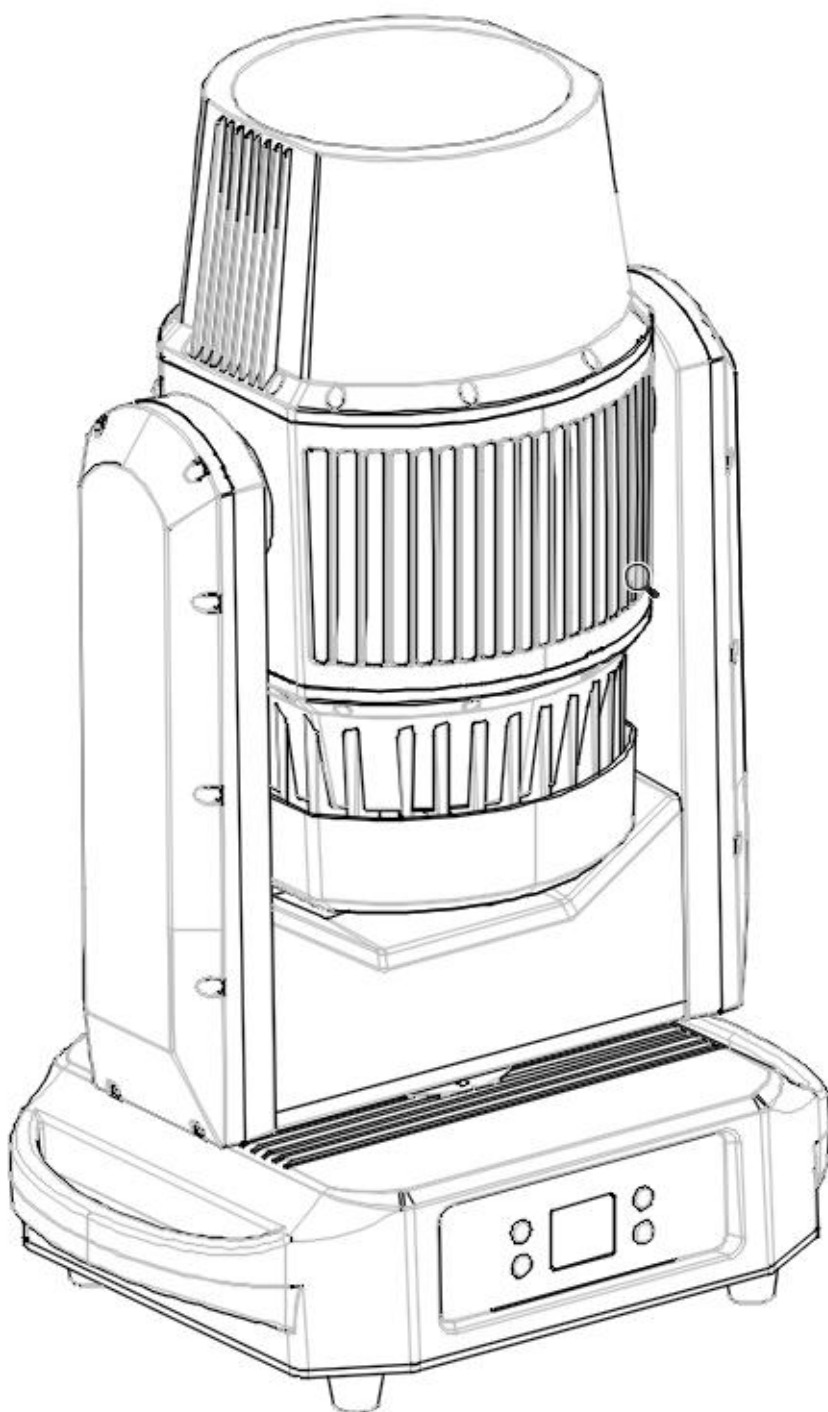




User Manual

Please read the instructions carefully before use

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1. Safety Instructions

Important:

Damages caused by the disregard of this user manual are not subject to warranty. The dealer will not accept liability for any resulting defects or problems.

- Unpack and check carefully to ensure that there is no transportation damage before using the unit
- The equipment is suitable for dry and humid environments, with a protection grade of IP66. The lamps should be kept clean and should be cleaned and maintained regularly.
- Eligible professionals may install, operate, and maintain lighting equipment, and ensure that operations are strictly carried out in accordance with the procedures described in this manual.
- When securing equipment, use safe ropes. When moving lighting fixtures, please also support the bottom.
- The unit must be installed in a location with adequate ventilation, at least 50cm from adjacent surfaces.
- Make sure the power voltage before operation matches the power voltage required by the device.
- Each lighting fixture should be safely grounded and installed in accordance with relevant standards to prevent electric shock.
- Minimum ambient temperature TA: 0°C. Maximum ambient temperature TA: 40°C. Do not operate this product at a lower or higher temperature.
- During initial start-up some smoke or smell may arise. This is a normal process and does not necessarily mean that the device is defective, and it will decrease gradually within 15 minutes.
- Do not place flammable items next to the lighting when in operation to prevent fire hazards.
- Do not use power cables with damaged insulation, and do not place the power cable on other conductors. When the lighting is not in use or being cleaned, please unplug the power cable, do not pull or tug the power cable forcefully.
- Unit's surface temperature may reach up to 85°C. DO NOT touch the housing bare-handed during its operation.
- Avoid any flammable liquids, water or metal from entering the unit. Once it happens, cut off the mains power immediately.
- Do not touch the wires when the lighting is operating to prevent electric shock.
- The distance between the lighting and the illuminated surface should be greater than 12

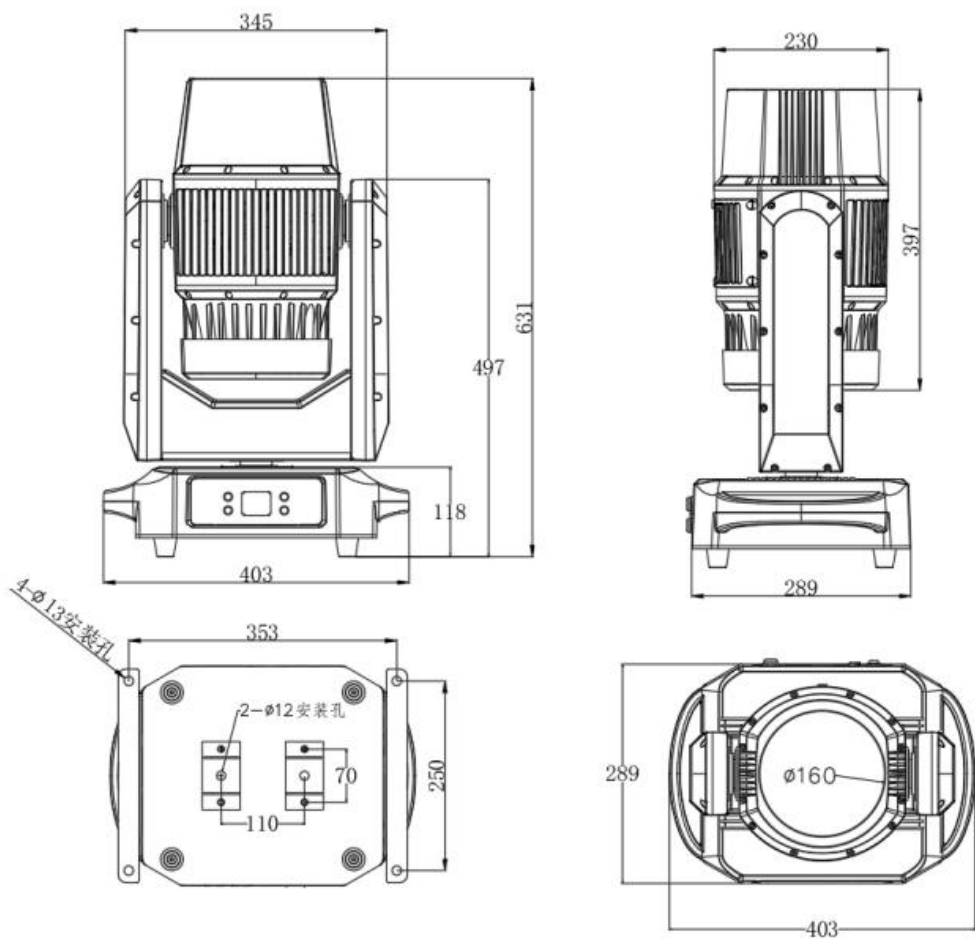
meters.

- No available parts inside the lighting fixture,do not open the fixture shell arbitrarily.
- Machine failure occurred, please stop using it immediately. Non-professional technicians are not allowed to repair it themselves
- Please use the original packaging materials when transportation is required again.
- Replace the light bulb in a timely manner when it is damaged,warped due to heat, or exceeds its service life.
- Do not stare directly at the lights when they are in operation.

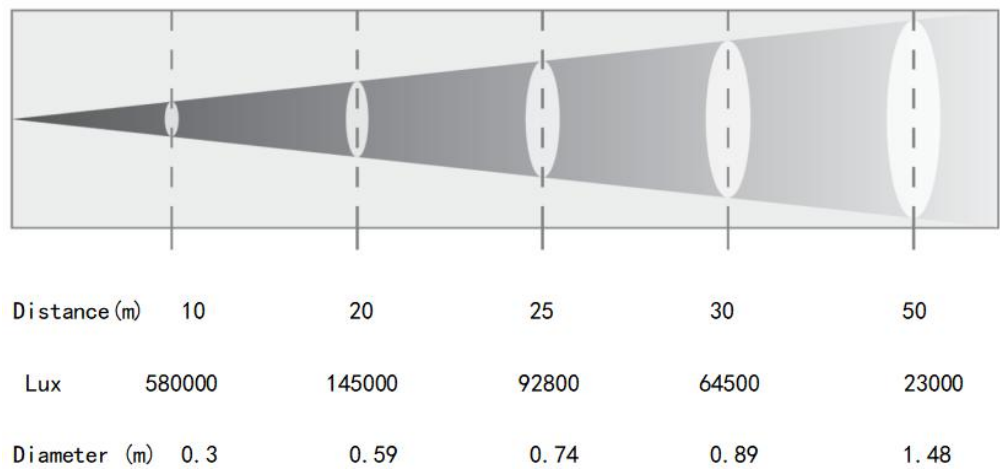
2. Product Introduction

Technical specification table	
Power Voltage	AC100V-240V 50/60Hz
Power Consumption	550W
Light Source	USHIO NSLU6C
Color temperature	7900±500K
Light source lifespan	1500 hours
Beam angle	1.7°
Outcoating diameter	160mm
PAN scan	540°
TILT scan	270°
Color wheel	Color wheel with 14 colors + 1 empty slot
Gobo Wheel	13obos plus open
Focus	Motorized focus
Frost	Independent frost effect
STROBE	1-20Hz, various strobe effects
Dimming	0-100% smooth dimming; Outstanding strobe effect with variable speed
Prism	8-facet prism, 24-facet prism
Power connection	Waterproof power input/output
DMX connection	3-core/5-core waterproof DMX signal input/output
Working temperature	-10℃～+40℃
Dimension	631*403*289mm
Weight	25 kg
Protection Rating	IP66
Shell	All aluminum die-cast,black baked paint
Control Mode	DMX512
DMX Channel	16CH
Display	1.8-inch display,manual reverse function

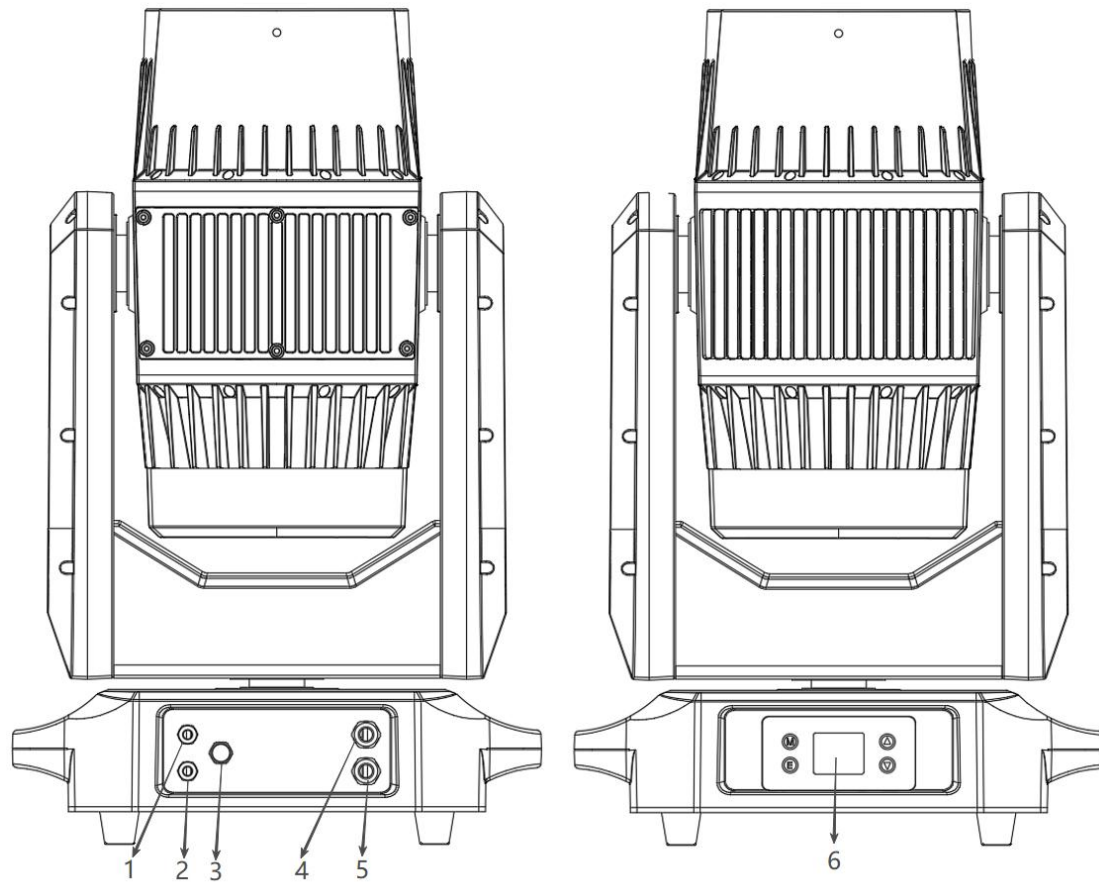
2.1 Product Dimension



2.2 Photometric Diagram



3.Control Panel



1.DMX In	For DMX512 link, use 3-pin XLR cable to link the unit and DMX controller		
2.DMX Out	For DMX512 link, use 3-pin XLR cable to link the next units		
3.RELEASE VALVE			
4.Power In	To connect to supply power		
5.Power Out	To connect to the next fixture		
6.Display panel	ESC	Return	
	▲UP	UP	To go backward to move up in the menu
	▼DOWN	DOWN	To go forward to move down in the menu
	ENTER	ENTER	To perform the desired functions

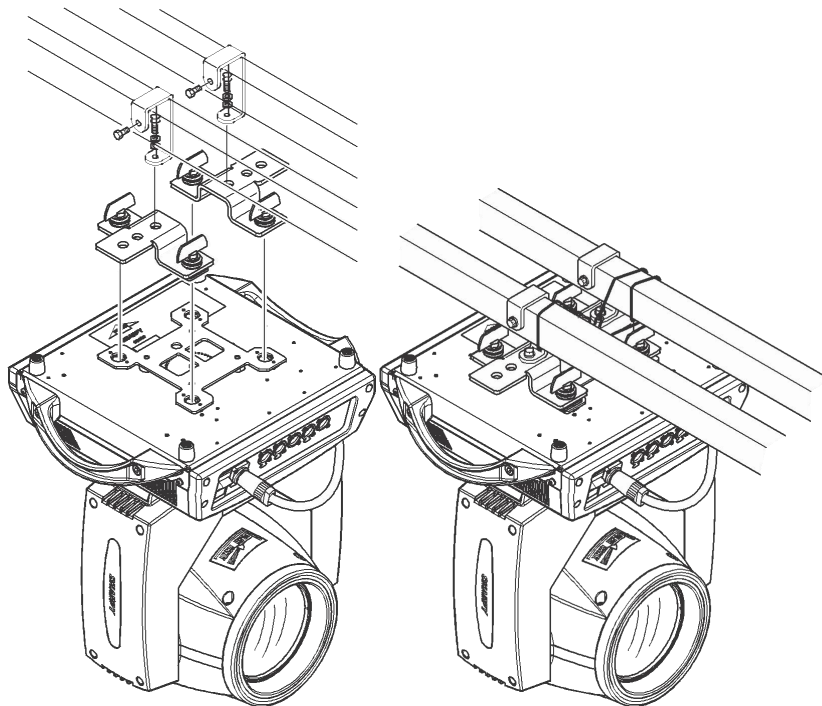
This product uses IP65 waterproof power cable IN/OUT

Hand-in-hand method to connect power lines

Note: Due to power reasons, a 1.5 square millimeter power cable can only power a maximum of 4 units (230V), and 120V can only power a maximum of 2 units.

4. Lighting installation

1. The installation of the equipment should be carried out by professionals, and the area where the lighting fixtures may be accessible to unauthorized personnel should be kept away. Do not stand directly below the lighting fixtures when assembling, disassembling, or repairing them.
2. When installing lighting fixtures, make sure they are securely installed to prevent them from shaking and falling off during operation. Also, ensure that the structure used to fix the lighting fixtures can support 10 times the weight of the fixtures without deforming. At the same time as installing the lighting fixtures, use a safety rope that can support 12 times the weight of the fixtures to ensure that the fixtures will not fall off if the clamp fails.
3. This lamp is fully operable in three different installation positions: suspended, hanging, or placed on a flat horizontal surface. Always use and install the attached safety rope as a safety measure to prevent the lamp from being accidentally damaged or causing personal injury when the fixture fails.



5. Lighting setup

Menu function

- ◆ First use requires unlocking the menu, press the [▲UP] and [▼DOWN] buttons twice, then press the [ENTER] key to unlock.
- ◆ Use the [ENTER], [▲UP], and [▼DOWN] buttons to navigate the menu.
- ◆ Press the [ENTER] button to select menu options or confirm the selected settings.
- ◆ Return to the previous menu without making any changes. Press the [MENU] button to return and exit.

Long-time inactivity will automatically lock the screen of the lighting equipment, which needs to be unlocked by pressing the [▲UP] and [▼DOWN] buttons twice in sequence and then pressing the [ENTER] key.

Menu functions as follows

Illustration of lighting panel as shown below, the upper left corner of the title indicates the number of lighting channels, the middle red font indicates the usage time of the lighting, the upper right corner shows the fault status of the lighting (when there is unviewed fault information, it displays "ERR", otherwise "NOR"), and the bottom is the status bar, displaying the current signal, bulb status, communication status, etc. of the lighting (the panel in the picture is an example image and does not represent the actual appearance of the product panel, please refer to the panel of the same type as the product you hold).

This lighting fixture supports DMX/RDM protocol. When the fixture is searched by an RDM host, the panel will display the letters "RDM" to indicate that the fixture is being enumerated normally.

Caution: Do not use pointed or sharp objects to click on the screen to prevent damage.

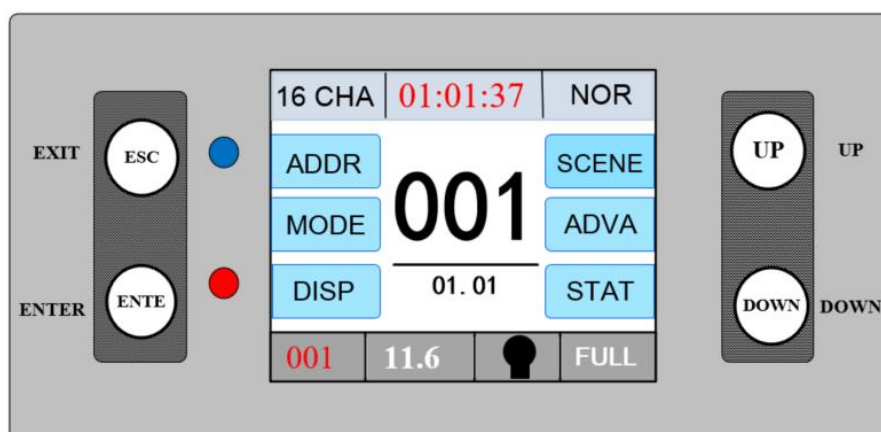


Figure 1: Schematic diagram of the touch 1

Operate

Use touch buttons to operate lighting fixtures

The middle area is the display area, with input areas on both sides. You can use touch buttons to control the cursor to select the items to be set or viewed, and press the confirm button to complete the operation.

Parameter value input

When the selected parameter item requires inputting a number, a window as shown in Figure 2 will open:



Figure 2: Numerical Settings Page

- **Set value:** The required value can be set using the "up" and "down" buttons.
- **Save values:** After setting the data by pressing the button, press the "ENTER" key to save the value immediately to the internal storage, and apply the saved value to the lighting next time the device is turned on.

Set options to open/close

When the set parameters are turned on/off, simply click on the corresponding item to switch the parameter values. Such parameter changes will be saved to the internal storage. Pressing the parameter options on the right will gray out the corresponding options. When you release your hand, the corresponding parameters will change and be saved.

The determination of important parameters will be set through the confirmation window, as shown in Figure 3:

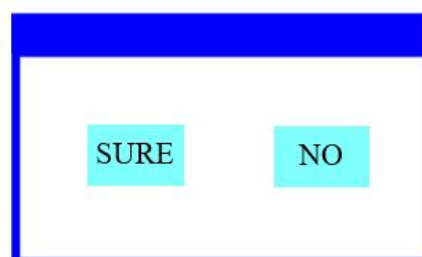


Figure 3: Determine the input window

Child page (parameters)



Figure 6-1 Address setting

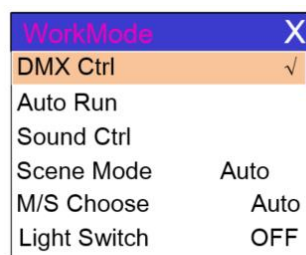


Figure 6-2 Run Settings

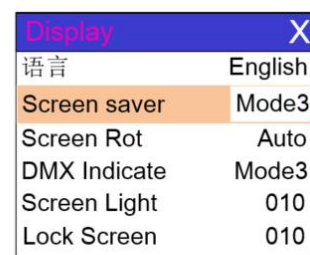


Figure 6-3 Display Settings

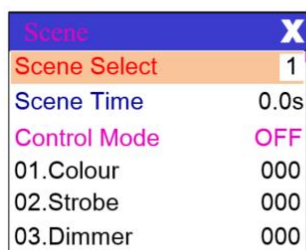


Figure 6-4 Scene Settings

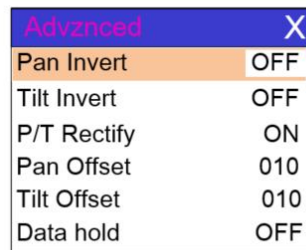


Figure 6-5 Advanced setting

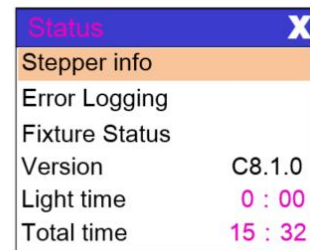


Figure 6-6 Status Settings

Function operation and parameter settings

Enter the settings interface,as shown in Figure 6-1:

In the main interface, you can enter the corresponding parameter setting interface by selecting six buttons.

Set DMX address code

Through the page as shown in Figure 6-1,the DMX address,channel mode, and other settings for the lighting can be set.



Figure 6-1

The menu settings of the lighting have optimized the address settings,and the operations for setting the address codes are as follows:

Select "Previous Unit" or "Next Unit",the lighting will automatically calculate the address code of the previous or next unit based on the current address code and channel data,allowing for quick setup.

Click on the address code number to enter the number editing window, where you can set any valid address code. The lighting fixture automatically obtains the current channel number of the lighting fixture and automatically filters out address codes that cannot be used (512- current channel number).

Luminaires support the RDM protocol and can remotely set the address code of the luminaires via RDM.

Channel mode: Can cyclically select different channel modes.

Set lighting working mode

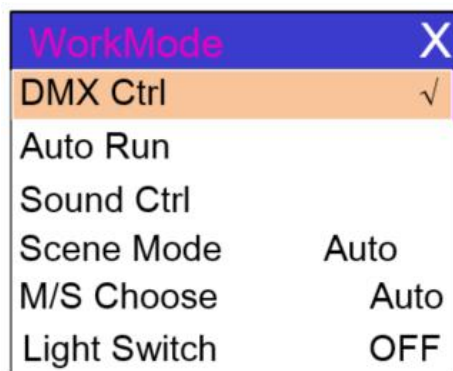


Figure 6-2

Through the page as shown in Figure 6-2, the operation mode and control of the lamp can be set. The lamp supports four operation modes (DMX mode, self-driving mode, voice control mode, and scene mode), and the detailed parameter values can be referred to in the previous section. The specific parameter descriptions are shown in the table below:

Operation mode		
DMX mode	Console mode, receiving DMX signal, RDM signal	
Self-driving mode	Lamps operate automatically according to the built-in program	
Voice control mode	When the lighting detects a strong sound, the lighting automatically runs a scene according to the built-in program; otherwise, it maintains the last scene	
Scene mode 01	Running in the set scene mode, supports up to 10 custom scenes	
	1~10	Output the specified scene
	Automatic	Automatically output scenes in the order of the set scene time (non-zero) in a loop, scenes with time set to 0 are automatically skipped and ignored
Master-slave selection	Not effective in DMX mode, select the data output mode, the lighting equipment automatically detects the DMX status and switches the output automatically to prevent data conflicts	

	Host	Luminaires operate in built-in mode, and output data (synchronized) if there is no DMX signal,otherwise no data is output
	From machine	Lamps operate internally without outputting data (not synchronized with other lamps)
	Automatic	If there is no signal from DMX,the lights operate according to the built-in settings;otherwise, the lights operate according to the DMX signal
Light switch	Pop-up confirmation dialog box, select "SURE" to confirm the current operation, turn on or off the light bulb, the time interval between switching is limited to 30 seconds	
	Turn off	The current light bulb output is turned off
	Turn on	The current light output is already turned on

Scene mode is suitable for single or a small number of lights,only fixed scenes need to be output,or a simple program needs to be run,and it can be edited directly on the scene page without connecting to the console.

If the light source of the lamp is a bulb, please wait for 10 minutes after turning off the bulb before turning it on again.

Panel display settings

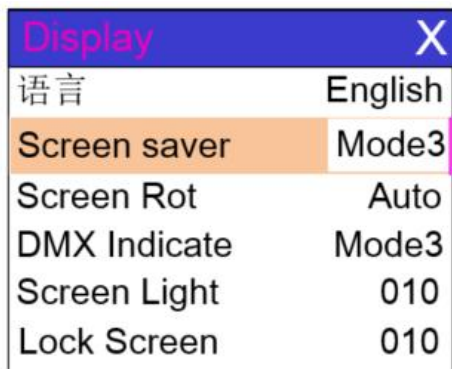


Figure 6-3

Luminaires support bilingual Chinese-English,inverted display,etc, enter the parameter settings corresponding to the settings shown in Figure 6-3,and the specific menu content is as shown in the table below:

Show settings

Language	Set display language	
	English	English display
	Chinese	Chinese display
Screen Saver	Set the screen to turn off after 30 seconds of no operation, and the display content or method of the screen	
	Turn off	Keep the last operation page on, screen on
	Mode 1	Blackout
	Mode 2	Black screen, displaying the address code of the current lighting equipment at the lower left corner
	Mode 3	Display trademark information, address code, and operating mode
	Mode 4	Display trademark information, address code, and operating mode, and turn off the screen after 30 seconds
Screen rotation	Set the screen display orientation	
	Turn off	Do not reverse display
	Turn on	Reverse display
DMX control	Set the indication method for the DMX signal indicator	
	Mode 1	Lights up when there is a signal, turns off when there is no signal
	Mode 2	When there is a signal, it turns off; when there is no signal, it lights up
	Mode 3	Flashes when there is a signal, turns off when there is no signal
Screen backlight	Set the screen brightness after 10 seconds of no operation, and the screen is fully bright during operation	
	1~10	10 levels
Lock screen	Set whether to enable the anti-accidental lock screen interface	
	Turn off	Only after a power-on reset will the lamp parameter editing enter the anti-misoperation interface once
	Turn on	After a period of inactivity, editing the lamp parameters will enter the anti-misoperation lock screen

Scene mode

Enter the page as shown in Figure 6-4 (the channels displayed in the picture are just examples to introduce the functions, for the specific channel table of this product, please refer to the channel table description in the following section).

The lighting enters the scene editing mode. Under this page, if the [Console Mode] option is turned off, the lighting does not receive DMX console data, and the edited data is immediately reflected on the lighting. When turned on, it receives console signals and reads console data to reflect on the corresponding channel display.

Scene	
Scene Select	1
Scene Time	0.0s
Control Mode	OFF
01.Colour	000
02.Strobe	000
03.Dimmer	000

Figure 6-4

The content of the page depends on the currently selected channel, and the content and order of the displayed channel are consistent with the lighting channel table. Through this page, you can edit 10 scenes as shown in the table below:

Scene mode		
Scene selection	Select the current operation scene	
	1~10	10 scene settings format
Scene time	Set the retention time of the current scene when it is automatic, and the final time is determined by the scene time multiplier, unit 0.1 seconds	
	0	The current scene does not participate in automatic scene output
	1-255	0 to 25.5 seconds
1. PAN	0-255	Set the data for each channel, the display content and sequence correspond to the channel table of the lights one by one
.....	0-255	
.....	0-255	
N. Function	0-255	

If the reset channel editing in the scene is valid, the lighting will reset, but after the reset, the corresponding reset channel's value will automatically be cleared to prevent multiple consecutive resets.

View this page to obtain the current channel sequence of the lighting fixture, for specific channel data, please refer to the detailed channel description.

Set lighting working parameters



Figure 6-5

Enter the page as shown in Figure 6-5, adjust the on-site parameters of the lighting equipment, convenient for the on-site installation of the lighting equipment, etc.:

Advanced settings

PAN reverse	Set the PAN rotation direction	
	Turn off	Not reverse
	Turn on	Reverse
TILT reverse	Set the TILT rotation direction	
	Turn off	Not reverse
	Turn on	Reverse
Optocoupler calibration	Set whether to detect and correct XY out-of-step for lighting fixtures	
	Turn off	After a misstep, do not correct the position
	Turn on	After losing steps, automatically correct the position and record the step loss fault
PAN offset	Set the position of the PAN zero point of the lighting fixture	
	4-150	
TILT offset	Set the position of the TILT zero point of the lighting fixture	
	4-48	
Data retention	When there is no DMX signal, the output status of the lighting fixture	
	Turn off	No signal, so the motor and light source return to the position and state when reset is completed
	Turn on	No signal, maintain the output of the last frame of DMX data
Scene time multiplier	Co-decide the scene retention time in coordination with the scene time	
	1-255	Retention time = scene time * multiplier
Turn on the light mode	Set the first startup method after the light bulb is powered on	
	Power on, start bubble	Power on the light bulb first, reset the lighting equipment after 30 seconds

	Reset and start foaming	Power on the lights for 3 seconds, then reset the lamps. After reset is complete, turn on the light bulbs
	Manual bubble opening	Reset completed, turn on the light bulb manually via the menu or console
Lighting reset	A confirmation box pops up, after selecting "SURE", the lamp position returns to the initial position	
Factory settings	A confirmation dialog box appears, after selecting "SURE", the lamp parameters return to the factory settings	

When selecting the power-on bubble mode, the lighting fixture will wait for 30 seconds after powering on to allow the bulb to fully start up. After the internal voltage is sufficiently stable, it will then start the reset program. If the on-site power capacity is stable, it is recommended to use the power-on bulb mode.

When the lamp position cannot be adjusted, please first check if "Optocoupler Adjustment" is turned off.

If the position of the lighting is not as expected after the signal is removed, please first check the "Data Hold" setting.

Set the XY offset, and after completing the setting, please first control XY with the maximum travel to check that after the setting, X and Y will not collide with the positioning rod or housing.

Check the current status of the lighting fixtures

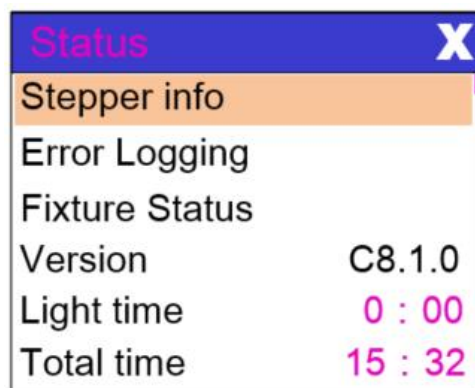


Figure 6-6

Enter the page as shown in Figure 6-6, where you can view the information and real-time status of the lighting fixtures to understand their usage status. If the lighting fixtures require after-sales service, please provide the status information displayed on this page as a basis for judgment, as specified in the following table:

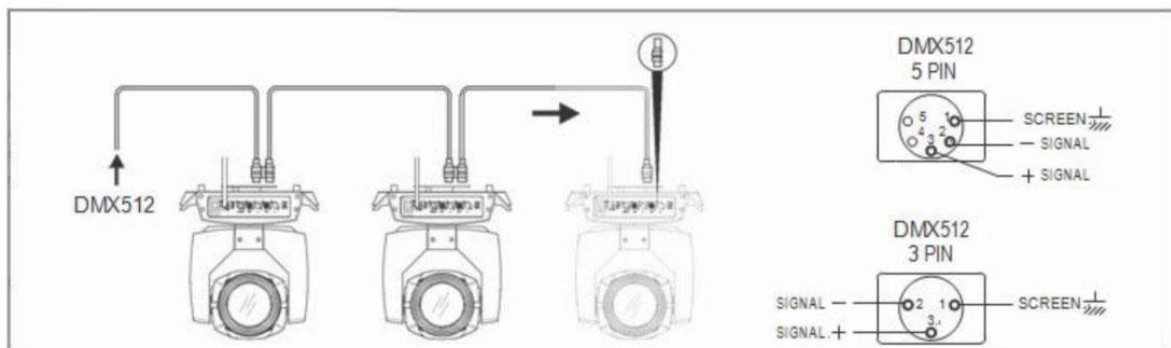
Status information

Motor information	Display the information status of all motors and signals inside the lighting fixture	
	Houer	The motor does not show, indicating that the motor has no Hall correction, 0 indicates that the motor is away from the correction position, 1 indicates that the motor is at the correction position
	Status	Motor reset complete status
	PAN	Display the real-time position value of the PAN optocoupler feedback
	TILT	Display the real-time position value of the TILT optocoupler feedback
	Optocoupler	Display the level status of the two optocoupler signals of the X and Y axes, binary
Fault/Status Record	Display the most recent 8 fault records for the lighting equipment during reset and operation. Fault records are not saved after power failure, and the current power-on cycle is valid	
	Fault data	Total number of faults detected after power-on
	12:03	Power-on time at the time of the fault, in minutes
	Hall fault	The motor did not detect an effective Hall signal when the corresponding motor was reset
	Hall short circuit	The motor's Hall signal remains valid when the corresponding motor is reset
	Optocoupler failure	No valid optocoupler signal was detected when the motor was reset
	Miss a step	The motor is out of step during operation
	Collision rod	Corresponding motor reset when hitting the positioning rod
	Bulb failure	Bulb exploded unexpectedly
	Sensor failure	Temperature sensor signal is abnormal
	Fan failure	The main fan is not working properly
Luminaire status	Display the key status data of the current lighting equipment for reference	
	Communication	0~100%, communication quality of the internal data link in lighting equipment
	Error count	Power-on, the total number of error frames detected, cumulative
	Light source temperature	Display the current light source temperature, "---" indicates no detection
	Display board temperature	Display the temperature of the current display board or the ambient temperature nearby
	Sensor 1 temperature	Display the current motherboard temperature or the ambient temperature at the motherboard installation location

Version information	Display the information and version of the current lighting equipment, an important reference for after-sales maintenance	
	Equipment	The name of the lighting, the same as the device information of RDM
	Model	Luminaire model, identical to RDM model information
	Display board	Display board firmware version and serial number
	Mainboard 1	Mainboard 1's firmware version and serial number
Light source time	Record the total cumulative time of the light source being turned on, in minutes, and clear manually by the user. It serves as a reference for regular maintenance and maintenance of the light source	
Lamp time	Record the total cumulative time for lighting to be turned on, unit in minutes, cannot be cleared	

6. Control By Universal DMX Controller

6.1 DMX512 Connection



DMX signal line connection diagram

- At last unit, the DMX cable has to be terminated with a terminator. Solder a 120-ohm 1/4W resistor between pin 2(DMX-) and pin 3(DMX+) into a 3-pin XLR-plug and plug it in the DMX-output of the last unit.
- Connect the unit together in a "daisy chain" by XLR plug cable from the output of the unit to the input of the next unit. The cable can only be used in series and cannot be connected in parallel. DMX 512 is a very high-speed signal. Inadequate or damaged cables, soldered joints or corroded connectors can easily distort the signal and shut down the system.
- The DMX output and input connectors are pass-through to maintain the DMX circuit, when one of the units' power is disconnected.

- d. Each lighting unit needs to have a DMX address to receive the data by the controller. The address number is between 1-512.
- e. Each lighting unit needs to have a DMX address to receive the data by the controller. The address number is between 1-512.
- f. 3 pin XLR connectors are more popular than 5 pins XLR.
 3 pin XLR: Pin 1: GND, Pin 2: Negative signal (-), Pin 3: Positive signal (+)
 5 pin XLR: Pin 1: GND, Pin 2: Negative signal (-), Pin 3: Positive signal (+), Pin4, Pin5 not used.

6.2 Address Setting

If you use a universal DMX controller to control the units, you have to set DMX address from 1 to 512 so that the units can receive DMX signal.

Press the MENU button to enter the main menu, select DMX settings, press the ENTER button to confirm, use the UP/DOWN buttons to select the address code (1-512, and press the ENTER button to save.

Please refer to the following diagram to address your DMX512 channel for the first 4 units.

Channel	Address	Unit 1 Address	Unit 2 Address	Unit 3 Address	Unit 4 Address
16CH	001-016	001	017	033	049

6.3 DMX Channel

Channel	Channel Name	value	Function
1	PAN	000-255	0°-540°
2	PAN FINE	000-255	0-2°
3	TILT	000-255	0°-270°
4	TILT FINE	000-255	0°-1°
5	PAN/ TILT Speed	000-255	PAN/TILT SPEED Fast to slow
6	STROBE	000-007	Close
		008-015	OPEN
		016-131	Strobe from Slow to Fast
		132-139	OPEN
		140-181	Fast Open Slow Close
		182-189	OPEN
		190-231	Fast Close Slow Open
		232-239	Open
		240-247	Random Strobe
		248-255	Open
7	DIMMER	000-255	DIMMER 0%-100%
8	DIMMER FINE	000-255	DIMMER FINE
9	Color	000-004	OPEN
		005-008	White light + Color 1
		009-012	Color 1
		013-017	Color 1 + Color 2
		018-021	Color 2
		022-025	Color 2 + Color 3
		026-029	Color 3
		030-034	Color 3 + Color 4
		035-038	Color 4
		039-042	Color 4 + Color 5
		043-048	Color 5
		049-051	Color 5 + Color 6
		052-055	Color 6
		056-059	Color 6 + Color 7
		060-063	Color 7
		064-068	Color 7 + Color 8
		069-072	Color 8
		073-076	Color 8 + Color 9
		077-081	Color 9
		082-085	Color 9 + Color 10
		086-089	Color 10
		090-093	Color 10 + Color 11

		094-098	Color 11
		099-102	Color 11 + Color 12
		103-106	Color 12
		107-110	Color 12 + Color 13
		111-115	Color 13
		116-119	Color 13 + Color 14
		120-123	Color 14
		124-127	Color 14 + Color 15
		128-189	Clockwise Rotation, Fast to Slow
		190-193	Stop
		194-255	Counter-Clockwise Rotation, Slow to Fast
10	GOBO	000-004	OPEN
		005-009	GOBO 1
		010-014	GOBO 2
		015-019	GOBO 3
		020-024	GOBO 4
		025-029	GOBO 5
		030-034	GOBO 6
		035-039	GOBO 7
		040-044	GOBO 8
		045-049	GOBO 9
		050-054	GOBO 10
		055-059	GOBO 11
		060-064	GOBO 12
		065-069	GOBO 13
		070-079	Gobo 1 Shaking, Slow to Fast
		080-084	GOBO 2 Shaking, Slow to Fast
		085-089	GOBO 3 Shaking, Slow to Fast
		090-094	GOBO 4 Shaking, Slow to Fast
		095-099	GOBO 5 Shaking, Slow to Fast
		100-104	GOBO 6 Shaking, Slow to Fast
		105-109	GOBO 7 Shaking, Slow to Fast
		110-114	GOBO 8 Shaking, Slow to Fast
		115-119	GOBO 9 Shaking, Slow to Fast
		120-124	GOBO 10 Shaking, Slow to Fast
		125-129	GOBO 11 Shaking, Slow to Fast
		130-134	GOBO 12 Shaking, Slow to Fast
		135-139	GOBO 13 Shaking, Slow to Fast
		140-195	Counter-Clockwise Rotation, Fast to Slow
		196-199	Stop
		200-255	Clockwise Rotation, Slow to Fast

11	Prism 1	000-007	No function
		008-255	Prism1
12	Prism 2	000-007	No function
		008-255	Prism2
13	R-PRISM	000-127	Index 0°- 360°
		128-189	Clockwise Rotation, Fast to Slow
		190-193	Stop
		194-255	Counter-Clockwise Rotation, Slow to Fast
14	Frost	000-007	No effect
		008-255	Frost
15	Focus	000-255	Focus 0-100%
16	Function	000-099	No function
		100-105	Lamp Off
		106-199	No function
		200-205	Lamp On
		206-209	No function
		210-215	Reset Pan/Tilt
		216-219	No function
		220-235	Reset Effect
		236-239	No function
		240-255	Rest ALL

7. Troubleshooting

Following are a few common problems that may occur during operation. Here are some suggestions for troubleshooting:

- A. The unit does not work, no light and the fan does not work.
 - ◆ Check the connected power and main fuse.
 - ◆ Measure the voltage.
 - ◆ Check the power indicator to see whether it can be lit up or not.

- B. Not responding to the DMX controller.
 - ◆ Check whether the DMX connectors and the DMX cables are connected correctly.
 - ◆ Check whether the DMX address is correctly set.
 - ◆ If the intermittent DMX signal problem occurs, check whether the XLR socket and the signal cable are well connected.
 - ◆ Try it with another DMX controller.
 - ◆ Check whether the DMX cables run near or alongside to the high-voltage cables, which may damage or interfere with the signal circuit.

8. Equipment cleaning

It is absolutely essential that the fixture is kept clean to ensure the maximum light-output and allow the fixture to function reliably throughout its life. The fixture must be cleaned regularly to avoid dust, dirt and smoke-fluid residues building up on or within the fixture. The cleaning frequency depends on the application environment. Clean the fixture immediately if the dust enters it to avoid damage to the optical lens due to excessive dust.

- ◆ A soft lint-free cloth moistened with any good glass cleaning fluid is recommended, under no circumstances should solvents be used.
- ◆ Always dry the parts carefully.
- ◆ Clean the external optical lens at least every 20 days