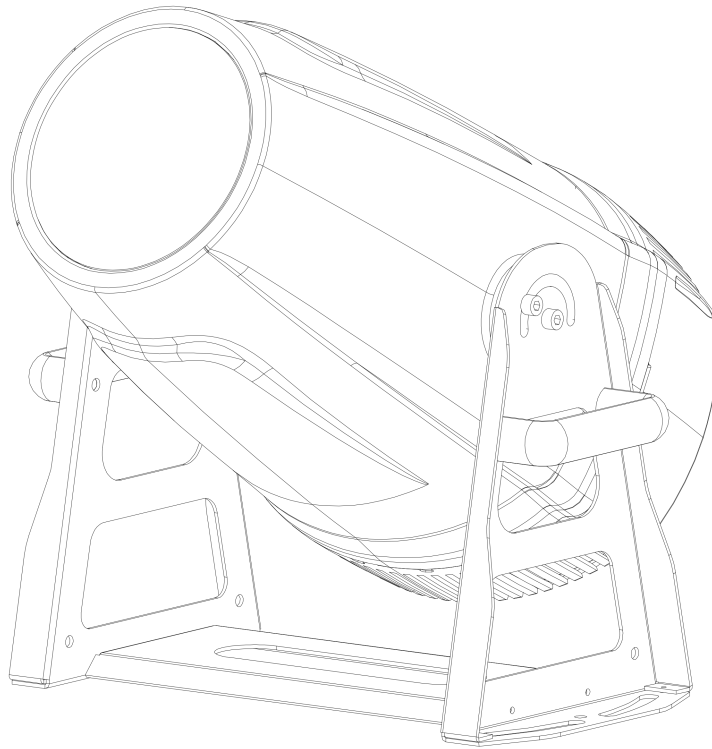




DRAGON 1600-W BWSF

PR-6517

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

PR LIGHTING LTD.
<http://www.pr-lighting.com>

Important Notice to Clients

It's an electrical product by us and the instructions must be adhered to after the purchase. If the following (but not limited to) things happen, we shouldn't hold any legal obligations.

1. During a projector's transportation, handling, storage and operation, please handle it gently to avoid it being hit, which can cause its housing damaged, its body deformed, water penetrating inside and so on.
2. While idle, a projector should be placed indoors and in relatively dry place and all sockets at the base should be covered by the water-proof covers well. It's forbidden to place a projector in open place to avoid PCB damage by the damp.
3. The wirings inside shouldn't be matched nakedly, but via standard plugs. Strong current wires must be separated from weak current ones and the wires must be connected properly and robustly. It's forbidden to cut plugs and waterproof covers from the wires.
4. Before power on, please ensure the input voltage is the rated one for a projector. The input voltage shouldn't be 110% less and 90% more than the rated one.
5. If a projector is placed in open place, it should be on independent platform or support frame and be ensured there is some clearance between its base and the ground, which is advised to not less than 10cm. The operation place should be higher than its ingress protection level.
6. It's advised to clean dust, oil and other foreign from its internal and external lens and fans to avoid luminance and functions being compromised by dust, oil, foreign and others.
7. If any failures, remove a projector from the truss, store it in the warehouse and notify the technicians from the factory for on-site analysis and repair or repair in the factory. Unqualified person not authorized by the factory is forbidden to dismantle and repair a projector.
8. During the on-site repair, the technician should offer support and help, ensure personal and product safety and keep the product's safe running with the client.

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ACCESSORIES

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

Name	Quantity	Unit	Remark
Safety cord	1	Set	
User manual	0	Pc	QR Code
Power cord	1	Pc	
XLR connectors	1	Pc	Male and female

The product is tested completely and packed well by the manufacturer. All operators must follow the warning items and operation instructions contained in the user manual strictly. Any damage caused by the wrong operation should not be covered by guarantee. Any failures or issues caused by not following the manual is beyond the responsibility of the dealer.

The user manual is subject to change without notice.

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

1. SAFETY AND WARNINGS



NOTE

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

The following safety signs are used in the user manual.

						
Warning	User Manual	Electrical shock	Goggles	Protective Gloves	Flames	High Temperature



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



- The ingress protection for the head of the underwater lighting fixture is IP68.
- The head of the underwater lighting fixture must be used underwater. Otherwise, the luminous efficacy will decrease because of bad cooling.
- The projector should be kept away from high temperature, fire, electrical surge, vibration and strong light while being operated
- The projector is only intended for installation, operation and maintenance by qualified personnel. And the operation must strictly follow the procedures in the manual
- No repairable parts in the projector and do not open covers for maintenance by yourself.



- Don't look straightly into the light sources especially for epileptics, otherwise eyes will be burned.. 
- Do not connect this device to any type of dimmer pack.
- lens and other optical parts shall be replaced immediately if they have deformed or been damaged, otherwise the light output will be compromised.
- For the location of a lighting fixture, it shouldn't be seen in the distance of less than 4 meters.



- Before operation, please check if its head, the power supply control box, mounting frame, waterproof connectors, seals, screws has obvious damages or not and if the cable is crimped or not.
- Keep the light source clean and do not touch it with bare hands.
- While operating it, wear protective items.



- Any electrical connection must be carried out by a qualified person .
- Before installation, please confirm the voltage for the head of the underwater lighting fixture is DC 48V and the head is forbidden to be connected to AC 100V-240V, otherwise it will cause the fixture burned and even safety accident.
- Each projector must be properly earthed and installed as per related electrical standards.
- A power supply control box can only be connected with a underwater head and select enough long waterproof rubber covered cable with cooper wire at 4mm² in diameter to control line voltage drop.
- If the projector is not used or under cleaning,, please hold the plug and unplug it. Do not unplug it forcefully or by pulling the power cable.
- The input must be connected with earth leakage circuit breaker to ensure all power cords must conform to related safety and regulations.

•All cable connections must be insulated well and waterproof and underwater connections be done via IP68 connectors.

•Do not switch on and off the projector constantly in very short intervals, otherwise the light source's and other electrical parts' life will be shortened .



•Underwater installation: based on the way of installation (embedded/ by frame), fix the head in the location desired and ensure the head is horizontal or at the angle desired. For safety, if it's hung, use a safety cord to run through the arm to ensure safety.

•Before any installation, maintenance and cleaning work, please ensure the projector is disconnected from power mains.



•After stable operation under normal ambient temperature ,the temperature of the external surface of the housing of the LED lighting fixture (the surface of the heat sink) is 70°C after the stable running.

•While the LED is lit for the first time, there will be smoke and strange smell. It's normal and does not mean the projector has some defects.

•While projector running, do not touch the metal housing with bare hand, otherwise get burned.



•Do not mount the projector directly on inflammable surface.

•Do not project the beam straightly on combustible items and the minimum distance between the projector and illuminated items is 10m.

•It's forbidden to immerse the power supply control box in the water or keep it sprayed by the water.

•To avoid sunlight or other light penetrating into the head via the front lens, resulting in high temperature internally causing damages to the projector. Before power-off, please use Tilt channel to move the head and make it facing downward.



• The product meets The General Technical Requirements and Standards for Recycle and Use Of Expired Appliance and Electronic Products.

• When the product meets disposal standards and needs to be disposed, a client needs to dispose and recycle it.

2. INSTRUCTIONS

•CLEANING AND MAINTENANCE

Because the head is underwater for long term, it's easy to accumulate dirt on its front lens ,which will compromise the light output. It is advised to do periodic checks every 3 month and see if there are any cracks in the housing or any accumulated water or mist inside. Cleaning a projector is very necessary to ensure a reliable use. The fixture is with ingress protection of IP68. It is forbidden to dismantle a fixture unless a professional technician advises it's necessary to replace some internal parts.

Periodic check the cooling of the power supply control box to ensure good cooling and not over-temperature.

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

SPECIAL NOTE:

It's normal phenomena that there will be mild water mist on the lens while the waterproof product is in use.



•Before any maintenance and cleaning, please ensure the project is off the power.

•Only qualified person is allowed to do maintenance.

•The product is with XLR cables without plugs and the connection of the cables must be with waterproof junction box not lower than IP66



•To avoid sunlight or other light penetrating into the head via the front lens, resulting in high temperature internally causing damages to the projector. Before power-off, please use Tilt channel to move the head and make it facing downward.

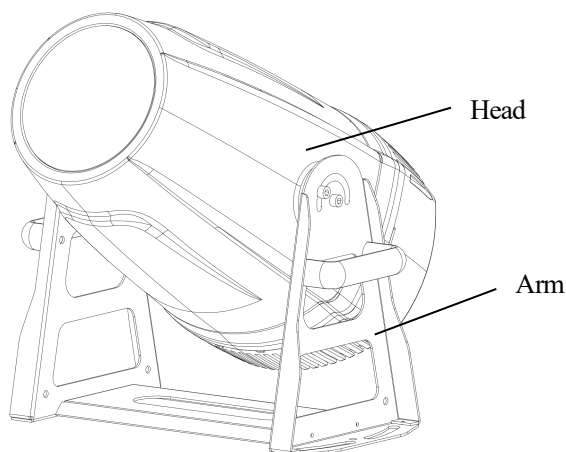
•Do not use alcohol or other organic solvent to clean the housing to avoid damage.

•Do not use any solvent with chemical elements to clean color filters or hot mirror.

TROUBLESHOOTING

PROBLEM	ACTION
The projector can't be switched on	➤ Check if the input connection is proper or not ➤ Check if the switching power supply is bad or not connected well. A professional technician is required for the repair ➤ Check if the connection between the power supply control box and the head is proper or not. A professional technician is required for the repair
The projector can be switched on, but the LED lamp's brightness can't be controlled	➤ Check if the LED driver board is connected well. A professional technician is required for the repair
The projector can be switched on normally, but not controlled by the DMX controller	➤ Make sure that the fixture's start address is right ➤ Replace or repair the XLR signal cable.
The beam is not bright and its brightness decreases sharply	➤ Make sure the fans are working well and if there are any fan errors on the display. ➤ Make sure that the external optics is clean. ➤ Check if the line voltage drop is too big or not.
The project image appears to have a halo	➤ Carefully clean the LED lamp, optical lenses and other components.
Heavily Defective Beam	➤ Check if lens are in good condition(not cracked) ➤ Clean dust or grease on the lens.

3. APPEARANCE

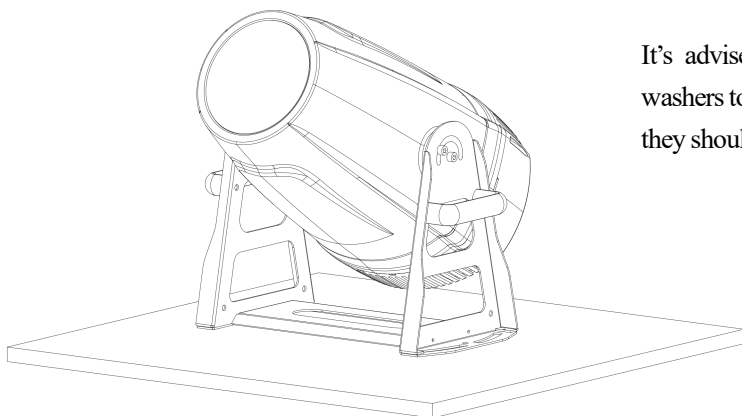


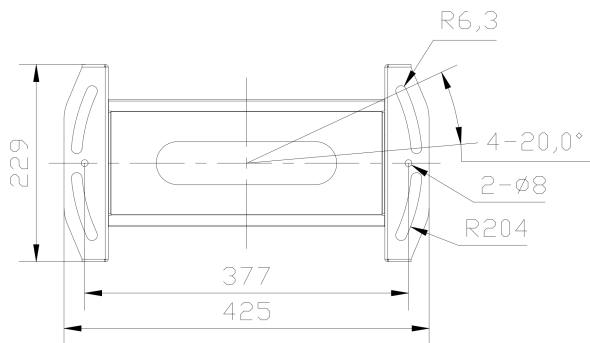
4. INSTALLATION OF THE UNDERWATER LIGHTING FIXTURE

Base on the way of the installation(embedded/ by the frame), fix the head in the location desired and ensure it is horizontal or at the angle desired.

NOTE

It's advised to use hexagon screws coupled with anti-slipping washers to ensure firm installation. Whatever screws may be used, they should not be less than 2 pairs.





The size of the screws are to be decided by the customer based on the size of mounting holes in the arms, the following sizes in the table are only for reference.

NO	NAME	SIZE	QTY	REMARKS
1	Hexagon screws	M12	2	Prepared by the customer
2	Washer	Coupled with the screws	2	Prepared by the customer

• POWER CONNECTION

Connect the power cord as follows:

L (live) =brown

E (earth) =yellow/green

N (neutral) =blue

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

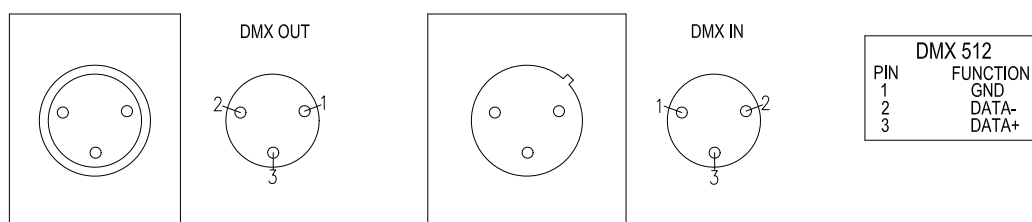


.The earth wire(yellow/green) must be connected to the ground. And electrical connection must be in accordance with the standards concerned.

.If any questions about the electrical installation, do not continue but consult a qualified electrician.

. The XLR cables are without plugs and their connections must be with waterproof junction box with IP66 or above and fix the power supply control box at safe place which is dry with good ventilation and without direct sunshine.

•DMX CONTROL CONNECTION:



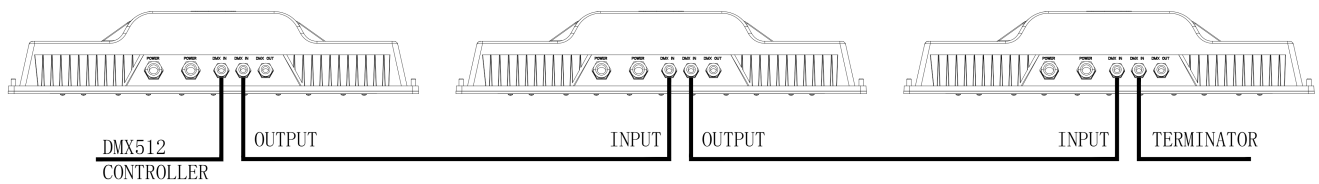
Connection between controller and projector and between one projector and another must be made with a twin-screened cable, with each wire having at least a 0.5mm in diameter. Connection to and from the projector is via cannon 5 pin (which are included with the projector) or 5 pin XLR plugs and sockets.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

Note: care should be taken to ensure that none of the pins touch the metallic body of the plug or each other. XLR plugs and sockets mustn't be connected in any way other than mentioned in the above figure. The fixture accepts digital control signals in protocol DMX512 (1990).

Connect the controller's DMX output to the first fixture's DMX input, and connect the first fixture's DMX output to the second fixture's DMX input and connect the rest fixtures in the same way. Eventually connect the last fixture's DMX output to a DMX terminator as

shown in the figure below.

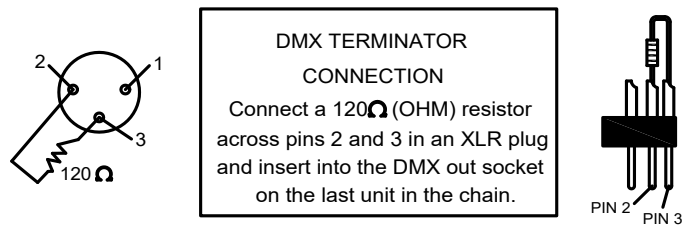
The connections between DMX controller and the fixtures and between the fixtures must use 2-wire shielded cable more than 0.5mm in diameter.(the maximum number of fixtures in a DMX chain is 32 pcs.)



.DMX TERMINATOR

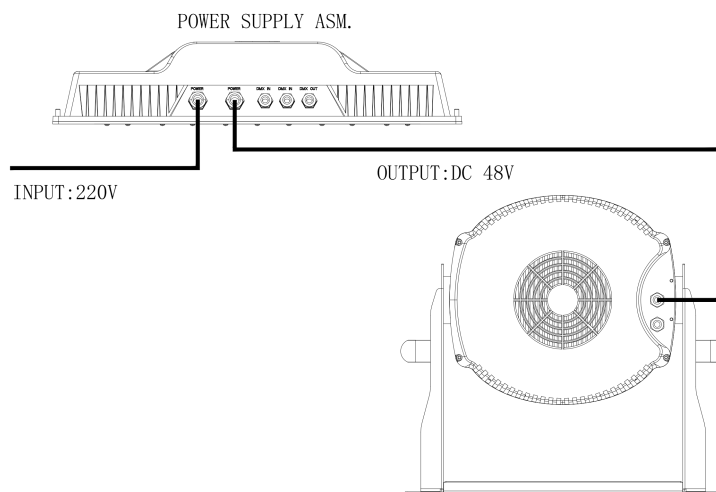
In the Controller mode, at the last fixture in the chain, the DMX output has to be connected with a DMX terminator. This prevents electrical noise from disturbing and corrupting the DMX control signals.

The DMX terminator is simply an XLR connector with a 120Ω (ohm) resistor connected across pins 2 and 3, which is then plugged into the output socket on the last projector in the chain. The connections are illustrated below.

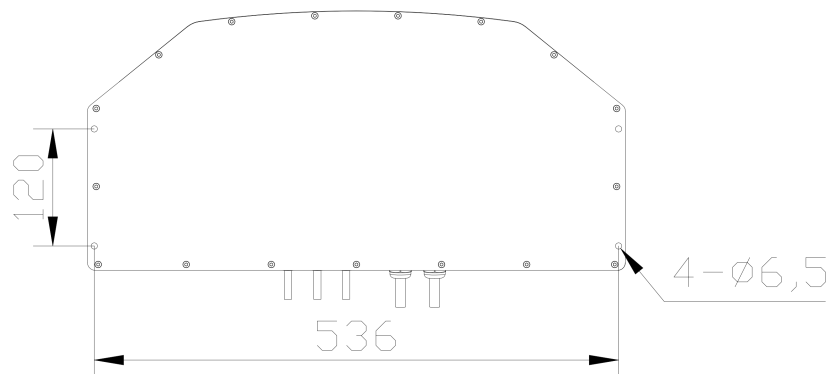


. THE INSTALLATION OF POWER SUPPLY CONTROL BOX

The power supply control box is to power the light fixtures with input voltage 220V/AC and output voltage 48V/DC and the number of the fixtures is not more than 2 pcs in a chain.

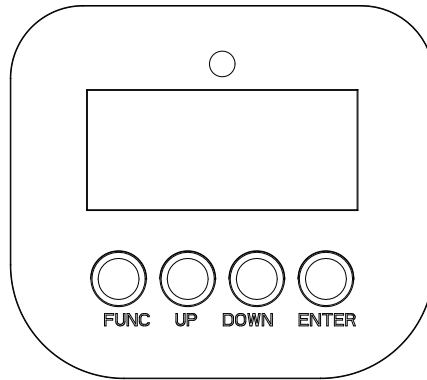


The mounting of the power supply control box



5. SETUP AND CONFIGURATION

•FRONT PANEL OPERATION



Projector's functions and DMX start address can be set conveniently via push button and the display.

Launch the projector and press button **ENTER** for more than 3seconds to unlock the panel, the display will show the function menu of the projector, each main menu has its submenus and each submenu has a specific function. For details, please read the following .

Press button **UP** or **DOWN** if you want to browse through or set the functions.

Press button **ENTER** to save your settings or enter the submenu. Press button **UP** or **DOWN** to change values(plus or minus)

Press button **FUNC**, it will return to the upper menu. If button **FUNC** not pressed, the default will show display status automatically.

If any DMX signal , LED indication is on. Otherwise ,it is off.

• DMX START ADDRESS

Each projector must be given a DMX start address so that the correct projector responds to the correct control signals. This DMX start address is the channel number from which the projector starts to “listen” to the digital control information being sent out from the controller. The projector has 3 DMX modes. There are standard mode ,short mode and extended mode. For example standard mode has 32 channels, so set the No. 1 projector's address 001, No. 2 projector's address 033, No. 3 projector's address 065, and so on.

Switch on the Projector . Press **ENTER** key more than 3 seconds to unlock panel,

Then press **FUNC** key or **UP** or **DOWN** to locate DMX address menu.

Press **ENTER** key to display DMX address.

Press **UP** or **DOWN** key to set the value desired.

Press **ENTER** key to confirm and at the same time go back to the upper level menu ,meaning the projector has stored the start address, after power on next time, the latest set value stored will be shown.

Press the **FUNC** key to go back to the upper level menu.

•STAND-ALONE MODE

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

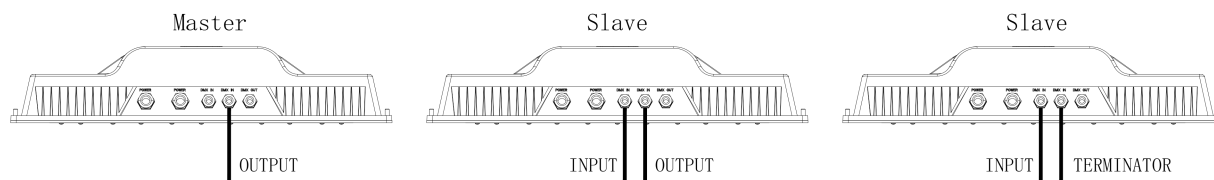
DMX address can be set at any number within 512.

•MASTER/SLAVE MODE

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

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

After Powered on, the group will run in Master/Slave Mode.(it's advised 32 pcs of fixtures be connected in a DMX chain at maximum)



•TO SET UP COLOR TEMPERATURE AND COLOR MACRO

A projector has 7 color temperature macros and 89 standard color macros. Color temperatures are for respective 2700K,3000K,3500K,4000K,4500K,5000K and 5700K. Under the DMX channel of CMY macro, color macro and its color temperature macro can be selected.

•TO SET UP DIMMER CURVE AND LED REFRESH FREQUENCY

A projector has 5 dimmer curves: gamma 2.0, gamma 2.2, gamma 2.4 and gamma 2.6 and linear curve .

It has 8 LED refresh frequency: LED refresh frequency 1200Hz, LED refresh frequency 2400Hz, LED refresh frequency 4800Hz, LED refresh frequency 10000Hz, LED refresh frequency 12000Hz, LED refresh frequency 15000Hz, LED refresh frequency 20000Hz and LED refresh frequency 25000Hz.

It has fast, medium and slow dimmer speeds.

Its setups are as follows:

1. Hold the ENTER button for more than 3s to unlock the control panel and then enter the menus and select “Option Settings”.
2. Select “Dimmer Settings” and select any mode of gamma curve /LED frequency /dimmer speed for adjustment.

•AUTO-FOCUS SETUP

A projector has auto-focus function for the distance ranges of 5m,10m,15m and 20m respectively. While any of Iris, Fixed gobo wheel and Rotating Gobo Wheel is in use, Auto-Focus channel for specified distance can automatically focus the image. Then use Auto-Focus Calibration channel to fine tune the focused image. Priority sequence: Rotating gobo wheel>Fixed gobo wheel>Iris .

•BRIGHTNESS CALIBRATION

For brightness calibration function, a controller can be used on the projectors in a DMX chain or a projector be done individually. After running for some time, the projectors need to be recalibrated in brightness for conformity with the help of LED brightness calibration channel via controller. The function has the following characteristics:

1. LED brightness calibration channel has 50 levels for adjustment with each level meaning power consumption decreases by 1%.
2. Calibration can be done on projectors in a DMX chain or a single one. After calibration done on a lot of projectors in a DMX chain, it can be done individually also if needed.
3. To avoid erroneous operation, after the fader of a DMX controller is at proper place for LED BRIGHTNESS CALIBRATION channel, the fader for channel of LED BRIGHTNESS CALIBRATION CONFIRMATION channel should be at right DMX value range to save parameters. The calibration is completed after the desired parameters are stored into the projectors.

•CRI MODE

It has HIGH CRI MODE and select it via DMX controller to activate it. The mode ensures high CRI optical effect.

6. OPERATION MENU

1st LEVEL	2nd LEVEL	3rd LEVEL	4th LEVEL	5th LEVEL
DMX Setting	DMX Address	1-481 (short mode) 1-475 (STD mode) 1-462 (Extended mode)		
Reset	Total Reset	Really Reset?	Confirm or Cancel	
	Colour System	Really Reset?	Confirm or Cancel	
	Gobo Reset	Really Reset?	Confirm or Cancel	

	Fo. Zo. Fr.	Really Reset?	Confirm or Cancel	
	Other Reset	Really Reset?	Confirm or Cancel	
Config Settings	DMX Channel	Short 32CH		
		Standard 38CH		
		Extended 51CH		
		View Selected Mode	.Ch.01 Strobe	
	Loss of DMX	Normal time out		
		Hold Last		
	Disp. Config	Display Mode	Off After Delay	
			On Always	
		Display Inv.	Invert OFF	
			Invert ON	
		Language Set	English	
			Chinese	
	Temp. Unit	Celsius		
		Fahrenheit		
	Factory Reset	Restore Reset?	Confirm or Cancel	
Option Set	Invert Set	Zoom Inv.	OFF/ ON	
		CYM Inv.	OFF/ ON	
		CTO Invert	OFF/ ON	
	Dimmer Set	Gamma Curve	2.0/2.2/2.4/2.6/line	
		LED Ref. rate	1200/2400/4800/10000/12000/15000/20000/25000Hz	
		Dimmer speed	Fast/Medium/Slow Speed	
	Blade Detect	Detect Disable/ Detect Enable		
Information	View DMX	Channel Value Strobe XXX Dimmer XXX		
	Total Hours	Total Hours=XXX H		
	Temperature	Display XXX		
		Driver 1 XXX		
		Driver 2 XXX		
		Driver 3 XXX		
		Framing XXX		
		Fan Board XXX		
		LED XXX		
	Software Ver.	Display XXX		
		Driver 1 XXX		
		Driver 2 XXX		
		Driver 3 XXX		
		Framing XXX		
		Fan Board XXX		
	Electronic SN	XXXXXXX		
	RDM Device Label	XXXXXXXX ANSI E1.20 RDM		
	Fan Status	Gobo Fan XXX		
		Lens Fan XXX		
		LED Fan XXX		
		Device Fan XXX		
Service	Manual Ctrl	Strobe XXX		

		Dimmer XXX ... Zoom XXX Zoom fine XXX			
	Factory Test		...		
Operation	DMX Mode	Change Mode?	Confirm/Cancel		
	Master Mode	Preset Memory	Change Mode?		Confirm/Cancel
		User Memory 1	Change Mode?		
		User Memory 2	Change Mode?		
	Stand-Alone	Preset Memory	Change Mode?		
		User Memory 1	Change Mode?		
		User Memory 2	Change Mode?		
	Static Scene	Change Mode?			
User Memory	Edit Memory	Edit Memory 1 / Edit Memory 2	Scene XX (1~16 Scenes)	Paste? Confirm	Strobe XXX Dimmer XXX ... Zoom XXX Zoom fine XXX Fade time XXX Hold time XXX Delay Unit MS/S/MIN Link To Step XXX
		Edit Static Scene	Paste? Confirm		Strobe XXX Dimmer XXX ... Zoom XXX Zoom fine XXX
	Init Memory	Reset Memory 1	Reset Memory?		Input Password123
		Reset Memory 2	Reset Memory?		Input Password123
		Reset Scene	Reset Scene?		Input Password123

7. DMX CHART

Short mode	Standard mode	Extended Mode	Function	Decimal low	Decimal high
1	1	1	Strobe		
			Close	0	
			Pulse strobe speed from slow to fast	1	127
			Strobe from slow to fast	128	255
2	2	2	Dimmer		
			Close	0	0
			Linear dimming (0-100%)	1	255
	3	3	Dimmer Fine		
			Dimmer in 16 bit	0	255
3	4	4	CMY Macro		
			Disable CMY and CTO before the following functions		
			No function	0	7
			Color Temperature 2700K	8	9
			Color Temperature 3000K	10	11
			Color Temperature 3500K	12	13
			Color Temperature 4000K	14	15
			Color Temperature 4500K	16	17

		Color Temperature 5000K	18	19
		Color Temperature 5700K	20	21
		Color Macro 1	22	23
		Color Macro 2	24	25
		Color Macro 3	26	27
		Color Macro 4	28	29
		Color Macro 5	30	31
		Color Macro 6	32	33
		Color Macro 7	34	35
		Color Macro 8	36	37
		Color Macro 9	38	39
		Color Macro 10	40	41
		Color Macro 11	42	43
		Color Macro 12	44	45
		Color Macro 13	46	47
		Color Macro 14	48	49
		Color Macro 15	50	51
		Color Macro 16	52	53
		Color Macro 17	54	55
		Color Macro 18	56	57
		Color Macro 19	58	59
		Color Macro 20	60	61
		Color Macro 21	62	63
		Color Macro 22	64	65
		Color Macro 23	66	67
		LEE 004 (Medium Bastard Amber)	68	69
		LEE 010 (Medium Yellow)	70	71
		LEE 019 (Fire)	72	73
		LEE 026 (Bright Red)	74	75
		LEE 058 (Lavender)	76	77
		LEE 068 (Sky Blue)	78	79
		LEE 071 (Tokyo Blue)	80	81
		LEE 079 (Just Blue)	82	83
		LEE 088 (Lime Green)	84	85
		LEE 090 (Dark Yellow Green)	86	87
		LEE 100 (Spring Yellow)	88	89
		LEE 101 (Yellow)	90	91
		LEE 102 (Light Amber)	92	93
		LEE 103 (Straw)	94	95
		Lee 104 (Deep Amber)	96	97
		LEE 105 (Orange)	98	99
		LEE 106 (Primary Red)	100	101
		LEE 111 (Dark Pink)	102	103
		LEE 115 (Peacock Blue)	104	105

		LEE 116 (Medium Blue-Green)	106	107
		LEE 117 (Steel Blue)	108	109
		LEE 118 (Light Blue)	110	111
		LEE 119 (Deep Blue)	112	113
		LEE 120 (Dark Blue)	114	115
		LEE 121 (LEE Green)	116	117
		LEE 128 (Bright Pink)	118	119
		LEE 131 (Marine Blue)	120	121
		LEE 132 (Medium Blue)	122	123
		LEE 134 (Golden Amber)	124	125
		LEE 135 (Deep Golden Amber)	126	127
		LEE 136 (Pale Lavender)	128	129
		LEE 137 (Special Lavender)	130	131
		LEE 138 (Pale Green)	132	133
		LEE 139 (Primary Green)	134	135
		LEE 141 (Bright Blue)	136	137
		LEE 147 (Apricot)	138	139
		LEE 148 (Bright Rose)	140	141
		LEE 152 (Pale Gold)	142	143
		LEE 154 (Pale Rose)	144	145
		LEE 157 (Pink)	146	147
		LEE 158 (Deep Orange)	148	149
		LEE 162 (Bastard Amber)	150	151
		LEE 164 (Flame Red)	152	153
		LEE 165 (Daylight Blue)	154	155
		LEE 169 (Lilac Tint)	156	157
		LEE 170 (Deep Lavender)	158	159
		LEE 172 (Lagoon Blue)	160	161
		LEE 179 (Chrome Orange)	162	163
		LEE 180 (Dark Lavender)	164	165
		LEE 181 (Congo Blue)	166	167
		LEE 197 (Alice Blue)	168	169
		LEE 201 (Full C.T. Blue)	170	171
		LEE 202 (Half C.T. Blue)	172	173
		LEE 203 (Quarter C.T. Blue)	174	175
		LEE 204 (Full C.T. Orange)	176	177
		LEE 205 (Half C.T. Orange)	178	179
		LEE 206 (Quarter C.T. Orange)	180	181
		LEE 247 (LEE Minus Green)	182	183
		LEE 248 (Half Minus Green)	184	185
		LEE 281 (Three Quarter C.T. Blue)	186	187
		LEE 285 (Three Quarter C.T. Orange)	188	189
		LEE 352 (Glacier Blue)	190	191
		LEE 353 (Lighter Blue)	192	193

			LEE 715 (Cabana Blue)	194	195
			LEE 778 (Millennium Gold)	196	197
			LEE 793 (Vanity Fair)	198	199
			CMY color mixing from slow to fast	200	255
4	5	5	Cyan		
			Cyan (linear 0~100%)	0	255
		6	Cyan Fine		
			Cyan in 16 Bit	0	255
5	6	7	Yellow		
			Yellow (linear 0~100%)	0	255
		8	Yellow Fine		
			Yellow in 16 Bit	0	255
6	7	9	Magenta		
			Magenta (linear 0~100%)	0	255
		10	Magenta Fine		
			Magenta in 16 Bit	0	255
7	8	11	CTO		
			CTO(linear 0~100%)	0	255
		12	CTO Fine		
			CTO in 16 bit	0	255
8	9	13	Color Wheel		
			Continual positioning		
			Indexing(0-360degrees)	0	63
			Positioning		
			Open /Color1 (Dark Red)	64	67
			Color1 (Dark Red)	68	71
			Color1 (Dark Red) / Color2(Yellow)	72	75
			Color2(Yellow)	76	79
			Color2(Yellow) / Color3(Blue)	80	83
			Color3(Blue)	84	87
			Color3(Blue) / Color4(Green)	88	91
			Color4(Green)	92	95
			Color4(Green) / Color5(Pink)	96	99
			Color5(Pink)	100	103
			Color5(Pink) / Color6(Amber)	104	107
			Color6(Amber)	108	111
			Color 6(Amber / Color 7(UV)	112	115
			Color 7(UV)	116	119
			Color7 (UV) /Open	120	123
			Open	124	127
			Rotation ,Clockwise from slow to fast	128	191
			Rotation, Anti-clockwise from fast to slow	192	255
	10	14	Color Wheel Fine		
			Color Wheel in 16 Bit	0	255

9	11	15	Iris		
			Linear Iris from small to big 0-100%	0	255
		16	Iris Fine		
			Iris in 16 bit precision	0	255
10	12	17	Iris Macro		
			Iris Macro disabled	0	10
			Iris Macro1: from big to small with speed from slow to fast	11	74
			Iris Macro2: from small to big with speed from slow to fast	75	138
			Iris Macro3: Iris contracts from slow to fast	139	202
			Iris Macro4(Macro1 at random) with speed from slow to fast	203	210
			Iris Macro5(Macro2 at random) with speed from slow to fast	211	218
			Iris Macro6(Macro3 at random) with speed from slow to fast	219	226
			Open	227	255
11	13	18	Fixed gobo wheel		
			Open	0	15
			Gobo 1	16	43
			Gobo 2	44	71
			Gobo 3	72	99
			Gobo4	100	127
			Rotation (clockwise From slow to Fast)	128	151
			Reverse Rotation (anti-clockwise From slow to Fast)	152	175
			Shake of Gobo 1 from slow to fast	176	195
			Shake of Gobo 2 from slow to fast	196	215
			Shake of Gobo 3 from slow to fast	216	235
			Shake of Gobo 4 from slow to fast	236	255
12	14	19	Rotating Gobo Wheel		
			Open	0	15
			Gobo1	16	29
			Gobo 2	30	43
			Gobo 3	44	57
			Gobo 4	58	71
			Gobo 5	72	85
			Gobo 6	86	99
			Gobo 7	100	113
			Gobo 8	114	127
			Rotation (clockwise From slow to Fast)	128	151
			Reverse Rotation (anti-clockwise From slow to Fast)	152	175
			Shake of Gobo 1 from slow to fast	176	185
			Shake of Gobo 2 from slow to fast	186	195
			Shake of Gobo 3 from slow to fast	196	205
			Shake of Gobo 4 from slow to fast	206	215
			Shake of Gobo 5 from slow to fast	216	225
			Shake of Gobo 6 from slow to fast	226	235
			Shake of Gobo 7 from slow to fast	236	245

			Shake of Gobo 8 from slow to fast	246	255
13	15	20	Gobo Rotation		
			Gobo Indexing(0~360 degrees)	0	128
			Rotation (Clockwise From slow to Fast)	129	188
			Stop	189	195
			Rotation (Anti-Clockwise From slow to Fast)	196	255
	16	21	Gobo Rotation Fine		
			Gobo Rotation in 16 Bit	0	255
14	17	22	Framing Blade1left		
			Framing blade 1 left 0-100%	0	255
		23	Framing Blade1left Fine		
			Framing blade 1 left fine control	0	255
15	18	24	Framing Blade 1right		
			Framing blade 1 right 0-100%	0	255
		25	Framing Blade1 right Fine		
			Framing blade 1 right fine control	0	255
16	19	26	Framing Blade2left		
			Framing blade 2 left 0-100%	0	255
		27	Framing Blade2left Fine		
			Framing blade 2 left fine control	0	255
17	20	28	Framing Blade2right		
			Framing blade 2 right 0-100%)	0	255
		29	Framing Blade2 right Fine		
			Framing blade 2 right fine control	0	255
18	21	30	Framing Blade3left		
			Framing blade 3 left 0-100%	0	255
		31	Framing Blade3left Fine		
			Framing blade 3 left fine control	0	255
19	22	32	Framing Blade3right		
			Framing blade 3 right 0-100%	0	255
		33	Framing Blade3 right Fine		
			Framing blade 3 right fine control	0	255
20	23	34	Framing Blade4left		
			Framing blade 4 left 0-100%	0	255
		35	Framing Blade4left Fine		
			Framing blade 4 left fine control	0	255
21	24	36	Framing Blade4right		
			Framing blade 4 right 0-100%	0	255
		37	Framing Blade4 right Fine		
			Framing blade 4 right fine control	0	255
22	25	38	Framing module rotation		
			Framing module indexing(0-360degrees)	0	127
			Stop	128	

			Clockwise rotation from slow to fast	129	188
			Stop	189	195
			Anti-clockwise rotation from slow to fast	196	255
	26	39	Framing module rotation fine		
			Framing module in 16 bit control (0-360 degrees)	0	255
23	27	40	Prism		
			Open	0	16
			Prism	17	255
24	28	41	Prism Rotation		
			Prism Indexing	0	127
			Stop	128	
			Rotation(Clockwise from slow to fast)	129	191
			Stop	192	
			Rotation(Anti- Clockwise from slow to fast)	193	255
25	29	42	Frost		
			No	0	9
			Linear frost (0% - 100%)	10	255
26	30	43	Effect Wheel		
			No	0	10
			Effect wheel in	11	20
			Effect wheel rotation from slow to fast	21	255
27	31	44	Focus		
			Linear Focus	0	255
	32	45	Focus Fine		
			Focus in 16 bit precision	0	255
28	33	46	Zoom		
			Linear Zoom	0	255
	34	47	Zoom Fine		
			Zoom in 16 bit precision	0	255
29	35	48	Autofocus		
			While channels for Iris, Framing module, Fixed gobo wheel and Rotating Gobo Wheel are in use, the fixture has automatic focus function at some distance. Use "Autofocus Calibrations" channel (29/35/48) to focus the image. Priority: Rotating Gobo Wheel >Fixed Gobo Wheel > Iris>Framing module		
			The following functions will disable the focus channel (27/31/44) is disabled.		
			Autofocus Off	0	19
			Autofocus for 5M	20	39
			Autofocus for 10M	40	59
			Autofocus for 15M	60	79
			Autofocus for 20M	80	255

30	36	49	Focus calibrations		
			Focus calibrations up	0	127
			Focus calibrations down	128	255
31	37	50	CRI mode		
			Normal mode	0	127
			High CRI mode	128	255
32	38	51	Power/Special Function		
			No function	0	4
			Reserved	5	19
			More than 5s in DMX values before the following functions work		
			Graphic Display On	20	24
			Graphic Display Off	25	29
			Reserved	30	46
			Fan standard mode	47	48
			Fan theater mode	49	50
			Fast dimmer	51	52
			Medium dimmer	53	54
			Slow dimmer	55	56
			Gamma curve 2.0	57	58
			Gamma curve 2.2	59	60
			Gamma curve 2.4	61	62
			Gamma curve 2.6	63	64
			Straight line	65	66
			LED refresh rate 1200Hz	67	68
			LED refresh rate 2400Hz	69	70
			LED refresh rate 4800Hz	71	72
			LED refresh rate 10000Hz	73	74
			LED refresh rate 12000Hz	75	76
			LED refresh rate 15000Hz	77	78
			LED refresh rate 20000Hz	79	80
			LED refresh rate 25000Hz	81	82
			Reserved	83	149
			Color wheel Reset	150	159
			Gobo Wheel Reset	160	169
			Reserved	170	179
			Zoom/Frost/Focus/Prism Reset	180	189
			Other Reset (Framing/ Iris)	190	199
			Total Reset	200	209
			Reserved	210	255

8. TECHNICAL DATA

The product is with a separate power supply unit.

1) The underwater head

Input voltage: DC 48V

Ingress protection: IP68 (for underwater running)

Electric shock protection class: III class lighting fixture (Safe low voltage/SELV, no electric shock)

Standards: as per IEC 60598-1 and GB/T 50034-2024, DC 60V and lower is safe low voltage/SELV. And DC 48V is safe voltage and without electric shock under normal operation.

2) Power supply control box

Input voltages : 100V~240V AC, 50/60Hz

Input Power : 800W @ 220V

Power factor : PF > 0.95

Max. Current: 3.6 A @ 220V

Output voltage: DC 48V

Output current: 16.7A@48V/DC

Ingress protection: IP66 (waterproof for outdoor application, not for underwater running)

LIGHT SOURCE SPECIFICATIONS (Yellow)

Power consumption : 700W, White LED module

Color Temperature : 8000K

Manufacturers Rated Lamp Life : more than 20000hrs

CRI : $R_a \geq 70$ (Optional high CRI version $R_a \geq 96$, $R_9 \geq 95$)

COLORS

CMY color mixing system with macros

1 Color wheel: 7 colors + Open,

Half color, bi-directional rainbow effect at variable speeds,
Stepping/linear color changing

CTO

Linear CTO system (0-100%, 1800K - 6500K)

FRAMING

1 Framing Module: 4 Framing Blades

Framing Module continual (360°) rotation with many graphics of different sizes and shapes

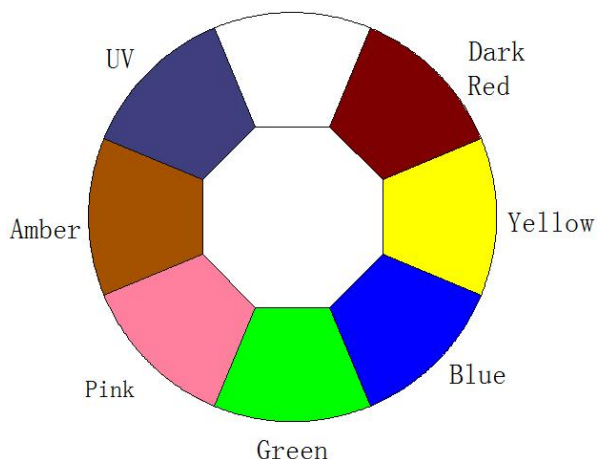
4 Framing blades to make full curtain effect

ROTATING GOBO WHEEL

1 Rotating gobo wheel: 8 Rotating Gobos + Open

Bi-directionally rotatable, and shakable at variable speeds

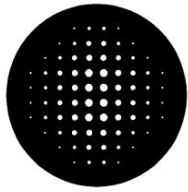
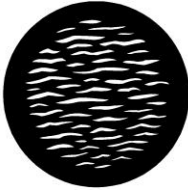
Gobo Replaceable, Gobo diameter: $\Phi 24\text{mm}$, Gobo image diameter: $\Phi 18\text{mm}$



gobo1	gobo2	gobo3	gobo4	gobo5
				
gobo6	gobo7	gobo8		
				

FIXED GOBO WHEEL

1 fixed gobo wheel(optional):4 fixed Gobos + Open
Bi-directionally rotatable, and shakable at variable speeds

gobo1	gobo2	gobo3	gobo4
			

EFFECT WHEEL

Bi-directional rotation at variable speeds

IRIS

5-100% linear with macros

PRISM

1pc, 3-facet circular prism, bi-directional rotation at variable speeds with indexing function

FROST

1 frost filter ,0-100% linear

BEAMANGLE

5°~60°,linear with 16 bit control

FOCUS

DMX linear with auto focus function

DIMMER

Linear electronic dimmer 0-100% with 16 bit control

3 dimmer speeds

5 dimmer curves

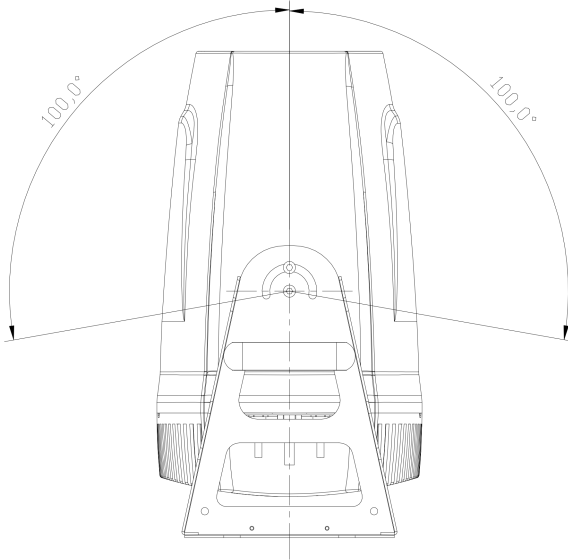
Dimmer frequency(1.2K-25K) good for 4K high speed video camera

STROBE

Electronic strobe 0.3~25 Hz, optional pulse, synchronized or non-synchronized strobe at slow, medium and fast speeds

HEAD MOVEMENT

Tilt: $\pm 100^\circ$



ADVANCED MACROS

Color temperature macros: optional 2700K,3000K,3500K,4000K,4500K,5000K,5700K

Standard color macros: 89 color options based on standard color chart.

BRIGHTNESS CALIBRATION FUNCTION

With brightness calibration function to calibrate initial brightness for a single fixture or multiple ones and store brightness values into the fixtures

CRI MODE

Running at high CRI mode via DMX channel to ensure high CRI optical effect.

CONTROL

International standard DMX512 signal and RDM function

32channels in short mode, 38channels in standard mode, 51 channel in extended mode

Master/Slave mode

Standalone mode

Master Mode

CONTROL INTERFACE

DMX512 ports (5-pin)

OTHER FUNCTIONS

Modular construction for easy maintenance,

DMX channel voltages monitoring

Firmware upgrade via DMX cable

HOUSING AND INGRESS PROTECTION

The housing of the head: ABS or stainless steel, IP68 , for landscape, entertainment ,cultural tourism and other underwater applications.

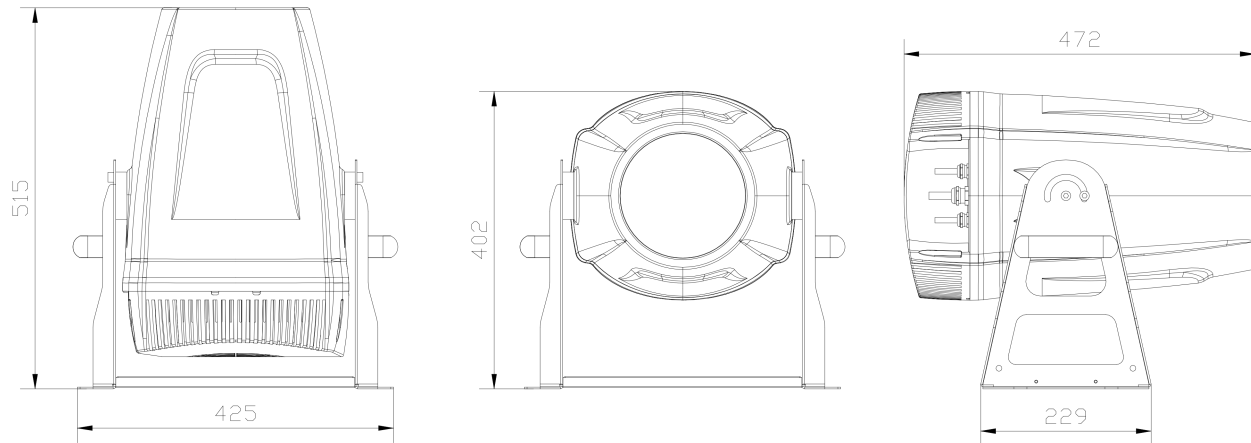
The material for power supply control box: Aluminum, IP66, installed in safe areas, forbidden for underwater applications

AMBIENT TEMPERATURE

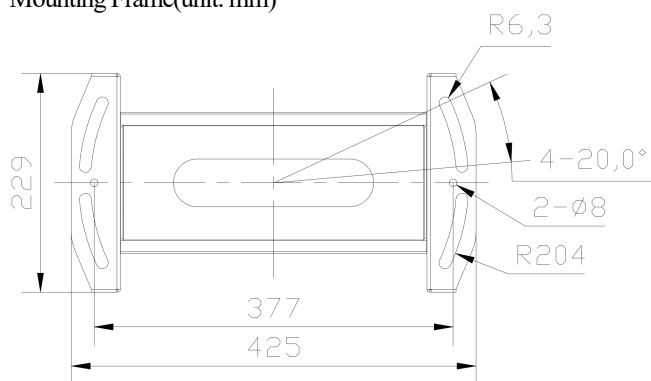
The head : the depth under water $\leq 5\text{m}$, the temperature of water $0^{\circ}\text{C} \sim 40^{\circ}\text{C}$

The power supply control box: $-20^{\circ}\text{C} \sim 40^{\circ}\text{C}$

SIZES(unit: mm)



Mounting Frame(unit: mm)



WEIGHT

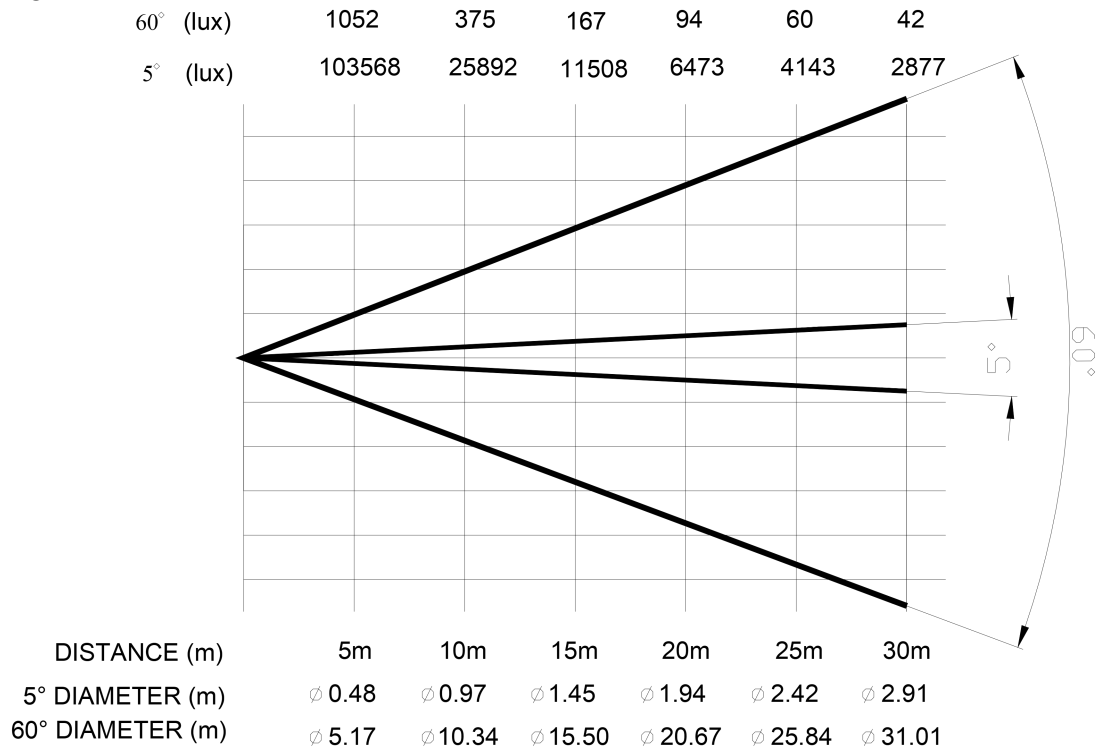
Net weight of the head 23KG

Net weight of the power supply control box 7KG

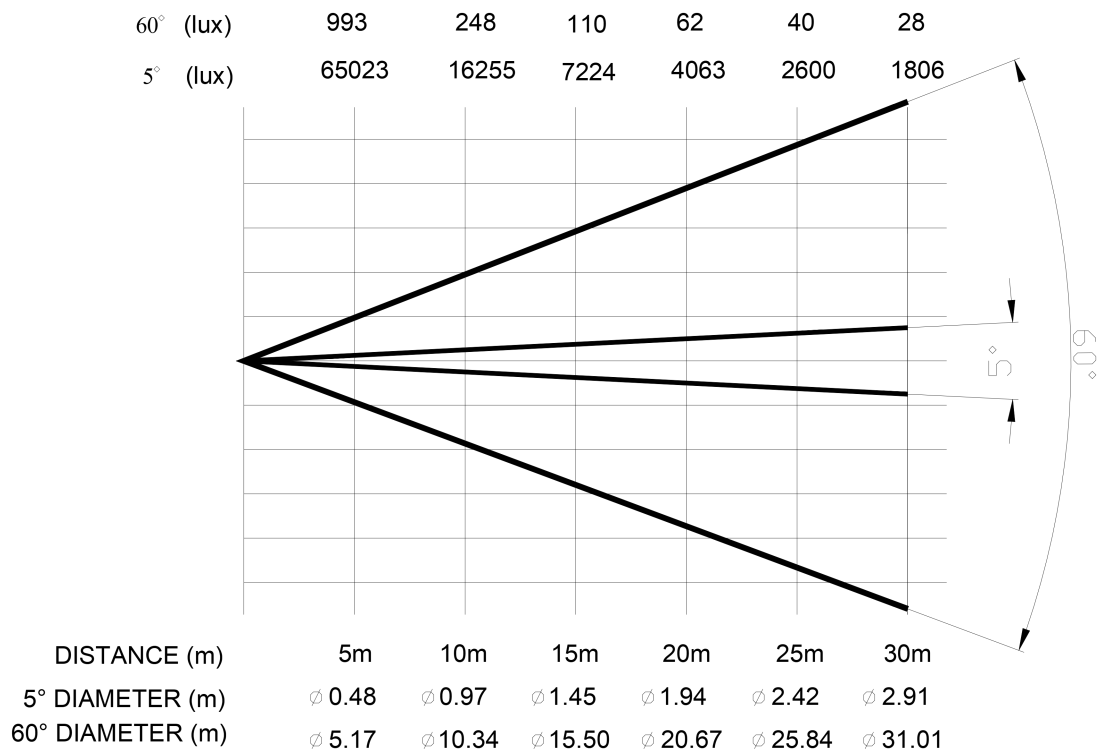
Gross weight in the carton: 33KG(head+ power supply control box)

PHOTOMETRIC

High out mode

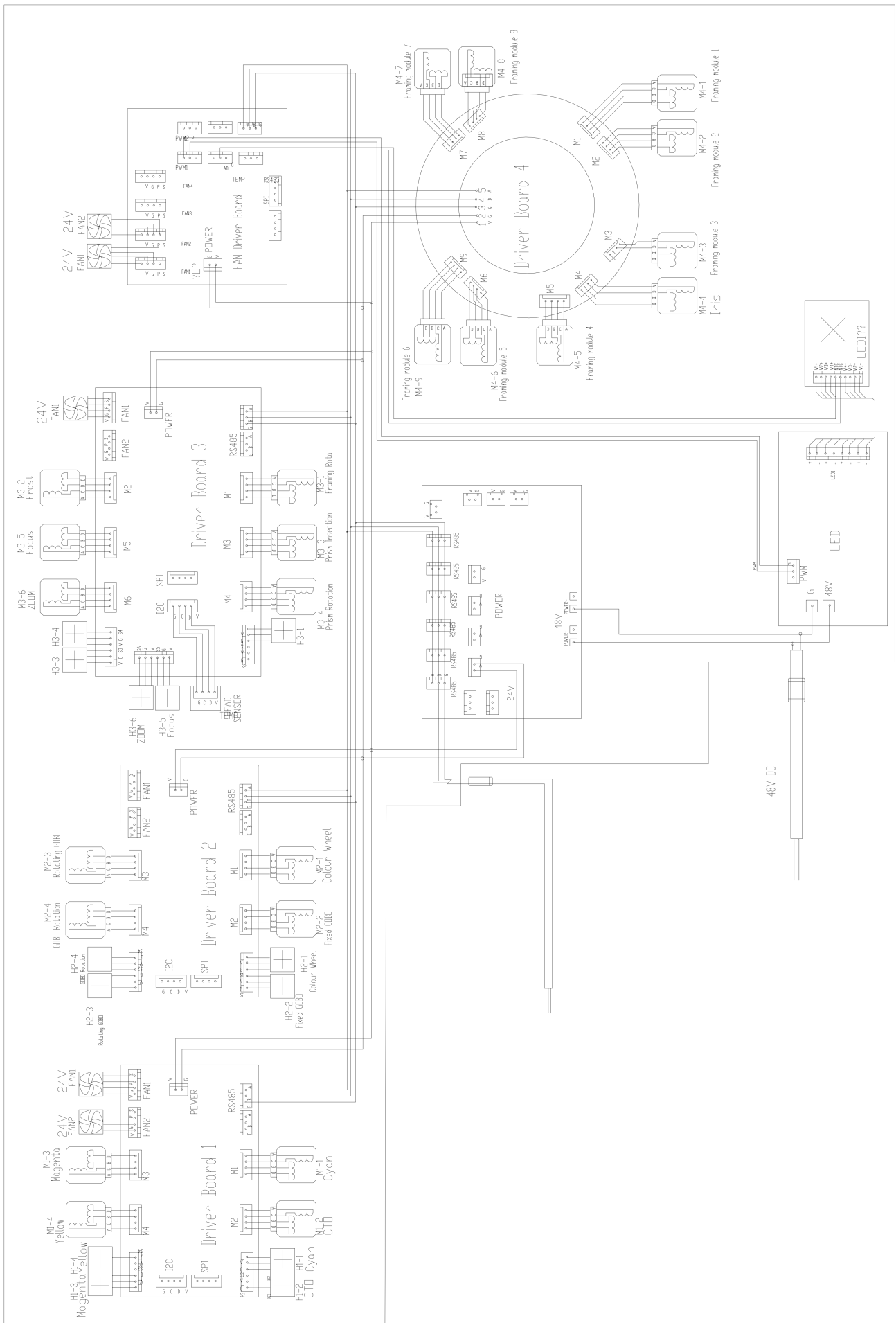


High CRI mode

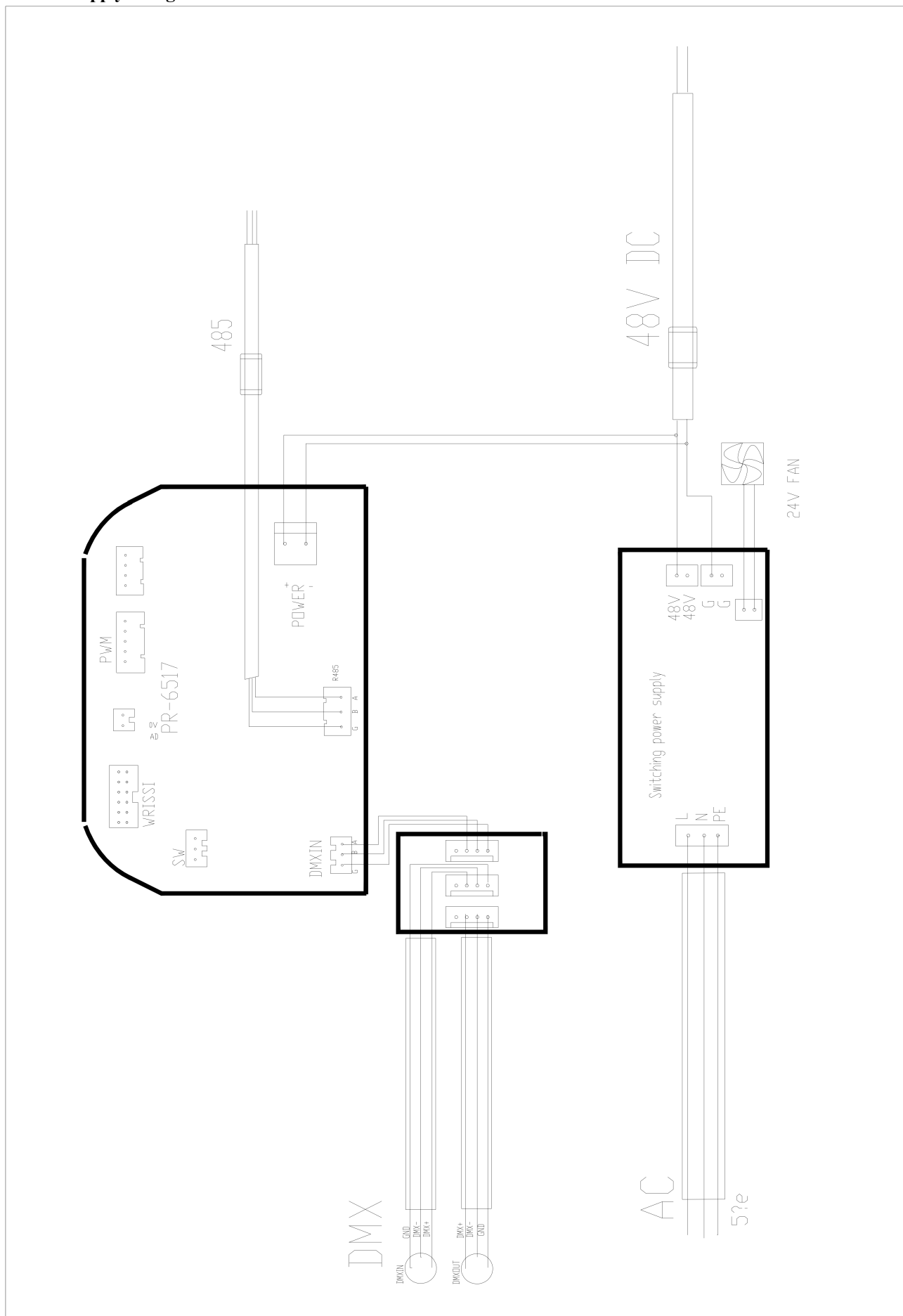


9. CIRCUIT DIAGRAM

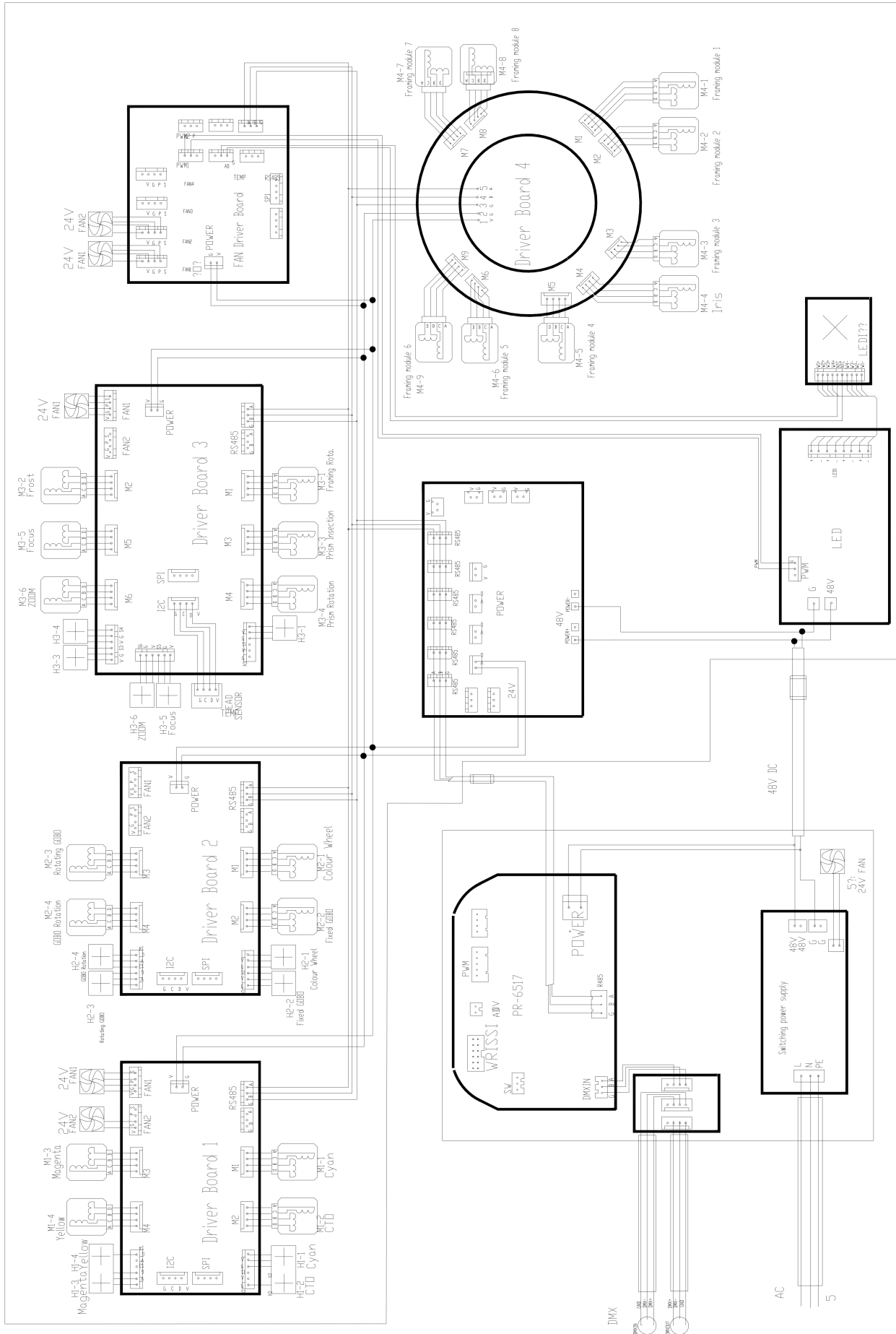
- Fixture circuit diagram



• Power supply diagram



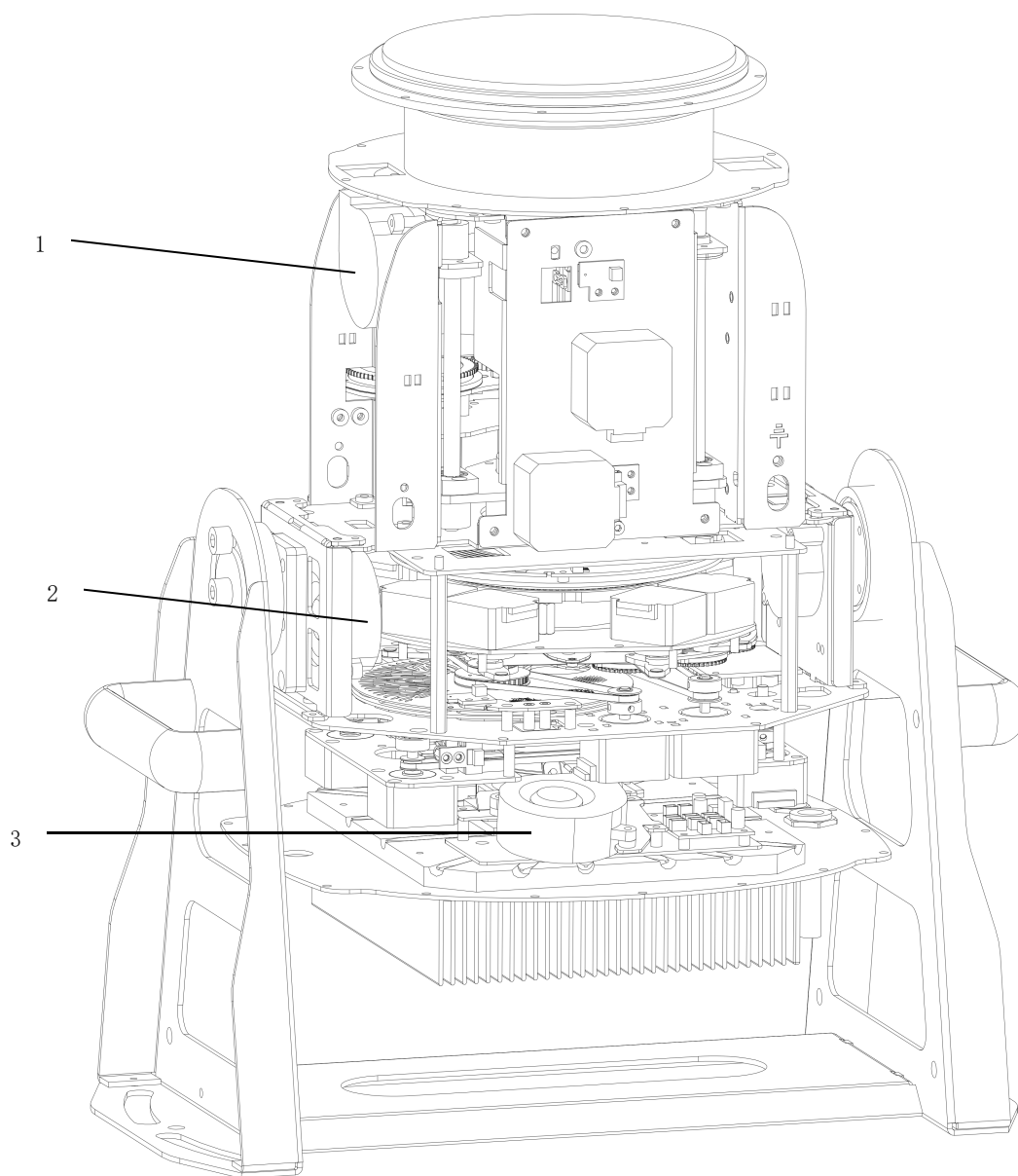
• Fixture with Power supply diagram



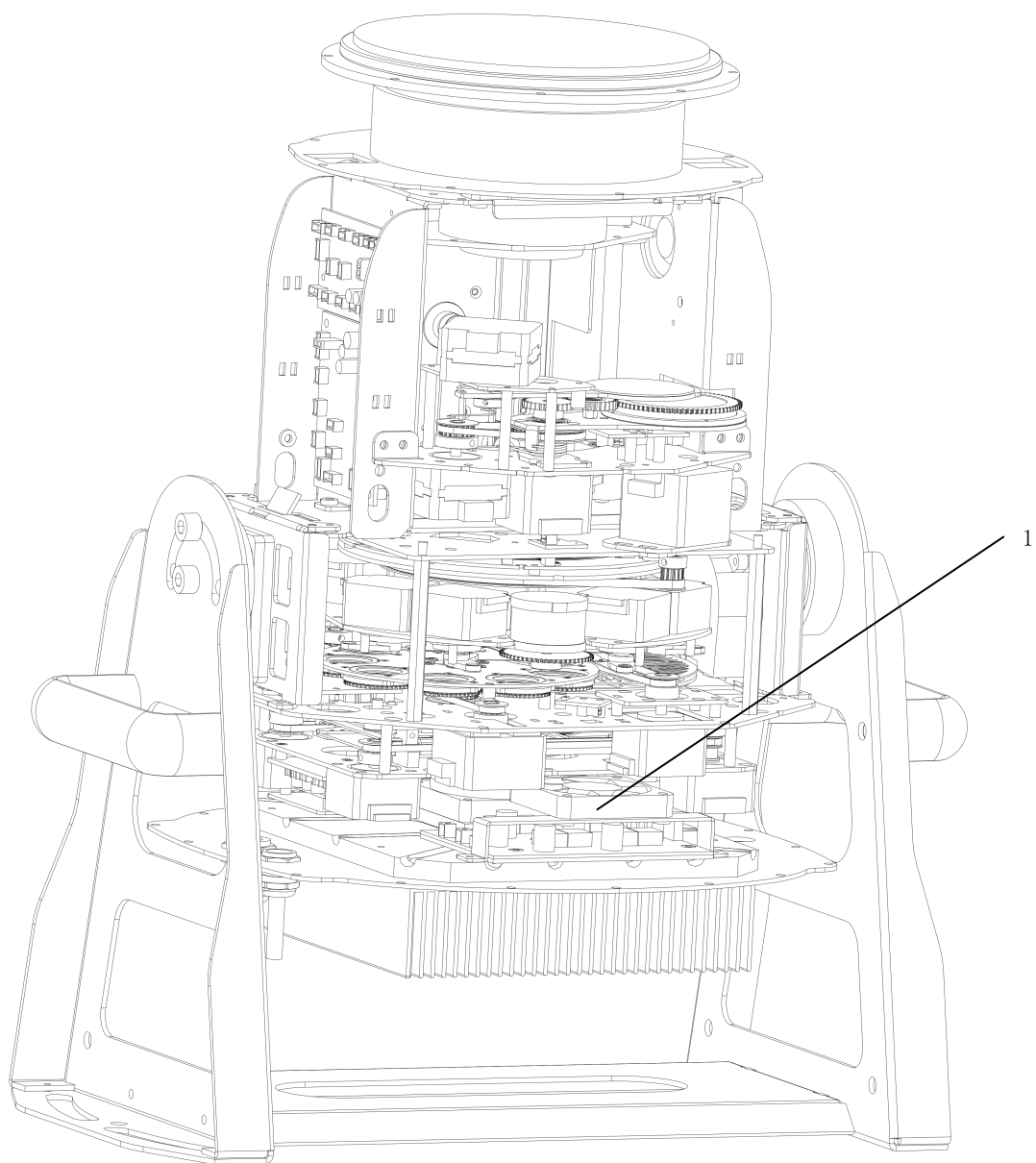
10. COMPONENT ORDER CODES

NAME	CODE NUMBER	QTY	REMARK
Switching power supply	192010228B	1	
Light source	150020354	1	
Power supply fan	030060119	2	
Gobo fan	030060117	1	
Zoom motor	030040154A	1	
Focus motor	030040154A	1	
Fix gobo wheel motor	030040081B	1	
Rotating gobo wheel motor	030040218A	1	
Gobo rotation motor	030040219A	1	
CMY motor	030040302	2	
CTO motor	030040254A	2	
Frost motor	030040073D	1	
Color wheel motor	030040081B	1	
Prism in/out motor	030040221A	1	
Prism rotation motor	030040289	1	
Blade in/out motor	030040302	9	
Framing module rotating motor	030040258A	1	

11. LIGHTING FAN INSTALLATION POSITION



No.	Code No.	Name	Remark	Fan Position
1	030060117	Lens Fan	06023GA-24N-AU-05 24V 0.17A	6-channel Motor driver PCB 3: FAN1
2	030060117	Gobo Fan	06023GA-24N-AU-05 24V 0.17A	4-channel Motor driver PCB 1: FAN1
3	030060143	LED Fan	AGE06010B24V 24V 0.12A	Fan driver PCB : FAN1



No.	Code No.	Name	Remark	Fan Position
1	030060115	Device Fan	MF50152VX-1L01C-S99 24V 0.085A	Fan driver PCB : FAN2

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PR lighting will try its best to offer accurate and overall information about a product's technical data. Any changes won't be notified if necessary. Patented Products.
Counterfeiting Will be Prosecuted!

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