

MA1024/2048/3000

MOVING LIGHT CONTROLLER

Users Manual

(VER:3.9)



Net.DO LIGHTING CONTROL EQUIPMENT CO.,LTD

<http://www.netdo.com.cn>

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1. Summary

1.1 Functions

MA series' Intelligent Fixtures Controller, with microcomputer as core, in adoption of new technology, has more powerful and more humanized functions.

- DMX512/1990 standard, photoelectric isolation signal output.
- Use Library Setup Mode (Compatible with Pearl 2008 Library);
- Input control mode of command line makes operation more convenient.
- Shape effect is convenient for users to control these many effects to intelligent fixture as circle, shape like 8 and rainbow etc. Parameters (speed, size, spread offset and direction) can be set independently and also outputted in superimposed mode.
- Music synchronization, automatic speed control, intelligent manual-run beat control (SWING) and MIDI control is selectable while Multi-Step-Program program is running.
- VGA interface is provided to connect up color CRT or LCD; detailed and visualized human-computer interface is easier to control.
- Adoption of independent photoelectric isolation DMX output port can protect safe operation of controller.
- Through USB interface, software of controller can be upgraded, and after that, controller can have more new functions; the latest software can be obtained from distributor or downloaded via internet.
- Data hold after shutdown.

1.2 Specification Parameters

	MA1024	MA2048	MA3000
DMX512/1990 signal output	Y	Y	Y
DMX512 Total Channels	1024	2048	2048
MAX Intelligent Fixtures	120	240	300
MAX Playback Programs	600	600	600
MAX Preset Focus	210	210	210
MAX Groups	200	200	200
MAX Snapshots	100	100	100
Shape-Generator	135 (15 Pages)	180 (20 Pages)	225 (25 Pages)
Input Mode of Command Line	Yes	Yes	Yes
CUE Mode	Yes	Yes	Yes
VGA Display Interface	Yes	Yes	Yes (Dual Display)
LCD Display Screen	Yes (Chinese/English)		
Synchronous Trigger Mode	Auto, Music, Intelligent Beat, MIDI		
Library Format	Compatible with Pearl 2008 Library (R20 Format)		
USB Data Interface	Yes		
Music Control Signal Input	Unbalanced line level input (1/4" Monophonic socket) / MIC input		
Power Source	Switch Power, Voltage 100~240VAC, 50/60Hz		
Power	25W		
Size	730mm x 540mm x 105mm		

2. Installation

2.1 Packing List

Packing List of MA series MOVING LIGHT CONTROLLER includes the items as follows:

- One MA Series MOVING LIGHT CONTROLLER
Ps: to confirm model of controller, please view model and software version number displayed on LCD when controller is on.
- One feed cable、one user guide.

Optional Parts

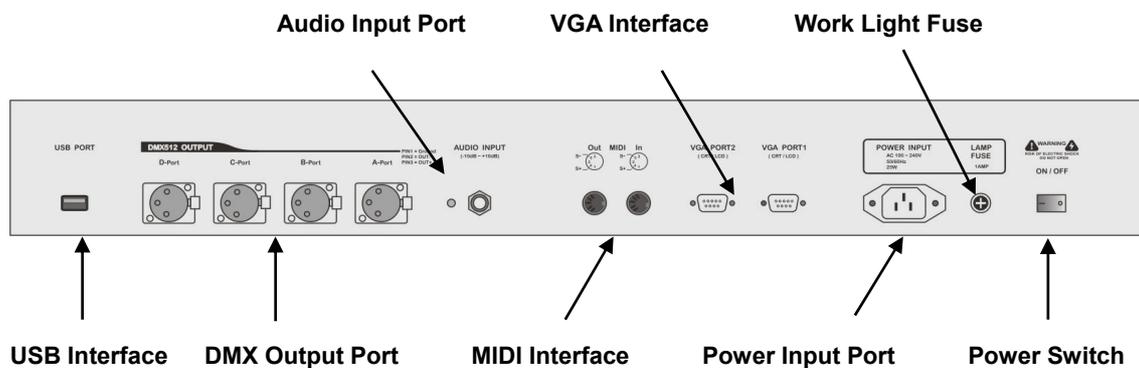
USB flash-disk; VGA display; 12V Gooseneck Work Light;

2.2 Safety Caution

- The controller must be connected with the protective groundwire to ensure safety.
- No liquid onto the controller.
- Intelligent fixture controller is sophisticated electronics. Please mind dust and moist.

2.3 Interface and Connection of Controller

Backboard Plot:

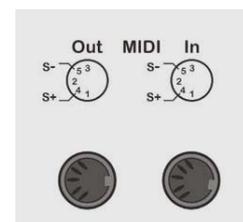


2.3.1 USB Interface

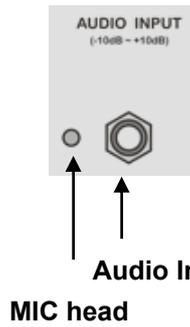
Controller provides a standard USB interface for its data backup, renewal of library files and application program upgrade.

2.3.2 MIDI Interface

Controller provides MIDI interface; MIDI note signal that is triggered externally can be received through in interface to control the operation of Multi-Step-Program.



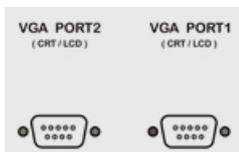
2.3.3 Audio Signal Source



- Audio signal can be taken from mixer controller, line level output of other audio equipments, or MIC input. Controller automatically extracts low-frequency component from music as music trigger synchronous signal for Multi-Step-Program program.

One 6.35 mm unbalanced mono audio input socket (Audio input) locates on the rear panel of controller, the accommodation of input level of audio signal covers -10dB ~ +10db; When audio device is plugged in, source of sound is line level input; when nothing is plugged in, source of sound is MIC selection.

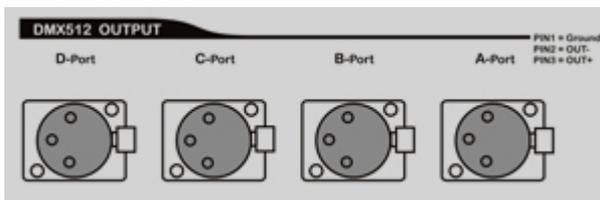
2.3.4 VGA Interface



Controller provides VGA interface, which can be externally connected with LCD or CRT monitor.

(Note: MA1024/2048 has only one VGA PORT1 port.)

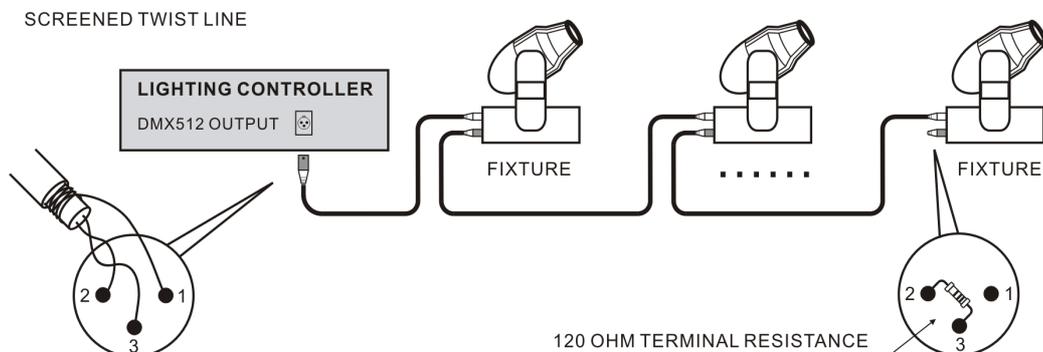
2.3.5 DMX Signal Interface & Connection of Fixture



There are 4 **DMX512** (MA1024 is only two) output sockets (shown as the left), all XLR structure, on the rear panel of controller, pin one for signal ground, pin 2 for negative, and pin 3 for positive.

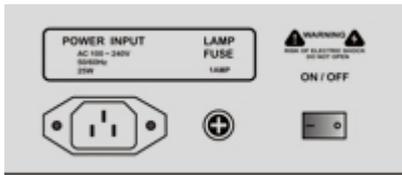
DMX512 cable is screened twist line.

Each end of the cable should be joined to XLR plug by user. Pin 1 of XLR plug is connected to screen net. Two lines of twist line (distinguished by different colors) are connected to pin 2 and pin 3 of the plug respectively. Please do not confuse. The schematic diagram for connection is shown as follows:



Pin number	Cable conductor
1	Shield
2	Negative
3	Positive

2.3.6 Power Interface



Controller adopts wide range switch power supply (AC100-240V/50-60HZ). Please confirm voltage is suitable to controller before connection. Power socket must be connected with protective groundwire to ensure safety. If to replace fuse, please disconnect power firstly and then operate to ensure safety.

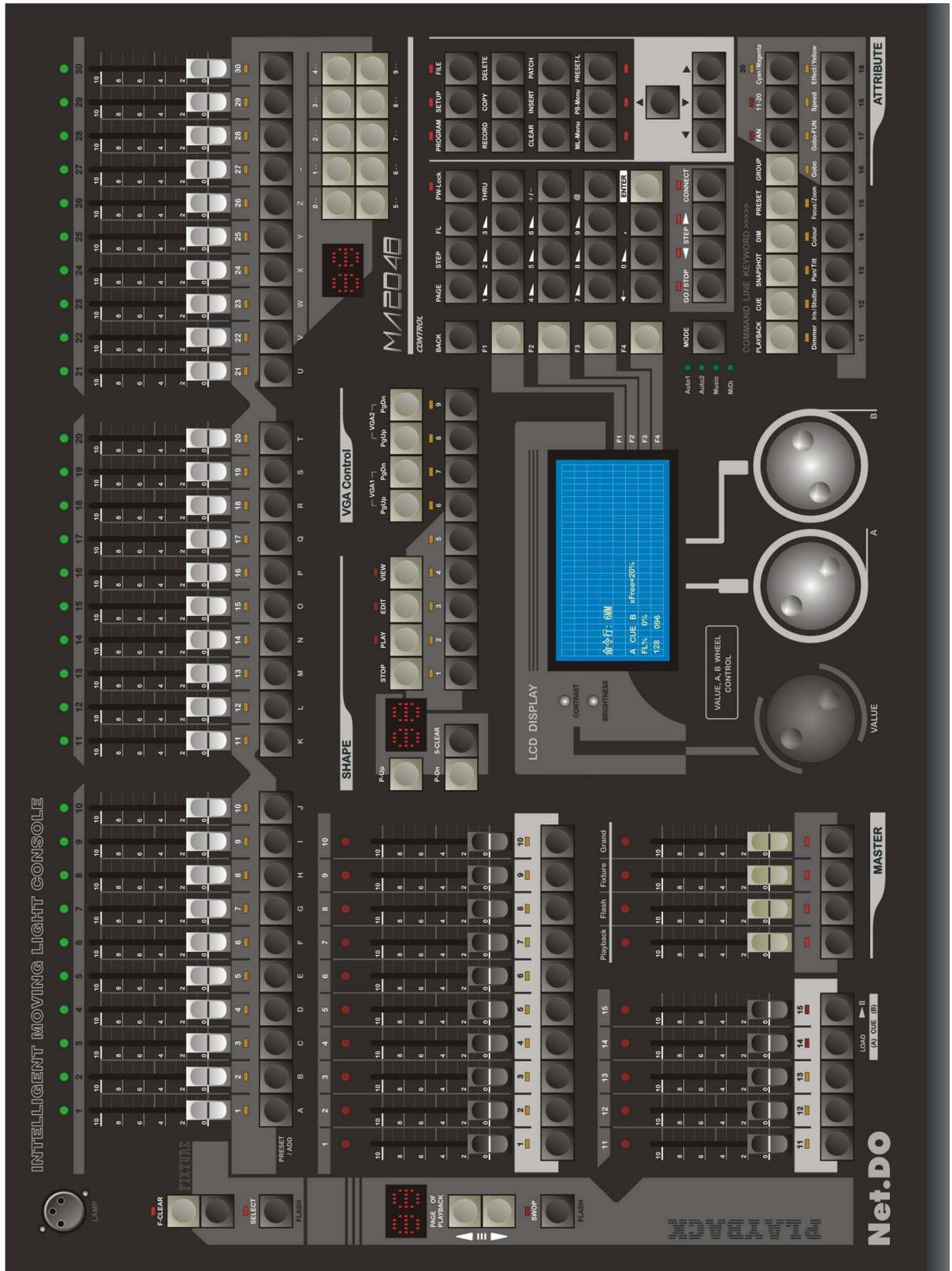
2.3.7 Gooseneck Light Interface

Controller has one gooseneck interface (3 cores XLR structure) at top right corner of the controller panel, able to connect up gooseneck work light (working voltage 12V/5W).

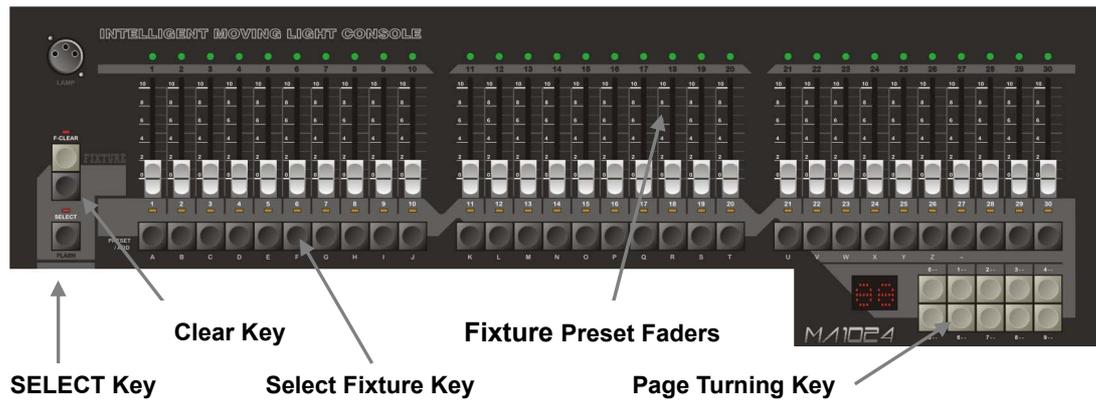


3. Operation Guide

3.1 Panel plot



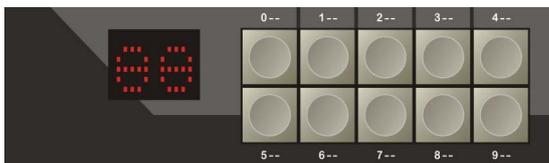
3.2 Preset Faders, Manual-run Light Area (Manual-run Area)



- **Preset Faders**

Controller provides 30 Preset Faders, each of which can control dimmer or dimmer of intelligent fixture independently (Manual-run is unnecessary). When fader is pushed up or pulled down, the light equipment connected with the fader changes dimmer correspondingly. One Preset Faders corresponds to one fixture number. Overall dimmer of branch controller is controlled by **Fixture Master Fader**.

- **Page Turning Key**



Page Turning Key locates on the right of Preset Faders. Fixture number 1~30 is in 0 page, 101~130 in 1st page, 201~230 in 2nd page, 301~330 in 3rd page, the rest may be deduced by analogy. Controller can also

allocate the selected fixture to Group, which is very useful to run Manual-run rapidly. (The relevant content is introduced in Group.)

- **SELECT Key**

SELECT is used to set work mode for Select Fixture key. Press this key, the corresponding indicator light is on, meanwhile Select Fixture key is for choosing fixture manually; when indicator light is off, the Select Fixture key is for dimmer flash.

- **Select Fixture Key**

Each Preset Faders is with a Select Fixtures key. Under different states, Select Fixture key functions differently as follows:

1. Used to select fixture (when SELECT indicator light is on);
 - * Press two Select Fixture keys simultaneously so as to make fixtures between each other chosen;
2. Used to dimmer flash (when SELECT indicator light is off, meanwhile Select Fixture key serves as flash);
3. Under File Management menu, used to input English letters (each key is marked with the corresponding English letter);
4. Key for choosing preset fouds: when press **PRESET-L** key and hold it on, Select Fixture key is used to directly choose preset.

● **F-CLEAR**

A total of two keys for clearing Manual-run are on manual-run light area (shown as the right).

The above key (grey key) is used to cancel the selected fixture and all the manually numeral value of Manual-run.

The below key (black key) is only used to cancel the selected fixture while not to clear the manually numeral value of Manual-run (for data hold).



Ps: flickering of indicator light of F-CLEAR key reminds you of having selected fixture or having Manual-run value. When indicator light above select fixture key flash slowly, it indicates that the attribute values of the fixture has been changed.

3.3 SHAPE Control Area



Controller provides control to SHAPE which can be easily called by users.

- **P-Up/P-Dn---** Page Turning key for SHAPE (Ps: press this key and hold it on, page can be turned up and down rapidly , each page contains 9 Shape-Generators).
- **S-CLEAR ---** To clear the currently called SHAPE by Manual-run.
- **STOP ---** Suspend the currently called SHAPE.
- **PLAY ---** To run the currently called SHAPE.
- **EDIT ---** Enter Edit Menu to set various parameters for Shape-Generator.
- **VIEW ---** To list the being called SHAPE.
- **1~9 ---** Used for choosing SHAPE at current page.

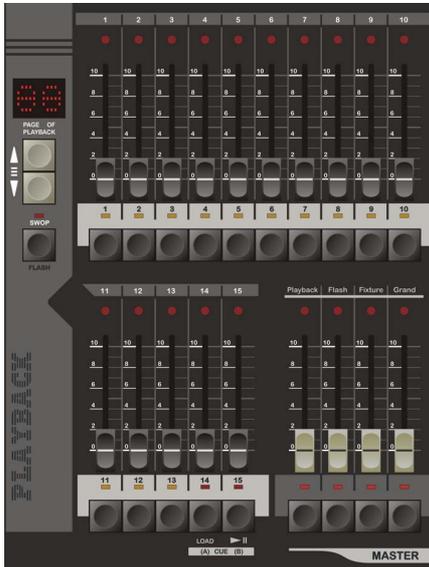
3.4 VGA Control



Through keys on VGA Control, to view page by page on externally connected VGA monitor can be realized. Under different menus, VGA1 outputs differently. Screen can be turned up and down through the corresponding PgUp/PgDn key. VGA2 displays the numerical value outputted by DMX and also screen can be turned up and down through the corresponding PgUp/PgDn key.

3.5 PLAYBACK Area

Playback section contains Playback fader, Playback select key and Playback Page-turning key.



- **PLAYBACK FADER:** controller has 15 playback faders in 40 pages; 600 programs can be recorded through page turning. Playback fader is simply to use, the corresponding program can be played back just through pushing up playback fader.

- **PLAYBACK SELECT KEY:** a total of 15 keys, through which, SWOP mode or FLASH mode can be switched to.

1. Press **SWOP** key, the corresponding indicator light is on, meanwhile **SELECT** key controls playback in the mode of **SWOP**. Only one playback is as the effective selection and output at any time.

2. Press **SWOP** key again to make the corresponding indicator light off, meanwhile **SELECT** key is for **PLAYBACK FLASH**. At this time, press these keys, the corresponding Multi-Step-Program playback immediately; after releasing these keys, Multi-Step-Program is stop immediately.

- **PLAYBACK Page-turning:** through page-turning key, PLAYBACK Page-turning can be realized. (Ps: through pressing this key and holding it on, rapid page-turning can be realized.)

***Tips:** users can input command line to realize rapid page-turning.

For example, to turn to 38th playback page, directly input: **PAGE 38 ENTER.**

3.6 MASTER

Master section contains a total of 4 Master Faders.

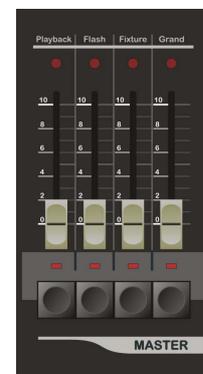
Playback — MASTER of PLAYBACK Area.

Flash — MASTER of FLASH and SWOP.

Fixture — MASTER of Preset Faders.

Grand — MASTER of all output of controller.

Tips: After pressing the key corresponding Master Fader, indicator light is on. Then the value of fader will be locked at max so as to avoid pushing the Master Faders by mistake. Pressing the key again will cancel the lock.



3.7 Function Control Key Area

Major function keys here are introduced respectively as follows:

BACK —Used for returning to the last layer menu ;

F1 , **F2** , **F3** , **F4** — Soft Key (The controllable contents depend on the current menu page, different menu pages function differently.)

PAGE —Key for Playback Page-turning: rapid playback page-turning can be realized through this key.

For example: if to turn to 38th playback page, directly input : **PAGE 38 ENTER.**

STEP —Key for step of program.

FL —To set full dimmer value .

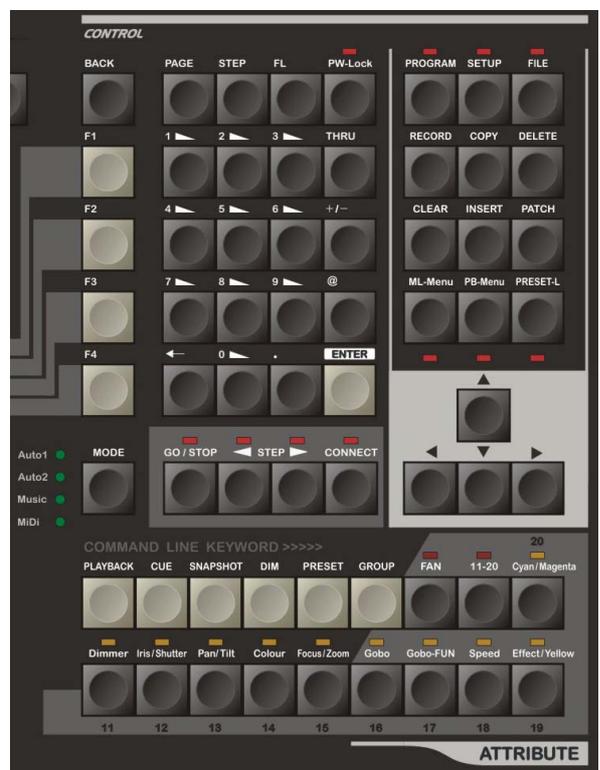
THRU —Key for inputting consecutive numbers in command lines,

For example, if to input 1, 2, 3, 4, 5,
Just Input: **1 THRU 5.**

@ —Key for Assignment: used for assigning dimmer value to fixture in command lines;

+/- —Plus/minus key ;
For example: If to choose 1, 6, 8 fixtures,
Just input **1 + 6 + 8 ENTER.**

Minus key equals to removal,
For example: if to choose 1~10 fixtures
While exclude fixture 4,
Just input: **1 THUR 10 - 4 ENTER;**



ENTER — Key for confirming command, equaled to Enter key.

← — Used for deleting the inputted command.

. — Dot mark in command lines.

0 ~ **9** — Used to input numbers in command lines.

RECORD — Used for recording the commands such as Multi-Step-Program, snapshot and group etc.

COPY — Used for copying program;

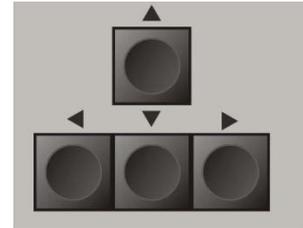
DELETE — Used for deleting program, group and snapshot etc.

CLEAR — Used for clearing the numerical value of manual-run Manual-run.

PATCH — Patch Command, used for dimmer patch.

CURSUR KEY — (shown as the right).

1. Left/Right key is used for selecting the items on the left or on the right of the menu.
2. Up/Down Key is used for modifying the numerical values of the items on the current menu.



● “MULTI-STEP-PROGRAM” CONTROL KEY

CONNECT — Used for connecting up one Multi-Step-Program to the control area of Multi-Step-Program.

Operation: firstly press CONNECT key and hold it on, and then press the playback key to be connected.

GO/STOP — To run or suspend the currently connecting Multi-Step-Program.



◀ SETP ▶ — To change the running direction of the current Multi-Step-Program, or manual-run Multi-Step-Program forward or backward step by step.

MODE — Used for setting synchronous trigger mode for the current Multi-Step-Program, a total of 4 modes is provided to users.

Auto 1 Auto Mode 1: the running speed of Multi-Step-Program is controlled by the speed of external auto1.

Auto 2 Auto Mode 2: the running speed of Multi-Step-Program is controlled by the internal speed set in each step.

Music Music Mode: Multi-Step-Program is synchronously triggered with musical rhythm.

MIDI MIDI Mode: Multi-Step-Program is synchronously triggered with the externally connected MIDI Signal.

● **Main Menu Key**

Controller has 3 main menu keys including **PROGRAM**, **SETUP** and **FILE** :

PROGRAM — Used for entering the edit menu and editing the relevant parameters;

SETUP — Used for entering SETUP menu where Fixture, Library and MIDI may be set and language may be chosen etc.

FILE — Used for entering File Management Menu to create or delete files as well as to save or restore data;

PW-LOCK — Password Management key: through it, users can set power-on password and protect data, which frees you from worrying about any modification to the data in controller by others.
(Password Management section for details).



● **Shortcut Menu Key**

Two Shortcut Menu Keys are provided here including ML- Menu and PB- Menu.

ML-Menu — Used for entering ML-Menu where the operations to the current Manual-run such as “To Light” , “Align” etc. can be done.

PB-Menu — Used for entering Program Menu where the external speed (Auto1), and mode of starting and ending of program can be set;

PRESET-L — Used to select preset focus; Press this key and hold it on (indicator light is on) after choosing fixture, meanwhile Select Fixture Key is used for choosing preset focus, and then press SELECT key, the preset focus is called immediately; releasing this key to exit.



● **Command Line Keyword**

PLAYBACK — Used for inputting command lines Related matters of programming.

CUE — Used for inputting command lines Related matters of cue.

SNAPSHOT — Used for inputting command lines Related matters of snapshot.

DIM — Used for inputting command lines Related matters of dimmer channels.

PRESET — Used for inputting command lines Related matters of Preset-Focus.

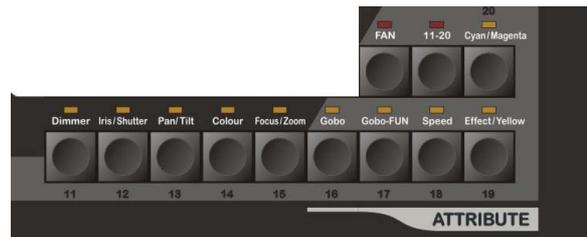
GROUP — Used for inputting command lines Related matters of GROUP.



● **Fixture Attribute Key**

ATTRIBUTE includes 10 attribute keys, a FAN key and an “11-20” attribute switch key.

Channel attribute of intelligent fixture includes Dimmer, Color and GOBO etc. Controller firstly selects the attribute to be modified through attribute key and then modify the corresponding attribute through A/B wheel.

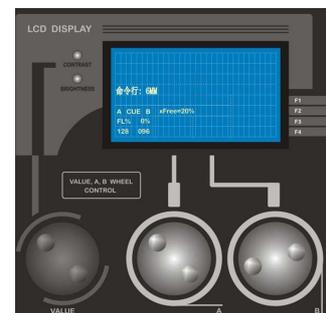


10 attribute keys correspond to the attribute labeled above respectively. Pressing “11-20” Attribute Switch key (indicator light is on) means switched to 10-20 attribute key. One attribute key includes two attributes, which means a total of 40 attributes of intelligent fixture can be controlled through Attribute Switch key.

- FAN** — To spread the attribute value of the chosen fixture, attribute value of the first and the last fixture varies most while that of the middle one varies least so as to gain gradual change effect of attribute value among fixtures. Two attributes can be spreaded simultaneously in one time for an attribute key can hold two attributes. (See 5.7 for details)

● **LCD and Data Wheel**

Main LCD Screen: to display controller’s information under each menu; 2 knobs are on the left side of screen, of which, CONTRAST knob adjusts contrast of display screen, and DIMMER knob adjusts dimmer of display screen.



Data Wheel: Controller has a total of 3 wheels.

- 1) VALUE Wheel is used to set various parameter values in various menus (for telling conveniently, hereinafter shortened for V Wheel).
- 2) A Wheel/B Wheel is primarily used to set various attribute values of fixture.

4. Quick Start

4.1 Examples

In order to make users learn operation mode of the controller quickly, a simple example is listed below. By it, we hope users to get familiar with the operation fast. Now, we take creating wave with 10 Martin intelligent fixtures as example (Model: MT2000PR, intelligent fixtures are lined as “—” shape.) Flow chart is as follows:



- 1) **Load Library:** open the attached USB disk (with library file) through PC, then copy the **MT2000PR.R20** file under **Martin** directory to root directory of USB disk, and insert USB disk into the controller's port for USB disk, and then enter Library Setup menu; (Press:**SETUP**→**Library**) to access USB disk: select **MT2000PR** library file and confirm it, and then exit.
 - 2) **Patch Fixture:** enter **Fix-Patch** menu (Press: **SETUP**→ **Fixture** → **FixPatch**); Press **Select Fixture Key 1** and hold it on and press **Select Fixture Key 10** so as to choose 1~10 fixture; then set fixture model as **001-MT2000PR**, and finally press **SetAddr** soft key to automatically allocate DMX address for these 10 intelligent fixtures (users can set address for the intelligent fixture on lamp hanger according to the allocated DMX address).
 - 3) **Shape Setup:** within SHAPE area, press **EDIT** key and then key 1 to set the parameters for Shape-Generator 1 as: type=wave, speed=20%, size=25%, spread=10%;
 - 4) **Program Edit:** enter **Edit Step** menu (Press: **PROGRAM** → **Edit Step**)
 - Press **PLAYBACK Key 1** (1st page playback, 1st program), choose the currently editing Program No.1.01.
 - Choose No.1~10 fixtures;
 - Press **ML-Menu** key to enter menu, and then make all the chosen fixtures lighting through **Locate** function, meanwhile the fixtures are arrayed as “—” shape in order.
 - Press **Key1** in SHAPE area to call the preset Shape-Generator before, Press **PROGRAM** key to exit, and controller will automatically save the program steps.
 - 5) **Playback Program:** push up the No.1 playback fader in the 1st playback page, the programs recorded in this playback-number is played back to live show immediately.
- ☆ The above is just a simple example, only for users' initial understanding to controller. For further understanding of its various functions, users are required to read the instruction book carefully.

5. Setup Main Menu

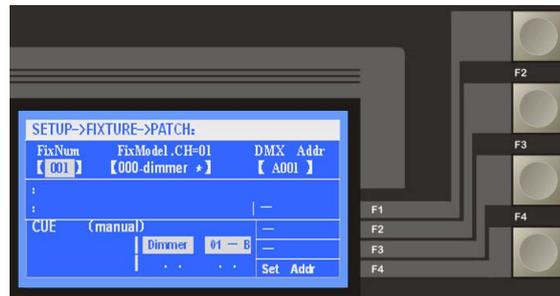
Main Content:

- Menu Operation.
- Library Setup: Library Read in, Create Library by Users.
- Fixture Setup: Patch of DIMMER and Intelligent Fixture.
- MIDI Setup: CUE Setup, Language Selection.
- Initialization.

5.1 Menu Operation

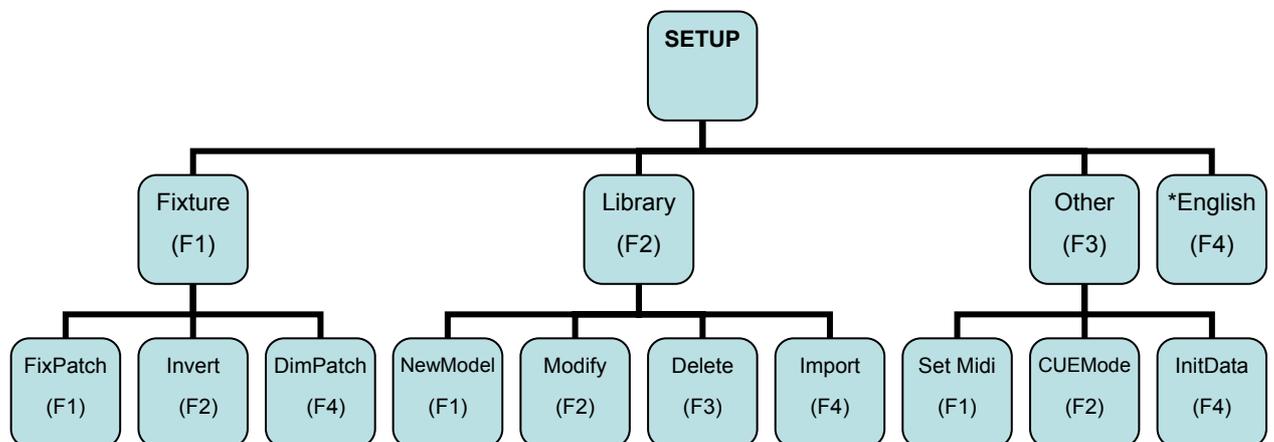
Controller adopts the operation mode of combining menu with soft key, simple and convenient for usage.

Controller provides four soft keys as **F1**、**F2**、**F3**、**F4**, corresponded to the four function menus on the bottom-right of major display screen one-to-one. Press the corresponding soft key to enter submenu, the current path will be shown on the above of major display screen (shown as the right). If to return last layer of menu, press **BACK** key; if to return Scene menu, press the current Main Menu Key once again till the flickering indicator light is off, which means returning to live show menu.



After entering one menu, users can choose various setup items through Left/Right Cursor key; the selected setting item displays as grey background (shown as the **FixNum** on the right graph), and then modify the numerical value of the current item through Value Wheel or Up/Down Cursor key; after modification, controller will automatically record the modified data when exiting the operational interface, simple and convenient for usage.

Controller has 3 Main Control Menus. Setup Menu Function is introduced in this section. Press **SETUP** key (indicator light is flickering) to enter SETUP Menu. The following is Menu Tree for SETUP Menu.



5.2 Setup of Library

Channel attribute of intelligent fixture varies from different models and different manufacturers. Thus, it's necessary for us to introduce the concept of Library in order to enable controller to distinguish various attributes of intelligent fixtures.

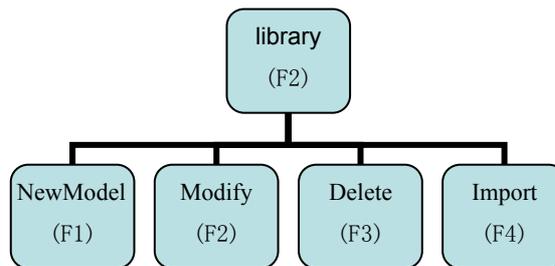
Library: includes information of each channel attribute of various intelligent fixtures.

Only library file corresponding to fixture is provided, varieties of attributes of fixtures can be controlled through attribute key and A/B Wheel by users, unnecessary to be annoyed by remembering the attribute corresponds to a very channel. Controller can store a maximum of 150 types of library file (1 library file corresponds to 1 type of fixture).

System Library: 1 USB disk is attached with each controller package. There are more than 3000 library files of major manufacturers (compatible with pearl light library of R20 format). Library file can be used directly after imported from the USB disk and then saved to controller. (Users may make your own Library in PC, using Net.do Library software.)

Users Library: if fixture model needed is not in System Library, a Library model can be created by users (see below for detailed steps)

- Press **Library** soft key to enter Setup Menu. Setup Menu Tree is as follows:



New Model: if fixture model needed is not in Library System, a new fixture model can be created by users. Under **Library** menu, Press **F1** softkey, Enter the **New Model** menu (shown as the graph), according to the channel information of intelligent fixture provided by manufacturer, firstly set channels of the new fixture model, and then the corresponding channel attributes; Some LTP channels can even be set as Instant/Fadeable mode.



1. **LTP Fadeable:** enabling LTP channel to execute fadeable effect as program playbacks. (including fade-in/fade-out effect of playback, mid-step of program and fadeable effect between steps etc.).
2. **LTP Instant:** enabling LTP channel not to execute fadeable effect as program runs. (some channels are fixedly set as gradient type, LTP (I/S) of which displays as "****").

Tips 1: If the fixture has no Dimmer channel, its channel with shading function (for example, Strobe or GOBO channel) must be set as **"Dimmer"** so that the light can be closed by playback fader.

Tips 2: Please see 9.1 Section for detailed introduction to HTP/LTP channel type.

M

Modify: if contents of current fixture model need modification, enter **Modify** menu to modify various channels and attributes. After modification, press **BACK** key to exit, and controller will automatically save the modifications.



Model NO. **Model Name** **Max. Channel**

Delete: used for deleting current fixture model. Under **Library** menu, select the fixture model to be deleted, and then press **Delete** soft key, the current fixture model can be removed from controller.

Read USB disk: library file can be imported through USB disk which contains more than 3000 library files. For too many files in library, controller can only read the files under root directory of USB disk. Thus, users shall copy the library files to be used (suffixed as .R20) to root directory of USB disk through PC. For example, if to use Martin fixture, users shall copy the corresponding library files under **Martin** directory in USB disk to root directory of USB disk, and import them to controller through reading USB disk.

Specific steps are as follows:

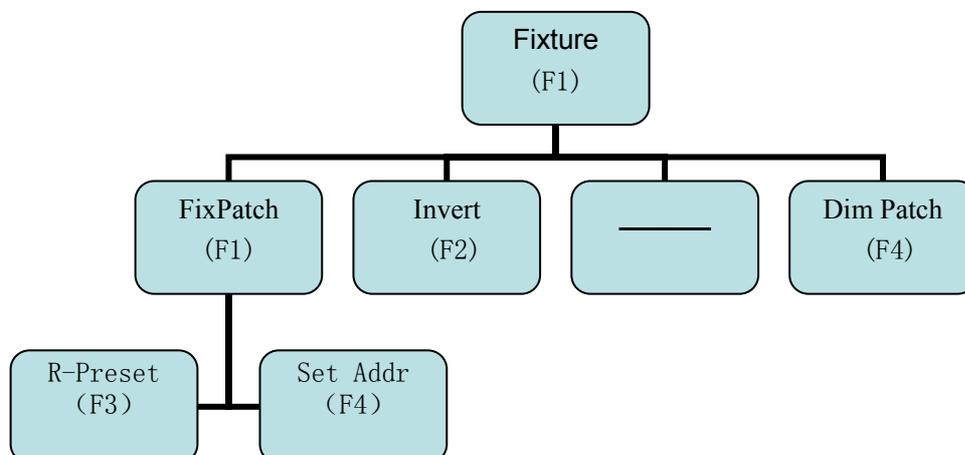
- 1) Insert USB disk, press **Import** soft key, and then use **Value Wheel** to browse library files in USB disk until the necessary fixture model is found by users.
- 2) Press **Select** soft key to import library files into controller. While patch fixture, the type of fixture model can be called.



NUMBER **Library File List**

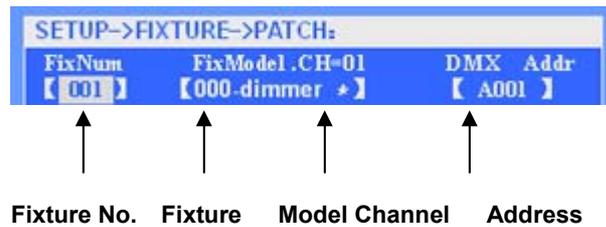
5.3 Fixture Setup

In order to enable controller to control your fixtures, the fixture is required to patch, choose the corresponding fixture model and allocate DMX address. One Preset Faders corresponds to one fixture number, and one fixture number can patch one intelligent fixture or one dimmer channels. Through **Set Addr** soft key, DMX address can be provided to users through automatic allocation or manually setup. SETUP Menu Tree of Fixture is as follows:



5.3.1 Patch of Dimmer and Intelligent Fixture

Enter fixture-patching menu (shown as graph) Under **Fixpatch** menu, dimmer and intelligent fixture can be patched to set fixture model and DMX address.



- 1) **Patch Dimmer:** Set fixture model corresponding to fixture number as “ 000-dimmer * ”
- 2) **Patch Fixture:** Set fixture model corresponding to fixture number as the very model of intelligent fixture.
- 3) **DMX Address:** DMX address items can be modified independently by users, and also automatically allocated through **Set Addr** soft key in one time after completing patch. By this, overlapping of DMX address can be avoided. (Ps: “?” indicates overlapping of address).

***Tips 1:** When setting DMX address, you may need to distribute the select fixtures to the appointed address range. For example, distribute 1~10 fixture to after B1 address. Steps are as following:

- Select 1~10 fixture, at this time on the LCD will show “****”;
 - Set "DMX address" as B1;
- Then 1~10 fixture will begin from B1 address, distribute addresses automatically according to the order. If fixture is 16 channels, then the No.1 fixture address is B1, No.2 is B17, No.3 is B33, and so on.

Tips 2:** multiple fixtures can be rapidly patched simultaneously, users just need to choose many fixtures at the same time (when two Select Fixture Keys are pressed simultaneously, fixtures between the two keys are selected), meanwhile the item of Light No. is displayed as “*” on LCD, and then patch could be done.

***Tips 3:** **Set Addr** soft key--- automatically allocates DMX address for all fixtures.

***Tips 4:** **R-PreSet** soft key--- according to library, automatically reset **preset focus** data.

***Tips 5:** Controller provides 4 DMX output ports, which respectively corresponds to different DMX address: A Port: A1~A512, B Port: B1~B512, C Port: C1~C512, D Port: D1~D512.

5.3.2 Invert Channel of Fixture

Enter **Invert** menu, Invert Dimmer, Pan, Tilt and Pan/Tilt swap etc can be realized. So controlling fixture is more conveniently. After entering **Invert** menu, users just need to select the fixture to be set and then set its corresponding item INV.



5.3.3 Check Patch

When controller is under fixture-patching state, VGA1 displays as below. Users can check patch of various fixtures. Upper screen displays patch contents of fixture while lower screen

current fixture model and parameter information of various channels. Users can turn page up and down through VGA1 Control and rapidly view the patch of all fixtures so as to confirm the right patch.

*Ps: Lower screen displays channel attributes of current fixture model, of which, (I) indicates the channel is LTP Instant channel, (F) LTP Fadeable channel, and (H) HTP channel.

The screenshot shows a 'FIXTURE SETUP' screen with a table of fixtures and a detailed view of the selected fixture's channels.

Light No.	Fixture Model	Max Channel	DMXAddress	Invert Pan	Pan/Tilt Swop
1	001-MT2000PR	24	A 1	off	off
2	001-MT2000PR	24	A 25	off	off
3	001-MT2000PR	24	A 49	off	off
4	001-MT2000PR	24	A 73	off	off
5	001-MT2000PR	24	A 97	off	off
6	002-MT250M1	9	A 121	off	off
7	002-MT250M1	9	A 130	off	off
8	002-MT250M1	9	A 139	off	off
9	002-MT250M1	9	A 148	off	off
10	002-MT250M1	9	A 157	off	off

Model:	Attribute (H-HTP I = Instant LTP, F-Fadeable LTP)				
ch01	Shutt-	(F)	12	g2-Rot	(I)
02	dimer	(H)	13	null	(I)
03	cyan	(F)	14	effect	(F)
04	mogen	(F)	15	11-A	(F)
05	yellow	(F)	16	iris	(F)
06	color2	(F)	17	focus	(F)
07	color1	(I)	18	zoom	(I)
08	gobol	(I)	19	pan	(I)
09	g1-Rot	(I)	20	pan -F	(I)
10	null	(I)	21	tilt	(I)
11	gobo2	(I)	22	tilt-F	(I)

5.3.4 Patch Dimmer Channel

Patch Dimmer Channel is to realize the patch between Fixture number and Dimmer Channel, through which, one Fixture number can be comprise of one or more DMX addresses.

1) One Dimmer Channel Patch To One DMX Address

Under **Fix Patch** menu, controller automatically allocates one DMX address for the current Fixture number after setting fixture model as "000-dimmer*", which means **One Fixture Number --- One DMX Address** can be realized.

2) One Dimmer Channel Patch To Multiple DMX Address

- One Dimmer Channel comprise of multiple DMX addresses, If you change the level of a dimmer channel, dimmers of the DMX addresses controlled by the channel will get the same dimmer value.
- Users can make dimmer channel patch through Patch command. (Ps: dimmer channel patch can only be made by users on vacant DMX address. Thus, users are suggested to make multiple DMX address patch only after allocating DMX address for intelligent fixture.)

DMX Patch Port :

Enter **Dim patch** menu, patch contents will be displayed on the externally connected VGA1 monitor. Controller has 4 DMX ports, and thus 4 corresponding patch screens are on VGA. Users can turn to the necessary patch port through **PgUp/PgDn** key or command lines.

For example. to turn to the screen corresponding to Port B,

Directly input command line: **DIM @ 2 ENTER;**

(Ps: in command lines: Port A is @1, Port B is @2, Port C is @3, Port D is @4)

Users can also turn screen through VGA1 Control to check patch of various ports. Through checking patch screen, usage of DMX address can be clearly seen, of which, the DMX address marked with “x” is used already and multiple DMX address patch can’t be made to.

DMX Address Patch Command:

For example. to make 1, 2, 512 DMX address patch at Port B to fixture number 501.

Enter the screen corresponding to Port B:

Input command: **1+ 2 + 512 PATCH 501 ENTER ;**

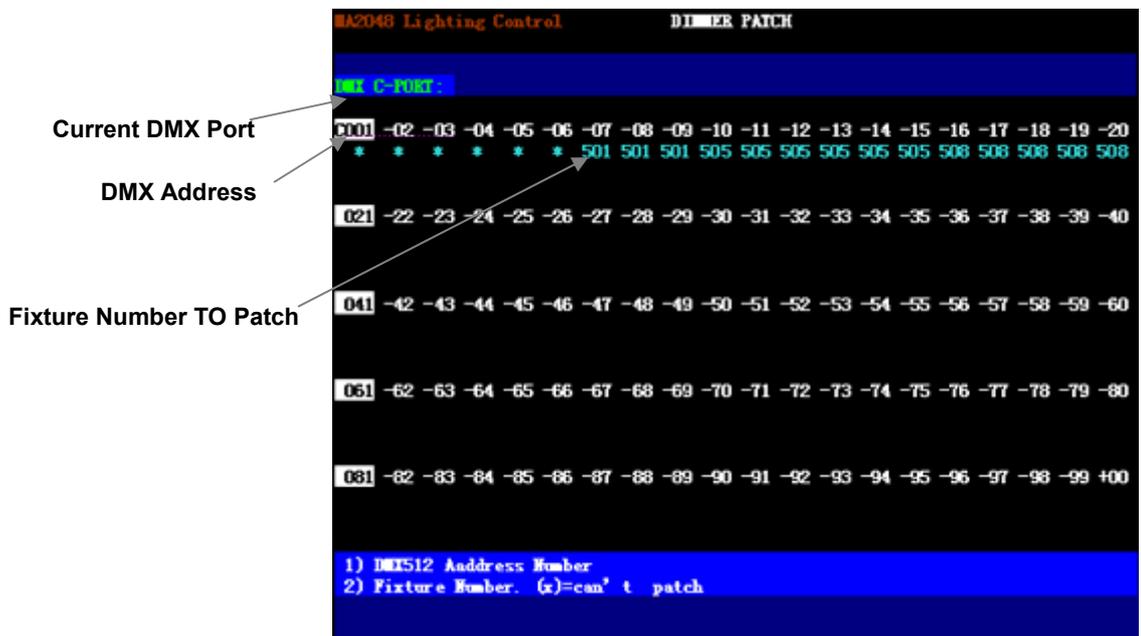
Ps: command is only effective to the current corresponding DMX port on VGA screen.

Clear Patch:

For example. to clear 1, 2, 512 multiple DMX addresses patch at Port B.

Enter the screen corresponding to Port B,

and then input command: **1 + 2 + 512 PATCH CLEAR ENTER**



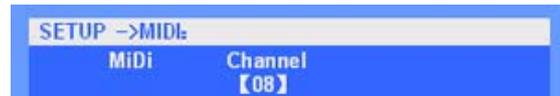
5.4 Other Setup

5.4.1 CUE Setup

Under **OTHER** menu, Press **CUE SETUP** soft key to enter **CUE SETUP** menu, users can set CUE Mode (see CUE chapter for details)

5.4.2 MIDI Setup

MIDI note signal can be used to trigger Multi-Step-Program to run. After entering MIDI Setup Menu, users can choose MIDI channel as trigger source according to needs.



5.4.3 Data Initialization

Under **OTHER** menu, Press **InitData** soft key to enter Initialization Menu, users can initialize the data such as program, preset and snapshot etc., and even the whole controller. Before initialization, users need to backup the useful data so as not to be deleted.

5.5 Language Setup

Controller provides Chinese/English interface, under Setup Menu, users can switch language through soft key.

6. Manual-Run

Main Content

- Manual-run Fixture
- Introduction to Intelligent Fixture Menu
- Record, Call and Delete of Group
- FAN

After completing fixture patch, fixture can be manual-run. Under PLAYBACK menu, fixture's dimmer value, various attribute values, MASTER value and playback state etc. can be clearly displayed on VGA1 monitor (shown as below).

Current Fixture Page

The screenshot shows the following data:

FIXTURE:	0	-01	-02	-03	-04	-05	-06	-07	-08	-09	-10	-11	-12	-13	-14	-15
DIM%	V	FL	FL	FL	FL	FL										
A: Cyan	F	125	125	125	125	125										
B: Magen-																

0	-16	-17	-18	-19	-20	-21	-22	-23	-24	-25	-26	-27	-28	-29	-30
DIM%															
A: Cyan	F														
B: Magen-	F														

PLAYBACK	Page:	-01	-02	-03	-04	-05	-06	-07	-08	-09	-10	-11	-12	-13	-14	-15
Type	00								cha	cha						
value		20	FL													
Fader		FL	FL													

CUE	A-Fader	B-Fader	CUE-CHASE:	Mode	Total Step	Dir	AL-Speed	Cross
Name	1.01	1.02	1.14	Auto1	8	11->	2.05	20%
Value								
Fader								
Tait	100:00/00:00	100:00						

COMMAND: 1 + 2 + 3 + 4 + 5 @ FL *
 Message: ok xFree= 90%
 Shape : 1.02

MA3000 Intelligent Fixture Controller is displayed on VGA1 monitor and also on VGA2 monitor, through which, output value of channels of DMX signal from controller can be displayed. (Shown as graph)

The screenshot shows the following data:

001	-02	-03	-04	-05	-06	-07	-08	-09	-10	-11	-12	-13	-14	-15	-16	-17	-18	-19	-20	
125	125																			125 255

021	-22	-23	-24	-25	-26	-27	-28	-29	-30	-31	-32	-33	-34	-35	-36	-37	-38	-39	-40	
125	125																			125 255

041	-42	-43	-44	-45	-46	-47	-48	-49	-50	-51	-52	-53	-54	-55	-56	-57	-58	-59	-60	
125	125																			125 255

061	-62	-63	-64	-65	-66	-67	-68	-69	-70	-71	-72	-73	-74	-75	-76	-77	-78	-79	-80	
125	125																			125 255

081	-82	-83	-84	-85	-86	-87	-88	-89	-90	-91	-92	-93	-94	-95	-96	-97	-98	-99	+00	
125	125																			125 255

1) DMX512 Address Number
 2) Channel Value

6.1 Manual Branch Controller Light

Controller provides 30 Preset Faders which can independently control dimmer (to choose fixture is unnecessary). Dimmer of the fixture patched to fader changes with fader pushed up or down. One Preset Faders corresponds to one fixture number. Overall dimmer of branch controller is controlled by Master Fader of **Fixture**.

Flash Operation: press **SELECT** function key till indicator light is off, meanwhile Select Fixture key is served as flash of branch controller dimmer. Maximum dimmer value of flash is controlled by Master Fader of **Flash**.

- Ps:** 1) before Preset Faders is used, to confirm that Master Fader of **Fixture** and **Grand** is pushed up respectively so as to avoid no dimmer output.
2) Dimmer according to the principle of “HIGHEST TAKES PRECEDENCE” .

6.2 Manual-Run Fixture (Manual-run)

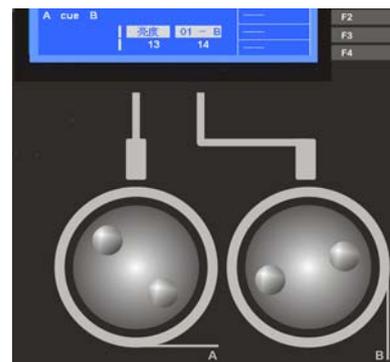
The operation to manually modify attribute value of the selected fixture (such as Dimmer, IRIS, Pan/Tilt, Color, and GOBO etc.) through **Fixture Attribute Key** and **A/B Wheel** is usually called as **Manual Manual-run**. Under running state or programming state, Manual Manual-run is available.

☆**Important Tips:** Manual-run is an operation given highest priority to. The attribute value after manual modification will shield the running playback program value and outputs to live show in a most preferential mode. Till the Manual-run is cleared, output of program playback is restored.

Operation Steps of Manual-run:

1) Select Fixture

Through Select Fixture key, to select the fixture needed control, able to choose a single fixture or multiple fixtures simultaneously (press two Select Fixture keys simultaneously to make the fixtures between be chosen; fixture can also be chosen rapidly through the mode of **GROUP** or **COMMAND LINE**).



2) Modify Attribute

Use attribute key to modify the attributes of intelligent fixture such as Dimmer, Pan/Tilt, Color and Strobe etc. Controller has 20 attribute keys; one attribute key corresponds to 2 attributes. Users can modify the corresponding attribute value through A/B Wheel after Attribute key is pressed.

(Continued next page)

Corresponding List of Channel Attribute & A/B Wheel of Intelligent Fixture

Attribute Key	A Wheel	B Wheel	Attribute Key	A Wheel	B Wheel
1	Dimmer	01-B	11	11-A	11-B
2	IRIS	Shutter	12	12-A	12-B
3	Pan	Tilt	13	13-A	13-B
4	Color A	Color B	14	14-A	14-B
5	Focus	Zoom	15	15-A	15-B
6	GOBO A	GOBO B	16	16-A	16-B
7	Rotation A	Rotation B	17	17-A	17-B
8	XY Speed	FX Speed	18	18-A	18-B
9	Effect	Yellow	19	19-A	19-B
10	Cyan	Magenta	20	20-A	20-B

Command Line Format

Users can directly input command lines through number keyboard to select fixture or assign dimmer value. Examples are as follows:

Command line: **1 + 5 + 102 ENTER** ----to select 1,5,102 fixtures

Command line: **1 + 5 + 102 @ 80 ENTER** ----to select 1,5,102 fixtures and assign them 80% dimmer value

6.3 Clear Manual-Run Manual-run

F-CLEAR can be pressed to clear the selected fixture and values of Manual-run.

Tips: Before Manual-run is used, users had better clear the numerical values of Manual-run area firstly so as not to output the unnecessary numerical value.

Controller has a total of 2 **F-CLEAR** keys (shown as the right):

- The key above (grey) is used to cancel the selected fixture and all manual-run values of Manual-run;
- The key below (black) is only used to cancel the selected fixture while not to clear manual-run value of Manual-run (as data hold of Manual-run)



Ps: Flickering of indicator light above F-CLEAR key reminds you of having selected fixture or having Manual-run value.

Clear key can only clear all values of Manual-run while unable to clear the designated value of Manual-run; when the designated fixture is to be cleared by users, the commands such as follows can be used:

Command Line Format

Command Line: **CLEAR ENTER** ---to clear value of current selected fixture.

Command Line: **1+5+102 CLEAR ENTER** ---to clear Manual-run value of 1,5,102 fixtures.

Command Line: **1 THRU 10 CLEAR ENTER** ---to clear Manual-run value of 1~10 fixtures.

6.4 Shortcut Menu of Intelligent Fixture

Shortcut Menu of Intelligent Fixture is specially used for controlling intelligent fixture. Press **ML-Meru** key to enter FIXTURE MENU (shown as below).

Locate (soft key):

This function can realize quick positioning of intelligent fixture. Select the fixture to be lighted up and then press **Locate** soft key, Pan/Tilt of fixture can be placed in the middle and the selected fixture is lighted.

(Mid-lighting still has an important function that various attributes of selected fixtures are assigned a value, which is of great

significance for enforcement of the Rule of LTP (LATEST TAKES PRECEDENCE).



Align (soft key)

This function is to copy attribute of one fixture (reference fixture) to other multiple fixtures. Firstly define reference fixture, choose the fixture required copying attribute through Select Fixture key, press **Align** soft key, and then attribute is copied. This function is very useful, simply to operate.

Find (soft key)

Find function can find fixture fast. Press Find soft key, then select the fixture, they will move to center and the lights will be on. Dimmer keeps full and isn't affected by Master Faders. This operation won't affect the data of the Manual run. Exit Find state, and the data won't be kept.

Tips: In Preset focus's editing, to avoid recording the dimmer and Location data, but need to show the fixture, to Use Find soft key to locate fixture is convenient.

Refere (soft key)

Used to define reference fixture. Press **Refere** soft key and then choose the fixture to be set as reference fixture (the corresponding indicator light will flicker rapidly).

6.5 Lamp On、Lamp Off、Reset

Lamp On:

This function is used to make lamp of fixture on. (Ps: Some fixture, in order to light up the internal lamp bulbs the corresponding attribute channel need to make some value.)

There are two ways to realize this:

1. Select fixture, enter "fixture menu", press **Locate** soft key for 2 second, then run the "Lamp On".
2. Press **ML-Meru** soft key for 2 seconds, enter **Fixture initialize** menu, then press **Lamp on** soft key to run the "Lamp On".



Lamp Off:

Select fixture, enter **Fixture initialize** menu, press the **Lamp Off** soft key, then run the "Lamp off".

Reset:

Select fixture, enter **Fixture initialize** menu, press the **Reset** soft key, then run the "Reset".

Tips: To use the function, Library need to include the MACRO message of lamp on, lamp off, reset, etc. Users may make your own Library in PC, using Net.do Library software.

6.6 Group

Group function is to organize some fixtures usually chosen together as a group so as to rapidly choose them and be free of the trouble of repeatedly choosing them. This series of controller can record 200 groups.

Command Line Format

- **Record of Group:** Firstly choose the fixture to be grouped, and then input command:
GROUP xx RECORD ENTER (xx is group number);
- **Assignment of Group:** to assign dimmer value for all fixtures in one group,
Input: **GROUP xx @ yy ENTER** (xx is group number, yy is dimmer value%);
For example: **GROUP 1 @ 50 ENTER**---assign 50% dimmer value for the fixtures n Group 1.
- **Call of Group:** command for call of group: **GROUP xx ENTER**
the fixtures in this group are chosen simultaneously.
- **Delete of Group:** command for delete of group: **GROUP xx DELETE ENTER** ;

6.7 FAN

FAN is to spread attribute values of the selected fixture. Of those spread fixtures, attribute value of the first and the last fixture varies most, with gradual decrease to middle, while that of the middle one varies least so as to achieve gradual change effect of attribute value. If FAN is used to spread Pan/Tilt attribute of fixture, beam will be displayed as "rays" shape.

FAN effect is usually used for Pan/Tilt attribute, but also for any other attributes such as dimmer etc.

Usage Steps of FAN

- 1) to choose the fixture to be spreaded.
- 2) to choose the attribute.
- 3) Press **FAN** key (indicator light flashes, displayed as the right).
- 4) Turn **A/B Wheel** to set the spread value (spread scope: -127~ +127, spread effect is connected with current attribute).
- 5) Press **FAN** key (indicator light is off) to exit.



Tips: To restore fixture (for example: Pan/Tilt) to the original position from the spread position, users just need to exit, choose Pan/Tilt attribute, and then slightly turn A/B Wheel to modify value, and then the fixtures can restore to array in order.

7. Preset Focus

When programming, users may frequently use some colors or position values etc. Preset focus can record the specific attribute values which can be rapidly called when necessary (for example, rapid call of various color values as red, yellow or blue etc., so unnecessary to choose through A/B Wheel). This function is of great significance for program editing and live performance. This controller can record a maximum of 210 **preset focus**.

7.1 Usage of Preset focus

1~30 **preset focus** is automatically set by controller after loading library, which is just distributed to 30 Select Fixture keys. **Preset focus** after 30 is recorded by users.

1~ 30 preset focus is listed respectively as follows:

- 1 ~ 10:** Color Preset
- 11~20:** Gobo Preset.
- 21~30:** Positions Preset

Ps: the above-defined preset focus requires support from library file with preset focus information; if the library file corresponding to fixture has no the information of preset focus, the above **preset focus** can't be called out while can be recorded by users themselves.

Call of Preset focus

- **Direct Call of Preset Focus**

Choose the fixture required calling preset focus. Press **PRESET-L** key, meanwhile 1~30 Select Fixture keys are used for directly choosing 1~30 preset focus. Press **PRESET-L** key again to quit.

Ps: since unaffected from fixture page as direct choose, the preset focus after 30 can only be called through command lines.

- **Call Preset Focus Through Command Line**

Firstly choose the fixture required calling preset focus, and then input command:

PRESET-L xx ENTER (xx is preset focus number).

7.2 Self-defined Preset focus

Users can self-define preset focus for usage.

Steps of Preset focus Recording:

Ps: before recording, press **F-CLEAR** key to clear Manual-run area so as not to affect the following records.

1) Choose the fixture required setting preset focus and then modify attribute of the fixture so as to achieve the necessary effect.

(Preset focus only records the modified attribute of the current selected fixture; Users are suggested to use **Find...** of FIXTURE menu, not to use **Locate** function)

2) **Shortcut key:** Hold down the **RECORD** key → Press 1~30 **Select Fixture key**
(to complete record)

Or input command: **PRESET xx RECORD ENTER**

(xx is the number of preset fouds)

Delete Preset fouds:

Preset fouds not used any more can be deleted.

Shortcut key: Hold down the **DELETE** key → Press 1~30 **Select Fixture key**
(to complete delete)

Or input command: **PRESET xx DELETE ENTER**

(xx is number of preset fouds).

8 .SHAPE

Main Content

- Edit of SHAPE
- Call of SHAPE
- View of SHAPE
- Usage Skills of SHAPE

Shape-Generator (SHAPE) can bring great conveniences for users to control track and effect of intelligent fixture, such as Cicle, Rainbow and Wave etc. Moreover, SHAPE enables many intelligent fixtures to produce various dynamic effects which are composed of different shapes. The above can hardly be achieved through general Multi-Step-Program (Multi-Step-Program). Take making a round for example, if Multi-Step-Program program is used for making a round, each point of the round needs an individual step, and the resolution is limited. Besides, the size of the round could not be changed any time. But with SHAPE, controller can run the operation automatically. Just with parameters such as speed, size and direction etc., it will have the effect, free of many fussy editing.

There are many Shape-Generators on controller (225 ones for MA3000, 25 pages,9 ones/per page). Each Shape-Generator can be set the different effects such as Circle, rainbow or Wave etc., and individually set the parameters such as size, speed, direction and spread value etc. Effect-Generator can be run simultaneously and 4 shapes can be superposed to each fixture simultaneously.

Important Tips: editing a Shape (such as adjusting the parameters of speed and size etc.) will affect all programs that have called this shape.

8.1 Edit of SHAPE

The corresponding shape, type of which is set firstly by users, can be called normally.

Basic Effect Types:

Swing-line, Swing-fade, Swing-sine ,Circle, Cicle-fade, Rainbow, Like 8, X-line shape, Y-line , Relay-flash, Relay-skip, Wave, Wave fade and wave color etc.

Tips: for the above three Swing types, amplitude modulation can be adjusted according to different attribute channels of fixture. With multiple fixtures and adding effect spread control, many types of effect such as dimmer wave modification and twinkling light ring etc. can be produced.

Steps of Edit are as follows:

- 1) Press **EDIT** key to enter edit state of shape, main display screen displays as right.
- 2) Use 1~9 keys to choose the shapes required edit.
- 3) **Type**: users can choose the type for current shape according to their own needs; different effects can be produced by choosing different types.



- 4) **Speed/Direction**: Press **Speed** soft key to switch to Speed menu, according to need, to set Speed and Direction for effect (the greater the value is, the faster the speed is, conversely the slower.)



- 5) **Size/Distortion**: Press **Size** soft key to switch to Size menu. Set size of effect according to need (such as how big a circle can be made), also set transformation of effect (such as round effect, light's motion track on ground tends to be an ellipse due to the angle of fixture, which can be revised through function of Transformation.)



- 6) **Spread**: Press **Spread** soft key to switch to Spread menu. Spread function enables multiple fixtures to locate at different positions within a same shape (for example, enabling all fixtures that are making circles to locate at different positions of a circle and move one by one; the greater the spread value is, the greater the positional deviation is, conversely the smaller.)



8.2 Call of Shape

Ps: Shape type must be set before, and indicator light of **PLAY** key must be on, then Shape can be normally called.

***Tips:** some shapes are to run based on the position of Pan/Tilt of current fixture, for example, circle effect rounds with Pan/Tilt of current fixture as center, which means the whole shape also moves when value of Pan/Tilt is modified by users. Whereas, some graphs are only fitted for some intelligent fixtures with special function. For example, rainbow effect is only for the intelligent fixture with tricolor channel.

Call Steps of Shape

- 1) Choose fixture and light it up with **Locate**, and then set original position for it (such as the centre of a circle)
- 2) Use 1~9 Select keys to choose shape on current graphics page (the corresponding indicator light is on) and the shape effect is shown on live show immediately. Also, users can realize superposed operation through choosing multiple shapes simultaneously. (one fixture can be superposed a maximum of 4 shapes);

- 3) When necessary, press **EDIT** key to enter Edit menu where the parameters of the current shape of type, speed, size and spread can be modified.

8.3 Clear of Shape

To clear shape is so simple that users just need to press **S-CLEAR** key, then all called shape of current Manual-run can be cleared.

8.4 View of Shape

Through **VIEW** key, the current running shape can be viewed.

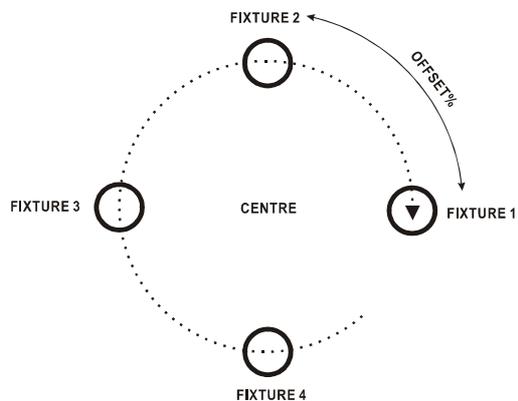
- When shape is run by Manual-run or playback, indicator light of VIEW key is on.
- When VIEW key is pressed, number of the shape being called is displayed on major screen of LCD.

For example: “1.01 1.05 2.08” means the shape that No. 01 and 05 in 1st page and No.08 in 2nd page are being called.

8.5 Usage Skills of Shape

Example 1: make a circle with 4 intelligent fixtures

- 1) Choose 4 intelligent fixtures and set their Pan/Tilt so as to make facula of various fixtures match together (position for centre of a circle)
- 2) Choose shape 1.01 (No.01 shape in 1st graphics page)
- 3) Press EDIT key to enter Edit menu to set parameters as type=circle, speed=40%, size=20%, spread value (offset) =25% for this graphics. To make a circle together with 4 intelligent fixtures can be displayed on live show.
- 4) Press EDIT key to exit.



Example 2: Superposition of Shape

A selected fixture can be superposed with 4 shapes simultaneously so as to achieve the graphics effect of multi-fold. Through superposition of shapes, users can create unexpected lighting effects with their creativity.

- For example:**
- 1) To simultaneously call Rainbow + circle shape enables light of fixture to show a circle track flashing like Rainbow.
 - 2) To simultaneously call line + circle shape enables light of fixture to show a Circle moving along a line.

Example 3: OFF Type Application of Shape

OFF may be used to mutually close shapes when programs playback each other, which can ensure 1 static scene is forcefully outputted when shape is running.

For example: a No.2 fixture in No.1.03 program uses a circle shape, while a No.2 fixture in No.1.04 program uses an OFF shape. Then, a circle running in No. 1.03 playback program will be forcefully stopped by No.1.04 program to be outputted afterwards.

Example 4: Using Fan in Shape

In order to realize more effects, FAN can be used in combination with shape by users. Use Fan key to spread attribute of fixture, and then run shape, you will find unexpected effects.

9. PROGRAM

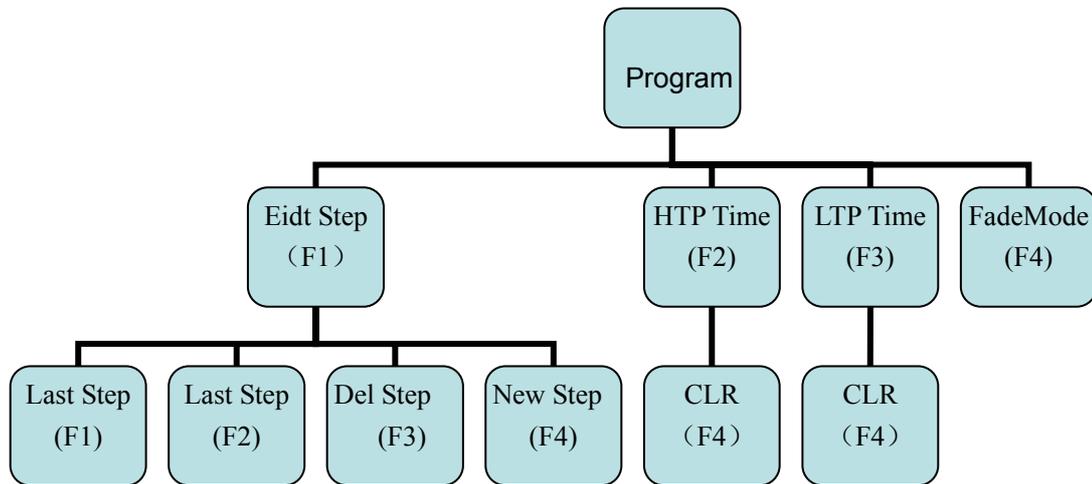
Main Content

- Noun Analysis: HTP, LTP
- Record and Modify of Program
- Playback Program

Through the above introduction, users know how to use Manual-run and shape. In this section, we will introduce various functions of Multi-Step-Program and tell users how to edit program and playback program. Controller can record 600 programs (including one-step-program and Multi-Step-Program) in 40 pages. 15 programs are in each page, which are run by 15 faders.

Program No. (xx.xx), decimal point before is page number while decimal point after is sequence number in page (corresponding to fader one-to-one).

Edit menu of Program is as below:



9.1 HTP Channel and LTP Channel

HTP Channel (HIGHEST TAKES PRECEDENCE)

Under HTP channel mode, the highest value takes precedence, which means that when multiple playbacks control HTP channel simultaneously, maximum level is outputted. DIMMER channel must be defined as HTP channel.

LTP Channel (LATEST TAKES PRECEDENCE)

Under LTP Channel mode, the latest value takes precedence, which means that when multiple playbacks control LTP channel simultaneously, only the playback last pushed up or actuated, is outputted, and is retained till next playback command. Other attribute channels (such as PAN, TILT, GOBO, SHUTTER etc.) shall be defined as LTP channel.

9.2 Null Value of LTP Channel

When one LTP channel is of null value, control to this channel will be ignored while in playback.

For example: program 1.01 only records Pan/Tilt attribute channel value of fixture while other LTP channels are null, and program 1.02 only records color attribute channel value of fixture while other LTP channels are null. When playback is under way under the above situations, program 1.01 controls movement of fixture while program 1.02 color of fixture, unaffected from each other.

Ps: when Edit in Program, value of the attribute yet to be set through A/B Wheel is null, then “.” is displayed on LCD. Manual-run value can be cleared through **F-CLEAR** key.

9.3 Record of Program

9.3.1 One-Step-Program and Multi-Step-Program

PROGRAM is classified as One-step-program (SCENE) and Multi-Step-Program (CHASE).

- The program having only one program step is called as one-step-program, which is used for scene.
- The program having multiple program steps is called as Multi-Step-Program, which is used for Multi-Step-Program (number of program step is unlimited, and is allocated according to memory in controller).

9.3.2 Create Program

In running, the user can quickly create programs.

- 1) Edit the necessary light scene through Manual-Run.
- 2) Keep **RECORD** pressed → Press the **Playback Select Key**
(After this operation, the corresponding program will be added one step and the scene will be recorded.)
- 3) Repeat steps 1~2. record the next program-step.

Tips1: If you need to start from first program-step record, you need to first delete the program, and then start recording.

Tips2: Under general conditions for Manual-run, the **Locate** function under **ML-Menu** is suggested to assign an initial value for all attributes of fixtures so as not to be a null value. Then, when in playback, it will not be affected by other playbacks.

9.4 Delete of Program

Keep **DELETE** key pressed → Press the **Playback Select Key**

9.5 Copy of Program

Keep **COPY** key pressed → Press **Playback Select Key** (source) → Press **Playback Select Key** (destination);

Can copy between different playback-page.

9.6 Move of Program

Keep **MOVE** key pressed → Press **Playback Select Key** (source) → Press **Playback Select Key** (destination);

Can move between different playback-page.

9.7 Edit of Program

In program editing state, user can modify and create programs, and set the speed of program-step.

1) Enter **PROGRAM**→**EIDT STEP** (shown as the graph).

Use **PLAYBACK** key to choose Program.

(Playback indicator to suggest the Program is empty)



2) If the program is empty, Automatism add 1 STEP.

3) Edit the necessary light effect through Manual-run.

4) Set speed and Cross% of current step (called in trigger mode of **Auto2** when in playback)

- **Speed**: define the time from current program step to next program step (range: 0.1"~180"), the less time is set, the faster Multi-Step-Program program runs, conversely the slower.
- **Cross%**: refine time speed rate of cross fadeable between program steps (range: 0~100%), 0% the slowest, 100% the fastest. For example: Cross=60% indicates 40% time is used for gradient from 1 step before to current step, and then 60% time for stay.

Tips 1: for one-step-program, exit after only one program step is edited; for CHASE, program step(s) can be added and then edited continuously as the above steps. When one program step is added, controller automatically copies contents in a step before to new program step so as to edit them to consecutive Multi-Step-Program. Users can also use **F-CLEAR** key (grey key) to clear data of current program step.

Tips 2: through **Last Step** and **Next Step** soft key, contents of various program steps can be viewed and modified, and the modified contents will be automatically saved by controller.

Tips 3: to insert one step after current step can be realized through pressing **New Step** soft key at current step.

Tips 4: to delete current step can be realized through **Del Step** soft key.

Relevant Command Line Format

1) Under Program Step menu, users can edit program through command line.

- Copy of Program—users can copy a program to after current program step. For example, copy the whole program 1.01 to after step 3 of program 1.02; Enter the edit of step 3 of program 1.02,

Input command: **PLAYBACK 1.01 COPY ENTER**

- Copy of Program Step—users can copy a program step to current program step.
For example, copy step 2 of program 1.01 to after step 3 of program 1.02;
Enter the edit of step 3 of program 1.02,
Input command: **PLAYBACK 1.01 STEP 2 COPY ENTER**
- Copy of Step within a Program—users can copy step(s) within a program.
For example, in the edit of program 1.02, copy step 8 to step 10;
Enter the edit of step 10 of program 1.02,
Input command: **STEP 8 COPY ENTER**
- Rapid Skip Step—when in program edit, to rapidly skip to one step can be realized through command line.
For example, to skip to step 38 of current program,
Input command: **STEP 38 ENTER**
- Delete Program Step
For example, delete step 3 of program 1.08,
Input command: **PLAYBACK 1.08 STEP 3 DELETE ENTER**
- Delete Program
For example, delete program 3.01,
Input command: **PLAYBACK 3.01 DELETE ENTER**

9.8 PLAYBACK

Corresponding program can be played back through pushing up playback fader or flashing playback key,

Ps1: press **F-CLEAR** key to ensure no data is in Manual-run area for anything in Manual-run area can affect normal run of playback.

Ps2: before playback, ensure that **Playback** Dimmer Master Fader and **Grand** Dimmer Master Fader are pushed up already so as to avoid no dimmer output when playback.

- Controller can playback 15 programs simultaneously.
- All HTP channels of program will be fade-in and fade-out with fader. When fader is pushed up from 0 LTP channel is actuated rapidly. Besides, LTP channel can also be set to synchronize with fader.

PLAYBACK:					
Number	Total	Step	Run	F	Htp / Ltp
1.01	8	1	→	FL	68 FL

↑ Total Steps

↑ Running State

Program No.

Fade-in/-out Progress Value

9.8.1 Playback Page Turning

Page turning can be realized through Page Turning key. Press the key and hold it on, this function can be realized. Users can also realize this rapidly through inputting command.

For example: to turn to 38th playback page, directly input **PAGE 38 ENTER**.

Ps: the pushed up playback fader can still remain the original output after page turning, while a new playback will be actuated till fader is pulled down 0 and then pulled up.

9.8.2 Playback Flash

Before using this function, ensure that Flash Master Dimmer Fader is pushed up so as to avoid no dimmer output. Playback flash has two modes as follows:

- 1) **Swop Mode:** Press SWOP key (till indicator light is on), meanwhile press PLAYBACK Select key to permit only one playback flash to output simultaneously.
- 2) **Flash Mode:** Press SWOP key (till indicator light is off); meanwhile press multiple PLAYBACK Select keys to flash multiple playbacks simultaneously. Close automatically after releasing keys.

Important Tips: pre-run LTP channel can be realized through flash function. Push down Flash Dimmer Master Fader to flash playback, which enables LTP channel to reach preset position under no flash state. Then, push up playback fader to output dimmer.

9.8.3 CHASE Menu

CHASE menu is used to set playback parameters of Multi-Step-Program, where external speed (Auto 1), actuation mode and ending mode of program can be set. Press **PB-Menu** key to enter Program menu to set parameters to currently connected programs.



(shown as right)

- **EX Speed** (external speed of Multi-Step-Program)
Multi-Step-Program includes external speed and cross% etc. This speed is used to trigger synchronization under Auto 1 mode (under Auto 1 mode, internal speed of the corresponding program step will be ignored, while external speed is used unanimously). According to need, users can set external speed of current Multi-Step-Program.

- **Sta-Mode**
When Multi-Step-Program playbacks, there are two actuation modes.



- 1) **Fader up:**
When playback fader is pushed up from 0, Multi-Step-Program starts to run.
- 2) **GO start:**
Press down **GO/STOP** key to actuate the Multi-Step-Program connected at current control area, or press the corresponding Playback Select key to actuate corresponding Multi-Step-Program. At this time, playback fader has no actuation function of Multi-Step-Program.

- **End-Mode**

When Multi-Step-Program playbacks, there are two end modes.



- 1) **LOOP:**

To loop Multi-Step-Program when it runs to last step and then automatically returns to 1st step.

- 2) **STOP:**

When Multi-Step-Program runs to last step, it stops there. Till actuated, it restores to run.

9.8.4 Connect Multi-Step-Program

Multi-Step-Program control area is shown as right. Playback program connected to control area (number of this program will be displayed on LCD) can control the program through this control area.

Multi-Step-Program has two connecting methods as follows:

- **1st Method:** to connect corresponding playback program to control area through pushing playback fader or flash playback (indicator light corresponding to playback flashes rapidly).



- **2nd Method:** hold down **CONNECT** key, and then press Playback Select keys necessary to be connected so as to connect this playback program to control area. Through this method, influence to playback program when connected can be avoided.

9.8.5 Control Multi-Step-Program

- **Synchronous Trigger Mode:** when program is connected to control area, users can press **MODE** key to choose **Synchronous Trigger Mode** of Multi-Step-Program. A total of 4 modes as follows can be chosen by users.

Auto1 Mode: multiple-step-program is controlled by external speed (under this mode, internal speed of program step will be ignored, while external speed is used unanimously)

Auto2 Mode: running speed of Multi-Step-Program is controlled by internal speed of program step.

Music Mode: Multi-Step-Program uses musical rhythm to trigger synchronously.

MiDi Mode: Multi-Step-Program uses MIDI signal externally connected to trigger synchronously.

Tips: internal speed and external speed of Multi-Step-Program differs:

---each Multi-Step-Program has its own external speed value (set under **PB-Menu**). When Multi-Step-Program is set as **Auto 1 Mode**, system will use this external speed to trigger

program to run at unanimous speed in each step.

---each program step of Multi-Step-Program has its own speed (that is internal speed). Under step edit state, each step speed can be set independently. When Multi-Step-Program is set as **Auto 2 Mode**, system will use internal step speed to trigger program to run at varied step speed.

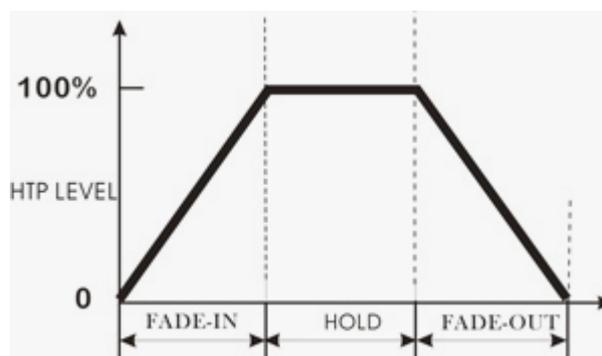
- **GO/STOP**: After program is connected to control area, **GO/STOP** key can be used to actuate or suspend this program.
- **◀ STEP ▶**: After program is connected to control area, **◀ STEP ▶** key can be used to change running direction of program, and under suspension state to manual-run program step to run step by step.

9.9 Playback Time

Each Multi-Step-Program program has its own playback time. Only with the knowledge of playback time can users well control a performance. The following is introduction of the relevant time of HTP channel and LTP channel respectively.

9.9.1 HTP Time

- **HTP Fade-in Time**: after playback fader is pushed up, the necessary time that level value of HTP channel varies from 0 to 100%;
- **HTP Fade-out Time**: when playback fader is pushed down to zero, the necessary time that level value of HTP channel varies from 100% to 0;
- **HTP Wait-in Time**: only used at automatic CUE (see Section 10.1 for details).
- **HTP Wait-out Time**: only used at automatic CUE.



(HTP Time Chart)

Edit HTP Time

Under PROGRAM menu, Enter HTP Time menu (shown as right).

- 1) Use PLAYBACK key to choose program.
- 2) Users can set time through **CURSOR KEY** and **Value Wheel**. Time Range: 0.1" ~ 59'59"

Current Program No. ↓

PROGRAM->HTP TIME: (P01.01)	
HTP Fade —In/Out	Wait — In/Out
[3.8] [3.8]	[2.0] [2.0]

↑ ↑ ↑ ↑
 Fade-in Time Fade-out Time Wait-in Time Fade-out Time

Ps: Wait-in/Wait-out Time is only used at CUE Theatre Mode.

Users can also rapidly set various time values through command line. Time input format is corresponding to the chart as follows:

Command Input Format	Corresponding Time
1	1''
1.8	1.8''
18	18''
18.8	18.8''
148	1'48''
148.3	1'48.3''
1438.3	14'38.3''
5959	59'59''

For example, users set time as 3.8'', input command: **Time 3.8 ENTER** ("Time" corresponding to **F1** soft key.)

When playback is running, users can also modify the time to push fader through directly inputting Time command. HTP time and LTP time can be modified simultaneously. This function is very useful in rapidly modifying time.

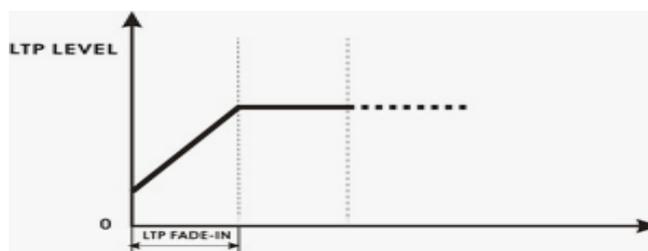
Example: when program 1.01 playbacks, modify its fade-in/fade-out time of HTP and fade-in time of LTP as 6.8'' respectively.

- 1) To link playback of program 1.01;
- 2) Input command line: **Time 6.8 ENTER**; Finished;

Ps: after time is modified, the running playback will not be affected; a new time will be used after fader is pushed down 0 and then pushed up.

9.9.2 LTP Time

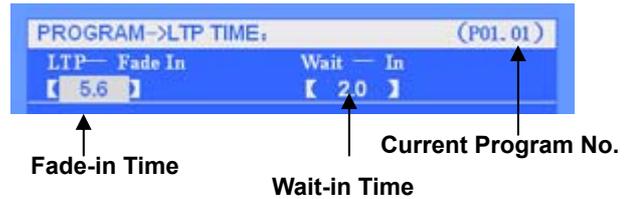
- **LTP Fade-in Time:** after fader is pushed up, the necessary time that LTP channel varies from original value to next value;
- **LTP Wait-in Time:** only used at automatic CUE (see Section 10.1 for details).



(LTP Time Chart)

Edit of LTP Time

Under PROGRAM menu, Enter LTP TIME menu.
(shown as right)



- 1) Use PLAYBACK key to choose program.
- 2) Users can set time through **CURSOR KEY** and **Value Wheel**. Time Range: 0.1"~ 59'59"
Users can also rapidly set various time values through command line with similar methods of HTP. Ps: Wait-in Time is only used for CUE Theatre Mode.

9.10 Playback Fader Synchronization

Enter **FADER MODE** menu (shown as right), Use PLAYBACK key to choose program, Under this menu, users can set Speed/Size of SHAPE and LTP channel to synchronize with that of playback fader.



- **LTP Synchronization**
When synchronization is effective, LTP channel value of this program will change with playback fader from fade-out to fade-in.
- **Shape Speed-Synchronization**
When synchronization is effective, playback fader can control speed of shape simultaneously so as to realize direct control to shape.
- **Shape Size-Synchronization**
When synchronization is effective, playback fader can simultaneously control size of shape so as to realize fade-out/fade-out control to shape.

10. SNAPSHOT

Snapshot function can rapidly record output on live show for use later. For example, users can firstly record the effect on live show they like through snapshot, which can be directly called in program edit later and reappear light effect rapidly. Controller can record a maximum of 100 snapshots.

- **Record Snapshot**
Input command: **SNAPSHOT xx RECORD ENTER** (xx is snapshot number), effect on live show can be recorded to No. xx snapshot.
- **Call Snapshot**
Under program edit state, input command: **SNAPSHOT xx ENTER**, contents of No. xx snapshot can be copied to current program step.
- **Delete Snapshot**
To delete the useless snapshot,
input command: **SNAPSHOT xx DELETE ENTER**.

11. THEATRE STACK

Main Content

- Time
- Load CUE
- Run CUE

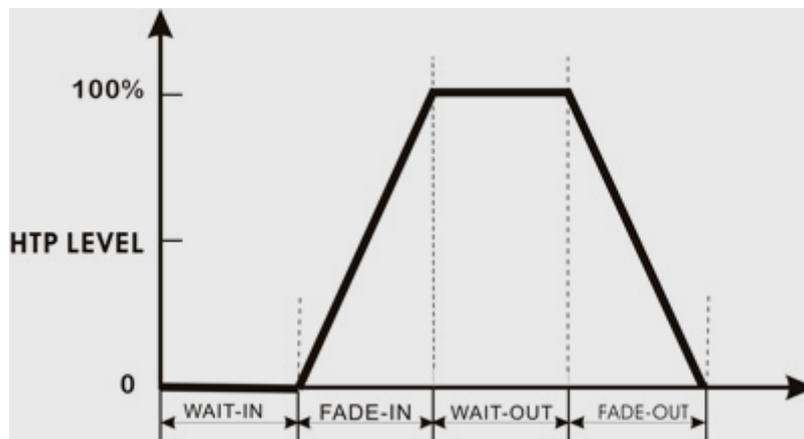
Controller provides Theatre Stack mode. Users can use A/B Fader at CUE control area (manual-run/automation mode) to playback all programs in order or according to the set time (including one-step-program and Multi-Step-Program). Starting from the number of the loaded program, programs will playback in order, one by one. The program without content recorded will be ignored.

11.1 Time

After corresponding HTP/LTP time is set, program can be normally called by CUE.

HTP Time:

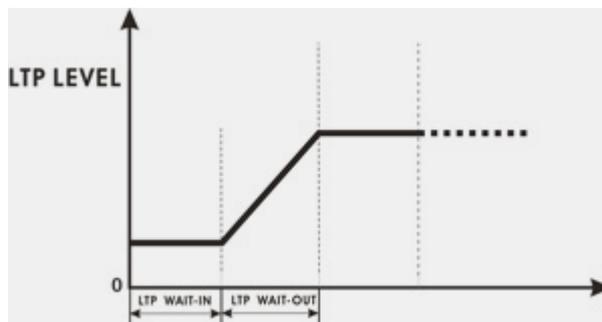
- **HTP Fade-in Time:** after playback fader is pushed up, the necessary time that level value of HTP channel varies from 0 to 100%;
- **HTP Fade-out Time:** when playback fader is pushed down to zero, the necessary time that level value of HTP channel varies from 100% to 0;
- **HTP Wait-in Time:** time delay before fade-in (only used at automatic CUE).
- **HTP Wait-out Time:** time delay before fade-out (only used at automatic CUE, when value is set as 0, fade-out is not allowed till ► || key of CUE is pressed, and next scene is run).



(HTP Time Chart)

LTP Time:

- **LTP Fade-in Time:** after playback fader is pushed up, the necessary time that LTP channel varies from original value to next value;
- **LTP Wait-in Time:** time delay before fade-in (only used at automatic CUE).



(LTP Time Chart)

Record of Time

Time used at CUE can be set in program edit menu. See 9.3 Section for detailed steps.

11.2 Load CUE

To run program, CUE starts from the program set to run first (that is to load), and then runs programs in order, one by one (program without being recorded is skipped) till the completion of running all programs, and stops at last one (program 40.15).

Load Program to CUE: directly input command: **CUE xx.xx LOAD** (xx.xx is program number.)

Tips: after completion of loading, when CUE-A fader is pushed up, **xx.xx** program can be run, while CUE-B fader is to run **xx.xx +1** program when CUE-B fader is pushed up

11.3 Run CUE

In **SETUP** menu, set CUE Mode as **on** (Path: **SETUP**→**CUE MODE**), meanwhile the 14 and 15 playback fader is as A/B fader of CUE, not used for playback any more (page turning is also unaffected).

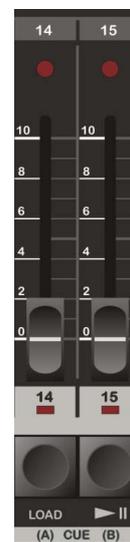
CUE has the following two running modes: manual-run and automatic-run.

● **Manual-run**

When in manual-run mode, users can manual-run CUE through A/B fader.

A/B Fader: for A Fader, pushed to top is the maximum value while pushed to bottom is 0 value; contrary to A Fader, for B Fader, pushed to top is 0 value while pushed to bottom is the maximum value. Thus, push up or pull down **A/B Fader** simultaneously, programs can be playbacked one after one.

Ps: when CUE is in manual-run, wait-in time and wait-out time etc. will be ignored while only **A/B Fader** can be pushed up and down to control scene.



● **Automatic-run**

Under automatic-run mode(Path: **SETUP**→**CUE MODE**), after program is loaded to CUE by users, users only need to press “▶ ||”key, CUE can automatically run program according to the set time

Tips 1: when running to the program with fade-out time with 0, CUE suspends firstly (not for fade-out), till “▶ ||”key is pressed by users, and then runs the next one.

Tips 2: when CUE is running, users can press “▶ ||” key to skip current program at any time, and then CUE will directly run next one.

Tips 3: to suspend CUE only needs to press **LOAD** key, and then press “▶ ||”to restore run.

Wait Progress before HTP Fade-in/-out Wait Progress before LTP Fade-in



11.4 Load Blackout-scene

Controller defaults 40.15 program (the last program) as Blackout-scene. After controller is initialized, 40.15 program is as blackout-scene (users are suggested not to use this program to record any light effects). Users can also set fade-in time for 40.15 program so as to achieve the effect of fade-in blackout-scene.

Purpose of blackout-scene: when users want to exit light output of CUE, they can load blackout-scene and then run it.

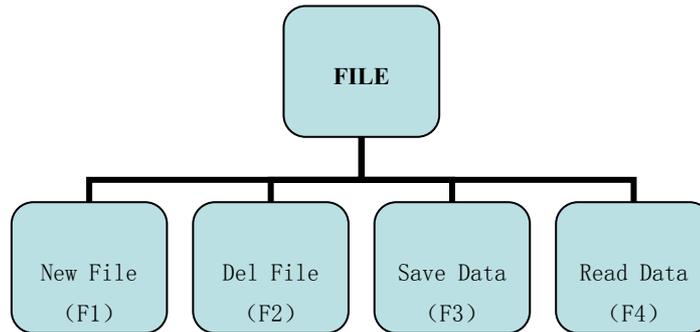
Input command: **CUE LOAD,** to load blackout-scene (program 40.15), and then:

- When manual-run, push A/B Fader simultaneously, and then blackout-scene can be called out.
- When automatic-run, press “▶ ||” key, then blackout-scene can be called out.

12. File Management

For different users, under different occasions, it is necessary to use different data. Meanwhile, in order to prevent the compiled data from modification by others, backup data through USB disk is a best method. Through file management menu, you can easily manage the data in controller. Controller provides a USB disk interface to conveniently backup and call data for users. System supports the file formats: FAT16 and FAT32.

File Management Menu Tree is as follows



12.1 To Create a new file

Data in controller can be saved to a new file in USB disk. Firstly, insert USB disk, enter File Management Menu, press **New File** soft key, and major screen will display “please enter file name” (shown as the graph), meanwhile use fixture select key (26 letters) or number key to input a file name (no more than 8 letters), and then press Enter key, data in controller can be saved to a new file.



12.2 Delete file

Users can delete data or file in a USB disk. Under File Management Menu, choose file(s) to required deleting through Value Wheel, press Delete File soft key, and then press ENTER key, file(s) can be deleted.

12.3 Save Data

Users can save data in controller to the designated file of USB disk, cover and renew files. Enter File Management Menu, choose targeted file through Value Wheel, press **Save Data** soft key, and press **ENTER** key, then the current data in controller can be saved to the selected file.

12.4 Read Data

Users can restore the data or files in USB disk to controller. Insert USB disk with data and files in, enter File Management Menu, choose files through Value Wheel, and then press **Read Data** soft key, data can be inputted to controller.

Ps: before data is inputted, data in controller must be backup so as not be covered by the readed data.

13. Password Management

In order to conveniently manage data in controller, users can set data protection and power-on password.

- **Users Password:** to enter password management interface, users are required to input password. Original password of controller is “88888888”. After entering password menu, password can be modified through **New PW** soft key.



Steps: press **New PW** (LCD displays *Enter New Password*). Enter new password and then press **ENTER** key (only number can be for password and also be as power-on password.)

- **Date Protection:** under starting-up state, if users don't want the data in their own controller to be modified by others, set **Save Data** as On. After that, various menus such as Program, Setup and File etc. are under protection and not to be accessed. To cancel data protection, enter Password menu, and then set **Data lock** Off.
- **Power-on password:** power-on password can be set by users so that password is required inputting to enter controller when starting up each time. Set **Login Password** as On (Ps: power-on password is identifiable with user's password).
- **System Password:** If controller can't be accessed for users' forgetting password, system still has a system password “12369874”. When forgotten, users can input the above password to enter Password Management to reset users' passwords.

14. Software Upgrade

Users can log on our weblive show to download software to upgrade files, and upgrade software of controller.

Steps for upgrade are as follows:

- 1) copy upgrading files to root directory of USB disk;
- 2) shut down power source of controller and insert a USB disk;
- 3) hold down **SETUP** key, switch on power source of controller and then LCD will hint you to upgrade;
- 4) Press **ENTER** key and hold it on for two seconds, controller will be upgraded automatically.

Ps: please press ENTER key as soon as possible when LCD hints you to upgrade, otherwise, upgrade will not be run.

- 5) After upgrading, controller restarts automatically.

15. Appendix

SHORTCUT KEY LIST:

Preset Foucs:	
RECORD key (hold down) → Press 1~30 select Fixture key ;	Record preset foucs.
DELETE key (hold down) → Press 1~30 select Fixture key;	Delete preset foucs.
Program:	
RECORD key (hold down) → Press PLAYBACK key;	Record program.
DELETR key (hold down) → Press PLAYBACK key → ENTER;	Delete program.
COPY key (hold down) → Press PLAYBACK key (source) → Press PLAYBACK key (destination);	Copy program.
MOVE key (hold down) → Press PLAYBACK key (source) → Press PLAYBACK key (destination);	Move program.

COMMAND LINE LIST:

◇ Related matters of Manual-run (“N” below is fixture number)	
<i>N + N + N + ... ENTER;</i>	to choose multiple fixtures
<i>N THRU N ENTER;</i>	to choose consecutive fixtures from N to N
<i>N + N + N + ... @ XX ENTER;</i>	to choose multiple fixtures and assign them dimmer value
<i>N + N + N CLEAR ENTER;</i>	to clear Manual-run of fixture
<i>CLEAR ENTER;</i>	to clear current selected Manual-run
◇ Related matters of Dimmer Patch (“N” below is fixture number, X is dimmer channel) Ps: command is effective on under the screen of patch.	
<i>DIM @ Y ENTER ;</i>	turn to the screen corresponding to DMX Port (@1 is A Port、@2 is B Port、@3 is C Port、@4 is D Port)
<i>X+X+X PATCH N ENTER ;</i>	To assign dimmer channel patch at current DMX Port to N fixture number
<i>X+X+X PATCH CLEAR ENTER;</i>	To clear dimmer patch at current DMX Port
◇ Related matters of Group (“xx” below is group number)	
<i>GROUP xx ENTER;</i>	to choose group
<i>GROUP xx RECORD ENTER ;</i>	to record group
<i>GROUP xx DELETE ENTER;</i>	to delete group
<i>GROUP xx @ yy ENTER ;</i>	assign y% dimmer value to xx group
◇ Related matters of Preset focuss (“xx” below is the number for preset focuss)	
<i>PRESET xx RECORD ENTER ;</i>	to record preset focuss
<i>PRESET xx ENTER;</i>	to choose preset focuss
<i>PRESET xx DELETE;</i>	to delete preset focuss
◇ Related matters of Snapshot (“xx” below is Snapshot number)	
<i>SNAPSHOT xx ENTER ;</i>	Snapshot playback (Ps: this command is

	effective under program step menu)
SNAPSHOT xx RECORD ENTER ;	to record snapshot
SNAPSHOT xx DELETE ENTER ;	to delete snapshot
◇ Related matters of Program (“xx” below is number)	
PAGE xx ENTER;	to playback page turning rapidly, XX is number of playback page
PLAYBACK xx.xx RECORD ENTER;	to record effect on live show to xx.xx one-step-program
PLAYBACK xx.xx TIME yy RECORD ENTER;	to record effect on live show to one-step-program, and set fader time as yy.
PLAYBACK xx.xx STEP yy RECORD ENTER;	to record effect on live show to yy step of Multi-Step-Program
PLAYBACK xx.xx DELETE ENTER;	to delete xx.xx program
PLAYBAK xx.xx STEP yy DELETE ENTER;	to delete yy step of xx.xx program
PLAYBACK xx.xx @ yy.yy COPY ENTER;	Copy xx.xx program to yy.yy
PLAYBACK xx.xx @ yy.yy MOVE ENTER;	Move xx.xx program to yy.yy
PLAYBACK xx.xx COPY ENTER;	when in programedit, to copy xx.xx program to after current step
PLAYBACK xx.xx STEP yy COPY ENTER;	When in program edit, copy yy step of xx.xx program to after current step
STEP yy COPY ENTER ;	When in program edit, copy yy step of current program to after current step
STEP yy ENTER ;	When in program edit, to rapidly skip to yy step of program
Time YY ENTER ; (Time Soft Key F1)	1. Under playback screen, to rapidly modify time to push fader for current playback; 2. under HTP or LTP time menu, to set time of item;
◇ Related matters of CUE (“xx” below is playback number)	
CUE xx.xx LOAD ;	to load xx.xx program to CUE fader
CUE LOAD ;	to load blackout-scene (that is to load 40.15program)