

FOS HYDRO BSW

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1. Safety instructions

Before using the fixture, read the latest version of the product user manual, paying particular attention to the safety instructions. Please check www.FOS Technologies-lighting.com for the latest revision/update of the user manual.



The manufacture of this fixture, are not responsible for damages, resulting from misuse of this fixture, due to the disregard of the information printed in this user manual.



DANGER!
Hazardous voltage. Risk of lethal or severe electric shock



WARNING!
Wear protective eyewear. Never look directly into the light source.



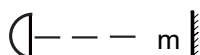
WARNING!
Burn hazard. Hot surface. Do not touch.



Only to direct mounting on non-combustible surfaces.



Replace all cracked glass shields.



Minimum distance to lighted objects.

$t_a \dots ^\circ\text{C}$ Maximum ambient temperature.

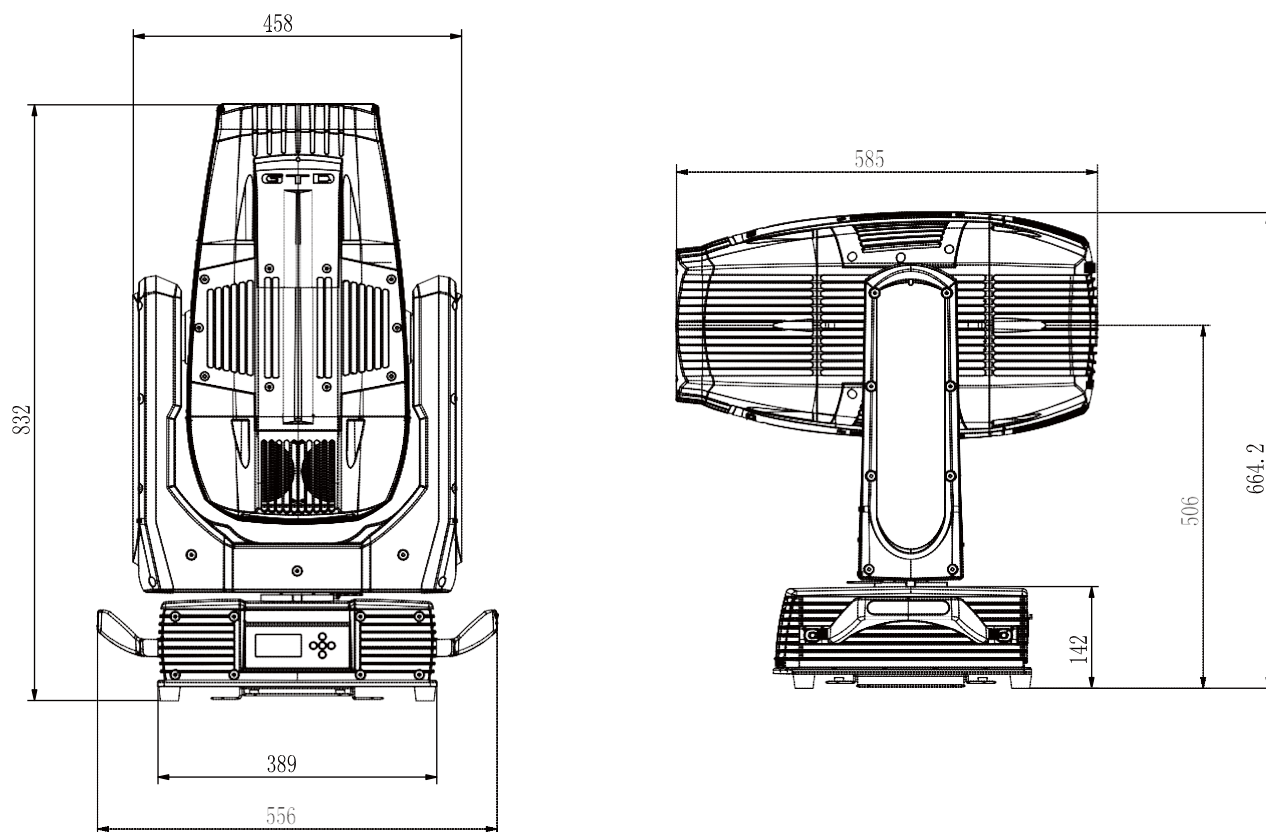
$t_c \dots ^\circ\text{C}$ Maximum temp of the external surface.

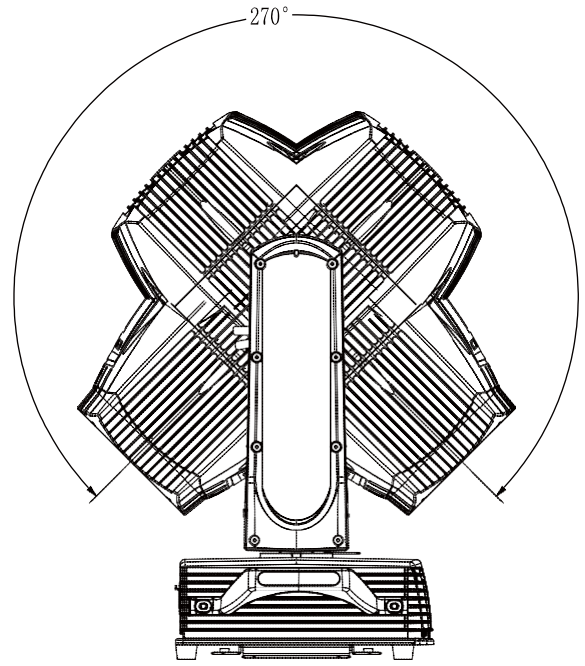
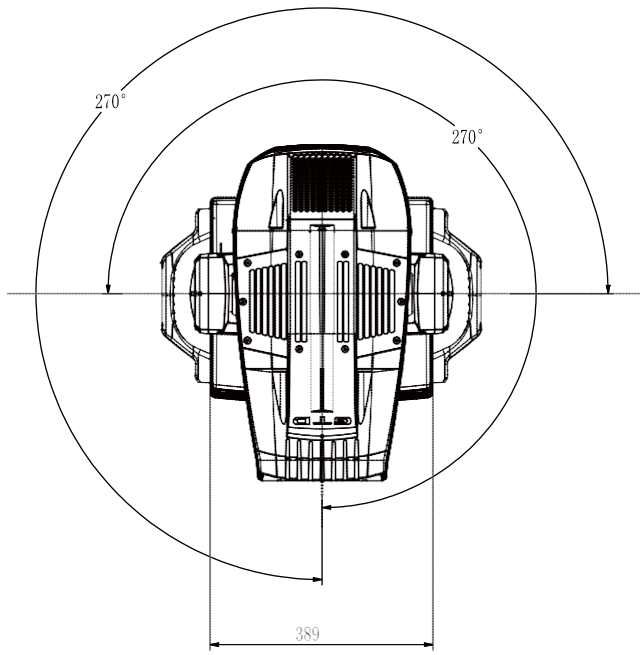
General guidelines

- This product has a protection rating of P66.
- Never open this fixture while in use.
- The fixture should be kept clean. DO NOT operate the fixture in extreme heat or dusty environments. Avoid contact with chemical liquid.
- Minimum distance to lighted objects must be 49.21feet (15m).
- Maximum temp of the external surface 212°F (100°C).
- Maximum ambient temperature 113°F (45°C).
- Minimum distance of inflammable materials from the surface 1.6 feet (0.5m).
- Lamp should be changed if damaged or distorted in shape due to extreme heat.
- Cover, prism or LCD Menu Function Display with visible damages such as cracks or scratches must be replaced to ensure performance of the fixture.
- Disconnect the fixture from power before changing any parts or accessories.
- Basic insulation should be maintained between the controllable device and the product power supply.
- Make sure that the installation area can hold a minimum point load of 10 times the weight of all installed fixtures, clamps, cables, auxiliary equipment, etc. Check that the cover, clamps and locks are undamaged. Certified safety cables must always be used when installing the fixture.
- The fixture is only intended for installation, operation and maintenance by qualified professional. Instructions stated in the manual must be complied.
- The fixture must be kept in a well-ventilated place at least 50 cm away from any wall surface. Check if the fans or ventilation openings are unblocked.
- This fixture uses discharge lamp. To avoid reducing the lamp's life, wait at least 15 minutes after powering off to allow the unit to cool down before handling.
- Broken or damaged cables and light source can only be fixed or changed by certified technicians, certified local distributors or the manufacturer to ensure operational safety.
- Do not stick filters or other materials onto the lens. Do not modify the fixture or install other than FOS TECHNOLOGIES manufactured parts.

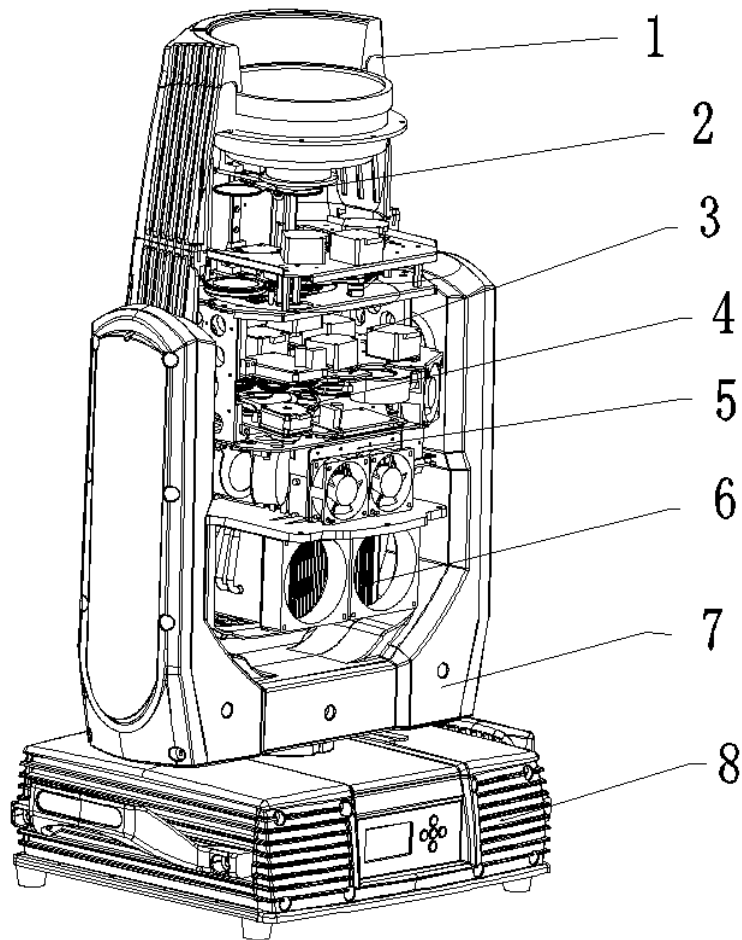
2. Production instructions

2.1 Dimensions





2.2 Fixture overview



1. Head module 2. Frost module 3. Framing blade system 4. CMY
 5. Light module 6. Lamp-holder assembly 7. Pan-tilt frame
 8. Base module

2.3 Accessories

Item	Qty	Unit	Remark
User Manual	1	Pc	--
Clamps	2	Set	02A+21A 42-52mm Load weight 200KG
Safety cable	2	Pc	Φ4*60cm 7*19 pc with hook Material: Steel
3-pins signal line	1	Set	--
Power cable	1	Set	1.2*2.5mm ² Diameter 3.9

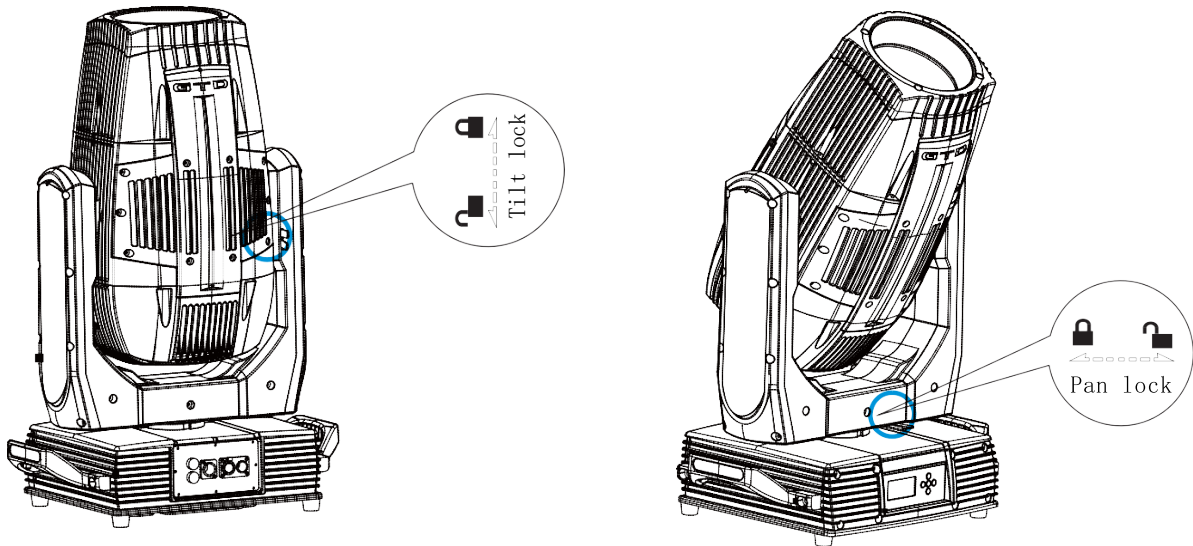
3. Packing and shipping

3.1 Protection lock

Pan and tilt locks are equipped to ensure safe transportation.

PAN: 4 lock positions are located evenly on the Pan.

TILT: 5 lock positions are located on left and right side of the Tilt with the third one in the center.



3.2 Unpacking

⚠ Notes

All products are quality controlled and checked for any faults before they are dispatched to customers. If the fixture is damaged during delivery, the customer must notify the shipper and manufacturer to file a damage insurance claim. Photographic evidence of the damage must be provided.

Flight-Case: Open the cover of the flight-case and remove the plastic packing bags. Hold the handles of the fixture firmly and take it out carefully.

Cardboard box: Open the box and take out the whole set of packaging foam which contains both the fixture and its accessories. Remove the foam from the top, put away the accessories, and then take out the fixture wrapped in the plastic bag.

⚠ Notes

Check if the pan and tilt are unlocked before connecting the fixture to power.

3.3 Packing after use

1. Switch off the fixture and wait for at least 5 minutes before disconnecting it from AC power. Cool down the fixture for at least 15 minutes before packing.
2. Lock pan and tilt.
3. Flight case: Wrap the fixture in plastic bags. Hold it by the handles, and then carefully place it inside the flight case along with all the accessories. Close the cover. Only 3 layers are allowed when piling up the flight cases. Do not upside down.
4. Cardboard box: Wrap the fixture in plastic bags. Put it in the packaging foam along with all the accessories. Place the other set of packaging foam on top then carefully put it inside the cardboard box.

4. Installation

4.1 Clamps installation

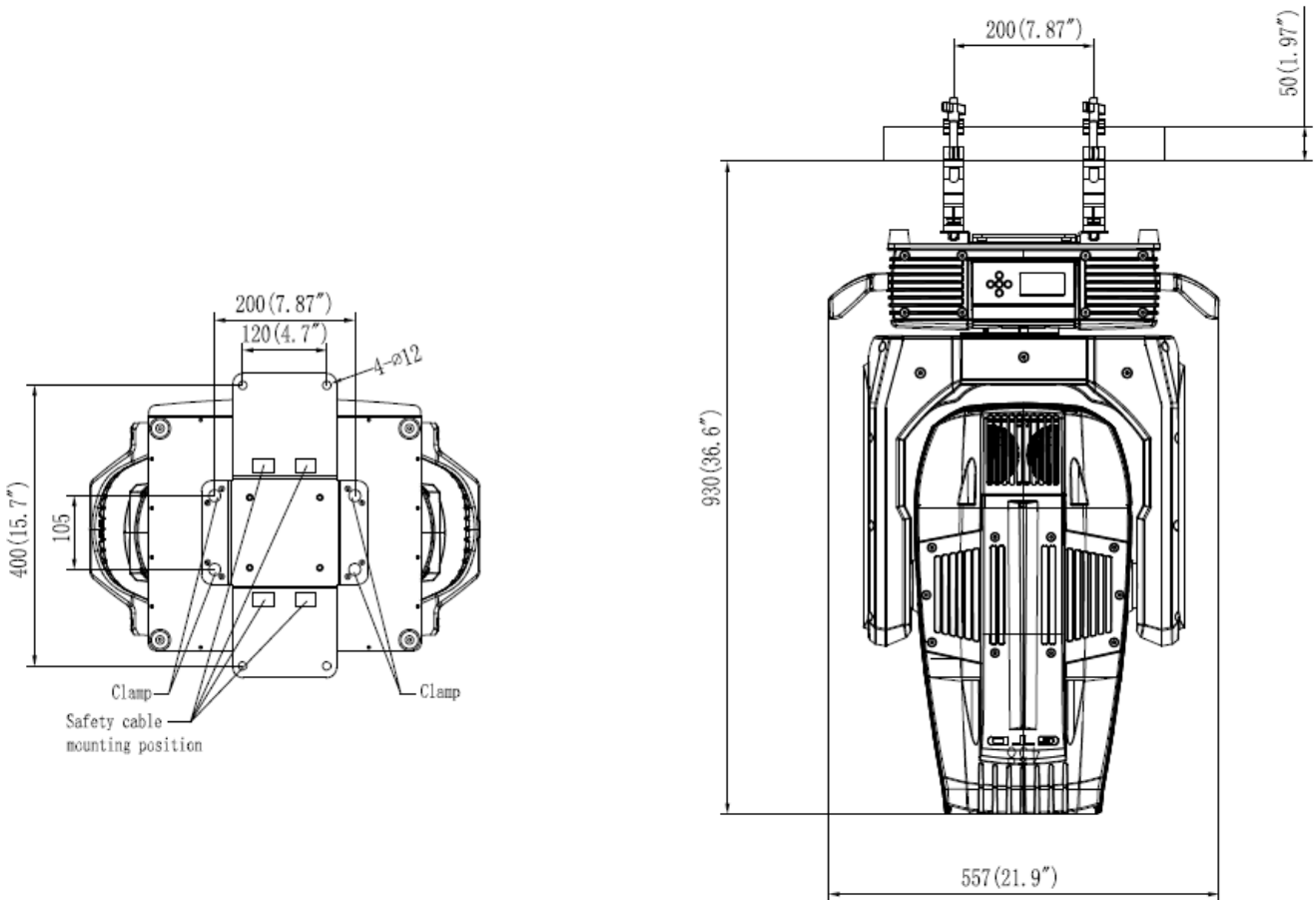
The fixture can be placed on the stage or mounted on the truss facing any direction. Attach the clamps to the mounting position on the base of the fixture.

Warning: Use two clamps when mounting the fixture. Turn the screws attached to each clamp a 1/4 turn clockwise to lock.

Always remember to use the safety cable which goes through the mounting hole on the base. Do not attach the safety cable on the handle.

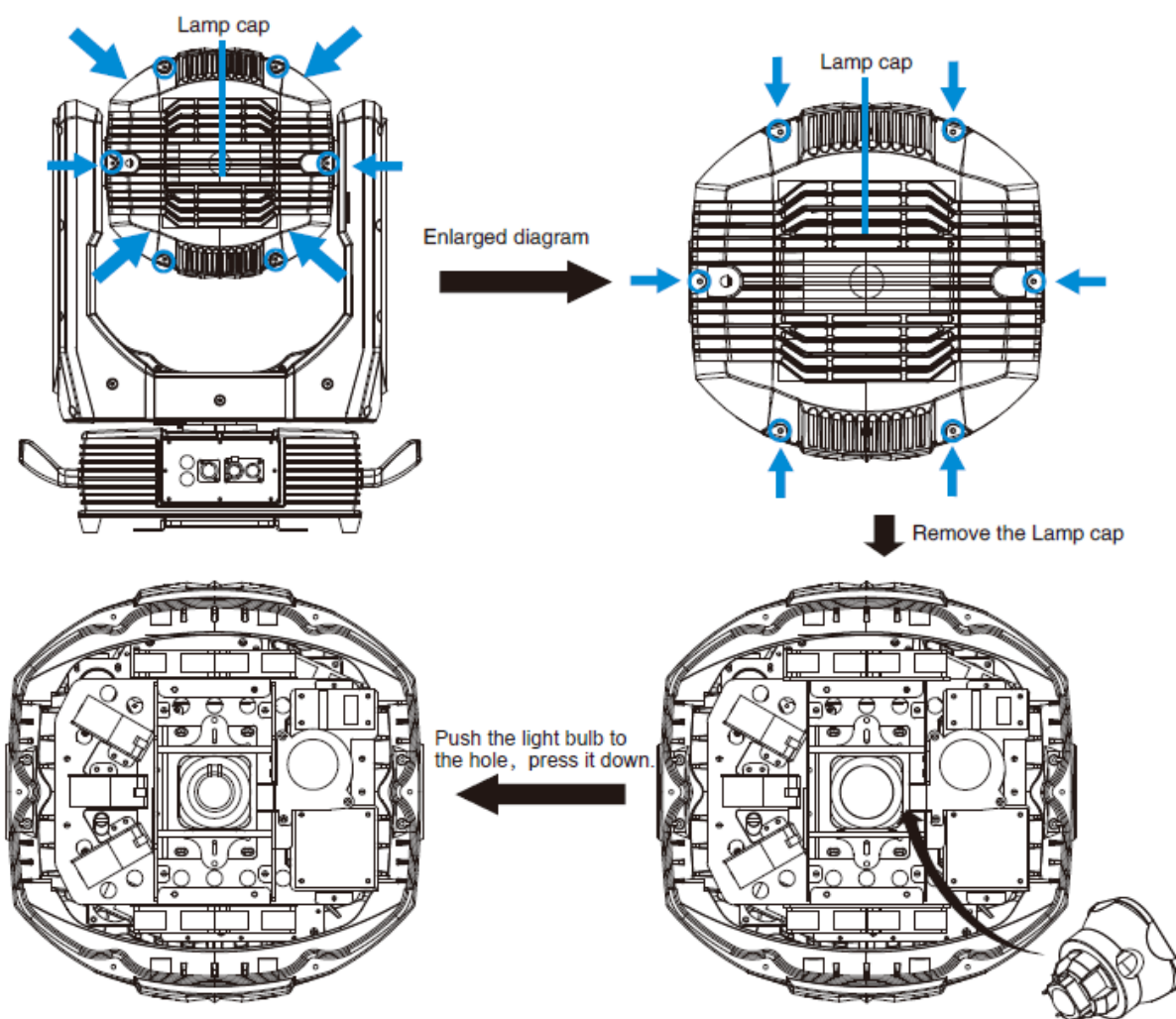
4.2 Device installation

1. Make sure there is no damage on the clamps or safety cables before installation.
2. The clamp is mounted on the chassis of the fixture. Horizontally insert the clamp into the mounting holes of the chassis. Fasten the clamp tightly by a 1/4 turn clockwise. Fix another clamp in the same way.
3. Check if pan and tilt are unlocked before connecting the unit to AC power.



4.3 Lamp fitting and adjustment

1. Disconnect the fixture from AC power. Cool down the fixture. Set the Tilt lock in a horizontal position.
2. Remove the lamp holder lower cover and plug out the waterproof terminal when disassemble the bulb, then loosen the fixed plate and take out the bulb.
3. Put the bulb into the fixed plate, then press the bulb clockwise with the fixed plate when install the bulb, observe the bulb spot and adjust it after lighted the bulb. Finally, plug in the waterproof fan and lamp holder lower cover.



⚠ Note

The fixture is equipped with PHILIPS 550W MSD Platinum 25 R, which is featured with high efficiency and short-arc characteristic, such as a stable 7800K color-temperature and average lifespan of 1500h.

⚠ Note

1. Fitting another type of lamp will cause potential damage to the fixture. Change the lamp before it reaches its lifespan. Read the guidelines in the package carefully when fixing the lamp.
2. To avoid any impact on the beam, do not touch the bulb with your bare hands. The lamp must be kept clean with the use

of the clean paper contained in its package

5. Power/ Control connection

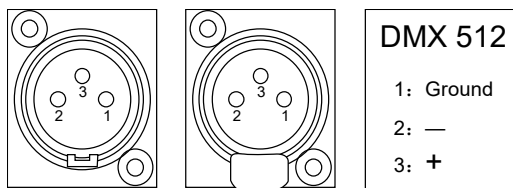
5.1 Power connection

Connection method:

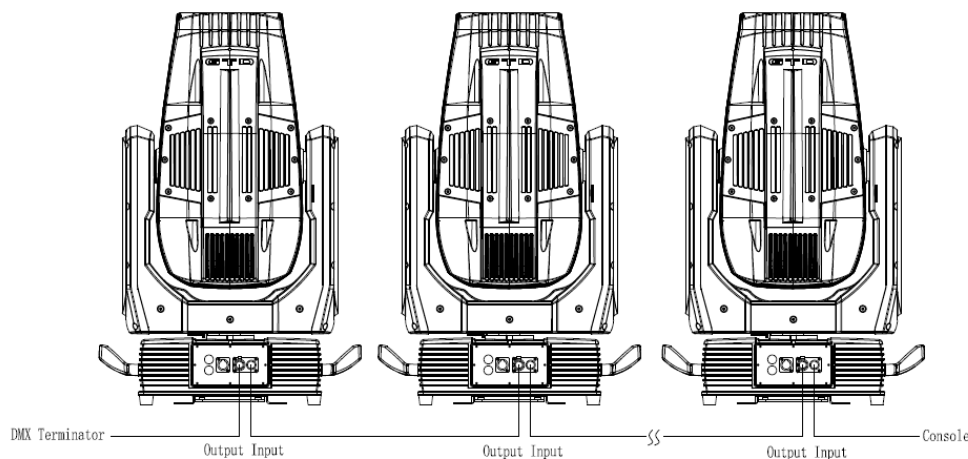
- L (Live) Brown wire
- E (Earth) Yellow / Green bi-color wire
- N (Neutral) Blue wire
- The voltage and frequency of the power source must be in compliance with the ones marked on the fixture. It is strongly recommended that each fixture are to be connected to the power source separately so that they can be switched on / off individually.

5.2 Control connection

The fixture has 3-pin XLR connectors for DMX data input and output as shown below. Connection between the console and fixture, and between fixtures must be made with 2 core screened DMX signal cable. Maximum connecting distance of signal cable is 150 meters. Additional DMX512 signal-amplifier is recommended for longer distance



Connect the Console's DMX OUTPUT to the first fixture's DMX INPUT, then the first fixture's DMX OUTPUT to the second fixture's DMX INPUT and so on. It is recommended not to connect more than 32 units on a single DMX universe. On the last fixture's output connect a DMX terminator. (The terminator is a 3-pin XLR connector with a 1/4W and 120Ω resistor between the pin 2 and pin 3) as shown below:

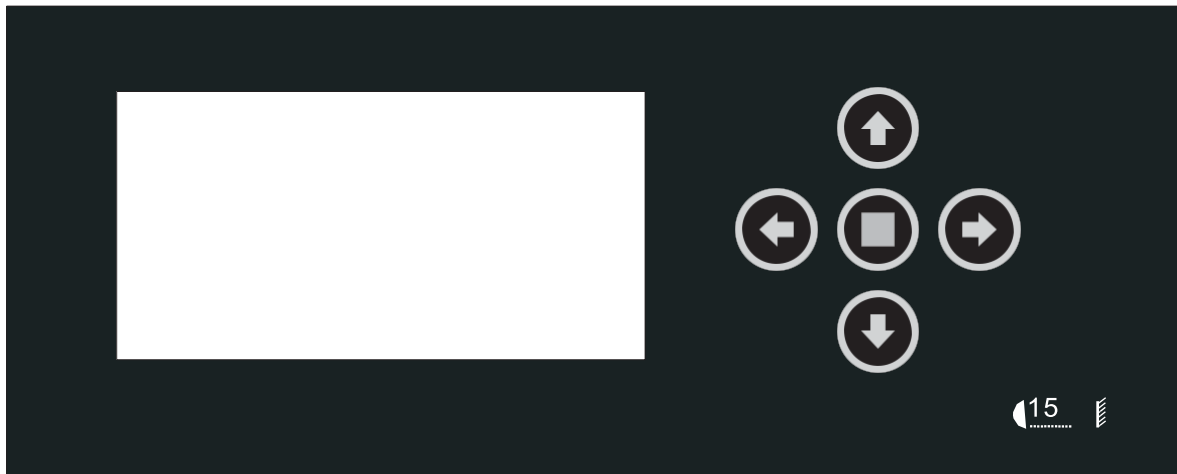


5.3 Testing

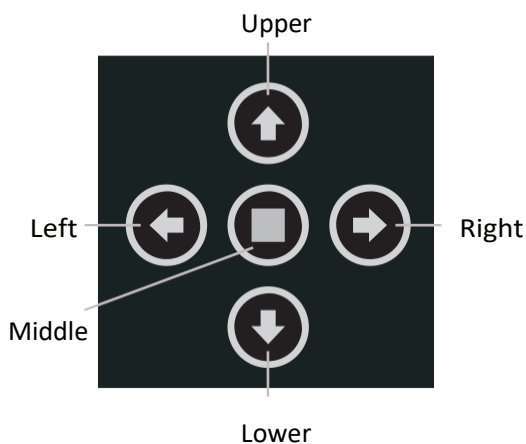
Connect the fixture to AC power. Check if the lamp is on and the fixture is independently controllable before putting into operation.

6. Control panel

6.1 Panel instruction



- The control panel features touch-sensitive buttons and LCD digital display for quick and easy setup of address code and functions menu.
- Press UP or DOWN to view or select the function menu.
- Press CENTER to choose a function and enter into corresponding sub menu. Each menu represents a specific function of the fixture.
- Press RIGHT to select the specific function and save the changes or enter into the submenu, then press UP or DOWN to change the value of the selected function (increase or decrease).
- Press LEFT to return to the previous menu or exit.
- Button panel indicator:



7. Technical specification

- **Optical**

Light source: PHILIPS 550W MSD Platinum 25 R

Expected average lifetime: 1500 h

Color temperature correction: 7800K

Zoom: BEAM 1.7° / SPOT 0° -17° / WASH 3.4° ~ 45°

CRI: $R_a \geq 85$

Focus: High-precision glass lenses, electronic linear HD focus

Prism: 1 pc tip 8-facet prism, 1 pc Symmetry facet prism, prisms can be controlled independently ,
or can be combined to make abundant beam effects

Frost: 1-independent frost effect

- **Gobo**

Rotating gobo wheel: 8 interchangeable gobos + open, indexing, CW/CCW rotation, variable speed

Fixed gobo wheel: 13 gobos + open, CW/CCW rotation, variable speed

Effect gobo wheel: 1 pc effect gobo wheel

Gobo outside diameter: 16.4mm

Max. Image diameter: 7mm

Max. Thickness: 1.5mm

Gobo material: Glass

- **Color**

Color wheel: CMY+CTO linear infinity color mixing, with built-in macros

12 colors + open, split color, CW/CCW rotation, "Rainbow effect" in both directions

- **Electrical**

Power input, nominal: AC 100-240V 50/60Hz

Max. Power consumption: 830W, max current: 8.3A, PF: 0.9

Power supply unit: Auto-ranging electronic SMPS

Main fuse: 250V/10A

Ballast: Electronic

Power input: Self-contained power cord

DMX data input/output: Chassis 3-pin (in/out)

- **Control and programming**

Control channels (DMX): 27/25/35

Protocol: DMX-512 RDM

Display: OLED

- **Physical / Installation**

Weight: 46Kg (101.4lbs.)

IP rating: IP66

Material: Aluminum, steel, plastic

Mounting points: Four quarter-turn locking points + attachment points for safety wire

- **Dynamic effects**

Pan/Tilt movement: 540°/270°

Iris: Motorized adjustable iris, wide range of variable pulse effects

Strobe: 1-25Hz, synchronized, pulse effects

Dimmer: 0-100%, mechanical dimming

- **Thermal**

Operating range: 5°F to 113°F (-15°C to +45°C)

Startup range: -13°F to 113°F (-25°C to +45°C)

Storage range: -40°F to 140°F (-40°C to +60°C)

Cooling: Active fan

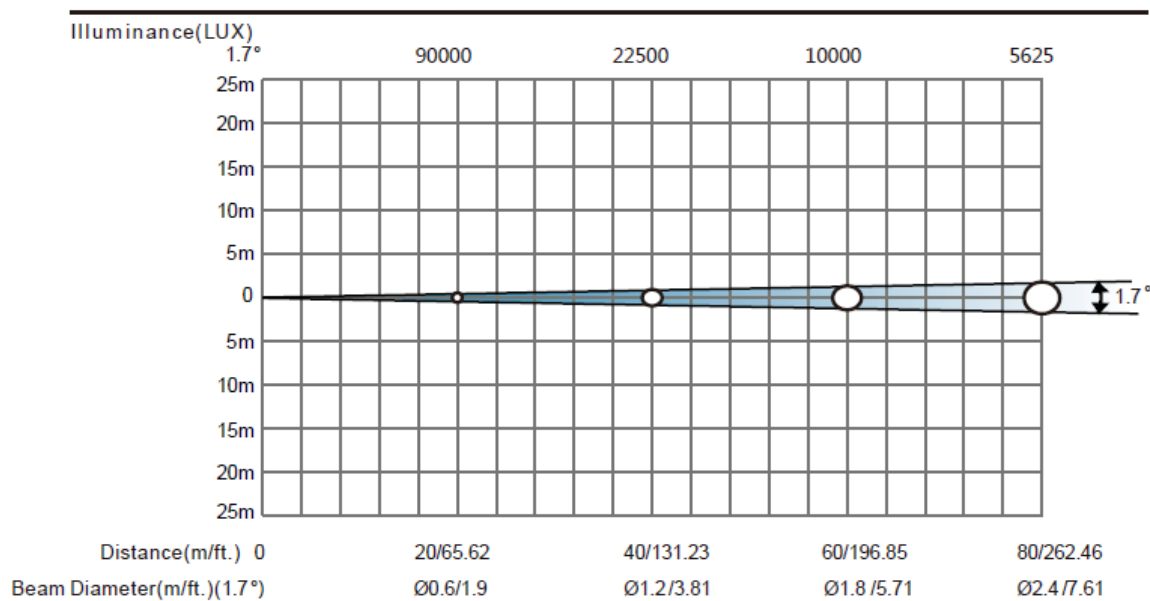
- **Certification and Safety**

EMC: EN 55103-1:2009, EN 55103-2:2009, EN 61000-3-2:2006+A2:2009, EN 61000-3-3:2013,
GB/T 17743-2007, GB 17625.1-2012

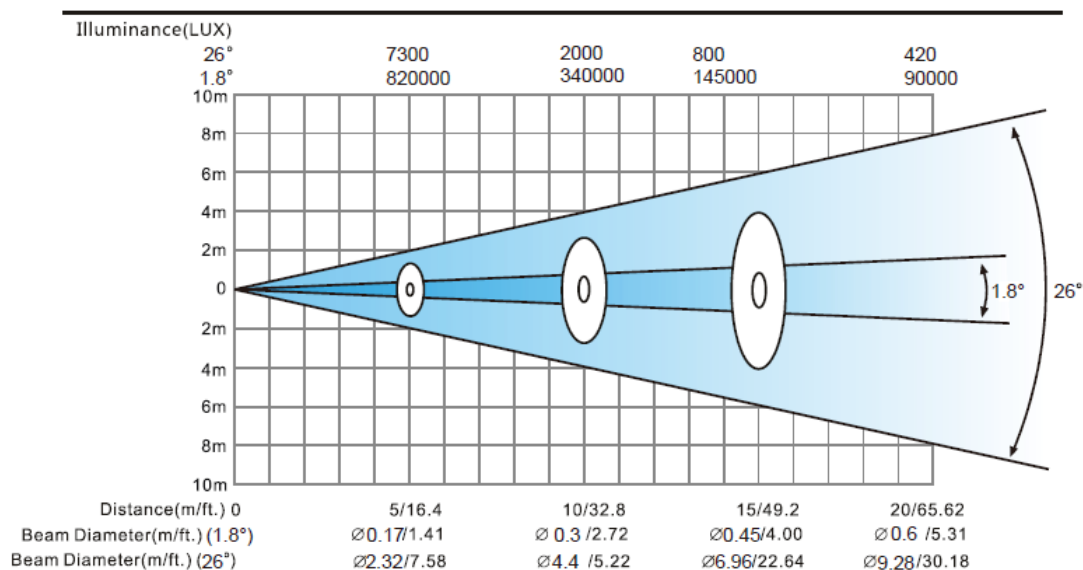
Safety: EN 60598-2-17:1989/A2:1991, GB 7000.1-2015, GB 7000.217-200811

- **Photometric**

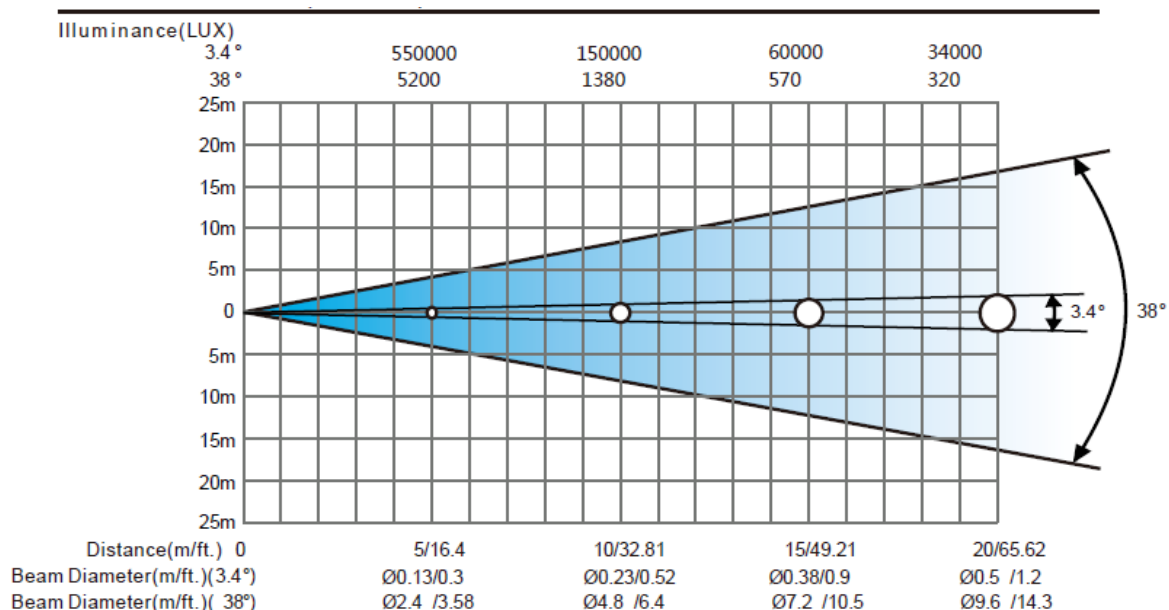
Beam



Spot



Wash



- Enhanced stability of the fixture due to the wide input voltage AC/DC switching power supply which both reduces the impact of power and voltage fluctuations, and removes the restriction of voltage and frequency variations in different countries.
- Automatic energy saving: when the shutter or CMY is closed, power consumption will be reduced automatically with the photoelectric tracking induction technology.
- Sleep mode: uses the most advanced technology to remotely activate sleep mode. When the fixture is disconnected from signal, the sleep mode is enabled automatically to make it more stable and safer. Sleep time can be customized.

- Power setting: built-in continuous rechargeable battery, allowing setting functional data via LCD interface without power connection

8. Gobos and colors

8.1 Gobo specification

All patterns are made onto the metal gobos, and can be customized according to user's requirement.

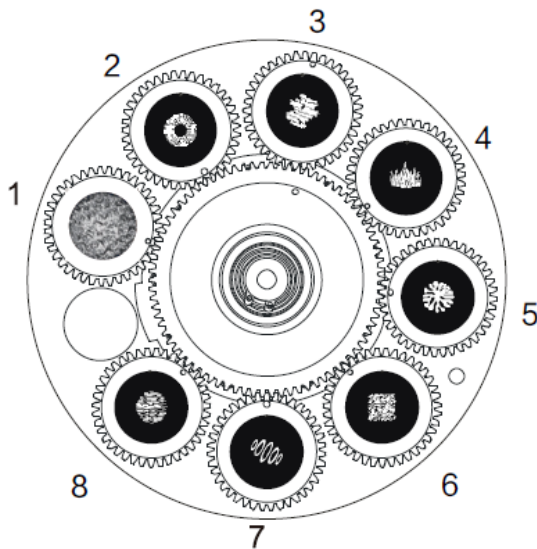
The customized size is as below:

Gobo material	Outer dimension	Effective dimension	Thickness
Glass gobo	Φ16.4mm	Φ7mm	1.5mm
Gobo material: Glass			

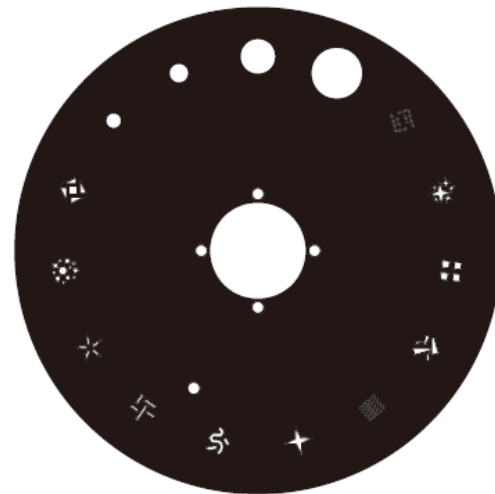
8.2 Gobos

One rotating gobo wheel: 8 interchangeable gobos + open, indexing, CW/CCW rotation, variable speed

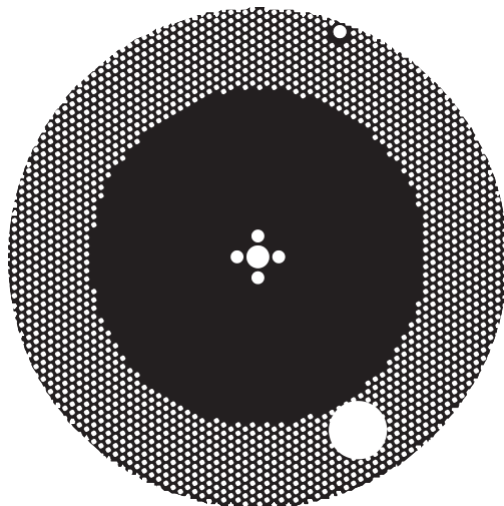
One fixed gobo wheel: 13 gobos + open, CW/CCW rotation, variable speed



Rotating gobo wheel



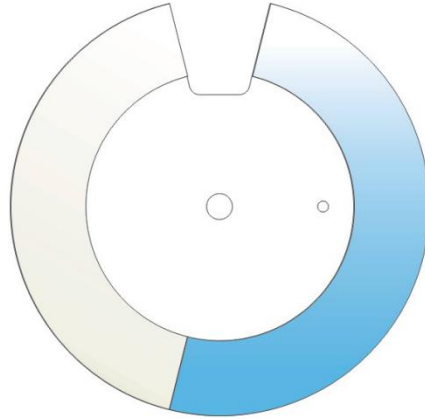
Fixed gobo wheel



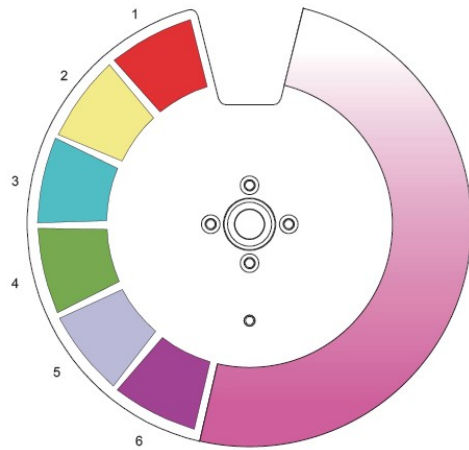
Effect gobo wheel

8.3 Colors

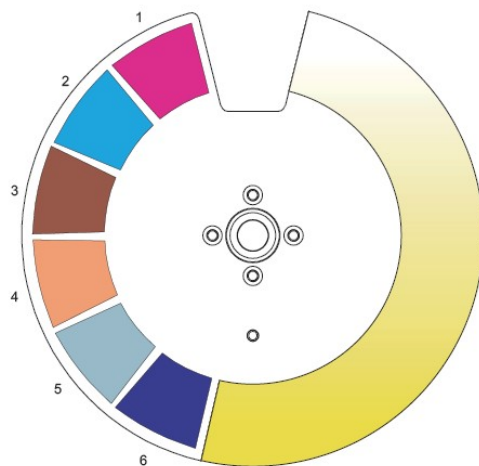
Color wheel: 7 colors + open, split color, CW/CCW rotation, "Rainbow effect" in both direction



C+CTO



M



Y

1.Red	2. Yellow	3.Blue Green	4.Green	5.Light Blue -purple	6.Fuchsia
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1.Rose Red	2.Blue	3.Brown	4. Claybank	5.Cool color	6.Fluorescence
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9. Menu structure

Run setting	Address Setting	Address 001~ XXX		Setting the DMX address	
	Value Display	strobe.....		Display the channel value	
	Auto-Program	King equipment/stand-alone		Run auto program in master or slave	
	Device Info	Time Info	Total Time	XXXX H	Product total run time
			Last Time	XX:XX	Last product run time
Last Time Code			Passwor XXX	Clear last time password	
Bulb time			XXXX H	Camp life	
Lamp Time Code	Passwor XXX		Clear lamp time password		
Temperature	Temperature 1 xxx°C/°F				
Fan information	Bulb Fan 1	XXXXX rpm			
	Bulb Fan 2	XXXXX rpm			
	Waterproof fan1	XXXXX rpm			
	Waterproof fan2	XXXXX rpm			
False information	Reset error				
System information	Firmware version Software version Hardware version		Equipment Control System Information		
Lamp Control	Lamp On/Off	On/Off		Open lamp	
	Power On Lamp On	Enable/Disable		Power on open lamp	
	Console Lamp On	Enable/Disable		Console open lamp	
	Lamp On Temp.	20~79,45°C /68~174 , 113°F		Open lamp below	
	Lamp Off Temp.	80~139, 120°C/176~282, 266°F		Close lamp above	
System Setting	Status Setting	Console Set Addr	Enable/Disable	Address can be changed by	
		No Signal Status	Off/Hold/Auto/Music	The status while no signal	
		Pan Reverse	Enable/Disable	Pan Reverse	
		Tilt Reverse	Enable/Disable	Tilt Reverse	
		Scan auto reset	Enable/Disable	Automatic reset after manual scan	
	Fan Speed	Smart Control		Auto fans speed	
		High Speed		Fans high speed	
		Low Speed		Fans low speed	
Display Setting	Backlight Time	1~60M, 5M		Backlight off time	
	Key Lock	Enable/Disabl		Press <menu> 3s to unlock	
	Show Reverse	Auto/Positive/reverse			
	Language	English/Chinese		Change the language	
Temperature Unit	Celsius Fahrenheit		Temperature unit		

	Restore Default	Restore/Cancel	Restore to default value
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Reset	System Reset Scan Reset Color Reset Gobo Reset Strobe Reset Others Reset			System reset Pan an tilt motor reset All color motor reset All gobo motor reset All strobe motor reset All other motor reset
Channel Adjust	Test Mode	Pan.....		
	Manual Mode	Pan :	Pan = XXX :	Manual control
	Adjust Mode	Input Password Pan	Password = XXX(99) Pan = XXX	The password of adjust mode Fixed all begin position
Channel Mode	Channel mode selection	Standard Mode/Basic Mode/Extended Mode		Standard Mode Basic Mode Extended Mode

10. DMX Protocol

DMX mode			Name	DMX value		DMX percentage		Function
Standard	Basic	Extended						
1	1	1	Strobe/Shutter	0	31	0.0%	12.2%	Close
				32	63	12.5%	24.7%	Shutter open
				64	127	25.1%	49.8%	Strobe, slow→fast
				128	159	50.20%	62.4%	Shutter open
				160	223	62.8%	87.5%	Random strobe , slow→fast
				224	255	87.8%	100.0%	Shutter open
2	2	2	Dimmer	0	255	0.0%	100.0%	From 0 to 100%
		3	Dimmer 16Bit	0	255	0.0%	100.0%	Dimmer,Fine tuning
3	3	4	Cyan	0	255	0.0%	100.0%	White→ full cyan
		5	Cyan 16Bit	0	255	0.0%	100.0%	White→ full cyan,Fine tuning
4	4	6	Magenta	0	255	0.0%	100.0%	White→ full magenta
		7	Magenta 16Bit	0	255	0.0%	100.0%	White→ full magenta, Fine tuning
5	5	8	Yellow	0	255	0.0%	100.0%	White→ full yellow
		9	Yellow 16Bit	0	255	0.0%	100.0%	White→ full yellow, Fine tuning
6	6	10	Color temperature	0	255	0.0%	100.0%	White → Full Color temperature
		11	Color temperature 16Bit	0	255	0.0%	100.0%	Color temperature fade, fine (LSB)
7	7	12	CMY color macro	0	15	0.0%	5.9%	CMY color macro off
				16	135	6.3%	52.9%	CMY synchronous color from slow to fast
				136	255	53.3%	100.0%	CMY random color from slow to fast
8	8	13	Color1 wheel	0	19	0.00%	7.5%	Open
				20	37	7.8%	14.5%	Color 1
				38	55	14.9%	21.6%	Color 2
				56	73	22.0%	28.6%	Color 3
				74	91	29.0%	35.7%	Color 4
				92	109	36.1%	42.7%	Color 5
				110	127	43.1%	49.8%	Color 6
				128	187	50.2%	73.3%	Color1 continous rotation CW from fast to slow

				188	195	73.7%	76.5%	Stop
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DMX mode			Name	DMX value		DMX percentage		Function
Standard	Basic	Extended						
8	8	13	Color1 wheel	196	255	76.9%	100.0%	Color1 continous rotation CCW from slow to fast
9	9	14	Color2 wheel	0	19	0.00%	7.5%	Open
				20	37	7.8%	14.5%	Color 1
				38	55	14.9%	21.6%	Color 2
				56	73	22.0%	28.6%	Color 3
				74	91	29.0%	35.7%	Color 4
				92	109	36.1%	42.7%	Color 5
				110	127	43.1%	49.8%	Color 6
				128	187	50.2%	73.3%	Color2 continous rotation CW from fast to slow
				188	195	73.7%	76.5%	Stop
				196	255	76.9%	100.0%	Color2 continous rotation CCW from slow to fast
10	10	15	Gobo wheel (static)	0	10	0.0%	3.9%	Open gobo
				11	13	4.3%	5.1%	Gobo 1
				14	16	5.5%	6.3%	Gobo 2
				17	19	6.7%	7.5%	Gobo 3
				20	22	7.8%	8.6%	Gobo 4
				23	25	9.0%	9.8%	Gobo 5
				26	28	10.2%	11.0%	Gobo 6
				29	31	11.4%	12.2%	Gobo 7
				32	34	12.5%	13.3%	Gobo 8
				35	37	13.7%	14.5%	Gobo 9
				38	40	14.9%	15.7%	Gobo 10
				41	43	16.1%	16.9%	Gobo 11
				44	46	17.3%	18.0%	Gobo 12
				47	49	18.4%	19.2%	Gobo 13
				50	55	19.6%	21.6%	Gobo 1 shake
				56	61	22.0%	23.9%	Gobo 2 shake
				62	67	24.3%	26.3%	Gobo 3 shake
				68	73	26.7%	28.6%	Gobo 4 shake
				74	79	29.0%	31.0%	Gobo 5 shake
				80	85	31.4%	33.3%	Gobo 6 shake
86	91	33.7%	35.7%	Gobo 7 shake				
92	97	36.1%	38.0%	Gobo 8 shake				

				98	103	38.4%	40.4%	Gobo 9 shake
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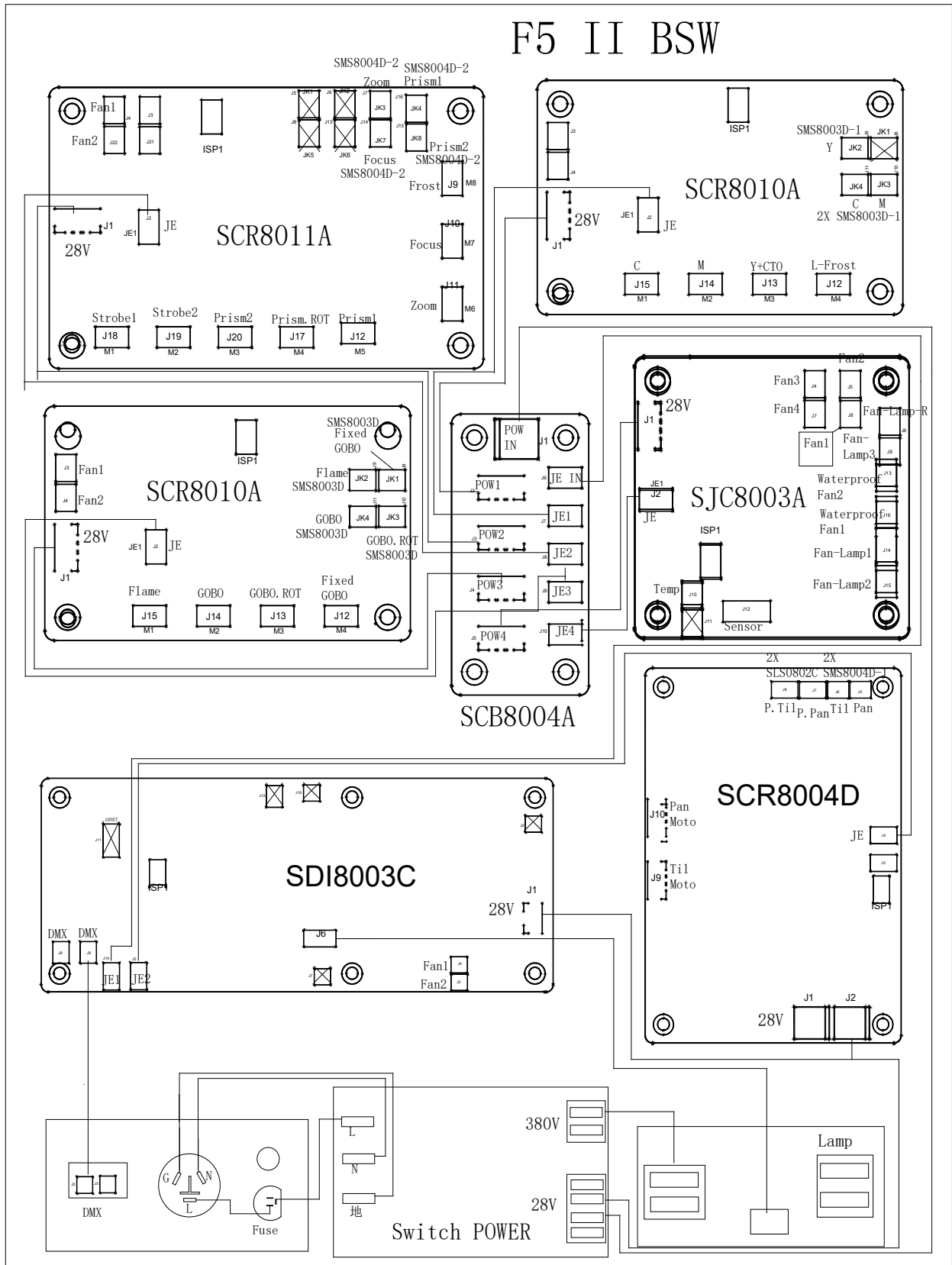
DMX mode			Name	DMX value		DMX percentage		Function
Standard	Basic	Extended						
10	10	15	Gobo wheel (static)	104	109	40.8%	42.7%	Gobo 10 shake
				110	115	43.1%	45.1%	Gobo 11 shake
				116	121	45.5%	47.5%	Gobo 12 shake
				122	127	47.8%	49.8%	Gobo 13 shake
				128	187	50.2%	73.3%	Gobo wheel continuous rotation CW from slow to fast
				188	195	73.7%	76.5%	Stop
				196	255	76.9%	100.0%	Gobo wheel continuous rotation CCW from slow to fast
11	11	16	Rotating gobo wheel	0	4	0.0%	1.6%	Open gobo
				5	10	2.0%	3.9%	Gobo 1
				10	14	3.9%	5.5%	Gobo 2
				15	19	5.9%	7.5%	Gobo 3
				20	24	7.8%	9.4%	Gobo 4
				25	29	9.8%	11.4%	Gobo 5
				30	34	11.8%	13.3%	Gobo 6
				35	39	13.7%	15.3%	Gobo 7
				40	47	15.7%	18.4%	Gobo 8
				48	57	18.8%	22.4%	Gobo 1 shake
				58	67	22.7%	26.3%	Gobo 2 shake
				68	77	26.7%	30.2%	Gobo 3 shake
				78	87	30.6%	34.1%	Gobo 4 shake
				88	97	34.5%	38.0%	Gobo 5 shake
				98	107	38.4%	42.0%	Gobo 6 shake
				108	117	42.4%	45.9%	Gobo 7 shake
				118	127	46.3%	49.8%	Gobo 8 shake
128	187	50.2%	73.3%	Gobo wheel continuous rotation CW from slow to fast				
188	195	73.7%	76.5%	Stop				
196	255	76.9%	100.0%	Gobo wheel continuous rotation CCW from slow to fast				
12	12	17	Gobo rotating/positioning gobo wheel 2	0	127	0.0%	49.8%	Gobo rotation positioning
				128	187	50.2%	73.3%	Gobo continuous rotation CW from slow to fast
				188	195	73.7%	76.5%	Stop

				196	255	76.9%	100.0%	Gobo continous rotation CCW from slow to fast
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DMX mode			Name	DMX value		DMX percentage		Function
Standard	Basic	Extended						
		18	Gobo rotation/positioning, fine (LSB)	0	255	0.0%	100.0%	Gobo rotation/positioning, fine (LSB)
13	13	19	Effect wheel rotation (Fire)	0	127	0.0%	49.8%	Round
				128	255	50.2%	100.0%	Fire wheel from slow to fast
14	14	20	Focus	0	255	0.0%	100.0%	Near → Far
		21	Focus, fine (LSB)	0	255	0.0%	100.0%	Focus, fine (LSB)
15	15	22	Zoom	0	255	0.0%	100.0%	Narrow → Wide
		23	Zoom, fine (LSB)	0	255	0.0%	100.0%	Zoom, fine (LSB)
16	16	24	Prism1	0	31	0.0%	12.2%	Off
				32	127	12.5%	49.8%	On
17	17	25	Prism1 rotation	0	127	0.0%	49.8%	Prism indexed
				128	187	50.2%	73.3%	Prism continous rotation CW from slow to fast
				188	195	73.7%	76.5%	Stop
				196	255	76.9%	100.0%	Prism continous rotation CCW from slow to fast
18	18	26	Prism2	0	31	0%	12%	Off
				32	255	13%	100%	On
19	19	27	Prism2 rotation	0	127	0.0%	49.8%	Prism indexed
				128	187	50.2%	73.3%	Prism continous rotation CW from slow to fast
				188	195	73.7%	76.5%	Stop
				196	255	76.9%	100.0%	Prism continous rotation CCW from slow to fast
20	20	28	Prism macro	0	15	0.0%	5.9%	off
				16	135	6.3%	52.9%	macro synchro from slow to fast
				136	255	53.3%	100.0%	macro random from slow to fast
21	21	29	Frost	0	127	0.0%	49.8%	Off
				128	255	50.2%	100.0%	On
22	22	30	Pan	0	255	0.0%	100.0%	Pan
23		31	Pan, fine (LSB)	0	255	0.0%	100.0%	Pan, fine (LSB)
24	23	32	Tilt	0	255	0.0%	100.0%	Tilt
25		33	Tilt, fine (LSB)	0	255	0.0%	100.0%	Tilt, fine (LSB)
26	24	34	Scan speed	0	255	0.0%	100.0%	Scan speed from fast to slow

27	25	35	Special controls	0	9	0.0%	3.5%	No function
				10	19	3.9%	7.5%	Open light after 5 seconds
				20	29	7.8%	11.4%	Close light after 5 seconds
				30	39	11.8%	15.3%	Color wheel half color switch
DMX mode			Name	DMX value	DMX percentage		Function	
Standard	Basic	Extended						
27	25	35	Special controls	40	49	15.7%	19.2%	Reserved
				50	59	19.6%	23.1%	Reset all motor after 5 seconds
				60	69	23.5%	27.1%	Scan motor reset after 5 seconds
				70	79	27.5%	31.0%	All color motor reset after 5 seconds
				80	89	31.4%	34.9%	All gobo motor reset after 5 seconds
				90	99	35.3%	38.8%	All strobe motor reset after 5 seconds
				100	109	39.2%	42.7%	Other motor reset after 5 seconds
				110	119	43.1%	46.7%	Built-in program 1
				120	129	47.1%	50.6%	Built-in program 2
				130	139	51.0%	54.5%	Built-in program 3
				140	149	54.9%	58.4%	Built-in program 4
				150	159	58.8%	62.4%	Built-in program 5
				160	169	62.7%	66.3%	Built-in program 6
				170	179	66.7%	70.2%	Built-in program 7
				180	189	70.6%	74.1%	Built-in program 8
				190	199	74.5%	78.0%	Built-in program 9
				200	209	78.4%	82.0%	Built-in program 10
210	219	82.4%	85.9%	Reserved				
220	255	86.3%	100.0%	No function				


11. System wiring diagram




12. Maintenance and Troubleshooting

12.1 Cleaning and maintenance

It is required that the fixture should be kept clean and well maintained to ensure its reliability. Its lifespan mainly depends on the working environment and proper operation. Should you have any questions, please consult a technical engineer of FOS TECHNOLOGIES Lighting.

 Notes: Damage resulted from dust, smoke, oil or improper use is not covered by warranty.

 Notes: Disconnect the fixture from AC power, and let it cool down for at least 15 minutes before opening the housing. Make sure to use a soft cloth to clean the optical components, and be careful, as the coating is easily scratched. Do not use any organic solvent such as alcohol to clean the reflector mirror, dichroic color filters or housing of the fixture.

- If the lens is cracked or otherwise damaged, replace it immediately.
- If the lamp becomes damaged or deformed in any way it must be replaced.
- If the light from the lamp appears dim, this normally indicates that it is reaching the end of its life span and should be changed at once. Aged lamps run to the extremity of their life might explode.
- If fixture does not function, check the fuse on the power socket of the fixture. Replace the fuse of the same specification if it is blown.
- The fixture is equipped with thermal-protection device that will switch off the lamp in case of overheating. If this happens, please check that the fans are not blocked, and clean them if they are dirty. Check whether the fans are operational. If not, call a qualified technician.

12.2 Troubleshooting

Problem	Possible Cause	Suggested Correction
No response after connected to A/C power	Power switch not turned on.	Turn on power switch.
	Take out the fuse and check if it is blown.	Locate the blown fuse. Remove the broken fuse. Insert areplacement fuse of the correct amperage
	Abnormal A/C input (A/C power socket, power cables, luminaire power socket).	Replace AC power socket and power cables, and then adjust power socket for proper connection.
	No DC voltage from switching power supply.	Check if the switching power supply has DC voltage output. Replace the switching power supply.
No response or wrong response to the commands of the control system	DMX cables disconnected from fixture's DATA IN connector.	Connect DMX cable to the fixture's DATA IN connector.
	Open circuit or short circuit fault in the DMX cables.	Replace DMX cables as required.
	Wrong DMX address for the fixture in the	Ensure the address in "Run setting > Address Setting >Address" of the fixture is consistent

Problem	Possible Cause	Suggested Correction
	control system.	with the address in the control system.
	Misuse in “Channel setting > Channel Mode” of the fixture.	Choose the channel mode in “Channel setting > Channel Mode” of the fixture as required by the user
	Malfunctioning of DMX cannon input/output connectors. No input/output voltage to the main control board of the fixture.	Troubleshooting the DMX XLR signal plate of the fixture,replace the main control board of the fixture.
The lamp does not start when switch is turned on	Normal end of lamp life.	Test the lamp in an adjacent fixture which is known to be operating properly and then replace as necessary
	Whether the function of the relay board is intact, whether the signal is normal or not.	Repair or replace.
	Shorted leads between ballast and the lamp	Replace components as required.
	Incorrect ballast output.	Check ballast output to determine if it conforms to lamp requirements. If voltage and current do not stabilize in five to ten minutes warm-up time, ballast output is incorrect and adjustment should be made. Check capacitor wiring,if visibly available, to determine if capacitors are properly wired.
	Incorrect triggers output.	Replace triggers.
The lamp is off unexpected	The fixture is in sleep mode	Should the fixture is not in active use for “standby time”,the sleep mode is enabled automatically to make it more stable and safer, sleep time can be customized.
	Lamp has been operating: cool down time insufficient.	Environmental conditions such as extreme temperatures will have the fixture stop working, the lamps will require a period of time to cool and re-establish optimum starting conditions. Restart time varies with the degree of ventilation built into it, ambient temperature, and draft conditions.
	Overheat ballast resulting in premature failure or damaged ballast.	The ballast incorporate internal automatic-resetting thermal protection, which deactivates the ballast should it overheat. Normal operation resumes once the ballast has cooled sufficiently.

Problem	Possible Cause	Suggested Correction
		Burned-out or failing lamps, or high temperatures in or around the fixture, can cause the ballast to overheat, so we need solve the problem and replace components as required
	Thermostat damaged.	Replace.
Shaking, wrong position, and out of control gobo wheel	No function the connector between gobo wheel motor and drive, loose, damaged, or broken cables connecting the gobo wheel and drive.	Reconnect the gobo wheel motor to the drive, and replace cables as required.
	The gobo wheel motor's drive IC on the PCB might be out of condition.	Replace the drive having the same software version as required.
	Dislocated magnetic tube and positioning magnet, or damaged magnetic tube.	Calibrate the position of the magnetic tube to the positioning magnet, and replace magnetic tube as required
	Shaking motor, wrong rotation angle, losing step or damaged motor	Replace the motor as required.
Decreased brightness, uneven pattern projections	Normal end of lamp life.	Test the lamp in an adjacent fixture which is known to be operating properly and then replace as necessary
	The midline of the lamp is not aligned with the center point of the effect assembly (consisting of the rotating gobo wheel, static gobo wheel, color wheel, strobe, prism, and frost), focus module, and object lens.	Reinstall the lamp. Adjust the lamp position until the midline of the lamp is aligned with the center point of the effect assemblies (consisting of the rotating gobo wheel,static gobo wheel, color wheel, strobe, prism, frost, the focus adjusting module, and the object lens).
	Excessive dusts or smudges on the effect assembly, focus module and objective lens.	Follow the instructions stated in this user manual to clean the effect assembly, focus module and objective lens.
	Damaged or deformed effect assembly, focus module or objective lens.	Replace the damaged or deformed components
Wrong color	Normal end of lamp life	Test the lamp in an adjacent fixture which is known to be operating properly and then replace as necessary
	Excessive dusts or smudges on the rotating gobo wheel or color wheel.	Follow the instructions stated in this user manual to clean the rotating gobo wheel or color wheel.
	Rotating gobo wheel, color wheel with	Replace the worn-off, damaged or deformed

Problem	Possible Cause	Suggested Correction
	coating wearing off, damages or deformation	rotating gobo wheel and color wheel
Non-clear shape	Excessive dusts or smudges on the rotating gobo wheel or color wheel	Follow the instructions stated in this user manual to clean the rotating gobo wheel or color wheel.
	Excessive dusts or smudges on the focus module or objective lens	Follow the instructions stated in this user manual to clean the focus module or objective lens
	Damaged or deformed focus module or objective lens.	Replace the damaged or deformed focus module or objective lens.