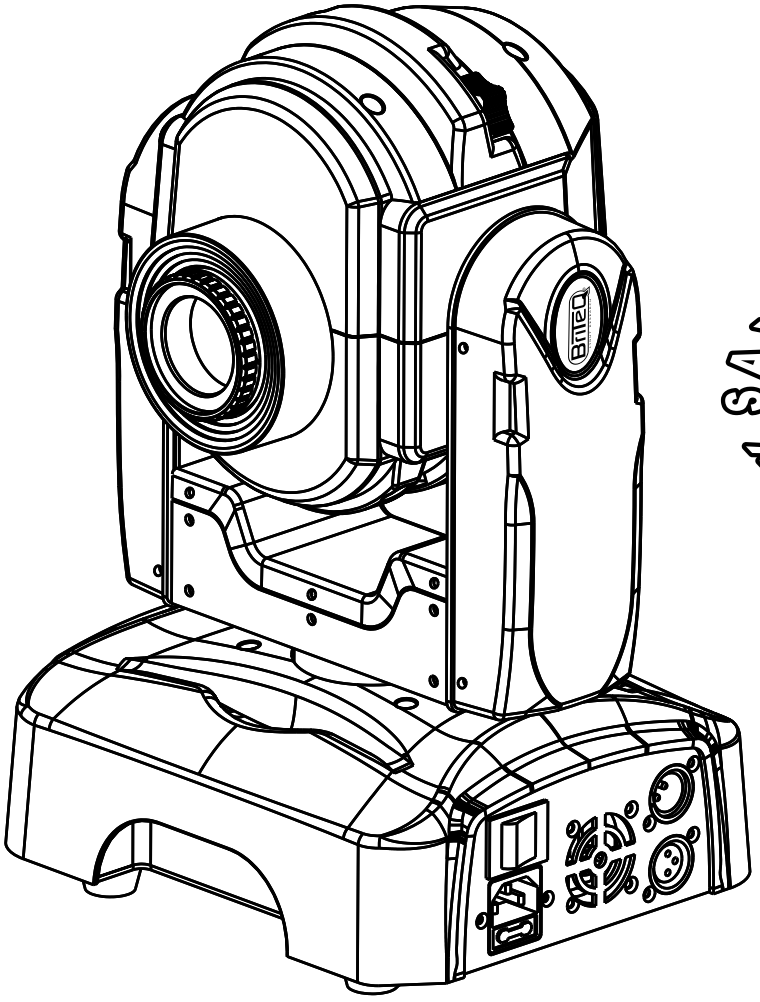
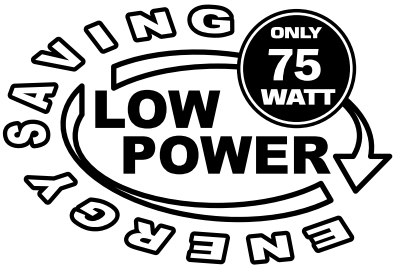
# BT-20Ls

## 20Watt LED MOVING HEAD






BriteQ®
LIGHT RESEARCH

# USER MANUAL

VER 1.0

# TABLE OF CONTENTS

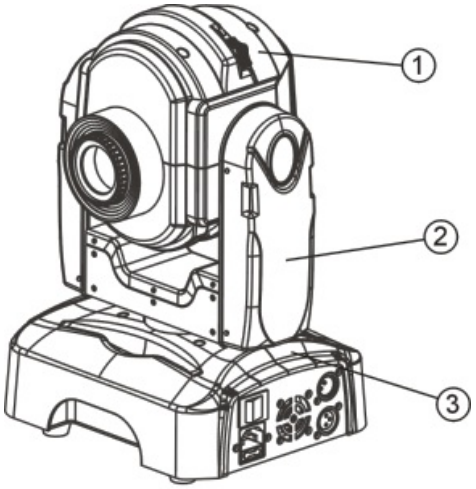
# 1 PRODUCT (GENERAL)

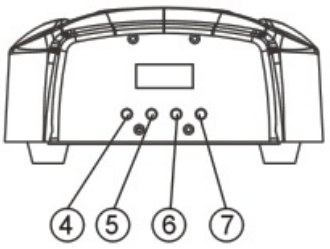
## *1.1* PRODUCT INTRODUCTION

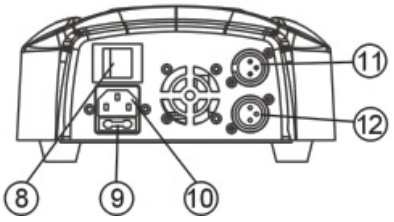
This product is designed for indoor use only. Suitable for stage, bar or nightclub applications. Direct input of DMX512 signal allows the fixtures to be controlled from any DMX512 controller. The fixture is fully programmable with one custom program available and is supplied with two automatic programs (all accessible from DMX512 controller). This product can be operated as a single unit or with multiple units for large applications.

## *1.2* PRODUCT OVERVIEW

| No | ITEM |
|---|---|
| 1 | Head |
| 2 | Arm |
| 3 | Base |
| 4 | Menu |
| 5 | Enter |
| 6 | Down |
| 7 | Up |
| 8 | Switch |
| 9 | Fuse |
| 10 | Power input |
| 11 | DMX 3-PIN signal output |
| 12 | DMX 3-PIN signal input |



# *1.3* TECHNICAL SPECIFICATIONS

**Electrical**
◆Voltage:AC100~240V，50/60Hz
◆Rated Power:75W

**LED**
◆LED:1PC(20W white)
◆Cooling:Forced air convection

**Optical System**
◆Focus:Manual linear focus
◆Dimmer:0~100%
◆Strobe:0~20Hz
◆3-facet Prism

**Operation**
◆Control mode: DMX512/Master-Slave/Auto/Custom/ Sound
◆LCD display
◆DMX512 Chs: 9 CHS/12CHS

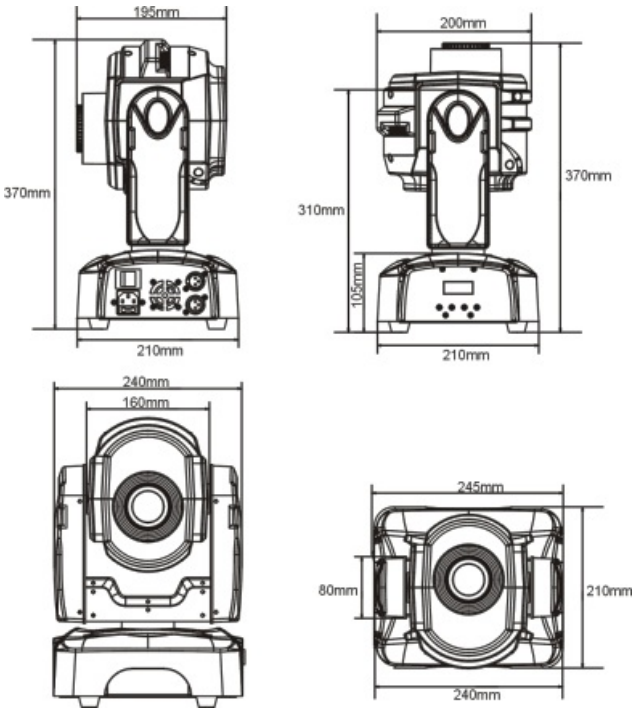
**Pan/Tilt**
◆Pan 540° Tilt 270°
◆Pan/Tilt speed
◆User-selectable Pan/Tilt ranges
◆Reverse Pan/Tilt movement

**Rotating Gobo**
◆7 Gobo (interchangeable)
◆Gobo-flow effect
◆Gobo shake
◆Bi-directional rotation

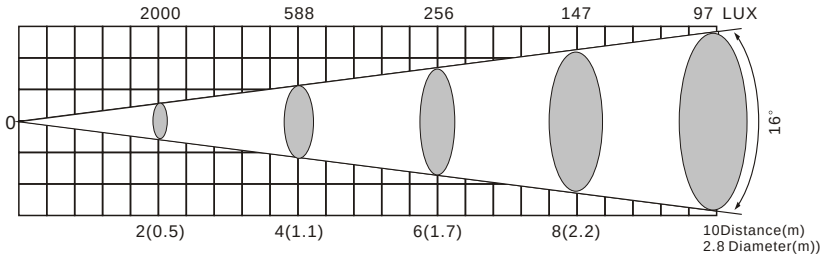
**Color**
◆9 dichroic - filters
◆Rainbow - flow effect

**Other features**
◆Custom program (255 steps)

◆Size: 240x200x3540mm
◆Weight: 7kg



# *1.4* PHOTOMETRIC DATA




# *1.5* SAFETY WARNING

## *IMPORTANT*

**【ALWAYS READ THE USER MANUAL BEFORE OPERATION. 】**
**【PLEASE CONFIRM THAT THE POWER SUPPLY STATED ON THE PRODUCT IS THE SAME AS THE MAINS POWER SUPPLY IN YOUR AREA.】**

- This product must be installed by a qualified professional.
- Always operate the equipment as described in the user manual.
- A minimum distance of 0.5m must be maintained between the equipment and combustible surface.
- The product must always be placed in a well ventilated area.
- Always make sure that the equipment is installed securely.
- DO NOT stand close to the equipment and stare directly into the LED light source.
- Always disconnect the power supply before attempting and maintenance.
- Always make sure that the supporting structure is solid and can support the combined weight of the products.
- The earth wire must always be connected to the ground.
- Do not touch the power cables if your hands are wet.

## *ATTENTION*

**⚠ ATTENTION ⚠**

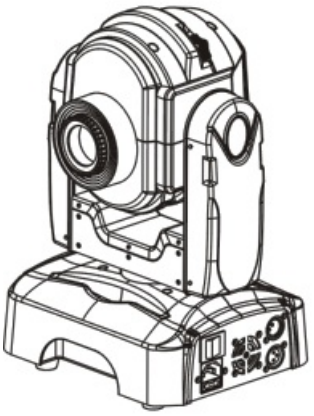
- This product left the place of manufacture in perfect condition. In order to maintain this condition and for safe operation, the user must always follow the instructions and safety warnings described in this user manual.
- Avoid shaking or strong impacts to any part of the equipment.
- Make sure that all parts of the equipment are kept clean and free of dust.
- Always make sure that the power connections are connected correct and secure.
- If there is any malfunction of the equipment, contact your distributor immediately.
- When transferring the product, it is advisable to use the original packaging in which the product left the factory.
- Shields, lenses or ultraviolet screens shall be changed if they have become damaged to such an extent that their effectiveness is impaired.
- The lamp (LED) shall be changed if it has become damaged or thermally deformed.

# 2 INSTALLATION

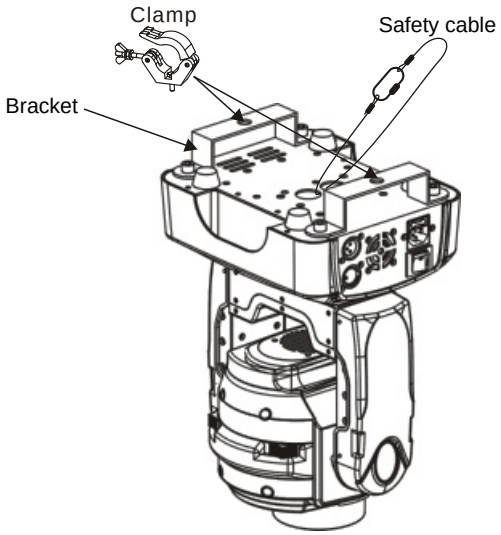
## *2.1* MOUNTING

The LED fixture can be operated in any position at any angle. When mounted on a flat surface, the surface must be strong enough to support 10 times the weight of the fixture and stable so that there will be no damage caused to the fixture or surrounding people or objects because of movements of the fixture on the surface.

When the unit is mounted in a hanging position, the fixture is attached using the mounting brackets and a standard truss clamp or other clamping device. The mounting brackets supplied are mounted using quick-release locks allowing simple mounting or removal.



UPRIGHT



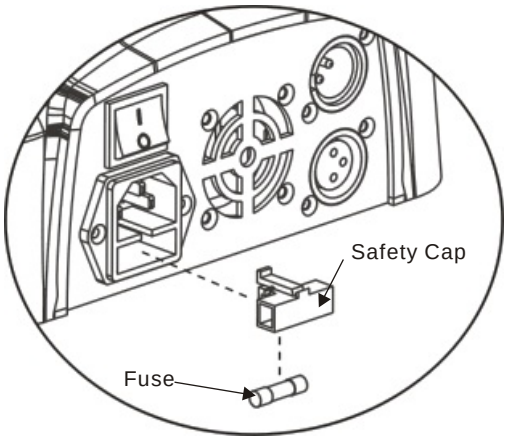

HANGING

### IMPORTANT SAFETY NOTE!!

Always use a safety cable when installing this unit!!
Be sure that the safety cable is connected to a solid load-bearing structure.

## *2.2* FUSE REPLACEMENT

- Remove the safety cap by a screwdriver.
- Fetch the old fuse from safety cap.
- Install a new fuse.
- Install the safety cap.

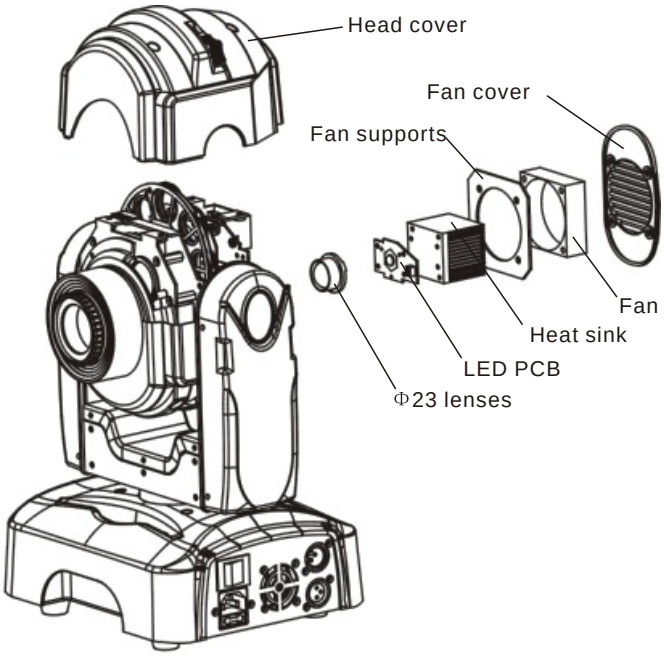



## *2.3* SETTING UP (STAND ALONE)

The LED fixture can be used as a stand alone unit. The stand alone functions AUTO 1, AUTO 2, SOUND 1, SOUND2 and CUSTOM can be activated without the need to connect to any controller or connecting to any other equipment.
Simply, access the <operation> menu from the DISPLAY and select the target program to activate.

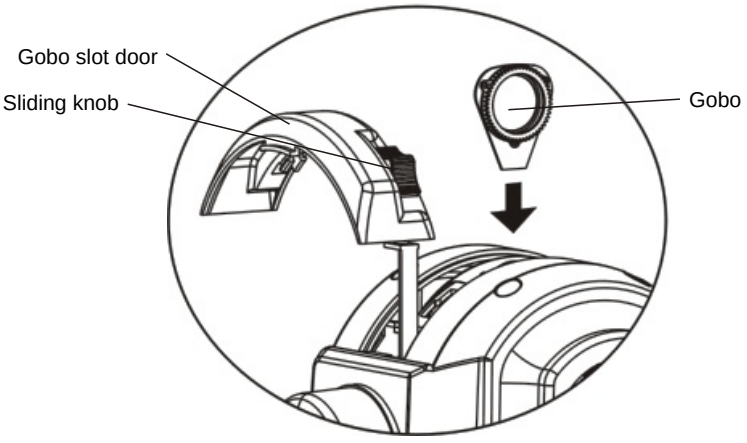
## *2.4* LED PCB REPLACEMENT

- Take off the head cover.
- Remove the fan cover, fan, fan supports, heat sink step by step.
- Replace the new LED PCB.
- Install all parts on the original position.




## *2.5* GOBO REPLACEMENT

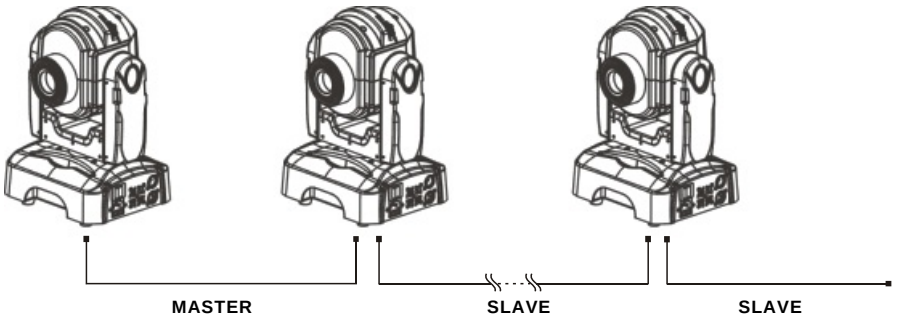
- Unlock the sliding the knob on the gobo slot door.
- Pull up the gobo slot door and turn it to a proper position.
- Take out the bad gobo.
- Install the good gobo, lock the gobo slot door.



## *2.6* SETTING UP (MASTER/SLAVE)

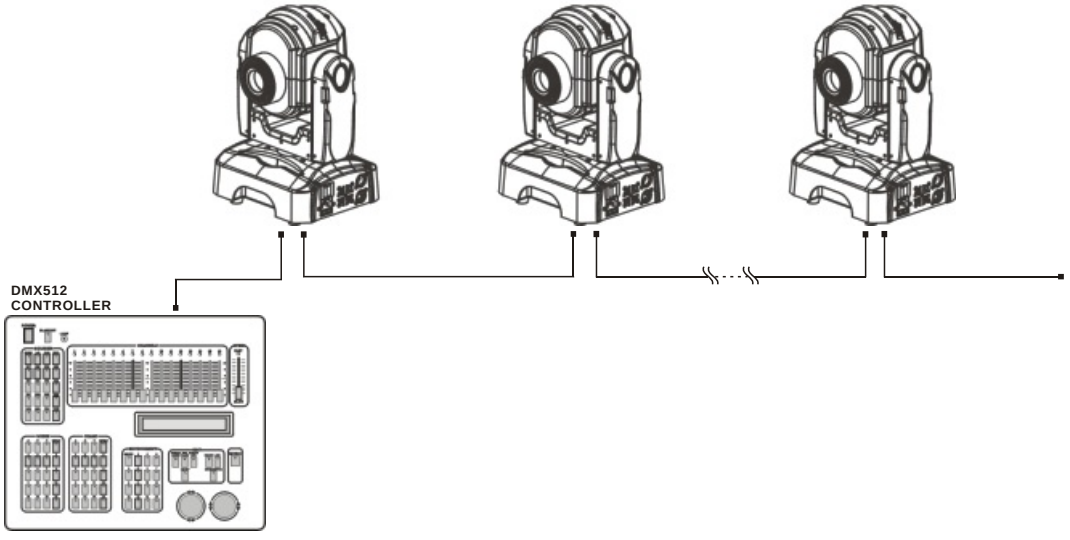
When units are connected in series using DMX512 signal cable connect the units as shown in the diagram below
Connect the (male) 3 pin connector side of the DMX cable to the output (female) 3 pin connector of the first (MASTER) fixture.
Connect the end of the cable coming from the MASTER fixture which will have a (female) 3 pin connector to the input connector of the next fixture consisting of a (male) 3 pin connector.
Then proceed to connect from the output as stated above to the input of the following fixture and so on.

Set the first unit in the series to one of the STAND ALONE modes as described in section 2.2
All other units in the series should be set to <SLAVE> from the <operation> menu.




## *2.7* SETTING UP (DMX512 CONTROLLER)

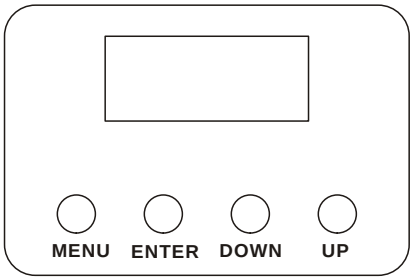
When units are connected in series to a DMX512 controller and other DMX512 equipment, connect the equipment as shown in the diagram below.
Connect the (male) 3 pin connector side of the DMX cable to the output (female) 3 pin connector of the controller.
Connect the end of the cable coming from the controller which will have a (female) 3 pin connector to the input connector of the next fixture consisting of a (male) 3 pin connector.
Then proceed to connect from the output as stated above to the input of the following fixture and so on.
If over 32pcs fixtures connected ,the amplifier is needed.



# 3 DISPLAY PANEL OPERATION

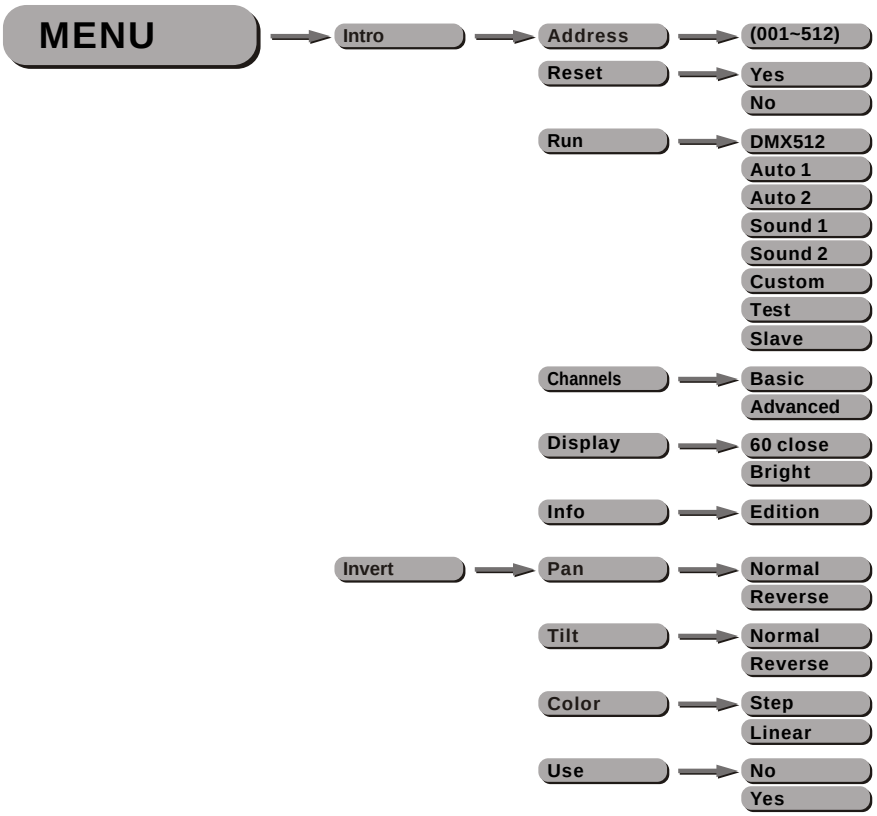
## *3.1* BASIC

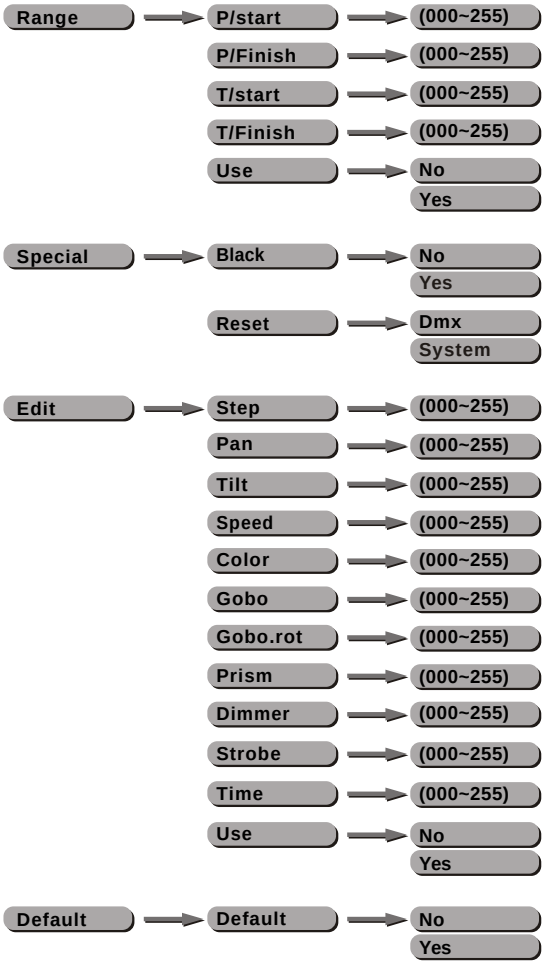
The LED fixture is mounted with a LCD display and 4 control buttons.



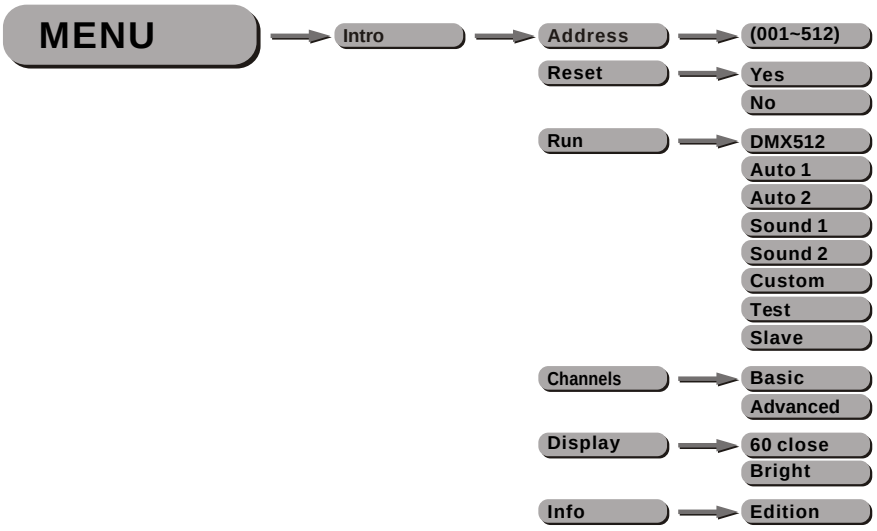

【 **MENU** 】Scroll through the main menu or exit from the current sub-menu
【**ENTER**】Enter the currently selected menu or confirm the current function value
【 **DOWN**】Scroll 'DOWN' through the menu list or decrease the value of the current function
【 **UP** 】Scroll 'UP' through the menu list or increase the value of the current function

## *3.2* MENU




Range
P/start
(000~255)
P/Finish
(000~255)
T/start
(000~255)
T/Finish
(000~255)
Use
No
Yes
Special
Black
No
Yes
Reset
Dmx
System
Edit
Step
(000~255)
Pan
(000~255)
Tilt
(000~255)
Speed
(000~255)
Color
(000~255)
Gobo
(000~255)
Gobo.rot
(000~255)
Prism
(000~255)
Dimmer
(000~255)
Strobe
(000~255)
Time
(000~255)
Use
No
Yes
Default
Default
No
Yes

## *3.3* INTRO




【***Address***】
- Enter【***Address***】 to set the DMX Address, which is from (001-512)

【***Reset***】
- In order to rest custom modest to default, select【***Reset***】

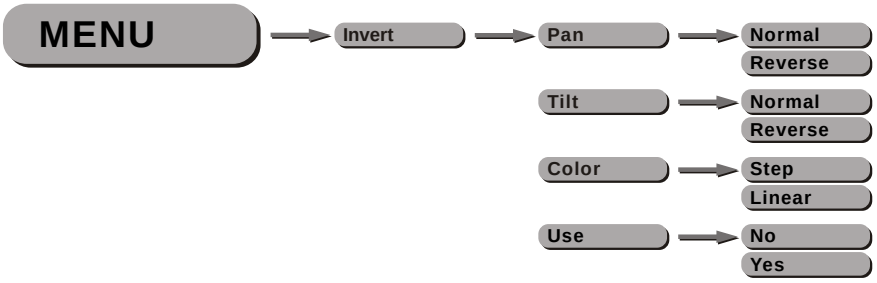
【***Run***】
- Enter【***Run***】 to select the operation mode: 【***DMAX512***】; 【***Auto1***】; 【***Auto2***】; 【***Sound 1***】; 【***Sound 2***】; 【***Custom***】; 【***Test***】; 【***Slave***】

【***Channels***】
- Enter 【***Channels***】 to select the DMX channel modes:【***Basic***】; 【***Advanced***】.

【***Display***】
- Enter【 ***Display***】 to select the lighting time of the LCD display panel.

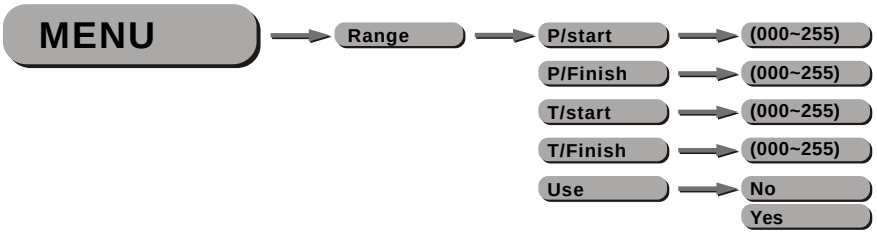
【***Info***】
- Enter【 ***Info***】 to see the version of the software.

## *3.4* INVERT




【 ***Invert***】
- Select【 ***Pan***】/【 ***Tilt***】to set 【***Normal***】 or 【***Reverse***】
- Select【 ***Color***】to select the color wheel flow way 【***Step***】 or 【***linear***】
- Enter【 ***Use***】 and set【***Yes***】 to run the new setting

## *3.5* RANGE




【*P/start*】
- Set pan start value 【*000~255*】

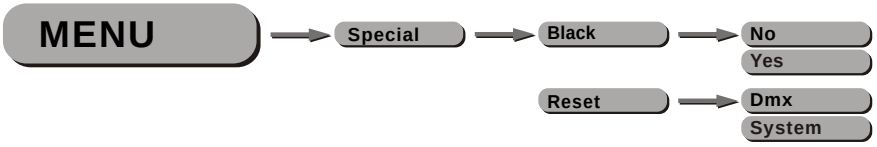
【*P/Finish*】
- Set pan finish value 【*000~255*】

【*T/start*】
- Set Tilt start value 【*000~255*】

【*T/Finish*】
- Set Tilt finish value 【*000~255*】

【 *Use*】
- Enter【 *Use*】 and select【*Yes*】to open the operation of X/Y angle

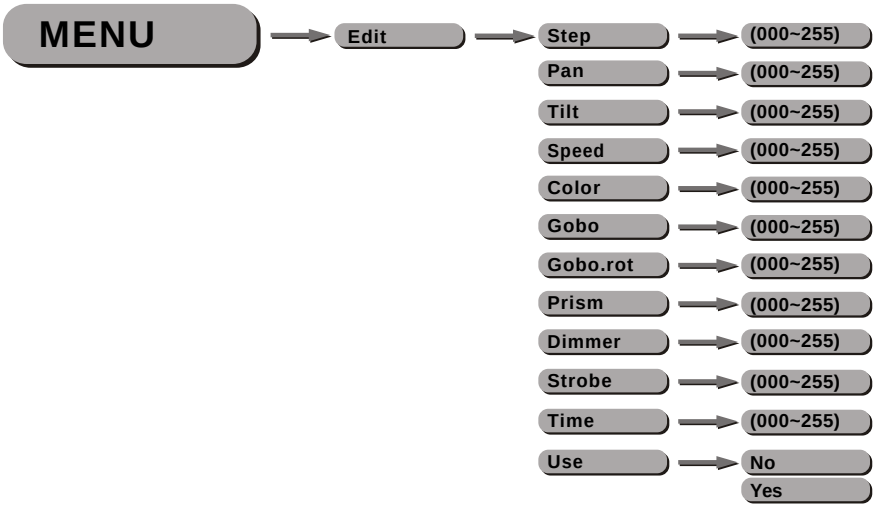
## *3.6* SPECIAL




【*Black*】
- Enter【*Black*】 to choose 【*No*】 without delay or 【*Yes*】 3seconds delay

【*Reset*】
- Enter【*Reset*】 to choose【*DMX*】 DMX control reset or 【*System*】 DMX cannot control reset

## *3.7* EDIT




【 ***Edit*** 】

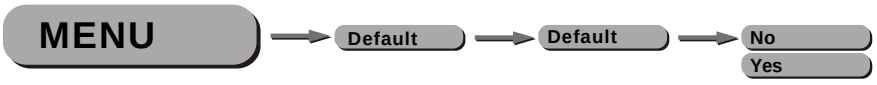
- Enter the【 ***Edit*** 】mode to edit the custom programs by adjusting the value of【***Step***】,【***Pan***】,【***Tilt***】,【***Speed***】,【***Color***】,【***Gobo***】, 【***Gobo.rot***】,【***Prism***】,【***Dimmer***】,【***Strobe***】,【 ***Time***】
- Enter【 ***Use***】 and select 【***Yes***】 to run the steps user need.

***Note:*** if user want to circulate the created steps, please set the last step ‘s 【***Time***】 as 0

For example, there are 3 steps, the setting should be like belowed:

Step 1 【***Time***】= 4 【 ***Use***】= Yes
Step 2 【***Time***】= 5 【 ***Use***】= Yes
Step 3 【***Time***】= 0 【 ***Use***】= Yes

## *3.8* DEFAULT




【 ***Default***】

- This functions will reset all setting to the original factory setting

# 4 USING A DMX512 CONTROLLER

## 4.1 BASIC ADDRESSING

- Connect all of the units in series using standard DMX512 signal cable .
- Set the DMX512 address in the【***DMX***】menu.
- It is possible to have the same DMX address or independent addresses for each fixture.

## 4.2 CHANNEL ASSIGNMENT

- Note: This product have two DMX512 channel configuration:【***ADVANCED***】and【***BASIC***】.

### *ADVANCED*

| CHANNEL | VALUE | FUNCTION |
|---|---|---|
| 1 | | **PAN** |
| | 0 <⇨> 255 | 0~540° |
| 2 | | **PAN FINE** |
| | 0 <⇨> 255 | Fine control of pan movement |
| 3 | | **TILT** |
| | 0 <⇨> 255 | 0~270° |
| 4 | | **TILT FINE** |
| | 0 <⇨> 255 | Fine control of tilt movement |
| 5 | | **PAN/TILT SPEED** |
| | 0 <⇨> 255 | From fast to slow |
| 6 | | **COLOR WHEEL** |
| | 0 <⇨> 14 | White |
| | 15 <⇨> 29 | Red |
| | 30 <⇨> 44 | Yellow |
| | 45 <⇨> 59 | Green |
| | 60 <⇨> 74 | Pink |
| | 75 <⇨> 89 | Blue |
| | 90 <⇨> 104 | Orange |
| | 105 <⇨> 119 | Magenta |
| | 120 <⇨> 134 | light blue |
| | 135 <⇨> 149 | light green |
| | 150 <⇨> 255 | Rainbow & linear effect |
| 7 | | **GOBO WHEEL 1& GOBO SHAKE** |
| | 0 <⇨> 9 | NO Gobo |
| | 10 <⇨> 19 | Gobo 1 |
| | 20 <⇨> 29 | Gobo 2 |
| | 30 <⇨> 39 | Gobo 3 |
| | 40 <⇨> 49 | Gobo 4 |
| | 50 <⇨> 59 | Gobo 5 |
| | 60 <⇨> 69 | Gobo 6 |
| | 70 <⇨> 79 | Gobo 7 |
| | 80 <⇨> 99 | Shaking gobo 7 |
| | 100 <⇨> 119 | Shaking gobo 6 |
| | 120 <⇨> 139 | Shaking gobo 5 |
| | 140 <⇨> 159 | Shaking gobo 4 |
| | 160 <⇨> 179 | Shaking gobo 3 |
| | 180 <⇨> 199 | Shaking gobo 2 |
| | 200 <⇨> 219 | Shaking gobo 1 |
| | 220 <⇨> 255 | Flow effect |

| CHANNEL | VALUE | FUNCTION |
|---|---|---|
| 8 | | **GOBO ROTATION** |
| | 0⇔2 | Stop |
| | 3⇔6 | Slowest |
| | 7⇔128 | Rotate from slow to fast |
| | 129⇔132 | Stop |
| | 133⇔136 | Reverse rotate slowest |
| | 137⇔255 | Reverse rotate from slowto fast |
| 9 | | **PRISM** |
| | 0⇔127 | NO FUNCTION |
| | 128⇔255 | In 3-facet prism |
| 10 | | **DIMMER** |
| | 0⇔255 | Dark ——— Bright |
| 11 | | **STROBE** |
| | 0⇔31 | Close |
| | 32⇔63 | Open |
| | 64⇔95 | Strobe: Slow > Fast |
| | 96⇔127 | Open |
| | 128⇔159 | Rulse strobe effect: Slow > Fast |
| | 160⇔191 | Open |
| | 192⇔223 | Random strobe effect: Slow > Fast |
| | 224⇔255 | Open |
| 12 | | **CONTROL** |
| | 0⇔19 | No function |
| | 20⇔39 | Pan/tilt black activated (activatedafter 3 secs) |
| | 40⇔59 | Pan/tilt black deactivated (activatedafter 3 secs) |
| | 60⇔79 | Auto1 (activated after 3secs) |
| | 80⇔99 | Auto2 (activated after 3secs) |
| | 100⇔119 | Sound 1(activated after 3secs) |
| | 120⇔139 | Sound 2(activated after 3secs) |
| | 140⇔159 | Custom |
| | 160⇔179 | Test (activatedafter 3 secs) |
| | 180⇔199 | No function |
| | 200⇔219 | Reset (activated after 3secs) |
| | 220⇔255 | No function |

## *BASIC*

| CHANNEL | VALUE | FUNCTION |
|---|---|---|
| 1 | | **PAN** |
| | 0⇔255 | 0~540° |
| 2 | | **TILT** |
| | 0⇔255 | 0~270° |
| 3 | | **COLOR WHEEL** |
| | 0⇔14 | White |
| | 15⇔29 | Red |
| | 30⇔44 | Yellow |
| | 45⇔59 | Green |
| | 60⇔74 | Pink |
| | 75⇔89 | Blue |
| | 90⇔104 | Orange |
| | 105⇔119 | Magenta |
| | 120⇔134 | light blue |
| | 135⇔149 | light green |
| | 150⇔255 | Rainbow & linear effect |

## *BASIC*

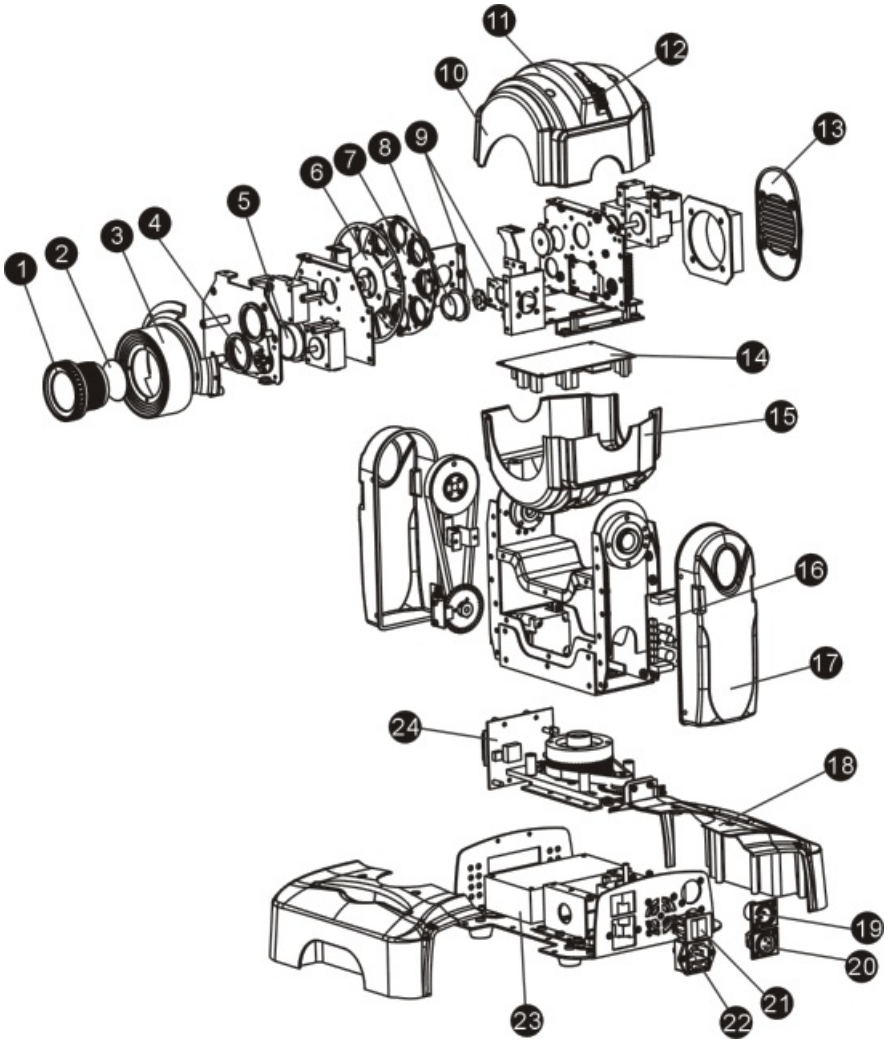
| CHANNEL | VALUE | FUNCTION |
|---|---|---|
| 4 | | **GOBO WHEEL 1& GOBO SHAKE** |
| | 0⇔9 | NO Gobo |
| | 10⇔19 | Gobo 1 |
| | 20⇔29 | Gobo 2 |
| | 30⇔39 | Gobo 3 |
| | 40⇔49 | Gobo 4 |
| | 50⇔59 | Gobo 5 |
| | 60⇔69 | Gobo 6 |
| | 70⇔79 | Gobo 7 |
| | 80⇔99 | Shaking gobo 7 |
| | 100⇔119 | Shaking gobo 6 |
| | 120⇔139 | Shaking gobo 5 |
| | 140⇔159 | Shaking gobo 4 |
| | 160⇔179 | Shaking gobo 3 |
| | 180⇔199 | Shaking gobo 2 |
| | 200⇔219 | Shaking gobo 1 |
| | 220⇔255 | Flow effect |
| 5 | | **GOBO ROTATION** |
| | 0⇔2 | Stop |
| | 3⇔6 | Slowest |
| | 7⇔128 | Rotate from slow to fast |
| | 129⇔132 | Stop |
| | 133⇔136 | Reverse rotate slowest |
| | 137⇔255 | Reverse rotate from slowto fast |
| 6 | | **PRISM** |
| | 0⇔127 | NO FUNCTION |
| | 128⇔255 | In 3-facet prism |
| 7 | | **DIMMER** |
| | 0⇔255 | Dark  Bright |
| 8 | | **STROBE** |
| | 0⇔31 | Close |
| | 32⇔63 | Open |
| | 64⇔95 | Strobe: Slow > Fast |
| | 96⇔127 | Open |
| | 128⇔159 | Rulse strobe effect: Slow > Fast |
| | 160⇔191 | Open |
| | 192⇔223 | Random strobe effect: Slow > Fast |
| | 224⇔255 | Open |
| 9 | | **CONTROL** |
| | 0⇔19 | No function |
| | 20⇔39 | Pan/tilt black activated (activatedafter 3 secs) |
| | 40⇔59 | Pan/tilt black deactivated (activatedafter 3 secs) |
| | 60⇔79 | Auto1 (activated after 3secs) |
| | 80⇔99 | Auto2 (activated after 3secs) |
| | 100⇔119 | Sound 1(activated after 3secs) |
| | 120⇔139 | Sound 2(activated after 3secs) |
| | 140⇔159 | Custom |
| | 160⇔179 | Test (activatedafter 3 secs) |
| | 180⇔199 | No function |
| | 200⇔219 | Reset (activated after 3secs) |
| | 220⇔255 | No function |

# 5 APPENDIX

## *5.1* TROUBLE SHOOTING

| SITUATION | CAUSE | | ACTION |
|---|---|---|---|
| **No power** | Power connection error | | Check all Power connectons |
| | Fuse damaged | | Replace Fuse |
| | Power supply damaged | | Replace Power supply |
| | Power switch damaged | | Replace Power switch |
| **LED not lit** | LED driver PCB damaged | | Replace LED driver PCB |
| | LED PCB damaged | | Replace LED PCB |
| | LED PCB connection error | | Check the connections |
| **Fan do not work** | Head fan error | | Fan # (60x60x20) |
| | | | Check the LED driver PCB |
| | Base fan error | | Fan #(40x40x10) |
| | | | Check the power supply |
| **Fixture reset normal, But not be controlled** | Display PCB damaged | | Replaced Display PCB |
| | DMX PCB damaged or DMX signal connection error | | Check DMX signal connection or replace DMX PCB |
| **Prism error** | LED607 CONTROL PCB ERROR | Motor damaged | Replace motor |
| | | Prism belt broken | Replace belt |
| **Color wheel error** | | Motor damaged | Replace motor |
| | | Sensor PCB damaged | Replace sensor |
| **Rotating gobo wheel error** | | Motor damaged | Replace motor |
| | | Rotating Gobo wheel blocked | Check or replace the gobo wheel |
| | | Sensor PCB damaged | Replace the sensor |
| **Pan movement error** | | Motor damaged | Replace Pan motor |
| | | Pan belt broken | Replace pan belt |
| | | Magnetic sensor PCB damaged | Replace the magnetic sensor |
| | | Optical sensor damaged | Replace the optical sensor |
| **Tilt movement error** | | Motor damaged | Replace Tilt motor |
| | | Tilt belt broken | Replace tilt belt |
| | | Magnetic sensor PCB damaged | Replace the magnetic sensor |
| | | Optical sensor damaged | Replace the optical sensor |

# *5.2* MAINTENANCE




| No | ITEM |
|---|---|
| 1 | Front lense cover |
| 2 | Front Φ 42 lense |
| 3 | Mouth cover |
| 4 | Prism |
| 5 | Φ 32 lense |
| 6 | Color wheel |
| 7 | Rotating Gobo wheel |
| 8 | Φ 23 lense |
| 9 | LED PCB |
| 10 | Head cover B |
| 11 | Gobo slot door |
| 12 | Sliding knob |

| No | ITEM |
|---|---|
| 13 | Head fan cover |
| 14 | Control PCB |
| 15 | Head cover A |
| 16 | Driver PCB |
| 17 | Arm |
| 18 | Base cover |
| 19 | DMX socket (Female) |
| 20 | DMX socket (Male) |
| 21 | Power on/off |
| 22 | Power socket |
| 23 | Power supply |
| 24 | Display PCB |

**Version 1.0**