MERLIN

PR-2473

The user manual contains important information about the safe installation and use of a projector. Please read and follow these instructions carefully and keep the manual in a safe place for future reference.

PR LIGHTING LTD.

http://www.pr-lighting.com

INDEX

ACCESSORIES

The following items are supplied with the projector and please check:

Name	Quantity	Unit	Remark
G clamp	2	Pcs	
XLR Connectors	1	Set	5 pins male and female
Safety cord	1	Pc	
User manual	1	Pc	
Ω clamps	2	Pcs	Optional

Please note that as part of our ongoing commitment to continuous product development, specifications are subject to change without notice. Whilst every care is taken in the preparation of the manual we reserve the right to change specifications in the course of product improvement. The publishers cannot be held responsible for the accuracy of the information herein, or any consequence arising from them.

Every unit is tested completely and packed properly by the manufacturer. Please make sure the packing and / or the unit are in good condition before installation and use. Should there be any damage caused by transportation, consult your dealer and do not use the unit. Any damage caused by improper use will not be assumed by the manufacturer and / or dealer.

Any future technical change in the user manual won't be with any notice.

Note: For the products made by Guangzhou PR lighting Ltd, the warranty for the whole product is one year starting from the delivery date but the light source is not within the warranty.

1. SAFETY AND WARNINGS

NOTE

Before a projector's installation, power-on, operation and maintenance, please carefully read the safety information hereinafter!

The following safety signs are used in the user manual.

Warning	User Manua	Electrical shock	Goggles	Protective Gloves	Flames	High Temperature

When unpacking , check if there is transportation damage before using the projector. Should there be any damage caused by transportation, consult your dealer and do not use it.
●The manufacture is not responsible for loss caused by the user not following the manual or changing the projector as he/she likes.
●Please be noted that the damage caused by changing the projector at will is not warranted..
●Do not hesitate to contact the dealer or the manufacturer if any questions or advice.

●The projector is for indoor use only, IP20.
●Use only in dry locations. Keep this unit away from rain and moisture, excessive heat, humidity and dust. Do not allow contact with water or any other liquids.
●The projector should be kept away from high temperature, fire, electrical surge, vibration and strong light while being operated.
●The projector is only intended for installation, operation and maintenance by qualified personnel. And the operation must strictly follow the procedures in the manual.
●No repairable parts in the projector and do not open covers for maintenance by yourself.

●Don't look straightly into the light sources especially for epileptics, otherwise eyes will be burned.
●Do not connect this device to any type of dimmer pack.
●After lamp switched on, the minimum distance between the projector and illuminated surface is 18m.
●lens and other optical parts shall be replaced immediately if they have deformed or been damaged, otherwise the light output will be compromised.

●Before operation, please confirm that all covers(housing) are on and screws tightened. It's forbidden to use a projector while covers(housing)are off.
●Keep the lamp clean and do not touch it with bare hands.
●While operating it, wear protective items.

●Any electrical connection must be carried out by a qualified person .
●Before installation, please confirm the voltage supplied matches what is required for the projector.
●Each projector must be properly earthed and installed as per related electrical standards.
●Do not use power cord with its insulator damaged and connect the power cord with other cables.
●If the projector is not used or under cleaning,, please hold the plug and unplug it. Do not unplug it forcefully or by pulling the power cable.
●All power cords must confirm to related safety and regulations.
●While being operated, the projector should not be under rains or in humidity.
●Do not switch on and off the projector constantly in very short intervals, otherwise the light source's and other electrical parts' life will be shortened .

●There are safety cord holes at the bottom of the base of a projector. In view of safety, please run the safety cord supplied through the safety cord holes for safety support.
●Before any installation, maintenance and cleaning work, please ensure the projector is disconnected from

power mains.

● After running for 30minutes, the temperature of the housing of the projector is 45℃.After stable operation , its temperature is90℃.
● While the lamp is stricken for the first time, there will be smoke and strange smell. It's normal and does not mean the projector has some defects.

● Do not mount the projector directly on inflammable surface..
● Do not project the beam straightly on combustible items and the minimum distance between the projector and illuminated items is 18m.
● A projector should be installed with good ventilation and the minimum distance between the projector and walls is 50cm. At the same time, please ensure the fans and air inlets and outlets are workable.

2.   INSTRUCTIONS
●CLEANING AND MAINTENANCE

If a projector can't start. Please check if the fuse is blown up. If it does, replace it with a new fuse with same ratings. And the projector has over-temperature protective device. If the temperature is too high, the protective device will be triggered to shut the projector off. When it happens, please check if the fans run normally or fan shield is blocked by dust. After the issue is solved, restart the projector.

The accumulation of oil, smoke and dust on the lens will compromise the light output. Cleaning a projector is very necessary to ensure a reliable use of it. Cooling fans need to be cleaned every 15days. Internal lens, reflector and hot mirror need to be cleaned periodically to optimize light output.

Cleaning frequency is to be decided by operations and its environment. Use soft cloth and normal detergent for glass for cleaning work. It's advised external optical system be cleaned every 20days and internal optical systems every 30/60days. Keep lens clean and do not touch optical parts with bare hands.

● Before any maintenance and cleaning, please ensure the project is off the power.
● Only qualified person is allowed to do maintenance.
● During maintenance and before maintenance, the projector must be off power.

● To avoid internal damage, sun light or other light mustn't penetrate into the projector via front lens whether it runs or not.
● Do not use alcohol or other organic solvent to clean the housing to avoid damage.
● Do not use any solvent with chemical elements to clean color filters or hot mirror.

●LUBRICATION

To ensure smooth movement of gobos and zoom and focus lens, it's advised rotators' bearings and 4 slide rails for zoom and focus lens be lubricated every 2 months. High quality and high temperature lubricant/grease is advised.

●TROUBLESHOOTING

| PROBLEM	ACTION
The projector doesn't switch on	➢ Check the fuse on the power socket. ➢ Check the lamp.
The lamp is on but the projector doesn't respond to the controller	➢ Make sure that the fixture's start address is right ➢ Replace or repair the XLR signal cable.
The projector functions intermittently	➢ Make sure the fan is working well or fans and their shields are not blocked
Beam appears dim, Low in brightness	➢ Make sure the lamp is within its lifespan. ➢ Remove dust or grease from the lenses.
The project image appears to have a halo	➢ Carefully clean the lamp, optical lenses and other components.
Heavily Defective Beam	➢ Check if lens are in good condition(not cracked). ➢ Clean dust or grease on the lens.

3. APPEARANCE

① Front Lent
② Front Cover
③ Back Cover
④ Arm Side
⑤ Pan Latch
⑥ Tilt Latch
⑦ Lamp Chamber Cover
⑧ Base Handle
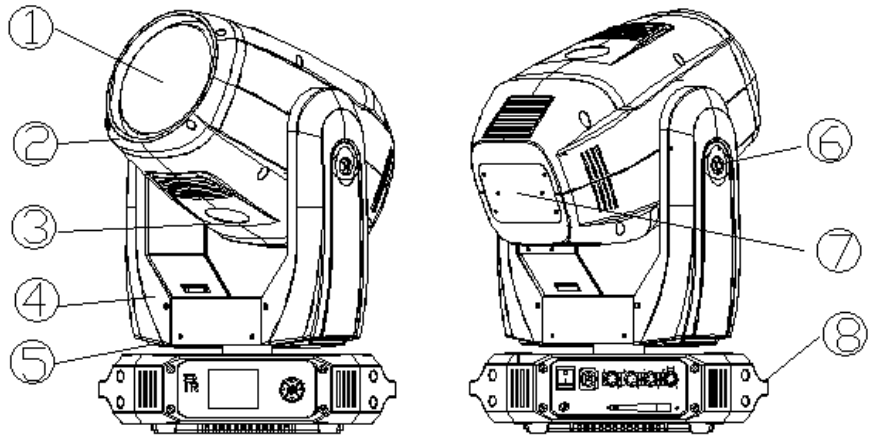
While transportation, the head should be locked-Tilt Latch(6) and Pan Latch(5) should be at locking positions. Before the use of the projector, unlock both.
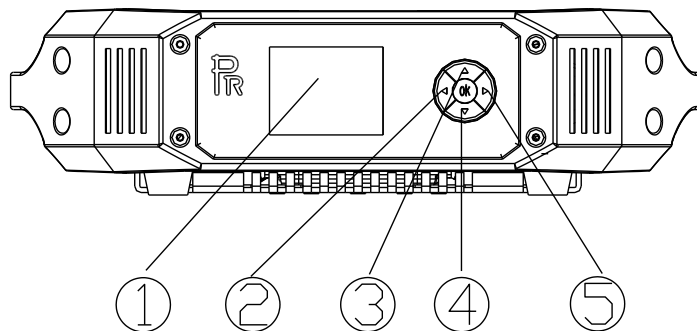
Rear Panel of the Base
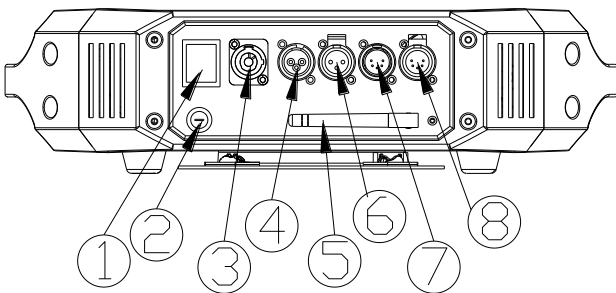
1. Power Switch
2. Fuse Holder
3. Power Socket
4. 3-Pin XLR Socket(Male)
5. Wireless Antenna
6. 3-Pin XLR Socket(Female)
7. 5-Pin XLR Socket(Male)
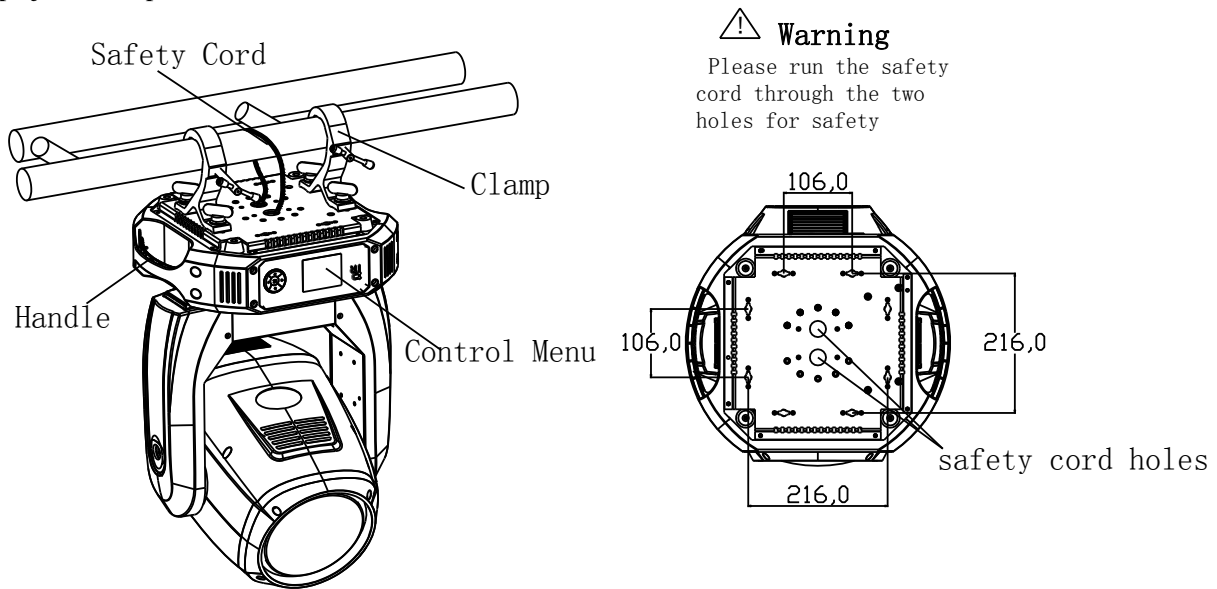8. 5-Pin XLR Socket(Female)

Front Panel of the Base

① Touch Screen
② Escape/Left Key
③ Up key
④ Down Key
⑤ Right Key

4. INSTALLATION

●RIGGING

Before moving a projector, Please lock Pan and Tilt. Before its operation, please unlock them. It's forbidden to run a projector with power while it is locked.

Safety Cord

Clamp

Handle

Control Menu

⚠ Warning

Please run the safety cord through the two holes for safety

106,0

106,0

216,0

216,0

safety cord holes

Take 2 clamps and the safety cord out from the package and mount 2 clamps on the underside of fixture with 2 retainers attached to each clamp. Hang the fixture on the structure and fasten the screws attached to each clamp. (See the **WARNING** on the underside of the base as shown above) **To pass the SAFETY CORD through the HOLES for safety!** Always ensure that the projector is firmly anchored to avoid vibration and slipping whilst functioning. Always ensure that the structure that you are going to mount the projector to is secure and strong enough to support the weight of a Phantom.

WARNING:
●The projector MUST be lifted or carried by the HANDLES instead of clamps.
●For safety the safety cord should afford 10 times the Projector's weight.
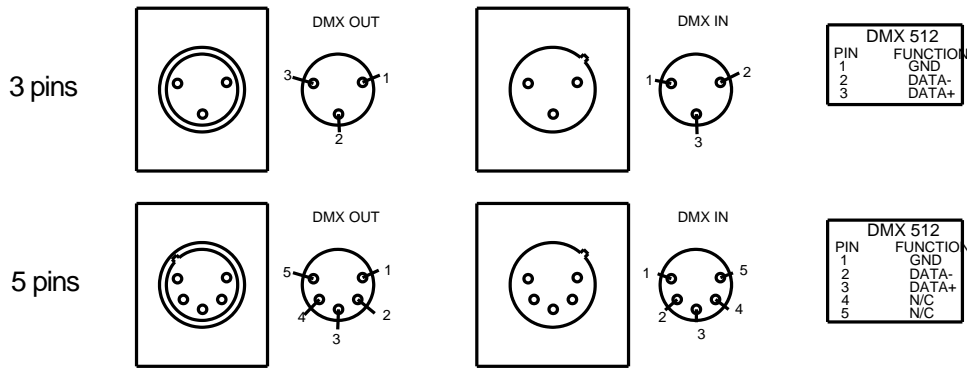
● POWER CONNECTION

Connect the power cord as follows:
L (live) =brown
E (earth) =yellow/green
N (neutral) =blue

Before power connection, please ensure the power supplied must match what the nameplate says. It is recommended that each projector be connected with power separately so that they may be individually switched on and off.

●**The earth wire(yellow/green) must be connected to the ground. And electrical connection must be in accordance with the standards concerned.**
●**If any questions about the electrical installation, do not continue but consult a qualified electrician.**
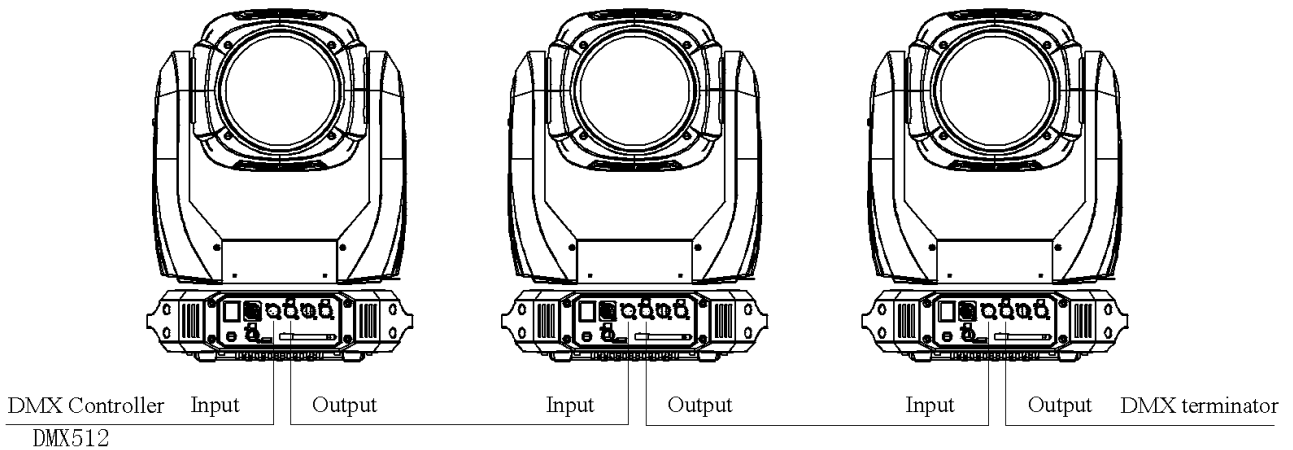
•DMX CONTROL CONNECTION:

3 pins

DMX OUT — 3, 1, 2

DMX IN — 1, 2, 3

DMX 512	
PIN	FUNCTION
1	GND
2	DATA-
3	DATA+

5 pins

DMX OUT — 5, 1, 4, 2, 3

DMX IN — 1, 5, 2, 4, 3

DMX 512	
PIN	FUNCTION
1	GND
2	DATA-
3	DATA+
4	N/C
5	N/C

Connection between controller and projector and between one projector and another must be made with a twin-screened cable, with each wire having at least a 0.5mm in diameter. Connection to and from the projector is via cannon 5 pin (which are included with the projector) or 5 pin XLR plugs and sockets. The XLR's are connected as shown in the figure above.

Note: care should be taken to ensure that none of the pins touch the metallic body of the plug or each other. XLR plugs and sockets mustn't be connected in any way other than mentioned in the above figure. The projector accepts digital control signals in protocol DMX512 (1990).
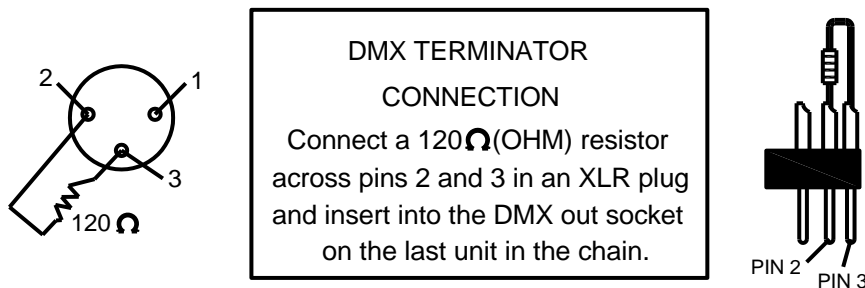
Connect the controller's DMX output to the first fixture's DMX input, and connect the first fixture's DMX output to the second fixture's DMX input and connect the rest fixtures in the same way. Eventually connect the last fixture's DMX output to a DMX terminator as shown in the figure below.

DMX Controller   Input   Output   Input   Output   Input   Output   DMX terminator
DMX512

•DMX TERMINATOR
In the Controller mode, at the last fixture in the chain, the DMX output has to be connected with a DMX terminator. This prevents electrical noise from disturbing and corrupting the DMX control signals.
The DMX terminator is simply an XLR connector with a 120Ω (ohm) resistor connected across pins 2 and 3, which is then plugged into the output socket on the last projector in the chain. The connections are illustrated below.

DMX TERMINATOR
CONNECTION
Connect a 120 Ω (OHM) resistor across pins 2 and 3 in an XLR plug and insert into the DMX out socket on the last unit in the chain.

PIN 2   PIN 3

•ALIGNMENT/INSTALLATION/REPLACEMENT OF A LAMP
Lock the yoke before fitting/replacing the lamp. Just as Shown by Figure 1, after opening the cover at the rear of the projector by loosening 4 fastfit screws, you can open the head.
To adjust the lamp as per Figure 2.
Take out the lamp as per the figure 3.

Before removing the lamp, unplug its power wires. After the lamp in, plug its power wires.

⚠️
- Don't touch the internal surface of the reflector and the burner of the lamp with bare hands so as not to impair the beam output. While lamp's installation, do not damage the metal wire around the burner.
- Please read "Instructions " enclosed with the lamp.
- Do not operate the projector while adjusting the lamp.
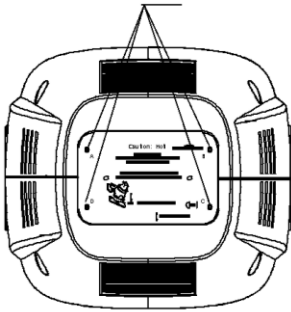
Figure1:Remove the lamp chamber cover after loosening 4 screws labeled as A,B,C,D.

Figure2: Unplug the lamp wires ,loosen 4 pieces of spring screws for lamp tightening plate,adjust both adjusting rods on top and bottom to ensure that lamp clipping plate is away from the center of the lamp to the biggest extent, then push the lamp towards the spring. Take the lamp out obliquely after it is out of the tightening plate below, and lamp installation is same.
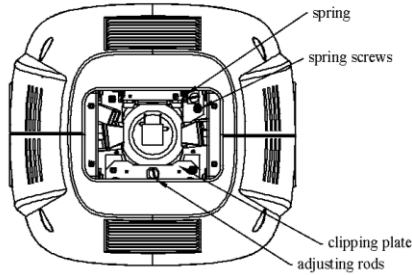
Figure3: After the lamp is in place, please check if the lamp is tightened well, then plug its wires and turn on the lamp.Use a flat screw driver to adjust the central position of the lamp upward,downward, rightwards, and leftwards as per the labeling.After the adjustment, lock the back cover the lamp chamber.

spring
spring screws
clipping plate
adjusting rods

rightwards&leftwards
upwards&downwards
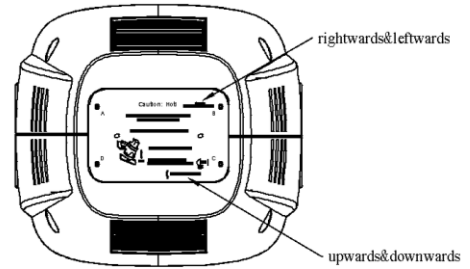
- **GOBO REPLACEMENT**

Rotating gobo replacement: Open the head cover, and push the rotator of which its gobo needs to be replaced, out of the rotating gobo wheel. After the rotator is sliding out of the wheel, pull it gently. After the gobo replaced, insert the rotator into the wheel and ensure it is secured and not loose.
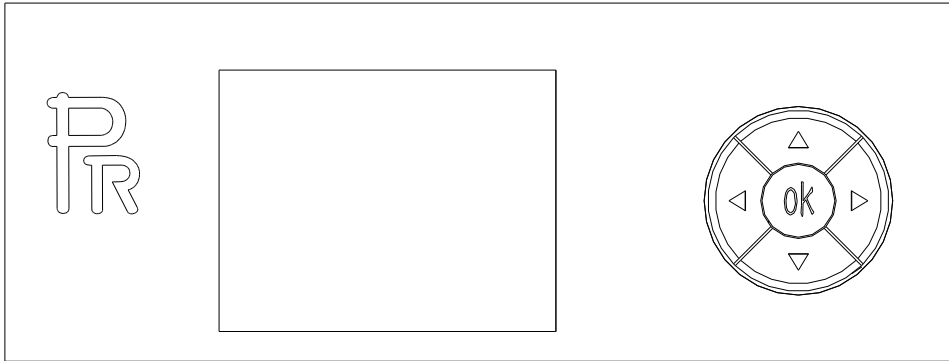

Rotating Gobo Wheel
Rotator
Gobo
Gobo Pressure Spring
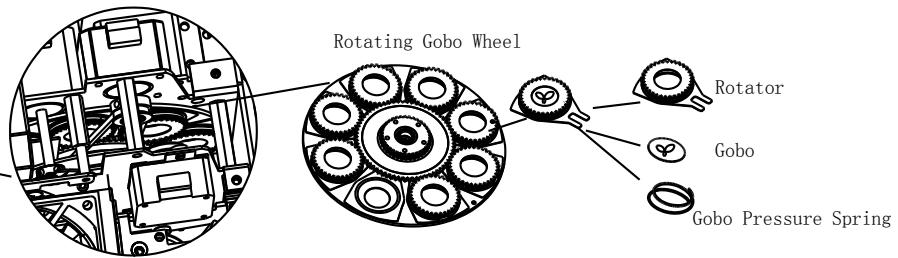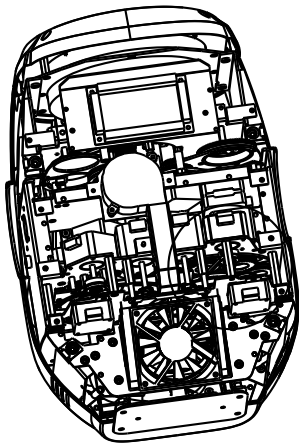
⚡ **DANGER!**

Before replacement of gobos, the projector must be off the power completely.

5. SETUP AND CONFIGURATION
●Front Panel Operation

The projector configuration can be set conveniently via push buttons and color touch screen.

To browse through or change the projector 's settings, touch the white area of the touch screen or press OK button for more than 3s(Only powered by the battery, pressing the OK button) to unlock the screen , then press ▶ key to enter the projector 's function menus. Each main menu has its sub-menus. And each menu stands for special function. For the details, please see the following 6th point "Operation Menu".:

1. At the page to set the fixture's functions, press ◀,▶,▲,▼ keys or their respective icons to select the functions desired.

2. While at 2nd,3rd and 4th level of menus, the ◀ key is for ESCAPE, but ▶ key won't work, and OK key is used for ENTER. Press OK key to save the changes or enter into the sub menus. Press ▲ or ▼ keys to change the numbers(minus or plus). Or touch the option needed for change.

   Shortcut keys: After the Function Menu is entered into, there are all options for the functions on the top of the screen. On the right there are 4 shortcut keys like ←,→ Lamp Control and English/Chinese.

● DMX START ADDRESS

Each projector must be given a DMX start address so that the correct projector responds to the correct control signals. This DMX start address is the channel number from which the projector starts to "listen" to the digital control information being sent out from the controller. The projector has 3DMX modes. There are standard mode ,short mode and extended mode. For example standard mode has 30 channels, so set the No. 1 projector's address 001, No. 2 projector's address 031, No. 3 projector's address 061,No. 4 projector's address 091, and so on.

Switch on the Projector . Press OK key more than 3 seconds to unlock panel, then press ▶ key to enter into the fixture's operation menus.

Select DMX Address icon and press OK key or touch the icon directly on the display and select DMX address at the 2nd level menu for the address setting.

Press ▲ or ▼ keys or touch<、>displayed for the DMX address desired.

Press OK key to confirm.

Press the ◀ key to go back to the upper level menu.

.

●DMX WIRELESS CONTROL
The projector has wireless control function with wireless receiver module and antenna for remote control.

The setup of it is below:

1. Press OK for more than 3s to unlock the control panel, then press ▶ key to enter into the operation menu and select "Config Settings".

2. Select "Wireless First" or "Wireless Only" from the menu of "Signal Select".

   Only after the projector is linked with a transmitter, can it receive wireless signal sent by the transmitter. If unlinking it,

Press "Enter" for the menu of Un-link Wireless under the upper level menu of Config Settigns , then the fixture is unlinked with the wireless transmitter.

●**STAND-ALONE MODE**

Operate the projector without connecting with a controller, enable the master mode through the operation panel, the projector will run in Stand-Alone mode automatically.

DMX address can be set at any number within 512.

●**MASTER/SLAVE MODE**

Many projectors can run synchronously in the Master/Slave mode by linking them with each other. First, connect the first fixture's DMX output to the second fixture's DMX input using XLR-XLR control cable and then connect the second fixture's DMX output to the third fixture's DMX input, and so on until all projector are connected in this way. Eventually connect the last fixture's DMX output to a DMX terminator. Set 1st projector as the master and others are Slaves.

Start Addresses of all Slaves are 001; Operation mode of the Master can be set any mode for a Master' and Slaves' operation mode can be set accordingly.

After Powered on, the group will run in Master/Slave Mode.
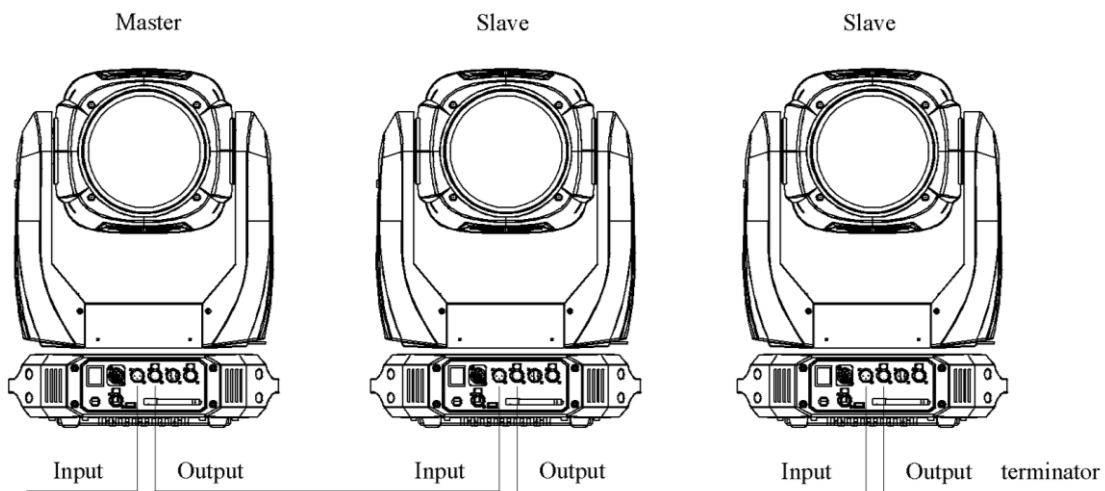
6. OPERATION MENU

1st LEVEL	2nd LEVEL	3rd LEVEL	4th LEVEL	5th LEVEL
Address	DMX Address	1-512		
Reset	Total Reset	Really Reset? Confirm or Cancel		
	Pan&Tilt Reset	Really Reset? Confirm or Cancel		
	Colour System Reset	Really Reset? Confirm or Cancel		
	Gobo Reset	Really Reset? Confirm or Cancel		
	Dimmer/Shutter reset	Really Reset? Confirm or Cancel		
	Zo. Fo. Fr. Pr. Reset	Really Reset? Confirm or Cancel		
	DMX Channel Mode	Short Mode		

Config Settings		Standard Mode		
		Extended Mode		
		View Selected Mode	Ch.01 Strobe Ch.02 Dimmer Ch.03 CYM Macro Ch.04 Cyan Ch.05 Yellow Ch.06 Magenta Ch.07 CTO Ch.08 Color Wheel Ch.09 Fixed Gobo Wheel Ch.10 Rot. Gobo Wheel1 Ch.11 Rot. Gobo1 Rotation Ch.12 Effect Wheel Ch.13 Effect Wheel Rotation Ch.14 Prism1 Ch.15 Prism1 Rotation Ch.16 Prism2 Ch.17 Prism2 Rotation Ch.18 Focus Ch.19 Zoom Ch.20 Pan Ch.21 Tilt Ch.22 Power/Special Fun. Ch.23 Lamp Fan Ch.24 Lamp Fan2 Ch.25 Ceramic Fan	
	Lamp Control	Lamp Control	OFF/ ON	
		On By Power On	OFF/ ON	
		Control By DMX	OFF/ ON	
		Lamp Half Power	OFF/ ON	
	Signal Select	XLR Only		
		XLR First		
		Wireless Only		
		Wireless First		
		Wireless In/XLR Out		
	Loss of DMX	Normal time out		
		Hold Last Value		
	Display Config	Display Mode	Off After Delay	
			On Always	
		Display Invert	Invert OFF	
			Invert ON	

			Invert Auto	
		Language Setting	English\Chinese	
		Touch Calibration		
	Temperature Unit	Celsius Degree		
		Fahrenheit Degree		
	Un-Link Wireless	Really Un-Link? Confirm or Cancel		
	Defaults	Restore Defaults? Confirm or Cancel		
Option Settings	Pan/Tilt Settings	Pan DMX Invert	OFF/ ON	
		Tilt DMX Invert	OFF/ ON	
		Pan Tilt Swap	OFF/ ON	
		XY Feedback	OFF/ ON	
		Pan/Tilt mode	Speed/Time	Note: "Speed Mode" means Pan and Tilt will move from Point A to Point B at their respective maximum speeds."Time Mode" means both Pan and Tilt will arrive at designated point at the same time. It's advised Time Mode be used if the projector runs circles or in oblique lines.
	Invert Settings	Dimmer Invert	OFF/ ON	
		Zoom Invert	OFF/ ON	
		CYM Invert	OFF/ ON	
	Defaults	Restore Defaults? Confirm or Cancel		
Information	View DMX Values	Channel　　　　　Value Strobe　　　　　XXX Dimmer　　　　　XXX CYM Macro　　　XXX Cyan　　　　　　XXX Yellow　　　　　XXX Magenta　　　　XXX CTO　　　　　　XXX Color Wheel　　XXX Fixed Gobo Wheel XXX Rot. Gobo Wheel1 XXX Rot. Gobo1 Rotation XXX Effect Wheel　　XXX Effect Wheel Rotation XXX Prism1　　　　　XXX Prism1 Rotation　XXX Prism2　　　　　XXX Prism2 Rotation　XXX		

		Focus XXX Zoom XXX Pan XXX Tilt XXX Power/Special Fun. XXX Lamp Fan XXX Lamp Fan2 XXX Ceramic Fan XXX		
	Lamp Hours	XXX H Reset Lamp Hours		
	Total Hours	××××H		
	Temperature	Display Board=×××C Pan & Tilt board=×××C Driver Board1=×××C Driver Board 2=×××C Driver Board 3=×××C Head Sensor=×××C		
	Software Version	PCB Sys Boot Display Board xxx xxx Pan & Tilt board xxx xxx Driver Board1 xxx xxx Driver Board 2 xxx xxx Driver Board 3 xxx xxx		
	Electronic SN	XXXXXX		
	RDM Device Label	XR 440 B BWS ANSI E1.20 RDM		
	Fan Status	Fan Speed Status Lamp Fan xxx on/off Lamp Fan2 xxx on/off Ceramic Fan xxx on/off CYM Fan xxx on/off Head Fan xxx on/off Head Fan2 xxx on/off Basic Fan xxx on/off		
	Acceleration Sensor	X Axis: XXX Y Axis: XXX Z Axis: XXX		
Service	Manual Effect Control	Strobe XXX Dimmer XXX Dimmer Fine XXX CYM Macro XXX Cyan XXX Cyan Fine XXX Yellow XXX Yellow Fine XXX Magenta XXX Magenta Fine XXX CTO XXX CTO Fine XXX Color Wheel XXX Color Wheel Fine XXX Fixed Gobo Wheel XXX Rot. Gobo Wheel 1 XXX Rot. Gobo1Rotation XXX Rot. Gobo1Rotation F. XXX Effect Wheel XXX Effect Wheel Rotation XXX Prism 1 XXX Prism 1 Rotation XXX Prism 2XXX Prism 2 Rotation XXX		

		Focus XXX		
		Focus Fine XXX		
		Zoom XXX		
		Zoom Fine XXX		
		Pan XXX		
		Pan Fine XXX		
		Tile XXX		
		Tilt Fine XXX		
		Pan & Tilt Speed &Time XXX		
		Power/ Special Fun. XXX		
		Lamp Fan XXX		
		Lamp Fan2 XXX		
		Ceramic Fan XXX		
	Position Calibrations	XXX		
		...		
Operation Mode	DMX Mode	Change Operation Mode? Confirm or Cancel		
	Master Mode	Preset Memory	Change Operation Mode? Confirm or Cancel	
		User Memory 1	Change Operation Mode? Confirm or Cancel	
		User Memory 2	Change Operation Mode? Confirm or Cancel	
	Stand-Alone Mode	Preset Memory	Change Operation Mode? Confirm or Cancel	
		User Memory 1	Change Operation Mode? Confirm or Cancel	
		User Memory 2	Change Operation Mode? Confirm or Cancel	
	Static Scene	Change Operation Mode? Confirm or Cancel		
User Memories	Edit User Memory	Edit User Memory 1 / Edit User Memory 2	（1~200Scenes） Scene XX （1~200 Scenes）	Strobe XXX
				Dimmer XXX
				Dimmer Fine XXX
				CYM Macro XXX
				Cyan XXX
				Cyan Fine XXX
				Yellow XXX
				Yellow Fine XXX
				Magenta XXX
				Magenta Fine XXX
				CTO XXX
				CTO Fine XXX
				Color Wheel XXX
				Color Wheel Fine XXX
				Fixed Gobo Wheel XXX
				Rot. Gobo Wheel 1 XXX
				Rot. Gobo1Rotation XXX
				Rot. Gobo1Rotation F. XXX
				Effect Wheel XXX
				Effect Wheel Rotation XXX
				Prism 1 XXX
				Prism 1 Rotation XXX

				Prism 2XXX
				Prism 2 Rotation XXX
				Focus XXX
				Focus Fine XXX
				Zoom XXX
				Zoom Fine XXX
				Pan XXX
				Pan Fine XXX
				Tile XXX
				Tilt Fine XXX
				Pan & Tilt Speed &Time XXX
				Power/ Special Fun. XXX
				Delay Time XXX
				Delay Unit XXX
				Link to Step XXX
		Edit Static Scene	Strobe XXX	
			Dimmer XXX	
			Dimmer Fine XXX	
			CYM Macro XXX	
			Cyan XXX	
			Cyan Fine XXX	
			Yellow XXX	
			Yellow Fine XXX	
			Magenta XXX	
			Magenta Fine XXX	
			CTO XXX	
			CTO Fine XXX	
			Color Wheel XXX	
			Color Wheel Fine XXX	
			Fixed Gobo Wheel XXX	
			Rot. Gobo Wheel 1 XXX	
			Rot. Gobo1Rotation XXX	
			Rot. Gobo1Rotation F. XXX	
			Effect Wheel XXX	
			Effect Wheel Rotation XXX	
			Prism 1 XXX	
			Prism 1 Rotation XXX	
			Prism 2XXX	
			Prism 2 Rotation XXX	
			Focus XXX	
			Focus Fine XXX	
			Zoom XXX	
			Zoom Fine XXX	
			Pan XXX	
			Pan Fine XXX	
			Tile XXX	
			Tilt Fine XXX	
			Pan & Tilt Speed &Time XXX	
			Power/ Special Fun. XXX	
			Delay Time XXX	
			Delay Unit XXX	
			Link to Step XXX	
	Init User Memory	Reset User Memory 1	Reset User Memory? Confirm or Cancel	
		Reset User Memory 2	Reset User Memory? Confirm or Cancel	
		Reset Static Scene	Reset Static Scene? Confirm or Cancel	

7. DMX PROTOCOL

Short mode	Standard mode	Extended Mode	FUNCTION	DMX	DESCRIPTION
1	1	1	Strobe	000-010	Close
				011-025	Open
				026-225	Strobe speed from slow to fast
				226-246	Random strobe from slow to fast
				247-255	Open
2	2	2	Dimmer	000-005	Close
				006-255	Linear dimming （0-100%）
	3	3	Dimmer Fine	000-255	Dimmer in 16 bit
3	4	4	CYM Macro	000-016	White
				017-035	Yellow+ Magenta=Red
				036-054	Yellow
				055-073	Yellow +Cyan=Green
				074-092	Cyan
				093-111	Cyan + Magenta= Violet
				112-128	Magenta
				129-255	CYM color mixing from slow to fast
4	5	5	Cyan	000-255	Cyan (linear 0~100%)
		6	Cyan Fine	000-255	Cyan in 16 Bit
5	6	7	Yellow	000-255	Yellow (linear 0~100%)
		8	Yellow Fine	000-255	Yellow in 16 Bit
6	7	9	Magenta	000-255	Magenta (linear 0~100%)
		10	Magenta Fine	000-255	Magenta in 16 Bit
7	8	11	CTO	000-005	White
				006-024	Diffuser
				025-255	CTO (linear 0~100%)
		12	CTO Fine	000-255	CTO in 16 Bit
8	9	13	Color Wheel	0-63	Indexing(0-360degrees)
				64-68	Color1(Red)
				69-73	Color2(Light Green)
				74-78	Color3(Blue)
				79-83	Color4(Cyan)
				84-88	Color5(Yellow)
				89-93	Color6(Magetna)
				94-98	Color7 （Orange）
				99-103	Color8(Green)
				104-108	Color9(Dark Blue)
				109-113	Color10(UV)
				114-118	Color11(Light Yellow)
				119-123	Color12(Dark Yellow)
				124-127	White
				128-191	Rotation ,Clockwise from slow to fast
				192-255	Rotation ,Anti-Clockwise from fast to slow

	10	14	Color wheel Fine	0-255	Color Wheel in 16 Bit
9	11	15	Fixed Gobo Wheel	0-19	White
				20-25	Gobo1
				26-31	Gobo2
				32-37	Gobo3
				38-43	Gobo4
				44-49	Gobo5
				50-55	Gobo6
				56-61	Gobo7
				62-67	Gobo8
				68-73	Gobo9
				74-79	Gobo10
				80-85	Gobo11
				86-91	Gobo12
				92-97	Gobo13
				98-103	Gobo14
				104-109	Gobo15
				110-115	Gobo16
				116-121	Gobo17
				122-127	Gobo18
				128-155	Clockwise rotation from slow to fast
				156-183	Anti Clockwise rotation from slow to fast
				184-187	Shake effect 1 from slow to fast
				188-191	Shake effect 2 from slow to fast
				192-195	Shake effect 3 from slow to fast
				196-199	Shake effect 4 from slow to fast
				200-203	Shake effect 5 from slow to fast
				204-207	Shake effect 6 from slow to fast
				208-211	Shake effect 7 from slow to fast
				212-215	Shake effect 8 from slow to fast
				216-219	Shake effect 9 from slow to fast
				220-223	Shake effect 10 from slow to fast
				224-227	Shake effect 11 from slow to fast
				228-231	Shake effect 12 from slow to fast
				232-235	Shake effect 13 from slow to fast
				236-239	Shake effect 14 from slow to fast
				240-243	Shake effect 15 from slow to fast
				244-247	Shake effect 16 from slow to fast
				248-251	Shake effect 17 from slow to fast
				252-255	Shake effect 18 from slow to fast
10	12	16	Rotating Gobo Wheel1	0-15	White
				16-31	Gobo 1
				32-47	Gobo 2
				48-63	Gobo 3

				64-79	Gobo 4
				80-95	Gobo 5
				96-111	Gobo 6
				112-127	Gobo 7
				128-156	Rotation （clockwise From slow to Fast）
				157-185	Reverse Rotation（anti-clockwise From slow to Fast）
				186-195	Shake of Gobo 1 from slow to fast
				196-215	Shake of Gobo 2 from slow to fast
				216-225	Shake of Gobo 3 from slow to fast
				226-235	Shake of Gobo 4 from slow to fast
				236-245	Shake of Gobo 5 from slow to fast
				236-245	Shake of Gobo 6 from slow to fast
				246-255	Shake of Gobo 7 from slow to fast
11	13	17	Gobo Rotation	000-128	Gobo Indexing(0~360degrees)
				129-188	Rotation （Clockwise From slow to Fast）
				189-195	Stop
				196-255	Rotation （Anti-Clockwise From slow to Fast）
	14	18	Gobo Rotation Fine	000-255	Gobo Rotation in 16 Bit
12	15	19	Graphic Effect Wheel	000-020	NO
				021-255	Effect Wheel In
13	16	20	Graphic Effect Wheel Rotation	0-127	Rotation from slow to fast
				128-255	Reverse Rotation from slow to fast
14	17	21	Prism Group1	000-016	Open
				017-127	Prism1
				128-255	Prism2
15	18	22	Prism Group1 Rotation	000-128	Prism Indexing
				129-191	Rotation(Clockwise from slow to fast)
				192	Stop
				193-255	Rotation(Anti- Clockwise from slow to fast)
16	19	23	Prism Group2	000-016	White
				017-127	Prism3
				128-255	Frost In
17	20	24	Prism Group2 Rotation	000-128	Prism Indexing
				129-191	Rotation(Clockwise from slow to fast)
				192	Stop
				193-255	Rotation(Anti- Clockwise from slow to fast)
18	21	25	Focus	000-255	Linear Focus
	22	26	Focus Fine	000-255	Focus in 16 bit precision
19	23	27	Zoom	000-255	Linear Zoom
	24	28	Zoom Fine	000-255	Zoom in 16 bit precision
20	25	29	Pan	000-255	Pan(0°~540°)
	26	30	Pan Fine	000-255	Pan in 16 bit precision
21	27	31	Tilt	000-255	Tilt(0°~270°)

	28	32	Tilt Fine	000-255	Tilt in 16 bit precision
	29	33	Pan & Tilt Speeds	000-255	Pan & Tilt Speed from Fast to Slow
22	30	34	Control	000-019	Reserved
					The following functions will be activated after the DMX value has been held for more than 5s. And the following settings are void if the lamp is off.
				020-024	Display On
				025-029	Display Off
				030-034	Reserved
				035-039	Lamp Half Power
				040-044	Lamp Full Power
				045-089	Reserved
				090-094	Pan & Tilt Speed Mode
				095-099	Pan & Tilt Time Mode
				100-129	Reserved
				130-139	Lamp On
				140-149	Pan & Tilt Reset
				150-159	Color System Reset
				160-169	Gobo Wheel Reset
				170-179	Dimmer/Shutter Reset
				180-189	Zoom/Frost/Focus/Prism Reset
				190-199	Reserved
				200-209	Total Reset
				210-229	Reserved
				230-239	Lamp Off
				240-255	Reserved

1. The projector can't be turned on within 1 minute after the lamp-off.

2. Fan error can cause lamp-off.

3. Note: "Speed Mode" means Pan and Tilt will move from Point A to Point B at their respective maximum speeds."Time Mode" means both Pan and Tilt will arrive at designated point at the same time. It's advised Time Mode be used if the projector runs circles or in oblique lines.

8. Logos

	Lamp Control		Option Settings
	Chinese/English		Information
	Error Messages		Service
	Address		Operation Mode
	Reset		User Memories
	Config Settings		

9.Error messages

The system can detect some errors during the reset, if ⚠ displayed, touch the logo to view the error.
The error messages are as follows:

Name	Type	Correction
Pan	Timeout/magnet Sensor/Encoder	Check if wiring, positioning parts and motors are normal
Tilt	Timeout/magnet Sensor/Encoder	Check if wiring, positioning parts and motors are normal
Cyan	Timeout	Check if wiring, positioning parts and motors are normal
Yellow	Timeout	Check if wiring, positioning parts and motors are normal
Magenta	Timeout	Check if wiring, positioning parts and motors are normal
CT	Timeout	Check if wiring, positioning parts and motors are normal
Color Wheel	Timeout	Check if wiring, positioning parts and motors are normal
Fixed gobo wheel	Timeout	Check if wiring, positioning parts and motors are normal
Rot. Gobo Wheel 1	Timeout	Check if wiring, positioning parts and motors are normal
Rot. Gobo1Rotation	Timeout	Check if wiring, positioning parts and motors are normal
Dimmer	Timeout	Check if wiring, positioning parts and motors are normal
Prism 1	Timeout	Check if wiring, positioning parts and motors are normal
Prism 1 Rotation	Timeout	Check if wiring, positioning parts and motors are normal
Prism 2	Timeout	Check if wiring, positioning parts and motors are normal
Prism 2 Rotation	Timeout	Check if wiring, positioning parts and motors are normal
Focus	Timeout	Check if wiring, positioning parts and motors are normal
Zoom	Timeout	Check if wiring, positioning parts and motors are normal
Effect Wheel	Timeout	Check if wiring, positioning parts and motors are normal
EffectWheel Rotation	Timeout	Check if wiring, positioning parts and motors are normal
Ceramic Fan	Error	Check if fan and its wiring are normal
CMY Fan	Error	Check if fan and its wiring are normal
Head Fan	Error	Check if fan and its wiring are normal
Head Fan 2	Error	Check if fan and its wiring are normal
Basic Fan	Error	Check if fan and its wiring are normal
Pan and Tilt Board	Error	Check signal wire
Driver Board 1	Error	Check signal wire
Driver Board2	Error	Check signal wire
Driver Board 3	Error	Check signal wire
Acceleration Sensor	Error	Check signal wire
Lamp on	Timeout	Check if he lamp is damaged
Lamp Life	Timeout Warning	
LampOff[Fan Error]	Error	Check if all fans are normal
Lapsed Time	Timeout	
Time IC	Error	
Lapsed time	X days	
Use hours Setting	successfully	

10. TECHNICAL DATA

INPUT VOLTAGES: 100V~240V AC，50/60Hz

RATED POWER : 690W@220V

LAMP SPECIFICATIONS:

Lamp	480W
Color Temperature	6900K
Manufacturers Rated Lamp Life	1500hours

COLORS:

1 color wheel: 12colors+ Open

Rainbow effect with bi-directional and variable speeds

Stepping/linear color changing
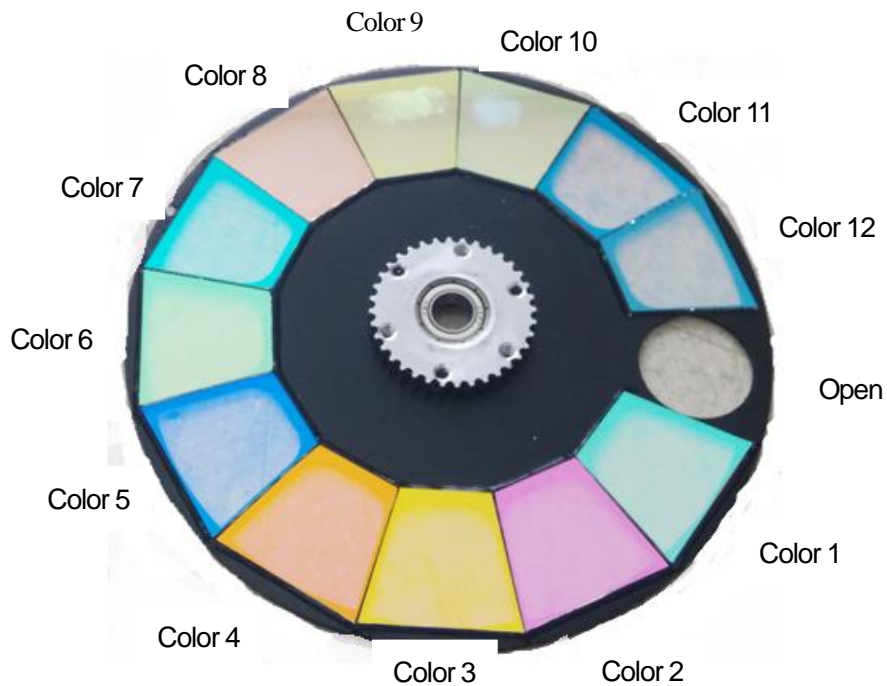
No.	Code No.	Color
1	092550001A	Red
2	092550002A	Light Green
3	092550003A	Blue
4	092550004A	Cyan
5	092550005A	Yellow
6	092550006A	Magenta
7	092550007A	Orange
8	092550008A	Green
9	092550009A	Dark blue
10	092550010A	UV
11	092550011A	Light Yellow
12	090071258	Dark Yellow

CMY COLOR MIXING SYSTEM

CMY linear color mixing with macros
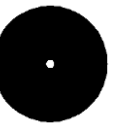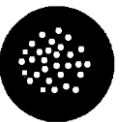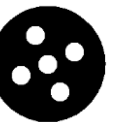
INDEPENDENT CTO SYSTEM

0-100% Linear CTO

FIXED GOBO WHEEL

1 fixed gobo wheel: 18 gobos +open

bi-directionally rotatable, and shakable at variable speeds
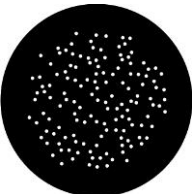
Dot	Dot2	Dot3	Dot4	Dot5	Dot6	Ping
Fan	8 Bars	Flower	Rectangles	Stars	Five Dots	Eight
Quadrangles	Steering Wheel	4 paralleled Bars	Big Dot			

ROTATING GOBO WHEEL

1 Rotating gobo wheel:7 interchangeable gobos+1white

bi-directionally rotatable, and shakable at variable speeds.

Gobo Replaceable, Gobo outer diameter: Φ22.5mm ,Gobo image diameter: Φ12mm 1.5mm thick

Gobo 1	Gobo 2	Gobo 3	Gobo 4	Gobo 5
090071250	090071256	090071255	090071254	090071253
Gobo 6	Gobo 7			
090071252	090071251			

PRISM:

3pcs of independent prisms (STD setup: 2 8-facet Prisms and 1 4-facet linear prism):Bi-directional rotation with variable speeds(options: 3-facet, 16- facet prism, liner prisms, gradient prism)

GRAPHIC EFFECT WHEEL:

1 graphic effect wheel, bi-directional rotation with variable speeds, overlap with fixed gobos and rotating gobos.

FROST : 1pc frost filter

FOCUS: DMX linear Focus

ZOOM: DMX linear Zoom

DIMMER/STROBE: 0-100% linearly adjustable/ Double shutter blades, 0.3~25 F.P.S

HEAD MOVEMENT: Pan 540 °, Tilt 270 °with auto position correction

BEAM ANGLE:

Beam Effect: Beam angle 0 °–   2.9 °, linear adjustment

Spot Effect: Beam angle 2.9 °–   60 °, linear adjustment

Wash Effect: Beam angle 10 °–   60 °, linear adjustment

CONTROL:

International DMX512 Signal, 3 pin and 5 pin interfaces

22channels in short mode, 30channels in standard mode and 34channels in extended mode

Self-test mode

OTHER FUNCTIONS:

Adjustable Pan & Tilt speed

Lamp's and fixture's hours displayed

Modular Structure for easy maintenance

DMX512 wirless reciever

Optional DMX512 Wireless Transmitter

HOUSING: High temperature ABS, IP20

WEIGHT

Net weight**:**   25Kg
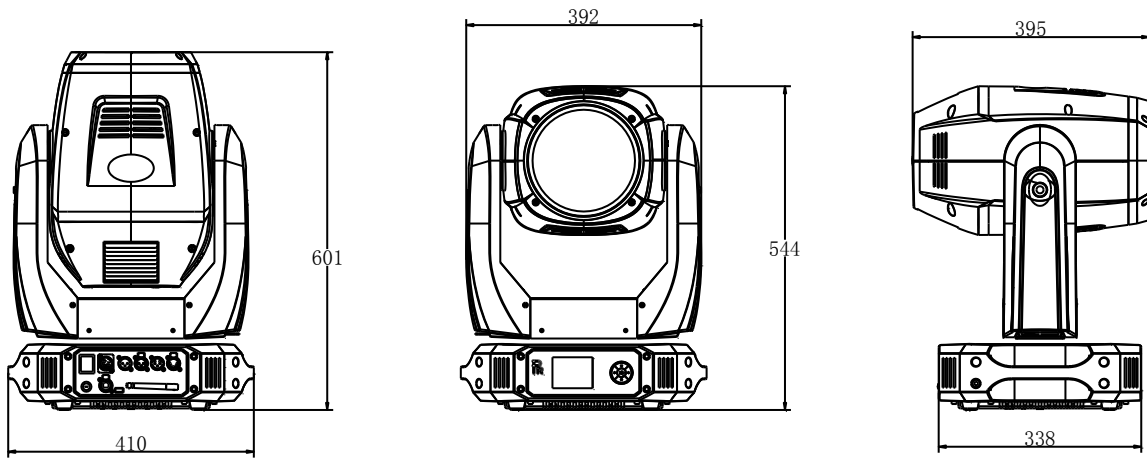
Gross weight**:** 84.6Kg   in flight   case(2pcs/case) and accessories

                    29.3Kg   in carton(1pc/ctn)   and accessories
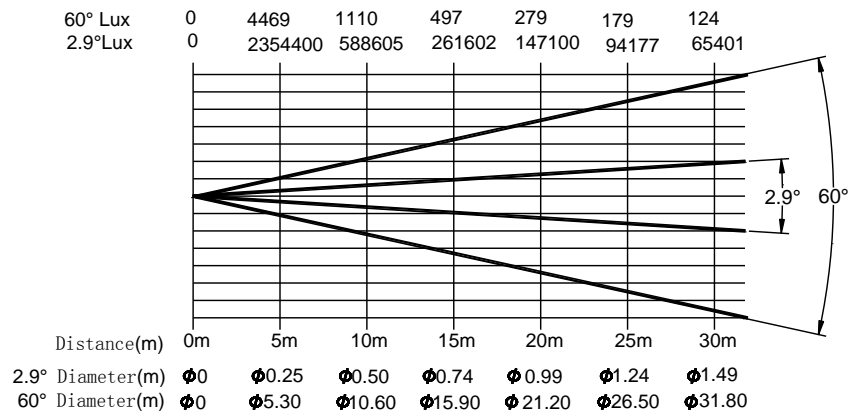
WORKING TEMPERATURE:

Maximum ambient temperature: 40 ℃

SIZES:

LIGHT OUTPUT:

Beam、Spot mode

60° Lux	0	4469	1110	497	279	179	124
2.9°Lux	0	2354400	588605	261602	147100	94177	65401

2.9° 60°

Distance(m)	0m	5m	10m	15m	20m	25m	30m
2.9° Diameter(m)	Φ0	Φ0.25	Φ0.50	Φ0.74	Φ0.99	Φ1.24	Φ1.49
60° Diameter(m)	Φ0	Φ5.30	Φ10.60	Φ15.90	Φ21.20	Φ26.50	Φ31.80

Wash mode

60° Lux	0	2958	740	329	185	118	82
10° Lux	0	40288	10072	4476	2518	1612	1119

10° 60°

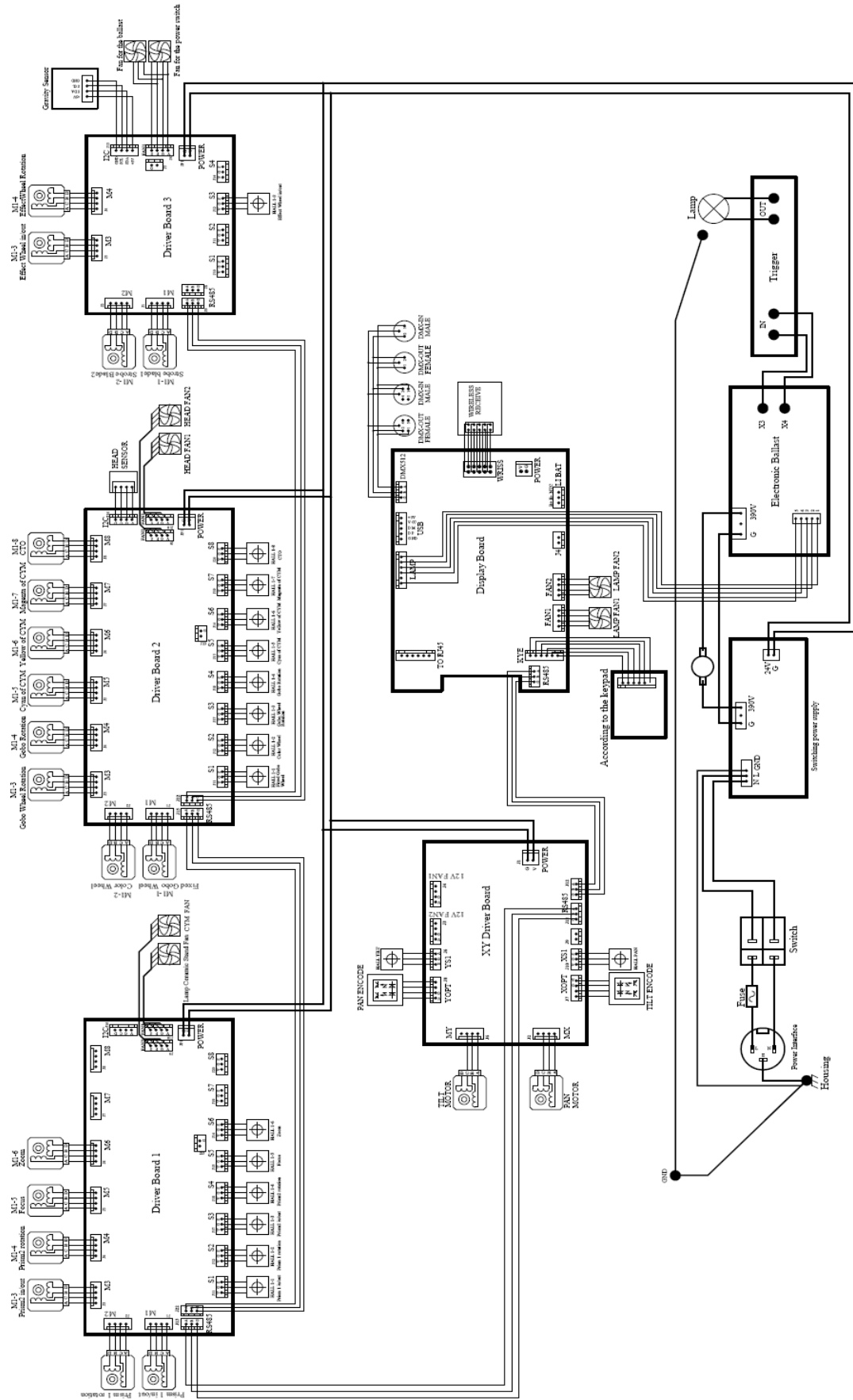| Distance(m)	0m	5m	10m	15m	20m	25m	30m
10° Diameter(m)	Φ0	Φ0.89	Φ1.77	Φ2.66	Φ3.55	Φ4.43	Φ5.32
60° Diameter(m)	Φ0	Φ5.32	Φ10.63	Φ15.95	Φ21.26	Φ26.58	Φ31.89

11. CIRCUIT DIAGRAM AND PCB CONNECTIONS
.CIRCUIT DIAGRAM

•PCB CONNECTIONS

• 8 channel board1：P/N230060609
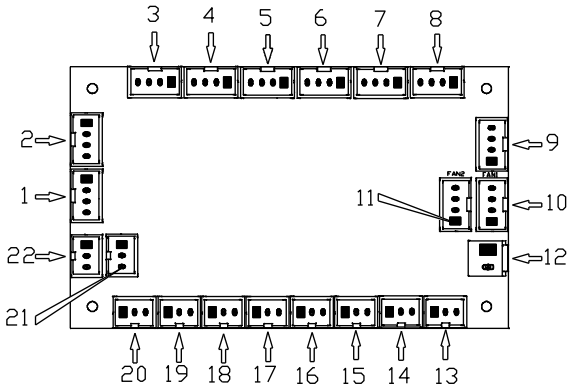
8 channel board1				
1	M1-1 Motor	12	24V power input
2	M1-2 Motor	13	Reserved
3	M1-3 Motor	14	Reserved
4	M1-4 Motor	15	HALL1-6 Magnet Sensor
5	M1-5 Motor	16	HALL1-5 Magnet Sensor
6	M1-6 Motor	17	HALL1-4 Magnet Sensor
7	Reserved	18	HALL1-3 Magnet Sensor
8	Reserved	19	HALL1-2 Magnet Sensor
9	Reserved	20	HALL1-1 Magnet Sensor
10	Lamp ceramic stand fan	21	Signal output
11	CYM Fan	22	Signal Input

• 8 channel board 2：P/N230060610
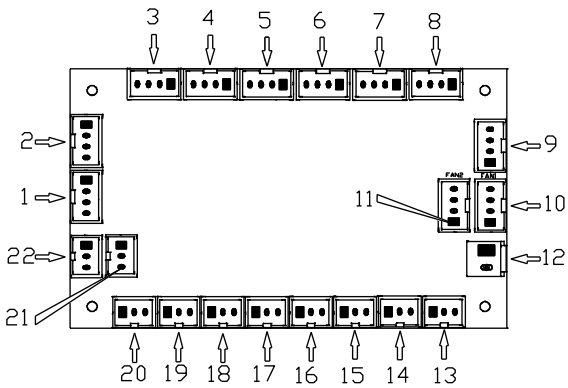
8 channel board 2				
1	M2-1 Motor	12	24V power input
2	M2-2 Motor	13	HALL2-8 Magnet Sensor
3	M2-3 Motor	14	HALL2-7 Magnet Sensor
4	M2-4 Motor	15	HALL2-6 Magnet Sensor
5	M2-5 Motor	16	HALL2-5 Magnet Sensor
6	M2-6 Motor	17	HALL2-4 Magnet Sensor
7	M2-7 Motor	18	HALL2-3 Magnet Sensor
8	M2-8 Motor	19	HALL2-2 Magnet Sensor
9	Thermal Sensor	20	HALL2-1 Magnet Sensor
10	Head Fan 1	21	Signal output
11	Head Fan 2	22	Signal Input

• 4 channel board 3：P/N230060611
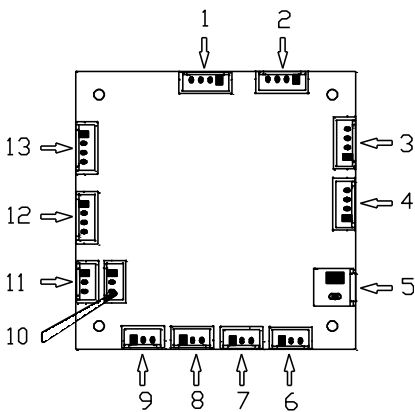
4 channel board 3				
1	M3-3 Motor	8	Reserved
2	M3-4 Motor	9	Reserved
3	MEMS Sensor board	10	Signal Input
4	Reserved	11	Reserved
5	24V power input	12	M3-1 Motor
6	Reserved	13	M3-2 Motor
7	HALL3-3 Magnet Sensor		

• XY Board：P/N230060620
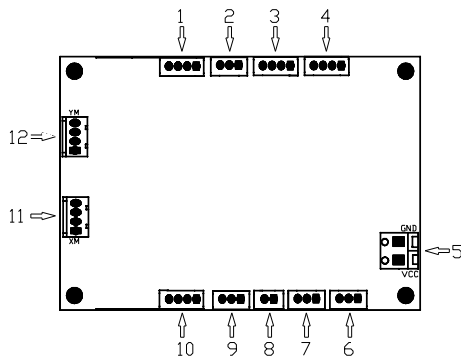
XY Board				
1	Tilt Encoder	7	Signal Output
2	SY Magnet Sensor	8	Reserved
3	FAN2(Ballast Fan)	9	SX Magnet Sensor
4	PAN1(Power Switch Fan)	10	Pan Encoder
5	24V power input	11	J1PAN motor
6	Signal Input	12	TILT Motor

12. COMPONENT ORDER CODES

NAME	PART NO.	QUANTITY	REMARK
PAN MOTOR	030040233A	1	
TILT MOTOR	030040233A	1	
DIMMER/STROBE MOTORS	030040121	2	
ROTATING GOBO WHEEL MOTOR	030040212A	1	
GOBO ROTATION MOTOR	030040073	1	
FIXED GOBO WHEEL MOTOR	030040221A	1	
COLOR WHEEL MOTOR	030040224B	1	
FOCUS MOTOR	030040213A	1	
GRAPHIC EFFECT WHEEL IN/OUT MOTOR	030040167	1	
GRAPHIC EFFECT WHEEL ROTATION MOTOR	030040257	1	
ZOOM MOTOR	030040213A	1	
PRISM ROTATION MOTOR	030040254	2	
PRISM IN/OUT MOTOR	030040214	2	
FAN	030060075	4	Head Fan1 &2, 2 base fans
TURBO- FAN	030060102	3	2 lamp fans
FAN	030060098	1	Small turbo-fan in the back of the head
FAN	030060089	1	Exhaust fan in the base
LAMP BALLAST	040070127	1	
LAMP	100070045	1	
ROTATINGGOBOWHEEL ACCESSORY	120110826	1	
COLOR WHEEL ACCESSORY	120110828	1	
FIXEDGOBO WHEEL ACCESSORY	120110827	1	
POWER SWITCH	230020684	1	
MASTER BOARD	230060607	1	
8 CHANNEL DRIVER BOARD1	230060609	1	
8 CHANNEL DRIVER BOARD2	230060610	1	
4 CHANNEL DRIVER BOARD3	230060611	1	
XY DRIVER BOARD	230060690	1	
FUSE	270030005	1	
TILT BELT	290151415	1	
ZOOM BELT	290151313	2	
PRISM IN/OUT BELT	290151405	1	
ROTATING GOBO WHEEL BELT	290151355	1	
GOBO ROTATION BELT	290151414	1	
PAN BELT	290151392	1	
FOCUS BELT	290151386	1	

PR LIGHTING LTD.

1582 Xingye Avenue, Nancun Panyu
Guangzhou, 511442 China
TEL: +86-20-3995 2888