

DJ246 PRO

MOVING LIGHT CONTROLLER

USER MANUAL

(Version Number: 3.2)

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1 Summary

1.1 Introduction of functions

DJ246 PRO Controller can control 18 12-Channel Scanners (**Intelligent Fixtures**) and 30 conventional light Channels at the same time, Its core micro-computer adopts the newly technique, making it acquire the stronger and more humanized function.

- Multi Scenes and multi Chase programs of Scanners and conventional lights can be added up and exported at the same time. realize the multi combination real effect.
- X/Y Channel of various type Scanners can be set respectively, and can be controlled by the same X/Y Joystick.
- Adopt 2 independent DMX output modules with optical isolated, to protect the controller running safely.
- Has Flash-card slot, each Flash-card has 3 file areas, each file area can record the whole data of controller, so user can save his own precious data to Flash-card respectively.
- Has 18 MACRO control, running combination of Manual, Scene and Chase can be recorded to the MACRO, for the purpose of user according to the different program of the spot, quickly use the MACRO key to adjust a corresponding running combination effect.
- A independent BLACKOUT control of the Scanner and conventional light, strengthen the usage vivid.
- Provide the VGA port , user can connect it to the colorful CRT or LCD displays, detailed human-machine interface, making the user's platform according to the control platform become more easy and even keep the view.

1.2 Technical specification

Signal output	DMX512/1990 Digital output signal
Channel of DMX512 Scanner	DMX1~216
Channel of DMX512 conventional light	DMX217~246 (totally 30 Channel)
Amount of controllable Scanner	18
Most amount of Channels of a Scanner	12 Channels
Scene saving	Amount of Scenes total440: 220 Scanner Scenes and 220 light Scenes.
Scene Chase program	Amount of Chase programs total 54: 36 Scanner Chase programs and 18 lighting Chase programs
Amount of steps of a Chase	120 steps
Scope of Chase Cross	0~100%
Scope of Chase speed	0.04 second~10 minutes
Advanced edit mode	Copy and paste
Chase synchronizing trigger	Auto, music, swing
Control of Chase direction	Positive / negative
Lock mode of keyboard	Flash / latch / swop
Input of music control signal	Input level of imbalance (1/4" solo audio socket) / pickup of inside microphone
Display mode	LCD, LED, VGA
DMX512 output port	Adopt 2 independent DMX output modules with optical isolated
Power supply	The switch power supply, electric voltage scope is 90~250 VAC, 50/60 Hz, short circuit over loading protection.
Power	5W
Volume	485mm x 267mm x 85mm
Weight	4.8Kg

2 Installation

Contents in the package of DJ246 PRO Scanner controller :

- DJ246 PRO Scanner controller
- Flash-card 1
- Power cable 1,User specification 1

selective accessory: VGA display card

---- After inserting the VGA display card, the LCD screen will display " DJ246 PRO+V" when power on.

---- If did not inset the VGA display card, the LCD screen will display " DJ246 PRO" when power on.

Controller adopts international standard 19" installing structure. It can be embedded in operation board or directly installed in 19" shelf or cabinet.

2.1 Cautions for Safety

- **DJ246 PRO** Scanner controller must be connected to the groundwire to ensure the safety.
- Don't splash any liquid to the controller.

2.2 Connecting to power supply

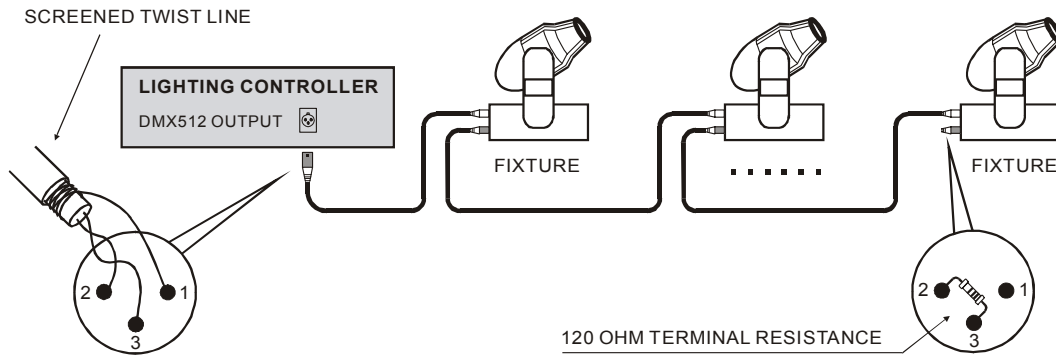
The power of **DJ246 PRO** Scanner controller has steady voltage in a wide range of power supply voltage. So it is adapted to the power supply of different countries. Before the power supply is connected, please check the voltage whether is in normal range. The power supply must be connected to the groundwire to ensure the safety.

2.3 Connecting to Scanner and Digital Dimmer.

- **DJ246 PRO** Scanner controller can control Scanners and digital dimmers simultaneously. **DMX512** digital signals from the controller can be connected to Scanners, digital dimmer pack, digital switch dimmer pack, **DMX512** multi Channel decoders and so on.
- There are two **DMX512** XLR-D3F output sockets on the rear panel of the Controller, pin 1 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 1of XLR plug is connected to the screen net of the cable. Two lines of twist wire (distinguished by different colors) are connected to pin 2 and pin 3 of the

plug respectively. Please do not confuse.

Pin number	Cable conductor
1	Shield
2	Negative pole
3	Positive pole



2.4 Connecting to audio source

- Audio signal can be imported from audio Mixer or other audio players, or pick by inside microphone. The Controller picks the low frequency composition as music synchronizing trigger signal to Chase program automatically.
- There is a 1/4" (6.35mm) imbalance mono audio input socket on the rear panel of Controller. The auto level range of audio input is -10dB ~ +10db. When a 1/4" audio plug is plugged in the socket, audio source is circuit level input. When the audio plug is pulled out, audio source comes from inside microphone.

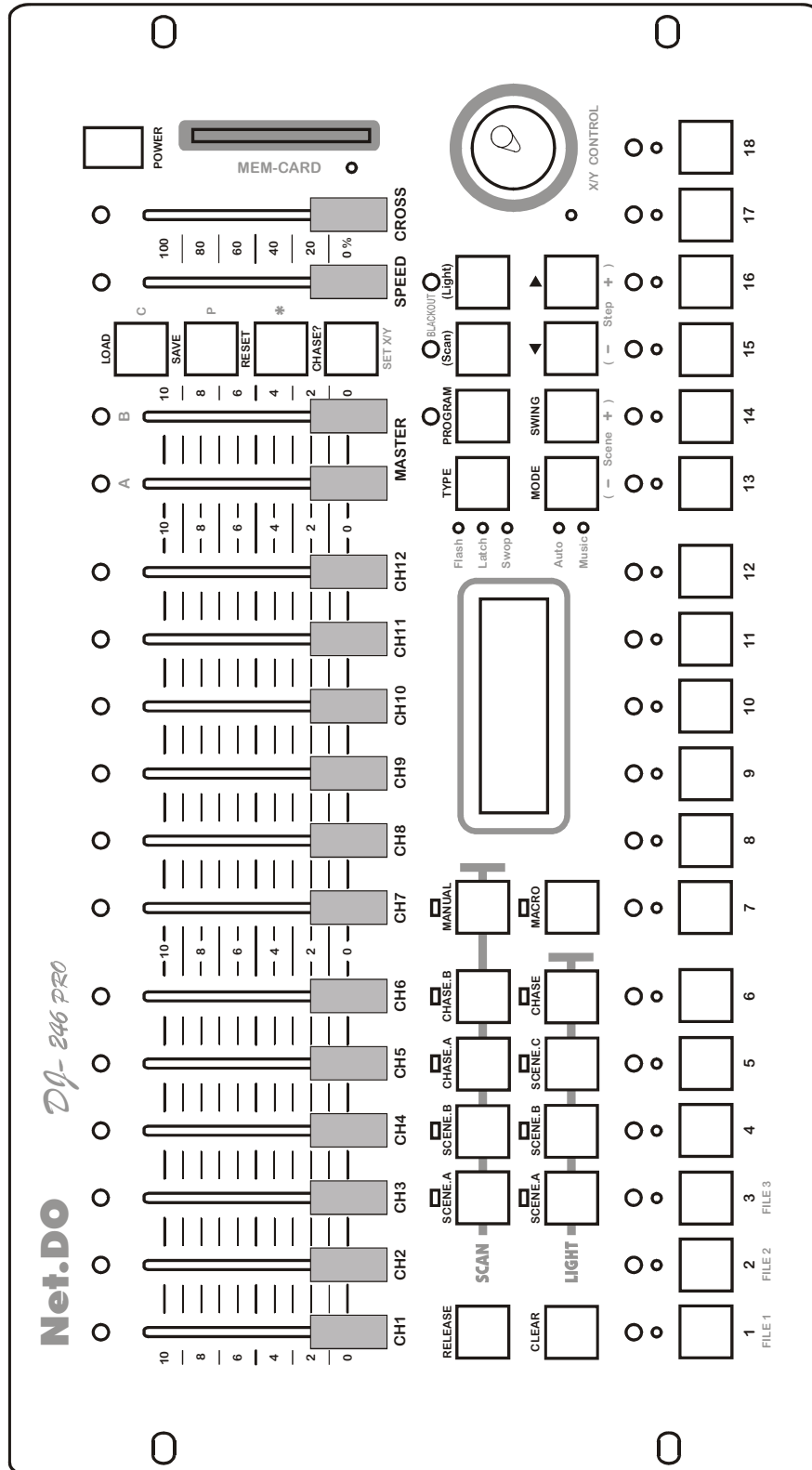
2.5 Distribution of DMX512 address

DJ246 PRO Scanner controller uses Channel 1~246 of **DMX512** to transmit control signals to Scanners and digital dimmer. Channels are used as following:

- Channels 1~216 are used by Scanners. Each Scanner has 12 fixed control Channels.
- Channels 217~246 are used by lighting. (Among them Channels 217~234 are used for switch control and Channels 235~246 for dimmer control).

3 Operation Guide

3.1 Graph of panel



3.2 Introduction of vocabulary in common use

- **Scanner Scene:** it is the concourse of Channel values of Scanners' X/Y (PAN/TILT) position, Brightness and GOBO.
- **Light Scene:** it is the concourse of brightness values of some lighting Channels at the same time.
- **Chase Program:** every Chase program is composed of some Chase Steps, and every step has a saved Scene output.

3.3 Part of keyboard

There are 42 keys on the keyboard. Some keys have corresponding LED indicators. When a LED indicator is on, the Controller is executing the key's function. Some keys have two different color marks. These keys have different functions in different states.

Function keys

DJ246 PRO Scanner controller has two operation areas: **SCAN** area and **LIGHT** area. It totals to 9 function keys.

There are 5 function keys in **SCAN** area:

- **SCENE.A** Scanner Scene A key. It controls Scanner Scene 1~18.
- **SCENE.B** Scanner Scene B key. It controls Scanner Scene 19~36.
- **CHASE.A** Chase program A key. It controls Chase program 1~18.
- **CHASE.B** Chase program B key. It controls Chase program 19~36.
- **MANUAL** manual control key.

There are 4 function keys in **LIGHT** area:

- **SCENE.A** light Scene A key. It controls light Scene 1~18.
- **SCENE.B** light Scene B key. It controls light Scene 19~36.
- **SCENE.C** light Scene C key. It controls flash light Scene 37~54 triggered by music rhythm.
- **CHASE** key of Chase program. It controls Chase program 1~18.

MACRO control key

Different Manual, Scene and Chase running combination can be recorded to the MACRO, for the purpose of user according to the different program of the spot, quickly use the **MACRO** key to adjust a corresponding running combination effect.

Number key

- There are 18 number keys on the panel. Every number key has a yellow LED and a red LED. These 18 keys have different functions in different function key states. When yellow LED is on, Scene or Chase program corresponding to the number key is exporting. When red LED is on, Channel value of Scanner or light corresponding to the number key is exporting.

- Every function key can be set lock mode of number key independently (**Flash** mode, **Latch** mode, **Swop** mode).

CLEAR key

Clear all output of current function key.

RELEASE key

Combined with clear key, Fader and Joystick, release key can execute different release function:

- **Release key + Fade** (CH1~12)

Press and hold **Release** key first, then push Fader. The control of this Fader is released.

For example: a Chase program is running, Scanner 1 is in Manual state and Fader CH3 can change color of Scanner 1. Press and hold **Release** key first, then push Fader CH3. The control of this Fader to color Channel of Scanner 1 is released. Color Channel of Scanner 1 change from Manual control to Chase program control.

- **Release key + XY Joystick**

Press and hold **Release** key first, then wag **X/Y** Joystick. The control of Joystick to **X/Y** Channel is released. For example, a Chase program is running, Scanner 1 is in Manual state and Joystick can change **X/Y** position of Scanner 1. Press and hold **Release** key first, then wag Joystick. The control of Joystick to Scanner 1's **X/Y** position is released. **X/Y** Channel of Scanner 1 change from Manual control to Chase program control.

- **Release key + Clear key**

This operation executes different release function according to the running function key:

1. When the running function key is in **LIGHT** area, this operation releases the control of Fader to lighting Channel **CH1-CH12** and clears the control values of Fader. Then the LED indicator of Channel **CH1-CH12** stops blinking.
2. When the running function key is in **SCAN** area, this operation releases the control of Fader to Channel **CH1-CH12**, releases the control of Joystick to **X/Y** Channel, and clears the control values of Fader and **Joystick**. Then the **LED** indicator of Channel **CH1-CH12** stops blinking and LED indicator of **Joystick** is off.

TYPE number key type selective key

Every function key has his own number key independently, totally has 3 control type:

- **Flash** flash mode: at this time, pressing number key with output and losing without output. In this mode, multi number keys can be pressed and holded at the same time.
- **Latch** latch mode: at this time, number keys are in self latch mode, clicking a number key will export Scene or Chase program corresponding to this key, and

clicking this number again will stop exporting.

- **Swop** swop latch mode: at this time, number keys are in swop latched mode, clicking a number key will lock this number key and release other number keys.

As long as press to the **TYPE** key continuously, can circular change the number of control type.

PROGRAM key

It will enter the program mode after pressing this key 1 second , and the LED on the key will blinking.

BLACKOUT key

BLACKOUT function is compose of 2 key:

- (Scan) Scanner **BLACKOUT** key ---- The key exports special Scene 219, in which all Scanners are in black state.
- (Light) conventional light **BLACKOUT** key ----The key makes 30 conventional lights all in black state.

MODE Chase synchronous mode selected key

Chase program has 2 kinds of synchronous modes totally

- **auto mode**: running speed of Chase is controlled by **SPEED** Fader or **SWING** key.
- **music mode**: the Chase program is triggered by music rhythm synchronously.

As long as press to the **MODE** key continuously, can circular change the synchronous mode of current Chase.

SWING intelligence rhythm key

When the subjected Chase in the mode of **auto**, you can have the rhythm to click that key, and the speed of current Chase will synchronous with the rhythm.

◀ ▶ Chase direction key

When a Chase program is running, these keys can be used to change running direction of Chase program.

LOAD data loading key

Pass this key, you can load the data from the flash-card to the controller.

SAVE data saving key

Pass this key, you can save the whole user's data of the controller to the flash-card.

RESET Scanner reset key

This key exports special Scene 220, in which all Scanners are reset, this function can be effective only in the running mode.

CHASE? key

Press and hold **CHASE?** key, then press a number key(select the Chase you want to see), then you can check and turn to the control state of that Chase without influencing it's program.

Note: when running the Chase program, the **MODE** key, **SWING** key, ◀ ▶ Chase direction key and **SPEED**, **CROSS** Fader could only effect on the Chase of the current LCD screen.

C, P key

When a Scene is edited, these keys can be used to copy and paste a Scene. **C** key used to copy and **P** key used to paste.

* cycle mark key

When Chase program is edited, * key is used to make the cycle mark. When a Chase program runs to a Chase Step with cycle mark, it will go back to Chase Step 1 to restart.

SET X/Y X/Y control Joystick setting key

When is edited, can enter the setting state of **X/Y** (PAN/TILT) Channel of control Joystick through this key.

Scene+ Scene- Scene plus / minus key

- When a Scene is edited, these keys can be used to change the current Scene number.
- When a Chase program is edited, these keys can be used to change the Scene number exported by the current program step.

Step+ Step- Chase Step plus / minus key

When a Chase program is edited, is used to change the step number of the current Chase program.

3.4 Part of Fader and Joystick

Controller has 16 Faders. Pushing up a Fader will increase its control value, and pulling down will decrease. Some Faders have two different color marks. These Faders have different control functions in different states.

CH1~CH12 Channel Faders

Controller has 12 Channel Faders, These Faders have two kind of functions:

- When function key of SCAN area is pressed down, these Faders control values of Scanner's Channel 1~12. LED indicators of these Faders are green.
- When function key of LIGHT area is pressed down, **CH1~ CH12** control brightness adjusting of DMX Channel 235-246 (total to 12). LED indicators of these Faders are red. Each Fader has a LED indicator. The brightness of LED simulates the output value (0-255) of the Channel. When a Fader is pushed to make control value equal to

the output value of current Channel, the brightness of LED simulates the output value and additional periodicity blink indicates that the Channel is controlled by Fader. Other Channels not controlled by Faders are controlled by current Scene and Chase program.

SPEED Chase Speed Fader

In **auto** running state, **speed** Fader controls the speed of Chase program .

CROSS Chase Cross Fader

Cross Fader controls the gradual change time of Chase program between step and step.

MASTER master Fader

Master Fader has 2, distinguishing **A** Fader and **B** Fader

A Fader -- control the brightness of the conventional light **CH1~CH6** Fader (DMX Channel 235~240).

B Fader -- control the brightness of the conventional light **CH7~CH12** Fader (DMX Channel 241~246).

Note: DMX Channel 217~234 is switched by **number key 1~18**. Brightness value of DMX Channel 235~246 is control by Fader **CH1-CH12**. Conventional light Channel is not under the control of the **MASTER** Fader.

X/Y Joystick

Joystick controls **X/Y** position of Scanners more conveniently than Fader does. Before Joystick can be used to control **X/Y** position of Scanner, the number of **X/Y** control Channel of Scanner to be controlled by Joystick must be set first.

4 Part of Scanner (Moving Lighting)

4.1 Operation of Scanner program

Scene is the basic of Scanner program. So Scene is edited first and then Chase program is edited. Edit steps of Scanner program are as following:

- (1). Understanding your Scanners.
- (2). Setting of Scanner's DMX512 address.
- (3). Setting of Joystick's X/Y Channel.
- (4). Edit of Scanner Scene.
- (5). Edit of Scanner Chase program.

After quitting from program edit, all setting are saved automatically and do not lose even when the Controller is turn off.

4.1.1 Understanding your Scanners

Since the amount of control Channels and control parameters are different for different Scanners, user's specification of Scanner is a needed reference for program edit, such as knows the effect of the address code or each control Channel.

4.1.2 Setting of Scanner's DMX512 address, X/Y (PAN/TILT)

DJ246 PRO Scanner Controller arranges DMX512 digital signals as following:

- **DMX 1~216** is used as Scanner. Each Scanner uses 14 control Channels.
- **DMX 217-234** (total to 18 Channels) is used as light switch control Channels.
- **DMX 235-246** (total to 12 Channels) is used as Dimmer Channels.

If a Scanner receives data of Channel 1 of DMX512 when all address switches of DIP are close (00000000), the address switches of Scanner can be set as Table 1. If a Scanner receives data of Channel 1 of DMX512 when the address switch of DIP is 1 (100000000), the address switches of Scanner can be set as Table 2.

Table 1 address setting of Scanner (1)

No. of Scanner	DMX address	Value of switch 123456789
1	1	00000000
2	13	00110000
3	25	00011000
4	37	00100100
5	49	00001100
6	61	00111100
7	73	00010010
8	85	00101010
9	97	00000110
10	109	00110110
11	121	00011110
12	133	001000010
13	145	000010010
14	157	001110010
15	169	000101010
16	181	001011010
17	193	000000110
18	205	001100110

Table 2 address setting of Scanner (2)

No. of Scanner	DMX address	Value of switch 123456789
1	1	10000000
2	13	10110000
3	25	10011000
4	37	10100100
5	49	10001100
6	61	10111100
7	73	10010010
8	85	10101010
9	97	10000110
10	109	10110110
11	121	10011110
12	133	101000010
13	145	100010010
14	157	101110010
15	169	100101010
16	181	101011010
17	193	100000110
18	205	101100110

Note: 0=OFF, 1=ON

4.1.3 Setting of Joystick's X/Y Channel

Before Joystick can be used to control **X/Y** position of Scanner, **X/Y** control Channel of Joystick must be set first.

Operation steps:

1. Press **PROGRAM** key 1 second to start program edit.
2. Press **set X/Y** key to start **X/Y** setting edit..
3. Use **number key 1~18** to choose Scanner.
4. Push Fader corresponding to **X** Channel of Scanner to let Joystick get the X Channel number.
5. Push Fader corresponding to **Y** Channel of Scanner to let Joystick get the Y Channel number.
6. Repeat step 3-5 to set **X/Y** Channel of various Scanners.
7. Press **PROGRAM** key to quit program edit. Setting of Joystick's X/Y is saved automatically.

Operation tips:

- For 16 Bit Scanner, its **X/Y** control data is made up of two Channels: high byte of **X**, low byte of **X**, high byte of **Y** and low byte of **Y**. When **X/Y** of this type Scanner is set, only high byte is needed to be set.
- The **X/Y** of Scanner usually also calls Pan/Tilt.

For example, Channel information of a 16 Bit Scanner is as following:

- High byte of X=5, low byte of X=6, high byte of Y =7, low byte of Y=8

In the above setting process:

- Push **CH5** Fader in step 4 to set **X**
- Push **CH7** Fader in step 5 to set **Y**.

4.1.4 Manual control of Scanner

Operation steps:

1. Press **MANUAL** key to start Scanner manual control edit.
2. Press **number key 1~18** to choose Scanner to be controlled manually.
3. Use Fader **CH1-CH12** to control Scanner directly, or use Joystick to control **X/Y** Channel of Scanner directly.

Operation tips:

1. Manual control has precedence. Current running Scene or Scanner Chase program can't control it transitorily.
2. Scanners with same **X/Y** Channel can be chosen and controlled manually at the same time.
3. When Fader is pushed and the number of Fader displayed on LCD screen changes, Fader is in effect. If the number of Fader does not change transitorily, please push Fader completely.

For example, Manual control of first one Scanner:

1. Press **MANUAL** key.
2. Press number key 1, Red LED corresponding to the number key 1 is on.
3. Use Fader **CH1-CH12** to control Scanner 1 directly, also can use Joystick to control **X/Y** Channel of Scanner directly.

4.1.5 Edit of Scanner Scene

Edit method

Operation steps of Scene:

1. Press **PROGRAM** key 1 second to start program edit.
2. Press **SCENE.A** key of SCAN area.
3. Use number key to choose Scanner Scene number to be edited. Repeat step 2~3 to choose Scanner Scene number in 1~18.
4. Use number key to choose Scanner to be control.
5. Use Fader to set color, pattern and brightness for Scanner. Use Joystick to set **X/Y** position (The operation method of Fader and Joystick reference to the part of Scanner manual control).
6. Press **PROGRAM** key to quit.

Operation tips:

1. If the Scene is composed of multi Scanners, please repeat step 4~5 and edit to every Scanner.
2. Repeat step 2~5 to edit other Scenes.
3. After **SCENE.A** key of SCAN area is pressed, 18 number keys are corresponding to Scene 1~18. After **SCENE.B** key of SCAN area is pressed, 18 number keys are corresponding to Scene 19-36. Using **SCENE +** or **SCENE-** key can choose Scene number in a wider range (1~220). This method must be used to edit Scene above 37.
4. The Scanners with the same **X/Y** Channel can be selected and modified at the same time.

For example: edit number 10 Scene (the second 2 Scanner export singly).

1. Press **PROGRAM** key 1 second to start program edit.
2. Press **SCENE.A** key of SCAN area.
3. Press **number key 10**, select Scene 10.
4. Press **number key 2**, select Scene 2.
5. Use Fader to set color, gobo and brightness for Scanner. Use Joystick to set **X/Y** position.
6. Press **PROGRAM** key to quit.

Copy and Paste of Scanner Scene

When there are some similar Scenes to be edited, using Copy and Paste functions can reduce workload of edit. The method is as following:

1. In Scene edit state, choose source Scene number first, then press **C** key to copy.

2. Choose target Scene number to be pasted, then press **P** key to paste source Scene to target Scene. At this time two contents of Scene are completely similar.
3. Then edit the Scene again to built a new Scene.

For example: Copy Scene 1 to Scene 6.

1. Press **PROGRAM** key 1 second to start program edit.
2. Press **SCENE.A** key of SCAN area.
3. Press **number key1**. select Scene 1.
4. Press **C** key to copy.
5. Press **number key 6**. select Scene 6.
6. Press **P** key to paste.
7. Press **PROGRAM** key to quit.

Edit of Scene 219, 220 for special purpose

BLACKOUT(Scan) key and **RESET** key on panel of Scanner have special purpose.

- Press **BLACKOUT (Scan)** key, controller is in blackout state. It exports Scene **219** to all Scanners. Please refer to edit method of Scanner Scene to edit Scanner Scene **219**. Set brightness control Channels of all Scanners to be blackout.
- When **RESET** key is pressed 1 second, Controller just exports Scanner reset signal (namely Scene **220**),until release the key. Please refer to edit method of Scanner Scene to edit Scanner Scene **220**. Set all Scanners are in reset state. (Please refer to the user specification of Scanner).

4.1.6 Edit of Scanner Chase program

*** Cycle mark of Chase**

In a Chase program, it is needed to set a cycle mark *. The function of the mark is that Chase program starts from step 1 to step with mark, then goes back to step 1 to restart. In edit state, the position of mark can be changed.

Edit steps of Chase program

Since Scene output is used directly in Chase program, Scene used in a Chase program must be edited first. Then Chase program is edited and each Chase Step uses a Scanner Scene.

Operation steps:

(for example edit number 5 step of the Chase1 program, make it export Scene 39).

1. Press **PROGRAM** key 1 second to start program edit.
2. Press **CHASE.A** key of SCAN area.
3. Press **number key 1**. So Chase1 is to be edited.
(Repeat step 2~3 to choose other Chase program to be edited).
4. Use **Step+** or **Step-** key to choose Chase Step(1~120) to be edited. In this example, press **Step+** key until **step[005]** can be seen on LCD screen. If it has cycle mark set

before, it is displayed **Step[***]** on LCD screen.

5. Use **Scene+** or **Scene-** key to choose Chase Scanner Scene to be used by current Chase Step. In this example, press **Scene+** key until **sce039** can be seen on LCD screen. It means that Chase Step 5 use Scanner Scene39.
 - It is proposed that the range of Scene used by Chase Step is Scene 37~214 (Scene 1~18 is Color Scene, Scene 19~36 is Gobo Scene, and Scenes 219 and 220 are Scenes for special purposes).
 - Follow step 4 to check every edited Chase Step.
 - Repeat step 4~5 to edit other Chase Steps.
6. When the last Chase Step has been edited, press * cycle mark key. On LCD screen, the number of Chase Step is replaced by [***].
7. Press **PROGRAM** key to quit.

Operation tips:

- If **CHASE.B** key of SCAN area is pressed in step 2, Scanner Chase program 19~36 can be edit.
- While editing Chase Steps, can do the operation of copy or paste to the Chase Step through the **C** (copy) key or **P** (paste) key.

4.2 Operation of Scanner running

4.2.1 Outline of Scanner running

- When LED indicator of **BLACKOUT(Scan)** is off, the control signal of the Controller is in output state, or Controller exports black Scene, namely Scene **219**.
- Main points of running operation: press function key first, then press number key to run Scene or Chase program. Using this method can make multi functions run at the same time. For example, run 3 Chase program and add up two Scanner Scenes.
- Manual operation has precedence. When a Scanner is in manual state, its manual Channel can't be control by running Scene and Chase program transitorily.

4.2.2 Running of Scanner Scene

- Press **SCENE.A** key of SCAN area, then press number key 1~18 to run Scene (1~18).
- Press **SCENE.B** key of SCAN area, then press number key 1~18 to run Scene (19~36).
- Using **TYPE** key to set the lock states of number keys, can realize single Scene running or multi Scenes running at the same time.

4.2.3 Running of Scanner Chase program

- Press **CHASE.A** key of SCAN area, then press number key 1~18 to run Chase (1~18).
- Press **CHASE.B** key of SCAN area, then press number key 1~18 to run Chase

(19~36).

- After select **auto** state by pressing **MODE** key, Chase program runs on speed set by **SPEED** Fader . Adjusting **SPEED** Fader can change running speed of Chase program, or click the **SWING** key rhythmically, Chase speed will synchronous with rhythm automatically, even stop pressing.
- After select **music** state by pressing **MODE** key, Chase program is triggered by low-frequency rhythm of music signals.
- Adjusting **CROSS** Fader can change the transition time of gradual change between Chase Steps.
- Using ◀, ▶ keys can choose direction of Chase Step running.
- Press and hold **CHASE?** key, then press a number key(select the Chase you want to see), every running parameter corresponding to the number key can be checked and modified without stop.

Note: After running Chase program. **MODE** key, **SWING** key, ◀, ▶ key, **SPEED** Fader, **CROSS** Faders could only effect on the Chase of the current LCD screen.

4.2.4 Manual running of Scanner

Press **MANUAL** key of SCAN area, use number key to choose Scanner to be operated manually (Only Scanners with same **X/Y** Channel can be chosen simultaneously). Then use Fader to control the state of Scanner. Use Joystick to control **X/Y** position of Scanner.

4.2.5 Various Clear operation of Scanner

- Press **SCENE.A** key of SCAN area, then press **CLEAR** key to stop Scene 1~18.
- Press **SCENE.B** key of SCAN area, then press **CLEAR** key to stop Scene 19~36.
- Press **CHASE.A** key of SCAN area, then press **CLEAR** key to stop Chase 1~18.
- Press **CHASE.B** key of SCAN area, then press **CLEAR** key to stop Chase 19~36.
- Press **MANUAL** key of SCAN area, then press **CLEAR** key to stop Manual operation of Scanner.

4.2.6 Various Release operation of Scanner

- Press and hold **RELEASE** key, then push any Fader, the control of this Fader to Scanner is released.
- Press and hold **RELEASE** key, then wag Joystick, the control of Joystick to **X/Y**-axes is released.
- Press and hold **RELEASE** key, then press **CLEAR** key, the control of Fader and Joystick to Scanner are released.

4.2.7 State check of Scanner output

- Press **MANUAL** key of SCAN area, Scanners operated manual are indicated by red LED indicator. Its Channel value is indicated by the brightness of blinking green LED indicator.
- Press **SCENE.A** key of SCAN area, Scanner Scene 1~18 being export is indicated by yellow LED indicator.

- Press **SCENE.B** key of SCAN area, Scanner Scene 19~36 being export is indicated by yellow LED indicator.
- Press **CHASE.A** key of SCAN area, Scanner Chase program being export is indicated by yellow LED indicator.
- Press **CHASE.B** key of SCAN area, Scanner Chase program being export is indicated by yellow LED indicator.

5 Part of lighting

5.1 Edit of light program

Controller can control 30 lighting Channels:

CH1~CH12 can be adjusted independently. Among them.

- **CH1~CH6** Faders are both control by **MASTER(A)** Fader .
- **CH7~CH12** Faders are both control by **MASTER(B)** Fader .
- **MASTER(A)** and **MASTER(B)** are effective only in the state of conventional light.
- 1~18 Switch loops are not control by **MASTER** Fader .
- Above 30 lighting loops are both control by **BLACKOUT(Light)**.

Conventional light of controller has characteristics as following:

- **SCENE.A** key of LIGHT area dominates light Scene 1~18.
- **SCENE.B** key of LIGHT area dominates light Scene 19~36.
- **SCENE.C** key of LIGHT area dominates light Scene 37~54.
- **CHASE** key of LIGHT area dominates light Chase 1~18.

Note:

- **SCENE.C** key of LIGHT area includes a special design which can receive music rhythm to adjust the brightness of light. When Scene 37-54 is edited, this characteristic should be considered.
- Controller can store 220 light Scenes. Each light Scene includes switch control of Channel 1~18 and brightness adjusting values of **CH1~CH12**.

Program edit of light is similar to that of Scanner. Please process two steps as following:

1. Edit of light Scene.
2. Edit of light Chase program.

5.1.1 Edit of light Scene

Edit method

Operation steps: (for example edit Scene1, the Scene is composed of light Switch loop 5 and light Dimmer loop CH2)

1. Push up **MASTER** Fader, make the voltage of the master to maximum.
2. Press **PROGRAM** key to start program edit.
3. Press **SCENE.A** key of LIGHT area.
4. Use number key to choose light Scene number to be edited. In this example, press **number key 1**.
 - Repeat step 3~4 to choose other Scene number.
 - Use **SCENE+** or **SCENE-** to choose Scene number in a wider range (1~220).
5. Press **number key 5** (open light switch loop 5), and adjust **CH2** Fader to proper brightness.

6. Repeat step 3~5 to edit other Scene.
7. Press **PROGRAM** key to quit.

Copy and Paste of light Scene

When there are some similar Scenes to be edited, using copy and paste functions can reduce workload of edit. The method is as following:

- In Scene edit state, choose source Scene, then press **C** key to copy.
- Choose target Scene to be pasted, then press **P** key to paste source Scene to target Scene. The contents of two Scenes are the same.
- Then edit the Scene again to be a new Scene.

For example: copy Scene 1 is to Scene 6.

1. Press **PROGRAM** key 1 second to start edit.
2. Press **SCENE.A** key of LIGHT area.
3. Press **number key 1**. (choose Scene1)
4. Press **C** key to copy.
5. Press **number key 6**. (choose Scene6)
6. Press **P** key to paste.
7. Press **PROGRAM** key to quit.

5.1.2 Edit of light Chase program

Scene is the basic of Chase program. So Scene is edited first and then Chase program is edited.

Operation steps: (for example edit step 5 of Chase1 and it exports light Scene 99)

1. Push up **MASTER** Fader, make the voltage of the master to maximum.
2. Press **PROGRAM** key to start program edit.
3. Press **CHASE** key of LIGHT area.
4. Press **number key 1** (choose Chase1).
5. Use **Step+** or **Step-** key to choose Chase Step (1~120) to be edited. In this example, press **Step+** key until step [005] is display on LCD screen. If Chase Step 5 has been set cycle mark before, step [***] is displayed on LCD screen.
6. Use **Scene+** or **Scene-** key to choose Scene number used in current Chase Step. In this example, press **Scene+** key until **sc099** is displayed on LCD screen. Repeat step 5~6 to edit other Chase Steps.
7. When the last Chase Step has been edited, press * key. On LCD screen, the number of Chase Step is replaced by [***] and the original cycle mark is canceled automatically.
8. Press **PROGRAM** key to quit.

Operation tips:

When edit of Chase program, can use **C** key or **P** key to do the operation of copy or paste to the Chase Step.

5.2 Operation of light running

5.2.1 Outline of light running

- When LED indicator of **BLACKOUT** is off, the control signal of conventional light of controller is in running state.
- When LED indicator of **PROGRAM** is off, can make sure the controller be running state.
- Main points of running operation: press function key first, then press number to export Scene or Chase program. Using this method can export multi functions at the same time.
- **CH1~CH6** Fader accept the control of **MASTER(A)** Fader.
- **CH7~CH12** Fader accept the control of **MASTER(B)** Fader.
- **1~8** switch loop are not control by **MASTER** Fader .
- Totally 30 lightness loop accept the control of **BLACKOUT(Light)** key.
- Manual operation has precedence. When light Channel **CH1~CH12** is in manual state, it can't be control by running Scene and Chase program transitorily. After quitting from Manual operation, it goes to normal running state automatically.

5.2.2 Running of light Scene

- Press **SCENE.A** key of LIGHT area, then press number key to run light Scene (1-18).
- Press **SCENE.B** key of LIGHT area, then press number key to run light Scene (19-36).
- Press **SCENE.C** key of LIGHT area, then press number key to run light Scene (37-54), these Scenes output blinking with the rhythm of the music signal.

5.2.3 Running of light Chase

- Press **CHASE** key of LIGHT area, then press number key, can select Chase (1~18) of light.
- After select **auto** state by pressing **MODE** key, Chase program runs on speed set by **SPEED** Fader. Adjusting **SPEED** Fader can change running speed of Chase program, or click the **SWING** key rhythmically, Chase speed will synchronous with rhythm automatically, even stop pressing.
- After select **music** state by pressing **MODE** key, Chase program is triggered by low-frequency rhythm of music signals.
- Adjusting **CROSS** Fader can change the transition time of gradual change between Chase Steps.
- Using ◀, ▶ keys can choose direction of Chase Step running.
- Press and hold **CHASE?** key, then press a number key(select the Chase you want to see), every running parameter corresponding to the number key can be checked and modified without stop.

Note: After running Chase program, **MODE** key, **SWING** key, ◀, ▶key, **SPEED** Fader, **CROSS** Fader could only effect on the Chase of the current LCD screen. If modified, controller will save these parameters automatically.

6 Part of strengthen function

6.1 MACRO

These Macros are the combination record of running of Manual, Scene and Chase. Characteristics are as following:

- Controller has 18 MACRO control, running combination of different Manual, Scene and Chase can be recorded to the MACRO, for the purpose of user according to the different program of the spot, quickly use the **MACRO** key to adjust a corresponding running combination effect.
- MACRO could both record and adjust the running combination of conventional light and Scanner.

6.1.1 Record of MACRO

Operation steps: (for example, record running combination set by user to MACRO 5)

1. At running state, user can set the running combination of Manual, Scene and Chase according to the content of program(such as the running combination is: open Scanner Scene 2, 3. open Scanner Chase 6, 8 and then open conventional light 2, also the running parameter of Chase has been set).
2. Press **PROGRAM** key 1 second to start program edit.
3. Press **MACRO** key to start MACRO record edit.
4. Directly use number key (1~18) to choose MACRO number to be recorded. at this example, press number key 5 (Repeat step 3-4 to choose other MACRO to be edited.)
5. Press **PROGRAM** key to quit.

6.1.2 Calling of MACRO

Operation steps: (for example: call MACRO 5)

1. Press **MACRO** key at the running state.
2. Use number key (1~18) choose MACRO, at this example, press number key 5.

6.2 Loading and saving of the data file

For different user and different occasion, use different data is necessary. At the same time, to prevent the data edited by yourself on controller to be modified by any other else, use Flash-card for backup is the best method. Controller supply a Flash-card slot, for the convenient of user to restore or use his own data. Each Flash-card has 3 file, each file could record the whole user's data of controller.

6.2.1 Use of Flash-card

- At the bottom of one side of Flash-card is metal slice with golden color, please don't touch it by hand, also can't make it dirty.
- When using, turn left of the Flash-card with the side of metal slice, insert the metal

slice into the Flash-card slot slowly.

- If insert the Flash-card correctly, blue LED besides Flash-card slot would be on. If it didn't on, maybe you had insert Flash-card reversed or the card has some problem(such as the metal slice is too dirty or the Flash-card is not match to the controller).
- For the body of Flash-card is thin, please don't make the effect to bend it.

6.2.2 Saving of file

Operation steps (for example: save user's data of controller to file 2 of Flash-card)

1. At running state, press **SAVE** key; (LCD would indicate to choose the target file to be saved)
2. Press number key (1~3) to choose file, at this example, press **number key 2**;
(**Tips**: press **SAVE** key twice, default save to File1)

Operation tips:

- At the time of data saving, the blue LED would blinking and LCD would display saving progress.
- At the time of data saving, please don't pull out Flash-card.
- After saving operation, this file of Flash-card would be covered by new data, but it won't infect other files of the Flash-card.
- Each Flash-card can save 3 file respectively.

6.2.3 Loading of file

Operation steps:(for example: load the data of file 2 of Flash-card to controller)

1. At running state, press **LOAD** key; (LCD would indicate to choose the target file to be called)
2. Press number key (1~3) to choose file; at this example, press **number key 2**.
(**Tips**: press **LOAD** key twice, default loading File1)

Operation tips:

- At the time of data loading, the blue LED would blinking and LCD would display saving progress.
- At the time of data loading, please don't pull out Flash-card.
- After loading operation, controller will run with new data immediately.
- Loading operation makes the data of controller be covered by new data.

6.3 VGA's Human-Machine Interface

- **VGA** port of controller is supported by special **VGA** display card, **VGA** display card is selective accessory, when you buy the controller, please make sure whether it patch to the **VGA** display card.
- **VGA** port could connect to the colorful CRT or LCD display.
- After connect to display, user could see running instance of each Scanner Channel

and conventional light Channel. At the state of edit, it could display the content of each Scanner and Chase, for the convenient of user to edit or modify.

7 INITIALIZATION

Steps of initialization:

1. Hold and pressing 2 **BLACKOUT** key, then the power supply of controller;(until the LCD display -- input password)
2. Press **number key 1, 2, 3, 18** at the same time.
3. After controller initialize data, user's data would be all clear, and it would write in a example Chase program.
4. After initialization, restart controller.