OPTONICA

LED Displays & Stage Lights

400W LED BSW CMY MOVING HEAD



USER MANUAL

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Chapter 1 Installation and attention

1.1 Maintenance

- To reduce the risk of electrical shock or fire, do not expose this unit to rain or moisture.
- Intermittently using will extend this item's service life.
- Please clear the fan ,fan net , and optical lens in order to keep good work state.
- Do not use the alcohol or any other organic solvent to wipe the shell.

1.2 Statement

The product has perfect performance and integrity packing. All users should be strictly complying with the warning and operating instructions as stated. Or we aren't in charge of any result by misusing. Any damage resulting by misuse is not within the Company's warranty. Any fault or problem caused by neglecting the manual is also not in the charge of dealers.

Note: All information is subject to change without prior notice.

1.3 Safety Precaution

- In order to guarantee the product's life, please don't put it in the damp places or even the environment over 60degress.
- Always mount this unit in safe and stable matter.
- Install or dismantle should operate by professional engineer.
- Using lamp， the change rate of power voltage should be within± 10%， If the voltage is too high， it will shorten the light's life; If it's not enough, will influence the effect.
- Please restart it 20 minutes later after turning off light , until full-cooling. Frequent switching will reduce the life span of lamps and bulbs; intermittent using will improve the life of bulbs and lamps.
- In order to make sure the product is used well, please read the Manual carefully.

1.4 Product Instruction

Input voltage: AC110V-240V/50-60HZ
Light source specification: led 400W
Light source life: 20000 hours
Lumen illuminance: 5 meters 120,000 lm
Rated power: 430W
Channel mode: 23 channels
Horizontal scan: 540 degrees (16bit precision scan) electronic error correction
Vertical scanning: 270 degrees (16bit precision scanning) electronic error correction
Dimming system: 0- 100% linear adjustment
Focusing system: linear adjustment from 4 meters to 50 meters
Frost system: 1 independent frost effect, soft and natural light spot
Zoom angle: 4-35 degrees
High-speed strobe: 0-30 times/sec. Adjustable speed strobe effect. Strobe macro function
Color: 8colors + white light. Color half-color function
Color mixing system: linear CMY+CTO color mixing system.

Fixed patterns: 12 fixed patterns + white light

Rotating pattern: 7 glass patterns, each glass pattern can be independently forward and reverse

Prism system: standard 6 facet prism and 8 facet prism, each prism can be independently forward and reverse

Macro function: console reset function, self-propelled mode, master-slave mode

Display mode: LCD display, key + touch dual operation mode

Control signal: International standard DMX512. With RDM function, online software upgrade is available, dial address code

Cooling method: Adopt axial fan to enhance cooling

Safety device: with electronic temperature control overheating protection, electronic temperature control automatic power-offprotection when the overheating system fails

Appearance material: high temperature resistant plastic

Working environment: -20 degrees - 40 degrees

Protection level: IP20

Product net weight: 22.5KG

Product size: 38*27*65CM (L*W*H)

1.5 Cable connection (DMX)

Use a cable conforming to specifications EIA RS-485: 2-pole twisted, shielded, 120Ohm characteristic impedance, 22-24AWG,low capacity. Do not use microphone cable or other cable withcharacteristics differing from those specified. The end connections must be made using XLRtype 3 or 5-pin male/female connectors. A terminating plug must be inserted into the last projector with a resistance of 120Ohm (minimum 1/4 W) between terminals 2 and3.

IMPORTANT: The wiresmustnot makecontact with eachotheror with the metalcasing ofthe connectors. The casing itself must be connected to the shield braid and to pin 1 of the connectors.

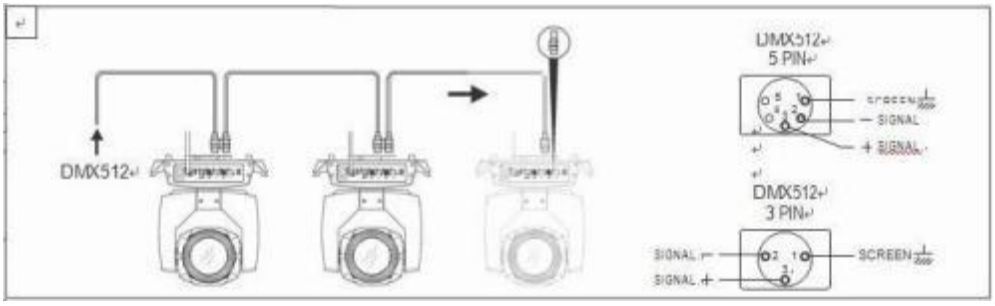


Figure 1 DMX Cable connection

1.6 Rigging (Optional)

This equipment can be positioned and fixed by clamp in every direction of the stage. Locking system makes it easy to fasten to the bracket.

Attention! Two clamps is needed to fix the equipment. Every clamp is locked by fastener of 1/4 kind. Fastener can only be locked clockwise.

Attention! Fasten a safety string to the additional hole of side aluminum piece. The secondary accessory can not hang on the delivery handle. Nip the equipment on bracket.

- Check if rigging clamp (not including the one inside) damaged or not? If stand ten times weight as the equipment. Make sure the architecture can stand ten times weight as all the

equipments, clamps, wirings and other additional fixtures.

- Screws for clamping must be fixed firmly. Take one M12 screw (Grade 8.8 or higher) to clamp bracket, and then screw the nuts.
- Level the two hanging points at the bottom of clamp. Insert fastener to the bottom, lock the two levers by 1/4 rotating clockwise; then install another clamp.
- Install on safety string which stands at least ten times weight as equipment. Terminal of the accessory is designed for clamps.
- Make sure pan/tilt lock unlocked or not. Keep the distance more than 1M from equipment to flammable material or lighting source.

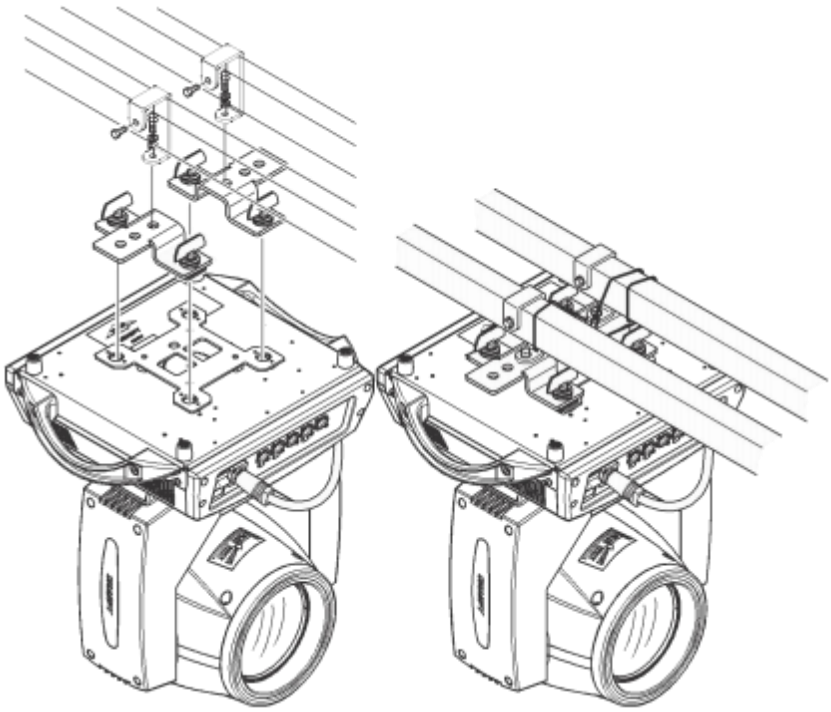


Figure 2 Installation

Chapter 2 Panel operation

2.1 Brief

The light panel diagram show as Figure 3, Left area is TFT Displayer, support touch, and right area is KEY, both of touch and KEY can operate light and setting.

Display & operation just like 'Android operation system', touch the item will set or modify setting.

Note: Prevent damage the touch or TFT displayer, Can not use sharp objects chick displayer.



Figure 3 Panel diagram

2.2 Operation

2.2.1 Operate light with touch or KEY

- The left area is TFT Displayer and touch, chick item or value with finger will to complete operation of set light setting(parameters) or view light state.
- The area on the right hand side is 4 KEY, As auxiliary input interface, if disable touch function,, the KEYr can been choose to set the parameter.

2.2.2 Parameter value setting

When the selected item is value need to been modified, the dialog shown in Figure 4 will popup.



Figure 4 Dialog of value setting

- **Modify value：** Can quickly modify value via pull the slider to the desired position, or click the button of 'up' or 'down' whit finger on the right side to set the exact desired value, another way is roll encoder on the right hand side of panel.

- **Apply value：** When Value had been modified, Then press the bottom of ‘apply’ in the left corner to apply to the light, but hav’t saved；
- **Save Value：** Any time, click on the lower right corner of the "OK" button, the setting will been saved into internal memory.

2.2.3 Boolean parameter setting

- when the selected parameters is a Boolean value (such as ON or OFF), can directly modify setting by chick corresponding item, the setting will been saved right now.
- When the parameter is a key item, chick corresponding item, a dialog shown in Figure 5 will been popup ask for the confirm. Chick ‘sure’ to confirm.

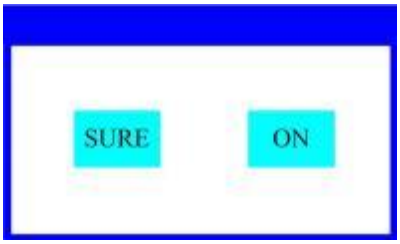


Figure 5 Dialog of confirm

2.2.4 Sub Menu (Parameter)

Chick item of main menu, enter corresponding sub menu, shown in Figure 6, total 6 sub menu, includes class of parameter and status:

- ADDRESS：Set light DMX address.
- WORKMOD：Set light work mode, master or slave mode when in auto run mode.
- DISPLAY： Set display parameter, eg. select language.
- TEST：Used for test light, modify DMX channel data to test function， the corresponding function of reference channel function table.
- ADVANCE：Set light running parameter.
- STATUS：view light current status.

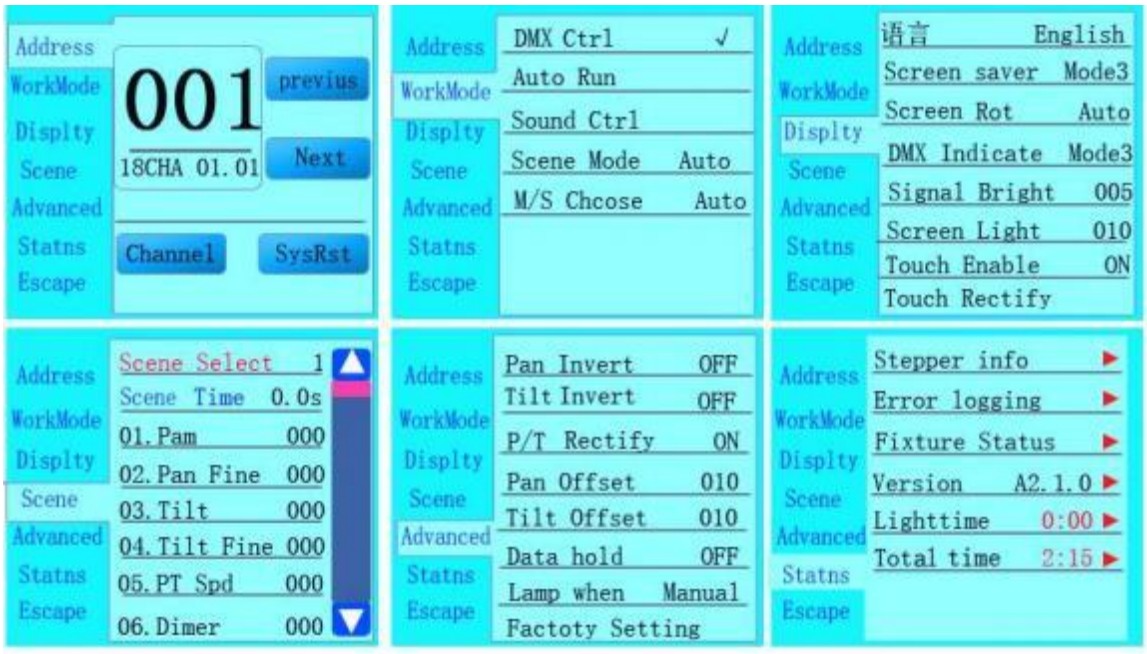


Figure 6 Parameter menu

2.3 Operation and parameter instruction

Via following operation, enter sub menu(parameter menu) shown in Figure 6

- In main menu, chick 1/6 function button into corresponding parameter menu.
- In sub menu(page), chick main item on the left side of displayer, can shift to corresponding sub menu(page) quickly.

2.3.1 ADDR--> Address: Set DMX Address

Click and select the "ADDR", can enter the page of DMX address setting, range from 1 to 512, the address code shouldn't is not greater than (512- channels quantity), otherwise the light will not been controlled. Following is the operation:

Enter the page of DMX address, as shown in Figure 7, click the blank area in right side of display will pop-up diglog as in Fig. 4, modify value, then click 'ENTER' to confirm and save DMX address code.

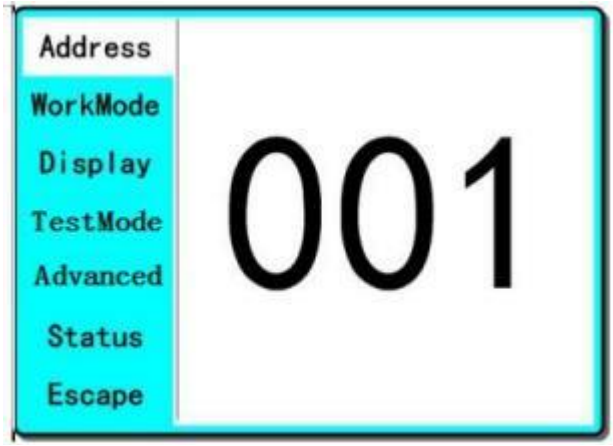


Figure 7 page of DMX Address

2.3.2 MODE--> WorkMode: Set Light work mode

Enter the page of 'WorkMode' as shown in Figure 8 and modify setting. Can set light work mode, control lamp and DMX channel mode.



Figure 8 page of work mode

- **DMX Ctrl**: Choose to set DMX Mode,
- **Auto Run**: Choose to set Auto Mode,
- **Sound Ctrl**: Choose to set Sound Mode,
- **M/S Choose:** Available just in 'AUTO RUN' or 'SOUND Ctrl ' mode.

ON--> Master. (Data will be send to other slave lamp immediately.)

OFF--> Slaver.(NOT send data to other lamp via DMX Cable).(**Default**)

- **Light Switch:**

  ON--> Turn on the light,

  OFF--> Turn off the light.

- **Channel Qty:** Light support 2 DMX Channel mode: sample or extend。

  Simple --> 16CH.(**Default**)

  Expand--> 20CH(or null).

2.3.3 DISP-->DISPLAY: Set display

Light support 2 language, rotation display， Enter page as shown in Figure9 to set parameter following:

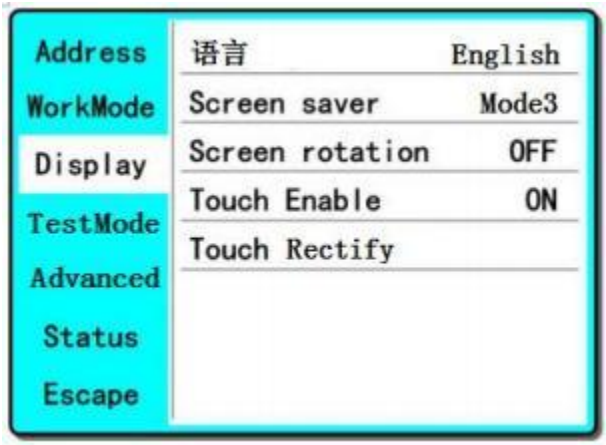


Figure9 page of display

- **Language**: English / 中文.
- **Screen Saver:** when panel is idle(these is no operation in 10 second), displayer will enter saver status.

  OFF--> No screen saver.

  Mode1--> Power-saving mode, turn off the display.

  Mode2--> Displays the current address.

  Mode3--> Displays the icon and the current working mode.(**Default**)

- **Screen Rotion: To turning display.**

  ON--> Normal display.(**Default**)

  OFF--> 180° turning display.

- **Touch enable：** Disable or enable touch function,.

  ON--> Enable touch function.(**Default**)

  OFF--> Dosable touch function.

- **Touch adjust：** Adjust touch function. Normally, not enter this item.

2.3.4 TEST--> TestMode

Enter the page as shown in Figure 10, Light will into test mode, in this mode, the light does not receive the data for DMX controller.:



Figure 10 page of Test

- **PAN:** range for 0 to 255;
- **TILT:** range for 0 to 255;
- **FOCUS:** range for 0 to 255;
- **COLOR:** range for 0 to 255;
- **GOBO:** range for 0 to 255;
- **PRISM:** range for 0 to 255;
- **FROST:** range for 0 to 255;;
- **STROBE:** range for 0 to 255;

2.3.5 ADVA-->Advanced: Set light run parameter

Enter the page as shown in Figure 10, set the parameter of light:

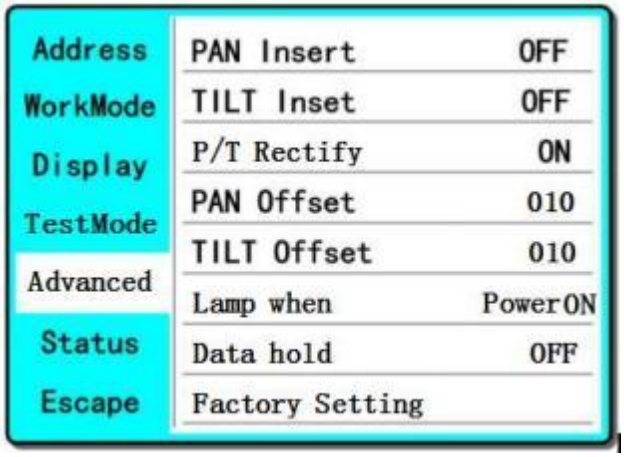


Figure 11 page of run parameter

- **Pan Invert**: **Reverse PAN move**
  OFF--> Pan Normal move .(**Default**)
  ON--> Reverse PAN move.
- **Tilt Invert: Reverse TILT move**
  OFF--> Tilt Normal move.(**Default**)
  ON--> Reverse Tilt move.
- **P/T Rectify: Disable or enable position rectify function.**
  OFF--> Disable P/T rectify
  ON--> Enable P/T rectify-(**Default**)
- **Pan Offset:** Set PAN original position. **Default: 10**
- **Tilt Offset:** Set TILT original position. **Default: 10**
- **Lamp when:**

PowerON--> Turn on the lamp when power on.(**Default**)

RstDone--> Turn on the lamp after reset.

Manual--> Manually turn on the lamp.

- **Data hold:**

OFF--> When no DMX signal,return to middle position.(**Default**)

ON--> When no DMX signal,stop in the final position.

- **Factory Setting:** Restore all parameter to factory setting.

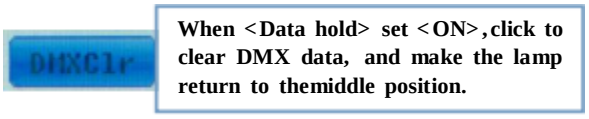
2.3.6 STAT-->Status: View status

Enter the page as shown in Figure 12:



Figure 12 page of status

- **Work Mode:** Show the current working mode.
- **Address:** Show the current address.
- **Version:** Show the version of the lamp.
- **Elapse:** Working hours after turn on.
- **Tatol:** Cumulative hours of operation





Chapter 3 Channel description

3.1 Channel table

Tab le 1 Channel br ief

CH1	PAN	0-255	0-540°
CH2	PAN 16bit	0-255	
CH3	TILT	0-255	0-270°
CH4	TILT 16bit	0-255	
CH5	XY Speed	0-255	Fast to slow
CH6	Dimmer	0-255	0-100%
CH7	Strobe	0-3	Drak
		4-103	Slow strobe to fast strobe
		104-107	White
		108-207	Slow strobe to fast strobe(mode 2)
		208-212	White
		213-251	Free strobe
		252-255	White
CH8	Color	0-9	White
		10-19	COLOR1
		20-29	COLOR2
		30-39	COLOR3
		40-49	COLOR4
		50-59	COLOR5
		60-69	COLOR6
		70-79	COLOR7
		80-89	COLOR8
		90-99	COLOR1 Haif
		100-109	COLOR2 Haif
		110-119	COLOR3 Haif
		120-129	COLOR4 Haif
		130-139	COLOR5 Haif
		140-149	COLOR6 Haif
		150-159	COLOR7 Haif
		160-169	COLOR8 Haif
		170-179	COLOR9 Haif
		180-215	Rotate forward (fast to slow)
		216-220	stop
		221-255	Rotate reverse (slow to fast)
CH9	CTO	0-255	
CH10	C	0-255	

CH11	M	0-255	
CH12	Y	0-255	
CH13	Gobo	0-4	White
		5-9	GOBO1
		10-14	GOBO2
		15-19	GOBO3
		20-24	GOBO4
		25-29	GOBO5
		30-34	GOBO6
		35-39	GOBO7
		40-44	GOBO8
		45-49	GOBO9
		50-54	GOBO10
		55-59	GOBO11
		60-64	GOBO12
		65-69	Shake slow to fast GOBO2
		70-74	Shake slow to fast GOBO3
		75-79	Shake slow to fast GOBO4
		80-84	Shake slow to fast GOBO5
		85-89	Shake slow to fast GOBO6
		90-94	Shake slow to fast GOBO7
		95-99	Shake slow to fast GOBO8
		100-104	Shake slow to fast GOBO9
		105-109	Shake slow to fast GOB10
		110-114	Shake slow to fast GOB11
		115-119	Shake slow to fast GOB12
		120-127	GOB12
		128-190	Rotate forward (fast to slow)
		191-192	Stop
		193-255	Rotate reverse (slow to fast)
CH14	Amplify	0-255	From big to small
CH15	Focus	0-255	From far to near
CH16	Gobo Revolve	0-9	White
		10-19	GOBO1
		20-29	GOBO2
		30-39	GOBO3
		40-49	GOBO4
		50-59	GOBO5
		60-69	GOBO6
		70-79	GOBO7
		80-84	Shake slow to fast GOBO1
		85-89	Shake slow to fast GOBO2

		90-94	Shake slow to fast GOBO3
		95-99	Shake slow to fast GOBO4
		100-104	Shake slow to fast GOBO5
		105-109	Shake slow to fast GOBO6
		110-127	Shake slow to fast GOBO7
		128-190	Rotate forward (fast to slow)
		191-192	Stop
		193-255	Rotate reverse (slow to fast)
CH17	Gobo Rot	0-127	0-400 degrees
		128-187	Rotate forward (fast to slow)
		188-195	Stop
		196-255	Rotate reverse (slow to fast)
CH18	Prism1	0-63	None
		64-127	Prism1
CH19	Prism1 Rot	0-127	0-400 degrees
		128-187	Rotate forward (fast to slow)
		188-195	Stop
		196-255	Rotate reverse (slow to fast)
CH20	Prism2	0-63	None
		64-127	Prism2
CH21	Prism2 Rot	0-127	0-400 degrees
		128-187	Rotate forward (fast to slow)
		188-195	Stop
		196-255	Rotate reverse (slow to fast)
CH22	Frost	0-127	
		128-255	Insert frost
CH23	Reset	210-215	Reset Effect motor over 3 seconds
		220-235	Reset XY motor over 3 seconds
		240-255	Reset over 3 seconds

Common faults and use attention

1. Common fault handling

The lamp contains professional components such as microcomputer circuit board and high-voltage power supply. For your safety and product life, non-professionals should not disassemble the lamp and related accessories without authorization.

1. The bulb does not light up (except LED light source)

Possible cause: The bulb is not completely cooled, or the bulb has reached the end of its life, the treatment is as follows:

- Due to abnormal operation, the bulb is not completely cooled down, so let the lamp body cool down for more than 10 minutes to make the inside completely return to normal state, and

then turn on the power again.;

- Check whether the bulb has reached the end of its life, and replace it with a new one;
- Check whether the bulb and the lighter circuit are leaking, falling off, or having poor contact;
- Replace with a new lighter.

2. The light beam appears dim

Possible cause: The bulb has been used for a long time or the light path is not clean, the treatment is as follows:

- Check whether the bulb has reached the end of its life, and replace it with a new one;
- Check whether the optical components or bulbs are clean, and whether there is dust on the bulbs and other optical components. Regular cleaning and maintenance of the bulbs and components in the lamps are required.

3. Fuzzy pattern projection

- Check whether the electronic focus channel value is suitable for the current projection distance.

4. The lamps work intermittently

Possible cause: The internal circuit enters the protection state, and the treatment is as follows:

- Check whether the fan is operating normally or whether it is dirty, causing the internal temperature of the lamp to rise;
- Check whether the internal temperature control switch is closed;
- Check whether the bulb has reached the end of its service life, and replace it with a new one.

5. After the lamp is reset normally, it does not accept the control of the console

Possible cause: signal line failure or abnormal lamp parameter setting, the treatment is as follows:

- Check the start address code and check the connection of the DMX signal line (whether the signal line cable is intact, and whether the connection of the head is loose);
- Add signal amplifier, add 120 ohm terminal resistance;

6. The lamp can't start

Possible cause: bad power line, the treatment is as follows:

- Check whether the fuse on the power input socket is fused, replace the fuse;
- Lamps have poor line contact due to vibration during long-distance transportation
- Check the input power, computer board and other plug-in devices.

2. Precautions for use

- Check whether the local power supply meets the requirements of the rated voltage of the product, and the leakage protector, overcurrent protector, etc. meet the requirements of the load;
- Do not use power cords with damaged insulation, and do not overlap power cords with other wires;
- The lamp adopts strong air cooling, which is easy to accumulate dust. It must be cleaned once a month, especially the heat dissipation vent, otherwise it will be blocked by the accumulation of dust, resulting in poor heat dissipation and abnormalities in the lamp.

- When installing the lamp, the fixing screws must be fastened, with safety cables, and regular inspections;
- When installing and positioning the luminaire, keep a minimum distance of 10 meters between any point on the surface of the luminaire and any flammable and explosive object, and the distance from the irradiated object is 2.5 meters. Please do not install the luminaire directly on the surface of combustible materials.;
- It is recommended that the continuous working time of the lamp should not exceed 10 hours, and the interval between continuous starting of the lamp should not be less than 10 minutes, otherwise it will not be triggered normally due to the lamp overheating protection;
- The closing time using the on-off valve should not exceed 5 minutes. If you need to close the light for a long time, you should use the console (lighting control channel) to turn off the light.;
- In order to ensure that multiple luminaires better comply with the scene effect, the luminaire should not be in the unfinished current scene all the time, that is, start the next scene action, it is best not to exceed 3 minutes in this state to ensure that multiple luminaires can run simultaneously;
- During use, if there is an abnormality in the lamp, stop using the lamp in time to prevent other malfunctions.

3. Precautions for using RDM

RDM is an extended version of the DMX512-A protocol. It is a remote device management protocol. The traditional DMX512 protocol communication is one-way communication. The protocol is based on the RS-485 bus. RS-485 is a time-sharing multi-point, half-duplex protocol. Only allowed at the same time One port is the output of the host, so, pay attention to the following points when using RDM:

- To use a console or host device that supports the RDM protocol host;
- To use a two-way signal amplifier, the traditional one-way signal amplifier is not suitable for the RDM protocol, because the RMD protocol requires feedback data, and the use of a one-way amplifier will block the returned data, resulting in the search for lamps and lanterns;
- All lamps must be set to DMX mode to ensure that there is only one host on the signal line;
- A 120ohm impedance matching resistor must be inserted between terminals 2 and 3 of the terminal plug. When the signal line is relatively long, the use of differential signals will be more stable when the signal line is relatively long, which is conducive to the quality of communication;

When it appears that the lamp accepts DMX control, but cannot search for the lamp by RDM, first check the signal amplifier, and then check whether there is a bad connection between the 2 and 3 lines of the signal line.