Pearl Expert Titan

Operator's Manual

Version 4.0

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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 near the power socket and on the keyboard drawer; the software version is displayed on the menu prompt when the console is switched to System mode.

The latest version of this manual and Pearl Expert Titan Software can be downloaded from the Avolites website.

The small print :

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S E C T I O N S

C O N T E N T S

1.   Setting up the console

This chapter contains: Connecting mains power, DMX lines, VDUs; configuring the console and the various VDU windows; guide to where everything is on the console; loading and saving shows.

This manual applies only to the Pearl Expert Titan console but we'll refer to it simply as "the Pearl". If you are using the classic Pearl Expert, or the Pearl 2008, 2004 or 2000 consoles, they have their own manuals as the operation is significantly different.

This manual includes instructions for the optional Expert Touch Wing.

Note: You can also operate the Pearl Expert Titan in "classic" Pearl Expert mode by rebooting the console into the desired mode. See section 1.7 on page 29.

1.1   Guide to the console

Master faders   Preset faders / handles

Playback faders and   Programming and
page select rollers   setup controls
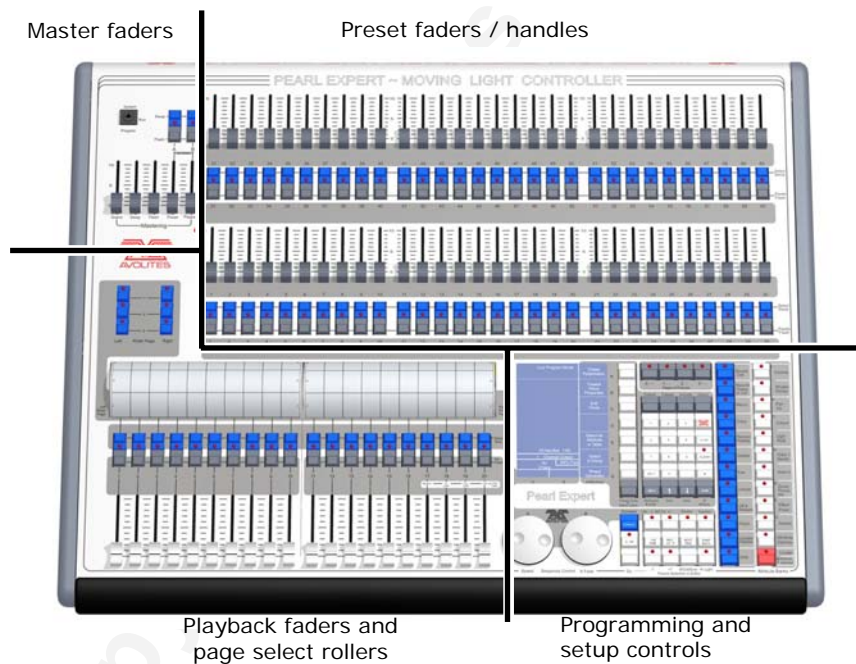
The Pearl has four main control areas:

The **Master faders** set overall levels on the console

The **Preset faders/handles** select and control individual fixtures (and you can store cues and chases here too)

The **Playback faders** and **rollers** select and control cues and programs

The **Programming and setup controls** configure and program the console

The main controls

Mode select keyswitch   Preset faders / handles

Master faders

Playback page
select rollers

Main display   Menu   Command
softkeys   buttons
Playback faders &   Control   Numeric   Attribute
flash buttons   wheels   Fixture page   keypad and   select buttons
buttons   controls
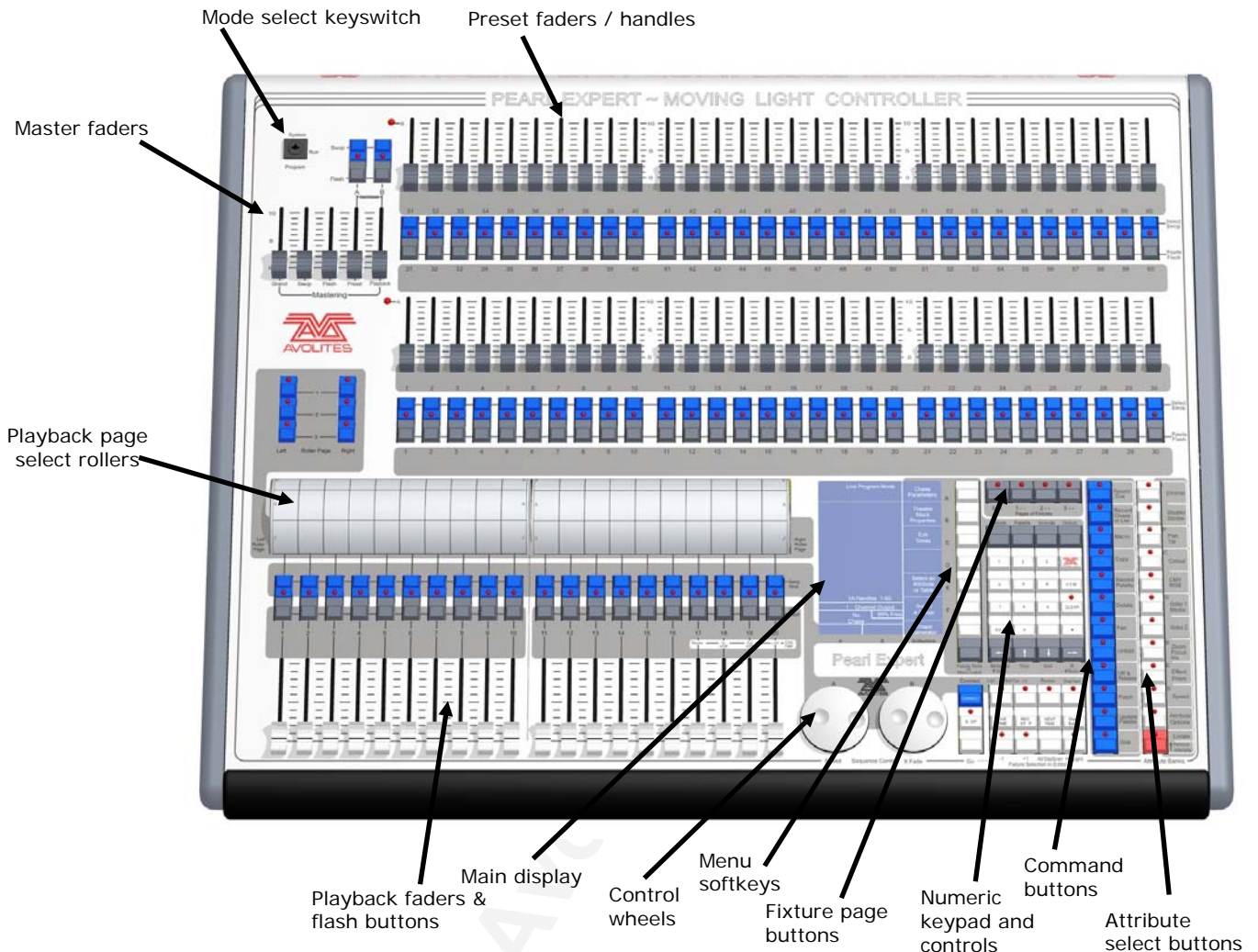
- The **Preset Faders** are used to control individual dimmer channels
  and fixture intensities. Cues and chases can also be stored on these
  faders. The 2 buttons below the faders are used to select and flash
  whatever is stored on the fader. Each fader and buttons is called a
  "Handle".

- The **Mode select keyswitch** selects Programming, Run or System
  modes of operation.

- The **Page select rollers** let you select different pages of playbacks,
  and you can write the playback names on the rollers so you know
  what's in them. There are 2 rollers each controlling 10 playback faders

- The **Master faders** control the overall output of the various parts of
  the console. You will normally have these set at Full.

- The **Playback faders** and flash buttons are used to play back cues or
  chases you have programmed, when you are running a show.

- The **Main display** is the nerve centre of the console and shows you
  what is going on. The display can show various screens of information.

- The **Control wheels** are used to set control values on the fixtures,
  and to set chase speeds and fades.

- The **Menu softkeys** (labelled A – G) are used to select control options. The display next to the buttons shows what each one will do. The options for each key change depending on what the console is doing. Softkey commands are shown in the manual with square brackets like this: A [Edit Times]

- The **Numeric keypad** and other control buttons are used to enter values and change controls on the console.

- The **Fixture Page** buttons are above the keypad, and allow selection of 4 pages for the Preset Faders.

- The blue **Command buttons** are used to carry out functions such as storing cues, copying, saving to disk, etc. These buttons have lights on to indicate when they are active.

- The **Attribute select buttons** are used to select which attributes of a fixture (e.g. colour, gobo, pan, focus) are going to be controlled using the Control wheels. The buttons have lights on to show you which attributes are active. The bottom (red) button allows you to locate fixtures, which sets them to a known start position while programming.

- A **QWERTY keyboard** and mouse touchpad is provided in a drawer on the front of the console.
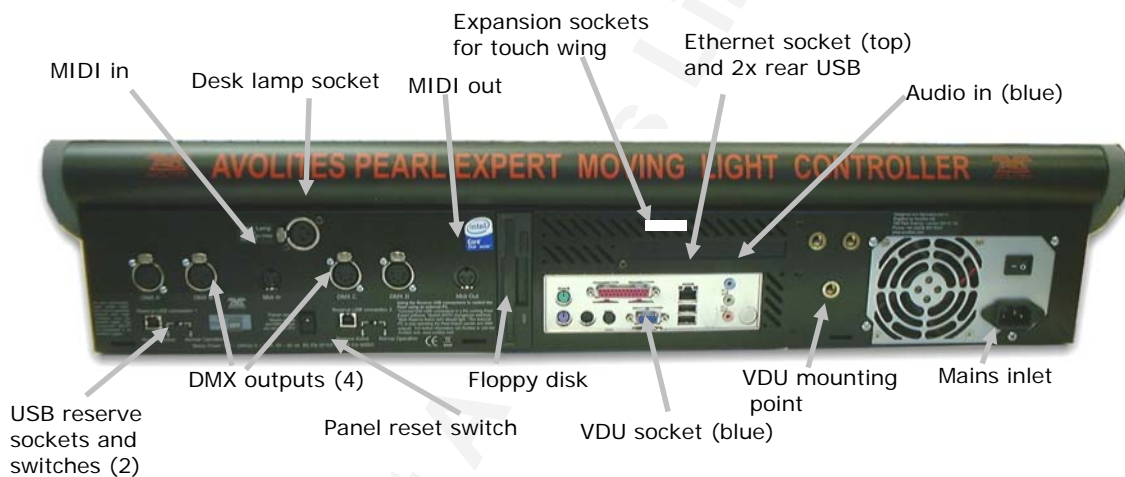
The back panel

All the connections required for the console are found on the back panel. Most are self-explanatory.

- The Panel reset switch may be pressed to restart the front panel electronics if something odd happens with the switches and faders. The main board will continue running but the DMX output will be interrupted until the restart is completed.

- The USB reserve sockets and switches are for future expansion. The switches should be set to "Normal operation".

The Touch Wing

Context
touch buttons

Workspace
windows

Playback info

Window selection
buttons

Macro buttons

Window size/position
buttons

Attribute wheels

Workspace
save/recall
touch
buttons

Attribute display
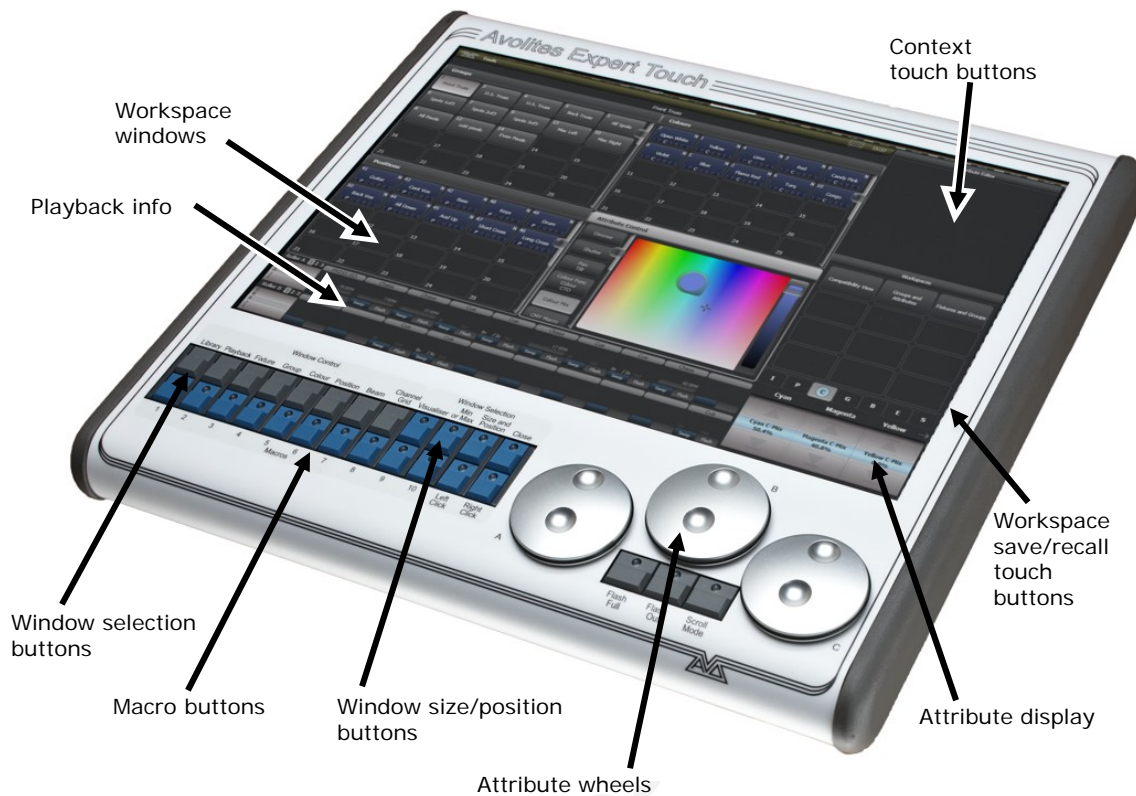
The optional Touch Wing uses a touch screen and additional wheels to provide a user-friendly interface for selecting fixtures, palettes, groups and setting attributes.

- The main area of the Touch Wing shows up to 4 **workspace windows**. You can select the content and configure the size and layout of these windows using the Window Selection and Size/Position buttons below the screen.

- The arrangement of windows can be saved and recalled using the **Workspaces** touch buttons on the right of the screen.

- Some windows have additional command buttons which are displayed in the **Context touch buttons** area on the top right of the screen when the window is active.

- The three **Attribute Wheels** take over attribute control from the wheels on the console, which are then used for speed/fade control of chases. Below the wheels the **Scroll Mode Button** to switch the wheels into scroll mode – this is used to move a selection box around the screen when editing.

- The **Attribute Display** shows which attributes are being controlled by the wheels, and the current settings. Touching the roller graphic will set the attributes to min or max.

- Across the bottom of the screen there is an area showing information about the **playbacks** on the current roller pages.

1.2   Connecting up

1.2.1   Connecting mains power

You can safely connect the Pearl to any voltage from 80 to 260V.

We recommend that you run the console from a computer UPS (uninterruptible power supply) . If the console unexpectedly loses power, you can lose data (up to the last Autosave) and the console may want to check its disks on startup which can cause delays. The UPS will protect you from most power problems and give you chance to shut down the console normally.

1.2.2   Starting up and shutting down

The Pearl runs a Windows-based operating system internally, so you need to make sure it is shut down properly rather than just turning off its power.

Start up the console by pressing and releasing the Power switch at the left hand side of the front edge. The console display and VDU screen (if you are using one) should come alive. The Pearl takes about 30 seconds to start up and a progress count is shown on the console display.

Shut down the console by pressing and releasing the Power switch again. The console will perform a controlled shutdown. Wait until the Power light has gone off (about 15 seconds) before you disconnect power from the console.

To carry out a **Forced Shutdown** of the console, if the normal shut down does not work, hold down the power switch for 5 seconds.

Note: Do not use the power switch on the rear of the console to switch off the console as this would not close down the console properly.

1.2.3   Connecting DMX lines

The Pearl communicates with lighting fixtures using the DMX512 system. It can produce 12 universes of DMX (each 512 control channels). It has 4 physical DMX outputs for direct connection to fixtures and dimmers, and can also send DMX over Ethernet and wireless Ethernet systems to allow connection to remote DMX Ethernet nodes and to the Avolites Console DMX Interface (ACDI) system which is used to connect visualiser applications.

When you patch a dimmer or fixture you tell the Pearl which of the 12 DMX universes it is on. Each universe can be configured to come out of one or more of the 4 standard DMX outputs on the back of the console, or over an Ethernet protocol (see section 13 on page 141.)

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

Pin 1	Earth
Pin 2	Data -
Pin 3	Data +
Pin 4	Not used
Pin 5	Not used

Each DMX line should pass through all the fixtures to be connected on that line one after the other and have a DMX terminator fitted at the end (120 ohm resistor between pins 2 and 3). You should not split the DMX lines using passive splitters (Y-splits) as this can mess up the data.

1.2.4   Connecting VDU monitors

You should connect a computer VDU monitor to the Pearl, which is plugged into the VGA port on the rear of the console.

- The external VDU can be disabled and if so will show a "disabled" message. To enable it, switch to System mode and select [Display Setup] then press [External Display Disconnected]. The option will change to [External Display Connected] and the display will be enabled.

- If you need to change the VDU resolution or settings, click on "Tools" at the very top of the screen and select "Control Panel", then "External Monitor", then select the option to match the resolution of your monitor.

There are more details about setting up an external monitor, including troubleshooting help, in section 11.1.5 on page 121.

1.2.5   Connecting the Touch Wing

The Touch Wing connects to the DVI port and the 9-pin D connector on the rear of the console, just above the panel with the rear USB/network sockets.

1.2.6   Other connections

You can connect an external keyboard and mouse to the pc connectors on the rear of the console if for some reason you don't like the keyboard with touchpad in the drawer on the front.

The console provides MIDI connections which can be used to connect MIDI timecode to the console for timecode-controlled cue lists.

You can connect the console to a LAN (local area network) using the RJ45 socket on the rear. This allows you to back up the console to another machine, or to link to a DMX-over-ethernet system.

A 3-pin XLR socket for a desk lamp is provided on the rear edge of the console. Suitable lamps are available from Avolites. The lamps are 12 volt, wired from pins 1 and 2 of the XLR.

1.3   Using the displays and menus
The Pearl Expert has many useful features on its onboard display and
on the VDU.

1.3.1   The onboard display
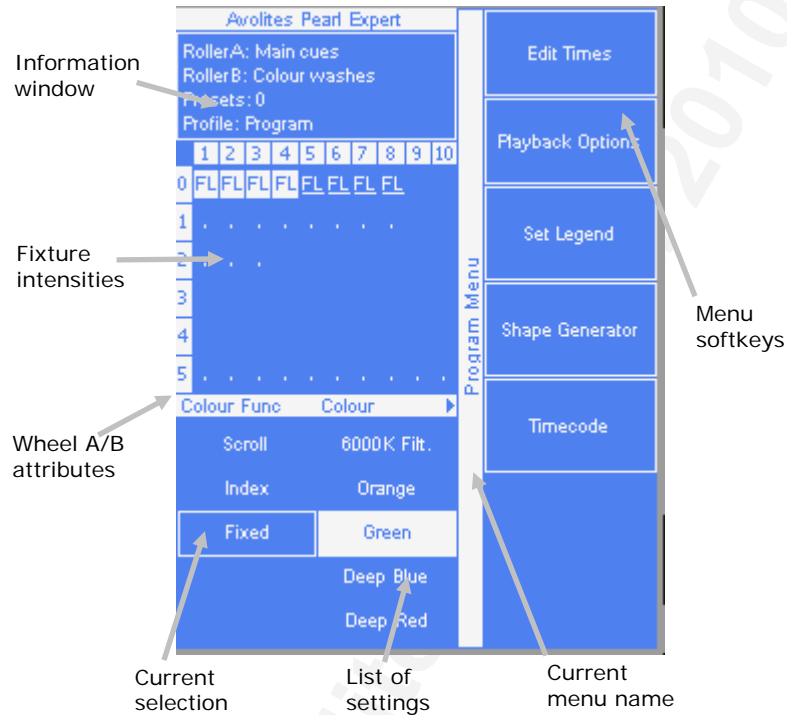
Down the right hand side of the display, the functions of the A-G
menu softkeys are listed. In this manual these are shown in square
brackets [Like This]. If there are more functions than will fit on one
screen, [Previous] and [Next] buttons are provided to page through
the functions.

The vertical bar to the left of the softkeys shows you which menu you
are currently in. You can "latch" the menu (so that you don't have to
keep reselecting it) by pressing the ML Menu button.

At the bottom left of the screen, the current function of the wheels is
shown. If fixture attributes are being set, this shows the possible
settings which are available on the fixtures. The horizontal bar shows
which attributes are being controlled by each wheel and the boxes
show the current attribute. If a chase is being controlled, information
about the chase is shown here.

Above this, the current fixture intensity is shown in a grid arranged
by handle number. A dot shows a fixture that is not lit, otherwise a
percentage brightness is shown, with "FL" for full. If the fixture is
selected then it is shown inverted (blue-on-white), and if it has been
changed (is in the programmer) it is shown underlined.

The area at the top left of the screen shows instructions to the user
and information from the console.

The appearance of the softkeys varies to indicate the type of actions
available:
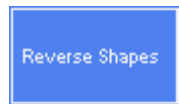
Reverse Shapes	Adjust Speed and Size	Edit Times	Roller B = Colour washes
Action button: console will carry out the action shown	Option button: cycles through a range of options	New menu button: jumps to a new menu	Text entry button: press and enter text using the keyboard
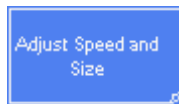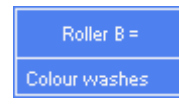
1.3.2 Workspace windows on the VDU and Touch Wing

The VDU screen and, if you are using it, the Touch Wing, show the workspace windows. These contain buttons for selecting fixtures, groups, palettes, playbacks and so on. Information windows such as Playback View, Channel Grid and the integrated Visualiser application can also appear as a workspace window.

4 window positions   Context buttons
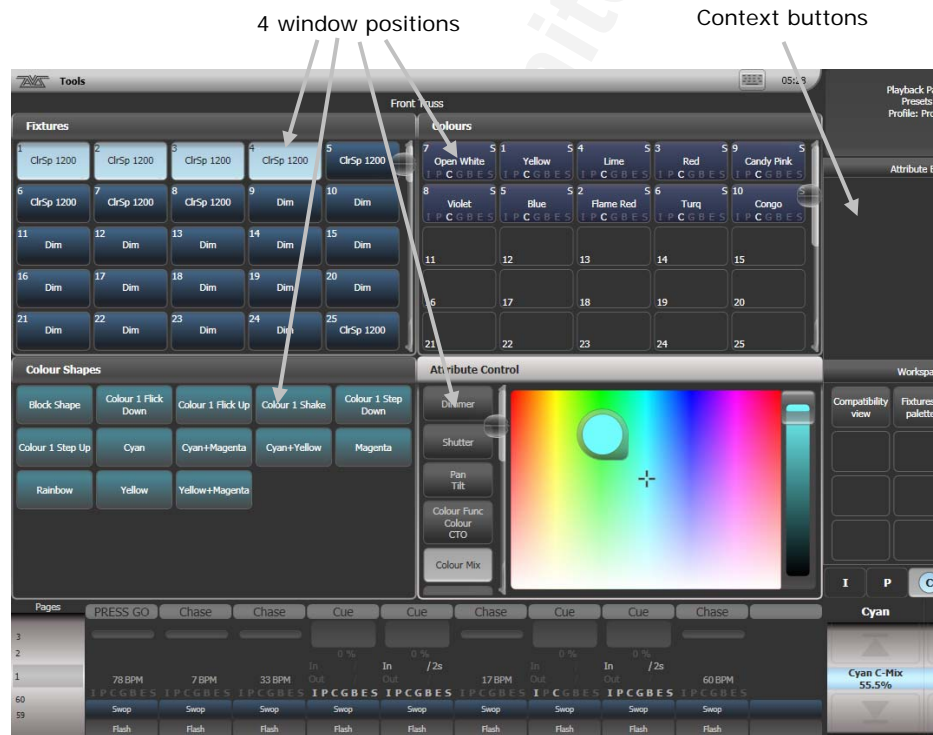
Up to 4 windows can be shown on each screen in a 2x2 grid, but if you need a larger view, you can make a window twice as big, or it can take up the whole area. You can move windows freely between the external VDU screen and the Touch Wing. Some possible window sizes/positions are shown below.
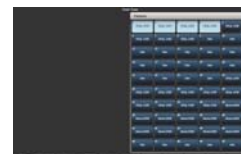
Quarter size	Double wide	Double height	Maximised

Some workspace windows have option settings or commands associated with them. If the Touch Wing is connected, these are positioned in the "context buttons" area on the right of the Touch Wing as shown in the picture above. If the Touch Wing is not connected, a drop down context menu is available at the top right of each window.

Selecting and positioning workspace windows

You select which workspace windows you want to see using the [Open Workspace Window] menu command on the root menu, or by pressing the Window Selection buttons on the Touch Wing just below the screen.

You can change the positions and sizes of the windows by using [Window Options] on the View menu. The Touch Wing also has pushbuttons for these functions. [Min or Max] swaps the active window between full screen and quarter size. [Size and Position] moves the active window around the possible positions. [Select Window] gives you a list of windows to choose the active one, or on the Touch Wing you can make a window active by touching its header bar.

You can move the active window between the Touch Wing and the external VDU monitor by pressing View then [Window Options] then [Move Screen], or for the Touch Wing hold down the Avo button (on the main console) and press the Size/Position button.

If a window shown on the VDU contains touch buttons, you can click them using the mouse trackpad on the keyboard.

The function buttons (F1-F12) on the QWERTY keyboard can be used to select and move workspace windows. See the list in section 11.1.2 on page 119.

Window shortcuts

Press View then an Attribute Bank button to open the Palette window for that attribute.

Press View then Patch to open the DMX output window.

Press View then Connect to open the View Cue window.

Press View then Record Macro to open the Macro window.

Workspace window options

You can change the window sizes and positions by clicking the small 'i' button in the top left corner of the window. These options also allow you to set the button size and the text size of the window.

Saving workspaces

You can save different workspace setups to the Workspaces touch buttons on the Touch Wing or to grey handle buttons on the console. This is done by pressing View then [Record Workspace], then touching one of the Workspaces buttons or pressing a grey button. This allows you to reconfigure the workspace at the touch of a button.

Workspaces are saved with the show.

Setting up and recording workspaces is described in more detail in section 11.1 on page 119.

Quick record

Some windows – Groups, Workspaces, Playbacks, and all the Palette windows - have a Quick Record function. Set up what you want to record, then touch or click the button once. The button will light up red with a + sign. At this point you can enter a legend. Touch or click again to store the item.
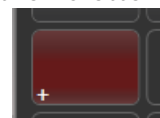
The Quick Record function can be disabled using Key Profiles (see section 11.2.1 on page 123).

Legends and picture legends

All touch buttons can have legends set to remind you what they do. In addition, if you have the Touch Wing connected you can draw picture legends on the buttons. To do this, select [Set Legend] then press [Picture]. A drawing space will open on the touch wing for you to draw the legend.

1.3.3   The Tools menu

The Tools menu on the top left corner of the screen (or the Touch Wing) allows you to access Windows functions such as File explorer (to move files around), Control Panel (to setup hardware), and to stop or restart the Pearl application or run other programs.

About gives you information about the software version.

Help shows you the online manual.

Control Panel opens a sub-menu allowing changes to monitor settings and to the USB expert console which links the front panel controls to the system. The "More…" option opens Windows Control Panel allowing you to change the operating system configuration.

Folders opens the file explorer. You might need this when backing up show files or when updating the operating software.

Switch Task allows you to bring programs in front of the Pearl windows and move them between the Touch Wing and the external VDU screen. Click or touch the Switch Screen icon to swap the program between the Touch Wing and the external VDU. Click or touch the Centre icon to centre the window on the screen. Click or touch Close to close the program.
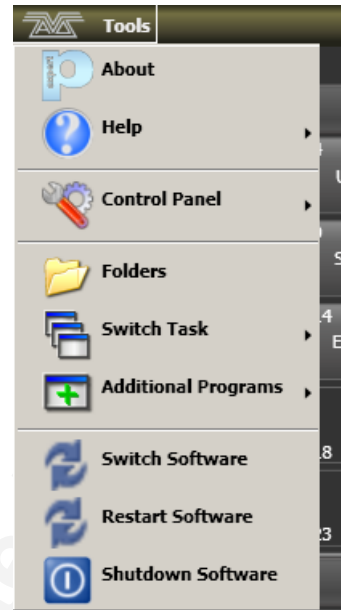
Additional Programs allows you to run some diagnostic programs which might help Avolites Support find problems you're having.

Switch Software allows you to run the Pearl Expert in "Classic" Pearl mode rather than Titan mode.

Restart and **Shutdown Software** restarts and closes the Titan and Pearl Expert software. You would normally only use these when upgrading the software.

Keyboard button

At the right hand end of the toolbar is the keyboard popup button which will open the touch keyboard. This duplicates the function of the keyboard in the drawer, but can be more convenient for quick text entry.
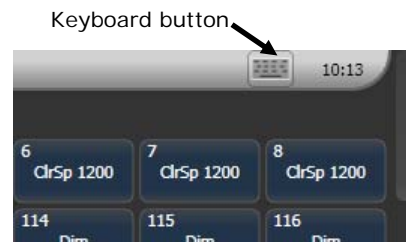
The touch keyboard can be switched between large and small size using the Max/Min button and you close it using the large X button in the top right hand corner. It can be set to pop up automatically when

Manual/Auto   Change size   Close
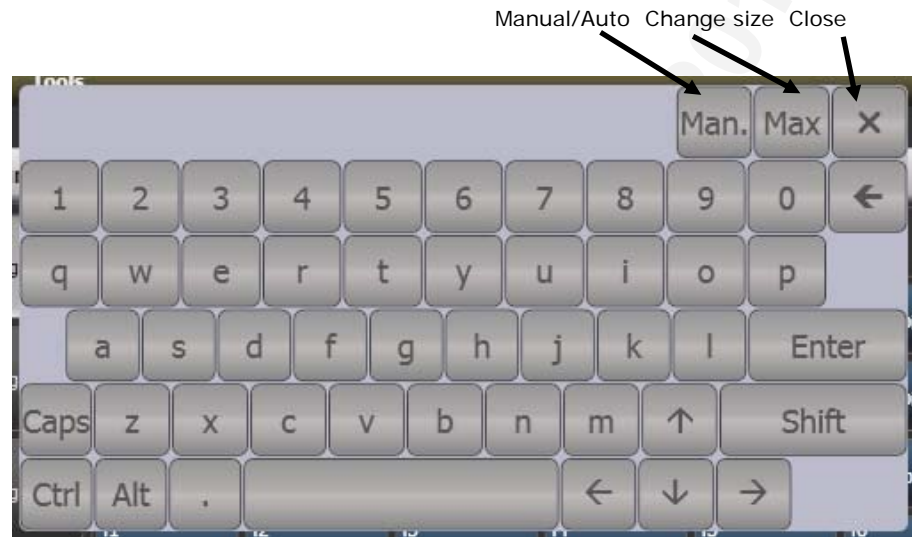
text input is required, using the Man/Auto button. You can also move it on the screen by touching and dragging the blank area of the keyboard at the top.

The small version of the keyboard (pictured) does not have some of the less frequently used buttons.

1.3.4   **Visualiser**
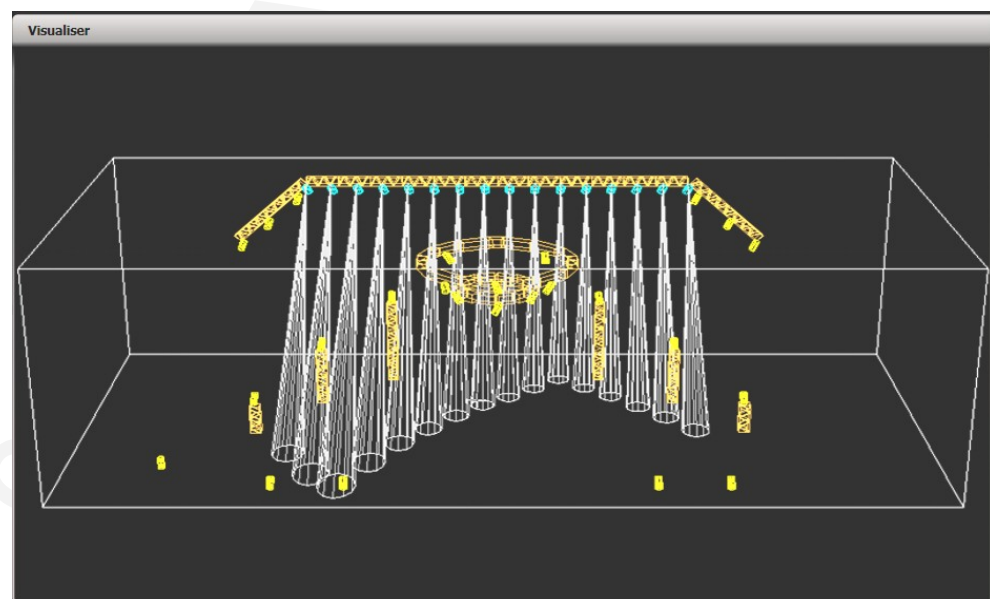
The Pearl Expert runs Avolites Visualiser internally. This allows you to view the output of the console if you can't use the real lights, enabling you to make changes to your show at home or in your hotel.

Visualiser is shown in a workspace window, either on the touch screen or on the external monitor. Press [Window Options] then [Move Screen] on the View menu to move it between the touch screen and external monitor.

Configuration buttons for Visualiser are provided in the context button area in the top right of the Touch Wing screen, or on the context menu at the top right of the window if you aren't using the Touch Wing.

· The operation of Visualiser is not covered in this manual, please refer to the Visualiser manual.

Auto Patch

The Auto Patch function automatically creates a Visualiser rig from your Pearl show. When you start Visualiser using softkey A on the View menu, Visualiser will open with an automatic representation of your patch.

You will see the fixtures laid out on screen as they are on the console, so any spaces between fixtures will be preserved and fixtures patched to the top row of presets will be shown above fixtures patched to the bottom row of presets.

The Visualiser will start in run mode, with the simulator tab selected so you can start controlling lights immediately.

Multiple dimmers patched to one handle will appear as a singe fixture in Visualiser.

Fixture selection

When a fixture is selected on the console, it is highlighted in blue in Visualiser.

1.3.5 The Heads-Up Display (HUD)

The HUD window shows you what is stored in each fader and button on the console: cues, chases, fixtures, dimmers, palettes, and fixture groups. Any legends you enter are shown here.

The HUD window is a workspace window and is displayed by pressing View then [Open Workspace Window] then [HUD]. It may be moved around and resized using the normal workspace window controls.

Fixtures are highlighted in dark blue if in the programmer and in light blue if selected. Only fixtures, palettes and groups stored in the preset handles on the console are shown, handles on the Touch Wing are not shown on the HUD.

1.3.6   Key profiles

The Pearl allows you to reconfigure how the front panel buttons work to suit your method of working. You can also change the way some of the touch keys work on the Touch Wing. You can save your settings as a Key Profile. Different profiles can be selected for different users or to enhance the operation of the console for a particular use. See section 13.2 on page 141 for details.

1.3.7   Undo/Redo

You can undo and redo up to 20 actions by pressing Avo Shift and the grey left arrow (undo) or right arrow (redo) buttons below the numeric keypad. So for example if you press Clear then wish you hadn't, the Undo function will restore the console state.

1.3.8   Key macro recording

Lighting programming can sometimes require a repeated sequence of button presses. You can record sequences of keypresses and play them back with a single keypress – this is called a macro. To record a macro:

1>   Press the blue Macro (previously Insert) button (to the right of the numeric keys).

2>   Press [Record]

3>   Press a vacant preset Flash button. Recording starts. The Macro button flashes during recording.

4>   Press the sequence of buttons you want to record.

5>   Press Macro to finish recording.

To play back the macro, just press the grey Flash button where you recorded the macro. The macro will repeat all your button presses (with no delay or timing between the presses).

When using the Touch Wing, macros may also be recorded into 10 dedicated buttons on the Wing. In addition you can display a workspace window with further macro touch buttons. The 10 hardware buttons are allocated to the first 10 macros in the window.

1.3.9   The Pearl Expert Titan application

The Pearl Expert Titan application is the "engine room" of the console. The main reason you will need to use it is to configure DMX outputs. Use the Tools → Switch Tasks menu to bring the application window to the front.

Setting up DMX outputs is described in section 13.2 on page 141.

1.4   Loading and saving shows

You can save any number of different shows on a USB drive or the Pearl's internal hard disk. The Pearl will also autosave the show periodically.

Note: You cannot transfer shows between the Pearl Expert Titan and other versions of the Pearl or Pearl Expert as the showfile format is different. You can load shows to/from other Titan consoles such as the Tiger Touch.

1.4.1   Autosave

The Pearl will automatically save your show to its internal hard disk when you shut it down. It will also autosave the show every 30 minutes in case the console loses power. The time remaining to the next auto save is shown on the status bar of the Titan application.

You can disable Autosave or alter the time between saves using option D [Auto Save] on the Disk menu (selected using the blue Disk button). Softkey A enables or disables autosave and Softkey B sets the time between saves. We recommend that you have autosave enabled while programming in case the console power fails, but disable it while running a show as it can cause the console to pause slightly at inconvenient moments.

1.4.2   Manual save and load

You can save your show at any time either with its current name or with a new name.

1>   Press the blue Disk button (bottom right).

2>   Press [Save Show].

3>   If you have a USB drive connected, use the softkeys to select whether to save on "Removable Disk" or the internal hard drive.

4>   Enter a name for the show on the keyboard (the screen shows a list of shows which already exist).

5>   Press Enter or [Save]. The show will be saved.

6>   Press Exit or [OK] to leave Disk mode.

If you save to hard drive, shows are saved in the C:/Program Files/Avolites/Titan/ShowData folder, unless you change this in the User Settings.

The Pearl will automatically load the last show when it is turned on.

If you want to load a different show:

1>   Press the blue Disk button.

2>   Press [Load Show].

3>   If you have a USB drive connected, select which drive you want to load from.

4>   Available shows are listed on the softkeys; press the key to load the show (the F and G keys show more pages). If you type the first few letters of the show name on the Qwerty keyboard, the list will only include shows starting with those letters, which can make it easier to locate the show you want.

> *5> Press Exit to leave Disk mode.*

You can save any number of different shows on the Pearl's internal hard disk.

1.5 Backing up a show to USB drive

If you save to the internal hard drive, it's a good idea to regularly copy a backup of the show to an external storage device such as a USB pen drive just in case something bad happens to the console. One way to do this is to load the show from the hard disk then save it to the removable disk using the Disk button as described in the previous section.

You can also use the VDU and mousepad to select options from the Pearl Expert Titan window on the VDU as described below.

1.5.1 Backup existing show files to USB pen drive

To backup existing show files to USB drive you need to copy the showfile across using Windows functions.

1> On the Tools menu, click on the Folders icon.

2> Double click on "Local Disk (C:)"
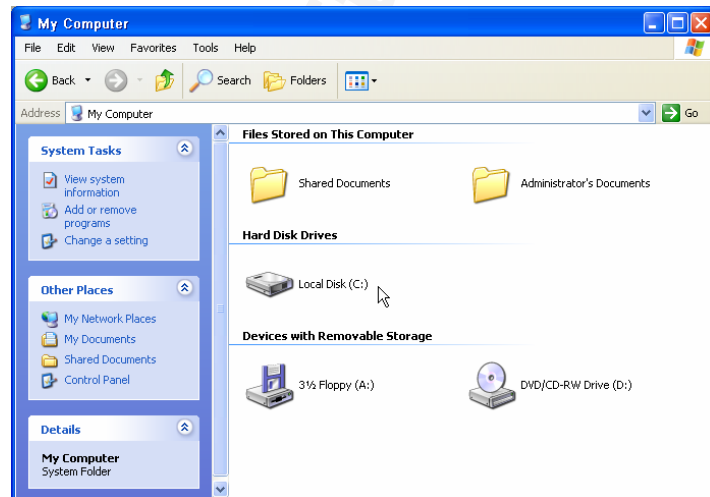
3> Double click on the "Program Files" folder.

4> Double click on the "Avolites" folder, then double click the "Titan" folder, then double click the "ShowData" folder.

5> The VDU screen will show a list of the saved shows.

6> Click on the show you want to backup. If you want to backup more than one, hold down the Ctrl button on the keyboard while clicking them.

7> Right click on a selected file, and select "Send to" from the pop up menu which appears.

8> Select the removable USB drive where you want to make a backup of the show file(s). The file will be copied.

9> You cannot burn files to CD-R, you must use a USB drive.

1.6 Clearing the console

When you start a new show on the Pearl it is usually a good idea to clear the console. All programming and patching is deleted, but user options are not changed.

1> Press the blue Disk button.

2> Press [New Show].

> *3>   Press [OK] to confirm.*
>
> *4>   Press Exit to leave Disk mode.*

- There is also an option E [Wipe] in the System menu (when the key is turned to System) which has the same function, and is located in the same place as on the "classic" Pearl versions.

1.7   Rebooting into original Pearl Expert mode

You can run the Pearl Expert in either Titan mode or the original Pearl Expert mode. Click the [Switch Software] button on the VDU tools menu to reboot the console into the desired mode.

Reboot into different mode
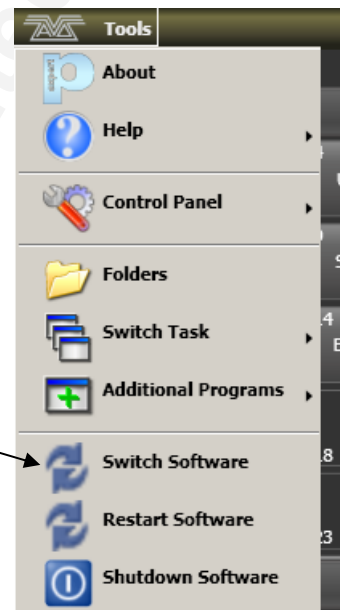
2. Patching

This chapter contains: patching dimmers; patching moving light fixtures; checking the patching; changing the DMX address; deleting a patched fixture; patching options.

Patching is the process where you tell the Pearl

- What type of lighting units you have connected to it

- What DMX addresses they are operating at

- Which DMX line (universe) each unit is connected to (there are 12)

- Which Preset Faders you want to use to access them

You should normally plan out the lighting rig in advance to allow the DMX addresses on your fixtures to be set up before they are rigged. The easiest way to do this is to patch the fixtures on the console, then read off the DMX addresses from the console (using the DMX window on the VDU) and use them to set up the addresses on the actual fixtures.

Alternatively you can allocate the DMX addresses to the fixtures yourself, and set up the console to match.

The Pearl's key must be set to Program before you can patch.

2.1 Create

2.1.1 Preset faders (handles)

To control intelligent fixtures or dimmer channels, they must be patched to a Preset, or to a Fixture button on the Touch Wing.

Handles (Preset faders)

Presets are the faders, buttons and displays located in 2 rows along the top of the console. Each preset consists of:

- a fader, used to set the intensity of the fixture or dimmer

- a blue Select button which is used to select the fixture

- a grey Palette button which is used to store and select Palettes, Groups and various other things

The fader and buttons are together referred to as a handle.

There are 4 pages of presets controlled by the fixture page buttons, located just above the numeric keypad. Fixtures 1-60 are on page 0--, Fixtures 101-160 on page 1--, 201-260 on page 2—

Pages of fixtures buttons
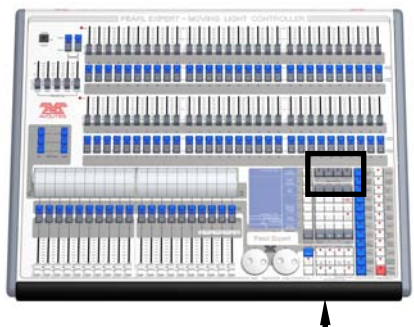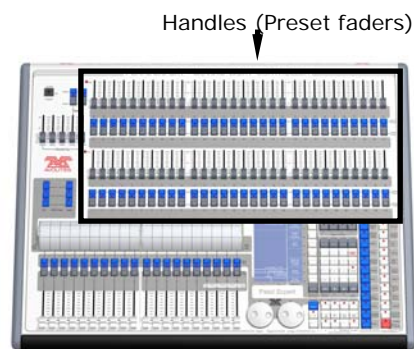
and 301-360 on page 3--. You can change the fixture page at any time.

On the Touch Wing, you can patch fixtures into the Fixtures workspace window .

If the Fixtures window is not shown, press View then [Open Workspace Window] then [Fixtures] to show it, or press the Fixtures button on the Touch Wing.

Fixture touch buttons can be shown either in pages with Page buttons, or you can use the scroll bar to show different pages. Use the [Pages Show/Hide] touch button on the right of the screen to select between page buttons and scrolling mode. on the left of the screen. You can change the fixture page at any time.

Note: Fixture touch buttons on the Touch Wing are completely separate from fixtures patched onto the preset faders, unless the Compatibility View workspace is used – this view duplicates the blue/grey preset buttons on the touch screen. See section 11.1.4 on page 121 for more details.

The Pearl also allows you to allocate fixtures and dimmers to Groups, which can be useful if you usually select the same set of fixtures together. Groups are described in the next chapter.

2.1.2   Patching dimmers

Each dimmer channel is allocated to one fader.

1>   Press Patch (one of the blue command buttons bottom right), then [Dimmers].

2>   Softkey A [Line=] shows you which of the 12 DMX output lines you are patching onto. Press A then enter a new number (1-12) to change the line. [Address=xx] shows the DMX address about to be patched. You can change this by pressing [Address=xx], typing in the new address on the numeric keypad and pressing Enter.

3>   To patch a single dimmer, press a preset Select button or a fixture touch button. To patch a range of dimmers, hold down the Select button for the first dimmer in the range, then press the last Select button in the range. On the Touch Wing, run your finger along the buttons. The range of dimmers will be patched to sequential DMX addresses.

4>   The Select buttons light up dimly to show that they are patched. Fixture Touch buttons turn dark blue and show fixture details.

5>   Repeat from step 2 for other dimmers.

- When setting the DMX address using Softkey B, you can set the DMX line (universe) as well by entering {line}.{DMX}, for example 2.56 will set DMX address 56 on DMX line 2.

- To see how DMX channels are patched, press View then [Fixture Patch]. See section 2.2.3.

- [User Number = xx] allows you to set a user-defined number for each dimmer or fixture patched, to help you identify them later. You can also edit the User Number from the Repatch Fixture menu.

- You can patch multiple dimmer channels to a single handle. This can be useful if, for example, you want to control all the lights for one area from a single fader. To do this, just press the same handle Select button again when patching the new dimmer channel. You can tell the dimmer channel has patched OK because the DMX address will increase by 1.

2.1.3 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., whereas a dimmer channel just has intensity.

The Pearl uses a "personality" system to control fixtures. This means you don't have to know how each fixture works, you just tell the Pearl what you want to do and it will send the right control commands. There is a personality file in the Pearl for most types of fixture, which tells it what attributes are available and how to control them. If the Pearl does not have the personality for your fixture, you can download further personalities from the Avolites website or Avolites can create one for you. See section 12 on page 137 for details of how to find personalities.

1> *Press Patch (bottom right of console).*

2> *Press [Fixtures].*

3> *Select correct fixture manufacturer from the softkeys (F and G page through the list of manufacturers). Or use Quick Search and type the first few letters of the manufacturer's name on the keyboard to find the one you want.*

4> *Select correct fixture from the softkeys (F and G show other pages). You can use Quick Search here as well.*

5> *Select the correct fixture operating mode from the softkeys.*

6> *Softkey B shows the first free DMX address. Type the new address on the numeric keypad if you want a different one. Press [DMX line=xx] to patch to a different DMX line, or you can enter the address as [line].[address], e.g. 2.45 would set address 45 on line 2.*

7> *Press a Preset Select button or fixture touch button to patch the selected fixture.*

8> *The Select button will light up dimly to show that it is patched. Fixture Touch buttons turn dark blue and show fixture details.*

9> *Repeat from 7 to patch more of the same fixture type. The DMX address automatically updates so you can just keep patching by pressing Select buttons.*
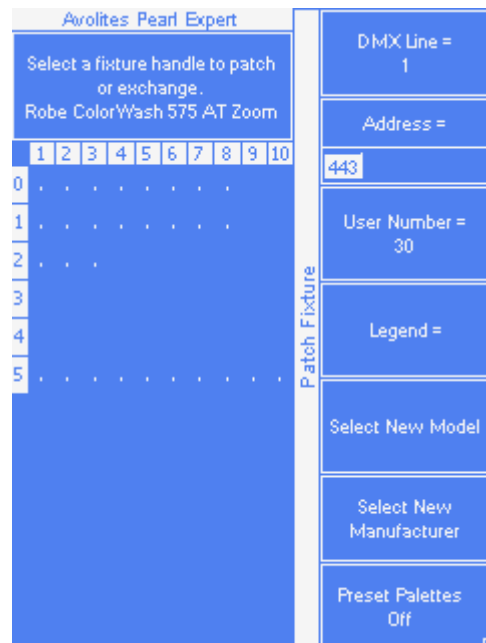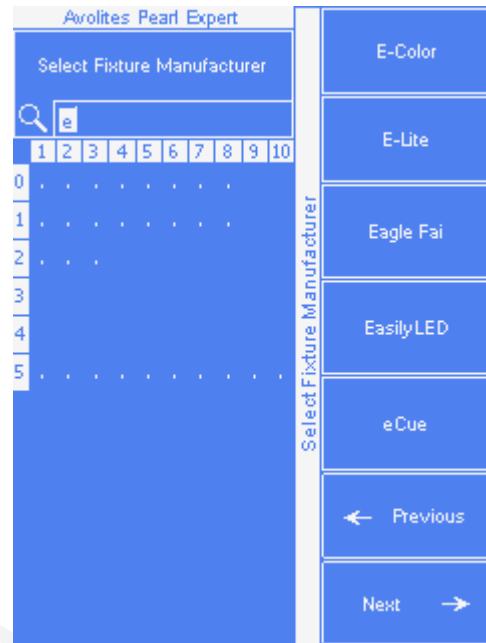
- You can patch a range of fixtures by holding down the first and last Select buttons of the range, in the same way as for dimmers.

- You cannot patch more than one fixture onto a preset. If the preset is already used, the patch will fail.

- If you are patching a fixture which uses a separate dimmer channel, such as a VL5, you can patch the dimmer channel onto

the same handle as the moving light part of the fixture so you can control it all together. This is called a Pending Dimmer.

- [Preset Palettes] sets whether the console will create default colour, gobo and position palettes for the new fixture. These are assigned to palette handles 1-30.

- Press View then [Fixture Patch] to show the DMX address for fixtures. See section 2.2.3.

- If a patch goes over the capacity of a DMX line, the Pearl will patch at the beginning of the next line. For example if you try to patch a Mac500 at channel A510, it will actually be patched at B1.

2.1.4   Visualiser Auto Patch

If you want to use Visualiser on the console, start Visualiser by pressing View then [Open workspace window] then [Visualiser]. Visualiser will open in a workspace window with an automatic representation of your patch. You can change the size of the Visualiser window, and if you have the Touch Wing connected you can move Visualiser between screens, using [Window Options] on the View menu.

You will see the fixtures laid out on screen as they are on the console, so any spaces between fixtures will be preserved and fixtures patched to the top row of presets will be shown above fixtures patched to the bottom row of presets.

2.2   Edit

2.2.1   Changing the DMX address of a fixture

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

1>   Press Patch (if you're not already in Patch mode).

2>   Press [Repatch Fixtures].

3>   Press the blue Select button of the fixture you want to change.

4>   To change DMX press [Address], type the new address and press enter

5>   To change the DMX output line, press [DMX Line=x] and enter a new output line number 1-12.

6>   Press Enter or [Repatch] to confirm the change.

7>   Repeat from step 3 if you want to change other fixtures.

- You can "Park" the fixture using [Park]. This removes the fixture from the DMX output map, but all programming is retained.

- If the new DMX address already has another fixture or dimmer patched on it, the console will display a warning sign next to the address. If you proceed with the change, the console will offer you two options to fix the problem (unless this is disabled in User Options, see section 11.3.3 on page 124). Select [Select another address] to abort the change or [Park] to "park" the conflicting fixture. All programming for the parked fixture is preserved, but you need to repatch it to a free DMX address

using the above procedure before you can use it again. If you press [Always Park Conflicting Fixtures] the console will park this and any future conflicting fixtures without warning you. (You can change this option back in the User Settings).

2.2.2 Setting legends

You can set a legend for each fixture or dimmer you've patched which is displayed on the heads-up display on the VDU, and on the touch button on the Touch Wing. This can be really useful to help you identify the fixture.

1> At the main menu press [Set Legend].

2> Press the Select button for the fixture you want to legend.

3> Type the legend on the keyboard.

4> Press Enter when you have finished.

- You can set the same legend for multiple fixtures by selecting a group of fixtures after pressing [Set Legend].

- You can automatically allocate User Numbers for multiple fixtures by selecting a group of fixtures, then using softkey A on the Set Legend menu. The first fixture will have the User Number you entered, and the other selected fixtures will be given a number increasing by 1 for each fixture.

- You can set a legend for the current page of fixtures using the [Set Legend] function from the main Program menu. The legend is shown on the LCD screen and on the HUD.

2.2.3 View Fixture Patch

The fixture patch view allows you to see how fixtures are patched on the console.

To open the fixture patch view, press the white View button (next to the numeric keypad) followed by [Fixture Patch]. You should now be able to see a table on the LCD screen showing all your fixtures. The list of fixtures can be filtered by typing in a search term on the Qwerty keyboard. You can also use the wheels to scroll around the list and select different fixtures. As you select a fixture its handle will be highlighted by a pulsing LED. You can edit the patch settings by pressing [Edit] to enter edit mode, then using wheels A and B to scroll to the item you want to edit. Then just simply press Enter and start typing.
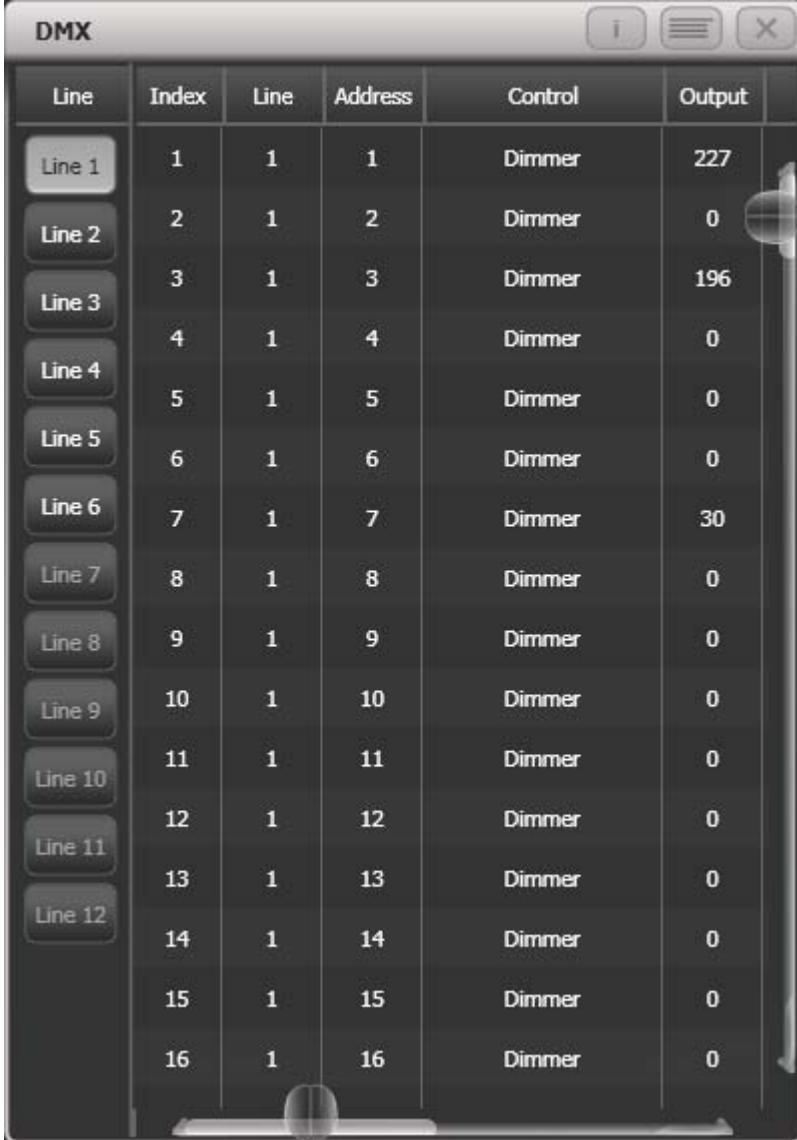
- Please note that some values are input in the following form:
  -Handle Number: {Page}.{Index}
  -DMX address: {Universe}.{Address}.

- You can choose which columns are displayed by selecting [Columns] and choosing which columns to hide or show.

- You can Park a fixture by moving to its DMX address and deleting the address using the left arrow key (or backspace on the Qwerty keyboard).

2.2.4   DMX view window

When you're having problems getting fixtures to work it can be useful to see the actual DMX output values coming from the console. Press View, then [Open Workspace Window], then select [DMX].

Line	Index	Line	Address	Control	Output
Line 1	1	1	1	Dimmer	227
Line 2	2	1	2	Dimmer	0
Line 3	3	1	3	Dimmer	196
	4	1	4	Dimmer	0
Line 4	5	1	5	Dimmer	0
Line 5	6	1	6	Dimmer	0
Line 6	7	1	7	Dimmer	30
Line 7	8	1	8	Dimmer	0
Line 8	9	1	9	Dimmer	0
Line 9	10	1	10	Dimmer	0
	11	1	11	Dimmer	0
Line 10	12	1	12	Dimmer	0
Line 11	13	1	13	Dimmer	0
	14	1	14	Dimmer	0
Line 12	15	1	15	Dimmer	0
	16	1	16	Dimmer	0

The buttons on the left let you select the different output lines from the console. Scrolling the window to the right shows more information about each DMX channel.

2.2.5   Fixture Exchange

The Fixture Exchange function enables you to repatch fixtures in your show using alternative fixtures, retaining important elements such as cue times, shapes and legends. This is very useful for touring shows and venues with a high turnover of events.

For example, if you have programmed your show in a venue which has MAC 500s and are moving to a venue with VL6s you can exchange the MAC 500s for VL6s whilst retaining many elements of your show.

Fixture Exchange works best if you use Palettes to create your cues. This allows you to adjust for position differences and so on by reprogramming a few position palettes, rather than having to reprogram every cue. Cues recorded with absolute values will need to be re-recorded, preferably using palettes.

The pan, tilt and dimmer will always be preserved from one fixture type to the next, as will times, shapes and legends for recorded items. Links from the palettes to groups, cues, chases and cue lists will also be preserved, so the show can be easily recreated by updating your palettes as normal.

Fixture exchange also gives you a powerful way to re-use an existing show with new lights, so you can give yourself a programming head start when faced with a new fixture.

- It's a good idea to save your show before performing major changes such as fixture exchange. Should you change your mind or have problems, you will easily be able to return your show to its previous state.

1> Enter patch mode by pressing Patch.

2> Select the new fixture type you wish to use.

3> Touch the select button of the fixture which is to be exchanged.

4> The console will warn you that the fixture is in use. Press the [Exchange Fixture] option.

5> Repeat from step 3 to exchange other fixtures with the same type of new fixture.

Note: After exchanging fixtures you need to update the palettes which used those fixtures. If you have trouble switching values off in a palette, set new values for all the attributes in the attribute group and re-record the palette. You should then be able to switch off an attribute group as required.

2.2.6   Update personalities

This option allows you to update the personality for a fixture used in your show. Normally the fixture personality is saved in the showfile, so updating the personality library on the console will not update fixtures which are already patched.

- It's a good idea to save your show before using Update Personalities, then you will be able to undo any changes if you change your mind or have problems.

1> Enter patch mode by pressing Patch.

2> Press [Update Personality].

3> The console shows you a list of personalities used in the show which can be updated.

4> Press the personality you want to update.

- The new personality is loaded from the Titan/Personalities folder.

2.3   Copy and Move

2.3.1   Copying or moving a patched fixture

Using the Copy button you can make a copy of an existing fixture or move it to a new button. You can copy or move multiple fixtures in one operation. You cannot link fixtures.

Move is useful for tidying up the console.

1>   *Press the blue Copy button.*

2>   *Select [Copy] or [Move]. Pressing the Copy button again will also toggle through these options.*

3>   *Press or touch the select button of the fixture you want to copy/move. You can select multiple fixtures by holding the first and pressing the last of the range, or for touch buttons by sliding your finger across the buttons.*

4>   *Press or touch the empty select button where you want it to go.*

•   The ML Menu button latches the Copy/Move/Link menu, so you can keep copying or moving things without having to keep pressing the Copy button. Press again to unlatch.

•   The [Retain Layout] or [Bunch Up] options are used when copying a group of fixtures with empty handles in the group – you can either keep the empty handles, or bunch up the used handles together.

•   When in Copy mode, option [Copy Legends] can be changed to [Don't copy legends] so that the copied fixtures are given default legends.

•   When in Move mode, [Swap Items if Required] will attempt to reposition any existing handles which are in the way of the move. This is useful when rearranging buttons on a page which is nearly full.

2.3.2   Using copied fixtures

Fixture copying is very useful if you need an additional fixture of a type you've already patched and programmed. The new copy will come complete with all the cues and palettes of the original fixture you've copied.

The copied fixture will be "Parked" (have no DMX channel allocated) and you will need to repatch it before you can use it (see section 2.2.1 above).

2.4   Delete

2.4.1   Deleting a patched fixture

You can delete a fixture or dimmer from a preset if you patched it accidentally or if you change your rig and want to use the preset for something else.

1>   *Enter Patch mode by pressing the Patch button.*

2>   *Press the blue Delete button.*

3>   *Press the Select button of the fixture you want to delete.*

4> *The LCD will show what you are deleting. Press the Select button again to confirm.*

• All programming for the fixture is also deleted. You cannot undo deletion of a fixture or get the programming back by repatching a fixture to the same handle.

2.5 Advanced options

2.5.1 Swap pan and tilt

This allows you to make the pan channel control tilt and the tilt control pan. This is useful for moving-mirror fixtures rigged sideways.

1> *Press Patch.*

2> *Press [Edit Fixtures]*

3> *Press [Swap Pan and Tilt].*

4> *Select the fixtures to be pan-tilt swapped. Press [Pan and Tilt …] to select either [Swapped] or [Normal] for the selected fixtures.*

5> *Press Exit when finished.*

2.5.2 Invert attributes

This option inverts individual attributes of fixtures. Useful if you have a fixture which pans right when the rest pan left, saving a trip up the rig to set fixture options, but you can invert any attribute.

1> *Press Patch.*

2> *Press [Edit Fixtures].*

3> *Press [Invert Attribute]*

4> *Select fixture(s) to be changed.*

5> *Select the attribute to invert from the softkeys. The display shows [Inverted] when the attribute is inverted.*

6> *Press Exit to finish.*

• You can change the invert on multiple fixtures by selecting more than one, but the "Inverted" display will not show if there is a mixture of inverted and non-inverted fixtures in the selection.

• Some attributes cannot be inverted.

2.5.3 Freeze fixtures or attributes

This option allows you to freeze individual attributes of a fixture, or to freeze the whole fixture. Attributes or fixtures which are frozen are not affected by playbacks or by the programmer.

1> *Press Patch.*

2> *Press [Edit Fixtures]*

3> *Press [Freeze Fixture or Attribute].*

4> *Select the fixtures to be frozen/unfrozen.*

5> *Use the softkeys to select which attributes are frozen, or to freeze the whole fixture. Frozen attributes are indicated on the softkey..*

6> *Press Exit when finished.*

3. Controlling dimmers and fixtures

This chapter contains: Selecting fixtures and dimmers for control; changing attributes of the selected fixtures; using groups.

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 using the Swop buttons, then you set the attributes of those fixtures using the Wheels and Attribute buttons.

3.1 Create

3.1.1 Selecting fixtures and dimmers for control

To select the fixtures or dimmer channels that you want to control, you use the blue Preset Select buttons (below the preset faders) or the Fixture touch buttons on the Touch Wing to load the fixtures into the Editor. You can select fixtures or dimmers individually, or several at once.

You can control dimmer channels and fixture intensity directly from the preset fader, or select the channels as described below and use the Dimmer wheel.

1> Press or touch the select buttons for the fixtures you want. The select button will light up brightly for selected fixtures (they are shown in light blue on the Touch Wing and HUD and inverse text on the LCD intensity view).

2> To select a range of fixtures, hold down the Select button for the first fixture then press the Select button for the last fixture. For touch buttons, run your finger across the buttons – a selection square will draw on the touch screen.

Here are some other things to know:

- Press Locate (red button at the bottom right of the console) to light up the selected fixtures in open white and move them to a central position. See the next section for more Locate options.

- You can deselect a fixture by pressing the select button again.

- At the top of the Touch Wing, just above the top windows, the console will show you which fixtures are currently selected.

- Once you have changed any attribute, pressing a Select button will deselect all fixtures and start the selection process again. All previously selected fixtures (since you last pressed Clear) stay in the programmer. They are shown in dark blue on the Touch Wing and HUD, and underlined on the LCD intensity view.

- Press Clear (right of numeric keys) to deselect all fixtures and remove all changes from the programmer. See the next section for more Clear options.

- The intensity of the fixture is shown as a bargraph on the HUD. In the User Settings you
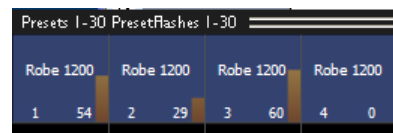
can set the LED in the Select button to mimic brightness rather than show fixture selection (see section 11.3.3 on page 124).

- You can select fixtures on another page by pressing one of the Pages of Fixtures buttons (above the numeric keys). Palettes, groups and any cues you have saved on the preset faders will also change with the fixture page.

- On the Touch Wing, you can view more fixture buttons either by using the scroll slider on the right of the window, or if you have enabled Page buttons using the [Pages Show/Hide] context button, by using the Page touch buttons.

Scroll slider

- If a preset is active (the fader is raised) when you change page, you may want to control a fixture on the new page using the same preset. In this situation you have to match the fader level to the existing fixture level before the fader will take control. For example if preset 1 is on at 100%, you change to page 2 and want to control the fixture on preset 1 on page 2. If the page 2 fixture is currently Off, you will have to lower the fader to zero before it takes control. If the page 2 fixture is at 50%, the fader will take control when it matches the 50% value.

3.1.2   Setting fixtures to a start position

The Locate button (the red button on the bottom right of the console) is used to put the fixture into a known position with light coming out, so that you can start programming it.

A quick press of the button will move all selected fixtures to a central position and reset all the attributes so that you get a white light. However you sometimes might not want to move the fixture, and by holding down the Locate button, you get some more options.

- You can mask off some of the Locate settings (such as only turning the fixture on, but not changing its position or colour) by holding down Locate and pressing [Set Mask to Exclude All]. Then (still holding Locate) turn on the Attributes you want to change using the Attribute Bank buttons down the right hand side. Only the lit attributes will be changed by Locate. Pressing the Attribute Options (Bank Select) button will clear the mask.

- [Auto Reset Mask] sets the mask to be automatically reset to include everything each time Locate is pressed, or you can

toggle the option to [Remember Mask] which will keep the mask setting you used last time.

- [Clear/Don't Clear Located Attributes] sets whether the attributes changed by the Locate function will be saved into any cues you store. If the option is set to "Clear" then the Located attributes will not be stored in the Programmer unless you modify them using the wheels. This is useful if for example you want to program a cue which sets the position of fixtures, but does not turn them on. The Locate button will light up the fixtures for programming, but the lit state will not be stored in any cues you save.

3.1.3   **Clearing selection**

The Clear button (on the right of the numeric keypad) is used to remove all changes from the Programmer and deselect all fixtures. A quick press of the Clear button just clears everything, however if you hold down the Clear button, then more options are available.

- You can mask which attributes are to be cleared (for example, leaving the pan/tilt in the programmer but clearing everything else) by holding down Clear and pressing B [Set Mask to Clear Nothing]. Then (still holding Clear) turn on the Attributes you want to change using the Attribute Bank buttons down the right hand side, or press A [Set Mask] and use the softkeys. Only the lit attributes will be cleared. Pressing the Attribute Options (Bank Select) button will clear the mask.

- [Clear Options] opens a submenu showing some further options (described below).

- [Clear All Fixtures/Selected Fixtures] sets whether all fixtures will be cleared from the programmer, or if only currently selected fixtures will be cleared. This is useful if you want to clear specific fixtures.

- [Individual Attributes] allows you to clear individual attributes from the Programmer. When you press the option, you are given a list of attributes in the Programmer – press the appropriate softkey to clear that attribute.

The options in the "Clear Options" submenu allow you to:

- [Auto Reset Mask] sets the mask to be automatically reset to clear everything each time Clear is pressed, or you can toggle the option to [Remember Mask] which will keep the mask setting you used last time.

- [Leave/Zero Preset Fader Levels] sets how the console deals with intensity levels which are set on the preset faders. Normally pressing Clear will remove levels from the Programmer, but the intensity will remain set on the output. If this option is set to [Zero Preset Fader Levels] then the intensity will also be set to zero on the output. This is useful to kill fixtures which have been left on from a different fixture page.

- [Freeze current values] sets what happens to LTP (non-intensity) channels you have modified. If set to [Freeze Current Values] the channels remain as you set them. If set to [Release To Playback Values] the channels will go back to how they are set in the current playback. For example: you have an active

playback making some lights green, then you select the lights and change them to red. If you press Clear with this option set to [Freeze] then the lights remain red. If the option is [Release] the lights will go back to green.

You can use the Channel Grid window to selectively attributes from fixtures. See section 3.2.1 on page 54.

3.1.4 Changing attributes using the wheels

"Attributes" are the functions of the fixture, like pan, tilt, colour, dimmer, etc. You select which attributes you want to modify using the buttons on the right edge of the console and set values using the wheels at the bottom of the Pearl. The attributes available depend on the fixture type. Dimmer channels only have a dimmer attribute.

Note: If you are using the Touch Wing, see the next section.

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

1> *With some fixtures selected, press the button for the attribute to be changed*

2> *Turn the wheels to set the attribute. The display above the wheels shows which attributes are being controlled, and the settings which are available scroll up and down as you turn the wheels.*

3> *Repeat from 1 to change other attributes of the selected fixtures.*

Some other things to know about attributes:

- If an attribute is in the programmer, it is inverted (as shown with the "Green" setting in the screen picture here). This provides a quick way to see if attributes are in the programmer or not.

- The Attribute buttons let you select the attribute to set. You can also select the attribute from the softkeys by pressing the "Attribute Banks" button.

- If the display above the wheels does not show the attribute when you press the button, that attribute is not available on the selected fixtures.
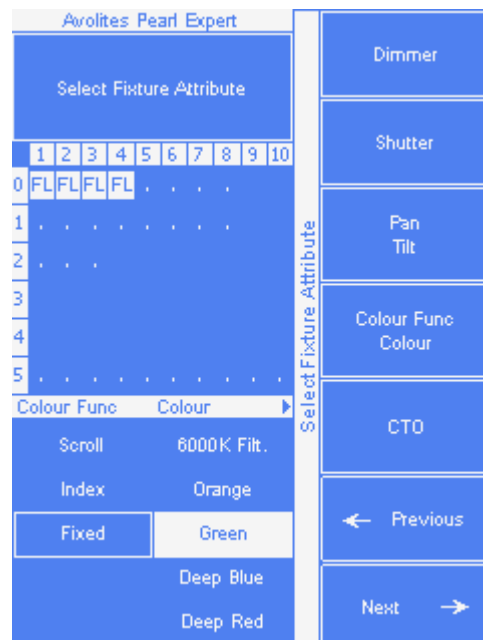
- If the wheel display shows an arrow, this means that there are more than two attributes to control. Press the Attribute button again to toggle through the attributes.

- You can directly control the intensity of the fixture/dimmer using the fader of the handle.

- The wheels operate in an "acceleration" mode. If you spin the wheel fast, the fixture changes in larger steps. If you move the wheel slowly, the fixture moves in its smallest increment.

- Holding down the Avo button while turning a wheel puts the wheel into "Fast" mode. When in this mode, a single rotation of the wheel changes the attribute you are controlling over its full range. For example, if while moving the Pan wheel you hold down shift the fixture will make a complete pan movement between end stops in one rotation of the wheel.

- You can view the available settings (Gobo names, etc) of the wheels on the Attribute Editor window by selecting View, [Show workspace window], [Attribute Editor].

- Some LED colour mixing fixtures have a Virtual Dimmer function (using the Intensity wheel) which offers intensity control by mastering the RGB levels when the fixture itself does not provide an intensity channel.

3.1.5 Setting attributes using the Touch Wing

When the Touch Wing is connected, the Pearl uses the three wheels on the Wing to set attributes rather than the wheels on the console itself.

The touch display above the wheels shows the attribute bank (Intensity, Position, Colour and so on) and the current values on the wheels.

Touch here to open attribute editor

Touch here to change attribute bank

Touch the attribute bank buttons to change to a different bank. You can also use the attribute bank buttons down the right hand side of the console as usual. The current attribute bank is shown with a grey background.

Touch here to change attribute values up and down

If attributes have been modified, the attribute button has a pale blue highlight.

The Roller display shows the attributes available on each wheel. These may be shown as a percentage value, or named values for attributes with fixed positions such as a colour wheel. If the attribute has been modified, the current value in the programmer is highlighted in blue.
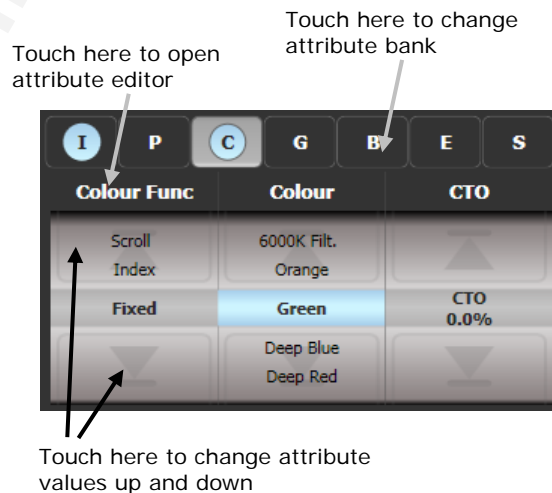
You can touch the roller image to change the attribute value up or down by one. For continuously variable controls like a dimmer, touching the roller will set the attribute to full or zero.

- If the wheel display shows a blue arrow next to the legends, this means that there are more than three attributes to control. Press the Attribute button again to toggle through the attributes.

Attribute editor window

For attributes with fixed values such as gobos and fixed colour wheels, the Attribute Editor window can be easier to work with than the wheels. It also offers a colour picker window for fixtures with RGB or CMY colour mixing.

Press View then [Open Workspace Window] then [Attribute Editor] to show it. As a shortcut you can also show it by touching the attribute name text just below the IPCGBES buttons (for example Colour Func in the top picture). If the window opens on the VDU screen rather than the Touch Wing, you can move it between screens by pressing View, [Window Options], [Move Screen], or hold down the Avo button on the console and press the Size/Position button on the Touch Wing.

The buttons on the left of the window select the attribute to change.

The rest of the window contains buttons or controls to set the attribute value. For attributes such as gobos and fixed colours, a button is provided for each one, making selection a lot quicker than scrolling through on a wheel.
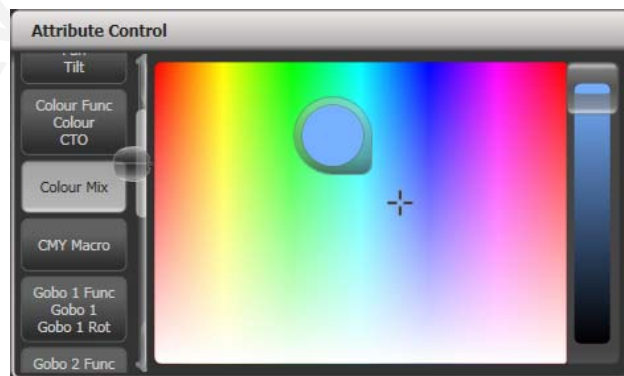
When you apply an attribute, the button turns blue to show that the attribute is in the programmer. If you touch the button again, the attribute will be removed from the programmer.

Touching the title of each attribute (such as "Colour Func") expands the attribute to the full window, displaying more buttons.

For variable attributes like Dimmer, holding down the button will display a horizontal slider bar. You can then move your finger left or right to change the value.

Active fixtures such as media servers will display a thumbnail of the media clip in the button. The media server must support CITP and be patched as an active fixture.
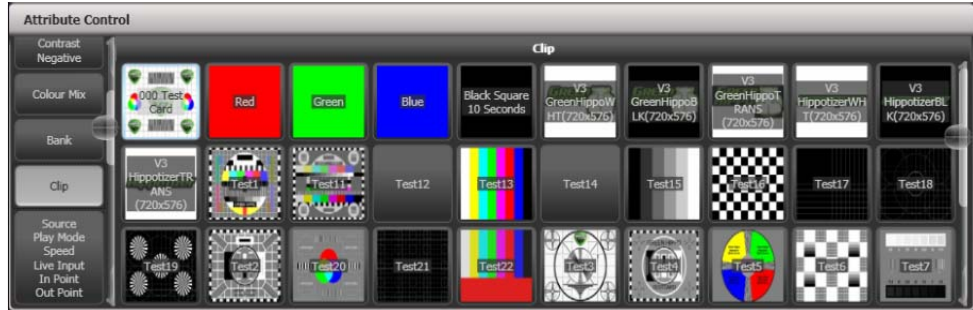
Fixtures which support keystoning or blades/shutters can be controlled graphically in the attribute window. Select and drag the corners or sides of the image to control the fixture.
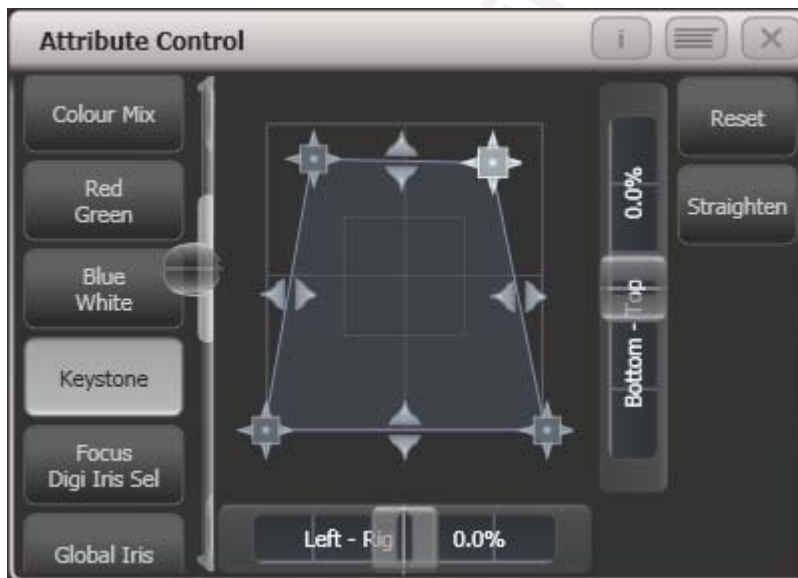
Note: Updated personality files may be required to support the keystone/blade functions

3.1.6   Setting attributes by number

You can directly enter a numeric value for the attributes which are live on the wheels. You must be at the main Program menu to do this (keep pressing Exit until the vertical menu bar shows "Program Menu").

Type a number on the numeric keypad then press softkey E or F to set the value to wheel A or B. The Softkey legend will show what effect your value is going to have (such as [Gobo 5], or [Deep Blue]). If your value is invalid for that attribute, a warning symbol is displayed as shown on the right.

For attributes displayed in percent, such as Dimmer, or Colour Mix, you enter a value from 0-100 to set the percentage output. For attributes where the output is divided up into ranges, such as colour wheels, you enter the index of the range you want. For example to select the 3rd colour (as displayed in the list above the wheel) you would enter 3.

3.1.7 Selecting fixtures and dimmers by number (Channel)

In some situations, for example when programming lots of dimmers, it can be easier to type in the dimmer channels you want to program. The Channel menu allows you to do this for dimmers or fixtures. To access the Channel menu, press the Channel button on the top left of the numeric keypad. You can also simply start typing numbers on the keypad, when you press Thro, And or @ (functions of the up arrow, down arrow and right arrow buttons below the numeric keypad) then the Channel menu will be shown.

Fixtures may be selected by User Number, Handle Number or DMX Address, as set by the option on Softkey A.

For Through, And and @ you can either use the softkeys or the grey arrow buttons below the numeric keypad.

When using the Channel menu it is helpful to latch it by pressing the ML Menu button.

- To select a fixture, type the number and press Enter.

- To select more than one fixture, press [And] between each number. For example 1 And 2 And 5 Enter will select 1, 2, 5.

- To select a range of fixtures, press [Through]. For example 1 Through 8 Enter will select 1-8.

- To miss out fixtures in a range, use [Not], for example 1 Through 4 Not 3 Enter will select 1, 2, and 4.

- The @ softkey sets a dimmer level to the selected fixtures, for example 1 Through 8 @ 5 Enter will set 1-8 at 50%. (You can choose whether 50% is entered as "5" or "50" in the User Settings – see section 11.3.3 on page 124). When you press @ there are softkey options for Full, Off and +/- (increase or decrease brightness).

- You can work with Groups using the Group button, for example Group 1 And Group 2 Not 5 Enter will select all fixtures in group 1 and group 2 except for fixture 5.

- You can use the Locate button instead of Enter, to select fixtures and locate them. For example 1 Through 4 Locate will select fixtures 1 to 4 and locate them.

- When entering a command, the command line is shown on the display. You can go back using the grey ← button and you can abandon the line using the grey → button.

3.1.8 Selecting using a pattern

When programming you will often want to select patterns of fixtures. Rather than having to individually select and deselect fixtures, the Pearl has an easy way of selecting odd then even fixtures in a range of fixtures, or it can, for example, select every 4th fixture.

1> *Select some fixtures.*

2> *Press the white "All" button (below the Next Time button to the right of the wheels).*

3> *Select a pattern from the softkeys. Your selection is modified so you will only be controlling, say, the odd fixtures.*

4> *Press the white "Next" button to change the selection to the next stage of the pattern.*

5> *To end the pattern selection, press All twice.*

For example, if you are programming a chase using 16 fixtures and you want every 4th fixture to do the same thing, you just select the 16 fixtures, then press All, then D [1 in 4]. You will see that the 1st, 5th, 9th and 13th fixtures are now selected, and you can create the look for those fixtures. Then press Next, and the 2nd, 6th, 10th and 14th fixtures will be selected ready for programming. After you have programmed the fourth set of fixtures, the pattern will go back to the first position again, until you press All twice to end.

- You can enter your own patterns using the numeric keypad and softkeys, for example "2" A [In] "6".

3.1.9 Attribute groups - IPCGBES

To make life a bit simpler, the Pearl groups together attributes which have similar effects, using the letters IPCGBES.

I-Intensity (dimmer, strobe shutter)

P-Position (pan, tilt)

C-Colour (colour wheel, CMY mixing)

G-Gobo (gobo wheels, gobo rotate, gobo position)

B-Beam (iris, focus, zoom, beam shaper)

E-Effects (prism)

S-Special (motor speeds)

These groups are used to select which attributes you want to work with in many of the functions on the console, particularly when you are "masking off" certain attributes from being saved.

3.1.10 Using fixture groups

You can create groups of fixtures or dimmer channels, which can then be quickly selected together by pressing a grey palette button or typing the group number. You can, for example, make a group for each type of fixture, or group by stage left / stage right, etc.

The Touch Wing has a dedicated window for Groups, allowing you to quickly recall each group from a named touch button. If the Groups window is not visible you can show
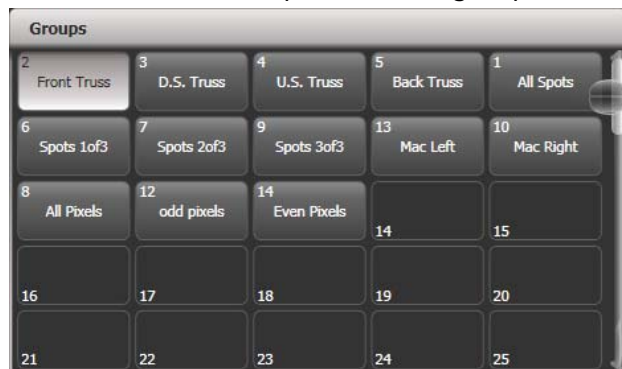
it by pressing View, [Show workspace window], [Groups].

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 the grey Group button (top right of the numeric keys).*
3>	*Press [Record Group]*
4>	*If you want to, use [User Number] to enter a number for the group, or [Provide a legend] to set a legend.*
5>	*Press a Palette button (below a preset fader) or touch a Group touch button where you want to store the group, or press [Store] to store as a numbered group.*
6>	*Press Clear then repeat from 1 to store other groups.*

- You can also press the Avo button and the Group button to go directly to the Record Group menu, or on the Touch Wing touch the button twice to use Quick Record – on the first touch the button will turn red with a +, on the second touch the group will be recorded.

- To select all the fixtures/dimmers in a group, just press the grey palette button or touch the touch button for the group.

- The order in which you originally selected the fixtures when creating the group is also stored. This takes effect when you use the last fixture – next fixture functions described in the next section, and when you use Shapes, Fan mode and Fixture Overlap functions. You can change this later, see page 80.

- Groups are shown on the heads-up display.

You can also recall a group by its number:

1>	*Press the grey Group button.*
2>	*Type in the number of the group you want to recall.*
3>	*Press [Recall Group].*

- The Group button also gives you facilities on the softkeys to edit and delete groups.

3.1.11 Stepping through selected fixtures one at a time

If you have selected a range of fixtures, or a group, the Pearl has functions to step through the selected fixtures one at a time. This can make it easier to program a range of fixtures because you don't have to select each one manually.

This mode uses the Prev/Next/All/Hilight buttons to the right of the Go button.

1>	*Select a range of fixtures or a group.*
2>	*The Prev and Next buttons will select the fixtures in the range one at a time (in the order you selected them).*
3>	*The ALL button will select all fixtures in the programmer (everything which has been selected since Clear was last pressed).*

- The Hilight function can be used to highlight the output of the selected fixture (make it brighter onstage), see the next section.

3.1.12   Highlighting the selected fixture

When stepping through a fixture selection using the Prev/Next/All buttons, you can highlight the selected fixture on stage. This makes it very easy to see which fixture you are controlling. The other fixtures in the selection go to a dimmed level.

Press the HiLight button to enable highlight mode. Press HiLight again to disable hilight mode. When you are in hilight mode, the hilighted attribute is overridden and any changes you make to it are not stored in the programmer (so if the hilight uses intensity, you cannot change the intensity of the fixture).

3.1.13   Align fixtures

You can copy attributes from one fixture to another using the Align Fixtures function. This is very useful, for example, if you've accidentally left a fixture out of a cue you can copy settings from its neighbour.

1>	*Select the fixtures you want to Align.*
2>	*Press ML Menu then [Align Fixtures].*
3>	*Set the mask to include the attribute groups you want to copy (using the Attribute Bank buttons on the right of the console,.or the softkeys set options for exclude and include all attributes).*
4>	*Press the handle of the fixture you want to copy the settings from.*

3.1.14   Flip

Moving head fixtures can point at the same stage position from two possible yoke positions. Sometimes to get the fixture moving the same as other fixtures, you need to swap to the opposite yoke position and the Flip function lets you do that.

1>	*Select the fixtures you want to Flip.*
2>	*Press ML Menu then [Flip Pan and Tilt].*

3.1.15   Fan mode

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 attribute 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 you selected the fixtures when you recorded the group is used.

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>	*Press the blue Fan button.*

> *3>   Select the attribute you want to Fan using the attribute bank buttons.*
>
> *4>   Set the amount of fan using the attribute wheels.*
>
> *5>   Turn off Fan by pressing the Fan button again when you have finished.*

If you have selected fixtures from multiple groups, you can choose whether the fan effect works with or ignores the groups. For example if you have 12 fixtures across the stage in 3 groups of 4, you may want a fan of light beams spread evenly across the stage, or you may want 3 groups of separately fanned light beams.

By holding down the Fan button you can select:

- [Ignore groups] All fixtures are fanned as one large group

- [Fan group as fixture] All fixtures in a group take on the same value.

- [Fan Within group] Fan runs across individual fixtures in each group.

Holding down the Fan button also allows you to select the Curve used for the fan. The different curves allow you to obtain different fan effects.

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 change in fan mode.

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

- 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.

3.2   Edit

3.2.1   The Channel Grid window

It can sometimes be useful to display and edit exactly what each fixture is doing. The Channel Grid window allows you do to that. Display it by pressing the Channel Grid button below the screen, or press View then [Show workspace window] then [Channel Grid].

Channel Grid												
	Number	Dimmer	Shutter	Shutter Func	Pan	Tilt	Colour Func	Colour	CTC	CTO	Cyan	Red
ClrSp 1200	1	-	Closed		54.89	40.68	Fixed	Open	-	-		
ClrSp 1200	2	-	Closed		45.78	39.77	Fixed	Open	-	-		
ClrSp 1200	3	-	Closed		59.67	39.88	Fixed	Open	-	-		
ClrSp 1200	4	-	Closed		60.77	40.51	Fixed	Open	-	-		
ClrSp 1200	5	-	Closed		53.30	45.85	Fixed	Open	-	-		
ClrSp 1200	6	-	Closed		51.78	47.06	Fixed	Open	-	-		
ClrSp 1200	7	-	Closed		48.32	47.26	Fixed	Open	-	-		

The window can be set to different modes using the context buttons to the left of the menu. The modes are:

- Playbacks: shows which playback is controlling each attribute of each fixture

- Levels: shows the output levels of each attribute. These may be shown numerically or as range names.

- Palettes: shows which palettes are allocated to fixture attributes

- Shapes: shows which shapes are running on fixtures

- Output/Programmer: switches between the attributes on the console output, and the attributes currently in the programmer

- Highlight off/changes: if set to [Highlight changes] then changing attributes will be highlighted.

- Narrow/Wide columns: changes the column width on the screen.

You can **select** fixtures by touching the fixture names on the left of the screen, or if you select any fixture values, the appropriate fixture will automatically be selected.

You can **clear** attributes in the channel grid by selecting them (touch or touch and drag to select multiple attributes). Then press Clear.

You can **edit values** by selecting one or more values in the grid, then modify the values using the wheels, or type a new value on the numeric keypad and press Enter.

3.3 Advanced options

3.3.1 The ML menu button

When the Pearl is at the top menu, the ML Menu button opens the Moving Light menu which contains options to Locate Fixture (same as the Locate button) and to run Macros on fixtures such as Lamp On, Lamp Off, Reset etc. The Align Fixtures and Flip functions as described above are also in this menu.

If another menu is loaded, the ML Menu button latches the current menu. Press Exit to get back to the top menu so that you can access the Moving Light menu.

4.   Palettes

This chapter contains: About palettes; shared and normal palettes; recalling a palette; storing a palette; palette masks.

When programming a show you will find that you frequently use certain positions, colours, etc. The Pearl lets you store these settings so you can recall them at the touch of a button rather than having to find them on the wheels every time. Palettes are stored and selected using the grey Palette buttons, or touch buttons on the Touch Wing, and you can set legends for the palette values so that you know what you're getting.

4.1   Create

4.1.1   Palette values stored as a reference

The most important thing about palettes is that when you use a palette value in a cue, the Pearl stores a reference to the palette, rather than the actual value. This means that if you program your cues using palettes, you can easily change all the positions in your show just by reprogramming a few palette entries rather than having to reprogram all the cues. This is handy if you are touring and have to cope with different stages or truss heights every show.

4.1.2   Which attributes are stored in palettes

A palette entry can store any or all attributes of a fixture, so you could store position, colour and gobo in the same palette entry. However, it's easier to operate the Pearl if you have some palettes which only set positions, some for colour, some for gobo and so on. It's also best to group similar palettes together on the console buttons to make them easier to find, so have an area for Colour palettes, and another area for Position palettes, and so on.

The Touch Wing has separate windows for Position palettes, Colour palettes and Gobo/Beam palettes. If these windows are not shown you can show them by pressing View, [Open Workspace Window], then [Position], [Colour] or [Gobo/Beam].

In addition, palettes may be either Shared or Normal. Shared palettes are used where the same value is set for all fixtures of the same type – for example when setting colours, the "Red" palette would set the same colour values for "Red" to all MAC 2000 fixtures. Normal palettes are used when each fixture requires its own value - for example when programming
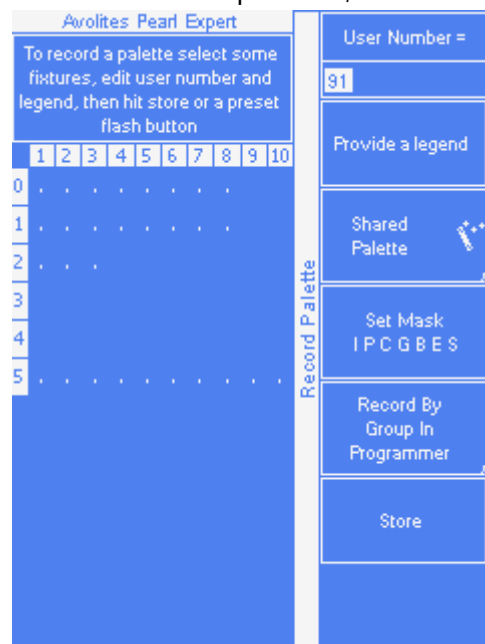
positions, each fixture will have a different setting.

4.1.3 Storing a palette
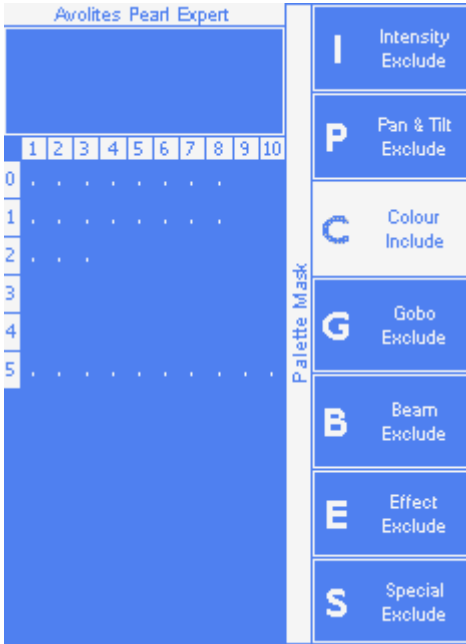
This is how you save a palette value:

1>   Press Clear to clear the programmer.

2>   Select the fixtures for which you want to store palette values.

3>   Using the attribute buttons and wheels, set the attributes you want in the palette entry. You can store any or all attributes of a fixture in each palette entry.

4>   Press the blue Store Palette button

5>   Select which attributes are to be recorded in the palette using the Attribute Bank buttons – anything lit up will be saved. This is called the palette Mask. It's best to save only one type of attribute (e.g. Tilt/Pan). Softkeys D and E also controls the Mask (see below).

6>   All unused Palette buttons will flash. Press a grey preset Palette button to store the palette, or touch an empty touch button on the Touch Wing. Or enter a palette number and press F [Store]

- The console will automatically set the palette as Shared or Normal (by checking if the values to be stored are the same across all fixtures of the same type). A "magic wand" icon on the softkey indicates automatic setting. You can override the setting by pressing the softkey C, in which case a "user" icon is displayed to indicate a user locked state.

- [Set Mask] allows you to specify which attribute groups will be included in the palette. You can also use the grey Attribute Bank buttons on the right hand edge of the console to set the mask.
  An attribute group is included when the softkey is inverted (like the Colour group in the picture) and when the LED is lit on the Attribute Bank button.

- [Record By…] allows you to control how the mask is used when saving the palette. The options are: [Channel in programmer] records only channels which are in the programmer (which have been changed) [Group in programmer] records all channels in any attribute group which has one or more channels in the programmer. For example if Cyan is in the programmer, all colour channel settings will be recorded even if not in the programmer. [Group in mask] records everything included by the mask set on the attribute buttons

[Mixed] records by attribute group for Position and Colour but by channel for all other controls.

- You can set a legend for the palette while you are saving it using [Provide a legend]. The legend is shown on the HUD (and if on the Touch Wing, on the button), along with the palette number you set, and one or more of the letters IPCGBES showing which type of attributes are contained in the palette.

- If you press a Palette button which is already used, the Pearl offers you options to [Cancel], [Replace] or [Merge] the existing palette. [Replace] will erase the palette and save only the latest changes you have made. [Merge] will combine your changes with the palette. This allows you to add settings for additional types of fixtures to a shared palette. Pressing the palette button again will automatically merge.

4.1.4 Quick record on the Touch Wing

The palette windows allow you to quickly record a new palette. Just touch the button where you want to record – the button will turn red with a + sign. At this point you can enter a legend for the new palette or change mask settings. A second press on the button will save the palette.

Quick record also works for groups, workspaces and the playback window.

Note: Palette touch buttons on the Touch Wing are completely separate from palettes stored onto the preset handles, unless the Compatibility View workspace is used – this view duplicates the blue/grey preset buttons on the touch screen. See section 11.1.4 on page 121 for more details.

4.2 Playback

4.2.1 Recalling a palette value

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. Normal palettes will set individual values to each fixture.*

2> *Press the grey preset Palette button you want to recall. The palette will be set to the selected fixtures.*

- You can make palettes fade over a time when you recall them, see section 4.6.1 below.

- You can recall a palette by its number by typing the number on the numeric keypad and selecting [Apply Palette] from the softkeys. The softkey shows the legend of the palette which will be applied. If you enter a palette number which does not exist, a warning symbol appears on the [Apply Palette] button.

4.2.2 Palette pages

You can select different pages of palettes using the Pages of Fixtures buttons.

- You can also recall a palette from any page using its number by doing the following:

1>	*Select some lights*
2>	*Press the Palette button above the numeric keypad*
3>	*Type in the number of the palette you want to recall.*
4>	*Press Enter or [Apply Palette]*

4.2.3 Quick palettes with no fixtures selected

If you press a palette button when no fixtures are selected, the palette will be set to all the fixtures the palette applies to. This is called a Quick Palette. For example if you've got some colour palettes programmed for your MAC 2000's, pressing one of the palettes when no MAC 2000's are selected will set the colour to all the MAC 2000's.

4.2.4 Setting palettes to fixtures in a playback

You can apply a palette to all fixtures in a particular playback. Hold down the palette key and select the playback which the palette is to apply to. You can only use this function with palettes which have been assigned to a handle button.

4.3 Edit

4.3.1 Editing palettes

To edit a palette entry, press the Update Palette button, select the palette to edit (this will automatically select the fixtures used in the palette), make the changes you want, then press the [Update Palette x] softkey to save the changes.

The Update Palette button also allows you to change the palette name and number.

You can also load the palette into some fixtures, modify the attributes and record the new information back on top of the existing palette entry. The Tiger Touch will give you options on the softkeys to Replace or Merge the palettes. If you select Merge, anything you haven't changed will not be affected, values you have changed or added will be amended.

- You can set the console to "Always Merge" (so it doesn't ask you) using option A of the User Settings (hold down the Avo button to set these). You can also press the palette button a second time to select the Merge option.

- You can add additional fixtures to a palette without affecting existing ones. For example, if you have colour palettes for Mac 600s, you can add colours for your Mac 500s without affecting any previously recorded values in the palette.

- You can remove attributes from palettes using the Off function, see section Removing attributes from cues using "Off" on page 77.

- When editing a palette, the state of the programmer will be preserved; when the modified palette is saved, your original programmer contents will be restored and the programmer will be left in the same state as when you started editing the palette.

4.3.2 Setting legends for palettes

You can enter a legend for each palette which is displayed on the HUD.

1> Press the Palette button above the numeric keypad.

2> Press the grey preset palette button for the palette you want to legend, or enter the palette number.

3> Press [Legend=xx] to change the legend.

4> Type the legend on the keyboard.

5> Press Enter when you have finished.

- The IPCGBES attribute groups contained in the palette are displayed below your legend, so for example Position palettes will show a P, colour palettes a C and so on. The green N refers to a "Normal" palette rather than a S for "Shared".
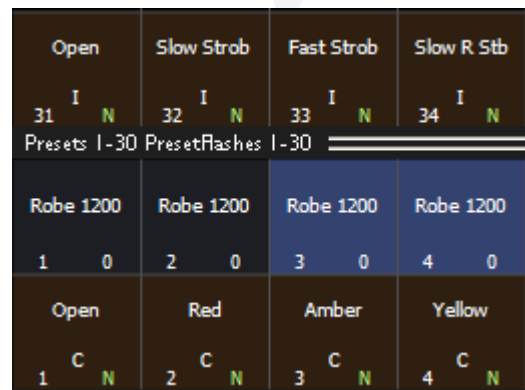
- On the Touch Wing, the palette number is shown top left. The IPCGBES attribute groups contained in the palette are displayed below your legend, so for example Position palettes will show a P, colour palettes a C and so on. In the top right corner is shown N for a Normal palette or S for Shared.

4.4 Copy and Move

4.4.1 Copying or moving a palette

Using the Copy button you can make a copy of an existing palette or move it to a new button. You can copy or move multiple palettes in one operation. You cannot link palette buttons.

Move is useful for tidying up the console.

1> Press the blue Copy button.

2> Select [Copy] or [Move]. Pressing the Copy button again will also toggle these options.

3> Press or touch the Select button of the palette you want to copy/move. You can select multiple palettes by holding the first button and pressing the last of the range, or for touch buttons by sliding your finger across the buttons.

4> Press or touch the empty Select button where you want it to go.

- The ML Menu button latches the Copy/Move/Link menu, so you can keep copying, moving or linking things without having to keep pressing the Copy button. Press Exit to unlatch.

- [Retain Layout] or [Bunch Up] is used when copying a group of palettes with empty handles in the group – you can either keep the empty handles, or bunch up the used handles together.

- When in Copy mode, option [Copy Legends] can be changed to [Don't copy legends] so that the copied palettes are given default legends.

- When in Move mode, [Swap Items if Required] will attempt to reposition any existing handles which are in the way of the move. This is useful when rearranging buttons on a page which is nearly full.

4.5   Delete

4.5.1   Deleting palettes

You can delete a palette entry by pressing the blue Delete button, then the grey Palette button to be deleted. Press the palette button again to confirm the deletion.

Other ways to delete a palette:

- Press the Update Palette button, select a palette, use the [Delete] softkey option.

- Press the Palette button above the numeric keypad and use the [Delete] option in the [Palette Utilities] menu.

- Press Delete then [Palette], type the palette number, press Enter.

4.6   Timing

4.6.1   Fading a palette and fixture overlap

A timed palette is a very useful tool allowing easy "busking" of shows. When a palette is recalled in this way, a time is added and the palette fades in over that time.

1>   Select some fixtures
2>   Type in the fade time for the palette on the numeric keypad
3>   Press a preset palette button to recall the palette

Palette fading can be very useful when recalling a palette live during a show, as you can smoothly move fixtures to a new position or change colour slowly (on colour mixing fixtures).

Palettes applied with a fade time do not get put into the programmer, so will not be saved in any cues; don't use fade times when programming. This is to ensure that when used in a live situation, the next cue will override the palette and play back as intended.

Additionally you can set Fixture Overlap, which means that if you recall the palette to a group of fixtures, the change will be applied in sequence to each fixture in the group. This is a very quick way to busk some amazing effects. Fixture Overlap=100% means that all fixtures will change together. Fixture Overlap=0% means that each fixture must complete its fade before the next will start its fade.

To set an overlap, type the overlap amount then press C [Set Overlap]. Then type the fade time (if required) and recall the palette by pressing its button.

4.6.2   **Master Time for palettes**

Option E [Master Time] on the Palette menu (press the grey Palette button above the numberic keypad) allows you to set a default fade time. This fade time will be used for all palettes unless you manually type in a different time. This can be useful when "busking" a show with palettes.

5.   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.

The Pearl, in common with other Avolites consoles, has a shape generator (sometimes known as an Effects Generator on other consoles). 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.
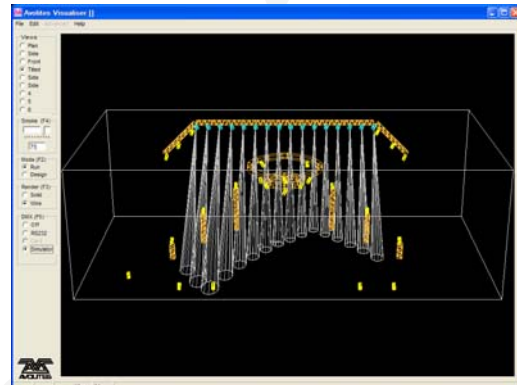
In addition to position shapes, there are a large number of other shapes available in the Pearl. The shapes are defined for a particular attribute such as colour, dimmer, focus and so on. Some shapes will not work with some fixtures; focus shapes, for example, can produce nice "focus pull" effects on fixtures which have DMX focusing, but will do nothing on fixtures which don't have focusing.

A further category of shapes is the Block Shape. This type of shape blocks out other shapes, preventing them from running. For example, if some fixtures are running a Circle shape, and then a playback is fired which has a Block Pan/Tilt shape on some of the fixtures, those fixtures will stop running the circle shape. This can be very useful to modify playbacks at showtime when used with the playback priority feature (see section 6.7.5 on page 82).

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 *Phase* of the shape.

5.1 Playback

5.1.1 Creating a shape

To create a shape you simply pick it from a list on the softkeys, or if you are using the Touch Wing, from the Shapes window.

Shapes are organised using the IPCGBES attribute groups, so you can pick from a list of Dimmer shapes, or a list of Pan/Tilt shapes, or Colour shapes, and so on. You can also pick from a list of All Shapes.

When you choose a shape, it will be applied to all selected fixtures.
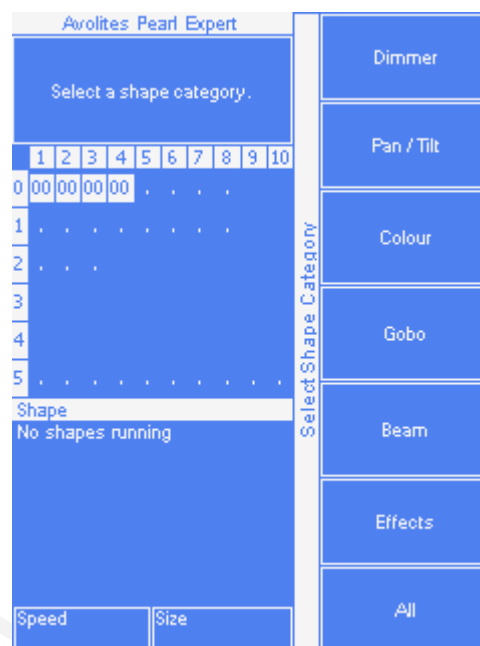
1> Select the fixtures the shape is to be applied to.
2> At the main menu press [Shape Generator].
3> Press [Create] to start a new shape.
4> Press a softkey to select the attribute type to use in the shape or press [All shapes] for a full list.
5> Press a softkey to select a shape. You can type a search word on the Qwerty keyboard to search for a particular shape.
6> The shape will be applied to all selected fixtures.

- If you are using the Touch Wing you can open the Shapes window as part of your workspace and it will remain open for instant selection of shapes (you don't need to select [Shape Generator]). The window will only show shapes which are possible on the selected fixtures. Pressing attribute buttons will filter the Shapes window to show only shapes for that attribute. Press the Dimmer attribute button to show all shapes.
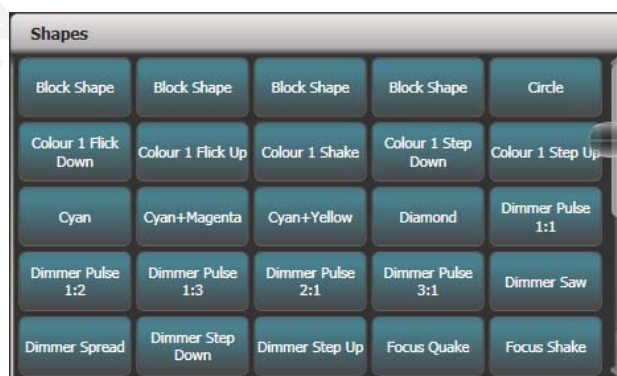
- Shapes are based on the current settings of the fixture, so a circle would move around the current pan-tilt position of the fixture.

- You can change the base value of a shape (e.g. the centre of a 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.

- Press [Shape Generator] then [Edit] to show what shapes are running.

- Use the Shape mode of the channel grid window to show the shape running on each fixture. To show the channel grid, press View then [Open Workspace Window] then [Channel Grid] or press the dedicated Channel Grid button.

- If you apply the same shape to two different groups of fixtures, the shape will appear twice on the shape list. You can edit the two shapes separately to give different directions, speeds etc (see later)

- Each shape is designed to work on a particular attribute. Obviously if the fixtures don't have the attribute, you will not see any effect if you use the shape.

- Each shape has a default size and speed setting (defined in the shape file).

5.1.2   Changing size and speed of a shape

It is easy to change the size and speed of a shape after it has first been created. If the display above the wheels is showing Phase rather than Size/Speed, press softkey E to select [Adjust Speed and Size].
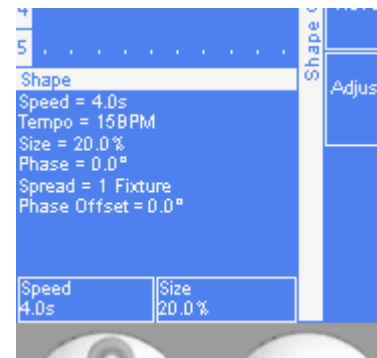
1>   Control the speed of the shape using the left hand wheel.

2>   Control the size of the shape using the right hand wheel.

3>   The size and speed is shown above the wheels on the display.

Other things to know about size and speed of shapes:

- If you are using the Touch Wing, the wheels on the console are used to control size/speed, not the wheels on the Wing.

- 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 section **Error! Reference source not found.**.

- The minimum size is zero. This will "hide" the shape, and the fixture will resume its previous settings. The shape is, however, still active.

- You can edit the shape individually on each fixture by selecting the fixtures you want to change. The HUD shows the individual shape parameters for each fixture, or you can use the Shape mode of the channel grid window to show the shape running on each fixture. To show the channel grid, press View then [Open

Workspace Window] then [Channel Grid] or press the dedicated Channel Grid button.

5.1.3   Changing the phase of a shape across multiple fixtures

Shapes get more interesting (and look more impressive) when you apply them to multiple fixtures. The Pearl lets you control how a shape is phased across several fixtures. You can also control Spread, which is a different way of selecting the same thing.

The sequence of the shape across the fixtures is controlled by the order in which you selected the fixtures when you created the shape. You can change this using the shape edit function.

1>   Press softkey E to select [Adjust Phase and Spread]

2>   Control the phase of the shape using the left hand wheel, or to set in terms of Spread, use the right hand wheel.

Phase=0 deg   Phase=22.5 deg (Spread=16 fixture)

Phase=60 deg (Spread=6 fixture)   Phase=180 deg (Spread=2 fixture)
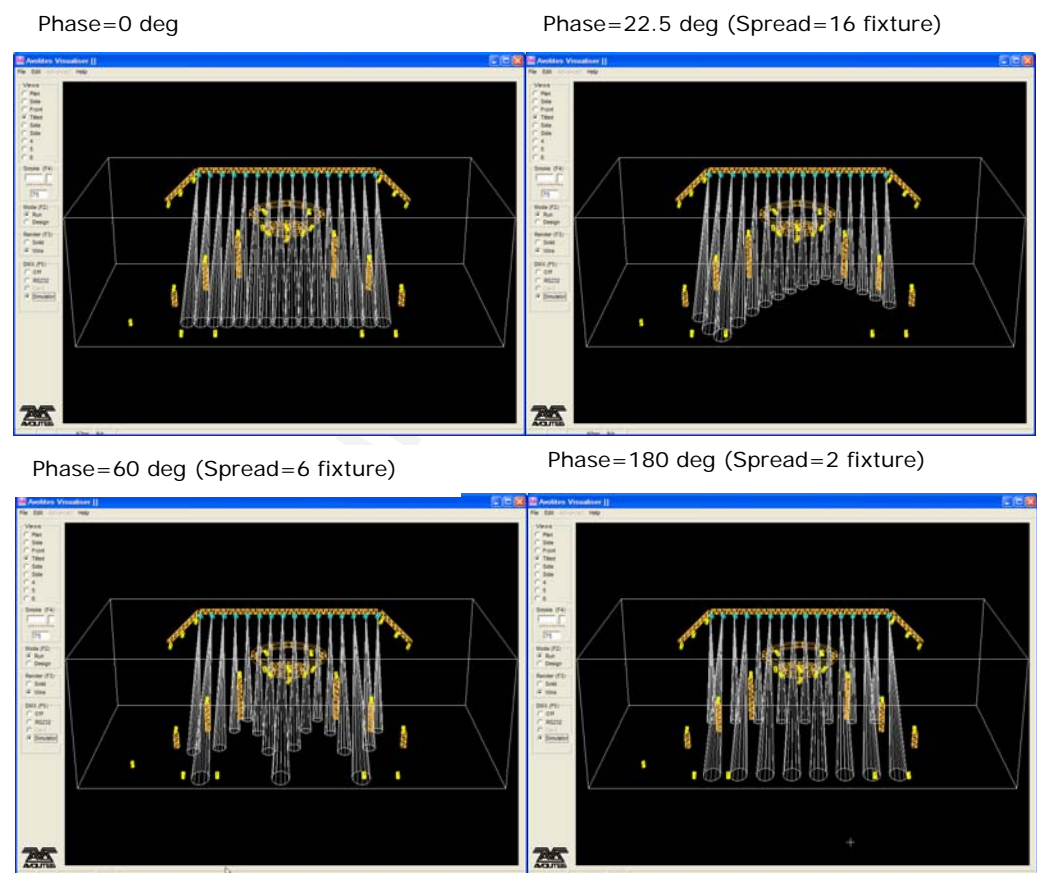
The display above the left hand wheel shows the phase in degrees. For example, 180 degrees repeats every 2 fixtures, 90 degrees repeats every 4 fixtures, 60 degrees repeats every 6 fixtures, and so on.

The Phase Offset function allows you to set the starting phase of the shape, when more than one shape is running. Press Softkey E again to select [Adjust Phase Offset]. For example, if you were running a Cyan shape and a Magenta shape to create a mix of colours, you would probably want to start them with Cyan at full and Magenta at zero to give the full range of colours. In this case you would set one

of the shapes to have a Phase Offset of 180 degrees. Without the phase offset, both shapes would reach full at the same time.

5.2 Edit

5.2.1 Selecting which shape to edit

If more than one shape is running, you can select which one is connected to the control wheels using Shape option [Edit].

1> If you are not in the Shape menu, press [Shape Generator] at the top menu.

2> Press [Edit].

3> Press [Select shape]

4> By the softkeys is a list of the currently running shapes.

5> Press a softkey to make the shape active. The active shape is highlighted.

6> Press Enter to get back to the Shape Generator menu.

- If you applied the same shape several times to different fixtures, you can change each copy of the shape independently.

5.2.2 Changing fixture order in a shape

The way a shape spreads across a number of fixtures is set by the order in which you selected them when you create the shape. You can change this order using the [Fixture Order] function in the [Edit] menu. The current fixture order is shown in large green numbers on the HUD window, or in the fixture touch keys . See section 6.6.2 for details on how to set fixture order.

5.2.3 Removing or adding fixtures

You can add or remove individual fixtures from a shape using the [Add/Remove Fixtures] option in the [Edit] menu. All fixtures currently included in the shape will be selected. You can select or deselect fixtures to add or remove them from the shape.

5.2.4 Reversing a shape

You can reverse the direction of a shape by pressing [Reverse Selected Fixtures] from the shape menu. The shape will be reversed only on fixtures which are selected, allowing you to run the shape forward on some fixtures and backwards on others.

5.3 Delete

5.3.1 Deleting shapes

You can delete a running shape by pressing [Delete] from the shape menu, then pressing the softkey for the shape you want to delete.

5.4   Advanced options

5.4.1   Shape fade mode

When a shape is stored in a cue, you can set how the shape fades in using the cue's Mode setting (use [Edit Times] from the main menu then [Fade Mode]).

Modes 0,1 and 3: The shape size will grow from zero to the programmed size using the time/delay settings of the cue.
Mode 2: The shape size will be set by the fader position. It will start at zero and grow to its programmed size when the fader reaches 100%.

If a new cue is fired which controls the same attributes (for example, a second shape controlling the same fixtures as a currently running shape), the new shape will crossfade from the running shape.

6.   Cues

This chapter contains: HTP and LTP channels; how the Pearl works when programming; recording a cue; playing back a cue; changing playback pages; setting fade times for a cue; copying and deleting cues; the include function; editing cues; the "off" button; blind mode; using shapes in cues.

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

The Pearl has 600 playbacks, in 60 pages of 10, which can be used to store cues or chases (sequences of "looks"). Chases are covered in the next chapter. The playbacks are controlled using the sliders and flash buttons across the near edge of the console. The split roller is used to select the page of cues or chases – each group of 10 playback faders can be set to its own page.
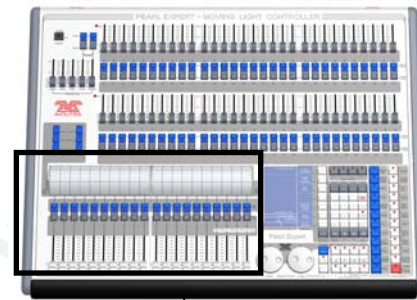
Playback faders & split roller

The Pearl Expert also allows you to store cues on the preset faders, and in the Playbacks window on the Touch Wing, provided you don't need a fader.

The cue functions on the Pearl are very powerful; the first part of this section explains the basics of how the Pearl uses cues.

6.1   Create

6.1.1   How the Pearl works when programming

When you select one or more dimmers or fixtures for control, they are loaded into the Editor. You can then use the wheels and palettes to change the settings on the fixture. You can also apply shapes to it.

If a fixture is selected after you have changed some attributes then the current list of fixtures is emptied and a new list is started.

All fixtures and attributes that have been edited since the last Clear are stored in the Programmer. The order in which you selected the fixtures is also stored, and is used with the Fixture Overlap function. When you record a cue, the contents of the Programmer are saved into the cue.

When you press Clear (by the numeric keypad), the programmer and editor are emptied. This makes sure you don't record fixtures you don't want. You also need to press Clear when you finish programming, because any attributes in the programmer will override playbacks.

Fixtures which are in the programmer are shown in mid blue on the HUD windows and on the touch buttons. Attributes in the

programmer (the things you have changed) are shown in cyan on the HUD windows and attribute displays.

Firing a cue does not place the values from the cue in the programmer (although the Include function lets you do this, see section 6.3.2 on page 75).

6.1.2   Creating a cue

1>   Press Clear to clear the programmer. This ensures that you are starting with a clean slate.

2>   Set up the look using the fixtures. You can save shapes in a cue. Remember that only the fixtures you have selected will be saved in the cue.

3>   Press the blue Memory/Cue button.

4>   Press the Swop button of an empty Playback to record the cue. (Select a new roller page first if you want to use a different page). You can also record a cue onto a Preset fader by pressing its Swop/Select button, or into a touch button in the Playbacks window.

5>   Press Clear to clear the programmer. Repeat from 2 to program more cues.

Other useful things to know about recording cues:

* [Record Mode] lets you select Record By Fixture (all attributes of any modified fixture are saved), Record By Channel (only modified attributes are saved) or Record Stage (all fixtures with a non-zero dimmer channel are saved). Record By Channel is useful if you want to layer multiple cues to create an effect.

* If you are recording a lot of cues, you can press the ML Menu button to keep the Record Cue menu active. Press Exit to leave Record Cue mode.

* The roller has a segment above each playback fader to allow you to write on the name of the cue using the low-tech but reliable method of marker pen (use a strip of tape on the roller surface). You can then see at a glance what's in each cue.
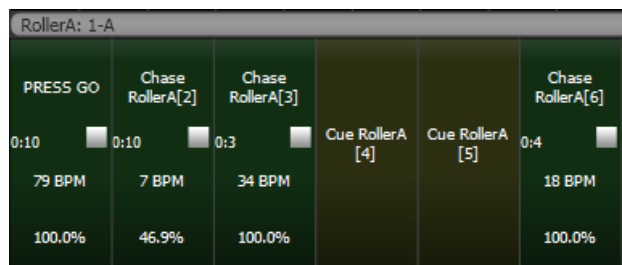
* The Heads Up Display shows a legend for each playback fader. You can change this to help you remember what's in it. Press [Set Legend], then the playback Swop button (or the preset Select button), then enter a legend on the keyboard. Press Enter to store it.

* The Touch Wing also shows the legends and information for the playbacks at the bottom of the screen. The playbacks are

shown in two rows with the left hand roller on top and the right hand roller below.

6.1.3 Using shapes in cues

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

You can create a cue which contains a shape with no base reference values; a shape cue like this can then be fired with other cues to overlay the shape on the cue and give you instant effects based around the settings in that cue. When recording the cue, use the "Off" function to remove the other attributes from the programmer as described in section 6.3.4 on page 77.

6.1.4 Blind mode

Blind mode allows you to program cues without affecting the current look on the stage. This can be very useful for making changes during a live show. Your changes are still shown in the Visualiser window.

To select Blind mode, hold down the Avolites button and select the [Blind] option. The option shows [Active] or [Inactive].

Individual playbacks can be set to Blind mode using [Playback Options]. The playback will then output only to Visualiser, not to the stage.

6.2 Playback

Because it's possible to play back a large number of cues at the same time, the Pearl has to have rules on how it combines the output from different cues. These are called HTP and LTP rules.

6.2.1 HTP and LTP

The Pearl treats control channels in two ways:

- Dimmer or intensity channels work on the principle of "Highest Takes Precedence" (HTP). If an HTP channel is active at different levels in several cues, the highest level will be output. When you fade out a cue, the HTP channels fade out with it.

- All other channels work on the principle of "Latest Takes Precedence" (LTP). The latest change takes over from any other values, so the most recent cue to be turned on is the one which is output. When you fade out a cue, LTP channels retain their values until changed by another cue.

6.2.2 Playing back a cue

To fire (play back) a cue, 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 fire several cues at once.

- The HTP levels in the cue will be mastered by the fader level; for example if you set the fader at 50% then all HTP levels will be 50% of their programmed values.

- LTP channels are triggered as soon as the fader goes above 0%. If a fade time is programmed the LTP channels will start to

fade; if there is no fade time they will snap to position (unless the cue is set to Mode 2; see the timings section 6.6 on page 78 for details of modes).

- You can Flash the cue by pressing the grey flash button. You can Swop (solo) the cue by pressing the blue Swop button (all other active cues will turn off while the button is pressed). Flash and Solo only work when the key is set to Run mode.

- You can Preload the cue by assigning the Preload function to the blue or grey buttons using Key Profiles. Preload sets the attributes of fixtures in the playback which are not currently active in any other playbacks. This is useful to avoid the fixtures visibly moving into position or changing colours or gobos when you raise the fader of the cue. To assign Preload, hold Avo Shift and press [Edit Key Profile], then press the button you want to assign (also see section 11.3.4 on page 126.) Note that this will assign the function to all buttons of the same type. Also if you are using one of the system key profiles, which are not editable, you will need to select or create an editable key profile first.

6.2.3 Changing playback pages

You change playback pages using the Roller.. Each roller has 3 pages set using the Roller Page buttons just above the left hand roller.

If you have stored cues on the preset faders, you select different pages of preset faders using the Pages of Fixtures buttons above the numeric keypad.

- Playbacks which are fired when you change page remain active. If you want to fire a cue on a fader which is already on from a previous page, lower the fader to zero then raise it again. The cue from the previous page will stop and the cue from the new page will fire.

- If you return to a page with an active playback, the fader will not resume control of the playback until it matches the current level of the playback. This prevents the playback level "jumping" when the fader is first moved.

- You can set a legend for each page of the A and B roller. The legend is shown on the LCD screen and on the HUD. Use [Set Legend] from the main Program menu then [Page Legends]. While in this menu you can change the Roller position to set legends for different pages.

6.2.4 Releasing running playbacks

You can release a running playback to its previous state by pressing the blue Off button, then the Select button of the playback to be released. Channels will release back to their state in the previous playback until no playbacks are left to be released, at which point they will go to the power-on state. You can release all running playbacks by pressing the blue Off button then [Release all playbacks].

Channels will always release with a fade time of 2 seconds.

You can set a mask to release only some channels from the playback using the [Release Mask] option in the Playback Options menu.

6.3   Edit

6.3.1   Editing a cue

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

1>   Press Clear to empty the programmer.

2>   Fire the cue you want to edit, so you can see what you are doing. Kill all other cues to avoid confusion.

3>   Select the fixtures you want to change, and make the changes.

4>   Press Memory/Cue.

5>   Press the Swop button for the cue you are editing.

6>   Press [Merge] (the cue being edited is highlighted on the HUD)

7>   The Pearl will merge the existing cue with your changes. Unchanged information is not affected.

- If you want to overwrite the cue entirely, use [Replace] at step 6.

- To speed up editing, you can set the console to "Always Merge" the cue. This is option A in the User Settings (press Avo and select User Settings).

- You can also press the Swop button for the cue a second time to select the "Merge" option (quicker than selecting the softkey Merge option).

6.3.2   Playback and Cue view

To see the current timings of the cue, press View then the swop button of the playback you want to view, or on the Touch Wing touch the playbacks display above the fader. The VDU screen will show details of the delay, fade, overlap and curve settings for the cue. You can click on or touch each item in the grid to enable editing.

If you click or touch the View button at the right hand end of the row or the [View Cue] context button, the Cue View window opens, showing you details of the settings individual timings for all the fixtures in the cue. There is also a [View Cue] button in the context button area.

The Cue View has four different views: Levels, Palettes, Times, Shapes. Views are selected using the context buttons to the left of the menu buttons (if using the touch wing) or by pulling down the context menu at the right hand end of the window's top bar.

- The **Levels** view shows the individual attribute values for each fixture.

- The **Palettes** view shows which palettes have been used to record the cue. Palettes are shown by their legends. Where an absolute value was saved rather than a palette, the value is shown instead. Again you can edit or remove the values.

- The **Times** view shows individual attribute timings for fixtures. If global timings are set, no times are shown in the cue view.

- The **Shapes** view shows which attributes of each fixture are running shapes.

	Number	Order	Dimmer D F	Shutter D F	Pan D F	Tilt D F	Colour Func D F	Colour D F	Cyan D F	Red D F	Magenta D F	Green D F	Yellow D F	Blue D F	CMY Macro D F	Gobo 1 Func D F	Gobo 1
ClrSp 1200	1		100.00	Closed	49.44	55.04	Fixed	Open	0.0	0.0	99.6	-	-	-	Index 0.0	-	-
ClrSp 1200	2		100.00	Closed	43.00	57.04	Fixed	Open	0.0	0.0	99.6	-	-	-	Index 0.0	-	-
ClrSp 1200	3		100.00	Closed	57.59	57.48	Fixed	Open	0.0	0.0	99.6	-	-	-	Index 0.0	-	-
ClrSp 1200	4		100.00	Closed	47.33	54.11	Fixed	Open	0.0	0.0	99.6	-	-	-	Index 0.0	-	-
ClrSp 1200	5		100.00							0.0	0.0	-	-	-	Index 0.0	-	
ClrSp 1200	6		100.00							0.0	0.0	-	-	-	Index 0.0	-	
ClrSp 1200	7		100.00							0.0	0.0	-	-	-	Index 0.0	-	

You can edit or remove one or more individual control values in the cue.

Touch or drag over the required control values in the grid to select them – they will be highlighted in blue.

The softkeys then give you available settings for that control value, or you can directly edit values by typing numeric values and pressing enter,

You can delete the selected control(s) using the [Delete] softkey.

Any changes take immediate effect.

6.3.3 **The Include function**

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

There are two modes, Quick Include and Advanced Include. Quick Include simply reloads the whole cue. Advanced Include allows you to specify which attributes of which fixtures you want to load into the programmer. So, for example, if you have a cue 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 cue into the programmer, and build up a new cue using information from several existing cues.

If you Include a chase or cue list, the LCD shows you a list of the cues within it, and you select the one you want to Include using Wheel A. You can also type in the cue number to Include.

1> Press Include (above numeric keypad).

2> *Press [Quick Include] or [Advanced mode] if you want to change the mode*

3> *Press the Swop button of the cue you want to include.*

4> *All fixtures in the cue will be selected. If you don't want them all, deselect the fixtures you don't want. The fixtures in the cue are highlighted on the HUD and on the fixture buttons.*

5> *Use [Set Mask] or the Attribute Bank buttons to select which Attributes you want to include (All are included by default – Softkey C turns them all off and D turns them all on). Softkey E lets you include or exclude Shapes from the cue.*

6> *Press Enter. The selected attributes of the selected fixtures will be loaded into the programmer.*

7> *Repeat from 2 to include other attributes from the same fixtures, or repeat from 1 to include other fixtures.*

6.3.4   Removing attributes from cues using "Off"

The "Off" button allows you to remove an attribute which has been stored in a cue, as if you'd never recorded it.

For example, suppose you recorded a cue which had scans at a certain position, with the colour set to green. If you later decide that you don't want a colour recorded at all in the cue, so that the colour set by previous playbacks will remain, you set the colour values to Off in the programmer, which will remove those values from the cue. You can also use the Off function to remove complete fixtures from a cue by selecting all the attributes.

Setting an attribute to Off is not the same as recording an attribute at zero, since this would change the attribute when the cue was fired. It is the same as excluding that attribute using the mask when recording, and the attribute will remain unchanged when the cue is fired.

1> *Use the Quick Include function (described in previous section) to load the cue you want to change into the programmer.*

2> *Press the blue OFF button to display the Off menu.*

3> *All fixtures in the cue will be selected. If you don't want to change them all, deselect the fixtures you don't want.*

4> *Use the softkeys to select which Attributes you want to remove.*

5> *Press Memory/Cue, then set the record mode to [Replace], and press the Swop button of the cue to update it.*

•   You can merge "Off" attributes into a cue without including it first.

•   You can also remove attributes from palettes using the Off function.

•   Another way to remove attributes is from the Cue View window. See section 6.3.2 on the previous page.

6.4   Copy, Move and Link

6.4.1   Copying or moving a cue

Using the Copy/Move/Link button you can make a copy of an existing cue, move it to a new playback, or create a new playback which is linked to the existing playback. You can copy, move or link multiple playbacks (which may be cues, chases or cue lists) in one operation.

Move is useful for tidying up the console. Linked cues are handy if you want a cue to appear on more than one page for ease of programming; also the linked cue will have the same cue information in it, but can have different timings and playback options.

1> Press the blue Copy button.

2> Select [Copy], [Move] or [Link]. Pressing the Copy button again will also toggle these options.

3> Press the Swop button of the cue you want to copy/move/link. You can select a range of playbacks by holding the first button while pressing the last in the range.

4> Press the empty Swop button where you want it to go.

- The Menu Latch button latches the Copy/Move/Link menu, so you can keep copying, moving or linking things without having to keep pressing the Copy button. Press Exit to unlatch.

- [Retain Layout] or [Bunch Up] is used when copying a group of cues with empty playbacks in the group – you can either keep the empty playbacks, or bunch up the used playbacks together.

- When in Copy mode, option [Copy Legends] can be changed to [Don't copy legends] so that the copied cues are given default legends.

- When in Move mode, [Swap Items if Required] will attempt to reposition any existing playbacks which are in the way of the move. This is useful when rearranging playbacks on a page which is nearly full.

6.5   Delete

6.5.1   Deleting a cue

To delete a cue:

1> Press the blue Delete button.

2> Press the Swop button of the cue you want to delete.

3> Press the Swop button again to confirm the delete.

- Press ML Menu to keep the delete mode active. You can keep deleting using steps 2 and 3 without having to keep pressing the Delete button. Press Exit to leave latched delete mode.

6.6   Timing

The Pearl allows a wide variety of timing functions to be set.

6.6.1   Setting fade times and Overlap for a cue

You can set a delay, fade in and fade out time independently for every cue. Shapes in the cue will also be affected, depending on the fade mode.

You can delay the fade times between fixtures in a cue so that the cue is applied sequentially to each fixture. This is called Fixture Overlap and can create some amazing "peel off" or "roll" type effects with no programming at all.

In the diagram below, the top picture shows how the LTP channels change when used with delay, fade and fade out times. The second picture shows how the HTP channels change. The third and fourth pictures show what happens to the LTP channels when fixture overlap and attribute fade are used.
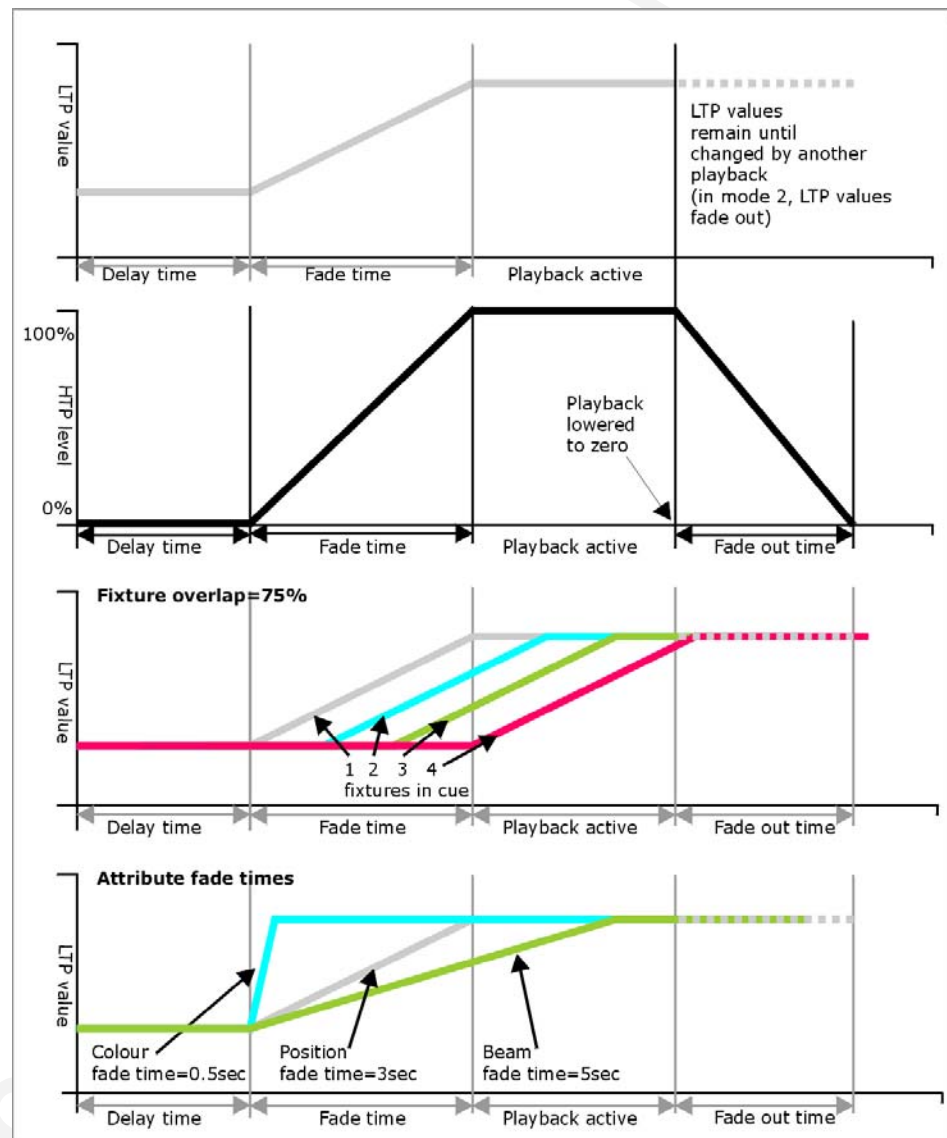
The times are set like this:

1>   Press [Edit Times] at the top level menu.

2>   Press the Swop button of the cue.

3>   Press [Fade Mode x] to set the cue mode. This sets how the times are used, see below.

*4>   Press [Delay time] to set the delay before the cue starts, [Fade
       time] to set the fade-in time of the cue, and [Fade out time] to
       set the fade-out time of the cue.*

*5>   Type the new time (in seconds) using the numeric keypad and
       press Enter to save it.*

*6>   Press [Fixture Overlap] to change the overlap, then enter 0-100
       on the keypad. 100% means all fixtures fade together. 0%
       means that the first fixture will finish its fade before the next
       one starts. 50% means that the 2nd fixture will start fading
       when the first one is half way through its fade. The order of the
       fixtures is set by the order you selected them (but you can
       change this, see section 6.6.2).*

7>   Press Exit to get out of Edit Times mode.

- You can also set independent times for the IPCGBES attribute
  groups, and for each individual attribute, see next section for
  details of this.

The times you enter are affected by the cue mode which is set using
E [Fade Mode]:

- Mode 0 – Channels will fade in as set by the fade time. The
  Fade Out time is ignored. If times are set to zero, the HTP
  channels fade in with the 0-100% position of the playback fader
  and the LTP channels will snap.

- Mode 1 - Channels fade in as set by the fade time. HTP
  channels fade out as set by the fade out times (LTP channels
  remain as set in the cue). If times are set to zero, the HTP
  levels will fade in and out with the fader and the LTP channels
  will snap when the cue is fired.

- Mode 2 – Channels will fade in as set by the fade time. The
  Fade Out time is ignored. However, the fade will stop when the
  fader position is reached, so if the fader is set to 50%, the
  attributes will stop half way to their programmed position. You
  can reverse the fade back to the original position by moving the
  fader back. If times are set to zero, both HTP and LTP channels
  are controlled by the fader position.
  In this mode LTP channels revert to their previous settings
  when the cue is deactivated.

- Mode 3 - Crossfade cue. All channels, including intensity
  channels, will fade to the settings in the new cue. All other cues
  fade out and all other active playbacks become inactive; if you
  need to re-fire a playback, take the fader to zero and put it up
  again.

- If the cue includes shapes, then the shape will change with fade
  times. The changes will be timed for a Mode 1 cue and
  controlled by the fader position for a Mode 2 cue. This allows
  you to create a shape which gets bigger or faster as you push
  up the fader.

6.6.2   Changing fixture order

You can change the order of the fixtures stored in a cue. Normally
this is set to the order in which you selected the fixtures when the

cue was created, but you might want to change this (for example to pair up fixtures so they move together).

1> *Press [Edit Times] at the top level menu.*

2> *Press the Swop button of the cue to be changed.*

3> *Press [Fixture Order].*

4> *Set the sequence number to start from using option A.*

5> *If you want the sequence number to increase automatically, set [Autoincrement] to On. If you want some fixtures to have the same sequence number, set it to Off.*

6> *Press or touch the Select buttons of the fixture(s) you want to place in that position in the sequence. The sequence number is shown on the HUD or in the top right hand corner of the fixture select touch buttons.*

7> *Press Exit to finish.*
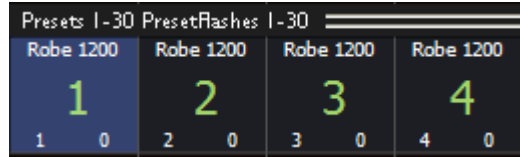
- You can set several fixtures to have the same sequence number. This means, for example, when used with Overlap they will all do the same thing at the same time.

- You can remove a fixture from the sequence by giving it the same sequence number it already has. The fixture sequence will show X. Touch the button again to put it back in the sequence.

On the Touch Wing the fixture sequence is shown on the touch button as shown in the picture on the right.

6.6.3   Setting attribute fade times for a cue

You can set individual fade times for each attribute group (such as Position). If you set a time, it overrides the normal times.

To set an attribute group fade time:

1> *Press [Edit Times] at the top level menu.*

2> *Press the Swop button of the cue to be changed.*

3> *Press the Attribute Bank button (right hand side) for the attribute you want to change.*

4> *Press [Delay] to set delay time or [Set fade] to set fade time.*

5> *Type the new time using the numeric keypad and press Enter to save it, or press [Use Global] to delete the attribute times and go back to the normal times.*

6> *Press Enter to save the changes.*

You can take this even further and set individual fade times for each fixture. When you select the cue to be changed, you will see that all the fixtures in the cue are selected. To set attribute times for only certain fixtures, change the fixture selection using the Swop buttons.

The Cue View window will display when editing cue timings to help you see what you are editing. You can touch fixtures or attributes in the grid to select which items are going to be edited.

Press the ALL button to select all fixtures in the cue.

When you are in the Set Attribute Times menu you can only select fixtures which are in the cue you are editing.

6.7 Advanced options

To set options for a cue, press [Playback Options] on the root menu, then press the swop button of the playback to be edited.

These options are also available for Chases and Cue Lists.

6.7.1 Release mask

[Release Mask] lets you specify which attributes will be released to the state they were in from a previously fired playback when this playback is killed. You can also use the Attribute Bank buttons on the right side of the console to set the mask. The default setting is to not release any attributes.

6.7.2 Shape size/speed on fader

If the cue contains shapes, options B and C set how the shape behaves when the playback fades in. You can set the size and/or speed to be either fixed or to change with the fader.

6.7.3 Curve

[Curve] defines how the attribute values will change when the playback is faded in. The various curves are illustrated in section 11.6 on page 132.

6.7.4 Handle Paging

This option allows you to lock the playback on a handle so that it always appears on that handle no matter what page is selected. This is useful if you have some general playbacks you want on every page, without having to copy the playback onto each page.

If you select "Transparent Lock" then the playback will appear on the current page only if no other playback is programmed in that position.

6.7.5 Playback priority

This option allows you to configure how playbacks will behave if you turn on two playbacks controlling the same fixture. The priority can be set to Low, Normal, High or Very High. If a fixture is being controlled by a playback and you turn on a playback of the same or higher priority, then the new playback will take over. However, if the

new playback is set to lower priority than the first playback, the fixture will not change.

This is useful if, for example, you've programmed looks using all your fixtures, then you decide you want a couple of them to spotlight a singer. If you set the Spotlight playback to be high priority, then while it is active no other playback will affect the spotlight fixtures.

Swop also obeys the priority settings and this provides a useful way of preventing certain playbacks from being swopped.

6.7.6   Blind mode

Individual playbacks can be set to Blind mode using this option. The playback will then output only to Visualiser, not to the stage. This can be very useful if you need to program cues during a live show.

6.7.7   Key Profile

Each playback can have an individual Key Profile allocated to it. This allows you to customise the panel button functions differently for each playback. A list of available Key Profiles is shown, or you can add a new one. The softkeys show the function allocated to the blue and grey buttons for each of the available Key Profiles.

If the playback Key Profile is set to "None", the default global profile is used.

7. Chases

This chapter contains: Programming a chase; running a chase; setting speed, crossfade and direction; manually controlling the chase steps; setting step times and unlinking; editing a chase using unfold; editing a chase which is running; copying chases; chase options.

As well as being used to store static cues, the playback faders on the Pearl can also be used to store chases (sequences of cues). You can also store chases on the preset faders.

Chases can run once or repeat continuously. You can set individual fade time for each cue in the chase and unlink cues so that the console waits for you to press Go before the chase continues.

7.1   Create

7.1.1   Programming a chase

To program a chase, you have to set up the look for each cue in the chase, then save it.

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

1>   Press the blue Chase button.

2>   Press the Swop button of the playback or the Select/Swop button of the preset where you want to store the chase. You can also record chases in the Playbacks window of the Touch Wing.

3>   Set up the look for the first cue, either manually or by using "Include" on existing cues.

4>   You can change the number given to the step using B [Step Number].

5>   Press the Swop button of the playback to store the programmer contents as a step of the chase. You can also press C [Append Step] on the menu.

6>   Press Clear (unless you want to re-use the contents of the programmer), then repeat from step 3.

7>   Press Exit to finish when you have stored all the cues you want.

- A [Record Mode] lets you select Record By Fixture (all attributes of any modified fixture are saved), Record By Channel (only modified attributes are saved) or Record Stage (all fixtures with a non-zero dimmer setting are saved).

- The cue number currently being saved, and the total number of cues, is shown on the top line of the display.

- Press Clear when you have finished recording the chase, otherwise when you try to play it back the programmer will override the chase and you won't see the chase properly.

- You can record shapes in a chase. If the same shape is saved in subsequent cues it will continue from step to step and if not it will stop at the end of the cue. (The Pearl considers the shape to be the same if you didn't press Clear after the previous step,

and didn't change the speed, size or phase of the shape from the previous step; or if you Included the shape from the previous step and have not modified it)

- You can set a legend for the chase by pressing Set Legend, then pressing the Swop button for the chase and entering the legend, as with cues.

- There is no limit to the number of steps in a chase.

7.2 **Playback**

7.2.1 **Playing back a chase**

To fire a chase, raise the fader of the playback. (You can also use the Flash/Swop buttons). The chase will start to run.

- The HTP (intensity) channels in the chase will be controlled by the fader; if fade times are programmed, the fade will stop at the fader level. The other channels (LTP) will be set as soon as the fader moves above zero according to the fade times programmed in the chase. You can set the point at which the LTP channels activate from the User settings menu.

- While the chase is running, the lower left area of the LCD screen shows details of the chase steps.

- You can temporarily pause the chase by pressing the Stop button to the right of the wheels. Press Go to resume playback.
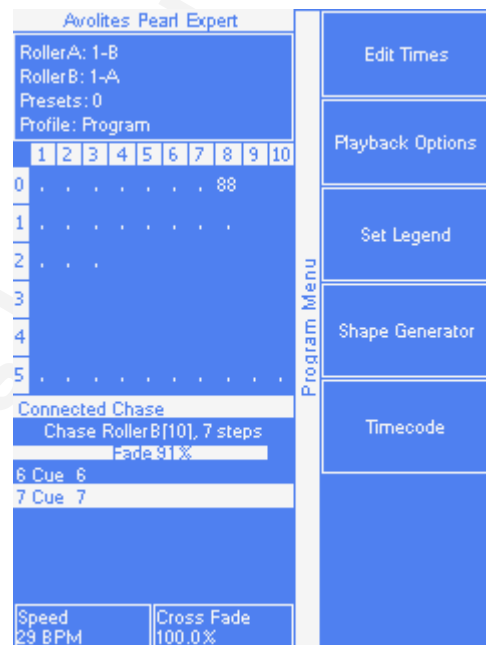
There are many options you can set to determine the way the chase runs and these are described in the rest of this chapter.

7.2.2 **Connecting a chase for control**

When you fire a chase, the wheels and Stop/Go buttons are automatically allocated to control the Speed and Crossfade of the chase – this is called Connecting the chase. If you have more than one chase running, you can choose which chase is connected to the controls using the Connect button.

- Connect a different chase to the controls by pressing the Connect button (right of the wheels) then the Swop button of the chase you want to control.

- Disconnect a chase from the controls by double pressing the Connect button.

- You can turn off the "chase autoconnect" option in the User Settings menu if you don't want to connect to a chase when

you fire it. You will have to use the Connect button to control the chase if you do this.

• Normally if you change the speed or crossfade of a chase, the new setting is saved. However you can set this change to be temporary, so that when the show is reloaded the speed and fade will go back to the previously saved settings. Go to User Settings (Avo button + [User Settings] and set option C to [Connected View Sets Temporary Chase Speed]. You can still save a temporary speed by pressing [Save Temporary Speed] in the Set Times menu.

7.2.3 Setting speed and crossfade for a Chase

The left wheel is assigned to control the Speed of the chase it is connected to. The speed is shown in Beats Per Minute (BPM) on the display. You can also enter a speed from the keypad as described below. The last speed you set on the wheel is always remembered, you do not have to tell the Pearl to save it.

Crossfade is the "slope" between cues; with a crossfade of 0, the fixtures snap instantly to the next cue, but with a crossfade of 100, the fixtures spend the whole cue time fading to the next cue. With a crossfade of 50, the fixtures delay for half the cue time and fade for the other half of the time.
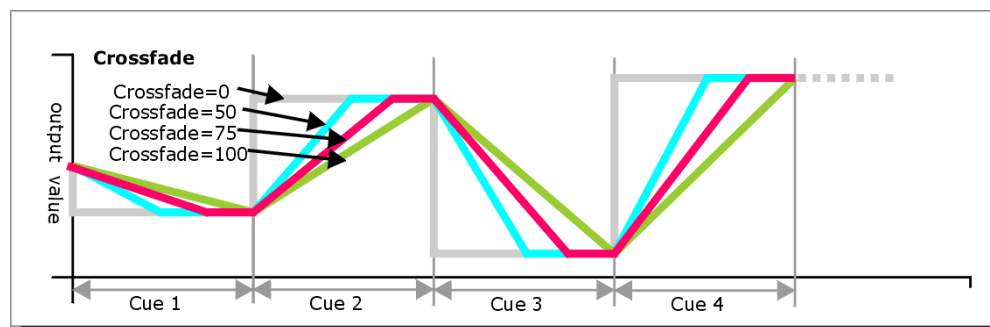
You set the crossfade and speed as follows:

1> *Press [Edit Times] from the top level menu then the Swop button of the chase.*

2> *To set the crossfade, press [Xfade] and type the fade from 0 – 100. 0=no fade (the chase will "snap"), 100=max fade (the chase will move continuously from step to step).*

3> *To set the speed, press [Speed], type the new speed, then press Enter. The speed can be set in Beats Per Minute (BPM) or seconds depending on the User Settings.*

There are other options you can set for the chase from this menu including Fixture Overlap, which are described in the Timings section 7.6.1 on page 91.

You can set individual times for each cue in a chase and unlink cues from each other so they wait for you to press the Go button. This is done using the Playback View, or the Unfold function which is described in section 7.3.2 on page 89.

You can select whether the chase speed is displayed in Seconds or in Beats Per Minute (BPM). Press Avo and A [User Settings], then press B [Tempo Units] to set the option to [Tempo Units Seconds] or [Tempo Units Beats Per Minute (BPM)].

7.2.4 Manually controlling the steps of a chase

You can pause a chase, if the chase is connected to the wheels, by pressing the Stop button next to the wheels. Press the red Go button to resume playback of the chase.

While the chase is stopped you can use the ← and → buttons (below the ML Menu button) to move to the next or previous step.

You can also configure the blue and grey buttons of the playback handle to be Stop and Go. This uses the Key Profiles function.

1> Turn the key to System and press [Key Profiles].

2> Press [Edit Profile] and then press the profile you want to edit (normally this would be "Run" for run mode or "Program" for program mode).

3> Press [Chases] then choose either the Blue key or the Grey key.

4> Select Go or Stop from the function menu. Then press Exit and set the function for the other key if required.

5> Turn the key back to Program or Run to continue using the console.

7.2.5 Changing chase direction

The arrow buttons to the right of the Connect button set the direction of the connected chase. The ↔ double-ended arrow button sets "bounce" mode where the chase will run to the end then reverse. The Review key sets the chase to Random.

7.2.6 Jumping to a step

You can jump directly to a step in a chase by pressing the Connect button, then typing in the desired step number, then pressing Enter or softkey A. Alternatively at the top level menu you can type the step number then press Connect.

7.3 Edit

7.3.1 Opening a chase for editing

You can open a chase for editing by pressing Chase then the Swop button of the chase. This does not affect any existing cues in the chase. You can then save new cues at the end by pressing the Swop button just like normal recording.

To see a list of the cues in the chase, use Playback view (press View then the Swop button of the playback).

To edit any of the time settings in each cue, select the setting to be modified by touching or dragging in the grid, then use the softkey options to change the setting.

Playback View - Chase 'PRESS GO'

	Legend	Delay In	Fade In	Fade Out	Fixture Overlap	Link	View Cue
1	Cue 1	Global	Global	= As In	Global	After Previous	View
2	Cue 2	Global	Global	= As In	Global	After Previous	View
3	Cue 3	Global	Global	= As In	Global	After Previous	View
5	Cue 5	Global	Global	= As In	Global	After Previous	View
6	Cue 6	Global	Global	= As In	Global	After Previous	View
7	Cue 7	Global	Global	= As In	Global	After Previous	View
8	Cue 8	Global	Global	= As In	Global	After Previous	View

7.3.2   Editing a chase using Unfold

The Pearl has a powerful chase editing system. The Unfold button places each cue in a chase on one of the playback faders, allowing you to fire and edit each cue individually as if it was a stand-alone cue. Unfold also allows you to set individual timing for cues in the chase.

1> Press the blue Unfold button, then the Swop button of the chase to be edited.

2> The first 20 cues of the chase are loaded into the playback faders.

3> Raise a playback fader to output the contents of that cue (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 cue: Press Clear to empty the programmer, raise the fader to output the cue, make the changes, press [Record Step], then the Swop button for the cue number.

To Insert a new cue at the end of the chase, set up the look for the new cue, press [Insert Step], then press the swop button of the first free playback.

To Insert a cue between two other cues, set up the look for the new cue, press [Insert Step], then type the cue number for the new cue (such as 1.5 to go between 1 and 2). If this cue number already exists it will be merged with the look you have created. Otherwise a new cue is inserted.

To change individual times for the cue, press [Edit Times], then the Swop button for the cue (or type the cue number), then set the times. This is described in detail in the Timing section on the following page.

If the chase has more steps than there are playback faders, you can go between pages using the F and G buttons.

7.4   Copy, Move and Link

7.4.1   Copying or moving a chase

Using the Copy button you can make a copy of an existing chase, move it to a new playback, or create a new playback which is linked to the existing playback. You can copy, move or link multiple playbacks (with cues, chases or cue lists) in one operation.

Move is useful for tidying up the console. Linked chases are handy if you want a chase to appear on more than one page for ease of programming; also the linked chase will have the same chase information in it, but can have different timings and playback options.

1>   Press the blue Copy button.

2>   Select [Copy], [Move] or [Link]. Pressing the Copy button again will also toggle these options.

3>   Press the Swop button of the chase you want to copy/move/link. You can select a range of playbacks by holding the first button while pressing the last in the range.

4>   Press the empty Swop button where you want it to go.

- The Menu Latch button latches the Copy/Move/Link menu, so you can keep copying, moving or linking things without having to keep pressing the Copy button. Press Exit to unlatch.

- [Retain Layout] or [Bunch Up] is used when copying a group of chases with empty playbacks in the group – you can either keep the empty playbacks, or bunch up the used playbacks together.

- When in Copy mode, option [Copy Legends] can be changed to [Don't copy legends] so that the copied chases are given default legends.

- When in Move mode, [Swap Items if Required] will attempt to reposition any existing playbacks which are in the way of the move. This is useful when rearranging playbacks on a page which is nearly full.

7.5   Delete

7.5.1   Deleting a chase

To delete a chase:

1>   Press the blue Delete button (bottom right).

2>   Press the Swop button of the playback you want to delete.

3>   Press the Swop button again to confirm the delete.

Press ML Menu to keep the delete mode active. You can keep deleting using steps 2 and 3 without having to keep pressing the Delete button. Press Exit to leave latched delete mode.

7.5.2   Deleting a step from a chase

To delete a single step from a chase:

1>   Press the blue Delete button.

2>   Press the Swop button of the chase.

    3> The steps in the chase are listed on the screen. Use the left hand wheel to select the step you want to delete, or type in the number of the step to be deleted.

    4> Press [Delete Cue x] to delete the step.

    5> Press [Confirm] to confirm the delete.

- Alternatively you can use the Unfold function to delete a step from a chase.

7.6 Timing

7.6.1 Global timings for chases

When a chase is first programmed, each cue in the chase has identical timing. This is called the global timing for the chase. If you want you can then set each cue to have its own timings using the Playback View window or Unfold. This is described in the next section.

    1> Press [Edit Times] from the top level menu then the Swop button of the chase.

    2> Set the Crossfade, Speed, Fixture Overlap and Attribute Overlap settings as described below.

    3> Press Exit to finish.

To set speed, press [Speed] then type the new speed, then press Enter. The speed can be set in Beats Per Minute (BPM) or seconds depending on the user settings.

To set crossfade, press [Xfade] then type the fade from 0 – 100 and press Enter. 0=no fade (the chase will "snap"), 100=max fade (the chase will move continuously from cue to cue)

When in Run mode, you can set the chase speed of the connected chase by tapping the [Tap Tempo] button in the main menu at the speed you want the chase to run. (The option only appears when a chase is connected). You can also assign the blue or grey handle button to be a "tap tempo" button using the Key Profiles option (see section 11.2.1 on page 123).

The Overlap functions allow you to offset and overlap the timing of changes in the chase. This can create really amazing visual effects with hardly any programming. The best way to learn about overlap is to program a chase with two cues involving several fixtures, then experiment with the overlap settings to see the various "roll" and "peel off" effects which result.

The following diagram shows you the effects of cue overlap, fixture overlap and attribute overlap in chases.
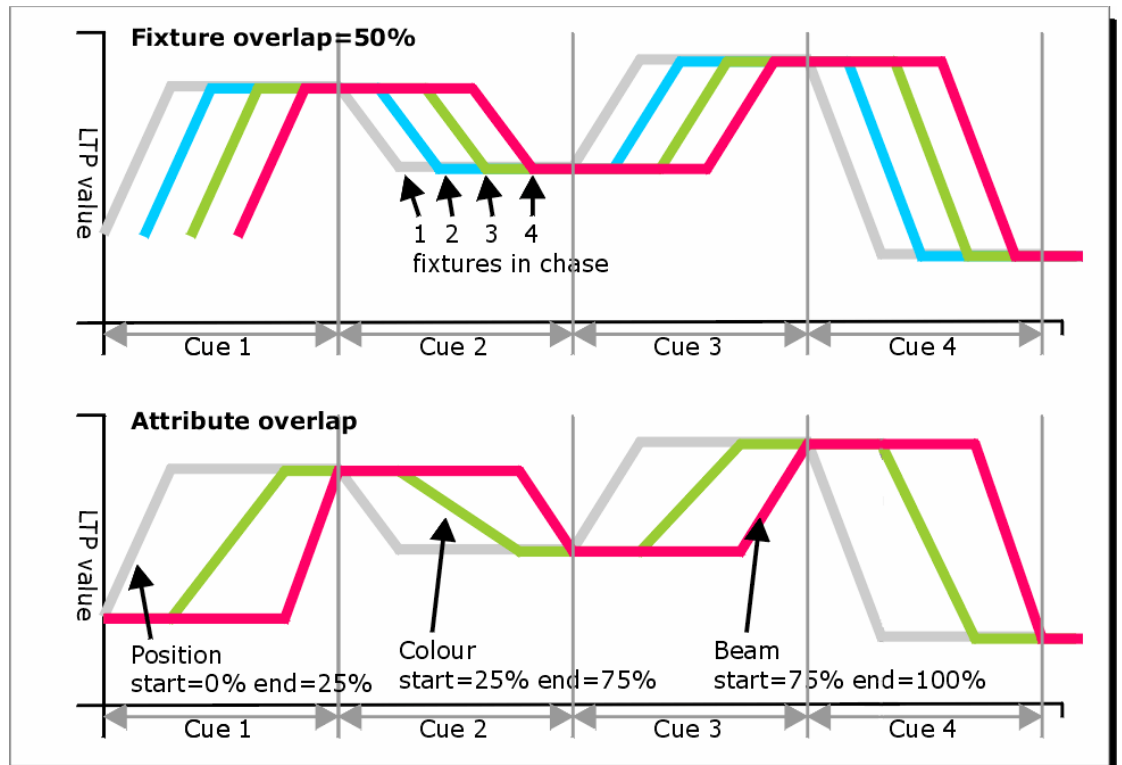
- Press [Fixture Overlap] then enter 0-100 on the keypad to change how fixtures overlap in the cue. 100% (the normal setting) means all fixtures fade together. 0% means that the first fixture will finish its fade before the next one starts giving a "rolling" change across a range of fixtures. 50% means that the 2nd fixture will start fading when the first one is half way through its fade. The order of the fixtures is set by the order you selected them when the cue was saved; you can change the order using Unfold.

Note: From v3 software, [Cue Overlap] is no longer available in chases. Instead use a Cue List set to "Link With Previous" and set the Link Offset as desired – see section 8.6.2 on page 103).

7.6.2 Individual cue times in chases

You can configure each cue in a chase to have its own timing information. You can use the Playback View window, or the Unfold function to set individual times for cues in chases.

Using the Playback View window:

1> Press View then the swop button of the playback, or on the Touch Wing, touch the playback display. The Playback View window will open.

2> In the grid, click

on or touch the times you want to edit.

3> Use the softkey options to change the times or settings.

4> Repeat from 2 to change other times or settings.

• You can change a range of cues all at once by dragging across the grid to select multiple cells, or you can use wheel B to select multiple cells for editing.

Using Unfold:

1> Press the blue Unfold button, then the Swop button of the chase to be edited.

2> Press [Edit Times] then the Swop button of the unfolded cue you want to edit.

3> Set up the timing options as required. The options are described below.

4> Press Unfold to get out of unfold mode.

Initially all the timing options are set to Global. You can cancel any individual timings and set the time back to global timings by pressing the softkey for the option then pressing G [Use Global].

The timing options for the cue are:

• Delay

• Fade (in)

• Fade Out

• Fixture Overlap

• Linking with previous step

• Attribute times (see next section)

Linking can be set to [Link After Previous] (the chase will run automatically) or [Link Wait For Go] which will stop the chase until you press Go.

7.6.3 Setting attribute fade times for a cue in a chase

For each cue in a chase, you can set individual fade times for each attribute group (such as Position). If you set a time, it overrides the normal times. You can use the Cue View window or the Unfold function to set attribute times.

To set an attribute group fade time:

1> Press View or the blue Unfold button, then the Swop button of the chase to be edited.

2> Press [Edit Times] then click on or touch the cue you want to edit in the Playback View, or if using Unfold, press the Swop button of the unfolded cue you want to edit.

3> Press the Attribute Bank button (right hand side) for the attribute you want to change.

4> Press [Delay] to set delay time or [Set fade] to set fade time.

5> Type the new time using the numeric keypad and press Enter to save it, or press [Use Global] to delete the attribute times and go back to the normal times.

6> Press Enter to save the changes.

7.7 Advanced options

To set options for a chase, press [Playback Options] on the root menu, then press the swop button of the playback to be edited.

The same options are available as for Cues (see section 6.7 on page 82), with some additional options for Chases.

7.7.1 Loop/Stop on Final Cue

Option B lets you specify whether the chase will loop back to the beginning or stop on the final cue.

7.7.2 Forwards/backwards/bounce/random

Option C sets the direction of the chase.

7.7.3 Cue linking

Option D sets how the cues in the chase are linked. The settings are:

- [Always Link Steps]: The chase will run on its own using the times

- [Never Link Steps]: The chase will pause after every delay/fade time for the user to press Go.

- [Link according to individual steps]: Each step in the chase will obey its individual link settings which are set using the Playback View window or the Unfold function.

7.7.4 Renumber cues

Option [Renumber cues] will renumber all the cues in the chase starting from 1.

8. Cue Lists

This chapter contains: Programming a cue list; running a cue list; editing, copying and deleting cue lists; setting fade times; cue list options.

Cue Lists allow you to record a sequence of cues, each of which can have its own timings and can be triggered by the Go button or run automatically to the next cue. This allows you to build a complete show in a single list and is ideal for theatrical shows where the show must be exactly the same each time.

Cue lists differ from chases in the way the console handles changes between cues. Chases will crossfade between cues whereas a cue list will track changes.

For example: You record dimmer 1 in cue 1, press clear, record dimmer 2 in cue 2, press clear, record dimmer 3 in cue 3. If this were a chase, when you play it back each cue will fade out the dimmer from the previous cue, as it is not in that cue. Therefore once you get to cue 3, you will only have dimmer 3 active.

Cue lists on the other hand track the cues. This means that the cue list only knows about the changes, so in going from cue 1 to 2 it won't change dimmer 1 as there is no data about dimmer 1 in cue 2. This means that once you get to cue 3, it will have accumulated the data from all the cues and the output will consist of dimmers 1, 2 and 3 together.

If you wanted cue 2 to turn off dimmer 1, you would have to explicitly set the level of dimmer 1 at zero (by selecting it and setting the Intensity to 0); or you can miss out pressing Clear in between saving each cue.

This means that you need to be mindful of what is actually being saved in each cue when you record your cue list.

To view detailed contents of a cue list, press View then the swop button of the playback, or on the Touch Wing touch the playback screen above the fader.

Playback View - Cue List Playbacks[7]

|	Legend	Delay In	Fade In	Delay Out	Fade Out	Fixture Overlap	Link	Link Offset	Preload	Curve	Autoload	Tir
1	Tabwarm	0	2	= As In	= As In	100%	Wait For Go	Disabled	☐	Linear	Load Cue RollerB[3];	23:5
2	Cue 1	0	2	= As In	= As In	100%	Wait For Go	Disabled	☐	Linear		23:5
3	End of scene	0	2	= As In	= As In	100%	Wait For Go	Disabled	☐	Linear		23:5
4	Cue 2	0	2	= As In	= As In	100%	Wait For Go	Disabled	☐	Linear		23:5
5	Cue 5	0	2	= As In	= As In	100%	Wait For Go	Disabled	☐	Linear		23:5
6	Cue 6	0	2	= As In	= As In	100%	Wait For Go	Disabled	☐	Linear		23:5

8.1 Create

8.1.1 Programming a cue-list

Programming a cue list is similar to recording a chase.

You need to set up the look on the stage for each cue and then add it to the cue list. If you want to set fade times, you can either set them while saving the cues or later.

1> *Press the blue Chase button twice (or press Chase then [Create Cue List]).*

2> *Press the blue Select button of the handle where you want to store the Cue List (you can also store cue lists in the Playbacks window).*

3> *Select the Record Mode of the console: by Fixture, Channel, or Stage using softkey A. [Record Mode Stage] is safest as you are sure to record the whole console output.*

4> *Set the default Fade and Delay times, and automatic cue linking, using [Set Times]. These settings will be allocated to every new cue.*

5> *Set up the look for the first cue, either manually or by using "Include" on existing cues. [Shape Generator] allows you to program shapes.*

6> *If you require a legend for the cue, set it now using Softkey C. You can also change this later using Unfold or Set Legend (see next section).*

7> *Press the Select button of the handle or [Append Cue] to store the programmer contents as Cue 1 of the cue list.*

8> *Repeat from step 5 for the next cue. Do not press Clear in between cues, unless you want levels to track through from previous cues, as any faders moving to zero will not be stored. If you do press clear, you must make sure that all channels you want to record are selected or in the programmer (inverted display).*

9> *Press Exit to finish when you have stored all the cues you want.*
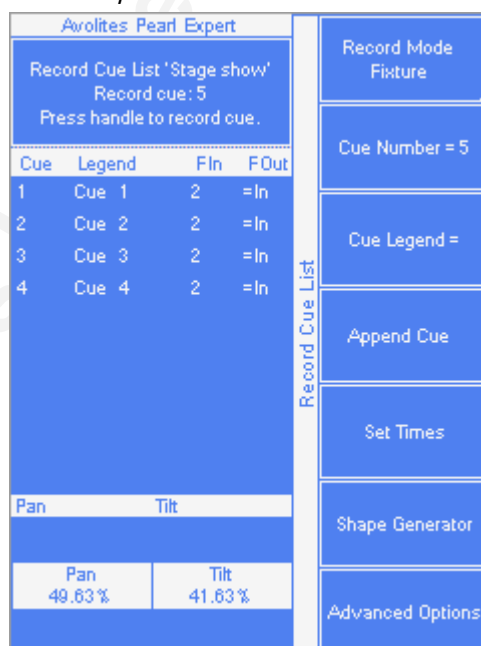
- [Record Mode] lets you select Record By Fixture (all attributes of any modified fixture are saved), Record By Channel (only modified attributes are saved) or Record Stage (all fixtures with a non-zero dimmer channel are saved). Record By Channel is useful if you want to layer this cue list with other playbacks to create an effect.

- You can reopen the cue list to add more cues by repeating the procedure above; this does not affect any cues already stored in the cue list. While the cue list is open for editing:

- To add more cues to the end of the existing cues press [Append cue].

- To edit an existing cue, press [Cue Number=] and type the cue number to edit. Make the changes then press [Update Cue x].

- To insert new cues, see section 8.3.2.

- The Advanced Options menu allows you to renumber all the cues, and to change the number of an existing cue.

- There is no limit to the number of cues in a cue list.

Avolites Pearl Expert	
Use handles to Select playbacks to autoload in Cue List 'Evening	Load Cue 'Big swirl'
3	Load Cue 'Undersea'

Cue	Legend
1	Tab warmer
2	Open
3	First number
4	Cue 4
5	Cue 5
6	Cue 6
7	Cue 7
8	Cue 8
9	Cue 9
10	Cue 10
11	Cue 11
12	Cue 12
13	Cue 13
14	Cue 14
15	Cue 15

8.1.2   Changing legends for cues in a cue list

You can set a legend for each cue, which is shown on the LCD when running the cue list and can be helpful for keeping track of where you are.

1>   Press [Set Legend] in the top level menu. If you are setting legends for several cues, press ML Menu to latch the Set Legend menu.

2>   Press the Select button of the Cue List.

3>   The cues in the cue list are shown on the LCD screen. Use Wheel A to select the cue which is to have a legend set.

5>   Press E and type the legend on the keyboard, then press Enter.

6>   If you latched the menu, you can continue to set legends for other cues, or press Exit to finish.

8.1.3   Autoloading a playback within a cue list

You can program a cue within a cue list to automatically load one or more playbacks when the cue fires. The playback can be a single cue, a chase or another cue list. This can be useful to trigger off chases or effects from the cue list.

You can either automatically save active playbacks as Autoloads, or you can manually allocate Autoloads to cues.

To automatically record active playbacks as Autoloads:

1>   After selecting Cue List Record, turn on [Autoload Live Playbacks] in the [Advanced Options] menu of the cuelist record screen.

2>   Turn on the playbacks you wish to load for this cue.

3>   Save the cue. Active playbacks will be saved as Autoloads.

To manually edit autoloads:

1>   Press [Playback Options] in the top level menu.

2>   Press the blue Select button of the Cue List.

3>   Press [Autoload].

4>   The cues in the cue list are shown on the screen. Use Wheel A to select the cue which is to have the Autoload set.

5>   Press the Select button of the playback which is to be loaded. The playback legend appears on the softkeys.

6>   You can continue to add Autoloads to other cues, or press Exit to finish.

The Autoloaded playback will be fired when the cue starts, and killed when the cue list moves on to the next cue, unless you have also loaded the playback into the next cue.

You can set options for each Autoloaded playback by pressing the softkey where the Autoloaded playback is shown.

For a cue, the only option is [Remove this Autoload].

For a chase or cue list, softkey B lets you select whether to load the playback from the start, to start at a specific cue, or to press Go on the target playback.

8.2   Playback

8.2.1   Running a cue list

Raise the fader of the cue list and press the Go button to run the first cue. The bottom section of the display shows the cue list; the current cue is highlighted in white and the next cue has a box round it.

Also the Touch Wing playback display shows information about the cue list, including the current and next cue, fade progress of the current cue, and fade in/out times.

- The HTP levels of cues in the cue list are mastered by the fader level.

- You can pause a fade by pressing the Stop button above the Go button. Press Go again to resume the fade.

- You can skip to any cue in the cue list by selecting a "next" cue using Wheel A or using the left/right arrow keys. When you press Go, the cue list will run that cue next.

- You can snap back to the previous cue by pressing the Snap Back button

- You can jump directly to a cue by pressing the Connect button, then typing in the desired cue number, then pressing Enter or softkey A. Alternatively at the top level menu you can type the cue number then press Connect.

- You can use Key Profiles to set the blue and grey buttons of the playback to have various functions including Go, Stop, Connect, Next Cue, Prev Cue, Cut Next Cue To Live, and Snap Back.

- When you lower the fader for a cue list, the HTP channels will fade out, but the cue list will remain active. The section below details how to kill the cue list.

- You can use timecode to play back a cue list automatically. See section 8.6.5 on page 105.

8.2.2 Killing a cue list

Once a cue list is fired, it remains active until you kill it. You do this by holding down the Avo Shift button and pressing the blue Select button of the cue list's handle.

You can change this in the Playback Options to make the cue list automatically clear when the fader reaches zero (press [Playback Options] at the program menu, then press the Select button of the cue list, then select [Fader Mode Intensity Kill At 0].

8.3 Edit

8.3.1 Editing a cue list using Unfold

The Unfold button places each cue of the cue list on one of the playback faders. This allows you to fire and edit each step individually as if it was a stand-alone cue.

1> Press the blue Unfold button, then the Select button of the cue list to be edited.

2> The first 20 cues are loaded into the playback faders. The display shows the cue numbers and legends.

3> Raise a playback fader to output the contents of that cue (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 cue: Press Clear to empty the programmer, raise the fader to output the cue, make the changes, press A [Record Step], then the Select button for the cue number.

- To change the times for the cue, press [Edit Times], then the Select button for the cue, then set the times (see Timing on the following page)

- To Insert a new cue, set up the look for the new cue, press B [Insert Step], then press the playback button where you want the new cue to go. All following cues will be shifted on by one and the new cue will be given a number in between the two

> existing cues (for example, if you press playback 3, your new cue will be 2.5).

- To Delete a cue, press the blue Delete button then the Select button for the cue you want to delete. Press the Select button again to confirm.

- To change the cue legend, press [Set Step Legend] then the playback select for the step you want to change.

- If the cue list has more cues than there are playback faders, you can swop to the next page using softkeys F and G.

8.3.2 Editing a cue list which is running

You can also edit cues in a cue list while you are running it without using Unfold.

1> Fire the cue list by raising its fader.

2> Use Wheel A to select the cue number you want to change then the white ↔ button above the Snap Back button to jump to it.

3> Press Clear to make sure the programmer is empty.

4> Make the changes that you want to the current step.

5> Press Rec. Step, then select [Replace], [Merge] or [Insert After] to save the changes.

6> Press the ↔ button to jump on to the next step.

You can edit the times for a cue using the Rec Times button of the controller as follows:

1> Fire the cue list by raising its fader.

2> Use Wheel A to select the cue number you want to change then the white ↔ button above the Snap Back button to jump to it.

3> Press the Live Time button to set the times for the current step, or the Next Time button for the next step. The Live and Next step numbers are shown on the display above the controller wheel.

4> Use the softkeys to set the times, linking and overlap settings you want (see section 6.6.1 on page 79 for description of the times). If you set the [Link to next step] option to On, then the next cue will not wait for the Go button.

5> Press the ↔ button to jump on to the next step.

You can also use Unfold to set the times as described in the Unfold section above.

8.3.3   Editing a cue list while recording
You can edit cues while you are in the Record Cue List menu.

*1>   Press [Cue Number=x]
       and type the cue number
       to be edited.*

*2>   The Pearl will jump to the
       cue and show the output.*

*3>   Make the changes that
       you want to the
       programming of the
       current step, or to the
       timings using [Edit Cue x
       Times].*

*4>   Press [Update Cue x] to
       save the changes..*
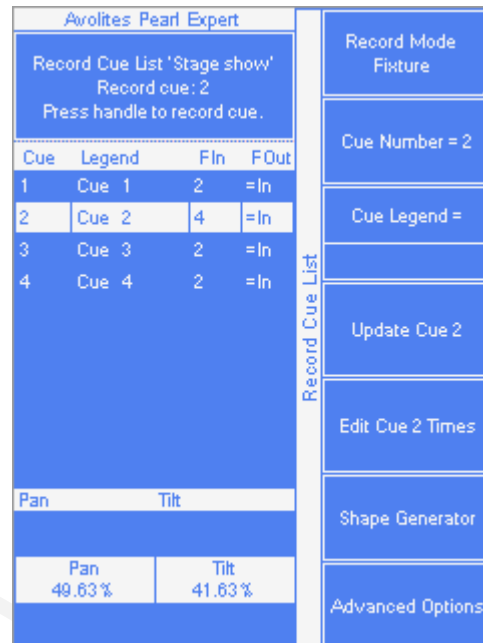
You can't change the cue
number using this menu – if you
press [Cue Number] this will
change the cue you are editing.
Use [Advanced Options] to
change cue numbers.

8.4   Copy, Move and Link

8.4.1   Copying or moving a cue list
Using the Copy button you can make a copy of an existing cue list,
move it to a new playback, or create a new playback which is linked
to the existing playback. You can copy, move or link multiple
playbacks (which may include cues, chases or cue lists) in one
operation.

Move is useful for tidying up the console. Linked cue lists are handy if
you want a cue list to appear on more than one page for ease of
programming; also the linked cue list will have the same cue list
information in it, but can have different timings and playback options.

1>   Press the blue Copy button.

*2>   Select [Copy], [Move] or [Link]. Pressing the Copy button again
       will also toggle these options.*

*3>   Press the Swop button of the cue list you want to
       copy/move/link. You can select a range of cue lists by holding
       the first button while pressing the last in the range.*

4>   Press the empty Swop button where you want it to go.

• The Menu Latch button latches the Copy/Move/Link menu, so
  you can keep copying, moving or linking things without having
  to keep pressing the Copy button. Press Exit to unlatch.

• [Retain Layout] or [Bunch Up] is used when copying a group of
  cue lists with empty playbacks in the group – you can either

keep the empty playbacks, or bunch up the used playbacks together.

- When in Copy mode, option [Copy Legends] can be changed to [Don't copy legends] so that the copied cue lists are given default legends.

- When in Move mode, [Swap Items if Required] will attempt to reposition any existing playbacks which are in the way of the move. This is useful when rearranging playbacks on a page which is nearly full.

8.5 Delete

8.5.1 Deleting a cue list

To delete a cue list:

1> Press the blue Delete button (bottom right).

2> Press the Swop button of the playback you want to delete.

3> Press the Swop button again to confirm the delete.

Press ML Menu to keep the delete mode active. You can keep deleting using steps 2 and 3 without having to keep pressing the Delete button. Press Exit to leave latched delete mode.

8.5.2 Deleting a cue from a cue list

Use the Unfold function to delete a cue from a cue list.

1> Press the blue Unfold button.

2> Press the Swop button of the cue list.

3> Press the blue Delete button.

4> Press the Swop button where the unfolded cue is that you want to delete.

5> Press the Swop button again to confirm the delete.

8.6 Timing

8.6.1 Time and fade options for Cue Lists

Time settings are independent for each cue in the cue list. The display shows which cue you are working with. You can select which cue is active using Wheel A or softkey A of the Edit Cue List Cue Times menu.

See the diagrams in section 6.6.1 on page 79 and section 7.6.2 on page 92 for more information about overlaps and fade times.

1> Press [Edit Times] at the main Program menu then the Swop button of the Cue List.

2> To change which cue you are editing, scroll through the list using Wheel A or press [Cue Number] then type the cue number you want to edit and press Enter.

- You can select a range of cues, enabling you to alter the timings of multiple cues all in one go, by using Wheel B, or in the

Playback View window, dragging across the cues you want to select in the grid.

- To set the delay time before the cue starts once the Go button has been pressed, press [Delay In] then type a time in seconds and press Enter.

- To set the fade-in time of the cue, press [Fade In] then type a time in seconds and press Enter. Both HTP and LTP channels are affected by the fade.

- The fade-out time of the cue is set by default to be the same as the fade in time. You can change the Fade-Out time by pressing [Fade Out], then type the time in seconds and press Enter. To set equal to Fade In time, delete the time and leave the box blank.

- The Delay Out time of the cue would normally be used if the console links automatically to the next cue, and sets the wait time before the next cue starts.

- Press [Next] and use [Link to next step] to set an automatic link between this cue and the next one. If this is set to Off, you have to press the Go button to move to the next cue. Otherwise the console will move on automatically after the Delay Out time.

8.6.2   Cue linking & Link Offset

Cues in cue lists may be linked together, allowing you to build up complex self-timed sequences. The link options are set using the softkeys and are:

- [Link Wait For Go]: the cue waits for the Go button to be pressed then fires immediately. Link Offset is disabled.

- [Link After Previous Cue]: The cue fires when the previous cue has finished its delay in and fade in times. A Link Offset can be set to add a delay between the previous cue finishing and this cue firing. The offset can be given as a time in seconds, or as a percentage of the fade time of the previous cue.

- [Link With Previous Cue]: The cue fires at the same time as the previous cue fires. A Link Offset can be set to add a delay between the previous cue firing and this cue firing, set either in seconds or as a percentage of the fade time of the previous cue.
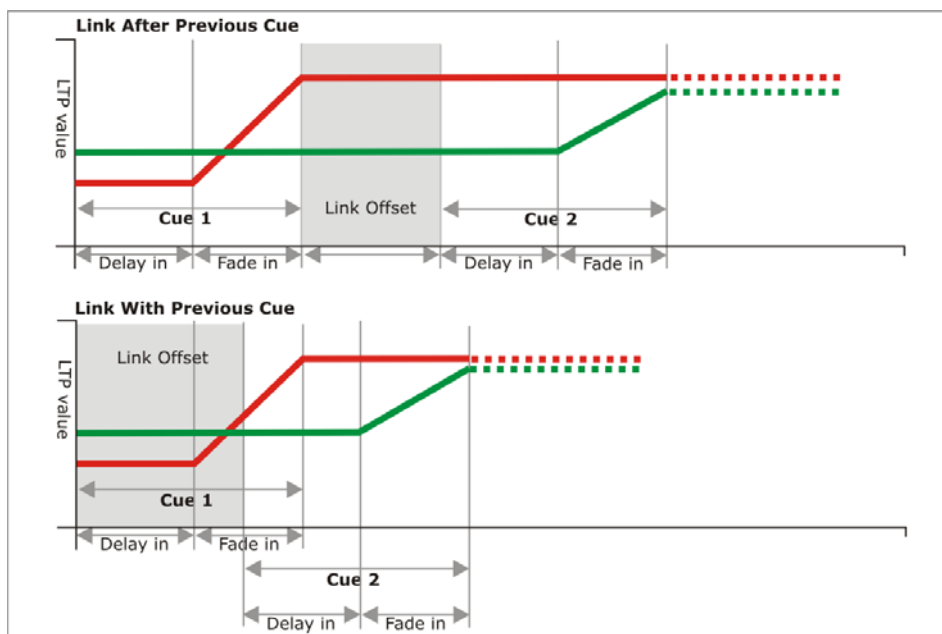
These options allow you to create complex self timed sequences by building up simple steps. For example if you wanted the following effect:

- Go is pressed, Fixture one starts fading up over 20s

- After 10s Fixture two fades up over 15s

- Both lights stay on for 5s

- Both lights go off in 3s

You could program

- Cue 1 - Fixture 1 @ 100%, Fade In 20s, Link Wait For Go

- Cue 2 - Fixture 2 @ 100%, Fade In 15s, Link With Previous, Link Offset 10s

- Cue 3 - Fixture 1 AND 2 @ 0%, Fade Out 3s, Link After Previous, Link Offset 5s

Note: To obtain the effect which was called "cue overlap" in previous versions of software, use [Link With Previous Cue] and set a percentage Link Offset time. Link Offset of 100% is equivalent to Cue Overlap of 0% and vice versa.

8.6.3 Individual attribute fade times

You can set individual fade times for each IPCGBES attribute group. You can also select which fixtures this is applied to. For example you can make the position change take 2 seconds, but the colour change take 10 seconds.

Additionally you can set individual times for each attribute so you could make the pan fade over a different time to the tilt.

To set times for an attribute group, first select the Set Times menu and go to the cue you want to set as described above, then press G [Next] to go to the second page of options.

1> Press [Attribute times].

> 2> *All fixtures in the cue will be selected. If you don't want to change the times for any fixtures, deselect them now. You can press the ALL button (below Next Time) to select all fixtures in the cue or Shift+ALL to deselect all fixtures.*
>
> 3> *Press the softkey for the attribute group you want to change.*
>
> 4> *Press [Delay] to set the delay time, or press [Fade] to set the fade time. Press [Use global] to remove the attribute group timing and go back to the normal delay/fade times for the cue.*
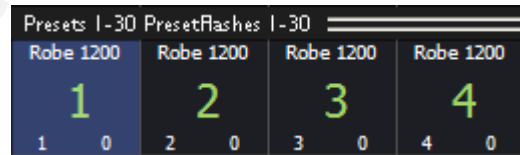
- You can use [Individual Attributes] to set times for one attribute within the group, for example just Pan from within the Position group. You can also use the Cue View window to set times for individual attributes.

8.6.4   Fixture overlap

For each cue you can set a (linked together) fixture overlap, which causes the Pearl to apply the settings in the cue to each fixture sequentially giving a "rolling" change across the fixtures in the cue. This can create some great effects without much programming on your part.

- Press [Fixture Overlap] (on the second page of the Cue Times menu) then enter 0-100 on the keypad to change how fixtures overlap in the cue. 100% means all fixtures fade together (the normal setting). 0% means that the first fixture will finish its fade before the next one starts. 50% means that the 2nd fixture will start fading when the first one is half way through its fade.

- To change the fixture order when using overlap, press [Set Fixture Order]. Normally this is the order in which you selected the fixtures when you programmed the cue. The HUD shows the fixture order in large green numbers. Reorder the fixtures by pressing [Step Number] then type the start number on the numeric keys, then pressing the fixture Select buttons in the order you want them. For example, to set the order of 8 fixtures, press 1 on the keypad, then press the Select button of the fixture to be first, then the Select button for the second, and so on. You can set several fixtures to the same number if you number if you want them to change simultaneously.
If you press a fixture button twice, it will show X and be excluded from the sequence.
Press Exit to finish setting the fixture order.

8.6.5   Running a cue list to timecode

The Pearl can run a cue list automatically to a timecode. This is very useful for complex performances which must be exactly the same time after time, or for unattended operation. Each step in the cue list is assigned a time at which it will run.

The timecode can be read from the system clock, from an internal timecode source, from MIDI or from Winamp. Internal timecode is useful for programming a sequence which will later be triggered by an external timecode source. MIDI timecode is only available if you have a U-DMX board connected.

1> *Connect the cue list for which you want to set timecode.*

2> *Press [Timecode] on the top-level menu.*

3> *Press Softkey A to select the desired timecode source.*

4> *Press [Record].*

5> *Start the timecode source. If using internal timecode, press [Play] to start it.*

5> *Press the red Go button to step each cue at the time you wish the cue to start.*

6> *Press [Record] when you have finished.*

To play back a timecoded cue list, press [Connected Cue Lists] and select the cue list which is to be played. Then press [Timer …] to enable the timecode input.

When you start the timecode source (or press [Play] if using internal timecode), each cue will fire as the timecode matches its programmed time.

You can edit the timecode for each cue by using Wheel A to select the cue, then press Enter and type the new timecode for the cue.

While editing a time you can also use Wheel B to select multiple cues, and use the softkey options to enter a value to change the time of all the cues (offset, add a fixed time or subtract a fixed time).

You can open a timecode display window to show you the incoming timecode – press [Open Workspace Window] then [Timecode].

8.7   Advanced options

Advanced cue list options are set from the Playback Options menu.
You can enter the playback options menu by doing the following

1>   At the top level Program Menu press [Playback Options].

2>   Press the blue Swop key for the cue list you wish to edit.

8.7.1   Release mask

[Release Mask] lets you specify using the softkeys which attributes
will be released to their default state when the playback is killed. You
can also use the Attribute Bank buttons on the right side of the
console to set the mask. The default setting is to not release any
attributes.

8.7.2   Fader mode

This option sets how the cue list fader behaves. If set to [Fader Mode
Intensity Kill With Off], the fader masters the overall HTP level and
the cue list remains active (connected) even when the fader is
lowered to zero. If set to [Fader Mode Intensity Kill At 0], the fader
masters the overall HTP level and the cue list is killed when the fader
is lowered to zero. If set to [Manual Crossfader] the fader behaves as
a manual crossfade control, and the cue list will automatically step on
to the next cue when the fader reaches the top or bottom of travel.

8.7.3   Handle Paging

This option allows you to lock the playback on a handle so that it
always appears on that handle no matter what page is selected.

If you select "Transparent Lock" then the playback will appear on the
current page if no other playback is programmed in that position.

8.7.4   Cue Options

This option allows you to change settings for each cue in the cue list.
To select the cue number to edit, press softkey A then enter the cue
number on the numeric keypad.

- [Curve] allows you to set a different fade curve for the cue; this
  affects how the fade progresses from one cue to the other (for
  example you can select a fade which starts off slow, speeds up
  in the middle and then slows down at the end). Press H then
  select a new curve from the softkeys. The effect of the various
  curves is described in section 11.6 on page 132.

- [Link] can be set to Press Go, With Previous Cue or After
  Previous Cue. See section 8.6.2 on page 103.

- [Preload] allows you to make this cue load the LTP values from
  the next cue within the cue list (for example to pre-position
  some fixtures for an effect).

- [Legend] allows you to set a legend for the cue which is
  displayed on the cue list display.

- [Notes=] lets you enter a note for the cue ("Leaves stage
  pursued by bear" or "wake up spot operator").

8.7.5 Autoload

This option allows you to automatically load a playback with a cue and is described in section 8.1.3 on page 97.

8.7.6 Key Profile

Each playback can have an individual Key Profile allocated to it. This allows you to customise the panel button functions differently for each playback. A list of available Key Profiles is shown, or you can add a new one. The softkeys show the function allocated to the blue and grey buttons for each of the available Key Profiles.

If the playback Key Profile is set to "None", the default global profile is used.

9.   Running the show

This chapter contains: Operating modes, master faders, manual control during a show, setting up workspaces

9.1   Playback

9.1.1   Back up the show

At regular intervals while you are programming, and when you have finished programming (or you've run out of time) and it's showtime, the most important thing is to back up the show to USB pen drive or floppy disk. Even saving it as a new file on the internal disk is better than nothing (see section 0 on page 27 for instructions).

9.1.2   Operating modes

If your show is being operated by a lesser mortal, turn the key to Run and remove the key. This prevents anyone from altering the programming of the console. However the operator can still select fixtures and adjust attributes live.

Expert users can run the console in "Program" mode to allow more flexibility in running the show and live updating of the programming.

9.1.3   Master faders

In the top left hand corner of the console are the Master Faders. These allow overall intensity control of the whole console.

- The Add/Flash and Swop masters control the intensity of the Flash and Swop buttons on the playbacks. This allows you to flash the playbacks to a certain level. It also allows you to disable the Flash buttons by setting the master at 0. (If you turn the Swop master to 0 you will get a blackout if you press a Swop button).

- The Preset Master controls the overall intensity of any channels turned on in the Preset faders.

- The Grand Master controls the intensity of all output from the console. Normally you would set this at full, and use it if you need to quickly fade out all the lights.

9.1.4   Flash and swop buttons

The Flash and Swop buttons on the playback faders may be used at any time to flash and solo cues and chases. The Flash button adds the playback into the current output, the Swop button turns off all other output. You must have the key set to Run mode to use Flash and Swop.

In Run mode you can also flash and swop individual fixtures or dimmer channels using the Select/Swop and Palette/Flash buttons below the preset faders.

You can reallocate the functions of the Flash and Swop/Select buttons on the console using Key Profiles – see section 11.3.4 on page 126. A useful alternative function is Preload which allows you to preset the attributes of the fixtures before you raise the playback fader, which is handy for avoiding visible changes (any fixtures which are already

active in another playback will not change when you use Preload). You can also allocate Go and Stop buttons for cue lists and chases. To quickly change the key profile, hold Avo Shift and press C [Edit Key Profile].

The Touch Wing playbacks display shows the allocated function of the blue and grey buttons on the playbacks.

Go	Swop
Preload	Flash
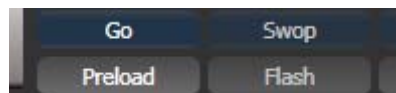
9.1.5 Playback priority

You can set playbacks to high priority if you do not want them to be overridden by other playbacks using the same fixtures. For example, if you have a couple of fixtures acting as a spotlight, but they are also programmed into some colour washes, you probably want the spotlight cue to take priority over the colour washes. See section 6.7.5 on page 82.

9.1.6 Blind mode

You can set the console to Blind mode by holding down the Avo button and selecting [Blind]. This allows you to program cues using the visualiser window without affecting the look on the stage.

9.1.7 Manual control during a show ("busking")

If you have not had as much programming time as you would have liked, you might need to make up some additional effects during the show. This is sometimes called "busking", and is where the fun starts!

You can create instant variations by recalling palette values to modify your existing cues. The Pearl can fade to the palette values for added effect.

1> Select some fixtures which are already in use on stage..

2> Type "2" (or any time, in seconds) on the numeric keypad.

4> Press a Palette button to recall a palette.

5> The selected fixtures will change to the new palette over a time of 2 seconds.

When a fade is entered, you can also change the "Fixture Overlap" using softkey A. This allows you to create "roll" or "peel" effects when using a series of fixtures. With overlap=100%, all fixtures change at the same time. If overlap=50%, the second fixture will not start its fade until the first fixture is half way (50%) through fading. The order of the fixtures is set by the order in which you selected them.

The fade remains active while the Palette Fade menu is open. Press Exit to leave the menu to stop fading.

If you apply a palette with a fade time, then it will be overridden by the next cue (so if you fade to green using a palette, then fire a cue which sets those fixtures blue, they will go blue). If you apply a palette without a fade time, it will go into the programmer and override any subsequent cues (so if you use a green palette with no fade, the fixtures will be locked in green until you press Clear).

Having the palette overridden by the next cue is quite useful when "busking". If you need to "snap" a palette but still have it overridden by the next cue, set a fade time of 0 (leaving the Palette fade menu open).

When programming your palettes, group all the colour palettes in one area of the console, position palettes in another area, and so on. This helps you to find them when the show is running and the pressure is on.

If you are lighting a band, make position palettes for every person on stage so you can spotlight them for those unplanned solos.

You can use the Off function (see section 6.3.4 on page 77) when programming to set some cues to only affect position, and other cues to set colours, gobos, add shapes, and so on. By combining two or more cues you can produce a much wider range of effects than if all your cues set all the attributes. However, for this to work well you need to make sure you know what attribute is going to be affected by each cue; as if you fire two "colour only" cues then nothing is going to light up.

9.2   Workspaces on touch screen and VDU

The Pearl allows you to configure "workspaces" which store how the various windows are displayed on the external VDU and on the Touch Wing. On the Touch Wing, workspaces are stored and recalled from the touch buttons to right of the screen, or can be stored and recalled using the grey handle buttons on the main console.

Note: To enable and disable the VDU, turn the key to System and select [Display Options].

9.2.1   View menu

Pressing View (right of numeric keys) takes you into the View menu. From here you can set up what is shown on the Touch Wing and the external monitor.

- [Window Options] allows you to reposition and resize windows, and to move them between the Touch Wing and the external monitor.

- [Open Workspace Window] allows you to open and close all the possible windows.

9.2.2   Pearl Titan application window

The View menu on the Pearl Titan application window lets you show various useful displays. Some of the options do nothing in this version of the software.

9.3   Organising the console

If the layout of the fixture buttons, palettes or playbacks has become a bit mixed up during programming, you can use the Move function to move recorded items around and produce a better layout. When an item is moved, all links to other recorded items are retained.

9.3.1 Using the Move function

To move fixtures, palettes, groups and playbacks is very simple.

1> Press Avo+the blue Photocopy button to select Move mode.

2> Press or touch the select key(s) of the item(s) to move.

3> Press or touch the select key of the destination.

When moving a range, it is possible to select a range containing different types of items, and there can be gaps between them. In this case, you can set option B to [Bunch Up] to have all of the gaps in the range removed.

[Swap Items if Required] will attempt to reposition any existing handles which are in the way of the move. This is useful when rearranging handles on a page which is nearly full.

If there is not enough space, (there is an item in the way or there is not enough space before the end of the page) then the action will not be completed.

10. Remote control

This chapter contains: Setting up the remote control; using the remote control.

With the addition of an external Wireless Access Point, the Pearl can be remote controlled using Wi-Fi from an iPod Touch or an iPhone. This can be invaluable when rigging, testing and focusing. You can also run playbacks and reset fixtures from the remote.

The remote function operates from a web page on the console which is accessed using the web browser in the iPod/iPhone.

10.1   Setting up the remote

This is a basic setup assuming that the console is connected directly to an access point. For more complicated networks, please consult your network administrator. For information on setting up your Wireless Access Point please refer to the documentation provided with it.

10.1.1   Network setup

You need to set up the network settings on the Wireless Access Point, the iPod and the console so that they can communicate with each other.

1>   *Give the access point an IP address such as 192.168.0.1.*

2>   *Make sure wireless is switched on.*

3>   *Take note of the name of the wireless network (SSID).*

4>   *Connect an Ethernet cable from the back of the Expert to the access point.*

5>   *Set the IP address of the Expert: Turn key to System, select [Network Settings], press [Local Area Network], then press [IP address] and change the IP address to 192.168.0.2. press [Save Settings] to store it.*

6>   *On the iPod Touch or iPhone go to Settings > Wi-Fi.*

7>   *Ensure Wi-Fi is set to on.*

8>   *Select the wireless network from the list, the name you took note of earlier.*

9>   *Select the blue arrow next to the network name to change settings for that network:*

Select Static, type in an IP address such as 192.168.0.3 and type in a subnet mask 255.255.255.0. Finally exit iPod settings.

10> *Test that the iPod is connected to the Expert: From the Avolites toolbar on the console VDU, open Command Prompt. Type in "ping 192.168.0.3" and then press return. If it displays "Reply from 192.168.0.3" then the test was successful.*

10.1.2 Console setup

You need to set the console to allow connections from the remote device.

1. *On the Pearl, turn the key to System and press [AvoTalk Security] then [Remotes]. Press the softkey A toggle until it reads "Allow All Remotes".*

2. *Connect to the console from the iPod by opening Safari and typing in the address: http://192.168.0.2/Remote/ (where "192.168.0.2" is the IP address of the Pearl Expert which you set earlier).*

3. *Choose a user name and type that into the box on the iPod and press Create.*

4. *The console will notify the operator of the remote request showing the user name you provided. The operator then chooses whether to allow or deny the remote.*

5. *The console provides a 5 digit key which needs to be typed into the iPod to pair the remote. Steps 3, 4 and 5 only need to be done the first time an iPod is connected; the remote will connect automatically from then onwards.*

6. *The remote is now ready to control the lights patched on the console.*

The options on the Remote menu Softkey A are:

Remotes Disabled - No commands will be accepted from paired remotes, new pair requests will be ignored.

Allow Paired Remotes - Only allow commands from previously paired remotes, new pair requests will be ignored.

Allow New Remotes - Allow previously paired remotes and display pair requests to the user for confirmation.

Allow All Remotes - For the current version of the remote this is roughly equivalent to the previous option.

Pair requests will only be displayed when in System and Program modes and when one of the last 2 options is selected.

At showtime, you should select one of the first 2 options to ensure you don't get any interruptions.

The Remote menu shows a list of paired remotes on the softkeys. Selecting a remote gives you the option to temporarily disable that remote or to delete it from the system.

10.2 Operating the remote

To connect to the console, open the Safari browser and type in the address of the console; if set up as described above this will be: http://192.168.0.2/Remote/

The remote screen always shows a header with a view selector, to choose which options to view, and a clear button.

10.2.1 Keypad

The keypad screen lets you do most common tasks. You can turn on/Locate fixtures and dimmers either singly or together, and a further screen allows macros.

The User Number of the fixture or dimmer is used for control. For example to turn on dimmer 3 at 50% you would press:

3@5

To turn on dimmers 1-10 at 80% you

would press:

1 Thru 10 @ 8

For 100% you just press @ twice, for example

1 Thru 10 @ @

To locate one or more fixtures, press Locate instead of the @ button. You can select multiple ranges of dimmers or fixtures using the And button, for example *1 Thru 10 And 20 Thru 30 @ 6*.

The More button allows further commands on the selected dimmers of fixtures. For example to turn On the dimmers at the level set in the User Preferences you would press

1 Thru 10 More On

There is also a Locate No Pan and Tilt option on the More screen which turns on a fixture but does not change its position.

The Macro button allows you to operate setup features of fixtures such as Reset, Lamp On, Lamp Off.

To operate macro functions, select the required fixtures, then press More, then Macro, then press the macro function you want.

For example to reset fixtures 1 to 10 you would press

1 Thru 10 More Macro Reset

10.2.2 Fixture List

The fixture list view shows you all the fixtures in a familiar spreadsheet style, including the user number, fixture type, DMX address and legend. A drop down "Action" list sets an action which will be activated when you select a fixture.

For example if the action is set to Locate, pressing a fixture once will locate it, and pressing the same fixture again will switch it off again (dimmer at 0%).

The All button selects all fixtures, or click on a fixture in the list to select it. When using "all fixtures" you need to click OK to carry out an action.

You can alter the sort order of the list by clicking a column header. An arrow indicates which is the current sort column (the leftmost column, User Number, in the picture). To reverse the sort order, click the column header again.

Fixtures in the Programmer are highlighted in Blue. Fixtures in the Editor are highlighted in Cyan.

You can filter fixtures using the Legend text by typing text into the Filter box. For example typing "drum" into the filter box would show only fixtures 14 and 13.

The dropdown box above the fixture type allows you to filter the list to only that type of fixture as shown in the picture.
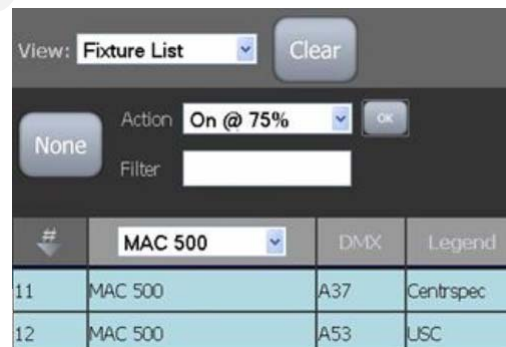
10.2.3 Playback List

The playback list view shows you all the playbacks including the playback type and legend. A drop down list allows you to carry out actions on the playbacks including "on @ level" (for example Full, or

50%), and "Off". Once the action is selected, pressing a playback in the list will immediately perform the action.

Again you can sort and filter the playbacks using the Filter box to filter by legend, or the column headers.

The "Back" and "Go" buttons are used for CueLists which will be enabled in a future software release.

10.2.4   Settings screen

The Settings screen allows you to configure the On level and other options for the operation of the remote.
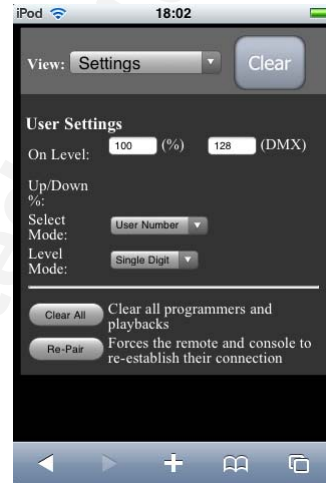
10.3   Troubleshooting

If you have problems setting up the remote, try the following steps:

Try connecting locally on the console by typing "http://localhost/remote" into Windows Explorer address bar. This should display the remote screen.

Open Command Prompt on the console and ping the IP address of the iPod as described in step 10 of Network setup.

Clear cookies and cache on the iPod under Settings - Safari.

Delete remotes from the list on the console (System > AvoTalk Security > Remotes)

Choose "Restart Titan Remote" from the additional programs menu on the shell.

11. User Settings and other options

This chapter contains: Configuring the workspace; Key Profiles; Setting the Tiger Touch options using the VDU menu; the Utilities menu; Curves; upgrading the software.

The Pearl has a large number of options to help you set it up just the way you like it. Commonly used options can be set from the User Settings softkey; you can also set a wider range of options using the onscreen Tools menu (on the VDU menu bar).

In this chapter there is also information on how to upgrade the application software.

11.1   Workspace setup on VDU and Touch Wing

The external VDU and the Touch Wing can each show up to 4 workspace windows. Workspaces can be saved to a grey handle button or to a touch button on the Wing and called back immediately.

Some windows have associated touch buttons, when the window is active these are shown in the "context buttons" area on the top right of the touch screen.

11.1.1   Opening workspace windows

You select which workspace windows you want to see using the [Open Workspace Window] menu command on the root menu or the View menu, or by pressing the appropriate Window Selection button below the screen on the Touch Wing.

11.1.2   Selecting and positioning workspace windows

To change the position of a workspace window you first make it active using the [Select Window] command on the View [Window Options] menu, or you can touch or click on its header bar.

You can change the positions and sizes of the active window by using the Window Control buttons below the screen on the Touch Wing, or the softkeys in the Window Options menu. The min/max button swaps the active window between full screen and quarter size. The size/position button moves the active window around the possible positions.

Some possible window sizes/positions are shown below.

Quarter size   Double wide   Double height   Maximised

You can move the active window between the external VDU monitor and the Touch Wing by pressing View then [Window Options] then [Move Screen], or press Avo and the Size & Position button. If you need to activate a touch button on the VDU, you can click it using the mouse trackpad on the keyboard.

You can close the active window using the Close button. You can close all windows by pressing Avo+Close, or use the [Close All] softkey.

In addition to the window menus, shortcuts are provided on the QWERTY keyboard as follows:

- F1 = Change screen
- F2 = Open Workspace Window (Live Search)
- F3 = Min / Max
- F4 = Size / Position
- F5 = Close
- Shift + F5 = Close All
- F6 = Open Playbacks Window
- F7 = Open Fixture Window
- F8 = Open Group Window
- F9 = Open Colour Window
- F10 = Open Position Window
- F11 = Open Beam Window
- F12 = Open Channel Grid Window

11.1.3 Saving workspaces

You can save different workspace setups to a grey handle button or to the Workspaces touch buttons on the Touch Wing by pressing View then [Record Workspace], then pressing a grey handle button or touching one of the Workspaces buttons. This allows you to reconfigure the entire workspace with the touch of one button.

Workspaces are saved with the show.

As an example of setting up a workspace, suppose while programming you wanted to be able to access fixtures, position palettes, fixture attributes and shapes:

1>   Press Exit to get to the root menu then the [Open Workspace Window] menu softkey.

2>   Find the [Fixtures] window in the list and press it.

3>   If the window is not in the top left quarter, use the Size and Position softkey on the View [Window Options] menu or press the Size & Position button on the Touch Wing until the window occupies the top left quarter

4>   Press [Open Workspace Window] again and select the [Positions] window. Press the Size & Position button to position it in the desired location.

5>   Repeat to activate the [Attribute Control] and [Shapes] windows.

6>   Press View (to the right of the numeric keys) then [Record Workspace], or hold Avo and press View.Type in a name for the workspace. Then press a grey handle button or touch the Workspace button where you want to store this workspace layout. Or, you can use Quick Record – just touch an empty

workspace button and it will turn red with a +. Type a name for the workspace and touch again to store it.

Workspaces		
Compatibility view	Fixtures & palettes	Fixtures & attributes
+		

• [Record Visible/All Windows] sets whether the workspace will contain only the windows which are currently visible, or will also include any windows which are hidden underneath other windows.

• [Remove/Leave other windows on recall] sets whether all other windows will be closed when this workspace is recalled.

11.1.4   Compatibility view

This workspace shows the "blue and grey handle" view, where the onboard preset fader handles are duplicated on the touch screen. The upper window shows fixtures and playbacks stored on the blue handle buttons. The lower window shows palettes and groups stored on the grey handle buttons.

When the compatibility view is opened, there is a context button option to [Move to workspace]. This will move the handles from the compatibility window to the appropriate workspace window. You need to do this twice, once with the "Fixtures and playbacks" window selected, and once with the "Palettes and groups" window selected. This will remove the items from the onboard preset fader handles.

The main purpose of Compatibility View is for moving shows between the Tiger Touch (which has no preset faders) and the Pearl Expert, or from earlier software versions.

11.1.5   Configuring the external monitor

The external monitor is connected to the VGA port on the Pearl. It should just work, but if it does not there are settings you can change.

• If the external VDU is showing a "disabled" message, switch to System mode and select [Display Setup] then press [External Display Disconnected]. The option will change to [External Display Connected] and the display will be enabled.

• If you need to change the VDU resolution or settings, touch "Tools" at the very top of the touch screen and select "Control Panel", then "External Monitor", then select the option to match the resolution of your monitor.

• For best performance of the console, disable monitor outputs you aren't using.

Troubleshooting

If you cannot see anything on either the touch screen or external monitor, there are some keyboard shortcuts that should in most cases reset all the screens back to their correct settings.

- Ctrl+Shift+Alt+Esc reset to factory default settings (1024x768 for external monitor)

- Ctrl+Shift+Alt+F1 (600x800 for external monitor)

- Ctrl+Shift+Alt+F2 (1024x768 for external monitor)

- Ctrl+Shift+Alt+F3 (1280x1024 for external monitor)

- Ctrl+Shift+Alt+F4 (1600x1200 for external monitor)

All of the above will reset the touch screen to the required resolution. The first shortcut is the preferred choice, however none of these should be used unless it's necessary (using the menu or Display Setting where possible). Once any of these keyboard shortcuts has been used, power off and restart the console to complete the changes.

If the console software is running, you may have to press Esc to unlock the keyboard before the shortcuts will work.

If none of the above works, the second solution is reinstall the graphics drivers.

1. Press F8 on start up and enable VGA MODE.

2. In Tools, Folder Options, View - enable Show hidden files and folders.

3. In Control panel, System, Hardware, Device Manager , Display Adapters - right click on 945GME and update driver.

4. Select the driver to install as C:\Windows\Inf\iegd.inf.

11.2   Key Profiles

The Pearl allows you to reconfigure how the front panel buttons work to suit your method of working. You can save your settings as a Key Profile. Different profiles can be selected for different users or to enhance the operation of the console for a particular use.

The Pearl has standard Key Profiles for Run mode, Takeover Run mode and Program mode. These standard profiles cannot be edited, so you always know how they will behave. You can create your own editable profiles using one of the standard profiles as a starting point.

The current settings of the playback buttons are shown on the playback area of the Touch Wing.

11.2.1   Creating and editing key profiles

To create or edit a profile, turn the key to System then select [Key Profiles]. You can then use the Manage Profiles menu to View, Edit, Add, Delete or Rename profiles.

When Adding a new profile, you can select an existing profile to copy settings from.

You can also edit Key Profiles from Program mode by holding Avo, then selecting [Edit Current Key Profile]. If the current key profile is one of the non-editable system ones, you are prompted to add a new profile or select an existing editable profile.

The current settings for the [blue] and [grey] buttons are shown on the left side of the screen.

The groups of keys you can set are as follows:

Fixtures: the blue, grey or touch key can be allocated to Disabled, Select, Flash, Swop, Latch. The "Latch" function is equivalent to putting the fader to full for that fixture and touching again returns the fader to 0.

Palettes: the palette (grey) key can be allocated to Disabled, Prefer Palette. You can select if the palette function takes precedence over the flash function (if a handle has both palette and flash functions) or vice versa.

Groups: the group (grey) key can be allocated to Disabled, Prefer Group. You can select if the group function takes precedence over the flash function (if a handle has both group and flash functions) or vice versa.

Cues: the blue or grey key can be allocated to Disabled, Flash, Swop, Latch, Preload.

Chases: the blue or grey key can be allocated to Disabled, Flash, Swop, Latch, Go, Stop, Preload, Connect, Tap Tempo.

Cue Lists: the blue or grey key can be allocated to Disabled, Flash, Swop, Go, Go Back, Stop, Preload, Connect, Next Cue +, Next Cue -, Review Live Cue, Cut Next Cue To Live, Snap Back.

Macros: can be set to Select or Prefer Macro (the Macro function will take precedence over other functions stored on the button).

Quick Record: allows you to disable the quick record function.

11.2.2   Selecting a key profile

A Key profile is selected in Run mode by pressing Softkey B and selecting the desired profile from the list. In Program mode, hold the Avo Shift button and press [Select Key Profile].

11.2.3   Individual Key profiles for playbacks

Each playback can have an individual Key Profile allocated to it. This allows you to customise the panel button functions differently for each playback. The Key Profile for the playback is selected using the [Key Profile] option on the Playback Options menu (Softkey B on the main program menu). If the playback Key Profile is set to "None", the default global profile is used.

11.3   The System menu

The Pearl System menu is accessed by turning the key to System. The options in this menu are separated from the other options on the console because you would normally only change them occasionally, or because they can have serious effects on the way the console works and you wouldn't want to change them accidentally.

Note: When the key is turned to System, playback control, preset controls and programming buttons are all disabled.

11.3.1   Avotalk Security

This option sets how the console communicates with Active Fixtures and with Remotes. See section 13.6 for details of Active Fixtures and 10.1 for information about Remotes.

11.3.2   Network Settings

This option sets up networking (Ethernet) parameters for the console. See section 13 for details.

11.3.3   User Settings

The User Settings menu may also be accessed from Program mode: hold down the Avo Shift button and press [User Settings].

- *[Prompt for Merge or Replace…]* sets the console action when you try to save to a handle or playback which is already used. The options are [Prompt for Merge or Replace] - the console will always prompt, [Always Merge] - the console will never prompt or [Palettes Always Merge] - the console will prompt unless you are saving a palette.

- *[Warn before parking fixtures …]* sets the console action when you patch a fixture which overwrites the DMX channels of another fixture. This causes the overwritten fixture to be "parked" The options are [Always] (console will warn you) and [Never] (console will park the fixture without warning you).

- *[Tempo Units…]* sets the units for displaying tempo. The options are [Beats per Minute] or [Seconds].

- *[Connected View … Chase Speed]* sets the console action when you change the speed of a connected chase. [Connected View Sets Temporary Chase Speed] means that the console will not save the modified speed, and the next time the chase is fired it will go back to its programmed speed. [Connected View Sets Chase Speed] means that the console will modify the saved speed of the chase.

- *[Auto Connect…]* sets whether Chases and Cue Lists will auto-connect to the wheels when the playback is fired. The options are [Auto Connect Chases and Lists] and [Auto Connect Off].

Press F or G to access the other pages of options…

- *[Channel Levels…]* sets how you enter channel levels when using numeric entry of levels. If set to [Channel Levels Set In Tens], you enter one digit for the channel level (e.g. 5 = 50%). If set to [Channel Levels Set in Units] you enter two digits, i.e. 50 = 50%.

- *[Preload Time]* sets a fade time for the Preload function, normally 2 seconds. This value would normally be set for quiet fixture movement.

- *[Key Profiles]* accesses the key profiles menu which can also be found on the System menu. The option is also found here so that you can access it using the Avo Shift button. See section 11.2.

- *[LED Levels]* sets the behaviour of the LEDs in the Select buttons. [Fixture LEDs Show Occupation] means that the LEDs will light dimly to show patched fixtures and brightly to show selected fixtures. [Fixture LEDs Mimic Intensity] means that the LED brightness will mimic the intensity of the fixture. [Adjust Empty and Occupied Levels] and [Adjust Selected And Programmer LED Levels] let you set the actual levels of the LEDs for the different status indications, using the wheels.

- *[MIDI timecode]* This option lets you select the settings for glitch detection, tolerance and timeout when using MIDI timecode.

- *[Wheel sensitivity]* The sensitivity of the encoder wheels, and the pan/tilt threshold settings can be adjusted using this option. Wheel sensitivity is adjusted using Wheel A and the current level is shown on the display.

- *[Handle Buttons]* lets you set the size of the touch buttons to [Small], [Normal], [Large] or [Super Size].

11.3.4   Key Profiles

Allows you to modify the functions of some buttons. See section 11.2.

11.3.5   Contrast And Brightness (Lamp Intensity)

While you are in the System menu you can use the Wheels to adjust the Contrast and Brightness of the onboard LCD display, and also the brightness of the desk lamps. This option toggles the function of the Wheels. The current function is shown on the display above the wheels.

11.3.6   Wipe

The Wipe menu erases the current show. This is the same as the [New Show] option on the Disk menu, but is provided here for experienced Pearl users who are used to it being on the System menu.

11.3.7   Display Setup

This option gives you a menu for enabling and disabling the external VDU monitor and Touch Wing. If you don't have a monitor and/or the Touch Wing connected, set the option to "Disabled" to improve the performance of the console.

The Touch Wing option can be set to Auto Detect, Enabled or Disabled. Auto Detect is useful if you sometimes use the Wing and sometimes not. If you never use it, set the option to Disabled.

11.3.8   DMX settings

This option allows you to configure the DMX outputs of the console and is described in the next section.

11.4   DMX output mapping

The Pearl allows you a lot of flexibility in how you connect fixtures to the console. As well as the 4 sockets on the rear of the desk, you can connect fixtures using Ethernet and wireless links.

11.4.1   Configuring DMX outputs

Turn the key to System and select [DMX Settings] on the second page of options. The screen shows a list of available DMX nodes (places where you can send the DMX to) on the left, and a list of the 12 available DMX lines (outputs from the console) on the right. Each DMX line can send data to one or more nodes. If you assign more than one node to a line, those nodes receive duplicated data.
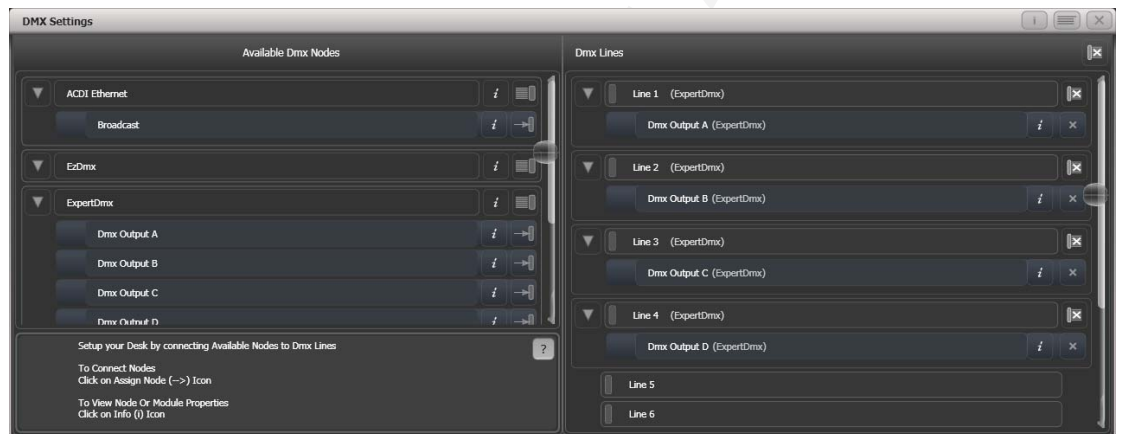
You can individually assign Nodes to Lines using the arrow button, or assign all Nodes of the same type using the group assign button. For example, to assign the four XLR output sockets on the back of the console to for DMX lines, you would click on the Group Assign button of the ExpertDMX nodes.

Group assign   Individual assign

Group delete   Individual delete
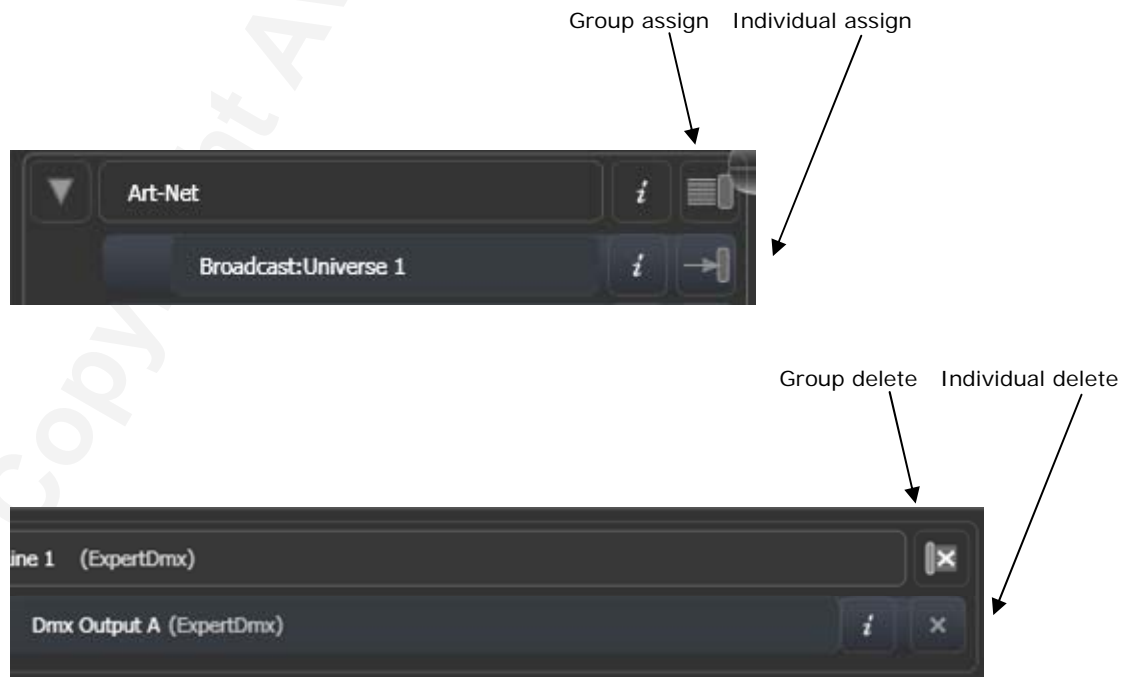
To delete a node from the DMX lines, click on the X button. To delete all nodes from a line, click on the Group delete button

You can show information about the DMX nodes, or the DMX lines, by clicking the i button.

11.5 Titan Tools menu

Some "system" options on the Pearl can also be set from the Tools menu on the Titan application. Use the "Switch Task" command on the Tools menu to bring the Titan application to the front.

11.5.1 Virtual Panel

The virtual panel will be accessed from the Avolites shell toolbar and this option is obsolete.

11.5.2 Visualiser

This option is obsolete.

11.5.3 VDU User settings

The user settings menu on the VDU allows you to configure a few options you can't set using the console.

If the console has different users, each user can have their own option settings. You create new users or select from a list of existing users by clicking the user Change button at the top of the screen. You can also use the File → Change User menu command.

To add a new user, click the Add User button in the Change User dialog and type a user name. To select an existing user, click the username in the list then click OK.

The user settings menu has the following tabs:

General tab
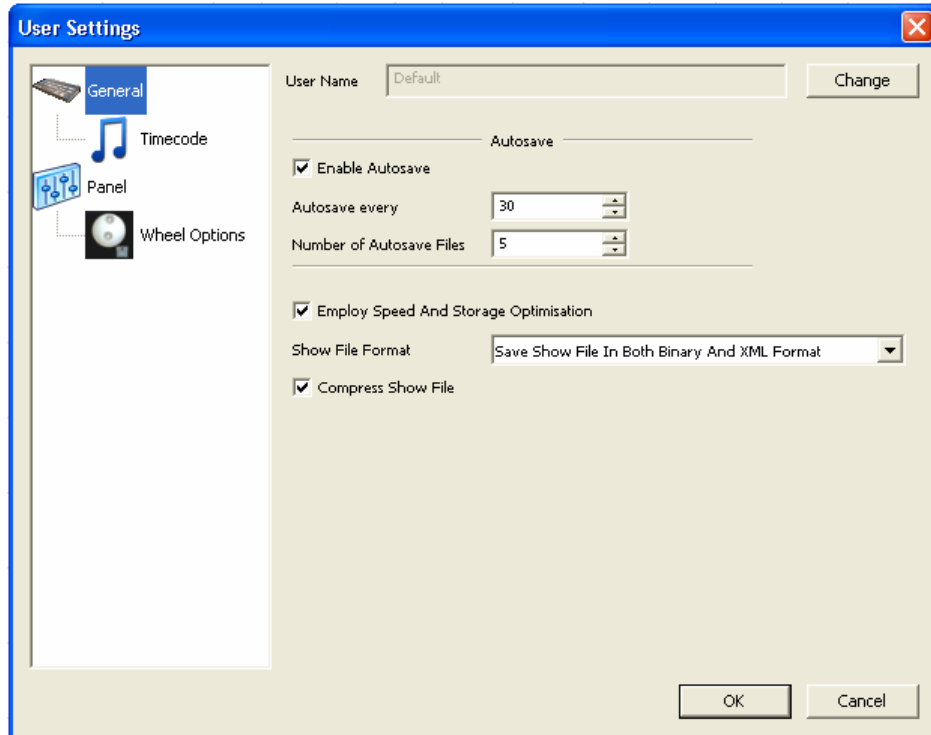
Autosave enables or disables the autosave option and allows you to set how often the show is saved, and how many previous versions are saved. You can also adjust this from the Disk menu.

Employ speed and storage optimisation will speed up loading and saving by not saving "off" and "on" mode information.

Show file format allows you to change the file format to enable compatibility with earlier software versions.

Compress show file will cause the Pearl to compress the file before saving.

Wheel options tab
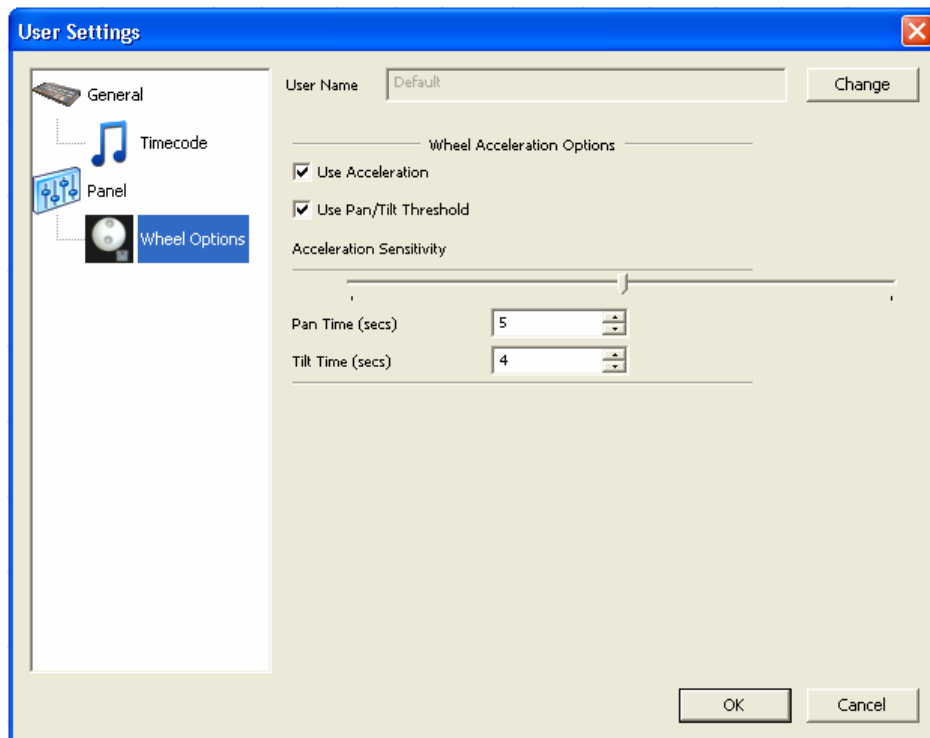
Wheel acceleration options set how the wheels behave when you spin them.

11.5.4   Factory settings

The factory settings menu sets low-level operation of the console. of the console.

The top drop-down box allows you to set what type of console hardware is fitted. You would only change this selection on the simulator, to simulate the correct type of console.

The *base directory* allows you to change where the operating files and show files are stored.

Show heartbeat on LED: No effect on this console

Log panel keypresses: All keypresses are logged to a file on the hard disk. This enables Avolites to reconstruct what you've done, should a problem occur.

DMX Properties..: Allows you to modify the timing of the DMX generated by the console, if you have problematic devices which need specific timings.
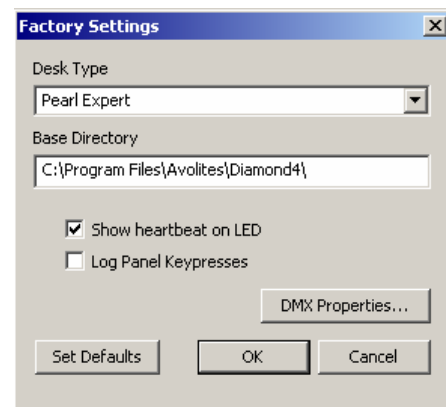
11.5.5   Exchange fixture

The Pearl allows you to exchange fixtures in your show for entirely different fixtures while retaining the show programming. This feature is described in section 2.2.5 on page 37.

11.5.6 Setup DMX outputs

This option allows you to setup how the 12 DMX universes produced by the console are output. This is described in detail in section 13 starting on page 141.

11.5.7 Hotkeys
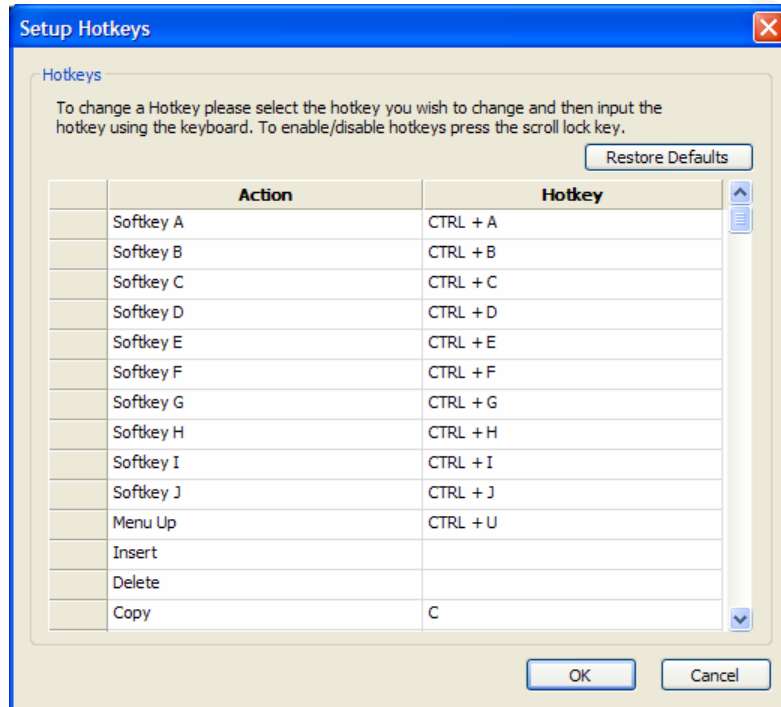
You can assign panel function keys to keys on the QWERTY keyboard using this option. This is useful when using the virtual panel, and may also be handy to customise the operation of the real console. To set or view hotkeys, click Tools, Set Hotkeys.

Switch on scroll lock on the keyboard to enable the hotkeys feature.

11.6 Curves

The Pearl provides a variety of curves which set how the console tracks the fade; either the same speed all the way (linear), or starting and ending gently but faster in the middle, and various other options.
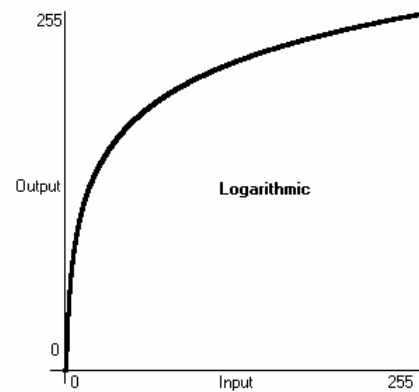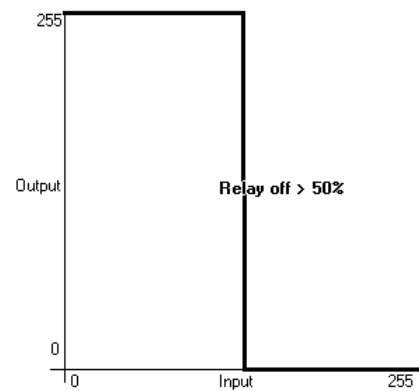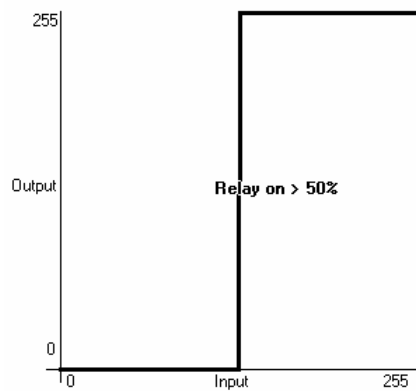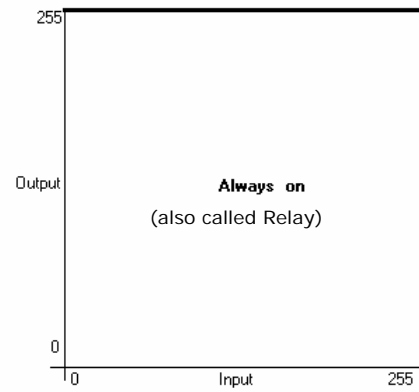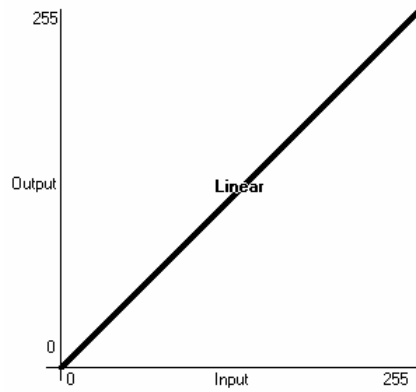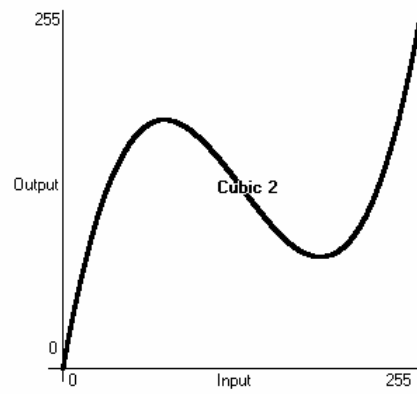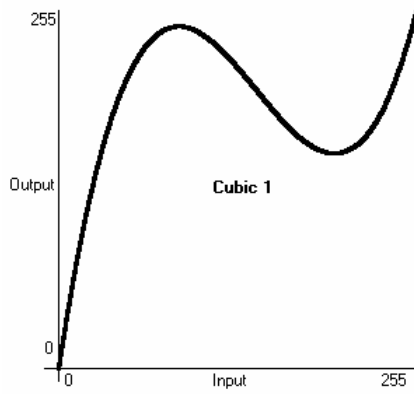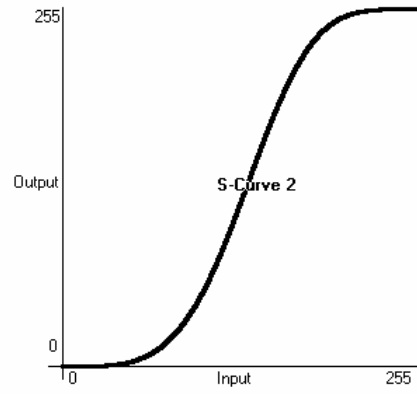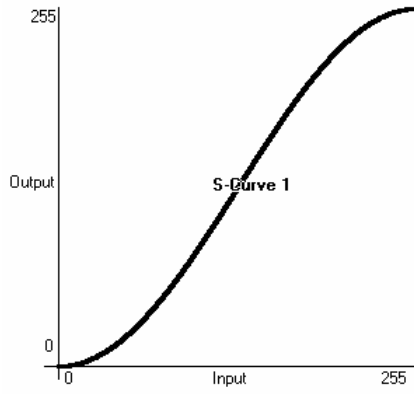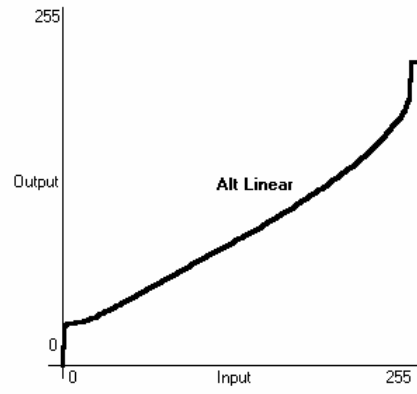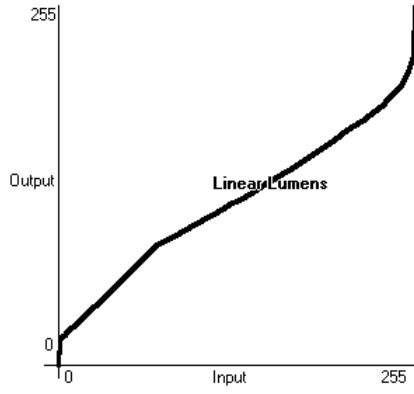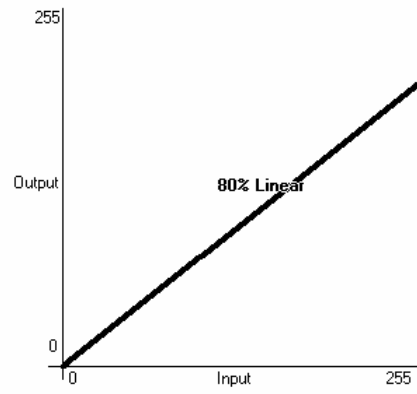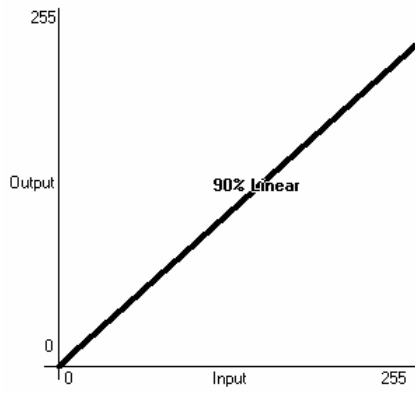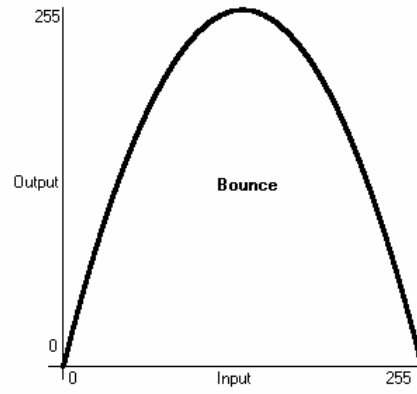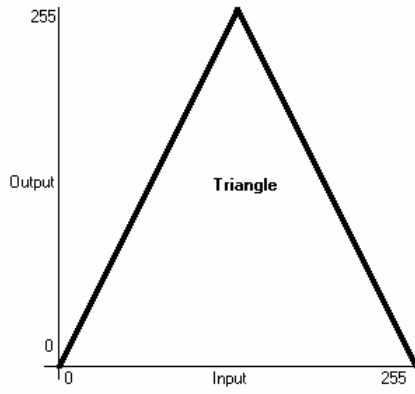
11.7   Upgrading the software

The Pearl Expert Titan operating software is under constant revision by the Avolites team. You can always download the latest version of the software from the Avolites website: http://www.avolitesdownload.com

Having downloaded a new version of software, copy it to a CD Rom or a USB pen disk and install it on the console like this:

1>   *Copy the install file to a CD Rom or a USB pen disk.*

2>   *On the console desktop, stop the Pearl software using the options on the VDU Tools menu.*

3>   *Open Control Panel and select Add/Remove program.*

4>   *Locate the existing Pearl Expert Titan software version and uninstall it.*

5>   *Select Add New Programs and browse to the new installation file.*

6>   *When the installation has completed, click the Restart Software button.*
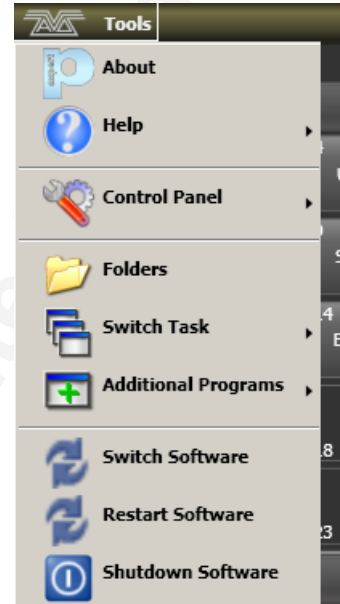
12. Working with Fixture Personalities

For each type of fixture, the Pearl has a "personality" file which tells it how to control the fixture, which channel is the dimmer (HTP) channel, and a large amount of other fixture-specific information. When you patch each fixture, you tell the Pearl which personality to use for it.

The Pearl holds a wide range of fixture personalities internally in the "personality cache", but you might find a fixture it doesn't know about. This section explains what you do when this happens.

12.1.1 Downloading fixture personalities from Avolites

The Avolites website lists all fixtures for which personalities have been created. You should look here first if the console does not contain a personality for your fixture. The address is

http://www.avolitesdownload.com/personalitylibrary

All available fixture personalities are listed down the left side of the screen. You can use the boxes on the top left to filter the list to show fixtures from specific manufacturers, or fixtures available for a certain console, or to search for a specific fixture name.

Note: The Pearl Expert Titan uses different personalities to the normal Pearl Expert software. Ensure you have selected "Pearl Expert Titan" in the "Desk" field

Click on the fixture name to open the details in the right hand window. This shows all the personalities available for that fixture type (if you have entered the console type on the top left, only personalities for that console will be displayed).

If there is a personality listed for your fixture on the Pearl Expert Titan, download it by clicking on the Disk icon. This will download a copy of the complete personality cache.

12.1.2   Updating the personality cache on the console

Download the current Pearl Expert Titan personality cache by clicking on the disk icon in the Cache column for any fixture. Alternatively you can get this file by clicking on the Download link at the top of the screen, then clicking on Pearl Expert Titan.

Then use the following procedure.

1>   Copy the downloaded file PearlExpertTitanFixtureLibrary.exe onto a USB stick or CD.

2>   On the VDU, click on the folder icon at the top of the toolbar.

3>   Locate the PearlExpertTitanFixtureLibrary.exe file either on CD or usb stick and double click on it to run it. Click "Ok" on the warning box.

4>   If you had any custom fixture personalities installed, copy them from the C:\Program Files|Avolites|Titan\FixtureLibraryBackup folder into the FixtureLibrary folder.

5>   Shut down and then restart the console.

The Pearl Expert Titan caches the FixtureLibrary folder when the Patch option is used. You therefore need to restart the console to ensure new fixture personalities are loaded (restarting the Pearl Expert Titan application is sufficient).

Once a fixture is patched, its personality is embedded in the show file. Any changes to the fixture library will not affect fixtures patched in the show.

12.1.3   Requesting a new fixture personality

If a personality does not exist for your fixture, Avolites will create one for you. Click on the "Request" link on the above web page to submit your request. A list of current requests is shown.

Your new personality will be incorporated into the cache – to install the new personality, download and install the latest personality cache as described above.

12.1.4   Reporting a personality bug to Avolites

If you find a problem with a fixture personality, Avolites would like to know about it so it can be fixed. Search for the personality on the website then click on the "Report Bug" icon on the right of the screen. If you click on the "Bug Reports" tab at the top of the window, a list is shown of currently outstanding problems, so you can check if someone else has already reported the problem.

12.1.5   In an emergency

The Pearl contains a selection of "Generic" fixtures which you can use in an emergency if you need to operate a fixture with no personality. When patching, go through the manufacturer list until you find [Generic]. In this section (among other fixtures) are the following:

Multi-DMX: Has up to 10 DMX channels, all channels are LTP. You can select from 1-10 channels on the Mode screen. Press Attribute Bank and use the softkeys to select channels.

Generic RGB: Allows you to control an RGB fixture such as LED colour changers. This offers 5 modes:
1=Dim 2=R 3=G 4=B
VDim 1=R 2=G 3=B
1=R 2=G 3=B 4=Dim
VDim + 4xRGB
4xRGB.

VDim is a virtual overall dimmer channel for fixtures without a DMX dimmer control. When you use the Dimmer attribute the Pearl will adjust the RGB levels accordingly.

13. Networking

This chapter contains; Connecting to a Simulator with ACDI; Connecting to fixtures with ArtNet, eDMX and EzDMX; AvoTalk; explanation of IP addressing.

There are a number of ways for the Pearl to communicate with lighting fixtures beyond the traditional DMX sockets on the back of the console, which are described in this chapter. The Pearl also supports communicating with a number of different simulators/visualisers over various communication methods.

At the end of the chapter is a section which aims to cover the basics of IP addressing, which is essential for various features on the Pearl such as ArtNet.

Note: Lighting networks need to transfer of large amounts of data. For best reliability you should use network wiring which is dedicated to the lighting system and physically isolated from other networks. Connecting to an existing network with other network traffic is possible but can lead to problems both with the lighting equipment and with other IT equipment on the network. If you need to do this please read about the IP addresses you should use, in section 13.7.5.

13.1 Setting the Pearl's IP address

Before the Pearl can talk to another device over the network, it has to be given a unique network address. This is called its "IP address".

13.1.1 Setting IP address

We recommend that you use the Pearl's automatic IP setting function. However, if you need to you can also set the IP address using Windows Control Panel as shown on page 149.

1> Turn the key to System and press [Network Settings]

2> Press [Local Area Connection].

3> Press [Subnet Mask] and set to 255.255.255.0

4> Press [Set IP 2.*.*.*]

5> Press [Save settings]

6> Turn the key back to Program.

Some equipment may operate on IP addresses 10.*.*.* (softkey D) – see later in this chapter for details.

If you need a non-standard IP address range you can use softkey A.

13.2 Setting up DMX outputs

The Pearl has 12 DMX lines which can be routed to the DMX sockets on the rear of the console and can be sent out over the Pearl's Ethernet socket. The Setup DMX Outputs screen lets you determine where the DMX lines are routed to. Click Tools then Setup DMX Outputs on the Pearl's VDU menu to show the screen. (You can also now do this using the DMX Options button on the System menu).

13.2.1 Setup DMX outputs screen

On the left hand side of the screen, the 12 DMX lines generated by the Pearl are shown. On the right hand side is a list of nodes where the DMX can be routed to.
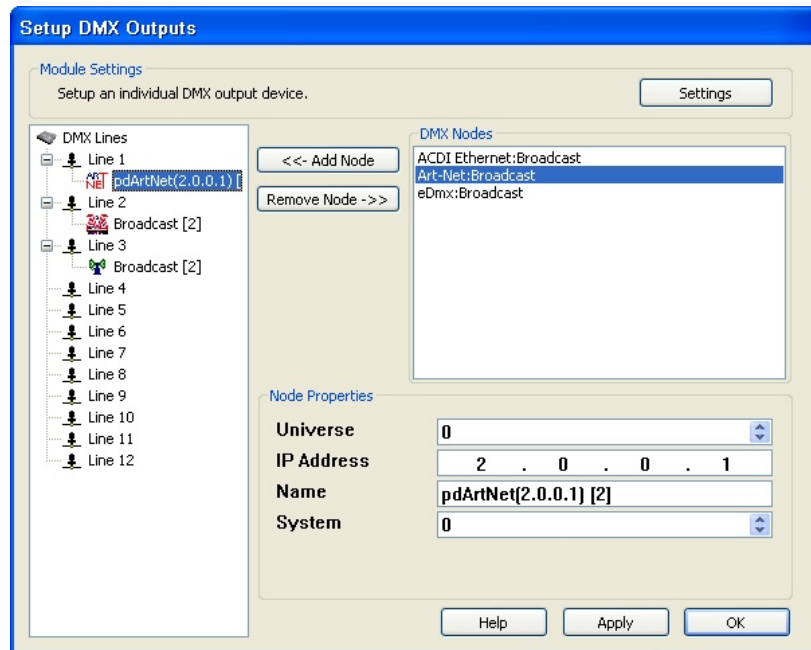
As an example we will add an ACDI node to DMX Line 1.

1> On the Pearl Titan application menu, click on Tools, Setup DMX Outputs. (Use Switch Task on the Tools menu to bring the Pearl Titan application to the front)

2> Click on Settings

3> Select the ACDI module.

4> Ensure that the correct Network adapter is set (this may not be the Default Adapter) and the Enable DMX Output box is ticked

5> Click OK

6> In the left panel, select a DMX line for the simulator

7> In the right panel, select the ACDI Ethernet node that you want to connect to

8> Click on Add Node. This will add an ACDI node to that DMX output

9> On the left hand side, select the node you have added. The node properties will be shown in the panel on the bottom right of the window

To remove a node from a DMX line, select the node (i.e. Broadcast 2) and click Remove Node.
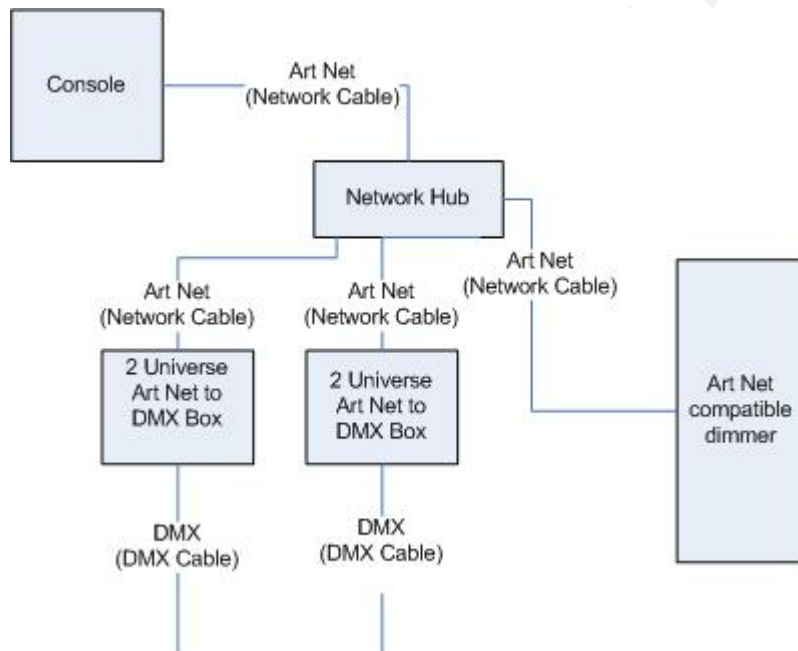
Each DMX line can be sent to multiple nodes (this will effectively create a duplicate DMX universe). However you must ensure that you do not send more than one DMX line to a single node, as this can cause problems.

13.3 ArtNet

Art Net is an open standard for transmitting Lighting information over Ethernet. It is not specific to one range of products, and is recognised and implemented by a growing number of manufacturers. Many products (such as Dimmers and Moving lights) can accept the Art Net signal directly, so there is no need to convert the signal to DMX. Most people will, however, need to output DMX to their equipment and this can be done using an Art Net to DMX converter.

13.3.1 A simple ArtNet system

In the following diagram, an Art Net compliant Console (such as the Pearl Expert Titan) is connected via a network hub to an Art Net compatible dimmer and 2 DMX conversion boxes.

Console — Art Net (Network Cable) → Network Hub

Network Hub → Art Net (Network Cable) → 2 Universe Art Net to DMX Box → DMX (DMX Cable)

Network Hub → Art Net (Network Cable) → 2 Universe Art Net to DMX Box → DMX (DMX Cable)

Network Hub → Art Net (Network Cable) → Art Net compatible dimmer

Once the system is connected together, the different outputs (or Nodes) can be configured.

- The dimmer is given the start address of 200

- The 1st DMX box is set to universe 1 and universe 2

- The 2nd DMX box is also set to universe 1 and universe 2

The console is then used to set the DMX lines to the Art Net nodes.

It is important to remember:

- Each Art Net to DMX box (or compatible Dimmer, or compatible moving light) is a device,

- Each device may have one or more nodes(i.e. the Art Net to DMX box has 2 nodes, these are the 2 DMX outputs; the dimmer itself is a node),

- Each node can be set to a Universe (1-256). This universe is equivalent to a 512 channel DMX line

You can then specify which console line is assigned to each node. A console line can be assigned to multiple nodes (this will duplicate the DMX universe), but each node should have only one console line assigned to it.
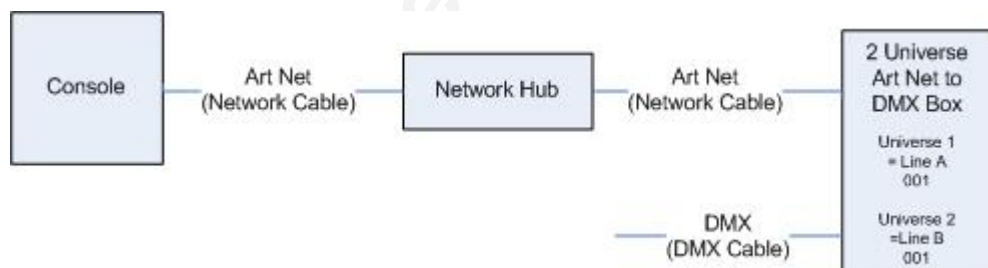
Here, the console assigns the following:

- Line A to Box 1 universe 1 and box 2 universe 1
- Line B to Box 1 universe 2
- Line C to Box 2 universe 2 and the dimmer rack
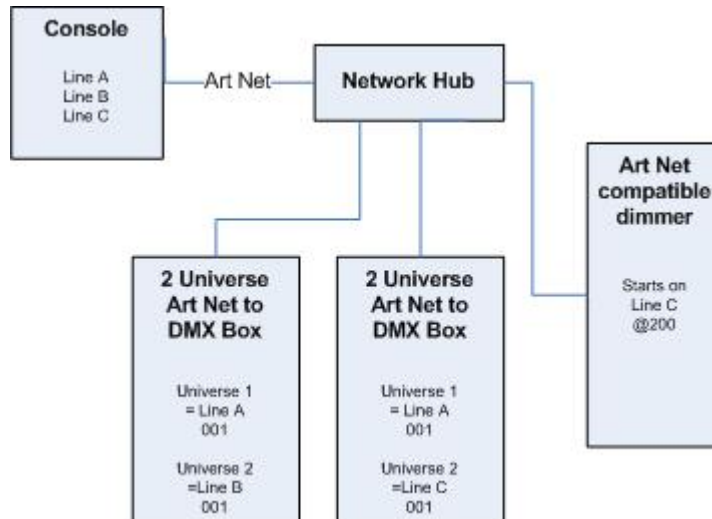
13.3.2   Setting up an ArtNet system

For this example, it is assumed that you will connect the Pearl to an Art Net DMX output box (such as an Artistic License Net-Lynx) via a network hub.

Using standard network cables, attach the devices together.

If you are using a hub/switch as shown above, use straight-through cables. If you are directly connecting the Pearl to another Ethernet device you need to use crossover cables

Set the Net-Lynx box as follows:

- Subnet Mask = 0
- DMX A Universe = 1
- DMX B Universe = 2

A lot of Art-Net devices, including the Net-Lynx box, are set to IP address 2.x.x.x as default, and can be set to 10.x.x.x using an option jumper, so you should check what the setting of your device is.

If your ArtNet devices need to be set to a non-standard IP address, then in steps 1 and 2 you need to use Windows Control Panel to set the Pearl to that address range instead of 2.x.x.x

With everything connected, start the Pearl.

1>   Ensure the Pearl has an IP in the 2.x.x.x range as described at the start of the chapter.

2>   On the Pearl VDU, click on Tools, Setup DMX outputs.

3>   Click on settings

4>   Select the ArtNet module. If the module is not shown in the list, it may not be installed; see section 13.5 on page 147.

5>   Ensure that the correct Network adapter is set (this may not be the Default Adapter)

6>   If you wish to turn off the Art Net output, you can un-check the "Enable DMX output" option. This will stop the Console from outputting Art Net on any Lines.

7>   Art Net normally only sends Data when it is changed, rather than a continuous stream. There are times when it is preferable to send Art Net all the time. to do this, check the "Continuous ArtNet Data Stream" option.

8>   The "Always broadcast ArtNet" option enables you to send Art Net to the entire network, rather than a specific IP address.

9>   Click OK

10>   Select a DMX line for the Pearl Expert Titan

11>   Select the ArtNet node that you want to connect to

12>   Click on Add Node. This will add an ArtNet node to that DMX output.

13>   Select the node you have added to make sure the properties are correct. (Problems can be caused if you attach multiple DMX lines to a single node.)

14>   Make sure that the Universe is set to 1 for Line 1, and 2 for Line 2.

Art-Net uses a subnet mask with its universe. For Pearl purposes:

Pearl universes 1 - 16 are subnet mask = 0, Art-Net universes = 1 – 16

15>   Click OK

The Pearl Expert Titan should now be working correctly.

To remove a node from a DMX line, select the node and select Remove Node.

### 13.3.3 Additional ArtNet Resources

To find out more information about Art Net please refer to the Art Net Standard published by Artistic Licence.

13.4   Connecting to a simulator with ACDI
ACDI is Avolites' Application for Interfacing Consoles and Simulators with lighting software such as Visualiser, Capture or Show designer.

13.4.1 ACDI

If you are using the Pearl Simulator with the Avolites Visualiser, running on 2 separate computers, you will need a separate Dongle connected to each computer.
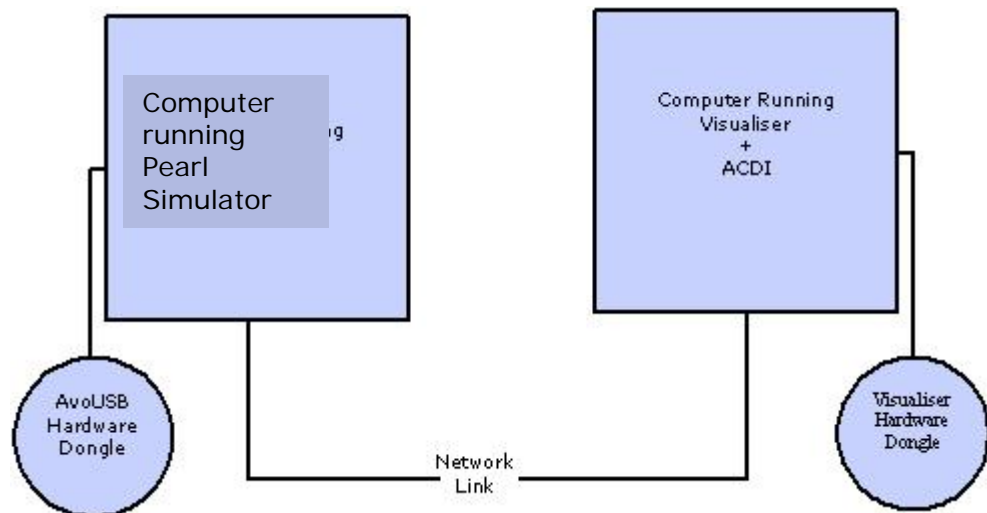
The network link connection can be made through either a crossover cable, or through a network hub.

For this example, both computers are connected together via a crossover cable.

First, we will set up the Network setting for both computers. It is important that both computers use an IP address in the same range (2.0.0.x in this example) and have the same subnet mask, or they won't be able to communicate.

On the Pearl, set the address to 2.x.x.x as described in section 13.1.1 at the start of this chapter. If you need to set a custom address to match the visualiser PC you can use Control Panel to do this.

On the computer running the Visualiser:

1> Click Start, Control panel, Network connections.

2> Right click on the connection you wish to use.

3> Click Properties.

4> In the connection properties window select TCP/IP and click Properties

5> Set the PC network adapter to a free address on the network in the range 2.0.0.x.

6> Set the subnet mask to 255.0.0.0.

7> Click OK.

Close any network windows on both machines.

Install and run ACDI on the Visualiser Computer.

In ACDI change "Source" to "Simulator"

Do not close the ACDI window

Refer to the previous section, 13.2.1, to setup a DMX line on the Pearl to be sent to the Visualiser.

Finally, start the Pearl, and open or create the theatre file. (See the Visualiser manual for more information on this)

Once ready to connect to the Pearl, go to run mode in the Visualiser, and select simulator under DMX.

The Pearl should now be working with the Visualiser.

13.5   Module Setup

A module is a method of sending DMX and can be thought of as a collection of nodes.

For example, consider using wireless networking technology to transmit DMX to several individual receivers. Each receiver is configured to output a specific universe of DMX. In this case, the wireless system as a whole is the module, and each receiver is a node.

The Module Settings window (top right of the Setup DMX Outputs screen) enables you to set the specific properties of the Modules used with the Pearl. These were selected during the installation process. If you are running the Pearl simulator, some (or all) modules may be missing, depending on what Avolites hardware you have attached.

You can only use different modules (e.g. Art Net) if you have several network adapters, or by re-configuring the IP addresses of the Devices to be compatible.

In the Setup DMX Modules window, click on the Module that you wish to adjust, and its properties will be shown.

This allows you to adjust settings for each module, and to select a network adapter for ACDI and Art-Net. Most people will only have one network adapter, however many laptop users will have their standard network adapter and also a Wi-Fi (wireless) adapter, both of which will be shown.

13.5.1   Installing additional Modules

If the DMX Module that you want to use has not been installed, you can add it by running the Pearl installer again and checking the option(s) that you want in the setup window.

13.6   AvoTalk

AvoTalk allows devices on a standard network to communicate and share information. In the case of Avolites consoles it allows the console to talk to fixtures and to retrieve and change information such as personalities and Mode information.

For example, when using a media server such as Hippotizer with the Pearl you have the option of patching it as an "active fixture". In order for this to work you must download and install an "Active Fixture Plugin" for the device you want to use and install that plugin on the device (i.e. the Hippotizer). When the plugin is run on the active device, it interrogates the device and generates a personality and other information specific to that device such as media thumbnail clips, and provides this info to the Pearl over the network using the AvoTalk protocol. These thumbnails, for example, can then be used in the wheel view on the Pearl to provide a preview of the media selected on a particular media layer.

Active fixtures can also perform other tasks such as readdressing themselves to a new DMX universe or DMX address etc and all these

tasks are performed by sending commands using AvoTalk across the network.

AvoTalk is designed to work alongside other lighting protocols such as eDMX or ArtNet. Once a network connection is established AvoTalk will detect any compatible devices and start talking.

13.6.1 Example AvoTalk setup

We will look at setting up a Green Hippo Hippotizer with the Pearl using a combination of AvoTalk and ArtNet.

You will need the following:

Pearl Expert Titan with Software Version 1.5 (or greater)

Green Hippo Hippotizer

AvoTalk Hippo Plugin

Crossover cable

1> *Turn on the Pearl and the Hippotizer. For this example we assume you have performed a wipeall on the Pearl.*

2> *Connect the Pearl and the Hippotizer together using the crossover cable. Note that there may be a cable already connected to the network port on the Hippotizer that comes from within the unit. This is connected to the DMX box on the front, and can be disconnected.*

3> *Set up the Pearl for ArtNet.   For more information on the DMX Modules, see Chapter 3 on DMX outputs.*

   At the moment you don't need to add any nodes, so click OK to close the Setup DMX Outputs window.

4> *Install the AvoTalk Hippo Plugin on the Hippotizer, but don't run it just yet. The Hippotizer software should not yet be running either.*

5> *Using the Stage Settings application, set up the Hippotizer to run in the preferred mode (please refer to the Hippotizer manual for further information).*

6> *Run the Hippo Plugin on the Hippotizer. Click on "Set network adapter" and set the adapter, then click on "Detect Hippotizer Layers". The plugin will now look for all of the media files and setup of the Hippotizer. Please note that this may take some time, depending on the number of clips that are available. If you receive the message "No Hippotizer available" ensure that the Hippotizer is enabled.*

7> *On the Pearl, go to Patch / Active fixture and select "Hippo (Ser.No.)". In this case the Active Device is called Hippo 15. If there are no active devices found, try exiting the menu and waiting for a few moments before trying again (there can be a short delay while the media clips are examined by the plugin).*

8> *On the Pearl, enter a DMX address and press a swop button to patch the Hippotizer. The required number of fixtures will be patched to consecutive handles, and the Hippotizer DMX address will be assigned to the one entered on the Pearl.*

9> *Now run the Stage application on the Hippotizer. **DO NOT CLOSE THE PLUGIN.***

10> *Finally, on the Pearl, go to Setup DMX Outputs and you will see the Hippotizer appear as a Node. Add this to the required DMX*

line. Again, there may be a slight delay before the Hippotizer node appears.

Once the Hippo Plugin is installed, it will automatically start every time the Hippotizer is started. If you change the Hippotizer mode, you will need to go to the Hippo Plugin, re-detect the Hippotizer and re-start the Pearl.

If you disconnect the network cable you will need to go to the Hippo Plugin, re-detect the Hippotizer and re-patch the Pearl.

If you decide to re-patch to a different DMX address you will need to re-start the Hippotizer software. You will also need to reset the ArtNet nodes if you are moving across DMX lines.

13.7 **All about IP addressing**

This section attempts to explain the basics of IP addressing, and what you will need to know when setting up a lighting control network.

IP addresses will normally come in the format "w.x.y.z" where w, x, y and z are numbers between 0 and 255. For example "298.23.46.166". Every object (or node or device) on a network should have a unique IP address. This is the same concept as DMX as each fixture requires a unique DMX address, for IP addresses the same is required.

13.7.1 **Setting your IP address**

The Pearl has a setup function to quickly set its IP address as described on page 141

You can also set your IP address in the same you would on a Windows XP computer. This is done in the following way:

1> Go to the control panel from the Tools menu

2> Double Click on Network Connections

3> You will now be confronted with various network adaptors. It is likely that you will only have one or two of importance. The "Local Area Connection" and "Wireless Network Connection". These names my slightly differ but the icons are likely to look like these:

4> The Local Area Connection (icon on the left) refers to your wired connection and your Wireless Network connection (icon on the right shown disconnected) refers to your wireless connection.

5> At this point you need to decide which connection you are using and therefore which connection you want to set the IP address for. Select this connection, right click on it and click on Properties.

6> The Dialogue box you have should have at least three tabs, "General", "Authentication" and "Advanced". It should already be on the General tab which is the only tab where you should need to change settings.

7>   *In the middle of the box there is a selection box labelled "This connection uses the following items:" You need to select the item called "Internet Protocol (TCP/IP)" ensure this is ticked and click on "Properties" just below the selection box.*

8>   *You are now presented with a box which allows you to select whether you want to "Obtain an IP address automatically" or "Use the following IP address". By selecting "Use the following IP address" it is possible to enter in a new IP address and Subnet Mask. The Default gateway, Preferred DNS server and Alternate DNS server and not important in this situation as they are only required if you are connecting to the internet, therefore they can be left blank.*

9>   *Once you have entered in the new IP address and Subnet mask press Ok on all the dialogue boxes that have been opened. After a few moments your new IP address should be set.*

There is a strong possibility that if you set the IP address on one network device you will have to set it on all of them, therefore if you manually set your IP address on the Pearl you will have to do it on any tracking backup you are using and any ArtNet fixtures. Beware that some ArtNet fixtures have a fixed IP address in the range 2.x.x.x, in which case you have to set the Pearl to that range.

13.7.2   Subnet Masks

These are best kept simple. All devices or nodes on a network who wish to communicate with each other must have the same subnet mask. The mask determines which parts of the IP address are unique in that network to each node. If the part of the subnet mask is a 0 then the corresponding digit in an IP address must be unique for each fixture. If the part in a subnet mask is 255 then this part of the IP address needs to be the same for each node.

13.7.3   Choosing an IP address and Subnet Mask

This is the hardest part of setting up a network as your IP address totally depends on what you are using on the network and what IP addresses you can and cannot change. Below are a number of different scenarios for standard lighting networks using a Pearl and what IP addresses should be set. These aren't guaranteed to work but try them if the scenario matches your network:

Pearl and ShowSafe, all output is standard DMX.

	IP Address	Subnet Mask
Pearl Expert Titan	192.168.1.30	255.255.255.0
ShowSafe	192.168.1.31	255.255.255.0

Pearl outputting over ArtNet Fixtures (and DMX).

	IP Address	Subnet Mask
Pearl Expert Titan	2.100.100.100	255.0.0.0
ArtNet Fixtures	2.x.y.z	255.0.0.0

Or

	IP Address	Subnet Mask
Pearl Expert Titan	10.100.100.100	255.0.0.0
ArtNet Fixtures	10.x.y.z	255.0.0.0

Where a combination of x, y and z are unique for these fixtures.

Pearl and ShowSafe outputting over ArtNet (and DMX).

	IP Address	Subnet Mask
Pearl Expert Titan	2.100.100.100	255.0.0.0
ShowSafe	2.100.100.101	255.0.0.0
ArtNet Fixtures	2.x.y.z	255.0.0.0

Or

	IP Address	Subnet Mask
Pearl Expert Titan	10.100.100.100	255.0.0.0
ShowSafe	10.100.100.101	255.0.0.0
ArtNet Fixtures	10.x.y.z	255.0.0.0

Where a combination of x, y and z are unique for these fixtures.

Note: Never set the last number of an IP address to be 255. This is a special address which will not function correctly.

13.7.4 Automatically assigning IP addresses (DHCP)

There is another way of assigning IP addresses via an automatic system called DHCP. For this you need one of the devices on the network to be a DHCP server. If you know none of your devices are a DHCP server then this is irrelevant however, if you have a router on the network or some such similar device then it is likely that you have a DHCP server. If you do then in the 8 step instructions in section 13.7.1 on page 149 when you come to step 7 you should ensure that "Obtain an IP address automatically" is selected then press ok. When you are using DHCP all the devices on the network must be capable of obtaining an IP address automatically. If one device cannot (eg some ArtNet devices) then you must manually set all the IP addresses.

13.7.5 Private IP address ranges

If your network is connected to the internet it is important to use a private IP address range. These are special IP addresses that will not be routed onto the internet. They are:

Start Address	Final Address	Subnet Mask
10.0.0.0	10.255.255.255	255.0.0.0
172.16.0.0	172.31.255.255	255.255.0.0
192.168.0.0	192.168.255.255	255.255.255.0

For Art-Net, the 10.x.x.x range must be used.

13.8   Repairing a Network Connection

If you are sure your network connection settings are correct or had them working but they are no longer working it may be necessary to repair the network connection. This is a simple windows function that can be accessed by doing the following:

1>   Go to the control panel from the Tools menu.

2>   Double Click on Network Connections

3>   Double Click on the Network Connection you would like to repair

4>   Click on the Support tab.

5>   Click Repair.

Windows will complete a number of tasks and give you a message informing you it has finished repairing the connection. Click close then ok to all the open windows.

14. Titan for Pearl users

If you are used to the Pearl Expert or standard Pearl consoles, this section will help you to make the move to the Titan operating system.

If it all gets too much, or if you need to run a standard Pearl Expert show, you can reboot the Titan console into the normal Pearl Expert mode. See section 1.7 on page 29.

Note: Pearl Expert Titan shows aren't compatible with the standard Pearl Expert, or a standard Pearl console, because the show file has a different format.

14.1 The controls and LCD

The operation of the controls and LCD is significantly different to the normal Pearl. This can be a bit disorientating – it looks like a Pearl but it isn't! Don't be put off. There are some great new features to work with once you've got over the shock.

LCD

The LCD has a streamlined new look. The softkeys have different appearances for different functions (see page 19) and some things have moved around. The LCD now displays fixture attributes (like colours and gobos) as you change the wheels which is handy for finding the attribute you want. An Intensity Grid shows which fixtures are lit up.

You can lock any menu (to keep it active) by pressing the ML Menu button. The ML Menu button only shows its menu at the top level screen.

VDU

The VDU screen now uses configurable windows to show you what the console is doing, including a Head-Up Display (HUD), Visualiser, Playback View and Cue View. You can save different window setups as a Workspace which can be instantly recalled.

Touch Wing

The optional Touch Wing gives you access to labelled touch buttons for fixtures, palettes, shapes and attributes. It also has three control wheels for attribute setting and 10 buttons for recording key macros.

Cues and Chases on preset faders

You can now store cues (memories) and chases on the preset faders as well as on the playback faders. This gives you instant fingertip access to an enormous number of effects.

Change button functions

You can change the functions of the blue and grey buttons on the console to give you quick access to the functions you want, such as Preload, Stop and Go for chases, Tap Tempo and so on. This feature is called Key Profiles (see page 126).

You can also change the way the key LEDs behave to give you different indications such as Empty Handle, Selected and In Programmer (see page 124).

Titan Remote

Titan remote runs on an iPhone or iPod Touch and can control the console using Wi-Fi. This is invaluable for focusing, and you can also activate playbacks.

14.2 New programming features

There are some great new programming features which previously were only found on the Diamond 4.

Fixture overlap, Attribute overlap

The overlap functions allow you to sequence the way a cue plays back. Normally when you fire a cue, everything would move to its programmed setting all together. The fixture overlap feature causes each fixture to move to the new setting in sequence, giving some amazing roll or peel effects without any programming. Attribute overlap is a similar effect with different attributes. When "busking", palettes can also be applied with overlap.

Fixture exchange and Copy Fixture

The Fixture exchange function enables you to replace fixtures which are used in your show with alternative fixtures, retaining important elements such as cue times, shapes and legends. It is very useful for touring shows and venues with a high turnover of events, allowing you to cope with different house rigs or equipment availability.

You can copy fixtures you already have in your show. The new copy will come complete with all the cues and palettes of the original fixture you've copied.

Multiple times

The Titan software allows multiple timers for cues. This means in a complicated show you can have lots of fades going on from different cues each under the control of a different timer.

Playback priorities

You can configure how playbacks will behave if you turn on two playbacks controlling the same fixture. For each playback, priority can be set to Low, Normal, High or Very High. If a fixture is being controlled by a playback and you turn on a playback of the same or higher priority, then the new playback will take over. However, if the new playback is set to lower priority than the first playback, the fixture will not change.

This is useful if, for example, you've programmed looks using all your fixtures, then you decide you want a couple of them to spotlight a singer. If you set the Spotlight playback to be high priority, then while it is active no other playback will affect the spotlight fixtures.

Release

When a playback is killed, you can set how the LTP channels release. The default setting is to not release any attributes (i.e. LTP channels

will not change when the playback is killed), but you can set
attributes to revert to their state in the most recently active playback.

15. Release notes

This section describes changes in the most recent version of software.

Please ensure you save and backup your shows before attempting to upgrade any software.

Note: This section only lists the changes in the most recent update; for changes in earlier versions, please check the release notes provided on the console using the VDU menu option Help → Release Notes.

15.1   Version 4.0

15.1.1   Upgrading from previous versions

Upgrading from v3: Copy the setup file to a USB memory stick. Using the Tools menu, shutdown the console software, then use the Folders option to locate the file on the memory stick and double click it to run the installer.

There is no upgrade path from version 2 and lower, the software must be installed by running a recovery disk. You can download a recovery disk containing this software from Avolites download Please follow the instructions given when downloading the recovery disk to install this version.

15.1.2   New features in v.4.0

Undo / Redo: You can now undo and redo up to 20 actions. This applies to the following actions:

- Clear
- Attribute adjustment (providing the Attribute Bank has been changed after the adjustment).
- Keypad input.
- Palette application.
- Fixture selection.
- Group selection.
- Off.
- On.
- Align.
- Flip.
- Shape application.
- Locate.

Fan across groups: You can now apply fan to a number groups rather than across individual fixtures. The option is accessed by holding down [Fan] where you can choose between:

- Ignore Groups – Fan treats each fixture individually whether selected individually or by a group.

- Fan Group as Fixture – All fixtures in each group take on the same value.

- Fan Within Group – Fan runs across individual fixtures within each group.

Freeze attributes: Freeze individual attributes of selected fixtures and/or whole selected fixtures through [Edit Fixtures] in [Patch]. Frozen attributes cannot be changed by either playbacks or programmer. Deselect frozen individual attributes of selected fixtures and/or whole selected fixtures, in [Edit Fixtures] in [Patch] to release.

Blind Mode for programmer: Blind Mode is activated and deactivated through the softkey options displayed when Shift is held down.

Blind for playbacks: An individual playback can be set to Blind through [Playback Options]. The playback will then only output to Visualiser and not the stage.

Thro, And and @: Thro, And and @ keys allow dimmers and fixtures to be selected and an intensity applied numerically via the keypad.

DMX output mapping: DMX output mapping is now available; this option is opened by selecting [DMX Settings] in System Mode. You are presented with a list of DMX Nodes and a list of DMX Lines. DMX Nodes can be assigned individually to DMX Lines by selecting their individual assign key alternatively, all DMX Nodes of one type can be assigned at once by selecting the assign key in the header of a DMX Node type. DMX Nodes can be cleared individually from DMX Lines by selecting their individual clear key alternatively, all DMX Nodes can be cleared from a DMX Line by selecting the clear key in the header of a DMX Line or all DMX Nodes can be cleared from all DMX Lines by selecting the clear key in the DMX Line header. Information about a DMX Node can be accessed using the DMX Node's individual information key.

DMX view: A DMX view in which the output of each DMX channel can be seen is now available through [Open Workspace Window], [DMX].

Wheel acceleration: The sensitivity of the encoder wheels, pan threshold and tilt threshold can all now be adjusted through [Wheel Sensitivity] from within [User Settings] in System Mode.

Russian language pack: Russian language pack available.

Chinese language pack: Chinese language pack available.

15.1.3   Improvements in v.4.0

Reverse shapes: Shapes can now be reversed on individual fixtures in Shape Generator.

Fixture order for shapes: When a shape is applied to a selection of fixtures it applies in the order the fixtures were selected and phase then uses that order when spreading the shape across the fixtures. The order of your fixtures can now be changed after a shape has been applied by using the [Fixture Order] option found in [Edit] within [Shape Generator].

Add and/or remove fixtures from a shape: New fixtures can be added and existing fixtures removed from a shape applied to a selection of fixtures and by accessing the [Add/Remove Fixtures] option found in [Edit] within [Shape Generator] and selecting the fixtures you wish to add and/or remove in the Fixtures window.

Keystone and blade graphical control: Keystone and/or blades of appropriate fixtures can be edited through a graphical interface accessed from the [Attribute Editor] in [Open Workspace Window]. Select keystone or blades from the Attribute Control options in the window and then adjust by selecting and dragging the corners or sides of the space displayed.

Picture legends: A picture legend can be assigned to any item for which it is possible to set a text legend. Select [Select Legend], select the item and then either select [Picture] or the pencil icon on the virtual icon to open the drawing space. Brush size, colour and erase are all available within the window; Enter applies the drawing to the item selected.

Set button and text size: The information button in the top right corner of each window opens options which allow you to change the size and position of that window and the button and text size to be used within that window.

Using Autoload in Cue Lists: It is now easier and faster to create an autoload step when recording a Cue List. Turn on Autoload Live Playbacks in the [Advanced Options] menu within Cue List Record; live playbacks are then recorded as Autoloads when a Cue List step is recorded removing the need to create blank steps and edit them to contain Autoloads.

Editing legends: When editing a legend the existing legend appears in the display area of the keyboard for ease of editing.

Timecode clock: A new workspace window is available which displays timecode as a digital clock including the ability to select the timecode source, an enable/disable button and play, pause and reset buttons for internal timecode.

Workspace window shortcuts: Pressing the View key and then one of the following keys will cause the corresponding workspace window to open. N.B. the LEDs of keys acting as

workspace window shortcuts will flash once View has been pressed for ease of identification:

- Attribute Bank – opens the Palette window for the corresponding bank.

- Patch – opens the DMX patch window.

- Connect – opens the view cue window for the connected Cue List.

- Record Macro – opens Macro window

Toggle workspace windows: Holding down the Shift key and pressing the Min/Max Window Control key will cycle through workspace windows.

Fade effect: The performance of fade has been enhanced and is now smoother.

MIDI timecode settings: Glitch detection, tolerance and timeout can be set under [MIDI Timecode] within [User Settings] in System Mode.

15.1.4 Bugs fixed in v.4.0

Flash buttons did not register when a Swap button was depressed: Found in version: 1.5 – If a Swap button was held down whilst a Flash button was also pressed, the fixtures being flashed did not come on when the Swap button was released.

Macros including numeric input did not recall correctly: Found in version: 1.3.6 – Macros did not recall correctly if they included a numeric input.

Clear LED remained on after New Show or Load Show: Found in version: 3.1.

16. Glossary of terms

ADDRESSES	The DMX Channels occupied by individual Fixtures. The first Channel occupied is usually encoded onto the Fixture somehow (often by switches or using a menu) 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 or function of an Intelligent Fixture, such as "Colour Wheel".
ATTRIBUTE GROUPS	see IPCGBES.
AUTOLOAD	A playback which is automatically fired by a cue in a cue list. Enables a chase to be fired by a cue list.
BACKUPS	Copies of a show stored to an external storage device for safety.
BPM	Beats Per Minute. 60BPM is equivalent to one step per second.
BUSKING	Operating the console live (usually for live music) when you have insufficient programming and need to make up stunning effects as you go along using palettes etc.
CHASE	A sequence of one or more pre recorded steps which automatically run one after the other.
CHASE STEPS	Individual cues within 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 / CMY	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.
CONNECTED CHASE	A Chase which has been brought under control of a chase Controller by pressing the CONNECT button.
CUE	A single stage look programmed onto a Playback button or fader. Also known as MEMORY, STATE, SCENE, LOOK.
CUE LIST	A sequence of cues programmed onto a Playback button or fader. Each cue can have its own delay and fade times and can also start other cues or playbacks. Also known as a CUE STACK or STACK.
CUE MODE	A playback format programmed into a Cue. There are Cue Modes 0 - 3.
DEVICE	See FIXTURE.
DIMMER	Device used to control the intensity of an individual light.

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.
FADE	A continuous transition from one level to another.
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.
FLASH	Pushbutton which adds a playback into the existing output of the console. Historically called the ADD button. See also SWOP.
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. See PALETTE. May also be used in connection with moving fixtures to focus (set the sharpness) of a gobo projection.
FUNCTION WHEEL	A wheel which does not directly control an Attribute channel on a fixture, rather it controls only part of an attribute and another function wheel may control other parts. For example a rotating gobo attribute may have one function wheel to control continuous or indexed mode, and another function wheel to control rotation speed or position, though the actual fixture only uses one DMX channel to control both these functions.
GENERIC	Term used to indicate a Dimmer channel. See also FIXTURE.
GROUP	A GROUP is a pre-programmed collection of Fixtures that can be selected with a single button press.
HANDLE	The preset fader and flash/swop buttons which are used to control an individual fixture or dimmer channel.
HTP	Highest Takes Precedence, a mechanism for determining the output level of a channel being controlled by more than one Playback. The Playback outputting the Highest value at any given time will determine the level of the channel. Also see LTP.
INCLUDE	A means of transferring the contents of a Cue or Chase Step into the Programmer.
INSTRUMENT	See FIXTURE.
INTELLIGENT FIXTURE	
	See FIXTURE.
IPCGBES	The Attribute Groups, used by the console to conveniently group together similar attributes. For example the P(osition) group includes Pan and Tilt attributes.

LCD	Refers to the console's on-board displays (stands for Liquid Crystal Display).
LED	Refers to the small red lights within the buttons on the console (stands for Light Emitting Diode).
LINKS	Connections between cues in a Cue List or Chase enabling them to run on from one to another automatically.
LOCATE	A feature of the console that makes it easy to find your selected Fixtures by putting them in Open White. Pressing Shift+Locate additionally sets the Pan and Tilt at 50%.
LTP	Latest Takes Precedence, a mechanism for passing control of a channel from one Playback to another on the basis that the latest Playback Fader to be moved has control, providing that Playback Fader has moved past the Trigger point. (See TRIGGER POINT). Also see HTP.
MACROS	Macros allow functions programmed into an Intelligent Fixture by the manufacturer to 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. Also used on the Pearl Expert Titan to refer to a stored sequence of button presses.
MEMORY	The name for a Cue on other Avolites consoles.
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	Provides functions for control of Moving Lights (Moving Light Menu).
ON and OFF	Any channel stored in a playback can be On or Off. A channel which is ON is changed by the playback when it is fired. A channel which is OFF is stored in the playback for future re-use but has no effect when the playback is fired.
OVERLAP	Sets how the Pearl allocates new values to a group of fixtures. 100% means that all fixtures are updated simultaneously. 0% means that the fixtures will be updated one after the other.
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 set to a different value in the Palette, the entries can be named, and recalled with a single button press.
PARK	A Parked fixture is one which is patched to a handle but has no DMX address set. This happens to a fixture when its DMX address is taken by another

	fixture during a later patching session; the Repatch function is used to give it a new DMX address.
PERSONALITY	A description of what Attributes a particular Intelligent Fixture has and how the console will patch and use these. It also determines which Attribute Wheel will control which Attribute.
PLAYBACK	Area of the console that can replay recorded Cues or Chases using Playback Faders.
PRELOAD	A playback button which sets the LTP channels in a cue but not the HTP channels. Used to pre-position fixtures before firing a cue. Also a cue list function which allows one cue to preload the LTP channels in another cue.
PRESET FADERS	The faders across the top of the console which are used for controlling individual fixtures or dimmer channels.
PRESET FOCUS	What Palettes are called on other Avolites consoles. See PALETTE.
PROGRAMMER	The part of the console which contains Channel information which has been changed by the user, prior to recording.
SAFE	Desk mode in which all Playback functions are enabled, but all programming functions disabled.
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 Cue.
SHARED PALETTE	A Palette in which information is only stored for one Fixture, but is available to all Fixtures of that type.
SOFTKEY	Buttons marked A-J, with different functions which are shown on the LCD screen above.
STACK	See CUE LIST.
SWOP	Type of flash button which turns on the output being flashed and turns off all other output while the button is pressed. Sometimes called "Solo". Also used for selecting fixtures or playbacks when programming. See also FLASH.
TABLE	List of pre-defined levels for an attribute allowing settings to be recalled by name (for example the colours available from a colour wheel may be found in a table).
TIMECODE	An electronic timer signal which allows cue list playback to be synchronised to a soundtrack or other events. The console can read MIDI timecode or can take a timecode from the Windows sound player application "Winamp". An internal free-running timer is also provided.

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 Tools menu on the VDU.
VDU	A computer monitor plugged into the VDU socket on the Pearl giving further information about the operation of the console.
VIRTUAL DIMMER	Used with LED RGB (red-green-blue) colour mixing fixtures, these add an intensity function to the fixture which masters the RGB controls on the fixture when it does not actually have an intensity control channel.
WIPEALL	A process which clears all the previous programming out of the desk, but does not touch the System Software.
WHEEL	Wheels are used on the Pearl to set Fixture Attributes and to control chases and cue lists (see FUNCTION WHEEL).

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Softkey Menu items are indicated with capital letters (for example "Activate A Timecode Cuelist")

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