Solution

&

Solution^{XL}

Operating Manual

zero®88

Solution & Solution XL
Operating Manual

If a portable or temporary three phase mains supply is used to power this desk, we recommend that the desk mains plug is removed before connecting or disconnecting the supply. Serious damage will occur if the desk is connected across two phases.

This equipment is designed for use as a lighting control desk only, and is unsuitable for any other purpose. It should only be used by, or under the supervision of, an appropriately qualified or trained person.

Eaton Lighting Systems reserves the right to make changes to the equipment described in this manual without prior notice. E & OE.

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Introduction

This Manual

This manual describes the operation of the Solution and Solution XL lighting desks.

This chapter contains an overview of the capabilities and controls of the Solution & Solution XL.

The Quick Start Guide chapter is designed to get you up and running with the desk, but is not a substitute for the whole manual. For more detail on each function, this manual is divided into chapters, one for each major area of control.

Conventions

Throughout this manual the following conventions are used:

References to front panel controls, buttons and lights appear in capital letters, for example:

GRAND MASTER, COLOUR, FIXTURES.

Multi Function Keys (MFKs) and soft buttons which appear on the monitor screens are displayed as follows:

[Patch], [Desk Setup], [Files], [Clear Options].

The Solution & Solution XL Lighting Desk

A summary of the main functions of the Solution & Solution XL lighting desk is as follows:

Control Channels

The Solution & Solution XL desks have 248 or 296 channels of control as standard. These can be assigned and patched to dimmers and fixtures. The actual configuration is dependent on the desk type.

Dimmers

The Solution desk has 48 faders which control 48 dimmers (or 24 dimmers in two preset mode) .

The Solution XL desk has 96 faders which control 96 dimmers (or 48 dimmers in two preset mode).

Introduction

Fixtures

The Solution & Solution XL desks can control up to 200 fixtures. Fixtures can be a simple generic lamp or colour scroller, a moving mirror or moving head (eg Goldenscan, MAC 250), or any other item controllable via a standard DMX signal.

Moving heads, moving mirrors, LED and video systems controlled by DMX are fixtures with multiple parameters. Within the Fixture Library, the Solution & Solution XL is told which channels control which parameters of the fixture. These are then grouped into Position, Colour and Beamshape.

Fixtures can be given a user defined name and number, for ease of reference and may be patched to any of the DMX output channels (1 – 512) on any of the DMX universes (1 – 4).

Fixture parameters can be manipulated from within the Output Window, from where they can be added to cues, palettes or macros.

Dimmers are essentially a one channel fixture and as such further dimmers can be patched as fixtures if required.

Cues & Playbacks

The desk allows you to record lighting scenes into "Cues". Each cue has a number, name (optional), trigger, a wait time (auto cues) and a set of delay & fade times. Each cue is stored within a "Playlist". A Playlist can have a single cue (equivalent of a "submaster") or multiple cues (equivalent of a "cue list"). If there are multiple cues, they can either be played sequentially one after another, or turned into a chase (where the desk will automatically and continuously cycle through each cue). Multiple Playbacks are available to help separate and group cues together. A "Master Playback" is also available with larger GO button and dedicated PAUSE button.

- The Solution desk has 20 pages of 10 playbacks, plus the Master Playback (201 in total).

- The Solution XL desk has 20 pages of 30 playbacks, plus the Master Playback (601 in total).

Groups

The desk provides 400 user definable groups. Automatic groups for each fixture type can be generated if required.

Palettes

The desk provides 400 user programmable palettes for each of the attributes (Colour, Beamshape and Position). The desk can also generate auto palettes which provide basic colours, gobos and positions based on the fixture types used in the desk.

Effects

The desk provides 400 user programmable effects. The desk can also generate a number of standard effects which include intensity, colour, beamshape and movement effects.

Macros

The desk provides 400 user programmable macros.

Operating Mode

The desk has a three separate operating modes which can be selected for various operators of different skill levels.

Lock Functions

The desk has a lock function which will prevent misuse of the desk. When the desk is locked with Lock All, it is not possible to perform any operations on the desk.

Audio Input

The desk has an audio input, which may be used to trigger chases with bass drives.

SMPTE & MIDI

The desk provides SMPTE and MIDI connections as an optional upgrade card, which can be used to trigger cues with SMPTE or MIDI timecode triggers.

Remote

The desk provides an optional remote control interface via six (6) contact closure inputs. These can be added via the optional SMPTE/MIDI upgrade card.

Ethernet

The desk has an Ethernet port capable of supporting Art-Net and streaming ACN. In addition to these outputs, this allows smart phones and laptops to be used as remotes.

USB Ports

The desk has four USB ports, which may be used for saving and loading show files, loading user fixture types and performing software upgrades. The USB ports on the desk support keyboard, mouse, external touch screens, memory sticks and desk lights.

Mouse and External Keyboard

The desk provides a USB mouse interface to allow you to move quickly around the monitor screen, select fields, choose options etc.

The desk provides a USB interface to a standard PC keyboard, to allow text and numeric data to be entered.

Video Output

The desk provides the interface for one external monitor display (XGA). It is highly recommended that the desk is operated with a monitor display connected, as important information is displayed here.

DMX Output

Data is output on DMX channels 1 – 512 on four DMX universes as standard. The DMX output sockets on the rear panel of the desk default to outputting universes 1 to 4 only when fixtures are patched onto the respective universes. Universes 1 to 4 can also be output via Ethernet using either Art-Net or streaming ACN, see the chapter on Ethernet Options later for further details.

Introduction

Front Panel Controls
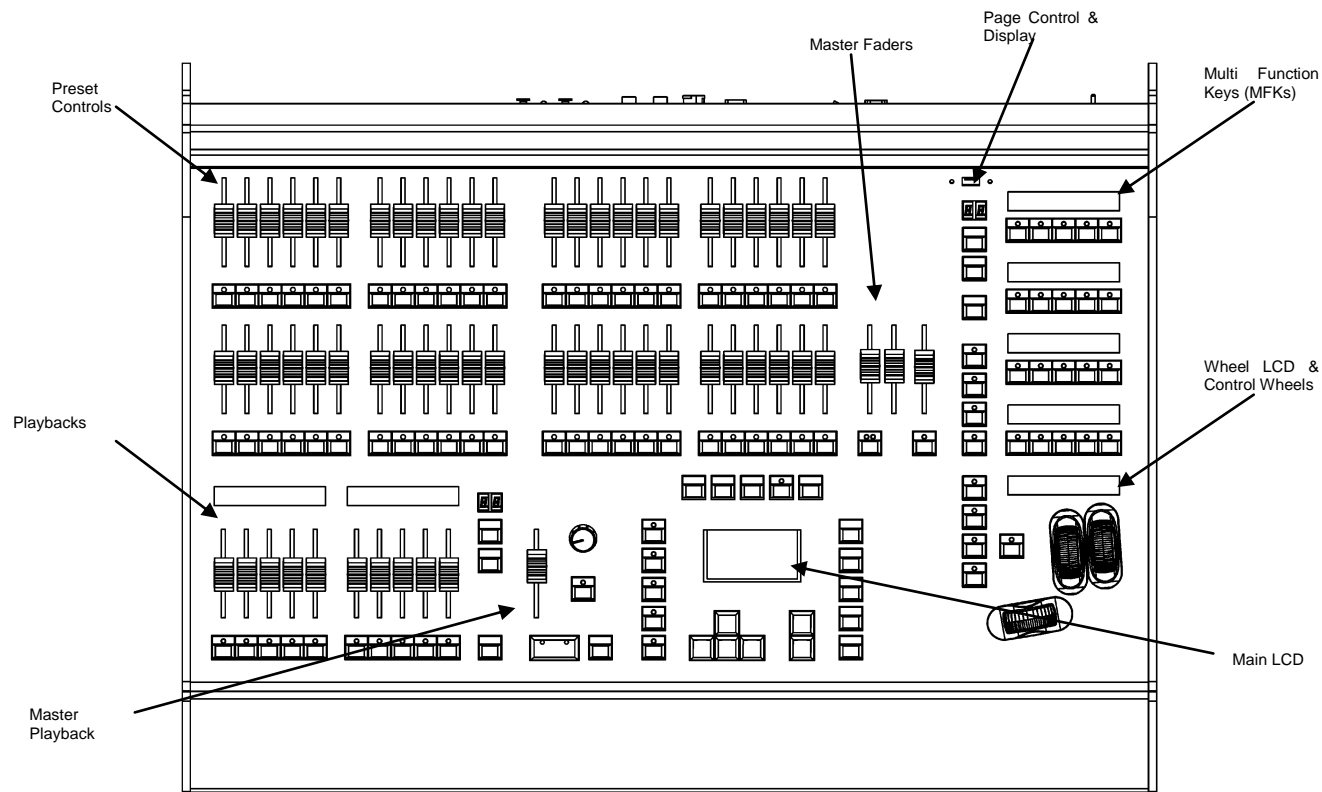
Figure 1 - Solution desk layout

This section of the manual describes the various controls and displays on the front panel of the Solution & Solution XL desk. The front panel controls have been divided into the following sections:

- Preset Controls
- Page Controls, Mode Keys and Multi Function Keys (MFKs)
- Playbacks
- Master Playback

- Other Keys and Controls
- Main LCD
- Wheel LCD and Control Wheels

Preset Controls
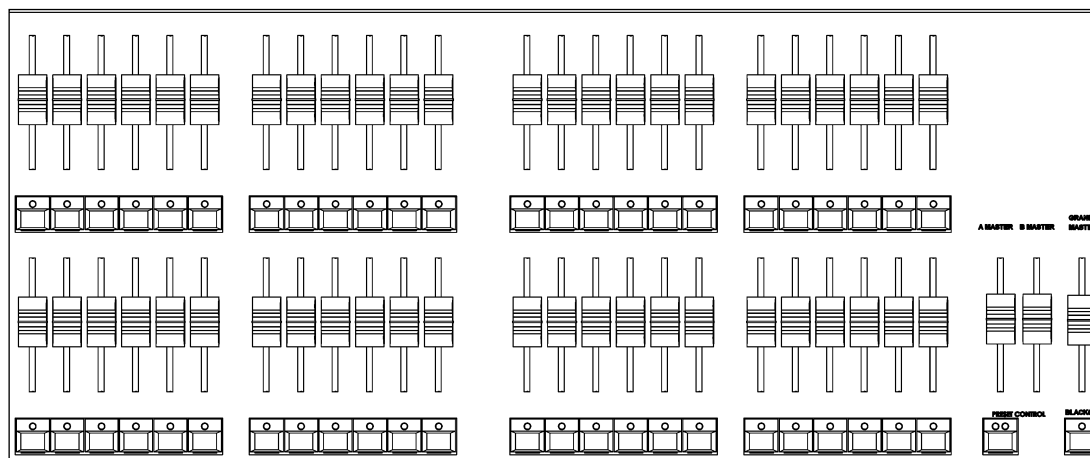
Preset Faders

The Solution presets have three modes - "Disabled", "Two Preset" or "Wide". This can be changed using the PRESET MODE setting in Special Page 1 of the MFKs.

Preset Faders

The Solution desk has 48 preset faders arranged as two rows of 24 faders and buttons. These control 48 channels when Preset Mode is "Disabled", 48 channels when in "Wide ", or 24 channels in "Two Preset" mode

The Solution XL desk has 96 preset faders arranged as two rows of 48 faders and buttons. These control 96 channels when Preset Mode is "Disabled", 96 channels when in "Wide", or 48 channels in "Two Preset" mode

Channel Flash Buttons

Each desk has a CHANNEL FLASH button located below each PRESET fader, used to flash, solo or latch the channels or to select the channels or fixtures assigned to the corresponding faders; their action being determined by the CHANNEL BUTTON MODE setting in Special Page 1 of the MFKs.

A and B Master Faders

"Disabled" – these faders are unused

"Two Preset"– The A MASTER fader controls the maximum output levels from the PRESET A FADERS. The B MASTER fader controls the maximum output levels from the PRESET B FADERS.

"Wide" – The A MASTER and B MASTER faders control the maximum output levels from all the PRESET faders or the stored scene according to the setting on the PRESET CONTROL button.

Preset Control Button

The PRESET CONTROL button is only applicable in "Wide" mode and is used to control which of the A or B MASTER faders has control of the preset faders and which has control over the stored scene. The red LEDs in the button indicate the current state. Pressing the button swaps the function of the two faders.

Introduction

Page Controls, Mode Keys and Multi Function Keys (MFKs)

This section of the front panel contains page controls and a seven segment display, a set of Mode keys (FIXTURE, GROUP, COLOUR, BEAMSHAPE, POSITION, EFFECTS, MACRO, SPECIAL) and a block of 20 Multi Function Keys (MFKs).
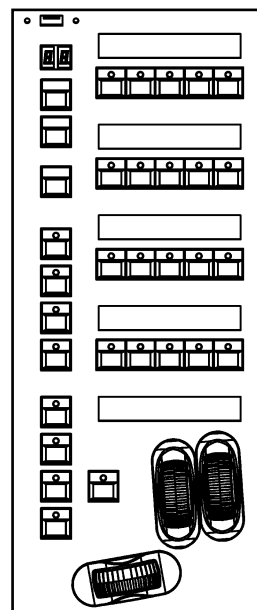
Page Controls and Display

The current Page is indicated on the dual seven segment display.

The PAGE UP and PAGE DOWN keys are used to select the required page.

Pressing the PAGE UP and PAGE DOWN keys together selects Page 1.

Each mode (Fixture, Group, Colour etc.) has its own current page.

Mode Keys

The mode keys (FIXTURE, GROUP, COLOUR, BEAMSHAPE, POSITION, EFFECTS, MACRO, SPECIAL) determine the function of the block of 20 Multi Function Keys (MFKs).

Each of the mode keys contains a red LED, which is lit when selected. If the mode key is flashing, this indicates that the wheels are in control of this attribute but the MFKs are showing another function. This allows simultaneous selection of fixtures whilst still manipulating attributes, for example.

The function of the Mode keys is summarised below:

FIXTURE	turns the block of 20 MFK's into Fixture selection buttons.
GROUP	turns the block of 20 MFK's into Group selection buttons.
COLOUR	turns the block of 20 MFK's into Colour Palette selection buttons.
BEAMSHAPE	turns the block of 20 MFK's into Beamshape Palette selection buttons.
POSITION	turns the block of 20 MFK's into Position Palette selection buttons.
EFFECTS	turns the block of 20 MFK's into Effect Palette selection buttons.
MACRO	turns the block of 20 MFK's into Macro selection buttons.
SPECIAL	turns the block of 20 MFK's into Special function keys.

Multi Function Keys (MFKs)

The Multi Function Keys are arranged in 4 rows of 5 keys with a graphical LCD above each row of keys. The brightness and contrast of the LCDs can be adjusted as required.

Each Multi Function Key contains a red LED. These LEDs are used to indicate which fixtures, groups etc. are selected depending on their current function.

Pressing and releasing one of the Mode Keys changes the MFK's to that page and the control wheels follow (when appropriate). The MFKs remain in that mode until a different Mode key is pressed.

Pressing and holding down a Mode key <u>temporarily changes</u> all the MFKs to that function. Selecting an MFK will apply that MFK but the MFKs will return to the previous MFK mode, when the Mode key is released.

For example – Press and release the FIXTURES key. The MFKs change to fixture selection keys. Select a number of fixtures. Press and hold down the COLOUR key. The MFKs change to colour palette selection keys (while the COLOUR key is being held down). Press one of the colour palette MFKs to apply the colour palette to the selected fixtures. Release the COLOUR key and the MFKs return to being fixture selection keys.

Introduction

Multi Function Key LCDs

The LCDs above the MFKs typically display three lines of data.

Example 1 - When the MFKs are assigned to colour palettes - The first line shows the number of the palette and the data stored. The second (and third if required) lines show the palette name.
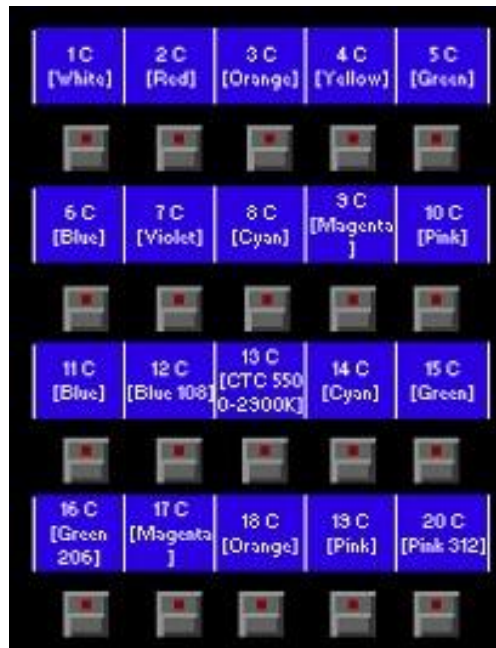
Example 2 - When the MFKs are assigned to fixtures – The top line shows the fixture number. The second and third lines show the fixture name, eg Mac 300 : Mode 4.

Playbacks
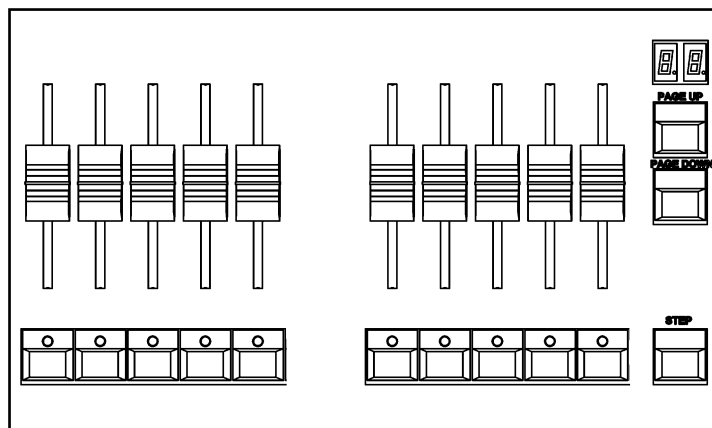
Playback Faders

The Playback faders controls the maximum output level of the cue being output on the Master Playback. This fader only affects the dimmer and brightness fixture channels (if applicable). The Colour, Beamshape and Position fixture channels are not affected by the master fader.

Playback Buttons

The Playback buttons, located below each of the playback faders are used to flash, solo or latch the data programmed on the playback. When multiple cues are programmed on the Playback, these buttons can act as a GO or Pause function. Each button can have two actions, a "Normal" action and a "Shifted" action (when SHIFT and the PLAYBACK BUTTON are pressed together). The actions of these buttons are user definable via the Playback Setup Window (accessible by holding SETUP and pressing the PLAYBACK BUTTON).

Playback Page Controls and Display

The current Playback Page (1-20) is indicated on the dual seven segment display.

The PAGE UP and PAGE DOWN keys are used to select the required playback page.

Pressing the PAGE UP and PAGE DOWN keys together selects Playback Page 1.

Step Button

The STEP button is used to initiate the Global Tap tempo when Playbacks are set to "Chase" and have "Global Tap Tempo" enabled. There is no difference between the two Step buttons.

Introduction

Master Playback Controls
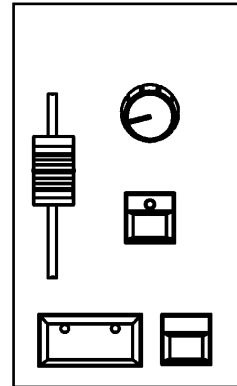
Master Playback

The Master Playback controls "Playback 0". This Playback is no different to any of the other Playbacks, except that it's separated out and is always available, no matter which Page the console is currently set to.

Fader

The MASTER fader controls the maximum output level of the cue being output on the Master Playback. This fader only affects the dimmer and brightness fixture channels (if applicable). The Colour, Beamshape and Position fixture channels are not affected by the master fader.

Go Button

The GO button is used to initiate a crossfade between the cue currently being output and the Next cue in the Playback as indicated on the Playback screen. Other actions are available via the Playback Setup Window (accessible by holding SETUP and pressing the GO button).

Pause Button

The PAUSE button is used to pause a crossfade between the current and next cue. When a crossfade has been paused, the red light in the button flashes. Pressing the GO button releases the pause. Pressing Pause again will step backwards in the cue stack.

Override Control

The OVERRIDE control is used to slow down or speed up the crossfade between the current and next cue. When the control is moved away from the central neutral position, this is indicated on the monitor screen.

Step Button

The STEP button is used to initiate the Global Tap tempo when Playbacks are set to "Chase" and have "Global Tap Tempo" enabled. There is no difference between the two Step buttons.

Main LCD

The Main LCD provides part of the user interface on the front panel of the desk. The content, layout, operation and other information displayed on this screen is dependent on the current operation being carried out on the desk.

When the Playbacks screen is selected, the Main LCD acts as a small viewing portal on the Playbacks window.

When any of the other main windows (Outputs, Groups etc.) are selected, the Main LCD displays a simple text message directing you to refer to the monitor, plus the desk software version and other helpful information, for example:

```
Output Window
  See Monitor for details

     For help press
  SHIFT & LEFT & RIGHT
   zero88.com/support
```

Introduction

Other Keys and Controls
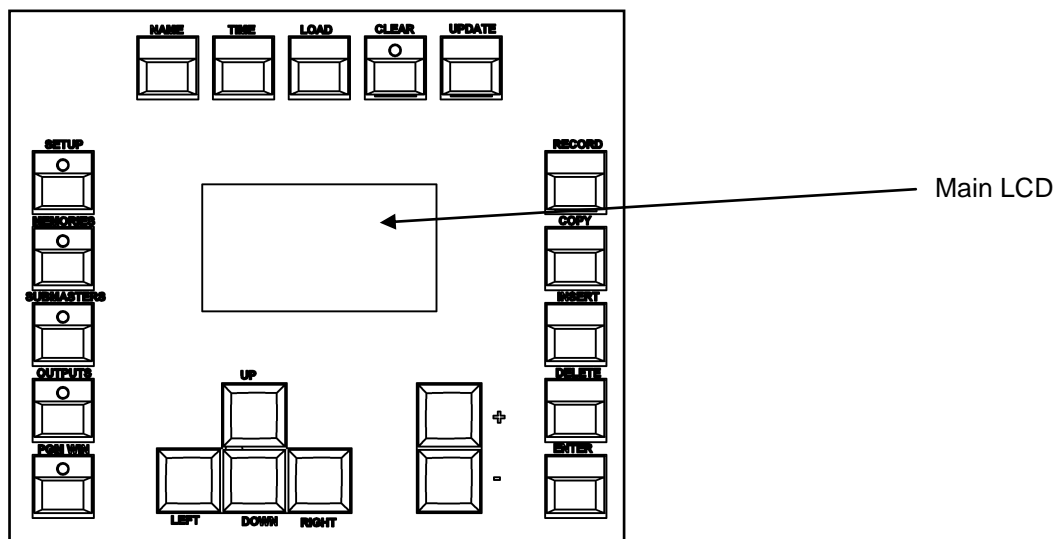
Main LCD

SETUP - used to enter Setup mode and display the Setup screen on the Main LCD and monitor. Also used for exiting Setup mode.

MEMORIES - opens the Cue List of the selected Playback. To select a different playback, hold MEMORIES and press the flash/GO button of any Playback together.

SUBMASTERS - displays information on the current page of "Playbacks".

OUTPUTS - used to display the Outputs screen on the monitor.

PGM WIN - opens the "Fixture Levels" window of the selected Playback, which displays the value of every fixture in every cue. To select a different playback, hold PGM WIN and press the flash/GO button of any Playback.

Cursor Keys (**UP, DOWN LEFT, RIGHT**) - used to move around the fields on the main LCD (where appropriate) and/or the monitor screen. These buttons are equivalent to the four cursor keys on an external keyboard (if fitted).

Plus (+) and Minus (-) - used to increment or decrement the value of the current selection.

NAME - used for naming cues, playbacks, palettes etc.

TIME - used in combination with other keys to perform various functions over the internal fade time (eg outputting palettes over a time).

LOAD - load a cue into the programmer, press LOAD, type the cue number on the MFKs, and then press the flash/GO button of the playback containing the cue you with to load.

CLEAR - used for clearing the "programmer". As soon as any changes are made to the look in the programmer, the LED in the CLEAR key is lit, to indicate that dimmer or fixture parameter values have changed. Pressing the CLEAR key once clears the fixture selection in the Output Window. Pressing the CLEAR key a second time will clear (undo) all the operations made in the "programmer" since the LED was first lit and the LED in the key goes out.

UPDATE - used to update loaded items or items modified by the programmer.
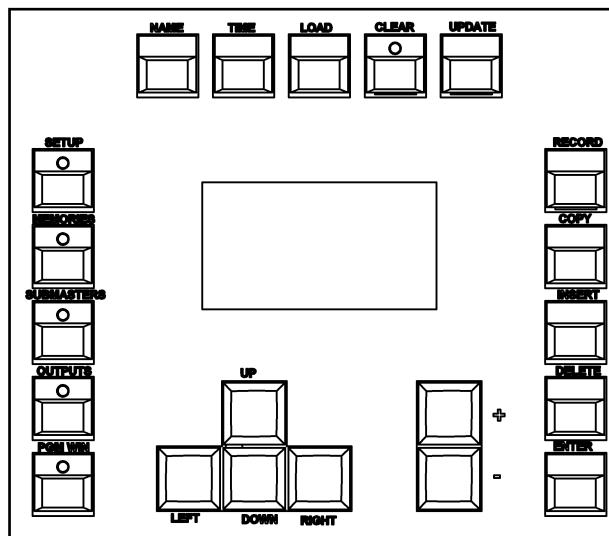
RECORD - used for programming cues, groups and palettes.

COPY - used to copy Cues and Playbacks from one location to another

INSERT - includes a range of functionality, customisable by the user by holding SETUP and pressing INSERT.

DELETE - used when deleting items (cues, playbacks, groups, palettes etc.)

ENTER - used for completing commands and selecting 'soft' buttons on the Main LCD, monitor screens and popup windows.

HOME - used as a quick method for setting all the parameters, or all the parameters for a particular attribute to their home values. The Home values are found in the Edit Fixtures table in Setup and can be adjusted as required.

GRAND MASTER - controls the final output values of all dimmer and fixture intensity channels, resulting from the Program Window, Playback X and submasters. The Grand Master level is displayed on the monitor screen.

BLACKOUT - reduces the outputs of all dimmer and fixture intensity channels to zero. Pressing the BLACKOUT key toggles between active and not active. The red LED in the BLACKOUT key flashes when blackout is active.

SHIFT - used in conjunction with various front panel controls to provide additional functions, eg holding SHIFT and pressing the COLOUR key displays the Colour Palette Window on the monitor.

Introduction

Wheel LD and Control Wheels
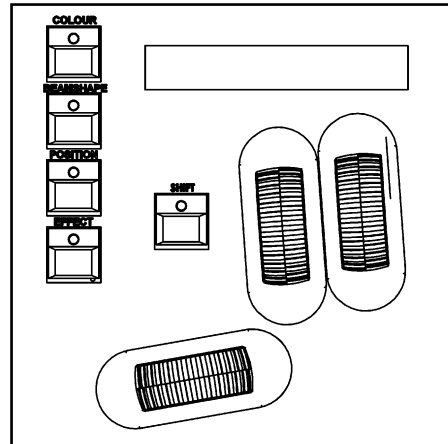
Wheel LCD

The Wheel LCD is used to indicate which fixture parameters or other data are being controlled by each of the three control wheels.

Example - When showing fixture parameter values - The Wheel LCD displays the parameter name (eg Colour1) and the value in %, DMX or the parameter detail name.

Tag status is shown by inverse graphics – a white background shows a tagged parameter, and a blue background display shows an untagged parameter.

Control Wheels

The three control wheels are used for setting fixture parameter levels and other data. The names of the fixture parameters or other data currently assigned to each of the wheels and their values is shown on the Wheel LCD.

Wheel Editing Modes

There are a number of wheel editing modes which apply when editing several fixtures at the same time (Absolute, Relative, Fan First, Fan Middle, Fan Last, Fan V).

For each attribute there is a normal wheel mode which applies when the control wheel is moved and a shifted wheel mode which applies when the SHIFT key is held down and the control wheel is moved.

For further details on each of the wheel editing modes, and how to adjust the normal and shifted mode for each attribute – see page 66 of the manual for full details.

Solution & Solution XL Quick Start Guide

Welcome to the Solution & Solution XL Quick Start Guide. This chapter is intended to get you started using your new desk – for full information, please see the relevant chapters of this User Manual.

Getting Started

Before you power up the desk, it is essential to attach all the peripherals you will be using. The desk has support for USB peripherals such as a Keyboard and Mouse and a VGA monitor (or touch screen). In addition, you should connect the DMX or Ethernet cables for controlling your lighting rig.

These must be connected before powering up, as subsequent connection could result in software or hardware malfunctions.

Once you have connected all the peripherals you require, turn on the desk using the switch on the rear panel. If you see no immediate response, check that the power switch is set to ON, and that the IEC lead is firmly attached to the external power supply. The desk will boot up and you will be presented with the desk software.

Selecting Operating Mode

There are three operating modes for the Solution & Solution XL desks. These operating modes are designed for operators with different skill levels to ensure they get the maximum out of the console. The first time you power on the desk, it will prompt you to select an operating mode. For the purposes of this Quick Start Guide, we will select Non Tracking Mode. In this mode, everything that is output from the desk is recorded into each cue, and changes made in one cue will not affect other cues. As you progress your knowledge of the Solution & Solution XL you may want to experiment with the other modes. Details of these modes can be found in the user manual, page 60 for full details.
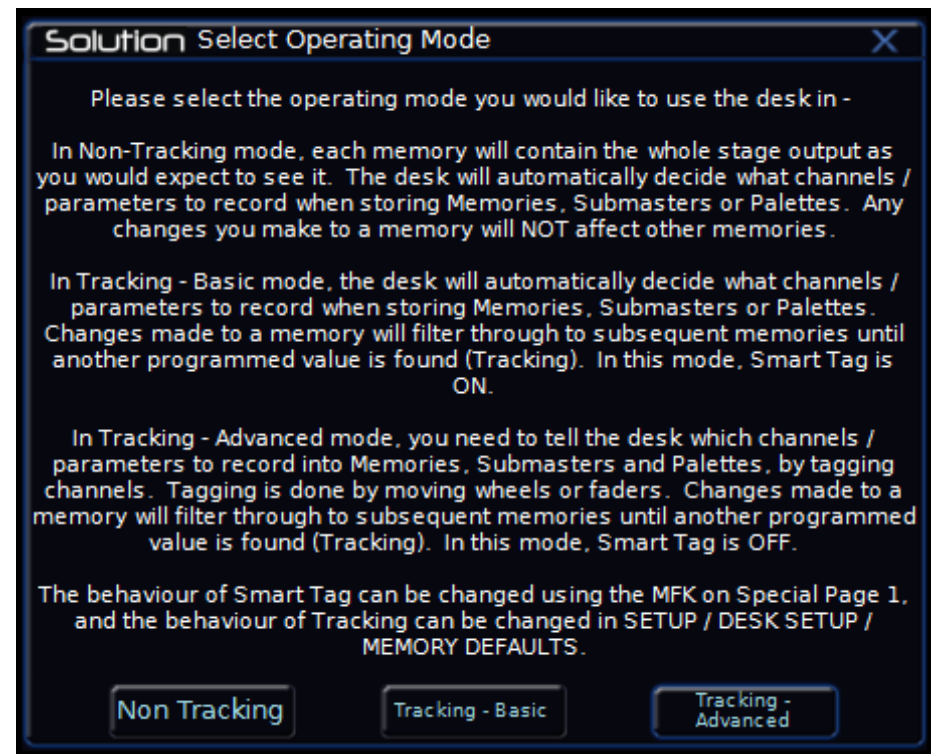

Figure 2 - Select Operating Mode

Quick Start Guide

Controlling Dimmers

The default setup for the desk gives you control of dimmers 1 to 48 (DMX addresses 1 to 48 on Universe 1) on the generic preset faders 1 to 48 (1 to 96 on the Solution XL).

This can be defined differently, but for now we will assume you're working with the default settings. Check that the GRAND MASTER fader is at the top (100%). Moving the Preset Faders will bring their channels on, and you will see the result on stage.

You will also see the results in the Program Window (see later in this guide).

Programming

Once you have set up a scene that you like you can then record that state into a cue on any of the playbacks. Cues within a single Playback are played sequentially in a theatre style (Cue 1 GO, Cue 2 GO, etc). Multiple playbacks can be mixed together by raising the faders, useful for live events or unpredictable shows.

Cues

Recording a Cue

If you aren't already in the Playback Window, press the MEMORIES key. This will bring the Playback Window up onto the monitor.

To record a cue, press the RECORD key. All the Playback buttons will flash. Press the Playback Button of the Playback you wish to record the cue onto (for example, the Master Playback GO button). Remember that there are 20 pages of playbacks available so check the page indicator is on 1 before continuing. Alternatively, pressing ENTER after RECORD will record the cue onto the Playback you're currently viewing.

Subsequent cues can then be set up and recorded using the same method. When recording the second cue onto any Playback (except the Master Playback), the console will offer various options – select "Create Cue 2".

Once there are multiple cues recorded, the green bar shows the "current cue" and the yellow bar shows the "next cue". The Current and Next cues are also shown on the Main LCD.

Adjusting Fade and Delay Times

By default, a cue will receive a 3 second fade time on the intensity parameters (dimmers) and a 0 second fade time on all moving light attributes (colour wheels, gobo wheels, etc). These are displayed in the Playback Window in the relevant columns.

The fade and delay times can be adjusted by moving the cursor to the required field in the Playback Window, pressing the ENTER key, typing in the time using the MFKs and pressing ENTER to confirm. See the Playback chapter in the User Manual for full details of adjusting times.

Editing Cues

The easiest was to make changes to a cue is to go into the cue (so it's highlighted with a green bar) and make changes using the preset faders and fixture controls, and press the UPDATE key. The Update Options Window is displayed on the monitor. Select the [OK] button or press ENTER to complete the edit.

Naming Cues

Each cue can have a name associated with it. These are displayed in the Playback window and can be useful for reminding you of the contents of a particular cue.

To set the name, press the MEMORIES key to display the Playback Window. Select a programmed cue to be named, go across to the "Name" column, and press Enter. You can either use the MFKs to enter the memory name as required, then select the [OK] button to complete the operation, or use the onscreen keyboard which is displayed. An external USB keyboard can also be used.

Playing Back Cues

Before playing back the programmed cues in the playback, it is important to clear the programmer by pressing the CLEAR button twice. This removes any

unrecorded commands and sends fixtures to their default values (assuming no other Playbacks are outputting).

The Playback faders & buttons (including the Master Playback), together with the Playback Window, are used to play back the programmed cues in the Playback.

Raising a Playback fader will bring the data programmed on the first cue of the Playback to the outputs. For attributes, the cue will trigger at 5% a crossfade to the new values. For dimmers, the Playback fader provides intensity control.
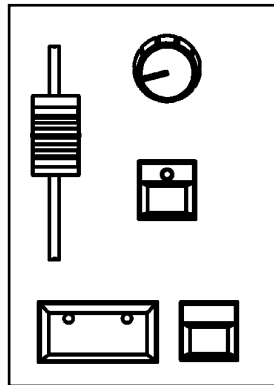
Starting the Show

Set the Master Playback and GRAND MASTER faders to full. Ensure that Blackout is not active. Check that the OVERRIDE control is in its central position.

Select the first programmed cue using the arrow keys and press the GO button. The cue fades up according to its programmed fade and delay times.

Selecting the Next Cue

After a cue is run, the selected (highlighted in yellow) cue will automatically move on to select the next programmed cue. To select a different cue to be output next – move the cursor to the Next cue number field, then use the + and – keys or the UP and DOWN arrow keys to select the next cue to be output. The Next cue to be output is highlighted by a yellow bar.

Using the GO Button

When a cue is triggered by the GO button, the Intensity, Colour, Beamshape and Position fades will occur in the times programmed. If necessary, all fades may be controlled by the OVERRIDE and PAUSE controls on the front panel. To resume a paused fade, press the GO button.

Page Handover on Playbacks

It is possible to output scene or chase data from several Playbacks on different pages at the same time. The behaviour can be changed by using "Page Handover" in SETUP > System Settings.

If "Page Handover" is disabled, all Playback faders and buttons will control the Playbacks of the current page. If the page is changed whilst Playbacks are active, their levels are "kept" but cannot be changed until the page is returned to the page of that Playback.

If "Page Handover" is enabled, and the Playback page is changed, faders and buttons remains in control of any active Playbacks. The new Playback is not made available until the fader is brought back down to zero or the flash button is released.
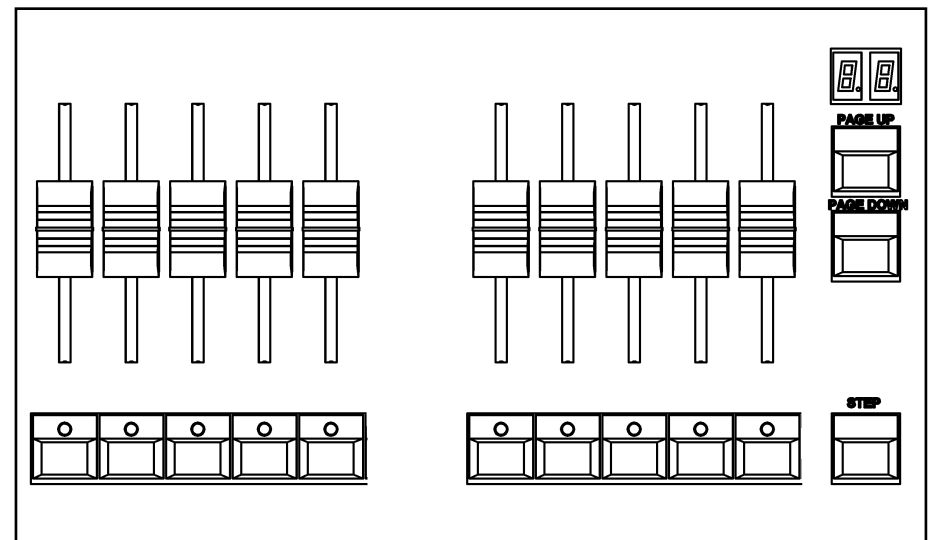
Quick Start Guide

Output Window

The Output Window is central to the programming functionality on the Solution & Solution XL desk. It is recommended (but not mandatory) that the Output Window is displayed on the monitor screen when setting up cues, playbacks or palettes.

To display the Output Window on the monitor press the OUTPUTS key. As you adjust dimmer levels, select fixtures and adjust their parameters with the control wheels, or by other methods, the corresponding information is shown in the Output Window.

The dimmer and fixture parameter data displayed in the Output Window can then be recorded to cues or palettes as required.

The top part of the Output Window shows the dimmer channels. Tagged dimmer channels are shown in red text, untagged dimmer channels in white text.

The currently selected fixtures are highlighted in an orange box. Fixture parameters which are tagged have a light blue background, those that are untagged have a dark background.
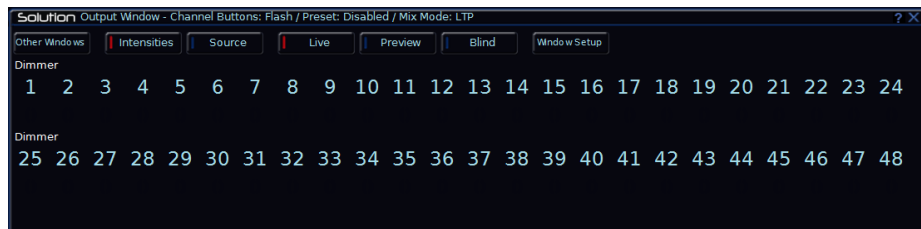
Figure 3 - Output Window

Setting Up the Desk

Now you've grasped the basics of the desk, it's time to venture into the Setup area of the desk. Setup is used for all of the major functions on the desk, such as clearing out the current show, loading in a new one, or adding moving lights to your show.

To get into Setup, press the SETUP key. The Setup Window is displayed on the monitor screen with the Patch Overview selected as default :
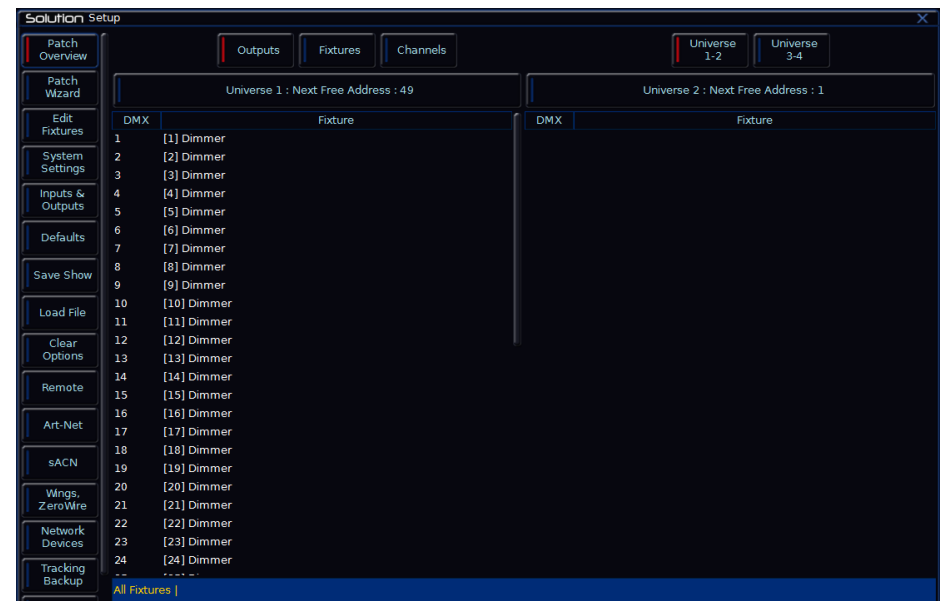
Figure 4 – Setup mode, Patch Overview

Setup gives you access to the core settings for the desk such as the patch, default fade times and output settings. As such you shouldn't normally need to enter the Setup area during a show.

It is, however, also used for saving and loading of show files and updating the desk software, so you should be familiar with it even if you are only using generic lights.

Adding and Patching Fixtures

Once in Setup, you can patch in your moving lights. Moving Lights need to be set up on the desk as the desk doesn't automatically know what you are using.

The following operations may be be performed using the MFKs on the front panel or via the popup windows on the monitor or a combination of the two methods, as preferred.

You need three pieces of information about your moving lights before you start the process which are:

- The fixture manufacturer and model number - these are generally found on the light itself.

- The mode you wish to operate the moving light in. This has to be set on the moving light itself, and match on the desk – check the user manual of the light for full details.

- The DMX address of the light. This is basically the lights identifying information within your lighting system, and must be unique for each light you wish to control. Moving lights generally take up a number of channels, sometimes as many as 30, so consult the moving lights manual before setting the DMX address.

Once you have this information you are ready to set up your fixtures…

Selecting a Fixture – Manufacturer, Fixture Type and Mode

Ensure you are in Setup mode, and that the Setup LED is lit.

Now press the [Patch Wizard] MFK.

Select the first letter of the fixture manufacturer (eg M) and then the manufacturer (eg MARTIN) using the MFKs.

The MFKs and monitor then display a list of fixture types for that manufacturer. Note that some manufacturers fixtures are spread over multiple pages, and you may need to use the Page function to find the fixtures you are using.

Select the required fixture type (eg MAC 301 WASH) using the MFKs, and then select the Mode (eg Mode 4).

Figure 5 - Patch Wizard

Setting the DMX Start Address

Once you have selected the required fixture type (eg MARTIN MAC 301 WASH : 16 Bit), you can set the DMX start address for the fixture(s):

Select the DMX universe (1-4) and enter the required start address using the MFKs or directly into the field on the popup window on the monitor.

To patch to the next available address in the selected universe use the [Next Address] MFK or soft button on the window.

Press ENTER to confirm.

Assigning Fixture Type to MFKs

Having selected the required fixture type and specified a DMX start address, you now tell the desk where you would like these fixtures to be. Press the

Quick Start Guide

MFK for the fixture you require – the LCD above it will change to show the fixture assigned to the MFK and the DMX address for this fixture. There are 10 pages of 20 fixtures available.

When you have assigned the fixture type to the required fixture selection key(s), press ENTER to return to the Patch options.

Note – Fixture Types

The complete Zero 88 Fixture Library is stored on the desk, but it is also possible to load additional fixture types from memory stick. If the fixture type you require is not in the fixture library on the desk you can import the fixture type – see Setup chapter of the User Manual for full details.

System Settings

Figure 6 - Desk Setup

The System Settings area allows you to configure or customise the settings on the desk to your own requirements.

System Settings is divided into a number of different sections. A summary of the System Settings are provided below. For full details of the various options refer to the Setup chapter in the User Manual.

- **External Display Settings** – Enable / Disable the external monitor, Calibrate external touchscreens and change the colour scheme

- **Internal Display Settings** – Change the LCD Brightness and Contrast

- **Peripheral** - Allow mouse or trackball to control pan and tilt parameters; adjust control wheel sensitivity.

- **Operational Settings** – Confirm Overwrites; Recovery Mode; MFF Window settings

- **Attribute Settings** – Set the wheel modes, behaviour and tagging options for each attribute (Intensity, Colour, Beamshape, Position)

- **Page Handover** – Change how the console should behave when changing Playback pages

Inputs & Outputs

Inputs & Outputs gives you access to switch the physical DMX Outputs to different universes, and configure MIDI and SMPTE Timecode, CAN messages, MIDI Nodes, MIDI Show Control, Remote Switches and DMX IN.

Defaults

Defaults allow you to change the Default Settings of Cues and Playback Settings. This will affect all future Cues recorded and Playbacks created, but won't affect any cues and Playbacks already recorded.

Saving Shows

The Solution & Solution XL saves the show automatically to its internal memory at regular intervals. External backups of the show data can be made to a USB Storage Device (eg memory stick).

Connect your storage device to one of the USB ports on the desk.

Press the [Files] MFK or select the [Files] button on the Setup Window.

Press the [Save Show] MFK or select the [Save Show] button on the monitor. The Save Show window is displayed on the monitor. Select the required Destination Device, by pressing the relevant MFK. If you do not see your device immediately, press Refresh.

Now you can enter a name for the show file, using the MFKs like a mobile phone text message. You can also use the on-screen keyboard at this point, or a USB keyboard, if required. This name will be used as the file name on the destination device, so ensure it is unique and easily identifiable. Once you have entered the name, press ENTER, then press the [OK] MFK to save the show.
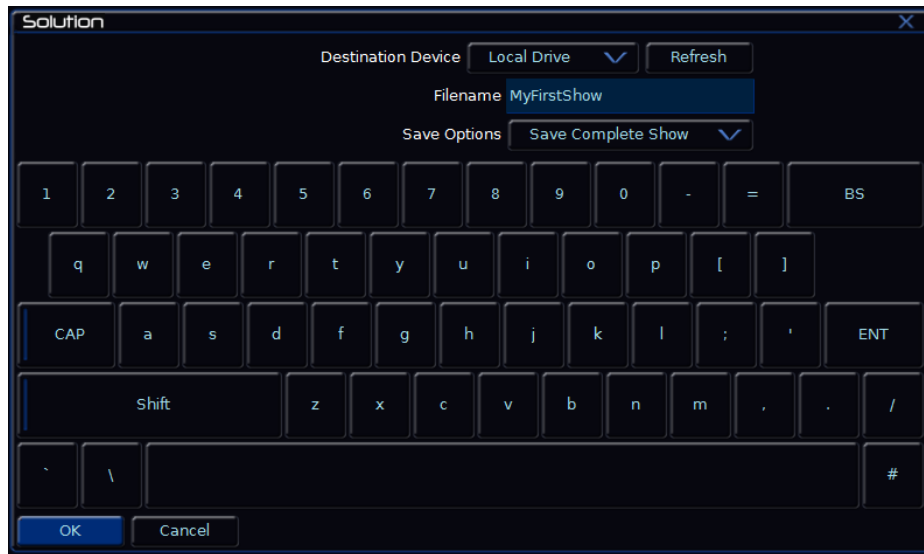
Figure 7 - Saving a Show

Loading Shows

Note: Loading a show file will clear any existing show data from the desk so ensure that you have backed up your previous show before you load another one onto the desk.
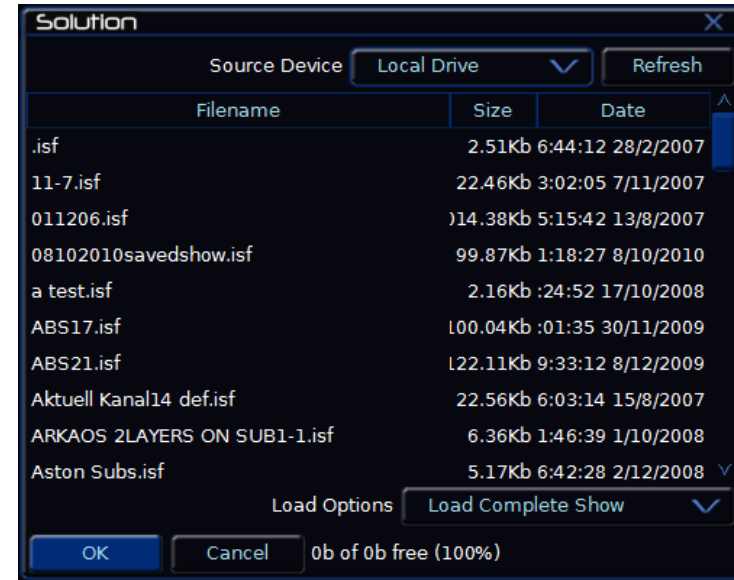
Figure 8 - Loading a show

To load a show, connect the storage media to a USB port on the desk.

Press the [Files] MFK, then press the [Load Show] MFK The Load Show window is displayed on the monitor. Select the required source device, using the MFKs.

A list of show files found on the selected device is displayed in the window (this may require you to use the Page Function to locate your show, if a lot of files are found on the disk). Select the required show file from the list, then press the [OK] button to load the show.

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Clear Options

This section of Setup allows you to clear (delete) various components which make up the show file (cues, groups, palettes etc.)

There is also a Reset Desk option which clears the show completely, resets the desk and returns the setup parameters and DMX patch to the factory defaults.

Figure 9 - Clear Options

Exiting Setup

Once you have finished making changes to the setup, press the SETUP key to exit setup.

Controlling Fixtures

Once you have added your fixtures to the desk, you are ready to start controlling them.

Selecting Fixtures

Press the FIXTURES key. The MFKs become fixture selection buttons and the LCDs above the keys indicate what fixture has been assigned to which MFK. Press the MFK to select the fixture; press it again to deselect the fixture. Note that you can multi-select fixtures by holding the first fixture button down whilst tapping the last fixture button (all intermediate fixtures will be selected).

Homing Fixtures

The easiest way to see which fixtures in the rig you are controlling is to 'home' them. This sets their parameter values to the Home values defined in the Edit Fixtures table in Setup. Typically these are position (Pan and Tilt) to 50%, the dimmer to 100% with an open white beam (shutter open, no gobos or effects).

With your fixtures selected, press the HOME key. This sends all the parameters of the selected fixture(s) to their home values and automatically tags the fixture parameters.

Controlling Fixture Parameters

Each fixture type has it's own set of parameters (intensity, color, gobo, pan, tilt etc.) which are classified or grouped together into different attributes (Colour, Beamshape and Position). Once a fixture has been selected, the attribute buttons and control wheels can be used to adjust the parameter output levels as required.

Controlling Intensity

The Intensity parameter of a fixture is adjusted by a control wheel. First select the fixture(s) required as described above and then press the POSITION key (if not already selected). The intensity parameter is assigned to the third wheel. Use the control wheel to adjust the intensity level as required. The output value is shown on the Wheel LCD above the corresponding control wheel.

Tip – No Intensity Output ?

If the intensity output levels do not change when you adjust the intensity parameter using the wheel, check that the GRAND MASTER fader is at full and the BLACKOUT button is off. If the selected fixture(s) have a Shutter parameter, check that the shutter is open.

Controlling Colour, Beamshape and Position Parameters

The colour, beamshape and position parameters of the selected fixture(s) are controlled using the control wheels. First select the required fixture(s) and then press one of the attribute keys (COLOUR, BEAMSHAPE or POSITION).

The corresponding parameters for the fixture(s) are assigned to the control wheels and are indicated on the Wheel LCD.

If the fixture has more than three controllable parameters for the selected attribute, press the attribute key again to select the next group of parameters.

Tagging Parameters

On the Solution & Solution XL desk fixture parameters must be 'tagged' for them to be recorded.

The tag status of each fixture parameter is indicated on the Wheel LCD (inverse video indicates tagged) and in the Program Window by it's background colour (green indicates tagged).

If a parameter's value is changed by moving the control wheel, homing the fixture, applying a palette or directly in the Program Window, it will be tagged automatically.

It is possible to tag and untag fixture parameters manually by holding down the CLEAR key and moving the corresponding control wheel or fader.

Quick Start Guide

Palettes

The Solution & Solution XL desk provides four sets of 400 palettes. The palettes are stored under the headings of Colour, Beamshape, Position and Effects. When an attribute has been selected last (eg Colour key was pressed and the wheels are showing Cyan, Magenta and Yellow parameters), the MFKs display the Colour palettes.

Palette Windows

Each set of palettes has it's own palette window. To display a palette window on the monitor, hold down the SHIFT key and then press the appropriate attribute key (COLOUR, BEAMSHAPE, POSITION or EFFECTS). The palette window contains a soft button for each of the palettes.
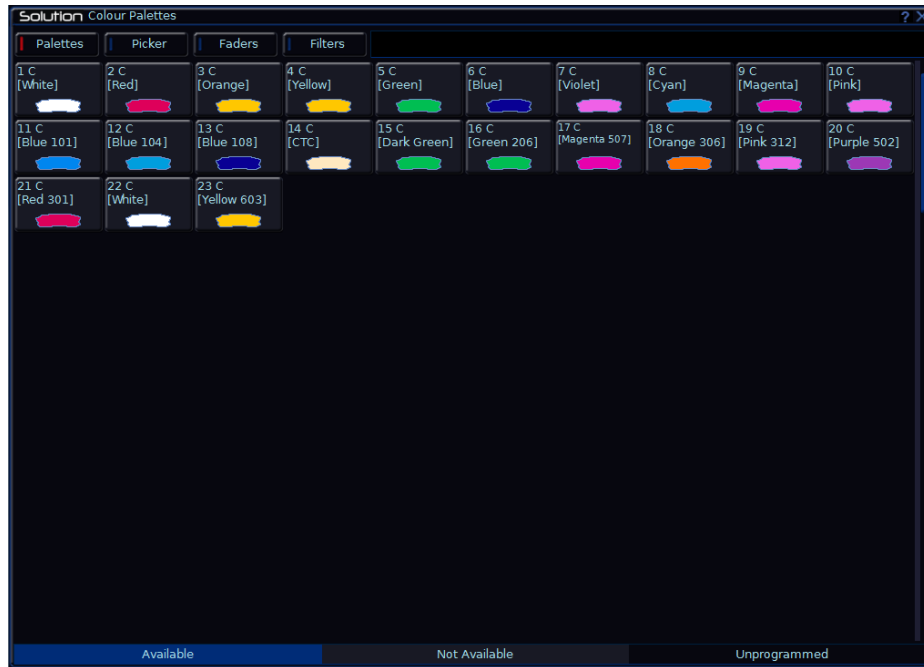

Figure 10 - Palette Window

Recording Palettes

Programming a palette follows the same method as programming a cue. Set up the fixture outputs as required, ensuring that the correct parameters are tagged. To store the palette, press the RECORD button and then press where you want to record the palette (by pressing the COLOUR, BEAMSHAPE or POSITION key and then selecting an empty MFK). The LED in the palette MFK is lit when the palette has been recorded.

> ***Note – Recording Palettes***
>
> ***Only the tagged fixture parameters of the selected attribute (eg Colour) are recorded into the palette.***

Naming a Palette

Palettes can have a name, which is displayed on the LCD and in the Palette window. To set the name, press the NAME key and then select the programmed palette to be named. The Name window is displayed on the monitor.

Use the MFKs, external keyboard or external touchscreen monitor to enter the palette name as required, then select the [OK] button to complete the operation.

Outputting a Palette

Select the required fixture(s). Press the COLOUR, BEAMSHAPE or POSITION key to make the MFKs Palette Selection Keys. Use the PAGE UP or PAGE DOWN key to select the required page, if necessary. To output the palette, press the Palette MFK and the data will be output for the selected fixture(s).

> ***Note – Outputting a Palette over Time***
>
> ***Holding down the TIME key and pressing a palette MFK will crossfade to the palette output values in the internal Fade Time. The internal Fade Time can be found and adjusted on Special Page 1 of the MFKs.***

Setup

Setup

In Setup the desk provides functions for setting up the desk - assigning, patching and editing fixtures, saving and loading shows, clearing show data, resetting the desk etc.

Press the SETUP key to display the Setup options on the MFKs and the external monitor. To exit Setup, press the SETUP key again. The following Setup options are displayed along the left hand side and on the MFKs.

- Patch Overview

- Patch Wizard

- Edit Fixtures

- System Settings

- Inputs & Outputs

- Defaults

- Save Show

- Load File

- Clear Options

- Remote

- Art-net

- sACN

- Wings, ZeroWire

- Network Devices

- Tracking Backup

- Visualisation

- Network

Patch Overview

When you first enter Setup, you'll be in the "Patch Overview" screen, which displays all the fixtures currently patched on your console.
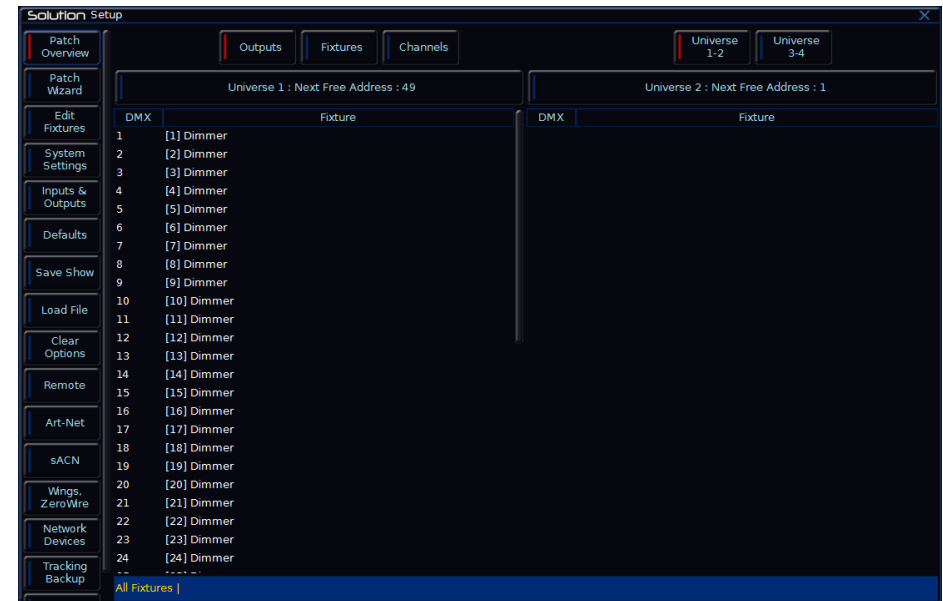

Figure 11 - Patch Overview (Setup)

Setup

Views

The Patch Overview window can display the patch data in three different views on the monitor (Outputs, Fixtures and Channels). The default view is the Outputs view, but this can be changed by pressing Outputs , Fixtures or Channels along the top of the Patch Overview screen.

Outputs view

This is the default patch view and displays the DMX start address for each fixture for each DMX universe. Two universes are displayed vertically with each fixture listed according to its outputs. Additional Universes can be viewed by selecting them at the top of the window.

Fixtures view

This patch view lists all the fixtures in the schedule together with their alignment data and DMX patch address(es). The fixtures are listed in group order. Alignment data is only displayed if it has been changed from the defaults. Patch addresses are displayed in the format universe/address.

Channels view

This patch view shows the fixture type, fixture number and parameter (eg Gobo1<>) patched to each DMX address in each of the DMX universes.

Patch Wizard

This option allows you to add fixtures to the fixture schedule, assign the fixtures to the fixture selection buttons (MFKs) and optionally patch them to DMX output addresses.

The complete Zero 88 Fixture Library is stored on the desk, but it is also possible to load additional fixture types from a memory stick.

Adding fixtures may be performed using the MFKs on the front panel or via the popup windows on the monitor or a combination of the two methods, as preferred.

DMX Patching

There are three pieces of information you need to know about a moving light before it can be patched to the lighting desk. These are:

- The fixtures manufacturer and model number – these are normally printed on the side of the light

- The 'mode' of the fixture. This is usually set in the menu structure of the fixture but can also be set by DIP switches. For details on the modes, check the user manual for the fixtures themselves.

- The DMX address you wish your fixtures to be at. The DMX address is the start address where the fixture will be located. Each fixture takes a different number of channels, sometimes as many as 30. If a fixture starts at DMX address 100 and uses 16 channels, the next fixture should be set at 115. Again the DMX address is usually set in the menu structure of the moving light, although it can be set by DIP switches on older equipment.

Once you have these three pieces of information you are ready to add the fixtures to the desk.

Selecting a Fixture – Manufacturer, Fixture Type and Mode

Press [Add Fixtures], then select the first letter for the required manufacturer (eg M) then the manufacturer (eg MARTIN) using the MFKs or directly from the list on the popup window on the monitor.
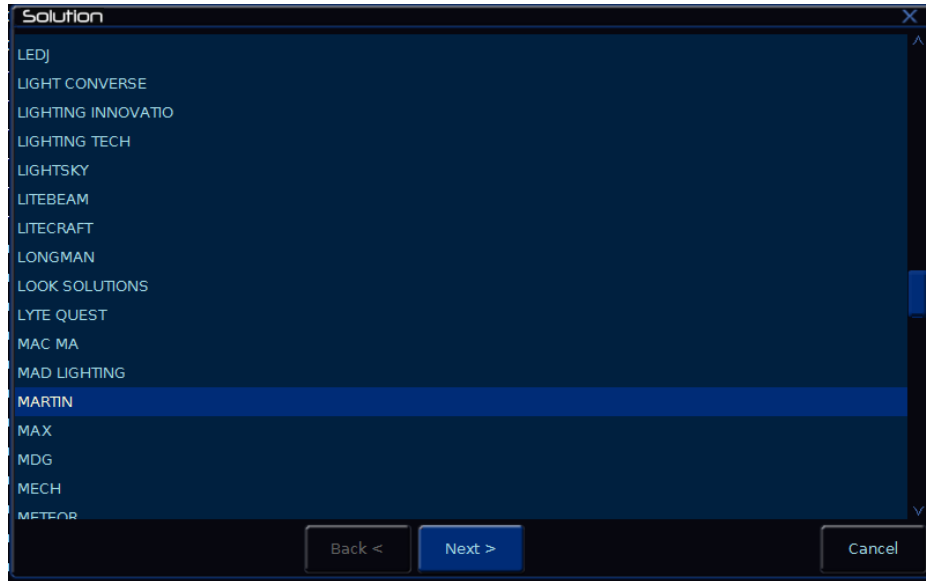
Figure 12 - Manufacturer Selection

The MFKs and monitor then displays a list of fixture types for that manufacturer. Some manufacturers have more than 20 fixture types, in which case the MFKs will need to be paged in order to select the fixture you require. The Page Up/Down buttons are used to select the required page.

Select the required fixture type (eg MAC 500) using the MFKs or directly from the list on the popup window on the monitor:

Figure 13 - Fixture Type Selection

If there are several operating modes for the selected fixture type these are displayed on the MFKs and monitor screen. Select the required mode (eg Mode 4) and the desk will load the fixture profile, ready for patching.

Setup

Setting the DMX Start Address

Once you have selected the required fixture type (eg MARTIN MAC 500 Mode 4), you then have the option of selecting the DMX start address for the fixture(s):
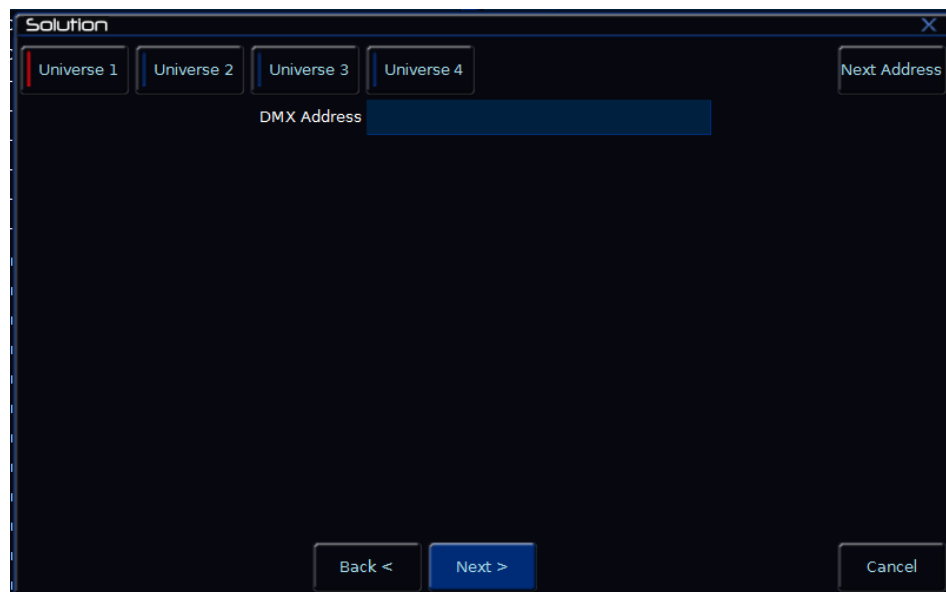

Figure 14 - Assigning a DMX Address

The desk has 4 DMX universes available for patching, so the first thing you need to do is to select the DMX universe (1 to 4) you wish to work on. Next enter the required start address using the MFKs or directly into the field on the popup window on the monitor.

To patch to the next available address in the selected universe use the [Next Address] button. Once you have set the DMX address required, press the ENTER button to confirm.

Assigning Fixture Type to MFKs

Having selected the required fixture type specified a DMX start address, you can now assign your fixtures to the Fixture MFKs. There are 10 pages of 20 MFKs available, giving a total of 200 fixtures patchable.

First use the PAGE UP or PAGE DOWN keys to select the required page of MFKs, then press an MFK to assign the fixture type to that key. The LED in the MFK is lit to indicate that the key is now assigned. The fixture type and DMX address is displayed in the LCD above the MFK. Repeat this process for each fixture to be assigned.

Press the same MFK again to remove the fixture type assigned to that key.

When you have assigned the fixture type to the required fixture selection key(s), press ENTER to return to the Patch options.

Notes – Assigning Fixture Types to MFKs

Several MFKs may be assigned at the same time by holding down the first MFK in the required range and then pressing the last MFK in the range, eg hold down MFK 1 and press MFK 10 – the selected fixture type is assigned to MFKs 1-10 inclusive.

Edit Fixtures

The Edit Fixtures screen allows you to customise a number of different parameters for the fixtures in the fixture schedule. These functions are summarised below:

- **Default** – These settings edit the fixture parameter default values which are output when a fixture is released.

- **Home** – Home Values are applied when a fixture is homed or highlighted.

- **Topset** – Allows you to set upper limits for fixture parameter values.

- **Alignment** – Used for Inverting Pan, Tilt and Swapping Pan and Tilt parameters for individual fixtures.

- **Name** – Provide user defined fixture names for the assigned fixtures

- **Number** – User defined fixture numbers for easy referencing.

- **Patch** – Patch, repatch or unpatch fixtures. Move fixture location to MFK, Preset Fader or DMX In channel, swap one fixture type for another.

- **Delete** – Delete (unassign) fixtures from the schedule.

Press the [Edit Fixtures] button to load the Edit Fixtures window to the monitor. Note that you require a monitor to edit fixtures:

Name	No	Intensity	Pan	Tilt	Cyan	Magenta	Yellow	Edge	Zoom	Frost
ALL		0	50	50	0	0	0	0	100	0
VL 1000	101	0	50	50	0	0	0	0	100	0
VL 1000	102	0	50	50	0	0	0	0	100	0
VL 1000	103	0	50	50	0	0	0	0	100	0

Figure 15 - Edit Fixtures

Selecting Fixtures to be Edited

Before carrying out any of the edit fixture operations - Select the fixture(s) to be edited using the fixture selection keys (MFKs). As each fixture is selected it is added to the Edit Fixtures screen on the monitor. Fixtures can be removed from this selection by pressing their fixture selection key (MFK) at any time.

Setup

Editing Default / Home / Topset Values

Press the [Default] or [Home] or [Topset] button as required on the monitor (if not already selected).

Use the cursor keys to move the cursor to the individual field to edit or use the ALL row to edit the value for all of the selected fixtures.

Select the required field, press ENTER, enter the required value and press ENTER.

Once all changes have been made, press the [OK] key to return to the Patch screen.

If you make a mistake in Edit Fixtures, or simply wish to revert to the original values from the fixture library then press the [Reset All] key. If you wish to cancel all editing of the fixtures, press the [Cancel] key.

Editing Alignment

Press the [Alignment] button on the monitor. Use the cursor keys to move the cursor to the individual field to edit or use the ALL row to edit the value for all the selected fixtures.

Figure 16 - Editing Alignment

Select the required field and press ENTER.

Select the Yes or No option as required and press ENTER.

Once all changes have been made, press the [OK] key to return to the Patch screen.

Editing the Fixture Name or Number

Fixture Names and Numbers can be altered from any of the tabs, simply use the cursor keys to move the cursor to the Name or Number (No) field for the selected fixture.

Press ENTER, enter the required fixture name or number and press ENTER.

Once all changes have been made, press the [OK] key to return to the Patch screen.
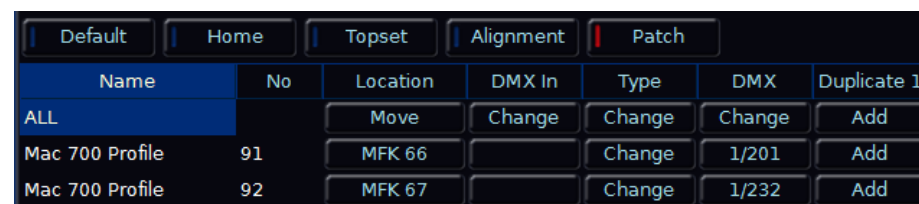
Patching Functions

The Patch option in Edit Fixtures provides a simple and clear way to patch or repatch fixtures, add duplicates, unpatch fixtures and move the location of fixtures, if required.

The 48 or 96 dimmers on the Solution and Solution XL desks respectively default to being patched to DMX addresses 1 – 48 or 1 – 96 on universe 1.

In addition to specifying a DMX start address when assigning fixture types, the desk provides functions that allow you to patch or repatch individual fixtures or groups of fixtures to DMX output addresses on any of the DMX universes.

It is also possible to patch a fixture to more than one DMX address in one or more universes. These additional patch addresses are known as underline duplicates.

Select the fixture(s) to be edited. Click on the [Patch] button in the Edit Fixtures Window.

Figure 17 - Editing Patch

The patch table shows the Location (MFK, Preset Fader or DMX In), DMX-In assignment and DMX address(es) that each of the selected fixtures are currently patched to.

If a fixture has not been patched to the DMX output then the corresponding DMX column will show 'Add'

Patching Fixtures

Move the cursor to the DMX column for the required fixture and press the ENTER key. The Patch Fixture popup window is displayed on the monitor screen, for example:
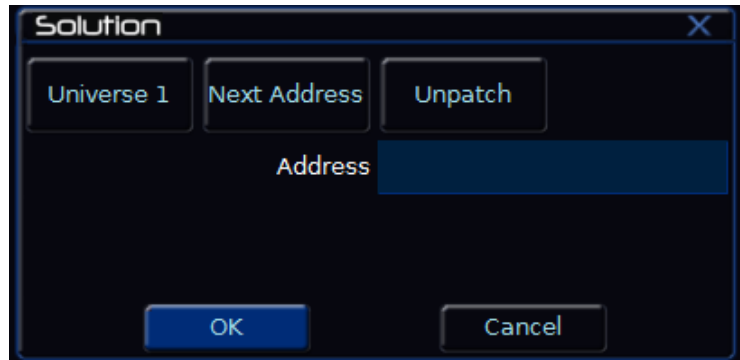
Figure 18 - Patching Fixtures in Edit Fixtures

Select the Universe by clicking on the [Universe] button and selecting the universe from the drop down menu.

Enter the required DMX address in the Address field provided or press the [Next Address] button to automatically pick up the next available patch address in the selected universe.

Press the [OK] button to complete the patching operation or the [CANCEL] button to cancel.

Adding Duplicates

Move the cursor to the Duplicate 1 column for the required fixture and press the ENTER key. The Patch Fixture popup window is displayed on the monitor screen.

Select the Universe by clicking on the [Universe] button and selecting the universe from the drop down menu.

Enter the required DMX address in the Address field provided or press the [Next Address] button to automatically pick up the next available patch address in the selected universe.

Press the [OK] button to complete the patching operation or the [CANCEL] button to cancel.

To patch further duplicates for the selected fixture move cursor to the Duplicate 2 Column, Duplicate 3 column etc and repeat the above procedure.

When duplicates are patched for the selected fixture(s) additional columns are added to the Edit Fixtures table (one column per duplicate address).

Setup

Repatching Fixtures

Move the cursor to the DMX or Duplicate N column for the required fixture and press the ENTER key. The Patch Fixture popup window is displayed on the monitor screen with the current patch address in the DMX Address field, for example:
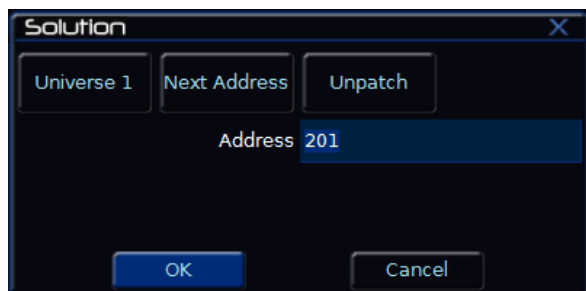
Figure 19 - Repatching Fixtures in Edit Fixtures

Select the Universe by clicking on the [Universe] button and selecting the universe from the drop down menu.

Enter the required DMX address in the Address field provided or press the [Next Address] button to automatically pick up the next available patch address in the selected universe.

Press the [OK] button to complete the patching operation or the [CANCEL] button to cancel.

Unpatching Fixtures

Move the cursor to the DMX or Duplicate N column for the required fixture and press the ENTER key. The Patch Fixture popup window will be displayed on the monitor screen with the current patch address in the DMX Address field.

Press the [Unpatch] button. A confirmation popup window will be displayed. Select the [Yes] button to comfirm the operation.

Multi-Part Fixtures

For multi-part fixtures (eg Lamp + Scroller) the different parts of the fixture are displayed on separate lines in the Edit Fixtures table. There is an additional column (Part) to show the part name of the multi-part fixture and a [Fixture Part] button to select which part of the fixture is displayed (eg All Parts, Lamp, Scroll). For example:

Figure 20 - Multi Part Fixtures in Edit Fixtures

Fixture Location

The Location field shows where each Fixture is located (MFK, Preset or DMX-In).

If a Fixture's Location is specified as DMX-In, you cannot change the DMX-In field for that fixture, it will be locked at the same value as its location. Clicking on an entry in the Location column will allow you to change (move) the location of the fixture.

Name	No	Part	Location	DMX In	Type	DMX	Duplicate 1
ALL			Move	Change	Change	Change	Add
Dimmer	113		Preset 1		Change	1/1	Add
Dimmer	114		Preset 2		Change	1/2	Add
Dimmer	3		Preset 3		Change	1/3	Add
Dimmer	4		Preset 4		Change	1/4	Add
Dimmer	5		Preset 5		Change	1/5	Add
Dimmer + Scroller	34	Lamp	MFK 58		Change	1/34	Add
		Scroller				1/134	Add
Dimmer + Scroller	35	Lamp	MFK 59		Change	1/35	Add
		Scroller				1/135	Add
Dimmer + Scroller	36	Lamp	MFK 60		Change	1/36	Add
		Scroller				1/136	Add

Figure 21 - Fixture Locations in Edit Fixtures

DMX Input Functionality

The new DMX In functionality allows you to add additional dimmers to the desk beyond the 48 or 96 that are provided by default on the Solution and Solution XL desks.

Once you have selected the required fixture type and optionally entered a DMX start address, you can then specify how many fixtures of that type are in the schedule and which DMX Input Channel you wish to assign them to.

During the Add Fixtures assignment, pressing a flash button on a DMX-In channel will assign the Dimmer or Fixture to that DMX-In channel, just as if a preset fader or MFK had been pressed. Pressing it again will unassign, as per MFK or Preset fader.

The DMX In assignment of dimmers and fixtures may also be adjusted, if required via the Edit Fixtures – Patch function (see later in this section).

DMX In Operation on the Desk

When assigned, DMX-In will read a level from the DMX In as the dimmer or fixture intensity.

Tagging etc will happen as per the existing Presets and MFKs (if a value is changed, it is tagged - holding CLEAR and changing a value doesn't alter the value but instead reverts the tag status).

Where DMX-In Fixtures or Dimmers exist on the desk, the desk Fixture Number is used to access them numerically.

Where a DMX-In Dimmer exists only on the DMX-In, the default fixture numbers will start at 1001 onwards, relative to the DMX address of the fixture assigned (eg DMX 24 would be 1024).

Flashing, Soloing and Latching a DMX-In channel will work as if it were on the desk itself (a snap change from < 95% to 100% can be assumed to be a button press). If a change is detected below 95% (to allow for dodgy Grand Masters, etc), the desk will assume that the flash button has been released and that the desk is now reading fader levels again (for example, a flash to 100%, move the fader to join it, release the flash button, and fade down).

The DMX-In Dimmers will behave as per MFK intensity channels (that is, they are excluded from 2-preset/Wide mode operations).

The DMX-In Field

The DMX-In field in the Patch table shows the DMX In address assigned to the fixture (if applicable). The DMX In channel is used to control the brightness of the fixture.

This field may be blank (ie no DMX In control), or a value between 1 and 512. Clicking on an entry in this column allows you to change the DMX In address assigned to the fixture.
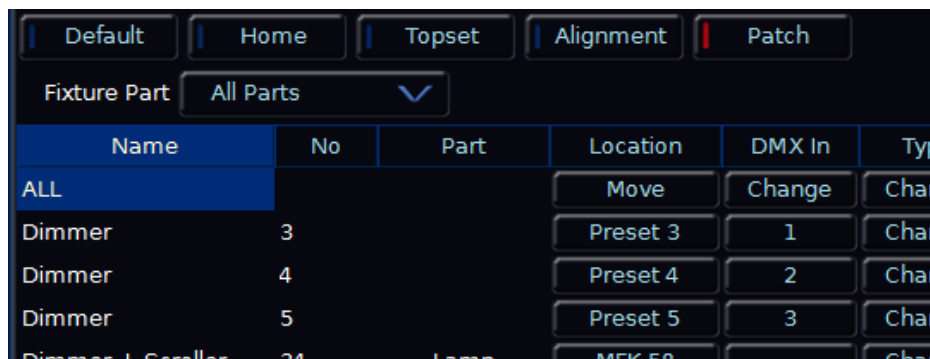
Setup

Figure 22 - DMX In settings in Edit Fixtures

Where a DMX-In Dimmer exists only on the DMX-In, the default fixture numbers start at 1001 onwards, relative to the DMX address of the fixture assigned, for example:

Figure 23 - DMX In Fixtures in Edit Fixtures

Changing Fixture Type

This option allows you to swap one fixture type for another. Individual fixtures or groups of fixtures may be changed in one operation.

The desk attempts to clone the programmed data for the swapped fixture(s) in memories, submasters and palettes as far as possible. Parameters in the new fixture type that were not present in the original fixture are left unprogrammed.

Select the fixture(s) to be changed. Select the [Patch] button in the Edit Fixtures Window:

Figure 24 - Change Type

Under the Type column, select the [Change] button for the required fixture or the [Change] button in the ALL row to change all of the selected fixtures.

Select the Manufacturer, Fixture Type and Mode (if applicable) using the MFKs or via the popup window on the monitor and confirm the change type operation.

Deleting Fixtures

Press the [Delete] button on the monitor. A confirmation window is displayed. Click on the [OK] button to delete the selected fixture(s).

System Settings

System Settings within the Setup menu allows you to change various settings that affect the ZerOS system, such as the date and time and monitor settings, or switch between the various modes available.

Figure 25 - Desk Setup

Desk Name, Date and Time

The desk name is used to identify itself. For example, when using the mobile apps, the name of every console on the network will be displayed. By default, the desk name will be "FLX" followed by the serial number, but this can be changed by selecting the cell, pressing   Enter   and using an external keyboard to type a new name.

Press the   Set Date & Time   key on the monitor to open the below window. Enter the correct time, day, month and year in the fields provided and then confirm by selecting the OK button.

The Set Date window is displayed on the monitor:

Figure 26 - Desk Setup (Set Date)

Enter the day, month and year in the respective fields and select the [OK] button.

The Set Time window is displayed on the monitor:
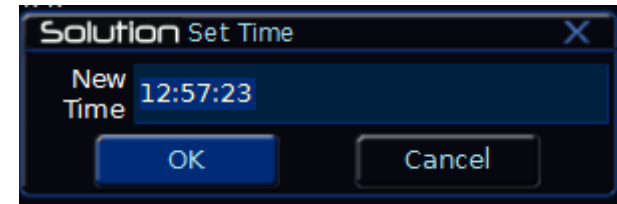

Figure 27 - Desk Setup (Set Time)

Enter the required time in Hour:Minute:Second format as illustrated by the following examples:

7:30:0	7:30 am
12:0:0	12:00 Noon
16:45:0	4:45 pm
0:0:0	12:00 Midnight

Setup

.

External Display Settings

Solution supports one external monitor, plugged into the "VGA" connector on the rear of the console. This monitor can also be touchscreen if desired, which also plug into one of the USB connectors with a second cable.

To manually enable or disable an external monitor, change "Monitor" to "Enabled" or "Disabled" (by default, this is set to "Auto Detect").

If using a touchscreen, this monitor will need to be calibrated before the touch functionality will work. Click Calibrate under the External Display Settings. The external monitor will now guide you through the calibration process – press the orange cross in the upper left corner, then the lower right corner, then the upper right corner. This completes the calibration and ZerOS will ask you to draw on the screen to check the calibration has worked correctly. You should ensure that the line drawn is displayed in the same place you touch the monitor. Press Enter to confirm and return to System Settings.

A number of external touchscreens are supported by ZerOS. Although we will endeavour to add support for other screens where possible, we make no guarantees about this since the drivers may not be available in the correct format for the desk operating system. If you want us to add support for a different screen, then we may ask you to loan us the screen (including the drivers CD that came with it) for a short time for testing. Please contact Zero 88 for details.

"Colour Scheme" allows you to select a new colour scheme, if required.

Internal Display Settings

This allows you to defines the brightness and contrast of the central, Main LCD and the brightness and contrast of the other LCDs on the console.

Peripheral Settings

Wheel Sensitivity adjusts the sensitivity of the three control wheels on the front panel. 0% is least sensitive, whilst 100% is most sensitive.

If the mouse or trackball is set to control pan and tilt parameters, this will only take effect when fixtures are selected and the Position attribute is selected. In this situation, the mouse pointer is removed temporarily from the monitor screen. In all other situations, the mouse or trackball operation will remain unaffected.

Operational Settings

Confirm Overwrites will display a confirmation window on the monitor screen when overwriting a cue, palette, effect, macro etc.

Recovery Mode defines whether a desk that loses power and then has power restored should recover to the last outputting cue, or go to a blackout.

MFF Window Playback button action defines what happens when you touch/click a MFF in the MFF Window on an external touchscreen. By default it enters SETUP, but it can act as the physical button which can be useful when using a Remote App monitor.

Attribute Settings

This opens windows detailing settings for each of the attributes Colour, Beamshape and Position. For more information, see the chapters relating to each of the attributes.

Inputs & Outputs

Inputs and Outputs within the Setup menu allows you to manage any information or triggers entering or leaving the console. This screen does not cover networking, which is covered in other areas within Setup.
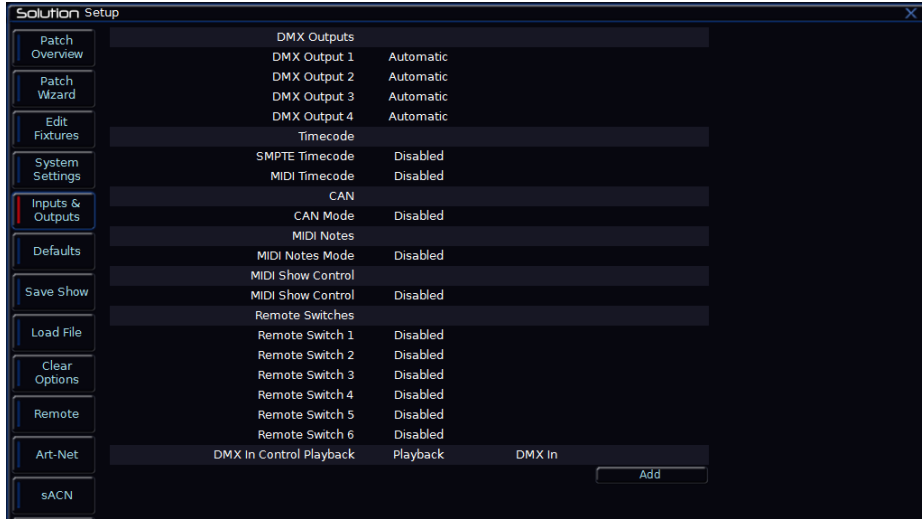

Figure 28 - Desk Setup

DMX Outputs

Solution has four DMX Outputs on the rear of the console. Each of the outputs can be mapped to any of the DMX Universes. For example, on smaller rigs you may choose all outputs to be the same Universe 1 so it doesn't matter which output you plug your rig into. The default setting is "Automatic", which means if something is patched on Universe 1 it will be outputted on DMX Output 1, and if something is patched on Universe 2, it would be outputted on DMX Output 2, etc

Timecode

MIDI Timecode (MTC) & SMPTE Timecode can be linked with a video or music track and be used to automatically trigger lighting cues at precise moments during that media.

MIDI Notes

Defines which part of the desk the MIDI Notes can control. Options are Channels or Cues, together with settings for which MIDI Channel and Octave to respond to.

MIDI Show Control

MIDI Show Control (MSC) are messages received by ZerOS to remotely trigger lighting cues. Often, this is to trigger the lighting in sync with other media (such as sound & video). MIDI Show Control will only trigger cues on Playback 0 ("Master Playback"). When enabled, you will be asked to choose a "Device ID". This allows the MSC messages to be sent to a specific device rather than all devices.

Remote Switches

Each of the six remote switches can be configured as Disabled, Go to Cue or Macro. If the action field is set to Go to Cue or Macro, then an additional field is displayed allowing you to enter the memory or macro number.

DMX In Control Playback

Each Playback can be mapped to a DMX In channel, perhaps from another fader desk.
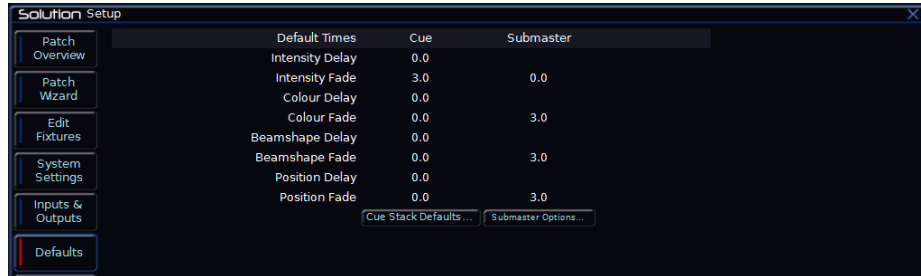
Tip: You can use an additional DMX Output universe to 'map' preset faders to additional submasters if required. Using a short DMX cable, link the output DMX Universe to the DMX In port. Repatch the channel faders to this universe, and map them in Desk Setup / Inputs to Submasters.

Note – SMPTE, MIDI, CAN and Remote Switches

These input functions are only applicable if the optional upgrade card has been fitted to the Solution & Solution XL desk.

Setup

Defaults

Press the [Memory Defaults] MFK or select the [Memory Defaults] button on the monitor. The various options are shown on the MFKs and monitor. These are summarised below:

Figure 29 - Desk Setup (Memory Defaults)

Intensity Delay Up/Down

Defines the delay up and down time used for intensities by default when a cue is recorded.

Intensity Fade Up/Down

Defines the fade up and down time used for intensities by default when a cue is recorded.

Colour Delay/Transition

Defines the transition time used for colours by default when a cue is recorded.

Beamshape Delay/Transition

Defines the transition time used for beamshape by default when a cue is recorded.

Position Delay/Transition

Defines the transition time used for position by default when a cue is recorded.

Cue Stack Defaults

Allows you to edit all the default options within the Playback settings. See the chapter on Playbacks for more information of the options within this window.

Save Show

This section of Setup allows you to save and load show files, load User Fixture Types (UFT) from a memory stick, clear UFTs from the desk, update the desk software and display desk information.

To save a copy of your show, you first need a storage media. The Solution & Solution XL desk is supplied with a USB flash memory stick, although other storage media may be used with the console. Connect your media to a USB port on the desk (any port will do). If using an external floppy drive, remember to insert a floppy disk into the drive.

Press the [Files] MFK or select the [Files] button on the Setup Window.

Press the [Save Show] MFK or select the [Save Show] button on the monitor. The Save Show window is displayed on the monitor:

Select the required Destination Device.

Move to the Filename field and enter a name for the show file. This name will be used as the file name on the destination device, so ensure it is unique and easily identifiable. The name can be entered using the MFKs – hold SHIFT to enter a lowercase character.

Select the required Save Options. This defaults to Save Complete Show but you can just save the Setup or Setup and Palettes if required.

Press the [OK] button to save the show.
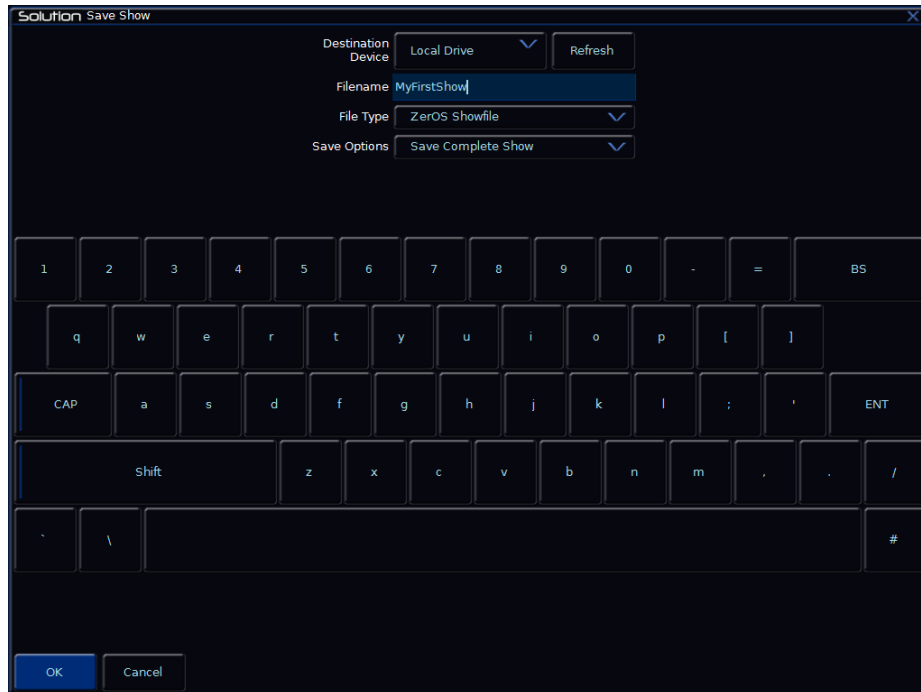
Figure 30 - Files (Save Show)

Setup

Export CSV

ZerOS offers the ability to export your show file to a Comma Seperated Values (CSV) file. This file format is supported by almost all spreadsheet and database packages, making it ideal for a portable copy of the cue data from your Solution & Solution XL console.
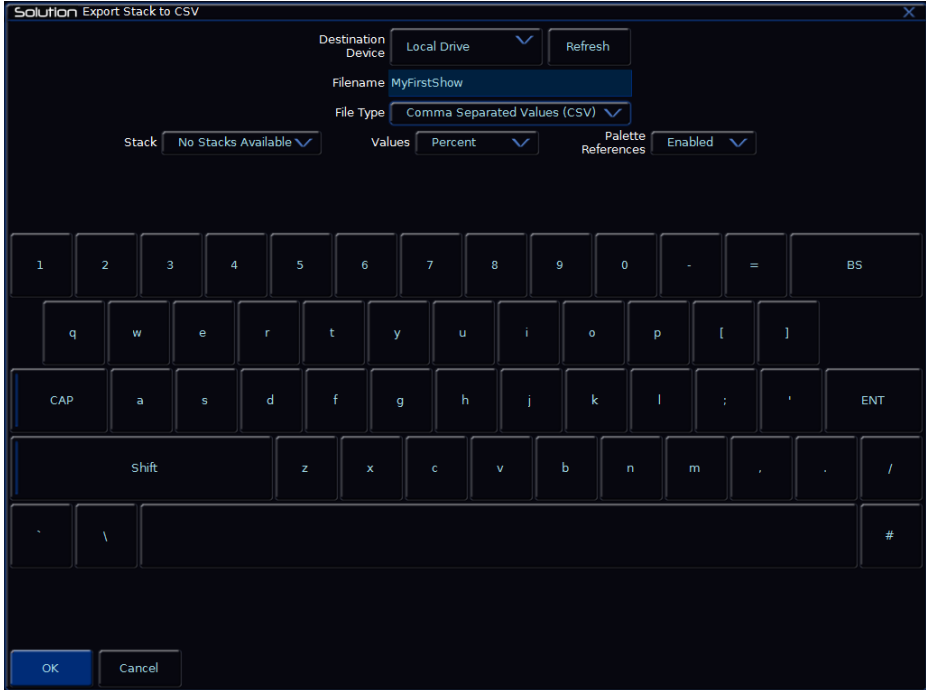
To export a CSV file, simply change the File Type to "Comma Separated Values (CSV)". You can alter the settings to display percentages or DMX values as required, as well as including or ignoring Palette References.

This data can then be loaded into Excel or any other software package that supports CSV files.
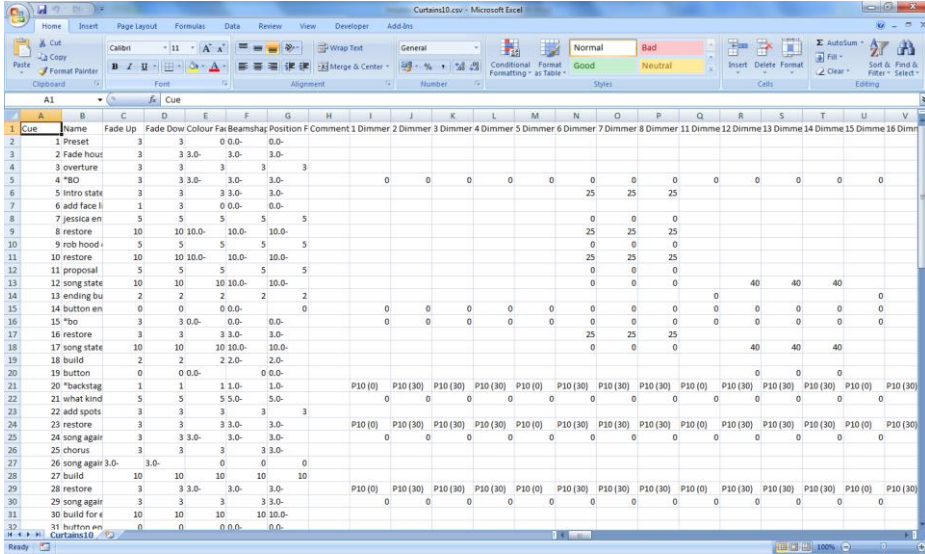

Figure 31 - Files (Export CSV)
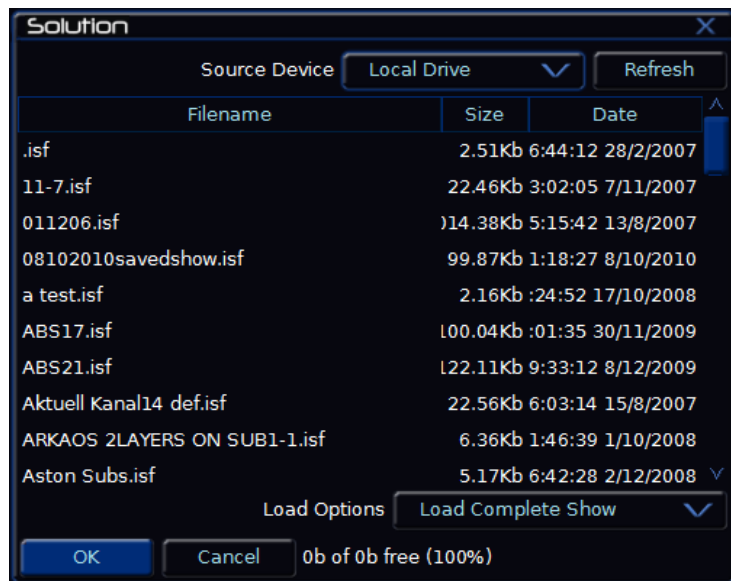

Figure 32 - Example Exported CSV File

Setup

Load File

To load a show, connect the storage media to the USB port on the desk (any port).

Press the [Load File] MFK or button on the Setup Window.

The Load Show window is displayed on the monitor:

Figure 33 - Files (Load Show)

Select the required source device. A list of show files found on the selected device is displayed in the window.

Select the required show file from the list (eg K-Nine Show 6).

Select the required Load Options. This defaults to Load Complete Show but you can just load the Setup or Setup and Palettes if required.

Press the [OK] button to load the show.

Loading User Fixture Types

User Fixture Types are files created when a required fixture is not included within the Zero 88 Fixture Library. These files are loaded into the console using the same method as detailed within "ZerOS Showfiles". Once loaded, a confirmation will appear saying "x Fixture Types loaded" (x being the number of fixtures included within the single file). These will be loaded into the main library, ready to be patched in the usual way.

Solution & Solution XLClear Options

This option allows you to clear (delete) various components of a show file (eg palettes, groups, playbacks etc.), clear the whole show, or reset the desk back to factory defaults.

Press [Clear Options] MFK. The various clear options are displayed as follows:

Figure 34 - Clear Options

Clear Options and Reset Desk

Select the required option. A confirmation window is displayed. Select the [Yes] button to confirm the clear option or the [No] button to cancel the operation. A summary of the Clear Options is given below:

- **Clear Colour Palettes … Clear DMX Patch** - Clears the specified items <u>only</u> from the show data in the desk.

- **Clear All** – Clears all of the above items from the show in the desk, but does <u>not</u> clear the Patch or change any of the Setup options.

- **Reset Desk** – Performs the **Clear All** operation, clears the Patch and resets all the Setup options to factory defaults.

> *Tip: Pressing "Factory Reset" will reset the desk to factory defaults AND prompt for the Operation Mode when rebooted. This mode is good for equipment rental suppliers who may wish to ship the desks out with this option visible the first time a user boots the desk.*

Setup

Network

The Solution & Solution XL support various Ethernet communication protocols, for connecting to visualisation tools, PDA remote controls, etc. Details of these protocols are found in this section:

Ethernet Basics

Unlike DMX, Ethernet operates in a different topology. DMX is daisy chained from fixture to fixture, whereas Ethernet data is connected using a Star topology.
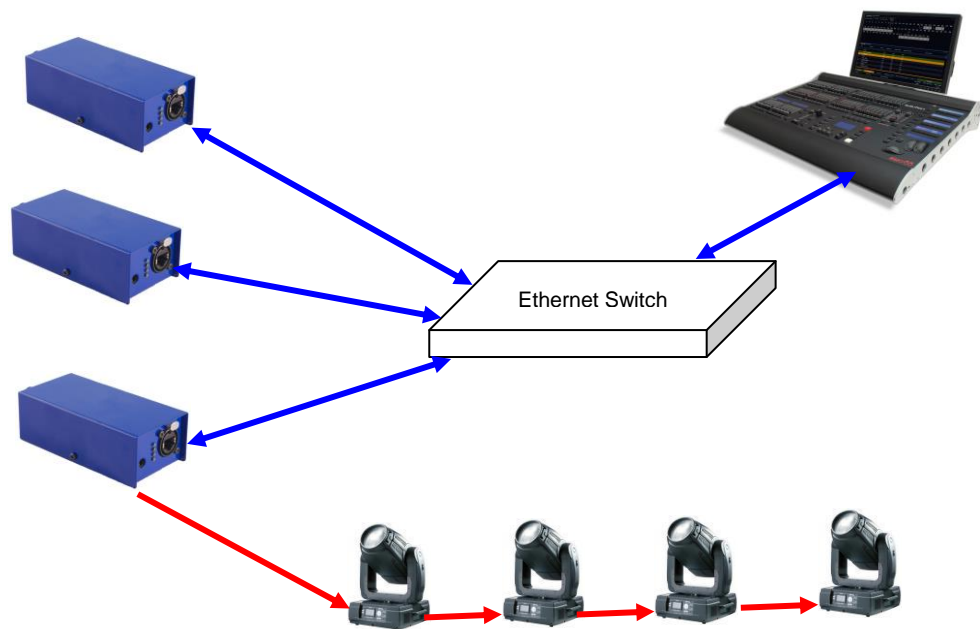
IP Addresses

IP Addresses are a devices identity on an Ethernet network. The address indicates where the device is located and in combination with the Subnet Mask, indicates what the desk can see, and vice-versa. The number is made up from 4 blocks of data, between 0 and 255 – eg 192.168.0.1

Subnet Masks

The Subnet Mask indicates what a network device can see on the network – the standard subnet mask for an Ethernet network is 255.255.255.0, indicating that a device with an IP address of 192.168.0.1 can see any device whose IP starts with 192.168.0.x, but cannot see anything starting 192.168.1.x

Changing an IP Address

On Windows XP, to configure the IP address of a PC, first select Start, Connect To, Show All Connections…
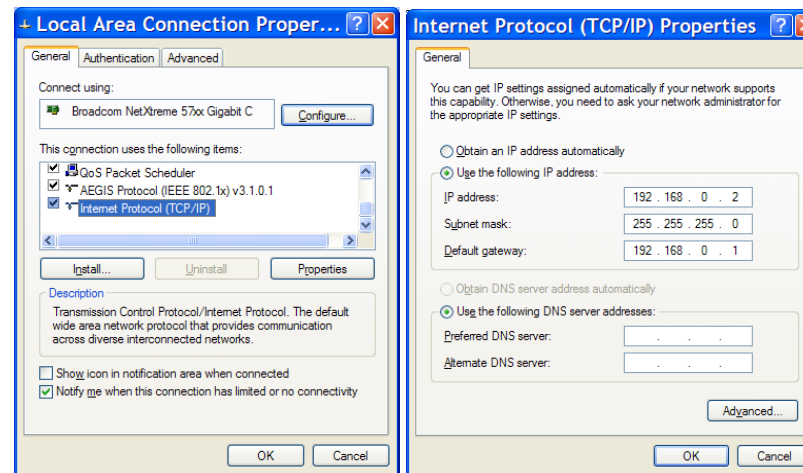
Find the connection for the Network Adaptor you want to use (usually "Local Area Connection") and right click on it, selecting "Properties".

Select the "Internet Protocol (TCP/IP)" and press Properties Enter the required IP address settings in the popup window and select OK.

In Mac OS X, to set an IP address, first click the Apple (top left hand corner) and then select System Preferences. Choose Network, and then click Advanced.
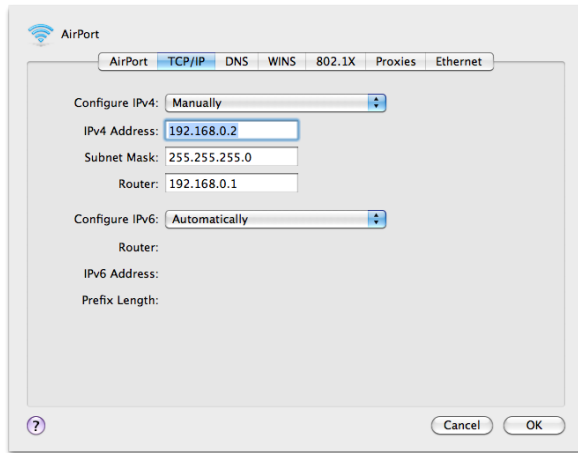
Switch vs Crossover

There are two ways of making an Ethernet connection with a ZerOS console

Via a standard Ethernet Switch – the desk is connected to one connector on the switch, and other devices are connected to another port
Via a crossover cable – the desk and connected device are connected together directly via a crossed network cable. This system is ideal for visualisation PCs as it negates the need for an additional box in the middle, however this system has its drawbacks – it is not possible to use DHCP configuration, and it is not possible to connect more than one device in this manner.

DHCP

DHCP is a protocol used by Ethernet enabled devices to dynamically allocate an IP address to devices on the network. In order to use this system, a DHCP host must exist on the network.   Some Ethernet Switches offer DHCP capabilities, as do Wireless Routers. It is important that you ensure that there is only ONE DHCP host on a network – multiple DHCP hosts can cause malfunctioning of the system.

Setup

Remote

ZerOS Remote offers the ability to remotely control various areas of the desk. The remote device can be a PC (running Microsoft Windows), a Windows Mobile, Android or Apple iOS Device to enable remote control of the console via a wireless network.

The ideal setup for this system is as follows:
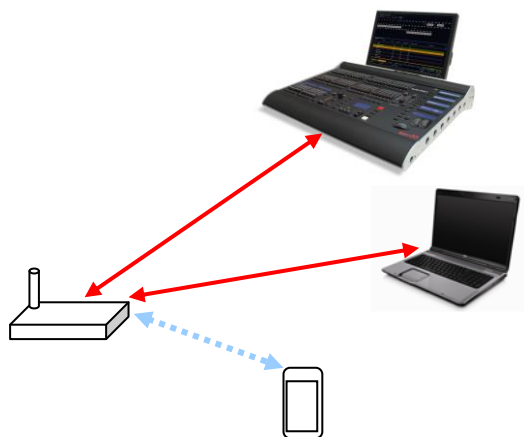
The console is connected to a Wireless Router via an Ethernet connection. If a handheld device is to be used, the Wireless Router is then configured to enable wireless communication via a standard wireless network connection, and the smartphone or tablet device connects to this wirelessly. As long as the console IP address and the remote device IP address are able to see each other, the system should automatically setup and configure.

With a PC connected to the network with the desk and the PDA, load up an internet browser and type in http://192.168.0.1/ (or the configuration IP address of the router, if different) into the address bar and hit GO.

At this point you will be prompted for a user name and password, which will be detailed in the user manual for the router.

Once connected to the router, look for settings which relate to the wireless connection and to DHCP. Ensure that DHCP is enabled and that the wireless is active. Setup a name for the wireless network which you'll recognise (we use "Zero 88") and choose a wireless channel. If required, security can be added. Once settings have been changed, click the Save Option and then the Reboot Router option to ensure that the settings are stored.

Ensure that the remote device has activated the wireless connection (this is normally done through some sort of connection manager). The first time you enable wireless in an area, the smartphone will search for all available wireless networks and will ask you if you want to connect to any it finds. At this stage, you should see the Zero 88 network listed. Select it and choose connect (if you added security, you'll need to enter these details here).

Once the smartphone is connected and the desk is connected, on the desk go to Setup / Network / Remote. Choose Enabled Remote - Yes, and Use DHCP Address - Yes. Again, enable security if you like (this security is simply a password the remote will prompt you for before connecting)

At the bottom of the remote setup screen, a message should appear - "Remote Active". If "Remote Not Active - No DHCP Address" is displayed, ensure that DHCP is enabled on the router and reboot the desk.

Assuming "Remote Active" is displayed and the smartphone connected to the wireless network, you should be able to start the ZerOS Remote program on the device and the desk should be detected. Press on the Desk name and click the connect button.

For full information on the Remote, see the Remote chapter in this manual (Page 97).

Art-Net

Art-Net is a lighting protocol which sends DMX data over Ethernet. The standard allows for multiple DMX universes to be sent over a single Ethernet cable. The ZerOS consoles can output upto 4 universes of DMX data via Art-Net.

Each Art-Net device needs an IP address starting with a 2.x.x.x or a 10.x.x.x, and this setting must match on the desk itself. Each DMX universe must then be allocated to a Port – Art-Net Ports numerate from 0-15, so it is generally accepted that desk universe 1 will become Art-Net universe 0, however this is user definable.

Art-Net enabled devices include Media Servers, Moving Lights and also dedicated DMX output boxes such as the "1 Universe Ethernet Box" by Cooper Controls. The system will look something like this:

sACN (ANSI-E1.31)

Solution & Solution XL can output DMX via the Streaming ACN standard for DMX over Ethernet transport. This standard is approved by ANSI and ESTA as the new DMX over Ethernet standard and allows ZerOS to communicate with a multitude of sACN enabled devices already out there.

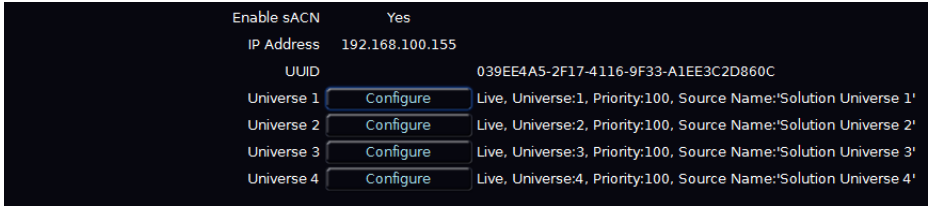In Setup, choose the Network tab and then select sACN:

Figure 36 - sACN Configuration

Each DMX universe is offered as a line item with configuration options for each universe. By default all universes are disabled, so enable only the universes you require in order to reduce the network overhead.
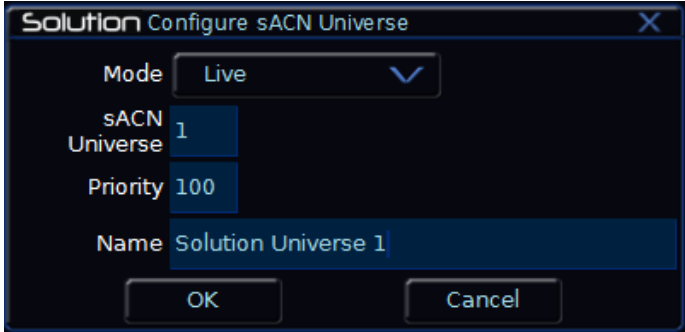
Figure 37 - sACN Universe Configuration

Each sACN universe can be either "Live" or "Preview" output – the Preview output option although configurable is not implemented in ZerOS as of version 7 software.

Note : Preview universes are not implemented in ZerOS 7 software.

sACN allocates a universe number to each DMX universe, which must be set the same on the transmitting device (ZerOS console) and the receiving device (the DMX output box, or fixture, etc). In addition, each universe can be defined a Priority level (0-200) – sACN receptive devices will automatically listen for the highest priority number received and respond to that signal. In this way, multiple consoles can be running on a network at the same time and can automatically take over from one another – a function used in our tracking backup software.

Each sACN universe can also have a unique name associated with it, which can be entered from a USB keyboard. This functionality allows you to identify which universe is coming from which console on a larger networked system.

Setup

Wings, Zero Wire

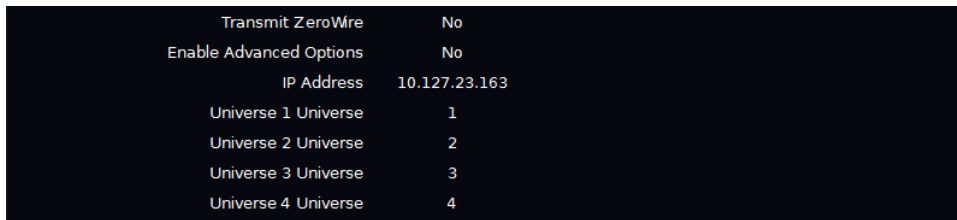Zero Wire DMX is a wireless DMX transmission system from Zero 88. The system can be output directly from the console via the [Network] options in Setup, and can then be routed via a Wireless Access Point to Zero Wire DMX boxes which decode the signal to DMX for linking to fixtures and dimmers, etc.

In the Zero Wire setup page there are a host of options, which enable each DMX Universe on the desk to be routed to an IP address with a unique Universe number (see below).

Transmit ZeroWire	No
Enable Advanced Options	No
IP Address	10.127.23.163
Universe 1 Universe	1
Universe 2 Universe	2
Universe 3 Universe	3
Universe 4 Universe	4

Figure 38 - ZeroWire Configuration

For more information, see the Zero Wire DMX user manual, which can be found on the Zero 88 website.

Note: The new ZeroWire CRMX products do not use Zero Wire communications protocol – they can be defined to use sACN or Art-Net as required. This section is for support of the older Zero Wire products only.

It is possible to connect Ethernet based playback wings to the Solution & Solution XL. These wings can then be mapped to expand the front panel controls of the console.

Tracking Backup

It is possible to connect ZerOS consoles together, or a console and an offline editor, to create a master and backup system. This tracking backup option is ideal for show-critical scenarios where a backup solution must be provided. For this purpose Phantom ZerOS can be considered to be a fully functioning console, with the presence of a ZerOS Unlock Dongle (Catalogue Number 00-887-00).

The two consoles are connected together via an Ethernet network. Each console is assigned an IP address and a master or backup status. If the console is set to be the backup device, it will go into a suspended status where you will not be able to operate the controls on the front panel, until such a time as the master console disconnects or fails in any way. At this time, the show file will have automatically transferred to the backup console and the backup console will take over control of the show.
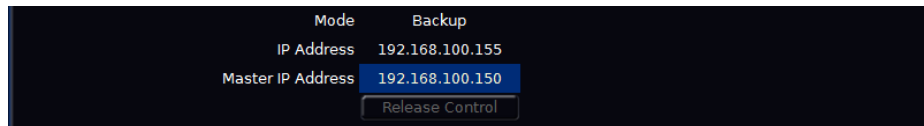
Figure 39 - Tracking Backup Setup

Visualisation

Light Converse (http://www.lightconverse.net)

The Light Converse visualiser uses Art-Net to communicate with the desk software, hence the presence of the visualisation configuration settings in the Art-Net tab of Network Setup. The rules of Art-Net (above) apply when configuring a Light Converse setup.

Light Converse integration requires a Zero 88 Light Converse USB dongle. Once active, the system allows bidirectional control of fixtures, selection and patching via the Ethernet connection.

Capture (CITP) (http://www.capturesweden.com)
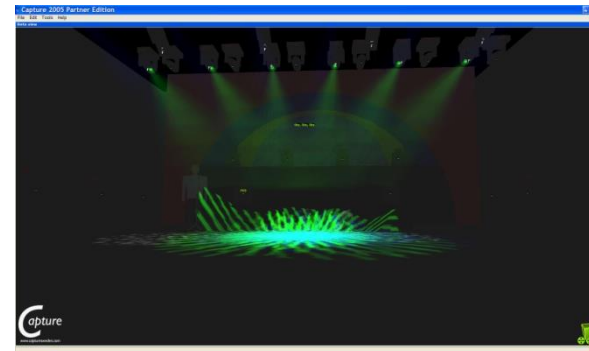
Capture 2005 visualising software communicates with the desk via a protocol known as CITP. This protocol allows for any standard PC network between the desk and the visualising PC. The console allows you to configure either a fixed IP address or one allocated via DHCP. As long as the two devices can see each other, the system should function correctly.

Setup

WYSIWYG (http://www.castlighting.com)

WYSIWYG Requirements

- A current (Release 21 or greater) installation of WYSIWYG Perform
- The Zero 88 consoles file (provided on the Cast website)
- The Zero 88 WYSIWYG Driver (provided on the Zero 88 website, or on the CD with the desk)
- An Ethernet connection to your Zero 88 console

WYSIWYG Installation

- First install WYSIWYG Release 22 or greater, following the standard procedure (if you're using Release 21, you'll need the Zero 88 Consoles CFB file)
- Run the Zero 88 WYSIWYG Driver installation tool
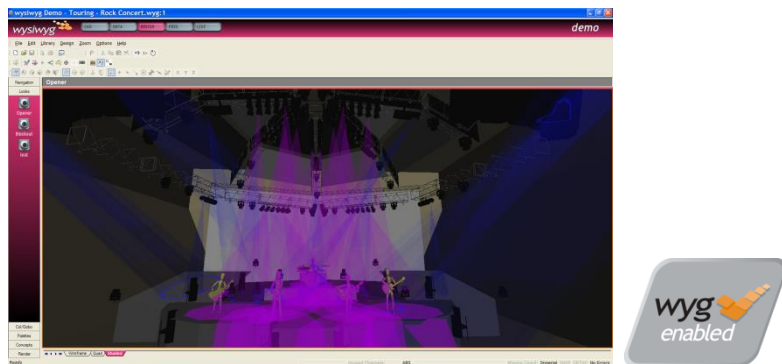- Once the driver is installed, run the tool
- Select the network interface you wish to connect WYSIWYG with (the IP address is shown)
- Choose OK
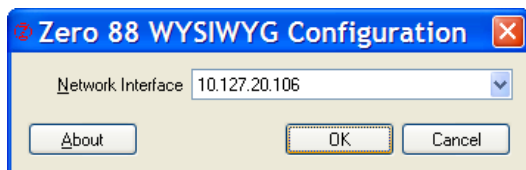
WYSIWYG Usage

- Start WYSIWYG & load your show file
- Patch your fixtures to Universes in WYSIWYG
- In the LIVE tab, select LIVE, Device Manager

- In Device Manager, select New and locate the Zero 88 console you are connecting to
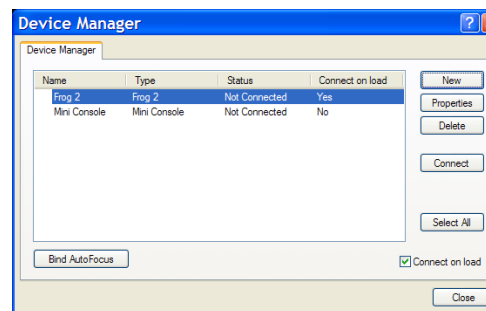
- Select the console and click Properties, then enter the IP address of the desk in the Address. Select each Port on the desk and Bind these to a Universe on WYSIWYG.
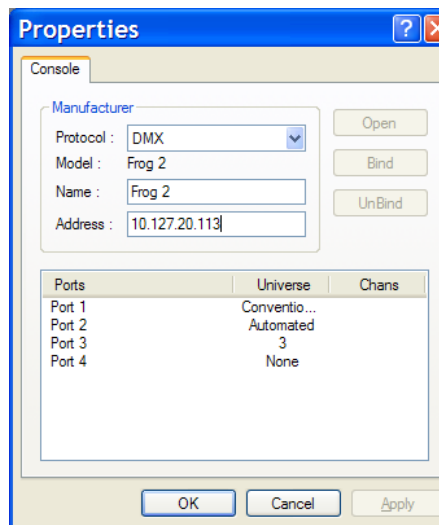
- In the Device Manager, click CONNECT and the console should connect. You can now use WYSIWYG to visualise your show.
- When you have finished using it, click DISCONNECT in the Device Manager.

Preset Operation
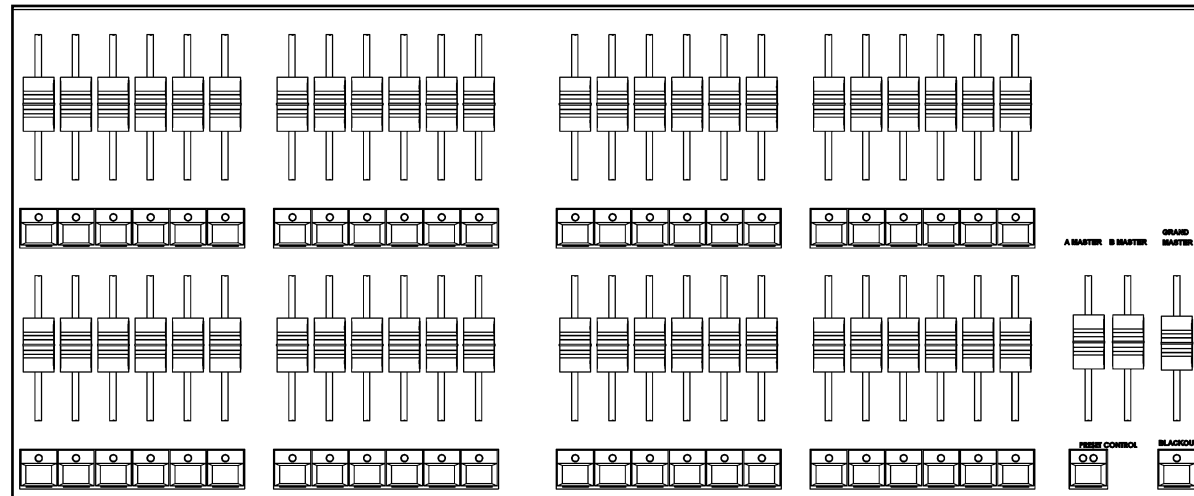
Figure 40 - Preset Faders

Preset Operation

The Solution desk has 48 preset faders which control 24 dimmer channels in "Two Preset" mode or 48 dimmer channels in "Wide" mode.

The Solution XL desk has 96 preset faders which control 48 dimmer channels in "Two Preset" mode or 96 dimmer channels in "Wide" mode.

The configuration and operation of the PRESET FADERS and the A MASTER and B MASTER faders is determined by the "Preset Mode" of the desk.

The Solution and Solution XL desks' preset mode is defaulted to DISABLED .

You can switch the desk to operate into TWO PRESET operation or WIDE mode operation using the TWO PRESET and WIDE keys on Special Page 1 of the MFKs. You can also hold down the SHIFT key and pressing the PRESET CONTROL key to switch between these modes.

The "Channel Button Mode" can also be found on Special Page 1 of the MFKs and determines the operation of the CHANNEL FLASH buttons.

Crossfade Time - To enable timed fades there is an internal Fade Time that is applied when crossfading between scenes in both Two Preset and Wide modes. This internal fade time can be found and adjusted on Special Page 1 of the MFKs, labelled Time.

Two Preset Operation

Ensure that the GRAND MASTER fader is at full (100%) and BLACKOUT is off.

Set the preset mode to TWO PRESET using the MFK on Special Page 1 or by holding down the SHIFT key and pressing the PRESET CONTROL key.

Set the A MASTER and B MASTER faders to zero.

The internal Time should be set to 0.0seconds, on Special Page 1.

Outputting a Scene

Set the required output levels on the PRESET A faders, then move the A MASTER fader to full **or** set the required output levels on the PRESET B faders, then move the B MASTER fader to full.

Manual Fading Between Scenes

The Crossfade Time should be set to 0.0 on Special Page 1.

Set the A MASTER fader to full, and the B MASTER fader to zero. Set up a scene using the PRESET A faders. You will see this scene on stage. Set up a different scene on the PRESET B faders. You will not see this scene on stage yet.

To crossfade to the scene on PRESET B, simultaneously move the A MASTER fader to zero and the B MASTER fader to full. Note that the B MASTER fader is inverted, so this action is from top to bottom on both faders. As the master faders are moved in tandem the scene on PRESET B will fade in and the scene on PRESET A fade out.

To return to the scene on PRESET A, simultaneously move the A MASTER fader to full and the B MASTER fader to zero. As the master faders are moved the scene on PRESET B will fade out and the scene on PRESET A fade in.

In both cases above, the crossfade will be truely dipless and the speed of the crossfade will be determined by the speed of movement of the A and B MASTER faders.

Timed Fading Between Scenes

Set the Time to the required fade time, using Special Page 1 TIME button.

Set the A MASTER to full, and the B MASTER to zero. Set up a scene using the PRESET A faders. Set up a different scene on the PRESET B faders. To initiate the timed crossfade, quickly move the A MASTER to zero and the B MASTER to full.

The output will crossfade from Scene A to Scene B in the Crossfade Time (providing the time taken to move the master faders was less than the indicated time).

To return to scene A, quickly move the A MASTER to full and the B MASTER to zero. The output will crossfade from Scene B to Scene A in the Crossfade Time (providing the time taken to move the master faders was less than the indicated time).

In each of the cases above the timed crossfades will be dipless. If the A or B MASTER faders are only moved a proportion of their full travel, then the time taken to achieve the final output state will be the same proportion of the internal Time.

Preset Operation

Wide Operation

Outputting scenes from the preset faders or stored scene, manual or timed crossfades between scenes (faders and stored). Flashing, soloing and latching of channels.

In Wide Mode you are able to crossfade between, or combine two full width scenes, ie 48 channels on the Solution desk or 96 channels on the Solution XL desk.

A scene is set up using the PRESET A and PRESET B faders to set all the dimmer levels. The scene is then stored in memory by pressing the PRESET CONTROL button.

A second scene is then set up on the PRESET A and PRESET B faders. The A MASTER and B MASTER faders are then be used to crossfade between the two scenes.

The PRESET CONTROL button and accompanying LEDs are used to control and indicate whether the A MASTER or B MASTER has control of the preset channel faders, and which master has control over the stored scene.

Setting Up and Storing Scenes

Ensure that the GRAND MASTER fader is at full (100%) and BLACKOUT is off. The Crossfade Time should be set to Manual.

If not already in Wide Mode, set the preset mode to WIDE using the Key on Special Page 1 or by holding down the SHIFT key and pressing the PRESET CONTROL key.

On selecting Wide Mode, the PRESET faders will be assigned to the A MASTER, and the stored scene assigned to the B MASTER. The LEDs in the PRESET CONTROL key indicate this. The stored scene is cleared (all dimmer channel levels set to 0%).

If the A MASTER and GRAND MASTER are set to full, and the B MASTER to zero, moving any of the PRESET faders will cause the corresponding output to change. The level is equal to that on the PRESET fader. The scene is then set up as required using the PRESET faders.

To store the scene press the PRESET CONTROL button. The levels of the PRESET faders are saved into the 'stored' scene and the LED in the PRESET CONTROL key changes. The A MASTER is now assigned to the stored scene and the B MASTER assigned to the preset faders.

The PRESET faders can now be used to set up the next scene without affecting the channel outputs. To output the scene set up on the PRESET faders, simultaneously move the A MASTER from full to 0% and the B MASTER from 0% to full. A dipless crossfade occurs with the stored scene fading out and the scene set on the preset faders fading in.

If the PRESET CONTROL button is now pressed, the levels of the PRESET faders are saved into the 'stored' scene (overwriting the previous values) and the LEDs in the PRESET CONTROL button change. The B MASTER is now assigned to the stored memory and the A MASTER assigned to the PRESET faders. This procedure can then be repeated as required to effectively produce a two preset desk controlling all the dimmer channels.

Manual and Timed Crossfades

Crossfading between the preset scene and the stored scene in Wide Mode works in the same way as crossfading between PRESETS A and B in Two Preset mode.

With the Time on Special Page 1 set to 0.0, the crossfade time is determined by the speed at which the A MASTER and B MASTER faders are moved.

If the Time is not set to 0.0, the transition time from one end of the master fader travel to the other will be the internal Time.

Channel button mode

Flashing Channels

The Flash Mode must be set to FLASH using the Channel Button Mode keys on Special Page 1.

The CHANNEL FLASH buttons below the PRESET A or PRESET B faders can then used to flash individual channels to the level set on the GRAND MASTER fader. When a channel is flashed, the LED will in the flash button will be lit to indicate the flash in progress.

Soloing Channels

The Flash Mode must be set to SOLO using the Channel Button Mode keys on Special Page 1.

The CHANNEL FLASH buttons below the PRESET A or PRESET B faders are then used to solo individual channels to the level set on the GRAND MASTER fader.

When a channel is soloed, all other dimmer channels and fixture brightness channels are reduced to zero, while the CHANNEL FLASH button is being held down. When a channel is being soloed, the LED will be lit in the flash button to indicate the solo in progress.

Latching Channels

The Flash Mode must be set to LATCH using the Channel Button Mode keys on Special Page 1.

The CHANNEL FLASH buttons below the PRESET A or PRESET B faders are then used to latch individual channels.

Successive presses of the CHANNEL FLASH buttons latch the channel on and off.

When a channel is latched on, the LED in the CHANNEL FLASH button is on.

When a channel is latched off, the LED in the CHANNEL FLASH button is off.

Channel mix mode

HTP (Highest Takes Precedence)

In two preset mode, if Preset A level is 40% and preset B level is 60%, the output level is 60%.

LTP (Latest Takes Precedence).

Use the preset fader to match the current output level for the dimmer. Once the level has been picked up, you can adjust the level up or down using the fader. Note that when the Preset Mixing is set to HTP mode, the preset faders are NOT shown in the Program Window.

Programming

This section of the manual covers the basic functionality of programming which involves selecting fixtures, adjusting one or more of their parameters to the required values, and then recording the information into a cue or palette.

Operating Modes

The Solution & Solution XL offer 3 different programming modes to cater for different knowledge levels and styles of show. It is important to understand the difference between the three, and to select the one most appropriate to your requirements.

Non Tracking Mode

In Non Tracking mode, programmed items store the outputting values for all parameters. In this mode, modifying a value in a cue will not affect the subsequent cue in the Playback. This mode is great for beginners or those who just want the desk to store what they're looking at, without having to think about tagging, tracking and other complexities. We recommend beginner users start with non tracking mode.

Tracking-Basic Mode

In Tracking Basic mode, the desk still stores the outputting data, but changes made to one cue affect the subsequent cues. This is useful as it allows you to modify a single cue and see the changes applied to a whole range of cues, but requires more thought when programming and updating cues to ensure data does not track unnecessarily. You can think of tracking as working the way that people speak – each cue is a series of commands (turn on these lights, turn off those ones) and any lights not mentioned, don't get changed.

Tracking-Advanced Mode

In Tracking Advanced mode, you have full control over what gets programmed into every section of the desk. The desk will only store what you tell it to into each cue or palette. Un 'tagged' parameters will remain unprogrammed. This mode enables full tracking behaviour and gives experienced programmers maximum flexibility.

Switching between operating modes

The operating modes on Solution & Solution XL are defined in two places. When the desk first boots, the program mode is presented in a popup window for selection:
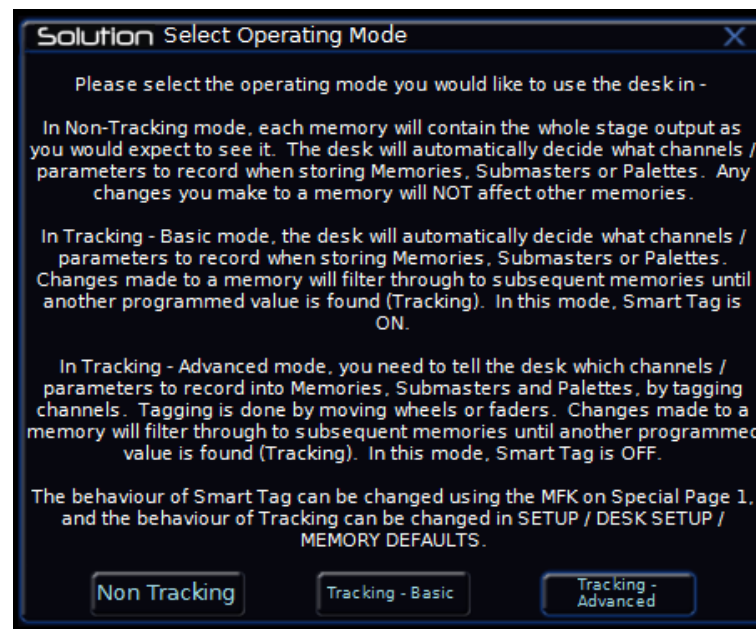
Figure 41 - Selecting Operating Mode

The other way of changing the operating mode is through the main desk controls. The Tracking/Non Tracking mode switch is found in SETUP > System Settings. This setting allows you to switch between Non-Tracking and the two Tracking modes.

The setting to define the behaviour of Tracking-Basic or Tracking-Advanced forms part of the Smart Tag function, which is detailed later in this chapter (page 64). Tracking Basic is Tracking Mode with Smart Tags enabled. Tracking Advanced is Smart Tags disabled. This can be modified on Special Page 1 of the MFKs.

The Output Window

The Output Window is central to the programming functionality on the Solution & Solution XL desk. It is recommended (but not mandatory) that the Output Window is displayed on the monitor screen when programming cues and palettes.   This is particularly important in Tracking-Advanced mode, to determine what will be programmed.

To display the Output Window, if it is not already active, press the OUTPUTS key.

As dimmer levels are changed or fixtures selected and their parameters adjusted, the corresponding information is shown in the Output Window, for example:

Figure 42 - Ouptut Window (Top)

Dimmer Section

The Dimmer section of the Output Window is displayed as a table 'docked' at the top of the Ouptut Window and shows the channel number, it's output value and tag status. The colour coding for this section is as follows:

The Dimmer Numbers are always displayed and are cyan text on a black background. An orange border surrounds these numbers when they are selected.

The Dimmer Values are displayed in red text if tagged, white text if untagged, and not displayed at all if they are not in the Program Window.

Fixtures Section

The Fixtures section of the Output Window is displayed below the Dimmer section. The fixtures and their parameter values are shown as a table. The currently selected fixtures are surrounded by an orange border. Fixture parameters which are tagged have a light blue background.
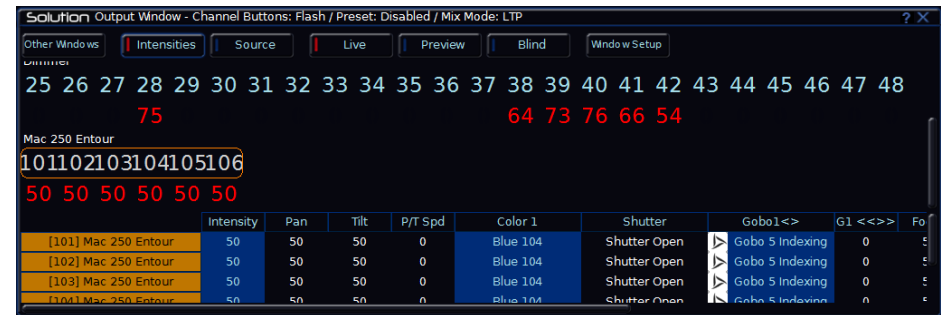

**Figure 43 – Output Window showing Fixture Section**

Programming

Source

When the [Source] button is selected, the Output Window displays the source of the output data rather than the actual output values as follows:

D	Default value of the parameter.
P	Programmer.
M n	Memory n.
S p/n	Submaster page / number.

Window Setup

The Output Window have a variety of Setup options to determine their style and display options. These are accessed using the Window Setup button.
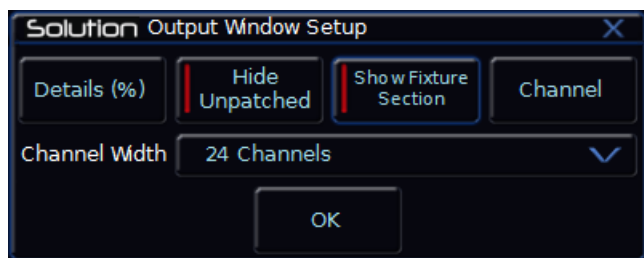
Parameter Values

Parameter values may be displayed in %, DMX or detail names as follows:

Select the [Details (%)] soft button (this is also found on Special Page 1). A drop down menu is displayed with the following options:

- **Percent** – When this option is selected all the fixture parameter values are displayed as percentages (ie 0 – 100% for both 8 bit and 16 bit parameters).

- **DMX** - When this option is selected all the fixture parameter values are displayed as DMX values (ie 0 - 255 for 8 bit parameters or 0 - 65535 for 16 bit parameters).

- **Details (%)** – When this option is selected the fixture parameter values will be displayed as the parameter detail names (eg Red, Gobo 1) where they are defined in the fixture data. If parameter details are not defined, the window will show the actual numerical values in %.

- **Details (DMX)** – When this option is selected the fixture parameter values will be displayed as the parameter detail names (eg Red, Gobo 1) where they are defined in the fixture data. If parameter details are not defined, the window will show the actual numerical values in DMX (0-255 or 0 – 65535).

Hide Unpatched

The Hide Unpatched option can be used to remove unpatched dimmers from the Output windows to clear the display up. This option is enabled by default.

Window View

There are several window views available. The default is Channel View, which will be the most familiar to most users.

Selecting Fixtures

Before fixtures can be controlled by the desk they need to be selected. Press the FIXTURES key. The MFKs become fixture selection buttons and the LCDs above the keys indivate what fixture has been assigned to which MFK. Press the MFK to select the fixture; press it again to deselect the fixture.

As each fixture is selected it appears in the Output Window. It is also possible to select Dimmers, if the Preset [Flash Mode] is set to Off/Select, or by holding SHIFT and pressing the flash key under each channel required..

Controlling Fixture Parameters

Each fixture type has it's own set of parameters (intensity, colour, gobo, pan, tilt etc.) which are grouped together in different attributes (Position, Colour, Beamshape).

Once a fixture, or group of fixtures has been selected, the attribute buttons and control wheels can be used to adjust the parameter output levels as required.

Controlling Intensity Parameters

The intensity (or brightness) parameter of the selected fixture(s) is controlled by a control wheel. Select the fixture(s) required and then press the POSITION key (if not already selected). The intensity parameter (dimmer) is assigned to the second finger wheel.

Use the control wheel to adjust the intensity level as required. The output value is shown on the LCD above the control wheel.

Command Line – Numeric Entry of Intensity Values

It is also possible to enter levels for dimmers and fixture intensity parameters via a command line syntax. Select Special Page 2 on the MFKs.

Commands are of the form: <selection> @ <value> ENTER. For example:

1 @ 10 ENTER;   3 @ 50 ENTER: 5 @ FULL

Single channel commands

5 + 6 @ 20 ENTER; 14 +16 + 20 @ 75 ENTER;

Multi channel commands

1 THRU 10 @ 80 ENTER; 15 THRU 20 @ FULL;

Range of channel commands

Tip – No Intensity Output ?

If the intensity output levels do not change when you adjust the intensity level using the wheel, check that the GRAND MASTER fader is at full (100%) and the BLACKOUT button is off. If the selected fixture(s) have a Shutter parameter, check that the shutter is open.

Controlling Colour / Beamshape / Position Parameters

The colour, beamshape and position parameters of the selected fixture(s) are controlled using the control wheels. Select the required fixture(s) and then press the COLOUR, BEAMSHAPE or POSITION key. The corresponding parameters for the fixture are assigned to the control wheels and are indicated on the Wheel LCD.

If the fixture(s) has more than three parameters of the selected attribute pressing the attribute key (eg COLOUR) will select the next group of parameters.

Programming

Tagging Parameters

Fixture parameters must be 'tagged' for them to be recorded when programming cues and palettes.

The tag status of each fixture parameter is indicated in the Output Window by its background colour: black = untagged; light blue = tagged, and also on the Wheel LCD: normal video = untagged; inverse video = tagged.

If a parameter's value is changed by moving the control wheel, applying a palette or directly in the Output Window, it will be tagged automatically.

Tagging and untagging may be done at parameter, attribute or fixture level as follows:

Tagging at Parameter Level

Moving a control wheel automatically tags the corresponding fixture parameter.

Holding down the CLEAR key and moving a control wheel untags the parameter assigned to that wheel.

Tagging at Attribute Level

To manually tag or untag all parameters of a particular attribute of the selected fixture(s), carry out one of the following operations:

Hold down the CLEAR key and press the COLOUR key.

Hold down the CLEAR key and press the BEAMSHAPE key.

Hold down the CLEAR key and press the POSITION key.

Hold down the CLEAR key and press the EFFECTS key.

Tagging at Fixture Level

To manually tag or untag all the parameters of a particular fixture, carry out the following operation:

Hold down the CLEAR key and press the corresponding Fixture Selection Key (MFK).

Smart Tagging

Smart Tag is only available in Tracking Mode.

Smart Tags remove the need for you to work out which channels should or shouldn't be tagged in a state. As such, they can be used to build states using other playback elements.

With Smart Tags enabled, when the RECORD key is pressed the state on stage is what will be recorded, regardless of whether or not a dimmer channel or fixture parameter is tagged in the Output Window.

Put simply, using Smart Tags, you no longer have to think about Tracking. The desk will insert whatever tracking is required to make your show work - including ignoring fixtures whose intensity is set to 0% to enable Move On Dark to fully function.

To switch on Smart Tags press the [Smart Tag] MFK on Special Page 1.

Use Smart Tags in combination with Cue Only to create inserted cues that don't affect the rest of the cue stack, for example an added blackout in the middle of a scene.

Smart Tags is the difference between Tracking-Basic and Tracking-Advanced, and as such you can use the Smart Tags MFK to switch between these two modes as required. As Smart Tags is applied when you record a cue, you can safely switch between enabled and disabled as required.

Cue Only Option

Cue Only is only applicable in Tracking Mode. The Cue Only option which is selectable via the [Cue Only] MFK on Special Page 1 and in the Update Options Window allows you to program new cues or to make changes to cues without affecting any subsequent cues in the Playback.

Imagine a scenario where you have two cues, subtly different (Cue 1 and 2). In between these, you wish to add a blackout with a solo spot for an added cue (Cue 1.5). Due to the behaviour of tracking, if you added the solo spot and blackout into an insert cue 1.5, these changes would track forwards into Cue 2, messing up the state.

By adding the new state as Cue Only, the desk will automatically add the required tagging into Cue 2 to stop the changes from tracking forwards from Cue 1.5.

Home Function

The Home function provides a quick method of setting fixture parameters to their 'home' values. The home values are taken from the Edit Fixtures table in Setup and unless they have been specifically edited they will typically be brightness (intensity) to full, colour to white, no gobo, no prisms, shutter open, pan and tilt to mid-position etc.

Parameters that are homed are automatically tagged in the Output Window.

The Home function is available at fixture and attribute level. Select the fixture(s) to be homed and then perform any of the operations summarised in this table:

Operation	Notes
Press the HOME key	Complete home of all selected fixtures; removes all effects.
Hold down the FIXTURES key and press the HOME key	Homes brightness parameters of selected fixtures; removes all intensity effects.
Hold down the COLOUR key and press the HOME key	Homes colour parameters of selected fixtures; removes all colour effects.
Hold down the BEAMSHAPE key and press the HOME key	Homes beamshape parameters of selected fixtures; removes all beamshape effects.
Hold down the POSITION key and press the HOME key	Homes position parameters of selected fixtures; removes all position effects.
Hold down the EFFECTS key and press the HOME key	Removes all effects from the selected fixtures. This is a good way of stopping all effects from running.

Note – Homing Fixtures over Time

Holding down the TIME key and pressing the HOME key will fade the fixture outputs to their home values in the internal fade time. The internal fade time can be found and adjusted on Special Page 1 of the MFKs.

Programming

Highlight Function

The Highlight function provides a quick method of locating a fixture (or fixtures) and allows you to adjust the position (pan and tilt parameters) without tagging any of the other parameters. This can be particularly useful when creating position palettes (see later).

To highlight the selected fixture(s) – Hold down the SHIFT key and press the HOME key. The output values of all the parameters of the selected fixture(s) except for Pan and Tilt are set to the home values (as defined in the Edit Fixtures table in Setup).

While a fixture is highlighted only the pan, tilt and movement effect parameters can be edited.

To un-highlight the selected fixture(s) - Hold down the SHIFT key and press the HOME key. The non-position parameters (intensity, colour, gobo etc.) return to their previous output values. If another fixture is selected, this fixture will be highlighted instead.

Wheel Editing Modes

The desk provides a number of wheel editing modes which are user selectable and apply when editing several fixtures at the same time.

For each attribute there is a normal and a shifted wheel mode.

The normal wheel mode is applied when the control wheel is moved. The shifted wheel mode is applied when the SHIFT key is held down and the control wheel is moved.

The default wheel editing modes, a description of each mode and how to change the wheel editing modes are described in the following sections.

Default Wheel Editing Modes

Each attribute has its own default wheel editing modes as defined in the table below:

	Brightness	Colour	Beamshape	Position	Effects
Normal Mode	Absolute	Absolute	Absolute	Relative	Absolute
Shifted Mode	Fan First	Fan First	Fan First	Fan First	Fan First

Absolute Mode

The parameter value for all the selected fixtures goes to the <u>same absolute value</u>.
For example – Select fixtures 1 – 5 and adjust a parameter:

Fixture Parameter	Fixture 1	Fixture 2	Fixture 3	Fixture 4	Fixture 5
Original Value	30	20	40	10	50
New Value	15	15	15	15	15
Change in Value	-15	-5	-25	+5	-35

Relative Mode

The parameter value on each of the selected fixtures increases or decreases by the <u>same amount</u> from its original value. This mode is most often used for adjusting position parameters (pan and tilt). For example:

Fixture Parameter	Fixture 1	Fixture 2	Fixture 3	Fixture 4	Fixture 5
Original Value	10	20	30	40	50
New Value	15	25	35	45	55
Change in Value	+5	+5	+5	+5	+5

Fan First Mode

The parameter value on each of the selected fixtures increases or decreases by a <u>different amount</u> from their original values, depending on the fixture number. The value of the <u>first</u> selected fixture will be locked. Example – Fan-First Mode (Fixture 1 locked):

Fixture Parameter	Fixture 1	Fixture 2	Fixture 3	Fixture 4	Fixture 5
Original Value	10	10	10	10	10
New Value	10	15	20	25	30
Change in Value	0	+5	+10	+15	+20

Fan Middle Mode

The parameter value on each of the selected fixtures increases or decreases by a <u>different amount</u> from their original values, depending on the fixture number. The value of the <u>middle</u> selected fixture will be locked. Example – Fan-Middle Mode (Fixture 3 locked):

Fixture Parameter	Fixture 1	Fixture 2	Fixture 3	Fixture 4	Fixture 5
Original Value	50	50	50	50	50
New Value	40	45	50	55	60
Change in Value	-10	-5	0	+5	+10

Fan Last Mode

The parameter value on each of the selected fixtures increases or decreases by a <u>different amount</u> from their original values, depending on the fixture number. The value of the <u>last</u> selected fixture will be locked. Example – Fan-Last Mode (Fixture 5 locked):

Fixture Parameter	Fixture 1	Fixture 2	Fixture 3	Fixture 4	Fixture 5
Original Value	50	50	50	50	50
New Value	30	35	40	45	50
Change in Value	-20	-15	-10	-5	0

Programming

Fan V Mode

The parameter value on each of the selected fixtures increases or decreases by a _different amount_ from their original values, depending on the fixture number. The value of the middle selected fixture will be locked. Example – Fan-V Mode (Fixture 3 locked):

Fixture Parameter	Fixture 1	Fixture 2	Fixture 3	Fixture 4	Fixture 5
Original Value	50	50	50	50	50
New Value	70	60	50	60	70
Change in Value	+20	+10	0	+10	+20

Changing Wheel Editing Modes

To change the normal or shifted wheel editing mode – hold down the SETUP key and press the required attribute key (eg COLOUR). The MFKs change to show the various setup options for the selected attribute.
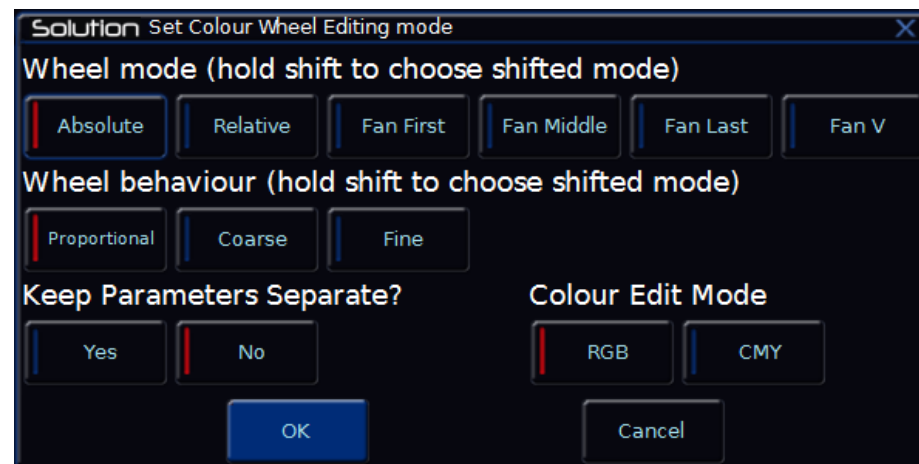
Figure 44 - Select Colour Wheel Edit Mode

Select the Wheel mode as required. Hold down SHIFT to select a shifted wheel mode. The MFKs change to show the wheel editing modes available.

Select the [OK] key to complete the operation.

Blind Mode

Blind mode allows you to program and edit memories, submasters etc without affecting the live DMX outputs from the desk.

There are effectively two Output Windows - a 'live' one, which is normally used, and a 'blind' one which is used when Blind Mode is engaged.

Entering Blind Mode

Blind Mode is entered by pressing the BLIND key on Special Page 1 of the MFKs or the [Blind] button in the Output Window. The LED in the MFK is lit and the text in the LCD changes to inverse to indicate that the desk is in Blind Mode.

Entering Blind Mode does not alter the live Output Window in any way (ie it doesn't get cleared, it doesn't get altered, and it stays outputting).

The Output Window changes to display a new Blind Output Window.

Blind Program Window

Figure 45 - Blind Output Window

The format and layout of the Blind Output Window is identical to that of the Live Output Window.

Setting dimmer and fixture parameter levels, tagging, untagging etc. is carried out in the same way in the Blind Output Window as the live one.

Any changes you make in Blind Mode will happen <u>without</u> affecting the live outputs (playback can still take place from the Go button and Playback faders).

Exiting Blind Mode

Blind Mode is exited by pressing the BLIND key on Special Page 1 of the MFKs or clicking [Live] in the Output Window. The LED in the MFK goes out and the text in the LCD changes back to normal.

On exiting Blind mode, if the Output Window <u>hasn't</u> been saved or cleared, a popup will appear with the following options:

- **Clear and Leave** - clears the Blind Output Window and sets you back to Live mode.

- **Stay in Blind** - keeps you in Blind Mode giving you the opportunity to save your Output Window first.

- **Retain and Leave** - keeps the Blind Output Window active (hidden from the outputs, of course), but switches back to Live mode. Upon re-entering Blind mode, this data will still be in the blind Output Window.

Clearing the Output Window

As soon as any changes are made to the outputs in the Output Window, the LED in the CLEAR key is lit, to indicate that fixture parameters have been changed.

Pressing the CLEAR key once will clear the fixture selection in the Program Window.

Pressing the CLEAR key a second time will clear (undo) all the operations made in the Output Window since the LED was first lit. The LED in the key goes out.

To switch the order of these two levels of clear, hold SHIFT whilst pressing CLEAR.

Cues & Playbacks

Lighting "states" (or "scenes") can be pre-recorded, ready to be recalled later. They are called "cues", and are recorded onto "playbacks".

Playbacks

Each playback can store a single cue, or multiple cues. The Solution console has 201 playbacks and the Solution XL console has 601 playbacks. Both can store a total of 10,000 cues.

Traditionally, playbacks with a single cue have often been referred to as "submasters" whereas playbacks with multiple cues have often been referred to as "cue stacks". This manual will simply call them playbacks.

The button below the faders are "Go" buttons.

Once you have set up a scene that you like, you can then record that into a cue. Cues can be recorded into any of the playbacks, including the "Master Playback". When dealing with cues, we suggest viewing the "Playback" window by pressing MEMORIES.

Master Playback

For many shows, especially theatrical, a single playback is often used with a long list of pre-recorded cues. For these situations, an additional "Master Playback" is provided. There's nothing special or different about the Master

Playback compared to the other playbacks, apart from the double-width ▶ (play/go) button, and a dedicated ▌▌ (pause) button for convenience. The Master is described as "Playback 0" within the ZerOS software.

Multi-Function fader window

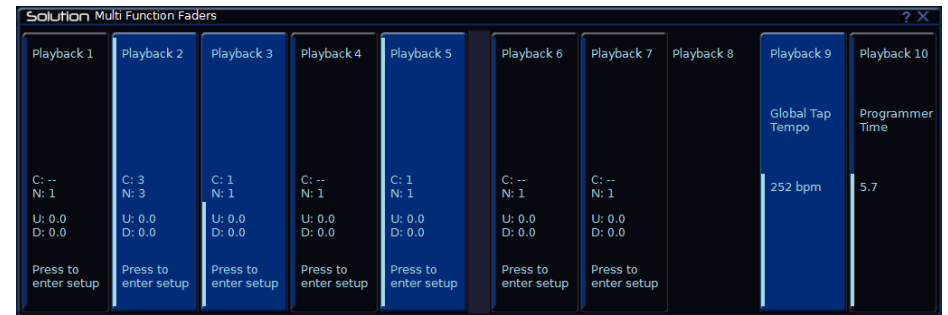The Multi-Function Fader window shows the current status of the 10 or 30 built-in faders.

Figure 46 – MFF Window

This window displays the Playback's number, name, current intensity, current & next cue and the playback raise (u) & lower (d) time. By default, pressing one of the buttons will open the Playback's Settings window for quick access. However this functionality can be changed in Setup > System Settings to match the physical button of the playback (Flash, Solo, Go, Tap Tempo etc), or alternatively to act as an on-screen fader. This allows playbacks to be controlled on a touch screen or tablet when viewing this window.

Playback window

The Playback window shows all the cues within a single playback, with each cue being a different row. The columns show the various fade times and settings for each of those cues.

No	Name	Fade Up	Fade Down	Colour Fade	Beamshape Fade	Position Fade	Cue Settings
--							
1	Preset	0.0	0.0	0.0	0.0	0.0	
2	Fade houselights					0.0	
3	Overture	3.0	3.0	0.0		0.0	
4	*BO	3.0	3.0	0.0	0.0	0.0	
5	Intro state	3.0	3.0				
6	Add face light	3.0	3.0				
7	Jessica entry	3.0	3.0	0.0			

I 0.0   0.0 (0.0)
C 0.0   0.0 (0.0)
B 0.0   0.0 (0.0)
P 0.0   0.0 (0.0)

| Current: 1 | Next: 2 | Last: 7 | Realtime 15:36:28 | Move on Dark: Delay: 3.0 Fade: 1.0 | Tracking |

Figure 47 – Playback Window

To change which playback you're viewing, hold MEORIES and tap the GO button of the playback you wish to view – this could be any of the 10 MFFs, or the Master Go button. This will now display this playback in the Playback Window.

Naming playbacks

Playbacks that have cues recorded into them can be named. Empty playbacks cannot be named. These names appear in the Multi-Function Faders window. To name a playback, press the NAME button and then select the playback you wish to name using the buttons under the faders.

Copying playbacks

To copy one playback to another playback, press the COPY button, press [Playback] and then type the number of the playback you wish to copy in the "from" field, and the number of the playback you wish to copy it to in the "to" field. Pressing either Down or Enter will move to the next field (or alternatively, just touch the field you wish to type in). Instead of pressing Playback and typing the playback number, you can also select the playback using the Playback button. This will automatically move onto the next field.

Deleting playbacks

To delete a playback (and all the cues within that playback), press the Delete button, and then select the playback you wish to delete using the buttons under the faders. A popup will appear to confirm this action. Deleting Playbacks cannot be undone.

Advanced Playbacks

Empty Playbacks can have advanced functions. Hold Setup and press the button of a playback which is currently empty. The options available are Global BPM , Programmer Time and Speed Override .

Cues & Playbacks

Playback settings

The settings for an individual Playback are adjusted within the Playback Setup window. To display this window, hold down SETUP and press the button below the playback fader. Alternatively, in the Multi-Function Faders window, press the playback you wish to change the settings of (this is dependent on the selection option in **Setup** > *System Settings* > **MFF Window Playback button action**).

The Playback Setup window is split into five sections - General, Chase, Raise and Lower, Move on Dark and Advanced. These are detailed below, and are accessed via the five buttons along the top of the window (as shown below) or by using the MFKs. When you first enter the window, the "General" tab will be selected unless the Playback is set as a chase, in which case the "Chase" tab will be selected automatically.

Playback Setup window – General tab

General

The "General" tab is split up into five parts, as shown above and detailed below.

Intensity Mixing

This option determines how the programmed *intensity* parameters are mixed. The following options are available:

Highest takes precedence (HTP) – This default option will output the highest value of all the playbacks – so if an intensity is at 50% on one

active playback, and at 75% on another active playback, it will output at 75%. As that playback is pulled down, the intensity will reduce to 50%, but stay at 50% as that becomes the highest value for that fixture.

Latest takes precedence (or "Soft LTP") –the intensity of fixtures will match the latest command, rather than the highest. If one active playback has a fixture at 100%, and another playback is at 50%, set to LTP, as this fader is raised, the fixture will fade down to 50%, as this is the "latest" command.

LTP Catch – This is an alternative version of LTP, where control of a value will only happen when the fader goes past the current value. This is useful to "catch" values that are currently high, to bring them back down to a lower intensity.

Inhibit – Inhibitive playbacks do not output the programmed intensities of the current cue, but instead act as a "proportional scale" for those channels. When changing cues, these values change, allowing multiple Inhibitor states to be stored onto a single playback.

Fader Function

The operation of the playback fader may be one of the following options:

HTP Master – Simply controls the maximum level of the programmed HTP channels. Cues are triggered via the GO key. This is the default option.

Manual Fader (2 Way) – Press the GO button to activate the playback. The next cue in the playback is automatically loaded when the fader reaches either end of it's travel (0% or 100%). Moving the fader creates a dipless cross-fade between the two cues. The fader controls the HTP levels; the LTP channels are triggered when the fader is moved from the end stop and then fade according to the times in the incoming cue.

Manual Fader (1 Way) - Press the GO button to activate the playback. The next cue in the cue stack is automatically loaded when the fader reaches zero. The fader controls the HTP levels; the LTP channels are triggered when the fader is moved from zero and then fade according to the times defined in the incoming cue.

This option is not available if the playback is a chase.

Fader Controls…

This allows you to force a parameter to follow the movement of the fader for its crossfade, rather than triggering at specified level and fading automatically. This is great for building playbacks which move fixtures out

into the audience – as the fader moves up, the fixtures move up. Another application commonly used is to create three playbacks – one for Red, one for Green and one for Blue. To use this feature, simply select the attributes required using the on-screen buttons.

Button Function

This offers Flash , Latch , Solo , Go (Fade) , Go (Snap) , Pause and Tap Tempo functionality to each of the playback buttons ("Tap Tempo" is only available if the playback is set as a chase).

A secondary "shifted" option can be chosen whilst holding down the Shift key on the console.

The default option changes dependant on the "status" of the playback. However, once this setting has been changed by the user it will not change again automatically, even if the playback "status" changes.

For a playback with a single cue, the default is Flash (shifted default: Solo). For a playback with multiple cues, the default is GO (Fade) (shifted default: GO (Snap)). For a playback which is set to a chase, the default is Tap Tempo (shifted default: GO (Snap))

Chase
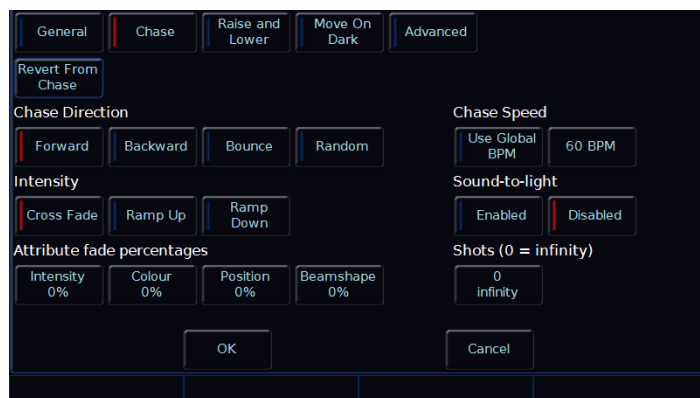
Playback Setup window – Chase tab

It is possible to convert a whole playback into a chase, which makes the playback run automatically in sequence. This is done by choosing [Turn into Chase] within the "chase" tab of Playback Setup. Once converted to a chase, the button changes to [Revert from Chase] , and additional options appear in the chase tab, split into six parts as detailed below.

Chase Direction

This option determines which order the steps (cues) are output when the chase is run:

Forward – The steps are output in increasing numerical order (eg 1,2,3,4,5).

Backward – The steps are output in reverse order (eg 5,4,3,2,1).

Bounce – Alternates between forwards and backwards (eg 1,2,3,4,5,4,3,2,1).

Random – The steps are output in a random order.

Intensity
Intensities in a chase can be set to "Cross Fade", "Ramp Up" or "Ramp Down". "Ramp Up" will fade up the intensity, and then snap it off, whereas "Ramp Down" will snap on the intensity, and then fade it down.

Attribute fade percentages

Individual fade percentages can be set for each attribute.

Assuming the chase speed is set to 12 Beats Per Minute (meaning 1 step every 5 seconds), a fade percentage of 20% means that attribute will fade for 1 seconds (20% of 5 seconds), and then remain on for the other 4 seconds (80% of 5 seconds).

A fade percentage of 0% is equivalent of a snap, and a fade percentage of 100% is the equivalent of a cross fade.

Chase Speed

The Speed option determines how fast the chase runs.

When the Speed is set to zero, the chase runs according to the delay and fade times that are programmed into each step (cue) in the chase.

When the Speed is set to any other value, the chase runs at the corresponding number of beats per minute (bpm). All the fade and delay times that are programmed in the steps (cues) are ignored and the

Cues & Playbacks

transition between each step (cue) is determined by the "Intensity" and "Attribute fade percentages" options above.

Please note: "Tap Tempo" functionality is available under "Button Function" in the General Tap on any playback which is a chase.

Alternately, "Use Global BPM" can be selected. This allows multiple chases to all use the same BPM. The Global BPM speed can be controlled by pressing the STEP button twice, or by holding SETUP and pressing the Playback Button of an empty playback, and selecting [Global Tap Tempo]. The playback button will now work as a Tap Tempo, and the fader will speed up / slow down the Global BPM.

Sound-to-light
When enabled, each step is triggered by a bass beat on the audio input on the desk rather than the BMP set above.

Shots
This options determines how many times the chase will run after being triggered.

When Shots is set to zero, the chase runs continuously.

When Shots is set to a value between 1 and 255, the chase runs the specified number of times and then stops on the last step.

Note – If the Direction modifier is set to Random, then one "shot" is defined as outputting N steps, where N is the total number of steps (cues) in the cue stack.

Raise and Lower

Playback Setup window – Raise and Lower tab

The various options are described below:

Trigger on Raise

When the playback fader is raised, the first cue is activated.

Release on Lower

When the playback fader is lowered, the stack is released.

Trigger / Release Level

The level at which the playback is triggered or released, in %. If set to 10%, the playback will not be triggered until the physical fader is at 10%.

Raise Time

This time simulates a time the physical fader is raised over. So setting it to 5 seconds, and pulling up the fader instantly, will instead take 5 seconds to fade up the playback.

Lower Time

This time simulates a time the physical fader is lowered over. So setting it to 5 seconds, and pulling down the fader instantly, will instead take 5 seconds to fade down the playback.

Move on Dark
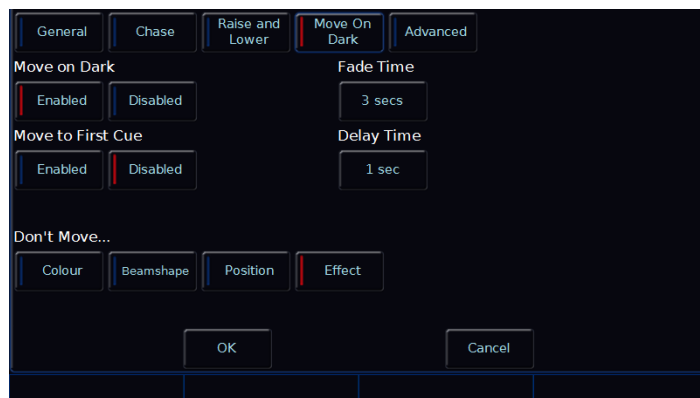
Playback Setup window – Move on Dark tab

The various options are described below:

Move on Dark

When this function is enabled for the playback, whenever a fixture goes black (ie it's intensity falls to zero, or the shutter is closed), the desk software will look ahead in the playback to see what values the colour, beamshape and position parameters are next programmed at for that fixture.

It will then output those values shortly after the fixture has gone black (according to the delay and fade times set in the window). When the fixture comes back on again in a later cue, the colour, gobo, position etc. will already be at their correct values and just the intensity will fade up or the shutter open.

Move to First Cue

This option is used when there are no more cues later in the playback for the fixture to Move on Dark to. If enabled, when fixtures go dark for the last time in the playback, they will move to the first cue they are used in. When disabled, they the fixtures go dark for the last time in the playback, they will not move.

Fade Time

The time with which FLX fades the attributes that move on dark.

Delay Time

The time the FLX waits after a fixture reaches blackout before move on dark kicks in.

Don't Move Colour / Beamshape / Position / Effect

This option allows you to disable a specific attribute from moving in dark across the whole playback. By default, only "Don't Move Effect" should be enabled.

Cues & Playbacks

Advanced

Playback Setup window – Advanced tab

The various options are described below:

Renumber

This option allows you to renumber all the programmed cues in the playback. Press the [Renumber] soft key. This brings up the Renumber Cues dialogue box. Enter the required Start Number and Increment in the fields provided and then select the [OK] button in the window.

Block

When this option is selected, all the cues in the cue stack are changed into block cues, ie this programs and tags all the parameters at the values they would normally be output at when the cue is played back.

Unblock

When this option is selected, any parameters that are recorded at the same value as in the previous cue are untagged, ie turns block cues into tracked cues.

Allow Stomping

"Stomping" occurs when a playback takes control of all the channels from another playback, and so releases that playback.

Page Lock

Page Lock means this playback will not change when the Playback Page is changed, so it is always available. This means you can no longer access the playbacks on other pages which would normally be accessed via this physical fader, until Page Lock is disabled.

Stack Name

This is an alternative method of naming a Playback, rather than using syntax.

Cues

Recording cues

Once you have set up a look that you like, by selecting fixtures and adjusting their parameters as described in other chapters, you can then record that state into a cue. To see the cues being recorded, it is recommended that the Playback Window is displayed. To record a cue, there are four possible methods:

RECORD ENTER

This will record the next available cue, within the playback you are currently viewing.

RECORD 5 ENTER

This will record cue 5 within the playback you are currently viewing.

RECORD GO

This will record the next available cue, within the playback of the Go button you press (this could be one of the MFFs, or the Master Go button)

RECORD 5 GO

This will record cue 5 within the playback of the Go button you press. "Point Cues" can be defined up to two decimal places, and will be automatically placed into the cue stack in numerical order.

Subsequent cues can then be set up and recorded using the same method.

After recording a cue, one of three things will happen:

1) If in tracking mode (and "Smart tag" is disabled) and the playback fader is above the "trigger level", the cue will be played back, the command line is cleared, the fixture parameters are automatically untagged, but the fixtures remain selected.
2) If in tracking mode (and "Smart tag" is disabled) and the playback fader is below the "trigger level", ZerOS will ask you to raise the Playback fader. Once done, ZerOS will act as per Option 1 above.
3) If in non-tracking mode (or in tracking mode with "Smart tag" enabled) the cue is not played back, the command line is cleared but the fixture parameters remain tagged and the fixtures remain selected

Subsequent cues can then be set up and recorded in a similar way.

As you become more experienced with the desk, you will find the most efficient way of programming cues into cue playbacks.

Please note: Solution & Solution XL can be operated as a tracking console. This means that if a parameter is programmed in one cue, it will track through all subsequent cues until it is programmed to do something else. If you program playbacks sequentially, you shouldn't have to worry too much about tracking, as long as you ensure that you tag any parameters you wish to be recorded in the cue you are working on.

Record Window
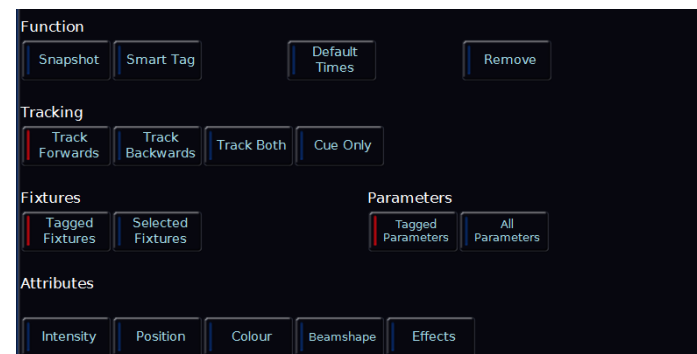
Record Window

When you press RECORD, the Record Window opens on the external monitor. Within the Record Window are the following options:

Fade Times

Each cue can have a Fade Up, Fade Down, Colour, Beam, Shape and Position fade time.

Within SETUP > [Defaults] the default fade times are defined, and can be adjusted if required prior to programming cues. Cue 1 will always have a *default* of 0 seconds, but can be altered once recorded if desired.

Fade times can be adjusted after the cue is recorded or when updating a cue.

Cues & Playbacks

Snapshot

Snap Shot will store a value for every single parameter of every single fixture in the cue, ensuring that the lighting state you see is exactly what is recorded, and that the cue can't be altered accidently in the future when other cues are updated / deleted / inserted (this is sometimes called a "Block Cue" or "Blocked Cue"). Alternatively, pressing SHIFT & RECORD together will automatically record the cue as a Snap Shot.

Smart Tag

Smart Tag ensures the lighting state you see is exactly what is recorded, but doesn't "block" the cue. Instead, only the values for the parameters and fixtures which are different to the previous lighting state are stored. Fixtures with intensity at 0% are not recorded when Smart Tag is active.

Tracking options & Cue Only

These options are only available if the console is in Tracking mode (basic or advanced). More information on this is in the SETUP section of the manual.

In Tracking Mode, every cue programmed behaves in a Tracking methodology. This means that each cue only programs the changes between two states – channels are told to fade up, fade down, or if no instructions are programmed, the channel will stay the same. This is a powerful programming method as it allows advanced manipulation of the cue stack and updates can be filtered through entire sequences without having to update each cue individually.

When updating a cue, there are four tracking options available – Track Forward, Track Backward, Track Both or Cue Only.

Cue Only forces the update only to affect the cue you are updating. This is useful when recording a cue out of sequence, or when updating a cue, to ensure the update you make doesn't affect any subsequent cues in the cue list.

Choosing Track Forwards allows the update to follow through into the following cues. If you choose to update with Track Forwards enabled, remember to "undo" the change you made in one scene when you move to the next – particularly if the next cue is a blackout.

Non Tracking mode eliminates these choices making programming simpler but restricts the flexibility of your programming capabilities.

Fixture, Attribute & Parameter Filters

These options filter which values are and aren't stored into cue. First, "Fixtures" define which fixtures are to be recorded. [Tagged Fixtures] will store information for all fixtures with a value "tagged" (value in the programmer) whereas [Select Fixtures] will only store values for the currently selected fixtures.

Secondly, "Parameters" define which parameters of the above fixtures are recorded. [Tagged Parameters] will store all the values which are tagged, whereas [All Parameters] will store every value for the chosen fixtures.

If [Tagged Parameters] is selected, this can be filtered further using "Attributes". Each attribute is listed, and can be switched between Blue (no parameters within this attribute will be recorded), Red (only tagged parameters within this attribute will be recorded) and Green (all parameters within this attribute will be recorded).

These filters are only available if both Smart Tag and Snapshot are disabled.

Remove

Selecting [Remove] will take the values out of the defined cue, rather than adding them in. This is useful if a parameter or fixture is accidently recorded into a cue.

Adjusting fade times

Once a cue has been programmed, its times can be adjusted in a similar format to a spreadsheet on a computer, with each time being in a separate "cell". Choose the time you wish to change by either touching it or selecting it using the arrow keys, press ENTER and then type the new fade time. Press ENTER to confirm.

Naming cues

Naming cues can be helpful in remembering what changes, or when the cue happens. Use the following command to name a cue:

NAME 5 ENTER

The MFKs will turn into a keyboard, and an onscreen keyboard will then be displayed to type the cue's name. Press ENTER or OK to confirm. Alternatively, select the "Name" cell in the Playback Window and press ENTER (or double touch / click).

Updating cues

In order to update a cue, the first thing to do is to ensure that the cue is outputting (with a green bar) and you are viewing the playback.

Once the cue is outputting, make the changes required. To record the changes to the current cue, type:

UPDATE ENTER

The cue will inherit the new information and the update will be complete.

To update a specific cue (ie cue 5), type:

UPDATE 5 ENTER

To update a specific cue on a specific playback (ie Cue 5 on Playback 10) type:

UDPATE 5 GO

Coping Cues

To   copy   one   cue   to   another   cue,   press the COPY button, ensure [Cue] is selected in the window (should be by default) and then type the number of the cue you wish to copy in the "from" field, and the number of the cue you wish to copy it to in the "to" field. Pressing either Down or Enter will move to the next field (or alternatively, just touch the field you wish to type in). So, either of the following syntax will work:

COPY 5 ENTER 10 ENTER

COPY 5 DOWN 10 ENTER

To copy a cue to or from an alternative playback, press the playback after typing the cue number. Doing this moves onto the next field automatically, so doesn't require you to press Enter or the Down key to do this. For example, to copy Cue 5 from Playback 10, to Cue 20 of the currently selected playback, type:

COPY 5 GO 20 ENTER

Or to Copy Cue 7 from Playback 15 to cue 25 in playback 18, type:

COPY 7 GO 25 GO

Deleting Cues

To delete a cue, use one of the following options:

DELETE 15 ENTER

This will delete cue 15 within the playback you are currently viewing.

DELETE 15 GO

This will delete cue 15 within the playback of the Go button you press.

Deleting a cue cannot be undone.

Cues & Playbacks

Cue Settings

Cue Setting can be changed via the "Cue Setup" window. To open this, navigate to the settings column of the Playback Window, select the cue required, then press ENTER (or double touch/click the field). The Cue Setup window appears:
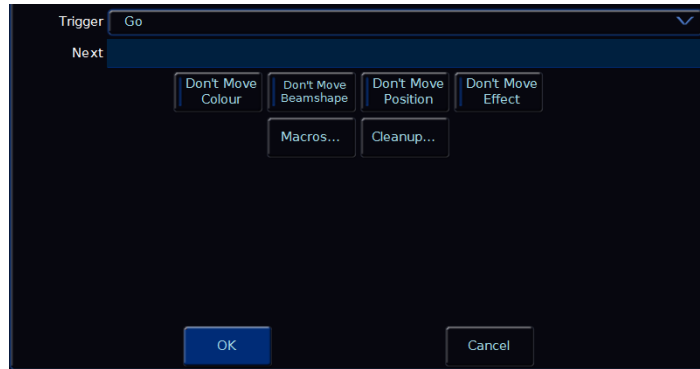
Cue Setup window

Trigger (Go, Auto, Timecode etc)

This option allows you to change what's going to trigger each individual cue. By default, this is "Go", but the following options are available:

GO

This option will only trigger the selected cue when the GO button is pressed. This is the standard way a cue is triggered, and is chosen by default.

Auto (with previous cue)

This will trigger the selected cue at the same time as the previous cue. For example, when you press GO on the previous cue, this cue will also be triggered and run at the same time. When this option is selected, a "Wait Time" field will appear just below the drop down. This allows you to enter a wait time, for example 5 seconds. This means the selected cue will be triggered 5 seconds after the previous cue is triggered, even if the previous cue is still running as it's fade time is longer than 5 seconds.

Auto (after previous cue)

This option is similar to above, but it will trigger the selected cue only once the previous cue's fade time has been completed. Again, when this option is selected, a "Wait Time" option will appear under the drop down.

Real Time

This option allows you to trigger the cue at a specific time in the day (a "real time"). For example, at 8am, or 7.30pm.

MIDI
This option allows you to trigger the cue at a specific time during a MIDI Time Code (MTC) signal.

Please note: to change the timecode displayed in the cue list window, just tap the time displayed along the bottom of the window to cycle through the available options.

Next cue

"Next cue" is the cue number which automatically gets selected after this cue is executed. This functionality is very useful if a scene is "cut" from the show – you can tell ZerOS to skip the cues in that scene and jump straight to a different cue. If this field is empty, ZerOS will automatically select cues sequentially.

Don't Move on Dark settings

This option allows you to disable a specific attribute from moving in dark during this specific cue. For example, you may not want colour scrollers changing during a very quiet scene, so during that scene "Don't Move Colour" can be selected.

Macros

Macros allow you to automatically run user macros or trigger (and release) other playbacks automatically during this cue. For example, if you want a chase on cue 20, you could create that chase on a separate playback, and then trigger it from Cue 20 in your Master Playback.

To do this, press the "Add" button next to either of the three options. This will open a new window which displays all the Macros or Playbacks (depending which you selected). Select the Macro / Playback you wish to trigger. This will add it into the previous window. You can repeat this to trigger multiple macros

/ playbacks at the same time. To remove a macro / playback you've added, simply select it in this window. Once finished, select the [OK] button.

Playing back cues

Before playing back the programmed cues, it's suggested to remove any unrecorded commands from the command line by pressing the CLEAR button twice.

Raising the playback's fader to full will automatically trigger the first cue within the playback.

To output the next memory in the playback, simply press the GO button. Each time you press it, the console will continue down the list one cue at a time.

Within the Playback window, the green bar shows you the currently active cue, while the yellow bar highlights the next cue (which will become active if you press GO).

You can change which cue is next by simply selecting it (using either the touch screen or the arrow keys). The cue will go yellow, and become active when GO is pressed.

Once the end of the playback is reached, the first cue will be selected as the next cue, resulting in a loop.

Cues that are currently running live can be sped up or slowed down live by using "Speed Override" on the Master Playback.

Jumping to a cue (Go To cue)

Goto cue allows you to jump to a specific cue. Simply hold down the playback's GO button, type the cue number to jump to, and then release the playback's GO button.

Snapping to a cue (Ignoring fade times)

To snap to a cue (for example, during a programming session when you want to alter a cue without having to wait for the cue fade to complete), hold SHIFT whilst pressing the GO button. This will snap to the cue, rather than using the fade times. Doing this also won't allow Auto Triggers to work (useful to jump to

a cue without automatically moving onto the next cue). (If this doesn't work, settings within the Playback Setup window must have changed).

Cue 0 (Blank Cue)

A Blank Cue is the same as the first programmed cue in the cue stack, but with all the fixture intensity parameters set to zero. A blank cue is referred to as Cue 0 (zero). You can either jump to Cue 0 (as above, by holding down the playback's GO button and typing 0), or by using the curser keys to move up from Cue 1, which will display Cue 0.

Using the pause key

If at any time you wish to pause a cue while it is running, you can use the pause function. On the Master Playback, there is a dedicated pause button above the GO button and next to the master fader. On all other playbacks, Pause is an option that can be chosen within the Playback Setup window Often, users will set Pause to be the "shifted" function of the playback button, which can be set as a default option so you don't need to change every playback.

After the initial press of the PAUSE button, subsequent presses will step backwards through the playback using the current cue fade times.

To continue running the playback, press the GO key.

Holding down SHIFT and pressing the PAUSE key will snap to the previous cue (on the Master Playback only, due to the dedicated PAUSE key).

Releasing playbacks

Once you have finished playing back cues it is important to release the playback. This stops the playback having any further control over the channels. When you lower a fader, the playback is automatically released, but you can also manually do this by holding Clear and pressing the Go button of the playback.

Introduction

The Solution & Solution XL desk provides 400 user definable Groups. Groups are most commonly used when selecting fixtures and programming data to be recorded in cues and palettes.

Automatic Groups - There is an option to generate a set of automatic groups based on the fixture types in the schedule. The desk generates an All Fixtures group, a group for each fixture type in the schedule, including dimmers, plus an 'odd' , 'even', '1st half' and '2nd half' group for each different fixture type in the schedule.

User Defined Groups - In addition to the Automatic Groups, you can also create your own groups of fixtures, eg Floor MACs, Left Stage Movers etc. User defined groups can be all of the same fixture type or any combination of fixture types.

Group Window

To display the Group Window on the monitor, hold down the SHIFT key and press the GROUP key.

The Group Window contains a soft button for each of the 400 groups. Each soft button contains the following data: Group Number (1-400) and name, if defined. Unprogrammed groups are hidden.
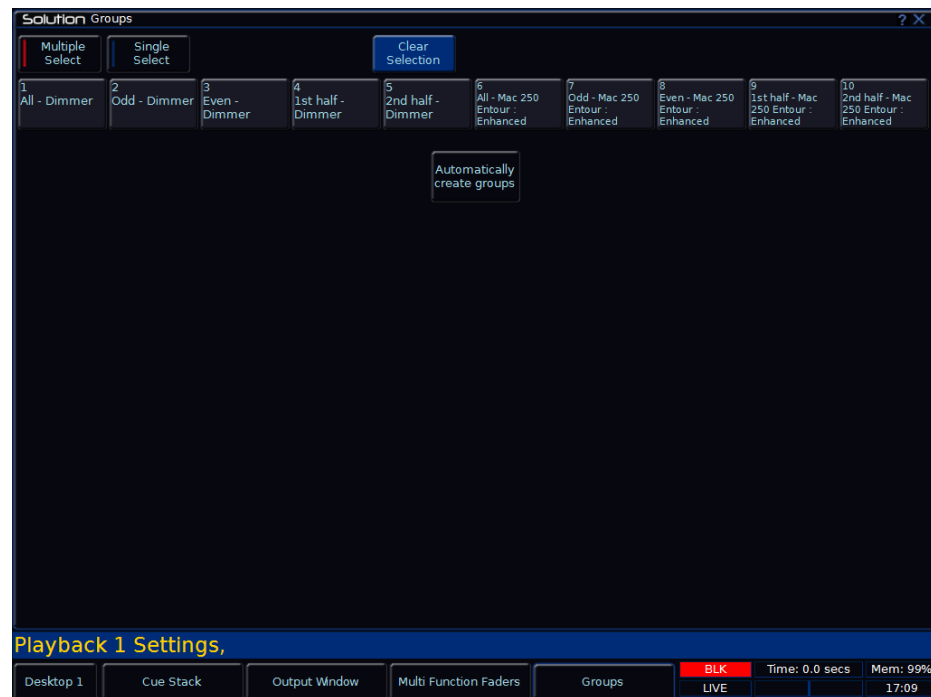
Figure 48 - Group Window

Recording a Group

Press the FIXTURES key (if the MFKs are not already fixture selection keys).

Select the fixtures to be recorded into the group.

Press RECORD

Press the GROUP key to make the MFKs group selection keys.

Use the PAGE UP or PAGE DOWN keys to select the required page.

Press the corresponding group MFK . The LED in the group MFK is lit when the group has been recorded.

Alternatively, you can:

Press the FIXTURES key (if the MFKs are not already fixture selection keys).

Select the fixtures to be recorded into the group.

Press RECORD

Type the group number you wish to record.

Press ENTER . The LED in the group MFK is lit when the group has been recorded.

Naming a Group

Hold down the SHIFT key and press the GROUP key to display the Group Window. Press the NAME key. Select a programmed group to be named. The Name Window is displayed on the monitor:
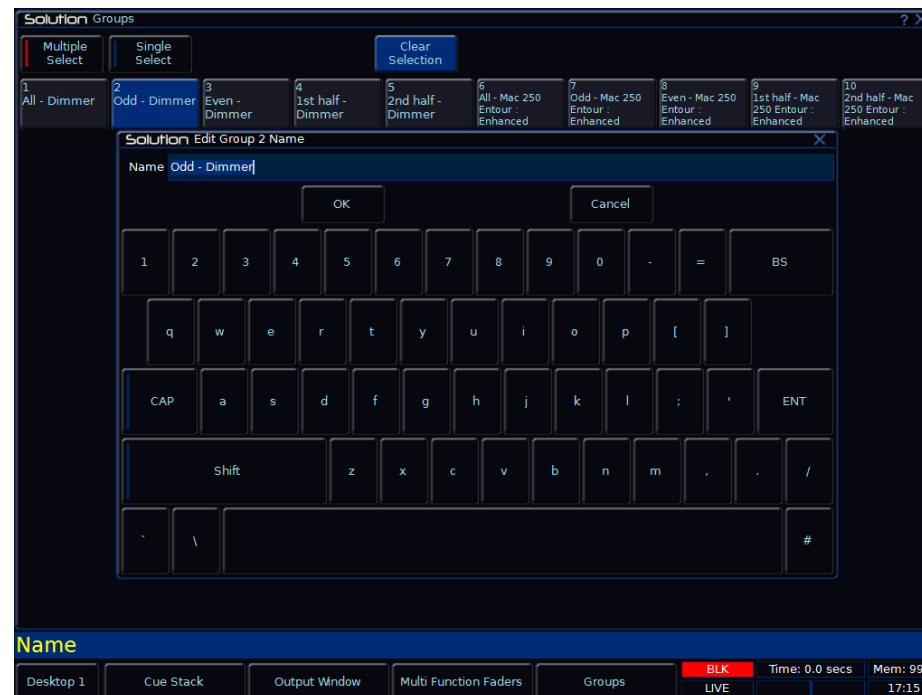
Figure 49 - Naming a Group

Use the MFKs or external keyboard to enter the group name as required, then select the [OK] button to complete the operation.

Deleting a Group

Hold down the SHIFT key and press the GROUP key to display the Group Window. Press the DELETE key. Select a programmed group to be deleted. A confirmation window is displayed. You can then confirm the deletion or cancel the operation.

Palettes

Introduction

The Solution & Solution XL desk provides four sets of 400 palettes. The palettes are stored under the headings of Colour, Beamshape, Position and Effects. This chapter deals with Colour, Beamshape and Position palettes. The following chapter deals with Effects.

Automatic Palettes - There is an option to generate a set of automatic palettes based on the fixture types in the schedule. The desk generates a number of colour, beamshape and position palettes for each moving fixture type in the fixture schedule and a number of standard effects palettes, as described below:

The desk provides a set of standard colour palettes.

The desk generates an auto palette for each colour available on every fixed colour wheel in the fixture. These palettes are labelled with the stock colour names as supplied by the manufacturer.

The beamshape palettes generated by the desk are based on the gobo wheel and shutter parameters of the fixtures. An auto palette will be created for each Gobo present on each gobo wheel in the fixture along with a "No Gobo" auto palette which sends all the 'Gobo' parameters to their default values. Two shutter auto palettes (Shutter Open and Shutter Closed) will also be created.

The desk generates a single Home Position palette which sets the Pan and Tilt parameters to a value of 50%.

User Defined Palettes - In addition to the Automatic palettes, you can also create your own palettes.

Palette Windows

Each set of palettes has it's own palette window. To display one of the palette windows on the monitor, hold down the SHIFT key and then press the appropriate attribute key (COLOUR, BEAMSHAPE or POSITION).

The palette window contains a soft button for each of the 400 palettes. Each soft button contains the following information:

Palette Number, content flags that indicate the attribute(s) that are programmed in the palette (I = Intensity, C = Colour, B = Beamshape, P = Position, E = Effects) and name.
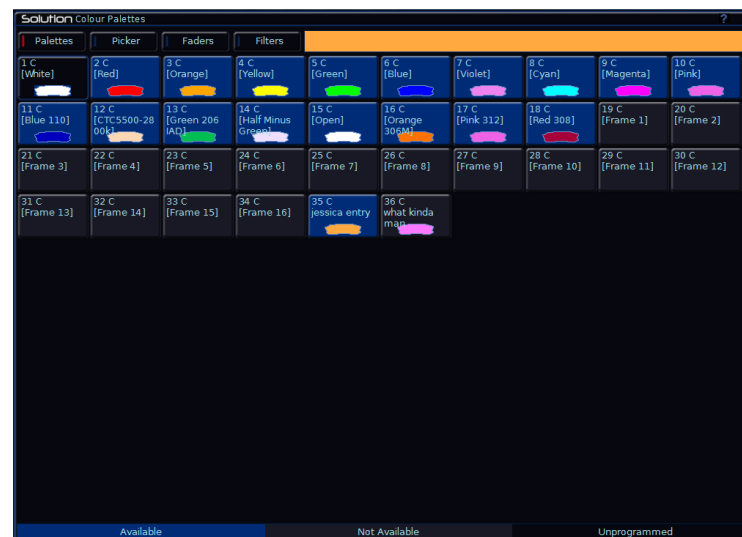
Figure 50 - Colour Palette Window

Recording a Palette

Set up the required fixture data in the programmer.

Press RECORD

Press the COLOUR, BEAMSHAPE or POSITION key to make the MFKs palette selection keys.

Use the PAGE UP or PAGE DOWN keys to select the required page.

Press the corresponding palette MFK. The LED in the palette MFK is lit when the palette has been recorded.

Alternatively, you can:

Set up the required fixture data in the programmer.

Press RECORD

Press the COLOUR, BEAMSHAPE or POSITION key to make the MFKs palette selection keys.

Type the palette number you wish to record.

Press ENTER . The LED in the palette MFK is lit when the group has been recorded.

Note – Recording Palettes

In Tracking-Advanced mode, only the tagged fixture parameters of the selected attribute (eg Colour) are recorded into the palette.

Editing a Palette

Editing a palette is carried out by first loading the palette into the Programmer, adjusting the dimmer and fixture parameter values as required, and finally updating to save the edited palette back to it's original location.

Display the appropriate palette window on the monitor. Press LOAD and select the palette to be loaded into the Programmer.

Adjust the levels of the dimmer channels as required using the preset faders.

Adjust the levels of the fixture parameters as required using the control wheels.

Press the UPDATE key. The Update Options Window is displayed on the monitor.

Set the update options as required and then select the [OK] button to complete the edit.

Naming a Palette

Hold down the SHIFT key and press the associated palette key to display that palette's Window. Press the NAME key. Select a programmed palette to be named. The Name Window is displayed on the monitor.

Use the MFKs or external keyboard to enter the palette name as required, then select the [OK] button to complete the operation.

Outputting a Palette

Select the required fixture(s).

Press the COLOUR, BEAMSHAPE or POSITION key to make the MFKs Palette Selection Keys. Use the PAGE UP or PAGE DOWN key to select the required page.

Press the Palette MFK to output the data recorded in that palette for the selected fixture(s).

Note – Outputting Palettes

When outputting a palette, if a selected fixture is not programmed in the palette, but there are one or more fixtures of <u>the same fixture type</u> that are programmed in the palette, then the fixture outputs the value that is programmed for the <u>first fixture</u> of that type.

Example – Fixture 1 (MAC 250) only is programmed in colour palette 5; no other fixtures have programmed values in this palette. Fixture 7 (another MAC 250) references colour palette 5. It sees that there is no value programmed for fixture 7 in this palette, but fixture 1 is the same fixture type and has a value, so it uses the value stored for fixture 1.

Note – Outputting a Palette over Time

Holding down the TIME key and pressing a palette MFK will crossfade to the palette output values in the internal Fade Time. The internal Fade Time can be found and adjusted on Special Page 1 of the MFKs.

Deleting a Palette

Hold down the SHIFT key and press the associated palette key to display that palette's Window. Press the DELETE key. Select a programmed palette to be deleted. Press [OK] on the confirmation window.

Effects

Effects

Introduction

The Solution & Solution XL desk provides a powerful effects generator with a number of standard effects. By adjusting the size, speed and offset values, a wide range of movement and other effects can be generated quickly and easily.

Automatic Effects - There is an option to generate a set of automatic palettes based on the fixture types in the schedule. The desk generates a number of intensity, colour, beamshape and position effects – see later for details.

User Defined Effects - In addition to the Automatic effects, you can also create your own effects by applying standard effects to fixtures, adjusting the effect parameters and then saving as a new effect.

Effects Palette Window

To display the Effects Palette Window on the monitor, hold down the SHIFT key and then press the EFFECTS key.

The Effects Palette Window contains a soft button for each of the 400 effects palettes. Each soft button contains the following information:

Effect Number, a set of content flags indicating which attributes are programmed in the effect palette (I = Intensity, C = Colour, B = Beamshape, P = Position, E = Effects) and name, if defined. For example:

Figure 51 - Effects Palette Window

Waveforms tab

The Waveforms Tab can be used to manipulate a running effect, or to create a new effect.

	Tag	Function	Speed	Size	Offset
Intensity	■	None	0	0	0
Pan	✔	E2 (Sine)	E2 (20)	E2 (25)	E2 (0)
Tilt	✔	E2 (Cosine)	E2 (20)	E2 (25)	E2 (0)
P/T Spd	■	None	0	0	0
Cyan	■	None	0	0	0
Magenta	■	None	0	0	0
Yellow	■	None	0	0	0
Color 1	■	None	0	0	0
Shutter	■	None	0	0	0
Gobo1<>	■	None	0	0	0
G1 <<>>	■	None	0	0	0
Gobo2	■	None	0	0	0
Focus	■	None	0	0	0
Iris	■	None	0	0	0
Prism	■	None	0	0	0
Zoom	■	None	0	0	0
Macro	■	None	0	0	0
Ani/Pos	■	None	0	0	0
Ani/Spe	■	None	0	0	0
Speed	■	None	0	0	0

Figure 52 – Waveforms tab

From within the Waveforms tab, each parameter of the selected fixture can be assigned an effect function, a speed, size and offset.

Automatic Effects

The following standard effects are generated by selecting the [Create Auto Palettes]:

Movement Effects	Circle, Square, Step Square, Triangle, Figure 8, Vert Line, Horiz Line.
Intensity / Movement Effects	Fly In, Fly Out.
Intensity Effects	Mark On, Mark Off, Chaser, Fader, Smooth.
Colour Effects	Blue Step On, Red Step On, Green Step On, Blue Step Off, Red Step Off, Green Step Off, Blue Fade, Red Fade, Green Fade, Blue Rainbow, Red Rainbow, Green Rainbow, Rainbow.
Beamshape Effects	Iris Step On, Iris Step Off, Iris, Focus.

A default 'No Effects' palette will also be created, to speed up programming stop effects.

Effects

Effect Parameters

There are a number of effect parameters that control the speed, size etc of an effect. These are summarised in the following table:

Parameter	Range	Default	Notes
Speed	- 100 to +100	20	Both the speed and 'direction' of a movement effect (eg Circle) is defined by this parameter, where –100 is the fastest speed anticlockwise and +100 the fastest speed clockwise.
Size	0 – 100	25	
Offset	0 – 100	0	
Rotation	0 – 359	0	

When applying one of the standard Intensity, Colour, Iris or Focus effects, the base value of the parameter is automatically changed to 50% to allow the effect to work correctly. For these effects the size parameter is set to 100% as the default.

Effect Parameters on the Wheels

When the effect wheel groups are active (ie the EFFECTS LED is lit), the wheels control the speed, size, offset and rotation parameters. The Effects parameters are assigned to the control wheels as follows:

	Thumb Wheel	First Finger Wheel	Second Finger Wheel
Wheel Group 1	Speed	Size	Offset
Wheel Group 2	Speed	Size	Rotation

If you apply different effects to different parameters of the fixtures (eg Rainbow and Circle) you can use the Speed wheel to control the speed of all the effects in one go.

At any time you can reload a memory into the Program Window and modify the speed of all the effects in that memory by selecting the effects wheel group and moving the Speed wheel.

Recording an Effect

Select a fixture or fixtures. Apply one of the standard effects, then adjust the effect parameters as required using the control wheels or the effects window.

Press RECORD.

Press the EFFECTS key to make the MFKs effect selection keys.

Use the PAGE UP or PAGE DOWN keys to select the required page.

Press the corresponding effect MFK. The LED in the effect MFK is lit when the effect has been recorded.

Editing an Effect

Editing a effect is carried out by first loading the effect into the Programmer, adjusting the effect parameter values as required, and finally updating to save the edited effect back to its original location.

Display the effect window on the monitor. Press LOAD and select the effect to be loaded into the Programmer.

Adjust the effect parameters as required using the encoder wheels and Waveforms tab.

Press the UPDATE key. The Update Options Window is displayed on the monitor.

Set the update options as required and then select the [OK] button to complete the edit.

Naming an Effect

Hold down the SHIFT key and press the EFFECT button to display the Effect Window. Press the NAME key. Select a programmed effect to be named. The Name Window is displayed on the monitor.

Outputting an Effect

Select the required fixture(s). Press the EFFECTS key to make the MFKs Effect Selection Keys. Use the PAGE UP or PAGE DOWN key to select the required page.

Press the Effect MFK to output the data recorded in that effect for the selected fixture(s).

Note – Outputting Effects

When outputting an effect, if a selected fixture is not programmed in the effect, but there are one or more fixtures of the same fixture type that are programmed in the effect, then the fixture outputs the value that is programmed for the first fixture of that type.

Example – Fixture 1 (MAC 250) only is programmed in effect palette 5; no other fixtures have programmed values in this palette. Fixture 7 (another MAC 250) references effect palette 5. It sees that there is no value programmed for fixture 7 in this palette, but fixture 1 is the same fixture type and has a value, so it uses the value stored for fixture 1.

Deleting an Effect

Press the DELETE key. Display the Effect Palette window on the monitor. Select a programmed effect to be deleted. A confirmation window is displayed. You can then confirm the deletion or cancel the operation.
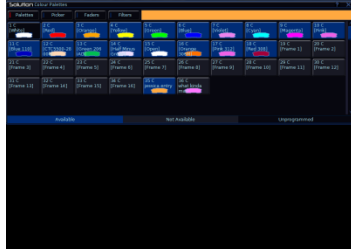
Macros

Figure 53 - Macro Window

Introduction

The Solution & Solution XL desk provides up to 400 user programmable macros.

Automatic Macros - When you select the [Create Auto Macros] option the desk generates a number of fixture related macros (Reset, Lamp On, Lamp Off).

User Defined Macros - The desk provides the function for you to record your own macros.

The Macro Window

To display the **Macro Window** on the monitor, hold down the SHIFT key and then press the MACRO key.

The Macro Window contains a soft button for each of the 400 user programmable macros. Each soft button contains the following information: Macro number (1 – 400), Program status (* = unprogrammed) and name (if defined). For example:
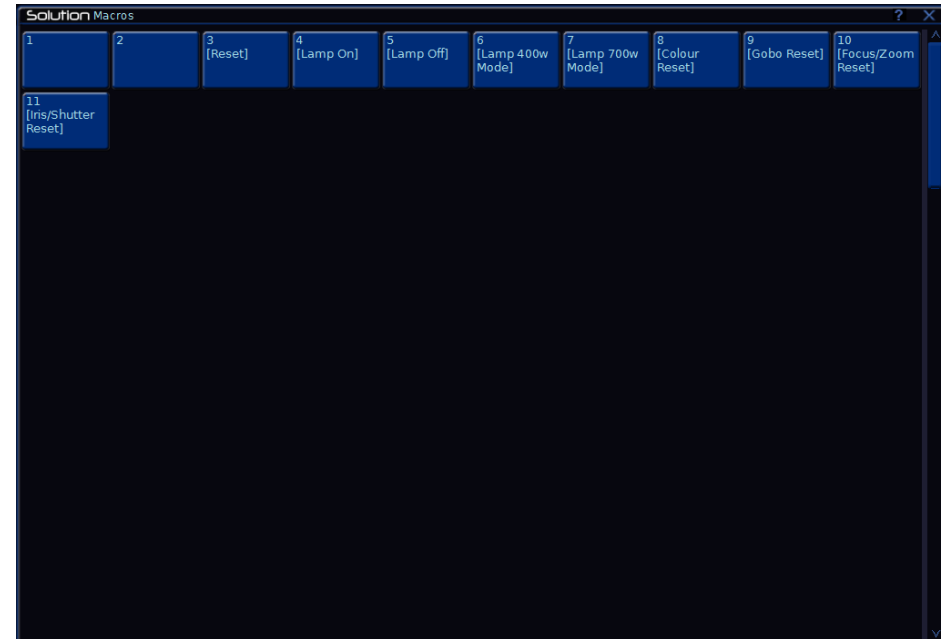
Recording a Macro

To record a macro carry out the following operations:

Press RECORD.

Press the MACRO key.

Press a macro MFK until the LED in the MFK comes on. This indicates that the desk is now in macro record mode.

The desk will ask you if you wish to record keys or commands:
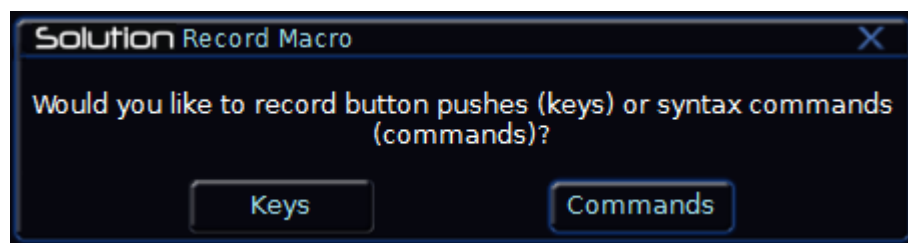
Figure 54 - Recording a Macro

For normal use, select Keys. Commands will only record syntax commands generated with the Show Command Line option on MFK Page 2.

Type in the series of key commands from the front panel. Note that the MACRO key cannot be recorded as part of the macro itself.

When a macro is being recorded - The Edit Mode Indicator on the monitor displays "MACRO N", the LEDs in the MACRO key and the Macro MFK itself flash and the text in the LCD above the Macro MFK is displayed in inverse.
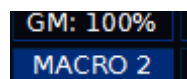
Figure 55 - Macro Recording Indicator

Press the MACRO key again to end the recording process.

Setting Up a Macro

You can set the speed of a macro to run either Fast or Slow. For some more complex macros, particularly those involving copying, recording or deleting large parts of data, the slow option may improve the reliability of the macro.

Hold down SETUP and push the Macro MFK (or the button in the palette window) to bring up the Macro Setup Window

Figure 56 - Macro Setup Window

Select the playback mode required (Fast or Slow) and push OK to confirm.

Macros

Naming a Macro

Press the NAME key. Display the Macro window on the monitor. Select a programmed macro to be named. The Name Window is displayed on the monitor.

Use the MFKs or external keyboard to enter the macro name as required, then select the [OK] button to complete the operation.

Running a Macro

A macro can be run using any of the following methods:

- Click on the macro in the Macro Window on the monitor.

- Use the cursor keys to select the macro in the Macro Window and then press the ENTER key.

- Press the MACRO key to make the MFKs macro selection keys. Use the PAGE UP or PAGE DOWN keys to select the required page. Press the macro MFK.

- Triggering a memory with an associated macro.

- Raising a submaster with an associated macro.

Note – Running Fixture Macros

To run one of the automatic fixture macros (Reset, Lamp On or Lamp Off) select the fixture(s) <u>first</u> before running the macro as described above.

Deleting a Macro

Press the DELETE key. Display the Macro window on the monitor. Select a programmed macro to be deleted.
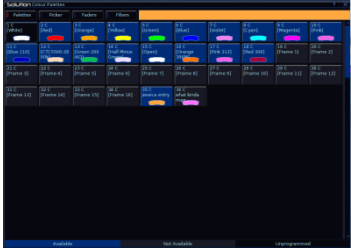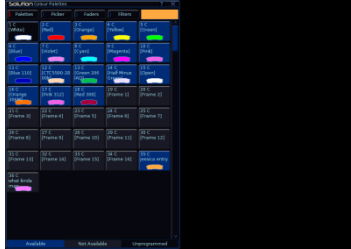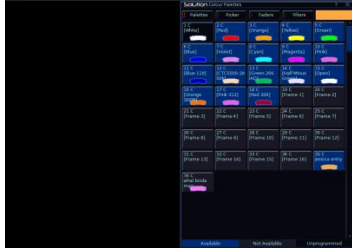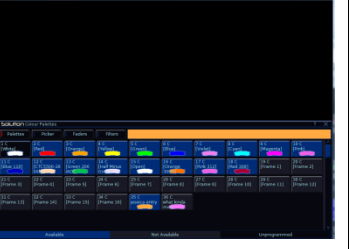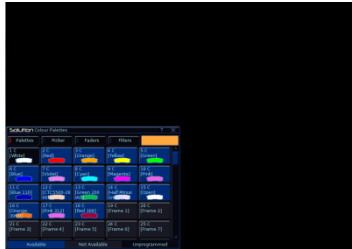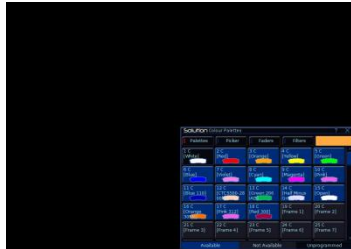
A confirmation window is displayed. You can then confirm the deletion or cancel the operation.

Other Features

Monitor Windows

The Solution & Solution XL desk allows you to display a number of different windows on the monitor screen at the same time and to select, resize and delete windows, as required.

A window displayed on the monitor can be full-size, half-size or quarter-size, and can be displayed in a number of different positions, as illustrated below:

Full Screen	Half Screen (Left)	Half Screen (Right)	Half Screen (Top)	Half Screen (Bottom)
Quarter Screen (Top Left)	Quarter Screen (Top Right)	Quarter Screen (Bottom Left)	Quarter Screen (Bottom Right)	

Figure 57 - Monitor Window Positions

Other Features

Screen Navigation Keys

The desk provides a number of screen navigation keys which are available via the MFKs on Special Page 1. The function of these keys is summarised in the table below:

Key	Functions
CLOSE	Closes the selected (active) window.
SIZE	Configures the selected (active) window to one of the nine display positions.
SELECT	Selects a window by cycling through the windows on the monitor.
SCREEN	Moves the window onto an alternative display, connected via the remote monitors.

Example of several windows displayed on the monitor:
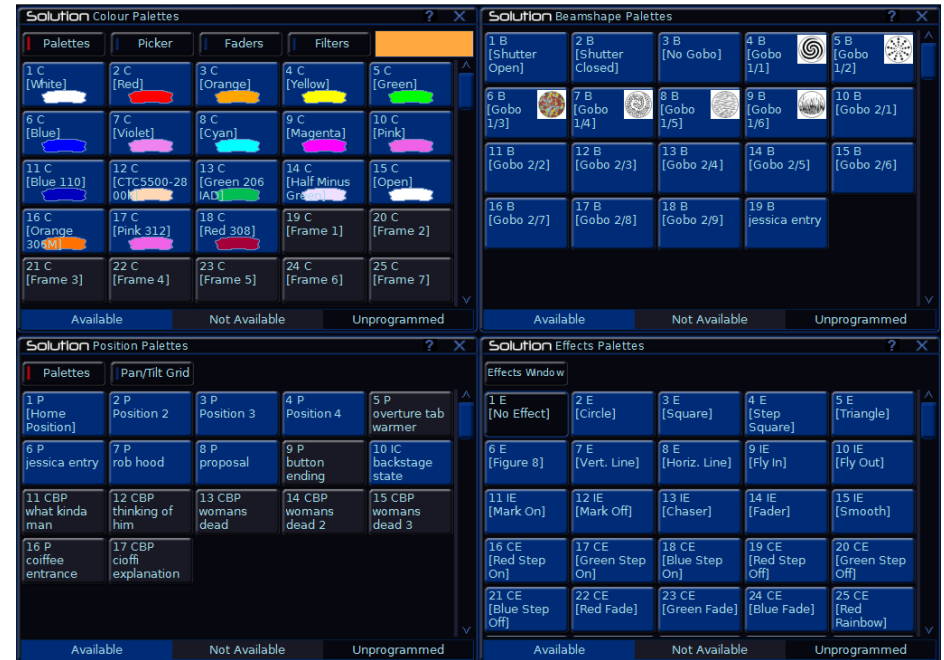
Figure 58 - Multiple Palette Windows

Desktop

The desktop button in the bottom left of the monitor can be used to switch between multiple monitor layouts. By using the SCREEN softkey on Special MFK Page 1, you can move monitor windows to other desktops once remote monitors are connected.

DMX Output Window

The **DMX Output Window** displays the outputs of all 512 channels from one of the four DMX universes, or the incoming DMX universe. Soft keys are provided in the window to select which universe to view.

To display the DMX Output Window on the monitor press the [DMX Window] button in the Output Window.

Figure 59 - DMX Output Window

External Keyboard Mapping

The following table shows the mapping from an external keyboard to the corresponding front panel keys, numeric keypad on Special Page 2 of the MFKs and the remote switches:

External Keyboard Key	Desk Front Panel Key or MFK
0 .. 9	0 .. 9
Enter	ENTER
.	.
@ or *	@
> or /	THRU
+	+
-	-
Backspace	←
F	FULL
CTRL + F1 … CTRL + F6	Remote Switch 1 … Remote Switch 6

Other Features

Software Updates

When software updates become available for the Solution & Solution XL desk, announcements will be posted on the Zero 88 Product Support Forum.

Zero 88 consoles have a long history of user-inspired development. If you have any questions on the operation of the desk, bug reports or a suggestion for a feature which is not currently included on the Solution & Solution XL or any of our other range of consoles, visit the Eaton Lighting Systems Product Support Forum and make a post.
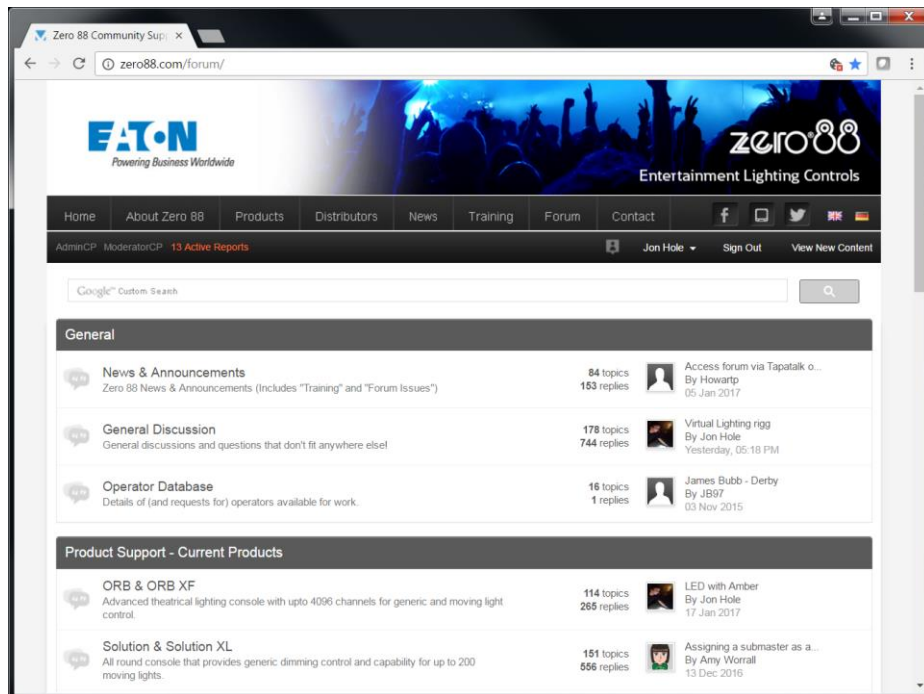
Twitter

Follow @zero88 on twitter for all the latest news on the Solution & Solution XL.

YouTube

Subscribe to Zero 88 on YouTube (youtube.com/zero88) for videos and training on the Zero 88 range.

Facebook

Follow Zero 88 on facebook (facebook.com/Zero88) to see the latest news from Zero 88.

Figure 60 - Support Forum

Remote

Remote Devices

A number of different devices can be connected to a Solution Series console using the Ethernet connection. Using specially designed applications, these devices provide remote monitor and remote control functionality. For information on connecting the devices, see page 52.

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Windows Remote Monitor

The Windows Remote Monitor is an application found on the CD supplied with the desk. It can also be downloaded from the Zero 88 website. Once installed, the application will startup and detect any ORB series desks connected to the PC

Figure 61 - Connecting the Windows Remote Monitor

Select the desk you want to connect to, and then select the mode from the dropdown box. There are two modes for the Windows Remote Monitor – 'Monitor' and 'Handheld'. In Monitor mode, you can emulate any of the 5 desktops, plus an emulation of the front panel of the desk to allow you to enter syntax.

In Handheld mode, you get the same screens as the iPhone / Windows Mobile remote.

Select the desk you wish to connect to, and the mode you wish to connect in, and press the Connect button.

Handheld Mode
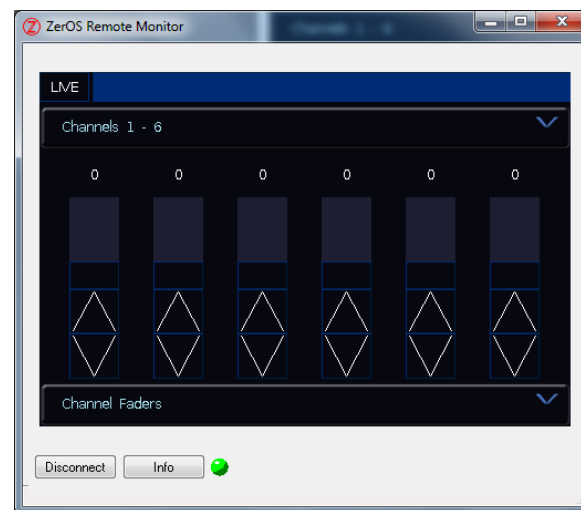
Figure 62 - Handheld Remote Connected

Glossary

The dropdown box at the bottom of the window allows you to select a different screen of the remote.
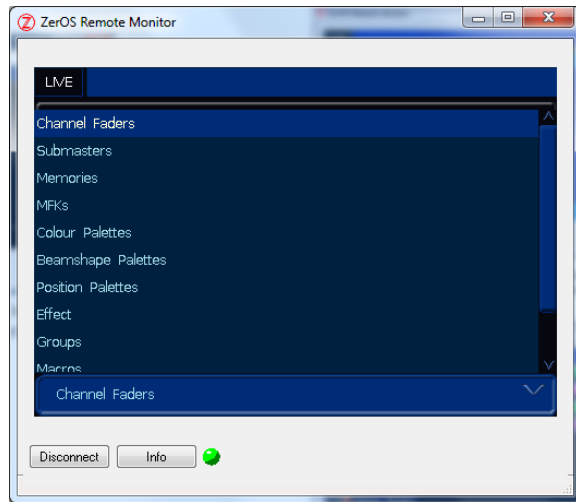
Figure 63 - Selecting Remote Screen

There are various different options including the Palettes windows, Output Window and Wheels view. Each view has the dropdown box at the bottom to select a new view.
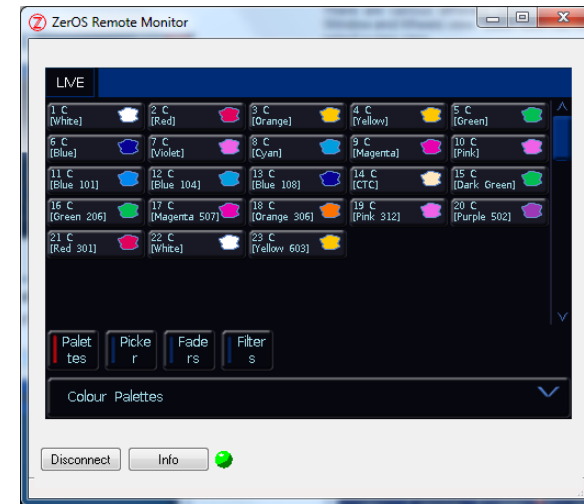
Figure 64 - Colour Palettes Remote
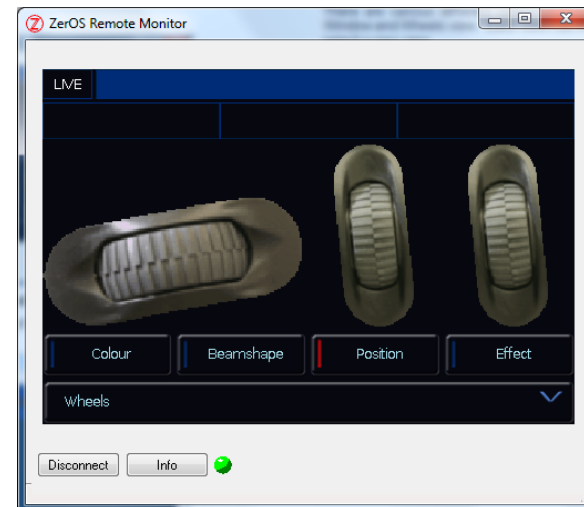
Figure 65 - Wheels Remote

The coloured LED at the bottom of the window indicates the connection status – should the connection fail for whatever reason, this will first turn yellow and then red. After 20 seconds, the screen will change to show that the connection has failed:
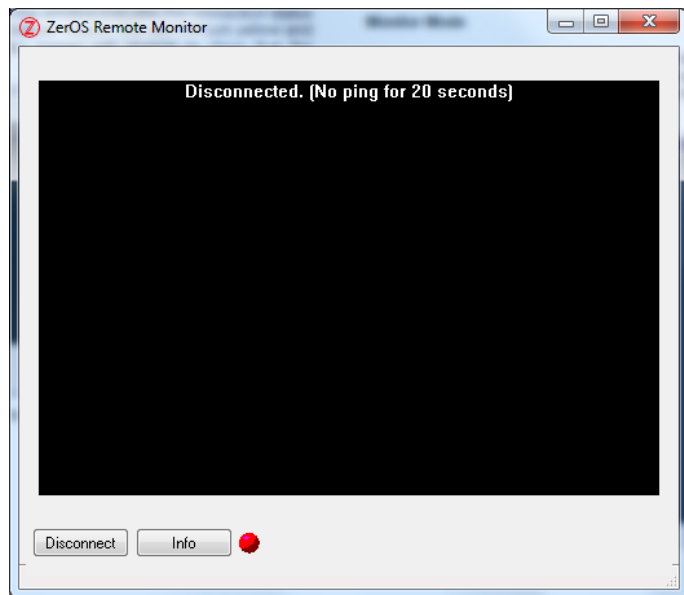
Figure 66 - Remote Timeout

In this situation, Disconnect the remote by pressing Disconnect and then try connecting again.

Monitor Mode

When you connect using Monitor mode, the desk first asks you which Desktop you would like to view. There are 7 choices – Desktop 1 to 5, Panel and Wheels. After selection your choice, the desk will connect and display your chosen screen.
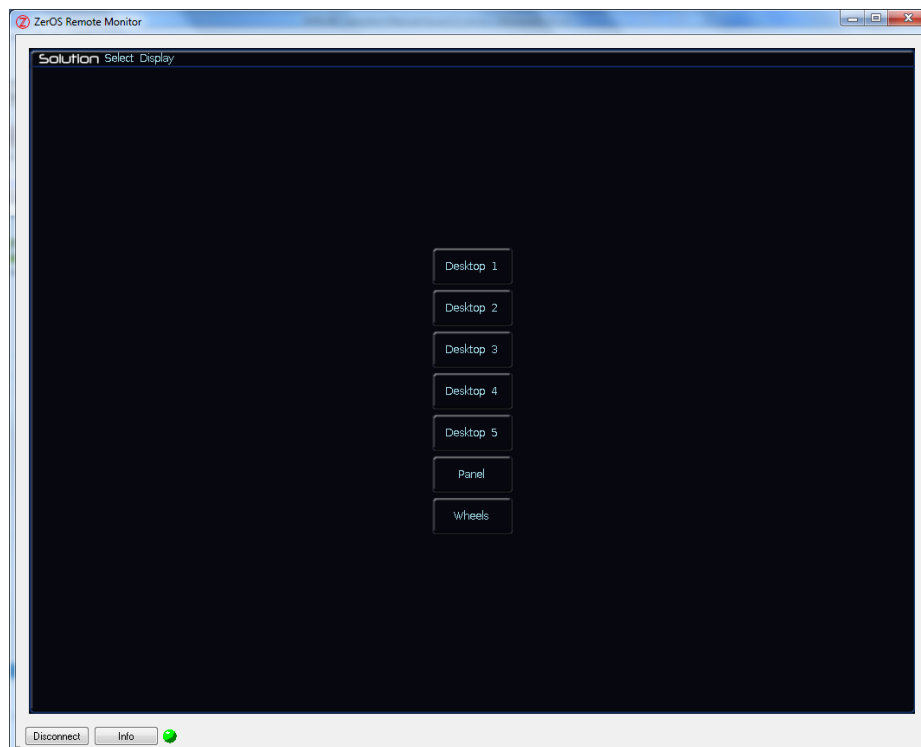
Glossary
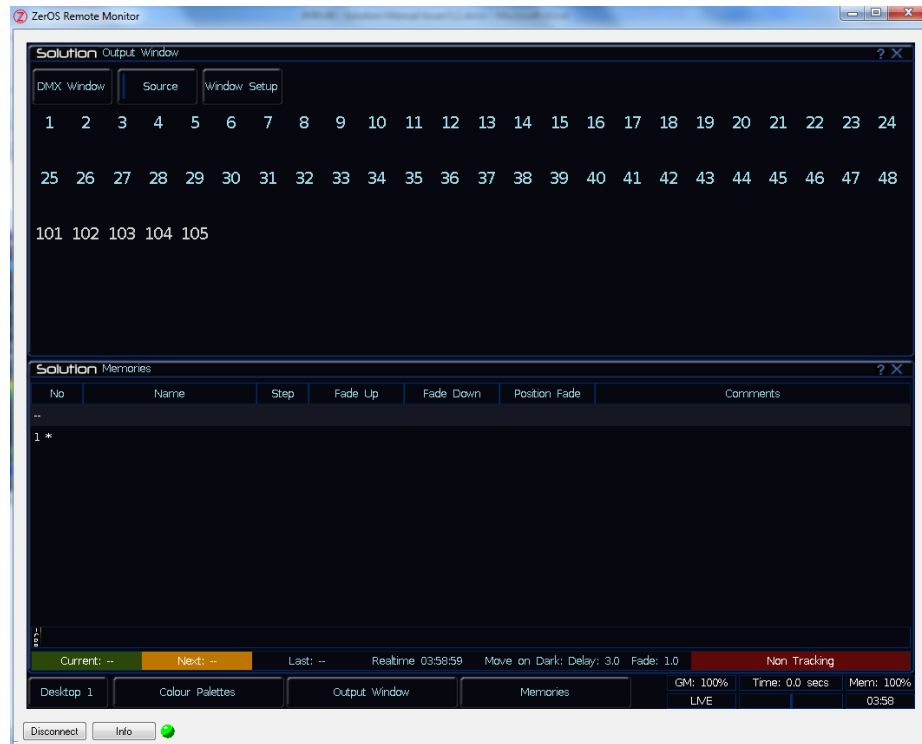
Each Desktop displays the windows contained within it, so setting the Remote Monitor to Desktop 3 will give you a third monitor on which to display windows (likewise Desktop 4 and 5). Using Desktop 1 will show the outputs from the VGA connector on the back of the console, assuming these have been left as Desktop 1 .

iPad Remote Monitor

The iPad app is available from the iTunes Store and can be purchased in the same way as any other iPad application.

Once installed, the iPad must be connected to a wireless network, shared with the desk. Start the iPad app using the shortcut icon

The app will start and ask you to select a desk to connect to -
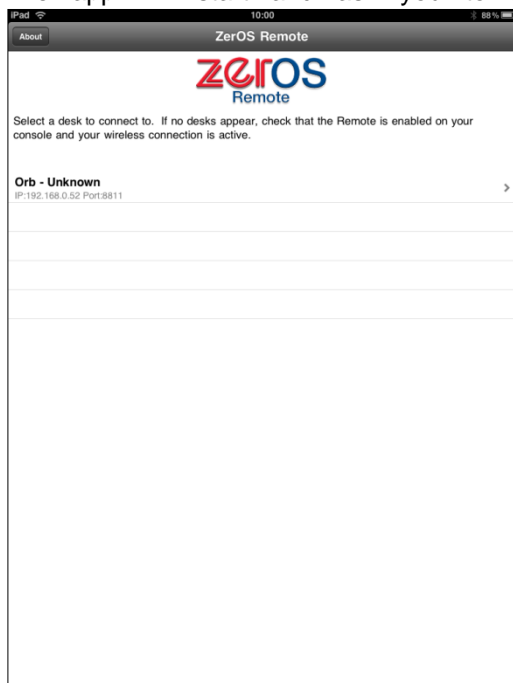
Select your desk and the connection will be made. Just like the Windows Remote Monitor, the iPad connects and emulates the monitor screens from the ORB. Again, you must select the Desktop you wish to view.
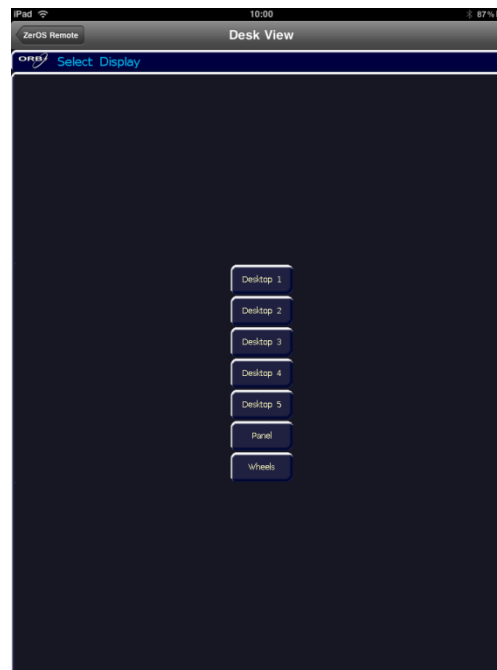
Once a desktop has been selected, the remote application will connect and display the monitor screen selected. Rotating the iPad will rescale the monitor window as required.

Glossary

Alignment	A function in Setup which allows the user to invert pan and/or tilt or swap pan/tilt parameters for individual fixtures.
Art-Net	A free networking standard from Artistic Licence.
Attribute	A group of fixture Parameters. These are Colour, Beam, Position and Effects.
Auto Group	A group that is automatically created by the desk.
Auto Macro	A fixture macro that is automatically created by the desk.
Auto Palette	A colour, beamshape, position or effect palette that is automatically created by the desk.
Blind	Modifying the program data within the desk without affecting the outputs.
Blackout	The BLACKOUT key sets the outputs of all dimmer and fixture intensity channels to 0%.
Brightness	See **Intensity.**
Capture	One of a number of visualiser packages that can be used on the Solution & Solution XL desks.
Chase	A Chase is a type of memory consisting of a number of steps. A Chase also has a number of **modifiers** which determine how it runs.
Control Wheel	There are three control wheels on the desk which are used to adjust fixture parameter and other data levels. The parameters assigned to the control wheels are shown on the **Wheel LCD**.
Details	An option on the Program and Output Windows which allows the user to see the fixture parameter values as text descriptions rather than percentage or DMX values.
Direction	The **Chase Modifier** which determines which order the steps are output when a **Chase** is run (forwards, backwards, bounce, random).
DMX-512	Standard communications protocol for moving heads and dimmers. 512 channels of control are digitally multiplexed and sent down a cable to fixtures, which listen for their specific data, according to their start address.
Drive	The **Chase Modifier** which determines what triggers each step (auto, manual, bass or beat).
Effect	A function which can be applied to one or more fixture parameters. The desk provides a number of standard intensity, colour, beamshape and position (movement) effects.
Ethernet	A computer networking system, used to communicate between IT devices. On the Solution & Solution XL the Ethernet port is used for Ethernet DMX output and remote monitors, as well as connections to visualisation software..
Fan Modes	When controlling multiple fixtures, the ability to spread the data relative to a start point, so that some fixtures values change upwards, whilst others change downwards. This can be used to create visual effects such as rainbows or arches with a line of fixtures.
Fixture	A parameter or combination of parameters all found within the same unit, for example a MAC 500 or a Parcan.
Flash	Pressing the flash button results in a temporary increase in brightness of the output. The intensity channels are sent to their programmed value when the Flash button is pressed. This is a temporary action which is removed when the button is released. Flash buttons can also be set to operate in **Solo** or **Latch** mode.

Flashdisk	A USB device with storage capabilities.
Go	The GO key is used to manually trigger memories on the stack.
Grand Master	The GRAND MASTER fader on the front panel controls the final output values of all dimmer and fixture intensity channels.
Group	A collection of fixtures. Groups can be **Auto Groups** or User Defined Groups.
Highlight	A function which automatically sends the fixture parameters (except pan and tilt) to their 'home' values. Parameters which are Highlighted are <u>not</u> tagged. Highlight is most often used for editing the position of a fixture.
Home	A function which sends the fixture parameters to their 'home' values. Typically this will be pan and tilt are at 50% with an open white beam at full intensity. Homed parameters are tagged automatically.
HTP	Highest Takes Precedence.
Intensity	How bright a fixture is. Also known as **Brightness**.
Jump	An instruction in a memory which tells the memory stack to select another memory as the next one. This is used to bypass memories without deleting them.
Latch	A function of flash buttons, which enables them to have a two stage action. The first press to activate, a second press to deactivate.
Light Converse	One of a number of visualiser packages that can be used on the Solution & Solution XL desks.
Load	The LOAD key is used to load a memory, submaster or palette into the programmer for editing.
LTP	Latest Takes Precedence.
Macro	A series of commands, triggered from a single button press or activated when a memory is triggered.

Memory Stack	The collection of programmed memories in numerical order which are played back using the Playback X controls on the front panel.
MIDI	Musical Instrument Digital Interface. Memories can be set to be triggered by MIDI timecode.
MFK	Multi Function Key. There are 20 MFKs on the desk which can be used as fixture selection keys, palette keys etc.
Modifiers	A number of parameters which determine how a **Chase** is output. Chase modifiers are Drive, Direction, Speed, Fade and Shots.
Operating Mode	The Solution & Solution XL desk has a three operating modes that offer tracking and non-tracking options, together with partial programming of memory, submaster and palette data using a tagging method.
Override	A rotary control on the front panel that can speed up or slow down fades on the memory stack (Playback X).
Palette	Programmed fixture data, normally of a single **Attribute** which is used in programming Memories and Submasters. Palettes are grouped into the attributes Colour, Beamshape, Position and Effects.
Parameter	An individual function within a fixture, controlled by one or more DMX channels (eg Dimmer, Colour, Gobo, Focus, Pan, Tilt etc).
Patch	The fixture schedule which shows what fixtures are assigned and what DMX output addresses they are patched to.
Playback X	An area within the desk for playing back memories in sequence. The playback has GO, PAUSE and STEP keys, as well as a MASTER level fader.
Pause	The PAUSE key is used for temporarily halting a memory stack that is running.
Programmer	See Program Window.

Glossary

Program Window   The window on the monitor that shows selected fixtures and parameters which have been changed (tagged).

Release   Remove control of parameters from Program Window, Playback X or Submaster to allow another area of the desk to regain control of the parameters.

Shift   The SHIFT key on the front panel is used in conjunction with a number of other front panel keys to provide a wide range of additional functions, for example, opening windows on the monitor screen.

Shots   The **Chase modifier** which determines how many times a Chase will run after being triggered.

SMPTE   Society of Motion Picture and Television Engineers. Memories can be set to be triggered by SMPTE timecode.

Solo   A similar operation to **flash**, except that all brightness channels outputting from other sources are temporarily reduced to zero while the flash button is held down.

Speed   The **Chase modifier** which determines how fast a Chase runs.

Stack   See **Memory Stack.**

Tagging   The method of marking parameters to be programmed. Only tagged parameters are recorded in Basic-Partial and Advanced Modes.

Trigger   The method by which a Memory is output. Triggers can be set to GO button, automatic, Real Time, SMPTE Time or MIDI Time.

UFT   User Fixture Type.

USB   Universal Serial Bus. A standard for the transfer and storage of information.

VGA   Video Graphics Array. The monitor outputs on the back of the Solution & Solution XL output as XGA.

Wheel LCD   The LCD located above the control wheels which indicates what fixture parameter or other data each of the wheels have control of.

WYSIWYG   One of a number of visualiser packages that can be used on the Solution & Solution XL desks.

ZerOS   The operating software for the Solution & Solution XL desks.

Zero 88   The manufacturer of the Solution & Solution XL desks.
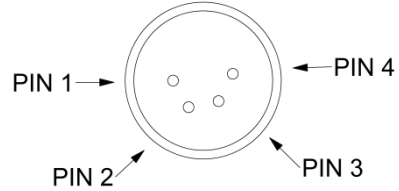
Technical Specification

Power Supply

A separate inline transformer with 4 pin male XLR connector on the desk. The desk is fitted with a power on/off switch on the back panel.
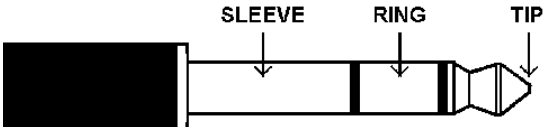
Mains Voltage   90 – 253 VAC
Mains Frequency   47 – 63 Hz
Mains Inlet Connector CEE22
Power Consumption   < 100 W

Connector	Pin Number	Power
	1	0V
	2	+5V DC @ 4 A
	3	+12V DC @ 0.5 A
	4	Not Connected
	Shell	GND

Audio
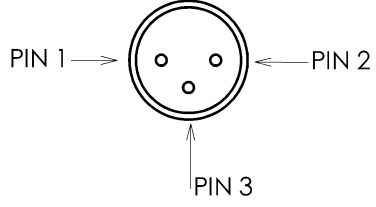
The desk has an audio port on the rear panel as a stereo ¼ inch jack socket. The bass beat of the audio input is used to trigger chases with Bass drives.

Connections	
Tip	Left Channel
Ring	Right Channel
Sleeve	0V Signal Ground

SMPTE (Optional Upgrade)

3 pin XLR input and output.
Output 0dBm.
Input 0dBm +/- 10dBm.
47 kOhm input impedance.
Maximum 50V RMS.

Connector	Pin Number	Description
	1	**Signal Ground**
	2	**Output**
	3	**Input**

Video Output

The desk provides an interface for one external monitor (XGA) as standard.

CAN Port (Optional Upgrade)

The desk also has an optional CAN port and is capable of supporting iCAN or ChilliNet messages.
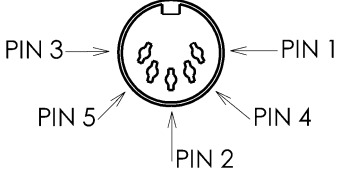
Technical Specification

External Storage Devices

The primary method of storage for the Solution & Solution XL is via USB Memory Sticks (also known as Flash Disks or Mass Storage Devices). These can be connected via the USB ports.

MIDI (Optional Upgrade)

2 x 5 pin DIN connectors providing MIDI input and MIDI thru.

Connector	Pin Number	MIDI Input	MIDI Thru
PIN 3 → (connector diagram) ← PIN 1 PIN 5 ← ← PIN 4 PIN 2	1	Not Used	Not Used
	2	Not Used	Signal Ground
	3	Not Used	Not Used
	4	Opto Isolated Input	Output
	5	Opto Isolated Input	Output

Ethernet

The desk is fitted with an RJ45 Ethernet port and is capable of supporting the Ethernet standard. Due to the nature of the implementation within the ZerOS operating software, it is possible for the desk to inhabit multiple IP addresses. See page 48 onwards for details.

USB Ports

Four external USB ports are fitted to the desk (one on front panel, three on rear panel).

Mouse

The desk provides a mouse interface via one of the USB ports (see above).

External Keyboard

The desk provides a interface to a standard PC keyboard via one of the USB ports.

External Floppy Drive
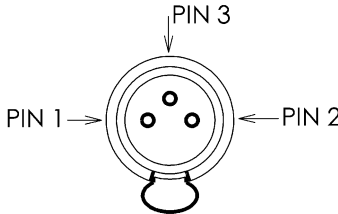
If required, an external floppy drive can be connected to the desk, via USB.

Touchscreen

The desk provides driver support for various external touchscreens, connected via USB. For a full list of supported touchscreens, see page 108.

Desk Light (Optional Upgrade)

3 pin XLR socket, 12V, maximum 5W.

Connector	Pin Number	Description
PIN 3 PIN 1 → (connector diagram) ← PIN 2	1	Not Connected
	2	0V
	3	+12V

DMX Input

5 pin XLR, not isolated, with voltage protection. Data on channels 1 - 512 only.

Connector	Pin Number	DMX Output
	1	Signal Ground (0V)
	2	DMX Drive Complement (1-)
	3	DMX Drive True (1+)
	4	Not Connected
	5	Not Connected

PIN 1, PIN 2, PIN 3, PIN 4, PIN 5

DMX Output

Four DMX universes each consisting of dual 5 pin XLR, isolated, with voltage protection and data output indicator. Data on channels 1 – 512 only.

Connector	Pin	DMX Output
	1	Signal Ground (0V)
	2	DMX Drive Complement (1-)
	3	DMX Drive True (1+)
	4	Not Connected
	5	Not Connected

PIN 5, PIN 1, PIN 4, PIN 2, PIN 3

Remote Switches (Optional Upgrade)

An 8 pin DIN connector providing six remote switch inputs. The following table shows the relationship between the pin number on the remote switches socket on the rear panel of the desk and the remote switch number.

Socket	Pin Number	Remote Switch
	1	Switch 6
	2	Switch 1
	3	Switch 2
	4	Switch 3
	5	Switch 4
	6	Switch 5
	7	Not Used
	8	0V Common Ground

PIN 8 (middle), PIN 7, PIN 3, PIN 5, PIN 6, PIN 1, PIN 4, PIN 2

Supported Touchscreens

A number of external touchscreens are supported by the Solution & Solution XL. These screens connect into the desk using the USB connection. Screens with a serial connection will not work via a USB-Serial converter. The screen needs to have a direct USB connection. It is recommended only to purchase one of the known working screens from the list below, for use with your Solution & Solution XL.

Currently known working **(tested and confirmed)** **ZerOS version 7.9.0**
Iiyama Prolite T1731SR-B1
Iiyama Prolite T1531SR
Iiyama Prolite T2252MTS-B3
Viewsonic   TD2220-2
Iiyama Prolite T2236MSC-B1
Iiyama Prolite T1931SR-B1A
Iiyama Prolite TF2234MC
Iiyama Prolite T2236MSC-B2

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ZerOS

For news, views and the latest software visit the Zero 88 Product Support Forum at:

zero88.com/support

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