

Pearl Expert Titan

Operator's Manual

Version 1.2



ABC
abc

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

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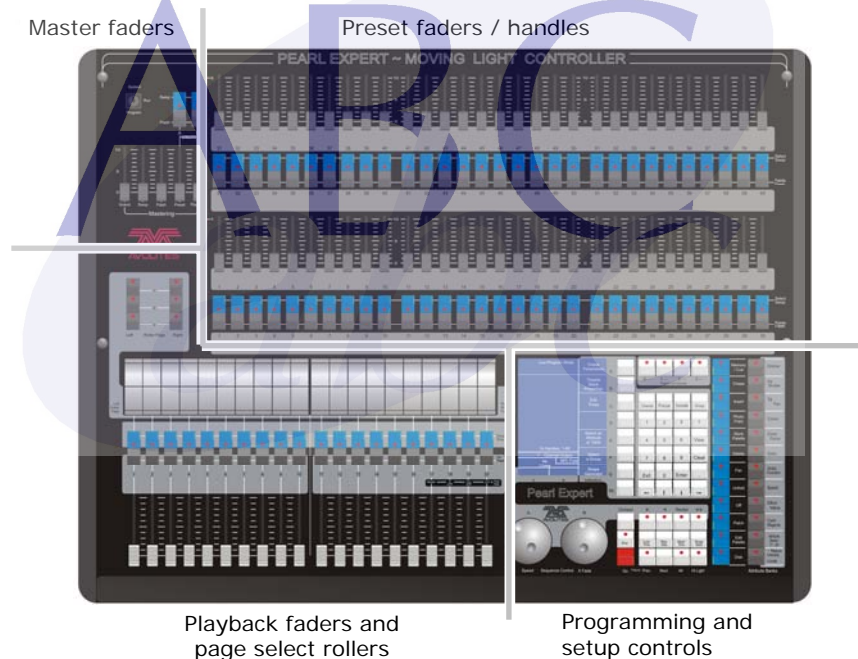
1. Setting up the console

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.

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 25.

1.1 Guide to the console



The Pearl has four main control areas:

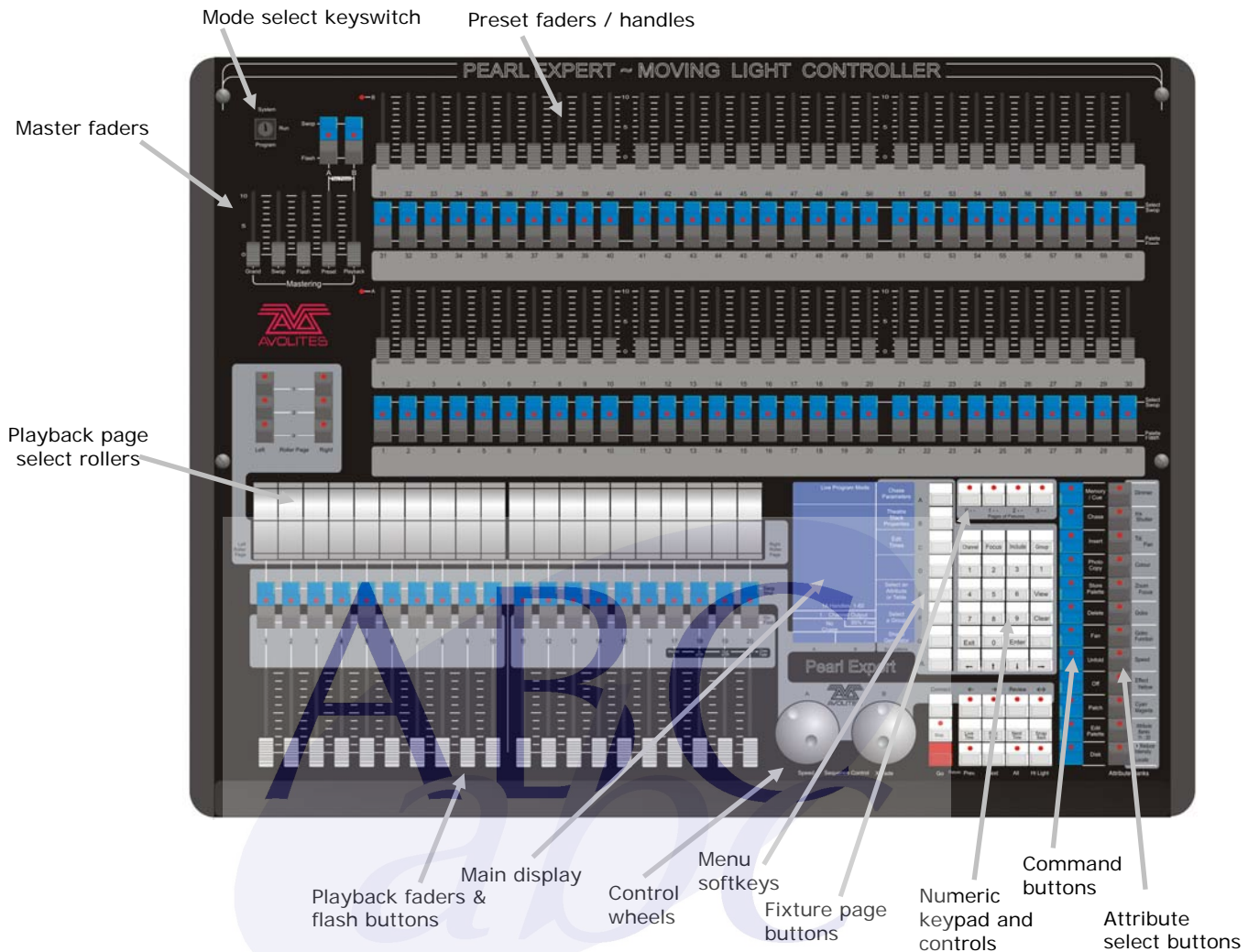
The Master faders set overall levels on the console

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

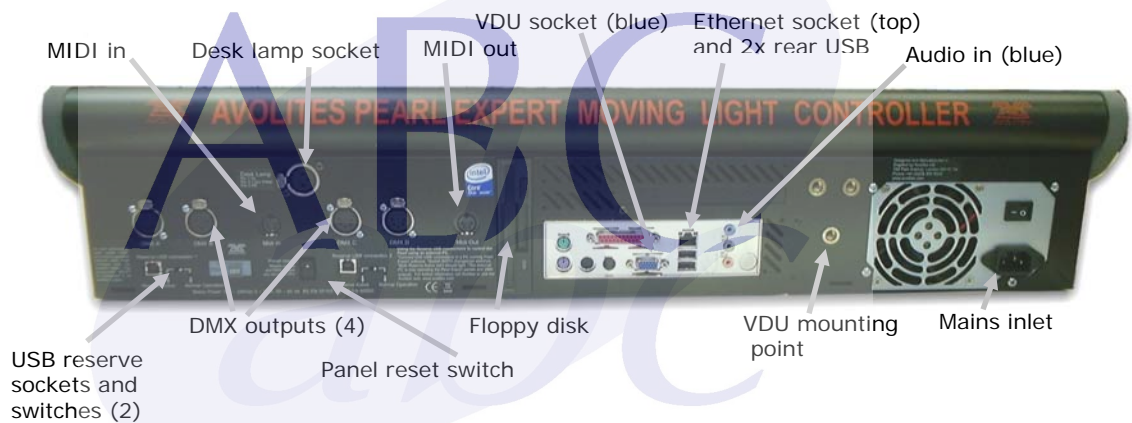
The Programming and setup controls configure and program the console

The main controls



- 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".

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 lines 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. The universes are identified as "lines 1-12" on the LCD display and "lines A,B,C,D,E,F,G,H,I,J,K,L" on the VDU. 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 109.)

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. Do not use the console without a monitor attached.

- If you need to change the VDU resolution or settings, click on the Windows Control Panel icon on the VDU desktop (see page 19) and select "Display".

1.2.5 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. MIDI functions will be added in a future version of the software.

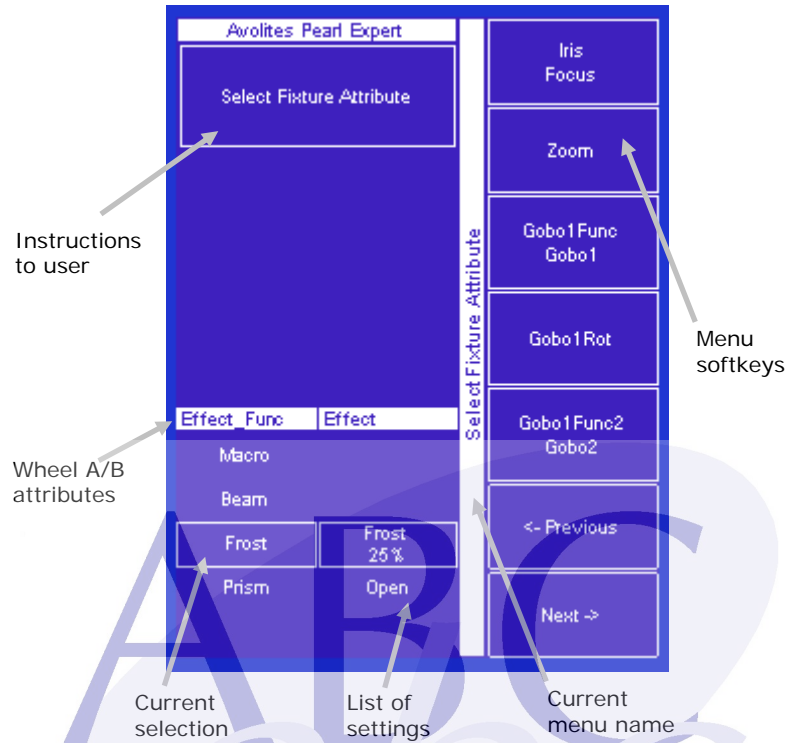
You can connect the console to a LAN (local area network) using the RJ45 socket on the rear. This allows you to back up the console to another machine, or to link to a DMX-over-ethernet system.

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



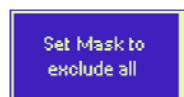
Down the right hand side of the display, the functions of the A-G menu softkeys are listed. If there are more functions than will fit on one screen, F [Previous] and G [Next] buttons are provided to page through the functions.

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.

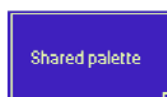
At the bottom left of the screen, the current function of the wheels is shown. If fixture attributes are being set, this shows the possible settings which are available on the fixtures. The horizontal bar shows which attributes are being controlled by each wheel and the boxes show the current attribute.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

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

The appearance of the softkeys shows what they will do:



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

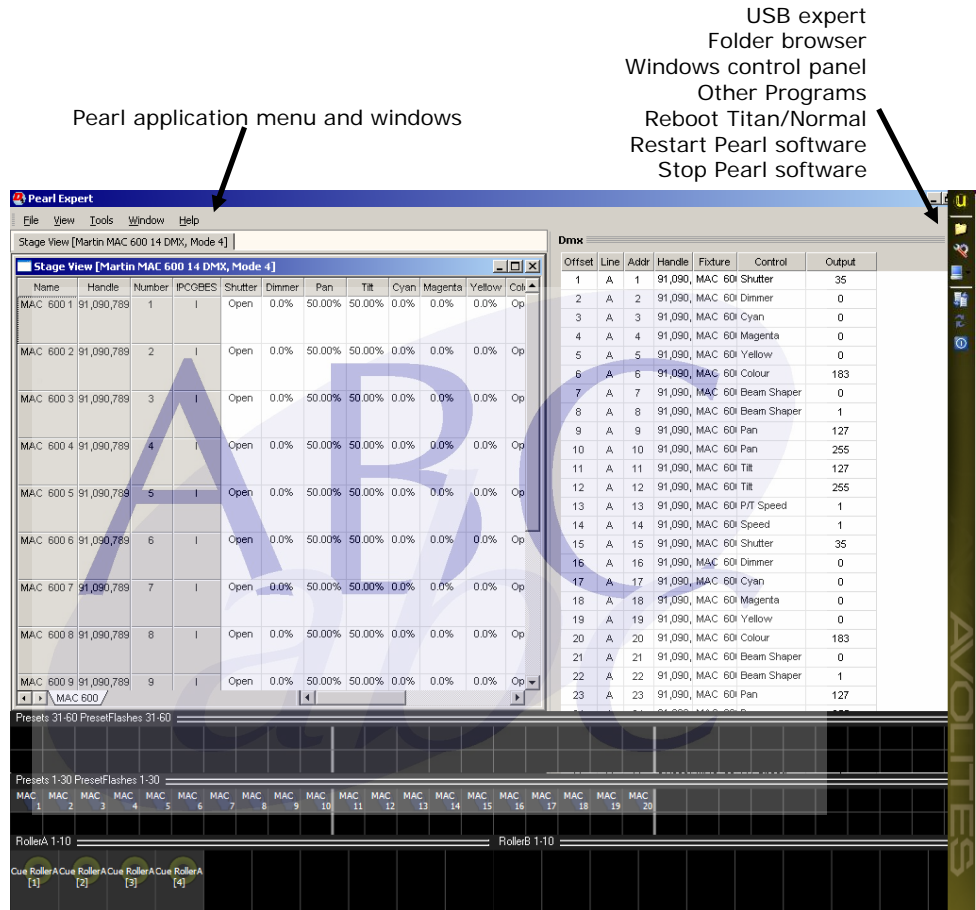


Text entry button:
press and enter text using the keyboard

1.3.2 The VDU desktop

The desktop is your view into what the Pearl is doing. It can display windows showing Intensity output, Stage output, DMX output, and you can also turn on or off views of the command line and status bar.

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, icons are provided in the Avolites toolbar on the right hand side of the VDU screen.



Pearl application menu and windows

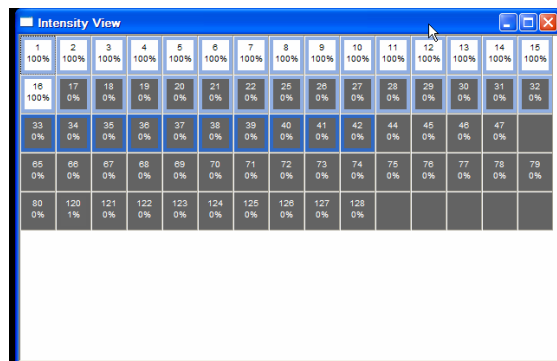
USB expert
Folder browser
Windows control panel
Other Programs
Reboot Titan/Normal
Restart Pearl software
Stop Pearl software

Heads Up Display (HUD) showing presets and playbacks

Use the View menu to show or hide the various information screens available in the Pearl application.

The **Virtual Panel** brings up an on screen version of the console front panel, this allows the operator to perform on screen all of the functions normally accessed from the panel. Use the Virtual Panel icon on the Avolites toolbar to show this.

The **Intensity view** shows you the intensity output of all patched fixtures. The



brightness of the graphic shows the intensity of the fixture (White=Full intensity, dark grey=Off). The intensity is also shown as a percentage. By right clicking on this screen you can also enable or disable display of the Legend, control group, DMX address and dimmer curve of each fixture.

Fixtures are highlighted in light blue if their output has been changed by the user (in other words, they are in the programmer). They are highlighted in dark blue if they are currently selected (they are in the editor and the programmer).

The screenshot shows a window titled "Stage View [Clay Paky Stage Scan 16 DMX, Lamp Disabled]". It contains a table with the following columns: Name, Handle, IPCGBES, Iris, Colour, Frost, Dimmer, Pan, Tilt, Zoom, Focus, Prism, Prism Rotation, Gobo 1, Gobo 2, Gobo 2 Rot, Cyan, Magenta, and Yellow. The rows represent 12 Stage Scan fixtures. The Dimmer column for fixtures 5, 6, 7, and 8 shows a value of 53.99%, which is highlighted in cyan. The background of the table is color-coded: light blue for fixtures 1-4 and 9-12, and dark blue for fixtures 5-8.

The **Stage view** shows you the detail of all fixtures patched on the console. You select the fixture type to view using the tabs across the bottom of the screen.

Again the light blue colour shows fixtures which are in the programmer and dark blue shows fixtures selected to the editor. Any changed attributes are shown using Cyan.

The window shows the output value of each attribute of each fixture. If the fixtures are under control of a playback or palette, the display shows what last controlled each attribute.

You can sort the fixtures on the screen by any of the columns; just click on the column header. Click again to reverse the sort order. You can change the order of the columns by dragging them to a new position. By right clicking on this screen you can enable or disable highlighting of changes, and display of playback/palette control of attributes.

The **Show Library** view allows the operator to view any aspect of the recorded show (playbacks), and edit times on screen in a spreadsheet like manner.

The **Wheels** view shows the parameters available on each wheel.

The **DMX view** shows the output value of each DMX channel, and which fixture is patched to it.

As with the stage view, you can sort the list on any of the columns by clicking on the column

The screenshot shows a window titled "Dmx" with a table containing DMX channel information. The columns are: Offset, Line, Addr, Handle, Fixture, Control, and Output. The table lists 29 channels, each associated with a specific fixture and its current output value. For example, channel 14 (Addr 14) is controlled by "Stage & Cyan" and has an output of 255. Channel 15 (Addr 15) is controlled by "Stage & Magenta" and also has an output of 255. Channel 16 (Addr 16) is controlled by "Stage & Yellow" and has an output of 255. Other channels have outputs of 0, 4, 24, or 128.

header, or reorder the columns by dragging.

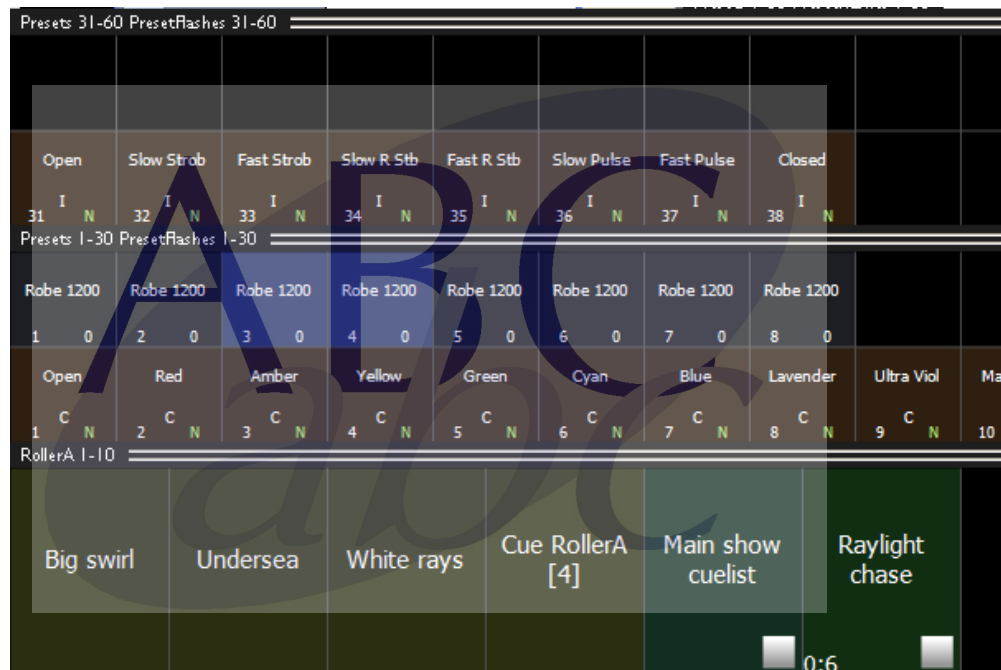
The red values indicate values which are currently changing.

The VDU screen also has a **Command Line** window, which shows the commands that the console is currently processing and provides useful feedback, and a status bar which shows what the on-board menu displays are currently showing.

The operating options of the console are set from the VDU screen Tools menu, see section 11.2.3 on page 92 for details.

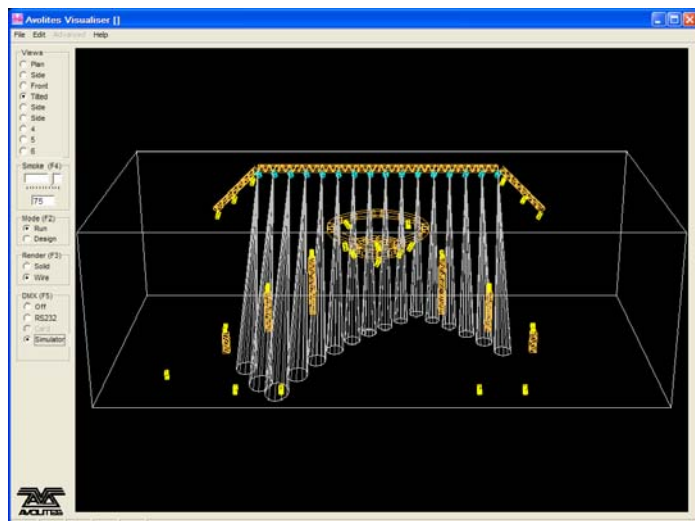
1.3.3 The Heads-Up Display (HUD)

The HUD windows show 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. You can move these windows around using the trackpad to meet your requirements. You can resize the windows by holding ALT on the QWERTY keyboard and dragging an edge of the window using the trackpad.



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. You can show or hide (minimise) Visualiser by



pressing View (right of numeric keypad) then A [Show/hide Visualiser]. You need to select the “Simulator” option on Visualiser to make it read the output of the Pearl.

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.

If you have patched across multiple pages, each page of fixtures will be separated by a truss to make it easy to identify them. 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 single fixture in Visualiser.

1.3.5 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. See section 11.3 on page 100 for details.

1.4 Loading and saving shows

You can save any number of different shows on 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.

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 VDU window.

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 also 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 C [Save Show].
- 3> Enter a name for the show on the keyboard.
- 4> Press Enter or A [Save]. The show will be saved.
- 5> Press Exit or A [OK] to leave Disk mode.

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 B [Load Show].
- 3> 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.
- 4> Press Exit to leave Disk mode.

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

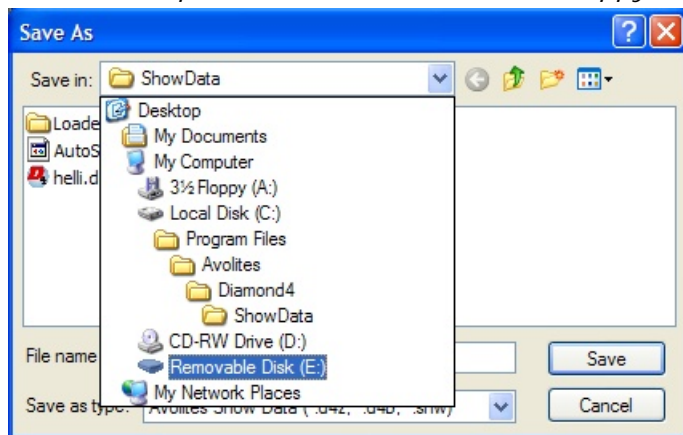
1.5 Backing up the show to USB drive

It's a good idea to regularly copy a backup of the show to an external storage device such as a USB pen drive or floppy disk just in case something bad happens to the console. You can't do this from buttons on the console, you need to use the VDU and mousepad to select options from the Pearl Expert Titan window on the VDU.

1.5.1 Backup current show to USB pen drive

You can save the current show to a USB pen drive or floppy disk using the Save Show menu command on the VDU.

- 1> Insert a USB pen drive in a spare USB socket, or insert a floppy disk (larger shows may not fit on a floppy disk).
- 2> On the VDU screen, click on the File menu and select "Save Show".
- 3> Pull down the "Save in" list and select the drive where you want to make a backup of the show (Floppy drive or removable USB drive; you cannot save to a CD drive this way).
- 4> Type a filename for the show in the "File name".



5> *Click on Save.*

To reload a saved show from a removable device (including a CD) use the Load Show option on the VDU File menu.

1.5.2 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 VDU screen toolbar, click on the Windows Folder icon (top right).*

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.*

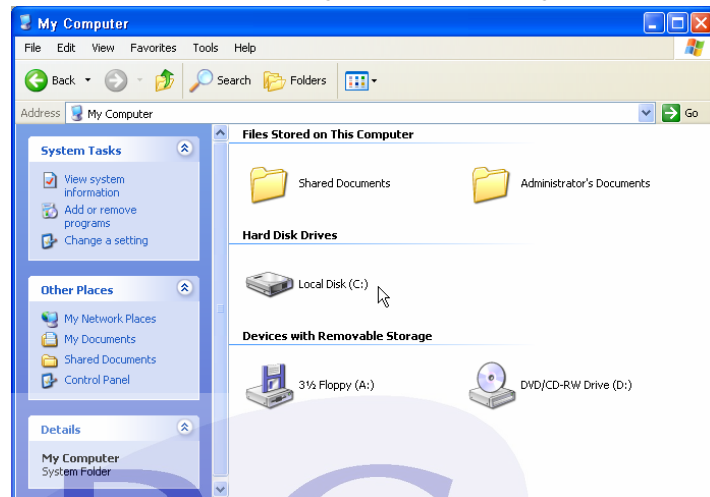
5> *The VDU screen will show a list of the saved shows.*

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 A [New Show].*

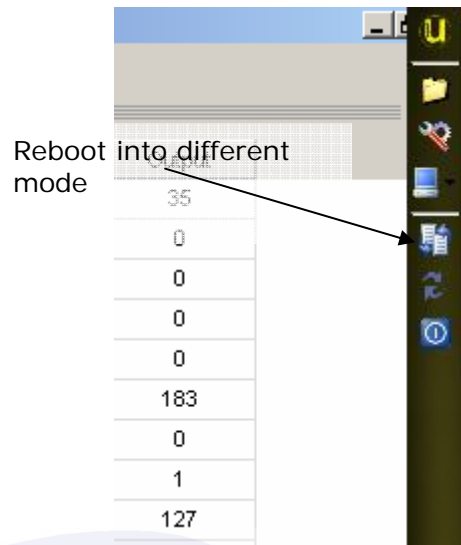
3> *Press A [OK] to confirm.*

4> *Press Exit to leave Disk mode.*

- There is also a "Wipeall" function in the System menu (when the key is turned to System) which has the same function.

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 Reboot Mode button on the VDU toolbar to reboot the console into the desired 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)

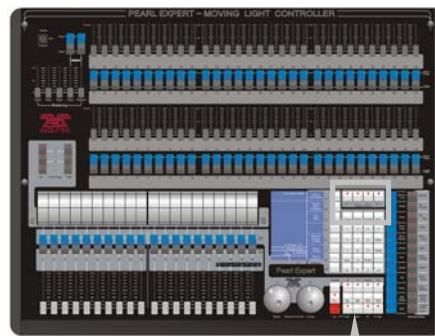
To control intelligent fixtures or dimmer channels, they must be patched to a Preset. These are the faders, buttons and displays located in 2 rows along the top of the console. Each preset consists of:

- 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.

The fixture page buttons are located just above the numeric keypad. Fixtures 1-60 are on page 0--, Fixtures 101-160 on page 1--, 201-260 on page 2—and 301-360 on page 3--. You can change the fixture page at any time.

Handles (Preset faders)



Pages of fixtures buttons

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 A [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. Softkey B shows the DMX address about to be patched. You can change this by pressing B [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. 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. The range of dimmers will be patched to sequential DMX addresses.
 - 4> The Select buttons light up dimly to show that they are patched.
 - 5> Repeat from step 2 for other dimmers.
-

- To see how DMX channels are patched, open the DMX window on the VDU screen. (use the mousepad to select View > DMX).
- C [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.

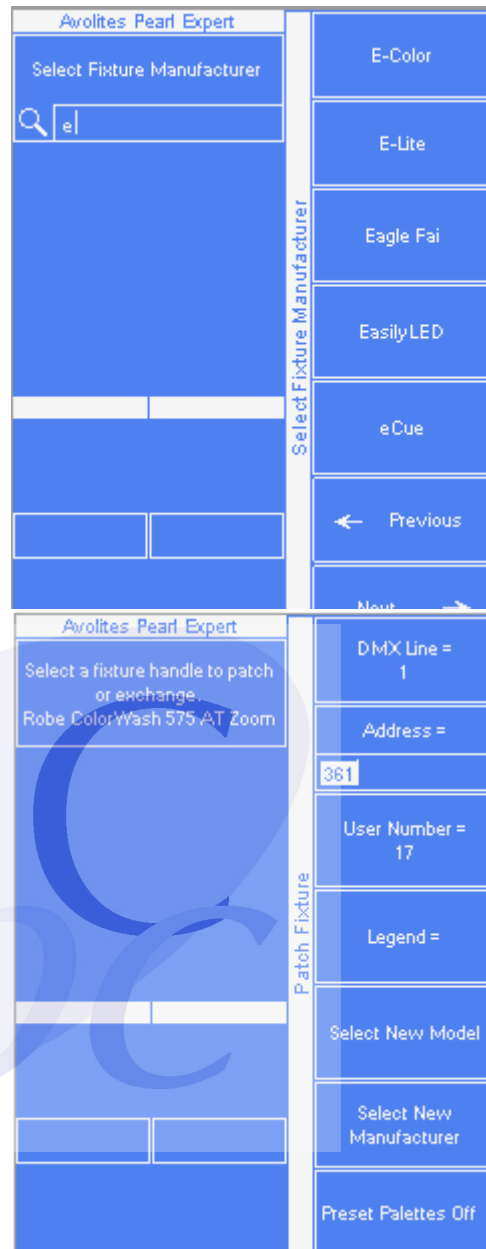
The Pearl uses a “personality” system to control fixtures. This means you don’t have to know how each fixture works, you just tell the Pearl what you want to do and it will send the right control commands. There is a personality file in the Pearl for most types of fixture, which tells it what attributes 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 105 for details of how to find personalities.

-
- 1> Press Patch (bottom right of console).
 - 2> Press B [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 A [DMX line=xx] to patch to a different DMX line.
- 7> Press a Preset Select button to patch the selected fixture.
- 8> The Select button will light up dimly to show that it is patched.
- 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.
- G [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.
- Use the View > DMX option on the VDU screen to show the DMX address for fixtures.
- 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 A [Show Visualiser]. 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.

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 E [Repatch Fixtures].
 - 3> Press the blue Select button of the fixture you want to change.
 - 4> To change DMX press B [Address], type the new address and press enter
 - 5> To change the DMX output line, press A [DMX Line=x] and enter a new output line number 1-12.
 - 6> Press Enter or E [Repatch] to confirm the change.
 - 7> Repeat from step 3 if you want to change other fixtures.
-

- You can "Park" the fixture using D [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. Select B [Select another address] to abort the change or A [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.



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. This can be really useful to help you identify the fixture.

-
- 1> At the main menu press C [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 the group of fixtures before pressing C [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 be given a number increasing by 1 for each fixture.

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 E [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 A [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 C [Columns] and choosing which columns to hide or show.

Handle	DMX	U#	Legend
0.1	1.1	1	Robe 1200
0.2	1.25	2	Robe 1200
0.3	1.49	3	Robe 1200
0.4	1.73	4	Robe 1200
0.5	1.97	5	Robe 1200
0.6	1.121	6	Robe 1200
0.7	1.145	7	Robe 1200
0.8	1.169	8	Robe 1200
0.11	1.193	9	ColWs575Zm
0.12	1.214	10	ColWs575Zm
0.13	1.235	11	ColWs575Zm
0.14	1.256	12	ColWs575Zm
0.15	1.277	13	ColWs575Zm
0.16	1.298	14	ColWs575Zm
0.17	1.319	15	ColWs575Zm

2.3 Copy

2.3.1 Copying a patched fixture

You might want to do this 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).

- 1> Press the blue PhotoCopy button.
- 2> C [Copy legends] allows you to either copy the legend as well, or if set to [Don't copy legends], the Pearl will generate a new legend.
- 3> Press the Select button of the fixture you want to copy.
- 4> Press the Select button of the empty Preset where you want to patch the copy.

- The ML Menu button latches the Copy menu, so you can keep copying things without having to keep pressing the PhotoCopy

button. Press Exit to leave Copy mode.

- Softkey B selects [Retain Layout] or [Bunch Up]. This is 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 you copy a fixture it is automatically included in any groups which the original fixture was in.

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> *Press the blue Delete button.*
 - 2> *Press the Select button of the fixture you want to delete.*
 - 3> *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 Moving

2.5.1 Moving a fixture to a different handle

You can move a dimmer or fixture from one handle to another using the Move function. You can also move a group of fixtures in one operation.

-
- 1> *Press the blue PhotoCopy button.*
 - 2> *Press softkey A until the option selected is [Move]. Pressing PhotoCopy again will also toggle this option.*
 - 3> *Press the Select button for the fixture you want to move. To move a group, hold the first select button and press the last of the group.*
 - 4> *Press the Select button for the handle where you want the fixture to end up (or the handle for the first one in the group if you are moving a group).*
-

- ML Menu button latches the Move menu, so you can keep Moving things without having to keep pressing the Move button. Press Exit to leave Move mode.
- Softkey B selects [Retain Layout] or [Bunch Up]. This is used when moving a group of fixtures with empty handles in the group – you can either keep the empty handles, or bunch up the used handles together.

2.6 Advanced options

2.6.1 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 D [Edit Fixtures]
 - 3> Press A [Swap Pan and Tilt].
 - 4> Select the fixtures to be pan-tilt swapped. Press A [Pan and Tilt ...] to select either [Swapped] or [Normal] for the selected fixtures.
 - 5> Press Exit when finished.
-

2.6.2 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 D [Edit Fixtures].
 - 3> Press B [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.

2.7 Fixture Exchange

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 an important feature 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.

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.

In order to maximise the Exchange function, you should use Palettes to create your cues wherever possible. This will allow 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 direct from the fixture(s) will need to be re-recorded, preferably using palettes.

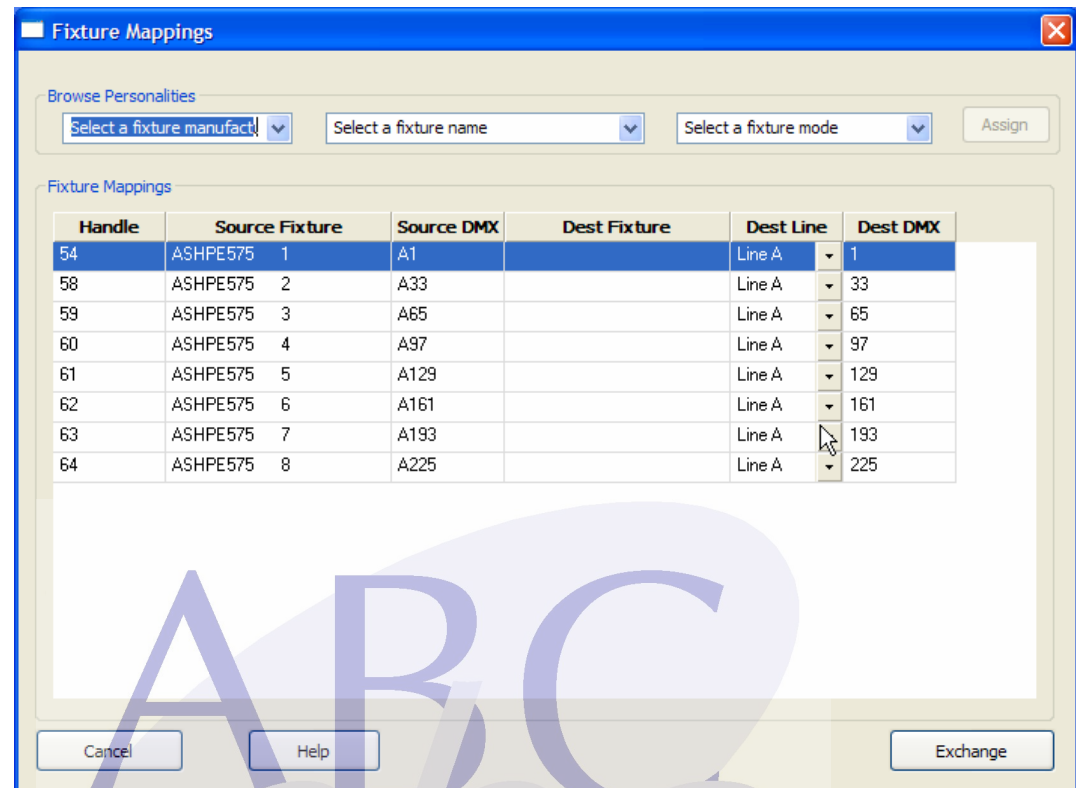
Links from the palettes to groups, cues, chases and cue lists will also be preserved, so the show can be easily recreated by updating your palettes as normal.

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 is always advisable to save your show before performing major

changes such as fixture exchange. Should you change your mind, you will easily be able to return to your show to its previous state.

The picture on the next page shows the Fixture Exchange window.



- 1> On the VDU click Tools, Exchange Fixture
- 2> Use the three dropdown boxes at the top of the screen to select the new type of fixture.
- 3> Select the existing fixture(s) you want to exchange. You can select individual rows or click and drag to select a range of fixtures.
- 4> Click Assign to set the new fixture type. The table can be sorted by any column by clicking on the head of that column
- 5> You can set the new DMX link and address for each fixture in the table.
- 6> When setting the DMX addresses some rows in the grid may change colour. Blue means that this is the currently selected fixture. Grey means that this fixture DMX address has been used elsewhere and this fixture will be parked when exchanged. Red means that this fixture has been assigned to an illegal DMX address.
- 7> Repeat steps 2 – 6 to exchange other fixture at the same time.
- 8> Once all the changes have been made click Exchange

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

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) 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 the blue Preset Select buttons for the fixtures you want. The select button will light up brightly for selected fixtures (they are also shown in dark blue on the VDU HUD and "Stage View" screen).*
- 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.*

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.
- Once you have changed any attribute, pressing a preset 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 blue on the VDU Stage View window.
- 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 11.1.3 on page 91).
- 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.

- 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 Locate

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 B [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.
- Option D [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.
- Option E [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 Clear

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. Only the lit attributes will be cleared. Pressing the Attribute Options (Bank Select) button will clear the mask.
- Option D [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.

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

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.

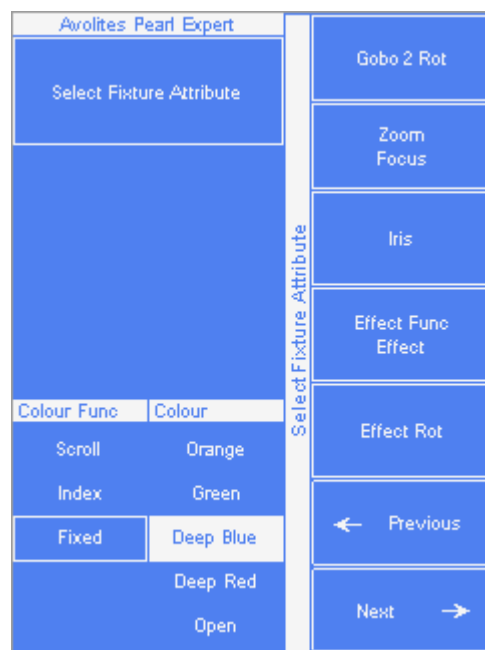
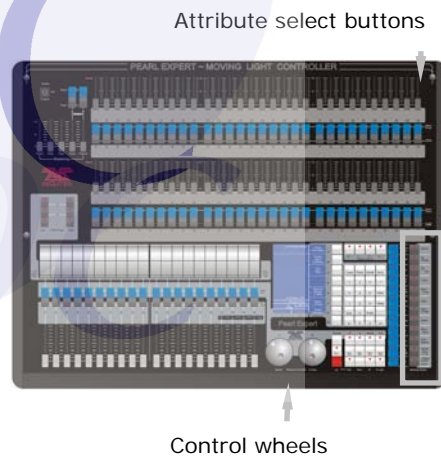
The attributes available depend on the fixture type. Dimmer channels only have a dimmer attribute.

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 highlighted



(as shown with the “Deep Blue” 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.
- 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 VDU by selecting View->Wheels on the VDU menu bar. A Colour Picker control will be available from v1.2.
- 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 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.

3.1.6 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.

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

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 D [And] between each number. For example 1 And 2 And 5 Enter will select 1, 2, 5.
- To select a range of fixtures, press F [Through]. For example 1 Through 8 Enter will select 1-8.
- To miss out fixtures in a range, use E [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 11.1.3 on page 91). 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.
- 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.

3.1.7 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.

3.1.8 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.

-
- 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 B [Record Group]*
 - 4> *Use softkey A to enter a number for the group, or B [Provide a*

legend] to set a legend.

- 5> *Press a Palette button (below a preset fader) where you want to store the group, or press C [Store] to store as a numbered group.*
 - 6> *Press Clear then repeat from 1 to store other groups.*
-

- To select all the fixtures/dimmers in a group, just press the grey palette 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.
- 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 A [Recall Group].*
-

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

3.1.9 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.

3.1.10 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 highlight mode. When you are in highlight mode, the highlighted attribute is overridden and any changes you make to it are not stored in the programmer (so if the highlight uses intensity, you cannot change the intensity of the fixture).

3.1.11 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 D [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.*
-

3.1.12 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 C [Flip Pan and Tilt].*
-

3.1.13 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.*
-

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

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

3.2.1 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 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

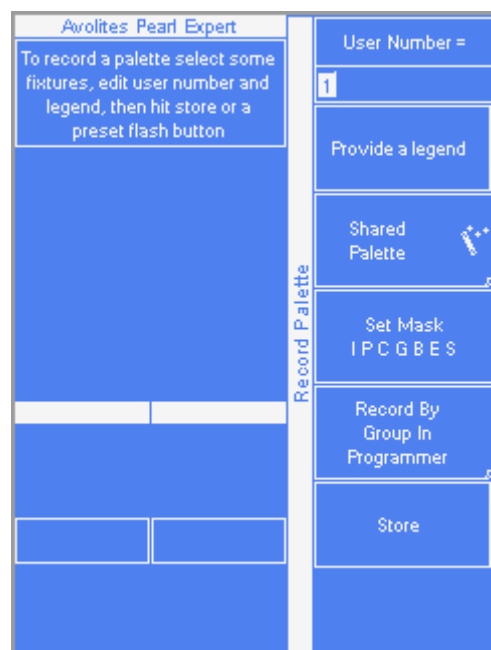
A palette entry can store any or all attributes of a fixture, so you could store position, colour and gobo in the same palette entry. However, it's easier to operate the Pearl if you have some palettes which only set positions, some for colour, some for gobo and so on. It's also best to group similar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

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 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.



- D [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.
- E [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 B [Provide a legend]. The legend is shown on the HUD, 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 A [Cancel], B [Replace], C [Merge] or D [Edit] 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. [Edit] allows you to change the legend or user number of the palette.

4.2 Playback

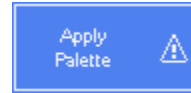
4.2.1 Recalling a palette value

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 4.7.1 below.
- You can recall a palette by its number by typing the number on the numeric keypad and selecting B [Apply Palette] from the softkeys. 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*

4.2.3 Quick palettes

You can configure the console for "quick palettes" so that if you press a palette button when no fixtures are selected, the palette will be set to all the fixtures the palette applies to. 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.

This option is set on the VDU menu Tools > User Settings > Panel > Enable Global Quick Palette.

4.3 Edit

4.3.1 Editing palettes

You can edit a palette entry by recalling it, making the changes you want, then saving the new information back on top of the existing palette entry. The Pearl 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 57.

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 B [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”.

Open	Slow Strob	Fast Strob	Slow R Stb
31 I N	32 I N	33 I N	34 I N
Presets 1-30		PresetFlashes 1-30	
Robe 1200	Robe 1200	Robe 1200	Robe 1200
1 0	2 0	3 0	4 0
Open	Red	Amber	Yellow
1 C N	2 C N	3 C N	4 C N

4.4 Copy

4.4.1 Copying palettes

To copy a palette:

- 1> Press the blue PhotoCopy button.
- 2> Check softkey A is [Copy]
- 3> Press the Palette/Flash button of the palette to be Copied.
- 4> Press the Palette/Flash you want to Copy it to.
- 5> Press ML Menu to keep the Copy mode active, so you can keep copying things without having to reselect the option. Press Exit to leave copy mode.

- You can copy multiple palettes by holding down the first button of the range then pressing the last button of the range.
- Option C [Copy Legends] can be changed to [Don't copy legends] so that the copied palettes are given default legends.
- Option B [Retain Layout] is used when copying multiple palettes. If set to [Bunch up] this option will remove any gaps in the palette selection.

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. You can also press the Palette button above the numeric keypad and use the softkey options to delete palettes.

4.6 Moving

4.6.1 Moving palettes

To move a palette:

-
- 1> Press the blue PhotoCopy button.
 - 2> Press A until the option shows [Move]. You can also press PhotoCopy again to toggle this option.
 - 3> Press the Palette/Flash button of the palette to be Moved.
 - 4> Press the Palette/Flash you want to Move it to.
 - 5> Press ML Menu to keep the Move mode active, so you can keep Moving things without having to reselect the option. Press Exit to leave Move mode.
-

- You can move multiple palettes by holding down the first button of the range then pressing the last button of the range.
- Option B [Retain Layout] is used when moving multiple palettes. If set to [Bunch up] this option will remove any gaps in the palette selection.

4.7 Timing

4.7.1 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.

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.

-
- 1> Select some fixtures
 - 2> Type in the fade time for the palette on the numeric keypad
 - 3> Press C [Fade Time] to set palette fade, or D [Fixture overlap] to change the fixture overlap setting
 - 4> 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.

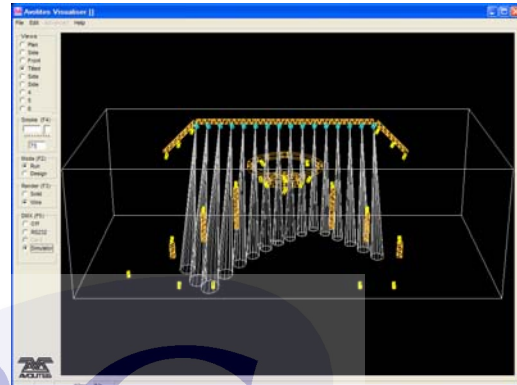


5. Shapes

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.

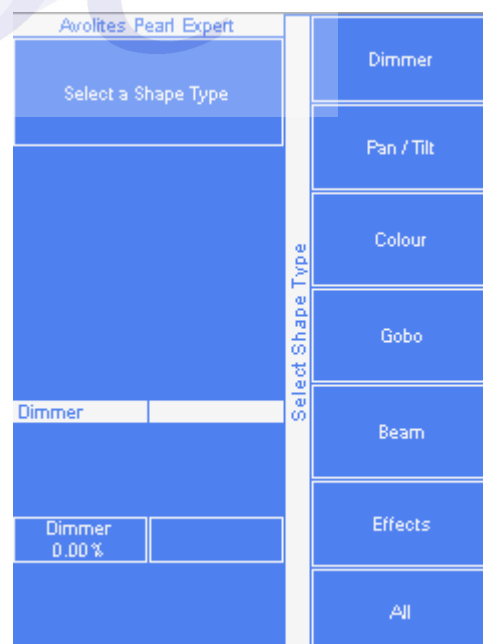
When you use a shape with more than one fixture, you can choose to either apply the shape identically to all the fixtures, or offset them so that the shape runs along the fixtures creating "wave" or "ballyhoo" type effects. This is called the *Phase* of the shape.

5.1 Playback

5.1.1 Creating a shape

To create a shape you simply pick it from a list on the softkeys. Shapes are listed 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.



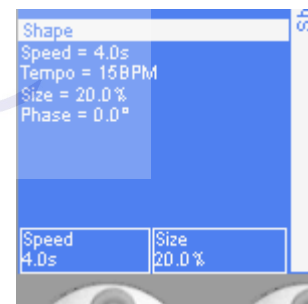
- 1> *Select the fixtures the shape is to be applied to.*
- 2> *At the main menu press C [Shape Generator].*

- 3> Press A [Create] to start a new shape.
- 4> Press a softkey to select the attribute type to use in the shape or press H [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.

- 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 C [Shape Generator] then B [Edit] to show what shapes are running.
- 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 C 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 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 5.2.1.
- 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

Presets 1-30		PresetFlashes 1-30	
Robe 1200	Robe 1200	Robe 1200	Robe 1200
Sp=4.0s	Sp=2.7s	Sp=4.0s	Sp=2.7s
Sz=20%	Sz=20%	Sz=20%	Sz=20%
1 0	2 0	3 0	4 0

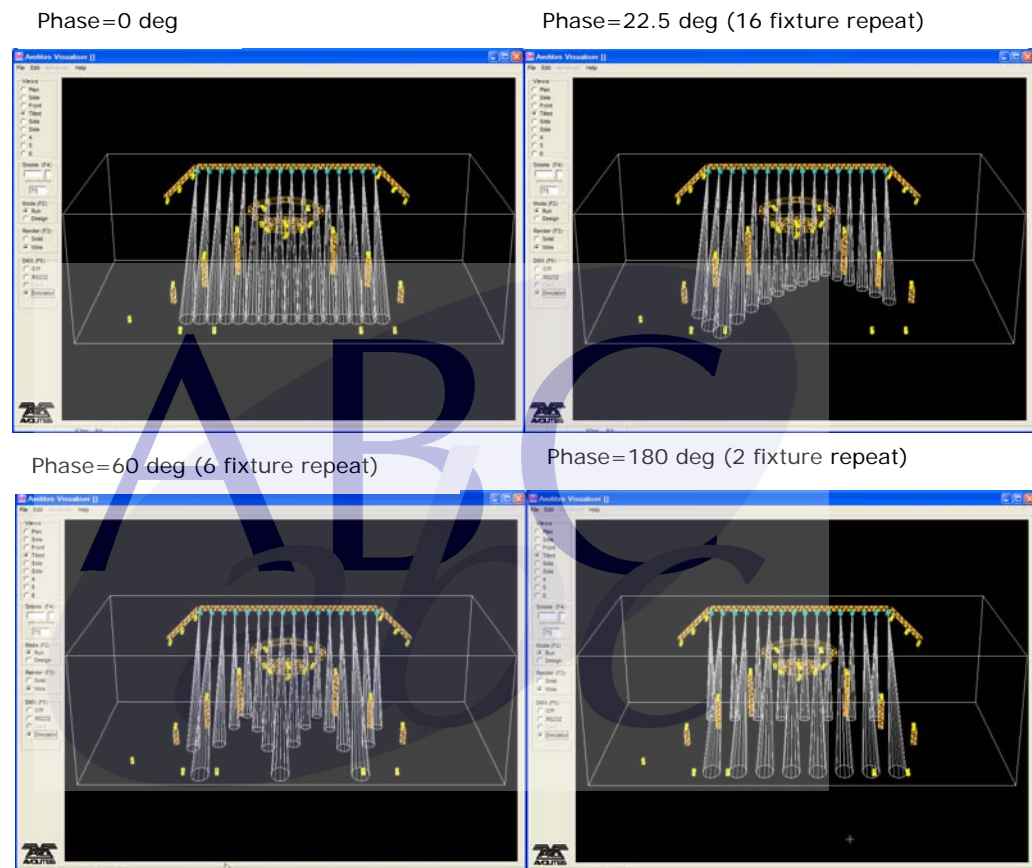
the individual shape parameters for each fixture.

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.

The sequence of the shape across the fixtures is controlled by the order in which you selected the fixtures when you created the shape..

-
- 1> Press softkey C to select [Adjust Phase]
 - 2> Control the phase of the shape using the left hand wheel.
-



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.

5.2 Edit

5.2.1 Editing shapes which are running

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

-
- 1> If you are not in the Shape menu, press the C [Shape Generator] at the top menu.
 - 2> Press B [Edit].
 - 3> By the softkeys is a list of the currently running shapes.

- 4> *Press a softkey to make the shape active. The active shape is highlighted.*
- 5> *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 Reversing a shape

You can reverse the direction of a shape by pressing D [Reverse Shapes] from the shape menu, then pressing the softkey for the shape you want to reverse.

5.3 Delete

5.3.1 Deleting shapes

You can delete a running shape by pressing C [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 A [Edit Times] from the main menu then E [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

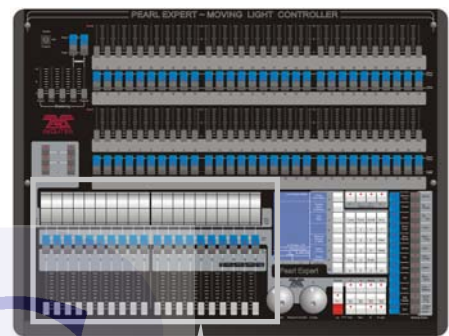
This chapter contains: HTP and LTP channels; how the Pearl works when programming; recording a cue; playing back a cue; changing playback pages; setting fade times for a cue; copying and deleting cues; the include function; editing cues; the "off" button; blind mode; using shapes in cues.

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.

The Pearl Expert also allows you to store cues on the preset faders.

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



Playback faders & split roller

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 light blue on the VDU Stage View. Attributes in the programmer (the things you have changed) are shown in cyan on the VDU Stage View screen.

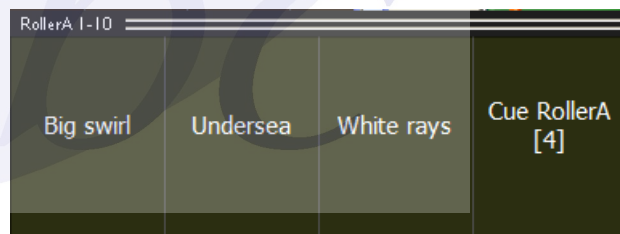
Firing a cue does not place the values from the cue in the programmer (although the Include function lets you do this, see section 6.3.2 on page 56).

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

Other useful things to know about recording cues:

- 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 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 B [Set Legend], then the playback Swop button (or the preset Select button), then enter a legend on the keyboard. Press Enter to store it.



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 6.3.3 on page 57.

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 6.7 on page 58 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.

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.

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.

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- 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 C [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.*
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- If you want to overwrite the cue entirely, use the option B [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 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 mode. Quick Include simply reloads the whole cue. Advanced mode 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.

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- 1> *Press Include (above numeric keypad).*
 - 2> *Softkey A selects [Quick Include] or [Advanced 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 B [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.*

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- 7> Repeat from 2 to include other attributes from the same fixtures, or repeat from 1 to include other fixtures.
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6.3.3 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.

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

6.4 Copy

6.4.1 Copying a cue

Copying a cue is very simple on the Pearl.

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- 1> Press the blue PhotoCopy button.
 - 2> Press the playback Swop button (or the preset fader) of the cue you want to copy.
 - 3> Press the playback Swop button (or the preset fader) where you want to store the copy.
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- To create a linked copy, after pressing Photocopy press A to select the option [Link] - or press PhotoCopy twice. The linked cue will have the same cue information in it, but can have different timings and playback options.
- The ML Menu button keeps the Copy mode active, so you can keep copying things without having to keep selecting the option. Press Exit to leave Copy mode.
- You can copy multiple cues by holding down the first button of the range then pressing the last button of the range.
- Option C [Copy Legends] can be changed to [Don't copy legends] so that the copied cues are given default legends.

