90W SPOT MOVNG HEAD
USER MANUAL

TABLE OF CONTENTS

1. BEFORE YOU BEGIN

What is included

- 1 x Spot
- 1 x Mounting bracket and screws
- 1 x Power cable
- 1 x User Manual

Unpacking Instructions

Immediately upon receiving a fixture, carefully unpack the carton, check the contents to ensure that all parts are present, and have been received in good condition. Notify the shipper immediately and retain packing material for inspection if any parts appear damaged from shipping or the carton itself shows signs of mishandling. Save the carton and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Manual Conventions

manuals use the following conventions to differentiate certain types of information from the regular text.

CONVENTION	MEANING
[10]	A LCD display to be configured
<Menu>	A key to be pressed on the fixture's control panel
1~512	A range of values
50/60	A set of values of which only one can be chosen
Settings	A menu option not to be modified (for example, showing the operating mode/current status)
MENU > Settings	A sequence of menu options to be followed
ON	A value to be entered or selected

Icons

This manual uses the following icons to indicate information that requires special attention on the part of the user.

ICONS	MEANING
⚠	This paragraph contains critical installation, configuration or operation information. Failure to comply with this information may render the fixture partially or completely inoperative, cause damage to the fixture or cause harm to the user.
ⓘ	This paragraph contains important installation or configuration information. Failure to comply with this information may prevent the fixture from functioning correctly.
🗎	This paragraph reminds you of useful, although not critical, information

Safety Instructions

⚠ Please read these instructions carefully. It includes important information about the installation, usage and maintenance of this product.
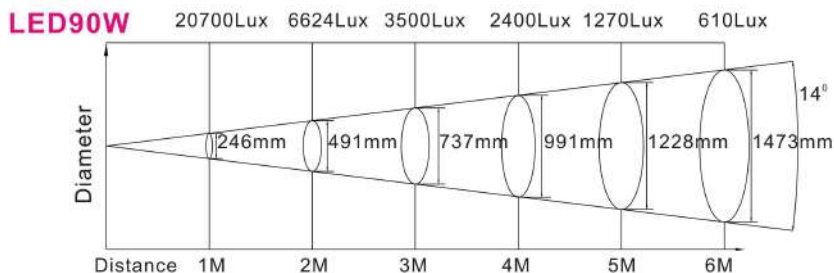
- Please keep this User Manual for future consultation. If you sell the unit to another user, be sure that they also receive this instruction booklet.
- Always make sure that you are connecting to the proper voltage, and that the line voltage you are connecting to is not higher than that stated on the decal or rear panel of the fixture.
- Make sure there are no flammable materials close to the unit while operating.
- Always disconnect from power source before servicing or replacing fuse and be sure to replace with same fuse source.
- Secure fixture to fastening device using a safety chain.
- Maximum ambient temperature (Ta) is 104° F (40° C). Do not operate fixture at temperatures higher than this.
- In the event of a serious operating problem, stop using the unit immediately.Never try to repair the unit by yourself. Repairs carried out by unskilled people can lead to damage or malfunction. Please contact the nearest authorized technical assistance center.
- Never connect the device to a dimmer pack.
- Avoid direct eye exposure to the light source while it is on.
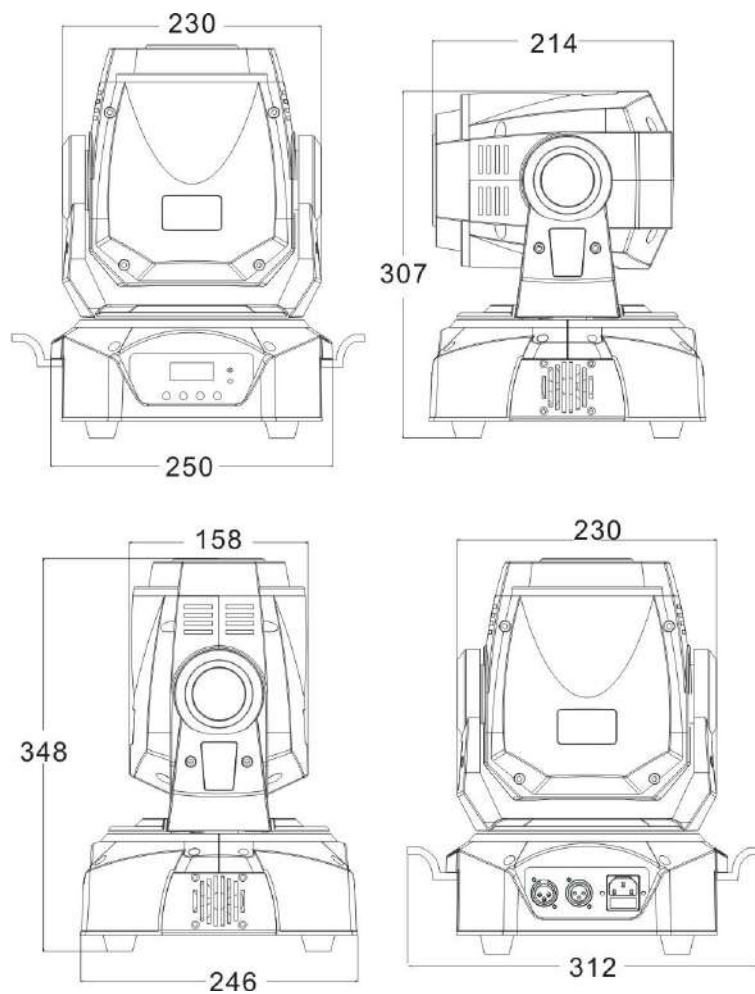- Never carry the fixture by holding the head. Always use the carrying handle.

2. INTRODUCTION

Technical Specification

1) Voltage: 100-240V,50-60Hz
2) Power consumption: 120W
3) LED: ultra bright 90W LED
4) LED color wheel: Basic 7 colors+ white, can adjust speed rainbow effect
5) Fixed gobo: 8 gobos+ white,   Gobo rotating CW and CCW from slow to fast), gobo shaking
6) Rotation gobo: 6 gobos + white, can bidirectional speed change rotation, gobo shaking
7) Dimmer/Strobe: Dimmer, 1-20t/s
8) Focus: Electronic Focus
9) Pan::540° Tilt: 270
10) Control: DMX 512, 14/16 /11CHs
11) Working mode: Stand-alone mode, Controller mode, Master/Slave synchronization mode
12) Other function: Pan/Tilt speed adjustable
    Housing: High temperature resistant engineering plastic + aluminum alloy.
13) Weight: 6.5KG
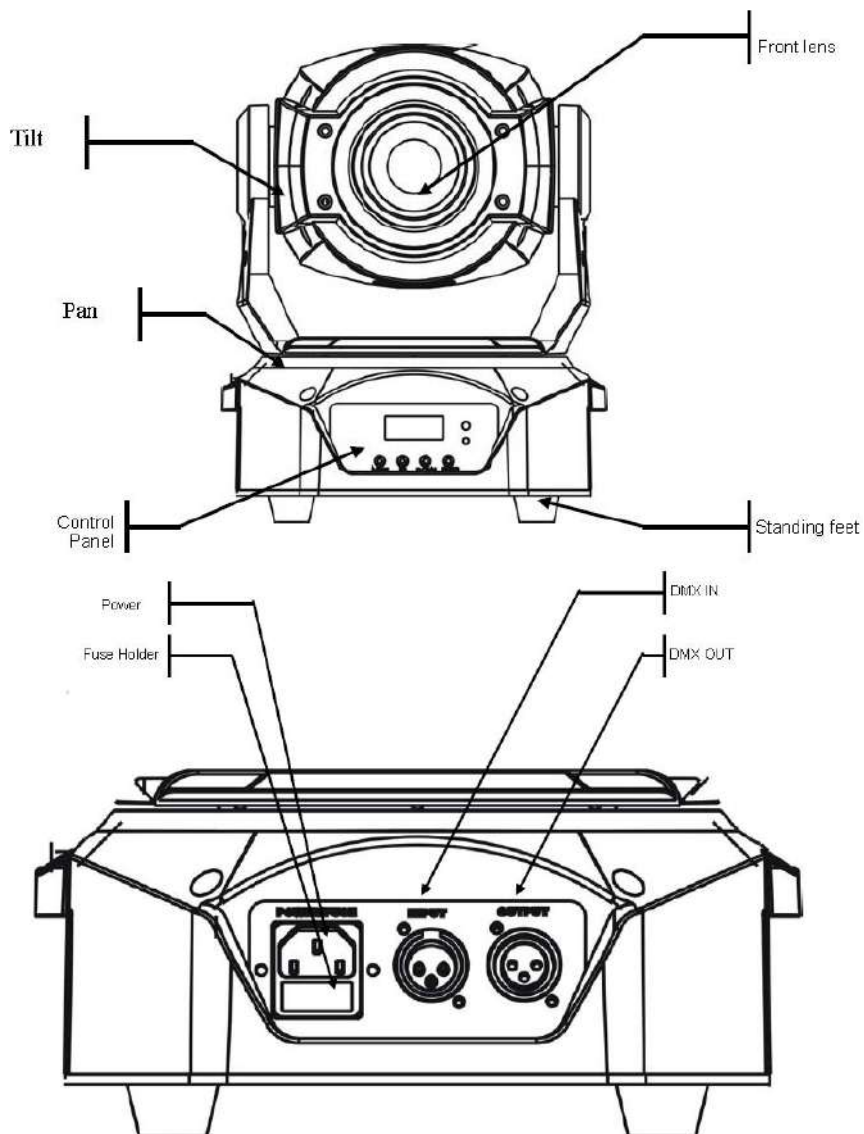14) Product Size: 240*240*370mm
15) Packing Size: 350*340*375mm

Photometric

LED90W   20700Lux 6624Lux 3500Lux 2400Lux 1270Lux   610Lux

14°

Diameter

246mm   491mm   737mm   991mm   1228mm   1473mm

Distance   1M   2M   3M   4M   5M   6M

Product Dimensions

Product Overview

Front lens

Tilt

Pan

Control
Panel

Standing feet

Power

Fuse Holder

DMX IN

DMX OUT

3. SET UP

AC Power

This fixture runs on 100-240VAC, 50/60 Hz. This fixture used switch power supply, it can transform by itself when user input power.

⚠️ *Always connect the fixture to a switched circuit. Never connect the fixture to a rheostat (variable resistor) or dimmer circuit, even if the rheostat or dimmer channel is used only as a 0 to 100% switch.*
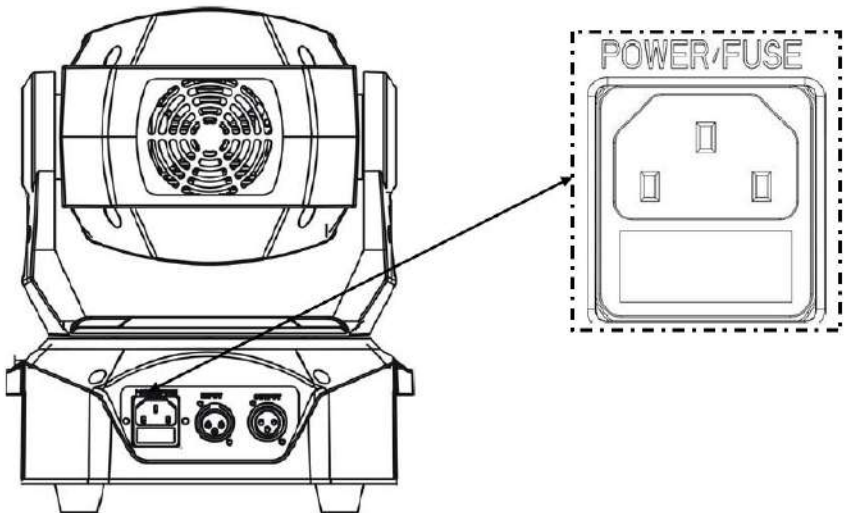
⚠️ *Always connect the fixture to a circuit with a suitable electrical ground.*
The maximum quantity of fixtures that may be linked is 4.

Power Linking

This fixture contains power linking via the outlet located in front of the power input cable. Please see the diagram below for further explanation.

Signal Linking (DMX)

The diagrams below illustrate the signal (DMX) linking for this fixture. This is used both in DMX mode and when operating the fixtures in Master/Slave mode. Please see the diagram below for further explanation.
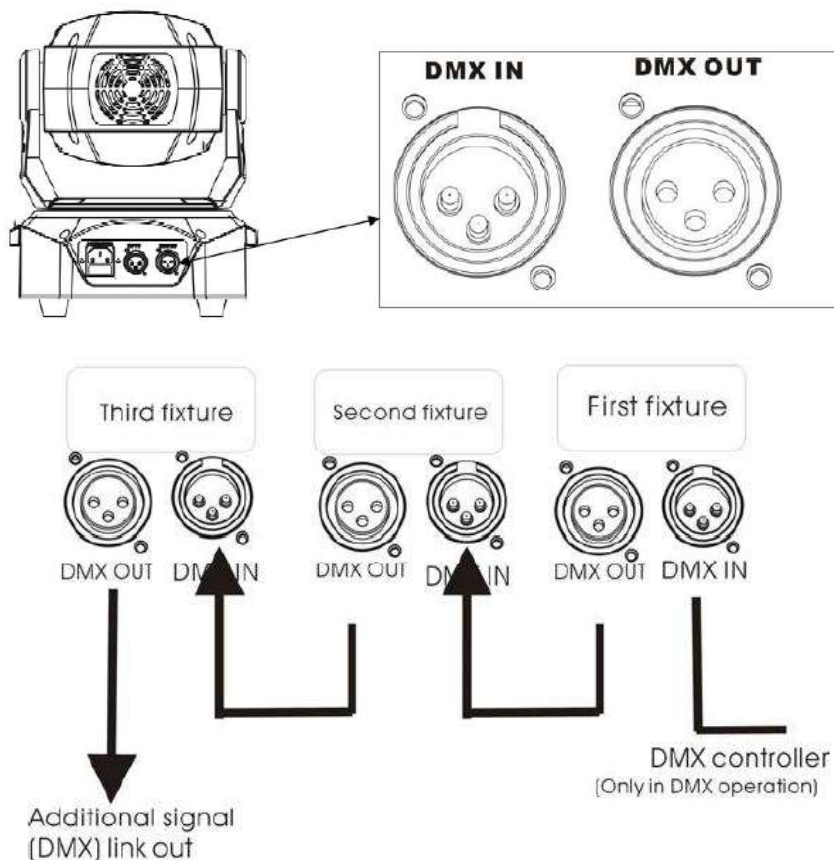
Fuse Replacement

With a flat head screwdriver unscrew the fuse holder out of its housing, turning counter-clockwise. Remove the damaged fuse from its holder and replace with exact same type fuse. Insert the fuse holder back in its place and reconnect power.

The fuse is located inside this fuseholder.

POWER/FUSE
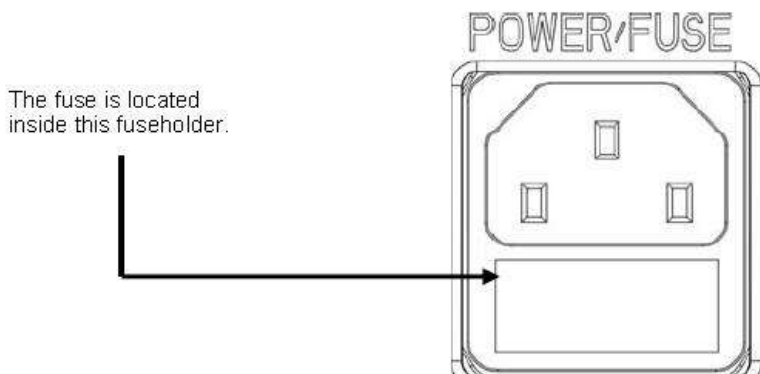
Mounting
Orientation
The Spot may be mounted in any safe position provided there is adequate room for ventilation.

Rigging
Be sure that the structure can support 10 times the weight of the fixture. Please see the "Technical Specifications" section of this manual for a detailed weight listing. Mount the fixture securely. Two hanging clamps for truss mounting may be used, or nuts and bolts for permanent installation may be used. The holes in each bracket are 13 mm in size. When rigging, consider routine maintenance and control panel access. Please see the following steps for installation.

- If the power link out is intended to be used with multiple fixture, take into account the length of each power cable, and mount the fixtures
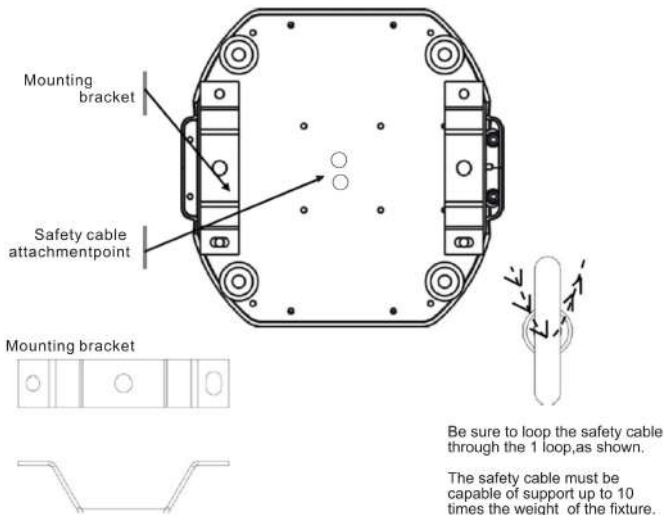
Disconnect the power cord before replacing a fuse and always replace with the same type fuse.

close enough to one another to accommodate for this.
- Attach both included bolts in the locations indicated below, using a metric 8 mm Allen wrench.
- Attached 2 hanging clamps to the bracket in each of the two locations indicated below
- Safety cables must always be used.

⚠️ **Do NOT mount this fixture sideways!**

Mounting bracket

Safety cable attachmentpoint

Mounting bracket

Be sure to loop the safety cable through the 1 loop,as shown.

The safety cable must be capable of support up to 10 times the weight of the fixture.

4. OPERATING

Configuration (DMX)

Set the product in DMX mode to control with a DMX controller.
1. Connect the product to a suitable power outlet.
2. Turn the product on.
3. Connect a DMX cable from the DMX output of the DMX controller
to the DMX input socket on the product.

Control Panel Functions

The Control Panel shows the current state of the unit. It is used to select
the operating mode, as well as the sub-features. For a detailed layout of
the control panel functions, please see the "menu map" section on the
following page.

```
┌─────────────────────┐
│ Address:            │
│     001      *      │
└─────────────────────┘

MENU     UP     DOWN    ENTER
  ○       ○       ○        ○
```

[MODE] menu selection or return to previous menu.

[UP] press [UP] through the menu list to increase/change the value of
the current function.

[DOWN] press [DOWN] through the menu list to decrease/change the
value of the current function.

[ENTER] confirm & quit out current function setting.

Menu Map

Welcome
A001-512, C14/16/11

MENU → RUN → ENTER / UP DOWN →
DMX512
Auto1
Auto2
Sound
Custom
Slave
Test

GENERAL → ENTER / UP DOWN →
PERSON →
Ch16
Ch14
Ch11
Custom

INVERT →
PAN
TILT
→ Normal
Reverse

LCD.Disp →
60s off
Alway on

SOUND → 0-255

DEFAULT →
No
Yes

SPECIAL → Reset →
System
Color
Gobo1
Gobo2
Focus
Prism
Tilt
Pan

Version → 1. 100
Temp. → P743
Serial → 0003...
CodeDisk → P. Enable
Factory → Password

EDIT → PROGRAM →
Step → 0-255
Pan. → 0-255
PAN. F → 0-255
Tilt → 0-255
TILT. F → 0-255
SPEED → 0-255
DIMMER → 0-255
STROBE → 0-255
COLOR → 0-255
FOCUS → 0-255
GOBO1 → 0-255
ROT → 0-255
G1. SHAKE → 0-255
GOBO2 → 0-255
G2. SHAKE → 0-255
PRISM → 0-255
CONTROL → 0-255
Time → 0-255
Use →
No
Yes

CHANNELS →
PAN → CH01-16,off=000 or 255
PAN. F → CH01-16,off=000 or 255
TILT → CH01-16,off=000 or 255
TILT. F → CH01-16,off=000 or 255
SPEED → CH01-16,off=000 or 255
DIMMER → CH01-16,off=000 or 255
STROBE → CH01-16,off=000 or 255
COLOR → CH01-16,off=000 or 255
FOCUS → CH01-16,off=000 or 255
GOBO1 → CH01-16,off=000 or 255
ROT → CH01-16,off=000 or 255
G1. SHAKE → CH01-16,off=000 or 255
GOBO2 → CH01-16,off=000 or 255
G2. SHAKE → CH01-16,off=000 or 255
PRISM → CH01-16,off=000 or 255
CONTROL → CH01-16,off=000 or 255

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DMX CHANNEL VALUES
16-Channel Mode

16 CHS	CH value	Function
1CH X rotation	000-255	X rotation 0°-540°
2CH X fine adjustment	000-255	X fine adjustment
3CH Y rotation	000-255	Y rotation 0°-270°
4CH Y fine adjustment	000-255	Y fine adjustment
5CH X/Y Speed	000-255	XY speed from fast to slow
6CH LED 90W Dimmer	000-255	From dark to bright
7CH Strobe	0-5	ON
	6-249	Strobe from slow to fast
	250-255	ON
8CH 7Color + White	0-9	White
	10-19	White+Red
	20-29	Red
	30-39	Red+Green
	40-49	Green
	50-59	Green+Blue
	60-69	Blue
	70-79	Blue+Yellow
	80-89	Yellow
	90-99	Yellow+Purple
	100-109	Purple
	110-119	Purple+Aqua
	120-129	Aqua
	130-139	Aqua+Cambridge blue
	140-149	Cambridge blue
	150-180	Cambridge blue+White
	181-255	Rainbow Effect(slow to fast)
9CH Focus	000-255	Focus, from near to far

10CH 6 rotation Gobo wheel	White 0-19, Gobo1 20-39, Gobo2 40-59, Gobo3 60-79, Gobo4 80-99, Gobo5 100-119, Gobo6 120-139	
	140-255	Gobo rotating CW and CCW from slow to fast)
11CH Goboself-rotation	0-19	No function
	20-139	Gobo self-rotating clockwise from slow to fastGobo
	140-255	self-rotating counter- clockwise from slow to fast
12CH Rotation gobo shaking	000-255	Slow-fast
13CH 8　Static Gobos	White 0-9, Gobo1 10-19, Gobo2 20-39, Gobo4 40-59, Gobo5 60-79, Gobo6 80-99, Gobo7 100-119, Gobo8 120-139, Gobo9 140-159	
	160-255	Gobo rotating CW and CCW from slow
14CH	000-255	Slow-fast

Static gobo shaking		
15CH Prism	0-19 20-63 64-255	OFF ON Forward Rotating from fast to slow
16CH Reset	1-199 200-219 220-255	No function Reset after 3 second No function

14-Channel Mode

14 CHS	CH value	Function
1CH X rotation	000-255	X rotation 0°-540°
2CH X fine adjustment	000-255	X fine adjustment
3CH Y rotation	000-255	Y rotation 0°-270°
4CH Y fine adjustment	000-255	Y fine adjustment
5CH X/Y Speed	000-255	XY speed from fast to slow
6CH LED 90W Dimmer	000-255	From dark to bright
7CH Strobe	0-5 6-249 250-255	ON Strobe from slow to fast ON
8CH 7Color + White	0-9 10-19 20-29 30-39 40-49 50-59 60-69 70-79 80-89 90-99 100-109 110-119 120-129 130-139 140-149 150-180 181-255	White White+Red Red Red+Green Green Green+Blue Blue Blue+Yellow Yellow Yellow+Purple Purple Purple+Aqua Aqua Aqua+Cambridge blue Cambridge blue Cambridge blue+White Rainbow Effect(slow to fast)
9CH Focus	000-255	Focus, from near to far

10CH 6 Gobos + White		
	140-255	Gobo rotating CW and CCW from slow to fast)
11CH Gobo self-rotation	0-19	No function
	20-139	Gobo self-rotating clockwise from slow to fast
	140-255	Gobo self-rotating counter-clockwise from slow to fast
12CH 8 Gobos + White		
	160-255	Gobo rotating CW and CCW from slow to fast
13CH Prism	0-19	OFF
	20-63	ON
	64-255	Forward Rotating from fast to slow

	1-199	No function
14CH Reset	200-219	Reset after 3 second
	220-255	No function

11-Channel Mode

11 CHS	CH value	Function
1CH X rotation	000-255	X rotation 0°-540°
2CH Y rotation	000-255	Y rotation 0°-270°
3CH X/Y Speed	000-255	XY speed from fast to slow
4CH LED 90W Dimmer	000-255	From dark to bright
5CH Strobe	0-5	ON
	6-249	Strobe from slow to fast
	250-255	ON
6CH 7Color + White	0-9	White
	10-19	White+Red
	20-29	Red
	30-39	Red+Green
	40-49	Green
	50-59	Green+Blue
	60-69	Blue
	70-79	Blue+Yellow
	80-89	Yellow
	90-99	Yellow+Purple
	100-109	Purple
	110-119	Purple+Aqua
	120-129	Aqua
	130-139	Aqua+Cambridge blue
	140-149	Cambridge blue
	150-180	Cambridge blue+White
	181-255	Rainbow Effect(slow to fast)
7CH Focus	000-255	Focus, from near to far

8CH 6 rotation Gobo wheel	White 0-19 · Gobo1 20-39 · Gobo2 40-59 · Gobo3 60-79 · Gobo4 80-99 · Gobo5 100-119 · Gobo6 120-139	
	140-255	Gobo rotating CW and CCW from slow to fast)
9CH Gobo self-rotation	0-19	No function
	20-139	Gobo self-rotating clockwise from slow to fast
	140-255	Gobo self-rotating counter-clockwise from slow to fast
10CH 8 Static Gobos wheel	White 0-9 · Gobo1 10-19 · Gobo2 20-39 · Gobo4 40-59 · Gobo5 60-79 · Gobo6 80-99 · Gobo7 100-119 · Gobo8 120-139 · Gobo9 140-159	
	160-255	Gobo rotating CW and CCW from slow to fast
11CH Prism	0-19	OFF
	20-63	ON
	64-255	Forward Rotating from fast to slow

DMX Personalities

The RI-690SPOT has three DMX personalities, an 16-channel personality ,14-channel personality and 11-channel personality.

To choose which DMX personality to use, follow the steps below:

1. Press <GENERAL> repeatedly until <PERSON>,and Press <Enter>either 16CH (to choose the 16-channel personality) , 14CH (to choose the 14-channel personality) or 11CH (to choose the 11-channel personality)shows on the display

2. Press <ENTER>.

Setting Address

To select the starting address, do the following:

1. Press <MENU> repeatedly until 001 shows on the display.

2. Press <ENTER>.

3. Use <UP> or <DOWN> to select the starting address.

4. Press <ENTER>.

Configuration (Standalone)

Set the product in one of the standalone modes to control without a DMX controller.

1. Connect the product to power.

2. Turn the product on.

Sound-Active Mode

To enable the Sound-Active mode, do the following.

1. Press <MENU> repeatedly until one of the following shows on the display: RUN,GENERAL,SPECIAL,EDIT.

2. Press <UP> or <DOWN> to select RUN.

3 .Press <UP> or <DOWN> to select sound.

4. Press <ENTER>.

Automatic Mode

To enable the Automatic mode.

1. Press <MENU> repeatedly until one of the following shows on the display: RUN,GENERAL,SPECIAL,EDIT.

2. Press <UP> or <DOWN> to select RUN.

3. Press <UP> or <DOWN> to select Auto1 or Auto2.

4. Press <ENTER>.

Master/Slave Mode

The Master/Slave mode allows a single RI-660SPOT (the"master") control the actions of one or more RI-660SPOT (the "slaves") without the need of a DMX controller. The master unit will be set to operate in either Automatic or Sound-Active mode, while the slave units will be set to operate in Slave mode. Once set and connected, the slave units will operate in unison with the master unit.

Configure the units as indicated below.

Slave units:
1. Press <MENU> repeatedly until one of the following shows on the display: RUN,GENERAL,SPECIAL,EDIT.
2. Press <UP> or <DOWN> to select <RUN>.
3. Press <UP> or <DOWN> to select SLAVE.
4. Set the DMX address to 001.

Master unit:
1. Set the master unit to operate in either Automatic or Sound-Active mode.
2. Set the DMX address to 001.

Temperature display
To display the temperature of the system.
1. Press <MENU> repeatedly until one of the following shows on the display: RUN,GENERAL,SPECIAL
2. Press <UP> or <DOWN> to select SPECIAL.
3. Press <UP> or <DOWN> to select Temp.
4. Press <ENTER>.

INVERT/ PAN
To enable the invert/pan mode, do the following.
1. Press <MENU> repeatedly until one of the following shows on the display: RUN,GENERAL,SPECIAL,EDIT.
2. Press <UP> or <DOWN> to select General
3. Press <UP> or <DOWN> to select Invert
4 .Press <UP> or <DOWN> to select Pan.
5 .Press <UP> or <DOWN> to select Reverse or Normal.
5. Press <ENTER>.

INVERT/TILT
1. Press <MENU> repeatedly until one of the following shows on the display: RUN,GENERAL,SPECIAL,EDIT.
2. Press <UP> or <DOWN> to select General.
3. Press <UP> or <DOWN> to select Invert
4 .Press <UP> or <DOWN> to select Tilt
5.Press <UP> or <DOWN> to select Reverse or Normal

6 Press <ENTER>CUSTOM
Use this MENU if you want to reordering the DMX channel of X-MH-75W
1.Press <MENU> repeatedly until one of the following shows on the display: RUN,GENERAL,SPECIAL,EDIT.
2. Press <UP> or <DOWN> to select RUN.
3 .Press <UP> or <DOWN> to select CUSTOM.
4. Press <ENTER>.
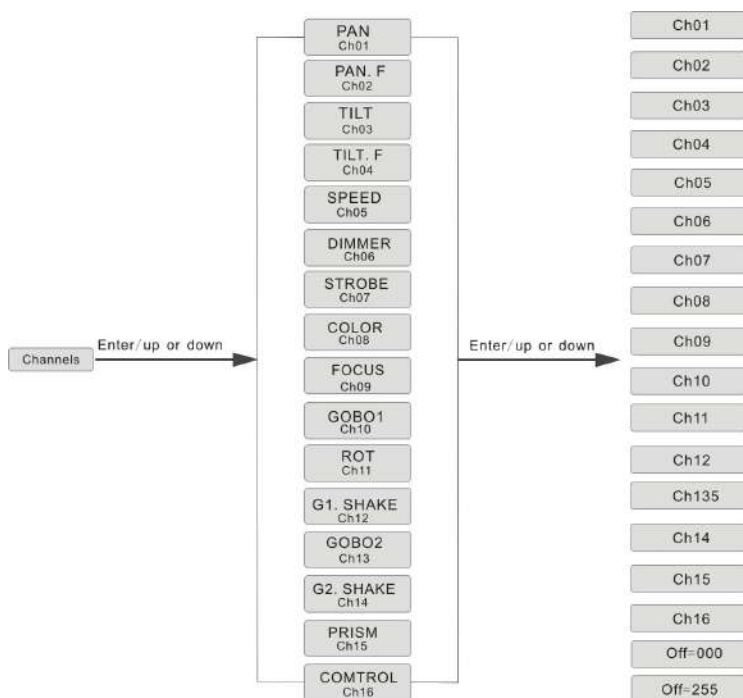5. Press <MENU> repeatedly until one of the following shows on the display: RUN,GENERAL,SPECIAL,EDIT.
8. Press <UP> or <DOWN> to select EDIT.
9 .Press <UP> or <DOWN> to select CHANNELS.
Please see the diagram below for further explanation.

Channels → Enter/up or down →

PAN Ch01	Ch01
PAN. F Ch02	Ch02
TILT Ch03	Ch03
TILT. F Ch04	Ch04
SPEED Ch05	Ch05
DIMMER Ch06	Ch06
STROBE Ch07	Ch07
COLOR Ch08	Ch08
FOCUS Ch09	Ch09
GOBO1 Ch10	Ch10
ROT Ch11	Ch11
G1. SHAKE Ch12	Ch12
GOBO2 Ch13	Ch135
G2. SHAKE Ch14	Ch14
PRISM Ch15	Ch15
COMTROL Ch16	Ch16
	Off=000
	Off=255

Enter/up or down →

When selecting CH1-16,you could change the order what you want. When selecting OFF=000,you could turn off the function.

5. APPENDIX

General Maintenance

To maintain optimum performance and minimize wear, fixtures should be cleaned frequently. Usage and environment are contributing factors in determining frequency. As a general rule, fixtures should be cleaned at least twice a month. Dust build up reduces light output performance and can cause overheating. This can lead to reduced lamp life and increased mechanical wear. Be sure to power off fixture before conducting maintenance.

- Use a vacuum or air compressor and a soft brush to remove dust collected on external vents.
- Clean all glass when the fixture is cold with a mild solution of glass cleaner or Isopropyl Alcohol and a soft lint free cotton cloth or lens tissue.
- Apply solution to the cloth or tissue and drag dirt and grime to the outside of the lens.
- Gently polish optical surfaces until they are free of haze and lint.

The cleaning of external optical lenses and/or mirrors must be carried out periodically to optimize light output. Cleaning frequency depends on the environment in which the fixture operates. Damp, smoky or particularly dirty surroundings can cause greater accumulation of dirt on the unit's optics. Clean with soft cloth using normal glass cleaning fluid. Clean the external optics at least every 20 days. Clean the fixture at least every 30/60 days.

Always dry the parts carefully after cleaning them.

Never spin a fan using compressed air.

General Troubleshooting

SYMPTOM	POSSIBLE CAUSE(S)	POSSIBLE ACTION(S)
Breaker/Fuse keeps blowing	• Excessive circuit load • Short circuit along the power wires	• Check total load placed on the electrical circuit. • Check for a short in the electrical wiring (internal and/or external)
Device does not power up	• No power • Loose power cord	• Check for power on power outlet • Check power cord
Fixture is not responding to DMX	• Wrong DMX addressing • Damaged DMX cables • Wrong polarity settings on the controller • Loose DMX cables • Faulty DMX interface • Faulty Main PCB	• Check Control Panel and unit addressing • Check DMX cables • Check polarity switch settings on the controller • Check cable connections • Replace DMX input • Replace Main PCB
Loss of signal	• Non DMX cables • Bouncing signals • Long cable / Low level signal • Too many fixtures • Interference from AC wires	• Use only DMX compatible cables • Install terminator as suggested • Install amplifier right after fixture with strong signal • Install an optically coupled DMX splitter after unit #32 • Keep DMX cables separated from power cables or black lights