MASTERPIECE MANUAL

Masterpiece 216

Masterpiece 108

Masterpiece 96

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.i" - 12-03-91

The Remote Control DIN Socket is operational - see appendix 4. This allows great scope for expanding the system - for example a number of Masterpieces can be used to control different sections of equipment under the control of a "master" Masterpiece.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.1" - 09-04-91

Improvements in the operation of 1 shot chases.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.2" - 09-05-91

Security Code - rather than any 4 key presses on the Keyboard, the correct security code is now required for Memory to Card, Card to Memory, Swap Memory and Card (both keys together) and now for Set User Access Levels.

The security code has a fixed value of: 12, 6, 7, 1.

If a Keyboard key is not pressed within 5 seconds, the program mode required is cancelled and the word "CNCL" is displayed. The word "FAIL" is displayed if the wrong code is entered.

Set User Access Levels (SUAL) to enable or disable any slider or pad. For example, to allow the operator the use of an Environment Keyboard of pre-programmed effects but disable everything else to prevent accidental corruption of the program or changes to the show.

Operation: press the SUAL key, enter the code, after the correct code the word "SUAL" is displayed, now all the LEDs show whether a pad or slider is currently accessible or not. Touch a pad to change its accessibility - the LED changes state and the display shows "ON" / "OFF". For sliders, move the slider to change its accessibility - if the slider is over 50% its LED is on and it is accessible, at less than 50% its LED is off and the slider is disabled. Press the SUAL pad again to finish. The word "DONE" is displayed or "CNCL" if no changes have been made.

When a pad or slider is disabled, its level before entry to SUAL is permanently maintained.

Touching a disabled pad makes the SUAL LED flash and puts the word "SUAL" in the display.
Moving a disabled slider also makes the SUAL LED flash but puts the slider's level in the display to "view" it.

SUAL mode may be used during a show without affecting the performance.

Parking Sliders at 0 no longer engages them to zero level Channels/Keyboard Masters.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.3" - 17-05-91

Concurrent Programming - besides SUAL, the other programming functions - Save Output To Scene, Program Chase Sequence and Save Environment of Channels Scenes and Chases all run concurrently with the light show without affecting it.

Release All - (Release + Slider Action pads together), is now available to release any slider from having overriding control of an output Channel Level on any of the 6 Output Select pages or of a KeyBoard Master level on any of the 18 KeyBoards.

Continued...

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.3" - 17-05-91 continued

Automatic Release and Replace- when you Save Output To Scene (SOTS) or Save Environment of Channels, Scenes and Chases (SESC), all sliders are RELEASED and all KeyBoard pads are turned off. The Scene or Environment which you have just saved is switched on to REPLACE them.

Should you NOT want this facility to operate, hold your finger on SOTS or SESC until AFTER you have removed your finger from the KeyBoard pad.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.4" - 01-06-91

Environment Chases- The 6 Environment Chases are now available with Auto and Manual stepping. Each one may have up to 124 steps. They are programmed in the same way as Scene Chases except that after pressing "Program Chase Sequence", you select one of the 6 Environment Chases on Environment Keyboard No.3, Keyboard pads 1-6 and then the steps you enter are Environments rather than Scenes. Forward and Reverse Manual Step pads can be used for editing just the same - see Page 5.6 of the Manual.

The Black Outkey "b.O." may be used during Scene or Environment Chase programming to enter a blank step - it too blinks to indicate availability if no key is pressed within 5 seconds.

Fine details:
Automatic Release and Replace no longer forces the Scene or Environment KB into latch but leaves the choice of Keyboard Action to the user.

Improved blinking of KB LEDs when engaged to KeyBoard Master sliders.

The accessibility of the Memory to Card pad (only) is not updated during Card to Memory transfer which would inevitably make it accessible.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.5" - 10-07-91

Environment Chases- The 6 Environment Chases are now also operational in Real Time. Pressing the "Chase Step Source" pad OR the "Record Environment Chase in Real Time/Step Times" pad when "Which Chase" is an Environment Chase, will step through: Step Times, Real Time, Auto and Manual (Bass and Treble are not appropriate).

There are two methods of recording the times for each step in Program Chase Sequence (PCS) for Environment Chases:

1. Real Time. Normally used for recording and replaying a show. Perform your show, pressing the Environments you require on cue. The Masterpiece records the moment when you entered each step, to a resolution of 0.02 seconds, ready to recreate your show on playback.
2. Step Times. Normally used to enter the longer step times needed for environmental control. After you enter the Environment for each step of the chase, the step number is displayed for 2 seconds, then you can use the Joy Stick to view (X axis) or adjust the time (Y axis) from this step to the next one. The maximum time per step is 3 days, 21 hours, 12 mins, 24.30 secs. There are 124 steps available - over 15 months are possible before repeating!

Continued...

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.5" - 10-07-91 continued

Editing times - two methods - regardless of whether the Environment chase was made in "Real Time" or "Step Time" mode:

1. Re-enter PCS in Real Time mode, press Forward Manual Step on each cue of your show. The timings of your presses replace the existing times.
2. Re-enter PCS in Step Times mode, use Forward Manual Step to see the Environment for that step when pressed, the Step Number for two seconds when released, then you have use of the Joy Stick to view (X axis) and change the times (Y axis).

It is not possible to see all 9 digits of the step time at once so Joy Stick X allows you to window through the time, alternately displaying part of d.hh. ' '. " ".th and the step time figures.

d. h h. ' '. " ". t h	Time display - use Joy Stick X axis to window through the step time,
d h h m m s s t h	use Joy Stick Y axis to change the time.
a o o i i e e e u	
y u u n n c c n n	When running an Environment Chase, "Step Times" and "Real Time" work
s r r u u o o t d	identically and like "Manual", they use the Slope slider to set the fade in and out
s s t t n n h r	times.
e e d d s e	The start time for a real time Environment Chase is the moment when it is
s s s s d	switched on, either by pressing the pad or by switching on the mains supply to
t	the unit where the required Environment Chase was running at switch off.
h	
s	All chases start at step 1 at switch on.

To perform a pre-recorded show, start the music, if your show starts on the first beat for example, hit the Environment Chase pad in time with it, the rest is automatic.

To control the lighting of a museum for example, one could power the Masterpiece from a time clock which switches on at 8.00am, then the steps of the Environment Chase control the lighting for the rest of the day.

The Memory Card's Battery Voltage is displayed when a Card is inserted. The words "Good" (>2.75v), "FAIR" (2.5-2.75v) or "Lo" (<2.5v) are also displayed. The display continues to monitor the voltage until any other key is pressed or slider moved. Memory to Card and Card to Memory are not allowed if the battery voltage is low - "FAil" is displayed. This guards against: no Card, no battery, battery in back to front and a flat battery. (Should the transferred data not verify correctly, "FAIL" is displayed).

Fine details: • Pressing Forward or Reverse Manual Step before the fade is finished no longer loses a step - the step forces the completion of the fade. • The software will now read correctly from the newly available "Write Protected" Memory Cards while their protection is switched on.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.6" - 06-09-91

Improvements to the operation of the Remote Control Socket:

- The response time of the RC socket is now extremely fast - important when the unit is a slave in a multiple Masterpiece system.
- The RC signal can now drive Environment Keyboards which are in Flash and Solo modes as well as Latch and Swap modes.
- The RC signal works correctly even if all the Keyboard pads have been made inaccessible.
- It will not leave an inaccessible Keyboard selected but returns to the previous one after an input in this case.
- Input codes 57-63 have been removed and are reserved for special functions.
- So far just code 63 is in use and allows you to remotely transfer Card to Memory.

Also see Appendix Four of the Manual.

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.6" - 06-09-91 continued

Selective Memory Transfer: After pressing Memory-to-Card, Card-to-Memory or both for Swap Memory and Card, all the 18 Keyboard Select LEDs light up, allowing you to turn off any Keyboard you don't want to transfer. Do this only if required and then enter the Security Code as usual. This allows the expert programmer to pick and mix parts of various shows together to create a new one - eg. using the Scenes from one show with the Chases and Environments of another.

The MIDI socket is now fully operational BUT only if the DMX/MIDI EPROM in the Masterpiece is ALSO upgraded to "DMX/MIDI V1.3". A MIDI signal selects the Masterpiece's Environments and Environment Chases - see Appendix Three for full details.

"Use Scene Fade Times" key, previously not in use, now has the following effect:
LED on - Fade in the chase at switch on, LED off - Step in the chase with the first Scene/Environment at full - sometimes needed for control of intelligent lighting.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.7" - 06-02-92.

Switching Sound-to-Light (S2L) on Zone 3. Useful for a dramatic effect or for producing a better result from devices with significant response times such as PAR64 lamps, Pin Spots or Golden Scan stoppers. Zones 1 and 2 continue to have modulated S2L with the full range of dimming.

Treble & Bass Burst are now available for Scene Chases, providing a whole range of super effects. With the SPEED control high, a burst of steps is produced for the duration of the beat. With the SPEED control low, a single step is produced on the beat. The SLOPE control gives two options. With the SLOPE control >50%, the chase STEPS from one step to the next. With the SLOPE control <50% the chase FADES from one step to the next - giving some lovely effects at low SPEED settings - partial fades towards the next step during the beat followed by frozen movement between beats.

Bass Bounce ("bASS") replaces Bounce/2 ("RRFF") for Treble Burst, Bass Burst and Auto scene chases providing more super effects. Manual and all Environment Chases retain Bounce/2.

All Off - Release Sliders + Slider Action does "Release All sliders" but now if both keys are kept pressed for 3 seconds, all Scene, Chase and Environment keys are also turned off.

Two Security Codes - only the new "Programmer's Code" will now allow entry to Set User Access Levels. The existing "Operator's Code" (12, 6, 7, 1) now only allows Card / Memory transfer.

The Forward & Reverse Manual Step keys show the Step Number at finger off, of the Chase to which the Chase Controls are engaged. This facility works in Treble, Bass and Auto as well as Manual.

The Masterpiece Screen Driver unit will be available from Q2 1992. This will be an optional add on unit to the Masterpiece. Amongst other facilities, it provides:

- On screen help in many languages by holding down a key for more than 0.5 seconds,
- A User Text Area for each Output Select Page and Keyboard where you will be able to enter details of your Channel Assignments, Scenes, Chases, Environments, etc. in full colour, using the Masterpiece keys for text entry,
- A Bar Graph display of the levels of the Output Channels.

Version No.1.7 of the Masterpiece software transmits all the key press and ASCII text information ready for the Screen Driver unit. This is mixed in with the existing PMX (Pulsar MultipleX) data stream from the Masterpiece.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.7" - 06-02-92 - Continued

Two Security Codes - only the new code will now allow entry to Set User Access Levels.

The new Programmer's Code -

2, 3, 11, 10

is now required to enter Set User Access Levels. It also works for Card / Memory transfers.

The Operator's Code -

12, 6, 7, 1

is the same as before but now ONLY works for Card / Memory transfers.

* * * * * REMOVE THIS SHEET * * * * *

if you don't want the Lighting Operator to be able to change the User Access Levels.

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.1.8" - 24-07-92.

From version No.1.8 two EPROMs are available:

"Masterpiece 108 MAIN No.1.8"

and

"Masterpiece 48 MAIN No.1.8"

Production of the Masterpiece 48started in July 1992 using this software version from the beginning. All planned features of the MP48 are available and working. However, as the MP48 can replay programs made on the MP108, you may like to keep its software upgraded as more facilities become available on the MP108. BUT be sure in future to specify whether you need software upgrades for the MP108 or the MP48.

Obviously the Masterpiece Manual is in a temporary phase so for the time being if you are a MP48 owner, you will find references to facilities only available on the MP108 - please bear with us.

NEW FEATURES:
The MIDI input (MP108 only) can now respond to all 128 MIDI notes. In addition to giving control of the three Environment Keyboards, Scene Keyboards 10 & 11 are accessed using notes 0-35 and Scene Chase Keyboard 3 by notes 99-116. Please refer to the June 92 or later version of Appendix Threefor full details.

Environment Chasescan now be driven by Bass, eg. from a Click Track accompanying a music tape. On the MP108 Real Time and Step Times are the same in playback leaving the fourth option available as Bass.

Chase Direction - the Bounce/1 mode "RFRF" has been replaced by AIternate"ALt". In ALt mode, each time a chase is switched on it runs in the opposite direction. This allows you to produce a more varied and interesting light show without extra programming. Should you still want to produce a Bounce, just enter the extra steps when programming the chase sequence.

Flash - when the sliders are acting as Keyboard Masters and have control of the levels of Scenes, Chases or Environments, the Keyboard keys are now able to flash them to full.

Card To Memorywill not read from Masterpiece Screen Driver Cards.

Improvements to the operation of the LEDsin SUAL mode.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN N.1.85" - 20-06-93.

Remote Blackout (R.b.O.)by MIDI or Remote Control. A Blackout can now be forced remotely by MIDI or via the Remote Control Socket as is sometimes required by Fire Authorities - see Appendix 3 and Appendix 4.

All Off can now be done from MIDI - note number 127.

Robust Operation.To prevent you having to make those panic midnight calls to the installer we have made the following changes to make the software (we hope) virtually bomb proof provided you saved your work on a Card

- Card to Memory is always accessible,
- After Card to Memory the Grand Master is always 100%,
- After Card to Memory the Output Select and Keyboard Select are changed to those stored in the Card,
- Card to Memory still works even if the Masterpiece's memory has been corrupted (eg by loading from a partially inserted card) or if so many things are switched on that the Watchdog Timer cuts in and all the LEDs are blinking - commonly known as "Brain Overload".

Bug Fixes: • Switching the mains off and on in SUAL changed the chase keys' accessibility. • Environment chases in MP108 said "S.t." when they should have said "bASS". • The MP48 Remote Control Socket didn't work the Environment Chases correctly with certain Keyboard Actions.

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE 108 MAIN No.1.9" - 28-09-93.

FADE IN and OUT TIMES. Although printed on the front panel as "SCENE FADE TIMES", the system has been enhanced beyond that originally planned, to give Fade IN and OUT Times to SCENE CHASES as well as SCENES. Environments and Environments Chases don't have Fade Times but of course the Scenes and Scene Chases they contain can. Note: The Scenes within a Scene Chase can have fade times if required.

Overriding Global Control of all Fade In and Out Times is achieved by moving the IN and OUT sliders to engage them (LEDs blinking) and choosing suitable Fade In and Out times. These slider values then operate for all Scene and Scene Chase Fade In and Out times, overriding the individual fade times stored with them.

Cancelling Global Control of all Fade In and Fade Out Times. While pressing Release Sliders, move the IN and/or OUT sliders to release them from having overriding control. The Fade In and/or Out times stored with each Scene and Scene Chase now operate. Release All - Release Sliders & Slider Action together, also releases the IN and OUT sliders.

Old Memory Cards. When loading a show from a Memory Card made with an earlier version of software:
- All the Fade In and Out Times stored with the Scenes and Scene Chases are set to zero.
- The IN and OUT sliders are set to zero and made inaccessible.

These ensure that your show will work with the 1.9 software exactly as it did before.

To Save a Scene's Fade Times the IN and/or OUT sliders need to be engaged (LEDs blinking) when you do "Save Output To Scene" - otherwise the Scene's own existing values remain.

To Modify a Scene's Fade Times switch on the Scene (on its own, and allow it to fade to full if it has a fade in time), adjust the IN and/or OUT sliders to the required times, save the scene back to itself.

To Save/Modify Scene Chase Fade Times the IN and/or OUT sliders need to be engaged (LEDs blinking) and the Controls Engaged LED needs to be on, when you do "Program Chase Sequence plus Select the Chase to be programmed" - otherwise the Scene Chase's own existing values remain.

Seeing the stored fade times. When you switch a Scene or Scene Chase on or off, the display shows (sequentially) the IN and OUT times, and for Scene Chases, the SPEED and SLOPE as well. Also, provided the IN and/or OUT sliders are not engaged, their LEDs will be updated with these fade time values for a rough indication. VIEW may be used to give an accurate read out - move the IN or OUT slider WHILE an Output Select or Keyboard Select key is pressed.

Enhancements to the VIEW system. (The VIEW system puts useful information in the display. It is activated by moving a Slider or pressing a Key WHILE an Output Select or Keyboard Select key is pressed. No levels or functions are changed in the process.) New features:
- While holding an Output Select key pressed, pressing a Keyboard key displays the Channel Number (C. 1 - C.108) followed by the Channel's Level at finger off.
- While holding a Scene Keyboard Select key pressed, pressing a Keyboard key displays (sequentially) the Scene's Fade In and Out times.
- While holding a Scene Chase Keyboard Select key pressed, pressing a Keyboard key displays the Scene Chase's Fade In and Out Times, its Speed and its Slope and connects this chase to the chase controls without having to switch it on or off. NB. For Manual chases and Real Time / Step Time Environment Chases, the Slope is the crossfade time in seconds.

Tip - to see if any Scenes or Scene Chases have fade times, ensure the IN and OUT sliders are released, then, WHILE pressing a Keyboard Select key, run your finger across the Keyboard watching the IN and OUT LEDs.

Remote Swap Memory and Cards is now possible from MIDI and the Remote Control Socket. See Appendix Three - Remote Control by MIDI and Appendix Four - Using the Remote Control Socket.

The Grand Master Level is now loaded from a Memory Card (when loading from old cards it is put to 100%).

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE 108 MAIN No.2.0" - 15-07-94

54 KEYBOARDS! Select Latch + Swap and then press the "Swap - This Keyboard / All Like Keyboards" key. You will find that this key now has three possibilities - "ALL", "thIS" and the new one "SP.3" with no LEDs on. "SP.3" means Swap 3. Swap 3 turns any of the 18 way keyboards into three 6 way keyboards - swapping between 1-6, 7-12 and 13-18. This makes more efficient use of the Scenes, Environments etc. and gives you power and versatility.
Practical Examples:

- For Scan use, this could give you 6 Colour looks + 6 Gobo looks + 6 Iris/Frost/Prism looks all immediately accessible on the same 18 way keyboard.
- The Out Station on the Remote Control socket can now access nine 6 way swapping keyboards and MIDI can access 18 of them.

COPY FADE IN TO FADE OUT TIMES.Gives the Masterpiece the power of a top of the range Theatre or Scan Lighting Board. It allows you to move from any Cue to any other Cue with a perfect Dipless Crossfade. Your "Cue" can be a Scene, Scene Chase, Environment or Environment Chase. See the attached "Out-Times Flowchart" on page 9 for a diagrammatic explanation.

Global control of matched In and OutTimesmay be taken by engaging just the InTime Slider in Copy Mode - sufficient for many purposes.

With the time sliders released,the times stored in the Scenes and Scene Chases take over. In Copy Mode the InTime of the new Scene/Scene Chase provides the OutTime for the outgoing one.This may be anything from a zero time snap to a 360 second fade. The location of the InTime captured to become the OutTime follows this priority sequence: the outgoing key's Swap3 keyboard or 18 way keyboard, the last key pressed in All Like Keyboards, its own stored OutTime.

Practical Examples:

- For Theatre use. Proceed from Scene to Scene using Swap, Swap 3 or Latch and the fades will always be dipless no matter where you are coming from or going to.
- For Scan use. Environments may contain such components as: Colours from a colour keyboard, Gobos from a Gobo Keyboard, Positions or Position Chases from their keyboards. AND NOW THE POWER - when you swap from Environment to Environment, all their components will crossfade or snap individually and diplessly using the InTimes associated with the incoming Environment's components.

To toggle between Copy In to Out Mode and Individual Mode,WHILE pressing the COPY key, move either the In or OutTime slider. The display shows "COPy In tO OUt" or, if Copy Mode has been disengaged, "the time in seconds". While the In or OutTime sliders are moved in Copy Mode the Copy key LED lights.

Over The Top for your job?No worries - the beauty of Masterpiece is that although we are progressively giving it more and more power so that you can use the same controller for any application, you only have to use the parts you want. For example, if you don't need fade times, simply engage the In and OutTime sliders to zero (LEDs blinking) and then use SUAL to lock them away. The fade times will now be inactive and we have now made the LEDs blink only faintly when disabled at zero so as not to be offensive.

A-B CROSSFADE MODEis ideal for Theatrical or Live use. Each of the 18 Keyboards can have its Keyboard Action selected to "A-B Crossfade Mode" individually. The A and B sliders can then be used to fade smoothly between Scenes, Scene Chases, Environments and Environment Chases or even combinations of them. Keyboard keys may be pressed to connect them to the A or B slider or disconnected by pressing them again - the word "FREE" is displayed. A key which is OFF and is to be faded in will connect to whichever of A or B is at zero. A key which is ON and is to be faded out will connect to whichever of A or B is at FULL. Should the sliders not be at an end you will see the error message "A-b Not At 0.0" or "A-b Not At 100.0". The LEDs of incoming keys shimmer green, while the LEDs of outgoing keys shimmer red, corresponding to the A and B LEDs to which they are connected. The Scene and Scene Chase fade times still operate in A-B mode - slowest takes priority.

- NEW IN SOFTWARE VERSION "MASTERPIECE 108 MAIN No.2.0" - 15-07-94 - continued

Limits: A maximum of 38 keys may be attached to the Incoming slider and 38 keys to the Outgoing slider - which should be enough! The display shows "FULL" if more than this number is attempted.

Copy A to B allows you to have individual A and B sliders to achieve "Split Fades" or to use the A slider alone for a perfect dipless crossfade.

To toggle between Copy A to B Mode and Individual Mode WHILE pressing the COPY key, move either the A or B slider. The display shows "COPy A tO b" or, if Copy Mode has been disengaged, the A and B sliders' percentages. While the A or B sliders are moved in Copy Mode, the Copy key LED lights.

Grand Master for Generic Lighting. Lighting designers sometimes want to dim the level of the generic lights without affecting the intelligent lights. In other words they need a selective Grand Master. This can now be achieved by attaching the required generic Scenes / Chases / Environments to the A or B Master.

JOYSTICK VELOCITY. Key S12.18 is not a normal scene but switches the action of the JoyStick between Position (LED off) and Velocity (LED on). The velocity software has been carefully written to profile the behaviour of the JoyStick from very slow, gentle movement near the centre for follow spot use, to very fast movement at the extremities. When you let go of the JoyStick, it returns to the centre and the movement stops where it is. There is a central dead band from 48 to 52 - Left and Down movement is from 47 and below while Right and Up movement is from 53 and above.

Attaching a single projector to the JoyStick Move its Pan slider upwards to see which way the light beam moves relative to the orientation of your JoyStick. Now save its Pan at 100%, on its own, to the Left/Right/Up/Down Scene corresponding to the direction in which it moved. Do the same for the Tilt. Switch on just these two Joy Scenes and select Position or Velocity to connect the JoyStick to the projector's mirror.

Follow Spot Control. You may wish to limit the movement of the light beam to just the stage area. Proceed as above but set up four Scenes containing the Left and Right limits for Pan/Tilt and the Up and Down limits for Tilt/Pan. Switch on all four Joy Scenes and select Velocity.

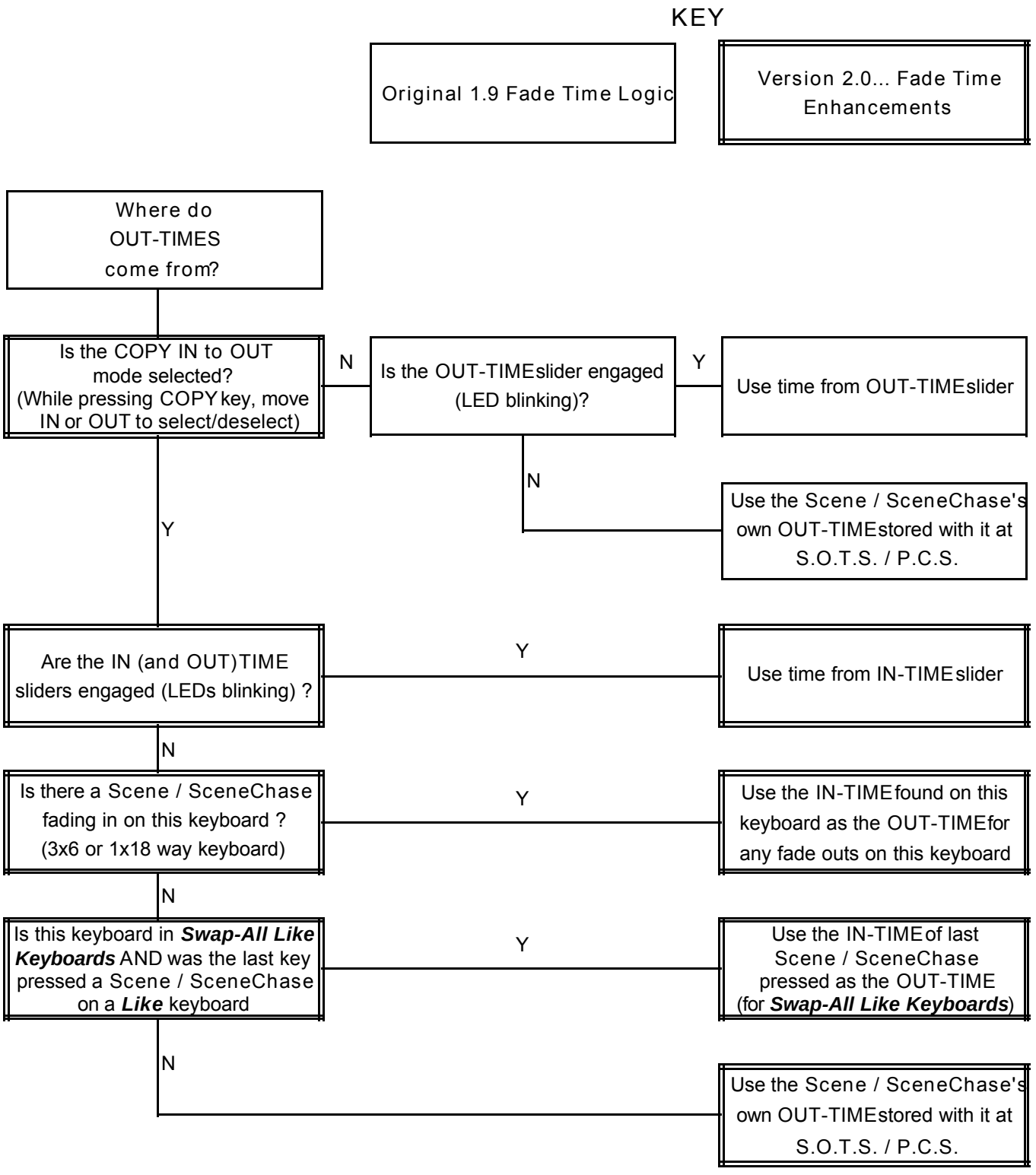
Joy Centre: With the Joy Centre Scene turned off, the Joy Left Scene, for example, is scaled from 100% with the JoyStick fully left to 0% with the JoyStick fully right. With the Joy Centre Scene switched on, the maths changes. The Joy Left Scene now scales from 100% (Left) to 0% with the JoyStick in the Centre (or beyond), while the contents of the Joy Centre Scene are scaled from 0% (Left) to 100% in the centre. The same concept applies to the Right, Up and Down Scenes. Interesting new effects are possible - particularly to those who feel like experimenting to see what this new dimension can offer! One suggestion for Position mode is to make the Joy Centre scene the required position when you let go of the JoyStick.

ENHANCEMENT to the VIEW system. While holding an Output Select key pressed, pressing a Keyboard key displays the Channel Number (C. 1 - C.108) followed by the Channel's Level at finger off. NEW FEATURE - the channel level continues to display until you press another key. This allows you to follow the progress of a chase or crossfade.

BUG FIXES:

- The Dipless Crossfade maths has been rewritten so that a channel level, which is the same in the incoming and outgoing scenes, remains completely constant during the fade. This applies to crossfading chases as well as timed fades.
- If a Keyboard Master is controlling the level of a key, that key may be flashed to full - but no longer in VIEW or a Program Mode.

Out-Times Flowchart
(How to use Copy In to Out Mode to achieve Perfect Dipless Crossfades)



Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.2.1" - 28-10-98

108 Masterpiece PMX Output Channel to 256 DMX Slot, Patching System.
This vastly expands the capability of the Masterpiece 108 by allowing it to drive 256 DMX Slots.

Why the name "Slot"? It is expected, in the next revision of the DMX Standard, that the term "Dimmer Levels" will be renamed "Slots", since DMX is now used to control many parameters besides dimmer levels. Slots refer to the bytes that flow one after the other in the DMX serial data stream - each having its own time slot. It aids our explanation of the Patching System to refer to Masterpiece Output Channels or PMX Channels (Patch input) as opposed to DMX Slots (Patch output).

Patching Concepts:
Please see the Masterpiece Hierarchy diagram to see how the Patch fits into the scheme of things.

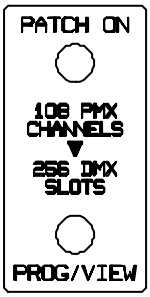
The Patch is particularly useful when controlling large numbers of intelligent lighting fixtures. For example, a Masterpiece 108 can control just 6 Clay Paky StageScans but with the Patch it can now control 16 of them!

Often when intelligent lights are programmed, certain parameters are grouped together into Scenes. For example, you might have a Scene which controls the colour discs of the odd number projectors and another scene for the even one's colour discs. A scene for odd Gobo Selects and another for even Gobo Selects. Two scenes for odd and even Gobo Rotation speeds. Two scenes for the front group and the back group's Zoom Lenses. One scene for all the lamp control channels, etc.

This grouping can now be done by the Patch, for example, this allows just one Masterpiece Channel to control all the Lamp Control Slots. With 16 projectors this saves 15 Masterpiece Channels. Two Masterpiece Channels to control the odd and even colour discs - 14 channels saved. Two Channels to control the odd and even Gobo Select discs - another 14 channels saved, and so on. It is likely, however, that you will want to control the Pans, Tilts and Stoppers, for example, individually, but with these huge channel savings this presents no problem.

Logical layout - another function of the Patch is to allow you to lay out the Masterpiece in an efficient and logical way. All the Irises could be patched to adjacent channels on the Masterpiece. Similarly the Stoppers. The Pans and Tilts could be put side by side on the same Output Select Page, etc.

If you have some spare DMX Slots, you could address your projectors 10 or 20 apart for simplicity, leaving some unused Slots between projector base addresses.



The Patch Key has three modes: Patch Off, Patch On and Program / View.

Patch Off - the Masterpiece works as before - the DMX Slots are identical to the PMX Channels.

Patch On - the Masterpiece's 108 PMX Output Channels are patched to 256 DMX Slots.
The PMX output is always unpatched and therefore exactly as it was before, as are the 36 0-10V analogue outputs.

Programming or Viewing the Patch
One Masterpiece Channel can drive many DMX Slots but a DMX Slot can only be driven by one Masterpiece Channel. Therefore the programming process is to select a particular DMX Slot and then attach a Masterpiece Channel to drive it.

1. Press the Patch key to select Prog/View and enter the (new) Security Code.
2. Press the Forward or Reverse Manual Step keys to work your way through the 256 DMX Slots. These keys are repeat keys and quickly count through the slots if held pressed. The display shows "S.###" (meaning Slot Number) while the Forward or Reverse key is pressed and "C.###" (meaning output Channel Number) when the key is not pressed. When not pressed, after two seconds, the display toggles between "S.###" and "C.###".
3. Having selected a particular Slot, use the Output Select keys O1-O6 and the Keyboard keys 1-18 to select the Masterpiece Channel to drive that slot."C.###" appears in the display.

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.2.1" - 28-10-98 - continued

4. Additional Feature - a DMX Slot may be given a permanent fixed level rather than attaching it to a Masterpiece Channel. This can be useful for house lights, for motors which must always run or to ensure certain slots are always on or off, etc. To do this use the Grand Master during patch programming to set the desired level of the Slot. You can also move the Grand Master to see which parameter a particular Slot controls and then press the desired Keyboard key to return the Slot to Masterpiece Channel control. When a Slot has a fixed level the display changes from "C.###" to "###.#" to show its percentage. Forty levels of brightness are available from 0.0% to 100.0%.
5. To finish Prog/View Patch just press the Patch key once more.

Blinking LEDs - if you don't press an appropriate key or move the Grand Master within 6 seconds, the LEDs start to blink to show you which keys should be pressed.

Sacrifice - to provide the necessary memory for the Patch, some of the memory that was used by the 6 Environment Chases has been taken. These can now have a maximum of 102 steps each instead of the 124 they were allocated previously. So DO NOT use this new software if you have Environment Chases with more than 102 steps and you cannot reprogram them to be within the 102 limit.

Patch Memory / Card Transfer - each of the 18 Keyboards may be enabled or disabled for transfer during memory to card or card to memory. Please note that the Patch information is transfered with the E3 keyboard.

New software for the Masterpiece Replay Unit is also available. This allows the Replay Unit to replay shows made on the Masterpiece 108, which use the Patch and 256 DMX channels. The software needed is:
EPROM - Masterpiece Replay Unit, Main No.2.1, © Pulsar 28-10-98 (or later)
DMX Microprocessor - M/Piece 108 / RPU, DMX / MIDI V2.1, © Pulsar 28-10-98 (or later).

New software for the Masterpiece Screen Driver is being written. This will be a free upgrade which we hope will be available very early in 1999. While in Prog/View Patch it will automatically display the Patch's Channel Map as you program it and to allow you to type in the function of all the 256 DMX slots. We expect there to be 13 Screens of Patch data - 20 Slots per screen. Using the Forward or Reverse Manual Step keys to select a Slot will put you into the correct screen. The Masterpiece Channel driving that Slot will automatically be shown. While in Prog/View Patch you will be able to use Screen Text Mode to enter details about that Slot's function. If you keep Output Select O1-O6 pressed, the screen of data about those Masterpiece Channels will be displayed to help you select the desired Channel. The Masterpiece software necessary to do this is already built into the 2.1 upgrade.

OTHER NOVELTIES
New Security Code for Set User Access Levels and for programming the Patch - see the Security Code sheet. The Operator's Code 12,6,7,1 now only works for Memory / Card transfers.

"Appendix Two - Pulsar Masterpiece - Remote Control by RS232". This explains how to control a Masterpiece 108 from a computer or other source of RS232 / RS423. It shows how to do anything from activating a single channel to a complete lightshow remotely. The concept is similar to "Remote Control by MIDI" in Appendix Three.

Controls Engaged / Which Chase? The key's LED now blinks when engaged to warn that moving the Speed or Slope sliders or touching a Chase Control key will change the parameters of the engaged chase.

BUG FIXES
- If the Scene Fade Time sliders are brought to zero they no longer become engaged until they move away from zero - just like the Channel Level / Keyboard Master sliders.
- Coming out of Program Chase Sequence after editing the Step Times of an Environment Chase no longer flips it into Bass Burst mode.
- Switching off the Masterpiece stops the DMX transmission cleanly - without sending incorrect levels first.

NEW IN SOFTWARE VERSION "MASTERPIECE 108 MAIN No.2.2" & "REPLAY UNIT MAIN No.2.2" - 28-09-99
BUG FIX - occasional loss of MIDI Remote Control comands - problem solved in version No.2.2.

Paul F. Mardon, Technical Director, 28-09-99

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.2.1" - 28-10-98

SECURITY CODES

The NEW Programmer's Code:

3, 4, 10, 9

This code is required to enter: • Set User Access Levels and to • Program / View the Patch (the 108 PMX Channel to 256 DMX "Slot" patching system released in Software Version 2.1 as a free upgrade, which allows a Masterpiece 108 to drive 256 DMX channels or "slots").

This code should not be disclosed to people you do not want to program your Masterpiece.

The Operator's Code:

12, 6, 7, 1

This is now the ONLY code that allows Card / Memory transfers.

* * * * * PLEASE REMOVE THIS SHEET * * * * *

if you do not want the Lighting Operator to be able to change the User Access Levels or to Program / View the Patch.

Masterpiece
108 PMX Channel to
256 DMX Slot
Patch - Examples

Software Upgrade from No.2.1 (free) for the Masterpiece 108 provides a Signal Patch.

This allows the 108 Masterpiece PMX Channels to be patched to drive 256 DMX Slots (channels). Thus, for example, up to 16 Clay Paky Stage Scans can now be controlled whereas before the patch upgrade, only 6 could be controlled!

The Patch groups projector channels together - just as you would have often done in practice but previously by using Scenes. Now each Masterpiece channel is able to control groups of projector channels, vastly expanding the Masterpiece's capabilities.

In the table below various example arrangements are shown but the groupings can of course be varied to suit the requirements of your particular show.

If, for example, Prism Select has the number 2 in the table, this could mean that Odd Projector Prism Selects are controlled by one channel and Even Projector Prism Selects are controlled by a second channel.

Number of Stage Scans Driven ⇨		**16**	**12**	**8**	**6**
Stage Scan Channel ⇩					
No	**Function**	**No of Masterpiece PMX channels used per function**			
1	Iris	4	12	8	6
2	Colour Disc	2	4	4	6
3	Prism & Frost	2	4	4	6
4	Dimmer/Strobe	16	12	8	6
5	Pan	16	12	8	6
6	Tilt	16	12	8	6
7	Multi Step Zoom	4	4	4	6
8	Focus	16	12	8	6
9	Prism Select	2	2	4	6
10	Prism Rotation	2	2	4	6
11	Fixed Gobo Select	2	3	4	6
12	Rotating Gobo Select	4	4	8	6
13	Gobo Rotation	8	12	8	6
14	Red	4	4	8	6
15	Green	4	4	8	6
16	Blue	4	4	8	6
17	Lamp Control	0	1	1	6
No of Masterpiece PMX channels used ⇨		**106**	**108**	**105**	**102**
No of DMX slots (output channels) driven ⇨		**256**	**204**	**136**	**102**

Masterpiece 216
Enhanced
Features

- THE INITIAL SOFTWARE FOR THE MP216 IS "MASTERPIECE MAIN No.2.2" - 28-09-99

Output Channels
The MP216 has 216 'PMX' Output Channels. Press the O1-O6 / O7-O12 key to switch the six Output Select keys between O1-O6 for channels 1-108 and O7-O12 for channels 109-216.

Patching System
The 216 PMX Output Channels are patchable to 512 DMX Slots (twice the capacity of the MP108).

Eight Shows
Memory capacity is provided internally for 8 separate shows.

At switch on the software version is displayed e.g. "No.2.2" followed by the number of the current show e.g. "Sho.1".

To see the number of the current show at any time, simply press the Show Select key on it's own.

To change show: WHILE pressing the Show Select key press a keyboard key 1-8. When you release the Show Select key, the Masterpiece will switch to the new show.

Each of the eight shows may be selected remotely by MIDI and RS232 (PMX) - see Appendices Two and Three.

Memory Cards
Each MP216 show needs 64K of memory (32K for a MP108). So a 64K card can store one show, 128K two shows, 256K four shows, 512K eight shows.

Memory to Card / Copy Current Show to Another Show
Any of the internal shows (Sho.1 - Sho.8) may be copied to any position in the card (Sho.9 - Sh.16). The source show is the current one. When you press the Memory to Card key the MP216 tries to select the most likely destination show, however you can change this by pressing the Show Select key plus a Keyboard key. The destination show can even be another internal show - this provides the Copy Show to Show function. As usual the Keyboard Select keys may be used to select which parts of the memory are transferred. The display indicates the source and destination shows, when you are happy with these, enter the code.

Card to Memory / Overwrite theCurrent Show with Another Show
When you press the Card to Memory key the MP216 tries to select the most likely source show to overwrite the current show, however you can change this by pressing the Show Select key plus a Keyboard key. The source show may be changed to any show stored in the card (Sho.9 - Sh.16) or any internal show (Sho.1 - Sho.8) - this provides the Overwrite Current Show with Another Show function. The rest as above ...

Swap Memory and Card / Swap Current Show with Another Show
Both of the above together.

Masterpiece 108 shows
The MP216 can read MP108 cards and play them back correctly. It can also write MP108 cards but obviously only the first 108 channels are functional. A MP108 can read MP216 cards and play back the first 108 channels.

Future plans
A Chase Generator for the rapid creation of complex chases and effects, and the efficient use of Scenes is planned for the next free software upgrade.

Masterpiece Software Upgrades

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.3.0" - 25-09-00



The Chase Generator provides an extremely quick and powerful way of creating complex Scene Chases.

It makes stunning effects possible, which were impractical or even impossible before, while providing massive savings in the number of Scenes needed to make a Chase and in the programming time required.

There are 28 Chase Generator Types or Patterns in software version No.3.0.

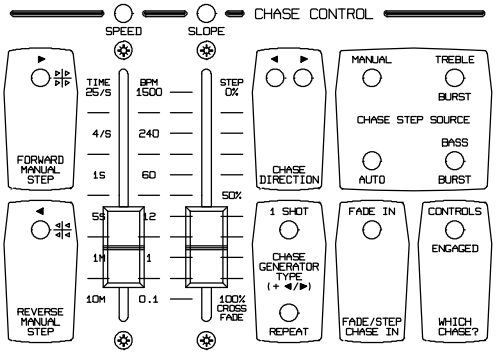
It generates these patterns using one, two or a number of Scenes, which are programmed into the Chase in the normal way. Once programmed, one of the 28 Chase Generator Types or patterns can be applied.

One Scene in the Chase: The Scene has to contain all the Channels that are to be included in the chase. There may be any number and any combination of Channels in the Scene. The level of each Channel in the Scene determines the maximum level that it will reach, the minimum being zero.

Two Scenes in the Chase: As above but the Chase Generator takes the levels of the Channels between their levels in the first Scene and second Scene. The levels of a Channel in the two Scenes therefore form the top and bottom limits for that Channel. A Channel's level may be higher in the first Scene or in the second Scene, and they may all be mixed up, but it is perhaps more logical to think of the first Scene as containing the minimum levels and the second Scene as containing the maximum levels. If the sequence of the two Scenes in the Chase is reversed when the Chase is programmed, a Dark Chase becomes a Light Chase and vice versa for example.

Many Scenes in the Chase: This is used by the three special Chase Generator Types - Follow 1, Follow 2 and Follow 3 - more of which later.

Different Chase Generator Chases may use the same Scene(s) and run at the same time.



The Chase and Chase Generator Keys

The "1 Shot / Repeat" Key together with the Forward and Reverse Manual Step keys, are used to view and select the Chase Generator Type.

Pressing the 1 Shot / Repeat key quickly changes between 1 Shot and Repeat as normal. If however the key is pressed for more than 0.3 seconds, when released, the display shows the current Chase Generator Type and 1 Shot / Repeat is not changed.

Pressing Forward or Reverse Manual Step while 1 Shot / Repeat is held pressed steps through the Chase Generator Types.

Chase Parameters - all the usual Chase parameters available for conventional chases are also available for Chase Generator Chases: Fade Times - In and Out, Direction - Forward / Reverse / Alternate / Bass Reverse, Stepping - Manual / Treble / Bass / Auto, Chase Type - 1 Shot / Repeat, Start up - Fade In / Step In, Speed, Slope / Manual Fade Time and the Keyboard Master sliders may be used to scale the whole effect. The only exception is that Slope is not appropriate for some Chase Generator Types and is therefore disabled - see the notes with the description of some Types.

Chase Generator Applications - some applications are suggested with the descriptions of the Chase Generator Types. However there are masses more - just let your imagination run. Each of the chases can be used to control any parameter of any intelligent projector or any piece of equipment that responds to a 0-10V, DMX or PMX signal. The philosophy of the Masterpiece has always been to provide you with a powerful and versatile tool that is capable of performing complex mathematical functions on the channels of any equipment it is driving.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.3.0" - 25-09-00 Continued

CHASE GENERATOR TYPES:

nonE - Conventional Scene to Scene chase

ALL TYPES:
Typical use - Intelligent projector Pans or Tilts.

ALL - All channels in the scene rise and fall together.

ALt. (Alternate) - The first channel rises while the next one falls, and so on.

PAIr - The first two channels rise while the next two fall.

FOUr - The first four channels rise while the next four fall.

HALF - The first half of the channels rise while the second half fall.

MOVING BLOCK TYPES:

1 on - One channel moving across the channels in the scene.

2 on - Two channels moving across the channels in the scene.

0.3oF (1/3 of) - A moving block of one third of the channels.

0.5-1 (1/2 of, Phase 1) - A moving block of one half of the channels.
0.5-2 (1/2 of, Phase 2) - As 0.5-1 but shifted by 1/3 of the number of channels.
0.5-3 (1/2 of, Phase 3) - As 0.5-2 but shifted by 2/3 of the number of channels.

Typical use: for the RGB channels of intelligent projectors - make 3 chases: 1) 0.5-1 for all the Red channels, 2) 0.5-2 for all the Green channels, 3) 0.5-3 for all the Blue channels. Give all three chases the same speed, slope, direction, etc. Save all three chases into an Environment so they can be switched on together. Result - a beautiful colour wave moving across the projectors.

0.7oF (2/3 of) - A moving block of two thirds of the channels.

2oFF - Two off channels moving across the channels in the scene.

1oFF - One off channel moving across the channels in the scene.

RANDOM TYPES:

Rnd.1 (Random 1) - One channel ON at random. To make one channel OFF at random, use two scenes, the required one followed by a Blackout step.

Typical use: Intelligent projector stoppers to produce random stabs of light. If one beam on at a time is not enough, use two or three Rnd.1 chases together, all programmed with the same scene.

Rnd.A (Random All) - All channels at random - well not quite - there are patterns in there which actually enhance the effect.

Typical use: Pans and Tilts - use two scenes to set the movement limits and try Bass Step. RGB - random colours. Note - Slope is not available with Rnd.A.

FILL TYPES:

FIL.U (Fill Up) - Fades up the channels in the scene one by one until they are all on, switches them off and repeats.

FIL.d (Fill down) - Fades out the channels one by one until they are all off, switches them on and repeats.

CASC (Cascade) - Fades up the channels in the scene one by one until they are all on, then fades them out from the beginning one by one, and repeats.

- NEW IN SOFTWARE VERSION "MASTERPIECE MAIN No.3.0" - 25-09-00 Continued

FOLLOW TYPES: These may have as many Scenes as conventional Scene Chases.
Caution - please read Note 1 below.

FOL.1 (Follow 1) - Carries one channel at a time from one scene to the next.

Typical use: instead of changing all the projectors' Colour Discs from Red to Green, or their Gobos from Gobo 1 to Gobo 2, together, change them one at a time.

FOL.2 (Follow 2) - Carries two channels at a time from one scene to the next.

Typical use: for Pans and Tilts to produce the "Slinky Effect". Make a number of scenes which place the Pans and Tilts of all the projectors on key points around the venue. Save the scenes with just the Pan and Tilt levels. Program these into a chase. FOL.2 will carry one beam at a time to the next scene and then on to the next scene. A superb effect, which normally takes too many scenes and too long to program, now becomes practical.

FOL.3 (Follow 3) - Carries three channels at a time from one scene to the next.

Typical use: for Red, Green and Blue channels of Intelligent Projectors. Make a number of RGB colour scenes. Save the scenes with just the RGB levels. Program these into a chase. FOL.3 will change the colour of one projector at a time to that of the next scene, and so forth. Once again, a superb effect which normally takes too many scenes and too long to program, now becomes practical.

Follow Types Note 1- For the Masterpiece to count channels correctly, EVERY scene used in a Follow Chase must contain all the channels in the chaseeven if it is only at 0.5% so it doesn't show. If a wanted channel is at 0% that channel will be skipped and the chase will get out of sequence.
Tip: Put all the channel levels for the wanted channels at 100%, reduce the Grand Master to 0.5%, save this to a Scene. Switch this scene on, you could use Set User Access Levels to disable its key to ensure it stays on while you program this chase. Now make all the scenes you need for your Follow Chase and then Program the Chase Sequence as usual.

Follow Types Note 2- One Shot stops on the last step of the last scene in forward, the first step of the first scene in reverse - very useful.

WAVEFORM TYPES: (Slope is not appropriate and is therefore disabled for Waveform Types.)

S.t.AL (Saw Tooth All) - All channels ramp up together, switch off and repeat.

S.t.UP (Saw Tooth Up) - All channels ramp up, switch off and repeat. The channels are spaced evenly around one cycle of waveform so they follow one after the other. Typical use: Projector Pans or Tilts.

S.t.dn (Saw Tooth down) - All channels fade down, switch on and repeat. The channels are spaced evenly around one cycle of waveform so they follow one after the other. Typical use: Projector Pans or Tilts.

tRIA (Triangle) - All channels ramp up, fade down again and repeat. The channels are spaced evenly around one cycle of waveform so they follow one after the other. Typical use: Projector Colour and Gobo Wheels, Dimmers.

SInE (Sine) - All channels follow a sine wave. The channels are spaced evenly around one cycle of waveform so they follow one after the other. Typical use: Projector Pans or Tilts, Irises.

COS (Cosine) - Like sine wave but shifted 90° in phase.

Typical use: if a Sine wave is used for Pan and a Cosine wave is used for Tilt, they have the same Speed and are switched on together (by saving them in an Environment and switching on the Environment) the beam will trace out a circle. The Pan and Tilt chases may need scaling using the chases' Keyboard Masters to circularise the orbit. A percentage of an All Pan or All Tilt scene could be added to provide an offset. This itself could be in a chase to move the circles around the venue. If the Pan and Tilt chase run at different speeds, shapes other than a circle can be produced (Lissajou's figures).

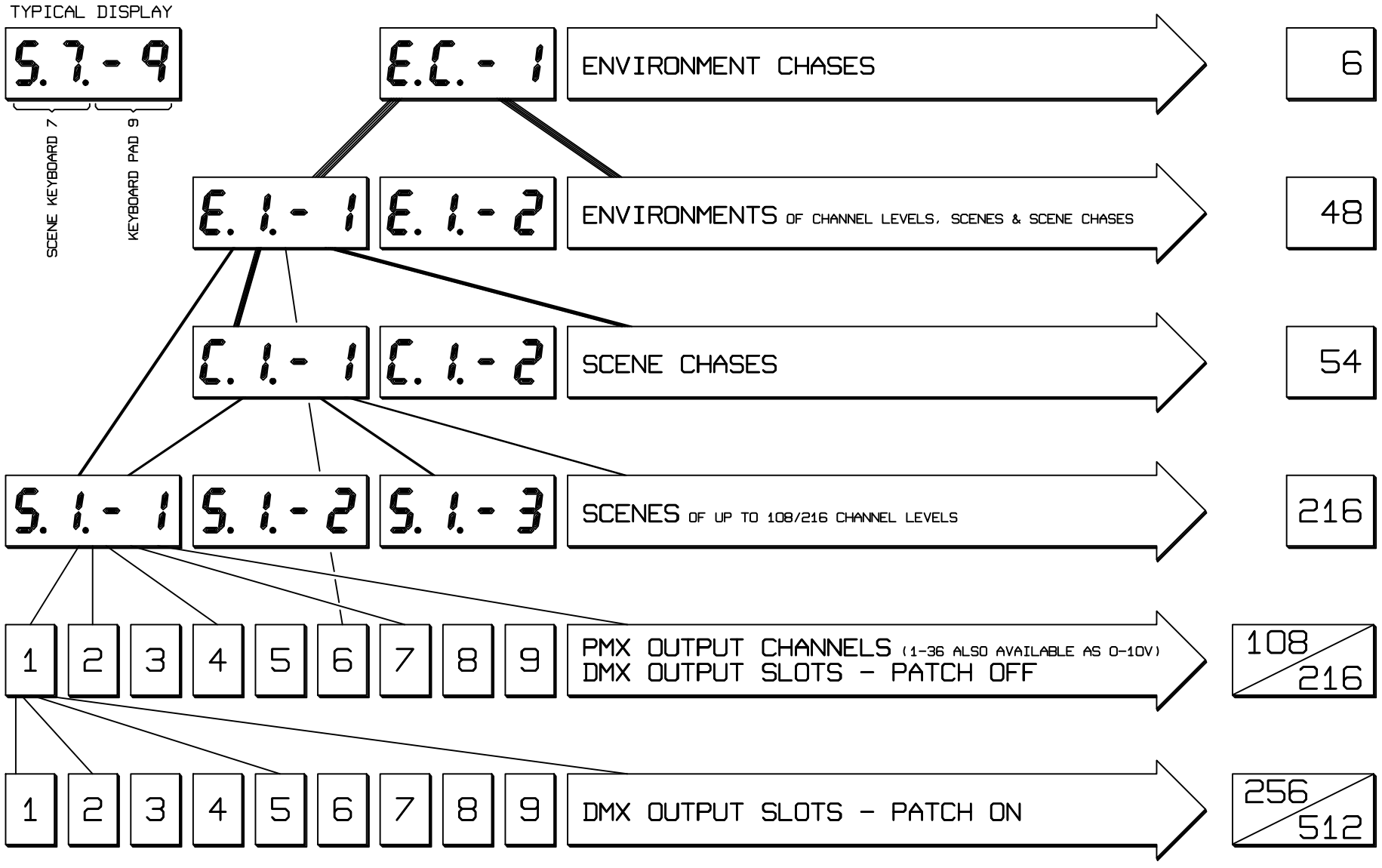
HAVE FUN!

MASTERPIECE	216	108	48	RU	RU2
Front Panel Features					
DMX Output Slots (Channels)	512	256	48	256	512
PMX Output Channels	216	108	48	108	216
Scenes	216	216	96	216	216
Scene Chases	54	54	24	54	54
Environments	48	48	22	48	48
Environment Chases	6	6	2	6	6
Output Pages	12	6	4		
Output/Keyboard-Master Sliders	18	18	12		
Output Monitor LEDs	18	18	12		
Keyboard Section					
Keyboard Keys	18	18	12		
Scene Keyboards	12	12	8		
Scene Chase Keyboards	3	3	2		
Environment Keyboards	3	3	2		
Environment Chase Keyboards	1	1	1		
Keyboard Action Keys					
Latch/Flash	✓	✓	✓		
Swap/Solo	✓	✓	✓		
Swap All Like Keyboards	✓	✓			
Theatre Section					
A-B Master Sliders	✓	✓			
In/Out Fade Time Sliders	✓	✓			
A-B Crossfade Mode Pad	✓	✓			
Grand Master Slider	✓	✓			
Output Control Keys					
Freeze Output	✓	✓			
Blackout/Restore	✓	✓	✓	✓	✓
Memory Card	✓	✓	✓	✓	✓
Card to Memory	✓	✓	✓	✓	✓
Memory to Card	✓	✓	✓	✓	✓
Other Keys / Functions					
Show Select	✓				✓
Set User Access Level	✓	✓	✓		
PMX - DMX Patch	✓	✓		✓	✓
Output Bank Select	✓				
Release Sliders	✓	✓	✓		
Slider Action	✓	✓	✓		
Sound to Light					
Circuits	✓	✓	✓	✓	✓
Monitor	✓	✓	✓	✓	✓
Programming Keys					
Save Output To Scene	✓	✓	✓		
Program Chase Sequence	✓	✓	✓		
Save Environment	✓	✓	✓		
Rec.Env.Chase In Real Time	✓	✓	✓		
Rec.Env.Chase Step Times	✓	✓			
Copy	✓	✓			
Screen Text Mode	✓	✓	✓		

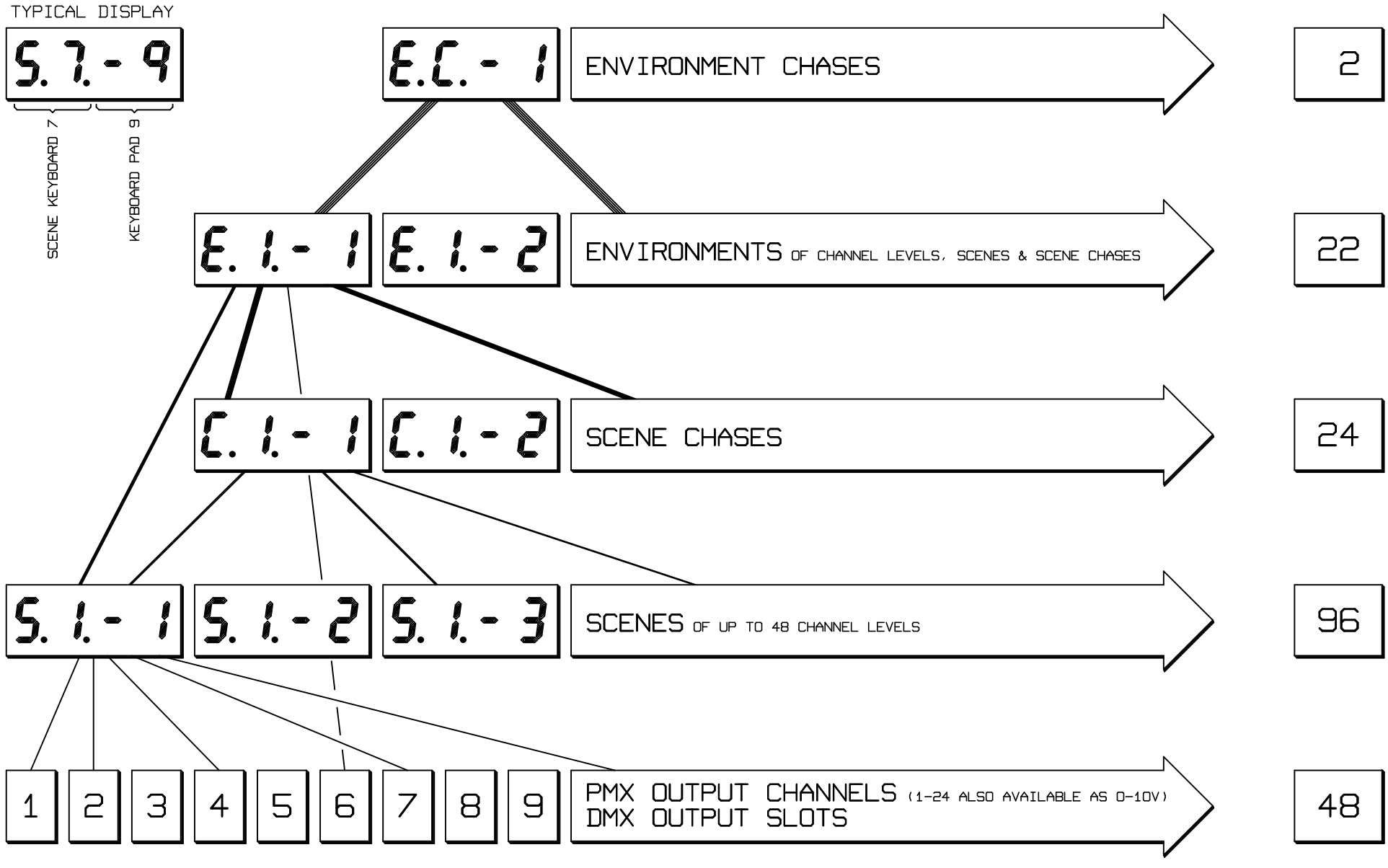
MASTERPIECE	216	108	48	RU	RU2
Chase Control					
Forward Manual Step	✓	✓	✓		
Reverse Manual Step	✓	✓	✓		
Chase Direction	✓	✓	✓		
Chase Step Source	✓	✓	✓		
Chase Type 1-Shot/Repeat	✓	✓			
Fade/Step Chase In	✓	✓			
Which Chase?/Engage Controls	✓	✓	✓		
Speed Slider	✓	✓	✓		
Slope Slider	✓	✓	✓		
BNC Connector for Lamp	✓	✓	✓		
4 Digit Display	✓	✓	✓	✓	✓
Joy Stick	✓	✓			
Mains					
On/Off Switch (on front panel)			✓	✓	✓
Mains					
On/Off Switch (on back panel)	✓	✓			
Supply Socket	✓	✓	✓		
Voltage Selector	✓	✓	✓	✓	✓
Mains Fuse	✓	✓	✓	✓	✓
Lamp Fuse	✓	✓	✓		
Analogue Outputs	1-36	1-36	1-24	1-18	1-18
PMX Output Sockets	2	2	2	2	2
DMX 512 Output Sockets	2	2	2	1	1
Audio Inputs					
Speaker Level Jack Sockets	2	2	2	2	2
Pre-Amp Level Jack Sockets	2	2	2	2	2
Microphone Level Jack Socket	1	1	1	1	1
PMX Remote Control	✓	✓			✓
Midi Remote Control					
In Socket	✓	✓		✓	✓
Thru Socket	✓	✓		✓	✓
Options Switch	✓	✓		✓	✓
Remote Control					
Input DIN Socket	✓	✓	✓	✓	✓
Dimensions					
Width	19"	19"	19"	19"	19"
Height	14"	14"	10.5"	1.75"	1.75"
Depth including plugs & sockets	6"	6"	6"	8"	8"
Designer 8U Case	✓	✓	✓		

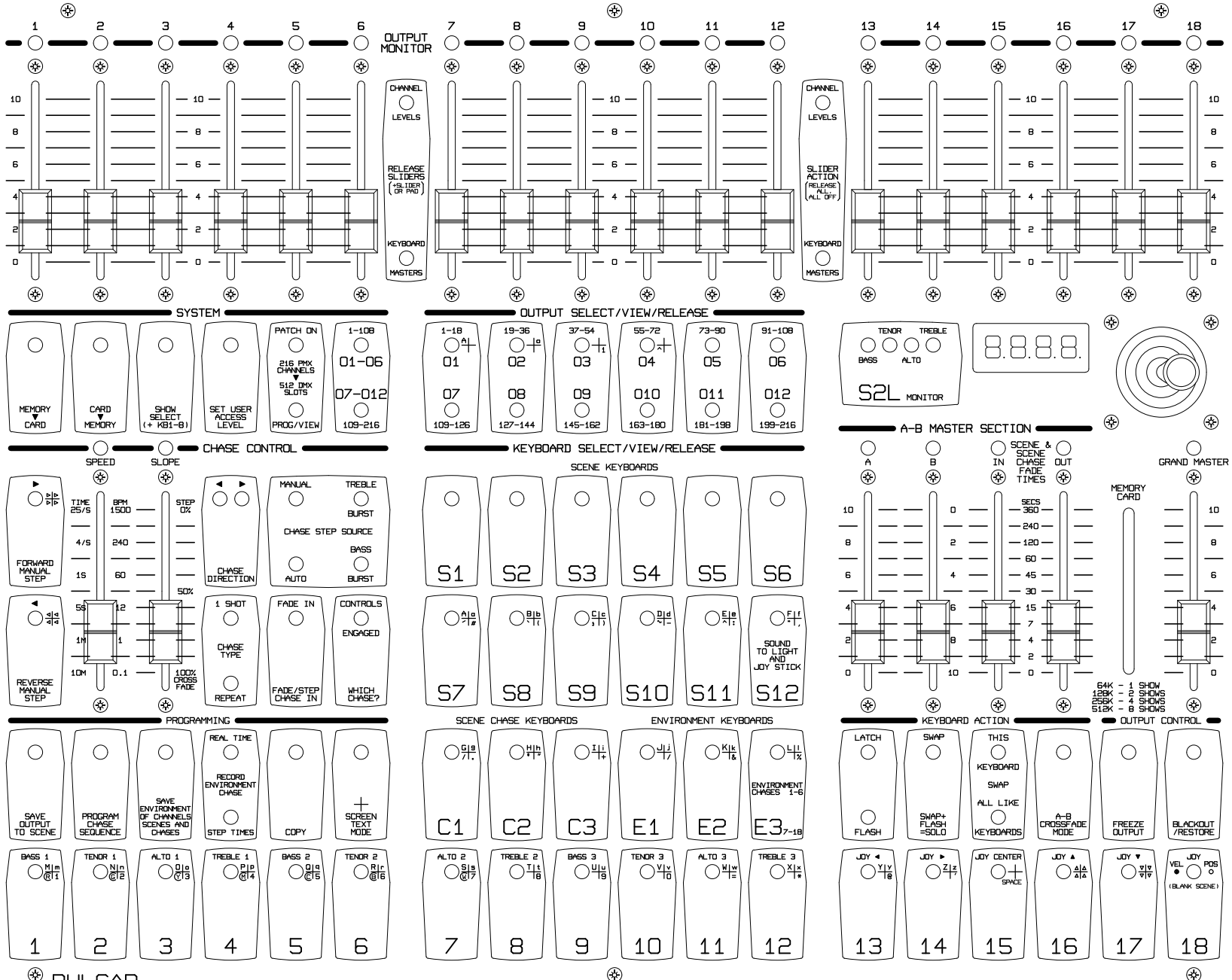
PULSAR

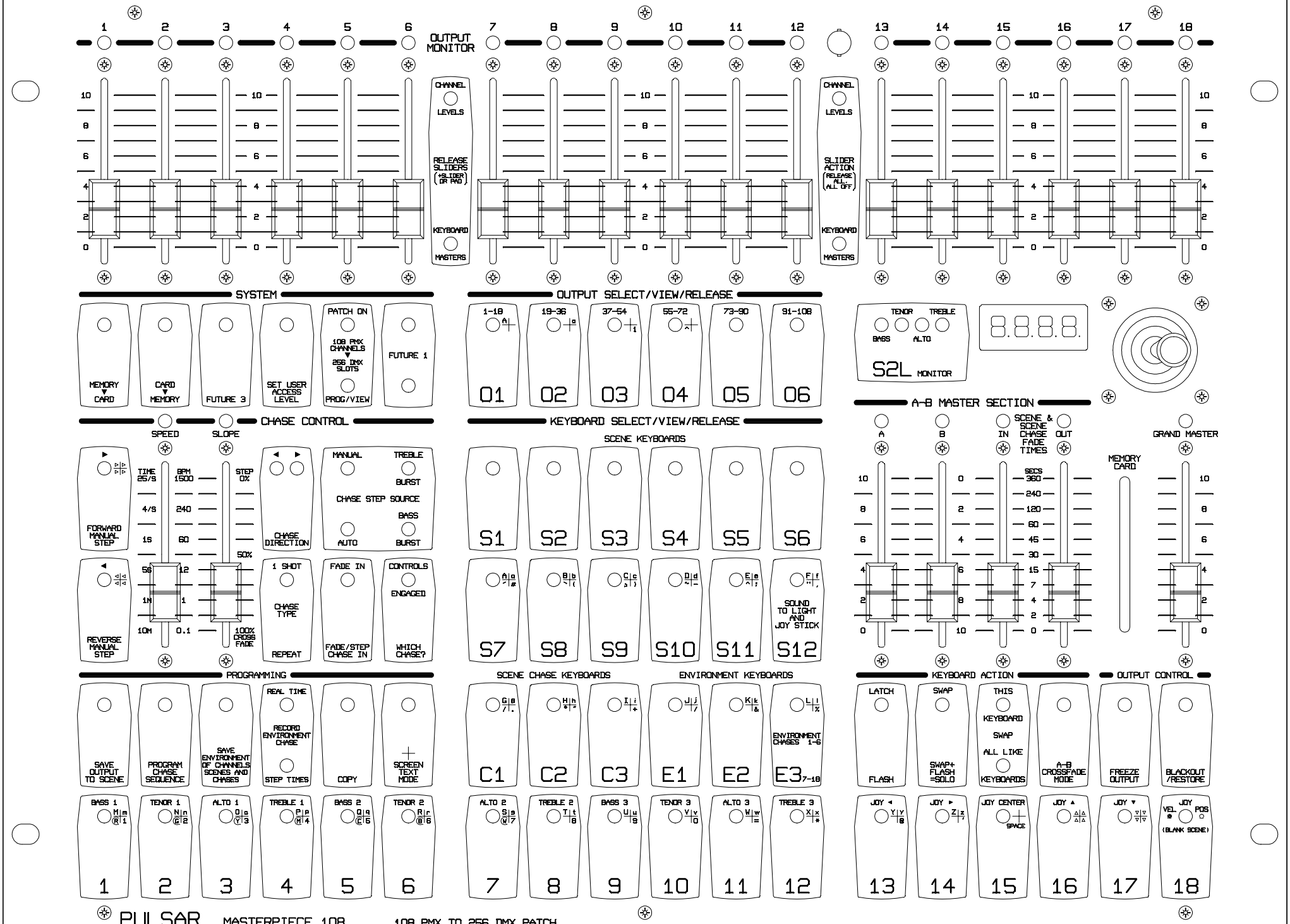
MASTERPIECE 108/216 HIERARCHY (WITH PMX – DMX PATCH FROM SOFTWARE VERSION NO.2.1)



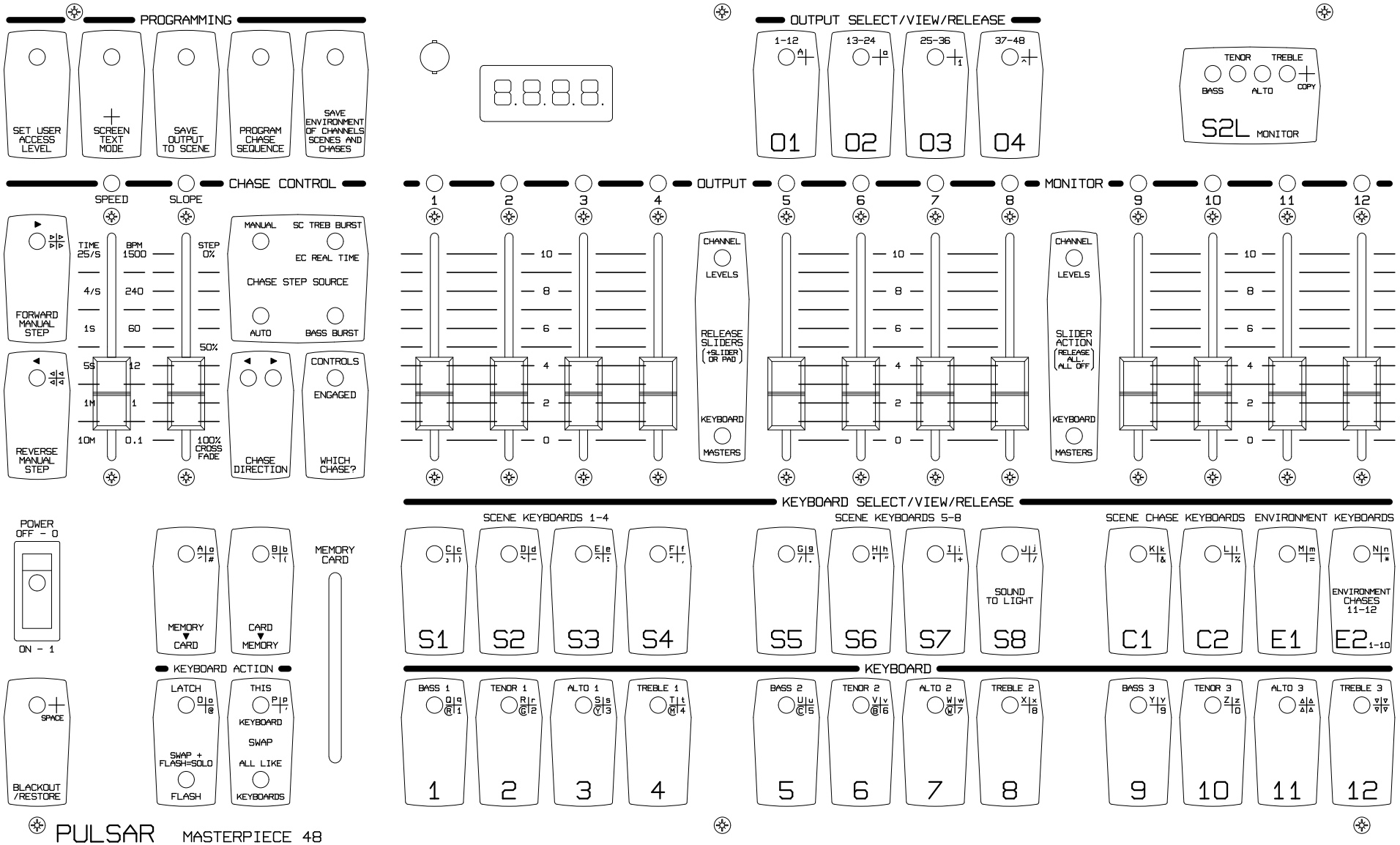
MASTERPIECE 48 HIERARCHY




1 2 3 4 5 6
OUTPUT MONITOR
7 8 9 10 11 12
13 14 15 16 17 18
CHANNEL LEVELS
RELEASE SLIDERS (+SLIDER OR PAD)
KEYBOARD MASTERS
CHANNEL LEVELS
SLIDER ACTION (RELEASE ALL, ALL OFF)
KEYBOARD MASTERS
SYSTEM
MEMORY ▼ CARD
CARD ▼ MEMORY
SHOW SELECT (+ KB1-8)
SET USER ACCESS LEVEL
PATCH ON
216 PMX CHANNELS ▼ 512 DMX SLOTS
PROG/VIEW
1-108
01-06
07-012
109-216
OUTPUT SELECT/VIEW/RELEASE
1-18 01 07 109-126
19-36 02 08 127-144
37-54 03 09 145-162
55-72 04 010 163-180
73-90 05 011 181-198
91-108 06 012 199-216
TENOR TREBLE BASS ALTO
S2L MONITOR
8.8.8.8.
A-B MASTER SECTION
A B IN SCENE & SCENE CHASE FADE TIMES OUT
SECS 360 240 120 60 45 30 15 7 4 2 0
MEMORY CARD
GRAND MASTER
64K - 1 SHOW
128K - 2 SHOWS
256K - 4 SHOWS
512K - 8 SHOWS
CHASE CONTROL
SPEED
SLOPE
FORWARD MANUAL STEP
REVERSE MANUAL STEP
TIME 25/S 4/S 1S 1M 10M
BPM 1500 240 60 1 0.1
STEP 0% 50% 100% CROSS FADE
CHASE DIRECTION
MANUAL TREBLE BURST
CHASE STEP SOURCE
BASS AUTO BURST
1 SHOT
CHASE TYPE
REPEAT
FADE IN
FADE/STEP CHASE IN
CONTROLS ENGAGED
WHICH CHASE?
KEYBOARD SELECT/VIEW/RELEASE
SCENE KEYBOARDS
S1 S2 S3 S4 S5 S6
S7 S8 S9 S10 S11 S12
SOUND TO LIGHT AND JOY STICK
PROGRAMMING
SAVE OUTPUT TO SCENE
PROGRAM CHASE SEQUENCE
SAVE ENVIRONMENT OF CHANNELS SCENES AND CHASES
REAL TIME
RECORD ENVIRONMENT CHASE
STEP TIMES
COPY
SCREEN TEXT MODE
SCENE CHASE KEYBOARDS
ENVIRONMENT KEYBOARDS
C1 C2 C3 E1 E2 E3 7-18
ENVIRONMENT CHASES 1-6
KEYBOARD ACTION
LATCH FLASH
SWAP SWAP+ FLASH =SOLO
THIS KEYBOARD SWAP ALL LIKE KEYBOARDS
A-B CROSSFADE MODE
OUTPUT CONTROL
FREEZE OUTPUT
BLACKOUT /RESTORE
BASS 1 TENOR 1 ALTO 1 TREBLE 1 BASS 2 TENOR 2
ALTO 2 TREBLE 2 BASS 3 TENOR 3 ALTO 3 TREBLE 3
JOY ◄ JOY ► JOY CENTER SPACE JOY ▲ JOY ▼
JOY VEL POS (BLANK SCENE)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
PULSAR MASTERPIECE 216 216 PMX TO 512 DMX PATCH



PULSAR MASTERPIECE 108 108 PMX TO 256 DMX PATCH


PROGRAMMING
SET USER ACCESS LEVEL
SCREEN TEXT MODE
SAVE OUTPUT TO SCENE
PROGRAM CHASE SEQUENCE
SAVE ENVIRONMENT OF CHANNELS SCENES AND CHASES
OUTPUT SELECT/VIEW/RELEASE
1-12
13-24
25-36
37-48
01
02
03
04
TENOR
TREBLE
BASS
ALTO
COPY
S2L MONITOR
CHASE CONTROL
SPEED
SLOPE
TIME 25/S
4/S
1S
5S
1M
10M
BPM 1500
240
60
12
1
0.1
STEP 0%
50%
100% CROSS FADE
FORWARD MANUAL STEP
REVERSE MANUAL STEP
MANUAL
SC TREB BURST
EC REAL TIME
CHASE STEP SOURCE
AUTO
BASS BURST
CHASE DIRECTION
CONTROLS
ENGAGED
WHICH CHASE?
OUTPUT
MONITOR
1
2
3
4
5
6
7
8
9
10
11
12
CHANNEL
LEVELS
RELEASE SLIDERS
(+SLIDER OR PAD)
KEYBOARD
MASTERS
SLIDER ACTION
(RELEASE ALL, ALL OFF)
KEYBOARD SELECT/VIEW/RELEASE
SCENE KEYBOARDS 1-4
SCENE KEYBOARDS 5-8
SCENE CHASE KEYBOARDS
ENVIRONMENT KEYBOARDS
S1
S2
S3
S4
S5
S6
S7
S8
SOUND TO LIGHT
C1
C2
E1
E2 1-10
ENVIRONMENT CHASES 11-12
POWER
OFF - 0
ON - 1
MEMORY ▼ CARD
CARD ▼ MEMORY
MEMORY CARD
KEYBOARD ACTION
LATCH
SWAP + FLASH=SOLO
FLASH
THIS KEYBOARD
SWAP ALL LIKE
KEYBOARDS
SPACE
BLACKOUT /RESTORE
KEYBOARD
BASS 1
TENOR 1
ALTO 1
TREBLE 1
BASS 2
TENOR 2
ALTO 2
TREBLE 2
BASS 3
TENOR 3
ALTO 3
TREBLE 3
1
2
3
4
5
6
7
8
9
10
11
12
PULSAR
MASTERPIECE 48

CONTENTS

Page		
1	CONTENTS	
2	TERMINOLOGY	- GLOSSARY OF TERMS
3	SPECIFICATION	
4.1	BACK PANEL	- Diagram
4.2		- Inputs, Outputs, Fuses and Switches
5	FRONT PANEL	- THE LEDS, SLIDERS AND PADS, THEIR FUNCTIONS AND USE
0		- Diagram
5.1		- The LEDs - general information
5.1		- Blinking of the LEDs
5.1		- The 4 digit display
5.1		- The Output Monitor LEDs
5.1		- The Output Select/Release/View pads
5.2		- The 18 Sliders, Channel Level & Keyboard Master mode
5.3		- Release Sliders
5.3		- The Keyboard
5.4		- The 4 Keyboard Action pads
5.4		- The 18 Keyboard Select/Release/View pads
5.4		- Scene Keyboard No.12
5.5	Programming pads	- Save Output To Scene - Making/Modifying/Deleting
5.6	Programming pads	- Program Chase Sequence - Making Scene Chases
5.7		- The Chase Controls
5.8	Programming pads	- Save Environment of Channel Levels, Scenes & Chases
*		- A-B crossfade controls
5.9		- Various other pads
5.9		- Joystick
6.1	PROGRAMMING	- General, Concept
6.1		- Strobes
6.1		- Sound-to-light
6.1		- Intelligent lighting
6.2		- The Joystick
*		- Theatre
*		- Environmental Control
7	OPERATION	- Concept
*		- Theatre
*		- Environmental Control
7	OTHER INFORMATION	
	APPENDIX 1	- PULSAR RS232 DATA TRANSMISSION FORMAT
*	APPENDIX 2	- REMOTE CONTROL BY RS232
	APPENDIX 3	- REMOTE CONTROL BY MIDI
	APPENDIX 4	- USING THE REMOTE CONTROL SOCKET
	PROGRAM RECORD SHEETS	
		- Output Channel Assignments
		- Scenes
		- Scene Chases
		- Environments
		- Environment Chases

***** This feature will be available in future software upgrades.

BUTTON - See PAD.

BLINKING - A LED which briefly flashes to FULL or ZERO brightness once every 2 seconds to attract your attention, as a prompt requesting a key press or as a warning or to show that its slider is engaged.

CARD - A credit card sized device which fits into a slot in the front panel, for saving/exchanging/loading the contents of the Masterpiece's memory for backup, changing shows and transfer between Masterpieces.

CHANNEL - 1 of the 108 outputs from the Masterpiece which could control a spotlight, motor, strobe, another controller, intelligent spotlight ch.,etc.

CHANNEL LEVEL - The level of an output channel. The resolution is 8 binary bits so there are 256 possible levels between 0 and 100%.

DMX512 - A serial data transmission system for sending the channels levels of up to 512 channels.

ENGAGED - When a slider is actually "linked" or "connected" to a level it can control. E.G. the first of the 18 sliders may be engaged to have overriding control of the Level of Channel 1.

ENVIRONMENT - A combination of a number of Channel Levels, Scenes at various levels and Scene Chases at various levels, saved onto one Keyboard pad of an Environment Keyboard for recall whenever required.

ENVIRONMENT CHASE - A chase sequence whose steps are Environments - a complete lighting performance on one button.

KEY - See PAD.

KEYBOARD - the bottom row of 18 pads.

KEYBOARD MASTER - One of the 18 Sliders being used in this mode can take overriding control of a Keyboard pad to allow a 0-100% level rather than the on/off action of the pad.

LED - Light Emitting Diode.

PAD - Metal TOUCH sensitive PAD on front panel for use as a fast switch.

PAGE - or Block or Window, which allows you to see 18 of the 108 channels.

RAM CARD - See Card.

RELEASE - disengage a slider(s) so that it no longer has overriding control of a Channel Level or Keyboard Master Level.

RS232 - A serial data transmission system. See appendices for full spec.

VIEW - VIEW the level of a Channel, Keyboard Master or other slider by putting its value into the 4 digit display.

SCENE - a snap shot, recorded in memory, of the levels of the 108 channels.

SCENE CHASE - a means of stepping automatically through selected scenes.

SLAVE - another Masterpiece which controls an extra 108 channels under the direction of a master Masterpiece.

TOUCH PAD - Metal TOUCH sensitive PAD on front panel used as a fast switch.

MASTER - a slider which controls the levels of many channels simultaneously.

MIDI - Musical Instrument Digital Interface - a serial data transmission system.

A 108 channel memory desk to control any piece of equipment able to accept 0-10v analogue or RS232 or DMX512 serial digital inputs.

Designed for the control of:

1. Theatre Lighting
2. Band Lighting
3. Discotheque Lighting
4. Intelligent Spotlights
5. Environmental Lighting

A universal,
fully programmable,
future proofed controller.

STRUCTURE:
108 Channels - add Masterpieces, switched to slave mode, to expand 108 channels at a time, without theoretical limit.
216 Scenes of the 108 channel levels with fade in and out times
54 Scene Chases, may run concurrently, with individual speeds, slopes etc.
48 Environments of Channel Levels, Scenes and Scene Chases
6 Environment Chases - each a complete light show on one button.

CONCEPT: The Masterpiece should feel familiar, with features from our Touch Panel, Control Desks, Rock Desks and Modulators. Then, as you start to learn and understand more about the Masterpiece's power and versatility as a fully programmable controller, we hope you will agree that it really deserves its name.

SPEED: The ultimate in both programming and operation thanks to its conceptual simplicity and having one Touch Pad for every requirement.

FROM A THEATRICAL POINT OF VIEW: Fully automatic crossfades or manual crossfades using the A and B masters. Fade In and Fade Out time sliders to create/override the values stored with each scene. Add in any amount of the other 216 scenes at any time. Individual, overriding control of the 108 channels always available. Grand Master. Black Out.

OUTPUTS: Channels 1-36 available as 0-10v analogue.
Channels 1-108 transmitted in both RS232 and DMX formats - Pulsar Universal Interfaces are available to translate RS232 or DMX (or MIDI) signals into 36 more channels of 0-10v analogue each.
MIDI THRU socket.

INPUTS: Audio for Sound-to-Light and Bass and Treble Chases.
RS232 and MIDI for total remote control of ANY Touch Pad or Slider.
DIN socket for Remote Environment/Environment Chase Control.

SOUND-TO-LIGHT: Pulsar Modulator's Sound-to-Light circuits built in, 3 zones of 4 channels, each patchable at any level over the 108 channels.

SECURITY: Using his security code, the "Programmer" may deny access by the "Operator" to any touch pad or slider.

OTHERS: 70 Touch Pads, 25 Sliders, 108 LEDs:
18 Keyboards of 18 pads, Latch/Flash/Swap/Solo/A-B Master Keyboard modes, 4 Digit Display, Sound-to-Light Monitor, Joystick with position/velocity, Freeze Output, Master/Slave desk, Chase section: Manual Step Fwd/Rev, Speed, Slope, Bass/Treble Burst, One-Shot/Repeat, Use Scene Fade Times, Record light show in Real Time, Copy .....

MEMORY: Internal memory non volatile. RAM card for backup, changing shows and transfer between Masterpieces.

SIZE: Width 19", Height 14" (8U), Depth 3" (6" including plugs & sockets).

MOUNTING: Free standing in its own specially designed case.
Console mounting in its own specially designed case. 19" Rack mounting.

MAINS

OFF-0 ON-1

100-120/200-240V
50-60H z 15 WATTS

VOLTAGE SELECTOR

MAINS FUSE F 1A 5x20 MM

LAMP FUSE F 1A 5x20 MM

RS232 REMOTE CONTROL

(SEE APPENDIX TWO)

IN THRU

PIN CONNECTIONS:
1=SCREEN
2+3=SIGNAL

DIGITAL DMX 512 OUTPUT(S)

PUSH PUSH

PIN CONNECTIONS:
1=SCREEN
2=SIGNAL −
3=SIGNAL +
4=NO CONNECTION
5=NO CONNECTION

DIGITAL PMX OUTPUT(S)

PUSH

TO LIGHTS ON STANDARD DMX CABLES

PIN CONNECTIONS:
1=SCREEN
2=SIGNAL
3=SIGNAL
4=NO CONNECTION
5=NO CONNECTION

TO SCREEN DRIVER

PIN CONNECTIONS:
1=SCREEN
2+3=SIGNAL

NOTES

CLAY PAKY & PULSAR PRODUCTS AUTO SWITCH BETWEEN PMX AND DMX

PMX
PULSAR MULTIPLE X
(RS232/423)
NO LINE TERMINATION REQUIRED.
BRANCHING OK.
(SEE APPENDIX ONE)

DMX
TERMINATE LINE WITH 100-120R.
BRANCHING NOT OK.

0-10V REMOTE CONTROL

(SEE APPENDIX FOUR)

REMOTE MANUAL STEP

LVS
LOW VOLTAGE SUPPLY
18-25VDC

ANALOGUE 0-10V OUTPUTS

31-36 25-30 19-24 13-18 7-12 1-6

CHANNELS 1-36

SERIAL NO.

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MIDI REMOTE CONTROL

(SEE APPENDIX THREE)

MIDI THRU

SIGNAL SIGNAL
EARTH

MIDI IN

SIGNAL SIGNAL
EARTH

AUDIO INPUT/THRU

SPEAKER LEVEL
2.5V-100V RMS
ZIN=2M2

NOTE: THIS UNIT WILL NOT FUNCTION CORRECTLY UNLESS SUPPLIED WITH THE COMPLETE LEFT AND RIGHT AUDIO SIGNALS

PRE-AMP LEVEL
0.1V-2.5V RMS
ZIN=47K

STEREO JACK SOCKETS
OBSERVE POLARITY

MICROPHONE INPUT

MONO JACK SOCKET

MIDI OPTIONS

EG.TO RESPOND TO MIDI CHANNEL 5
SELECT 1+4=5

CHANNEL SELECT

EG.TO RESPOND TO MIDI CHANNEL 12
SELECT 4+8=12

EMC DIRECTIVE
89/336/EEC

LOW VOLTAGE DIRECTIVE
73/23/EEC

MADE IN EUROPE BY:
PULSAR LIGHT OF CAMBRIDGE LTD.,
HENLEY ROAD, CAMBRIDGE,
CB1 3EA, UK.

TEL: 44 (0)1223 366798
FAX: 44 (0)1223 460708
HTTP://WWW.PULSARLIGHT.COM

MAINS

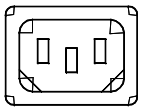
VOLTAGE SELECTOR



FUSE F 1A 5x20MM

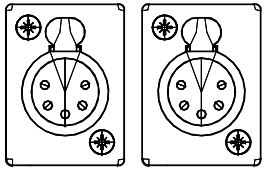


100-130/200-250V
50-60Hz 15 WATTS





DIGITAL DMX 512 OUTPUT(S)



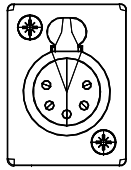
CHANNELS 1-48, TO LIGHTS

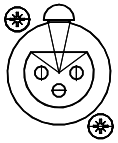
PINS: 1=SCREEN
2=SIGNAL -
3=SIGNAL +
4=NO CONNECTION
5=NO CONNECTION

DIGITAL PMX (PULSAR RS232/423) OUTPUT(S)

TO LIGHTS ON STANDARD DMX CABLES

PINS:
1=SCREEN
2=SIGNAL
3=SIGNAL
4=NO CONNECTION
5=NO CONNECTION





TO SCREEN DRIVER

PINS:
1=SCREEN
2+3=SIGNAL

CHANNELS 1-48

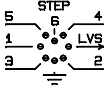
NOTE: CLAY PAKY & PULSAR PRODUCTS AUTO SWITCH BETWEEN PMX & DMX
PMX - NO LINE TERMINATION REQUIRED. BRANCHING OK.(APPENDIX ONE)
DMX - TERMINATE LINE WITH 100-120R. BRANCHING NOT OK.

0-10V REMOTE CONTROL



(SEE APPENDIX FOUR)

REMOTE MANUAL STEP



LVS
LOW VOLTAGE SUPPLY
18-25VDC

ANALOGUE 0-10V OUTPUTS



19-24



13-18

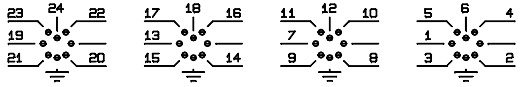


7-12



1-6

CHANNELS 1-24

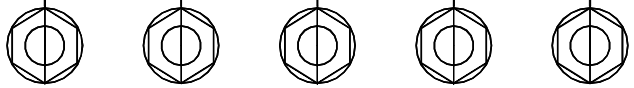


AUDIO INPUT/THRU

SPEAKER LEVEL

PRE-AMP LEVEL

MICROPHONE INPUT



2.5V-100V RMS
ZIN=2M2

0.1V-2.5V RMS
ZIN=47K

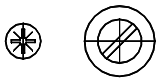
STEREO JACK SOCKETS - OBSERVE POLARITY

MONO JACK SOCKET

NOTE: THIS UNIT WILL NOT FUNCTION CORRECTLY UNLESS SUPPLIED WITH THE COMPLETE LEFT AND RIGHT AUDIO SIGNALS.

LAMP FUSE

F 1A
5x20MM



MADE IN EUROPE BY:
PULSAR LIGHT OF CAMBRIDGE LTD.,
HENLEY ROAD, CAMBRIDGE,
CB1 3EA, UK.

TEL: 44 (0)1223 366798
FAX: 44 (0)1223 460708
HTTP://WWW.PULSARLIGHT.COM

CE

EMC DIRECTIVE
89/336/EEC

LOW VOLTAGE DIRECTIVE
73/23/EEC

SERIAL NO.



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MAINS SUPPLY - 100-130/200-240V, 50-60Hz, single phase, 15 watts max.

MAINS VOLTAGE SELECTOR - MUST BE set for 120V / 240V.

MAINS SWITCH - With indicator neon.

MAINS & LAMP FUSES - 1 Amp, 5 x 20 mm.

MAINS SOCKET - IEC 22, 3 pin, male socket (kettle socket). A moulded lead with IEC female socket to British 13amp plug is provided. To fit another type of plug, cut off the British 13amp plug and observe the following colour code: Brown = Live (Hot), Blue = Neutral, Green/Yellow = Earth (Ground). The Masterpiece must be earthed.

ANALOGUE OUTPUT DIN SOCKETS - The first 36 of the 108 channels are available here as 0-10v analogue signals. There are 6 DIN sockets, 6 channels each. Pin connections: Pin 1 not used, 2 = earth (ground), 3-8 = channels 1-6, 7-12, etc. - as printed on the back panel.
The outputs are via isolating diodes so they may feed the same equipment as other controllers - the highest taking priority.

DMX512 DIGITAL OUTPUT 5 PIN XLR SOCKETS - All 108 channels levels are transmitted in the DMX512/1990 serial digital format to any device capable of receiving it. Use twin core screened cable. Pin connections:
Pin 1 = Screen Earth, Pin 2 = Signal-, Pin 3 = Signal+.

NOTE: The end of **the DMX line MUST ALWAYS be terminated** with a 100 ohm resistor connected between Signal+ and Signal-. This resistor can conveniently be mounted in a 5 pin XLR plug which should be inserted in the last device on the DMX line.

RS232 DIGITAL OUTPUT 3 PIN XLR SOCKETS - All 108 channels levels are transmitted in Pulsar's RS232 serial digital format (full details in Appendix 1) to any device capable of receiving it which include Clay Paky Intelligent Spotlights, Pulsar Universal Interfaces for conversion to 0-10v analogue channels, 36 channels per Interface, computers etc.
Pin 1 = Earth, Pins 2 and 3 = signal. Use single core screened cable.
This data stream also contains key press and slider move information to drive a slave Masterpiece.

*** RS232 DIGITAL INPUT/OUTPUT 3 PIN XLR SOCKETS**
For use by Slave Masterpieces. The signal from the Master Masterpiece or the previous Slave Masterpiece enters here and may link on to another Slave or proceed to the lights or other receiving equipment. A computer could control the Masterpiece remotely via this input - see Appendix 2 protocol.
Pin 1 = Earth, Pins 2 and 3 = signal. Use single core screened cable.

AUDIO INPUT SOCKETS
1. One Microphone 1/4" mono jack socket
2. Two Pre-amp level (0.1v - 2.5v RMS) 1/4" stereo jack sockets (in/out)
3. Two Hi level (2.5v - 100v RMS) 1/4" stereo jack sockets (in/out)

Please note, when feeding a signal from a stereo system, both left and right audio signals must be supplied to the Masterpiece to produce faithful Sound-to-Light.

*** MIDI IN** - for total remote control of ANY Touch Pad or Slider.
See Appendix 3 for protocol.

MIDI THRU - retransmits the MIDI IN signal to the next device in the MIDI signal chain.

*** MIDI SELECTOR SWITCH**

*** REMOTE CONTROL DIN SOCKET** - for Environments and Environment Chases.

***** This feature will be available in future software upgrades.

Many of the sections that follow also refer to other sections, so you may find it easier to read quickly through all of them to get a rough idea of the contents and then re-read them more carefully.

THE LEDs - GENERAL INFORMATION - four colours - Green, Yellow, Amber and Red are used to distinguish different functions. Some LEDs, the 18 Keyboard LEDs for example, change colour to match their function.

Green - Scene Keyboards, Scene Keyboard Select, Save Output To Scene.
Yellow - Scene Chase Keyboards, Keyboard Select and Chase Control LEDs.
Amber - Environment chases.
Red - Environment Keyboards, Environment Keyboard Select, Save Environment, Output Monitor Leds and other important functions.

BLINKING OF THE LEDs - Some LEDs can blink briefly to FULL or ZERO, once every two seconds, to attract your attention for the following reasons:

1. As a warning e.g. Black Out, Grand Master less than 100%.
2. As a prompt if the required key has not been pressed within about 5 secs.
3. The Output Monitor LEDs blink if the Channel Levels are being overridden by a slider level.
4. The Keyboard LEDs blink if their levels are being overridden by slider levels.

THE 4 DIGIT DISPLAY is used to display a wealth of information:

1. Pairs of numbers for matching a slider's position to the stored level for a smooth pick up by the slider. The current value is shown on the left, the slider position on the right.
2. Levels from 0.0 to 100.0% with the full 256 possibilities all shown.
3. Time from 0.00 to 360.0 seconds for Manual Slope, Fade In and Out Times.
4. Beats Per Minute from 0.10 to 1500 for the Speed control.
5. Pairs of numbers for the X and Y values of the Joystick.
6. Pairs of numbers for the A and B Master levels.
7. Numerous four letter words are displayed as well as possible for this type of display - a little imagination is sometimes required!

N.B. When only two digits are available to display the number 100, the Roman number "C" is used.

THE OUTPUT MONITOR LEDs - the 18 red LEDs along the top edge.
These allow you to see the levels of a ***page*** of 18 of the 108 output channels. Use the 6 Output Select pads to choose which ***page*** or ***window*** of 18 you are looking at: 1-18, 19-36, 37-54, 55-72, 73-90 or 91-108.

THE OUTPUT SELECT/VIEW/RELEASE PADS - 6 pads with the following uses:

1. To **SELECT** which ***page*** of 18 output channels (1-18, 19-36 etc.) the **Output Monitor Leds** are displaying and which **18 Channel Levels** the **18 Sliders** are able to **adjust/view/release**.
2. To **VIEW** the level of an output channel - two methods:

a. While keeping a finger pressed on one of these 6 pads, move the slider of the channel whose level you wish to view, its level will be displayed in the 4 Digit Display without changing that level.

b. ***** While keeping a finger pressed on one of these 6 pads, press one of the 18 Keyboard pads - the channel number (1-108) will be displayed until you remove your finger from the Keyboard pad when the Channel Level will be displayed.

3. To **RELEASE** all/any slider(s) engaged to Channel Levels within a page of 18 output channels, keep one of these 6 pads pressed and at the same time press the RELEASE SLIDERS pad.

***** This feature will be available in future software upgrades.

THE 18 SLIDERS - Have two functions:

1. CHANNEL LEVEL mode - to adjust the levels of the 108 Output Channels,

2. KEYBOARD MASTER mode - to adjust the levels of Scenes, Scene Chases, Environments or Environment Chases instead of using the Keyboard, which can only switch them off or on.

The LEDs in the **SLIDER ACTION** pad and **RELEASE SLIDERS** pad indicate whether the 18 sliders are controlling **CHANNEL LEVELS** or are operating as **KEYBOARD MASTERS.**

To change modes:

a. Pressing the **SLIDER ACTION** pad will **TOGGLE** mode,
b. Pressing any of the **6 OUTPUT SELECT** pads switches to **CHANNEL LEVELS**
c. Pressing any of the **18 KEYBOARD SELECT** pads switches to **KEYBOARD MASTERS**

Example of use - change the level of channel no.12:

1. Press Output Select pad no.1 to select channels 1-18 and CHANNEL LEVELS mode.

2. Move slider no.12, a pair of numbers will appear in the display, on the left is the current level of channel no.12, on the right is the slider position which changes as you move it.

3. When the pair of numbers in the display match, the slider becomes ***engaged*** to the channel and you now have ***overriding*** control of its level.

4. Output monitor LED no.12 will change with the slider position but it will also BLINK to show that its level is being overridden by the slider rather than being controlled by any scene or chase that may be active.

5. To ***release*** control of channel 12's level from the slider back to any active scenes and chases, keep your finger on RELEASE SLIDERS then move slider no.12. See Release Slider section for alternative methods.

Example of use - change the level of Scene Chase no.3:

1. Press Keyboard Select pad ***Scene Chases no.1*** to select Scene Chases 1-18 and KEYBOARD MASTERS mode.

2. Move slider no.3, a pair of numbers will appear in the display, on the left is the current level of Scene Chase no.3, on the right is the slider position which changes as you move it.

3. When the pair of numbers in the display match, the slider becomes ***engaged*** to Scene Chase no.3 and you now have ***overriding*** control of its level.

4. Keyboard LED no.3 will change with the slider position but it will also BLINK to show that its level is being overridden by the slider rather than being controlled by any environment that may be active.

5. To ***release*** control of Scene Chase 3's level from the slider back to its pad or any active environment, keep you finger on RELEASE SLIDERS then move slider no.3. See Release Slider section for alternative methods.

PARKING SLIDERS - To put the 18 sliders to '0' for example, *without* affecting their Channel or Keyboard Master levels or Releasing them, keep a finger pressed on any of the 6 Output Select OR 18 Keyboard Select pads while moving the slider(s). This is equivalent to VIEW.

RELEASE SLIDERS - The pad between sliders 6 and 7. Use it to disengage sliders from having overriding controlling of CHANNEL LEVELS or KEYBOARD MASTERS in any of these four ways:

1. **RELEASE ONE SLIDER:**

a. Firstly ensure that the required **OUTPUT SELECT** pad or **KEYBOARD SELECT** pad is selected and ensured that **SLIDER ACTION** is set to CHANNEL LEVELS or KEYBOARD MASTERS as required.

b. While keeping a finger on **RELEASE SLIDERS,** move the slider you wish to release. More sliders may be released at the same time.

2. **RELEASE UP TO 18 SLIDERS** - while keeping a finger on **RELEASE SLIDERS,** press the required **OUTPUT SELECT** pad to release up to 18 CHANNEL LEVELS from overriding slider control OR the required **KEYBOARD SELECT** pad to release up to 18 KEYBOARD MASTERS from overriding slider control. More OUTPUT PAGES or KEYBOARDS may be released at the same time.

3. **RELEASE ALL ENGAGED SLIDERS - METHOD 1** - while keeping a finger on **RELEASE SLIDERS,** wipe your finger over all **6 OUTPUT SELECT** pads and all **18 KEYBOARD SELECT** pads.

4. ***RELEASE ALL ENGAGED SLIDERS - METHOD 2** - while keeping a finger on **RELEASE SLIDERS,** press the **SLIDER ACTION** pad.

The **4 DIGIT DISPLAY** will initially show "rEL'", then count the number of engaged sliders released. When you finally remove your finger from the **RELEASE SLIDERS** pad, it will display "done". If none have been released or no engaged sliders have been found to release, the final display will be "CNCL".

THE KEYBOARD - the bottom row of 18 pads.

These are used to switch on or off the Scenes / Scene Chases / Environments / Environmental Chases.
There are 18 monitor LEDs in the Keyboard pads which change colour to suit the function of the Keyboard:

Green for the 12 Scene Keyboards,
Yellow for the 3 Scene Chase Keyboards,
Red for the 3 Environment Keyboards,
Amber for the Environment Chases (Pads 1-6 of Environment Keyboard 3).

A Keyboard Pad can switch on a Scene at 100%. Should you want to fade that Scene up to 50% for example, then this can be done by putting the 18 sliders in KEYBOARD MASTER mode and using the corresponding slider instead. The Keyboard Pad's monitor LED will fade up to 50% but will also blink to indicate that the slider has overriding control of the Scene's Level. The same is also possible of course for Scene Chases, Environments and Environment Chases. To return control back to the pad or a program, the slider must be ***released*** - see RELEASE SLIDERS.

Other uses for the 18 Keyboard Pads:

1. During programming, to select the destination of a Scene / Scene Chase / Environments / Environment Chase.
2. During programming of Scene Chases, to enter the Scenes that make the steps of the chase.
3. ***For viewing, Channel Number + Level, Scene, Scene Chase, Environment, numbers + levels, fade timers etc.
4. ***To engage the chase controls to a particular chase without switching that chase on or off.
5. ***Entering your security code.

Four Digit Display: e.g. "C1-7" = Scene Chase Keyboard 1, Pad 7.

***** This feature will be available in future software upgrades.

THE 4 KEYBOARD ACTION PADS:
Latch/Flash
Swap - on/off.
Swap - This Keyboard/All Like Keyboards - only available when SWAP is on.
*** A - B Crossfade Mode**

In the 4 Digit Display you will see: Ltch/FLSH, SWAP/SOLO, ALL/thIS, A-b/OFF

Each **Keyboard** may have the following **Action**:
FLASH - only the pad(s) pressed are on.
LATCH - the pads toggle ON/OFF or OFF/ON when touched.
Flash + Swap = SOLO - only the pad(s) pressed are on,
any others are temporarily turned off while pad(s) are pressed.
Latch + Swap = SWAP - only the last pad touched is on, any others are permanently turned off.

If the **This Keyboard/All Like Keyboards** pad is switched to All Like Keyboards mode, then the SWAP or SOLO action takes place across any Keyboard which is also switched to the same mode.

*** A - B Crossfade Mode** - Display: "A-b" / "OFF"

The action of the Keyboard changes allowing you to select the next scene (red) to fade in using the A or B master sliders. The current one is green but ready to be faded out. To use the fade in and fade out times stored with each scene, the Forward or Reverse Manual Step pads are used.
More details to follow when this part of the software is implemented.

THE 18 KEYBOARD SELECT/RELEASE/VIEW PADS
The Masterpiece has 18 Keyboards with 18 pads each (324) - for reasons of practicality you can only *see* one Keyboard at a time! There are:

12 Scene Keyboards - giving 216 Scenes
3 Scene Chase Keyboards - giving 54 Scene Chases
3 Environment Keyboards - giving 48 Environments + 6 Environment Chases
on Environment Keyboard 3, pads 1-6 (7-18 are 12 more Environments).

The 18 Keyboard Select/View/Release pads - have the following uses:
1. To **SELECT** which of the 12 Scene, 3 Scene Chase or 3 Environment Keyboards, the 18 Keyboard pads are working, their LEDs are monitoring AND which 18 KEYBOARD MASTERS the 18 SLIDERS are able to adjust/view/ release.

2. To **VIEW** the level of a KEYBOARD MASTER - two methods:

a. While keeping a finger pressed on one of the 18 Keyboard Select pads, move one of the 18 sliders corresponding to the S/SC/E/EC whose level you wish to view, its level will be displayed in the 4 Digit Display, without changing it.

b. ***** While keeping a finger pressed on one of the 18 Keyboard Select pads, press one of the 18 Keyboard pads - the Keyboard and Keyboard pad number (e.g. E3-9) will be displayed until you remove your finger from the Keyboard pad when the S/SC/E/EC's Level will be displayed.

3. To **RELEASE** all/any slider(s) engaged to KEYBOARD MASTERS within a Keyboard, keep one of the 18 Keyboard Select pads pressed and at the same time press the RELEASE SLIDERS pad.

4. ***** To engage the chase controls to a particular chase without switching that chase on or off.

Scene Keyboard No.12 - S2L is a special Scene Keyboard for:

1. Patching 3 Real Level Zones of 4 channel Sound-to-Light through to the 108 output channels,
2. Crossfading between 4 Scenes using the Joystick,
3. ***** Choosing Velocity or Position mode for the Joystick.
See Programming Section for more detail.

***** This feature will be available in future software upgrades.

SAVE OUTPUT TO SCENE saves the Levels of the 108 Output Channels onto a Scene pad. WYSIWYG - What You See Is What You Get - what you see on the output is what you save as a Scene. There are 12 Scene Keyboards (see KEYBOARD SELECT on page 5.4), Scene Keyboard 1 + Keyboard Pads 1-18 stores Scenes 1-18, Scene Keyboard 2 stores Scenes 19-36 etc., making a total of 216 scenes. However, we find it more useful to think in terms of Scene Keyboard + Pad number - as shown in the 4 Digit Display - e.g. "S1-1", "S3-7", "S9.12" etc. and this is the format we have used for the program record sheets we have provided at the back of this folder. It is very important that you fill in these sheets as you go - it is difficult to remember what is saved on each pad a few days later.

Creating Scenes from scratch

1. Put all Channel Levels to zero by:
a. Putting all 18 Keyboards into FLASH mode.
b. Releasing all sliders (see the RELEASE section on page 5.3).
c. Checking that this has allowed all the Output Channel Levels to fall to zero by scanning across the 6 Output Select pages and watching the Output Monitor LEDs.
2. Use the 18 Sliders in Channel Level mode and the 6 Output Select pads, to set the 108 Output Channels to the levels you require for your Scene.
3. Press the Save Output To Scene pad.
4. Select one of the 12 Scene Keyboards (if different from the current one).
5. Select one of the 18 Keyboard pads of your chosen Keyboard to save your Scene to.

Now you can
Develop more Scene(s) from your first by altering some of the Channel Levels and then repeating steps 3 - 5

And finally
Put all the sliders down to zero (for good house keeping) and then RELEASE them from having overriding control of the Channel Levels so that when you press the pad(s) you can see and use your Scene(s). Now write the details of the Scene on the Program Record Sheets provided at the back.

Modifying scenes / Developing new scenes from existing ones

1. Switch on the Scene to be modified on its own, at full (all sliders released, nothing switched on, on any Keyboard, except the required Scene on the required Scene Keyboard, Grand Master to full).
2. Use the 18 Sliders in Channel Level mode to modify the Scene.
3. EITHER save the modified Scene back to the same Keyboard pad OR to another pad if the new Scene is a development from the first.
4. Put all the 18 Sliders down to zero and RELEASE them.

Delete one scene - 2 methods:

1. Put Grand Master to 0 then Save Output To Scene to the Scene to be deleted.
2. Put all 18 Keyboards into FLASH mode. RELEASE all sliders. Check that this has allowed all the Output Channel Levels to fall to zero by scanning across the 6 Output Select pages and watching the Output Monitor LEDs. Save Output To Scene to the Scene to be deleted.

Delete many/all scenes

1. Start as 1. or 2. above to ensure all Output Channel Levels are 0,
2. Keep finger on S.O.T.S. pad to keep its LED on,
3. Select Scene Keyboard No1,
4. Wipe finger across Keyboard pads 1-18,
5. Select next Scene Keyboard,
6. Repeat 4 - 6 for the 12 Scene Keyboards,
7. Remove finger from S.O.T.S.,
8. Press S.O.T.S once more to switch it off.

PROGRAM CHASE SEQUENCE - 2 types:

A. Scene Chases,

B. *****Environment Chases - not yet available.

Programming Scene Chases

1. Firstly create all the Scenes that you need to make the steps of your Scene Chase - see page 5.5.
2. Press the Program Chase Sequence pad.
3. Tell the Masterpiece which of the 54 Scene Chases you are going to program by selecting one of the 3 Scene Chase Keyboards and then pressing one of the 18 Keyboard pads.
4. The current Keyboard automatically switches back from a Scene Chase Keyboard to the Scene Keyboard last used. If necessary, change to another Scene Keyboard, where your required Scenes are stored.
5. Press the Keyboard pads, to select the Scenes in the sequence required for the chase (changing Scene Keyboard if required). The display shows the Scene number while pressed, followed by the step number.
6. Use the editing keys if necessary - see 9. and 10. below.
7. When satisfied, switch off Program Chase Sequence - the display shows "End".
8. Now use the chase controls as required to define the type of chase, speed, etc. - see THE CHASE CONTROLS below.

Chase Editing Keys

9. Use the **Reverse Manual Step** pad to **delete** any mistakes - the display shows "dEL" while pressed, followed by the decremented step number. This is now the last step of the chase.
10. The **Forward Manual Step** pad can be used to step through the chase, showing the scene number while pressed followed by the step number.

Editing a Chase

11. The Scenes that are the steps of the chase may themselves be edited - see MODIFYING SCENES on Page 5.5.
12. To edit the steps of the chase, follow steps 2. and 3. above, then Forward Step to the last correct step and overwrite with new steps from there. Use the Editing Keys as required. Pressing Program Chase Sequence again will display "End" if changes have been made otherwise "CNCL" if they haven't.

Deleting a Chase

13. Follow steps 2. and 3. above.
14. Press the Reverse Manual Step pad (Delete) - the chase now has no steps - pressing the Forward Manual Step would display "NONE".
15. Press the Program Chase Sequence pad again - display shows "End".

Note - the last Scene - "12.18" - is kept permanently as a **Blackout Scene**. A blackout step is often required in a chase e.g. the last step of a One Shot chase.

***** This feature will be available in future software upgrades.

THE CHASE CONTROLS
There are 54 chases but only one set of controls - for practical reasons! Each chase has its own combination of SPEED, SLOPE and the Chase Control pad settings, the controls are automatically engaged to the last chase to be switched on - provided the **WHICH CHASE** LED is on. Pressing the WHICH CHASE pad will display "NONE" if its LED is off, or, for example, "C3-7" (Scene Chase Keyboard 3, Keyboard pad 7) if its LED is on.

SPEED - needless to say, the Speed (and Slope) control has to be *matched* to the existing level of the particular chase before smoothly engaging and allowing you to change its level. The Speed control is calibrated in the display in Beats Per Minute - from 0.1 (1 step per 10 mins) to 1500 (25 steps per second). Important parts of the range, around 120 beats per minute for example, are expanded to give you very fine control.

SLOPE - 2 modes:
1. For ***Manual Chases***, the display shows the crossfade time in seconds. The range is from 360 second at the bottom to 0.00 seconds (stepping) at the top.
2. For ***Auto Chases***, the display shows the crossfade percentage, 100% at the bottom - a complete crossfade, to 0.0% at the top - pure stepping.

CHASE DIRECTION - 4 possibilities:
1. Continuous Forward - display shows "FFFF"
2. Continuous Reverse - display shows "RRRR"
3. Bounce - display shows "RFRF"
4. Alternate Bounce - display shows "RRFF"

Note - Alternate bounce is likely to be replaced by Bass bounce (reversing direction on the bass beat) in future software revisions.

CHASE STEP SOURCE - 4 possibilities:
1. Manual stepping - from the Manual Step Forward & Reverse pads with Slope.
2. ***Treble Burst - not yet available - works as Auto.
3. ***Bass Burst - not yet available - works as Auto.
4. Auto stepping - uses the Speed and Slope controls.

CHASE TYPE - ONE SHOT / REPEAT
Repeat - the Chase runs continuously.
One Shot - the Chase stops on the last step (forward) or the first step (reverse chases). The final step can be a visible Scene or blackout if the special blackout scene, on Scene Keyboard 12, pad 18 "12.18", has been used.

***USE SCENE FADE TIMES** - not yet available.

FORWARD MANUAL STEP - 2 uses
1. To Forward Step Manual Chases. Display shows " F" while pressed. Any of the 54 chases running, which are *manual ones*, will step forward. The time taken for each chase to step depends on the setting of its Slope control.
2. While in Program Chase Sequence, the Forward Manual Step pad steps through a chase for editing, displaying the Scene while pressed, followed by its step number.

REVERSE MANUAL STEP - 2 uses
1. To Reverse Step Manual Chases. Display shows "R " while pressed. Any of the 54 chases running, which are *manual ones*, will step backwards. The time taken for each chase to step depends on the setting of its slope control.
2. While in Program Chase Sequence, the Reverse Manual Step pad is used to DELETE a step and make the previous one the last step of the chase. The display shows "dEL" while pressed followed by the decremented step counter when released.

* This feature will be available in future software upgrades.

SAVE ENVIRONMENT OF CHANNEL LEVELS, SCENES & CHASES

Saves onto one pad, the complete **ENVIRONMENT** - the levels of any Output Channels controlled by the 18 Sliders, the Levels of any Scenes that are on, plus the levels of any Scene Chases that are on at that point in time. WYSIWYG - What You See Is What You Get - the light show that you see is captured on to a single pad.

There are 3 Environment Keyboards (see KEYBOARD SELECT on page 5.4), Environment Keyboard 1 + Keyboard Pads 1-18 stores Environments 1-18, Environment Keyboard 2 stores Environments 19-36, Environment Keyboard 3 stores Environments 37-48 on Keyboard pads 7-18, (1-6 are used for Environment Chases). However, we find it more useful to think in terms of Environment Keyboard + Pad number, as shown in the 4 Digit Display - e.g. "E1-1", "E3-7", "E3.12" etc. and this is the format we have used for the program record sheets we have provided at the back of this folder - don't forget to fill in these sheets as you go.

Creating Environments from scratch

1. Create the Environment you wish to capture, using the Scenes and Scene Chases that you have already created at the appropriate levels and add in some Output Channels levels if required.
2. Press the Save Environment pad.
3. Select one of the 3 Environment Keyboards (if different from the current one).
4. Select one of the 18 Keyboard pads of your chosen Keyboard to save your Environment to.

Now you can

Develop more Environment(s) from your first by altering the levels of the Channels, Scenes or Scene Chases and repeating steps 2 - 4

And finally

Put all the sliders down to zero (for good house keeping) and then RELEASE them ALL from having overriding control of levels. Switch off all Keyboard pads, on all Keyboards, so that when you press the Environment pad(s), you can see and use the Environment(s) you have created. Now write the details of the Environment on the Program Record Sheets provided at the back.

Modifying Environments / Developing new Environments from existing ones

1. Switch on the Environment to be modified, on its own, at full (all sliders released, nothing switched on, on any Keyboard, except the required Environment on the required Environment Keyboard, Grand Master to full).
2. Use the 18 Sliders in Channel Level and/or Keyboard Master mode, to modify the Channel/Scene/Scene Chase levels that make up the Environment.
3. EITHER save the modified Environment back to the same Keyboard pad OR to another pad if the new Environment is a development from the first.
4. Put all the 18 Sliders down to zero and RELEASE them ALL.

Delete one Environment

1. Put all 18 Keyboards into FLASH mode.
2. RELEASE all sliders.
3. Check that this has turned everything off by scanning across the 6 Output Select pages and watching the Output Monitor LEDs.
4. Save Environment to the Environment to be deleted.

Delete many/all Environment

1. Do 1 - 3 above to ensure all Output Channel Levels are 0,
2. Keep finger on Save Environment pad to keep its LED on,
3. Select Environment Keyboard No.1,
4. Wipe finger across Keyboard pads 1-18,
5. Select Environment Keyboard No.2,
6. Wipe finger across Keyboard pads 1-18,
7. Select Environment Keyboard No.3,
8. Wipe finger across Keyboard pads **7-18**,
9. Remove finger from Save Environment pad,
10. Press Save Environment once more to switch it off.

VARIOUS OTHER PADS

Memory-To-Card transfers the contents of the Memory of the Masterpiece (all the Scenes, Chases etc. that you have programmed), to the Memory Card for security and for transfer between Masterpieces. One Card is provided with each Masterpiece, new Cards need to have their battery inserted before use. The Masterpiece will be able to check the Card's battery voltage in later software versions. Battery life is 3-5 years. While you press the pad, the display shows "M-C", followed by "COdE", which flashes to prompt you to enter your **Security Code**, four presses on the Keyboard are required. The Security Code feature is not yet implemented - any four key presses on the Keyboard will do. If you do not enter a code within 5 seconds, the transfer is cancelled and the display shows "CNCL". The transfer takes about 2 seconds and the display counts down to zero to show you the progress. The data transferred to the Card is verified and the message "PASS" or "FAIL" appears in the display.

Card-To-Memory - as Memory-To-Card but the data transfer is in the opposite direction - BE VERY CAREFUL NOT TO PRESS THE WRONG KEY AND OVER-WRITE YOUR PROGRAM!

Swap Memory and Card - achieved by pressing both Memory-To-Card and Card-To-Memory. While the second key is pressed, the display shows "SWAP".

***** **Change Security Code** - display: "C.S.C." / "N.A." - this feature is not yet available. The Security Code feature is not yet implemented - any four key presses on the Keyboard will do.

***** **Set User Access Levels** - display: "S.U.A.L." / "N.A." - this feature is not yet available.

***** **Master / Slave** - display: "No.1" / "N.A." - this feature is not yet available - there will however be three possible modes:

1. Master mode - key presses and slider moves are transmitted to one or more Slave Masterpieces via the RS232 digital output.
2. Slave mode - key presses and slider moves of a master desk are mimicked.
3. Solo mode - neither LED on - the Masterpiece works as a stand alone unit neither sending nor listening to key press or slider move information.

***** **Future 1** - display: "Fut.1" / "N.A." - for future expansion.

***** **Record Environment Chase - In Real Time / Step Times**
Display: "N.A." - this feature is not yet available.

***** **Copy** - display: "COPY" / "N.A." - this feature is not yet available.

***** **Future 2** - display: "Fut.2" / "N.A." - for future expansion.

Blackout/Restore - display: "b.O." / "rES"
Blackout sends a zero level to all output channels but the monitor LEDs function normally. The Red Blackout LED blinks as a warning.

Freeze Output - display: "F.O." / "GO"
When frozen, all the output channels hold their last level, otherwise the unit functions normally - use for *Blind Plotting*. The red Freeze Output LED blinks as warning.

Joystick - display: "XX.YY" - two numbers representing the X and Y positions of the Joystick. The Joystick only works at present in position mode, velocity mode will be implemented in future software revisions. The Joystick crossfades between 4 scenes on Scene Keyboard 12 - a Left, Right, Up and Down Scene - the Joy Centre Scene is not in use at present. See Joystick Programming on page 6.2 for more detail.

***** This feature will be available in future software upgrades.

General - Concept

1. Firstly, you need to make Scenes from the 108 Channel Levels. Some Scenes will be for use in their own right and others will be prepared for incorporation into Scene Chases.
2. The second stage is to make Scene Chases from the pre-prepared Scenes.
3. Thirdly, you can create a complete atmosphere by using a number of Scene Chases at various speeds and levels, together with a number of Scenes at various levels, plus a few Channel Levels and then this whole setup can be saved onto one of the 48 Environment pads for recall, when required, by just pressing one button.

To be able to do this, you need to be fully conversant with the functions of all the pads and sliders on the front panel - you must read pages 5.1 - 5.9 first, where the programming of Scenes, Scene Chases and Environments (Environment Chases are not yet available), is explained in full.

Strobe Control - The Masterpiece can be used to:

1. Switch on a strobe controller e.g. our Rainbow Strobe,
2. Enable the 3 zones of our Flexi-Flash controller, (it cannot drive Flexi-Flash directly),
3. Fire Pulsar Strobes directly, using the 36, 0-10v, analogue outputs on channels 1-36 OR on channels 37-108 via a Pulsar Universal Interface. To fire strobes directly, you need to make chases with the SLOPE control set to Step. The Scenes in that chase need to contain Channel Levels at 100%, which will produce a 0 to 10v step on the required channels as the chase steps. Each 0 to 10v step will trigger the strobe, nothing will happen as the Channel Level falls from 10 to 0v. You will need to make a lead to convert from the 6 channel DIN socket outputs to the 1 channel Jack Socket input on the Strobes.

Sound-To-Light

Twelve special Scenes can be made on Scene Keyboard No.12 which are for patching three, four channel zones of Sound-To-Light, through to the 108 output channels. The words at the top of the 18 Keyboard pads apply just to this special Scene Keyboard No.12.

Example: make a Scene for Bass zone 1.
Set the Channel Levels to the MAXIMUM level wanted for each of the Channels required to come on with the Bass on zone 1. Now Save Output To Scene to Scene Keyboard No.12, Keyboard pad No.1 "12-1". The Bass of the music will modulate the brightness of the lights between zero and the levels set by the Scene.

Intelligent lighting

It is possible to program a complete Scene containing Iris, Colour, Pan, Stopper, Pan and Tilt information for each Scene Chase step - HOWEVER this is NOT the best way - it is far better to use "Modular Programming" techniques. Here is an example for Golden Scans to give you ideas:

1. Make 6 Scenes on Scene Keyboard 1, pads 1-6, which are:
   "S1-1" - all Irises together to full.
   "S1-2" - all Colours together to full.
   "S1-3" - all Gobos together to full.
   "S1-4" - all Stoppers together to full.
   "S1-5" - all Pans together to full.
   "S1-6" - all Tilts together to full.
2. Make a Scene with ONLY colour information - each Golden Scan a different colour: "S1-7".
3. Make a Scene, with only Pan and Tilt information, with the beams all pointed on a central point: "S1-8".
4. Make a slow Gobo chase, 2 steps are needed: 1. All Gobos to full ("S1-3"), 2. Blackout (Scene "12.18"), Slope at crossfade: "C1-1".
5. Now make a stopper chase - 8 steps, 1 on at a time, Slope at step:"C1-2".
6. Now make a movement chase with ONLY the Pan and Tilt information in the Scenes of this chase: "C1-3". Cont....

Using these ***tools***, you can make a number of Environments - for example:

1. Switch on the following: "S1-1" - Irises open, "S1-7" - one of each colour, "S1-8" - Pans and Tilts on central point, "C1-2" - the Stopper Chase and "C1-1" - the Slow Gobo Chase. Save the result on Environment pad - "E1-1".
2. "S1-1" - Irises open, "S1-2" at 55% - Colours rotating slowly, "C1-1" - Slow Gobo Chase, "S1-4" - Stoppers open, "C1-3" - Movement Chase, Save the result on Environment pad "E1-2".

Just a few ideas to fire your imagination! Programming in this way is fast, versatile and creative. To our knowledge, OSKA and the Masterpiece are the only controllers in the world capable of it.

The Joystick crossfades between 4 scenes on Scene Keyboard 12 - a Left, Right, Up and Down Scene - the Joy Centre Scene is not in use at present. These Scenes need to be switched on for the Joystick to work, although you could just use the Left and Right Scenes on their own for example.

For use with Intelligent Spotlights for moving the light beams, proceed as follows:

1. Make a Left Scene which just contains the Pan information for the left limit of movement. You can use the Tilt as well to find the positions but remove the Tilt levels just before Saving Output To Scene on 12.13.
2. Make a Right Scene which just contains the Pan information for the right limit of movement on "12.14".
3. Make an Up Scene which just contains the Tilt information for the upper limit of movement. You can use the Pan as well to find the positions but remove the Pan levels just before Saving Output To Scene on 12.16.
4. Make a Down Scene which just contains the Tilt information for the lower limit of movement on "12.17".

You should find that the beams move around fairly well together but a little trial and error is sometimes required to optimise the movement. The Joystick doesn't quite go to 0% or 100%, so you may need to make scenes slightly beyond the limits actually required. Unfortunately, it is not possible to switch these scenes on to modify them, so we recommend that you make the scenes on Scene Keyboard 11 for example, which *can* be modified, and then save a copy of them onto the special Scene Keyboard 12 ones.

LIMITS - to make a practical product, at a sensible price, we have been careful not to over-engineer the Masterpiece, this means that there are a few limits on the use of memory which you shouldn't meet in practice but of which the programmer perhaps ought to be aware:

Areas of memory are shared for odd+even pairs of Keyboard pads. For example "S1-1"+"S1-2", "C2-3"+"C2-4", "E3.11"+"E3.12" all share memory areas which gives the following limitations:

Scene Limits - 128 Channels with levels greater than zero (> 0) per pair.
E.G. if "S1-1" has all 108 Channels > 0, then "S1-2" will partly overwrite "S1-1" if it has more than 20 Channels >0.

Scene Chase Limits - 112 steps per pair.
E.G. if "C1-1" has 100 steps and you try to give "C1-2" more than 12 steps, a "FULL" error message will appear in the 4 Digit Display and Program Chase Sequence will be exited. If "C1-1" is no longer needed you could delete it - see Program Chase sequence on page 5.6.

Environment limits - 122 Channels, Scenes and Scene Chases, with levels > 0.
E.G. if "E1-1" has 100 Channels, Scenes and Scene Chases > 0, then "E1-2" will partly overwrite "E1-1" if it has more than 22 > 0.

Solution - if you need to make a number of large Scenes, Scene Chases or Environments, store them on alternate pads e.g. S1-1, S1-3, S1-5 etc. and use the intervening pads to store simpler ones.

Ask the Programmer what effects he has programmed onto which pads, of which Keyboards and refer to his program record book - supplied with each Masterpiece which he will have completed for you! Try out the various pre-programmed effects and shows until you are familiar with them and know when it would be appropriate to use them.

OTHER INFORMATION

DO'S

1. Protect the Masterpiece with the lid of its case when not in use.
2. Ensure the voltage selector (on the back panel) is correctly set before switching on.
3. Keep the Masterpiece clean - a little wax polish on a soft cloth works well (polish to cloth - not to panel).
4. Release a slider straight away if it was inadvertently engaged to the wrong Output Page or Keyboard.
5. Do write the details of Output Channels, Scenes, Scene Chases, Environments, Environment Chases etc. on the Program Record Sheets provided.

DON'T'S

1. Move a slider without checking which Output Page, Keyboard or Chase it is patched to.

SOFTWARE UPGRADES

Although already capable of producing a stunning lightshow, there are many features still to be added to the software - these are indicated by a ***** in the text. Software upgrade EPROMs will be free to purchasers of early units. Please complete the customer registration form supplied so that we can keep you informed. The software version in your Masterpiece is displayed in the 4 Digit Display at switch on - e.g. "No.1.0".

INPUT/OUTPUT PROTECTION

To ensure the Masterpiece doesn't let you down when the Gremlins attack your wiring, the RS232, DMX512 and MIDI inputs and outputs are all protected against the accidental application of mains voltage.

BATTERY BACKUP - An internal battery, which is automatically recharged during use, maintains the Masterpiece's memory at switch off. A fully charged battery lasts about 6 months. Ten hours use per month will keep the battery charged, 60 hours are needed to fully charge a flat battery.
At switch on, the complete status of the Masterpiece will be the same as at switch off, except that the software version no. appears in the display and all chases are reset to step 1 * - as required for environmental control.

DIMENSIONS - Front panel - 482.6mm x 354.8mm (19" x 14" = 8 Units)
Depth - 150mm (6") including plugs and sockets
Weight - 5.6Kgs (12 lbs.)
Shipping dimensions - 530mm x 440mm x 230mm

SPILLAGE OF DRINKS - If a drink is spilt on your Masterpiece, immediately disconnect it, undo the 6, M3 screws that hold the front panel onto the tray then plunge the front panel only into clean water and rinse thoroughly. Shake and wipe dry, then leave in a warm place to dry right out. If drink has reached the tray section it must be washed but take care to keep the mains voltage parts dry.

GUARANTEE - 12 months from the date of original purchase. The guarantee is limited to parts and labour. The guarantee is void if the unit is misused or if repairs are performed by unauthorised persons. In the unlikely event of a fault occurring, return the unit to your supplier giving a description of the fault or direct to Pulsar for immediate attention.

MADE IN EUROPE BY PULSAR LIGHT OF CAMBRIDGE LTD., HENLEY ROAD, CAMBRIDGE, CB1 3EA, UK. TEL:(0223)66798, FAX:(0223)460708, TELEX:81697.

A three pin XLR plug and socket are provided on the back panel for RS232 "IN" and "THRU". This input allows you to press a number of front panel keys remotely from a computer serial port or other source of RS232. Thus you can do anything from putting on a single lighting channel to triggering a complete lightshow remotely. The system is implemented from software version N.1.82. It is similar to Remote Control by MIDI - see Appendix Three.

Press No.		Function	Press No.		Function	Press No.		Function	Press No.		Function
0	00H	S10. -1	36	24H	E1. -1	72	48H	EC. -1	99	63H	C3. -1
1	01H	S10. -2	37	25H	E1. -2	73	49H	EC. -2	100	64H	C3. -2
2	02H	S10. -3	38	26H	E1. -3	74	4AH	EC. -3	101	65H	C3. -3
3	03H	S10. -4	39	27H	E1. -4	75	4BH	EC. -4	102	66H	C3. -4
4	04H	S10. -5	40	28H	E1. -5	76	4CH	EC. -5	103	67H	C3. -5
5	05H	S10. -6	41	29H	E1. -6	77	4DH	EC. -6	104	68H	C3. -6
6	06H	S10. -7	42	2AH	E1. -7	78	4EH	E3. -7	105	69H	C3. -7
7	07H	S10. -8	43	2BH	E1. -8	79	4FH	E3. -8	106	6AH	C3. -8
8	08H	S10. -9	44	2CH	E1. -9	80	50H	E3. -9	107	6BH	C3. -9
9	09H	S10.10	45	2DH	E1.10	81	51H	E3.10	108	6CH	C3.10
10	0AH	S10.11	46	2EH	E1.11	82	52H	E3.11	109	6DH	C3.11
11	0BH	S10.12	47	2FH	E1.12	83	53H	E3.12	110	6EH	C3.12
12	0CH	S10.13	48	30H	E1.13	84	54H	E3.13	111	6FH	C3.13
13	0DH	S10.14	49	31H	E1.14	85	55H	E3.14	112	70H	C3.14
14	0EH	S10.15	50	32H	E1.15	86	56H	E3.15	113	71H	C3.15
15	0FH	S10.16	51	33H	E1.16	87	57H	E3.16	114	72H	C3.16
16	10H	S10.17	52	34H	E1.17	88	58H	E3.17	115	73H	C3.17
17	11H	S10.18	53	35H	E1.18	89	59H	E3.18	116	74H	C3.18
18	12H	S11. -1	54	36H	E2. -1	90	5AH	Fwd Man Step	117	75H	Sho.1
19	13H	S11. -2	55	37H	E2. -2	91	5BH	Rev Man Step	118	76H	Sho.2
20	14H	S11. -3	56	38H	E2. -3	92	5CH		119	77H	Sho.3
21	15H	S11. -4	57	39H	E2. -4	93	5DH		120	78H	Sho.4
22	16H	S11. -5	58	3AH	E2. -5	94	5EH		121	79H	Sho.5
23	17H	S11. -6	59	3BH	E2. -6	95	5FH		122	7AH	Sho.6
						96	60H	Swap Card-Mem			
24	18H	S11. -7	60	3CH	E2. -7	97	61H	Card to Mem	123	7BH	Sho.7
25	19H	S11. -8	61	3DH	E2. -8	98	62H	Remote Blackout	124	7CH	Sho.8
26	1AH	S11. -9	62	3EH	E2. -9				125	7DH	
27	1BH	S11.10	63	3FH	E2.10	Swap Card-Mem and			126	7EH	
28	1CH	S11.11	64	40H	E2.11	Card to Mem are			127	7FH	All Off
29	1DH	S11.12	65	41H	E2.12	not available in					
						MP216 or RU216.			Sho.1 - Sho.8 are		
30	1EH	S11.13	66	42H	E2.13				Show Change for		
31	1FH	S11.14	67	43H	E2.14				MP216 & RU216 only.		
32	20H	S11.15	68	44H	E2.15						
33	21H	S11.16	69	45H	E2.16						
34	22H	S11.17	70	46H	E2.17						
35	23H	S11.18	71	47H	E2.18						

Notes:
E.G. E.2.-7 = Environment Keyboard No.2, Keyboard Key No.7.
The Keyboards driven by the RS232 signal may be in Flash, Swap or Solo, but Latch, which toggles with each press, should be used with caution as it is possible to lose track of whether a key is off or on.

The RS232 TRANSMISSION PROTOCOL required is:

SERIAL FORMAT - 9600 baud, 1 start bit, 8 data bits, 1 stop bit, no parity.

HANDSHAKING - not required - so RTS (Pin 4 on a 25 pin 'D' connector) and CTS (Pin 5) need to be cross linked at the computer to allow it to transmit.

DATA STRUCTURE - Three bytes are required per key Press/Unpress:
1) A Header Byte with the value 252 (FCH) to show that key press information follows,
2) A Press Number byte with a value 0-127 (00-7FH) to select a key - see table above,
3) And finally a data byte, which, with a value in the range 64-127 (40-7FH) = Key Pressed, or with a value in the range 0-63 (00-3FH) = Key Unpressed. A Keyboard in Latch mode toggles for each Press, Unpress information having no effect. A Keyboard in Flash mode is turned On by a Press and Off by an Unpress.

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This provides information for people wishing to receive serial data from Pulsar and Clay Paky controllers or to drive Pulsar and Clay Paky lighting equipment.

SERIAL FORMAT - 9600 baud, 1 start bit, 8 data bits, 1 stop bit, no parity. The data stream may be fully packed.

CABLE - For RS423 operation, use 2 core screened cable. Screen = Chassis Ground - connect at both ends, Cores: Signal, Signal Ground (which must NOT connect to the screen or chassis). For RS232 operation, over shorter distances, for example from the Masterpiece to the Screen Driver, single core screened cable may be used.

MAXIMUM LENGTH - RS423 1200m, RS232 100m.
TERMINATION - line termination is NOT required.
BRANCHING - no problem.

HANDSHAKING - not required - so RTS (Pin E or 5 on a BBC Micro or pin 4 on a 25 pin 'D' connector) and CTS (Pin D or 2 on a BBC Micro or pin 5 on a 25 pin 'D' connector) need to be cross linked at the computer.

RESOLUTION - up to 14 bits, but normally 8 bits (256 possibilities), older products used 7 bits (128 possibilities).

NO OF CHANNELS - 15,360 max. - the protocol allows 128 pages of 120 channels each - for future expansion!

REFRESH - not required. Data is latched by the receiving device. Only the changes need to be transmitted. However it is good practice to send the constant Levels and the Page Number from time to time - for example, when there are no changes to send.

TRANSMISSION PROTOCOL:
Address - A byte with bit 7 set is an Address i.e. a **Channel Number**.
Channels Numbers in the range 1-120 are sent as 128-247.
Channels Numbers in the range 121-240 are sent as 128-247 after having first changed the Page Number from 0 to 1 - see below.

Level - A byte with bit 7 clear is a Level.
ONE or TWO Level bytes with values of 0-127 follow an Address.
For 7 bit resolution, only ONE byte need be sent.
For 8 bit resolution, where bit 0 is Lo, only ONE byte need be sent.
For 8 bit resolution, where bit 0 is Hi TWO bytes need to be sent with bit 6 of the second byte set.
For future expansion, bit 5 to bit 0 of the second byte could be used, giving up to 14 bit resolution.
If only ONE Level byte is sent, it will not be acted upon until the next Address is received.

Bytes 248 to 255 are used for special codes:
248 sets all channels to the Level which follows e.g. 0 for **Blackout**.
249 changes **Page Number** to the ONE Level byte which follows (0-127). Each of the 128 possible pages allow you to address 120 channels. Receiving units default to page 0 (channels 1-120) at switch on. The Page Number remains in the new page until another 249 sequence is sent.
250-255 are used by Pulsar to send ASCII, Key Presses, Slider Moves & other Controller to Controller information.

EXAMPLES:
1. Put channel 10 to 50%
a) Send Page - 249, 0 (only necessary if the Page Number is not already 0 for channels 0-120)
b) Send Address - 137 (128 = channel 1)
c) Send Level - 64 (range is 0-127)

2. Put channel 150 to 100%
a) Send Page - 249, 1 (only necessary if the Page Number is not already 1 for channels 121-240)
b) Send Address - 157 (128 = channel 121)
c) Send Level - 127 (7 bit resolution)
or - 127, 64 (8 bit resolution)
or - 127,127 (14 bit resolution)

PRODUCT RESOLUTION:
7 BIT - Pulsar BBC Lighting Control Desk program, Intelligent Interface, Clay Paky Golden Scan controller and Golden Scan 1.
8 BIT - All other Pulsar and Clay Paky products.

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A MIDI "IN" DIN socket, a MIDI "THRU" DIN socket and a MIDI Channel select DIL switch are provided on the back panel. Functional from software version "MASTERPIECE MAIN No.1.6" together with "DMX/MIDI V1.2" EPROM, this socket, in effect, allows you to press a number of front panel keys remotely from a MIDI keyboard or sequencer. Thus you can do anything from putting on a single lighting channel to triggering a complete lightshow via MIDI.
From software version "MASTERPIECE MAIN No.1.8", access is also available to Scene Keyboards S10 and S11 and Scene Chase Keyboard C3.

Note	No.	Function	Note	No.	Function	Note	No.	Function	Note	No.	Function
C	0	S10. -1	C	36	E1. -1	C	72	EC. -1	D#	99	C3. -1
C#	1	S10. -2	C#	37	E1. -2	C#	73	EC. -2	E	100	C3. -2
D	2	S10. -3	D	38	E1. -3	D	74	EC. -3	F	101	C3. -3
D#	3	S10. -4	D#	39	E1. -4	D#	75	EC. -4	F#	102	C3. -4
E	4	S10. -5	E	40	E1. -5	E	76	EC. -5	G	103	C3. -5
F	5	S10. -6	F	41	E1. -6	F	77	EC. -6	G#	104	C3. -6
F#	6	S10. -7	F#	42	E1. -7	F#	78	E3. -7	A	105	C3. -7
G	7	S10. -8	G	43	E1. -8	G	79	E3. -8	A#	106	C3. -8
G#	8	S10. -9	G#	44	E1. -9	G#	80	E3. -9	B	107	C3. -9
A	9	S10.10	A	45	E1.10	A	81	E3.10	C	108	C3.10
A#	10	S10.11	A#	46	E1.11	A#	82	E3.11	C#	109	C3.11
B	11	S10.12	B	47	E1.12	B	83	E3.12	D	110	C3.12
C	12	S10.13	C	48	E1.13	C	84	E3.13	D#	111	C3.13
C#	13	S10.14	C#	49	E1.14	C#	85	E3.14	E	112	C3.14
D	14	S10.15	D	50	E1.15	D	86	E3.15	F	113	C3.15
D#	15	S10.16	D#	51	E1.16	D#	87	E3.16	F#	114	C3.16
E	16	S10.17	E	52	E1.17	E	88	E3.17	G	115	C3.17
F	17	S10.18	F	53	E1.18	F	89	E3.18	G#	116	C3.18
F#	18	S11. -1	F#	54	E2. -1	F#	90	Fwd Man Step	A	117	Sho.1
G	19	S11. -2	G	55	E2. -2	G	91	Rev Man Step	A#	118	Sho.2
G#	20	S11. -3	G#	56	E2. -3	G#	92		B	119	Sho.3
A	21	S11. -4	A	57	E2. -4	A	93		C	120	Sho.4
A#	22	S11. -5	A#	58	E2. -5	A#	94		C#	121	Sho.5
B	23	S11. -6	B	59	E2. -6	B	95		D	122	Sho.6
						C	96	Swap Card-Mem.			
C	24	S11. -7	**Middle C**	60	E2. -7	C#	97	Card to Mem.	D#	123	Sho.7
C#	25	S11. -8	C#	61	E2. -8	D	98	Remote Blackout	E	124	Sho.8
D	26	S11. -9	D	62	E2. -9			(From N.1.81)	F	125	
D#	27	S11.10	D#	63	E2.10				F#	126	
E	28	S11.11	E	64	E2.11				G	127	All Off
F	29	S11.12	F	65	E2.12						(From N.1.82)
F#	30	S11.13	F#	66	E2.13						
G	31	S11.14	G	67	E2.14						
G#	32	S11.15	G#	68	E2.15						
A	33	S11.16	A	69	E2.16						
A#	34	S11.17	A#	70	E2.17						
B	35	S11.18	B	71	E2.18						

Swap Card-Mem and Card to Mem are not available in MP216 or RU216.

Sho.1 - Sho.8 are Show Change for MP216 & RU216 only.

Notes:
E.G. E.2.-7 = Environment Keyboard No.2, Keyboard Key No.7.
The Keyboards driven by the MIDI signal may be in Flash, Swap or Solo, but Latch, which toggles with each press, should be used with caution as it is possible to lose track of whether a key is off or on.

The MIDI transmission system sends:
1) A Status Byte containing information such as MIDI Channel Number, Note On or Off etc.
2) The number of the note 0-127 - see table above, middle C is usually Note Number 60.
3) The Velocity at which the key was struck 0-127. Velocity >= 64 is taken as ON and < 64 as OFF.
A Note Off Status Byte also turns the lights off.

MIDI Channel selector switch on the back panel - the MIDI Channel selected is the SUM of the switches selected eg. to select Channel 5 put up switches 1+4, to select Channel 15 put up switches 1+2+4+8. Note - Channel 16 is selected by putting all the switches down (off).

Two other switches are provided marked Velocity and Omni or use Note Off information but these been found to be unnecessary and therefore have no effect.

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This Analogue Remote Control Socket effectively allows you to "press" a number of front panel keys remotely - for example from a Pulsar Touch Panel, Out Station or another Masterpiece. This provides great scope for expanding the system - a number of Masterpieces can be used to control different groups of equipment under the control of a "master" Masterpiece. Scenes are created on the master Masterpiece which contain the 1s and 0s shown below on 6 channels, these are used to drive the Remote Control Socket of a "slave" Masterpiece. From one master Masterpiece, up to 18 Slave Masterpieces could be controlled to drive up to 1,944 channels!

Remote Control DIN socket pin connections:
Pin 1 - Is - Current supply, at 18-25 volts, available to power a Pulsar Touch Panel or other "Out Station".
Pin 2 - Earth
Pin 3 - Input 1, >3.7 volts = logic 1
Pin 4 - Input 2, "
Pin 5 - Input 3, "
Pin 6 - Input 4, "
Pin 7 - Input 5, "
Pin 8 - Input 6, >5.7 volts = logic 1 OR Short to 0v (eg. contact closure) = Forward Manual Step.

Input 1 2 3 4 5 6	Decimal Value	Function
0 0 0 0 0 0	0	Nothing
1 0 0 0 0 0	1	E.1.-1
0 1 0 0 0 0	2	E.1.-2
1 1 0 0 0 0	3	E.1.-3
0 0 1 0 0 0	4	E.1.-4
1 0 1 0 0 0	5	E.1.-5
0 1 1 0 0 0	6	E.1.-6
1 1 1 0 0 0	7	E.1.-7
0 0 0 1 0 0	8	E.1.-8
1 0 0 1 0 0	9	E.1.-9
0 1 0 1 0 0	10	E.1.10
1 1 0 1 0 0	11	E.1.11
0 0 1 1 0 0	12	E.1.12
1 0 1 1 0 0	13	E.1.13
0 1 1 1 0 0	14	E.1.14
1 1 1 1 0 0	15	E.1.15
0 0 0 0 1 0	16	E.1.16
1 0 0 0 1 0	17	E.1.17
0 1 0 0 1 0	18	E.1.18
1 1 0 0 1 0	19	E.2.-1
0 0 1 0 1 0	20	E.2.-2
1 0 1 0 1 0	21	E.2.-3
0 1 1 0 1 0	22	E.2.-4
1 1 1 0 1 0	23	E.2.-5
0 0 0 1 1 0	24	E.2.-6
1 0 0 1 1 0	25	E.2.-7
0 1 0 1 1 0	26	E.2.-8
1 1 0 1 1 0	27	E.2.-9
0 0 1 1 1 0	28	E.2.10
1 0 1 1 1 0	29	E.2.11
0 1 1 1 1 0	30	E.2.12

Input 1 2 3 4 5 6	Decimal Value	Function
1 1 1 1 1 0	31	E.2.13
0 0 0 0 0 1	32	E.2.14
1 0 0 0 0 1	33	E.2.15
0 1 0 0 0 1	34	E.2.16
1 1 0 0 0 1	35	E.2.17
0 0 1 0 0 1	36	E.2.18
1 0 1 0 0 1	37	E.C.-1
0 1 1 0 0 1	38	E.C.-2
1 1 1 0 0 1	39	E.C.-3
0 0 0 1 0 1	40	E.C.-4
1 0 0 1 0 1	41	E.C.-5
0 1 0 1 0 1	42	E.C.-6
1 1 0 1 0 1	43	E.3.-7
0 0 1 1 0 1	44	E.3.-8
1 0 1 1 0 1	45	E.3.-9
0 1 1 1 0 1	46	E.3.10
1 1 1 1 0 1	47	E.3.11
0 0 0 0 1 1	48	E.3.12
1 0 0 0 1 1	49	E.3.13
0 1 0 0 1 1	50	E.3.14
1 1 0 0 1 1	51	E.3.15
0 0 1 0 1 1	52	E.3.16
1 0 1 0 1 1	53	E.3.17
0 1 1 0 1 1	54	E.3.18
1 1 1 0 1 1	55	Forward Manual Step
0 0 0 1 1 1	56	Reverse Manual Step
1 0 0 1 1 1	57	
0 1 0 1 1 1	58	
1 1 0 1 1 1	59	
0 0 1 1 1 1	60	
1 0 1 1 1 1	61	Swap Card-Mem (Not MP216
0 1 1 1 1 1	62	Card to Mem or RU216).
1 1 1 1 1 1	63	Force Remote Blackout

Notes:
E.2.-7 = Environment Keyboard No.2, Keyboard Pad No.7.
The Keyboards driven may be in Flash, Swap or Solo, but Latch, which toggles with each press, should be used with caution as it is possible to lose track of whether a key is off or on.

Although this socket only allows the selection of Environments and Environment Chases, this does give you access to everything since an Environment could contain as little as just 1 channel level for example.

The Input Signals may be momentary but need to last 25ms. With momentary inputs, a number of Masterpiece Out Stations may be wired in parallel to operate the same Masterpiece.

Input 63 - Force a Remote Blackout, is required by some Fire Authorities to force a blackout of a club's effects lights.

The required "binary" input signals can be produced using diodes from a contact closure from the "Is" on Pin 1.

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Masterpiece 216 Program Record Sheet

DMX Patch - 216 PMX Channels To 512 DMX Slots

PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes
	1				41				81				121				161				201				241		
	2				42				82				122				162				202				242		
	3				43				83				123				163				203				243		
	4				44				84				124				164				204				244		
	5				45				85				125				165				205				245		
	6				46				86				126				166				206				246		
	7				47				87				127				167				207				247		
	8				48				88				128				168				208				248		
	9				49				89				129				169				209				249		
	10				50				90				130				170				210				250		
	11				51				91				131				171				211				251		
	12				52				92				132				172				212				252		
	13				53				93				133				173				213				253		
	14				54				94				134				174				214				254		
	15				55				95				135				175				215				255		
	16				56				96				136				176				216				256		
	17				57				97				137				177				217						
	18				58				98				138				178				218						
	19				59				99				139				179				219						
	20				60				100				140				180				220						
	21				61				101				141				181				221						
	22				62				102				142				182				222						
	23				63				103				143				183				223						
	24				64				104				144				184				224						
	25				65				105				145				185				225						
	26				66				106				146				186				226						
	27				67				107				147				187				227						
	28				68				108				148				188				228						
	29				69				109				149				189				229						
	30				70				110				150				190				230						
	31				71				111				151				191				231						
	32				72				112				152				192				232						
	33				73				113				153				193				233						
	34				74				114				154				194				234						
	35				75				115				155				195				235						
	36				76				116				156				196				236						
	37				77				117				157				197				237						
	38				78				118				158				198				238						
	39				79				119				159				199				239						
	40				80				120				160				200				240						

Masterpiece 216 Program Record Sheet

DMX Patch - 216 PMX Channels To 512 DMX Slots

PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes
	257				297				337				377				417				457				497		
	258				298				338				378				418				458				498		
	259				299				339				379				419				459				499		
	260				300				340				380				420				460				500		
	261				301				341				381				421				461				501		
	262				302				342				382				422				462				502		
	263				303				343				383				423				463				503		
	264				304				344				384				424				464				504		
	265				305				345				385				425				465				505		
	266				306				346				386				426				466				506		
	267				307				347				387				427				467				507		
	268				308				348				388				428				468				508		
	269				309				349				389				429				469				509		
	270				310				350				390				430				470				510		
	271				311				351				391				431				471				511		
	272				312				352				392				432				472				512		
	273				313				353				393				433				473						
	274				314				354				394				434				474						
	275				315				355				395				435				475						
	276				316				356				396				436				476						
	277				317				357				397				437				477						
	278				318				358				398				438				478						
	279				319				359				399				439				479						
	280				320				360				400				440				480						
	281				321				361				401				441				481						
	282				322				362				402				442				482						
	283				323				363				403				443				483						
	284				324				364				404				444				484						
	285				325				365				405				445				485						
	286				326				366				406				446				486						
	287				327				367				407				447				487						
	288				328				368				408				448				488						
	289				329				369				409				449				489						
	290				330				370				410				450				490						
	291				331				371				411				451				491						
	292				332				372				412				452				492						
	293				333				373				413				453				493						
	294				334				374				414				454				494						
	295				335				375				415				455				495						
	296				336				376				416				456				496						

Masterpiece 216 Program Record Sheet

CHANNEL OUTPUTS 1 - 108

Output Select 1 Channels 1-18		Ch. No.	Output Select 2 Channels 19-36		Ch. No.	Output Select 3 Channels 36-54		Ch. No.
O.1.-1		1	O.2.-1		19	O.3.-1		37
O.1.-2		2	O.2.-2		20	O.3.-2		38
O.1.-3		3	O.2.-3		21	O.3.-3		39
O.1.-4		4	O.2.-4		22	O.3.-4		40
O.1.-5		5	O.2.-5		23	O.3.-5		41
O.1.-6		6	O.2.-6		24	O.3.-6		42
O.1.-7		7	O.2.-7		25	O.3.-7		43
O.1.-8		8	O.2.-8		26	O.3.-8		44
O.1.-9		9	O.2.-9		27	O.3.-9		45
O.1.10		10	O.2.10		28	O.3.10		46
O.1.11		11	O.2.11		29	O.3.11		47
O.1.12		12	O.2.12		30	O.3.12		48
O.1.13		13	O.2.13		31	O.3.13		49
O.1.14		14	O.2.14		32	O.3.14		50
O.1.15		15	O.2.15		33	O.3.15		51
O.1.16		16	O.2.16		34	O.3.16		52
O.1.17		17	O.2.17		35	O.3.17		53
O.1.18		18	O.2.18		36	O.3.18		54

Output Select 4 Channels 55-72		Ch. No.	Output Select 5 Channels 73-90		Ch. No.	Output Select 6 Channels 91-108		Ch. No.
O.4.-1		55	O.5.-1		73	O.6.-1		91
O.4.-2		56	O.5.-2		74	O.6.-2		92
O.4.-3		57	O.5.-3		75	O.6.-3		93
O.4.-4		58	O.5.-4		76	O.6.-4		94
O.4.-5		59	O.5.-5		77	O.6.-5		95
O.4.-6		60	O.5.-6		78	O.6.-6		96
O.4.-7		61	O.5.-7		79	O.6.-7		97
O.4.-8		62	O.5.-8		80	O.6.-8		98
O.4.-9		63	O.5.-9		81	O.6.-9		99
O.4.10		64	O.5.10		82	O.6.10		100
O.4.11		65	O.5.11		83	O.6.11		101
O.4.12		66	O.5.12		84	O.6.12		102
O.4.13		67	O.5.13		85	O.6.13		103
O.4.14		68	O.5.14		86	O.6.14		104
O.4.15		69	O.5.15		87	O.6.15		105
O.4.16		70	O.5.16		88	O.6.16		106
O.4.17		71	O.5.17		89	O.6.17		107
O.4.18		72	O.5.18		90	O.6.18		108

Masterpiece 216 Program Record Sheet

CHANNEL OUTPUTS 109 - 216

	Output Select 7 Channels 109-126	Ch. No.		Output Select 8 Channels 127-144	Ch. No.		Output Select 9 Channels 145-162	Ch. No.
O.1.-1		109	O.2.-1		127	O.3.-1		145
O.1.-2		110	O.2.-2		128	O.3.-2		146
O.1.-3		111	O.2.-3		129	O.3.-3		147
O.1.-4		112	O.2.-4		130	O.3.-4		148
O.1.-5		113	O.2.-5		131	O.3.-5		149
O.1.-6		114	O.2.-6		132	O.3.-6		150
O.1.-7		115	O.2.-7		133	O.3.-7		151
O.1.-8		116	O.2.-8		134	O.3.-8		152
O.1.-9		117	O.2.-9		135	O.3.-9		153
O.1.10		118	O.2.10		136	O.3.10		154
O.1.11		119	O.2.11		137	O.3.11		155
O.1.12		120	O.2.12		138	O.3.12		156
O.1.13		121	O.2.13		139	O.3.13		157
O.1.14		122	O.2.14		140	O.3.14		158
O.1.15		123	O.2.15		141	O.3.15		159
O.1.16		124	O.2.16		142	O.3.16		160
O.1.17		125	O.2.17		143	O.3.17		161
O.1.18		126	O.2.18		144	O.3.18		162

	Output Select 10 Channels 163-180	Ch. No.		Output Select 11 Channels 181-198	Ch. No.		Output Select 12 Channels 199-216	Ch. No.
O.4.-1		163	O.5.-1		181	O.6.-1		199
O.4.-2		164	O.5.-2		182	O.6.-2		200
O.4.-3		165	O.5.-3		183	O.6.-3		201
O.4.-4		166	O.5.-4		184	O.6.-4		202
O.4.-5		167	O.5.-5		185	O.6.-5		203
O.4.-6		168	O.5.-6		186	O.6.-6		204
O.4.-7		169	O.5.-7		187	O.6.-7		205
O.4.-8		170	O.5.-8		188	O.6.-8		206
O.4.-9		171	O.5.-9		189	O.6.-9		207
O.4.10		172	O.5.10		190	O.6.10		208
O.4.11		173	O.5.11		191	O.6.11		209
O.4.12		174	O.5.12		192	O.6.12		210
O.4.13		175	O.5.13		193	O.6.13		211
O.4.14		176	O.5.14		194	O.6.14		212
O.4.15		177	O.5.15		195	O.6.15		213
O.4.16		178	O.5.16		196	O.6.16		214
O.4.17		179	O.5.17		197	O.6.17		215
O.4.18		180	O.5.18		198	O.6.18		216

Masterpiece 216 Program Record Sheet

SCENES

Scene Keyboard 1		In	Out
S.1.-1			
S.1.-2			
S.1.-3			
S.1.-4			
S.1.-5			
S.1.-6			
S.1.-7			
S.1.-8			
S.1.-9			
S.1.10			
S.1.11			
S.1.12			
S.1.13			
S.1.14			
S.1.15			
S.1.16			
S.1.17			
S.1.18			

Scene Keyboard 2		In	Out
S.2.-1			
S.2.-2			
S.2.-3			
S.2.-4			
S.2.-5			
S.2.-6			
S.2.-7			
S.2.-8			
S.2.-9			
S.2.10			
S.2.11			
S.2.12			
S.2.13			
S.2.14			
S.2.15			
S.2.16			
S.2.17			
S.2.18			

Scene Keyboard 3		In	Out
S.3.-1			
S.3.-2			
S.3.-3			
S.3.-4			
S.3.-5			
S.3.-6			
S.3.-7			
S.3.-8			
S.3.-9			
S.3.10			
S.3.11			
S.3.12			
S.3.13			
S.3.14			
S.3.15			
S.3.16			
S.3.17			
S.3.18			

Scene Keyboard 4		In	Out
S.4.-1			
S.4.-2			
S.4.-3			
S.4.-4			
S.4.-5			
S.4.-6			
S.4.-7			
S.4.-8			
S.4.-9			
S.4.10			
S.4.11			
S.4.12			
S.4.13			
S.4.14			
S.4.15			
S.4.16			
S.4.17			
S.4.18			

Scene Keyboard 5		In	Out
S.5.-1			
S.5.-2			
S.5.-3			
S.5.-4			
S.5.-5			
S.5.-6			
S.5.-7			
S.5.-8			
S.5.-9			
S.5.10			
S.5.11			
S.5.12			
S.5.13			
S.5.14			
S.5.15			
S.5.16			
S.5.17			
S.5.18			

Scene Keyboard 6		In	Out
S.6.-1			
S.6.-2			
S.6.-3			
S.6.-4			
S.6.-5			
S.6.-6			
S.6.-7			
S.6.-8			
S.6.-9			
S.6.10			
S.6.11			
S.6.12			
S.6.13			
S.6.14			
S.6.15			
S.6.16			
S.6.17			
S.6.18			

Masterpiece 216 Program Record Sheet

SCENES

Scene Keyboard 7		In	Out
S.7.-1			
S.7.-2			
S.7.-3			
S.7.-4			
S.7.-5			
S.7.-6			
S.7.-7			
S.7.-8			
S.7.-9			
S.7.10			
S.7.11			
S.7.12			
S.7.13			
S.7.14			
S.7.15			
S.7.16			
S.7.17			
S.7.18			

Scene Keyboard 8		In	Out
S.8.-1			
S.8.-2			
S.8.-3			
S.8.-4			
S.8.-5			
S.8.-6			
S.8.-7			
S.8.-8			
S.8.-9			
S.8.10			
S.8.11			
S.8.12			
S.8.13			
S.8.14			
S.8.15			
S.8.16			
S.8.17			
S.8.18			

Scene Keyboard 9		In	Out
S.9.-1			
S.9.-2			
S.9.-3			
S.9.-4			
S.9.-5			
S.9.-6			
S.9.-7			
S.9.-8			
S.9.-9			
S.9.10			
S.9.11			
S.9.12			
S.9.13			
S.9.14			
S.9.15			
S.9.16			
S.9.17			
S.9.18			

Scene Keyboard 10		In	Out	Midi
S.10.-1				0
S.10.-2				1
S.10.-3				2
S.10.-4				3
S.10.-5				4
S.10.-6				5
S.10.-7				6
S.10.-8				7
S.10.-9				8
S.10.10				9
S.10.11				10
S.10.12				11
S.10.13				12
S.10.14				13
S.10.15				14
S.10.16				15
S.10.17				16
S.10.18				17

Scene Keyboard 11		In	Out	Midi
S.11.-1				18
S.11.-2				19
S.11.-3				20
S.11.-4				21
S.11.-5				22
S.11.-6				23
S.11.-7				24
S.11.-8				25
S.11.-9				26
S.11.10				27
S.11.11				28
S.11.12				29
S.11.13				30
S.11.14				31
S.11.15				32
S.11.16				33
S.11.17				34
S.11.18				35

Scene Keyboard 12 For S2L and Joystick			In	Out
S.12.-1		Bass 1		
S.12.-2		Tenor 1		
S.12.-3		Alto 1		
S.12.-4		Treble 1		
S.12.-5		Bass 2		
S.12.-6		Tenor 2		
S.12.-7		Alto 2		
S.12.-8		Treble 2		
S.12.-9		Bass 3		
S.12.10		Tenor 3		
S.12.11		Alto 3		
S.12.12		Treble 3		
S.12.13		Joy Left		
S.12.14		Joy Right		
S.12.15		Joy Centre		
S.12.16		Joy Up		
S.12.17		Joy Down		
S.12.18		Joy Vel / Pos		

Masterpiece 216 Program Record Sheet

CHASES, ENVIRONMENTS & ENVIRONMENT CHASES

Chase Keyboard 1		In	Out	Speed	Slope
C.1.-1					
C.1.-2					
C.1.-3					
C.1.-4					
C.1.-5					
C.1.-6					
C.1.-7					
C.1.-8					
C.1.-9					
C.1.10					
C.1.11					
C.1.12					
C.1.13					
C.1.14					
C.1.15					
C.1.16					
C.1.17					
C.1.18					

Chase Keyboard 2		In	Out	Speed	Slope
C.2.-1					
C.2.-2					
C.2.-3					
C.2.-4					
C.2.-5					
C.2.-6					
C.2.-7					
C.2.-8					
C.2.-9					
C.2.10					
C.2.11					
C.2.12					
C.2.13					
C.2.14					
C.2.15					
C.2.16					
C.2.17					
C.2.18					

Chase Keyboard 3		In	Out	Speed	Slope	Midi
C.3.-1						99
C.3.-2						100
C.3.-3						101
C.3.-4						102
C.3.-5						103
C.3.-6						104
C.3.-7						105
C.3.-8						106
C.3.-9						107
C.3.10						108
C.3.11						109
C.3.12						110
C.3.13						111
C.3.14						112
C.3.15						113
C.3.16						114
C.3.17						115
C.3.18						116

Environment Keyboard 1		Midi R.C.
E.1.-1		36 100000
E.1.-2		37 010000
E.1.-3		38 110000
E.1.-4		39 001000
E.1.-5		40 101000
E.1.-6		41 011000
E.1.-7		42 111000
E.1.-8		43 000100
E.1.-9		44 100100
E.1.10		45 010100
E.1.11		46 110100
E.1.12		47 001100
E.1.13		48 101100
E.1.14		49 011100
E.1.15		50 111100
E.1.16		51 000010
E.1.17		52 100010
E.1.18		53 010010

Environment Keyboard 2		Midi R.C.
E.2.-1		54 110010
E.2.-2		55 001010
E.2.-3		56 101010
E.2.-4		57 011010
E.2.-5		58 111010
E.2.-6		59 000110
E.2.-7		60 100110
E.2.-8		61 010110
E.2.-9		62 110110
E.2.10		63 001110
E.2.11		64 101110
E.2.12		65 011110
E.2.13		66 111110
E.2.14		67 000001
E.2.15		68 100001
E.2.16		69 010001
E.2.17		70 110001
E.2.18		71 001001

Environment Chases Keyboard 1 (Pads 1-6) Environment Keyboard 3 (Pads 7-18)		In	Out	Speed	Slope	Midi
E.C.-1						72 101001
E.C.-2						73 011001
E.C.-3						74 111001
E.C.-4						75 000101
E.C.-5						76 100101
E.C.-6						77 010101
E.3.-7						78 110101
E.3.-8						79 001101
E.3.-9						80 101101
E.3.10						81 011101
E.3.11						82 111101
E.3.12						83 000011
E.3.13						84 100011
E.3.14						85 010011
E.3.15						86 110011
E.3.16						87 001011
E.3.17						88 101011
E.3.18						89 011011

DMX Patch - 108 PMX Channels To 256 DMX Slots

Masterpiece 108 Program Record Sheet

PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes	PMX Ch.	DMX Slot	DMX Slot's Function	Notes
	1				41				81				121				161				201				241		
	2				42				82				122				162				202				242		
	3				43				83				123				163				203				243		
	4				44				84				124				164				204				244		
	5				45				85				125				165				205				245		
	6				46				86				126				166				206				246		
	7				47				87				127				167				207				247		
	8				48				88				128				168				208				248		
	9				49				89				129				169				209				249		
	10				50				90				130				170				210				250		
	11				51				91				131				171				211				251		
	12				52				92				132				172				212				252		
	13				53				93				133				173				213				253		
	14				54				94				134				174				214				254		
	15				55				95				135				175				215				255		
	16				56				96				136				176				216				256		
	17				57				97				137				177				217						
	18				58				98				138				178				218						
	19				59				99				139				179				219						
	20				60				100				140				180				220						
	21				61				101				141				181				221						
	22				62				102				142				182				222						
	23				63				103				143				183				223						
	24				64				104				144				184				224						
	25				65				105				145				185				225						
	26				66				106				146				186				226						
	27				67				107				147				187				227						
	28				68				108				148				188				228						
	29				69				109				149				189				229						
	30				70				110				150				190				230						
	31				71				111				151				191				231						
	32				72				112				152				192				232						
	33				73				113				153				193				233						
	34				74				114				154				194				234						
	35				75				115				155				195				235						
	36				76				116				156				196				236						
	37				77				117				157				197				237						
	38				78				118				158				198				238						
	39				79				119				159				199				239						
	40				80				120				160				200				240						

Masterpiece 108 Program Record Sheet

CHANNEL OUTPUTS 1 - 108

Output Select 1 Channels 1-18		Ch. No.	Output Select 2 Channels 19-36		Ch. No.	Output Select 3 Channels 36-54		Ch. No.
O.1.-1		1	O.2.-1		19	O.3.-1		37
O.1.-2		2	O.2.-2		20	O.3.-2		38
O.1.-3		3	O.2.-3		21	O.3.-3		39
O.1.-4		4	O.2.-4		22	O.3.-4		40
O.1.-5		5	O.2.-5		23	O.3.-5		41
O.1.-6		6	O.2.-6		24	O.3.-6		42
O.1.-7		7	O.2.-7		25	O.3.-7		43
O.1.-8		8	O.2.-8		26	O.3.-8		44
O.1.-9		9	O.2.-9		27	O.3.-9		45
O.1.10		10	O.2.10		28	O.3.10		46
O.1.11		11	O.2.11		29	O.3.11		47
O.1.12		12	O.2.12		30	O.3.12		48
O.1.13		13	O.2.13		31	O.3.13		49
O.1.14		14	O.2.14		32	O.3.14		50
O.1.15		15	O.2.15		33	O.3.15		51
O.1.16		16	O.2.16		34	O.3.16		52
O.1.17		17	O.2.17		35	O.3.17		53
O.1.18		18	O.2.18		36	O.3.18		54

Output Select 4 Channels 55-72		Ch. No.	Output Select 5 Channels 73-90		Ch. No.	Output Select 6 Channels 91-108		Ch. No.
O.4.-1		55	O.5.-1		73	O.6.-1		91
O.4.-2		56	O.5.-2		74	O.6.-2		92
O.4.-3		57	O.5.-3		75	O.6.-3		93
O.4.-4		58	O.5.-4		76	O.6.-4		94
O.4.-5		59	O.5.-5		77	O.6.-5		95
O.4.-6		60	O.5.-6		78	O.6.-6		96
O.4.-7		61	O.5.-7		79	O.6.-7		97
O.4.-8		62	O.5.-8		80	O.6.-8		98
O.4.-9		63	O.5.-9		81	O.6.-9		99
O.4.10		64	O.5.10		82	O.6.10		100
O.4.11		65	O.5.11		83	O.6.11		101
O.4.12		66	O.5.12		84	O.6.12		102
O.4.13		67	O.5.13		85	O.6.13		103
O.4.14		68	O.5.14		86	O.6.14		104
O.4.15		69	O.5.15		87	O.6.15		105
O.4.16		70	O.5.16		88	O.6.16		106
O.4.17		71	O.5.17		89	O.6.17		107
O.4.18		72	O.5.18		90	O.6.18		108

Masterpiece 108 Program Record Sheet

SCENES

Scene Keyboard 1		In	Out
S.1.-1			
S.1.-2			
S.1.-3			
S.1.-4			
S.1.-5			
S.1.-6			
S.1.-7			
S.1.-8			
S.1.-9			
S.1.10			
S.1.11			
S.1.12			
S.1.13			
S.1.14			
S.1.15			
S.1.16			
S.1.17			
S.1.18			

Scene Keyboard 2		In	Out
S.2.-1			
S.2.-2			
S.2.-3			
S.2.-4			
S.2.-5			
S.2.-6			
S.2.-7			
S.2.-8			
S.2.-9			
S.2.10			
S.2.11			
S.2.12			
S.2.13			
S.2.14			
S.2.15			
S.2.16			
S.2.17			
S.2.18			

Scene Keyboard 3		In	Out
S.3.-1			
S.3.-2			
S.3.-3			
S.3.-4			
S.3.-5			
S.3.-6			
S.3.-7			
S.3.-8			
S.3.-9			
S.3.10			
S.3.11			
S.3.12			
S.3.13			
S.3.14			
S.3.15			
S.3.16			
S.3.17			
S.3.18			

Scene Keyboard 4		In	Out
S.4.-1			
S.4.-2			
S.4.-3			
S.4.-4			
S.4.-5			
S.4.-6			
S.4.-7			
S.4.-8			
S.4.-9			
S.4.10			
S.4.11			
S.4.12			
S.4.13			
S.4.14			
S.4.15			
S.4.16			
S.4.17			
S.4.18			

Scene Keyboard 5		In	Out
S.5.-1			
S.5.-2			
S.5.-3			
S.5.-4			
S.5.-5			
S.5.-6			
S.5.-7			
S.5.-8			
S.5.-9			
S.5.10			
S.5.11			
S.5.12			
S.5.13			
S.5.14			
S.5.15			
S.5.16			
S.5.17			
S.5.18			

Scene Keyboard 6		In	Out
S.6.-1			
S.6.-2			
S.6.-3			
S.6.-4			
S.6.-5			
S.6.-6			
S.6.-7			
S.6.-8			
S.6.-9			
S.6.10			
S.6.11			
S.6.12			
S.6.13			
S.6.14			
S.6.15			
S.6.16			
S.6.17			
S.6.18			

Masterpiece 108 Program Record Sheet

SCENES

Scene Keyboard 7		In	Out
S.7.-1			
S.7.-2			
S.7.-3			
S.7.-4			
S.7.-5			
S.7.-6			
S.7.-7			
S.7.-8			
S.7.-9			
S.7.10			
S.7.11			
S.7.12			
S.7.13			
S.7.14			
S.7.15			
S.7.16			
S.7.17			
S.7.18			

Scene Keyboard 8		In	Out
S.8.-1			
S.8.-2			
S.8.-3			
S.8.-4			
S.8.-5			
S.8.-6			
S.8.-7			
S.8.-8			
S.8.-9			
S.8.10			
S.8.11			
S.8.12			
S.8.13			
S.8.14			
S.8.15			
S.8.16			
S.8.17			
S.8.18			

Scene Keyboard 9		In	Out
S.9.-1			
S.9.-2			
S.9.-3			
S.9.-4			
S.9.-5			
S.9.-6			
S.9.-7			
S.9.-8			
S.9.-9			
S.9.10			
S.9.11			
S.9.12			
S.9.13			
S.9.14			
S.9.15			
S.9.16			
S.9.17			
S.9.18			

Scene Keyboard 10		In	Out	Midi
S.10.-1				0
S.10.-2				1
S.10.-3				2
S.10.-4				3
S.10.-5				4
S.10.-6				5
S.10.-7				6
S.10.-8				7
S.10.-9				8
S.10.10				9
S.10.11				10
S.10.12				11
S.10.13				12
S.10.14				13
S.10.15				14
S.10.16				15
S.10.17				16
S.10.18				17

Scene Keyboard 11		In	Out	Midi
S.11.-1				18
S.11.-2				19
S.11.-3				20
S.11.-4				21
S.11.-5				22
S.11.-6				23
S.11.-7				24
S.11.-8				25
S.11.-9				26
S.11.10				27
S.11.11				28
S.11.12				29
S.11.13				30
S.11.14				31
S.11.15				32
S.11.16				33
S.11.17				34
S.11.18				35

Scene Keyboard 12 For S2L and Joystick			In	Out
S.12.-1		Bass 1		
S.12.-2		Tenor 1		
S.12.-3		Alto 1		
S.12.-4		Treble 1		
S.12.-5		Bass 2		
S.12.-6		Tenor 2		
S.12.-7		Alto 2		
S.12.-8		Treble 2		
S.12.-9		Bass 3		
S.12.10		Tenor 3		
S.12.11		Alto 3		
S.12.12		Treble 3		
S.12.13		Joy Left		
S.12.14		Joy Right		
S.12.15		Joy Centre		
S.12.16		Joy Up		
S.12.17		Joy Down		
S.12.18		Joy Vel / Pos		

Masterpiece 108 Program Record Sheet

CHASES, ENVIRONMENTS & ENVIRONMENT CHASES

Chase Keyboard 1		In	Out	Speed	Slope
C.1.-1					
C.1.-2					
C.1.-3					
C.1.-4					
C.1.-5					
C.1.-6					
C.1.-7					
C.1.-8					
C.1.-9					
C.1.10					
C.1.11					
C.1.12					
C.1.13					
C.1.14					
C.1.15					
C.1.16					
C.1.17					
C.1.18					

Chase Keyboard 2		In	Out	Speed	Slope
C.2.-1					
C.2.-2					
C.2.-3					
C.2.-4					
C.2.-5					
C.2.-6					
C.2.-7					
C.2.-8					
C.2.-9					
C.2.10					
C.2.11					
C.2.12					
C.2.13					
C.2.14					
C.2.15					
C.2.16					
C.2.17					
C.2.18					

Chase Keyboard 3		In	Out	Speed	Slope	Midi
C.3.-1						99
C.3.-2						100
C.3.-3						101
C.3.-4						102
C.3.-5						103
C.3.-6						104
C.3.-7						105
C.3.-8						106
C.3.-9						107
C.3.10						108
C.3.11						109
C.3.12						110
C.3.13						111
C.3.14						112
C.3.15						113
C.3.16						114
C.3.17						115
C.3.18						116

Environment Keyboard 1		Midi R.C.
E.1.-1		36 100000
E.1.-2		37 010000
E.1.-3		38 110000
E.1.-4		39 001000
E.1.-5		40 101000
E.1.-6		41 011000
E.1.-7		42 111000
E.1.-8		43 000100
E.1.-9		44 100100
E.1.10		45 010100
E.1.11		46 110100
E.1.12		47 001100
E.1.13		48 101100
E.1.14		49 011100
E.1.15		50 111100
E.1.16		51 000010
E.1.17		52 100010
E.1.18		53 010010

Environment Keyboard 2		Midi R.C.
E.2.-1		54 110010
E.2.-2		55 001010
E.2.-3		56 101010
E.2.-4		57 011010
E.2.-5		58 111010
E.2.-6		59 000110
E.2.-7		60 100110
E.2.-8		61 010110
E.2.-9		62 110110
E.2.10		63 001110
E.2.11		64 101110
E.2.12		65 011110
E.2.13		66 111110
E.2.14		67 000001
E.2.15		68 100001
E.2.16		69 010001
E.2.17		70 110001
E.2.18		71 001001

Environment Chases Keyboard 1 (Pads 1-6) Environment Keyboard 3 (Pads 7-18)						
E.C.-1						72 101001
E.C.-2						73 011001
E.C.-3						74 111001
E.C.-4						75 000101
E.C.-5						76 100101
E.C.-6						77 010101
E.3.-7						78 110101
E.3.-8						79 001101
E.3.-9						80 101101
E.3.10						81 011101
E.3.11						82 111101
E.3.12						83 000011
E.3.13						84 100011
E.3.14						85 010011
E.3.15						86 110011
E.3.16						87 001011
E.3.17						88 101011
E.3.18						89 011011

Masterpiece 48 Program Record Sheet

CHANNEL OUTPUTS 1 - 48

	Output Select 1 Channels 1-12	Ch. No.		Output Select 2 Channels 12-24	Ch. No.		Output Select 3 Channels 25-36	Ch. No.
O.1.-1		1	O.2.-1		13	O.3.-1		25
O.1.-2		2	O.2.-2		14	O.3.-2		26
O.1.-3		3	O.2.-3		15	O.3.-3		27
O.1.-4		4	O.2.-4		16	O.3.-4		28
O.1.-5		5	O.2.-5		17	O.3.-5		29
O.1.-6		6	O.2.-6		18	O.3.-6		30
O.1.-7		7	O.2.-7		19	O.3.-7		31
O.1.-8		8	O.2.-8		20	O.3.-8		32
O.1.-9		9	O.2.-9		21	O.3.-9		33
O.1.10		10	O.2.10		22	O.3.10		34
O.1.11		11	O.2.11		23	O.3.11		35
O.1.12		12	O.2.12		24	O.3.12		36
	Output Select 4 Channels 37-48	**Ch. No.**						
O.4.-1		37						
O.4.-2		38						
O.4.-3		39						
O.4.-4		40						
O.4.-5		41						
O.4.-6		42						
O.4.-7		43						
O.4.-8		44						
O.4.-9		45						
O.4.10		46						
O.4.11		47						
O.4.12		48						

Masterpiece 48 Program Record Sheet

SCENES

Scene Keyboard 1		Scene Keyboard 2		Scene Keyboard 3	
S.1.-1		S.2.-1		S.3.-1	
S.1.-2		S.2.-2		S.3.-2	
S.1.-3		S.2.-3		S.3.-3	
S.1.-4		S.2.-4		S.3.-4	
S.1.-5		S.2.-5		S.3.-5	
S.1.-6		S.2.-6		S.3.-6	
S.1.-7		S.2.-7		S.3.-7	
S.1.-8		S.2.-8		S.3.-8	
S.1.-9		S.2.-9		S.3.-9	
S.1.10		S.2.10		S.3.10	
S.1.11		S.2.11		S.3.11	
S.1.12		S.2.12		S.3.12	

Scene Keyboard 4		Scene Keyboard 5		Scene Keyboard 6	
S.4.-1		S.5.-1		S.6.-1	
S.4.-2		S.5.-2		S.6.-2	
S.4.-3		S.5.-3		S.6.-3	
S.4.-4		S.5.-4		S.6.-4	
S.4.-5		S.5.-5		S.6.-5	
S.4.-6		S.5.-6		S.6.-6	
S.4.-7		S.5.-7		S.6.-7	
S.4.-8		S.5.-8		S.6.-8	
S.4.-9		S.5.-9		S.6.-9	
S.4.10		S.5.10		S.6.10	
S.4.11		S.5.11		S.6.11	
S.4.12		S.5.12		S.6.12	

Masterpiece 48 Program Record Sheet

SCENES

Scene Keyboard 7		Scene Keyboard 8		Chase Keyboard 1		Speed	Slope
S.7.-1		S.8.-1		C.1.-1			
S.7.-2		S.8.-2		C.1.-2			
S.7.-3		S.8.-3		C.1.-3			
S.7.-4		S.8.-4		C.1.-4			
S.7.-5		S.8.-5		C.1.-5			
S.7.-6		S.8.-6		C.1.-6			
S.7.-7		S.8.-7		C.1.-7			
S.7.-8		S.8.-8		C.1.-8			
S.7.-9		S.8.-9		C.1.-9			
S.7.-10		S.8.-10		C.1.-10			
S.7.-11		S.8.-11		C.1.-11			
S.7.12		S.8.-12		C.1.-12			

CHASES

Chase Keyboard 2		Speed	Slope
C.2.-1			
C.2.-2			
C.2.-3			
C.2.-4			
C.2.-5			
C.2.-6			
C.2.-7			
C.2.-8			
C.2.-9			
C.2.-10			
C.2.-11			
C.2.-12			

ENVIRONMENT & ENVIRONMENT CHASES

Environment Keyboard 1		Environment Keyboard 2 Environment Chase Keyboard 1			
E.1.-1		E.2.-1			
E.1.-2		E.2.-2			
E.1.-3		E.2.-3			
E.1.-4		E.2.-4			
E.1.-5		E.2.-5			
E.1.-6		E.2.-6			
E.1.-7		E.2.-7			
E.1.-8		E.2.-8			
E.1.-9		E.2.-9			
E.1.-10		E.2.-10			
E.1.-11		E.C.-1			
E.1.-12		E.C.-2			