

MANTRA LITE

**Lighting Control
for LEDs, Moving Lights & Dimmers**

Operator Manual



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MantraLite Operator Manual

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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 underlining.

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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. The large touch screen has "Apps" that allow you to easily program colour or position and see immediately what is happening on the home screen "rig view" that has fixture icons showing intensity colour and position.

When controlling LED fixtures the different types of parameters (RGB, RGBA, RGBAW or CMY) are all controlled via a simple touch screen colour picker. MantraLite makes controlling multi-colour LED fixtures easy.

Pan and Tilt is also controlled via the touchscreen and other parameters by virtual faders. This allows the MantraLite to control not just colour, but all the parameters 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. 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 an animation(s) you can record the current output onto any Red Playback fader with 10 pages available for a total of 100 cues.

Fixture library updates and new software features are easily installed via USB stick and show files can be backed up to USB stick for off-site storage.

2.2 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.lscighting.com.

2.3 FUTURE FEATURES

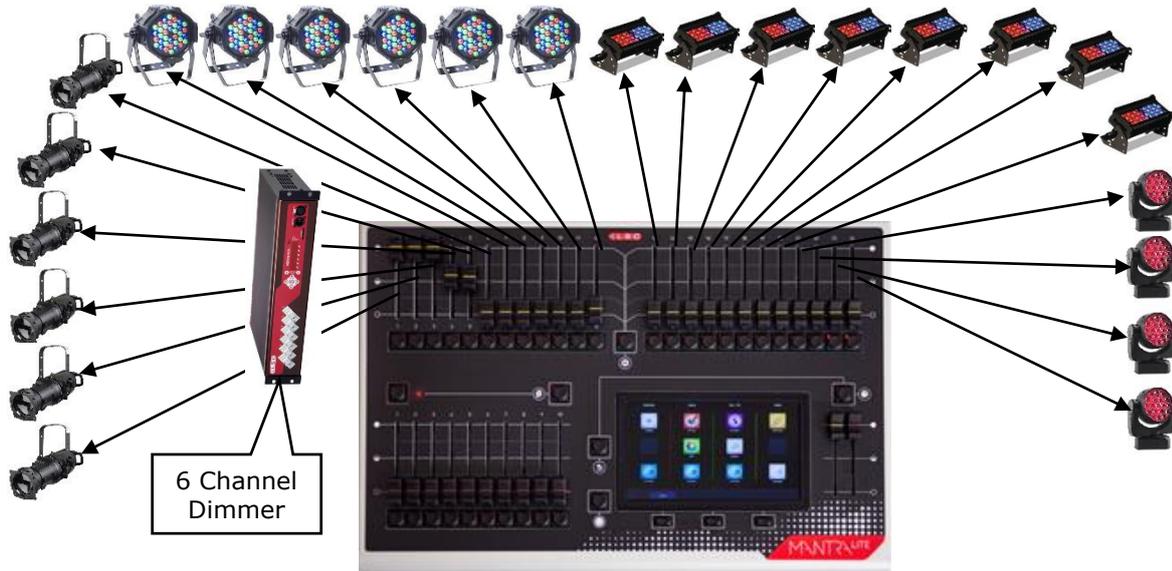
Future releases of the software will include:

- Timed fades.
- Cuelists that contain multiple cues or chases.
- A "shapes" app for pan/tilt fixtures.

2.4 SAMPLE SHOW

MantraLite comes pre-loaded with a “sample show”. It 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 x Mac Aura moving lights patched to yellow faders 21-24



Sample show fixtures

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

2.5 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 18 for details.

2.6 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.

2.7 ACCESSORIES

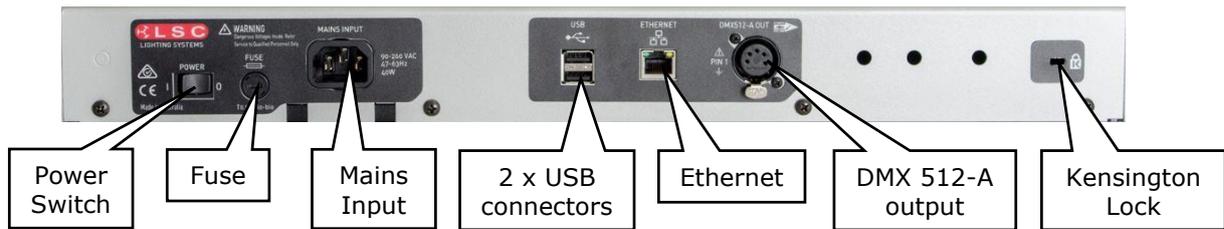
Model Order Code	Description
MANTRA/LTDC	Dust cover for MantraLite control console.

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 be used in any application that requires 12 DC operation.



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 23.11 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.

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 16.5.1 for more details.

It can also be used to connect the MantraLite to the internet to upload custom fixture templates. See section 17.4.

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

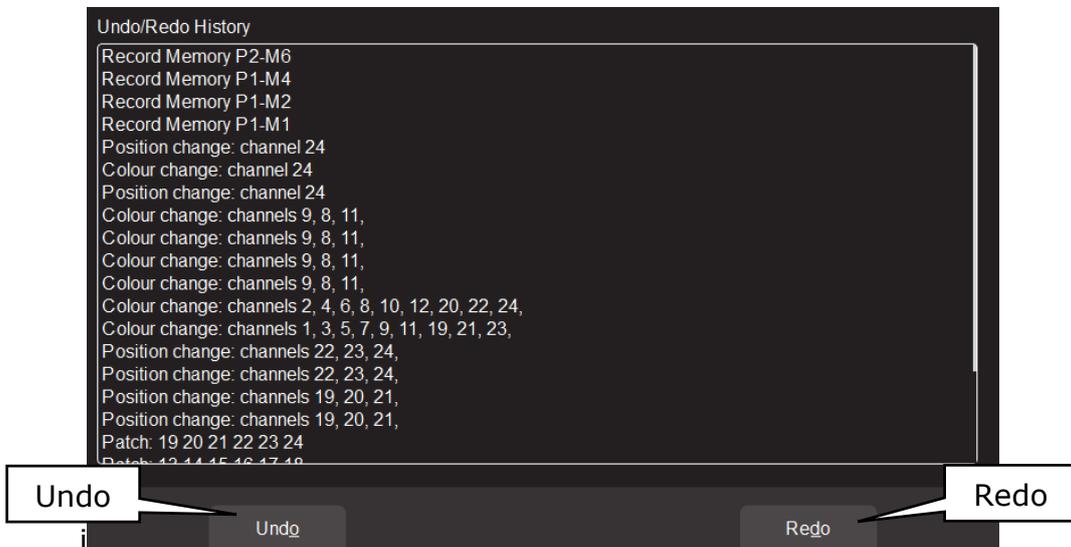
4.1 HELP

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

4.2 UNDO

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

To undo the last action (at the top of the list) tap **Undo**. Tap **Undo** again to step down the list. Actions that have been undone turn grey. Tap **Redo** to redo a command.



Press again when finished.

To quickly undo the last command without referring to the list double tap .

Note: The undo list is automatically cleared whenever you save your show, start a new show or load an existing show.

Note: The "Undo" function is not available when editing "Rig View" (section 8) or when using the "Fixture Editor" (section 17).

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).

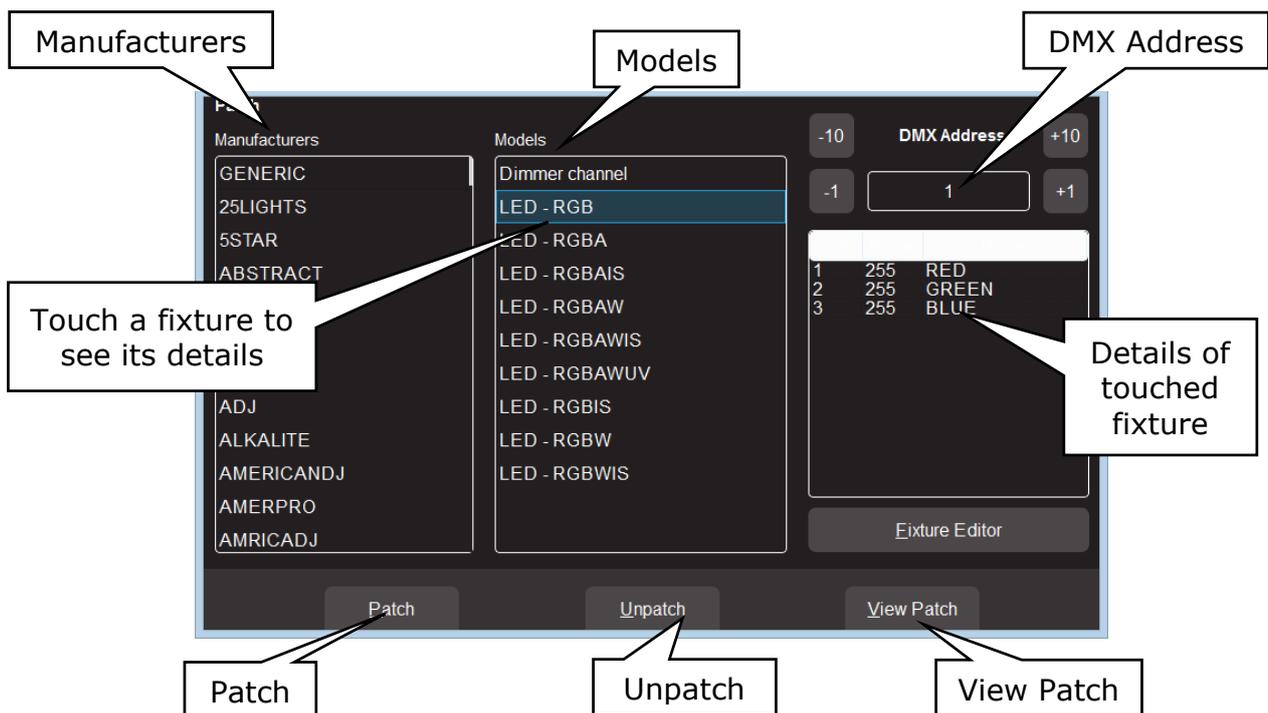
The DMX signal is output on the 5 pin XLR connector on the rear of the MantraLite. Fixtures can also be controlled via the network connector using either "ArtNet" or "sACN" protocols. See section 16.5 for details.

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 will provide the correct controls for that fixture. For example, if the fixture is a multi-coloured LED MantraLite will provide 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 will provide 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. When you select a model of fixture, the details of the DMX channels for that fixture are shown on the right.

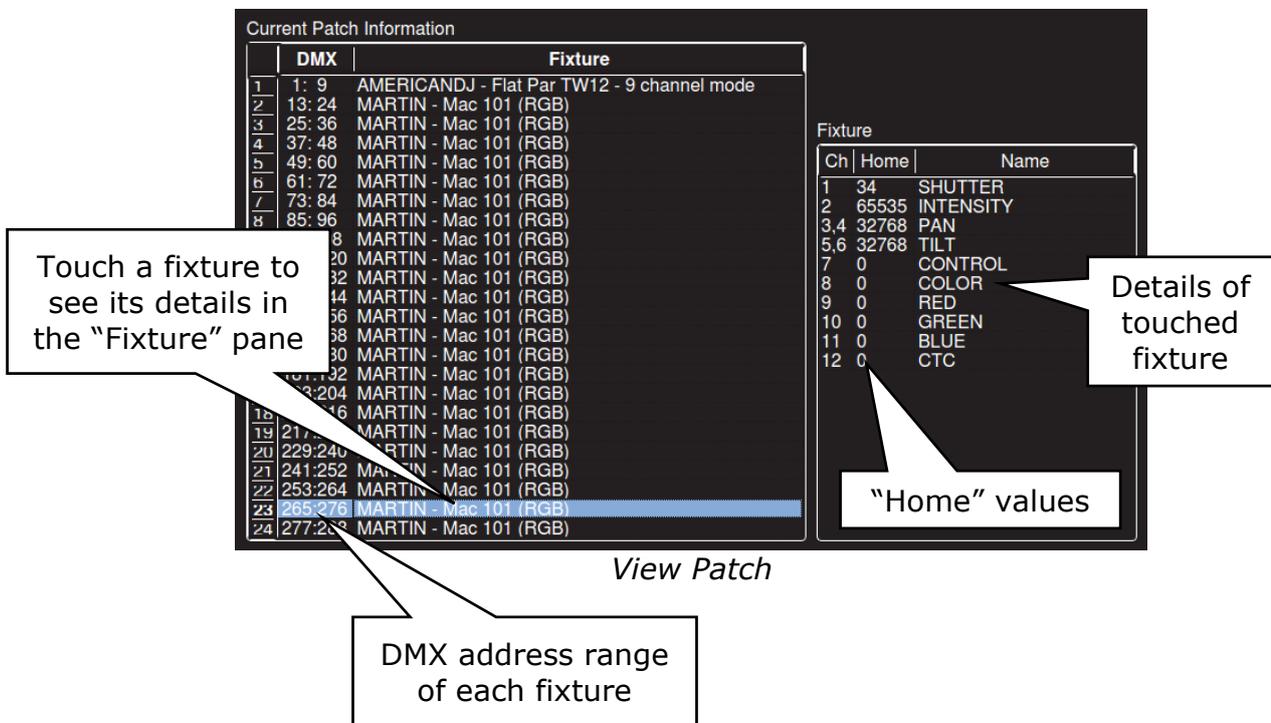
Next set the DMX address (to match the DMX address on the fixture) using the **+10**, **+1**, **-10** and **-1** buttons.

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**.



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

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 and automatically increment the starting DMX address for each fixture.

5.4 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**].

5.5 SAVE PATCH

When you save a show, the patch is saved as part of that show. See section 15.

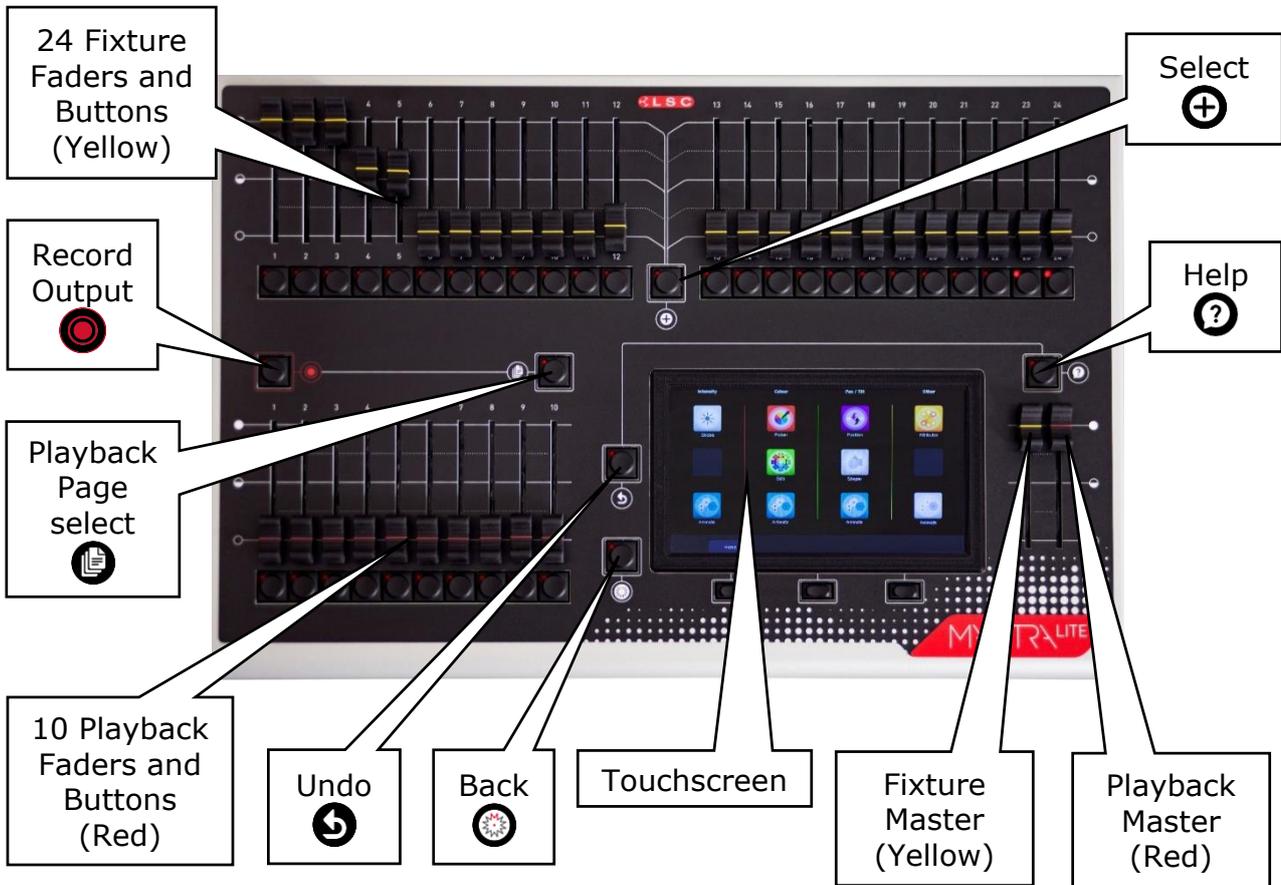
If the patch you have created is to be used on a regular basis such as in a permanent installation or in a touring show that always uses the same lighting rig then you should save it as the "default show". See section 16.8.

5.6 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 white and if it has a movement function it will centre 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.

6 Front Panel

6.1 OVERVIEW



6.2 BASIC OPERATION

MantraLite can control up to 24 lighting fixtures. The 24 Yellow fixture faders control fixture intensity. Moving a fixture fader automatically selects that fixture allowing its other parameters such as colour or position to be controlled by Apps on the touchscreen (see section 7). Moving a fader to zero deselects the fixture. The Yellow "Fixture Master" has overall intensity control of the yellow fixture faders. The **(+) [Select]** button provides more fixture selection options.

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 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 cues. 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



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 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).

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.

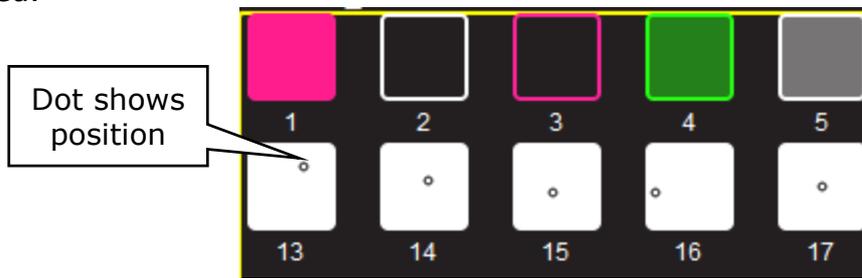
An underlined letter on a touch screen button label indicates that the button can also be operated by pressing that letter on a USB keyboard plugged into MantraLite.

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.



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

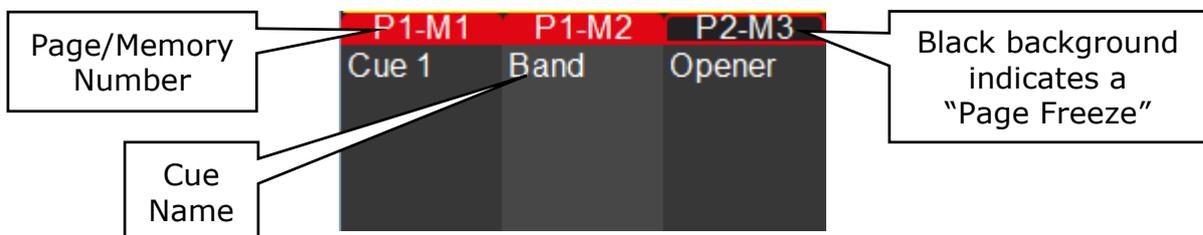
- The body of each icon shows the intensity, dark to bright.
- The body and border shows the colour mixing (if the fixture has this capability).
- A dot shows the position (if the fixture has a pan/tilt function).

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 parameters of selected fixtures. Move a yellow fader to automatically select that fixture. Use an App to adjust the parameter. Touching and holding any fixture icon for 2 seconds opens “Rig View”. See section 1.

7.3 PLAYBACK ICONS

The bottom section of the Home screen shows 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 11.2 for more information on “Memories” and section 12.1 for “Page Freeze”.

Touching any playback icon allows you to change the name of the cue or to delete the memory.

8 Rig View

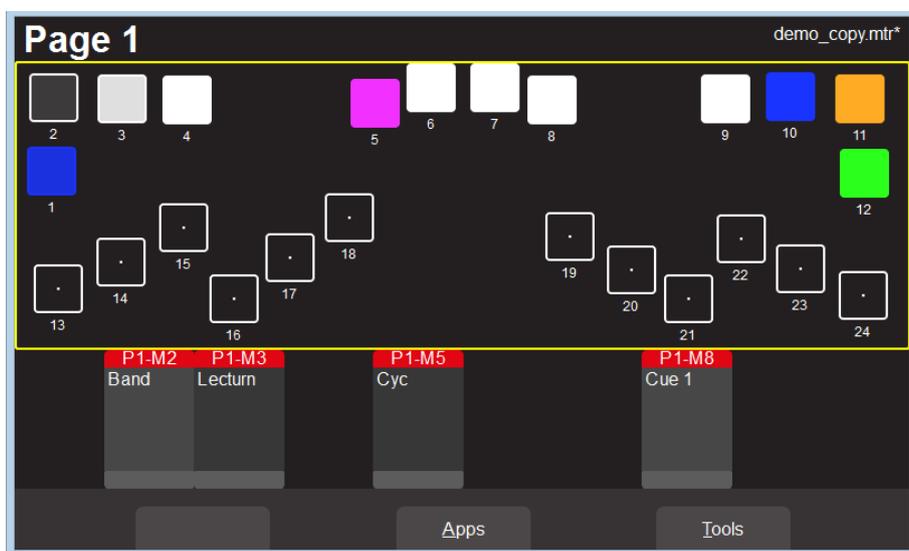
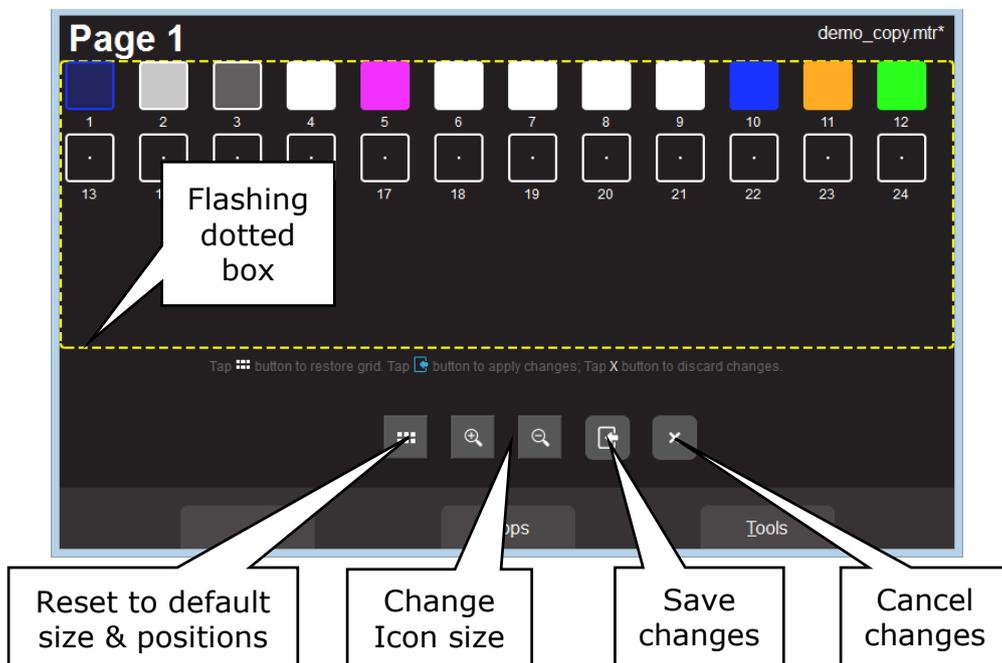
8.1 OVERVIEW

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 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:

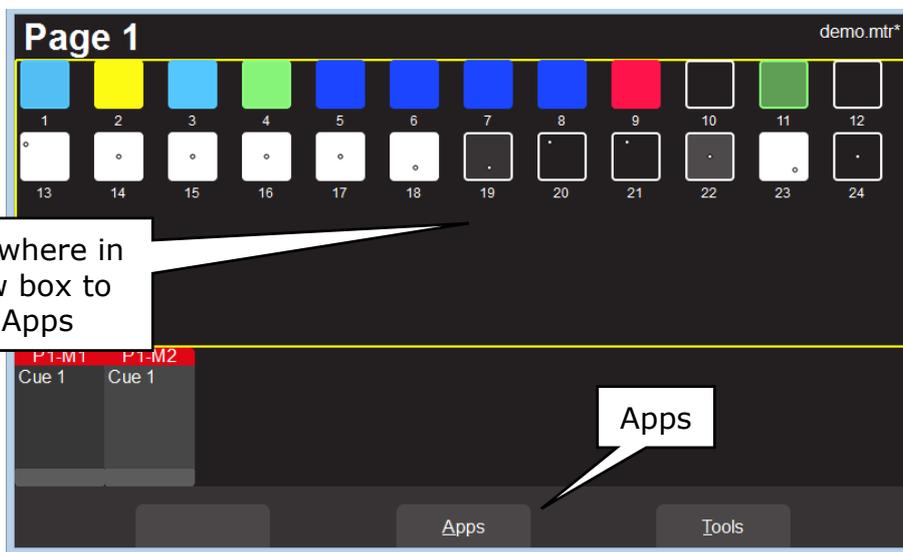
- Fade up the Yellow Master.
- Fade up a fixture fader to set its Intensity.

See also "Flash", section 13.

9.2 FIXTURE ATTRIBUTES

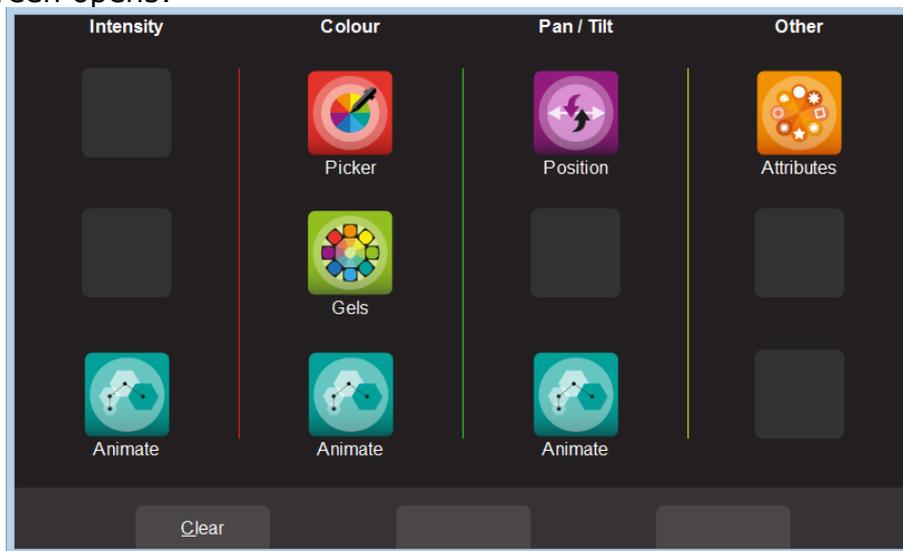
MantraLite uses "Apps" on the touch screen to control the attributes (colour, pan/tilt, shutter etcetera) of selected fixtures.

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 parameter columns. Each column has Apps for their type of parameter. All animate apps are described in section 10.

9.2.1 Intensity Column

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

9.2.2 Colour Column

The Colour "Picker" apps allow you to control the colour of selected fixtures and to "fan" colours across multiple fixtures.

The Colour "Gels" apps allow you to pick from pre-set colours for selected fixtures

The Colour "Animate" app allows you to create colour chasses and patterns.

9.2.3 Pan/Tilt Column

The Pan/Tilt "Position" app allows you to control the position of selected fixtures and to "fan" positions across multiple fixtures.

The Pan/Tilt "Animate" app allows you to create moving beam effects.

9.2.4 Other Column

The Other "Attributes" allow you to control attributes such as "Gobo", "Colour Wheel", "Shutter" etc.

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.

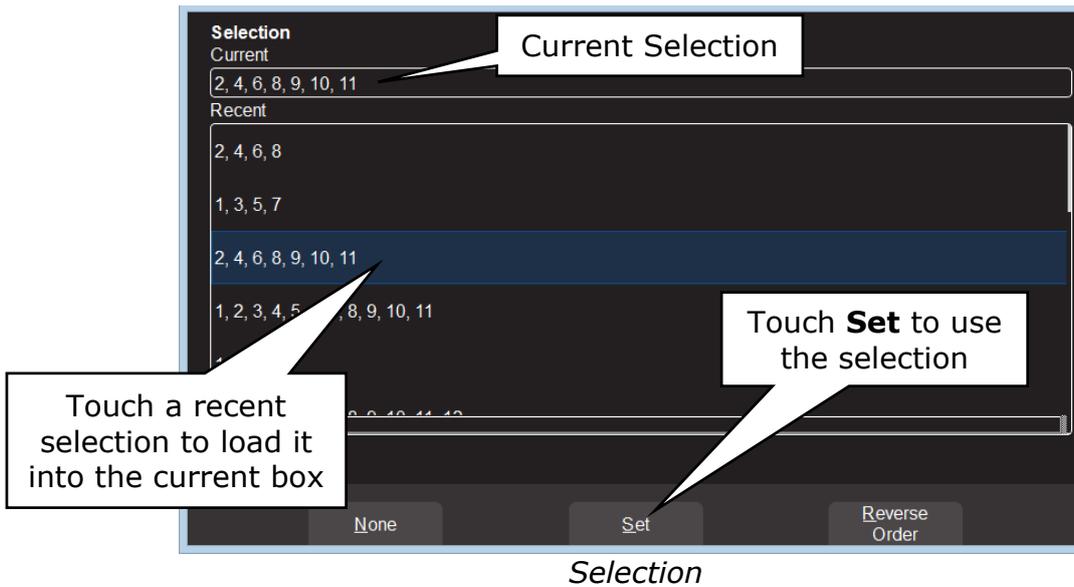
For example, if you select a "Pan/Tilt" App, only fixtures with Pan/Tilt attributes will flash.

When a fixture is selected its button is lit. Multiple fixtures can be selected at the same time.

Note: The order in which you select fixtures is used by MantraLite when you fan colours or positions and in animations. You can change the look of a fan or animation by changing the selection order.

There are several methods of selecting fixtures:

- Move a yellow fader to automatically select that fixture. Move the fader to zero to de-select it.
- Tap the button below a yellow fader to select that fixture. Tap again to deselect it.
- To select a range of fixtures hold 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.
- To use any previous selections press the  button (located between the yellow faders). The "Selection" screen opens:



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 parameter 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 parameters.

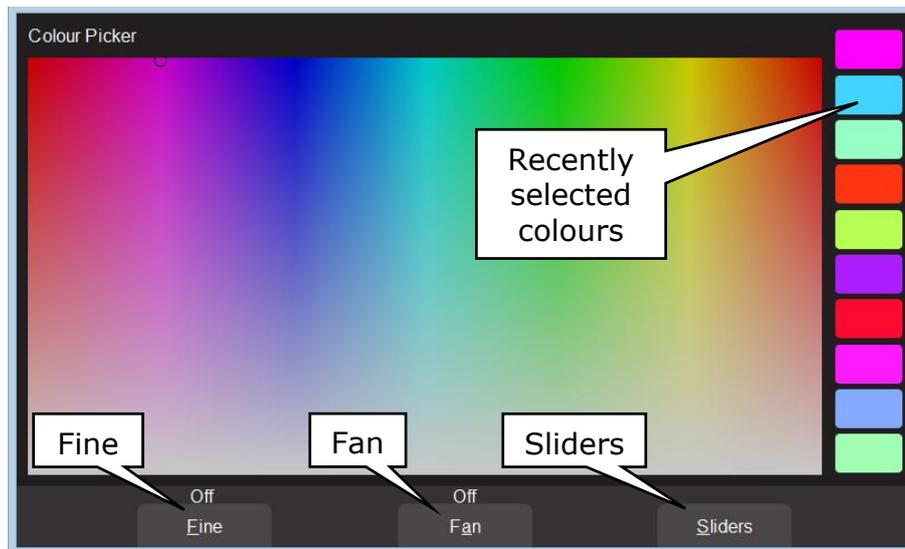
For example: Open the Colour Picker App and fade up fixtures 1 and 2. They are automatically selected. Pick a colour. Fade up fixture 3 and 4. This de-selects 1 and 2 and selects 3 and 4. Pick a colour for 3 and 4.

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

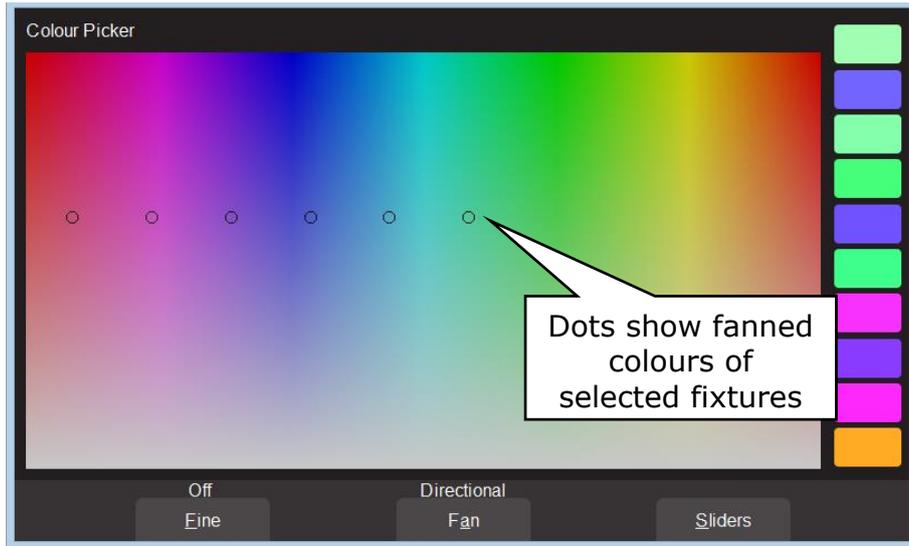
9.5.2 Fine

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 your fixture selection.
- Touching **Fan** again turns fanning off.

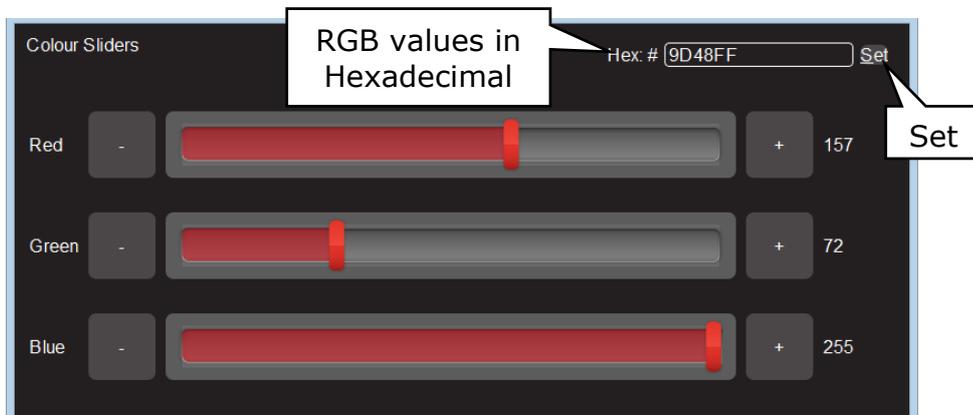


Directional Fanning

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 Red, Green and Blue allowing accurate setting of colours.



Colour Sliders

- + and – buttons are provided for small increments.
- Decimal values of the Red, Green, Blue sliders are shown on the right.
- Hexadecimal values of the Red, Green, Blue sliders are 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.

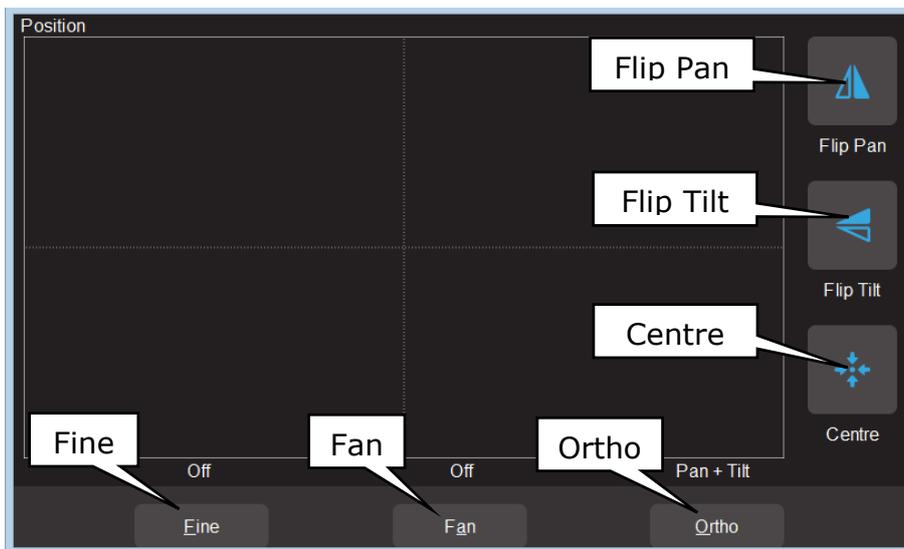


Colour Gels

Touch a colour to apply it to your selected fixtures.

9.6 CONTROLLING PAN/TILT

From the "Home" screen, open the "Apps" page (described above) then touch the "Pan/Tilt" app. Fixtures that have Pan/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 anywhere on the screen and the selected fixture(s) will follow your movements.



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 centre position.

9.6.1 Fine Control

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

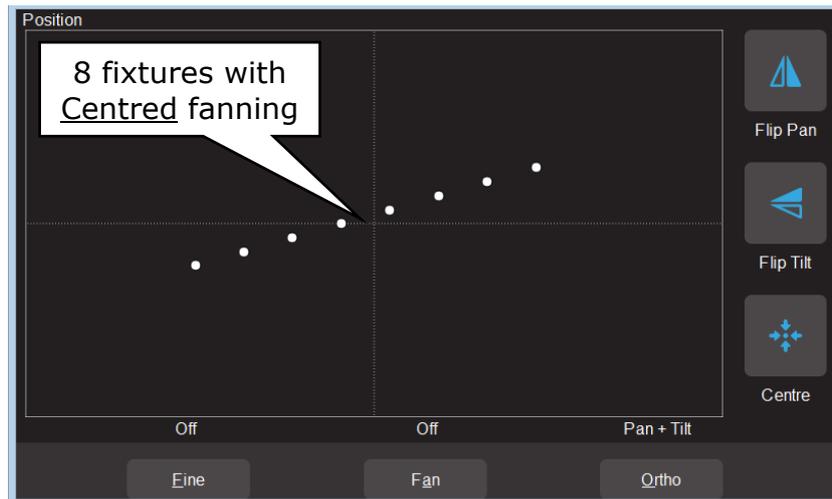
9.6.2 Ortho Control

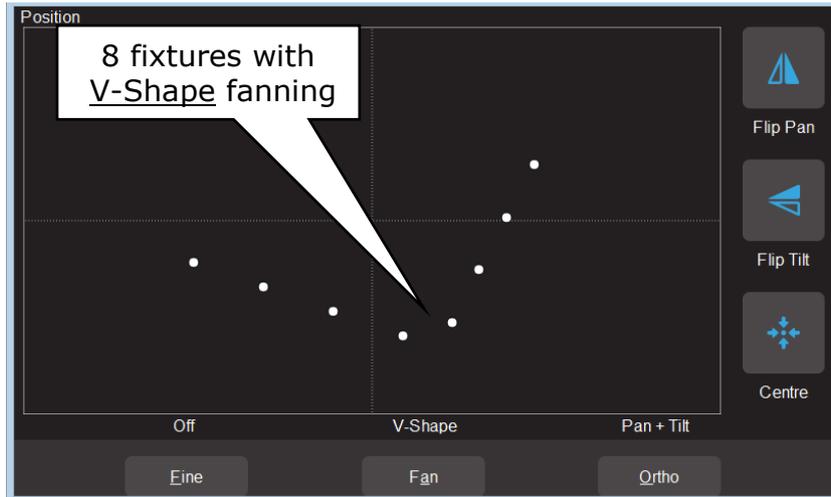
Touches of **Ortho** cycles through, "Pan Only", "Tilt Only" and "Pan + Tilt". These settings are useful when making fine adjustments.

9.6.3 Fan

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

- Touching **Fan** selects "Centred" fanning. Drag to fan the positions around the centre fixture.
- Touching **Fan** again selects "Directional" fanning. Drag to fan the positions around the first fixture in your selection.
- Touching **Fan** again selects "V-Shape" 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.

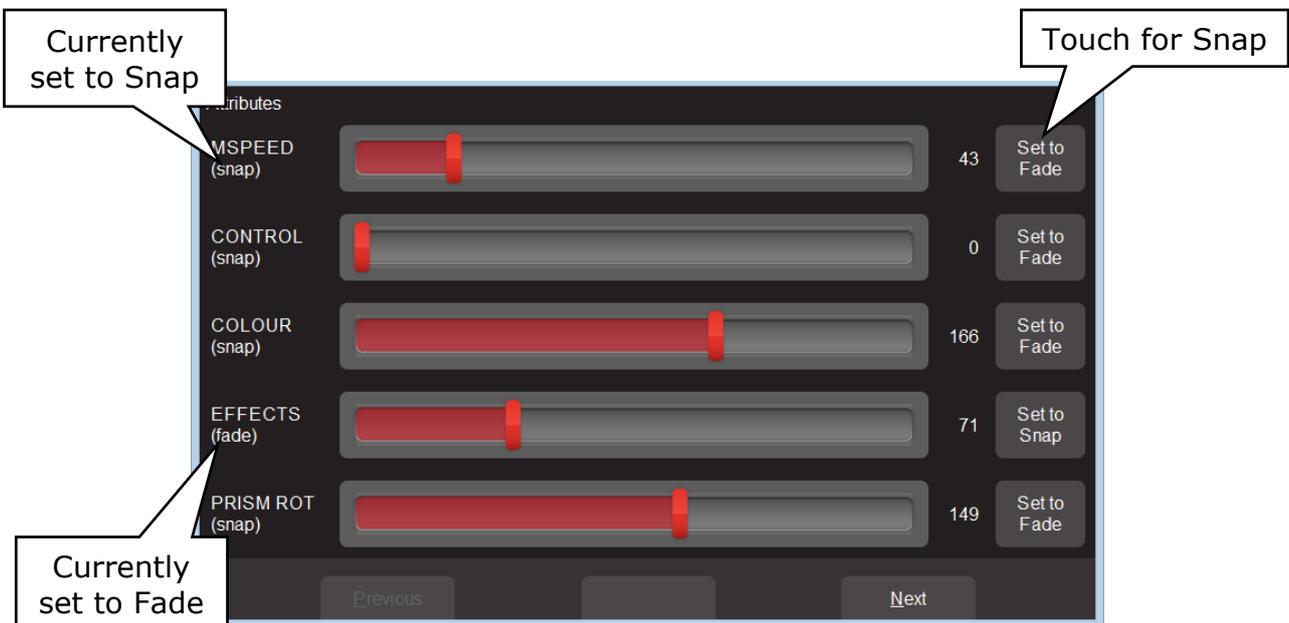




Your fixture selection order is used by the Fan App. Experiment with different orders of selection to get different shapes. Previous selections can be re-used by tapping the **[Select]** button.

9.7 CONTROLLING 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. Touch **Next** to see more attributes (if available).



Typical "Other Attribute App"

All "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.

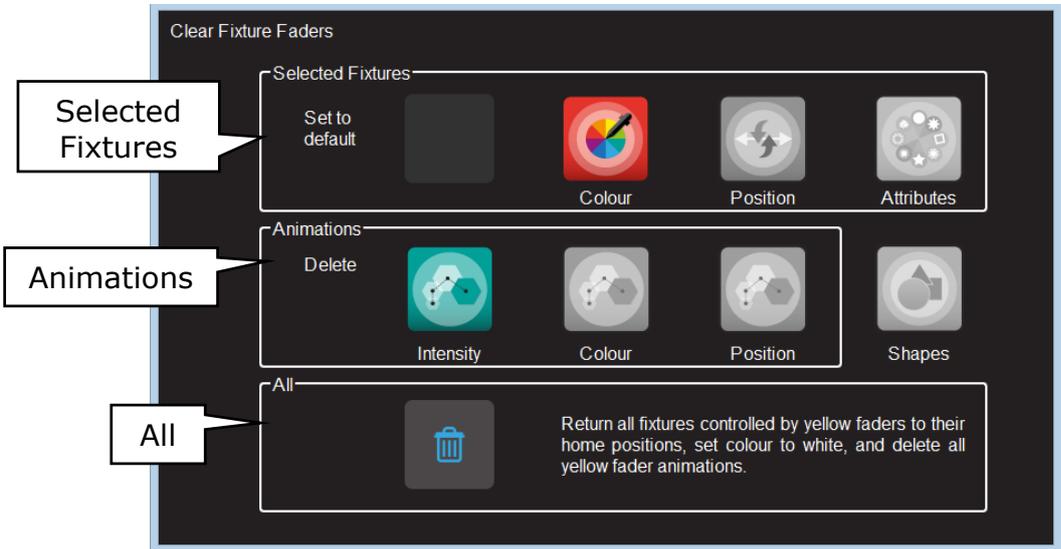
9.8 CLEARING FIXTURES

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) and 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 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 (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 Animate Apps

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 chases.

Animations work with 2 or more selected fixtures and they shift the parameters (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.

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 parameter 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 11.

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

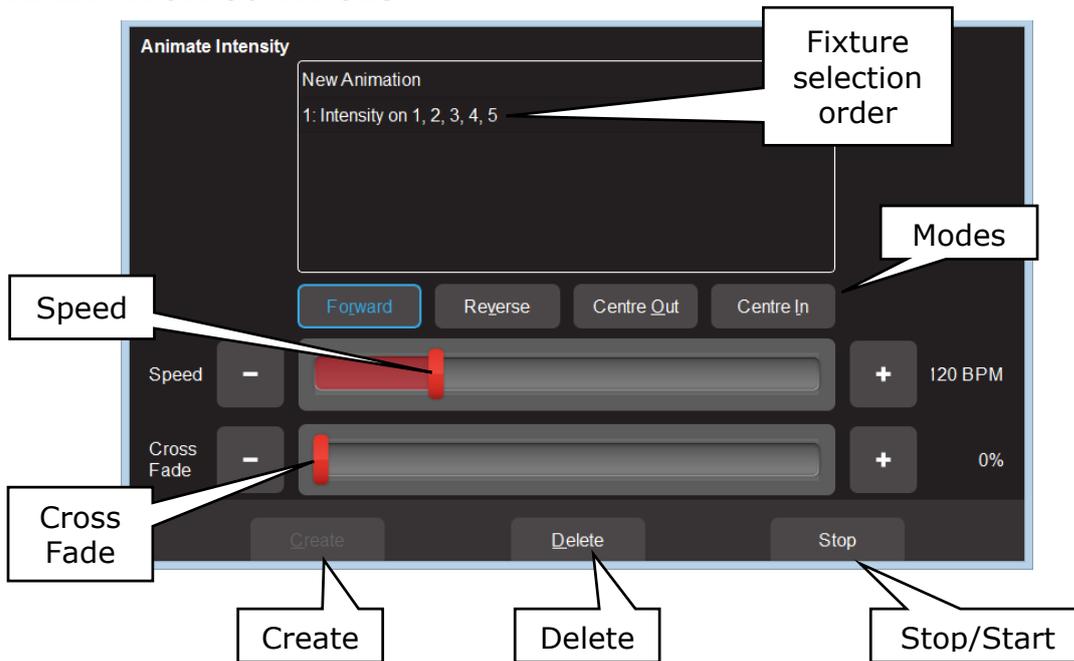
Multiple animations can be running simultaneously and all the animations that are running when a cue is recorded will be included in the cue.

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 parameters 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 parameter 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 4	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 12 by holding fixture [**7**] button and tapping fixture [**12**] 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:

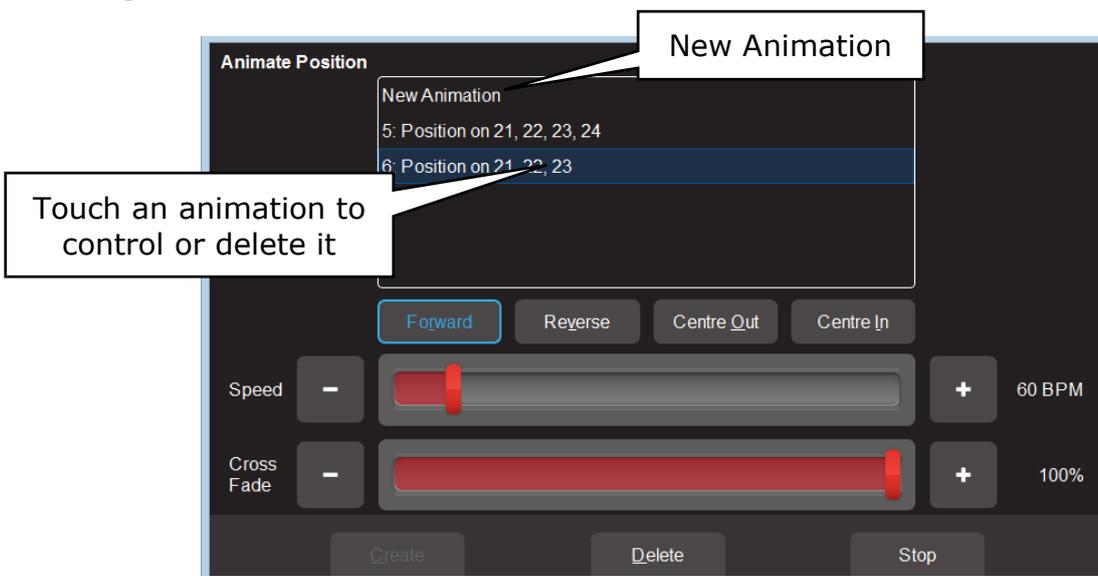
To create a fanned Pan/Tilt animation across fixtures 21 to 24:

- 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. 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. See section 11 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).

11 Recording Your Work

11.1 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 parameters such as colour, position etcetera plus any animations that are currently running.

11.2 MEMORIES / PAGES

There are 10 red playback faders and 10 pages of memory giving a total of 100 cues.

- 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

11.3 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.

If the memory location already contains a memory, then a message on the touch screen warns that you are about to overwrite it. On the touch screen tap either:

- **Cancel** to keep the existing memory (then choose another memory page/number).
- **Yes** to overwrite the memory.

All of the attributes of any fixture with an intensity level greater than 0% will be included in the cue. The look on stage can now be played back from the recorded cue. See section

12, Playback. This frees up the yellow faders ready for you to create another lighting look and to record it into another cue.

11.4 RECORD FIXTURES WITH NO INTENSITY

You can choose to include selected fixtures that have an intensity of 0% when you record 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.

11.4.1 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 11.4.

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

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.

11.4.2 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.

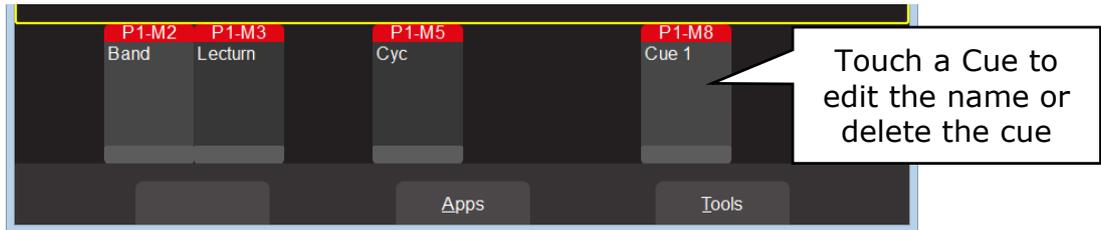
If you want the cue you faded up to be the only output you usually need to fade down all other faders. This can be difficult if you have multiple faders active.

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 11.4.

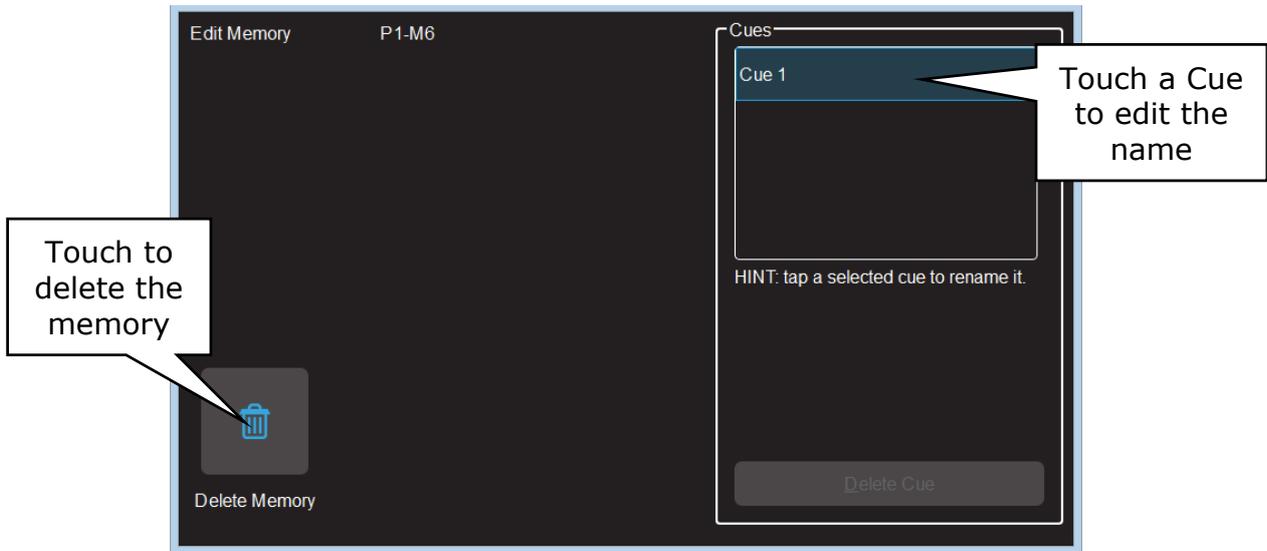
When a cue is faded up it will take control of all of the fixtures that are recorded in the cue. Therefore, any fixtures with intensities of zero will fade out.

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.

11.5 CUE NAME



To edit the name of a Cue, select the page containing the cue then touch the Playback icon containing the cue. The "Edit Memory" screen appears:



Edit Memory Screen

Touch the existing cue name and a keyboard appears allowing you to change the name of the cue. Touch **Enter** (on the pop up keyboard) then tap [**Back**] to finish.

11.6 DELETE MEMORY

To delete a memory, select the page containing the cue then touch the Playback icon containing the memory.

The "Edit Memory" screen appears (above). Touch **Delete Memory**.

12 Playback

12.1 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 cues.

12.2 PLAYBACK A CUE

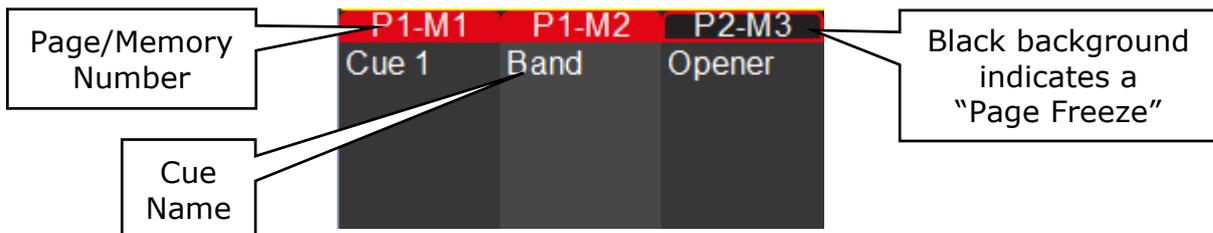
To playback a recorded cue, fade up the Red Playback Master to full and fade up the Red Playback fader where you recorded the cue (remember to select the correct page). You might want to fade down the Yellow master (or all of the yellow fixture faders) after you bring up the Red playback, so that you 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 parameters 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.

12.1 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.



12.2 LATEST TAKES PRECEDENCE

The value for each parameter 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 parameter 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 parameters and they will fade to their levels in that fader following the fader movement. When that fader reaches 100%, it fully overrides all other faders containing parameter values for the same fixtures. Whilst this fader remains at full no other faders have any influence over its fixture parameters.

If another fader is raised above zero it becomes the latest action and it will take control of the parameters. As this fader is moved, the parameters will fade to the values in this fader. When the fader reaches full it fully overrides all other 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 in 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 parameters of a fixture: intensity, colour, position, etc.

For example:

We have 3 cues recorded on the red playback faders with a single LED fixture in each cue. In the first cue the fixture is red, in the second it is blue and in the third it is yellow.

- Fade up cue 1 to full and the fixture fades to red.
- Fade up cue 2 to full and the fixture fades to blue.
- Fade down cue 1 and nothing happens because cue 2 is the latest (LTP) and it is at full.
- Fade up cue 3 and the fixture fades to yellow because cue 3 is the latest.
- Fade down cue 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, when a yellow fixture fader is raised above zero it has no effect on its fixtures intensity until its level matches the current level of that fixture on the output. It then takes total control of the intensity. See section 14 "Edit a Cue".

13 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.

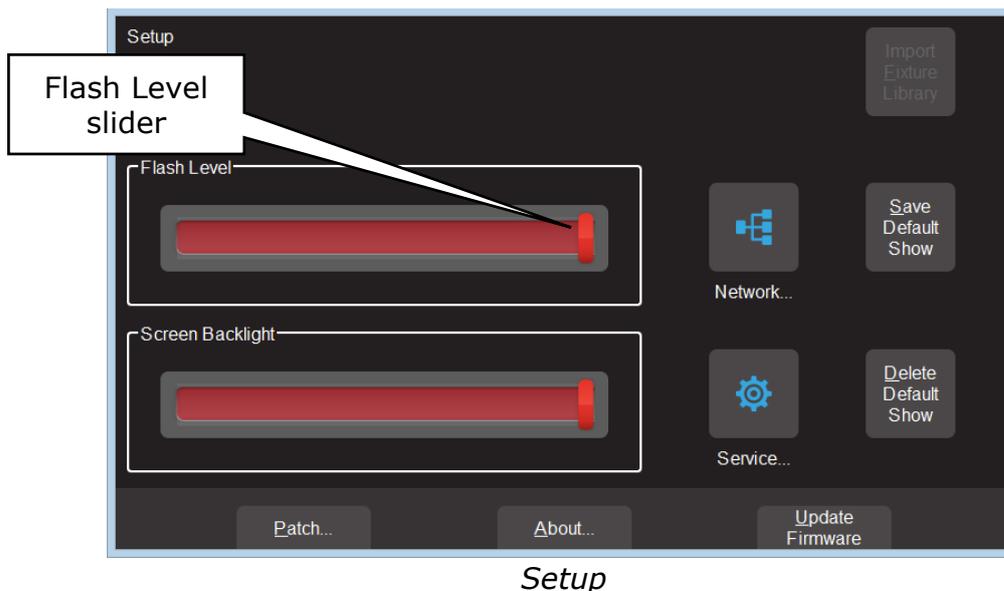
The buttons below the "Yellow" fixture faders act as intensity [**Flash**] buttons ONLY when the "Home" screen is displayed,

The buttons below the "Red" playback faders act as playback [**Flash**] buttons when a cue is recorded in them.

13.1 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.



14 Edit a Cue

14.1 EDIT INTENSITY

To edit the intensity of a fixture recorded in a cue, fade up the cue and fade down all other playbacks and all fixture faders so that only the cue to be edited is on the output.

To change the intensity of a fixture, fade its 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.

Re-record the cue by pressing  [**Record**] then press the button below the Red Playback fader [**1 to 10**] which contains the cue you are editing. To update the cue tap **Yes**.

14.2 EDIT COLOUR, POSITION OR BEAM

To edit the attributes of a fixture recorded in a cue, fade up the cue and fade down all other playbacks and all fixture faders so that only the cue to be edited is on the output. To change the attributes of a fixture select the appropriate App (Colour, Pan/Tilt etcetera).

For example, to change the colour, open the colour picker app.

Select the fixture(s) to be edited then use the App to make the change.

Re-record the cue by pressing  [**Record**] then press the button below the Red Playback fader [**1 to 10**] which contains the cue you are editing. To update the cue tap **Yes**.

14.3 EDIT ANIMATIONS

Recorded animations cannot currently be edited (future feature).

14.4 DELETE MEMORY

To delete a memory, select the page containing the memory then touch the Playback icon containing the memory. Touch **Delete Memory** (trash can icon).

15 Show Files

15.1 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.
- If a "Default" show does not exist, selecting a "New" show will clear all memories and clear the patch.

See also section 16.8, "Default Show".

15.2 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.

15.3 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.

15.4 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.

15.5 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.

15.6 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**.

16 Setup

16.1 OVERVIEW

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

16.2 FLASH LEVEL

See section 13.

16.3 TOUCH SCREEN BACKLIGHT

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

16.4 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.

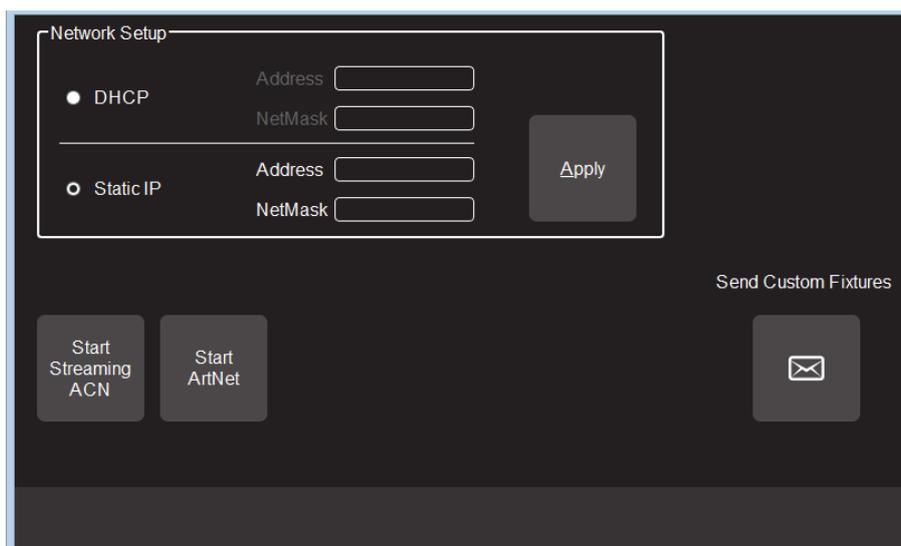
16.5 NETWORK

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).

MantraLite can also be connected to the internet to enable it to send any custom fixtures that you might create to LSC so that they can be shared with other MantraLite users.

16.5.1 Network Setup

MantraLite needs a network address to be able to output ArtNet or sACN. You can have one automatically assigned by the network or you can manually enter an address.



Network Setup

- To have a network address automatically assigned select **Setup, Network**, then touch **DHCP**. Use this setting when connecting to the internet. See 16.5.4

- 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. See below.

16.5.2 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, touch:
Setup/Network/Start ArtNet.

16.5.3 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 touch:
Setup/Network/Start Streaming ACN.

16.5.4 Send Custom Fixture

If you have used the MantraLite Fixture Editor to create a custom fixture (see section 17) you can share it with other MantraLite users.

To share your new template, connect your MantraLite to the internet (see section 16.5.1) then from the home screen touch:

Tools/Setup/Network/Send Custom Fixture.

The template will be checked by LSC and then added to the next update of the MantraLite fixture library.

16.6 SERVICE

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

16.7 IMPORT FIXTURE LIBRARY

MantraLite has an inbuilt library of fixture templates that you use when patching fixtures. 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 top level folder named "LSC" on a 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.**

16.8 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". If a "Default show" has been saved it will be automatically loaded whenever you select a "New" show. The "Default" show includes the patch and any cues that you choose to include.

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.

16.9 DEFAULT SHOW EMERGENCY PIN

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

16.10 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.

16.11 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.

16.12 UPDATE FIRMWARE

To install a software update, perform the following steps:

1. Download the latest MantraLite software from Isclighting.com.
2. Create a top level 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.

17 Fixture Editor

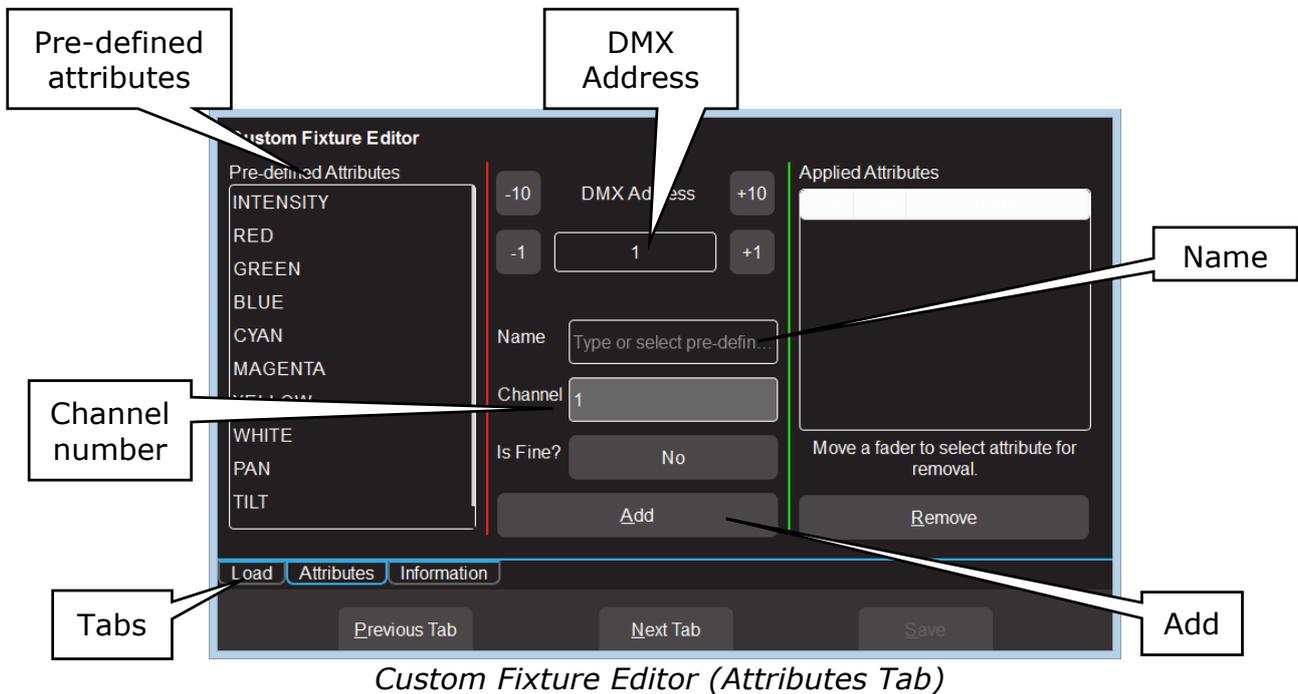
17.1 OVERVIEW

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 red faders to directly control the DMX channels of the fixture and hence discover the function of each channel. 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.

17.2 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, red fader 1 controls the level of DMX channel 1, fader 2 controls DMX channel 2, 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, faders 1 controls its first channel, fader 2 controls its second channel, fader 3 controls its third channel etcetera. You can now use the 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**:



There are 3 pages that are selected by the "Tabs":

- Load.
- Attributes
- Information

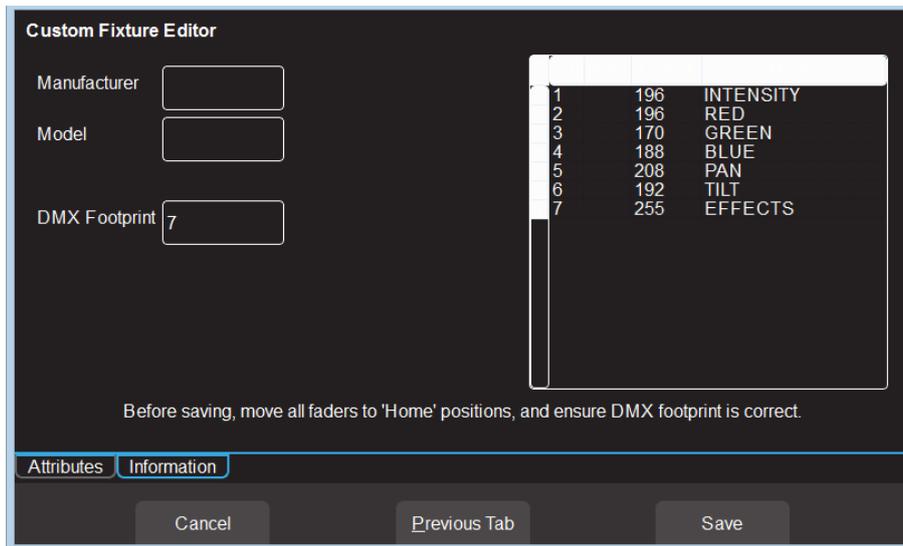
The editor opens on the "Attributes" Tab. Connect the new fixture to the MantraLite DMX output. Ensure that the Fixture editor and the new fixture are set to the same DMX address.

Fade up channel 1 fader. When you move a fader its number is automatically entered in the Channel 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.

Set all of the faders to the values required for the fixtures "Home" position. These settings will be saved in the template and used by MantraLite when the fixture is

"cleared" or when any attribute is set to its "Home" position. The attribute settings will typically be:

- Intensity = zero.
- Colour = white.
- Position = centre.
- Beam = open and clear.

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

17.3 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 17.2 and then save the edited template.

17.4 SHARING YOUR CUSTOM FIXTURES

LSC encourages you to share your new fixture template with other users by sending the template to LSC. The template will be checked and then added to the next update of the MantraLite fixture library.

To share your new template:

From the Home screen select **Tools/Network/Setup**.

In the "Network Setup" pane touch **DHCP**.

Connect a network cable from the MantraLite Ethernet connector to your network router.

From the home screen touch **Tools/Setup/Network/Send Custom Fixture**.

18 Visualiser

MantraLite comes pre-loaded with a "sample show". 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.lscighting.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 3 "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.

If you don't want to use the sample show, from the home screen touch **Tools/New**. This will open a new blank show without a patch. To patch your fixtures see section 5.

19 Troubleshooting

19.1 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 parameters 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 all of the faders are down.

A. Clear the fixtures. From the Home screen touch **Apps/Clear**. Select the fixtures to be cleared by tapping their buttons then touch **Position**.

You can also clear all animations and all parameters 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 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" pane, touch **Intensity**.

You can also clear all animations and all parameters of all fixtures. From the Home screen touch **Apps/Clear/All** (trash can icon).

Q. My animation is running strangely.

A. Animations respect your fixture selection order. Make sure you have selected your fixtures in the desired order. You can see the selection order 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.

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.

19.2 RESET

If MantraLite is not operating correctly you can reset the operating system.

Press and hold  ,  and  , all at the same time.

19.3 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 the top (root) directory of 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.

20 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.

21 Compliance Statements

21.1 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.

22 Specifications

	MANTRA Lite
Number of Fixtures	24
Control LEDs, moving lights or generic fixtures	✓
Number of Playback Faders	10
Masters	2 - Playback and Fixture
Number of Cues/Animations	100
DMX outputs on XLR connector	1 x DMX512-A (E1-11)
DMX output on sACN or Art-Net	✓
RDM enabled	✓
Colour Touchscreen with simple and intuitive navigation	✓
Touchscreen	18cm capacitive with 5-point multi-touch
Internal storage	4GB SD Card (standard) expandable to 64GB
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 (UL model only)	Nominal 12 Volts DC - Plug-Pak supplied
Power Input Connection (UL model only)	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
	19.3 x 13 x 3.2 inches
Shipping Dimensions - W x D x H	530 x 380 x 130 mm
	20.9 x 14.75 x 5.0 inches
Product Weight:	4.9 kg / 10.8 lb
Product Weight (Packed):	6.1 kg / 13.4 lb
Internal PSU / External PSU	6.3 kg / 13.65 lb
Shipping Weight (Australia)	7 kg
Shipping Weight (Export)	7 kg / 15.4 lb

23 Terminology

23.1 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.

23.2 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. The fixture fader controls its intensity and the touchscreen controls its parameters.

23.3 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.

23.4 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.

23.5 FIXTURE LIBRARY.

The MantraLite stores its 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.

23.6 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".

23.7 LTP. (LATEST TAKES PRECEDENCE)

See section 12.2

23.8 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.

23.9 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.

23.10 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.

23.11 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 (120Ω) to prevent the signal reflecting back up the line and causing possible errors.

23.12 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.

23.13 ARTNET

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

23.14 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.