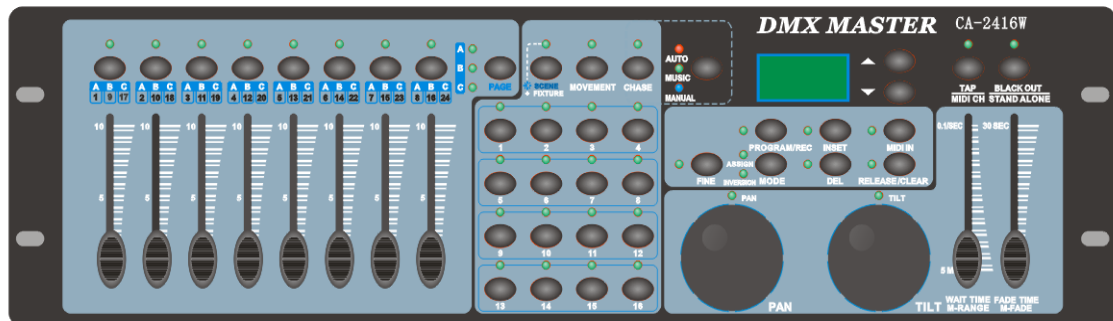


# DMX MASTER

Professional Lighting Technology



## CA-2416W

## User Guide

*Please read these instructions carefully before use*

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## 1. Features

- A. 384 DMX channels
- B. 16 fixtures of each with 24 DMX channels
- C. 24 scenes and 16 chases(Max.1000 steps) programmable
- D. 8 faders for manual control
- E. Auto programs(scenes and chases) under control by Wait Time sliders(or Tap Sync) and Fade Time sliders
- F. Fade Time/Wait Time adjustable
- G. The fixtures under control by Pan and Tilt jog wheels
- H. Fine adjustment of the Pan and Tilt
- I. Reverse DMX channels enable the faders to control the output reversely
- J. Preview assigned or reversed DMX channels
- K. Blackout and stand alone function
- L. Built-in movement
- M. Built-in microphone for Music triggering
- N. MIDI control over scenes, chases and Blackout/Stand alone
- O. LCD display
- P. Auto Address
- Q. USB support

## 2. General Instructions

Please read the user manual carefully, as it includes important information regarding details of operation, maintenance, and technical data. Keep this manual with the unit for future consult.

### WARNINGS !

- 1 **DO NOT** make any inflammable liquids, water or metal objects enter the unit.
- 2 **Should any liquid be spilled on the unit, DISCONNECT the power supply to the unit immediately.**
- 3 **STOP** using the unit immediately In the event of serious operation problems and either contact your local dealer for a check or contact us directly.
- 4 **DO NOT** open the unit--there are no user serviceable parts inside.
- 5 **NEVER** try to repair the unit yourself. Repairs by unqualified people could cause damage or faulty operation. Contact your nearest dealer.

### CAUTIONS !

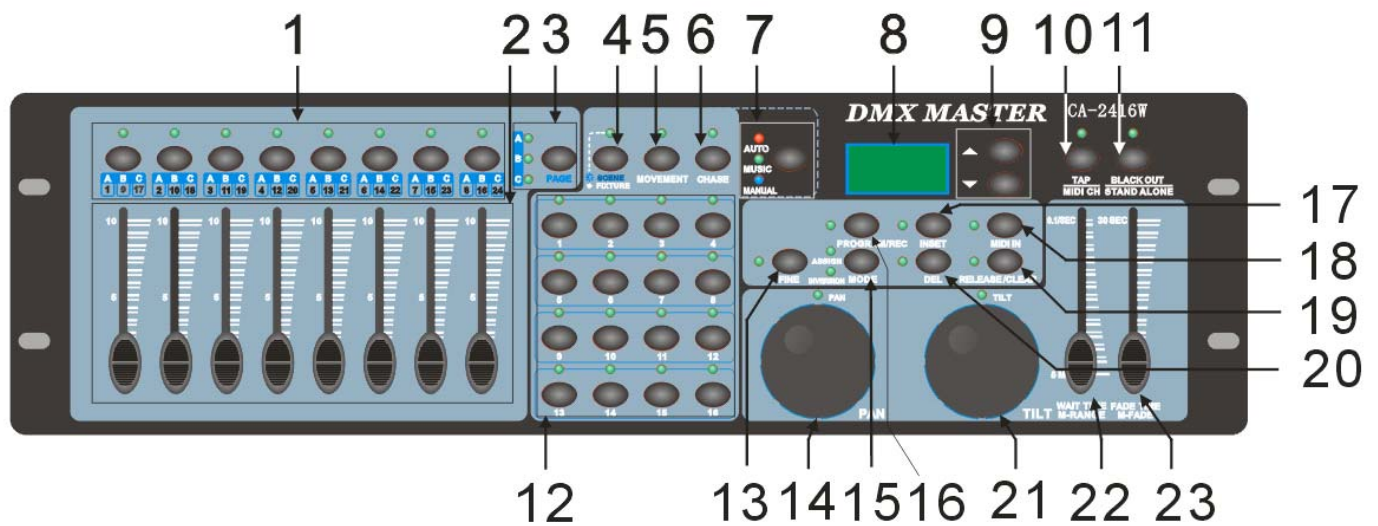
- 1 **This unit is NOT intended for home use.**
- 2 **After having removed the packaging check that the unit is NOT damaged in any way. If in doubt, DON'T use it and contact an authorized dealer.**
- 3 **Packaging material (plastic bags, polystyrene foam, nails, etc.) MUST NOT be left within children's reach, as it can be dangerous.**
- 4 **This unit must only be operated by adults. DO NOT allow children to tamper or play with it.**

- 5 NEVER use the unit under the following conditions:**  
**In places subject to excessive humidity.**  
**In places subject to vibrations or bumps.**  
**In places with a temperature of over 45 C/113 F or less than 2 C/35.6 F.**  
**Protect the unit from excessive dryness or humidity (ideal conditions are between 35% and 80%).**
- 1 DO NOT dismantle or modify the unit.**

### 3. Overview

#### 3-1. Front View

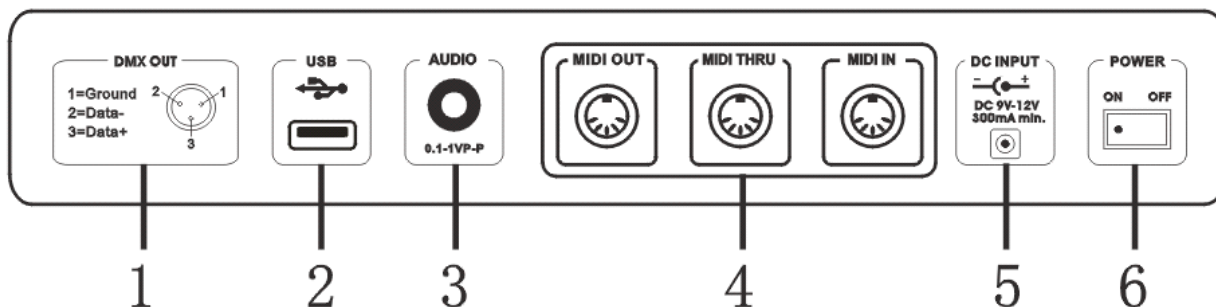
CA-2416W



- |  |   |
|--|---|
| <p><b>1. Scene Buttons (1-8)</b><br/> <b>2. Faders</b><br/> <b>3. PAGE Select Button</b><br/> <b>4. FIXTURE/SCENE Buttons</b><br/> <b>5. MOVEMENT Button</b><br/> <b>6. CHASE Button</b><br/> <b>7. AUTO/MUSIC/MANUAL</b><br/> <b>8. LCD Display</b><br/> <b>9. Up/Down Buttons</b><br/> <b>10. TAP/MIDI CH</b><br/> <b>11. Blackout/Stand alone Button</b><br/> <b>12. CHASE Button (1-16)</b><br/> <b>13. FINE Button</b><br/> <b>14. PAN Wheel</b><br/> <b>15. MODE Button</b><br/> <b>16. PROGRAM/REC Button</b></p> | <p>Load or store scenes. There are a maximum of 24 programmable scenes</p> <p>These faders are used to control the intensity of all the channels</p> <p>Used to select page between Page A (1-8), Page B (9-16) and Page C (17-24).</p> <p>Press the fixture/scene buttons to enter into scene mode</p> <p>16 Built-in movement for your convenient use</p> <p>Press the CHASE button to enter into Chase mode.</p> <p>When running the chase, press the button to change the running mode</p> <p>Shows the current activity or programming state.</p> <p>Press Up/Down button to select chases or adjust the sound sensitivity of audio control</p> <p>Change the rhythm of chases or set Midi address</p> <p>Tap to momentarily pause whole output. Hold on this button enter Stand alone</p> <p>Running Chase or select fixtures/scanners</p> <p>When Fine is on, the Pan or Tilt wheel will control the scanner in the smallest increment.</p> <p>This jog wheel is used to control the pan of the scanner or for programming.</p> <p>Pressing Fine and Mode buttons to activate Assign</p> <p>Activates Program mode or Record scenes/chases</p> |
|--|---|

- 17. **Insert Button** Add a step to a chase
- 18. **MIDI IN** Receive MIDI signal
- 19. **RELEASE/CLEAR** Clear out the output for faders or clear all the outputs or Reverse mode
- 20. **Del** Delete scenes or chases.
- 21. **TILT Wheel** This jog wheel is used to control the Tilt of the scanner or for programming.
- 22. **WAIT TIME Slider** Used to adjust the chase wait time within the range of 0.1 second to 5 minutes.
- 23. **FADE TIME Slider** Used to adjust the fade time.

### 3-2 Rear View



- 1. **DMX Out** This connector sends your DMX value to the DMX scanner or DMX pack.
- 2. **USB PORT** Connect to the computer when upgrading the firmware
- 3. **AUDIO IN** 0.1V~1Vp-p.
- 4. **MIDI OUT/THRU/IN** Send/Receive MIDI signal
- 5. **DC Input** DC 9 -12V, 300mA min.
- 6. **Power Switch** This switch turns On/Off the power.

### 4. Operation Guide

#### General

This unit allows you to program 16 fixtures of 24 DMX channels (384CH), 24 programmable scenes and 16 chases of max.1000 steps, using 8 faders and other function buttons. With the use of two jog wheels, you may easily control the Pan or Tilt of the fixtures. To tailor your special effect lighting, this unit enables you to Assign or Reverse the DMX channels, or set the DMX address automatically. In addition, two units can set up communication so that they can send or receive file dump.

#### Display Information

The LCD Display contains a maximum of 2x8 characters.

<b>LCD Display</b>	<b>Message</b>
Fixture Select	Selecting the fixture to control
Movement Select	Selecting the movement
Chase Select	selecting the chase
Chase 5	Chase 5 is activated.
Step 002	The 2nd step of a chase

Data 151  
WT: 1M36S  
TP: 5.32S  
FT: 10.5S  
ASS 07 08  
RES 10 13  
SN 6

DMX value(000-255)  
The current Wait Time is 1 minute and 36 seconds  
The time of the last two taps is 5.32 seconds  
Fade Time is 10.5 seconds  
Assign DMX channels 7 and 8  
Reverse DMX Channels 10 and 13  
Scene 6

#### 4-1 Program Enable

When the power is turned on, the firmware version will show on the LCD display for 1 second, then this unit will enter Manual mode automatically. Press the PROGRAM/REC button for 3 seconds to activate Program mode, the LED indicator near to this button flashes slowly indicating Program in active.

#### 4-2 .1 Programming Scenes



1. Hold PROGRAM/REC button for 3 seconds to enter program mode.
2. Press the FIXTURE/SCENE button, the LED indicator above it will light up but not flash. Then select the fixtures you want to program.
3. Move the faders to select your desired dimmer intensity if you are using a dimmer.



You can also use the two jog wheels to control the Pan or Tilt movement of the scanner.

4. Press FIXTURE/SCENE button, when the LED indicator above it flashing, the fixture which you choose will quench out.



5. Tap PAGE button to select the page you want to store your scene into. There are total 3 pages (A, B, C) you can select. The button 1-8 light up means there has scene stored in it, if you press it again, the before scene will be replaced.
6. Click the PROGRAM/REC button, then press the button 1-8, all the LED indicator will flash fast for 3 times, that means you have store the scene successfully.
7. Repeat steps 2-6 until all desired scenes have been programmed into memory.
8. After you finish your programming, hold PROGRAM/REC button for three seconds to exit Program mode, the LED goes out indicating this selection.

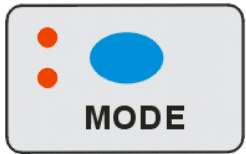
**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

### 4-2.2 Scanner Copy

This function allows you to copy the settings of one scanner to another.



1. Press PROGRAM/REC button to enter program mode.
2. Press the fixture(scanner) button you want to copy



3. Hold the MODE button, tap the Fixture (Scanner) button you want to copy to. The corresponding LED indicators will flash three times fast. Then the copy is successful.

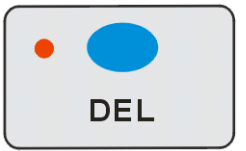
**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

### 4-2.3 Delete a Scene

- 1.



- 1) Press PROGRAM/REC button to enter program mode.
2. Press the FIXTURE/SCENE button, then the LED indicator above it will flash.
3. Press PAGE button to select page that the scene which you desire to delete is in.
- 4.



- 4) Hold the DEL button and the Scene button to delete the scene that you've stored (When selecting the page, the related LED indicators will show you whether there is a scene stored). The LED indicators on the panel will flash three times fast, which means delete the scene successfully.

**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

### 4-3 Programming Chase

This function will allow you to store up to 1000 steps into one chase (The max. steps is 1000 for the whole set).

1. Press PROGRAM/REC button to enter program mode.



2. Press the CHASE button to enter chase programming mode, the LED indicator above it will light up. The fixture 1-16 flashing, that means there is chase stored in it, then press the 1-16 chase buttons, all the LED indicator will quench out.



3. Then press the No button 1-16 to select the fixture you want to program. Push the fader to get your desired effect.
4. Tap the PROGRAM/REC button to store, the related LED indicators will flash three times, which means one step has stored successfully.
5. If you want to change the chase, you can press the CHASE button again, then the LED indicator of the chase you have stored will flash, the one just light up but not flash means that is the current selection. You can press any chase button to program the chase you like. Then the Chase and step will show on the LCD display.
6. Repeat steps 2-5 until you've reached your desired chase effect.  
You may record up to 1000 steps into a chase.
7. Hold PROGRAM/REC button 3 seconds to exit the program mode.

**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

#### 4-3.1 Insert a Step



1. Press PROGRAM/REC button to enter program mode.
2. Press chase button, the LED indicator will light up, and the fixture 2 will flash. Then hold the fixture 2 button for 2 seconds, the fixture 2 and chase LED indicator will quench out, and the FIXTURE/SCENE button LED indicator will light up.
3. Press the INSERT button, the LED indicator near it will light up.

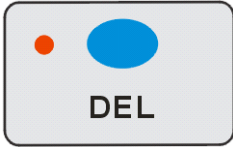


4. Press the No. button 1-16 to select the fixture and then push the fader to get your desired effect.
5. Use the UP/DOWN button to choose the step which you want to insert to. That will show on the LCD display.
6. Press PROGRAM/REC to store the scene inserted. The related LED indicators will flash three times. That means you have stored the operation successfully.



**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

### 4-3.2 Delete a Chase



1. Press PROGRAM/REC button to enter program mode.

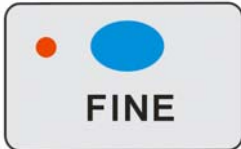


2. Hold DEL button, then tap the CHASE button which you want to delete; all related LED indicators will flash three times briefly indicating this chase has been deleted.

**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

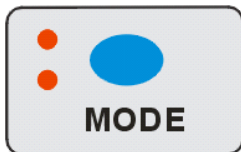
### 4-4 Assign/Reverse DMX channel

#### 4-4.1 Assign DMX channel



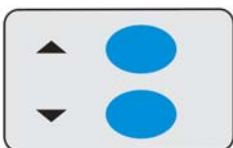
1. Press PROGRAM/REC button to enter program mode.

2. Press button1-16 to select the fixture.



3. Press the FINE and MODE buttons at a time, the Assign LED lights up indicating Assign mode is active.

4. Use Up and Down button to change between the PAN and TILT, the corresponding LED lights indicating this selection.



5. Tap the PAGE Select button to select Page A or Page B or Page C.



6. Holding the MODE button, tap the Scene button1-8, all LED should flash briefly indicating the DMX channel is assigned.( Scene button 1 stands for DMX channel 1, Scene button 2 stands for DMX channel 2, and so on.)

7. Continue steps 2-6, you may assign 16 fixtures for the PAN/ TILT movements. Under ASSIGN MODE, PAN / TILT can be set both in page A and page B and page C.

*Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next operation.*

#### 4-4.2 Reverse DMX channel

1. Press PROGRAM/REC button to enter program mode.

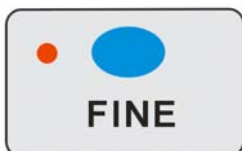


2. Press button1-16 to select the fixture.



3. Press the FINE and MODE buttons at a time for two times till to the REVERSE LED lights up indicating reverse mode is active.

4. Use Up and Down button to change between the PAN and TILT, the corresponding LED lights indicating this selection.



5. Tap the PAGE Select button to select Page A or Page B or Page C.



6. Holding the MODE button, tap the Scene button1-8, all LED should flash briefly indicating the DMX channel is reversed.( Scene button 1 stands for DMX channel 1, Scene button 2 stands for DMX channel 2, and so on.)

7. Continue steps 2-6, you may assign 16 fixtures for the PAN/ TILT movements. Under ASSIGN MODE, PAN / TILT can be set both in page A and page B and page C.

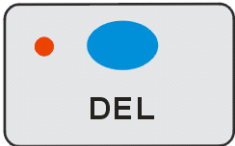
*Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.*

#### 4-4.3 Delete a fixture of DMX channels

1. Press PROGRAM/REC button to enter program mode.



2. Hold the FINE and MODE button at the same time till to enter into Assign or Reverse mode



3. Tap the fixture1-16 to select the fixture you wish to delete.
4. Press the DEL and MODE buttons at a time, all LEDs should flash three times briefly; indicating the DMX channels of the fixture (scanner) is all deleted.

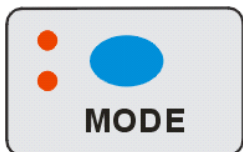
**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

#### 4-4.4 Display DMX channel

- 1.



- 1) Press PROGRAM/REC button to enter program mode
2. Press the FINE and MODE buttons at a time, the Assign LED lights.



3. Press the FINE and MODE buttons a second time, the Assign LED goes out and the Inversion LED lights.
4. Tap the fixture button that holds the Pan and Tilt channel, the LCD shows the Pan and Tilt.

#### 4-4.5 Auto Address



1. Press PROGRAM/REC button for 3 seconds to enter program mode.
2. Hold BLACK OUT button for 3 seconds till the BLACK OUT /STAND ALONE button light up.

3. Hold down the fixture 1 button and then press for 3 seconds to enter Stand-Alone mode. The LCD display will show "STAND ALONE" on it.
4. You can use the UP/DOWN button to choose the fixture which you want to address. That will show on the LCD display.



3. The DMX address of the fixtures will be set automatically after you choose the fixture and press the 1-16 button to match the

Fixture No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DMX Address For Press Fixture button	1	25	49	73	97	121	145	169	193	217	241	265	289	313	337	361

**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

### 4-5 Running Scenes



1. Press the FIXTURE/SCENE button to enter scene mode (The related LED indicator will be flashing)



2. The scene button 1-8 light up means there is scene stored in it. You can open the scene by press them directly or by the faders.

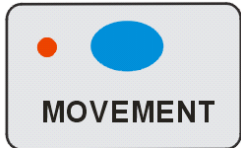


3. You can choose the page which your scene stored in by press PAGE button.
- 4.

**Note: After finishing the current programming operation, you can hold RELEASE/CLEAR button to clear all the output before next step operation.**

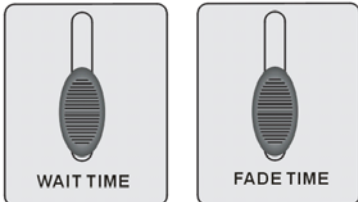
### 4-6 Running Movement

Before running the MOVEMENT, you should setting the Assign/Reverse DMX channels first.



You can also run the MOVEMENT, pressing 1-16 to select the built-in movement:

1. Press the fixtures you would like to run the movement, then press MOVEMENT button to select the movement, turn the PAN/TILT to adjust the fixtures to the right place.



2. Move the FADE TIME fader to adjust the range of the pattern, or move the WAIT TIME to adjust the speed of the PAN/TILT.

Note: when adjust the movement of PAN/TILT, please do not use faders to change the position of PAN/TILT, otherwise, the position cannot be controlled by the PAN/TILT wheels.

## 4-7 Running Chases

Manual mode/Auto Mode/Music Mode will be available when running chases.

### 4-7.1 Manual Mode

1. Press the CHASE button to enter into the chase mode.



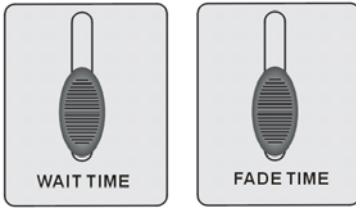
2. You can open it by press the button directly. After you open it, the LED indicator will light up, if there is no any CHASE store in it, it will show "NULL" on the LCD display.
3. You can use the UP/DOWN button to run the CHASE manually.

### 4-7.2 Auto Mode



This function allows you to run programmed chases in a sequential loop.

1. Press the CHASE button to enter into Auto Mode.



2. Press the chase button 1-16 to select the chases that you want to run. The LED indicator of the selected ones will light up.
3. Tap the Auto/Music/Manual button to activate Auto mode. The Auto LED lights indicating Auto mode is active.
4. After selecting chases you wish to run, you can use the Wait Time slider (or press TAP/MIDI CH button) and Fade Time slider to adjust the chase to your desired effect.

**Hints:**

The TAP/MIDI CH button is used to set the speed by tapping the button several times, the last two taps will define the speed with a maximum of 5 minutes. TAP/MIDI CH will override any previous setting of the Wait Time slider unless the slider is moved again.

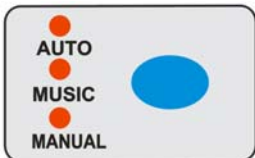


**4-7.3 Music Mode**

1. Press the CHASE button to enter into the CHASE Mode.



2. Press the chase button 1-16 to select the chases that you want to run.



3. Tap the Auto/Music/Manual button to activate Music mode. The Music LED lights indicating Music mode is active
4. You can adjust the sensitivity by pressing UP/DOWN button.
5. The chases you've selected will chase in a sequential order according to the music rhythms detected by the built-in microphone.

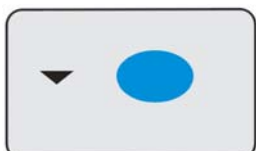
**4-7.4 USB for Update/Saved/Download**

Before you do the below operation, you should insert the USB memory to the unit first.

### UPDATE

Power off the unit, hold PROGRAM/REC, MODE and DOWN these three buttons at the same time, then power on the unit, after 3 seconds, the word “write success” will show on the LCD display, then you can release the button and restart the unit, the unit has been updated successfully.

### Download



Hold MODE and UP button at the same time, the LCD will show the words “Saving Files” on the display. Then you press any of the chase buttons or scenes button which the LED indicator is not bright, all the files stored in the button will save in the USB memory now. Please note that if the LED indicator button 1-16 light up, that means there is file in the USB memory, if you press the bright button, the before file will be replaced. You should choose the button which the LED indicator is not bright. It will save in the filename of “CA-2416W” (before use, you should create one file called “CA-2416W”, or you cannot save successfully)

### Upload

Hold MODE and DOWN button at the same time, you can press any button of the scenes and chase button which the LED indicator is not bright, then the file in your USB memory will upload to the button you pressed. The LED indicator of the scenes and chases light up means there are scenes or chase stored in it. If you still press it, the previous one will be replaced by the upload one.

## 4-8 MIDI Operation

### 4-8.1 MIDI Channel Setting

#### MIDI SET



Hold TAP/MIDI/CH and MIDI IN buttons at the same time for 3 seconds to enter into MIDI channel setting.

#### MIDI IN

Hold MIDI IN and DOWN button at the same time to enter into MIDI IN mode. The CA-2416W is under the control of the external MIDI signal when enter into the MIDI IN mode.

#### MIDI IMPLEMENTATION

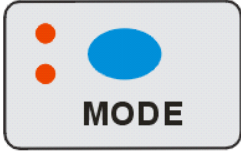
	Button and fade	Page	KK	VV
				<b>FADER : 0xBn kk vv ( VV=0-127 ) +</b> <b>A: fader is from up to down : 0x9n kk 001</b> <b>B: fader is from down to up : 0x9n kk vv</b>

				<b>FLASH : 0x9n kk 127 + 0x8n kk 000</b>
1	FADER1AND FLASH1	Page A	00	0-127
2	FADER2 AND FLASH2	Page A	01	0-127
3	FADER3 AND FLASH3	Page A	02	0-127
4	FADER4 AND FLASH4	Page A	03	0-127
5	FADER5 AND FLASH5	Page A	04	0-127
6	FADER6 AND FLASH6	Page A	05	0-127
7	FADER7 AND FLASH7	Page A	06	0-127
8	FADER8 AND FLASH8	Page A	07	0-127
9	FADER1AND FLASH1	Page B	08	0-127
10	FADER2 AND FLASH2	Page B	09	0-127
11	FADER3 AND FLASH3	Page B	10	0-127
12	FADER4 AND FLASH4	Page B	11	0-127
13	FADER5 AND FLASH5	Page B	12	0-127
14	FADER6 AND FLASH6	Page B	13	0-127
15	FADER7 AND FLASH7	Page B	14	0-127
16	FADER8 AND FLASH8	Page B	15	0-127
17	FADER1AND FLASH1	Page C	16	0-127
18	FADER2 AND FLASH2	Page C	17	0-127
19	FADER3 AND FLASH3	Page C	18	0-127
20	FADER4 AND FLASH4	Page C	19	0-127
21	FADER5 AND FLASH5	Page C	20	0-127
22	FADER6 AND FLASH6	Page C	21	0-127
23	FADER7 AND FLASH7	Page C	22	0-127
24	FADER8 AND FLASH8	Page C	23	0-127
25	FADE TIME FADER		24	0-127
26	WAIT TIME FADER		25	0-127
27	FIXTURE SCENE		26	0/127
28	MOVEMENT		27	0/127
29	CHASE		28	0/127
30	NUMBER BUTTON1		29	0/127
31	NUMBER BUTTON2		30	0/127
32	NUMBER BUTTON3		31	0/127
33	NUMBER BUTTON4		32	0/127
34	NUMBER BUTTON5		33	0/127
35	NUMBER BUTTON6		34	0/127
36	NUMBER BUTTON7		35	0/127
37	NUMBER BUTTON8		36	0/127
38	NUMBER BUTTON9		37	0/127
39	NUMBER BUTTON10		38	0/127
40	NUMBER BUTTON11		39	0/127
41	NUMBER BUTTON12		40	0/127
42	NUMBER BUTTON13		41	0/127
43	NUMBER BUTTON14		42	0/127
44	NUMBER BUTTON15		43	0/127
45	NUMBER BUTTON16		44	0/127
46	RUN MODE BUTTON		45	0/127
47	UP BUTTON		46	0/127
48	DOWN BUTTON		47	0/127
49	TAP BUTTON		48	0/127



50	CLEAR BUTTON		125	0/127
51	BLACK OUT BUTTON		126	0/127

**4-9 FACTORY DEFAULT**



**Be careful, factory reset will delete all the settings!**

1. Power off the unit.
2. Hold the MODE and DEL button at the same time and then power on the unit, all the corresponding LED indicator will flash fast for 3 times, that mean you have made the operation successfully.

**Technical Specification:**

Power Input .....	DC 9V, 300 mA min.
DMX Output .....	3 pin female XLR
MIDI Signal .....	5 pin standard interface
Audio Input .....	By built-in microphone or line in
Dimensions.....	482x132x73mm
Weight.....	2.5 kg

**Innovation, Quality, Performance**