

# ACME<sup>®</sup>

## PULSAR PLUS S2



## User Manual

Please read the instruction carefully before use

## CONTENTS

01/ Safety Information.....	2
01/ Informations de sécurité.....	5
02/ Technical Specifications .....	8
03/ Overview .....	11
04/ Connecting Power and Data .....	12
4.1 Connecting Power .....	12
4.2 Connecting Data.....	13
05/ Fixture Installation.....	14
06/ Operation .....	17
6.1 Control Menu .....	17
6.2 Home Position Adjustment.....	36
07/ Configuring the Device for DMX Control.....	47
7.1 Address Setting.....	47
7.2 DMX Protocol .....	48
08/ Error Information .....	62
09/ Troubleshooting.....	67
10/ Fixture Cleaning.....	68
11/ Approvals and Certifications.....	69

## 01/ Safety Information



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

### WARNING

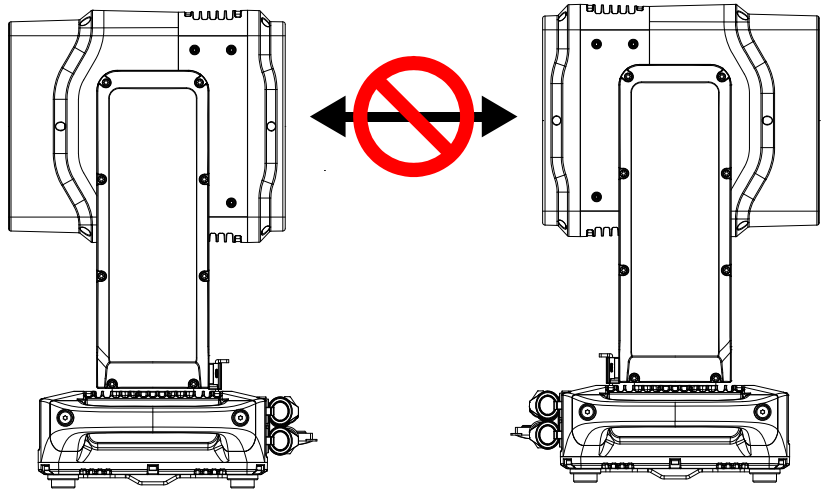
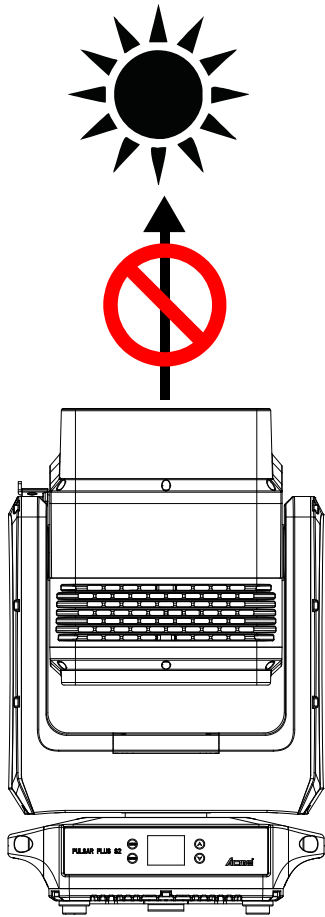
Please keep this User Manual for future consultation. If you sell the unit to another user, be sure that they also receive this instruction manual.

#### Important:

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

- Unpack and check carefully to ensure that there is no transportation damage before using the unit.
- This product is for indoor use only. Use only in a dry location.
- DO install and operate by qualified operator.
- DO NOT allow children to operate the fixture.
- Use safety chain when fixing the unit. Handle the unit by carrying its base instead of the head only.
- The unit must be installed in a location with adequate ventilation, at least 50cm from adjacent surfaces.
- Be sure that no ventilation holes are blocked, otherwise the unit could over heat.
- Before operation, ensure that you are connecting this product to the proper voltage in accordance with the specifications in this manual or on the product's specification label.
- It's important to ground the yellow/green conductor to earth in order to avoid electric shock.
- Minimum ambient temperature TA: -20°C. Maximum ambient temperature TA: 45°C. Do not operate this product at a lower or higher temperature.
- DO NOT connect the device to any dimmer pack.
- Keep flammable materials away from the fixture while operating to avoid fire hazard.
- Make sure the power cord is not crimped or damaged; replace it immediately if damaged.
- Unit's surface temperature may reach up to 70°C. DO NOT touch the housing bare-handed during its operation.

- Avoid any flammable liquids, water or metal from entering the unit. If it happens, cut off the mains power immediately.
- DO NOT operate in a dirty or dusty environment. DO clean the fixture regularly.
- DO NOT touch any wiring during operation as there might be a hazard of electric shock.
- Avoid entanglement of the power cord with other wires.
- The minimum distance to objects/surface must be more than 0.5 meters.
- In the event of an operating problem, stop using the unit immediately.
- Never turn the unit off and on repeatedly.
- The housing, the lenses, or the ultraviolet filter must be replaced if they are visibly damaged.
- DO NOT open the housing as there are no user serviceable parts inside.
- DO NOT attempt to operate this unit if it becomes damaged. DO NOT attempt any repairs yourself. Repairs carried out by unskilled people can lead to damage or malfunction. Please contact the nearest authorized technical assistance center if needed.
- Disconnect this product from its power source before servicing.
- DO use the original packaging or suitable road case if the device is to be transported.
- Check that the head tilt lock is released before packing for transportation.
- Avoid direct eye exposure to the light source while the product is on.
- DO NOT operate this product if you see damage on the housing, shields, or cables. Have the damaged parts replaced by an authorized technician at once.
- External sources of light beams from direct sunlight or any other strong light source, which penetrate the front lens of lighting fixtures, can cause severe internal damage. DO NOT expose the fixture front lens to light beams from direct sunlight or any other strong light source from any angle while unpacking, installation, use, and extended idle times outdoors. DO NOT focus a light beam from one lighting fixture directly towards another.



## 01/ Informations de sécurité



### AVERTISSEMENT

Veillez lire attentivement les instructions, car elles contiennent des informations importantes concernant l'installation, l'utilisation et la maintenance.

Veillez conserver ce manuel d'utilisation pour consultation future. Si vous vendez l'appareil à un autre utilisateur, assurez-vous qu'il reçoive également ce manuel d'instructions.

#### Important:

**Les dommages causés par le non-respect de ce manuel d'utilisation ne sont pas couverts par la garantie. Le revendeur n'acceptera aucune responsabilité pour les défauts ou problèmes qui en résulteraient.**

- Déballer et vérifier soigneusement qu'il n'y a pas de dommages dus au transport avant d'utiliser l'appareil.
- Ce produit est destiné à une utilisation en intérieur uniquement. Utilisez-le uniquement dans un endroit sec.
- FAIRE installer et utiliser par un opérateur qualifié.
- NE PAS laisser les enfants manipuler l'appareil.
- Utiliser une chaîne de sécurité lors de la fixation de l'appareil. Manipuler l'appareil en portant sa base et non uniquement par la tête.
- L'appareil doit être installé dans un endroit bien ventilé, à au moins 50 cm des surfaces adjacentes.
- Assurez-vous qu'aucune fente de ventilation n'est obstruée, sinon l'appareil surchauffera.
- Avant utilisation, assurez-vous de connecter ce produit à la tension appropriée conformément aux spécifications de ce manuel ou à l'étiquette des spécifications du produit.
- Il est important de mettre le conducteur jaune/vert à la terre pour éviter tout risque de choc électrique.
- Température ambiante minimale (TA): -20°C. Température ambiante maximale (TA): 45°C. Ne pas utiliser ce produit à une température inférieure ou supérieure.
- NE PAS connecter l'appareil à un gradateur (dimmer pack).
- Éloigner les matériaux inflammables de l'appareil pendant son fonctionnement pour éviter tout risque d'incendie.

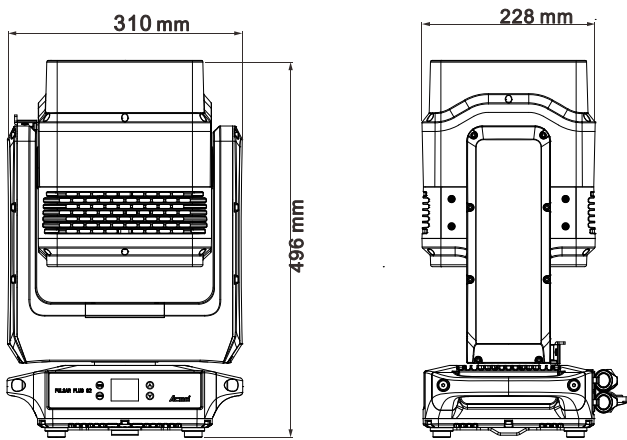
- Vérifier que le cordon d'alimentation n'est ni écrasé ni endommagé; le remplacer immédiatement s'il est endommagé.
- La température de surface de l'appareil peut atteindre jusqu'à 70°C. NE PAS toucher le boîtier à mains nues pendant son fonctionnement.
- Évitez que des liquides inflammables, de l'eau ou des objets métalliques ne pénètrent dans l'appareil. Si cela se produit, coupez immédiatement l'alimentation électrique.
- NE PAS utiliser l'appareil dans un environnement sale ou poussiéreux. Nettoyez régulièrement l'appareil.
- NE PAS toucher de fils pendant le fonctionnement, car cela pourrait présenter un risque de choc électrique.
- Évitez que le cordon d'alimentation ne s'emmêle avec d'autres fils.
- La distance minimale par rapport aux objets/surfaces doit être de plus de 0.5 mètres.
- En cas de problème de fonctionnement grave, cessez immédiatement d'utiliser l'appareil.
- Ne jamais allumer et éteindre l'appareil à plusieurs reprises.
- Le boîtier, les lentilles ou le filtre ultraviolet doivent être remplacés s'ils sont visiblement endommagés.
- NE PAS ouvrir le boîtier, car il ne contient aucune pièce pouvant être réparée par l'utilisateur.
- NE PAS tenter d'utiliser cet appareil s'il est endommagé. NE PAS tenter de réparations vous-même. Les réparations effectuées par des personnes non qualifiées peuvent entraîner des dommages ou un dysfonctionnement. Veuillez contacter le centre d'assistance technique agréé le plus proche si nécessaire.
- Débranchez l'appareil de sa source d'alimentation avant toute maintenance.
- UTILISEZ l'emballage d'origine si l'appareil doit être transporté.
- Vérifiez que le verrou d'inclinaison de la tête est libéré avant l'emballage pour le transport.
- Évitez une exposition directe des yeux à la source lumineuse lorsque l'appareil est allumé.
- NE PAS utiliser ce produit si vous constatez des dommages sur le boîtier, les protections ou les câbles. Faites remplacer les pièces endommagées par un technicien agréé immédiatement.

- Les sources externes de rayons lumineux, comme la lumière directe du soleil ou toute autre source lumineuse intense, qui pénètrent à travers la lentille frontale des appareils d'éclairage, peuvent causer des dommages internes graves. NE PAS exposer la lentille frontale de l'appareil à des rayons lumineux provenant de la lumière directe du soleil ou de toute autre source lumineuse intense, sous quelque angle que ce soit, lors du déballage, de l'installation, de l'utilisation ou de périodes d'inactivité prolongées à l'extérieur. NE PAS diriger un faisceau lumineux d'un appareil d'éclairage directement vers un autre.

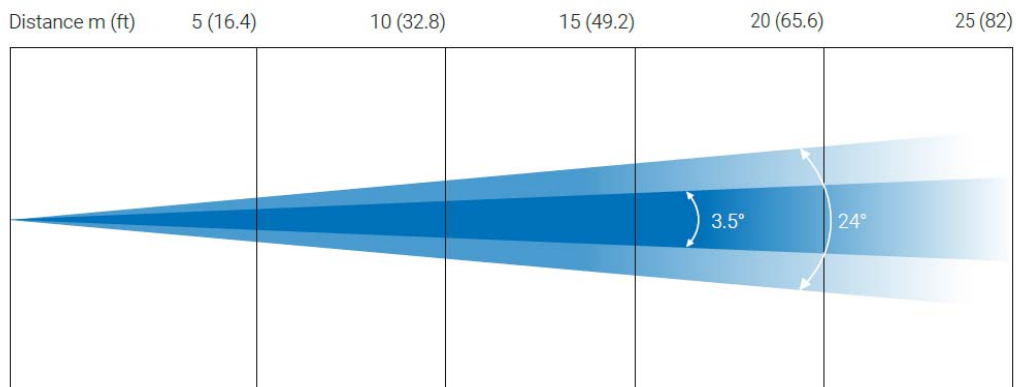
## 02/ Technical Specifications

AC Power	100-240Vac; 50/60Hz	
Max. Power Consumption	1200W	
Light Source	Beam Section	4x150W RGBL LEDs
	Strobe Section	160x3W CW LEDs
		192 x 0.5W RGB LEDs
	10W Beam Section	16 x10W CW LEDs
Beam Angle	3.5°-24°	
Field Angle	5°-30°	
Movement	Pan	Infinity
	Tilt	Infinity
	16 bit movement resolution	
	Automatic pan/tilt repositioning	
	Mechanical pan/tilt lock for safe transportation and maintenance	
Control and Programming	DMX Channels	43/195/153/27+168/163
	Protocols	DMX512
		RDM
		Art-Net
		sACN
Firmware Update	via DMX	
Construction	Display	LCD display
	DMX and RDM Data In/Out	3-pin XLR (optional with 5-pin XLR)
		RJ45 Connectors
	Power In/Out	Power Connector in/out
Protection Rating	IP66 (Warning: Do not immerse the vent valve in water.)	
Dynamic Effects	0-100% continuous dimming and strobe effects	
	Choice of four dimming curves	
	DMX Controllable Smart Glass technology for Pixel and 10W Beam Sections	
	Motorized linear zoom system	
	Built-in macro effects	
	Wash Section: 4 x 150W RGBL LEDs with individual control	
	Strobe Section: 160 x 3W CW LED zones with individual control 192 x 0.5W RGB LED zones with individual control	

<b>Dimensions</b>	310x228x496mm	12.20" × 8.98" × 19.53"
<b>Weight</b>	20.5KG	45.2 lbs

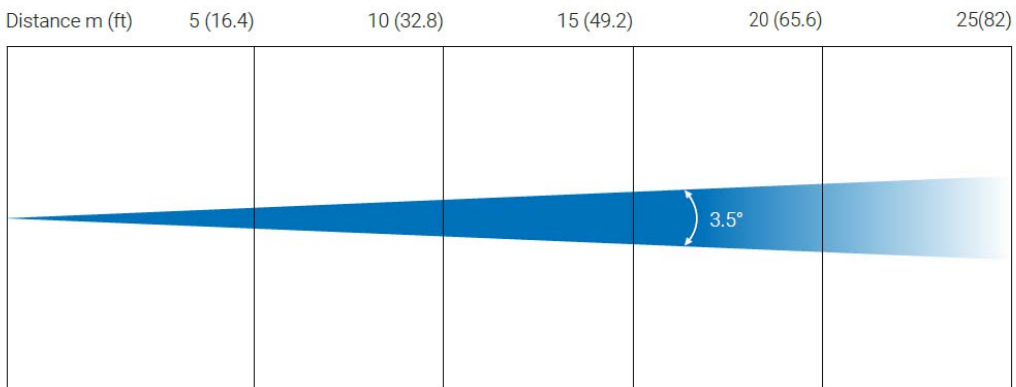


**Photometric Diagram (Beam Angle):**



Distance m (ft)    5 (16.4)            10 (32.8)            15 (49.2)            20 (65.6)            25 (82)

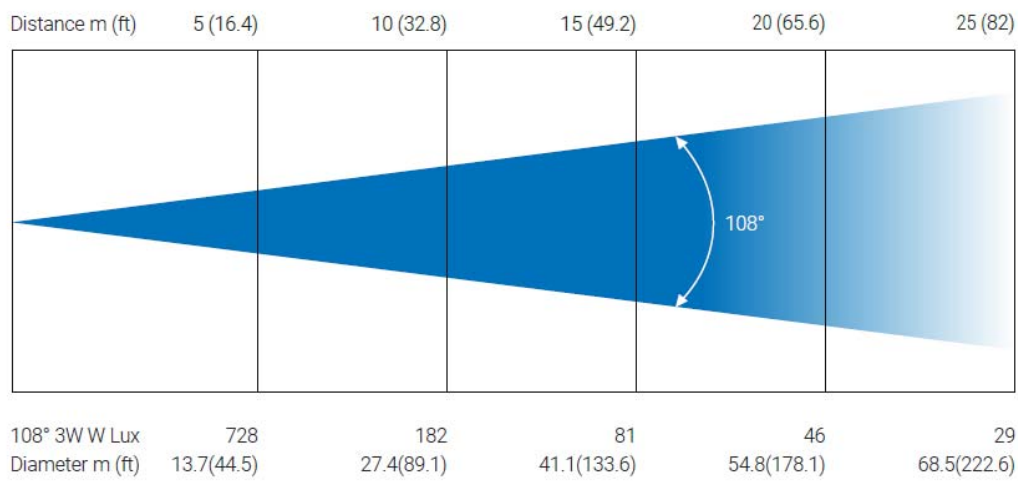
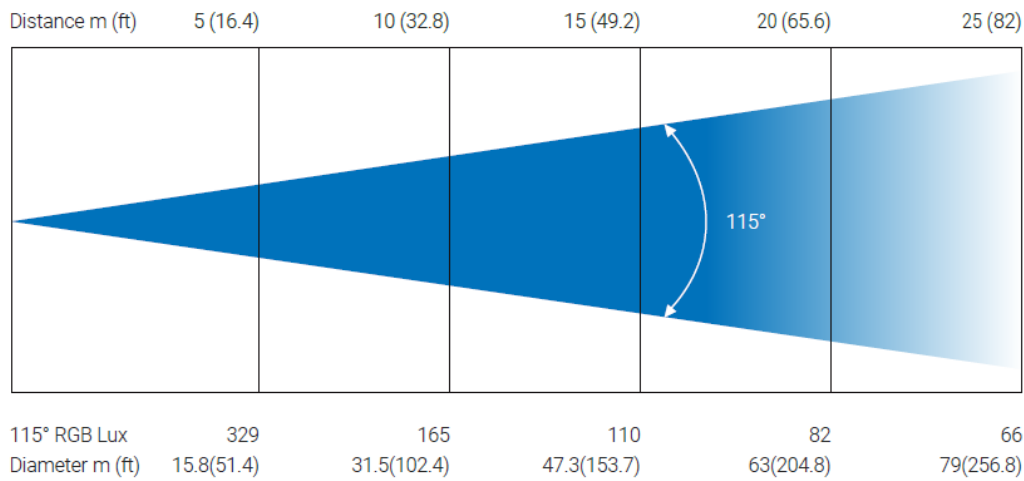
3.5° RGBL Lux	80,800	20,200	8,978	5,050	3,232
Diameter m (ft)	0.6(2)	1.2(3.9)	1.8 (5.9)	2.4 (7.8)	3(9.8)
24°RGBL Lux	3,768	942	419	236	151
Diameter m (ft)	2.6(8.5)	5.2 (16.9)	7.8 (25.4)	10.5 (34.1)	13.1 (42.6)



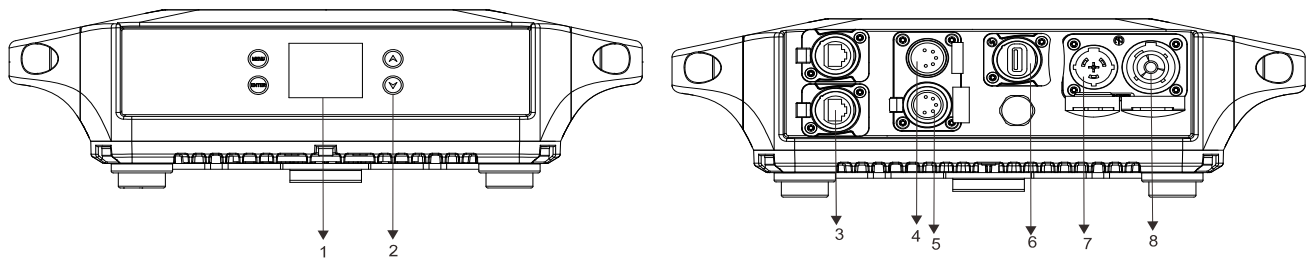
Distance m (ft)    5 (16.4)            10 (32.8)            15 (49.2)            20 (65.6)            25(82)

3.5° 10W CW Lux	31,720	7,930	3,524	1,982	1,268
Diameter m (ft)	0.6(2)	1.1(3.6)	1.7 (5.5)	2.2 (7.2)	2.8(9.1)

**Photometric Diagram (Field Angle):**



## 03/ Overview



1. Display	To show the various menus and the selected function	
2. Buttons	MENU	To enter into, move backward or leave the menu
	▲ UP	To go backward or move up in the menu
	▼ DOWN	To go forward or move down in the menu
	ENTER	To perform the desired functions
3. ETHERNET	For use with sACN or Art-Net controls	
4. DMX IN	For DMX512 link, use 3-pin XLR cable to link the unit and DMX controller to input DMX signal (optional with 5-pin XLR)	
5. DMX OUT	For DMX512 link, use 3-pin XLR cable to link the next units to output DMX signal (optional with 5-pin XLR)	
6. FIRMWARE UPGRADE	Updating Software	
7. POWER IN	To connect to supply power	
8. POWER OUT	To connect to the next fixture	

## 04/ Connecting Power and Data

### 4.1 Connecting Power

To apply power, first check that the head pan and tilt locks are released.

This fixture can operate on any 100-240Vac; 50/60Hz AC mains power supply.

The maximum power consumption is 1200W.

The fixture must be grounded/earthed and able to be isolated from AC power. The AC power supply must incorporate a fuse or circuit breaker for fault protection.

Wiring and connection work must be carried out by a qualified electrician.

The power cable color coding is given in the figure below:

Wire	Color (US)	Wire	Color (EU)	Symbol	Conductor
	black		brown	L	live
	white		blue	N	neutral
	green		yellow/green	$\perp$ or $\oplus$	ground (earth)

Power cord set should be used: Listed SJT flexible cord with rating: 300V, 105°C, 16AWGx3C, molded with 5-20P attachment plug and terminated with cord connector model SAC3FX with rating 250V, 16A by NINGBO SEETRONIC ELECTRONIC TECHNOLOGY CO., LTD. The power cord shall be at least 914mm (It is to be measured from the face of the attachment plug to the face of connector).

#### **CAUTION!**

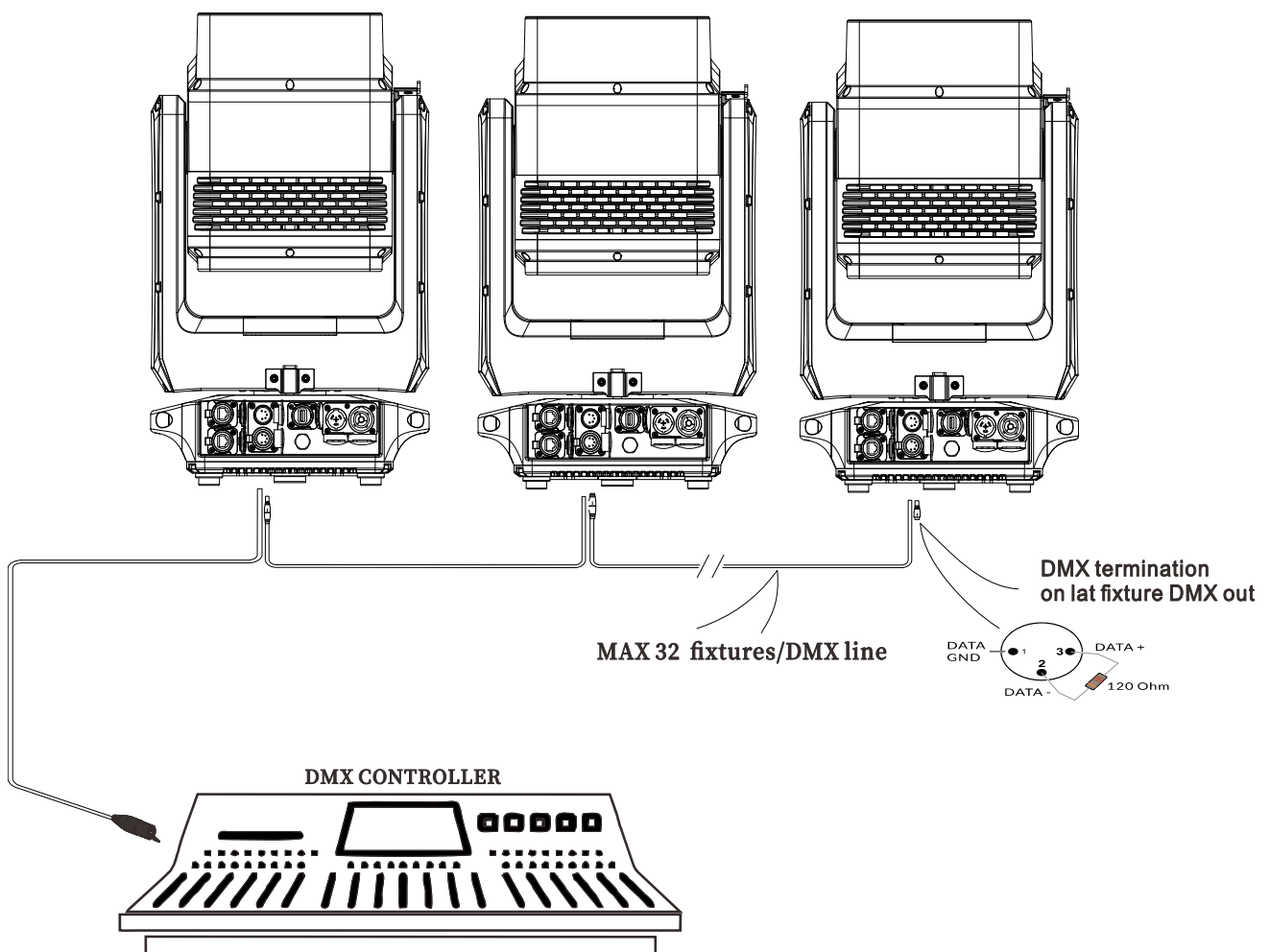
**DO NOT CONNECT THE FIXTURE TO AN ELECTRICAL DIMMER SYSTEM AS DOING SO MAY CAUSE DAMAG**

## 4.2 Connecting Data

The fixture is equipped with 3-pin (or 5-pin) XLR sockets for DMX input and output. Use a high-quality DMX cable designed for RS-485 and 3-pin (or 5-pin) XLR-plugs and connectors in order to connect the controller with the fixture or one fixture with another.

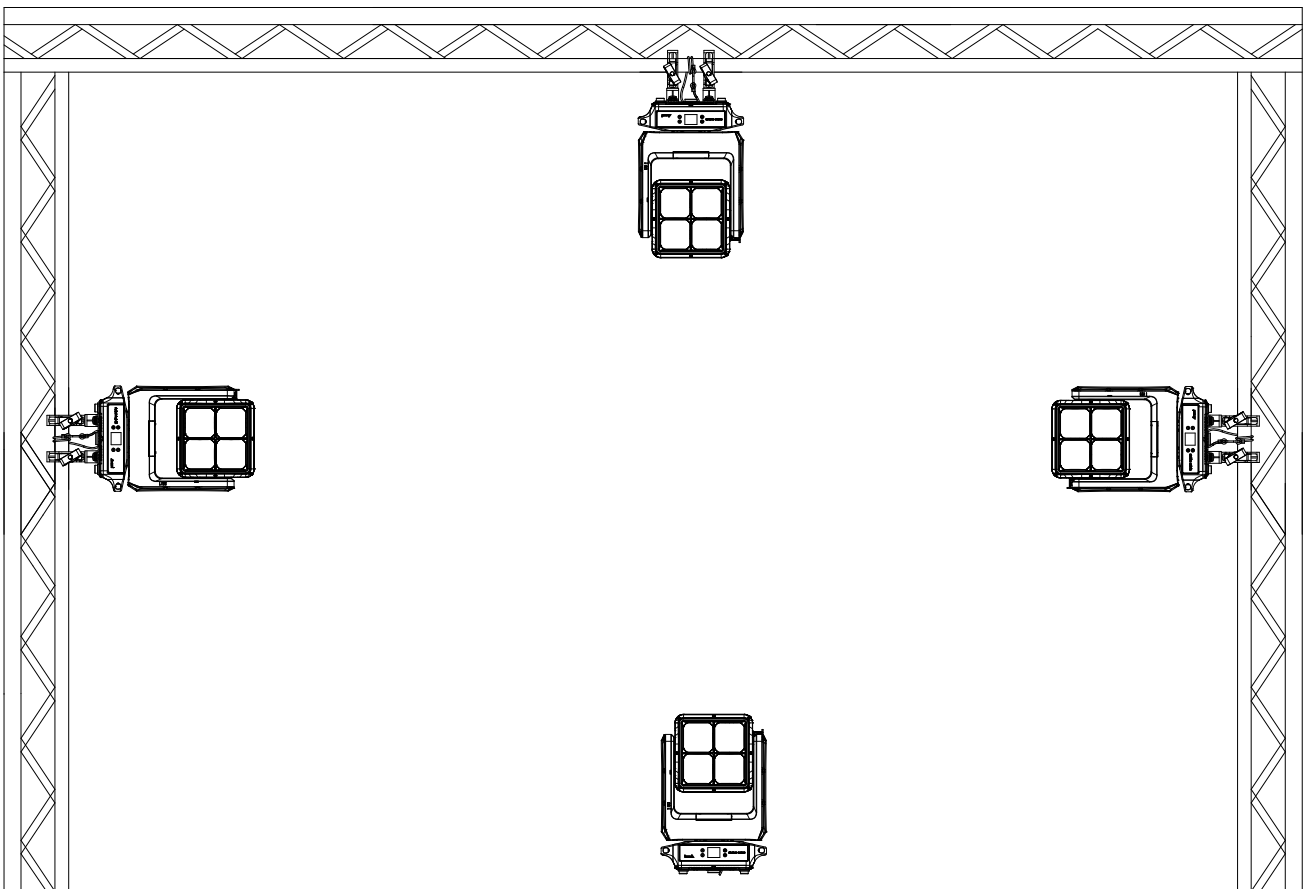
### Building a serial DMX chain:

Connect the DMX data output from the controller to the fixture's data input socket. Connect the DMX output of the first fixture in the DMX chain with the DMX input of the next fixture. Always connect one output with the input of the next fixture until all fixtures are connected. Up to 32 fixtures can be connected to the same DMX link. Terminate the DMX out cable of the last fixture in the data link with a 120 ohm DMX terminator.

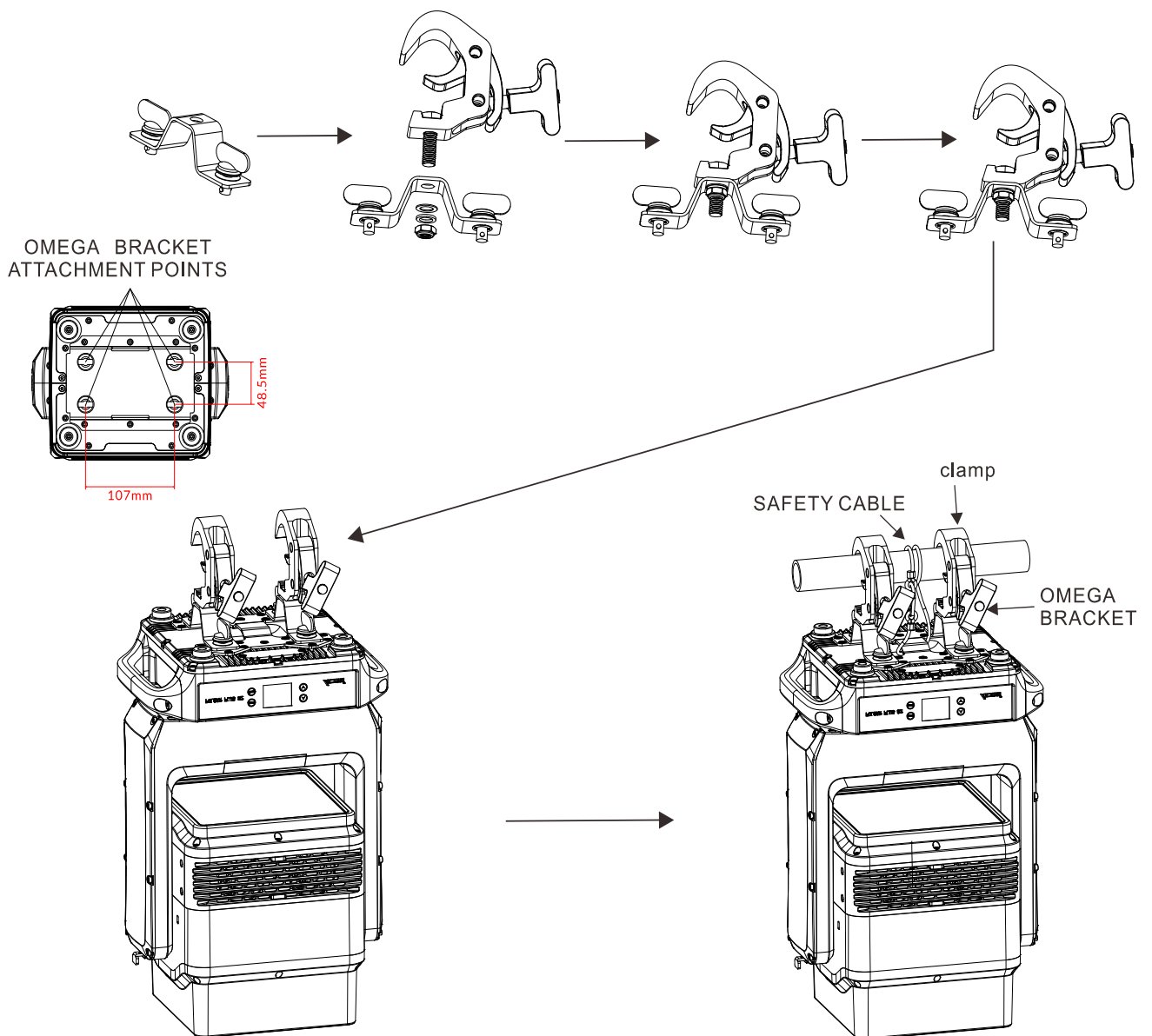


## 05/ Fixture Installation

- ▶ DO install and operate by qualified operator. Fixture(s) should be installed in areas outside walking paths, seating areas, or away from areas where unauthorized personnel might reach the fixture by hand. NEVER stand directly below the fixture(s) when rigging, removing or servicing.
- ▶ Always ensure that the unit is firmly fixed to avoid vibration and slipping off during operation. Ensure that the trussing or area of installation must be able to hold 10 times the weight without any deformation. Always attach a safety cable (made of steel, min. diameter 2.0mm) that can hold at least 12 times the weight of the fixture whenever installing this fixture in a suspended environment to ensure that the fixture will not fall if the clamp fails.
- ▶ This fixture is fully operational in three different mounting positions: hanging upside-down, mounted sideways on truss, or base positioned on floor. Always use and install a safety cable as a safety measure to prevent accidental damage and/or injury in the event the clamp fails.

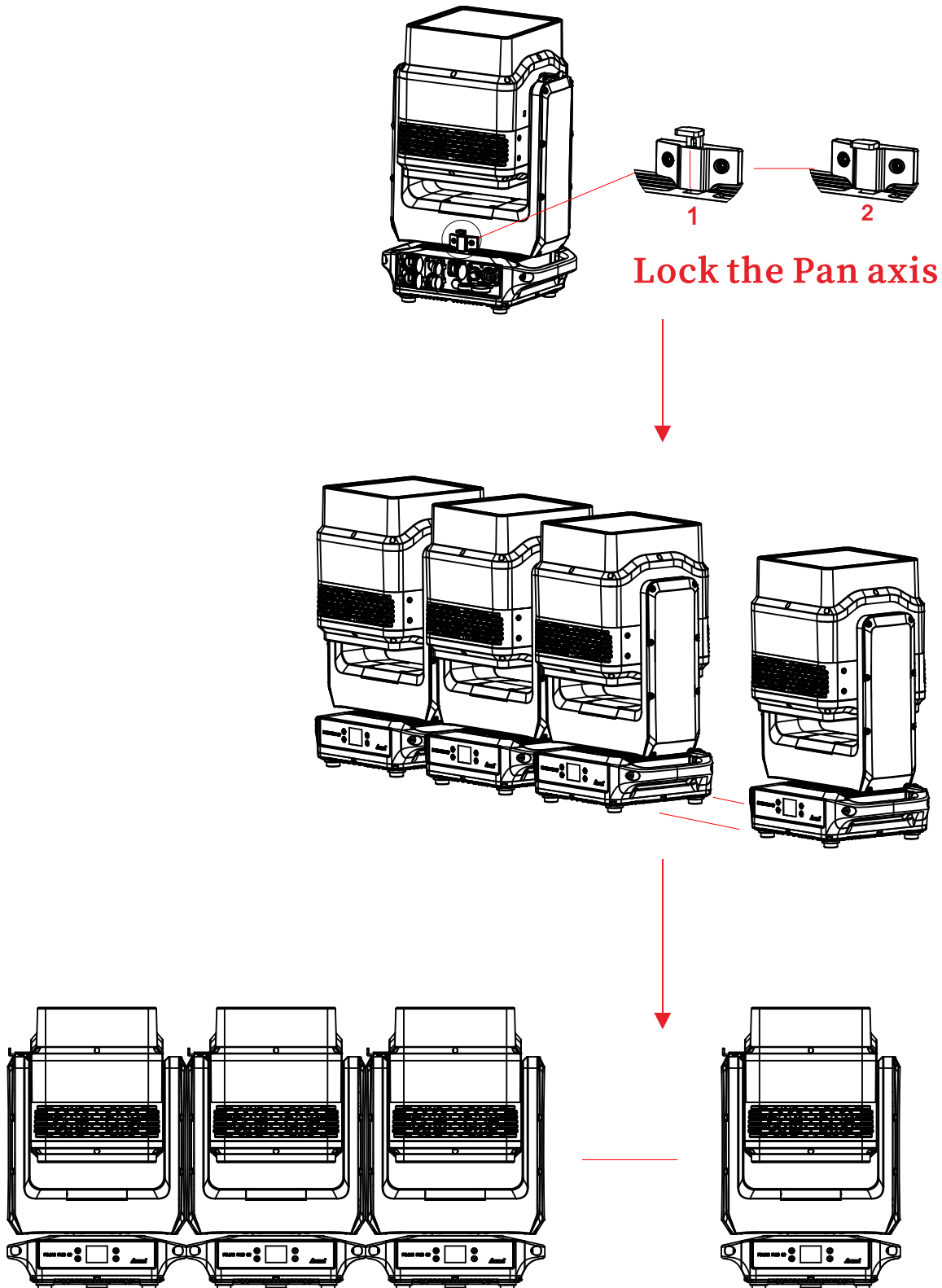


Steps for installing omega brackets to the fixture:



### Steps for Multi-Fixture in a line Installation & Pan Axis Locking/Disabling:

Note: Mechanically lock the Pan axis first, then disable its function with the following steps: Main Menu > Fixture Settings> Pan Disable>Enable



## 06/ Operation

### 6.1 Control Menu

- ▶ To access the control menus, press the [MENU] button.
- ▶ Navigate the menu structure, using the [ENTER], [▲ UP] and [▼ DOWN] buttons.
- ▶ To select a menu option or to confirm a selection, press the [ENTER] button.
- ▶ To return to a higher level in the menu structure without making a change, press the [MENU] button, or wait 30 seconds.

The main functions are shown below:

MAIN MENU	SUBMENU	CHOICES/VALUES		
DMX Settings	DMX Address	1-512	(Default=1)	
		Port A Address	(Default=1)	
		Port B Address	(Default=1)	
	DMX Channel Mode	Mode 1 (43)		
		Mode 2 (195)		
		Mode 3 (153)		
		Mode 4 (27+168)		
		Mode 5 (163)		
	No DMX Status	Blackout		
		Hold		
		Manual		
	View DMX Value			
	Connect Option	Auto		
		DMX		
		Art-Net		
		sACN		
		Auto		
		DMX+Art-Net		
		DMX+sACN		
		Art-Net+Art-Net		
sACN+sACN				
Network	IP Address	Default 1		
		Default 2		
		Manual		

MAIN MENU	SUBMENU	CHOICES/VALUES	
		Subnet Mask	XXX.XXX.XXX.XXX
	Art-Net Settings	Net	0-127 (Default=0)
		Sub-Net	0-15 (Default=0)
		Universe	0-15 (Default=0)
		Net	0-127 (Default=0)
		Sub-Net	0-15 (Default=0)
		Universe A	0-15 (Default=0)
		Universe B	0-15 (Default=0)
	sACN Settings	Universe	1-32000 (Default=1)
		Priority	0-200 (Default=100)
		Universe A	0-15 (Default=0)
		Universe B	0-15 (Default=0)
	Network To DMX	No	
		Yes	
	Fixture Settings	Pan Invert	No
Yes			
Tilt Invert		No	
		Yes	
P/T Feedback		No	
		Yes	
Zoom Invert		No	
		Yes	
Dimmer Curve		Linear	
		Square Law	
		Inv SQ Law	
		S Curve	
Dimmer Speed		Fast	
		Smooth	
White Balance		Wash Red	125-255
		Wash Green	125-255
		Wash Blue	125-255
		Wash Red 1	125-255
		Wash Green 1	125-255
	Wash Blue 1	125-255	
	Wash Red 2	.....	
	Wash Green 2	125-255	
	Wash Blue 2	125-255	
	.....	125-255	

MAIN MENU	SUBMENU	CHOICES/VALUES		
		Zone Red 16	125-255	
		Zone Green 16	125-255	
		Zone Blue 16	125-255	
	LED Refresh Rate	900Hz		
		1000Hz		
		1100Hz		
		1200Hz		
		1300Hz		
		1400Hz		
		1500Hz		
		2500Hz		
		4000Hz		
		5000Hz		
		6000Hz		
		10KHz		
		15KHz		
		20KHz		
		25KHz		
	Fan Mode	Auto		
		Quiet		
		Super Quiet		
	Invert Pixel	No		
		Yes		
	Line Power Mode	Off		
		On		
	Sun Protection Mode	On		
		Off		
	Dimming Start Mode	High		
		Low		
	CCT Calibration	Off		
On				
Pan Disable	Disable			
	Enable			
Display Settings	Display Invert	No		
		Yes		
	Backlight Intensity	1-10		
Temperature Unit	°C			
	°F			
	Auto Test	Single		
		Cycle		

MAIN MENU	SUBMENU	CHOICES/VALUES			
Fixture Test	Manual Test	Mode 1		Mode 2	
		Clear	No/Yes	Clear	No/Yes
		Pan	0-255	Pan	0-255
		Tilt	0-255	Tilt	0-255
		Pan Infinity	0-255	Pan Infinity	0-255
		Tilt Infinity	0-255	Tilt Infinity	0-255
		Pan/tilt speed	0-255	Pan/tilt speed	0-255
		Zoom	0-255	Zoom	0-255
		Frost	0-255	Frost	0-255
		Effect	0-255	Effect	0-255
		Wash Dimmer	0-255	Wash Dimmer	0-255
		Wash Strobe	0-255	Wash Strobe	0-255
		Beam Dimmer	0-255	Beam Dimmer	0-255
		Beam Strobe	0-255	Beam Strobe	0-255
		Zone Dimmer	0-255	Zone Dimmer	0-255
		Zone Strobe	0-255	Zone Strobe	0-255
		Line Dimmer	0-255	Line Dimmer	0-255
		Line Strobe	0-255	Line Strobe	0-255
		Wash Red	0-255	Wash Red 1	0-255
		Wash Green	0-255	Wash Green 1	0-255
		Wash Blue	0-255	Wash Blue 1	0-255
		Wash Lime	0-255	Wash Lime 1	0-255
		Crossfade	0-255	.....	0-255
		Wash CTO	0-255	Wash Red 4	0-255
		Wash Color Macro	0-255	Wash Green 4	0-255
		Beam CW	0-255	Wash Blue 4	0-255
		Beam Macro	0-255	Wash Lime 4	0-255
		Beam Macro Speed	0-255	Cross Fade	0-255
		Zone Red	0-255	Wash CTO	0-255
		Zone Green	0-255	Wash Color Macro	0-255
Zone Blue	0-255	Beam CW 1	0-255		

MAIN MENU	SUBMENU	CHOICES/VALUES					
		Zone Color Macro	0-255	Beam CW 2	0-255		
		Zone Macro	0-255	.....	0-255		
		Zone Macro Speed	0-255	Beam CW 15	0-255		
		Line CW	0-255	Beam CW 16	0-255		
		Line Macro	0-255	Zone Red 1	0-255		
		Line Macro Speed	0-255	Zone Green 1	0-255		
				Zone Blue 1	0-255		
				.....	0-255		
				Zone Red 16	0-255		
				Zone Green 16	0-255		
				Zone Blue 16	0-255		
				Line CW 1	0-255		
				Line CW 2	0-255		
				... ..	0-255		
		Line CW 39	0-255				
		Line CW 40	0-255				
Information	Use Hour	Fixture					
		Light Source		Total			
				Light On			
				Reset	Password=050		
	Temperature	Light Source			Current	Max temp	
			Light Source 1				
			Light Source 2				
			Light Source 3				
			Light Source 4				
			Light Source 5				
			Light Source 6				
	Light Source 7						
	Fan State	B_A_FAN 1					
		B_A_FAN 2					
H_C_FAN 1							
H_C_FAN 2							

MAIN MENU	SUBMENU	CHOICES/VALUES	
		H_D_FAN 1	
		H_D_FAN 2	
	Firmware Version		
	RDM UID		
	Error Logs	Fixture Errors	
		Reset Error Log	No
			Password=050
Reset Functions	Pan/Tilt Reset	No	
		Yes	
	Effect Reset	No	
		Yes	
	All Reset	No	
		Yes	
Special Function	USB Upgrade	No	
		Yes	
	Send Upgrade	No	
		Yes	
	Firmware Restore	No	
		Yes	
	Factory Settings	No	
		Yes	

## DMX Settings

Enter the control menu and select **DMX Settings**, press ENTER. Use the UP/DOWN button to select **Port A Address**, **Port B Address**, **DMX CH Mode**, **No DMX Status**, **View DMX Value**, **Connect Option**, **Network**, **Art-Net Settings**, **sACN Settings** or **Network To DMX**.

### Port A Address.

Select **Port A Address**, press ENTER.

Use UP/DOWN button to select an address, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

### Port B Address

Select **Port B Address**, press ENTER.

Use UP/DOWN button to select an address, confirm your selection with ENTER. To exit the menu, press MENU, or wait 30 seconds.

### DMX CH Mode

Select **DMX CH Mode**, press ENTER.

Use UP/DOWN button to select between **Mode 1 (43)**, **Mode 2 (195)**, **Mode 3 (153)**, **Mode 4 (27+168)** and **Mode 5(163)** confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

CHANNEL MODE	DMX ADDRESS
Mode 1 (43)	1-470
Mode 2 (195)	1-318
Mode 3 (153)	1-360
Mode 4 (27+168)	1-318
Mode 5 (163)	1-350

## View DMX Value

Select **View DMX Value**, press ENTER.

Use UP/DOWN button to select the desired DMX channel, for which the value is to be displayed.

To exit the menu, press MENU, or wait 30 seconds.

## No DMX Status

Select **No DMX Status**, press ENTER.

Use UP/DOWN button to select one of the following status:

**Blackout** (Fixture blacks out if DMX signal stops)

**Hold** (The device continues to operate in the current mode with the last active DMX values until the signal returns)

**Manual** (The device accepts the DMX value stored in the 'Manual Test' menu)

Confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Connect Option

Select **Connect Option**, press ENTER.

Use UP/DOWN button to select **Auto, DMX, Art-Net, sACN, Auto, DMX+Art-Net, DMX+sACN, Art-Net+Art-Net** or **sACN+sACN** confirm your selection with ENTER.

## Network

Select **Network**, press ENTER.

Use UP/DOWN button to select **IP Address** or **Subnet Mask**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Art-Net Settings

Select **Art-Net Settings**, press ENTER.

Use UP/DOWN button to select **Net, Sub-Net, Universe A** or **Universe B**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## sACN Settings

Select **sACN Settings**, press ENTER.

Use UP/DOWN button to select **sACN Universe** or **sACN Priority**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Network to DMX

Select **Network to DMX**, press ENTER.

Use UP/DOWN button to select **No** or **Yes**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Fixture Settings

Enter the control menu and select **Fixture Settings**, press ENTER. Use the UP/DOWN button to select **Pan Invert**, **Tilt Invert**, **P/T Feedback**, **Zoom Invert**, **Dimmer Curve**, **Dimmer Speed**, **White Balance**, **LED Refresh Rate**, **Fan Mode**, **Invert Pixel**, **Line Power Mode**, **Sun Protection Mode**, **Dimming start Mode**, **CCT Calibration** or **Pan Disable**.

## Pan Invert

Select **Pan Invert**, press ENTER.

Use UP/DOWN button to select **No** (pan invert deactivated) or **Yes** (pan invert activated), confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Tilt Invert

Select **Tilt Invert**, press ENTER.

Use UP/DOWN button to select **No** (tilt invert deactivated) or **Yes** (tilt invert activated), confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## P/T Feedback

Select **P/T Feedback**, press ENTER.

Use UP/DOWN button to select **No** (pan/tilt feedback deactivated) or **Yes** (pan/tilt feedback activated), confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Zoom Invert

Select **Zoom Invert**, press ENTER.

Use UP/DOWN button to select **No** (Zoom deactivated) or **Yes** (Zoom activated), confirm your selection with ENTER.

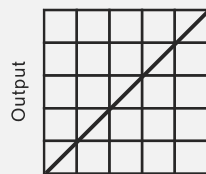
To exit the menu, press MENU, or wait 30 seconds.

## Dimmer Curve

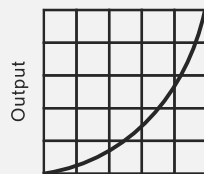
Select **Dimmer Curve**, press ENTER.

Use UP/DOWN button to select **Linear**, **Square Law**, **Inv SQ Law** or **S Curve**, confirm your selection with ENTER.

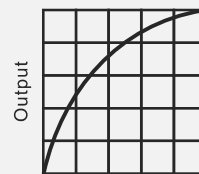
### Dimmer Modes



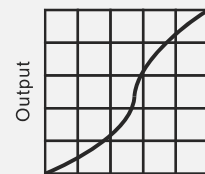
Optically Linear



Square Law



Inverse Square Law



S-curve

To exit the menu, press MENU, or wait 30 seconds.

## Dimmer Speed

Select **Dimmer Speed**, press ENTER.

Use UP/DOWN button to select **Fast** or **Smooth**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## White Balance

Select **White Balance**, press ENTER.

Use UP/DOWN button to select **Wash Red, Wash Green, Wash Blue, Red 1, Green 1, Blue 1.....** or **Zone Red 9, Zone Green 9, Zone Blue 9**, confirm your selection with ENTER.

Use UP/DOWN button to select a value between **125** and **255**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## LED Refresh Rate

Select **LED Refresh Rate**, press ENTER.

Use UP/DOWN button to select **900Hz, 1000Hz, 1100Hz, 1200Hz, 1300Hz, 1400Hz, 1500Hz, 2500Hz, 4000Hz, 5000Hz, 6000Hz, 10KHz, 15KHz, 20KHz** or **25KHz**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Fan Mode

Select **Fan Mode**, press ENTER.

Use UP/DOWN button to select **Auto, Quiet** or **Super Quiet**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Invert Pixel

Select **Invert Pixel**, press ENTER.

Use UP/DOWN button to select **No** or **Yes**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Line Power Mode

Select **Line Power Mode**, press ENTER.

Use UP/DOWN button to select **Off** or **On**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Sun Protection Mode

Set the '**Sun Protection Mode**' to 'On' when using the fixture outdoors.): Select Sun Protection Mode, press ENTER.

Use UP/DOWN button to select **Off** (sun protection mode deactivated) or **On** (The fixture will turn off the light source and automatically turn its head to a horizontal position when no signal is detected, preventing damage to optical components or internal parts from prolonged direct sunlight exposure.), confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Dimming Start Mode

Select Dimming Start, press ENTER.

Use UP/DOWN button to select a value between 0 and 9999, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

## CCT Calibration

Select **CCT Calibration**, press ENTER.

Use UP/DOWN button to select **Off** and **On**, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

## Pan Disable

Select **Pan Disable**, press ENTER.

Use UP/DOWN button to select **Disable** and **Enable**, confirm your selection with ENTER.

Added multi fixture in a line installation mode, for this mode, mechanically lock the Pan axis first, then disable its function with the following steps: Main Menu > Fixture Settings> Pan Disable>Enable, select Pan Disable and press ENTER to confirm; With the Pan-axis locked and disabled, multiple PULSAR PLUS S2 fixtures can be closely aligned. This prevents collision and displacement caused by Pan-axis mechanical movement, ensuring fixture structural stability, maintaining consistent horizontal positioning of fixtures, and achieving synchronized light array effects via linkage control.

Press MENU to return to the previous menu, or wait 30 seconds for automatic menu exit.

## Display Settings

Enter the control menu and select **Display Settings**, press ENTER. Use the UP/DOWN button to select **Display Invert**, **Backlight Intensity**, **Temperature Unit** or **Language**.

## Display Invert

Select **Display Invert**, press ENTER.

Use UP/DOWN button to select **No** (display normal) or **Yes** (display inverted), confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Backlight Intensity

Select **Backlight Intensity**, press ENTER.

Use UP/DOWN button to select a value between **1 (dark)** and **10 (bright)**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Temperature Unit

Select **Temperature Unit**, press ENTER.

Use UP/DOWN button to select °C or °F, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Language

Select **Language**, press ENTER.

Use UP/DOWN button to select **English** or **Chinese**, confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Fixture Test

Enter the control menu and select **Fixture Test**, press ENTER. Use the UP/DOWN button to select **Auto Test** or **Manual Test**.

### Auto Test

Select **Auto Test**, press ENTER.

The device immediately performs an automatic self-test.

To end the automatic self-test and exit the menu, press MENU.

### Manual Test

Select **Manual Test**, press ENTER.

Use UP/DOWN button to select the channel for which the manual test is to be performed, confirm your selection with ENTER.

Use UP/DOWN button to select a value, confirm your selection with ENTER. To exit the menu, press MENU.(The device returns to its original DMX state after the manual test. The test values are saved automatically when the device is switched off.)

## Information

Enter the control menu and select **Information**, press ENTER. Use the UP/DOWN button to select **Use Hour**, **Light Source**, **Temperature**, **Fan State**, **Firmware Version**, **RDM UID** or **Error Logs**.

## Use Hour

Select **Use Hour**, press ENTER.  
The operating hours is displayed.  
To exit the menu, press MENU, or wait 30 seconds.

## Light Source

Select **Light Source**, press ENTER.  
Use UP/DOWN button to select **Total** (total time) or **Light On** (current switch-on time), confirm your selection with ENTER.  
The total time or current switch-on time is displayed.  
Use UP/DOWN button to select **Reset**, confirm your selection with ENTER.  
If you wish to reset the Light Source operating hours, select **Yes**. If you do not wish to reset anything, select **No**. Confirm your selection with ENTER.  
If you select **Yes**, use UP/DOWN button to set the password 050, confirm your selection with ENTER. The Light Source operating hours is

## Temperature

Select **Temperature**, press ENTER.  
The device temperature is displayed.  
To exit the menu, press MENU, or wait 30 seconds.

## Fan State

Select **Fan State**, press ENTER.  
The fan status is displayed.  
To exit the menu, press MENU, or wait 30 seconds.

## Firmware Version

Select **Firmware Version**, press ENTER.  
The firmware version is displayed.  
To exit the menu, press MENU, or wait 30 seconds.

## RDM UID

Select **RDM UID**, press ENTER.  
The RDM UID is displayed.  
To exit the menu, press MENU, or wait 30 seconds.

## Error Logs

Select **Error Logs**, press ENTER.  
Use UP/DOWN button to select **Fixture Errors**, confirm your selection with ENTER.  
The error list is displayed.  
Use UP/DOWN button to select **Reset Error Log**, confirm your selection with ENTER.  
If you wish to reset the relevant error logs, select **Yes**. If you do not wish to reset anything, select **No**. Confirm your selection with ENTER.  
If you select **Yes**, use UP/DOWN button to set the password 050, confirm your selection with ENTER. The relevant error logs are reset.  
To exit the menu, press MENU, or wait 30 seconds.

## Reset Functions

Enter the control menu and select **Reset Functions**, press ENTER. Use the UP/DOWN button to select **Pan/Tilt Reset**, **Effect Reset** or **All Reset**.

### Pan/Tilt Reset.

Select **Pan/Tilt Reset**, press ENTER.  
Use UP/DOWN button to select **No** or **Yes** (the device will run built-in program to reset pan/tilt to their home positions), confirm your selection with ENTER.  
To exit the menu, press MENU, or wait 30 seconds.

## Effect Reset

Select **Effect Reset**, press ENTER.

Use UP/DOWN button to select **No** or **Yes** (the device will run built-in program to reset effect to their home positions), confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## All Reset

Select **All Reset**, press ENTER.

Use UP/DOWN button to select **No** or **Yes** (the device will run built-in program to reset all to their home positions), confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Special Function

Enter the control menu and select **Special Function**, press ENTER. Use the UP/DOWN button to select **USB Upgrade**, **Send Upgrade**, **Firmware Restore** or **Factory Settings**.

## USB Upgrade

Select **USB Upgrade**, press ENTER.

The upgrade files are displayed. (See the 'Updating Software' section for details.)

To exit the menu, press MENU, or wait 30 seconds.

## Factory Settings

Select **Factory Settings**, press ENTER.

If you wish to reset the device to the factory settings, select **Yes**. If you do not wish to reset anything, select **No**. Confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Send Upgrade

Select Send Upgrade, press ENTER.

If you wish to send upgrade files from this fixture to other fixtures to upgrade their firmware, select Yes. Then use UP/DOWN button to select DMX (send upgrade via DMX) or NET (send upgrade via Ethernet), confirm your selection with ENTER. Once selected, the display of this fixture will show "Sending Packet, Please Wait..." while the display of other fixtures will show "Upgrading, Please Wait...". A percentage bar will also be displayed. After the update is complete, fixtures will perform a reset (this can take some time).

If you do not wish to send anything, select No. Confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

## Firmware Restore

(After replacing fixture's vice board(s), this function allows you to synchronize the main board's software to all vice board(s), as the software version of the replaced vice board(s) may not consistent with that of the main board.): Select Firmware Restore, press ENTER.

If you wish to restore fixture's firmware, select Yes. Once Yes is selected, the display will show "Upgrading, Please Wait...". A percentage bar will also be displayed. After the update is complete, the fixture will perform a reset (this can take some time).

If you do not wish to restore anything, select No. Confirm your selection with ENTER.

To exit the menu, press MENU, or wait 30 seconds.

**RDM functions:** Certain menus of the device and functions can be called up via the RDM protocol.

The parameter IDs are implemented as follows for different commands:

### Standard RDM Parameter IDs

PID	Parameter IDs	Command 'Discovery'	Command 'Set'	Command 'Get'
0x0001	DISC_UNIQUE_BRANCH	✓		
0x0002	DISC_MUTE	✓		
0x0003	DISC_UN_MUTE	✓		
0x0030	STATUS_MESSAGES			✓
0x0031	STATUS_ID_DESCRIPTION			✓
0x0032	CLEAR_STATUS_ID		✓	
0x0050	SUPPORTED_PARAMETERS			✓
0x0051	PARAMETER_DESCRIPTION			✓
0x0060	DEVICE_INFO			✓
0x0080	DEVICE_MODEL_DESCRIPTION			✓
0x0081	MANUFACTURER_LABEL			✓
0x0082	DEVICE_LABEL		✓	✓
0x0090	FACTORY_DEFAULTS		✓	✓
0x00C0	SOFTWARE_VERSION_LABEL			✓
0x00C1	BOOT_SOFTWARE_VERSION_ID			✓
0x00C2	BOOT_SOFTWARE_VERSION_LABEL			✓
0x00E0	DMX_PERSONALITY		✓	✓
0x00E1	DMX_PERSONALITY_DESCRIPTION			✓
0x00F0	DMX_START_ADDRESS		✓	✓
0x0120	SLOT_INFO			✓
0x0121	SLOT_DESCRIPTION			✓
0x0200	SENSOR_DEFINITION			✓
0x0201	SENSOR_VALUE			✓
0x0202	RECORD_SENSORS		✓	
0x0343	CURVE		✓	✓
0x0344	CURVE_DESCRIPTION			✓
0x0347	MODULATION_FREQUENCY		✓	
0x0348	MODULATION_FREQUENCY_DESCRIPTION			✓
0x0400	DEVICE_HOURS			✓
0x0401	LAMP_HOURS			✓
0x0600	PAN_INVERT		✓	✓

0x0601	TILT_INVERT		√	√
0x1000	IDENTIFY_DEVICE		√	√
0x1001	RESET_DEVICE		√	√
0x1040	IDENTIFY_MODE		√	

√ -Command implemented for the respective parameter ID

## 6.2 Home Position Adjustment

- ▶ To access the control menus, press the [MENU] button.
- ▶ To access the offset menus, long-press the [ENTER] button.
- ▶ Navigate the offset menus, using the [ENTER], [▲ UP] and [▼ DOWN] buttons.
- ▶ To select a menu option or to confirm a selection, press the [ENTER] button.
- ▶ To return to a higher level in the menu structure without making a change, press the [MENU] button, or wait 30 seconds.

OFFSET MENU	VALUES
Frequency(1200Hz)	1072~1327
Pan	-128~127
Tilt	-128~127
Zoom	-128~127
Effect	-128~127
Wash R	0~1000
Wash G	0~1000
Wash B	0~1000
Wash L	0~1000
Beam CW	0~1000

Zone R	0~1000
Zone G	0~1000
Zone B	.....
Line CW	0~1000
Wash R 1	0~1000
Wash G 1	0~1000
Wash B 1	0~1000
Wash L 1	0~1000
...	0~1000
Wash R 4	0~1000
Wash G 4	0~1000
Wash B 4	0~1000
Wash L 4	0~1000
Beam CW 1	0~1000
Beam CW 2	0~1000
Beam CW 3	0~1000
....	0~1000
Beam CW 14	0~1000
Beam CW 15	0~1000
Beam CW 16	0~1000
Zone R 1	0~1000
Zone G 1	0~1000
Zone B 1	0~1000
....	0~1000
Zone R 16	0~1000
Zone G 16	0~1000
Zone B 16	0~1000
Line CW 1	0~1000
Line CW 2	0~1000
Line CW 3	0~1000
.....	0~1000
Line CW 38	0~1000
Line CW 39	0~1000
Line CW 40	0~1000

**Frequency(Hz)**

Select **Frequency(Hz)**, press ENTER.

Use UP/DOWN button to select a value, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

Frequency	VALUES
900Hz	772~1027
1000Hz	872~1127
1100Hz	972~1227
1200Hz	1072~1327
1300Hz	1172~1427
1400Hz	1272~1527
1500Hz	1372~1627
2500Hz	2372~2627
4000Hz	3872~4127
5000Hz	4872~5127
6000Hz	5872~6127
10000Hz	9872~10127
15000Hz	14872~15127
20000Hz	19872~20127
25000Hz	24872~25127

**Pan**

Select **Pan**, press ENTER.

Use UP/DOWN button to select a value between -128 and 127, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Tilt**

Select **Tilt**, press ENTER.

Use UP/DOWN button to select a value between -128 and 127, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zoom**

Select **Zoom**, press ENTER.

Use UP/DOWN button to select a value between -128 and 127, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Effect**

Select **Red**, press ENTER.

Use UP/DOWN button to select a value between -128 and 127, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash R**

Select **Wash R**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash G**

Select **Wash G**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash B**

Select **Wash B**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash L**

Select **Wash L**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Beam CW**

Select **Beam CW**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone R**

Select **Zone R**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone G**

Select **Zone G**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone B**

Select **Zone B**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Line CW**

Select **Line CW**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash R 1**

Select **Wash R 1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash G 1**

Select **Wash G 1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash B1**

Select **Wash B1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash L1**

Select **Wash L1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

.....

**Wash R 4**

Select **Wash R 4**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash G 4**

Select **Wash G 4**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone Green**

Select **Zone Green**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash B 4**

Select **Wash B 4**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Wash L 4**

Select **Wash L 4**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Beam CW 1**

Select **Beam CW 1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Beam CW 2**

Select **Beam CW 2**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Beam CW 3**

Select **Beam CW 3**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

.....

**Beam CW 14**

Select **Beam CW 14**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Beam CW 15**

Select **Beam CW 15**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Beam CW 16**

Select **Beam CW 16**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone R 1**

Select **Zone R 1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone G 1**

Select **Zone G 1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone B 1**

Select **Zone B1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

.....

**Zone R16**

Select **Zone R16**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone G16**

Select **Zone G16**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Zone B16**

Select **Zone B16**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Line CW 1**

Select **Line CW 1**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Line CW 2**

Select **Line CW 2**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

**Line CW 3**

Select **Line CW 3**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

.....

**Line CW 38**

Select **Line CW 38**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

### Line CW 39

Select **Line CW 39**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

### Line CW 40

Select **Line CW 40**, press ENTER.

Use UP/DOWN button to select a value between 0 and 1000, confirm your selection with ENTER.

To exit the offset menu, press MENU, or wait 30 seconds.

## 07/ Configuring the Device for DMX Control

### 7.1 Address Setting

All fixtures should be given a DMX starting address when operating with a DMX controller, in order to ensure that the correct fixture responds to the correct control signal. Incorrect settings will result in unpredictable responses from the lighting controller.

You can set the same starting address for all fixtures or a group of fixtures, or set different addresses for each individual fixture.

Setting all fixtures to the same DMX address will cause all fixtures to react in the same way. In this case, please note that changing the settings of one channel will affect all the fixtures simultaneously.

If you set each fixture to a different DMX address, each unit will “listen” starting at the channel number you have set, based on the quantity of DMX channels of each fixture. That means changing the settings of one channel will only affect the selected fixture.

For example, if the first fixture is set to 43 CH DMX mode with a start DMX address of 1, the following fixture in the DMX chain should then be set to a DMX address of 44. As the first fixture uses all the first 43 DMX channels, the next available channel is 44 ( $43+1=44 >> 44$ ).

See the chart below for more details:

Channel Mode	Unit 1 Address	Unit 2 Address	Unit 3 Address	Unit 4 Address	Unit xxx Address
43channels	1	44	87	130	.....
195channels	1	196	391		
153channels	1	154	307	460	
27+168channels (Controlled by DMX)	1	196	391		
163channels	1	165	328	491	

## 7.2 DMX Protocol

**Valid from firmware version: V1.1**

**43 CH(Mode 1) / 195 CH (Mode 2) / 153 CH (Mode 3)/ 27+168CH(Mode 4)/163CH (Mode5)**

CHANNEL					VALUE	FUNCTION
43CH	195CH	153CH	27+168CH	163CH		
1	1	1	1	1	000-255	<b>PAN</b> 0°→540°
2	2	2	2	2	000-255	<b>PAN FINE</b>
3	3	3	3	3	000-255	<b>TILT</b> 0°→450°
4	4	4	4	4	000-255	<b>TILT FINE</b>
5	5	5	5	5	000-127 128-189 190-193 194-255	<b>PAN INFINITY</b> Null Counter-Clockwise Rotation, Fast to Slow Stop Clockwise Rotation, Slow to Fast
6	6	6	6	6	000-127 128-189 190-193 194-255	<b>TILT INFINITY</b> Null Clockwise Rotation, Fast to Slow Stop Counter-Clockwise Rotation, Slow to Fast
7	7	7	7	7	000-255	<b>PAN/TILT SPEED</b> Fast to Slow
8	8	8	8	8	000-255	<b>ZOOM</b> Wide→Narrow
9	9	9	9	9	000-255	<b>ZOOM FINE</b> 0%→100%
10	10	10	10	10	000-255	<b>FROST</b> 0%→100%
11				11	000-007 008-022 023-037 038-052 053-067 068-082 083-097 098-112 113-127 128-147 148-167	<b>EFFECT</b> No Effect Effect 1 Square Effect 2 Square Effect 1 Shaking Square Effect 2 Shaking Square Effect 1 Cross Effect 2 Cross Effect 1 Shaking Cross Effect 2 Shaking Cross No Effect Effect 1

					168-187 188-221 222-255	Effect 2 Effect1 Shaking Effect2 Shaking
	11	11	11		000-147 148-167 168-187 188-221 222-255	<b>EFFECT</b> No Effect Effect1 Effect2 Effect1 Shaking Effect2 Shaking
12	12	12	12	12	000-255	<b>Wash Dimmer</b> 0%→100%
13	13	13	13	13	000-255	<b>Wash Dimmer Fine</b> 0%→100%
14	14	14	14	14	000-007 008-015 016-131 132-139 140-181 182-189 190-231 232-239 240-247 248-255	<b>Wash Strobe</b> Close Open Strobe Slow->Fast Open Fast Open Slow Close Open Fast Close Slow Open Open Random Strobe Slow >Fast Open
15	15	15	15	15	000-255	<b>BEAM_DIMMER</b> 0%→100%
16	16	16	16	16	000-255	<b>Beam Dimmer Fine</b> 0%→100%
17	17	17	17	17	000-007 008-015 016-131 132-139 140-181 182-189 190-231 232-239 240-247 248-255	<b>Beam Strobe</b> Close Open Strobe Slow->Fast Open Fast Open Slow Close Open Fast Close Slow Open Open Random Strobe Slow >Fast Open
18	18	18	18	18	000-255	<b>ZONE DIMMER</b> 0%→100%
19	19	19	19	19	000-255	<b>Zone Dimmer Fine</b> 0%→100%
20	20	20	20	20	000-007 008-015	<b>Zone Strobe</b> Close Open

					016-131 132-139 140-181 182-189 190-231 232-239 240-247 248-255	Strobe Slow->Fast Open Fast Open Slow Close Open Fast Close Slow Open Open Random Strobe Slow >Fast Open
21	21	21	21	21	000-255	<b>LINE DIMMER</b> 0%→100%
22	22	22	22	22	000-255	<b>Line Dimmer Fine</b> 0%→100%
23	23	23	23	23	000-007 008-015 016-131 132-139 140-181 182-189 190-231 232-239 240-247 248-255	<b>Line Strobe</b> Close Open Strobe Slow->Fast Open Fast Open Slow Close Open Fast Close Slow Open Open Random Strobe Slow >Fast Open
29	89	89	24	57	000-255	<b>Crossfade</b> 0%→100%
30	90	90	25	58	001- 004 005- 009 010- 013 014- 018 019- 022 023- 027 028- 031 032- 036 037- 040 041- 045 046- 049 050- 054 055- 058 059- 063 064- 067 068- 072 073- 076 077- 081 082- 085 086- 090 091- 094	<b>Wash CTO</b> 8000K 7900K 7800K 7700K 7600K 7500K 7400K 7300K 7200K 7100K 7000K 6900K 6800K 6700K 6600K 6500K 6400K 6300K 6200K 6100K 6000K

					095- 099	5900K
					100- 103	5800K
					104- 108	5700K
					109- 112	5600K
					113- 117	5500K
					118- 121	5400K
					122- 126	5300K
					127- 130	5200K
					131- 135	5100K
					136- 139	5000K
					140- 144	4900K
					145- 148	4800K
					149- 153	4700K
					154- 157	4600K
					158- 162	4500K
					163- 166	4400K
					167- 171	4300K
					172- 175	4200K
					176- 180	4100K
					181- 184	4000K
					185- 189	3900K
					190- 193	3800K
					194- 198	3700K
					199- 202	3600K
					203- 207	3500K
					208- 211	3400K
					212- 216	3300K
					217- 220	3200K
					221- 225	3100K
					226- 229	3000K
					230- 234	2900K
					235- 238	2800K
					239- 243	2700K
					244- 247	2600K
					248- 255	2500K
						<b>Wash Color Macro</b>
					000-007	Open
					008-009	Medium Yellow
					010-011	Fire
					012-013	Gold Amber
					014-015	Sunset Red
					016-017	Medium Pink
					018-019	Light Lavender
					020-021	Lavender
					022-023	Sky Blue
					024-025	Just Blue
					026-027	Lime Green
<b>31</b>	<b>91</b>	<b>91</b>	<b>26</b>	<b>59</b>		

					028-029 Moss Green 030-031 Dark Yellow Green 032-033 Spring Yellow 034-035 Yellow 036-037 Light Amber 038-039 Straw 040-041 Deep Amber 042-043 Orange 044-045 Dark Pink 046-047 Peacock Blue 048-049 Medium Blue-Green 050-051 Steel Blue 052-053 Light Blue 054-055 Deep Blue 056-057 LEE Green 058-059 Fern Green 060-061 Dark Green 062-063 Mauve 064-065 Bright Pink 066-067 Medium Blue 068-069 Deep Golden Amber 070-071 Pale Lavender 072-073 Special Lavender 074-075 Pale Green 076-077 Primary Green 078-079 Bright Blue 080-081 Apricot 082-083 Pale Gold 084-085 Pink 086-087 Bastard Amber 088-089 Flame Red 090-091 Daylight Blue 092-093 Deep Lavender 094-095 Congo Blue 096-097 Surprise Pink 098-099 Alice Blue 100-101 Full C.T. Blue 102-103 Half C.T. Blue 104-105 Lighter Blue 106-107 Millennium Gold 108-109 Amber 110-255 NULL
24	24	24	27	24	<p style="text-align: center;"><b>SPECIAL FUNCTION</b></p> <p style="text-align: center;">(To activate following functions, stop in DMX value for at least 3 seconds.)</p>

	No Function
	No Function
	No Function
	Dimmer Curve Linear
	Dimmer Curve Square Law
000-009	Dimmer Curve Inv Square Law
010-019	Dimmer Curve S
020-029	Fan Mode Auto
030-039	Fan Mode Quiet
040-049	Fan Mode Super Quiet
050-059	LED Frequency Setting Enable
060-069	LED Frequency Setting Disable
070-079	No Function
080-089	900Hz
090-099	1000Hz
100-109	1100Hz
110-119	1200Hz
120-122	1300Hz
123	1400Hz
124	1500Hz
125	2500Hz
126	4000Hz
127	5000Hz
128	6000Hz
129	10000Hz
130	15000Hz
131	20000Hz
132	25000Hz
133	No Function
134	Pan/tilt Reset
135	Effect Reset
136	Invert Pixel Order :Yes
137	Invert Pixel Order :No
138-139	CCT Calibration: On
140-149	CCT Calibration: Off
150-159	No Function
160-161	Sun Protection Mode: On
162-163	Sun Protection Mode: Off
164-165	No Function
166-167	Reset all
168-179	Dimmer Speed Fast
180-181	Dimmer Speed Smooth
182-183	No Function
184-199	Line Power Mode: Off
200-209	Line Power Mode: On
210-219	Dimming Start Mode: High
220-229	Dimming Start Mode: Low

					230-241 242-243 244-245 246-247 248-249 250-251 252-253 254 255	No Function Line Power Mode: Off Line Power Mode: On Dimming Start Mode: High Dimming Start Mode: Low Pan Disable Pan Enable Zoom Invert: No Zoom Invert: Yes
25					000-255	<b>Wash Red</b> 0%→100%
26					000-255	<b>Wash Green</b> 0%→100%
27					000-255	<b>Wash Blue</b> 0%→100%
28					000-255	<b>Wash Lime</b> 0%→100%
	25	25	1	25	000-255	<b>Wash Red 1</b> 0%→100%
	26	26	2	26	000-255	<b>Wash Red Fine 1</b> 0%→100%
	27	27	3	27	000-255	<b>Wash Green 1</b> 0%→100%
	28	28	4	28	000-255	<b>Wash Green Fine 1</b> 0%→100%
	29	29	5	29	000-255	<b>Wash Blue 1</b> 0%→100%
	30	30	6	30	000-255	<b>Wash Blue Fine 1</b> 0%→100%
	31	31	7	31	000-255	<b>Wash Lime 1</b> 0%→100%
	32	32	8	32	000-255	<b>Wash Lime Fine 1</b> 0%→100%
	.....	.....	.....	.....	000-255	.....
				49		<b>Wash Red 4</b> 0%→100%
				50		<b>Wash Red Fine 4</b> 0%→100%
				51		<b>Wash Green 4</b> 0%→100%
				52		<b>Wash Green Fine 4</b> 0%→100%
				53		<b>Wash Blue 4</b>

						0%→100%
				54		<b>Wash Blue Fine 4</b> 0%→100%
				55		<b>Wash Lime 4</b> 0%→100%
				56		<b>Wash Lime Fine 4</b> 0%→100%
	81	81	57		000-255	<b>Wash Red 8</b> 0%→100%
	82	82	58		000-255	<b>Wash Red Fine 8</b> 0%→100%
	83	83	59		000-255	<b>Wash Green 8</b> 0%→100%
	84	84	60		000-255	<b>Wash Green Fine 8</b> 0%→100%
	85	85	61		000-255	<b>Wash Blue 8</b> 0%→100%
	86	86	62		000-255	<b>Wash Blue Fine 8</b> 0%→100%
	87	87	63		000-255	<b>Wash Lime 8</b> 0%→100%
	88	88	64		000-255	<b>Wash Lime Fine 8</b> 0%→100%
32					000-255	<b>Beam CW</b> 0%-100%
33					000-007 008-015 016-023 024-031 032-039 040-047 048-055 056-063 064-071 072-079 080-087 088-095 096-103 104-111 112-119 120-127 128-135 136-143 144-151	<b>Beam Macro</b> NULL EFFECT 1 EFFECT 2 EFFECT 3 EFFECT 4 EFFECT 5 EFFECT 6 EFFECT 7 EFFECT 8 EFFECT 9 EFFECT 10 EFFECT 11 EFFECT 12 EFFECT 13 EFFECT 14 EFFECT 15 EFFECT 16 EFFECT 17 EFFECT 18

					152-159 160-167 168-175 176-183 184-191 192-199 200-207 208-215 216-223 224-231 232-239 240-247 248-255	EFFECT 19 EFFECT 20 EFFECT 21 EFFECT 22 EFFECT 23 EFFECT 24 EFFECT 25 EFFECT 26 EFFECT 27 EFFECT 28 EFFECT 29 EFFECT 30 EFFECT 31
34					000 001-127 128-255	<b>Beam Macro Speed</b> Stop Slow to fast without fade Slow to fast With fade
	92	92	65	60	000-255	<b>Beam CW 1</b> 0%-100%
	93	93	66	61	000-255	<b>Beam CW 2</b> 0%-100%
	94	94	67	62	000-255	<b>Beam CW 3</b> 0%-100%
	.....	.....	.....	.....	000-255	.....
	105	105	78	73	000-255	<b>Beam CW 14</b> 0%-100%
	106	106	79	74	000-255	<b>Beam CW 15</b> 0%-100%
	107	107	80	75	000-255	<b>Beam CW 16</b> 0%-100%
	108		81	76	000-255	<b>Zone Red 1</b> 0%-100%
	109		82	77	000-255	<b>Zone Green 1</b> 0%-100%
	110		83	78	000-255	<b>Zone Blue 1</b> 0%-100%
	.....		.....	.....	000-255	.....
	153		126	121	000-255	<b>Zone Red 16</b> 0%-100%
	154		127	122	000-255	<b>Zone Green 16</b> 0%-100%
	155		128	123	000-255	<b>Zone Blue 16</b> 0%-100%

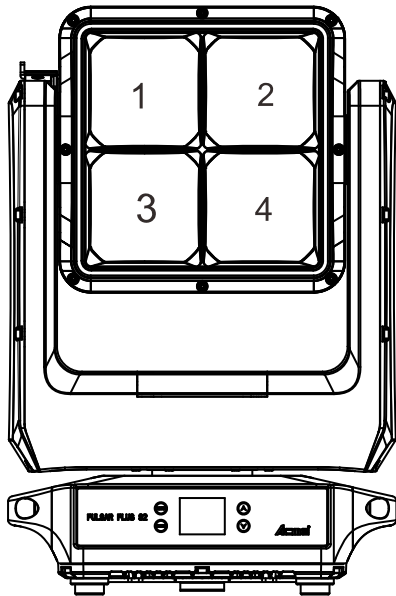
35		108			000-255	<b>Zone Red</b> 0%-100%
36		109			000-255	<b>Zone Green</b> 0%-100%
37		110			000-255	<b>Zone Blue</b> 0%-100%
38		111			000-007 008-009 010-011 012-013 014-015 016-017 018-019 020-021 022-023 024-025 026-027 028-029 030-031 032-033 034-035 036-037 038-039 040-041 042-043 044-045 046-047 048-049 050-051 052-053 054-055 056-057 058-059 060-061 062-063 064-065 066-067 068-069 070-071 072-073 074-075 076-077 078-079 080-081 082-083 084-085	<b>Zone Color Macro</b> Open Medium Yellow Fire Gold Amber Sunset Red Medium Pink Light Lavender Lavender Sky Blue Just Blue Lime Green Moss Green Dark Yellow Green Spring Yellow Yellow Light Amber Straw Deep Amber Orange Dark Pink Peacock Blue Medium Blue-Green Steel Blue Light Blue Deep Blue LEE Green Fern Green Dark Green Mauve Bright Pink Medium Blue Deep Golden Amber Pale Lavender Special Lavender Pale Green Primary Green Bright Blue Apricot Pale Gold Pink

					086-087 088-089 090-091 092-093 094-095 096-097 098-099 100-101 102-103 104-105 106-107 108-109 110-255	Bastard Amber Flame Red Daylight Blue Deep Lavender Congo Blue Surprise Pink Alice Blue Full C.T. Blue Half C.T. Blue Lighter Blue Millennium Gold Amber NULL
39		112			000-007 008-015 016-023 024-031 032-039 040-047 048-055 056-063 064-071 072-079 080-087 088-095 096-103 104-111 112-119 120-127 128-135 136-143 144-151 152-159 160-167 168-175 176-183 184-191 192-199 200-207 208-215 216-223 224-231 232-239 240-247 248-255	<b>Zone Macro</b> NULL EFFECT 1 EFFECT 2 EFFECT 3 EFFECT 4 EFFECT 5 EFFECT 6 EFFECT 7 EFFECT 8 EFFECT 9 EFFECT 10 EFFECT 11 EFFECT 12 EFFECT 13 EFFECT 14 EFFECT 15 EFFECT 16 EFFECT 17 EFFECT 18 EFFECT 19 EFFECT 20 EFFECT 21 EFFECT 22 EFFECT 23 EFFECT 24 EFFECT 25 EFFECT 26 EFFECT 27 EFFECT 28 EFFECT 29 EFFECT 30 EFFECT 31
40		113				<b>Zone Macro Speed</b>

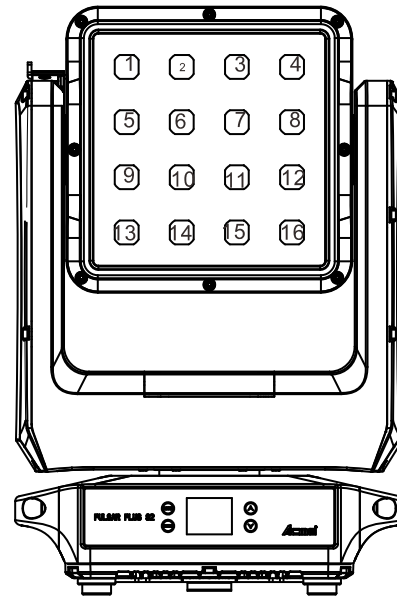
					000 001-127 128-255	Stop Slow to fast without fade Slow to fast With fade
41					000-255	<b>Line WW</b> 0%-100%
42					000-007 008-015 016-023 024-031 032-039 040-047 048-055 056-063 064-071 072-079 080-087 088-095 096-103 104-111 112-119 120-127 128-135 136-143 144-151 152-159 160-167 168-175 176-183 184-191 192-199 200-207 208-215 216-223 224-231 232-239 240-247 248-255	<b>Line Macro</b> NULL EFFECT 1 EFFECT 2 EFFECT 3 EFFECT 4 EFFECT 5 EFFECT 6 EFFECT 7 EFFECT 8 EFFECT 9 EFFECT 10 EFFECT 11 EFFECT 12 EFFECT 13 EFFECT 14 EFFECT 15 EFFECT 16 EFFECT 17 EFFECT 18 EFFECT 19 EFFECT 20 EFFECT 21 EFFECT 22 EFFECT 23 EFFECT 24 EFFECT 25 EFFECT 26 EFFECT 27 EFFECT 28 EFFECT 29 EFFECT 30 EFFECT 31
43					000 001-127 128-255	<b>Line Macro Speed</b> Stop Slow to fast without fade Slow to fast With fade
	156	114	129	124	000-255	<b>Line WW 1</b> 0%-100%
	157	115	130	125	000-255	<b>Line WW 2</b> 0%-100%

	158	116	131	126	000-255	Line WW 3 0%-100%
	.....	.....	.....	.....	000-255	.....
	194	152	167	162	000-255	Line WW 39 0%-100%
	195	153	168	163	000-255	Line WW 40 0%-100%

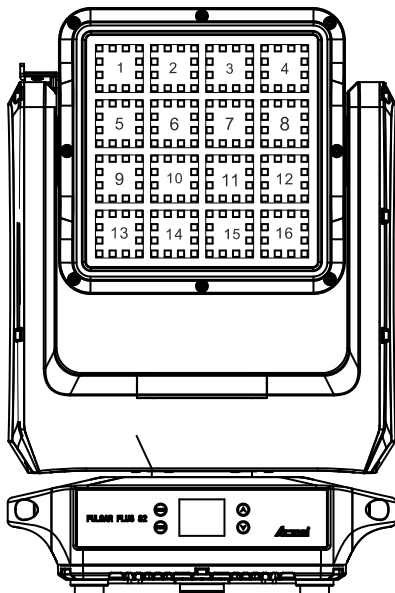
# LED PIXEL ZONES DIAGRAM



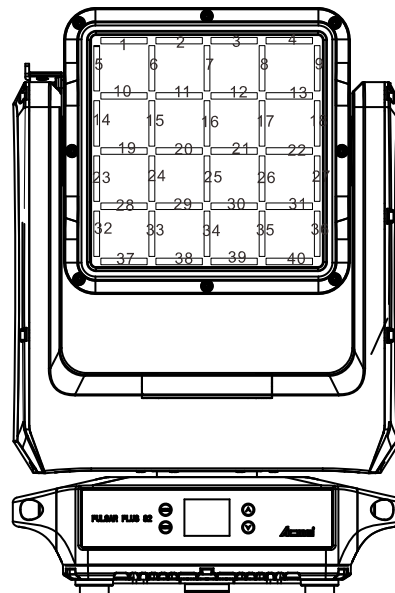
**WASH R/G/B/L**  
**PAN DMX:128**  
**TILT DMX: 180**



**BEAM WHITE**  
**PAN DMX 128**  
**TILT DMX 75**



**ZONE R/G/B**  
**PAN DMX:128**  
**TILT DMX:75**



**LINE WHITE**  
**PAN DMX:128**  
**TILT DMX:75**

## 08/ Error Information

Error codes are shown continuously in the display when the fixture fails and they will not disappear until the fixture is repaired.

### CPU-B/C/D/E/F/G/H/J Error

Check whether the 485 (DATA) leads on the PCB board are installed in place or disconnected.

Check whether the related 485 (DATA) signal circuit on the PCB board is damaged.

### Network Error

Check whether the net model is installed in place.

Check whether the net model is damaged.

Check whether the network is normal.

### Base Temp. Error

Check whether the temperature detecting board is normal.

Check whether the components of the temperature detecting board are damaged.

Check whether the lead on the temperature detecting board is installed in place or disconnected.

### Light Source 1/2/3/4/5/6 /7 Temp. Error

Check whether the temperature detecting board is normal.

Check whether the components of the temperature detecting board are damaged.

Check whether the lead on the temperature detecting board is installed in place or disconnected.

### Light Source Timeout Use

When the fixture exceed the light source rated lifetime. Please Replace the Light Source.

### Light Source Too Hot Off

When the fixture temperature reaches 85°C, it will automatically turn off to protect the fixture.

### Pan Reset Error

Check whether the position of the pan where the magnet is installed falls off or is damaged.

Check whether there are obstacles in the pan operating range.

Check whether the Hall element on the pan is damaged.

Check whether the lead connecting the Hall element on the pan and the PCB board is in poor contact or disconnected.

Check whether the motor on the pan is damaged.

Check whether the related circuit of the motor drive board on the pan is damage.

### Pan Encode Error

Check whether the encoder on the pan is damaged.

Check whether the lead connecting the encoder on the pan and the PCB board is in poor contact or disconnected.

### Pan Encode No Find

Check whether the lead connecting the encoder on the pan and the PCB board is in poor contact or disconnected.

### Pan Encode Disable

Check whether the encoder on the pan is damaged.

### Tilt Reset Error

Check whether the position of the tilt where the magnet is installed falls off or is damaged.

Check whether there are obstacles in the tilt operating range.

Check whether the Hall element on the tilt is damaged.

Check whether the lead connecting the Hall element on the tilt and the PCB board is in poor contact or disconnected.

Check whether the motor on the tilt is damaged.

Check whether the related circuit of the motor drive board on the tilt is damage.

### Tilt Encode Error

Check whether the encoder on the tilt is damaged.

Check whether the lead connecting the encoder on the tilt and the PCB board is in poor contact or disconnected.

### Tilt Encode No Find

Check whether the lead connecting the encoder on the tilt and the PCB board is in poor contact or disconnected.

### Tilt Encode Disable

Check whether the encoder on the tilt is damaged.

### Zoom Reset Error

Check whether the position of the zoom where the magnet is installed falls off or is damaged.

Check whether there are obstacles in the zoom operating range.

Check whether the Hall element on the zoom is damaged.

Check whether the lead connecting the Hall element on the zoom and the PCB board is in poor contact or disconnected.

Check whether the motor on the zoom is damaged.

**Base A Fan 1/2 Start Error**

Check whether the fan is not running.  
Check whether the fan leads are installed in place or disconnected.  
Check whether the fan is damaged.  
Check whether there are obstacles in the fan operating range.

**Head Fan C 1/2/Start Error**

Check whether the fan is not running.  
Check whether the fan leads are installed in place or disconnected.  
Check whether the fan is damaged.  
Check whether there are obstacles in the fan operating range.

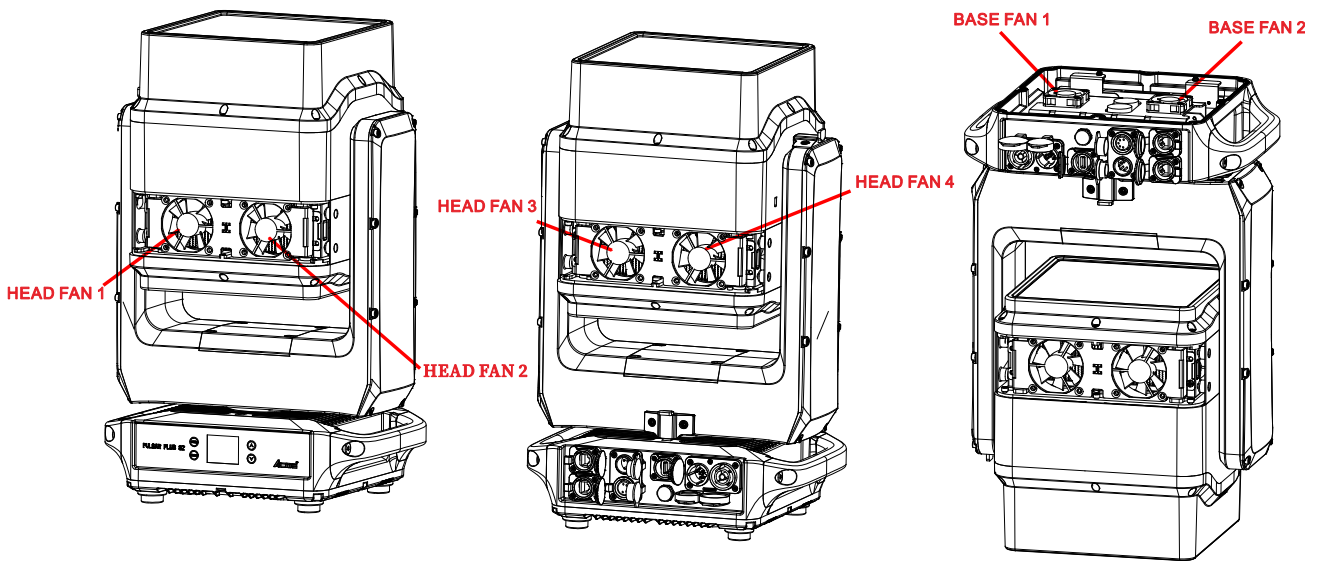
**Head Fan D 1/2/Start Error**

Check whether the fan is not running.  
Check whether the fan leads are installed in place or disconnected.  
Check whether the fan is damaged.  
Check whether there are obstacles in the fan operating range.

**External Flash Error**

Check whether the external flash storage device is properly inserted and secured.  
Check whether the flash storage device is damaged or its file format is incompatible.

Position of cooling fans:



Cooling Fans	PCB Printing	Part Number	V	W	Position	Print Error Message
Base Fan 1	FAN1	3014001183	DC 24V	2.2W	Base - A	Base Fan 1 Start Error
Base Fan 2	FAN2					Base Fan 2 Start Error
Head Fan 1	FAN1	3014001440	DC 24V	3.4W	Head - C	Head Fan 1 Start Error
Head Fan 2	FAN2					Head Fan 2 Start Error
Head Fan 3	FAN3					Head Fan 3 Start Error
Head Fan 4	FAN4					Head Fan 4 Start Error

## 09/ Troubleshooting

Problem	Potential cause(s)	Remedies
Fixture does not respond or appears to be off.	No power to the fixture.	Confirm that the power is switched on and cables are plugged in.
	No output from PSU.	Replace the PSU.
Fixture suddenly turned off.	Power was turned off.	Check the power supply, switches and breakers.
Light output cuts out intermittently.	Fixture is too hot.	Check fixture's stored error messages for more information. Allow fixture to cool. Clean fixture. Reduce ambient temperature.
Fixture suddenly stopped responding.	DMX cables were disconnected.	Inspect DMX cables.
Fixture operates irregularly / abnormal.	Incorrect DMX address or DMX mode.	Inspect and enter the correct DMX address or mode.
	DMX link is not terminated.	Install a XLR 120ohm DMX termination at the end of the DMX link.
	Bad data link.	Replace or repair defective cables and/or connections.
	One of the fixtures is defective and is disturbing data transmission on the link.	Track and isolate the corrupted fixture. Have the fixture serviced by a qualified technician.
Pan / tilt is skipping / shuddering	Pan/ tilt locks are not released.	Release the pan / tilt locks.
	Obstacles are within the required pan / tilt clearance.	Inspect and remove any obstacles constraining free operation of the pan / tilt.
	The Hall element is damaged.	Replace the Hall element.
	The magnetic steel fell out.	Replace the magnetic steel.

## 10/ Fixture Cleaning

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Regular cleaning is very important for fixture life and performance. Buildup of dust, dirt, smoke particles, fog fluid residues, etc. degrades the fixture's light output and cooling ability. Cleaning schedules for lighting fixtures vary greatly depending on the operating environment. It is therefore impossible to specify precise cleaning intervals for the fixture. Environmental factors that may result in a need for frequent cleaning include:

- ▶ Use of smoke or fog machines.
- ▶ High airflow rates (near air conditioning vents, for example).
- ▶ Airborne dust (from stage effects, building structures and fittings or the natural environment at outdoor events, for example).

If one or more of these factors is present, inspect fixtures within their first few hours of operation to see whether cleaning is necessary. Check again at frequent intervals. This procedure will allow you to assess cleaning requirements in your particular situation.

Follow these precautions when cleaning the fixture:

- ▶ Work in a clean, dry, well-lit area.
- ▶ Use gentle pressure only. A soft lint-free cloth dampened with a solution of water and a mild detergent is recommended, under no circumstances should alcohol, solvents or abrasives be used! Use care when cleaning optical components: surfaces are fragile and easily scratched.

## 11/ Approvals and Certifications

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This product has been tested and found to comply with the following standards:

- 2014/30/EU - Electromagnetic Compatibility (EMC)
- 2014/35/EU - Low Voltage Directive (LVD)
- cETLus Approved (Control #5000057)
- UK SI 2016 No. 1091: Electromagnetic Compatibility Regulations 2016
- UK SI 2016 No. 1101: The Electric Equipment (Safety) Regulations 2016



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