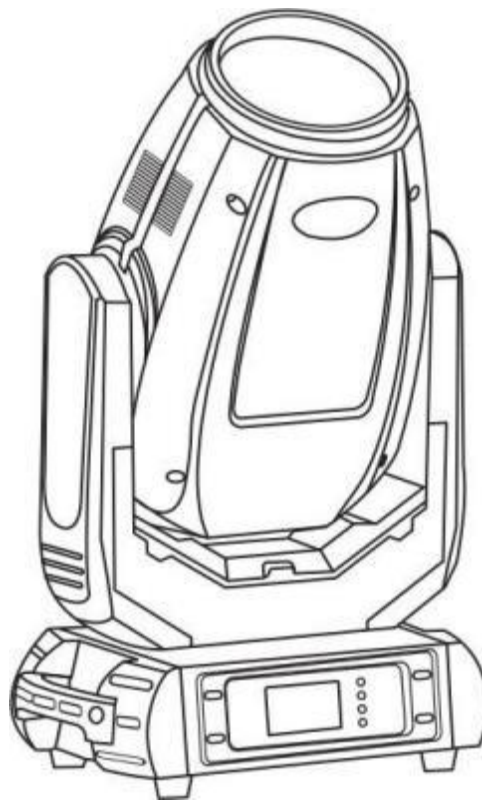


BSW280

User Manual



Guangzhou Mitek Light Co.,LTD

Email: info@miteklight.com

Website: www.miteklight.com

Add: No. 21 Dongfeng Avenue, Automobile Industry Base, Huadu District, Guangzhou

TECHNICAL PARAMETERS

Light source

Light source model: 280W(10R)

Maximum power: 470W

Power supply: 100v-240v 50-60Hz

Lamp life: 2000hrs (Stand mode) 3000hrs (Eco mode)

Color temperature: 2800k-8500k

Optical

High luminous-efficiency glass reflector Beam angel : 5°- 20°(spot application)

2.5°- 10°(beam application)

Controls

Control mode: DMX512, master-slave operation, sound control

Channel mode: 16/24 ch mode

Display: color LCD, Chinese and English display, reverse display

Control: graphic touch screen for fixture setting and addressing Gravitation sen sor for auto screen positioning

Battery backup of the touch screen

Readout fixture and lamp usage, receiving DMX values, temperatures. Etc Built-in analyzer for easy fault finding, error messages

Remotely switching on/off the lamp Built-in demo sequences

Black-out while head moving, color or gobo changing. Self-resettable thermos-fuse

Effect

Color Wheel:one color wheel, 13 kinds of color chips in one color wheel

Static Gob Wheel:10 metal gobos & 4 beam reducers

Rotation Gob Wheel:9 Glass gobos can be indexed and rotated in both directions at different speeds

Gobo wheels continuous rotation

Glass gobos: outside diameter=15.9mm, image diametPrisms:

Rotation 6-facet linear prism with continuous rotation

in both directions Rotation 16-facet circular prism with continuous rotation in both directionser=12.5mm, thickness=1.1mm

Frost filter :Separate, variable frost filter

Zoom:linear motorized zoom

Strobe:Strobe effect with variable speed (max.15 flashes/sec)

Focus: linear adjustment

Dimmer: 0-100% linear dimmer(16bit)

Construction

Pan: 540 degree + fine

Tilt: 270 degree + fine

Working environment temperature: 0 ° C-45 °

Weight&Dimension

Package size:460*360*490mm

Net weight: 14KG

Minimum Distances

Min distance from flammable surface :1m

Min distance to lit objects (Stand Mode-280W):10m Min distance to lit objects (Eco Mode-230W):7.5m

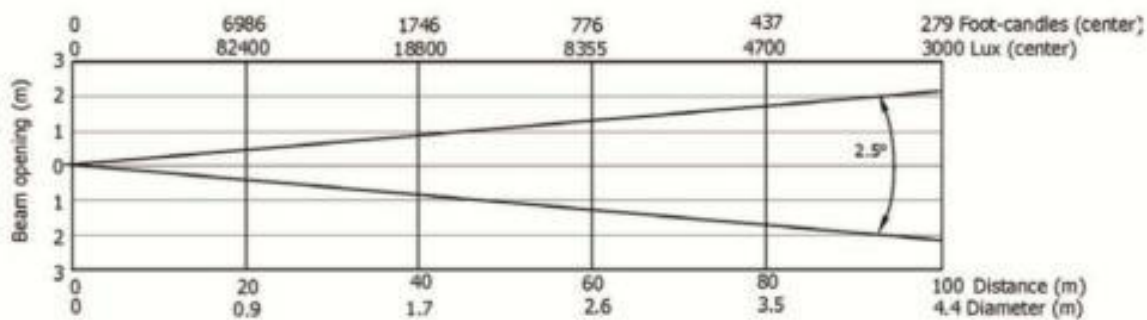
Total Heat Dissipation

1600 BTU/h (calculated)

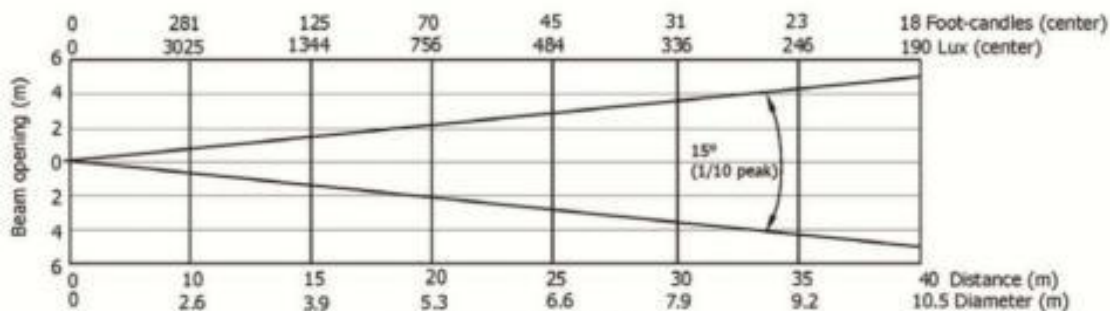
469 Wh (calculated)

Photometric diagrams

Min. Zoom (Beam application)

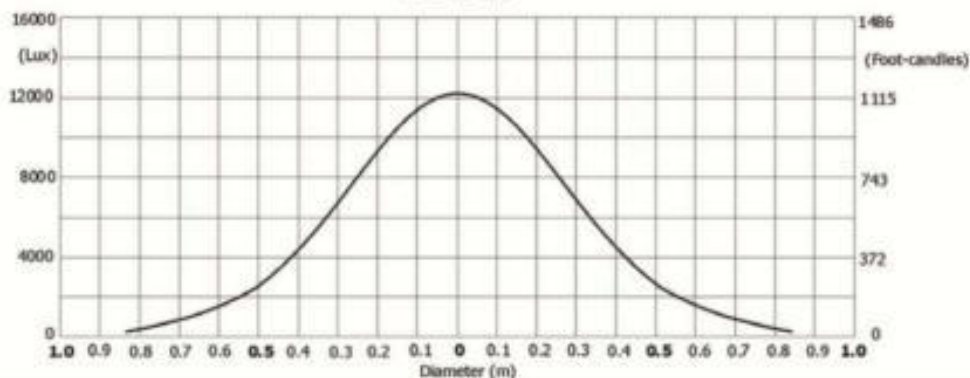


Min. Zoom with frost

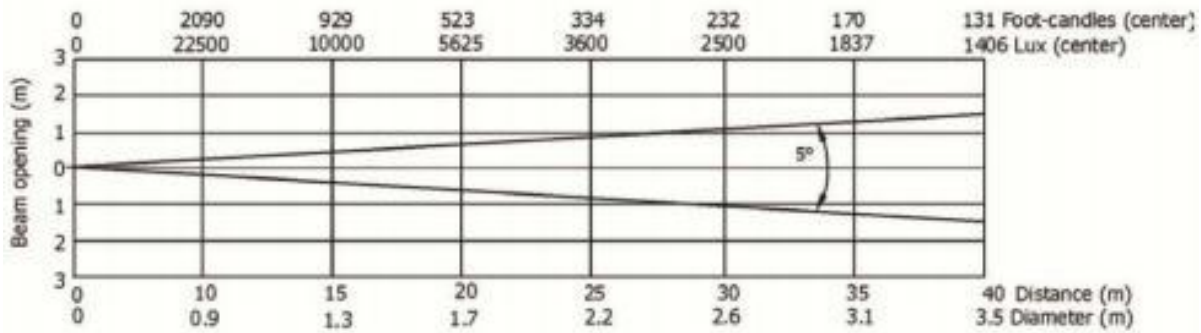


Illuminance distribution

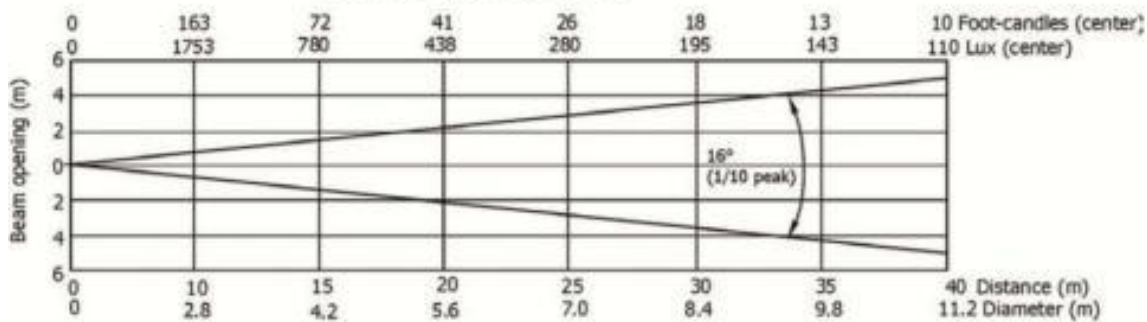
Distance=5m



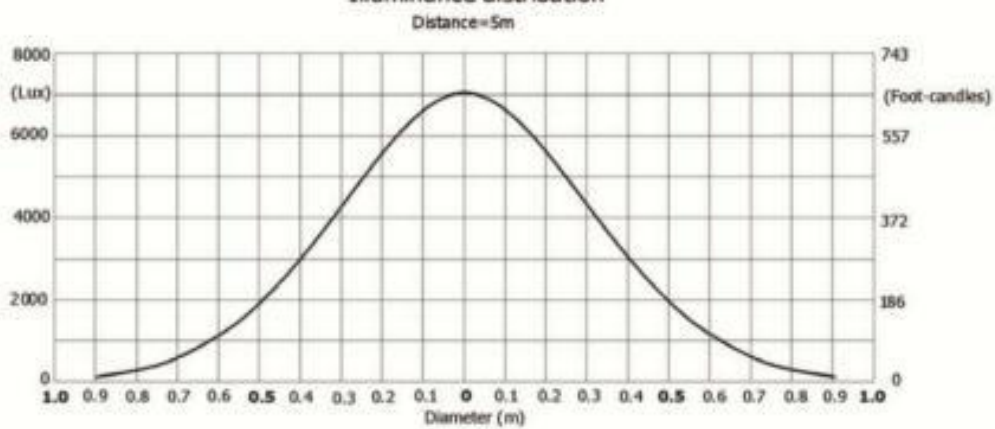
Min. Zoom (Spot application)



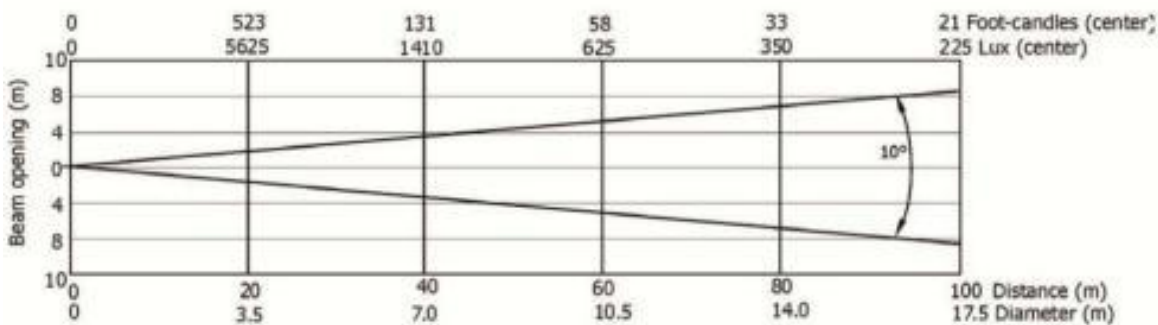
Min. Zoom with frost



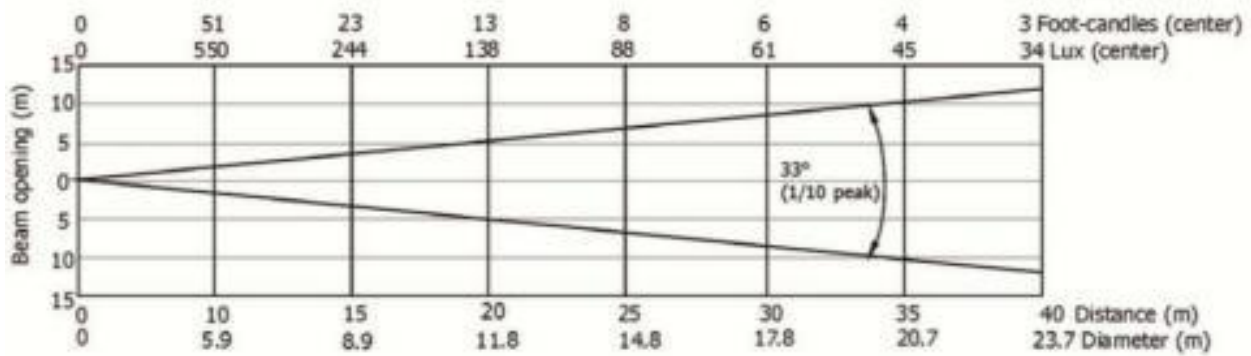
Illuminance distribution



Max. Zoom (Beam application)

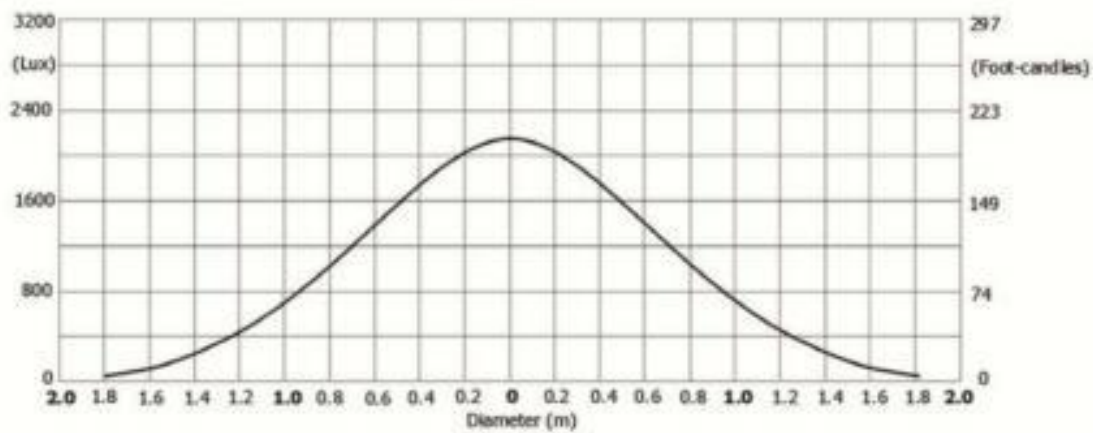


Max. Zoom with frost

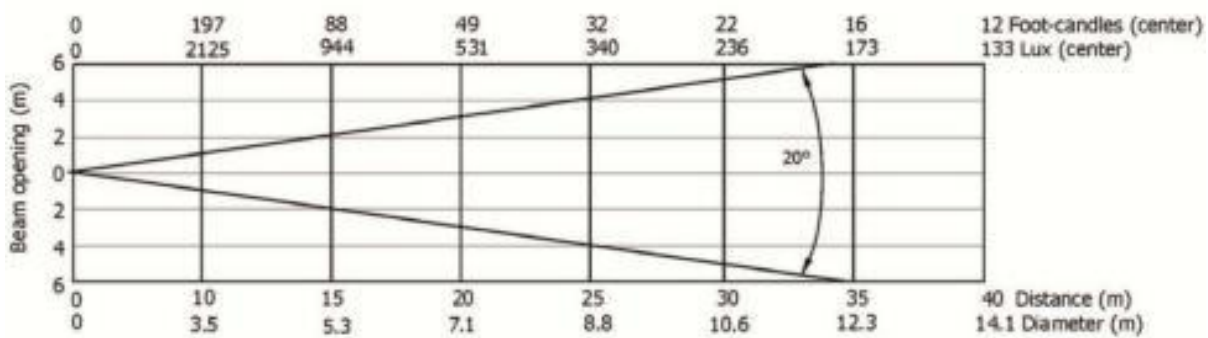


Illuminance distribution

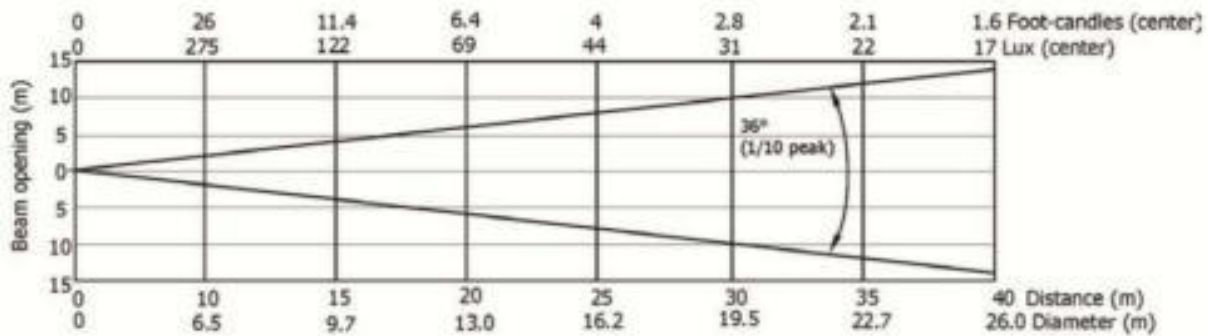
Distance=5m



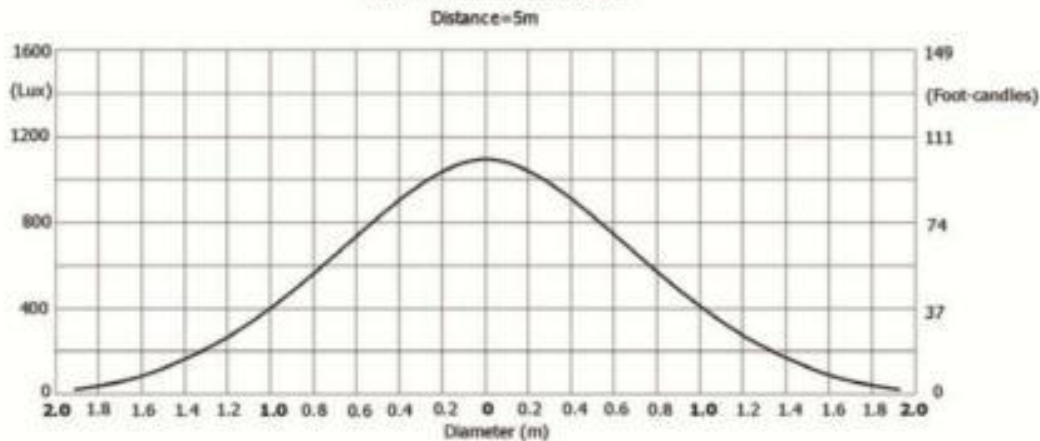
Max. Zoom (Spot application)



Max. Zoom with frost



Illuminance distribution



Safety Instruction



Please read the instruction carefully which includes important information about the installation, usage and maintenance.

WARNING

Please keep this User Guide for future consultation. If you sell the unit to another user, be sure that they also receive this instruction manual.

Unpack and check carefully there is no transportation damage before using the unit.

Before operating, ensure that the voltage and frequency of power supply match the power requirements of the unit.

It's important to ground the yellow/green conductor to earth in order to avoid electric shock. The unit is for indoor use only. Use only in a dry location.

The unit must be installed in a location with adequate ventilation, at least 50cm from adjacent surfaces.

Be sure that no ventilation slots are blocked. Disconnect main power before replacement or servicing.

Make sure there are no flammable materials close to the unit while operating as it is fire hazard.

Use safety cable when fixes this unit. DO NOT handle the unit by taking its head only, but always by taking its base.

Maximum ambient temperature is $T_a: 40^{\circ}\text{C}$. DO NOT operate it where the temperature is higher than this. Unit surface temperature may reach up to 85°C . DO NOT touch the housing bare-hand during its operation. Turn off the power and allow about 15 minutes for the unit to cool down before replacing or serving.

In the event of serious operating problem, stop using the unit immediately. Never try to repair the unit by yourself. Repairs carried out by unskilled people can lead to damage or malfunction.

Please contact the nearest authorized technical assistance center. Always use the same type spare parts. DO NOT touch any wire during operation as high voltage might be causing electric shock.

Warning

To prevent or reduce the risk of electrical shock or fire, do not expose the unit to rain or moisture. DO NOT open the unit within five minutes after switching off.

The housing, the lenses, or the ultraviolet filter must be replaced if they are visibly damaged.

For AC 120V, 60Hz power supply, maximum fixtures that can be connected together from the same mains outlet is 4pcs;

For AC 230V, 50Hz power supply, maximum fixtures that can be connected together from the same mains outlet is 8pcs;

Caution

There are no user serviceable parts inside the unit. DO NOT open the housing or attempt any repairs yourself. In the unlikely event your unit may require service, please contact your nearest dealer.

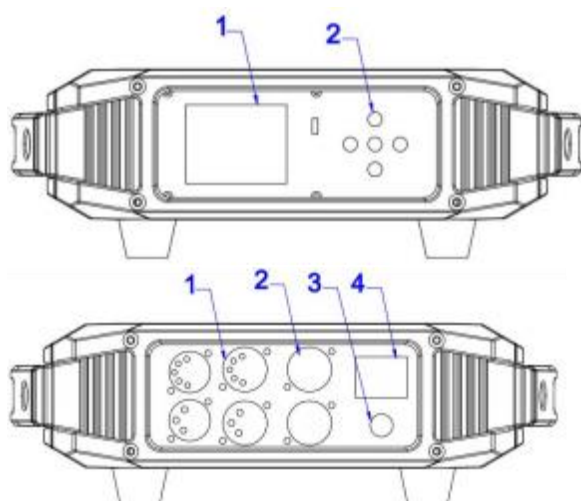
Installation

The unit should be mounted via its screw holes on the bracket. Always ensure that the unit is firmly fixed to avoid vibration and slipping while operating. And make sure that the structure to which you are attaching the unit is secure and is able to support a weight of 10 times of the unit's weight. Also always use a safety cable that can hold 12 times of the weight of the unit when installing the fixture.

The equipment must be fixed by professionals. And it must be fixed at a place where is out of the touch of people and has no one pass by or under it.

How To Set The Unit

Fixture Overview



1. Display:

To show the various menus and the selected functions

2. Button:

MENU	To select the programming functions
▼ DOWN	To go backward in the selected functions
▲ UP	To go forward in the selected functions
ENTER	To confirm the selected functions

3. DMX IN:

DMX512 link, use 3/5-pin XLR cable to link the fixture and the DMX controller

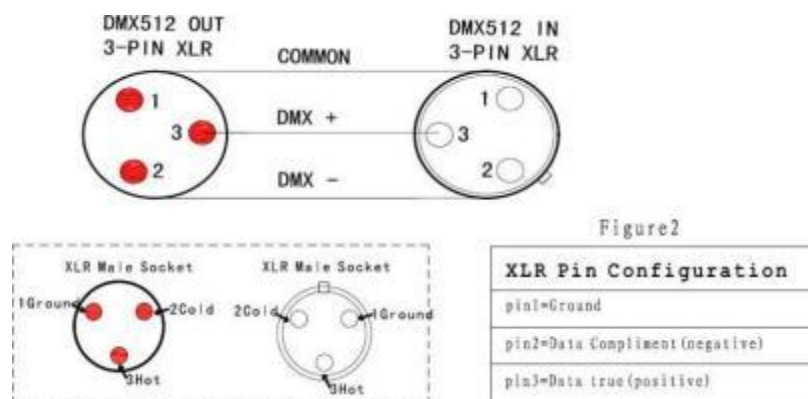
4.DMX OUT:

DMX512 link, use 3/5-pin XLR cable to link the next fixture

5. Power Cable:IN/OUT

6. Fuse (T 6.3A):

Protects the unit from over-voltage or short circuit



MAIN FUNCTION

To select any of the given functions, press the **MENU** button up to where the required function is showing on the display. Select the function by pressing the **ENTER** button and the display will blink. Use the **DOWN** and **UP** buttons to change the mode. Once the required mode has been selected, press the **ENTER** button to confirm. To go back to the functions without any changes, press the **MENU** button again. Press and hold the **MENU** button for one second or wait for one minute to go back to the main menu.

Panel operation

1. Brief

The light panel diagram show as Figure 1, Left area is TFT Displayer, support touch, and right area is encoder button, both of touch and coder button 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.

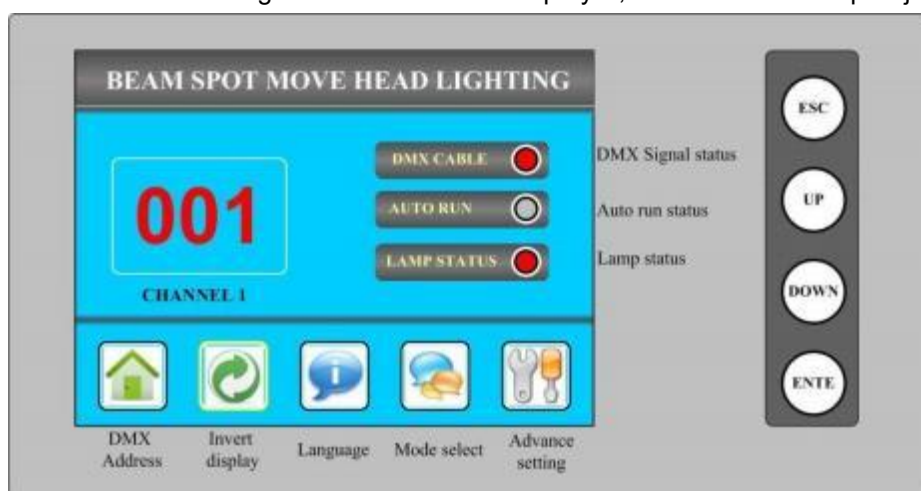


Figure 1 Panel diagram

1. Operation

1. Operate light with touch or encoder button

- The left area is TFT Displayer and touch, click 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 rotary encoder with button, As auxiliary input interface, if disable touch function,, the encoder can be choose to set or view the item, and then press the encoder button to confirm the selection, rotary encoder again set the parameter value, finally, Press encoder button one again to save value or setting.

2. Parameter value setting

When the selected item is value need to be modified, the dialog shown in Figure 2 will popup.



Figure 2 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' with 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 be saved into internal memory.

3. Boolean parameter setting

- when the selected parameters is a Boolean value (such as ON or OFF), can directly modify setting by click corresponding item, the setting will be saved right now.
- When the parameter is a key item, click corresponding item, a dialog shown in Figure 3 will be popup ask for the confirm. Click 'sure' to confirm.

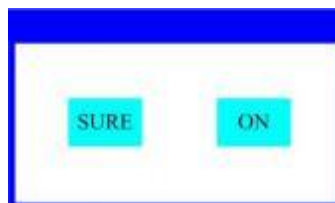


Figure 3 Dialog of confirm

4. Sub Menu (Parameter)

Click item of main menu, enter corresponding sub menu, shown in Figure 4, 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 4 Parameter menu

2. Operation and parameter instruction

Via following operation, enter sub menu(parameter menu) shown in Figure 4

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

1. 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 5,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 5 page of DMX Address

2. Set Light work mode

Enter the page of 'WORK MOD' as shown in Figure 6and modify setting. Can set light work mode, control lamp and DMX channel mode..

Light includes 3 work mode: DMX MODE, AUTO RUN and SOUND MODE, Parameter definition as following:

- **DMX Mode:** Under this mode, the light receive data from the DMX controller and move.
- **AUTO RUN:** Under this mode, light will run with inside code(data), ignore data from DMX controller.
- **SOUND Ctrl :** Under this mode, light ignore data from DMX controller., When there is a strong sound in stage, the light will run a scene, otherwise it will keep the last scene.
- **M/S Choose:** 'M/S Choose' is available when light just in 'AUTO RUN' or 'SOUND Ctrl' mode. If this item is set as 'OFF', the light don't send data to other light via DMX Cable. When 'ON', the data will send to other slave light immediately.
- **Lamp control :** Turn on lamp when this item is set 'ON', otherwise, turn off lamp. The gap between operation is limited to 30 second.
- **Channel mode:** Light support 2 DMX Channel mode: sample or extend.

Address	DMX Ctrl	✓
WorkMode	Auto Run	
Display	Sound Ctrl	
Test	M/S choose	OFF
Advance	Lamp On	OFF
Status	Channel Mode	sample
Escape		

Figure 6 page of work mode

3. Set display

Light support 2 language, rotation display , Enter page as shown in Figure7to set parameter following:

- **Language:** Select display as simplified Chinese or English.
- **Screen Saver :** when panel is idle(these is no operation in 10 second), displayer will enter saver status. When set as ' mode 1' , saver status is close display, as 'mode 2' saver status will display DMX address code(DMX MODE) or display LOGO(AUTO RUN or SOUND CTRL). As 'OFF', keep light up displayer and show main menu.
- **Screen Rotation:** rotate displayer.
- **Touch enable:** Disable or enable touch function, when disable, use encoder to operate light and set parameter.
- **Touch adjust:** adjust touch function, normally, not enter this item.

Address	Language	中文
WorkMode	Screen saver	mode 1
Display	Screen rotation	OFF
Test	Touch Enable	ON
Advance	Touch adjust	
Status		
Escape		

Figure7 page of display

4. Test light

Enter the page as shown in Figure 8, Light will into test mode, in this mode, the light does not receive the data for DMX controller:

- 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;

Address	PAN	000
WorkMode	TILT	000
Display	FOCUS	000
Test	COLOR	000
Advance	GOBO	000
Status	PRISM	000
Escape	FROST	000
	STROBE	000

Figure 8 page of Test

5. Set light run parameter

Enter the page as shown in Figure 8, set the parameter of light:

- Pan Invert: Reverse PAN move.
- Tilt Invert: Reverse TILT mover.
- Rectify enable: set as 'OFF', PAN or TILT will disable position rectify function. As 'ON', when PAN or TILT lose steps, light will rectify auto.
- Pan Offset: Set PAN original position.
- Tilt Offset: Set TILT original position.
- Lamp up when: Select lamp on mode, includes 3 mode: power on, after reset done and manual;
- Factory setting: restore all parameter to factory setting.

Address	PAN Inset	OFF
WorkMode	TILT Inset	OFF
Display	Rectify Enable	ON
Test	PAN Offset	008
Advance	TILT Offset	020
Status	Lamp on when	pwr on
Escape	Factory Setting	

Figure 9 page of run parameter

6. View status

Enter the page as shown in Figure 10:

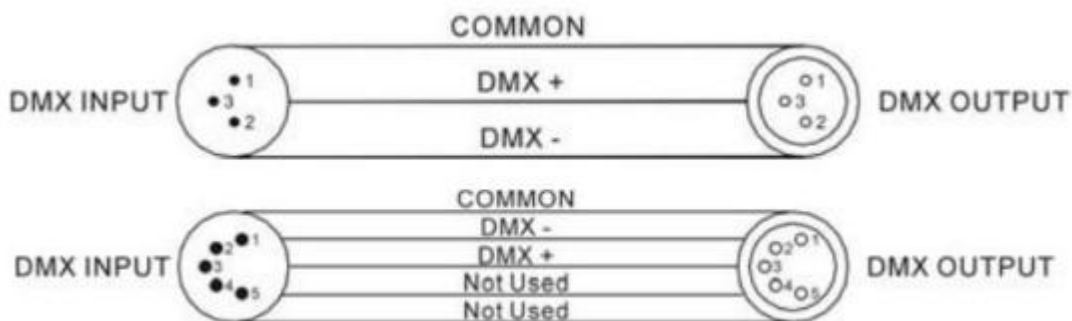
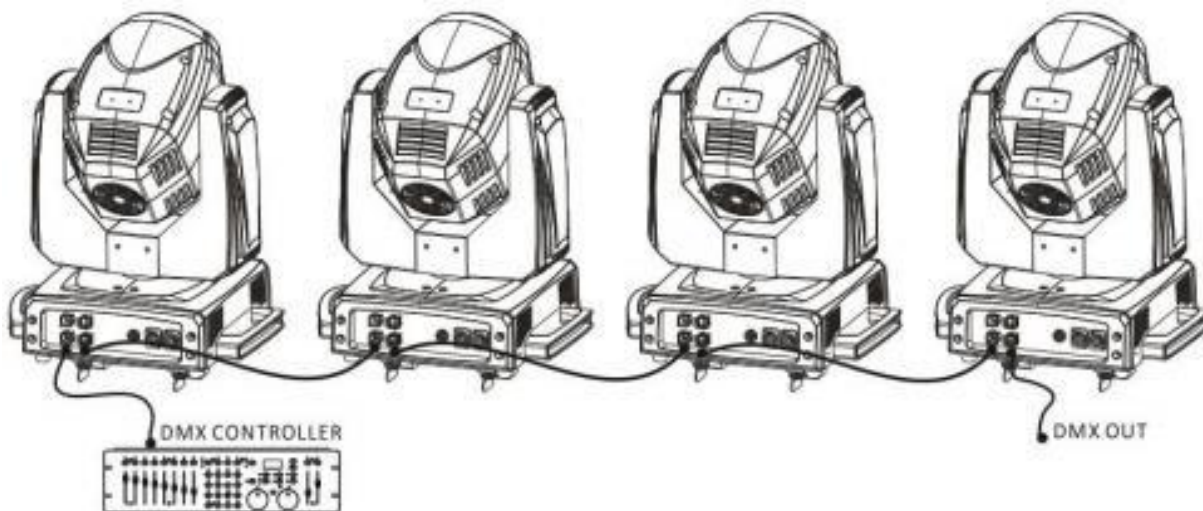
- View light current status, version;
- DMXClr: Click to clear all DMX data to '0'.
- SysRst: Click to reset light.

Address	Work Mode	DMX ...
WrokMode	Address	001
Display	Version	B5R.1.1 16n
Test	Elapse	000H 04M
Advance	Tatol	00000H 04M
Status	<div>DMX Clr</div> <div>SysRet</div>	
Escape		

Figure 10 page of statuse

How To Control The Unit

DMX 512 Connection



1. 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.
 2. Connect the unit together in a 'daisy chain' by XLR plug from the output of the unit to the input of the next unit. The cable can not be branched or split to a 'Y' cable. 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.
 3. The DMX output and input connectors are pass-through to maintain the DMX circuit, when power is disconnected to the unit.
 4. Each lighting unit needs to have an address set to receive the data sent by the controller. The address number is between 0-511 (usually 0 & 1 are equal to 1).
 5. The end of the DMX 512 system should be terminated to reduce signal errors.
 6. 3 pin XLR connectors are more popular than 5 pin 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 (+)
 Pin 4/5: Not used.

DMX Address Setting

By using a universal DMX controller to control the units, you will need to set DMX address from 1 to 512 so that the units can receive DMX signal.

Press the MENU button up to when the DMX Address is showing on the display. Pressing the ENTER button and the display will blink. Use the UP/DOWN buttons to change the DMX address.

Once the address has been selected, press the ENTER button to setup, to go back to the functions without any change press the MENU button again. Press and hold the MENU button about one second or wait for about one minute to exit the menu mode.

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

Channel Mode	Unit 1 Address	Unit 2 Address	Unit 3 Address	Unit 4 Address
16CH	1	16	32	48
24CH	1	24	48	72

DMX Mode

16CH/24CH Mode

MODE/CHS				
STAND	BASIC	FUNCTION	VALUE	SCDESCRIPTION
1	1	Pan	0~255	Pan movement by 540
2		Pan Fine	0~255	Fine control of pan movement
3	2	Tilt	0~255	Tilt movement by 270
4		Tilt Fine	0~255	Fine control of tilt movement
5	3	P/T Speed	0~255	Fast to slow

			0~89	none
			90~99	Blackout when color wheel moving
			100~109	Blackout when gobos wheel moving
			110~119	Blackout when prisms moving
6	4	Function Reset Lamp	120~129	Blackout when color, gobos, prisms moving
			130~139	Lamp on (Over 3 seconds)
			140~149	Reset Pan/Tilt (Over 3 seconds)
			150~189	Reset Effect motor (Over 3 seconds)
			200~209	Reset All (Over 3 seconds)

			210~229	none
			230~239	Lamp Off (Over 3 seconds)
			240~255	none
7	5	Color	Linear color select	
			0~1	White (100%~10%)
			2~9	Color 1 (100%~10%)
			10~19	Color 2 (100%~10%)
			20~28	Color 3 (100%~10%)
			29~37	Color 4 (100%~10%)
			38~47	Color 5 (100%~10%)
			48~55	Color 6 (100%~10%)
			56~65	Color 7 (100%~10%)
			66~74	Color 8 (100%~10%)
			75~83	Color 9 (100%~10%)
			84~92	Color 10 (100%~10%)
			93~101	Color 11 (100%~10%)
			101~110	Color 12 (100%~10%)
			110~119	Color 13 (110%~10%)
			119~129	White
			130~134	Color 1
			135~138	Color 2
			139~143	Color 3
			144~147	Color 4
			148~152	Color 5
			153~157	Color 6
			158~161	Color 7
			162~166	Color 8
			167~171	Color 9
			172~176	Color 10
			177~180	Color 11
			181~185	Color 12
			186~189	Color 13
			190~215	Forwards rainbow effect from fast to slow
			216~217	Stop, white
			218~243	Backwards rainbow effect from slow to fast
			244~255	Auto color selection from fast to slow
8		Color Fine	0~255	Fine positioning
9	6	Effect Speed	0~255	Speed of Rotating gobo, fast to slow
			0~3	Beam(Hole)

10	7	Static Gobo Wheel	4~9	Gobo 1
			10~15	Gobo 2
			16~21	Gobo 3
			22~27	Gobo 4
			28~33	Gobo 5
			34~39	Gobo 6
			40~45	Gobo 7
			46~51	Gobo 8
			52~57	Gobo 9
			58~63	Gobo 10
			64~69	Gobo 11
			70~75	Gobo 12
			76~81	Gobo 13
			82~87	Gobo 14
			88~95	Gobo 1 Shake (Slow to fast)
			96~103	Gobo 2 Shake (Slow to fast
			104~111	Gobo 3 Shake (Slow to fast
			112~119	Gobo 4 Shake (Slow to fast
			120~127	Gobo 5 Shake (Slow to fast
			128~135	Gobo 6 Shake (Slow to fast
			136~143	Gobo 7 Shake (Slow to fast
			144~151	Gobo 8 Shake (Slow to fast
			152~159	Gobo 9 Shake (Slow to fast
			160~167	Gobo 10 Shake (Slow to fast
			168~175	Gobo 11 Shake (Slow to fast
			176~183	Gobo 12 Shake (Slow to fast
			184~191	Gobo 13 Shake (Slow to fast
			192~199	Gobo 14 Shake (Slow to fast
			200~201	Beam/hole
			202~221	Forwards gobo rainbow from slow to fast
			222~223	stop
			224~243	Backwards gobo rainbow from fast to slow
			244~255	Auto gobo selection from fast to slow
11	8	Rotating Gobo Wheel	Rot.gobo Index	
			0~4	White
			5~7	Gobo 1
			8~10	Gobo 2
			11~13	Gobo 3
			14~16	Gobo4
			17~19	Gobo 5
			20~22	Gobo6
			23~25	Gobo 7
			26~28	Gobo 8
			29~31	Gobo 9
			Rot. Gobo rotation	

			32~34	Gobo 1
			35~37	Gobo 2
			38~40	Gobo 3
			41~43	Gobo 4
			44~46	Gobo 5
			47~49	Gobo 6
			50~52	Gobo 7
			53~55	Gobo 8
			56~59	Gobo 9
			Rot.gobo Index	
			60~67	Gobo 1 Shake (slow to fast)
			68~75	Gobo 2 Shake (slow to fast)
			76~83	Gobo 3 Shake (slow to fast)
			84~91	Gobo 4 Shake (slow to fast)
			92~99	Gobo 5 Shake (slow to fast)
			100~107	Gobo 6 Shake (slow to fast)
			108~115	Gobo 7 Shake (slow to fast)
			116~123	Gobo 8 Shake (slow to fast)
			124~129	Gobo 9 Shake (slow to fast)
			Rot. Gobo rotation	
			130~137	Gobo 1 Shake (slow to fast)
			138~145	Gobo 2 Shake (slow to fast)
			146~153	Gobo 3 Shake (slow to fast)
			154~161	Gobo 4 Shake (slow to fast)
			162~169	Gobo 5 Shake (slow to fast)
			170~177	Gobo 6 Shake (slow to fast)
			178~185	Gobo 7 Shake (slow to fast)
			186~193	Gobo 8 Shake (slow to fast)
			194~199	Gobo 9 Shake (slow to fast)
			200~201	White
			202~221	Forwards gobo rainbow from slow to fast
			222~223	stop
			224~243	Backwards gobo rainbow from fast to slow
			244~255	Auto goo selection from fast to slow
12	9	Rot. Gobo	Gobo index	
			0~255	0~200
			Gobo rotation	
			0	No rotation
			1~127	Forwards gobo rotation from fast to slow
			128~129	No rotation

			130~255	Backwards gobo rotation from slow to fast
13		----		Rot.gobo indexing and rotation-fine
			0~255	Fine indexing (rotation)
14	10	Prism	0~19	Open position (hole)
			20~49	6-facet linear rotating prism -indexing
			50~75	6-facet linear rotating prism- rotation
			76~105	8-facet circular rotating prism- Indexing
			106~127	8-facet circular rotating prism-rotation
			Prism/Gobo macro	
			128~135	Macro 1
			136~143	Macro 2
			144~151	Macro 3
			152~159	Macro 4
			160~167	Macro 5
			168~175	Macro 6
			176~183	Macro 7
			184~191	Macro 8
			192~199	Macro 9
			200~207	Macro 10
			208~215	Macro 11
			216~223	Macro 12
			224~231	Macro 13
			232~239	Macro 14
			240~247	Macro 15
			248~255	Macro 16
15	11	Rot.Prism	Rot.Prism Index	
			0~255	0~200 degree
			Rot.Prism rotation	
			0	No rotation
			1~127	Forwards prism rotation from fast to slow
			128~129	No rotation
16	12	Frost	130~255	Backwards prism rotation from slow to fast
			0	Open
			1~179	Frost from 0% to 100%
			189~189	100% frost
			190~211	Pulse closing from slow to fast
			212~233	Pulse opening from slow to fast

			234~255	Rambling from fast to slow
17	13	Zoom	0~255	Zoom from max. to min.beam angle
18		Zoom Fine	0~255	Fine Zoom
19	14	Focus	0~255	Continuous adjustment from far to near
20		Focus Fine	0~255	Fine Focus
21		---	0~255	Reserved
22	15	Strobe	0~31	Shutter closed (Lamp power reduced to 230W)
			32~63	Shutter open, Full lamp power
			64~95	Strobe-effect from slow to fast
			96~127	Shutter open
			128~159	Opening pulse in sequences from slow to fast
			160~191	Shutter open
			192~223	Random strobe-effect from slow to fast
			224~255	Shutter open, full lamp power
23	16	Dimmer	0~255	Dimmer intensity from 0% to 100%
24		--		Reserved

Troubleshooting

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

A. The unit does not work, no light and the fan does not work

1. Check the connection of power and main fuse.
2. Measure the mains voltage on the main connector.
3. Check the power on LED.

B. Not responding to DMX controller

1. DMX LED should be on. If not, check DMX connectors, cables to see if link properly.
2. If the DMX LED is on and no response to the channel, check the address settings and DMX polarity.
3. If you have intermittent DMX signal problems, check the pins on connectors or on PCB of the unit or the previous one.
4. Try to use another DMX controller.
5. Check if the DMX cables run near or run alongside to high voltage cables that may cause damage or interference to DMX interface circuit.

C. Some units don't respond to the easy controller

1. You may have a break in the DMX cabling. Check the LED for the response of the master/ slave mode signal.

2. Wrong DMX address in the unit. Set the proper address.

D. No response to the sound

1. Make sure the unit does not receive DMX signal.

2. Check microphone to see if it is good by tapping the microphone

E. One of the channels is not working well

1. The stepper motor might be damaged or the cable connected to the PCB is broken.

2. The motor's drive IC on the PCB might be out of condition

6. Fixture Cleaning

The cleaning of external optical lenses and/or mirrors must be carried out periodically to optimize light output. Cleaning frequency depends on the environment in which the fixture operates: damp,

smoky or particularly dirty surrounding can cause greater accumulation of dirt on the unit's optics.

Clean with soft cloth using normal glass cleaning fluid. Always dry the parts carefully.

Clean the external optics at least every 30 days.

REMARK

The product has perfect performance and integrity packing.

All users should be strictly comply 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.

Errors and omissions for every information given in this manual excepted.

All information is subject to change without prior notice.