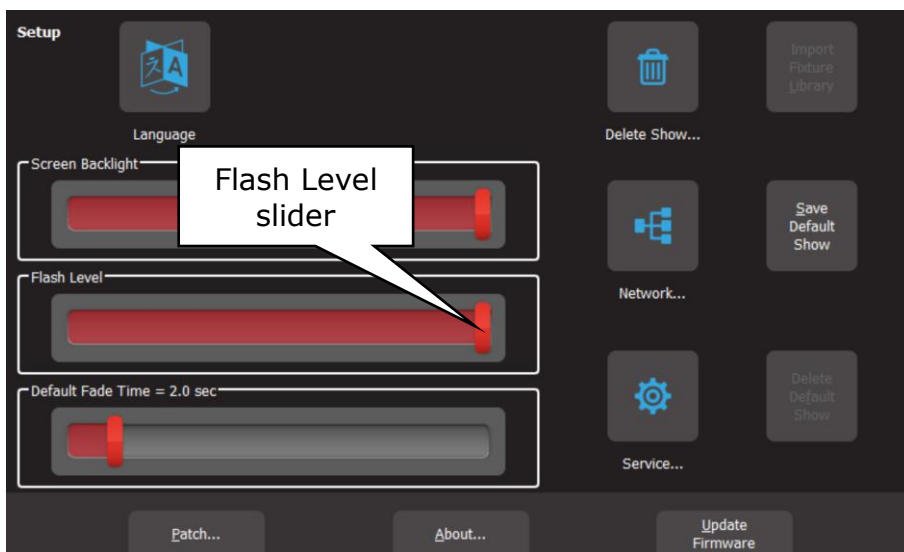
Setup

16.1 EDIT MEMORY
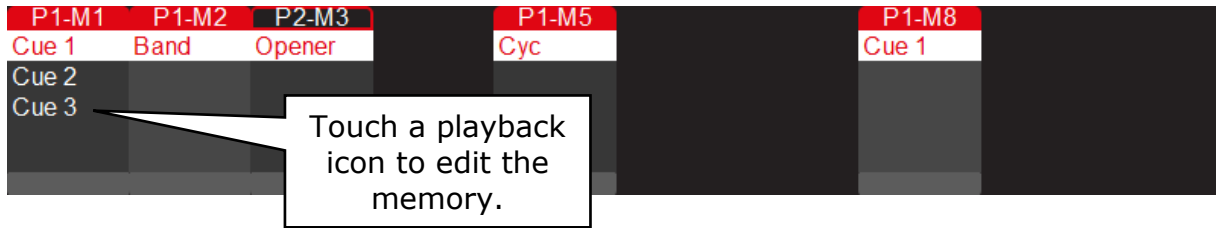
Touching any playback icon opens the "Edit Memory" screen.
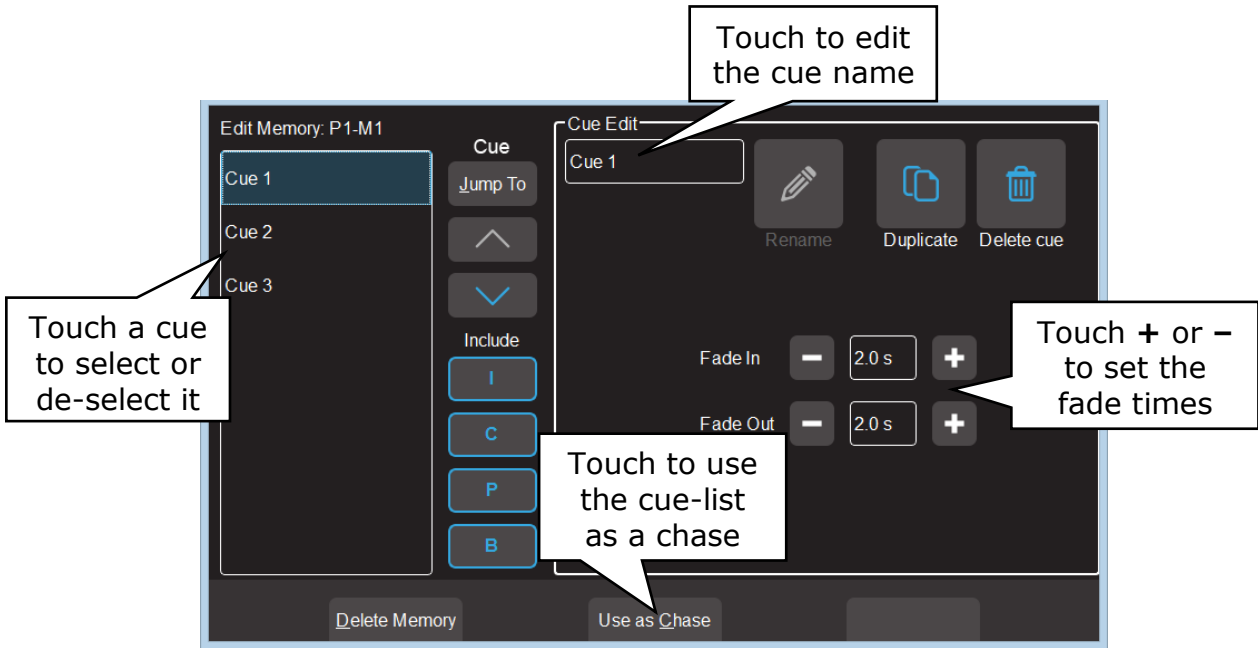
Edit Memory Screen

The pane on the left shows the contents of the selected memory. This might be a single cue or a cue-list, depending upon what you have recorded in that memory.

If the memory contains a cue-list you can touch a cue to select/de-select it. Multiple cues can be selected. This is useful when setting the same fade times to multiple cues.
Tapping the play button of the playback will advance to the next cue in the list and automatically select the currently active cue.

When a cue has been selected you can perform the following functions:

16.1.1 Change Fade Times

Touch the **+** or **–** buttons to set the "Fade In" and "Fade Out" times. If you hold a button it will auto-repeat. See section 13.2 for more details on fade times.

16.1.2 Change Cue Name

To change the name of a cue, select that cue then in the "Cue Edit" pane touch the cue name. A pop up keyboard appears allowing you to change the name of the cue. Touch **Rename** (or **Enter** on the pop up keyboard) to finish.

16.1.3 Jump To Cue

When you tap a playback's button you fade to the next cue in the cue-list. If you want to bypass cues and fade directly to any cue in the list then select the cue you want to fade to in the "Edit Memory" screen (see above) then touch **Jump To**.

This function is useful if you have a long cue-list and you want to quickly playback a cue without stepping through all of the intermediate cues.

16.1.4 Change Cue Order

To change the order of the cues in a cue-list select the cue(s) to be moved in the "Edit Memory" screen (see above) then move the selected cue(s) by touching the ∧ (move up) or ∨ (move down) buttons.

16.1.5 Include ICPB Attributes (Filters)

When a memory is recorded it includes all of the **I**ntensity, **C**olour, **P**osition and **B**eam (I C P B) attribute groups. You can choose to exclude attribute groups when a memory is played back. In the "Edit Memory" screen (see above), touching an attribute group (**I C P B**) excludes that group from the playback.

All attribute groups included (Default)

Only Colour included

The selection applies to all cues in the cue-list.

For example, you have some fixtures that have intensity, colour and position attributes.

- Record a cue-list that has 5 different colour cues. Don't worry about the position of the fixtures in each cue. Edit the cue-list and touch **I**, **P** and **B** leaving only **C** (colour) included. This is now a colour only playback.
- Record a cue-list that has 5 different position cues. Don't worry about the colour of the fixtures in each cue. Edit the cue-list and touch **I**, **C** and **B** leaving only **P** (position) included. This is now a position only playback.
- Record a cue-list that has 5 different position cues. Don't worry about
- Record a cue-list that has the intensity of the fixtures. Don't worry about the position or colour of the fixtures in each cue. Edit the cue-list and touch **C**, **P** and **B** leaving only **I** (intensity) included. This is now a Intensity only playback.
- Fade down the Yellow master and fade up the Red master.
- Fade up the 3 cue-lists that you recorded.
- Tapping the button of the Colour playback steps the fixtures through the 5 colours.
- Tapping the button of the Position playback steps the fixtures through the 5 positions.
- The **I** (Intensity) playback controls the intensity.

This gives you 25 possible combinations of colour and position from 10 cues.

Instead of making the **I** playback a single cue you could add a cue that includes an intensity animation. That makes 50 possible combinations from 12 cues.

16.1.6 Duplicate Cue

To duplicate a cue in a cue-list select the cue in the "Edit Memory" screen (see above) then touch **Duplicate**. A copy of the selected cue is added to the end of the cue-list.

16.1.7 Delete Cue

To delete a cue(s) in a cue-list select the cue(s) in the "Edit Memory" screen (see above) then touch **Delete Cue**.

16.1.8 Delete Memory

To delete a memory, in the "Edit Memory" screen (see above) touch **Delete Memory**. If the memory contains a single cue or a cue-list the entire memory will be deleted.

16.1.9 Chase

If a memory contains a cue-list you can choose to use it as either a "List" where you manually playback the cues or use it as a "Chase" where it automatically steps through the list at a rate that you set.

To change a cue-list into an automatically stepping "Chase", in the "Edit Memory" screen (see above) select "Use as Chase". The list will automatically increment through the steps using the speed and crossfade settings that you set on the touch screen.

Traditionally chases will snap (instantly switch) from step to step but you may also set a "Cross Fade" value so that it will <u>fade</u> from step to step.
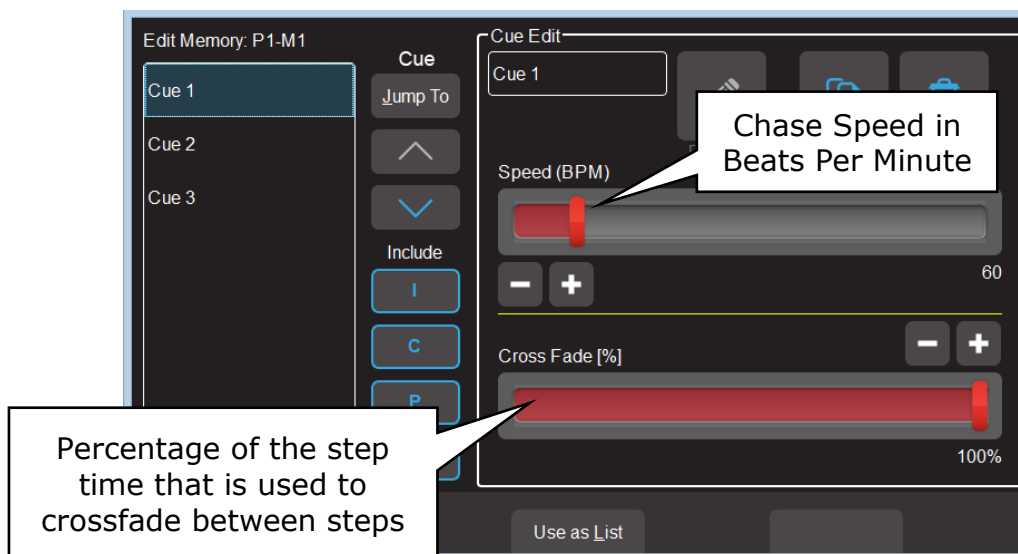
For example, if the chase speed is set at 60 BPM (which is one step per second), then with crossfade set at 0% (that is, no fade), the chase will wait for one second, then snap to the next step. None (0%) of the available speed time will be used for crossfading.

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.

You can manually step a chase by tapping its playback button (below its red fader).

To manually step in the <u>reverse</u> direction HOLD the ⊕ [**Back**] button whilst tapping the playback button.
<u>Hint:</u> Set a low speed if you want to manually step the chase.
Chases automatically stop when their red fader is at zero.
To change a chase back to a cue-list touch **Use as List**.

16.2 EDIT CUES

To edit the intensity or attributes of a fixture in a cue, first bring down all yellow and red faders, then push up the red playback fader that contains the cue/cuelist and <u>play the cue that you wish to edit</u>. Fade up the Yellow master.

- To edit the intensity of a fixture, fade the fixtures yellow fader up from zero. When the fader matches the current level in the cue, the yellow fader will take control of the intensity. Set the intensity to the required level.
- To edit the other attributes of a fixture select the appropriate App (Colour, Position, Beam / Other). Select the fixture(s) to be edited then use the App to make the change.

To update the cue press ◉ [**Record**] then press and HOLD (for 1 second) the button below the Red Playback fader which contains the cue. The cue will be overwritten with the edited values.

16.3 EDIT ANIMATIONS AND SHAPES

Recorded animations and shapes cannot currently be edited (future feature).

If you need to change an animation or shape recorded in a cue, create a new animation or shape then overwrite the existing cue by pressing [**Record**] then press and HOLD (for 1 second) the button below the Red Playback fader which contains the cue.

17.1 NEW

To open a new show, from the "Home" screen tap **Tools**, **New**.
- If a "Default" show exists it will be automatically loaded whenever you select a "New" show. The Default show includes the patch.
- If a "Default" show does not exist, selecting a "New" show will clear all memories and clear the patch.

See also section 18.9, "Default Show".

17.2 SAVE

To save a show, from the "Home" screen tap **Tools**, **Save**.
- If you are saving a "New" show, touch in the "File Name" box then enter a name for the show.
- If you are saving an already saved show, the existing show will be updated.

17.3 SAVE AS

To save an existing show with a new name, from the "Home" screen tap **Tools**, **Save As**.
- By default, the existing show name will be automatically entered with "_copy" added to it. You can accept the name or touch in the "File Name" box then enter a new name for the show.

17.4 LOAD

To load an existing show, from the "Home" screen tap **Tools**, **Load**. Touch the show name then touch **Load**.
- When you "Load" a show you replace the entire contents of the MantraLite memory with the show data that you load. This includes all Cues and the Patch.

17.5 EXPORT TO USB

You can export a saved show to a USB stick. The USB stick must be formatted as FAT32. Insert a USB stick in one of the USB sockets on the rear panel. From the "Home" screen tap **Tools**, **Export**. The screen offers the current show name but you can choose a different show if you desire. Touch **Save** to complete the export.

17.6 IMPORT FROM USB

You can import a previously exported show from a USB stick. Insert a USB stick containing the show file in one of the USB sockets on the rear panel. From the "Home" screen tap **Tools**, **Import.** Select the show file by touching it. Tap **Load.**

18 Setup

18.1 OVERVIEW

To select the "Setup" screen, from the "Home" screen touch **Tools/Setup**.
The Setup screen offers the following functions:

18.2 FLASH LEVEL

See section 14.

18.3 TOUCH SCREEN BACKLIGHT

To adjust the brightness of the touch screen, from the "Home" screen touch,
Tools/Setup then use the "Screen Backlight" slider.

18.4 DEFAULT FADE TIME

When a cue is recorded, the "Fade In" and "Fade Out" times will be the time value in
the "Default Fade Time" setting. To change the default fade time setting, from the
"Home" screen touch, **Tools/Setup** then use the "Default Fade Time" slider.

18.5 DELETE SHOW

To delete a show file, from the "Home" screen touch, **Tools/Setup**. All saved shows
are displayed. Touch the icon of the show to be deleted than touch **Delete**. To confirm
the action touch **Yes**.
Note: Deleting a show cannot be un-done.

18.6 NETWORK

MantraLite can transmit ArtNet and sACN protocols from the network connector on the
rear panel. These protocols support multiple DMX universes over Ethernet LAN (Local
Area Network) or WAN (Wide Area Network).

18.6.1 Network Setup

You can have a network address automatically assigned by the network or you can
manually enter an address.

- To have a network address automatically assigned select **Setup**, **Network**,
  then touch **DHCP**. Use this setting when connecting to the internet.
- To manually enter a network select **Setup**, **Network**, then touch **Static IP** and
  enter the Address and NetMask. Use this setting when streaming ArtNet or
  sACN over a dedicated lighting network. See below.
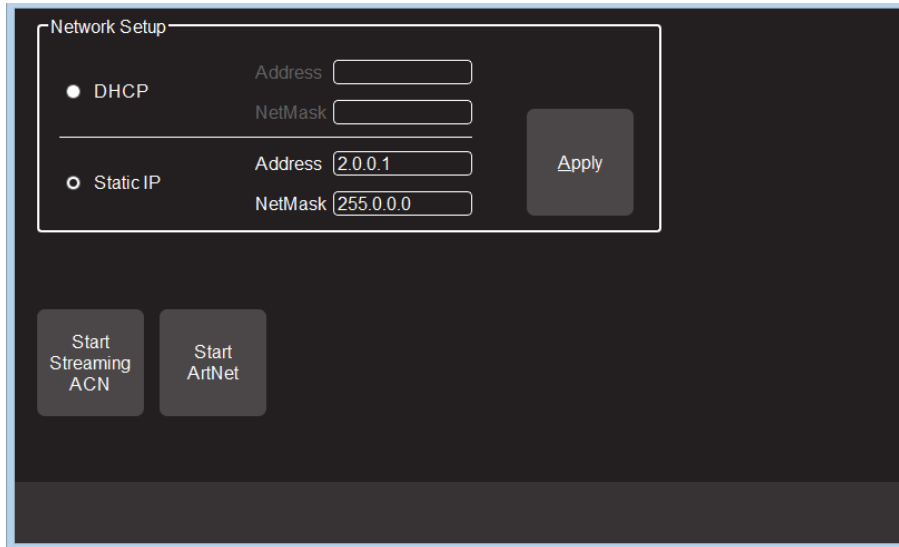
Network Setup

When Mantra is only connected to your lighting rig network, LSC suggests that you use the following "Static IP" settings in Mantra:

  Address: 2.0.0.1
  NetMask: 255.0.0.0

Set every other device on you lighting network to a <u>different address.</u> For example:

2.0.0.2

2.0.0.3

etc.

18.6.2 ArtNet

ArtNet is a streaming protocol to transport multiple DMX universes over a single cat 5 Ethernet cable/network. These are arranged in 16 sub-nets each containing 16 universes. To enable ArtNet output on the MantraLite Ethernet connector, ensure that you have set a static IP address (described above) then touch:

Setup/Network/Start ArtNet.

18.6.3 SACN

Streaming ACN (sACN) is an informal name for the E1.31 streaming protocol to transport multiple DMX universes over a single cat 5 Ethernet cable/network. To enable sACN output the MantraLite Ethernet connector, ensure that you have set a static IP address (described above) then touch:

 Setup/Network/Start Streaming ACN.

18.7 SERVICE

No user functions are in this menu. It is for factory use and is PIN protected.

18.8 IMPORT FIXTURE LIBRARY

The MantraLite uses the Carallon fixture library (as used in LSC Clarity consoles). This provides over 5,500 fixtures, most with multiple operating modes, all included as standard with the console. Updates for this library are released from time to time by LSC and can be downloaded and imported into MantraLite.

To update the fixture library perform the following steps:
1. Download the latest MantraLite fixture library from lsclighting.com.
2. Create a folder named "LSC" on a blank USB memory stick.

3. Copy the library file into the "LSC" folder on the USB stick.
4. Insert the USB Stick into the MantraLite.
5. From the "Home" screen touch **Tools/Setup/Import Fixture Library.**

Note: MantraLite software updates also include the latest version of the fixture library.

18.9 SAVE DEFAULT SHOW

If your MantraLite is to be used in a permanent installation or in a touring setup where you regularly use the same patch then LSC recommends that you create and save a "default show". The "Default" show includes the patch, your rig view arrangement and any cues that you choose to include. If a "Default show" has been saved it will be automatically loaded whenever you select a "New" show so that you do not need to re-patch your fixtures.

If a default show does not exist then selecting a "New" show will delete the patch and all memories.

When you save a default show you can choose to "PIN Protect" it so that it cannot be easily changed or deleted.

To save a "Default" show, ensure that your patch is correct then from the "Home" screen touch **Tools/Setup/Save Default Show**. You will be asked if you want to PIN protect the default show. If you answer "Yes" you must enter a 4 digit PIN.

18.10 DEFAULT SHOW EMERGENCY PIN

If you have forgotten your PIN for the default show you can always access it with the emergency PIN 3175.

18.11 DELETE DEFAULT SHOW

To delete the "Default" show, from the "Home" screen touch **Tools/Setup/Delete Default Show**. If the default show is PIN protected you must enter your PIN to delete the show.

18.12 ABOUT

LSC has a policy of continuous improvement of its products. As the MantraLite is a computerised lighting desk, its software is subject to this policy as new features are added and existing features improved.

To display the software version in your MantraLite, from the "Home" screen touch **Tools/Setup/About**.

See below for details to upgrade the firmware in the MantraLite**.**

18.13 UPDATE FIRMWARE (SOFTWARE)

To install a software update, perform the following steps:
1. Download the latest MantraLite software from lsclighting.com.
2. Create a folder named "LSC" on a USB memory stick.
3. Copy the software file (file named mantra_v1.nn.img where 'nn' is the software version number) into the "LSC" folder on the USB stick.
4. Insert the USB Stick into the MantraLite.
5. From the "Home" screen touch **Tools/Setup/Update Firmware.**

6. If your current show has unsaved changes you will be prompted to save.
7. The update process takes about 20 seconds.
8. Once complete you will be prompted to restart MantraLite.
9. Switch off, wait for 15 seconds then switch on.

18.14 ADDED FEATURES

The features added to MantraLite in each new software release are listed below:

Release: v1.04
The Fixture Editor can now load existing fixtures as a starting point for new ones. It can edit existing custom fixtures.

Release: v1.05
Fade times on Cues are now possible.
Unwanted Custom Fixtures can now be deleted.
There is now a clear function in the Fixture Editor.
The Fixture Editor now prevents more than one attribute of the same name and type.

Release: v1.10
Cue Lists and Chases have been added.
The Fixture editor now has a clear function.
Custom fixtures are now saved with the show when it is exported.
The help menu is now available in Italian.
The behaviour of cue fading has been changed. Playbacks no longer fade back to the Live (yellow) Memory when faded out. They now retain their colour, to prevent the colour fading out to white.

Release: v1.11
The crossfade engine for cuelists is now totally Dipless for all parameters.
It is now possible to record a blackout memory.
A [Clear All] button has been added to the Centre soft button on the Apps screen, for quicker access to this feature.

Release: v1.2
Expansion Wings are now supported.
A Shapes App allows easy creation of Circles, Fig8, BallyHoos and other effects on the Pan & Tilt of any moving light.
It is now possible to record a blank cue in a cuelist. This is commonly required at the start and end of a cuelist, to enable a blackout.

Release: v1.22
The Software Upgrade process now updates the firmware in the surface and wings.
Fader selection of fixtures is now disabled in the Patch window, to allow testing of fixtures that have been patched without re-selecting them.
Additional parameters (e.g. Gobo, Zoom, Focus) have been added to the list in the Fixture Editor to make fixture creation faster.
The Fixture Editor can create fixtures of up to 48 DMX channels with or without Wings connected. There are now [-1] & [+1] buttons to increment/decrement the selected DMX slot to add the parameter to, as well the old method of moving a fader.

Release: v1.23
The Export function confirmation button is now labelled Export instead of Save, to avoid confusion.
Help is now available in Dutch.

Release: v1.30
IPCB (Intensity, Position, Colour, Beam) filtering added for playback. Cues are still recorded with all parameters.
Text fields (e.g CueName) now have all the text highlighted when selected, allowing typing to instantly replace the existing text. Two new buttons on the pop-up keyboard allow the cursor to be moved back and forth in the text edit window.

Release: v1.35
The bottom left button below the Home screen, which was previously unused, is now used to access the Live Speed controls. Three encoders are provided for FadeTime, ChaseRate and X-Fade. Other controls allow for configuring whether changes affect all active playback/s (global) or selected playback/s, resetting the adjusted times and setting the sensitivity of the encoders.
The Live Speed controls also features a Tap To The Beat button, to allow easy synchronisation of chase/s to the beat of the music.
The MantraLite now uses the Carallon fixture library (as used in LSC Clarity consoles). This provides over 5,500 fixtures, most with multiple operating modes, all included as standard with the console. A fixture request service is available via the LSC web page, to enable end users to request new fixtures for addition to the database. This process takes at least one month from the date of request. Users requiring an urgent template can continue to use the inbuilt Fixture Editor.
The Shapes App has two additional shapes (Square and Triangle) and Shapes can now be rotated, to set the apex to any orientation.

Release: v1.36
An 'Are you sure?' screen has been added to the 'delete cuelist' button functionality.

Release: v2.01
The underlying operating system has been updated. This results in faster boot times, improved show load/save and easier to read fonts and graphics.
The firmware for the hardware interface has been updated. This reduces jitter on faders and provides smoother fader control. Flash button response is also considerably faster.
You can now patch more than one identical fixture to a yellow fader.
It is now possible to search the fixture library.
It is now possible to set the default fade time.
MantraLite now supports non-Latin character sets (eg. Chinese & Japanese).
A larger easier to read font is now used on the touch screen.
The fixture library now updates in less than 2 seconds.
"QX1" USB to DMX512A adaptor support added.
All colour faders (colour wheels, Cold White, Warm White, etc) are now located in the sliders window of the colour picker app.
A cursor has been added to text edit windows for easier editing.
RGB colours of compound (multi-cell) fixtures are now controlled from the colour picker.

19.1 OVERVIEW

If you have a new fixture and it is not listed in the MantraLite fixture library you can create a template for it, even if you don't know the functions of its DMX channels. The MantraLite Fixture Editor allows you to use the yellow faders to directly control the DMX channels of the fixture and hence <u>discover the function of each channel</u>. You then select an attribute name for each channel, then name and save the new template.
You can also use the Fixture editor to edit an existing fixture template.

19.2 CREATING A FIXTURE TEMPLATE

In normal operation (not in the "Fixture Editor"), the yellow faders control the intensity of the fixtures that are patched to them. When you open the "Fixture Editor" they change and become individual DMX channel control faders starting from the DMX address that you specify in the editor. For example, if you enter a DMX address of 1 in the fixture editor, yellow fader 1 controls the level of DMX channel 1, yellow fader 2 controls DMX channel 2, yellow fader 3 controls DMX channel 3 etcetera. If you now connect your new fixture to the DMX output of MantraLite and set the fixtures DMX address to 1, yellow fader 1 controls its first channel, yellow fader 2 controls its second channel, yellow fader 3 controls its third channel etcetera. You can now use the yellow faders to discover the function of each channel of the new fixture.

To open the Fixture Editor, from the "Home" screen press: **Setup/Patch/Fixture Editor**:

Custom Fixture Editor (Attributes Tab)
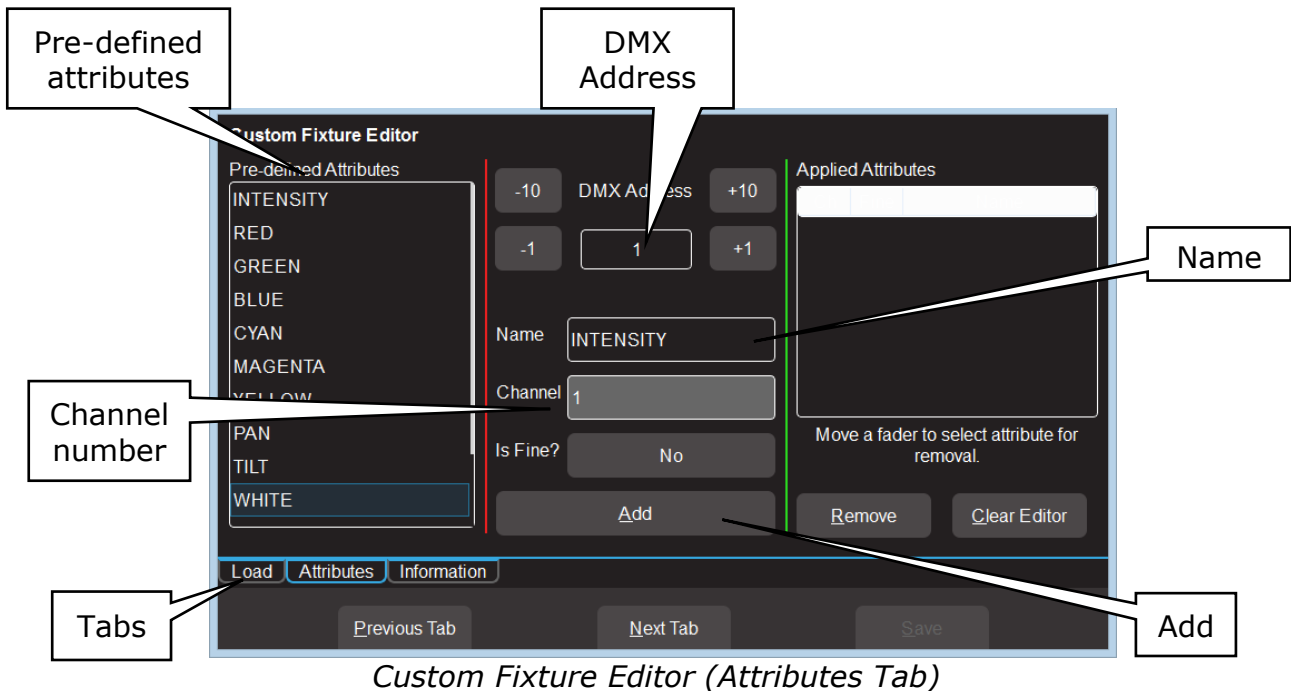
There are 3 pages that are selected by the "Tabs":
- Load.
- Attributes
- Information

The editor opens on the "Attributes" Tab. Connect the new fixture to the MantraLite DMX output. Ensure that the Fixture editor and the new fixture are set to the same DMX address.

Fade up channel 1 fader. When you move a fader its number is automatically entered in the Channel number box. Observe the operation of the fixture. Select the appropriate Attribute name for this channel from the list in the "Pre-defined Attributes" box. Swipe to scroll the list of names. If no suitable name exists either choose "Unknown" or touch the "Name" box and enter a descriptive name. To create the attribute for this channel tap **Add**.

Fade up channel fader 2. Notice that whenever you move a fader, that number is automatically entered into the Channel Number box. Observe the operation of the fixture when you move fader 2 and repeat the above procedure to add the attribute. If an attribute is used for fine control of a function, tap the **Is Fine?** field. It will toggle to "Yes". Typically this will be where 2 channels are used for movement. One channel will be the course control and the other will be for fine.

If you make a mistake on a channel, move the fader to automatically select it then touch **Remove**.

When all attributes have been identified and added touch **Next Tab** (Information).
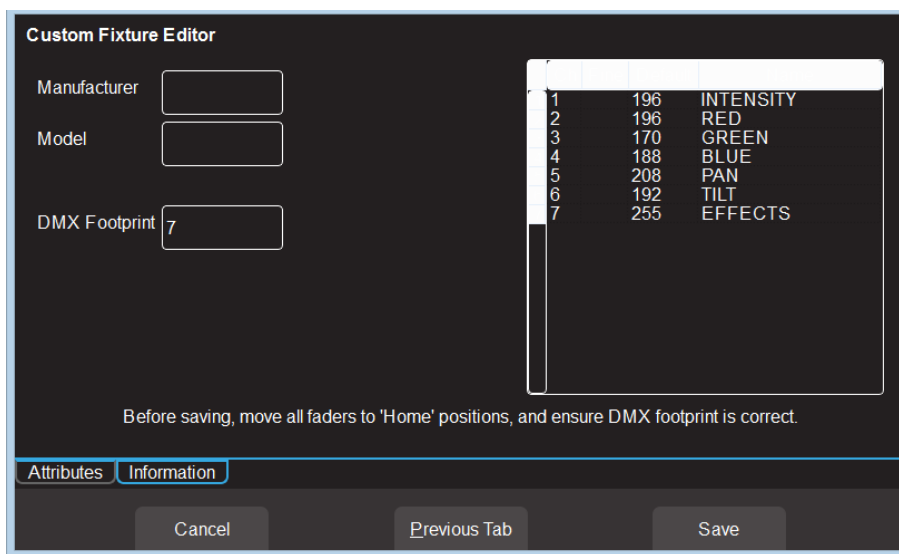
Custom Fixture Editor (Information Tab)

Enter a Manufacturer and Model name. If you don't know the manufacturers name enter "Unknown" or you can use any name that helps you organise your fixtures. For example "Gregs Fixtures".

Check the specifications of the fixture and determine the quantity of DMX channels that it actually uses. This is known as the fixtures "DMX Footprint". Every time you "Add" an attribute in the fixture editor it automatically increments the count in the "DMX Footprint" field. Some fixtures provide DMX channels for functions that you do not require and hence you might not have added Attributes for these channels. If this is the case you must manually enter the correct number of DMX channels actually used by the fixture in the "DMX Footprint" field. This ensures that MantraLite will not overlap DMX addresses when patching multiple fixtures.

19.2.1 Home Positions

Home positions for Gobos, Zoom/Focus, colour and shutter/strobe attributes are saved in the template.

Set all of the faders to the values required for the fixtures "Home" position. The recommended "Home" attribute settings are:

- All Gobos set to open.
- Zoom/Focus at 50%.
- No colour.
- Shutter/Strobe fully open.

Note: The Intensity, RGB/CMY colours and Pan/Tilt attribute faders are ignored when setting the Home position. These attributes are always set to the same Home values:

- Intensity = zero. This is because intensity is always controlled by the yellow fader.
- RGB/CMY Colour = white. RGB are at 100% and CMY are at 0%.
- Position = centre.

So despite what the fixture information shows for both factory and user created templates, the "default" values for intensity, RGB/CMY and Position (Pan/Tilt) will not be what is shown in the fixture information window nor what is set in the fixture editor.

All of these Home values are applied to the fixture when the fixture is "cleared". See section 9.8.

Press **Save** to create the new template.

19.3 EDIT A FIXTURE TEMPLATE

If you want to edit an existing fixture, from the "Home" screen press:
Setup/Patch/Fixture Editor then select the "**Load**" tab.
Select the fixture template that you want to edit then touch **Load**.

Edit the fixture settings in the "Attributes" and "Information" tabs as described in section 19.2 and then save the edited template.

20 Visualiser

Mantra comes with a "Sample" show that you can load so that you can familiarise yourself with the controls before patching your own fixtures. It is perfect for training and demonstration of the console.

If you would like to see a simulation of the fixtures in the MantraLite sample show working on a virtual stage on your computer you can download a 3D visualiser lighting program called "MantraLite Visualisation show" from:

  http://www.lsclighting.com/help-centre/downloads/MantraLite/Sample-Shows/
There are versions for PC and Mac.

Note: The visualiser programme requires a 3D graphics card with OpenGL support to run. If your computer does not have a compatible graphics card the software will report an error when you run it and it will close.

If you have changed or deleted the sample show that shipped with the console it can also be downloaded from the above site. Save it to a USB stick then insert the stick into the MantraLite console and touch **Tools/Import**.

To setup the visualiser, connect a network cable from the Ethernet connector of the MantraLite to the Ethernet connector of your computer. See section 1 "Getting Connected".

Setup the network as follows:

From the "Home" screen touch **Tools/Setup/Network**. The network setting of MantraLite need to be set to:
Static IP
Address 2.0.0.1
NetMask 255.0.0.0
Touch **Apply**.

Set the IP address of your computer to:
Address 2.0.0.2
NetMask 255.0.0.0

Hint: If you are unsure how to set the IP address of your computer LSC suggests that you do an internet search.

On the MantraLite, from the "Home" screen touch **Tools/Setup/Network/Start ArtNet**.

Run the visualisation program on your computer.   The computer now shows the fixtures in the sample show working on a virtual stage on your screen under the control of your MantraLite.

21.1 FAQ

Q. Some of my fixtures still have colours selected.
A. Clear the fixtures. From the "Home" screen touch **Apps/Clear**. Select the fixtures to be cleared by tapping their buttons then touch **Colour**.
You can also clear all animations and all attributes of all fixtures. From the "Home" screen touch **Apps/Clear/All** (trash can icon).

Q. Some of my moving fixtures are still moving, even when their yellow the faders are down.
A. Clear the animations on those fixtures. From the "Home" screen touch **Apps/Clear**. Select the fixtures to be cleared by tapping their buttons then in the "Animations/Delete" pane touch **Position**.
You can also clear all animations and all attributes of all fixtures. From the "Home" screen touch **Apps/Clear/All** (trash can icon).

Q. I can't see some of my channels animating on the output.
A. Fade down all red playbacks. One of them might contain some of the channels you are animating and the red playback has precedence.

Q. I can't get any intensity output from some of the yellow faders.
A. There might be an intensity animation still running and it has priority. Delete the animation. From the "Home" screen touch **Apps/Clear**. In the "Animations/Delete" pane, touch **Intensity**.
You can also clear all animations and all attributes of all fixtures. From the "Home" screen touch **Apps/Clear/All** (trash can icon).

Q. My animation is running strangely.
A. Animations respect you fixture selection order. Make sure you have selected your fixtures in the desired order. You can see the selection order in the animation App.

Q. I created an animation set to "centre in" but only half the fixtures are animating.
A. Centre in and centre out animations work best with an odd number of fixtures so that the pattern is symmetrical around the centre fixture. If you have an even number of fixtures there is no centre fixture because the centre is the gap between fixtures. You must therefore program a symmetrical static look with at least one different setting on both sides of centre.

Q. I tried to record a cue but the screen said "There is nothing to record".
A. Recording a cue only includes fixtures that have intensity greater than zero. Fade up the fixtures to be recorded. Also see section 12.5

Q. I have broken the touch screen.
A. If the touchscreen still displays images correctly you can plug in a USB mouse and use it to make your selections.

21.2 RESCUE FILE

In the unlikely event that you have saved a default show and the default show gets corrupted, the console will not be able to load the show at power up, resulting in it

failing to start operating. You can restore normal operation by following these instructions:

On a computer with internet access navigate to:
    http://www.lsclighting.com/help-centre/downloads/MantraLite/Software/
Download the file called "mantra-rescue".
Save the file onto a USB memory stick.
Turn off the MantraLite console.
Plug the memory stick into the MantraLite then turn the console back on.
The default show will be deleted, allowing the console to start normally.
Ensure that the USB stick is then removed.
If you were previously using a "Default Show" you should create and save a new one.

22 Caring For Your MantraLite

The MantraLite 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 MantraLite. If any liquids are spilt on the MantraLite, 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 distributor, but prevention is better than cure.

- When connecting any devices to the MantraLite, make sure that all connections are correct before switching on the power. If any doubt exists, obtain the assistance of qualified personnel.

If the surface of your MantraLite becomes soiled, clean it with a damp cloth. Do not use any powerful solvents.

23 Compliance Statements

23.1 CE & C TICK COMPLIANCE STATEMENT

The MantraLite 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).

All LSC products with CE Compliance automatically comply with C-Tick requirements as per Section 182 of the Radio communications Act 1992. LSC Company Registration number is N921.

24 Specifications

	MantraLite	MantraLite + 1 Wing	MantraLite + 2 Wings
Number of Fixtures	24	36	48
Control LEDs, moving lights & generic fixtures	✔		
Number of Playback Faders	10	20	30
Masters	1 x Playback (Red) and 1 x Fixture (Yellow)		
Number of Cues/Animations	1,000 cues/animations across 100 cuelists/chases	1,000 cues/animations across 200 cuelists/chases	1,000 cues/animations across 300 cuelists/chases
DMX outputs on XLR connector	1 x DMX512-A (E1-11)	2 x DMX512-A (E1-11)	3 x DMX512-A (E1-11)
DMX output on sACN or Art-Net	1	2	3
RDM ready	✔		
Colour Touchscreen with simple and intuitive navigation	✔		
Touchscreen	18cm capacitive with 5-point multi-touch		
Internal storage	4GB flash memory		
Data Backup	via USB memory stick		
Power brownout protection	Internal UPS providing 5 seconds of power for Auto show save		
Power Supply	Nominal 100-240 Volts, 50-60Hz Operating range typically 90-260V, 45-65Hz.		
Power Input Connection (Internal supply model)	IEC socket - mains cable provided.		
External Power Supply (USA model only)	UL certified power supply with IEC mains input connector		
Power Input Connection (USA model only)	12v DC - 2.5mm jack.		
Construction	Corrosion resistant steel finished in powder coating with hard-wearing polycarbonate front panel Lexan		
Product Dimensions - W x D x H	490 x 330 x 80 mm	245 x 330 x 80 mm (Wing Only)	
	19.3 x 13 x 3.2 inches	9.65 x 13 x 3.2 inches (Wing Only)	
Shipping Dimensions - W x D x H	530 x 380 x 130 mm	290 x 380 x 130 mm (Wing Only)	
	20.9 x 14.75 x 5.0 inches	11.42 x 14.96 x 5.0 inches (Wing Only)	
Product Weight:	4.9 kg / 10.8 lb	2.5 kg / 5.5 lb(Wing Only)	
Product Weight (Packed): Internal PSU	6.1 kg / 13.4 lb	3.5 kg / 7.7 lb(Wing Only)	
External PSU	6.3 kg / 13.67 lb	N/A	
Shipping Weight (Australia)	8 kg	7.0 kg / 15.5 lb (Wing Only)	
Shipping Weight (Export)	7 kg / 15.5 lb	6.0 kg / 13.3 lb (Wing Only)	

25.1 OVERVIEW

The following Terms are commonly used in this MantraLite Operator Manual. These Terms have been adopted by LSC as the best descriptions for functions and operations performed on the MantraLite and may not be terms universally adopted on similar equipment.

25.2 FIXTURE.

A multi-colour LED light, moving light, dimmer or any other DMX controlled device is known as a fixture. As you patch each Fixture you give it a unique Fixture Number. A yellow fixture fader (number) controls its intensity and the touchscreen controls its attributes.

25.3 DMX ADDRESS.

Every Fixture has a selectable DMX starting address and this is patched to that same DMX address number on the MantraLite. The MantraLite will then automatically patch all of the remaining DMX addresses for that Fixture according to the information in that particular Fixtures Template.

25.4 TEMPLATE.

A Fixture Template is a file that tells the MantraLite the function of each DMX address for that fixture and it defines the touchscreen Apps controls and labels for that Fixture. Every different type of Fixture that you control requires a Template.

25.5 FIXTURE LIBRARY.

The MantraLite stores its fixture templates in a library. The templates are organised in the library by manufacturer and model. When you want to use a particular model of Fixture, you select its Template from the library.

25.6 ATTRIBUTE.

Each brand and model of Fixture has a specified number and order of control channels. An attribute is one or two DMX control channels (two channels used for higher resolution) that uniquely controls one of the physical motions of the Fixture. The manufacturer's specification of a Fixture lists each attribute and its control channel number(s). Attributes are sometimes referred to as "Parameters".

25.7 LTP. (LATEST TAKES PRECEDENCE)

See section 13.5

25.8 LOOK

A lighting "look" is the current output of the MantraLite. A "look" may be made up of a collection of fixtures or one or many cues or a combination of cues plus fixtures. It may even be a single fixture.

25.9 CUE

A Cue is a memorised look of fixtures (at their respective levels, colours and positions) plus any animations that were running when the cue was recorded. The cue can be given a name. It can be played back on a red playback.

25.10 DMX512A

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.

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 or menu. This address is set to the slot number to which the equipment is to respond.

25.11 DMX CABLES

Only use specific DMX cable (available from your lighting supply company). Never use audio cable. If you want to make your own cables LSC recommends using Beldon 9842 (or equivalent).

DMX 5 pin XLR Pinouts

Pin Number	Function
1	Ground
2	- Data
3	+ Data
4	Not Used
5	Not Used

The end of the DMX line must be terminated (120 Ω) to prevent the signal reflecting back up the line and causing possible errors.

25.12 DMX UNIVERSES

If more than 512 DMX slots are required, then more DMX outputs are required. The slot numbers on each DMX output are always 1 to 512. To differentiate between each DMX output they are called Universe1, Universe 2 etc. MantraLite provides one DMX universe. The optional wings and the QX1 node provide additional DMX universes.

25.13 ARTNET

ArtNet is a streaming protocol to transport multiple DMX universes over a single cat 5 Ethernet cable/network.

25.14 SACN

Streaming ACN (sACN) is an informal name for the E1.31 streaming protocol to transport multiple DMX universes over a single cat 5 Ethernet cable/network.