



Azure 2000

Operator's Manual

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*Before contacting Avolites for service enquiry please ensure that you have the product serial number and the Software version. The serial number can be found on the back of the desk and the software version is shown on the bottom line of the VGA display.

The latest version of this manual (in Microsoft Word 97 or PDF) and Azure Software can be downloaded by modem from the Internet.

The small print :

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I N T R O D U C T I O N

1. Welcome to the Azure 2000

This manual is designed to help you get the most out of your Azure 2000 console. We have divided it into two sections.

- This first section is a tutorial which gives you a step by step guide of how to carry out the most common functions of the Azure 2000. This section is printed on coloured paper.
- The second section is a reference manual which tells you everything there is to know about the Azure 2000.

To help you move between the two sections, we have made the chapter numbering the same, so if you are using the tutorial and you want more information, just look for the same chapter number in the reference manual.

At the back of the reference manual there is a Glossary, explaining some of the technical terms used in the manual, and an Index which can be used to find what you need in either section of the manual. There's also a "button index" which you can use if you want to know what a particular button does.

1.1 Setting up the Azure 2000

Before you can use the Azure, you need to make a few connections to it. Ensure the power is off while making these connections.

Connect the mains inlet to an AC power supply. This can be any voltage between 90-250V and any frequency between 50-60Hz, which should be OK for most civilisations in the world.

Note: If your mains is in any way suspect, a power conditioner is a good idea. A noisy or unreliable mains supply could possibly crash the console.

Power up the VGA display from another mains socket. Connect the VGA data lead to the VGA output on the back of the console. The Azure will work without a display but, needless to say, you won't be able to see what it is doing.

Connect the DMX output(s) to your lighting fixtures or dimmers. The Azure has four DMX lines, two on each socket. If you need to use all four lines, chapter 1 in the reference manual tells you how to wire up the connectors. If you are using one or two lines, just use a standard DMX cable.

Plug in the desk light if you have one.

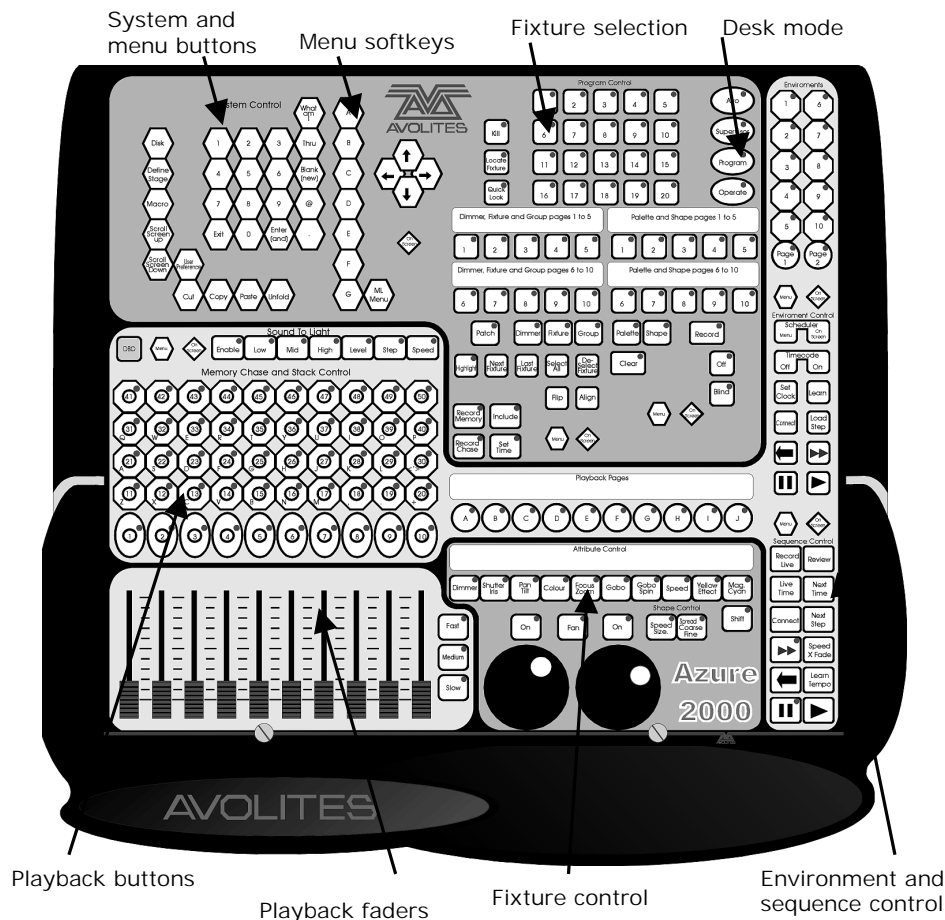
Plug the graphics tablet, if you are using one, into the serial port on the console.

Turn on the power. The VGA screen should display the default menu.

If this is the first time you have used the Azure, you might need to set the real time clock. Chapter 9 of the reference manual tells you how to do this.

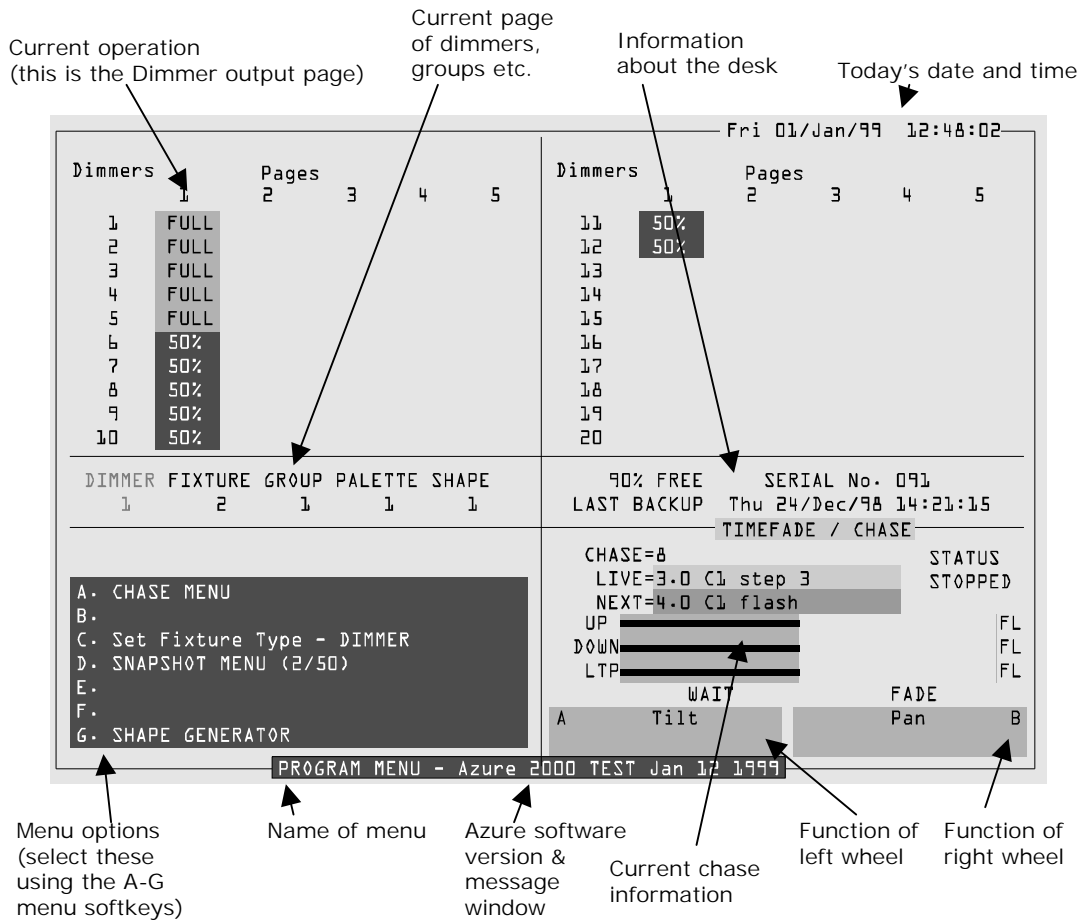
1.2 Finding your way about on the Azure 2000

The controls on the Azure are grouped together so that all the controls you need to carry out each function are near to each other.



- The **System and menu** buttons are used when you are setting up the console, and to enter numeric values.
- The **menu softkeys** are used to select one of the options from the menus shown on the VGA display.
- The **fixture selection** buttons allow you to select which fixtures or dimmer channels you want to control, and also lets you set up the fixtures and select preset positions, colours, gobos and shapes.
- The **desk mode** buttons set the operational mode of the console.
- The **playback buttons** control memories and are ideal for strobe or shutter chases; 40 buttons are available on each page.
- The **playback faders** allow intensity control of a further 10 memories. To the right of the playback buttons are 10 **playback page** buttons, giving a total of 500 playbacks.
- The **fixture control** buttons and wheels allow you to control the fixtures you have selected.
- The **environment and sequence control** area is used for control of chases, timed shows, and environments.

The **VGA display** shows everything which is going on. There are various different screens you can display, by pressing the **On Screen** button in the area you want to look at. Each control area on the Azure has its own On Screen button. The picture below shows you a typical VGA display.



The bottom half of the display usually remains the same whatever the display mode. The softkey options are shown on the bottom left. The chase information is shown on the right. The current function of the two wheels is shown on the bottom right.

If the Azure has anything to tell you, it will display the message on the bottom line of the screen (where the software version number is on the above screen).

When you are selecting items from a list (such as shapes or colour values), the list appears in the bottom right hand corner of the screen.

The top part of the display varies depending on the display mode, which you can choose by pressing the various On Screen buttons on the Azure. The possible modes are System, Channel Output, Shape Output, Environment, Chase Times, and Memories.

1.3 The What Am I button

The Azure has an on-line help system, which can be very useful if you want to know what a specific button does. To use it, just press the What Am I button (just to the left of the Avolites logo at the top of the console), followed by the button you want to know about. The VGA display will show you the help topic on that button. To go back to normal, press Exit or What Am I again.

1.4 What next?

The rest of this part of the manual is a tutorial. If you have never used an Avolites console before, by working through the rest of the tutorial section you should be able to get the Azure up and running, and be well on the way to programming and running a show with it.

The tutorial is organised in the order you'll need to do things to get the console set up and working, so try to work through it in sequence.

If you are a seasoned Avolites user, you'll find the Azure works much like its bigger brothers. You might find the tutorials useful, and if there is anything specific you need to know, just look in the appropriate part of the Reference Manual. The Reference section is in the same order as the Tutorial section, to make it easier to move between the two.

If you are new to intelligent lighting, or even new to lighting altogether, you might like to read chapter **10**, "Introduction to intelligent lighting". This explains the concepts behind digital control of lighting and will help you to understand what we are going on about in the rest of the manual. There is also a Glossary at the end of the Reference Manual which explains some of the obscure lighting words we have used in the manual.

CHAPTER TWO

2. Patching

In this chapter: how to set up the Azure to control dimmers and fixtures.

- clearing the Azure
- patching dimmers
- patching moving light fixtures
- setting addresses on the fixtures
- backing up the Azure to disk

So, you have your fixtures and dimmers all connected up with DMX cables and the Azure connected to the end of it. Now you need to allocate each fixture and dimmer channel to a fixture select button on the Azure, so that you can tell it which of the fixtures or dimmers you want to control at any time. The fixture select button is sometimes called a **handle**, because you use it to take control of the fixture.

You also need to tell the Azure what type of fixtures you are using. When you have entered this information, the Azure can tell you what addresses to set on your fixtures and dimmers to match the settings it is using.

This setup process is called **Patching**.

You can patch up to 200 fixtures and 200 dimmer channels on the Azure. There are 10 "pages" of 20 fixtures or dimmers.

The Azure controls dimmers and fixtures slightly differently, so we will look at each in turn. But first...

2.1 Clearing the Azure

Unless the Azure is brand new, it's a good idea to clear the memory before you start a new setup. This ensures that you won't get confused by any peculiar settings left by the previous user.

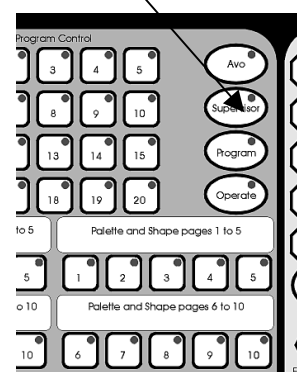
2.1.1 Clearing the Azure

- ➔ Press the Supervisor button
- ➔ Enter the PIN code if necessary
- ➔ Select option F "Wipeall".
- ➔ Press F again to confirm.

The Azure is now pristine and new, and ready for you to start patching.

When you turn the Azure on, it always starts in Operate mode. All you can do in this mode is play back memories. To change anything, you need to be in Program mode. *The rest of this manual assumes you are in Program mode.*

Desk mode buttons



2.1.2 Setting program mode

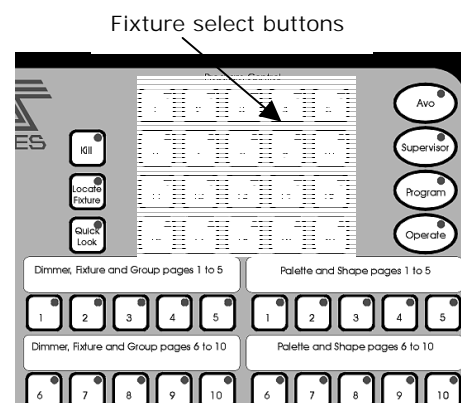
- ➔ Press the Program button
- ➔ Enter the PIN code if necessary

2.2 Patching dimmers

Each dimmer channel you want to use is allocated to one of the fixture select buttons. Then, when you want to control the dimmer channel, you simply use the button to select it.

The simplest way to patch is to have some pages just for dimmer channels and other pages just for fixtures, so that's the way we will start off.

Note: If your total number of dimmer channels and fixtures is more than 200, you can mix them on the same page as well. This is called "overlay patching" and is described in the reference manual.



2.2.1 Patching dimmer channels

- ➔ Press Patch
- ➔ Press Dimmer
- ➔ Select Dimmer/Fixture page 1
- ➔ The Azure will start at DMX address 001 (shown on the bottom line of the display). You can change this using the numeric keypad.
- ➔ Press one of the fixture select buttons. The button you press will then be used to control the dimmer at the DMX address shown.
- ➔ The Azure will update the DMX address to the next channel, so you can press another button to patch the next dimmer.

If you have lots of dimmers to patch, there are some quicker ways. If you just want to patch dimmers 1-20 on to buttons 1-20, you can do it this way.

2.2.2 Patching a range of dimmers to buttons

- ➔ Enter Dimmer Patch mode and select the page you want to use
- ➔ Enter the DMX channel you want the range to start at, if it's different to the one the Azure is displaying
- ➔ Hold down the first button to be patched
- ➔ Press the last button
- ➔ Each button will be allocated sequentially to a dimmer channel

You can also patch more than one dimmer channel on the same button. This can be useful when you have several lights on different dimmer channels, but you always want to control them together. For example, if you have lit an area with several spots and you just want to use one button to control all the lights on that area, this is a good way to do that.

2.2.3 Patching several dimmers to the same button

- ➔ Enter Dimmer Patch mode and select the page you want to use
- ➔ Using the numeric keypad, enter the DMX address of the first dimmer channel to be patched
- ➔ Press the button you want to use to patch the first dimmer
- ➔ Using the numeric keypad, enter the DMX address of the next dimmer channel to be patched
- ➔ Press the button again

You can repeat this procedure to patch as many dimmers as you like on to one control button.

The display shows you which channels you have patched so far.

2.3 Patching moving light fixtures

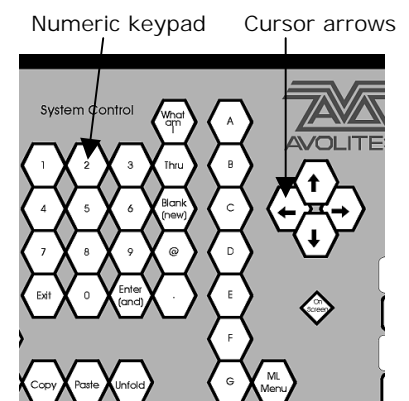
Moving light fixtures are slightly different to dimmers because they have more attributes to control, such as pan, tilt, colour etc., where a dimmer channel just has intensity. When you patch a fixture, you will see on the display that it occupies a block of DMX channels rather than just one. However, the principle is still the same.

The Azure has personality files for most lighting fixtures in the known universe. If your console has 1999 software, they should be pre-loaded into the console. If not, you can use the personality disk which came with the console.

Note: To use the internal personality files, make sure there is no disk in the disk drive.

2.3.1 Patching a fixture

- ➔ Make sure there is no disk in the disk drive
- ➔ Press Patch
- ➔ Press Fixture
- ➔ The display will show "Please wait ... reading files" on the bottom line.
- ➔ A list of known manufacturers will appear after a pause. If not, insert the personality disk and start again.
- ➔ Use the cursor arrows to select the manufacturer of your fixture.
- ➔ Press Enter. The display will show all available fixtures for that manufacturer.
- ➔ Use the cursor arrows to select the correct fixture.
- ➔ Press Enter.
- ➔ The Azure will ask "Automatically create palettes?".
- ➔ Press Softkey A for Yes. (This is explained later)



- ➔ *The Azure will offer you the first free DMX address. You can change this using the numeric keypad if you want your first fixture at a different address.*
 - ➔ *Select Dimmer/Fixture page 2 (or another unused page)*
 - ➔ *Press Fixture Select button 1 to patch the fixture you have selected.*
 - ➔ *The display will show the block of channels occupied by the fixture.*
-

You can continue to patch this type of fixture at the next free DMX address by pressing the next fixture select button you want to use. You can also patch a range of fixtures by holding down the first button in the range and pressing the last button, as with dimmers.

If you have several different types of fixtures, you can change the type of fixture to be patched very easily.

2.3.2 To change the fixture type

- ➔ *Press softkey A ("Select another fixture")*
 - ➔ *Choose a manufacturer*
 - ➔ *Choose a fixture*
 - ➔ *Patch as before*
-

Note: The automatic palettes you can load contain a selection of position, colour and gobo settings. You can call back settings from the palettes when programming rather than having to set up your own, allowing you to select, for example, "Yellow" or "Blue" instead of setting up the value using the wheels. You can't load the automatic palettes later (though you can define your own).

2.4 Addressing your fixtures to match the Azure

Once you have told the Azure where to allocate all your dimmers and fixtures, you need to go round the actual lights and set the DMX address to match the Azure.

The Azure can tell you the DMX address it is using for each fixture, and in some cases can show you how to set the dip switches on the fixture. It's usually easiest to write down the addresses for all the fixtures, then go and set them.

2.4.1 Displaying the DMX address for fixtures

- ➔ *Press the On Screen button below the cursor arrows*
 - ➔ *Select the page of fixtures you want to look at*
 - ➔ *Press a fixture select button*
 - ➔ *The screen will show the fixture type and DMX line and address (e.g. A24 is address 24 on DMX line A).*
 - ➔ *The dip switch settings may also be shown if the fixture personality includes this information. Otherwise you will have to work it out.*
 - ➔ *You can also select Softkey B, "Patch by Fixture" to display a list of the fixtures and DMX addresses allocated to them.*
-

2.5 Changing what you have done

If you need to change the patching you have done, you can re-patch a fixture to a different DMX address. You can also patch a fixture onto a different select button, but this loses any programming for the fixture. How to change the patching is described in the reference manual.

2.6 Completing the patch

When you have patched all your dimmers and fixtures, press the Exit button on the numeric keypad to go back to normal mode. You have now completed the setting up of the lighting system, and it's time to get to work on programming a show. But there's one important thing to do first...

2.7 Backing up the Azure to disk

The Azure has a built in disk drive which allows you to save everything you have done. You should get into the habit of saving your show regularly to guard against that unexpected moment when the worst happens.

It only takes a minute or so to save the contents of the Azure to disk. You can then reload it if you mess up the show by accidentally changing something, or if some local hoodlum steals the console you can load the show into a replacement Azure or Pearl 2000.

2.7.1 *Backing up the Azure to disk*

- ➔ *Press the Disk button in the top left hand corner of the Azure*
 - ➔ *Insert a blank formatted 1.44M disk into the disk drive.*
 - ➔ *Select softkey B, "Save show to disk".*
 - ➔ *The Azure will save your current show onto the disk. The VGA display will tell you when the Azure has finished.*
 - ➔ *If you need to reload the show, use softkey A, "Load show from disk".*
-

CHAPTER THREE

3. Controlling dimmers and fixtures

In this chapter: how to control dimmers and fixtures manually.

- selecting fixtures and dimmers
- changing attributes
- entering dimmer levels numerically
- using and creating palettes
- using and creating groups

Having patched all the dimmers and fixtures you want to use, you are ready to start operating them. This chapter explains how you do this.

3.1 Selecting what you want to control

The first thing you have to do is to select the fixtures or dimmer channels that you want to control. You can select fixtures or dimmers individually, or several at once.

3.1.1 Selecting fixtures or dimmers

- ➔ Press the Page button for the page of fixtures you want to use
- ➔ If there are both dimmers and fixtures on the page, press the Fixture or Dimmer button to select which type you want.
- ➔ Press the buttons for the fixtures/dimmers you want to control.
- ➔ Fixtures/dimmers which are selected (you have control of) are shown in dark blue on the VGA display.
- ➔ If you select a fixture/dimmer you don't want, press the button again to deselect it.
- ➔ You can press "Locate Fixture" to position the selected fixtures at a "home" position with the light on, so you can see where they are. Dimmer channels are set to 50%.
- ➔ You can select a range of fixtures by holding down the button for the first fixture in the range, then pressing the button for the last fixture.

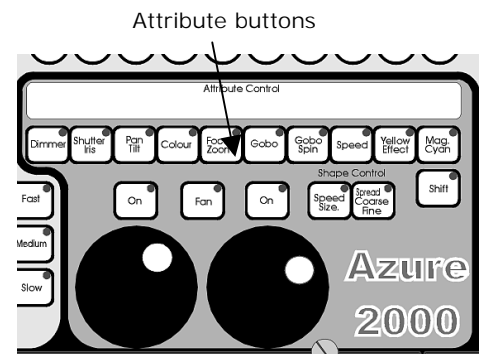
Note: When you press the page button, the fixture buttons will light up to show you which buttons on that page are patched to fixtures or dimmers.

If you select a range of fixtures, or a group, the Last Fixture and Next Fixture buttons allow you to go through the fixtures in the range selecting them one at a time. The Highlight button will turn on the dimmer of the fixture that is currently selected. The Select All button selects the whole range of fixtures again.

3.2 Changing attributes of fixtures

Having selected the fixtures you want to control, you then need to select the attributes of that fixture that you want to change.

The attributes are selected using the buttons on the lower right of the Azure just above the wheels. The attributes you can control will vary depending on



the type of fixture you are using. For dimmer channels, you can only change the intensity. For scans, you can control the pan, tilt, colour, gobo and other functions.

3.2.1 Controlling intensity

- ➔ *Select some dimmer channels or fixtures*
 - ➔ *Press the Dimmer attribute button*
 - ➔ *Control the dimmer intensity using the left hand wheel*
 - ➔ *The intensity value is shown on the VGA display*
-

Note: Some fixtures don't have an intensity function so this operation will not have any effect. Lamp on/off is usually controlled by the Gobo function on these units.

Any other attribute can be controlled by pressing the appropriate button. The VGA display will show which functions the left and right wheels are going to control.

3.2.2 Controlling pan and tilt of a fixture

- ➔ *Select some fixtures to control*
 - ➔ *Press the Pan and Tilt attribute button.*
 - ➔ *Control the pan using the left hand wheel and the tilt using the right hand wheel.*
 - ➔ *The pan and tilt values are shown on the bottom right hand of the VGA display*
-

Note: Once you have changed any attributes, all the fixtures will be automatically deselected the next time you press a fixture select button.

3.3 Entering dimmer levels numerically

You can control dimmers using the numeric keypad as you would on a theatrical lighting desk. This method of setting dimmer levels can be faster when plotting a scene than using the select buttons and the wheels. You enter the dimmer number, then the "@" (at) key, then the level.

3.3.1 Entering dimmer levels

- ➔ *On the numeric keypad, enter the dimmer channel number*
 - ➔ *Press the @ button*
 - ➔ *Enter the value to be set as 0 – 9. You can enter a decimal point and another number if you want more accurate level control.*
 - ➔ *Press @ again instead of a number (or Softkey D) for 100%*
 - ➔ *The channel you entered will be set to the level you entered.*
-

The softkeys offer you a few more options such as set to 100%, up by 5%, down by 5%. These options are shown on the VGA display.

You can also set multiple channels to the same level using the "thru"

button. Enter first channel, "thru", last channel, "@", level.

3.3.2 Entering multiple dimmer levels

- ➔ On the numeric keypad, enter the first dimmer channel number of the range
- ➔ Press the Thru button
- ➔ Enter the last dimmer channel number of the range
- ➔ Enter the value to be set as 0 – 10. You can enter a decimal point if you want more accurate level control.
- ➔ The channels you entered will all be set to the level you entered.

You can also directly enter attribute values for fixtures. The reference manual tells you how.

3.4 Using palettes

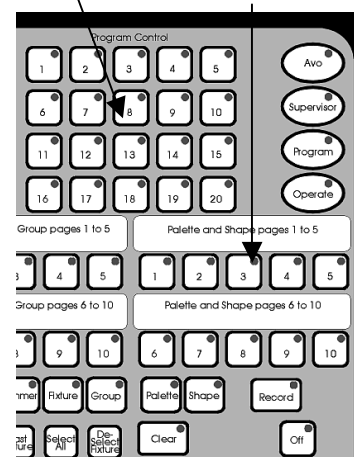
When you are controlling attributes which are continuously variable such as pan, tilt, and colour, it can speed things up if you can instantly call back a position such as centre stage, or a particular colour like red, blue etc.

If you've got different types of fixtures, to get the same colour on each fixture might mean setting different values for each type of fixture.

The Azure has pages of preset values, called "palettes", which you can use to store attribute settings which you use a lot. The Azure loads 10 pre-programmed positions, 10 colours and 10 gobos each on a separate page when you patch a fixture (unless you tell it not to).

This means that if for example you want all your fixtures to go Red, you just have to select "Red" from the colour page of the palette. The Azure knows the values to send to each fixture to get red light out of it.

Palette values Palette pages



3.4.1 Using palettes

- ➔ Select the fixtures you want to control
- ➔ Press the Palette button
- ➔ Select the page of palettes you want to use. The VGA display will show the contents of each page.
- ➔ Press one of the fixture select buttons to use one of the palette values. The value will be set to all the fixtures which are selected.

You can also store your own palette values of positions, colours and so on that you use regularly. The reference manual gives more information on how to do this.

When you use a palette value, the Azure remembers the palette entry you used rather than the actual values you used. This can be very handy when you are touring a show, if you use palette entries to program the show. When the venue is a different shape, you only need to redefine a few standard palette positions rather than having to reprogram the whole

show. All the memories which used the palette positions will then use the new positions.

Note: The Azure may sometimes call palettes "focuses" or "preset focuses". This is the term used for a palette on other Avolites consoles. The meaning is the same.

3.5 Using groups

The Azure allows you to put fixtures or dimmer channels into groups. This can speed up the process of selecting fixtures or dimmers. If you have several different types of fixture, for example, you can make a group for each type of fixture. You can then select all the fixtures just by pressing one button.

3.5.1 Making a group

- ➔ *Select the fixtures or dimmer channels you want to put into the group*
 - ➔ *Press the Record button*
 - ➔ *Press the Group button*
 - ➔ *Select the page of groups you want to use. The VGA display will show the contents of each page.*
 - ➔ *Press one of the fixture select buttons to store the group on that button.*
-

Once you have created a group, you can then instantly select all the fixtures in the group simply by pressing Group, then a group button.

3.5.2 Selecting a group of fixtures

- ➔ *Press the Group button*
 - ➔ *Select the page of groups you want to use. The VGA display will show the contents of each page.*
 - ➔ *Press one of the fixture select buttons to select the group on that button.*
-

You can enter a name for groups you have created to help you remember which fixtures are in the group. The reference manual tells you how to do this.

CHAPTER FOUR

4. Using shapes

In this chapter: how to use the shape generator

- selecting a shape
- positioning
- setting size and speed
- coarse and fine spread
- also Fan mode

The Azure, in common with other Avolites consoles, has a shape generator. This allows you to quickly create exciting light shows using lots of movement and changes, with the minimum of programming.

There are a large number of pre-programmed shapes available, which can be used on the position, colour, gobo, dimmer, or iris of a fixture. You can control the size, speed and positioning of the shape, and how the shape is allocated across a range of fixtures. You can also define your own shapes.

To understand how shapes work and how they can be spread across multiple fixtures, it's best to set up at least four fixtures next to each other. Once you have mastered the basics, you can try some more interesting arrangements.

4.1 How shapes work

A shape is a pre-programmed movement sequence which usually repeats over and over again. Typical shapes are circles, spirals, squares, etc. There are also random shapes, which do not repeat.

When you apply a shape, it works on the current settings of the fixture. So if you apply a circle to the pan and tilt attributes of a fixture, the centre of the circle will be at the current pan and tilt position. You can change the size of the circle, and the speed of the circle. By moving the pan and tilt position of the fixture, you can move the whole shape around the stage.

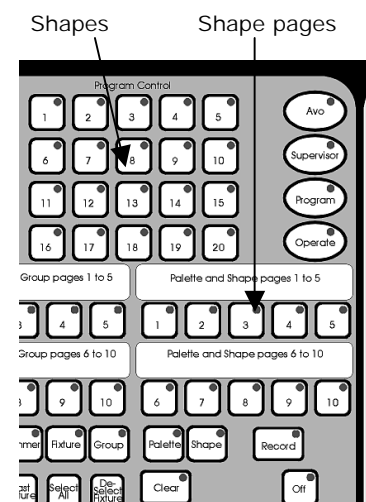
Shapes can be applied to other attributes of a fixture, not just pan and tilt. You can use them to create colour changes, gobo changes, iris changes and a variety of other attributes. Each shape is designed to modify one particular attribute.

4.2 Selecting a shape

Selecting a shape is very similar to selecting a value from a palette. When you choose a shape, it will be applied to all selected fixtures.

4.2.1 Selecting a shape

- ➔ Select the fixtures you want to apply the shape to
- ➔ Press *Locate Fixtures* to turn on the fixtures and move them to a central position
- ➔ Press the *Shape* button



- ➔ *Select the page of shapes you want to use. The VGA display will show the contents of each page of shapes.*
 - ➔ *Press one of the fixture select buttons to select a shape. The shape will be applied to all selected fixtures.*
-

The shape will start based on the current setting of the attribute.

4.3 Changing the size and speed of a shape

It is easy to change the size and speed of a shape after it has first been selected.

4.3.1 Changing the size and speed of a shape

- ➔ *Press the Size / Speed button just above the wheels*
 - ➔ *Control the size of the shape using the left hand wheel*
 - ➔ *Control the speed of the shape using the right hand wheel*
 - ➔ *The size and speed is shown on the VGA display.*
-

The minimum size is zero. Obviously, you won't see the shape, and the fixture will resume its previous settings. The minimum speed is Stop. Again, you will not see the shape, though it will offset the positioning of the fixture.

4.4 Changing the positioning of a shape

A shape is based on the current settings of the fixture. For a pan/tilt shape, this means that the movements will be centred around the current position of the fixture. For a colour shape, the colour changes will be centred round the current colour of the fixture.

4.4.1 Changing the positioning of a shape

- ➔ *Select the fixtures you want to change*
 - ➔ *Select the attributes of the fixture you want to change*
 - ➔ *Set the attributes using the wheels. It's easiest to reduce the Size of the shape to zero while you are setting the attributes, otherwise everything keeps moving and it is difficult to tell what is happening.*
 - ➔ *Set the Size of the shape back to where you want it.*
-

4.5 How a shape works across multiple fixtures

Shapes get more interesting (and look more impressive) when you apply them to multiple fixtures. The Azure lets you set how a shape is spread across several fixtures.

In the case of a circle, this can vary from all fixtures moving identically (a spread of 1), fixtures working in pairs (a spread of 2) through to all fixtures being distributed evenly through the shape, so the first fixture is just starting the shape as the last one finishes (an Even spread).

You can also set the Fine Spread value, which introduces a slight offset into the timing of the shape across each fixture.

4.5.1 Changing the spread of a shape

- ➔ Press the Spread Fine/Coarse button
 - ➔ Set the coarse spread using the right hand wheel. The minimum is 1 (all fixtures the same). The maximum is Even (the shape spread evenly across the fixtures).
 - ➔ Set the fine spread using the left hand wheel.
-

To start with, you will find it easier to keep the Fine Spread set to zero, and work with the Coarse Spread setting, or everything will get confusing.

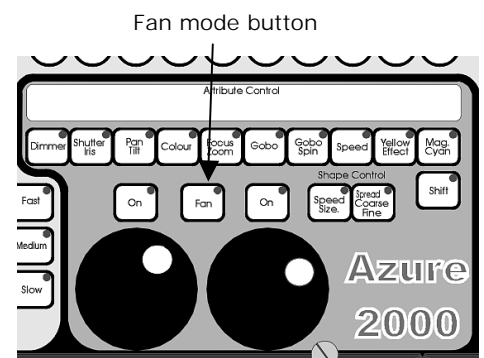
Note: The order in which you select the fixtures determines how the shapes are applied; the "first" fixture is the one you select first and the "last" fixture is the one you select last.

4.6 Fan mode

Fan mode is not really anything to do with shapes, but we have put it in this chapter because it works in a similar way.

Fan mode automatically spreads out a selected range of fixtures to produce a fan of light beams. The first and last fixtures of the range are affected most, and the central fixtures are affected least. The amount of fan can be set using the wheels.

Note: As with shapes, the order in which you select the fixtures sets how the fan effect works. The fixtures you select first and last will be the ones which change most.



The fan effect, while normally used on pan or tilt attributes, can be applied to any attribute.

4.6.1 Fanning out a range of fixtures

- ➔ Select the range of fixtures you want to fan
 - ➔ Select the attribute to fan (pan, tilt, colour etc)
 - ➔ Press the Fan button
 - ➔ Set the amount of fan using the wheels
 - ➔ The VGA display shows which attribute is being controlled by each wheel
-

You will be able to see the effect of fan mode best if you have a row of at least 4 fixtures. If you have an odd number of fixtures, the central fixture will not move in fan mode.

CHAPTER FIVE

5. Recording and playing back memories

In this chapter: how to record memories into the playback buttons

- explanation of HTP and LTP channels
- how the programmer works
- record by fixture or by channel
- recording and playing back memories
- memory pages
- latch and flash mode
- labelling and displaying memories
- setting times for memories
- cut, copy and paste
- the include function
- editing memories

So, you now know how to control your dimmers and fixtures, and how to use the shape generator. This chapter tells you how to record the wonderful effects you have created so that you can recall them at the touch of a button.

Before we get onto the details of recording memories, there are a couple of general things about how the Azure works. The first thing to understand is what happens when you play back more than one memory at a time, and the operation of HTP and LTP channels. It's important to understand this before going on.

5.1 What are HTP and LTP channels?

The Azure treats channels which control intensity differently from other moving light control channels. When only one memory is turned on, there is no problem. But if two or more memories are turned on together, or if you fade out a memory, the Azure needs to know how to output the levels from the memories.

Dimmer or intensity channels work on the principle of "highest takes precedence" (HTP). This means that if an HTP channel is turned on in several memories, the highest level will be output. When you fade a memory, the HTP channels fade out.

Moving light channels work on the principle of "latest takes precedence" (LTP). This means that the latest change takes over from any other values, so the most recent memory to be turned on is the one which is output. When you fade in a memory, LTP channels do not usually fade, but come on at their full values, and stay there until another value is set.

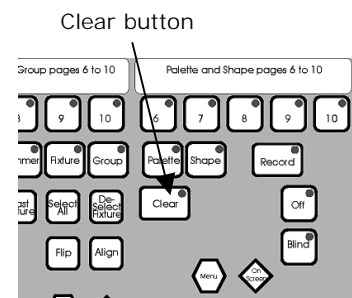
The fixture personality file tells the Azure which channels of a fixture are HTP and which are LTP. Normally, only dimmer attributes are HTP, and everything else is LTP.

5.2 How the Azure works when programming

The Azure remembers which fixtures you have changed, and which you have not. Fixtures you have changed are stored in "the programmer". When you record a memory, only the settings in the programmer (i.e. the ones you have changed) are stored in the memory.

When you press Clear, all fixtures are cleared from the programmer. You should get into the habit of pressing Clear before you start to program a memory, or you can end up recording fixtures you don't want. You also need to press Clear when you finish programming, because any functions in the programmer will override playbacks.

You can tell when there is something stored in the programmer because the Clear button will flash.



5.3 "Record by fixture" and "record by channel" modes

Normally the Azure records all the attributes of any fixture you change. However, the Azure also has a more selective mode of operation. You can choose the mode by pressing the Set User Preferences button.

- Mode 1: Record by fixture. This is the normal mode of the Azure. It means that when you record a memory, all attributes of every fixture that you have changed are recorded in the memory. So if you change only the position of a fixture, the colour, gobo, intensity and all other attributes of that fixture are recorded as well. This is useful because you know that when you recall the memory, it will look exactly as it did when you saved it. However, it can be slightly inflexible if you want to combine memories.
- Mode 2: Record by channel. This means that only attributes you have changed are recorded in the memory. So if you change the position of a fixture, only the position is recorded. When you recall the memory, the colour, gobo etc will remain as they were last set. This means you can set the position from one memory, and the colour from another memory, allowing more variety when you are running a show.

You can tell the attributes which are in the programmer by looking at the VGA display. Attributes in the programmer are shown with a light blue (cyan) background. Attributes not in the programmer are on the normal grey background.

Turning on a memory does not place the values from the memory in the programmer (the Include function lets you do this, see page 23). The Locate Fixture button does not place any values in the programmer either.

When you record a memory, HTP channels are always recorded at their current value. The programmer only works with LTP channels.

5.4 Recording a memory

So now that is all out in the open, let's record a memory. The Azure has 10 pages of 50 memories. The bottom 10 memories of each page are replayed using the faders. The rest are replayed using buttons.

5.4.1 Recording a memory

- ➔ Press Clear to clear the programmer. This ensures that you are starting with a clean slate.
- ➔ Set up a nice effect using the fixtures. You can include shapes in a memory if you want. Remember! Only the fixtures you have changed will be recorded in the memory.
- ➔ Press Record Memory.

- ➔ Memories which are empty will flash. You can change the playback page if you want.
- ➔ Press one of the flashing buttons to save the memory. (Buttons 1-10 will allocate the memory to a fader).
- ➔ Press Clear to clear the programmer.

5.5 Playing back a memory

Playing back a memory is very simple. Just press the button, or raise the fader. (Make sure there are no values in the programmer by pressing the Clear button, because anything in the programmer will override the playback).

5.5.1 Playing back a memory

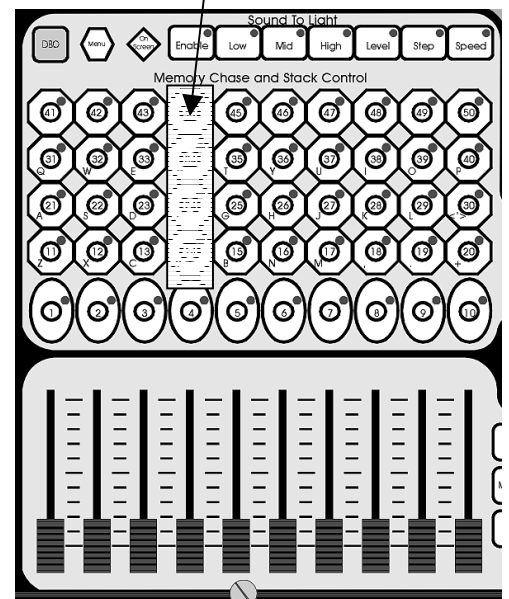
- ➔ Select the playback page you want.
- ➔ Press the playback button, or raise the fader if it is one of the playbacks in the 1-10 range.
- ➔ To stop the memory, press the button again or lower the fader.

You can turn on more than one memory at once, and the levels in each memory will combine using the HTP and LTP rules. However, you can only turn on one memory in each column (the picture shows one of the columns). If you have memory 14 turned on, and you turn on memory 24, then memory 14 will turn off. This applies even if you change pages. The faders work separately, so you can turn on up to 20 playbacks at once.

If you are using a fader, all the HTP (intensity) channels in the memory will fade up with the fader. The LTP (movement) channels will be set as soon as the fader leaves the zero position.

Pressing the DBO (Dead Black Out) button turns off all the HTP channels. You can turn off all active memories by holding down the DBO button and pressing Clear.

Playbacks in one column



5.6 Changing playback pages

You can change pages to select another 50 memories simply by pressing one of the playback page buttons.

If any playbacks are turned on when you change page, they remain turned on. The light flashes on the playback button to tell you that the playback is active on another page.

There are 2 ways to turn off a playback on a different page to the current page. If you turn on a playback in the same column, the other playback will turn off. Or you can change page back to the original page.

5.7 Latch or flash mode

You can set each of the 11-50 playbacks to latch (push to turn on, push again to turn off) or to flash (playback is on only while the button is held down). Flash mode can be useful for strobing playbacks or audience blinders, or any playback you only want to run momentarily. The 1-10 buttons are always flash buttons.

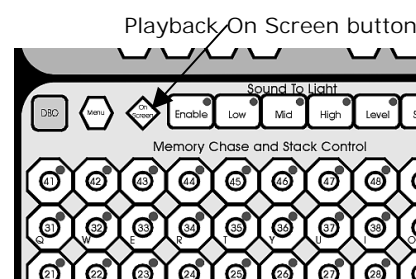
5.7.1 Setting latch or flash

- ➔ Press the Menu button next to the DBO button.
- ➔ Press Softkey A (Latch or Flash).
- ➔ Press the 11-50 playback button you want to set. Buttons with lights on are in Latch mode. Buttons with lights off are in flash mode.
- ➔ Press Exit when you have finished.

5.8 Labelling a memory and displaying memories

The Azure allows you to label all the memories. This can be very helpful when you are trying to remember where you put that amazing effect you created yesterday.

You can display the names of the memories on the VGA display by pressing the On Screen button next to the DBO button. The Azure displays a screen showing all the memories in the current page.



5.8.1 Labelling a memory

- ➔ Press the Input Legend button.
- ➔ Press the playback button you want to label.
- ➔ Enter the label using the letters on the playback buttons. You can also plug in a standard PC keyboard.
- ➔ Press Enter to save the label.
- ➔ You can label another memory by pressing another button, or finish by pressing Exit.

You can also label the playback pages, fixture groups and palettes using this method.

When you are using the playback on-screen function, the Azure highlights memories which are turned on in bright white text.

5.9 Setting fade times for a memory

You can set a fade in and fade out time independently for every memory. The fades only affect HTP (intensity) channels, and are set using softkey C for fade in and D for fade out. There is also a separate LTP timer which allows you to set movement times, set using softkey E.

5.9.1 Setting fade times for a memory

- ➔ Press the Set Time button.

- ➔ *Press the playback button you want to set times for*
 - ➔ *The VGA display shows you the times you can set.*
 - ➔ *Use the cursor up-down buttons or softkeys A-F to move the cursor bar over the times you want to set.*
 - ➔ *Use the numeric keypad to enter the new time. Press Enter to save it.*
 - ➔ *Press Exit when you have finished.*
-

There are some other timing functions available as well, which you don't need to worry about at the moment. They are described in the reference manual.

5.10 The Cut, Copy and Paste functions

The Cut, Copy and Paste functions work just like they do on a PC. They enable you to delete memories, copy them and move them to another position.

When you press Cut or Copy, then a playback button, that memory is copied to a temporary memory. If you pressed Cut, the original memory is deleted. If you pressed copy, it is not affected. You can then use Paste to place a copy of the memory on another playback. You can use Paste as many times as you like to make multiple copies of the memory.

5.10.1 Using Cut and Paste

- ➔ *Press Cut.*
 - ➔ *Press the playback button you want to cut.*
 - ➔ *The memory is removed from the playback button and stored in a temporary memory.*
 - ➔ *Press Paste.*
 - ➔ *Press the playback button you want to paste the copy to.*
 - ➔ *The memory is stored on the new playback button. The label of the memory is not copied.*
-

Copy works in a similar way to cut, except that the original memory is retained.

5.10.2 Using Copy and Paste

- ➔ *Press Copy.*
 - ➔ *Press the playback button you want to copy.*
 - ➔ *The memory is copied from the playback button and stored in a temporary memory.*
 - ➔ *Press Paste.*
 - ➔ *Press the playback button you want to paste the copy to.*
 - ➔ *A copy of the memory is stored on the new playback button. The copy is not linked in any way to the original memory, so changing one will not affect the other.*
-

5.11 The Include function

Sometimes it's useful to be able to re-use some aspects of a memory you

have already created in another memory. If you've created a really nice combination of colours, for example, you might want to use it again in another memory with different gobos and positions.

Normally when you play back a memory, the information is not loaded into the programmer, so you can't use it to make another memory. The Include function lets you load selected parts of a memory into the programmer. You can then use these parts in a new memory.

The Include function loads selected attributes of selected fixtures into the programmer. So, for example, if you have a memory which contains position, colour and gobo information for 8 fixtures, you can use the include function to load only the colour information for 4 of the fixtures into the programmer. You could then "include" position information from another memory into the programmer, and build up a new memory using information from several existing memories.

5.11.1 Using Include

- ➔ *Select the fixtures from which you want to take settings.*
- ➔ *Press the Include button.*
- ➔ *Select the Attributes you want to include. The Dimmer attribute will include all other attributes.*
- ➔ *Press the playback button for the memory you want to include.*
- ➔ *The selected attributes of the selected fixtures will be loaded into the programmer.*

You can Include an entire memory by ensuring no fixtures are selected when you press Include.

If the memory you are including contains shapes, the shapes and all the fixtures they are applied to will be loaded, whether they are selected or not.

Include is also useful when you are programming chases, which is described in the next section.

5.12 Editing memories

You can edit any part of a memory you have already saved simply by making the changes and saving the new information on top of the memory.

5.12.1 Editing a memory

- ➔ *Press Clear to empty the programmer.*
 - ➔ *Turn on the memory you want to edit, so you can see what you are doing.*
 - ➔ *Select the fixtures you want to change, and make the changes.*
 - ➔ *Press Record Memory.*
 - ➔ *Press the playback button for the memory you are editing to save the changes.*
-

The changes you have made are saved into the memory. None of the other information in the memory is affected.

5.13 Using shapes in memories

As you would expect, any shapes you have set up will be saved as part of the memory. If you are using Record by Channel mode, there are some interesting possibilities.

If you have changed the position of the fixture, then the new position will be stored in the programmer. When you recall the memory, the fixture will start the shape at the position you set in the memory.

If you have not changed the position of a fixture, when you recall the memory the shape will run at whatever the current position of the fixture is. This allows you to make a "shape only" memory which overlays shapes on the current positioning of the fixtures.

CHAPTER SIX

6. Recording and playing back chases

In this chapter: how to record chases

- explanation of chases
- programming a chase
- running a chase
- stacks and sequence control
- editing a chase
- sound activation of chases

As well as being used for recalling static memories, the playback buttons on the Azure can also be used for recalling chases.

6.1 What is a chase?

A chase is simply a sequence of static positions. Each position is known as a "step". It is normally used to flash lights in a sequence without you having to keep pressing buttons, or to move fixtures around. Chases can run automatically, or by pressing a "Go" button. If you are using the Azure for theatrical lighting, you can use a chase to store cues for a show.

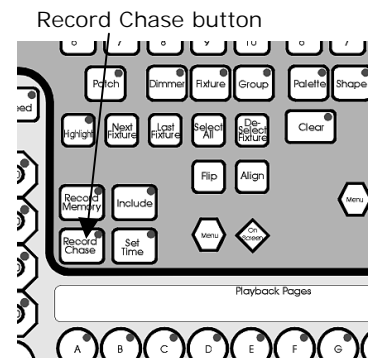
Don't get shapes confused with chases. A shape simply moves one attribute of the fixture around in a pattern. A chase allows you to move the fixture around in a much more controlled way.

However, you will find that using shapes saves you a lot of work, and you won't have to program as many chases as you would on a conventional lighting desk.

6.2 Programming a chase

To program a chase, you have to set up the lighting for each step of the chase. You can either set all the fixtures and dimmers manually for each step, or you can use Include to load in the information from memories you have already recorded.

Note: You can't use shapes in a chase.



6.2.1 Programming a chase

- ➔ Press the Record Chase button.
- ➔ All the free playbacks will flash. Press the button where you want to store the chase.
- ➔ Set up the lighting for the first step, either manually or by using "Include" on existing memories.
- ➔ The VGA display is showing "Press the flashing key to record Step 1".
- ➔ Press the flashing key. The information from the programmer is stored as Step 1 of the chase.
- ➔ Press Clear, set up the lighting for the second step, then press the flashing key again to save step 2.
- ➔ When you have saved as many steps as you want, press Record Chase again to finish.

6.3 Running a chase

Running a chase is just like turning on a memory. Press the button, or raise the fader if it is stored in one of the 1-10 playbacks. The chase will start to run.

If the chase is on a fader, then the HTP (intensity) channels in the chase will be controlled by the fader. The other channels (LTP) will be set as soon as the fader moves above zero.

The chase normally starts at step 1, and runs forward. There are lots of options you can set which let you do fancy things with chases, such as Random, One-shot, special timing, and manual step mode. The details are in the reference manual.

Note: The "one playback in each column" rule still applies. You can only turn on one playback in each column, whether it is a memory or a chase.

6.4 Setting speed and crossfade

When you run a chase, the wheels are assigned to control the Speed and Crossfade of the chase (crossfade is the "slope" between steps, from instant switching to continuous fading). You can also set the speed by tapping the "Learn Tempo" button in time with the music.

You can save a speed with the chase, so that every time you play it back, it runs at the same speed.

6.4.1 Saving chase speed

- ➔ Press softkey A "Chase Menu".
- ➔ Press softkey A again (this time it's "Chase Parameters").
- ➔ Set the chase speed you want
- ➔ Press softkey A, "Save speed", to save the current speed.
- ➔ The VGA display will show "Saved".

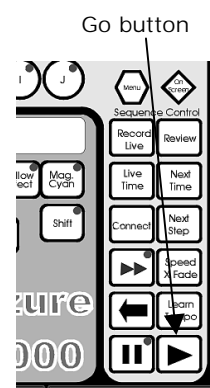
If you are running several chases, the wheels are assigned to the most recently selected chase. You can "connect" the wheels to one of the other chases by pressing the Connect button, then the playback button for the chase you want to connect to.

6.5 Stacks and sequence control


The most common use of a chase is as an automatic continuous sequence. However, the Azure lets you step chases manually using the Go button, which allows you to use them for theatrical lighting cues. When you use a chase like this, it is sometimes known as a "Stack".

6.5.1 Creating a theatre stack

- ➔ Save each cue state as a step in a chase.
- ➔ Press the Set Time button
- ➔ Press the playback button for the chase
- ➔ Press softkey G to set LINKS = OFF for the whole chase



- ➔ *Press Enter to save the setting.*
 - ➔ *Press the playback button or raise the fader to activate the chase.*
 - ➔ *Press the Go button to run each cue.*
-

Pressing the  button while running a chase will temporarily convert the chase to a stack. The next time you run the chase it will go back to normal.

You can set the fade in and fade out times independently for each cue using the Live Time button.

6.5.2 *Setting cue times on a theatre stack*

- ➔ *Start the chase by pressing the playback button or raising the fader.*
 - ➔ *Press the Live Time button to set the times for the current cue.*
 - ➔ *Use softkeys A-G to set the times you want*
 - ➔ *Press Enter to save the settings or Exit to abandon them.*
 - ➔ *Press the Go button to go on to the next cue.*
-

You can also set a text label for each cue. The Azure will show you the label for the current cue and the next one coming up. The reference manual tells you more details about this.

6.6 Editing a chase using Unfold

The Azure has a powerful chase editing system. The Unfold button places each step of a chase on one of the playback faders, allowing you to examine and edit each step individually. If your chase has more than ten steps, you can swap to the next 10 steps using softkey F, or the previous 10 steps using softkey E.

6.6.1 *Editing a chase using Unfold*

- ➔ *Press the Unfold button*
 - ➔ *Press the playback button of the chase to be edited*
 - ➔ *The first 10 steps of the chase are loaded into the 10 playback faders*
 - ➔ *Raise a playback fader to view the contents of the step*
 - ➔ *The VGA display shows a list of options which can be used for the step*
 - ➔ *To edit the contents of the step, make the changes then use softkey A*
 - ➔ *To change the times of the step, use softkey B.*
 - ➔ *Press the Unfold button again to finish.*
-

While the chase is unfolded you can use the Set Times button to set the times for the step, and the Input Legend button to set a label for the step.

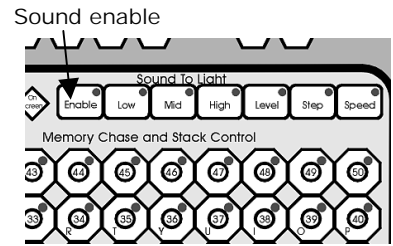
You can also edit chase steps while you are running the chase, without using unfold. The Record Live button allows you to record the current programmer settings directly into the current step of the chase. This is described in more detail in the reference manual.

6.7 Sound activation of chases

The Azure can use bass, mid or treble frequencies from its audio input to

trigger chases. The current version of the software triggers playback 1 from low frequencies (bass), playback 2 from mid and playback 3 from high frequencies (treble).

Future versions of the software will allow any chase to be triggered from any of the sound frequencies and will use the other sound to light buttons, which currently have no function.



6.7.1 Sound activating chases

- ➔ Press the Sound to light Enable button
 - ➔ The Low, Mid and High buttons flash in time to the sound signal
 - ➔ Chases stored in playbacks 1,2,3 will step in time to the sound signal
 - ➔ The Speed wheel controls the maximum speed of the chase
 - ➔ Press the Enable button again to turn off sound activation.
-

CHAPTER SEVEN

7. Environments and the scheduler

In this chapter: using environments and what the scheduler does

- What an environment is
- Recording an environment
- Playing back an environment
- The scheduler

7.1 What is an environment?

An environment is a snapshot of the playbacks on the console, which includes all memories and chases which are turned on. They can have a fade in and fade out time. Environments can be useful in a show if you need to turn on several memories at the same time. They are also used when you are using the scheduler on the Azure to run a timed show automatically.

The Azure can store 2 pages of 10 environments (that's 20 in total, for the mathematically challenged).

7.2 Recording an environment

Recording an environment is simply done by setting the playbacks you want at the levels you want them, then using the Record Environment option.

7.2.1 Recording an environment

- ➔ *Set up the playbacks you want in the environment at the levels you want them*
- ➔ *Press the Menu button in the environment section*
- ➔ *Press Softkey B, "Record an Environment"*
- ➔ *Press the Environment button you want to use*
- ➔ *The current playbacks will be recorded into the environment*
- ➔ *Fade in and out times are set to 3 seconds*

Note: If the environment was already used, it will be overwritten by the new environment.

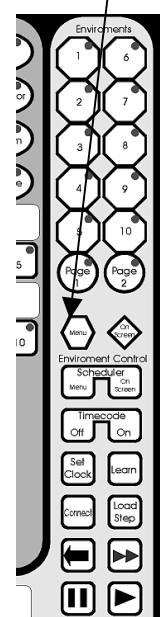
You can assign a text label to an environment using the Set Legend button, which works the same as for memories. Press the On Screen button below the environment buttons to display the contents of the environments.

You can change the fade in and fade out time of the environment using the Environment Parameters option on the menu.

7.3 Playing back an environment

You play back an environment by pressing the button.

Environment menu button



7.3.1 *Playing back an environment*

- ➔ *Press the environment button*
 - ➔ *The playbacks in the environment will fade up in the Fade In time*
 - ➔ *To turn it off, press the button again*
 - ➔ *The playbacks in the environment will fade down in the Fade Out time*
-

You can take over control of a playback in the environment by pressing the button (for a 11-50 playback), or by putting the fader to full then to zero (for a 1-10 playback).

7.4 Other environment controls

Future versions of the software will allow environment chases, and real-time recording of shows. Currently the environment chase control buttons and the Connect, Load Step and Learn buttons in the environment area have no function.

7.5 The scheduler

The scheduler is designed for unattended operation of a light show. It will automatically turn on an environment at the time you specify, and then turn it off again after the duration you have set. This can be repeated in various modes.

How to use the scheduler is described in detail in the reference manual.

CHAPTER EIGHT

8. The graphics tablet

In this chapter: using the graphics tablet with the Azure

- Using the tablet
- Functions available on the tablet

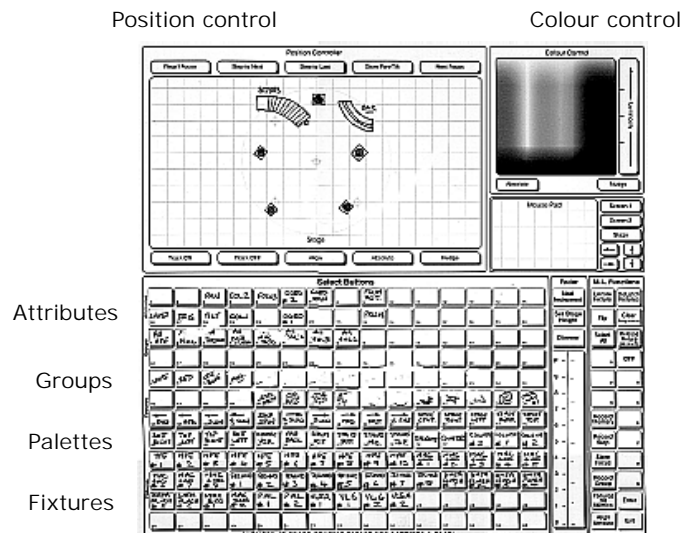
The graphics tablet is an optional extra to the Azure, which allows you to use a pen to select fixtures, groups, colours, and position the fixtures by simply drawing with the pen. You will be amazed how much easier your programming and show operating becomes when you use the tablet.

8.1 Using the tablet

To use the tablet, you simply press the pen onto it. The button on the side of the pen doesn't do anything. A quick press is like pushing a button on the Azure. You can also draw on the tablet by keeping the pen pressed down while moving it. This is used to move fixtures or change attributes.

The Azure will behave as if you are pressing buttons on it in the normal way, so the LEDs and the VGA display will change as you use the tablet. Many of the functions of the Azure are quicker and easier using the tablet. Sometimes you might find it easier to do part of the function on the tablet and part on the console. The end result is the same.

The tablet has a paper overlay on it. You can write your fixture names, group names, attributes, palette entries and even draw your stage layout on the overlay so that you know what's what. Spare overlays are available from Avolites.



8.2 Functions available on the tablet

To select a fixture or a group, just press the pen onto the fixture button or the group button. The first 60 fixtures which are patched will appear in order on the tablet (press the Menu button below the "Flip" button, then Softkey A "Fixture Layout on Tablet" to display a list). Only the first 30

groups are available on the tablet.

You can control the position of the fixture by drawing on the Stage area of the tablet.

You can "train" the Azure so that it knows how all the lights are set up. Then when you point at the stage area of the tablet, all the lights will point at the same place on the stage. This is called "Tracking mode". The Reference manual tells you how to do this and how to use tracking mode.

If you press on the Nudge button, when you draw on the tablet the fixture will move relative to its current position. This can be useful if you want to slightly reposition a fixture. Press on the Absolute button to turn off this mode.

You can control the intensity of the selected fixtures by drawing on the Dimmer area.

If the fixture can do colour mixing, you can set the colour by drawing in the colour mix area of the tablet.

You can recall the first 60 palette entries by pressing the pen on the Focuses buttons.

You can change individual attributes of selected fixtures by pressing the pen on to the attribute button, then (without lifting the pen) drawing up and down on the tablet.

On the right hand side of the tablet, some of the programmer functions are available, such as Clear and Locate Fixtures.

C H A P T E R N I N E

9. Advanced features

Hopefully, by working through this tutorial manual, you now know how to set up the Azure, control fixtures with it, save memories, chases and environments and use them in a show.

We have tried to stick to the basics, but the Azure can do many more things than we have told you so far. The reference manual expands on all the information in the previous chapters. There's also some subjects we have not touched on yet, and these are described in the reference manual. Just so you know, they are:

- User Preferences - Some console options you can change
- Setting the real time clock
- Disk functions - there are a few more things you can do with the disk drive
- Tracking - You can train the Azure so it knows how the fixtures are positioned relative to the stage. You can then point all the fixtures at one part of the stage by clicking on the graphics tablet (or by using the wheels, if you don't have a graphics tablet). Training is described in Chapter 3 of the reference manual and use of the graphics tablet in tracking mode is described in Chapter 8.
- MIDI - The Azure has a very comprehensive MIDI control system
- Use of the optional Stage Remote control
- Script files - You can tell the Azure how to run a show from a list of instructions which you can enter or record in real time. This is described in chapter 7 of the reference manual.
- Changing the operating system - From time to time Avolites release a new version of operating software, which you can load into the Azure
- Personality files - if the Azure doesn't have a personality file for your fixture you can write your own. These are described in chapter 11 of the reference manual.
- Resetting the PIN codes and other devious hardware tricks

CHAPTER TEN

10. Introduction to intelligent lighting

This section is for those who have not used intelligent lighting much before, who are put off by dip switches, lights that move unexpectedly and strange digital control systems that fly down microphone cables.

10.1 Ordinary lighting

Standard lighting consists of a variety of light bulbs connected to dimmers. The lights may be anything from par cans to theatrical lanterns, and the dimmer controls the intensity of the light. A typical controller for standard lighting has a set of sliders, and each slider controls the intensity of one dimmer using a low-voltage control signal of 0 to 10 volts. The standard way to link the sliders to the dimmers is by using a multicore cable with one core for each dimmer channel.

10.2 So what is intelligent lighting?

Intelligent lighting usually contains more functions than just intensity; a typical intelligent light, often called a "fixture", can also change colour, project different patterns (called "gobos") and direct the light beam in any direction using a movable mirror or by motorised control of the light unit itself. The fixtures are called "intelligent" because they contain a small computer which controls the movement of the internal motors in response to the control signals. Most fixtures can also listen to music and produce their own light show, sometimes synchronising themselves with other intelligent fixtures. However they are actually not all that intelligent and usually need a user to make them do something interesting.

10.3 How do you control it?

Each function of an intelligent fixture requires its own control signal, so the user can select the colour, position, gobo etc. You can use 0 to 10 volt control signals on some fixtures, but the cable carrying the control signals again has to be a multicore with one core for each function, so each fixture might need 8 or more cores in the control cable. Some of the more complicated fixtures use 20 channels.

When several fixtures are used, the number of cores needed in the control cable soon becomes large. The cable also has to split at each fixture. It all gets a bit complicated.

10.4 The DMX control system

Fortunately, there is an easy to use system for controlling intelligent lighting and dimmers. It is called DMX-512, which stands for Digital MultipleX, and it sends up to 512 control signals down a 2-core screened cable. The cable can be simply daisy-chained from each fixture to the next. Microphone-style XLR connectors are usually used, sometimes 3-pin and sometimes 5-pin.

The DMX system sends out the level for channel 1, followed by the level for channel 2, then 3, then 4 and so on, all the way up to a maximum of 512 (though not all DMX systems send out all the channels). It then goes back to channel 1 again. All the units connected to the DMX receive all the channels, and you tell them which channels to respond to by setting the "base channel" or "DMX address" on each unit. The computer inside the

fixture waits for the correct channels to come up, then reads in the levels for those channels.

Dimmers can also understand DMX; some dimmers can read it directly, others use a demultiplexer or "demux" to convert the DMX into the normal 0 to 10 volt analogue signals they are used to.

10.5 Moving light control desks

Sliders are ideal for controlling dimmers. More complicated dimmer control desks have memories to record the level of all the dimmers, so you can recall a setting without having to set all the sliders again during a show.

However, once you start controlling lights that move and change colour, sliders become less ideal, because it is the movement rather than the end level which is important. Dedicated moving light desks such as the Azure include many helpful functions which makes the programming of intelligent lighting much easier, such as palettes of pre-programmed colours and positions, and a shape generator to create movements.

10.6 A few cautions about using DMX

DMX is a robust system which normally works very well, but sometimes it can be problematic. Here are a few tips for making DMX work well.

- DMX cabling should be twisted-pair data cable. Microphone cable is not recommended because it doesn't transmit the signal as well. You will probably get away with it, but equally you might have problems.
- Always connect a terminator plug on the last fixture. This has a 120 ohm resistor across the DMX line and prevents data interference on the line. It might work without but...
- Don't split the DMX cable. Loop it from one unit to the next. If you have to split it, use a proper active splitter unit.
- Don't try to run more than 16 fixtures from one DMX line. Either use several DMX lines (the Azure has four) or use a DMX repeater unit. Again, you will probably get away with using more if you have to, but the DMX signal will be weaker than it should be.
- Don't run your DMX lines near high voltage cables or neon. They may pick up interference which will stop the system working, or worse, blow up the receiver electronics in the fixtures (this really does happen).



Azure 2000

Reference Manual

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CHAPTER ONE

1. Setting up the console

This chapter contains: Connecting mains power; connecting DMX lines; connecting MIDI devices; connecting audio; the disk drive; other back panel connections and controls; desk modes.

1.1 Connecting mains power

The Azure uses a universal switch mode power supply which allows it to run off any mains voltage from 90 to 250V at 50Hz or 60Hz. You don't have to set a voltage selector. Just plug in and go.

1.2 Connecting DMX lines

The Azure can output DMX down 4 separate lines. When you patch a dimmer or fixture you can tell the Azure which DMX line it is on. The lines are identified by the letters A,B,C,D. Normally A comes out of output 1, B comes from 2, C from 3, and D from 4, but just to add to the fun you can swap this round if you want (see Patching, section 2).

The 4 DMX outputs come out of the two 5 pin XLR sockets on the back of the console. They are wired like this:

DMX line	Pin numbers	Socket
1 (normally A)	2=Data - 3=Data +	1
2 (normally B)	2=Data - 3=Data +	2
3 (normally C)	4=Data - 5=Data +	1
4 (normally D)	4=Data - 5=Data +	2

If you use a standard DMX cable, you will get Line 1 (normally A) on output 1 and line 2 (normally B) on output 2.

Lines 3 and 4 use the spare pins 4 & 5 on the output sockets. If you want to use both lines on a socket, you need a splitter, which you can either buy from Avolites or make up yourself.

The 5 pin XLR plug labelled "DMX input" on the back of the console is not currently in use.

1.3 Connecting MIDI devices

The Azure has the usual MIDI IN, OUT and THRU connections. It can read MIDI information and use it to trigger a show, and it can output MIDI information in response to user actions on the controls. This means you can record a show straight into a MIDI sequencer by operating the show yourself using the buttons and sliders.

1.4 Connecting audio

The Azure has a left and right audio input socket, and a gain control to set the sensitivity of the sockets. The Azure uses the audio inputs for sound to light functions.

There is an internal link on the PCB to set the overall sensitivity of the audio inputs. It is located under the VGA card near the audio connectors labelled "Preset Gain Links" and can be set to 0dB, 20dB or 40dB by bridging one of the pairs of jumpers.

1.5 The disk drive

The Azure has a 1.44M floppy disk drive which is used to load and save shows, personality files and system software. The standard PC disk format is used, so you can transfer data to and from your PC. You can use the smaller 720K disks, but large shows may not fit!

You should get into the habit of backing up your show to disk regularly to guard against that moment when something goes wrong. It doesn't take long.

-
- 1> Press Disk in the top left hand corner of the Azure
 - 2> Insert a blank formatted 1.44M disk into the disk drive.
 - 3> Press softkey B, "Save show to disk". Enter a name. The Azure will save the show.
 - 4> To reload the show, use softkey A, "Load show from disk".
-

The disk drive functions are all obtained by pressing the Disk button on the Azure. The disk drive functions are described in section 9 on page 150.

1.6 Other back panel connections and controls

Also on the back panel are the following:

The QWERTY socket is for connecting a standard PC keyboard. This can be used for entering legends rather than using the letters on the playback keys.

The Serial Port is for connecting the graphics tablet or the Stage Remote.

The VDU socket is for connecting the VGA display. Any standard VGA display will be OK. If you don't need to see what the Azure is doing, e.g. for unattended operation, it will operate fine without the VGA display.

The Desk Lamp socket is for the gooseneck light.

The Reset button just above the power socket allows you to restart the Azure if something funny happens to it. The Azure will come back to the same place it was in when you pressed Reset, but all playbacks will be turned off. The memory is not affected.

1.7 Azure modes

When the Azure first powers up, it is in Operate mode. In this mode all you can do is run playbacks. If you need to prevent people from messing around with the console, or you want to run a show without risk of changing anything, this is the mode to put it in. If you press Operate twice, the Azure enters a special "quick key response" mode.

When programming, you need to be in Program mode, which you access by pressing the Program button. *This manual assumes you are in program mode.* You can set a PIN code to prevent unauthorised access to Program mode.



Supervisor mode allows you to clear the console using softkey F, "Wipeall". Another PIN code can be set for Supervisor mode.

AVO mode allows you to do anything to the console, including Wipeall, changing the PIN codes, various diagnostics and loading a new operating system. AVO mode has a default PIN code of 1234 but you can change this. There are more details about AVO mode in Section 9 on page 153.

CHAPTER TWO

2. Patching

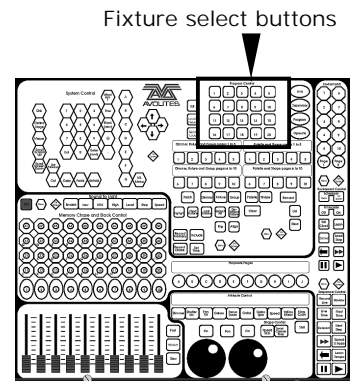
This chapter contains: Fixture select buttons; patching dimmers; patching moving light fixtures; checking the patching; changing the DMX address; moving a fixture to a different select button; patching options.

Patching is the process where you tell the Azure

- What type of lighting units you have connected to it
- What DMX addresses they are operating at
- Which DMX output line each unit is connected to (there are 4)
- Which fixture select buttons you want to use to access them

You can either patch the DMX channels on your console to match your lighting rig, or set up the console first and then set the lighting rig to match.

The Azure must be in Program mode before you can patch.



2.1 Fixture select buttons

The Azure can control up to 200 intelligent fixtures, and 200 dimmer channels. To do this it has 10 pages of 20 fixtures and/or dimmers.

If you have a mixture of fixtures and dimmers, you have two options:

1. Patch the dimmers to one set of pages and the fixtures to another (**separated** patch). This means you don't have to press the Dimmer or Fixture button every time you select something, but the total number of fixtures and dimmer channels can't exceed 200.
2. Patch dimmers and fixtures on the same pages or even the same buttons (**overlay** patch). This means you can have 200 fixtures and 200 dimmers, but you need to press the Dimmer or Fixture button before selecting anything, so the Azure knows whether to activate the dimmer or the fixture allocated to the button.

The Azure also allows you to allocate fixtures and dimmers to Groups, which can get round the need to press the Dimmer/Fixture button. Groups are described in the next chapter.

2.2 Patching dimmers

Each dimmer channel is allocated to one of the fixture select buttons. If you want to link dimmers together, you can allocate several to the same button.

-
- 1> Press Patch, Dimmer, Dimmer/Fixture Page
 - 2> On the VGA display, the Azure shows the DMX address it is going to patch at. You can change this using the numeric keypad. You can also use softkey C "Select a DMX line" to patch onto one of the other 3 DMX output lines.
 - 3> To patch a single dimmer, press a Fixture Select button. To patch a range of dimmers, hold down the Fixture Select button for the

first dimmer in the range, then press the last button in the range. The range of dimmers will be patched to sequential DMX addresses.

- 4> *To patch another dimmer to the same button, just press the button again*
- 5> *Repeat from step 2 for other dimmers.*

- The VGA display will show the channels which have been patched. You can patch multiple dimmers onto the same button by simply pressing the button again when you get to the DMX address for the appropriate dimmer.
- Press Softkey A to set options for the dimmer channels. You can set the Full on level to less than 100% using option A, and select a different dimmer response curve using option B. To use the "User curve" setting you need to load in a user curve, see page 150.

2.3 Patching moving light fixtures

Moving light fixtures are more complicated to patch than dimmers because they have more attributes to control, such as pan, tilt, colour etc., where a dimmer channel just has intensity. When you patch a fixture, you will see on the display that it occupies a block of DMX channels rather than just one.

The Azure uses a "personality file" system to control fixtures. There is a personality file in the Azure for each fixture, which tells it what attributes are available and how to control them. In the unlikely event that there isn't a personality for the fixture you are using, you can either create one yourself (see chapter 10) or contact Avolites, who will be able to create one for you.

Note: You will need a Personality Disk in the disk drive, or to have loaded the personality cache from a disk into the Azure, before you can patch fixtures. The personality cache only needs loading once, and how to do it is described on page 154.

If you are using the internal personality cache, ensure there is no disk in the disk drive.

- 1> *Press Patch, Fixture.*
- 2> *The display will show "Please wait ... reading files" on the bottom line. A list of known manufacturers will appear after a pause.*
- 3> *Use the cursor arrows to select the manufacturer of your fixture.*
- 4> *Press Enter. The display will show all available fixtures for that manufacturer.*
- 5> *Use the cursor arrows to select the correct fixture. Press Enter.*
- 6> *The Azure will ask "Automatically create palettes?". Press Softkey A for Yes. This loads a standard set of positions, colours and gobos into the Palette pages which can be useful when programming. If you say No now, you can't load them later.*
- 7> *On the VGA display, the Azure shows the DMX address it is going to patch at. You can change this using the numeric keypad. You can also use softkey C "Select a DMX line" to patch onto one of the other 3 DMX output lines.*
- 8> *Select Dimmer/Fixture page to be used.*
- 9> *Press a Fixture Select button to patch the fixture. The display will show the block of channels occupied by the fixture.*

- 10> Repeat from Step 7 to patch more of this type of fixture.
- 11> Press softkey A ("Select another fixture") and repeat from Step 3 to patch a different type of fixture.

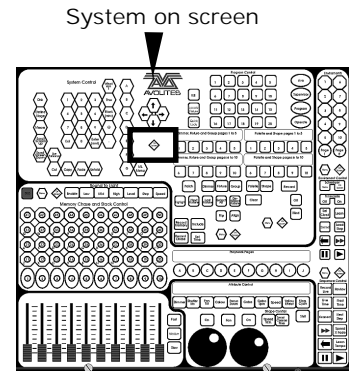
You can patch a range of fixtures by holding down the first and last buttons of the range, the same as for dimmers.

2.4 Checking the patching

Having set the Azure, you need to ensure that your lighting rig is set up to match the Azure by going round your rig to set the DMX addresses.

You can display the DMX settings on the Azure like this.

- 1> Press the On Screen button below the cursor arrows
- 2> Press Fixture or Dimmer
- 3> Select the page of fixtures you want to look at
- 4> Press a fixture select button
- 5> The screen shows the fixture type and DMX line and address (e.g. A24 is address 24 on DMX line A). The dip switch settings may also be shown if the fixture personality includes this information.
- 6> Repeat from Step 4 to view other fixtures.



- Press the On Screen button, then Softkey A "Patch by DMX" to display a list of all DMX channels, what they are allocated to and the current output. The cursor arrows scroll through the list.
- The On Screen button then Softkey B, "Patch by Fixture", displays a list of all the fixtures and shows the DMX addresses allocated to them.

2.5 Changing the DMX address

You can re-patch a fixture to a different DMX address or a different DMX output line. All programming is kept.

- 1> Press Patch.
- 2> Press Softkey E "Repatch Fixtures".
- 3> Use the numeric keypad to enter the new DMX address of the fixture. If you want to change the DMX output line, press Softkey E "Select a DMX line" and choose a new output line by pressing A B C or D.
- 4> Select the page for the fixture you want to change.
- 5> Press the fixture select button to patch that fixture at the new address.
- 6> Press Enter to confirm the change.
- 7> Repeat from step 3 if you want to change other fixtures.

2.6 Moving a fixture to a different select button

You can move a dimmer or fixture from one select button to another simply by entering the DMX channel to match the fixture, then patching it again onto another button. However, all programming is lost for that dimmer channel or fixture.

2.7 Patching options

The Azure allows several options to be set for each fixture or dimmer when it is being patched. The Patch Options menu is accessed by pressing Softkey F "Patch Utilities" while you are in patch mode. Set the options before you start programming, because memories will play back differently when the options are on.

The options are:

A: Invert - Allows you to invert an attribute of a fixture, so when you set zero the output will be full. You cannot invert some attributes.

-
- 1> *Select the fixtures you want to invert*
 - 2> *Select the attribute you want to invert (some can't be changed)*
 - 3> *Press E or F to invert the attributes shown (the VGA display shows the current setting as NORMAL or INVERTED)*
 - 4> *Repeat from 2 if you want to invert more attributes, or 1 if you want to change other fixtures.*
-

B: Set/Reset Instant mode - When the Azure fades LTP (movement) channels between two memories, the LTP values normally change smoothly. You can set Instant mode to make the channel snap instantly to the new value.

-
- 1> *Select the fixtures you want to change*
 - 2> *Select the attribute you want to change (some can't be changed)*
 - 3> *Press E or F to change the attributes shown (the VGA display shows INSTANT or FADE)*
 - 4> *Repeat from 2 if you want to change more attributes, or 1 if you want to change other fixtures.*
-

C: Swap pan and tilt - If you have some fixtures mounted sideways, it can be useful to swap the pan and tilt channels over.

-
- 1> *Press the Pan/Tilt attribute button so you can see the setting*
 - 2> *Press the fixture select buttons of the fixtures you want to swap*
 - 3> *Repeat from 2 to change other fixtures.*
-

D: Set DMX lines - The Azure has 4 DMX output lines, this option lets you set which connectors they come out of. You can output the same DMX line from more than one connector if you want to.

You can also use this option to set the highest DMX channel to transmit. This will speed up the DMX refresh rate if you are not using all 512 channels. (This option can also be set from the User Preference menu).

E: Find fixture - This option lets you find "lost" fixtures (if you have set the DMX address and forgotten what it was).

-
- 1> *Using the cursor arrows, select the type of fixture & press enter*
 - 2> *Spin wheel A until the fixture responds (open white beam, central position)*
 - 3> *You can change the DMX output line using the A B C D softkeys or directly enter a channel by pressing softkey G*
 - 4> *Read the DMX address from the VGA display.*
-

CHAPTER THREE

3. Controlling dimmers and fixtures

This chapter contains: Selecting fixtures and dimmers for control; changing attributes of the selected fixtures; using groups; the align and flip buttons; using palettes; entering levels as numbers; the ML menu and tracking.

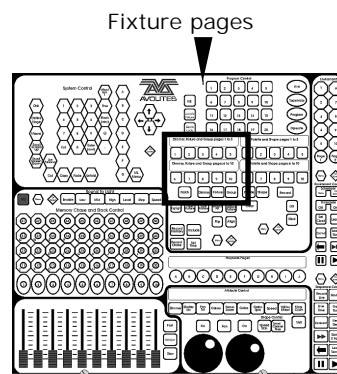
When you are programming a show, and sometimes when you are running a show, you need to manually control the fixtures and dimmers to set the intensity, position, colour, etc. To do this you first select the fixtures you want to change, then you set the attributes of those fixtures.

3.1 Selecting fixtures and dimmers for control

To select the fixtures or dimmer channels that you want to control, you use the fixture pages and the fixture select buttons. You can select fixtures or dimmers individually, or several at once.

Selection of fixtures is identical to selection of dimmer channels, so for "fixtures" read "dimmers" as well.

- 1> *Press the page for the fixtures*
- 2> *If there are both dimmers and fixtures on the page, press Fixture or Dimmer to select which type you want.*
- 3> *Press the fixture select buttons for the fixtures you want. Selected fixtures are shown in dark blue on the VGA display*
- 4> *To select a range of fixtures, hold down the first fixture button then press the last fixture button.*



Here are some other things to know:

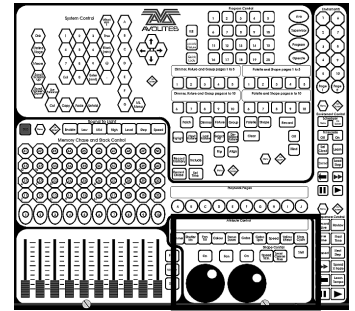
- The fixture select buttons light up to show which fixtures are patched.
- Press "Locate Fixture" to position the selected fixtures in open white at a central position (dimmer channels go to 50%).
- If a range of fixtures is selected, or a group, the Last Fixture and Next Fixture buttons deselect the range then step through the fixtures in the range selecting them one at a time. The Highlight button turns on the dimmer of the fixture that is currently selected. The Select All button reselects the fixtures in the range.
- You can deselect a fixture by pressing the fixture select button again. You can deselect all fixtures by pressing the Deselect Fixture button, and if you are not in the last/next fixture mode described above, you can select all fixtures on the current page by pressing the Select All button.
- Once you have changed any attribute, pressing a fixture select button will deselect all fixtures and start the selection process again.
- The Kill and Quick Look buttons are not implemented in the current software.

3.2 Changing attributes of the selected fixtures

"Attributes" are the functions of the fixture, like pan, tilt, colour, dimmer, and are set using the wheels at the bottom of the Azure. The attributes available depend on the fixture type. Dimmer channels only have a dimmer attribute. The Azure can control up to 40 attributes per fixture.

Each attribute button can control two attributes, one on the left wheel and one on the right wheel.

-
- 1> *Press the button for the attribute to be changed*
 - 2> *Turn the wheels to set the attribute. The bottom right hand corner of the VGA display shows which attributes are being controlled and the current values.*
 - 3> *The top part of the VGA display shows the fixtures which are being changed*
 - 4> *Repeat from 1 to change other attributes of the selected fixtures.*
-



Attribute control

Some other things to know about attributes:

- The Attribute buttons let you select the first 20 attributes. Another 20 attributes are available by pressing the Shift button, to cater for the weird and wonderful DMX fixtures of the future. The light on the Shift button stays on when you are using the top 20 attributes.
- If the VGA display does not show the attribute when you press the button, that attribute is not available on the selected fixtures.
- Fixtures which don't have a Dimmer function usually use the Gobo function to black out the fixture.

3.3 Using groups

You can create groups of fixtures or dimmer channels, to make selecting them faster. You can, for example, make a group for each type of fixture, or group by left / right stage, etc. You can then select all the fixtures in the group just by pressing one button.

-
- 1> *Select the fixtures/dimmers you want in the group (the order in which you select them will also be stored in the group)*
 - 2> *Press Record, then Group*
 - 3> *Select the page on which you want to store the group (the page buttons are the same ones used for fixture pages)*
 - 4> *Press the select button where you want to store the group*
 - 5> *Repeat from 1 to store other groups*
-

Other useful things to know about groups:

- Once you have created a group, you can then instantly select all the fixtures/dimmers in the group simply by pressing Group, then a select button. All other fixtures and dimmers are deselected.
- You can enter names for groups to help you remember what's in them. Press Input Legend, then the group button to name. Enter a name using the letters on the playback buttons, or an external keyboard if you have plugged one in. Press Enter to save it.
- The VGA display shows the contents of the current page of groups.

- You can use the Next Fixture / Last Fixture buttons to step through the fixtures in the group. The order in which the Azure steps through will be the order you originally selected the fixtures when you created the group.
- You can delete a group by pressing Group, then Cut, then the select button for the group.

3.4 The Align and Flip buttons

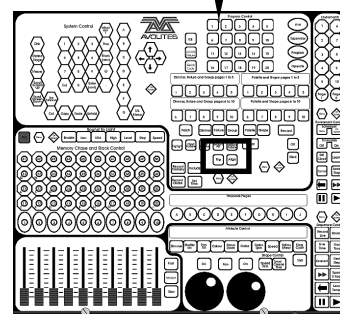
The Align button allows you to set the same level on a particular attribute for a range of fixtures. This can be useful if you want to set a row of scans to have the same tilt position, or if you want to set a colour from one fixture onto other fixtures.

-
- 1> *Press an attribute button to select the attribute you want to align.*
 - 2> *Select the fixture to use as the reference*
 - 3> *Select the other fixtures you want to align to the first one*
 - 4> *Press Align.*
 - 5> *The attributes will be aligned on all the selected fixtures.*
-

- If you use a group to select the fixtures, the one you selected first when you recorded the group will be the reference fixture.
- If Tracking mode is on (see page 118), aligning the Pan/Tilt attribute will cause all the fixtures to point at the same place on the stage rather than copying the actual Pan/Tilt values.

The **Flip** button is only used with moving head fixtures. This type of fixture has two possible pan and tilt positions for each point on stage, and the Flip button alternates between them. This allows you more freedom to make movements without hitting the pan stop.

Flip and Align buttons



3.5 Using palettes

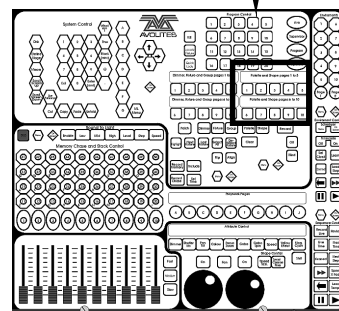
When programming a show you will find that you frequently use certain positions, colours, etc. Like an artist's palette, the Azure lets you store these settings so you can recall them at the touch of a button. There are 10 pages of 20 palette entries. You can name the palette values so that you know what you're getting.

Also, when you patch a fixture, the Azure loads 10 preset positions, 10 colours and 10 gobos into the palette for that fixture. The colours are always the same for all fixtures, so you know that if you select "Red" you are going to get red on everything, even though the Azure is sending out different values to the different types of fixture.

Palette values stored as a reference

The most important thing about palettes is that when you use a palette value in a memory, the Azure stores a reference to the palette, rather than the actual value. This means that if you program your

Palette pages



memories using palettes, you can easily change all the positions just by reprogramming a few palette entries rather than having to reprogram all the memories. This is handy if you are touring a show and have to cope with different stages or truss heights every show.

Shared and individual palettes

Palette entries can be shared or individual.

- **Shared:** If you only have one fixture selected when recording the palette entry, then you can use that palette entry for all fixtures of the same type. So you could save a value for "Red" on the first of your Wackylites™, and then use that value for any of your Wackylites. This is a shared palette, useful for values which are the same for all the fixtures of one type, such as colour, gobo, prism etc. The pre-programmed palettes are all shared.
- **Individual:** If you select more than one fixture when recording the palette entry, then the entry is unique for each fixture. So when you save an entry with pan/tilt positions for your 4 central Wackylites, those positions will only ever apply to those fixtures. You can later add values for other fixtures; fixtures which have no values saved will not change when the palette is recalled. This is an individual palette, useful for values which vary for each fixture, like pan, tilt and focus.

Which attributes are stored in palettes

A palette entry can store any or all attributes of a fixture, so you could store colour and gobo in the same palette entry. Only the attributes you have changed will be recorded. You can also "mask out" some of the attributes, when saving the palette entry.

To save all the changed attributes, select the Dimmer attribute when saving the palette. All the attribute lights will come on to show you that they are all going to be used. To save one individual attribute, press one of the other attribute buttons (the Colour attribute also selects the Yellow / Magenta / Cyan colour mix attributes). You can save other attributes later if you need to.

This is how you save a palette value:

-
- 1> *Press Clear to clear the programmer.*
 - 2> *Select the fixtures for which you want to store palette values. Select one fixture only to record a shared palette entry.*
 - 3> *Set the attributes you want in the palette entry. You can store any or all attributes of a fixture in each palette entry. Only attributes you have changed will be recorded.*
 - 4> *Press the attribute button for the attributes you want to store (the dimmer button will store all attributes). The buttons light up to show you which attributes are going to be recorded.*
 - 5> *Press Record, press Palette, press the palette page you want to use, then press one of the fixture select buttons to store the palette entry under that button.*
 - 6> *Name the palette entry by pressing Input Legend, then the palette select button, then enter the name using the letters on the playback buttons or an external Qwerty keyboard.*
-

To recall a palette value, this is what you do:

-
- 1> *Select the fixtures to be changed. Shared palettes can be set to any fixture of the same type. Individual palettes will set individual values to each fixture.*
 - 2> *You can apply the palette values instantly, or fade to them by pressing one of the Fast / Medium / Slow buttons at the side of the sliders (this can be useful in the middle of a show)*
 - 2> *Press Palette, press the palette page number you want, then press the select button for the palette entry you want (the VGA display shows the contents of the page). The fixtures will be set to the palette values.*
-

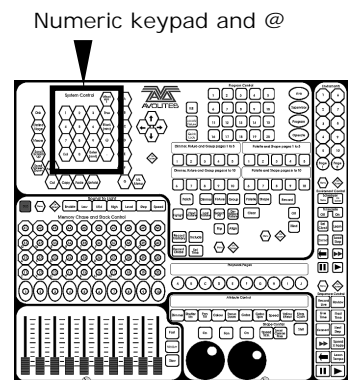
Other useful things to know about palettes:

- You can edit a palette entry by recalling it, making the changes you want, then saving the new information back on top of the existing palette entry. Anything you haven't changed will not be affected, values you have changed or added will be amended.
- You can delete a palette entry by pressing Cut, Palette, then the select button for the palette entry to be removed
- You can set the fade times for the Fast / Medium / Slow buttons by pressing Set Time, then the button you want to set, then entering the fade time in seconds on the numeric keypad.
- You can change the way the attributes are grouped when saving palette entries by selecting the attribute button to change, then pressing the Menu button below the Palette button, then option A "Specify attributes for bank". The buttons will light to show which attributes are saved when that button is selected. You can press the buttons to include or exclude attributes. Press Exit twice to finish.

3.6 Entering levels as numbers

You can set levels using the numeric keypad as you would on a theatrical lighting desk. This can be faster when plotting dimmer levels for a scene than using the select buttons and the wheels.

-
- 1> *Type the dimmer number (not the DMX channel) on the keypad.*
 - 2> *Press "@".*
 - 3> *Press 0 - 9 for the intensity, or "@" again (or Softkey D) for 100%*
 - 4> *Press the decimal point key and another digit for more accurate control*
 - 5> *If you need to display the dimmer numbers, press the System On Screen button (below the cursor arrows), then softkey B "Patch by fixture"*
-



Other things you can do by numeric entry:

- The softkey options are D: set to 100%, E: up by 5%, F: down by 5%.
- You can set multiple dimmers to the same level using the "thru" button. Enter first dimmer, "thru", last dimmer, "@", level.

- The Azure normally controls dimmers this way, but Softkey C "Set Fixture Type" on the main menu lets you change this to control one of the other fixture types you have patched.
- If you change the type to a fixture, you select the fixture by entering the fixture number, then @. You can use "thru" to select multiple fixtures.
- To set a fixture attribute, select the attribute using the Attribute buttons. Enter the value, then press Softkey E (left wheel attribute) or F (right wheel attribute) to set the value. The VGA display shows which attributes are going to be set.
- You can recall groups of fixtures or dimmers (type group number, then press softkey A).
- You can recall palette entries (type palette entry number, then press softkey B)
- You can change the input mode to 0-255 (DMX values) rather than 0-100% by pressing a number then softkey G "Set input to 0-255".

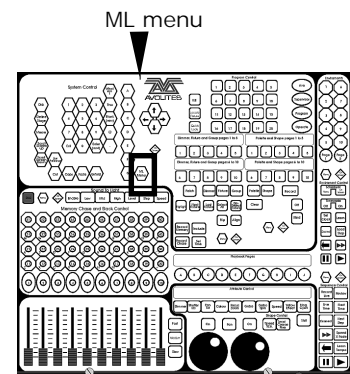
3.7 The ML menu and Tracking

The Azure can learn the layout of the stage and lights rig you are using. This enables it to calculate where it needs to point each light so that they all hit the same place on the stage. This is called Tracking mode and it is a very powerful feature of the Azure.

Option A "Locate Fixture" and **B** "Align Fixtures" are the same as pressing the appropriate button on the Azure, and are included here for compatibility with the Pearl.

Option E "Define the stage" lets you teach the Azure how your lights are set up.

You need to mark a square on the stage, ideally the sides of the square need to be half the depth of the stage but as long as it's square and you can point all the fixtures at the corners, the size is not that important.



-
- 1> Select all the fixtures you want to use for Tracking.
 - 2> Point all the fixtures so they light someone standing at the back left hand corner of the square.
 - 3> Select option A "Top left". This stores the positions.
 - 4> Point them all so they light someone standing at the back right hand corner, then select option B "Top right".
 - 5> Repeat for the front corners of the stage using options C and D to store the positions.
 - 6> Press Enter to complete the process.
 - 7> The Azure will go away and do lots of calculations. The message bar on the VGA display shows the progress. This can take several minutes.
-

- You can recall a position you have already set, if you want to edit it, using option F "Recall" then A B C or D to recall one of the positions.
- You need to make sure you are lighting a person rather than making a spot on the stage, because otherwise the beams will cross over at the

wrong place. If you can't find a handy spare person, use a plastic cup or a light coloured item of clothing over the end of a mic stand at head height.

- If you are using moving head fixtures, you need to ensure the pan stop is on the side away from the stage, or the fixtures will not be able to track over the whole stage area. You also need to keep the Tilt value less than 50%, or the heads may "flip" when you track into some areas.

Option F allows you to turn Tracking mode off or on. You can also do this from the graphics tablet (see page 146). When tracking mode is on, the pan and tilt controls set the position on the stage rather than absolute DMX values.

Option G is used to run startup macros which may be defined in the personality file. The VGA display will show a list of available macros for selected fixtures. If no macros are available for those fixtures, the option will not do anything. Macros may be used to strike lamps or reset fixtures, etc. The Personality File section on page 161 contains details.

CHAPTER FOUR

4. Using shapes

This chapter contains: Selecting a shape; changing the size and speed of a shape; spreading a shape across multiple fixtures; editing shapes which are running; fan mode.

The Azure, in common with other Avolites consoles, has a shape generator. This allows you to quickly create exciting light shows using lots of movement and changes, with the minimum of programming.

A shape is simply a sequence of values which can be applied to any attribute of a fixture. A "circle" shape, for example, applied to the pan and tilt attributes, would cause the fixture to move its beam around in a circular pattern. You can set the centre point of the circle, the size of the circle and the speed of the circle movement.

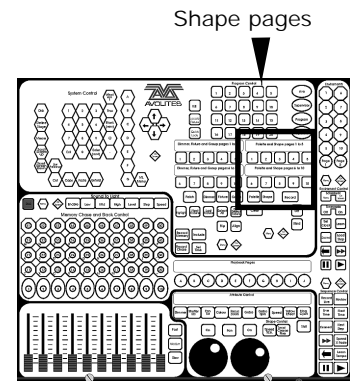
You could apply circle values to the colour mix attributes of a fixture and create some interesting ever-changing colours. In addition to circles there are a large number of other shapes available in the Azure. The shapes are defined for a particular attribute and the VGA display tells you which attribute they control.

When you use a shape with more than one fixture, you can choose to either apply the shape identically to all the fixtures, or offset them so that the shape runs along the fixtures creating "wave" or "ballyhoo" type effects. This is called the *spread* of the shape.

4.1 Selecting a shape

Selecting a shape is very similar to selecting a value from a palette. When you choose a shape, it will be applied to all selected fixtures.

- 1> *Select the fixtures the shape is to be applied to.*
- 2> *Press Shape and select a page of shapes. The VGA display shows you the contents of the page. Pages 5-10 contain the pre-programmed shapes.*
- 3> *Press a select button to apply a shape to the fixtures.*



The shape will start based on the current setting of the attribute.

- You can change the base value of the shape (e.g. the centre of the circle) by changing the attributes using the wheels in the usual way. You can reduce the Size to zero (see next section) to help you see what the base value actually is.
- You can run more than one shape at a time by repeating the above procedure. You can run several shapes on one fixture, but only if they work on different attributes (e.g. you can have a pan/tilt shape and a colour shape, but not two pan/tilt shapes.)
- Press the On Screen button below the Shape button to display the Shape Output screen and show you what shapes are running.
- If you apply the same shape to two different groups of fixtures, the

shape will appear twice on the shape output screen. You can edit the two shapes separately to give different directions, speeds etc (see later)

- You can remove shapes from fixtures which are selected by pressing Softkey G "Shape Generator", then softkey E "Remove shapes from selected fixtures".
- Each shape is designed to work on a particular attribute; the list on the VGA display shows you which attribute. Obviously if the fixtures don't have the attribute, you can't use that shape on those fixtures.

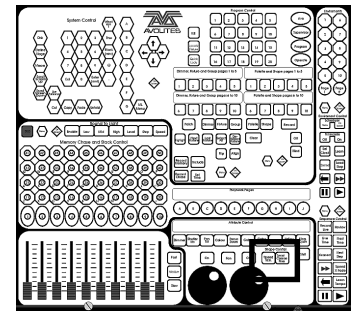
4.2 Changing the size and speed of a shape

It is easy to change the size and speed of a shape after it has first been selected.

-
- 1> Press Speed/Size above the wheels
 - 2> The left hand wheel controls the Size. The right hand wheel controls the Speed. The VGA display shows the values.
-

Other things to know about size and speed of shapes:

- If you have more than one shape running, the controls operate on the most recent one. You can edit the parameters of any shape that's running using the Edit Shape function, see later in the chapter.
- The minimum size is zero. This will "hide" the shape, and the fixture will resume its previous settings. The shape is, however, still active.
- The minimum speed is Stop. This will freeze the shape and will offset the positioning of the fixture.



Shape control buttons

4.3 Spreading a shape across multiple fixtures

To get the maximum impact from a shape, apply it to several fixtures. The Azure has some powerful "Spread" functions which determine how the shape is spread out across the fixtures.

This can vary from all fixtures moving identically (Coarse spread = 1), fixtures working in pairs (Coarse spread = 2) through to all fixtures being distributed evenly through the shape, so the first fixture is just starting the shape as the last one finishes (Coarse spread = Even).

The "Fine" spread value introduces a smaller offset into the timing of the shape across each fixture.

-
- 1> Press the Spread Coarse/Fine above the wheels.
 - 2> The left hand wheel controls the Fine Spread. The right hand wheel controls the Coarse spread.
 - 3> Keep the Fine Spread at zero while you adjust the Coarse spread to the desired value, or the output can get confusing.
-

- The order in which you select the fixtures determines how the shapes are applied; the "first" fixture is the one you select first and the "last" fixture is the one you select last.
- If you select the fixtures using a group, the order in which you selected

the fixtures when recording the group is used.

4.4 Editing shapes which are running

The Shape Generator menu allows you to edit shapes which are running. Press Softkey G "Shape Generator" on the main menu, or on the Shape menu (press the Menu button below the Shape button to get it).

Any changes you make to a shape will affect all fixtures which are running that shape. If you applied the same shape several times to different fixtures, you can change each copy of the shape independently.

The softkey options are:

A: Playback a shape - This is an alternative way to select a shape using the menu softkeys rather than the shape buttons. If you are used to the Pearl 2000 console, you might find this method of selecting shapes to be more familiar.

B: Edit a shape - This option lets you select which shape is the "Active shape" (the one you can control the speed, size and spread of with the wheels). You can't edit shapes which are being played back from a memory using this option.

-
- 1> *The VGA display shows a list of shapes you can edit, with a softkey allocated to each one*
 - 2> *Press a softkey to make the shape active. Active shapes are highlighted in light blue. You can make more than one shape active.*
 - 3> *Press Enter when you have finished*
 - 4> *The speed, size and spread controls will now affect all the shapes you have set to be active.*
-

C: Set wheels to SPREAD - This is the same as pressing the Spread button, and is included for compatibility with the Pearl 2000.

D: Set wheels to A=SIZE B=SPEED - This is the same as pressing the Speed/Size button, and is included for compatibility with the Pearl 2000.

E: Remove shapes for selected fixtures - This option is the only way to turn off shapes for an individual fixture. Select the fixtures you want to remove shapes from, then select this option. All shapes will be removed from the selected fixtures.

F: Change direction - The direction of the Active shape(s) will be reversed.

G: Playback parameters - This option lets you set parameters for a shape stored in a playback / memory. When a memory fades in, you can determine whether the shape should start at full size and speed instantly, or whether the shape speed and/or size should fade in as well. If the memory mode is set to 0, the settings are ignored.

-
- 1> *Press the playback you want to set the parameters for*
 - 2> *The Azure displays a box with the current options.*
 - 3> *Softkey A sets the Size to Static or Timed*
 - 4> *Softkey B sets the Speed to Static or Timed*
 - 5> *Softkey C sets the Shape Merge option on or off (if you run two*
-

playbacks applying shapes to the same fixtures, this option allows you to merge the shapes or override previous shapes with the latest one)

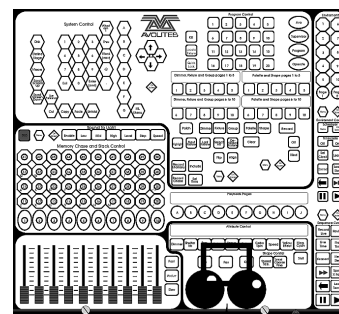
- 6> *The box shows the current memory mode of the playback. This is described in the next chapter.*
-

4.5 Fan mode

Fan mode is nothing to do with shapes, but the effect is similar to a static shape.

Fan mode automatically spreads out the values on a selected range of fixtures. If used on pan and tilt, the result is spreading out "rays" of light beams. The first and last fixtures of the range are affected most, and the central fixtures are affected least. The amount of fan can be set using the wheels.

As with shapes, the order in which you select the fixtures sets how the fan effect works. The fixtures you select first and last will be the ones which change most. If you use a group to select the fixtures, the order is that in which the fixtures in the group were selected when it was created.



Fan button

The fan effect, while normally used on pan or tilt attributes, can be applied to any attribute.

-
- 1> *Select the fixtures you want to fan*
 - 2> *Select the attribute to fan (pan/tilt, colour etc)*
 - 3> *Press Fan*
 - 4> *Set the amount of fan using the wheels*
 - 5> *The VGA display shows which attribute is being controlled by each wheel*
-

Fan mode needs to be used on at least 4 fixtures to give good effects. If you have an odd number of fixtures, the central fixture will not move in fan mode.

Press the Fan button again to leave Fan mode. Any effects you have set will remain.

It's fairly easy to accidentally leave Fan mode turned on and be very confused about why the wheels aren't working properly, so turn it off as soon as you have completed the effect.

CHAPTER FIVE

5. Recording and playing back memories

This chapter contains: HTP and LTP channels; how the Azure works when programming; recording a memory; playing back a memory; changing playback pages; setting fade times for a memory; the cut, copy and paste functions; the include function; editing memories; the "off" button; blind mode; recording the stage using snapshots; using shapes in memories.

The Azure has many functions for producing a complex light show, and the most fundamental part is a Memory, in which you can store a "look" you have created using your lights.

The Azure has 500 playback buttons, in 10 pages of 50, which can be used to store memories or chases (sequences of "looks"). Chases are covered in the next chapter.

The memory functions on the Azure are very powerful; the first part of this section explains the basics of how the Azure uses memories.

5.1 HTP and LTP channels

The Azure can treat control channels in two ways:

- Dimmer or intensity channels work on the principle of "highest takes precedence" (HTP). If an HTP channel is turned on in several memories, the highest level will be output. When you fade a memory, the HTP channels fade out with it.
- Moving light channels work on the principle of "latest takes precedence" (LTP). The latest change takes over from any other values, so the most recent memory to be turned on is the one which is output. When you fade a memory, LTP channels do not normally fade. They set their full values when the memory starts to fade in, and stay there until another value is set. (You can set the value this happens at using the User Preference menu).

The fixture personality file tells the Azure which channels of a fixture are HTP and which are LTP. Normally, only dimmer attributes are HTP, and everything else is LTP. If a fixture does not have an intensity control channel, the Gobo channel is defined as HTP to make sure the fixture blacks out when a memory is turned off.

5.2 How the Azure works when programming

The Azure has a special internal memory called the "Programmer". Whenever you change an LTP channel of a fixture, the changes are stored in the Programmer. When you record a memory, the contents of the programmer, along with any active HTP channels, are stored in the memory. Nothing else from the console output is stored.

The Azure has two programming modes, "Record by Fixture" (the normal mode) and "Record by Channel". The mode is selected by pressing the User Preference button and changing the option on the menu. The differences are:

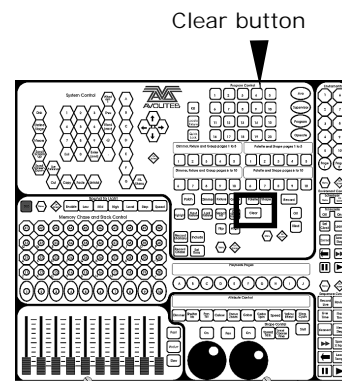
- Record by Fixture - When you change any attribute of a fixture, all the other LTP attributes are placed in the Programmer as well. You will get exactly the result you expected when you recall the memory, but you

can't combine memories, because they will just replace each other.

- Record by Channel - Only the attribute you change is placed in the programmer. This means you can save memories which only contain position information, then recall them with other memories to set colours, gobos etc. This is much more flexible but requires more programming initially, because you need several memories to get a result.

When you press **Clear**, all fixtures are cleared from the programmer. You should get into the habit of pressing Clear before you start to program a memory, or you can end up recording fixtures you don't want. You also need to press Clear when you finish programming, because any functions in the programmer will override playbacks.

When there is something stored in the programmer the Clear button flashes. Attributes which are in the programmer are shown with a light blue (cyan) background on the VGA display. Attributes not in the programmer are on the normal grey background.



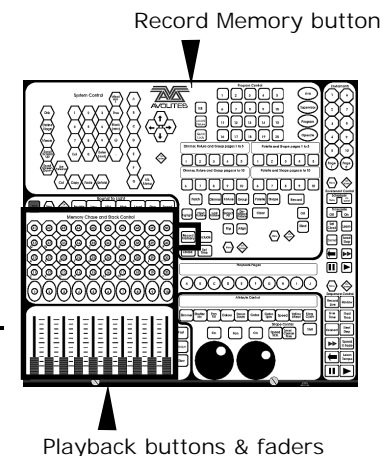
Turning on a memory does *not* place the values from the memory in the programmer (but the Include function lets you do this, see page 23). The Locate Fixture button does not place any values in the programmer either.

When you record a memory, HTP channels are always recorded at their current value. Only LTP channels operate through the Programmer, so for dimmer channels you just need to make sure everything is set to the correct values before you record the memory.

5.3 Recording a memory

The Azure has 10 pages of 50 memories (the page select buttons are above the Attribute buttons). The bottom 10 memories of each page are replayed using the faders. The rest are replayed using buttons and can be set to latch (the normal mode) or flash. Flash mode can be useful for strobing playbacks or audience blinders, or any playback you only want to run momentarily.

-
- 1> Press Clear to clear the programmer. This ensures that you are starting with a clean slate.
 - 2> Set up the stage effect using the fixtures. You can include shapes in a memory. Remember that only the fixtures you have changed will be included in the memory.
 - 3> Press Record Memory.
 - 4> Press a Playback button to record it (the 1-10 buttons will allocate the memory to the fader below). Memories which are empty will flash. Press another playback page button to change page.
 - 5> Press Clear to clear the programmer. Repeat from 2 to program more memories
-



Other useful things to know about recording memories:

- You can label the memory to help you remember what's in it. Press Input Legend, then the playback button, then enter 2 lines of 6 letters

using the letters on the playback buttons or an external Qwerty keyboard. Press Enter to finish. You can also label the playback pages this way.

- Display the contents of the memories in the current page by pressing the On Screen button near the DBO button. Memories which are turned on are shown in bright white text. The labels for the 10 playback pages are also shown on this screen.
- Set the playback to latch or flash by pressing the Menu button next to the DBO button, then softkey A. The button lights are on for latch playbacks and off for flash playbacks. Press the 11-50 playback buttons to set latch or flash mode (the 1-10 buttons are always flash buttons). Press Exit to finish.

5.4 Playing back a memory

To play back a memory, press the button, or raise the fader. (Make sure there are no values in the programmer by pressing the Clear button, because anything in the programmer will override the playback).

- You can turn on more than one memory at once, and the levels in each memory will combine using the HTP and LTP rules. However, you can only turn on one memory in each column (i.e. one out of 11, 21, 31, 41). If memory 11 is on, and you turn on memory 31, then memory 11 will turn off. This applies even if you change pages. You can use this to your advantage if you want a memory to automatically replace the previous memory, by storing them in the same column.
- The faders work separately, so the total number of playbacks you can turn on at the same time is 20.
- If you are using a fader, all the HTP (intensity) channels in the memory will fade up with the fader. The LTP (movement) channels will be set as soon as the fader leaves the zero position. You can set the point at which this occurs on the User Preference menu.
- Pressing the DBO button turns all HTP channels off, blacking out all fixtures and dimmers. You can turn off all active memories by holding down the DBO button and pressing the Clear button.

5.5 Changing playback pages

You can change pages to select another 50 memories simply by pressing one of the playback page buttons, labelled A - J.

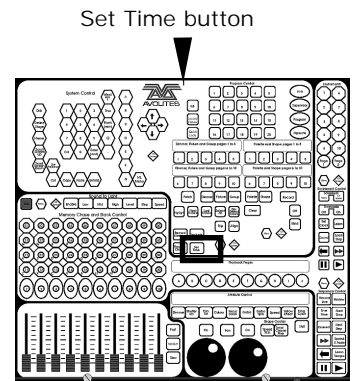
- Playbacks which are turned on when you change page remain active. The light flashes on the playback button to tell you that the playback is active on another page.
- If you turn on a playback in the same column, the other playback will turn off.
- You can label the playback pages by pressing Input Legend, then a page button, then entering a label using the letters on the playback buttons or a Qwerty keyboard. The labels are shown at the bottom of the Memory screen.

5.6 Setting fade times for a memory

You can set a fade in and fade out time independently for every memory. The fades only affect HTP (intensity) channels. There is a separate LTP timer which allows you to set movement times. LTP channels which are set

to “instant” (see page 112) ignore LTP fade times.

-
- 1> Press Set Time.
 - 2> Press the playback button you want to set times for
 - 3> Enter the new time using the numeric keypad (it doesn't matter which option the numbers appear next to).
 - 4> Press Softkey C to set the fade in time, Softkey D to set the fade out time, or Softkey E to set the LTP fade time (Options A, B, and F have no effect on memories and are only used on chases)
 - 5> Softkey G sets the memory mode of the chase to 0, 1 or 2 (described below).
 - 6> Press Enter to save the changes or Exit to abandon.
-



The times you enter are also affected by the memory mode:

- Mode 0 - No timing information.
- Mode 1 - Channels fade as set by the HTP and LTP fade times (except Instant LTP channels).
- Mode 2 - HTP channels fade as set by the HTP times. LTP channels are controlled by the fader position (except Instant channels). Set the LTP fade time to 0 to use this mode.

5.7 The Cut, Copy and Paste functions

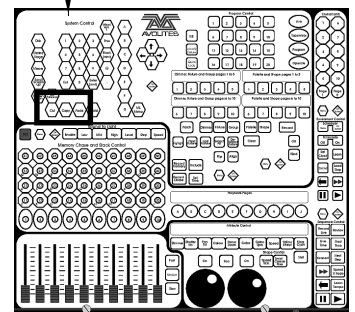
The Cut, Copy and Paste functions enable you to remove memories, copy them and move them to another position.

“Cut” removes the memory and copies it to a temporary memory. “Copy” just copies the memory to a temporary memory.

“Paste” then allows you to place a copy of the memory on another playback. You can use Paste as many times as you like to make multiple copies of the memory.

-
- 1> Press Cut or Copy, then the playback button you want to cut/copy.
 - 2> Press Paste.
 - 3> Press Softkey A if you want to create a linked copy (changing the original memory will change the copies too). Otherwise the new copy will not be linked.
 - 4> Press the playback button where you want to store the new copy. The label of the memory is not copied, except for linked copies.
-

Cut, copy and paste

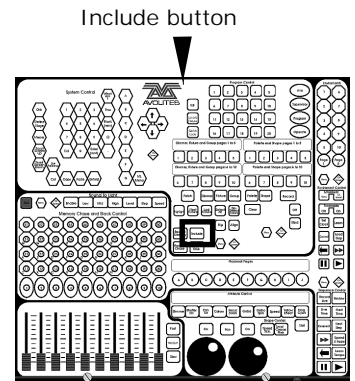


- The Cut button is also used to delete dimmers, fixtures, groups and palettes. Paste cannot be used for these functions, once they've gone that's it!
- You can also cut, copy and paste chases in the same way.

5.8 The Include function

The Include function lets you load selected parts of a memory back into the programmer. (Normally, only manual changes to fixtures are put in the programmer). You can then use this to make a new memory. This is useful if you want to make a memory which is similar to one you already have.

When you use Include, you specify which attributes of which fixtures you want to load into the programmer. So, for example, if you have a memory which contains position, colour and gobo information for 8 fixtures, you can use the include function to load only the colour information for 4 of the fixtures into the programmer. You could then "Include" position information from another memory into the programmer, and build up a new memory using information from several existing memories.



-
- 1> *Select the fixtures from which you want to take settings.*
 - 2> *Press Include.*
 - 3> *Select the Attributes you want to include. The Dimmer attribute includes all other attributes (the buttons light up to show which attributes will be included)*
 - 4> *Press the playback button for the memory you want to include. The selected attributes of the selected fixtures will be loaded into the programmer.*
 - 5> *Repeat from 2 to include other attributes from the same fixtures, or repeat from 1 to include other fixtures.*
-

- If you want to put the whole memory into the programmer, ensure no fixtures are selected, then press Include, then the Playback button for the memory to include. Everything will be placed in the programmer.
- If the memory contains shapes, all the shapes and all the fixtures they are applied to will be loaded into the programmer, even if the fixtures and attributes are not selected. The shapes can then be edited, see page 122.
- If you really want to, you can edit the way the Attributes are grouped (e.g. the colour function always selects the Yellow / Magenta / Cyan functions too). See Attribute Groups for palettes on page 117.

5.9 Editing memories

You can edit any part of a memory you have already saved simply by making the changes and saving the new information on top of the memory.

-
- 1> *Press Clear to empty the programmer.*
 - 2> *Turn on the memory you want to edit, so you can see what you are doing.*
 - 3> *Select the fixtures you want to change, and make the changes.*
 - 4> *Press Record Memory.*
 - 5> *Press the playback button for the memory you are editing to save the changes. Unchanged information is not affected.*
-

- If the memory contains shapes, and you have selected some new shapes, the original shapes will be deleted (after a warning). To get round this you need to use Include on the original memory to load the

shapes into the programmer.

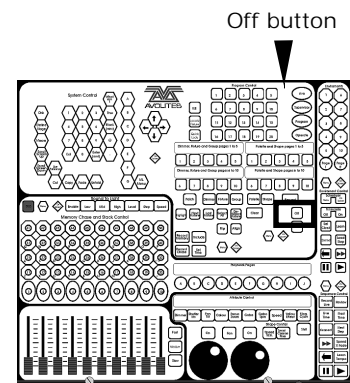
5.10 The "Off" button

The "Off" button allows you to remove an attribute which has been stored in a memory, so that it is as if you never recorded it.

For example, suppose you recorded a memory which had scans at a certain position, with the colour set to white. If you later decide that you don't want a colour recorded at all in the memory, so that the previous colour setting of the scans will be used, you use the Off function to turn off the colour in the memory. You can also use the Off function to remove complete fixtures from a memory.

Using the Off button is not the same as recording an attribute at zero. It is like not recording the attribute at all.

- 1> Turn on the memory you want to edit, so you can see what you are doing.
- 2> Select the fixtures you want to change.
- 3> Press the OFF button to display the Off menu.
- 4> To switch off all attributes of the selected fixtures, press Softkey A
- 5> To switch off selected attributes, press the appropriate attribute button, then use Softkey B and C to set each attribute to Off (the VGA display shows which attribute will be turned off)
- 6> Repeat from 3 to turn off other attributes, or from 2 to turn off other fixtures.
- 7> Press Record Memory.
- 8> Press the playback button for the memory you are editing to save the changes. Unchanged information is not affected.



- Attributes which are Off are shown on the VGA display.
- Attributes or fixtures set to "Off" can be turned back on again by selecting them in the usual way and changing them using the wheels.
- You can also use this function to turn off fixtures or attributes in a palette entry. Use the procedure above, but instead of editing and recording a memory, edit and record a palette entry instead. See page 116 for how to do this.

5.11 Recording in Blind mode

The Azure has a useful function called Blind mode, which allows you to program memories without altering the output of the console. The contents of the Programmer are saved on entering Blind mode, and restored when you leave Blind mode. Any playbacks turned on continue as normal, and you can make any changes you like without affecting the output.

This is useful if for some reason you need to edit a memory in the middle of a show without upsetting the current lighting state. Obviously, as you can't see the changes you are making, you will need to have a good idea of what values to set.

- 1> Press the Blind button.

-
- 2> *If you don't want the contents of the programmer, press Clear.*
 - 3> *Make changes to your fixtures as usual. Use the VGA display or the Graphics Tablet to help you set the right positions, colours etc.*
 - 4> *Save your changes as usual.*
 - 5> *Press Blind to exit blind mode. The previous contents of the programmer will be restored (the contents of the programmer from Blind mode will be lost).*
-

- If you have edited a playback which is already turned on, you will need to turn it off then on again to load the new version.

5.12 Recording the stage using Snapshots

The Snapshot function allows you to instantly record the current output of the console for later use. This can be useful if you suddenly create an amazing effect on stage, but it's a mixture of things you have changed and things left over from the last memory.

When you take a Snapshot, any fixture which is lit up (has its dimmer channel on), and any active dimmer channels are stored. You can later retrieve the snapshots and copy them into memories.

The Azure can store up to 50 snapshots. They are listed by time and date, so if you write down the time when you store one, you will be able to identify them later.

-
- 1> *At the main menu press Softkey D "Snapshot Menu". The VGA display shows "(x/50)" to tell you how many of the 50 snapshots are used.*
 - 2> *Press Softkey C "Take a snapshot of the stage" to record the output to a snapshot.*
 - 3> *Press Softkey A "Load a snapshot" to load a previous snapshot into the programmer. The VGA display shows a list of stored snapshots. Use the cursor keys or type the number of the one you want on the numeric keypad, then press Enter.*
 - 4> *Press Softkey B "Delete a snapshot" to delete a snapshot from the list. The VGA display shows a list of snapshots, select the one you want as for the Load option above.*
-

5.13 Using shapes in memories

As you would expect, any shapes you have set up will be saved as part of the memory.

If the base value of the shape is not in the programmer (e.g. the central pan/tilt position, for a circle), then the memory will contain a "relative" shape. When you recall the memory, the shape will start based on the current position of the fixture. This allows you to create lots of different effects by layering a few different memories - one for the shape, one for the base position.

You can either use "Record by channel" mode, and not set the position, or use the "Off" function to achieve this effect.

CHAPTER SIX

6. Recording and playing back chases

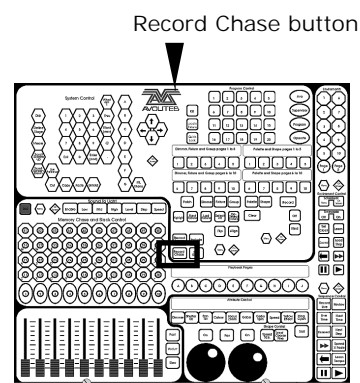
This chapter contains: Programming a chase; running a chase; setting speed and crossfade; manually controlling the chase steps; setting step times and unlinking; editing a chase using unfold; editing a chase which is running; using cut, copy and paste on chases; sound activation of chases; chase options.

As well as being used to store static memories, the playback buttons on the Azure can also be used to store chases (sequences of static memories).

6.1 Programming a chase

To program a chase, you have to set up the lighting for each step of the chase, then save it. The contents of the programmer are recorded as a step.

You can either set all the fixtures and dimmers manually for each step, or you can use Include to load in the information from memories you have already recorded.



- 1> Press Record Chase.
- 2> The free playbacks flash. Press the button where you want to store the chase.
- 3> Set up the lighting for the first step, either manually or by using "Include" on existing memories.
- 4> The VGA display shows "Press the flashing key to record Step 1". Press it, the information from the programmer is stored as Step 1 of the chase.
- 5> Press Clear, then repeat from step 3.
- 6> Press Record Chase to finish when you have stored all the steps you want.

- You can't record shapes in a chase. Any shapes which are active will be ignored.
- You can set a label for the chase by pressing Input Legend, as with memories.
- There is no limit to the number of steps in a chase provided there is enough free memory in the Azure.

6.2 Running a chase

To run a chase, press its playback button, or raise the fader if it is stored in one of the 1-10 playbacks. The chase will start to run. The latch/flash settings of the playback buttons still apply to chases (see page 127 for details).

- If the chase is on a fader, then the HTP (intensity) channels in the chase will be controlled by the fader. The other channels (LTP) will be set as soon as the fader moves above zero according to the LTP fade times programmed in the chase. You can set the point at which the LTP channels activate from the User Preference menu.

- The VGA display shows the progress of the chase. The Wait and Fade times are represented by black bars.
- Press the On Screen button above the chase controls to show details of the chase steps.

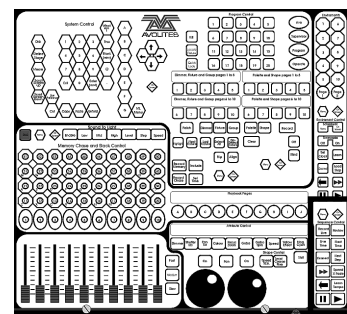
There are many options you can set to determine the way the chase runs and these are described in the rest of this chapter.

6.3 Setting speed and crossfade

When you run a chase, the wheels are assigned to control the Speed and Crossfade of the chase. The wheels are automatically “connected” to the most recent chase.

You can save a speed with the chase, so that every time you play it back, it runs at the same speed.

- 1> Press the Chase Menu button (or Softkey A on the main menu).
- 2> Press Softkey A “Chase Parameters”.
- 3> Set the speed you want using the left hand wheel.
- 4> Press Softkey A “Save Speed”.




Chase controls & chase menu button

- You can also set the chase speed by tapping the “Learn Tempo” button in time with the music.
- If you are doing another operation using the wheels while running a chase (e.g. manually positioning some fixtures), you can make the wheels control speed and crossfade again by pressing the “Set Wheels to Speed/Xfade” button
- If you press the “Set Wheels to Speed/Xfade” button while Speed and Xfade is shown on the screen, the speed display on the VGA screen will change from seconds to BPM (beats per minute)
- You can “connect” the wheels to a different chase by pressing the Connect button, then the playback button for the chase you want to connect to.
- You can turn off the “chase autoconnect” option in the User Preference menu if you don’t want the wheels to connect to the chase when you start it.

6.4 Manually controlling the chase steps

You can take manual control over the connected chase by pressing the Pause (| |) button. If the chase has its links set to off, then it will pause automatically - see the next section for how to do this.

- Press the Go button to restart playback of the chase
- Press the  button to temporarily turn off the chase links. The chase will run each step when you press Go, then automatically pause again.
- Press the Pause button to jump to the next step (times and fades are ignored)
- Press the Back button to jump back a step (times and fades are ignored)

- Press Load Step and enter the step number on the numeric keypad to set the next step to be any step in the chase. If you enter the step number then press Softkey A, the chase will jump instantly to the new step.
- Turn the left hand wheel to manually control the HTP fades for this step (this can be disabled using the chase parameters menu).
- Turn the right hand wheel to manually control the LTP fades for this step (this can be disabled using the chase parameters menu).

6.5 Setting step times and unlinking

You can set step times globally for the whole chase and individually for each step. You can also unlink the steps, either for the whole chase or for individual steps, so that the chase pauses and waits for you to press the Go button. This can be useful if you are using the console for theatrical lighting cues.

To set the global times for a chase:

-
- 1> Press Set Time, then the playback button for the chase.
 - 2> Enter the new time value using the numeric keypad (it doesn't matter which option the numbers appear next to).
 - 3> Press Softkey A-F to set a time value. (the times are described below).
 - 4> Press Softkey G to set Link on or off for the whole chase. If link is on the chase runs automatically. If off, you run each step manually using the Go button (a chase like this is called a "stack").
-

The times are:

Wait In - Delay before the fade in starts

Wait Out - Delay when fade in has completed before the fade out starts

Fade In - Time to fade in

Fade Out - Time to fade out

LTP Fade - Time for the LTP (movement) channels to fade over

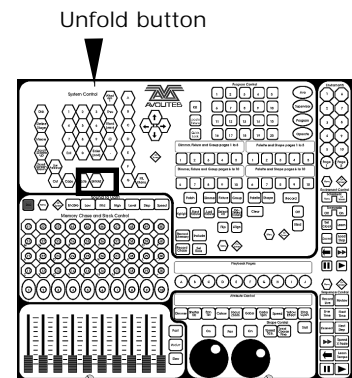
LTP Wait - Delay before the LTP channels start to move

- You can enter minutes as part of the time - press the decimal point twice, a colon (:) will appear. e.g. to enter 20 mins 10.5 seconds, type 20..10.5 (the display will show 20:10.5).
- You can set the fade in and fade out times independently for each step/cue. Chase steps with individual times are called Complex steps, if they use the global settings they are called Simple steps. You can either use Unfold (see next section) or Live editing (the section after).

6.6 Editing a chase using Unfold

The Azure has a powerful chase editing system. The Unfold button places each step of a chase on one of the playback faders as if each step was a memory, allowing you to turn on and edit each step individually.

-
- 1> Press Unfold, then the playback button of the chase to be edited
 - 2> The first 10 steps of the chase are loaded into the 10 playback faders. The VGA display



shows details about the steps.

- 3> *Raise a playback fader to output the contents of that step (fade times will operate as programmed)*
 - 4> *Various Unfold options are available, the details are below.*
 - 5> *Press Unfold again to get out of unfold mode.*
-

- To edit the contents of a step: Press Clear to empty the programmer, raise the fader to output the step, make the changes, press softkey A "Record Live", then the flash button (1-10) for the step.
- To change the times for the step, press Softkey B or Set Time, then the flash button for the step, then set the times (see previous section)
- To Insert a new step, set up the lights for the new step, press Softkey C, then the flash button where you want to insert the new step. The new step will be allocated to the button you press with a step number half way between the steps either side, and all other steps will be shifted along one.
- You can renumber the chase to whole numbers by pressing Softkey C, softkey A, then Enter to confirm.
- To delete a step, press Softkey D, then the flash button of the step to be deleted. Press Enter to confirm.
- If the chase has more than ten steps, you can swap to the next 10 steps using softkey F, or the previous 10 steps using softkey E.
- While the chase is unfolded you can use the Input Legend button to set a label for the step. Press Input Legend, then the flash button for the step, then enter the text.

6.7 Editing a chase which is running

You can also edit chase steps while you are running the chase, without using unfold. Make sure the step you are editing is not in the middle of a fade, or you might get unexpected results next time you run the chase.

-
- 1> *Start the chase (if Links are On, press the Pause button to pause the chase)*
 - 2> *Press the Pause button to step on to the step you want, or press Load Step and enter the step number on the numeric keypad.*
 - 3> *Press Clear to make sure the programmer is empty.*
 - 4> *Make the changes that you want to the current step.*
 - 5> *Press Record Live, then Enter, to save the changes to the step.*
 - 6> *Press the Go button to go on to the next step or the back button to go back.*
-

- You can set individual times for each step using the Live Time button as follows:

-
- 1> *Run the chase to the step you want to set, as above.*
 - 2> *Press Live Time to set the times for the current step, or Next Time for the next step. The Live and Next step numbers are shown on the VGA display.*
 - 3> *Use softkeys A-G to set the times you want (see above for description of the times)*
 - 4> *Press Enter to save the settings, Exit to abandon them, or the ML*

Menu button to toggle the step mode between Simple/Complex (Simple = use the global timings).

5> Press the Pause button to jump to the next step or the back button to go back one.

- You can set a text label for each step. Run the chase to the step you want, press Input Legend, then Record Live, then enter the text. The Azure will show you the label for the current step and the next one coming up.
- The Review button shows you the step you have just edited, including all the fades. When you press Review, the chase jumps back to the step before the one you are on, then runs the step you have edited to show you the overall result. The chase does not have to be stopped to use Review.

6.8 Using cut, copy and paste on chases

You can cut, copy and paste chases exactly the same as memories. If you want you can create linked copies, so that if you change the original chase then the copies change too. See page 128 for details.

6.9 Sound activation of chases

The Azure can use bass, mid or treble frequencies from its audio input to trigger chases. The current version of the software runs playback 1 on low frequencies, playback 2 on mid and playback 3 on high frequencies.

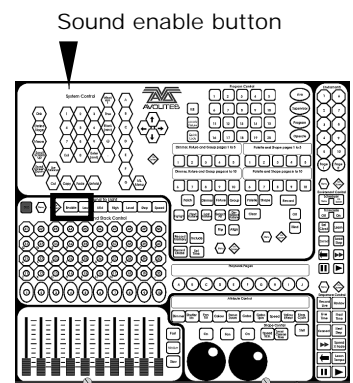
Future versions of the software will allow any chase to be triggered from any of the sound frequencies and will use the other sound to light buttons, which currently have no function.

1> Press Enable. The Low, Mid and High buttons flash in time to the sound signal

2> When playbacks 1,2,3 are turned on, chases stored in them will step in time to the sound signal

3> Press the Enable button again to turn off sound activation.

- Turn the chase links off and set fade times to zero to get a true sound to light chase.
- You can make some linked steps and some unlinked steps to give a chase which runs on a few steps for every audio pulse.
- The sensitivity of the audio input can be set using the gain control on the rear panel, and also there is an internal link to enable use of a microphone rather than line level audio. See page 106.



6.10 Chase options

Each chase has lots of options which can be set to affect the way it runs. Press the chase Menu button to get the first chase menu (you can also press softkey A at the main menu). You need to have a chase "connected" to use this menu.

The options are:

A: Parameters - Gives another menu allowing you to

- A - save the current speed of the chase (set using the left hand wheel)
- B - save the direction of the chase (set using the direction / bounce options, see below)
- C - turn on random mode (steps are executed in random order) - press to change the mode. Turn off random mode when editing a chase, or you won't know which step you are going to get next.
- D - make the chase stop on the final step - If the final step is a blackout, the chase will appear to turn itself off, so you can just press Go whenever you want to make it happen again
- F - Displays more options...
- a - Chase start options (press the button to cycle through the options):
 - Fader reloads chase* (every time you turn on the chase it starts at step 1)
 - Fader stops/starts chase* (every time you turn on the chase it continues from where it left off)
 - Fader stops, go to start chase* (the chase will not run until you have pressed Go after you turn on the chase).
- b - Skip wait and fade time options (press button to cycle through)...
 - Skip first wait time* (The wait time is missed when the chase is first turned on)
 - Skip first wait and fade time* (Both wait and fade times are missed when the chase is first turned on)
 - Wait and Fade for all steps.*
- c - Manual mode allowed/disallowed - Lets you manually fade a paused step by turning the left hand wheel for the HTP channels and the right hand wheel for the LTP channels.
- d - Speed wheel allowed/disallowed - Lets you change the speed using the left hand wheel. You might want to turn this off if you want chase speeds to be always played back as they are recorded.

B: Insert Step - The contents of the programmer are inserted as a new step between the current step and the next step (so you need to set up the step that you want to save before selecting the option). The Azure will make up a decimal number that fits between the existing step numbers.

The Azure can also renumber all the steps to make them whole numbers (Softbutton A) and allows you to enter channel values numerically to plot a scene (Softbutton B)

Press Enter to insert the new step.

C: Press to switch off Chase Tracking - Turns off the updating to the chase times screen on the VGA display (the On Screen button above the chase controls shows this screen). If there are more steps than can be shown on one screen, the Azure will change pages so that the live step is always on the screen if this option is turned on. This can be difficult if you are selecting a step to change using the cursor keys while the chase is running, so you can turn off the tracking.

E: Bounce = OFF - Allows you to create a bounce chase which runs forward to the last step, then backwards to the first step, and so on.

F: Direction = UP - Allows you to change the direction of the chase. You need to use the Parameters option B to save these settings permanently.

CHAPTER SEVEN

7. Environments, the scheduler, script files

This chapter contains: Recording an environment; playing back an environment; other environment controls; the scheduler; script files.

An environment allows you to store the state of the playbacks on the console, which includes all memories and chases which are turned on. They can have a fade in and fade out time. Environments can be useful in a show if you need to turn on several memories at the same time.

The Azure's Scheduler system can be set up to turn on environments at a given time or date. This is used to run a timed show automatically, for exhibition or installation applications.

The Azure can store 2 pages of 10 environments.

7.1 Recording an environment

To record an environment you set the playbacks you want at the levels you want them, then use the Record Environment menu option.

- 1> Turn on the playbacks you want in the environment at the levels you want them
- 2> Press the environment Menu button
- 3> Press Softkey B, "Record an Environment"
- 4> Press the Environment button you want to use (change page by pressing one of the environment Page buttons)
- 5> All active playbacks will be recorded into the environment

- If the environment was already used, it will be overwritten by the new environment.
- The fade in and fade out times will be set to 3 seconds, you can change these using the Parameters option (Softkey A).
- You can assign a text label to an environment using the Set Legend button, which works the same as for memories. Press the On Screen button below the environment buttons to display the contents of the environments.

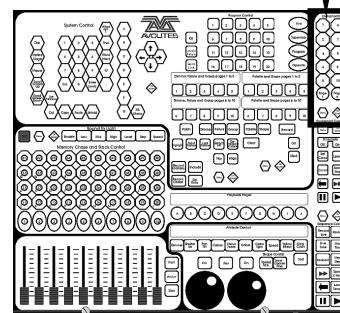
7.2 Playing back an environment

You play back an environment by pressing its select button.

- 1> Press the button for the environment to turn on.
- 2> The playbacks in the environment will fade up in the Fade In time
- 3> To turn it off, press the button again
- 4> The playbacks in the environment will fade down in the Fade Out time

- You can take over control of a playback from the environment by pressing the button (for a 11-50 playback), or by putting the fader to full then to zero (for a 1-10 playback).

Environment buttons,
menu and on-screen



7.3 Other environment controls

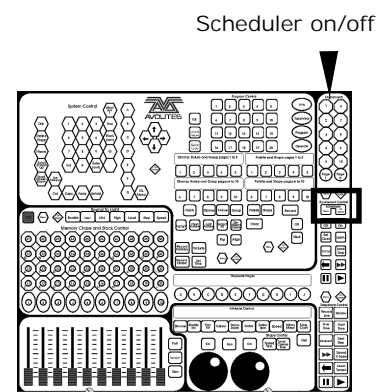
Future versions of the software will allow environment chases, and real-time recording of shows. Currently the environment chase control buttons and the Connect, Load Step and Learn buttons in the environment area have no function.

7.4 The scheduler

The scheduler is designed for unattended operation of a light show. It will automatically turn on an environment at the time you specify, and then turn it off again. You can specify 16 events.

-
- 1> Press Softkey C "Set Schedules" on the environment menu.
 - 2> Enter the date (Day/Month/Year) for the event to first happen.
 - 3> Enter the start and end times in 24 hour clock format. If you set the End time to be before the start time, the event will last 24 hours.
 - 4> Select the repeat mode from the list. The event can be set to Once (no repeat), Daily (repeats every day at set time), Weekly (repeats every week at set time), Mon-Fri (only happens on weekdays) or Sat-Sun (only happens on weekends).
 - 5> Enter the environment number (1-20) to be activated by the event.
 - 6> Set Enable to Y by pressing Y on the playback Qwerty keys to enable the event.
 - 7> Repeat from 2 to set other events.
-

- To turn on the scheduler, go to Supervisor mode and press the Scheduler On button. The LED will light when the Scheduler is on.
- If you are leaving the Azure unattended, put the mode back to Operate and set a PIN code for the other modes (see page 153) to prevent them being selected.
- You can manually turn off environments which the scheduler has turned on, but only in Supervisor mode.
- It is obviously important that the Azure's clock is set correctly for the scheduler to work properly. The next section tells you how to do this.



7.5 Script files

Script files are a powerful feature of the Azure which allow you to record a show in real time, then play back the show synchronised to an external MIDI time code source, or using the Azure's internal clock. This is very useful for repeated light shows such as at exhibitions or in fixed displays.

The script file is simply a list of instructions to the Azure which specify actions at certain times. The easiest way to make a script file is to get the Azure to record your actions as you do them, but you can also enter commands individually.

The full range of script file commands is not yet available on the Azure, future software versions will provide further features.

To enter script file programming mode, press Softkey D "Script file programming" on the environment menu.

The procedure for programming a script file is as follows (the options are listed afterwards):

-
- 1> *Press Softkey A "Select a timer source", then A for MIDI timecode or D for internal timer.*
 - 2> *Press Softkey B "Create a script file". Start the timecode source if using MIDI.*
 - 3> *Run the show as you want it by turning playbacks on and off. The Azure records your actions as script file commands. If you use a fader you must move it to maximum for it to be recorded.*
 - 4> *Press Softkey F "Done" when finished.*
 - 5> *Reset the script file to the start by pressing the ML Menu button.*
 - 6> *Reset the internal timer to 0 by selecting option A and pressing Enter, or send the MIDI timecode again.*
 - 7> *The script file will replay.*
-

- You can set an option which makes the script file run automatically when the Azure is turned on, see option G.
- At any point, pressing the ML Menu button will reset any playbacks which have been turned on by the script file and move the file back to the first step.

The options on the Script File Menu are:

A: Select a timer source - Allows you to select the source for the timer on which the script file is based. The possibilities are:

- A - External (MIDI) time code.
- D - Internal timer /TC - uses the internal clock
- E - Stop timer - stops the internal clock
- F - Start timer - restarts the internal clock

You can enter a setting for the internal clock using the numeric keypad - 2 digits each for hours, minutes, seconds, frames - then press Enter. The time you are entering is shown at the bottom of the screen.

To reset the internal timer to 0, just press Enter.

B: Create a script file - This option lets you create a new script file. If there is already a script file, the Azure will make sure you want to overwrite it (if not, select No and use option C below to work on another file).

Now, start your music or midi time code source, and perform the show you want to record on the Azure by turning playbacks on and off. It will record all playback changes and display them on the screen, with the timing information.

The menu options allow you to select the timer source as above, Reset the timer, Clear masters (which turns off any memories turned on by the script file), and End the recording.

C: Select script file - Lets you select which script file you want to work on. The VGA display shows a list of script files. Type the number of the one you want using the numeric keypad, from 01-99, then press

Enter. To start with a new blank file, select any number which is not on the list.

D: Edit script file - Allows you to edit the current file. The VGA display shows the steps in the file. Use the cursor keys to select the current step, which is displayed in bright white text. The options (when not in "on-the-fly editing mode") are:

- A - Delete step.
- B - Insert before current step - inserts an empty step
- C - Insert after current step
- D - Assign action - lets you set a new action for the current step
- E - Assign timecode - lets you set a new time for the current step.
- G - Press to enable on the fly editing

You can enter a step number to jump to using the numeric keypad, then press Enter. The time you are entering is shown at the bottom of the screen.

Option D "Assign action" allows you to change the action for the current step as follows:

- A - Load (Turn on a playback - press A then the playback to turn on)
- B - Ramp Down (Turn off a playback - press B then the playback to turn off),
- C - Record a blackout step
- D - Set ramp time (the fade in or fade out time for the step - input the time on the keypad then press Enter)

Option E "Assign timecode" allows you to change the trigger time for the current step as follows:

- A - Select timer source (same as option A on the main menu)
- B - Assign TC to file start (sets the time code of the first event in the file to the current time code)
- C - Assign TC to group (sets the time code of all events in the group set using option F to the current time code)
- D - Assign TC to step (sets the time code of the step to the current time code)
- F - Toggle group (the current event is added to a group, indicated by a < next to the step number).
- G - Sort by timecode (Re-orders the events in time order)

You can also type in the trigger time for the current step. A flashing cursor on the screen shows you where the input is going.

Option F "Press to enable on-the-fly editing" allows you to add new events to the file in real time as it plays back. (You can also add events to the file while it is paused, anything you do will be added at the current timer setting). The options on the menu change to

- A - Select timer source (same as option A on the main menu)
- C - Sort steps by timecode (Re-orders the events in time order)
- D - Play (runs the file from the current time)
- E - Pause (stops running the file)
- F - Start script file from step 1
- G - Disable on-the-fly editing (Turns off this mode)

E: Connect Timer - Connects the timer to the script file. This will cause steps to be executed when the event timecode matches the timer. The option changes to Disconnect timer when selected, and option F

changes to Synchronise.

F: Next Step - Moves on to the next step in the script file. This option changes to Synchronise when the timer is connected to the script file.

G: Script File parameters - Lets you set options for how the script file is run. The VGA display shows a list of the script files available, you can select the current file using the cursor arrows. The menu options are:

- A - Toggle Global Autorun (Enables Autorun, any file with Autorun turned on using option C will run when the Azure is turned on)
- B - Toggle Loop mode (Changes the Loop setting of the current script file. Loop resets the timer to zero when the file finishes. Only works with the internal timer.)
- C - Toggle the scriptfile autorun (Changes the Autorun setting for the current script file. Global Autorun must also be On).
- D - Set end-time from input (Allows you to set the end-time of the file from the numeric keypad)
- E - Set end-time from script (sets the end-time to the last event in the file).

CHAPTER EIGHT

8. Using the graphics tablet

This chapter contains: Connecting the graphics tablet; using the tablet; selecting fixtures on the tablet; changing the position of the fixtures; changing colours and other attributes; storing palette entries; other functions.

The graphics tablet is an optional extra to the Azure, which allows you to use a pen to select fixtures, groups, colours, and position the fixtures by simply drawing with the pen. When you use the Azure's Tracking mode you can instantly make all your fixtures point at one place on the stage just by pressing on the tablet.

The tablet makes programming and operating a show on the Azure much more intuitive. If you don't have a graphics tablet you're missing out!

8.1 Connecting the graphics tablet

The tablet connects to the serial port on the Azure, and is powered from the Azure. Switch off the Azure before connecting the tablet. Ensure the tablet power switch is on (small blue switch pressed down in the rear left hand corner).

When you turn the Azure on, the tablet should come on too. If you have problems getting it to work, check that the 5th option on the User Preference menu is set to Graphics Tablet.

The graphics tablet and pen are specially modified to work with the Azure. Only use the tablet supplied by Avolites.

8.2 Using the tablet

To use the tablet, press the pen onto it (the button on the side of the pen doesn't do anything). A quick press is like pushing a button on the Azure. You can also draw on the tablet by keeping the pen pressed down while moving it. This is used to move fixtures or change attributes.

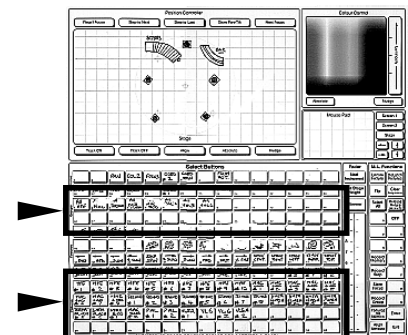
The Azure will behave as if you are pressing buttons on it in the normal way, so the LEDs and the VGA display will change as you use the tablet. Many of the functions of the Azure are quicker and easier using the tablet. Sometimes you might find it easier to do part of the function on the tablet and part on the console. The end result is the same.

The tablet has a paper overlay on it. You can write your fixture names, group names, attributes, palette entries and even draw your stage layout on the overlay so that you know what's what. Spare overlays are available from Avolites.

8.3 Selecting fixtures on the tablet

To select a fixture or a group, just press the pen onto the fixture button or the group button. The first 60 fixtures which are patched will appear in order on the tablet (press the Menu button below the "Flip" button, then Softkey A "Fixture Layout on Tablet" to display a list). Only the first 30 groups are available on the tablet.

Groups and fixtures



You can select multiple fixtures by just pressing on each fixture that you want. Once you change an attribute this selection mode will end; the next time you select a fixture all the other fixtures will be deselected and you can start selecting multiple fixtures again.

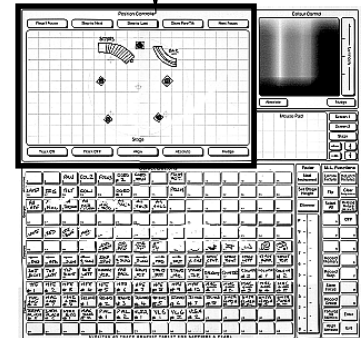
8.4 Changing the position of the fixtures

You can control the position of the selected fixture by drawing on the Stage area of the tablet.

If you press on the Nudge button, when you draw on the tablet the fixture will move relative to its current position. This can be useful if you want to slightly reposition a fixture or a group of fixtures. Press on the Absolute button to turn off this mode.

If you have trained the Azure, which is described on page 118, you can turn on Tracking mode by pressing on the Track ON button. When you point at the stage area of the tablet, all the lights will point at the same place on the stage. If you draw the stage layout on the tablet overlay, you can instantly focus the fixtures on a specific point on the stage just by pointing at the tablet.

Stage area & position controls



8.5 Changing colours and other attributes

If the fixture can do colour mixing, you can set the colour by drawing in the colour control area of the tablet. The Nudge button allows you to change the colour slightly as for positions. The Absolute button lets you set up a new colour. The Luminosity bar sets the brightness of the colour.

You can recall the first 60 palette entries by pressing the pen on the Focuses buttons.

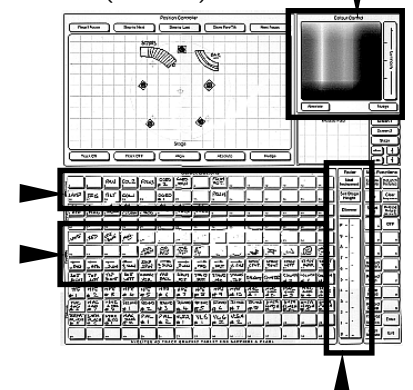
You can change individual attributes of selected fixtures by pressing the pen on to the attribute button, then (without lifting the pen) drawing up and down on the tablet.

You can also use the fader bar to change attributes, press on the attribute button you want to change then draw up and down on the fader bar.

Press the Dimmer button above the fader bar to allocate it to the dimmer attribute.

There is an Align button which works like the Align button on the console itself.

Attributes and Palettes (Focuses) Colour control



Fader bar

8.6 Storing palette entries (focuses)

You can store palette entries from the graphics tablet. The tablet refers to these as Focuses, which is what they are called on the Pearl and other Avolites consoles.

The buttons above the stage area allow you to edit and save position palettes. Press on Recall Focus, then a focus button to select all the fixtures in that palette entry and set the values. You can move all the fixtures together, or the Step to Next and Step to Last buttons will step through the fixtures one at a time. When you have made the changes,

press on Store Pan/Tilt to store the changes back into the same palette entry.

You can also change other attributes in a palette, but to store changes other than pan/tilt you use the Store Focus button on the right hand side of the tablet.

8.7 Other functions

The tablet has a selection of other functions down the right hand side, including Locate Fixture, Flip, Select All, Clear (programmer), Off, Record Memory etc. These have the same functions as pressing the appropriate button on the Azure.

You can create a group using the tablet, just select the fixtures you want in the group, press Record Group, then the group button to be used.

The Release Fixture button is similar to clear, but it only removes from the programmer fixtures which are selected.

The DeLatch Fixtures button deselects a fixture but leaves any changes in the programmer.

Other buttons in this area, and the Mouse Pad area above, are for future expansion.

CHAPTER NINE

9. Advanced features

This chapter contains: The user preference menu; setting the Azure's clock; disk functions; using MIDI commands with the Azure; the stage remote; AVO mode; hardware AVOS and WIPEALL modes.

9.1 The User Preference menu

This menu is obtained by pressing the User Preference button. You select the option to change using the cursor up/down buttons, and make the changes using the left/right buttons.

The options are:

Fader OFF level - Sets the level of the fader at which LTP channels turn off when fading out a memory or chase. This has to be at least 2 values below the "on" value. The Azure will not let you set an incorrect value.

Fader ON level - Sets the level of the fader at which LTP channels turn on when fading in a memory or chase.

Record by Fixture / Record by channel - Sets the recording mode of the Azure. If set to "by fixture", if any attributes of a fixture are changed, all attributes are recorded. If set to "by channel", only changed attributes are recorded. See page 125 for details of how this works.

Chase Autoconnect ON / OFF - Allows you to turn Chase autoconnect on or off. If on, when you turn on a chase, the controls are automatically connected to it. If off, you have to connect the chase manually using the Connect button.

Graphics Tablet / Stage Remote / Visualiser connected - Allows you to select which device is connected to the serial port.

DMX delay = xxx microseconds - Sets the DMX idle time (the delay between the end of one packet and the start of the next). This allows you to slow down the DMX refresh rate if you have some equipment that can't keep up. Increasing the delay will degrade the performance of the DMX link so you should not change this unless you have to.

Midi is in SLAVE/MASTER/DISABLED mode - Sets the MIDI mode of the Azure. In Slave mode it receives data, in Master mode it transmits data when you press a key or raise a fader.

Midi channel is xx - Sets the MIDI transmit / receive channel. MIDI channels are actually numbered 1-16, and the Azure displays 0-15, so add 1 to the Azure display to get the actual channel.

Wheel Sensitivity is x - Sets the sensitivity of the wheel, from 1-7. 7 is most sensitive.

Byte per DMX Frame = xxx - Sets the maximum number of DMX channels to transmit. If your rig does not use all 512 channels, you can improve the DMX refresh rate by reducing this number to the maximum of your rig.

MIDI note for memory 1 = xx - Sets the offset for MIDI note numbers.

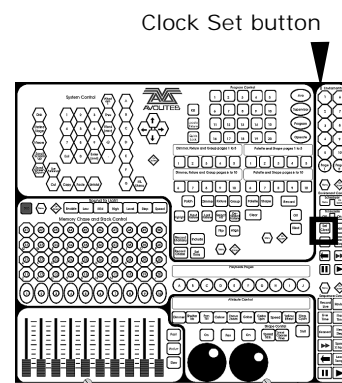
If you are playing notes from a keyboard, you might want to set this to 36, which is the bottom note on most keyboards.

9.2 Setting the Azure's clock

The Azure has a built-in real time clock. It uses this for the Scheduler, to record snapshot times and disk backups, so it's important to have the correct time and date set on it.

To set the clock you need to be in Supervisor mode.

Press the Clock Set button. The Azure displays a window in which you can enter the time, date and daylight saving modes (if the clocks get put forward an hour in summer like in the gloomy old UK).



9.3 Disk functions

Press the Disk button to display the disk menu. The options are:

- A: Load show from disk** - The Azure lists all the shows on the disk. Choose the one you want using the cursor keys, then press Enter to load it.
- B: Save show to disk** - Saves the contents of the console to the disk. Type a name for the show, then press Enter.
- E: Format options** - Allows you to format a disk to 720K or 1.44M, with then optionally save a show when the format is complete.
- F: Catalogue** - Lists all the show files on the disk.
- G: Load user curve** - Allows you to load a custom dimmer curve. You can specify that a dimmer should use the custom curve when patching it. It is a text file with the following format:

The file must have 256 lines and be named UC.DAT. Each line contains the dimmer output value (in decimal) for that line number. Comments are allowed after 5 spaces. An example is

```
00  output for level 0
05  output for level 1
07  output for level 2
09  output for level 3
...
251 output for level 254
252 output for level 255
```

9.4 Using MIDI commands with the Azure

The Azure can respond to or output MIDI note on / note off information which emulates certain buttons being pressed or faders being moved. The console can also respond to MIDI Timecode, which is used with script files.

If you want to know more about MIDI, a good book to read is *MIDI Systems and Control* by Francis Rumsey; Published by Focal Press, ISBN 0-240-513000-2. There's also a huge amount of information available on the Internet, try searching for "MIDI specification".

The MIDI mode is set on the User Preference menu to be MIDI master (outputs MIDI when you turn on playbacks), MIDI slave (responds to MIDI) or MIDI disabled. The MIDI channel the Azure will respond to is also

set on this menu (note that you need to add 1 to the number displayed by the Azure to get the actual MIDI channel number).

What a MIDI command looks like

The normal MIDI command is: STATUS BYTE1 BYTE2

Or in binary, 1ccccnnnn 0xxxxxxxx 0yyyyyyyy

ccc = the MIDI command (note on, program change etc)

nnnn = the MIDI channel number (set on the User Preferences menu).

xxxxxxxx and yyyyyyyy are the data bytes.

MIDI often works in "running status" mode. If a lot of the same type of command is being sent (lots of note on's etc.) then the status byte can be missed out. The receiver knows that if it doesn't get a status byte, it just has to run with the last one it received.

MIDI commands used by the Azure

The Azure uses standard MIDI commands. The usual name for these is given in *italics*. All commands are given in hexadecimal notation (\$9n), where 'n' is the MIDI channel number. So a note on command for MIDI channel 3 for example would be \$92.

Set playback page : *program change* (\$Cn xx)

Page	A	B	C	D	E	F	G	H	I	J
xx	\$7F	\$02	\$03	\$04	\$05	\$06	\$07	\$08	\$09	\$0A

example \$Cn \$02 *Console changes to Page B*

Turn on a playback: *note on* (\$9n pp ll)

Note number (pp) = playback number, from 0 - 49 (decimal)

Key velocity (ll) = playback level, from 0 - 127 (decimal)

example \$9n \$03 \$40 *Playback Fader 4 at 50% level.*

Playbacks on buttons cannot be set at a % level, only playbacks on faders (1-10 on each page).

(Note that Playback Fader numbers start at zero, so subtract one from the number on the console to get the MIDI note number).

Stop/run/step a chase etc: *after touch* (\$An pp cc)

Note number (pp) = playback number, from 0 - 49 (decimal)

Aftertouch value (cc) = control codes:

\$00 stop chase

\$01 run chase

\$02 restart from step 1

\$03 fade to next step using programmed fade times

\$04 Snap directly to next step

MIDI Time Code

MIDI time code is used to synchronise Script Files with an external music track.

Quarter-frame message types are fully supported and these follow the standard format, which can be found in most MIDI handbooks. A suitable EBU/LTC Timecode to Midi Timecode converter is manufactured by JC Cooper Electronics whose address is 12500 Beatrice Street, Los Angeles CA 90066 USA, or through Avolites UK.

MIDI Problems

The console supports a full MIDI data rate burst for 2 seconds, after that data may be lost since it cannot be processed.

A MIDI debug Terminal is available which shows you the MIDI commands being received by the Azure. To activate this :

Press the AVO button and enter the PIN code, then Press Softkey G.

The MIDI terminal window is displayed on the VGA monitor. Press Softkey G to finish.

9.5 The stage remote

The Azure can be used with the optional Avolites Stage Remote. This is a small hand-held controller which connects to the console by a 25 pin serial cable. It is useful when setting up a show as you can leave the console at the back of the venue and use the Stage Remote to operate it from the stage.

- To set up the stage remote, set the console to Program mode. Press User Preference and set the 5th option to "Stage Remote connected". Plug in the remote. Press the blank white key on the bottom left hand corner of the remote, the LEDs should flash. Press Exit, then 111. The LEDs should flash again to say the remote is enabled.
- To set a DMX channel to a particular value, press DIM, type the DMX channel number, press AT%, then 1-9 to set the level or AT% again to set full.

You can access the 4 DMX lines using the following numbers:

Line A - Channels 1-512

Line B - Channels 513-1024

Line C - Channels 1025 - 1536

Line D - Channels 1537 - 2048

- The NEXT and LAST buttons turn on the channel after or the channel before the one you just entered, at the last level you entered. Other channels are turned off.
- You can use THRU to turn on a range of channels.
- Pressing INSTD sets all channels to 0.
- Recall a memory/chase by pressing MEM, then the playback number, then AT%. The playback number is the button number on the console, +50 if it's on page B, +100 for page C, +150 for page D, etc. Memories/chases are always turned on at 100%.
- For a chase you can use the + and - buttons to step forwards and backwards. You can use this to focus lights if you program a chase with one light on in each step.
- To disable the remote, press EXIT then 0 0 0.

- You can check if the remote is enabled or not by pressing the blank button on the bottom left. If the LEDs flash once the remote is disabled, if they flash twice it is enabled.

9.6 AVO mode

Avo mode, selected by pressing the Avo button, lets you make fundamental changes to the console, including changing the operating software. It is protected by a PIN code; if some lesser mortal is operating the console then you might want to change the code from its default setting of 1234.

Do make sure you have plenty of time to complete these operations. Do not attempt to upgrade the operating system or make other fundamental changes just before showtime!

The options are:

A: Run AVOS - Starts the low-level operating system. If you have any information in the console, you should save it to disk before running AVOS.

The options are:

- A. Start the system - runs the Azure operating system
- B. Burn a new program - Loads a new operating system. You can get this from the Avolites web site or on a disk from Avolites. The file is called FLASH.PRL. You should execute option 1 after loading a new operating system.
- C. Verify - checks if the operating system on the disk matches the one loaded on the Azure.
- D. Save program - saves the existing operating system to disk
- E. AVOS extender - lets you load a new AVOS operating system (RAM.PRL). You must ensure the console is not turned off while you are doing this, because you will need new flash memory chips from Avolites if this happens.
- F. Renew license - Allows you to renew the operating license for the console with a code supplied by Avolites. When the license expires the Azure will continue to work with its current software but you will no longer be able to upgrade to new software.
- G. Reset the AVO PIN to its factory setting - If someone has changed the AVO PIN and you don't know what it is, you can set it back using this setting. You will need to start up the console with the WIPEALL link fitted (see next section) to be able to access this menu, because otherwise you need the AVO PIN to get to it.
 1. Wipeall and start system - Executes a Wipeall (clears everything) then runs the Azure operating system

B: Set/Clear PIN - Allows you to set the AVO, Supervisor and Program PIN codes, or clear all the PIN codes (softkey D).

C: Diagnostics - Displays a diagnostic window which enables you to test the buttons, faders and wheels on the console.

D: Memory check - Tests the system memory.

E: Utilities menu - Has the following options.

- C. Configure a MIDI keyboard - This lets you teach the Azure which MIDI note turns on each memory. Send the MIDI note for memory 1, then the note for memory 2, and so on. Press Exit to end.

- D. Cache personality files - Lets you load the personality files into the Azure, so you don't need to carry a personality disk around with you. You need the special compressed personality file called P2000PER.CMP which is available from the Avolites web site.
- E. Show Bus errors - Displays the error count on the internal system bus.
- F. Clear Wrap around channels - If you load a show saved with an earlier version of software, you might get a problem with channels which wrap around from 255 to 0. Running this option will sort them out.

F: Wipeall - Wipes all memories and all options from the console so it is pristine and new.

G: Midi screen - Displays incoming MIDI for diagnostic purposes.

9.7 Hardware AVOS and WIPEALL modes

If you want to get into AVO mode but someone has changed the PIN code, there is a magic jumper on the main electronics board which will let you in.

-
- 1> *Disconnect the Azure from the mains.*
 - 2> *Undo the half-turn fasteners on the front edge of the console, and lift the front edge to open the console.*
 - 3> *Fit the AVOS link. This is a jumper located on the main PCB underneath the disk drive. It is in a row of 8 jumpers, the AVOS link is the one nearest the back of the console. A link is provided fitted to one of the pins. Fit the link so it connects the two pins.*
 - 4> *Close the console (don't fasten it), then turn on the power.*
 - 5> *The console will power up in the AVOS menu. Select option G "Reset AVO pin".*
 - 6> *Turn off the Azure, open it and remove the AVOS link (fit to one of the pins only).*
 - 7> *Close the console and refasten it.*
-

You can also make the console perform a WIPEALL on power up by fitting a link on the board. You should obviously save any show data that you want to keep. It may also be advisable to have a backup of the system software (AVOS option D) before you do this... just in case.

-
- 1> *Follow the procedure above to open the Azure.*
 - 2> *Fit the Wipeall link. This is a jumper located on the main PCB between the disk drive and the VGA card. It's labelled on the PCB legend. A link is provided fitted to one of the pins. Fit the link so it connects the two pins.*
 - 3> *Close the console (don't fasten it), then turn on the power.*
 - 4> *The console will power up in the AVOS menu. Select option A (do not select any other option when the Wipeall link is fitted).*
 - 5> *Turn off the Azure, open it and remove the Wipeall link (fit to one of the pins only). If you forget this, the console will do a Wipeall every time you turn it on!*
 - 6> *Close the console and refasten it.*
-

CHAPTER TEN

10. The Personality File System

This chapter is designed for those users who wish to know how to write or alter a Personality File.

The Personality File system uses a simple programming language. Whilst we have attempted to create the simplest manual some prior knowledge of writing software is assumed.

If your eyes glaze over at the thought of writing software, read no further and enjoy using your console in the knowledge that at Avolites there are software programmers who actually enjoy writing personality files and if you come across a fixture for which a personality file is required contact us and we will help.

10.1 What is and how do I write or change a Personality file?

The personality file is an ASCII text format file containing information on how the desk should patch each channel of an instrument.

Since the files are in ASCII text format you can easily modify them and create new versions for your own use. When editing files you must ensure your word processor is set to save in plain ASCII text format. If you use Windows Write make sure that when you open the file you select 'no conversion' and when you close the file you save it in the 'text file' format.

Before editing make a backup of the original, in case your edits do not work.

If you are using the latest Azure software, you will know that you can load the personality files into an internal cache so that you don't need to carry a personality disk around. The personality cache is a special compressed file containing all the personalities. You cannot currently add your own definitions to it, so you will have to load your custom personalities from disk in the time-honoured fashion.

10.2 Personality file naming conventions

There are four extensions used by personality files: .PER, .D2, .R96 and .R20.

Azure software will read any .PER file and any .R96 file, however when .PER files are read a message will be presented to the user to warn that an old personality file is being used and not every function of the desk will work correctly. Typically this includes tracking, pre-loaded focuses and locate fixture and tablet functions. .D2 files are for the Diamond.

Files with the extension .R20 can only be used with Pearl 2000 and Azure 2000 control desks. These files have additional fields for the enhanced functionality provided within these desks.

10.3 Personality File Keyword Order

Keywords should appear in the following order:-

```

DEVICE ...
TYPE ...
DEVICEADDRESS ...
DAEND ...
MINDMX ...

```

```
MAXDMX ...
DIVBY ...
MIRROR ...
DMX ...
DMX ...
TEXT ...
END
PFTABLE ...
PFEND
MACRO ...
MEND
```

10.4 The Instrument Name

The **INSTRUMENT NAME** will appear in the following format :-

```
DEVICE XXXXXXXX
```

Where **DEVICE** is the keyword to tell the desk that an instrument name follows and "XXXXXXX" is the name of the instrument, this name can be 11 characters long and no spaces or tabs are allowed.

This instrument name will appear on a soft button when patching and is used in various view screens when operating the desk.

It is usually easier to make the actual file name similar to the **DEVICE NAME** to make things easier when servicing personality files.

10.5 The Device Type

The **DEVICE TYPE** will appear in the following format :-

```
TYPE 1 Y Z
```

Where **TYPE** is the keyword used to tell the desk that **DEVICE TYPE** data follows.

"1", which is the first character on the line is no longer used but is required for backward compatibility. This field may be used in future versions and should always be "1".

Field "Y" tells the desk the number of ATTRIBUTES (channels) the device uses, and entry "Z" gives information on the way the device is to be patched.

Where:-

```
    M patches from dmx 512 to 001 (downwards)
    D patches from dmx 001 to 512 (upwards)
    K for those devices where the dmx channels used are not
    in consecutive slots
```

For example a **TYPE-LINE** can look like:-

```
TYPE 1 8 M
```

Setting the device to: - 8 channels used patched from 512 downwards and the next line sets a device for 10 channels and patched from 001 to 512

```
TYPE 1 10 D
```

10.6 Fixture switch settings

This allows the desk to display the exact switch settings required to configure a fixture for a given DMX address and to ensure it is set in the correct mode.

The display can be configured in virtually any way required. The fixture switch detail MUST be declared before the DMX declaration.

A number of variables are provided for use within this function, these must be in lower case: -

d = dmx number the instrument is assigned to
 h = handle the instrument will be operated from
 n = the device name, given earlier in the personality file

The keywords associated with the fixture switch settings are:

DEVICEADDRESS
 DAEND
 MINDMX
 MAXDMX
 DIVBY

The screen space allowed for displaying the fixture information is 10 lines by 21 characters.

The start and end of the fixture switch detail is marked by DEVICEADDRESS and DAEND.

The formula to display this information is restricted to 10 lines by 79 characters.

The three other variables must be defined for the instrument are: -

- MINDMX = lowest DMX number the instrument can be addressed
- MAXDMX = highest DMX address number the instrument
- DIVBY = The difference of two dmx addresses selected by changing the LS bit of the address switch.

For example if the instrument address switch increments the DMX number by 1 then the difference DIVBY will be 1, if, like on the Cyberlight it increments by 20 then DIVBY would be 20.

DIVBY is used to ensure that an instrument can be addressed at the address proposed by the user when patching.

There follows an example for a Cyberlight.

```
;This instrument can only be switched to certain DMX addresses.
; variables used d=dmx number, h=handle, n=devicename;
"Address  %04b %1b001"16-(d/20%16),(d/20)/16
; This is the address display line
; 1. Items in quotes are displayed
; 2. First item here (Address  ) is ascii text
; 3. %04b = 4 bits of binary data, 0 means display leading 0's
; 4. next is a space
; 5. %1b = 1 bit of binary data
; 6. 001 is ascii text again
; 7. Close quotes
; 8. first variable passed is 16-((d/20)%16)
;    (d/20) : dmx/20 giving fixture number
;    %16    : isolates lower 4 bits
;    16-    : reverses the 4 bits
; 9. Second variable passed is (d/20)/16
;    (d/20) : dmx/20 giving the fixture number
;    /16    : isolates the upper 4 bits.
;DEVICEADDRESS
"Handle %2d"h
"Fixture %11s"n
"DMX %03d"d
""
"Dip Switch 1234 5678"
"Personality 0000 0000"
"Address  %b%b%b%b %b001"d/20%2,d/40%2,d/80%2,d/160%2,d/320%2
""
```

```

"0=OFF ( Right )"
"1=ON ( Left )"
DAEND
MINDMX=1
MAXDMX=481
DIVBY=20

```

The next example is for a Colour Fader, This instrument uses a GROUP and ADDRESS switch

```

; Upto 10 lines of 79 chars are allowed including formulae
; variables used d=dmx number, h=handle, n=device name;
"Address %04b %1b001"16-(d/20%16),(d/20)/16
; This is the address display line
; 1. Items in quotes are displayed
; 2. First item here (Address ) is ascii text
; 3. %04b = 4 bits of binary data, 0 means display leading 0's
; 4. next is a space
; 5. %1b = 1 bit of binary data
; 6. 001 is ascii text again
; 7. Close quotes
; 8. first variable passed is 16-((d/20)%16)
; (d/20) : dmx/20 giving fixture number
; %16 : isolates lower 4 bits
; 16- : reverses the 4 bits
; 9. Second variable passed is (d/20)/16
; (d/20) : dmx/20 giving the fixture number
; /16 : isolates the upper 4 bits.
;
DEVICEADDRESS
"Handle %2d"h
"Fixture %11s"n
"DMX %03d"d
""
"GROUP %2d"d/12+1
"CHANNEL %2d"d%12
""
""
""
""
""
DAEND

MINDMX=1
MAXDMX=508
DIVBY=3

```

10.7 Mirror

Mirror is used to define the instrument type - Moving head or Moving mirror and the maximum Pan and Tilt angles through which the instrument can move. These values are required for the 3D tracking system. Typically a **MIRROR** line looks like: -

```
MIRROR 1 170 110
```

Where: -

MIRROR is the keyword

1 indicates moving mirror a **2** in this field indicates a moving head instrument.

170 is the maximum pan movement.

110 is the maximum tilt movement.

10.8 The DMX/Preset Layout

The **DMX/PRESET LAYOUT** will appear in the following format: -

```
DMX
A B C D E F G H I J K L ; comment
```

A B C D E F G H I J K L; comment
END

Where **DMX** is the keyword to tell the desk dmx, preset and fader information follows.

A: sets which Attribute button will be connected to the DMX channel, defined later. The range is 1 to 20 for the desk, but up to 15 for the tablet.

A 0 (zero) in this field indicates it is part of a 16 bit channel defined in the previous line.

B: This tells the desk which wheel is used for that channel, where 1 means left and 61 right.

C: This is the channel type, currently there are 5 different channel types available :-

H	(HTP) for dimmer
L	(LTP) for moving lights and scrollers
I	(instant) LTP channel which does not fade
S	(double byte) 16 bit LTP channel which does not fade
s	(double byte) 16 bit LTP channel

D: This is the relative DMX address of the attribute being defined, starting from 1.

E: This is the maximum output of that attribute in %, where 0 means no output at all and 100% full output. This allows the channel to be limited in level.

F: This sets the curve for that channel, DOM version 2.xx and up supports 4 different curves :-

1	= linear curve
2	= square
3	= relay at 50%(128) on
4	= FD square

The curve number is prefixed a single letter which can be :-

N	= normal
C	= complemented curve (ie invert the channel)

G: This is the link to the user tables and identifier for PAN and TILT. This will be explained in the **TABLES** section. This entry can run from A to F and 0 (zero) meaning no table entry.

H: This must always be 1 (The checksum facility has been removed).

I: This defines the channel name. This should be in inverted commas and can be up to 11 characters long and it may include spaces. This will be used on screen to identify the channel.

J , K and L: define three default levels that can be output. These are Locate fixture, Highlight and Lowlight.

The range is 0..255 and -1 means no change to the output.

Locate Fixture is used in the moving light menu to turn on a fixture and set channels to a level such that you can see where the instrument is. Generally the settings give 50% pan 50% tilt, white, no gobo, 100% dimmer.

Highlight and Lowlight are used when editing to brighten or otherwise mark one instrument whilst the others are turned into a dim state.

10.9 Text Field

The text field will be displayed when patching the devices.

This text field can hold any text you like, but generally it displays the Attribute Bank layout of the device being patched.

If you are going to want to use the personalities on other Avolites consoles, bear in mind that the Sapphire and the Pearl consoles use an LCD display which is smaller than the VGA display. Limit the text to 20 characters a line if you want the personality to be compatible.

10.10 The Preset Focus (Palette) table

Tables on the Azure are for default Palettes which are automatically loaded when an instrument is patched.

Two key lines are required for tables, the definition line and the data line.

The definition line looks like: -

```
PFTABLE "table name" A B..
```

Where A is allows the table to be connected to a tablet attribute button.

With the instrument when the pen is clicked on the tablet the table list appears on the VGA screen, moving the pen up or down allows selection of a table entry.

The range for this is -1 meaning table is not attached to a tablet button or 1..30 to define which button the table will be attached to.

Where B is the list of dmx channels values which will be defined within the table.

For example: -

```
PFTABLE "GOBO" 3 4 7
```

The first word is the keyword `PFTABLE` to indicate that a preset focus table follows.

Next follows the table name. This can be up to 11 characters and can include spaces. It must begin and end with double quotes.

The first number indicates which tablet attribute button the table will be available on.

The final numbers are the actual DMX channel numbers.

The next lines contain the actual focus information and is defined as follows: -

```
"focus name" palette entry number channel level(s)
```

When "focus name" this is the name given to the focus. This can be up to 11 characters and can include spaces. It must begin and end with double quotes.

When focus button number defines which palette entry will be used, numbers 1..200 indicate the entry button number.

Where channel level(s) are the actual level output to the instrument.

This is must be in hexadecimal notation. If no value is required (the entry is OFF) a -1 (minus one) should be placed in the field.

For example: -

```
"STAR GOBO" 20 0 FF ;
```

The first field is the name of the focus, STAR GOBO.

Next is the focus button number that the focus will be placed on. In this case focus button 20.

Next are the data values.

The last line of the preset focus table must be: -

```
PFEND
```

There can be a number of preset focus tables.

10.11 Macros

Macros allow a defined set of channels to be adjusted rather like running a chase. The principle use for this is to allow instruments to be struck up or reset which sometimes requires a sequence of channels to be turned on and off over a certain time scale.

Whilst a macro is running all other desk functions are locked out. The macro progression is presented on the prompt line of the screen.

There are three key types of data line associated with macros, these are:

```
MACRO "macro name" channel list
"data" data list
"delay" 1 time
MEND
```

- Where "macro name" can be up to 11 characters and can include spaces. It must begin and end with double quotes.
- The channel list is the DMX channels for the instrument, to which data will be passed from the data list.
- "data" that the following data will be passed to the instrument. Note that this MUST be in lower case and enclosed in double quotes.
- data list is the data to be passed to the instrument. It must be in hexadecimal notation..
- "delay" This optional statement defines that a delay time before running the next step. When used it must be followed by a 1. This field is for future use.
- Time is the delay time in units of 0.1 seconds and is in hexadecimal.

3 seconds would be 2E

Macros must terminate with the statement MEND

A typical example macro is: -

```
MACRO "HOME" 1 18 20 ; send instrument to home position
"data" 0 FF 0
"delay" 1 20
"data" 0 0 FF
"delay" 1 20 ; wait about 2.5 seconds
"data" 0 0 40
"delay" 1 40 ; wait about 5 seconds
"data" 0 0 0
```

MEND

10.12 Example Personality File for the High End Cyberlight

Items in **BOLD** are required, everything else is comments which can be freely changed deleted etc. comments always precede a ; .

```

; "High End Cyberlight mode 1", 20 DMX channels, filename :hecyber1.per
;
; Date      By      Description
; 26-05-94 Salzedo  created
; 10-08-94 Anwar    revised dmx slots
; 07-09-94 J.B.Toby  revised for Pearl use/relocation of channels
; 11-11-94 J.B.Toby  revised to match PerManML
; 22-05-96 S. Anwar  Pan/Tilt channel identification & Resolution inserted
; 04-03-96 S. Anwar  Revised for Sapphire 96
;-----
; The device name, upto 11 characters, no spaces are allowed
DEVICE CYBER_model
;
;-----
; The Type of instrument, 1 & M are required for backward compatibility
; The middle number denotes the number of DMX channels used
TYPE 1 20 M
;
;-----
; Mirror/Head resolution
MIRROR 1 170 108
;
; | | |
; | | | _____ maximum tilt movement (in degrees)
; | | | _____ maximum pan movement (in degrees)
; | | | _____ 1 means moving mirror, 2 means moving head
;
;-----
; Patching Information. (Upto 10 lines allowed)
; Upto 10 lines of 159 chars are allowed including formulae
; Variables used d=dmx number(1..512), h=handle(1..60), n=devicename (11-char)
; Allowed modifiers
; +,-,*,/,() basic arithmetic
; % means remainder after divide
; & means logical AND
; | means logical OR
; R means reverse the bits of the current result (operates on a byte)
; ^ means logical Exclusive OR (operates on a byte)
; > means shift to the right
; < shift to the left
; r followed by number means get the value of that parameter
; d DMX address
; n Fixture name, a 0 terminated character string
; h The handle number
DEVICEADDRESS
"Handle %2d"h
"Fixture %11s"n
"DMX %03d"d
""
"Dip Switch 1234 5678"
"Personality 0000 0000"
"Address %b%b%b%b %b001"d/20%2,d/40%2,d/80%2,d/160%2,d/320%2
""
"0=OFF ( Right )"
"1=ON ( Left )"
DAEND
;
;-----
; Specify DMX limits
;
; minimum allowed dmx number
MINDMX=1
;
; maximum allowed dmx number
MAXDMX=481
;
; DMX number must be divisible by this
DIVBY=20
;
;-----
; DMX channel description
;
; Column by column description of each DMX channel
; 1. The channels bank number (1..12)

```

```
; 2. The upper faders in the bank (1) or the lower faders in the bank (61)
; 3. Channel type (L=LTP, H=HTP, I=Instant LTP, S=16-bit instant LTP,
;    s=16-bit Fadeable LTP
; 4. DMX offset (1..number of DMX channels)
; 5. The output level is proportionally reduced by this level (0..100%)
; 6. The curve number (applicable only to HTP channels), usually set to 1
; 7. Inverted (I) or Normal (N)
; 8. Attribute type (A=Colour Wheel, BCD=Colour Mix, E=Pan, F=Tilt,
;    0=uncategorised)
; 9. Checksum channel (Always 1)
;10. Attribute name, must be enclosed in quotes and upto 12 characters allowed
;11. The ON value of this channel (0..255)
;12. The Highlight level of this channel
;13. The Lolight level of this channel
;
```

DMX

```
3 61 S 1 100 1N E 1 "Pan" 128 -1 -1 ; PAN
0 0 L 2 100 1N E 1 "Pan Low" 128 -1 -1 ; PAN Low
3 1 S 3 100 1N F 1 "Tilt" 128 -1 -1 ; TILT
0 0 L 4 100 1N F 1 "Tilt Low" 128 -1 -1 ; TILT Low
4 1 I 5 100 1N 0 1 "Colour Wheel" 0 0 0 ; COLOUR WHEEL
10 1 L 6 100 1N B 1 "Cyan" 255 255 255 ; CYAN
10 61 L 7 100 1N D 1 "Magenta" 255 255 0 ; MAGENTA
9 61 L 8 100 1N C 1 "Yellow" 255 255 0 ; YELLOW
6 1 I 9 100 1N 0 1 "Gobo 1" 0 0 0 ; GOBO 1
6 61 I 10 100 1N 0 1 "Gobo 2" 0 0 0 ; GOBO 2
8 61 I 11 100 1N 0 1 "Gobo Speed" 0 0 0 ; GOBO SPEED
5 1 L 12 100 1N 0 1 "Zoom" 0 0 0 ; ZOOM
5 61 L 13 100 1N 0 1 "Focus" 0 -1 -1 ; FOCUS
2 1 I 14 100 1N 0 1 "Iris " 255 255 255 ; IRIS
9 1 I 15 100 1N 0 1 "Effects" 0 0 0 ; EFFECT WHEEL
7 61 I 16 100 1N 0 1 "Frost" 0 0 0 ; FROST
2 61 L 17 100 1N 0 1 "Shutter" 255 255 255 ; SHUTTER
1 1 H 18 100 1N 0 1 "Dimmer" 255 255 255 ; DIMMER
8 1 L 19 100 1N 0 1 "Motor Speed" 255 255 255 ; MOTOR SPEED
11 1 I 20 100 1N 0 1 "Control" 0 0 0 ; Control
END
;
```

```
-----
; Text to be displayed when the Instrument is selected for Patching
;
```

TEXT

```
Cyberlight Mode 1
Bank Faders
  Bottom Top
-----
1 Dimmer --
2 Iris Shutter
3 Tilt Pan
4 Colour 1 --
5 Focus Zoom
6 Gobo 1 Gobo 2
7 Frost --
8 M-speed Gobo spd
9 Effect Yellow
10 Cyan Magenta
11 Control --
```

```
INPUT and/or note DMX
number.
Press a channel grab
to make patch
END
;
```

```
-----
; Tables
```

```
; A colour table colour wheel, cyan, magenta, yellow
```

```
PFTABLE "Colour" -1 5 6 7 8
"Col 1" 1 0 ff ff ff
"Col 2" 2 0 ff 0 0
"Col 3" 3 0 0 ff 0
"Col 4" 4 0 0 0 ff
"Col 5" 5 0 ff ff 0
"Col 6" 6 0 0 ff ff
"Col 7" 7 0 ff 0 ff
"Col 8" 8 0 97 32 c8
"Col 9" 9 0 3d a3 bd
"Col 10" 10 0 eb 5a 17
PFEND
```

```
; Gobo
```

```
PFTABLE "Gobos" -1 9 10 11
"Gobo 1.1" 11 2 0 0
"Gobo 1.2" 12 af 0 0
```



```
"Gobo 1.3"      13 b9 0 0
"Gobo 1.4"      14 c3 0 0
"Gobo 1.5"      15 cc 0 0
"Gobo 1.6"      16 d7 0 0
"Gobo 1.7"      17 e1 0 0
"Gobo 2.1"      18 0 2d 0
"Gobo 2.2"      19 0 4b 0
"Gobo 2.3"      20 0 5f 0
PFEND
```

```
; Positions
PFTABLE "Positions" -1 1 3
"Middle"      21 80 80
"Left"        22 50 80
"Right"       23 b0 80
"Top"         24 80 50
"Bottom"      25 80 b0
"TLleft"      26 50 50
"TRright"     27 b0 b0
"BLleft"      28 50 b0
"BRright"     29 b0 50
PFEND
```

```
MACRO "HOME" 1 18 20
"data"       0 ff ff
"delay"      1 20
"data"       0 0 ff
"delay"      1 20
"data"       0 0 40
"delay"      1 40
"data"       0 0 0
MEND•
```

```
MACRO "SHUTDOWN" 2 18 20
"data"       0 ff ff
"delay"      1 20
"data"       0 0 ff
"delay"      1 20
"data"       0 0 80
"delay"      1 40
"data"       0 0 0
MEND
```


11. Contacts for Fixture Manufacturers

Moving Light Mfr. Contact Numbers			
Country	Company	Contact	Telephone Number
UK	Abstract	John Saunders	+44 (0) 116 278 8078
UK	Andromeda Lighting	David Morrell	+44 (0) 160 868 3673 (fax) 3417
Germany	Amptown	Rolf Garnes	+ 49 40 64 (fax) 0445
Italy UK	Clay Paky Pulsar	Andy Graves	+ 39 35 654 311 +44 (0) 1 223 66798
Italy UK	Coemar Coe-tech	Mr Fausto Kevin Foster	+ 39 376 779 336 +44 (0) 1604 785 878
UK	Fal Lightmasters		+44 (0) 1480 407727
USA	High End Systems Lightfactor	Mick Hannaford	+1 512 836 2242 +44 (0) 181 575 5566
UK	Lampoo Batmink		+44 (0) 1458 833186
UK	M & M	Michael Goldberg Nigel Sadler (Sales)	+44 (0) 171 284 2504
Denmark UK	Martin Professional Martin UK	Ian Kirbie	+44 (0) 1622 755 442
UK	NJD		+44 (0) 115 939 4122
USA	Pan Command		+ 1 408 986 8800
UK	Ryger		+44 (0) 1773 530325
Italy UK	Sagitter JYG	Stefano	+39 35 951 738/777 +44 (0) 1708 530325
UK	SGM JYG		+44 (0) 1708 741613
Italy	Space Cannon	Alexanda Baleski	+ 39 131 772 288 (fax) 292
UK	Starlight	Ray French Martin Lubach	+44 (0) 171 511 4400
UK	Strand Lighting	David Burtenshaw	+44 (0) 181 560 3171
Italy	Studio Due	Franco Bertini	+39 761 352 520
UK	TAS Coe-tech	Kevin Foster	+44 (0) 1604 785878
USA	Vari-Lite Inc	Field Service	+1 214 630 1963
UK	Vari-Lite Europe Ltd	Technical Support	+44 (0) 181 575 6666
UK	Wynne, Wilson Gotelier Ltd (Tunbridge Wells)	Peter Win Wilson	

12. Glossary of terms

4D TRACK	The unique Avolites moving light Tracking system available using the Graphics Tablet.
ABSOLUTE	Mode for colours and positions on the Graphics Tablet in which the output of the Fixture corresponds directly with the position of the stylus on the Tablet. See NUDGE.
ADDRESSES	The DMX Channels occupied by individual Fixtures. The first Channel occupied is usually encoded onto the Fixture somehow (often by switches) and called its ADDRESS.
ALIGN	A means of copying Attribute characteristics from the first Fixture selected to other selected Fixtures, resulting in the Fixtures being aligned to each other.
ATTRIBUTE	One Channel of an Intelligent Fixture.
ATTRIBUTE BANK	A set of buttons controlling which Attributes the wheels connect to.
AVOS	The most basic Operating mode in the console. AVOS allows loading of the System Software.
BACKUPS	Copies of a show stored to disk for safety.
BPM	Beats Per Minute.
CHASE	A sequence of one or more pre recorded steps programmed using the CHASE button. It can be replayed automatically if desired. Sometimes known as SEQUENCE, STACK or Linked Cues.
CHASE STEPS	Individual component steps of a Chase. See above
COLOUR CHANGER	A mechanical Fixture for changing the colour of a light source, usually by scrolling through a roll of different coloured gels or by moving special filters into the light beam.
COLOUR MIX	A system of three filters that can each crossfade from white to a colour, or one colour to another. It is a feature of some Intelligent Fixtures, which enables thousands of different colours to be created.
COMPLEX STEP	A Chase Step that has Individual Step Times programmed into it, and hence will not use Global times. See SIMPLE STEP, GLOBAL CHASE TIMES, INDIVIDUAL STEP TIMES.
CONNECTED CHASE	A Chase which has been brought under control of the Wheels and other Chase functions by pressing the CONNECT button.
COPY	A system of replication of Memories and Chases used by the Pearl that links all the copies together. A change in any one of the replicas results in the same change to all of them. See PHOTOCOPY.
CROSSFADE	Or X FADE. A smooth transition from one state to another.
DEVICE	See FIXTURE.

DMX	DMX512(1990) a specification for communication between control desks and Fixtures, Originally for Dimmers it has been adopted as a control protocol for most Intelligent Fixtures. It can carry 512 different Channels of data.
DMX TRANSMISSION RATE	The rate at which DMX data is broadcast from the desk to the Fixtures.
FADE	A smooth transition from one state to another.
FADING CHANNEL	An LTP Channel which CROSSFADES. See INSTANT CHANNELS.
FIXTURE	Any lighting instrument that is patched using a Personality. Generally refers to a moving light or colour changer, not an individual Dimmer channel. Also called Intelligent Fixture, Device, Instrument, Moving Light.
FLIP	A function for use with Moving Head Fixtures. They have two possible Pan and Tilt positions for each point on stage, and FLIP will alternate between them.
FOCUS	What Palettes are called on other Avolites consoles. Occasionally some VGA screen messages may display this term. See PALETTE.
GENERIC	Term used to indicate a Dimmer channel. See also FIXTURE.
GLOBAL CHASE TIMES	Fade and Wait times which apply to any Chase Step which does not have Individual Step times programmed into it. These steps are called SIMPLE STEPS. See INDIVIDUAL STEP TIMES, COMPLEX STEP, SIMPLE STEP.
GRAPHICS TABLET	Optional input device for the Azure that controls Dimmers and Fixtures by means of clicking a Stylus or a Puck on an electronic slate.
GROUP	A GROUP is a preassigned collection of Fixtures that can be selected with a single button press.
HANDLE	A term occasionally used for the Fixture Select button which controls a fixture or dimmer.
HTP	Highest Takes Precedence, a mechanism for determining the output level of a Channel held in more than one Playback Channel. The Channel outputting the Highest value at any given time will always determine the level of the Channel. Also see LTP.
INCLUDE	A means of transferring the contents of a Memory or Chase Step into the Programmer.
INDIVIDUAL STEP TIMES	Times programmed into one individual Chase Step from the TIMES menu. These steps are called COMPLEX STEPS. See GLOBAL CHASE TIMES, SIMPLE STEP, COMPLEX STEP.

INSTANT CHANNEL	A channel which does not use fades generated by the console, and moves in discrete jumps from one state to another. See FADING CHANNEL.
INSTANT ACCESS	A function on the Graphics Tablet that does not require the correct Attribute Bank to be selected in order to control an Attribute.
INSTRUMENT	See FIXTURE.
INTELLIGENT FIXTURE	See FIXTURE.
LINKS	Connections between Chase Steps enabling them to run on from one to another automatically.
LOCATE FIXTURE	A feature of the console that makes it easy to find your selected Fixtures by putting them in Open White with Pan and Tilt at 50%.
LTP	Latest Takes Precedence, a mechanism for passing control of a channel from one Playback Fader to another on the basis that the latest Playback Fader to be moved has control, providing that Playback Fader has moved passed the Trigger point. (See TRIGGER POINT). Also see HTP.
MACROS	Macros allow functions programmed into an Intelligent Fixture by the manufacturer to can be executed by sending a DMX command sequence from the console. They can allow you to reset the Fixture for example. The DMX command sequences are defined within the Personality File.
MEMORY	A single stage look programmed onto a Playback button or fader. It does not have Wait times. Also known as CUE, STATE, SCENE, LOOK.
MEMORY MODE	A playback format programmed into a Memory. There are Memory Modes 0, 1 and 2.
MIDI	Stands for Musical Instrument Digital Interface. It is the established hardware and software specification enabling the exchange of data between digital musical instruments (such as keyboards) and other devices such as computers, sequencers and sound and lighting consoles.
ML MENU	Stands for Moving Light Menu.
NUDGE	Mode for colours and positions on the Graphics Tablet in which the output of the Fixture changes relative to the movement of the stylus on the Tablet. See ABSOLUTE.
PALETTE	A term used to describe a referenced pre-defined state for an Attribute that can be recalled whenever required during programming. Each Fixture may be different in the Palette, the entries can be named, and recalled with a single button press.
PARK	This happens to a fixture when its DMX address is taken by another fixture during a later patching session. The fixture must then be repatched.

PERSONALITY FILE	A description of what Attributes a particular Intelligent Fixture has and how the console will patch and use these. It also determines which Attribute Bank will control which Attribute. Avolites Personality Files are in ASCII format and can be edited on any personal computer which can read and save onto MS DOS 1.44 Mb (High Density) 3.5 inch disks.
PERSONALITY DISK	A disk on which Personality Files are stored.
PHOTOCOPY	A method of replicating Memories and Chases that are completely independent of each other. See COPY.
PLAYBACK	Area of the console that can replay recorded Memories or Chases. It contains Playback Channels recalled using Playback Faders and Playback buttons.
PRESET FOCUS	What Palettes are called on other Avolites consoles. Occasionally some VGA screen messages may display this term. See PALETTE.
PROGRAM	Desk mode in which programming functions are enabled, but System Software is protected. See RUN, SUPERVISOR.
PROGRAMMER	The part of the console which contains Channel information which has been changed by the user, prior to recording.
RUN	Desk mode in which all Playback functions are enabled, but all programming functions disabled.
SCRIPT FILES	System that allows Playback to be automated and controlled by Timecode.
SELECTED	A Fixture that is under manual control.
SEQUENCE	See CHASE.
SHAPE	A preprogrammed effect available which is applied to an Attribute. It can then be customised and stored in a Memory.
SHARED PALETTE	A Palette in which information is only stored for one Fixture, but is available to all Fixtures of that type.
SIMPLE STEP	A Chase Step which does not have Individual Step Times programmed into it, and hence will use Global Chase times. See COMPLEX STEP, GLOBAL CHASE TIMES, INDIVIDUAL STEP TIMES.
SOFTKEY	Buttons marked A-F, with different functions which are shown on the VGA display.
STACK	See CHASE.
STAGE REMOTE	Optional input device for the Azure allowing control of DMX Channels and recall of Memories and Chase Steps.
SUPERVISOR	Desk mode allowing access to the operating software of the Azure.
SYSTEM SOFTWARE	The software which runs the Azure.
TC	Abbreviation for Timecode. In the Azure, this is always MIDI Timecode.

TRACKING	A mode in which Moving Lights can move around an area all pointing at the same spot.
TRAINING	The process of recording points on a stage so that the console can work out the TRACKING for Moving Lights.
TRIGGER POINT	The level set in the User Settings which determines at which point a Playback Fader triggers the LTP Channels programmed onto it.
UNFOLD	A function that allows Chase Steps to be laid out onto Playback Faders for easy editing.
USER SETTINGS	User definable desk settings. Found in the USER PREFERENCE menu.
WAIT	A period of time that elapses before a Fade happens in a Chase.
WIPEALL	A process which clears all the previous programming out of the desk, but does not touch the System Software.
WHEEL A	This is the left hand wheel. It is used to control the upper Attribute of each Attribute Bank.
WHEEL B	This is the right hand wheel. It is used to control the lower Attribute of each Attribute Bank.

13. Button index

This section lists all the buttons on the Azure, with the page number it is described on. If you want to know what a particular button does, this index tells you where in the manual you can find out about it.

Pages in the Tutorial section have numbers below 100. Pages in the Reference manual have numbers above 100.

- . · 12, 13, 117
- @ · 12, 117
- 0-9 numeric keypad · 12, 117
- 1-10 environment select buttons · 31, 139
- 1-10 playback flash buttons · 21, 126, 136
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The On, Instead, Kill and Quick Look buttons are not implemented in the current software and are not described in the manual.

14. Index

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