A300/XP

MOVING LIGHT CONTROLLER

USER MANUAL

(Version Number: 3.5)

Contents

1   Summary

1.1 Function

A300 series' Intelligent Fixtures Controller can connect up to 15 intelligent Fixtures with a maximum of 32 Channels each. It uses 16-bit X/Y control for absolutely precise movement. The new technology of the core microcomputer has strengthened the functions. They are more humanized.

- The intelligent Fixtures can be manually controlled and run multi Scenes and multi Chase programs to give out various combination effects.
- Up to 15 intelligent Fixtures may be connected with a maximum of 32 Channels each
- The X/Y Channel of different intelligent Fixtures can be controlled by X/Y Wheel.
- The controller adopts MEM-CARD (memory card) ports, data can be stored in 3 files with memory card. Each file can record all the data documents of the whole controller.
- The controller has 15 MACRO, combination of different Manual run, Scenes, Chases, Shapes can be recorded in a MACRO. The combined effects can be quickly called by **MACRO** keys according to the needs of the performance.
- Able to store 30 Chase programs with a maximum of 100 Steps each. Synchronous music, automatic Speed control, manual Swing is offered.
- 8 Chase, 30 preset Scenes can be operated at one time. Up to15 intelligent Fixtures can be selected simultaneously.
- Shape track control is provided to control such effects as circles, lines and shapes like 8 etc.
- VGA port is offered, the detailed and visualized human-computer interface makes the control easier.
- DMX512 output with optical isolated, ensure the safety of controller.

1.2 Specification parameter

	A300 (+v)	A300 XP
DMX512/1990 OUTPUT SIGNAL	Yes	Yes
CONTROLLABLE DMX512 CHANNEL	240	240
MAX FIXTURES	15	15
MAX FIXTURE CHANNELS	16	32
DIRECT CALL OF SCENES	30	30
MACRO	15	15
CHASE PROGRAM	30	30
MAX STEPS OF EACH CHASE	100	100
SYNCHRONOUS CHASES	8	8
CHASE SPEED RANGE	0.03s~180s	0.03s~180s
CHASE TRIGGER MODE	Auto, Music, Swing	Auto, Music, Swing
CHASE DIRECTION CONTROL	Forward/ Inversion	Forward/ Inversion
SHAPE CONTROL	Yes	Yes
VGA OUTPUT PORT	Only for A300+v model	Yes
LCD MONITOR	Yes	Yes
FLASH -CARD PORT	Yes	Yes
MUSIC SIGNAL INPUT	Unbalanced line level input (1/4" Monophonic audio input) / MIC input	
DMX512 OUTPUT PORT	2 Optical isolated output port	
ELECTRIC POWER SOURCE	Switch mode power, voltage range: 90~250VAC, frequency: 50/60, short-circuit protection & overload protection	
POWER	5W	
SIZE	485mm x 267mm x 85mm	

2   Installation

A300 series Intelligent Fixtures Controllers' packing chest contents items as following:

- One A300 Intelligent Fixtures Controller:
  Ps: to confirm the model of the controller, please check the model number and software version number displayed on the LCD monitor when run the controller.
- One feed cable; one user's guide.

The controller is of international 19" construction standard of installation. It can be in board installed or installed on the 19" stander or machine cabinet.

2.1 Safety caution

- The controller must be connected with the protective groundwire to ensure safety.
- The intelligent Fixtures controller is sophisticated electronics. Please mind the dust and moist.

2.2 Connect the power

Please check the supply power, ensure it in the suitable voltage range of the controller. The plug must connect with the protective groundwire to ensure the safety.

2.3 Connect intelligent Fixtures with digital Dimmer

- 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 wire. 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 wires of twist (distinguished by different colors) are connected to Pin 2 and Pin 3 of the plug respectively. Please do not confuse.

SCREENED TWIST LINE

LIGHTING CONTROLLER

DMX512 OUTPUT

FIXTURE   . . . . . .   FIXTURE

120 OHM TERMINAL RESISTANCE
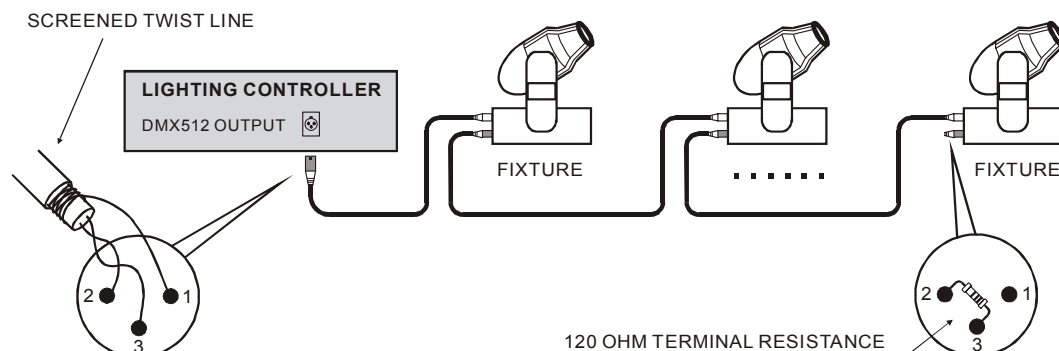
Pin number	Cable conductor
1	Shield
2	Negative pole
3	Positive pole

2.4 Audio signal source

- The audio signal can select from sound mixing console and line level output of other audio devices, or MIC selection. The controller can automatically pick the part of low-frequency swing as the music trigger signal of Chase program.
- One unbalanced monophonic audio input locates in the back board, the range of line level input is: -10dB ~ +10db. When audio device is plug in, the audio source is line level input. When there nothing plug in, the audio source is MIC selection.

3   Operation Guide

3.1 Panel plot

3.2 Useful glossary

● Scene: the concourse of Channel values of intelligent Fixtures' X/Y position, Shape track, brightness, gobo, color, etc.

● **Chase program:** every Chase program is composed of some Chase Steps, and every Step is a Scene indeed.

3.3 Keyboard

Some keys have corresponding **LED** indicators. When a **LED** indicator is on, the Controller is executing the key's function.

FUNCTION KEYS:

CHASE.A   Function key for Chase (Group A, controls Chase program A1~A15)
CHASE.B   Function key for Chase (Group B, controls Chase program B1~B15)

1. Used for choosing Chases:
    When button down, The controller is in Chase running state. with number keys 1~15 to different Chases.

2. Used for checking the parameter of Chase
    Press a number key to the very Chase when pressing a function key, the parameters of the very Chase can be viewed and transferred into without affecting current state.

SCENE.A   Function key for Scenes (Group A, control Scene A1~A15)
SCENE.B   Function key for Scenes (Group B, control Scene B1~B15)

When button down, the controller enters the state of controlling Scenes, meanwhile number keys 1~11 are for choosing Scenes.

(Preset Scenes are divided into Group A and Group B with 15 preset Scenes each)

MACRO   Function key for MACRO control   (alias MACRO environment key)

When button down, the controller enters the state of MACRO control, with number keys 1~15 for choosing MACRO. With double-clicking number keys, the certain MACRO program is run.

Combination of different Manual run, Scenes, Chases, Shapes can be recorded in a MACRO. The combined effects can be quickly called by MACRO keys according to the needs of the performance..

MANUAL Function key for Manual control

When buttons down, The controller enters the state of Manual, with number keys 1~15 for choosing intelligent Fixtures.

To turn into VGA interface which displays Channel values of intelligent Fixtures, press the button again.

Number keys (1~15)

There are 15 number keys on the controller. Under different states of different function keys, the keys give different effects. For example: when the LED of a number key is on, it means it's outputting a very Scene or a very Chase program.

CONTROL KEYS:

CLEAR Clear key

Clear the whole choice of current number key.

TYPE Key for choosing the type of number keys

Independently set the type of number keys (Latch, Swop of saving.) under some state.

- *Latch*: Press a number key, the output of the key will be Latch, the corresponding Chase or Scene output. press the key again, the output is deleted. More than one number key can be pressed under this state.
- *Swop*: Press a number key, the content of the key is latch and the content of other keys is deleted.

Press **TYPE** continuously, the type of number keys will change repeatedly.

The types of number keys under different state:

STATE	LATCH	SWOP
CHASE	✔	✔
SCENE	✔	✔
MANUAL	✔	✘
MACRO	✘	✔

MODE Key for choosing trigger mode of Chase

There are 4 mode totally:

- *auto*   mode: The Chase running speed is controlled by Speed**%**.
- *swing*   mode: The Chase running speed is control by Key **SWING**.
- *music*   mode: Chases are music swing triggered.

Press **MODE** continuously can change the Chase trigger mode.

◄ SWING ►   Key for choosing direction of Chases and swing

When running a Chase, the key is used for change direction of the Chase.

When the Chase mode is under *swing* mode, hit the key with certain rhythm, then the Chase will run with the very rhythm.

TIME Controlling key for the Chase running time

When pressing the button, with the use of the X/Y wheel, the Speed% and Cross% of current Chase can be adjusted.

BLACKOUT   Blackout key(or cut light key)

To turn all lights down

EDIT KEYS:

PROGRAM   Program edit key

When in running state, press the button to enter the edit state. The LED indicator will flicker.

SET X/Y   X/Y (PAN/ TILT) Channel setting key of intelligent Fixtures

COPY, DELETE   Copy and Delete key

Under the state of Chase programs, the above two keys are used for copy, paste and delete.

- STEP +   Chase Step number minus / plus key

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

KEYS FOR SHAPE TRACKS:

STOP   Stop key for Shape track

Used for stop all the Shape generators, restore intelligent Fixtures to X/Y origin point.

PLAY   Run and edit key of Shape tracks

Used for running the Shape track generator, and entering the edit state of Shapes.

Speed / Size   Speed of Shape / Size of Shape key

Offset / Dir   Offset of Shape phase/ Direction edit key

VIEW   Calling key of Shapes

Used for viewing the calls of Shapes.

FILE CONTROL KEYS:

LOAD   Key for loading files

Use the key with File keys **(File1~3)** to load data from MEM-CARD to the controller.

SAVE   Key for saving files

Use the key with File keys **(File1~3)** to save data of the controller into MEM-CARD.

3.4 Fader and Wheel

There are 16 Channel Faders, up-push Faders will increase the corresponding value, down-push them will decrease values.

CH1~CH16 Group of Faders
- When the keys 1~16 beside the group is workable, the group of Faders can be used to control the value of Channel 1~16 of intelligent Fixtures.
- When the keys 17~32 beside the group is workable, the group of Faders can be used to control the value of Channel 17~32 of intelligent Fixtures.

X/Y WHEEL
- X wheel used for setting the PAN of intelligent Fixtures, and Y wheel for TILT under the Manual mode.
- Used for adjusting the Chase Speed% & Cross% under the running state.
- X/Y wheels used for transferring and editing a very item under edit mode.
- X/Y wheels is of dead-band regulated mode, that is, the faster it roles, the adduction will increase by degrees.

3.5 Introduction to back board port

Introduction:
- The controller adopts two DMX512 output modules with optical isolated and the same output.
- The audio input socket is 1/4" monophonic socket, with input line level 0dB. When audio device is plug in, the audio source is line level input. When there nothing plug in, the audio source is MIC selection.
- Differences are found in the ports of different models of controllers, please view the parameter table.
- When connected to the AC power, please make sure the controller is connected to the protective groundwire and ensure the voltage is suitable for safety concerned.

WARNING	POWER INPUT	VGA PORT	(PORT1) DMX512 (PORT2)	AUDIO INPUT
RISK OF ELECTRIC SHOCK DO NOT OPEN	AC 100~240V 50/60Hz 5W	(CRT / LCD)	PIN1 = GND PIN2 = OUT- PIN3 = OUT+	(-10dB ~ +10dB)

AC power input   VGA port   DMX512 output   Audio input
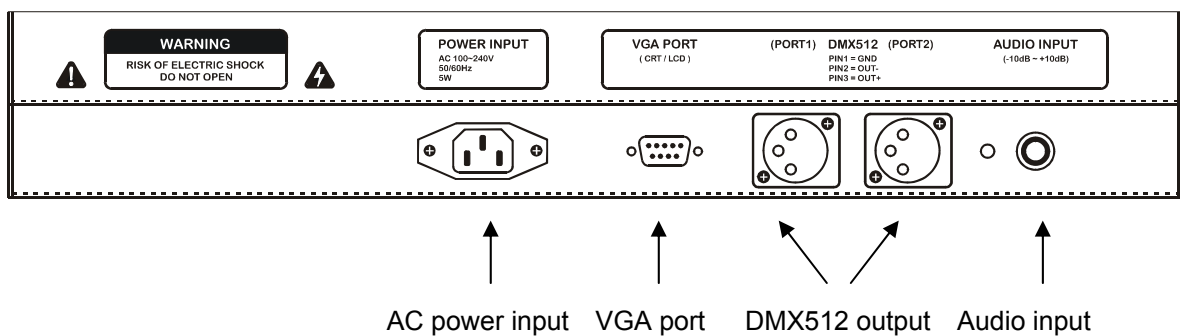
4   Settings of intelligent Fixtures

4.1 Know more about your intelligent Fixtures

When programming, the intelligent Fixtures user's guide should be at hand, for the number of channels and the control parameters varies for different intelligent Fixtures. For example: the address code, the functions of each control channel.

4.2 X/Y (pan / tilt) Channel Analysis

X channel controls left/right (PAN) movement of the intelligent Fixtures, while Y channel controls up/down (TILT) movement.

The controller can control the intelligent Fixtures with 8-bit or 16-bit resolution. To make the X/Y wheels fit for any intelligent Fixtures which adopt DMX512 protocol, receiving address code of every intelligent Fixture must be set in advance; then the X/Y channel of each intelligent Fixture should input into the controller according to the serial number. If X/Y gradual movement (CROSS) and Shape track effects are wanted, the X/Y of the intelligent Fixtures must be set in advance.

The X of intelligent Fixtures with 16-bit resolution is controlled by two data channels, and the Y the same; that is, they are controlled by the four channels as follows: X coarse adjust channel (Xh: high 8bit), X fine adjust channel (Xl: low 8bit), Y coarse adjust channel (Yh: high 8bit), and Y fine adjust channel (Yl: low 8bit). The 8-bit intelligent Fixtures only have two: X coarse adjust channel (Xh: high 8bit), Y coarse adjust channel (Yh: high 8bit).

4.3 Allocation of DMX512 address & Setting of X/Y

4.3.1 Fixed allocate addresses of intelligent Fixture

- The origin setup of the controllers is set for 15 intelligent Fixtures with 16 channels for each Fixture.
- The method of data initializtion is in chapter 13.
- The fixed intervals for each intelligent Fixture's DMX512 address are as follows:

Chart 1: Setting of the intelligent address switch when fixed intervals are acquiescent arranged

intelligent Fixtures NO.	DMX512 address	The switch value of address 123456789
01	1	100000000
02	17	100010000
03	33	100001000
04	49	100011000
05	65	100000100
06	81	100010100
07	97	100001100
08	113	100011100
09	129	100000010
10	145	100010010
11	161	100001010
12	177	100011010
13	193	100000110
14	209	100010110
15	225	100001110

Ps: 0=OFF, 1=ON

The first address settings of different companies are varied, so the 512 channels are expressed in two ways: 1st, 000~511; 2nd, 001~512. The addresses of above chart only fit for the second one. For the products from companies who use the first way, please minus 1 from each address in the above chart (for the equipment with binary system, only the first 1 need to be changed into 0).

4.3.2 Dynamically allocate addresses of intelligent Fixtures:

Uses can allocate DMX channel to each intelligent Fixture dynamically. A maximum of 15 Fixtures with up to 32 channels each can be chosen.
(The function is only for Model A300XP)

Ps: The maximum number of controllable Fixtures and Channels are different of different models of controller; please check the parameters table of controllers.

4.3.3 Methods & steps of X/Y settings:

1. Press **PROGRAM** to enter edit state; the indicator on.
2. Press **SET X/Y** to enter setting state of intelligent Fixtures.
3. Use **number keys 1~15** to select the Fixture wanted.
4. Use **X whee**l to select items edited. (The items are in several pages, it will go to adjacent page when the **[ ]** moves to the right/left edge)
5. Use **Y wheel** to set the very value.
6. Repeat step 3~5 to set other intelligent Fixtures.
7. Press **PROGRAM** to escape from edit state.

The setting screen of intelligent Fixtures' total number of Channels:

(The following output is only suitable for Model A300XP)

Setting state of Fixtures   (More inf. on the right)

```
┌─────────────────────────────┐
│  P-FIXTURE:                 │
│    addr = 017    ch [16]  ->│
└─────────────────────────────┘
```

DMX address   total channels

of the Fixture   of the Fixture
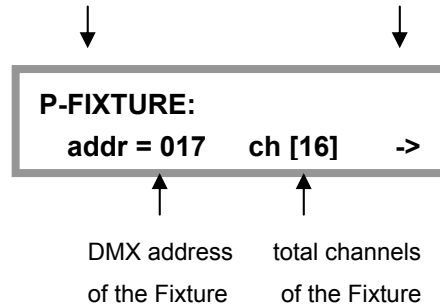
The setting screen for X Channel:

```
┌─────────────────────────────┐
│  P-FIXTURE:                 │
│    Xh [01]     XI = 02    ->│
└─────────────────────────────┘
```

coarse adjust   fine adjust

channel of X   channel of X
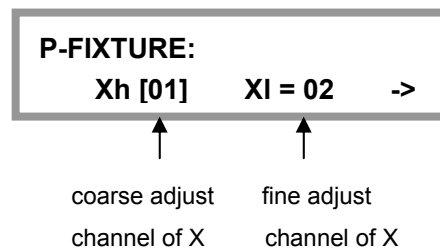
The setting screen for Y Channel:

```
┌─────────────────────────────┐
│  P-FIXTURE:                 │
│  <-   Yh [03]     YI = 04   │
└─────────────────────────────┘
```

coarse adjust   fine adjust

channel of Y   channel of Y
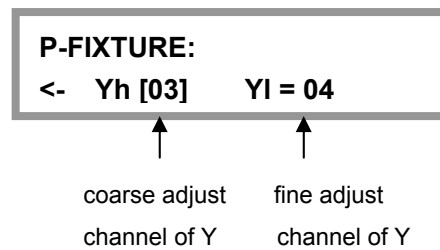
Tips:

- Notice: Changes of total number of Channels will affect the first DMX address of intelligent Fixtures. Please check whether the DMX addresses of each intelligent Fixture is right with the controllers after changing Channel's number.
- If the total number of DMX Channel is over 240, the controller will automatically shield the intelligent Fixtures with over Channels.
- For 16-bit intelligent Fixtures, when only the Xh and Yh Channels are set with [no] for XI and YI Channel, the Fixtures will run in 8-bit resolution. Thus, the characters of 16-bit Fixtures such as precise position and smooth track cannot be displayed.

Examples:

1. Some 8-bit intelligent Fixture with 12 Channels, X axis on Channel 5, Y axis on Channel 7

```
P-FIXTURE:
   addr = 001     ch [12]      ->
```

```
P-FIXTURE:
   Xh [05]      XI = no      ->
```

```
P-FIXTURE:
<-   Yh [07]      YI = no
```

2. Some 16-bit intelligent Fixture with 18 Channels, Xh on Channel 5, Xl on Channel 6, Yh on Channel 7, Yl on Channel 8

```
P-FIXTURE:
   addr = 013     ch [18]      ->
```

```
P-FIXTURE:
   Xh [05]      XI = 06      ->
```

```
P-FIXTURE:
<-   Yh [07]      YI = 08
```

The automatic setting for false X/Y settings:

When Xh=no or Yh=no. the very Xl, Yl will become no according to the automatic setting.

View setups for every intelligent Fixture:

Methods:

1. Press **PROGRAM** to enter edit state; the indicator on.
2. Press **SET X/Y** to enter setting state of intelligent Fixtures.
3. Use **number keys 1~15** to select the Fixture wanted.
4. Repeat step 3, view the setups of each Fixture on LCD monitor.
5. Press **PROGRAM** to escape from edit state.

5   Manual mode of intelligent Fixtures

Set Channel value of brightness, X/Y, Shape… of a pointed intelligent Fixture under the Manual mode.

The items controlled by each Channels are different to different intelligent Fixtures. Knowledge of details about the items and Channels is necessary for skillful management.

Manual mode is adopted as the most advanced mode, the chosen intelligent Fixture will automatically escape from the current Scene and Chase when transferred into Manual mode. Manual run is also the basic run. It can store the Scenes. It is also the basic run for Chase program edit.

MANUAL used with **number keys (1~15)** can enter the function of choosing Fixtures. When the indicators of number keys are on, the very intelligent Fixture is under choice mode. The chosen Fixture can be controlled by Channel Fader (CHANNEL) and **X/Y wheels**.

5.1 CHANNEL Faders & Wheel

The channel value of intelligent Fixtures is set by channel Faders **CH1~16**.

When the keys 1~16 beside the group is workable, the group of Faders can be used to control the value of Channel 1~16 of intelligent Fixtures.

When the keys 17~32 beside the group is workable, the group of Faders can be used to control the value of Channel 17~32 of intelligent Fixtures.

The X channel of intelligent Fixtures is set by **X wheel**, while **Y wheel** for Y Channel, with a range of 0~255 for Channel Faders' values. No matter the X/Y is of 8bit or 16bit resolution, the value range of the wheels is 0~999, representing the entire movement range of the X axis and Y axis. For 16bit Fixtures, X wheel controls Xh and Xl Channels at the same time, while Y wheel for Yh and Yl Channels; for 8bit Fixtures, X wheel only controls Xh Channel, while Y wheel only for Yh Channel.

When the X/Y Channel is under the control of wheels, the very Channels Faders are automatically locked. Only using wheels can change the X/Y position of the intelligent Fixtures.

Under Manual mode, pushing the Faders and rolling wheels can change the value of corresponding Channels. LCD screen will display current values.

Ps: The display will disappear as soon as Faders stop; it will appear again as soon as Faders move.

5.2 Manual run of intelligent Fixtures

For different kinds of intelligent Fixtures, only one kind can be manually set at one time. It's a common run.

1.   Press **MANUAL** to enter the Manual state.
2.   Press **number key (1~ 15)** to select one or more intelligent Fixtures.
   - Only the same type of intelligent Fixtures can be selected at the same time. The controller will automatically transfer into the current type of intelligent Fixtures, the former ones will be under the remaining state.

- The Channels value of intelligent Fixtures under the remaining state (whose indicators flicker slowly) won't be changed. The remaining state can be transferred into choosing state by pressing the very key to make the indicator on)

3. Use **CH1~CH16** Faders to set the Channels value, use wheels to adjust the X/Y position. (Shape generator can be called at the same time)
4. Press the very number key for the chosen intelligent Fixtures again, the indicators will be flickering, that means they are under the remaining state.
5. Repeat steps 2~4, set other intelligent Fixtures.

Tips: two number keys can be pressed at the same time to select or escape from the intelligent Fixtures numbered between the two numbers.

5.3 Cancel the Manual run of intelligent Fixtures

Under the Manual mode of the intelligent Fixtures, press **CLEAR** to cancle the Manual runnings without saving the Channel values.

6   Edit of Scenes

To set suitable value for the brightness, color, X/Y Channels, Shapes of every intelligent Fixture, the needed light-beam-pattern will be displayed in the air. Accompanied with the call of Shape generators, a Scene is produced. Each Scene is a combination of the set Channel values of intelligent Fixtures. The controller can store 30 Scenes which can be run as you wish.

6.1 Important tips

To run multiple Scenes and multiple Chases at one time, the different values of the same control Channel will be expressed according to HTP technique.

6.2 Edit records' steps of Scenes

1. According to the Manual mode of intelligent Fixtures, select intelligent Fixtures and set the Channel values and X/Y position. (Shape can be called at well)
2. Press **PROGRAM** to enter edit state; the indicator flickers.
3. Press **SCENE.A** or **SCENE.B** to enter Scene choosing state.
4. Use **number keys (1~15)** to select the Scene you want to save.
5. The controller will escape from the edit state after saving Scenes.

> **P-SCENE:**
> **select Scene …**

Example: Save the running of the intelligent Fixture as Scene A10.
Press **PROGRAM**, then press **SCENE.A**, then press **number key 10**, done!

6.3 Copy of Scenes

Example: Copy Scene A2 into Scene A10.
1.   Firstly, present Scene A2.
2.   Press **PROGRAM**, press **SCENE.A**, then press **number key 10**, done.

7   Edit of Chase program

The controller can store 30 Chase programs with up to 100 Steps each. The Steps of the total Chase program is 255, which is dynamic allocated by the controller automatically. The Chase programs is composed of several Steps. Steps are similar to Scenes.

7.1 Edit the Chase program:

1. Press **PROGRAM** to enter edit state, indicator flickers.

> **PROGRAM ...**

2. Press **CHASE.A** or **CHASE.B**, Select a group of Chase (A or B).
3. Use **number keys(1~15)** to select the number of the Chase wanted.

> **Example:** If you want to edit Chase A10,
>   press **number key 10**. If the Chase program is empty, the screen will display:

> **P-CHASE:**   （**A10**）
>   **step is empty!**

4. Press **STEP +**   to add a Step.

Current Chase number
↓

> **P-CHASE:**   （**A10**）
>   **tol = 001   st [∗   1]**

↑   ↑

The total Steps   current Step (* means the last Step)

> **Ps: - STEP +**   can be used to select Steps.
> ● If current Step is the last Step of the Chase, ***** will be displayed.
>   **Example:** The last Step of the Chase is Step 10, **st [* 10]** will be displayed on the screen.
> ● Pressing **- STEP +**, Steps can be chosen automatically.
> ● If a new Step is wanted, move to the last Step (which is displayed with *****).
>   press **STEP +**, a new Step with the same content is added.

5.   Use **number keys (1~15)** to select intelligent Fixtures; use Manual mode, set the Channel values of all the intelligent Fixtures. (Shape generator can be used as well)

6. Repeat steps 4~5, edit next Chase Step.
7. Press **PROGRAM**, escape from edit state.
   (or repeat step 2~6 to edit another Chase program)

Tips:

● When press **STEP +** to add a Chase Step, the system will add a Step after the former one, and copy the content of the former one. Thus, only with some changes of values, a new content is edited.

● Use **COPY** to copy the current Step into another Step
   Example: copy Step 1 into Step 8;
       Choose Step 1, Pressing **COPY** and choose Step 8, done.

● Press **DELETE** to delete current Step. (pressing the button without loose can continuously delete several Chase Steps)

8   MACRO program edit

The current Manual mode, Scene, Chase and calls of Shapes is a combined MACRO running environment. Saving the running environment into a MACRO is convenient for quick displaying the saved environment again.

A controller can store 15 MACRO programs which can be called directly by keys.

Notice: To prevent false control, calling a MACRO needs double click the corresponding **number keys (1~15)** under MACRO state.

8.1 Steps of record MACRO program edit

1. The following mode can be chosen at one time according to different demands.
    a) Manual runs intelligent Fixtures.
    b) Scene state (enable multi-Scene running)
    c) Chase state (enable multi-Chase running)
2. Press **PROGRAM**, enter edit state, indicator flickers.
3. Press **MACRO**, enter Macro choosing state.

> **P-MACRO:**
> **select macro …**

4. Use **number keys (1~ 15)** to choose the number of the target MACRO.
5. The controller will escape from edit state after saving the MACRO.

Example: Save the current combination into MACRO 10:
    Press **PROGRAM**, Then press **MACRO**, then press **number key 10**, done!

Tips:
- Each MACRO program can independently record the running parameters of all Chases. The changes of Chases' parameters will not affect the effect of MACRO.
- Each MACRO can record all Shape generators' running parameters independently. The changes of generators' parameters will not affect the effect of MACRO.

9   Running

9.1 Run Scenes

Example *1* : Run Scene A1 only

1.   Press **SCENE.A** to enter Scene state of group A;

   Thus, number keys (1~15) are for the control of Scene A.

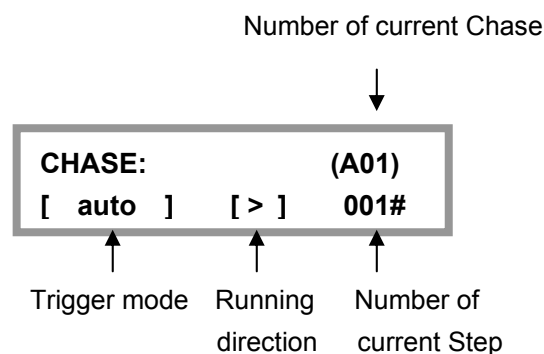2.   Press **number key 1** to run Scene A1.

   Tips:
   - When number keys are under *Swop* state, only one Scene can be run at one time.
   - When number keys are under *Latch* state, several Scenes can be run at one time.
   - Press **TYPE** to change the types of number keys.

Example *2*: run Scene B5, Scene B6, and Scene B7 at the same time.

1.   Press **SCENE.B** to enter Scene state of group B;

   Thus, number keys (1~15) are for the control of Scene B.

2.   Press **TYPE** to choose *Latch* state;

3.   Press **number key 5**, **6**, **7** to run the needed Scenes.

9.2 Run Chases

The following contents are displayed on the screen when running Chases:

Number of current Chase

```
CHASE:              (A01)
[   auto   ]    [ > ]    001#
```

Trigger mode   Running direction   Number of current Step

Example *1*:   Run Chase A1 only.

1.   Press **CHASE.A** to enter the state of Chase Group A;

   Thus, the number keys (1~15) are used to control Chase A.

2.   Press **number key 1**, run Chase A1.

Tips:
   - When number keys are under *Swop* state, only one Chase can be run at one time.

- When number keys are under *Latch* state, several Chases can be run at one time.
- Press **TYPE** to change the types of number keys.

Example *2:* run Chase B5, Chase B6, Chase B7, and ChaseB8 at the same time.
1. Press **CHASE.B** to enter Chase state of group B;
   Thus, number keys (1~15) are for the control of Chase B.
2. Press **TYPE** to choose *Latch* state.
3. Press **number key 5**, **6**, **7**, **8** to run the needed Chase.

The controller can run several Chases at one time (version 3.5 defaults 8 synchronous Chases. Different versions have different defaults.) If the number of running Chases is over the permitted number, "**Chase over load!"** will be displayed on the controller.

Tips: When choosing a Chase, if the Chase is empty (that is, without any Steps), the LCD screen will display "**Step is empty.** "

9.2.1 Check running conditions of each Steps of the Chase

When running several Chases at one time, the parameter displayed on the LCD screen is of the last Chase. If parameter of other Chase needs change, the Chase which needs change must be presented on the LCD screen, that is, it must be called then. Pressing **CHASE.A** or **CHASE.B**, then press **number keys** of the wanted Chase, the wanted Chase can be viewed and controlled without affecting the state of the former Chase.

9.2.2 Trigger mode of Chases

There are 3 trigger modes for Chase programs:
- *Auto* **auto mode:**
   Chase programs are run by the values of SPEED% and CROSS%.
- *Swing* **swing mode:**
   The Chase running speed is controlled by **SWING**. hit the key with certain rhythm, then the Chase will run with the very rhythm, even if you stop hitting the key.
- *Music* **music mode:**
   Chase programs are triggered by the signal of low-frequency swing of music.

Press **MODE** continuously can change the Chase trigger mode. Each Chase can set different trigger mode independently.

9.2.3 Adjust the SPEED % & CROSS% under the Auto mode

Speed% The running speed of current Chase. Adjust range: 0%~100%, 0% the slowest, 100% the fastest.
Corresponding time: 180~0.03s / each Chase Step.

**Cross%** The Cross time between Steps, range from 0% to 100%, 0% the lowest, 100% the fastest.

Example: Cross%=60%, that is, use 40% of the time for cross from former Step to later one, then the later Step will remain in the left 60% of the time.

Notice: Cross can be only used in *Auto* mode.
Cross is only used in X/Y Channels. Thus, it won't affect other Channels such as colors and gobo.

Adjusting methods:
Pressing **TIME** key, Use **X wheel** to change the value of **Speed%**. Use **Y wheel** to change the value of **Cross%**.

```
CHASE:              (A01)
  sp [   80% ]    c [ 100% ]
```

Speed value (Speed%)   Cross time (Cross%)
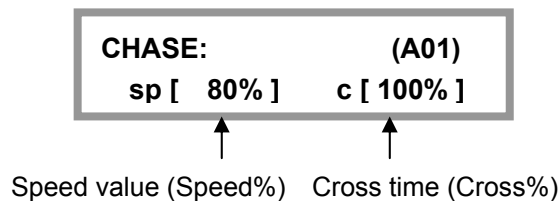
9.3 Run MACRO

Tips: To prevent false control, calling a MACRO needs double click the corresponding **number keys (1~15)** under MACRO state.

Example 1:   Run MACRO 1
1.   Press **MACRO**, enter Macro state.
2.   Double click **number key 1**. (run MACRO 1)

10   Shape track

The function of Shape track is convenient for users to control intelligent Fixtures to have graphic movement such as circle, line, square on X/Y tracks. The function enables multi-intelligent Fixtures to produce various dynamic effects which are composed of different Shapes. Take making a circle for example, if Chase program is used for making a circle, each point of the circle needs an individual Step, and the resolution is limited. Besides, the size of the circle could not be changed for composing with other Shapes. But with the Shape track function, only with the parameter of the circle's speed, size, direction input, it will have the effect.

10.1 Shape track generator

The Shape generator can produces Shape tracks of different Shapes, various sizes and speeds for intelligent Fixtures. The controller has several individual generators which can work at the same time. Each generator can run several intelligent Fixtures, producing pattern effects of several lights phase excursion. The currently version of system's software offers 22 generators as follows:

- 7 circle   **(circle)**
- 3 fader circle   **(fader&c)**
- 3 circles ranged in triangle shape **(thr&c)**
- 3 8-shape   **(eight)**
- 2 Xline   **(Xline)**
- 2 Yline   **(Yline)**
- 1 triangles   **(tri)**
- 1 squares   **(square)**

Tips: The mechanical features of intelligent Fixtures may cause changes of shapes when the Fixtures are vertical. (For example: the circle might become 8-shape). Some intelligent Fixtures' responding speed might be so slow that the shapes will have a little change. An intelligent Fixture with faster responding speed will produce better shapes.

10.2 Call and edit of Shapes

Shape generator can be used under Manual mode, Scene and Chase to produce X/Y Shape tracks automatically. In Manual mode, the call of Shapes is basic skill.

Call Shapes in Scenes:
Record the Manual running with calls of Shapes into the preset Scene, the corresponding Shape will automatically call whenever the Scene is run.

Call Shapes in Chases:

Add calls of Shapes into Steps under Chase edit state, the corresponding Shape of each Step will be run automatically when running the Chase.

Call Shapes in MACRO:

MACRO program can record the calls of Shape in Manual runs, Scenes and Chases. Each MACRO can independently record running parameters (such as speed and sizes of Shapes) of all generators. The changes of Shapes' parameters will not affect the Shapes' effect of other MACRO.

Manual calls of Shapes:

1. Select intelligent Fixtures wanted under Manual mode.
2. Set the X/Y origin point (the position of a Shape centre) of each intelligent Fixture.
3. Press **PLAY** in Shape edit mode. The indicator will become flickering.
   (Then, use **X/Y wheel** to select the Shape generator wanted. When the name of the Shape generator is **0.Null**, it's an empty call of Shape. This call can be used to delete other calls of Shapes)

```
SHAPE:
[ 1. circle1          ]
```

Name of Shape generator

4. Press **Speed/Size** to change the Speed% and Size% value of current Shape if wanted; Indicators on.

```
SHAPE:
  sp [ 100 ]    si [ 100 ]
```
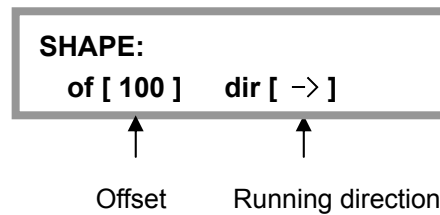
Speed   Size

● Use **X wheel** to adjust Speed% **(sp)**, Use **Y** wheel to adjust size% **(si)**
● Speed% is the speed of running Shapes, the larger the value, the faster the speed.
● Size% is the size of Shapes, for example: how large a circle is; how far a light-beam should move, etc.

5. Press **Offset/Dir** to change Offset% and direction if wanted, indicators on.

```
┌─────────────────────────────────┐
│  SHAPE:                          │
│    of [ 100 ]    dir [  → ]      │
└─────────────────────────────────┘
        ↑              ↑
      Offset      Running direction
```

- Use **X wheel** to change Offset%, use **Y wheel** to change direction.
- Offset% is offset of a Shape, that is, to set different positions of different intelligent Fixtures in a Shape. For example, when a circle of 50% offset is set, Fixture 1 will be the beginner, Fixture 2 will be in the semi-circle behind it, and Fixture 3 will be in the position of Fixture 1. When a circle of 25% offset is set, Fixture 1 will be the beginner, Fixture 2 in the quart-circle behind it, Fixture 3 in the quart-circle behind Fixture 2, Fixture 4 behind Fixture 3 and a Fixture 5 in the position of Fixture 1, etc.
- DIR is the moving direction of Shapes.

6. Repeat step 1~5, edit other intelligent Fixtures.
7. Press **PLAY** or other keys to escape from Shape edit state, the calls of Shapes will be confirmed and run continuously. Indicator of **PLAY** on.

Tips: Shape edit such as adjusting speed or sizes will affect all Fixtures the Shape uses, no matter whether the Fixtures are being chosen. That is, if you want to use a new circle generator when there are other Fixtures working of other direction or speed, you should call a new Shape for each change and use the changes in the corresponding Fixtures.

10.3 Stop & run the Shapes

Press **STOP**, very Shape generator will stop; all intelligent Fixtures will return to their X/Y origin point. Then press **PLAY**, the indicator of PLAY on with all Shapes run again.

10.4 Cancel intelligent Fixture's call of Shape

Call the Shape generator named **0.Null**.

10.5 View the call of Shapes

Press **VIEW**, LCD screen will display the number of used Shape generators.

**Example:** To view which generators are used in Scene A2.
1. Select Scene A2 under Scene state. (only Scene A2 is presenting)
2. Press **VIEW**, LCD screen will display the number of the used generators.
   Tips: When the indicator of **VIEW** is on, there must be calls of Shapes being run.

10.6 Skills of using Shapes

Example*1:* Use intelligent Fixture 1 to draw a circle.

1. Select Fixture 1 under Manual mode.
2. Set the X/Y origin point (the position of the circle's centre).
3. Press **PLAY** to enter Shape edit state, indicator flickers.
4. Use **X/Y wheel** to select a Shape **[circle1]**.
5. Press **Speed/Size** key.
   - Use **X wheel** to change the value of Speed%, such as 40%;
   - Use **Y wheel** to change the value of Size%, such as 25%;
6. Press **Offset/Dir** key.
   - Use **X wheel** Change the Offset%: Offset%=0;
   - Use **Y wheel** select the DIR;
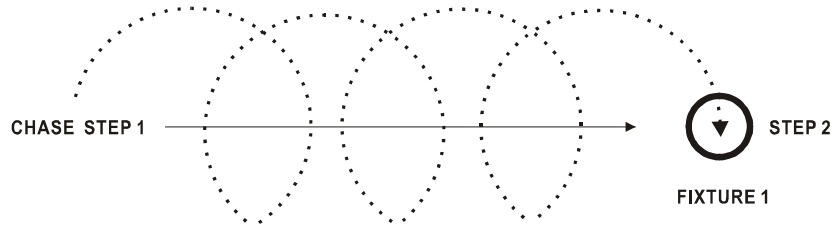7. Press **PLAY** to escape from Shape edit state.
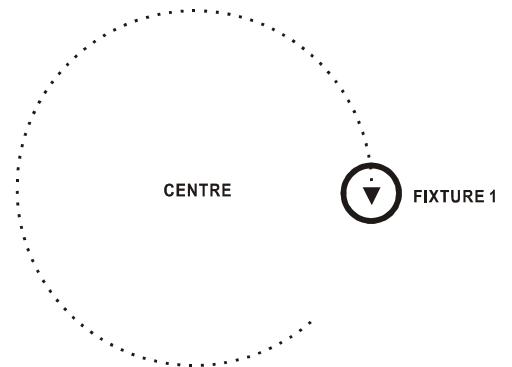
Example 2: Use 4 intelligent Fixtures to draw a circle.

1. Select four intelligent Fixtures under Manual mode (No need to select continuous numbers, but the install direction of the Fixtures should be the same)
2. Set the X/Y of chosen Fixtures, make all the luminous spots be at the same position. (the circle's centre)
3. Press **PLAY** to enter Shape edit state, indicator flickers.
4. Use **X/Y wheel** to select a Shape **[circle2]**.
5. Press **Speed/Size** key.
   - Use **X wheel** to change the value of Speed%, such as 40%;
   - Use **Y wheel** to change the value of Size%, such as 25%;
6. Press **Offset/Dir** key.
   - Use **X wheel** Change the Offset%: Offset%=25;
   - Use **Y wheel** select the DIR;
7. Press **PLAY** to escape from Shape edit state.
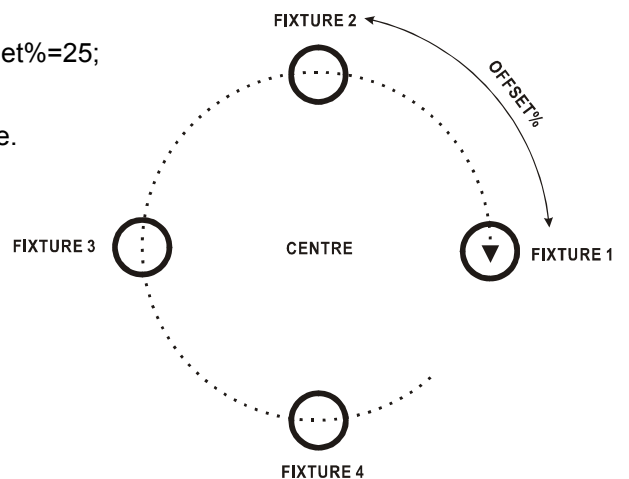
Example *3:*   move when drawing circle

　　To have the effect, call Shapes in Chase can be used. Use 2 Steps to move the centre of the circle, then call the same circle generator in the 2 Steps, parameter is up to you.

CHASE STEP 1 ————————————————➤ STEP 2

FIXTURE 1

Example *4:*   Use several intelligent Fixtures to produce an up/down waving wave.

1.   Select 9 intelligent Fixtures under Manual mode (No need to select continuous numbers, but the direction of the Fixtures should be the same).
2.   Set the X/Y of chosen Fixtures, range the luminous spots in a line.
3.   Press **PLAY** to enter Shape edit state, indicator flickers.
4.   Use **X/Y wheel** to select a Shape **[Yline-1]**.
5.   Press **Speed/Size** key.
    ●   Use **X wheel** to change the value of Speed%, such as 40%;
    ●   Use **Y wheel** to change the value of Size%, such as 60%;
6.   Press **Offset/Dir** key.
    ●   Use **X wheel** Change the Offset%: Offset%=25;
    ●   Use **Y wheel** select the DIR;
7.   Press **PLAY** to escape from Shape edit state.

FIXTURE 1   FIXTURE9

OFFSET%
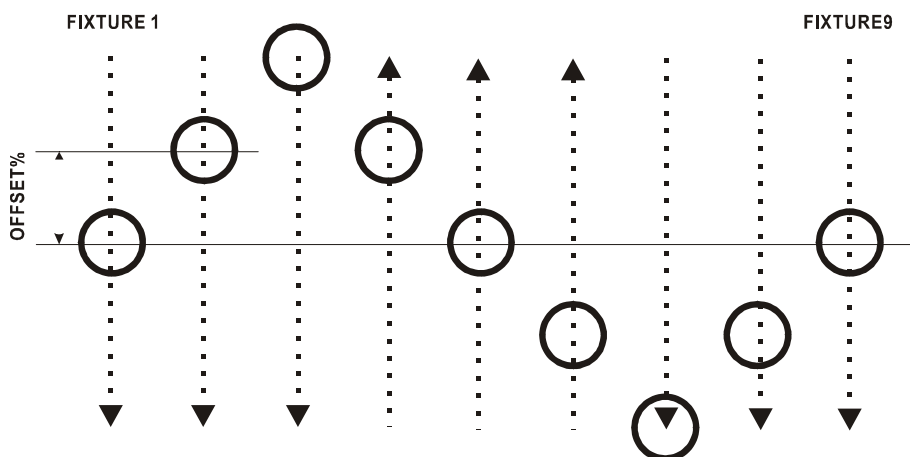
Tips: If the Shape uses horizontal line **(Xline)**, an effect of left/right movement of lights will be produced.

11   Load and save MEM-CARD

For different users and various usages, the needs of controller data are different. Besides, the set data need prevention from being changed. MEM-CARD (Memory-card) offers backups of data. The controller offers a slot of MEM-CARD for users to save and load their own data. Each MEM-CARD has three File. Each File can save and record all data from the controller.

11.1 Use of MEM-CARD

- One side of MEM-CARD has metal plate, please don't touch or dirty the metal plate.
- When the card is needed, please insert the MEM-CARD into the slot with the side of metal plate on the left. The end near metal plate should enter the slot first.
- If the MEM-CARD is correctly inserted, the blue indicator beside the slot will be on. If the indicator doesn't light up, it might be the MEM-CARD is problem (Example: the metal plate is dirty or the card is not the component card of the controller); or the MEM-CARD is false inserted.
- The MEM-CARD is thin, please not bend it hard.

11.2 Save File

Steps: (Example: Save controller's data into File 2 of the MEM-CARD)
1. Insert the MEM-CARD under running state, the blue indicator light up.
2. Press **SAVE** key.
3. Press **File2** to choose File 2. (After saving, the controller will display "complete")
4. Pull out the MEM-CARD, the indicator turn out, the controller returns to the running state.

Tips:
- During the period of saving files, the blue indicator will flicker, the progress will be displayed on the LCD.
- During the period of saving files, don't pull out the MEM-CARD.
- After the saving is ended, the old data of the target File will be overlaid by the new data.
- Each MEM-CARD can store 3 Files.

11.3 Load File

Steps: (Example: Load File 2 of the MEM-CARD onto the controller)
1. Insert the MEM-CARD under running state, the blue indicator light up.
2. Press **LOAD** key.
3. Press **File2** to choose File 2. (After loading, the controller will display "complete")
4. Pull out the MEM-CARD, the indicator turn out, the controller returns to the running state.

Tips:

- During the period of loading File, the blue indicator will flicker, the progress will be displayed on the LCD.
- During the period of loading Files, don't pull out the MEM-CARD, or the loading will fail.
- After the loading is ended, the old data of the controller will be overlaid by the new data. The controller will run according the new data.

12   VGA human-computer interface

● The VGA port of the controller needs support of VGA Video cards. The controllers of Model +v have VGA port; please make sure whether the VGA port is needed when buying an intelligent Fixtures controller.

● The VGA port can connect CRT or LCD monitor.

● When monitor is connected, the running condition and the channels line level of every intelligent Fixtures. Contents of all Scenes and Chases can be displayed under edit state for the convenience of users.

● The detailed and visualized human-computer interface makes the control easier.

Tips: Under running state, repeatedly press **MANUAL** can change pages of the display of intelligent Fixtures' Channel values. When choosing an intelligent Fixture, the display will automatically change into the data of the chosen intelligent Fixture.

13   Initializtion of data

Steps:

1.   Pressing **PROGRAM** and switch on the power till LCD screen displays
        "=== PASSWORD ==="

2.   Press **number keys 1, 2, 3, 15** at the same time.

3.   The system will restart automatically after initializtion.

Notice: After the initializtion, all data will return to the origin factory state.

Special function

Notice: Please keep this paper. If you forget the password, please contact with the retail store to ask for help.

(A) The steps of using password to start:
1. Pressing **PROGRAM** and switch on the power.
   till LCD screen displays **"=== PASSWORD ==="**
2. Press **number keys 1, 2, 7, 8** at the same time.

(B) The steps of canceling the starting password:
   Repeat the above two steps.

● When the password is enabled, every time when the controller is started the password is needed:

Press number keys 1, 2, 7, 8 at the same time.