



# K Plus Series User's Manual

K2.9 Plus/K2.9D Plus/ K3 Plus/K3D Plus



Shenzhen Absen Optoelectronics Co., Ltd.

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# Safety information



## WARNING!

Please read the safety measures listed in this section carefully before installing, switching on, operating and maintenance of this product.

The following marks on the product and in this manual indicate important safety measures.



WARNING!  
Safety risk!  
Might cause  
equipment damage  
or safety risk.



WARNING!  
Please read the  
manual before  
operating.



WARNING!  
Dangerous voltage!  
might cause  
equipment damage  
or electric shock.



WARNING!  
Hot surface!  
Do not touch.



WARNING!  
Flammable!



WARNING!  
Possible damage  
to eyes.



WARNING: Be sure to understand and follow all safety guidelines, safety instructions, warnings and precautions listed in this manual.

This product is for professional use only!

This product may result in serious injury or death due to fire hazard, electric shock or on dropping.



Please read this manual carefully before installing, powering up, operating and maintenance of this product.

Follow safety instructions in this manual and on the product. If you have any questions, please seek help from Absen.



Beware of electric shock!

- To prevent electric shock the device must be properly grounded during installation. Do not ignore using the grounding plug, or else there is a risk of electric shock.
- During a lightning storm, please disconnect the device's power supply, or provide other suitable lightning protection. If the equipment is not in use for a long time, please unplug the power cord.
- When performing any installation or maintenance work (e.g. removing the fuses, etc.,) make sure to turn off the master switch.
- Disconnect AC power when the product is not in use, or before disassembling, or installing the product.
- The AC power used in this product must comply with local building and electrical codes, and should be equipped with overload and ground fault protection.
- The main power switch should be installed at a location near the product and should be clearly visible and easily reached. This way in case of any failure the power can be promptly disconnected.
- Before using this product check all electrical distribution equipment, cables and all connected devices, and make sure all meet current requirements.
- Use appropriate power cords. Please select the appropriate power cord according to the required power and current capacity, and ensure the power cord is not damaged, aged or wet. If any overheating occurs, replace power cord immediately.
- For any other questions, please consult a professional.



Beware of fire!

- Use a circuit breaker or fuse protection to avoid fire caused by power supply cables overloading.
- To avoid fire caused by power supply cables overloading.
- Do not stick or hang anything on the screen.
- Do not modify the product, do not add or remove parts.
- Do not use the product in case ambient temperature is over 40°C.



Beware of injury!

- Warning: Wear a helmet to avoid injury.
- Ensure any structures used to support, fix and connect the equipment can withstand at least 10 times the weight of all the equipment.



- When stacking products, please hold products firmly to prevent tipping or falling.
- Ensure all components and steel frames are securely installed.
- When installing, repairing, or moving the product, ensure the working area is free of obstacles, and ensure the working platform is securely and stably fixed.



- In the absence of proper eye protection, please do not look directly at the lit screen from within a 1 meter distance.
- Do not use any optical devices that have converging functions to look at the screen to avoid burning the eyes.



WARNING: Beware of suspended loads.



LED lamps used in the module are sensitive and can be damaged by ESD (electrostatic discharge). To prevent damage to LED lamps, do not touch when the device is running or switched off.



WARNING: The manufacturer shall not bear any responsibility for any incorrect, inappropriate, irresponsible or unsafe system installation.



#### Product disposal

- Any component that has a recycling bin label can be recycled.
- For more information on collecting, reusing and recycling, please contact the local or regional waste management unit.
- Please contact us directly for detailed environmental performance information.

**Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## Product introduction

### About K Plus Series

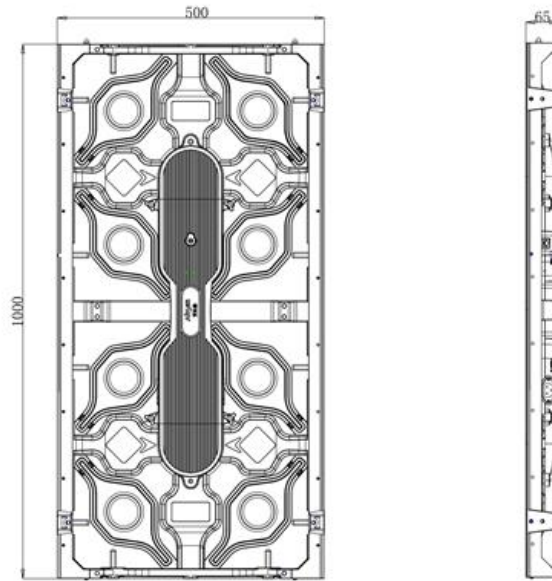
K2.9 Plus/ K2.9D Plus/K3 Plus/K3D Plus are designed for middle-end indoor fixed mounted that are high contrast ratio display with unique competitive advantages. Its cabinets are light and thin, only 11kg/cabinet, and only 65mm thickness. The thin cabinets are made of aluminum, use magnetic modules, support complete front and rear installation and complete front and rear maintenance.

The product is primarily used at retail, hotel, commercial real estate, conference hall, and for various other applications.

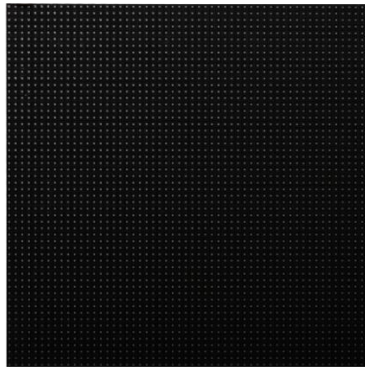
Nowadays, with the LED display industry becoming severely standardized, K Plus Series stands out among all similar products with its delicate appearance, thin and light structure, excellent display effect, full-featured functions, easy maintenance, and other unique advantages, providing good business opportunities for capable and influential contractors, service providers and advertisers.



## Product Dimensions



Cabinet Size



Module size: 250mmx250mm



## Product specifications

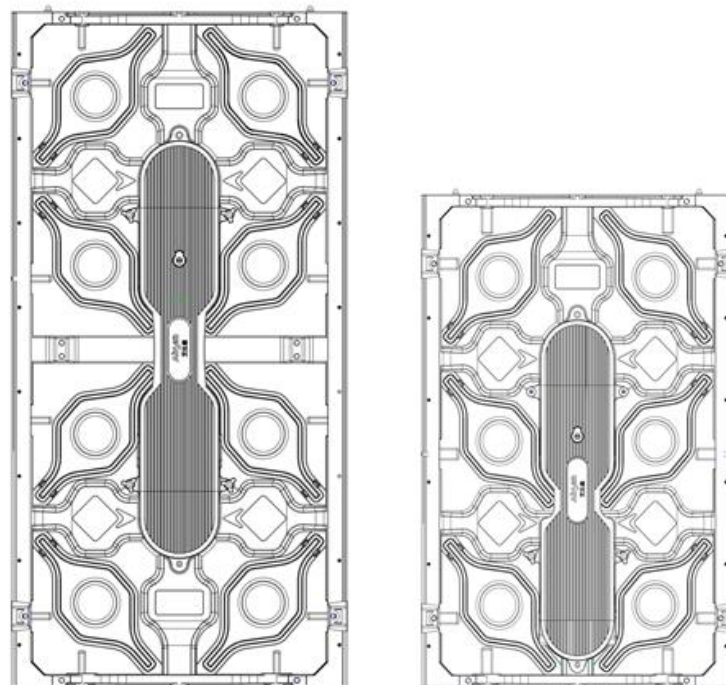
Parameter		K2.9 Plus	K2.9D Plus	K3 Plus	K3D Plus
<b>Physical Parameter</b>	LED Type	Black SMD2121	SMD1921	Black SMD2121	SMD1921
	Pixel Pitch (mm)	2.97	2.97	3.9	3.9
	Panel Dimensions (WxHxD)/(mm)	500×1000×65	500×1000×65	500×1000×65	500×1000×65
	Pixel Per Panel	168×336	168×336	128×256	128×256
	Panel Weight (kg)	11	11	11	11
	Panel Material	AL Die-casting	AL Die-casting	AL Die-casting	AL Die-casting
	Module Dimensions (WxH)/(mm)	250×250	250×250	250×250	250×250
<b>Optoelectronic Parameter</b>	Brightness (nit)	700	3000	700	3000
	Refresh Rate (Hz)	3840	3840	1920	1920
	Gray scale (bit)	16384	16384	16384	16384
	Contrast Ratio	4000:1	4000:1	4500:1	4000:1
	Color Temperature (K)	6500	6500	6500	6500
	Viewing Angle (H/V) (°)	140/140	140/140	140/140	140/140
	Driving Type	1/28	1/28	1/16	1/16
	AC Operating Voltage (V)	100~240	100~240	100~240	100~240
	Power Consumption (Max./Avg.)(W/m <sup>2</sup> )	300/100	420/140	270/90	390/130
<b>Application Parameter</b>	Storage Temperature (°C)	- 40~ + 60	- 40~ + 60	- 40~ + 60	- 40~ + 60
	Operating Temperature (°C)	- 10~ + 40	- 10~ + 40	- 10~ + 40	- 10~ + 40
	Storage Humidity (RH)	10%~90%	10%~90%	10%~90%	10%~90%
	Operating Humidity (RH)	10%~90%	10%~90%	10%~90%	10%~90%
	IP Rating (Front/Rear)	IP40/IP21	IP40/IP21	IP40/IP21	IP40/IP21
	LED Lifetime (H)	100000	100000	100000	100000
	Module Maintenance	Front/Rear	Front/Rear	Front/Rear	Front/Rear
	PSU & Others Maintenance	Front/Rear	Front/Rear	Front/Rear	Front/Rear
	Panel Installation Type	Front/Rear Installation	Front/Rear Installation	Front/Rear Installation	Front/Rear Installation
	Certificate	TUV-CE+RoHS+ET L+FCC	TUV-CE+RoHS+ET L+FCC	TUV-CE+RoHS+ET L+FCC	TUV-CE+RoHS+ ETL+FCC

## Product Value Features

- \*Light and thin product. Cabinet weight is less than 22kg/sq.m, with only 65mm thickness, with more than 30% reduction in weight and over 15% reduction in thickness compared to previous products in the same product platform.
- \*High precision with great screen surface flatness, because the cabinets are made of aluminum.
- \*Complete front or rear installation can be adopted for wall-mounted installation, with magnetic modules, power supply, signal receiving card, HUB, cable wirings, etc., accessible from the front, ensuring easy and fast servicing.
- \*Complete front or rear maintenance. Perfect for environments where only rear maintenance is available like window display, but also perfect for environments where only front maintenance is allowed, such as wall mounted installation at malls.
- \*High contrast ratio and high refresh rate meet the requirement of picture quality.
- \*Fan-less design for cabinets and power supply, eliminating noise and reducing power consumption. More energy savings.
- \*Meet the EMC certification to ensure anti-jamming in use.

## Product Components

### Cabinet Introduction



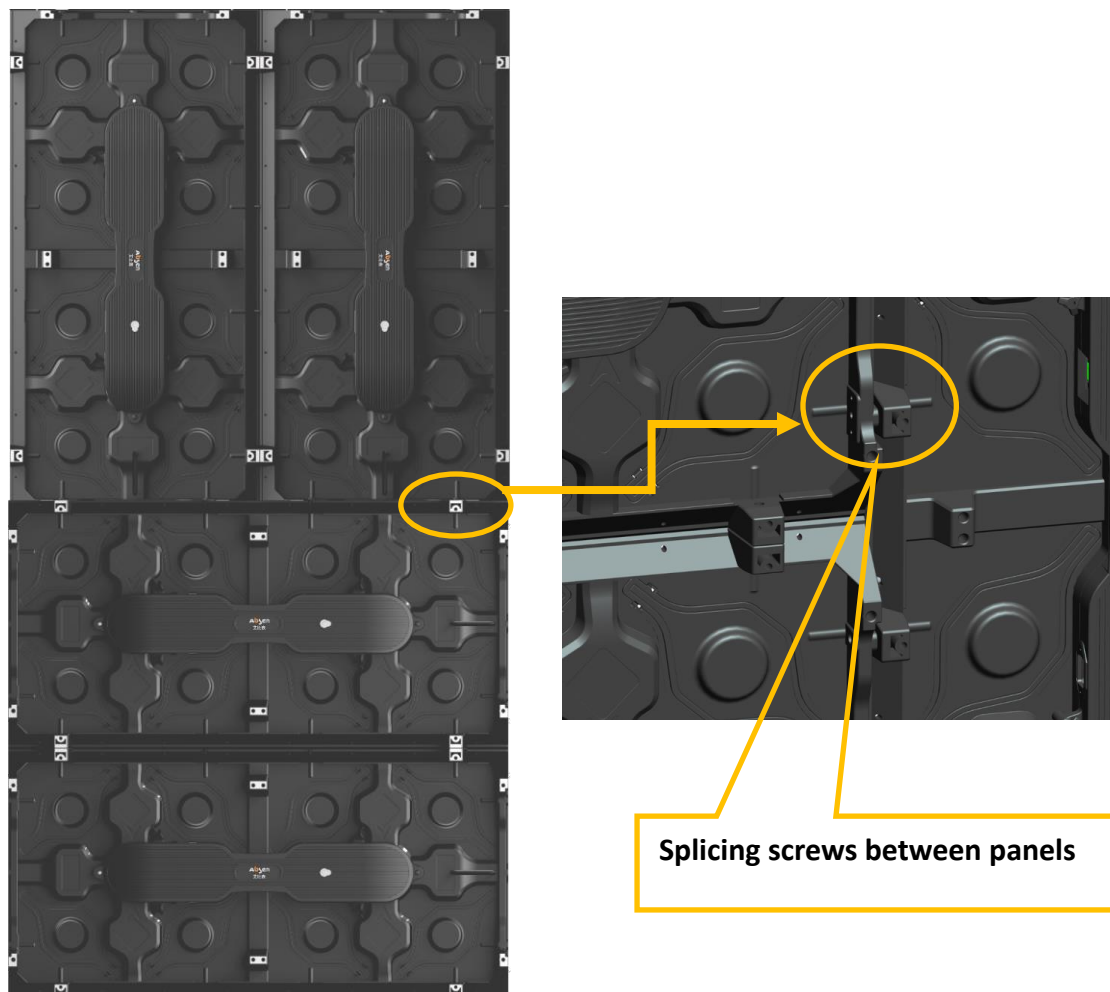
### Product Structure / Electronic Components Details

Product structure consists of two parts: Cabinet and module.

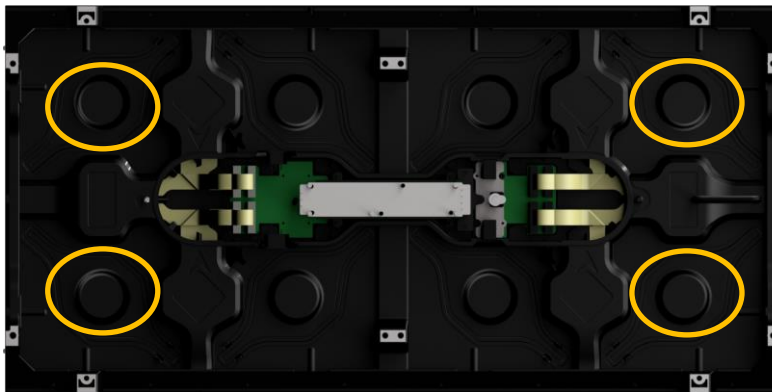
Cabinet structure: Full aluminum die-casting cabinet is extremely thin and light.

Cabinet have two different type: 500×1000mm and 500×750mm.

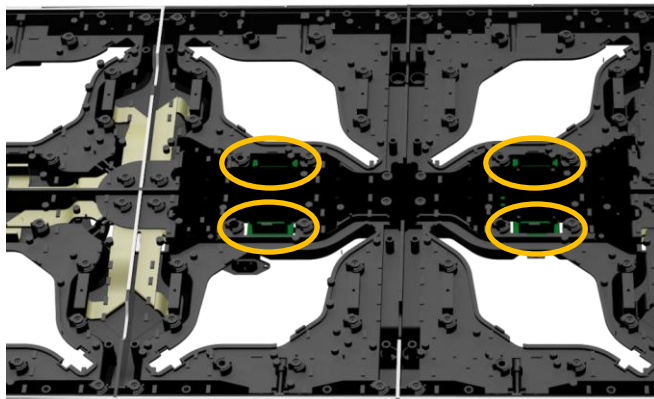
Cabinet can be installed in rotation splice, and it can be easily combined into kinds of cabinet size



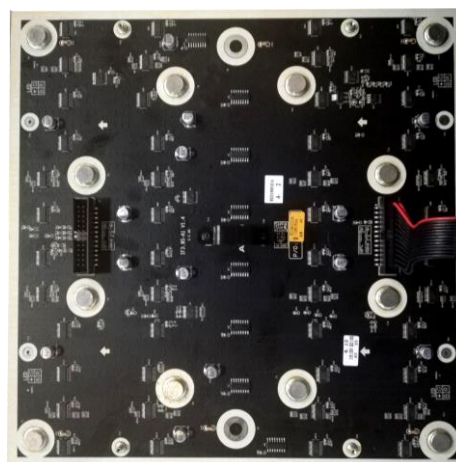
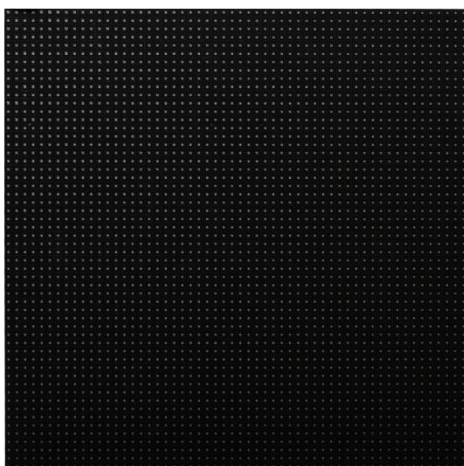
**Modular structure:** Magnetic modules. Modules can also be rotated by 90 degrees for installation. When rotating the module, the upper and lower four modules of the panel are connected with a row of wires, and the four modules in the middle of the panel are connected with a row master block.



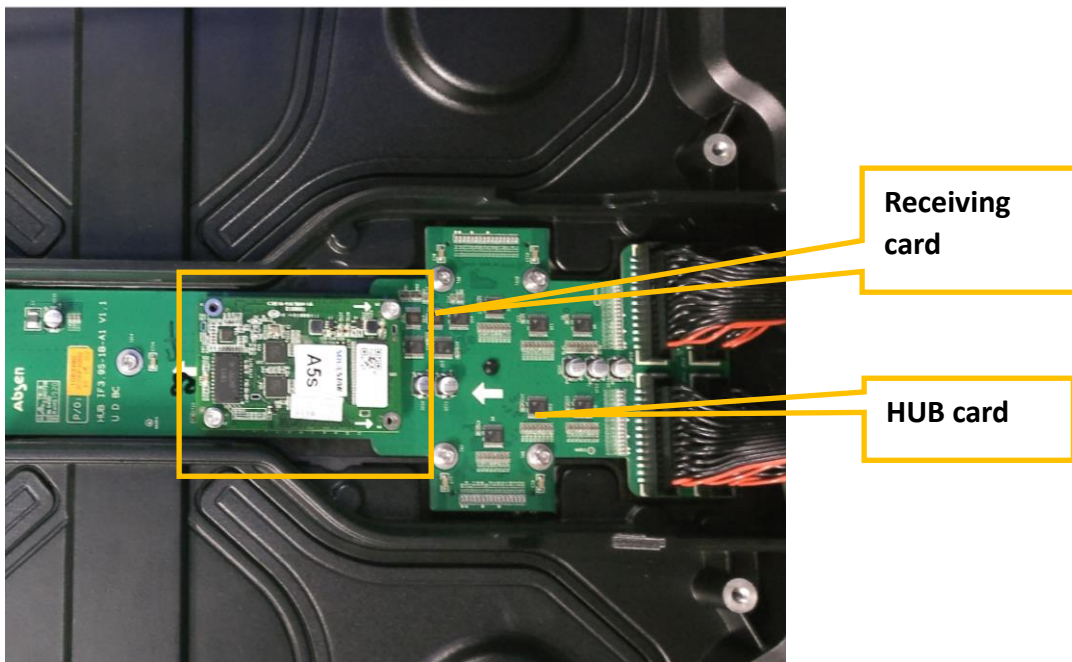
the upper and lower four modules



row master block



## Receiving card and hub card



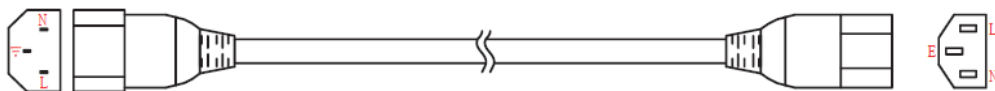
Up and down signal cable, 1.2 m length :



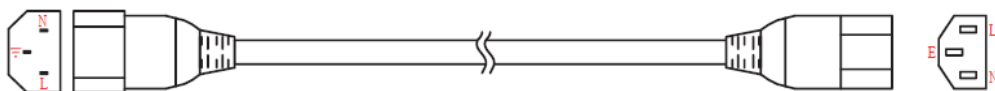
Left and right signal cable, 0.5m length :



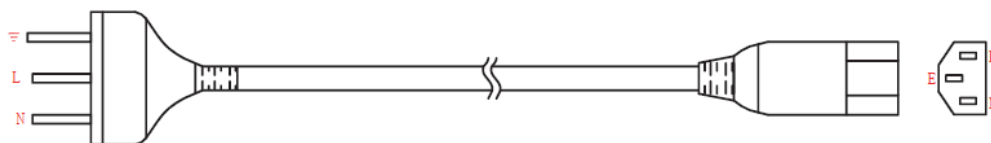
Up and down power cable, 1.2m length :



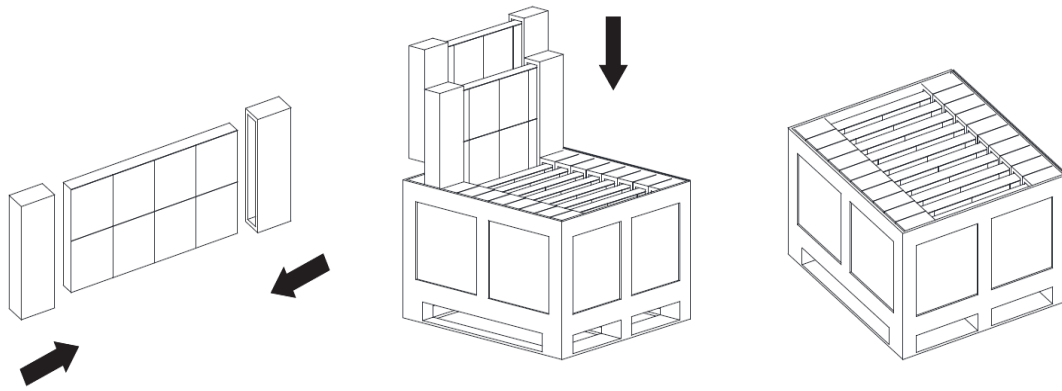
Left and right power cable, 0.4m length :



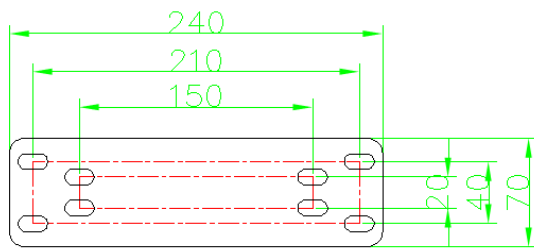
Screen long power cable, 10m length :



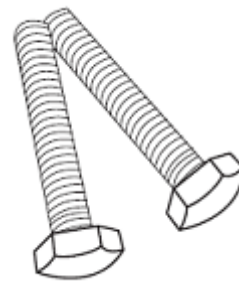
**Packaging (10 in 1)**



Installation-use connecting plates and mounting bolts



Connecting Plates

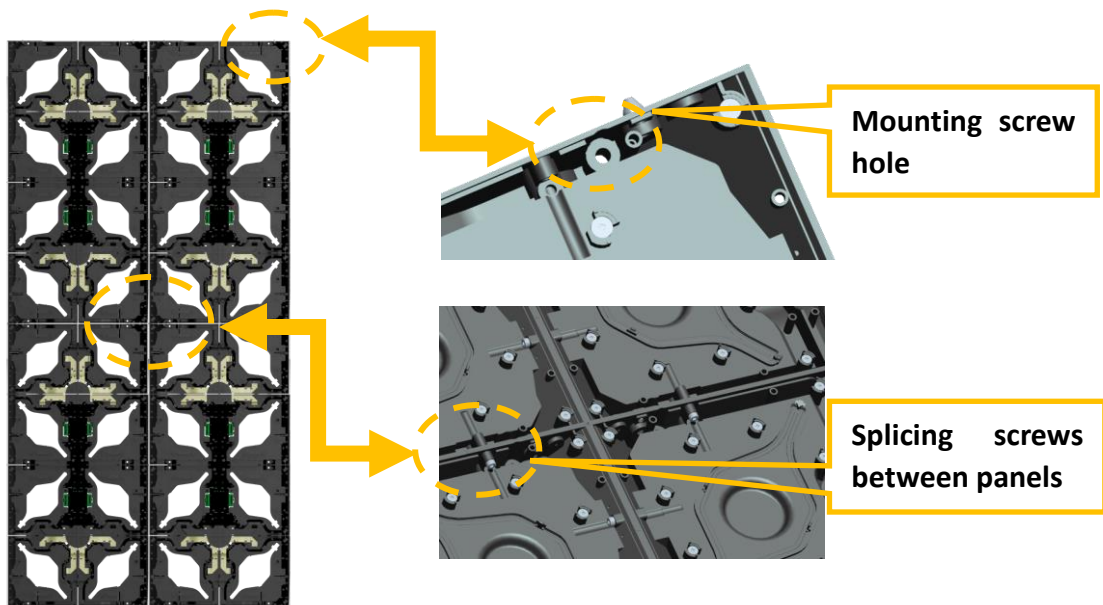


M8x60

## Product Installation

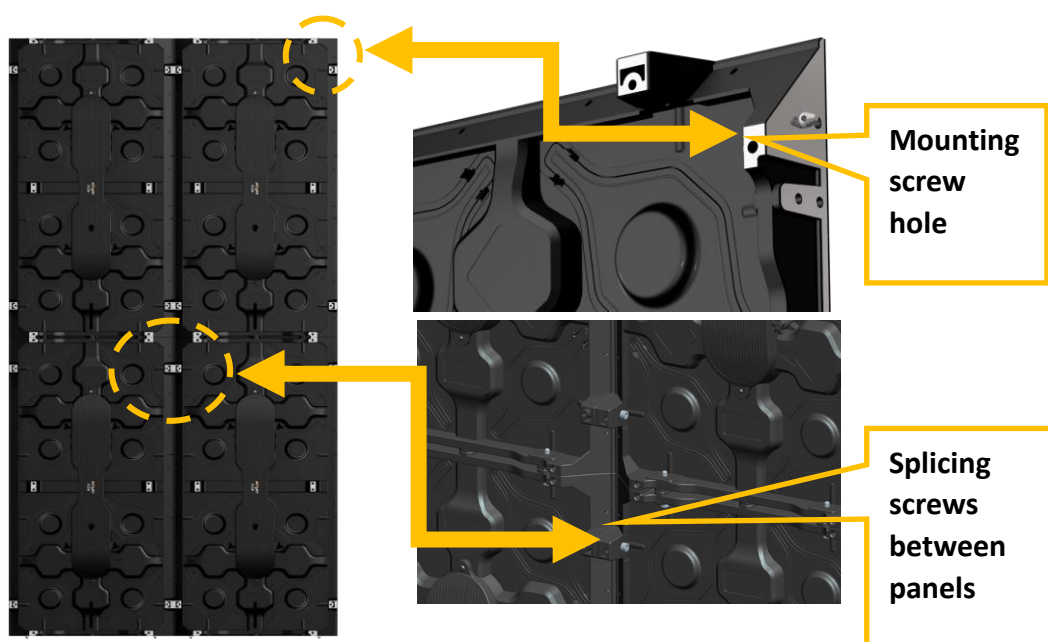
Various installation methods are available for this product: front installation, rear installation, as well as back strap installation.

### Front Installation

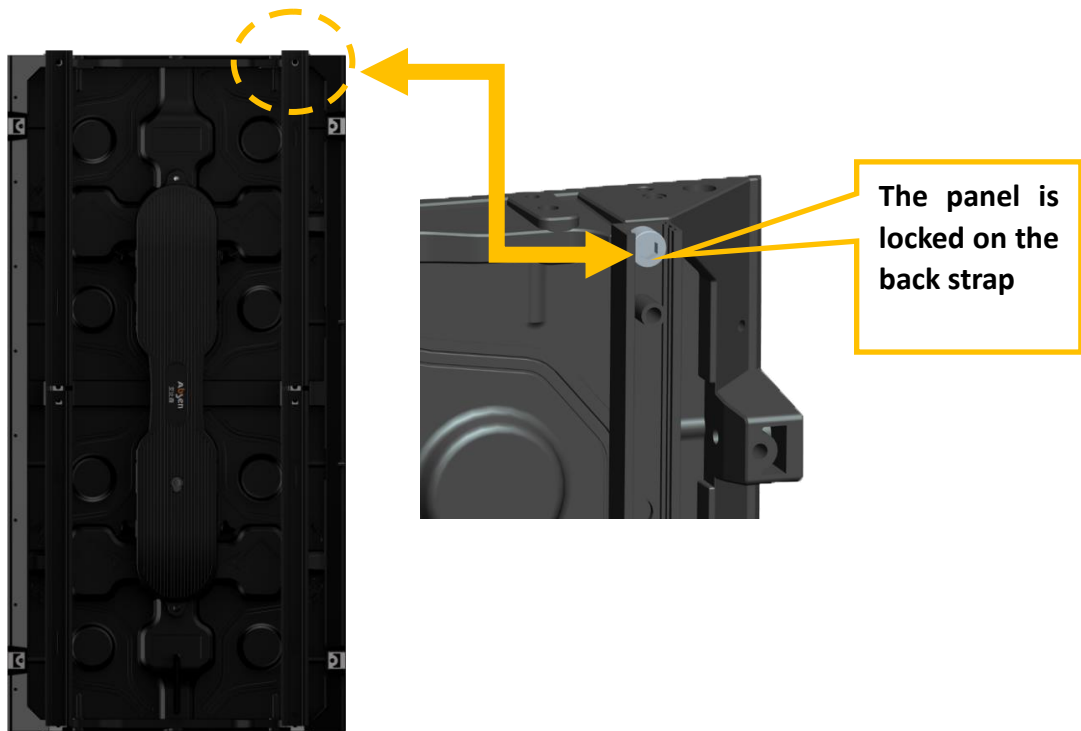


Remove the back cover of the module for installation

### Rear Installation



## Back strap installation



## Product Wiring

### Power Supply Wiring

- Preparation before wiring

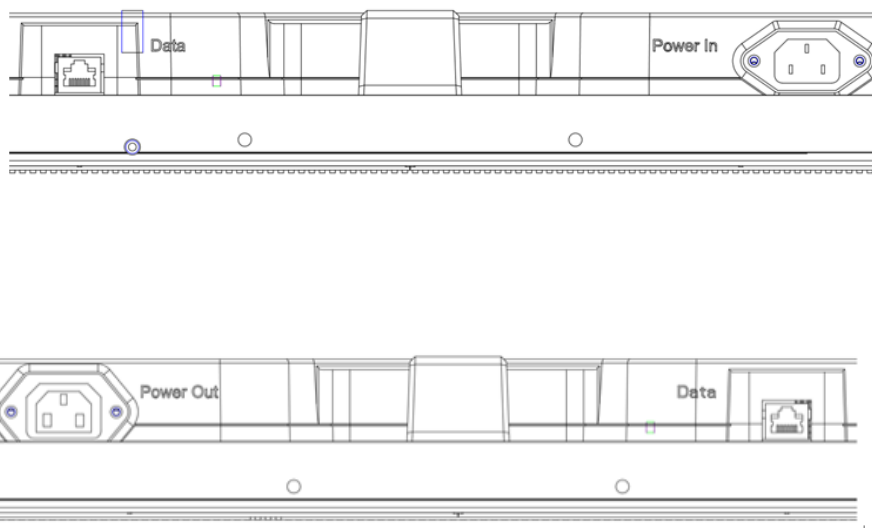
Before connecting to power supply and switching on control signal to the entire screen, please carefully check the power supply and signal cable connections. Please carefully check the "L" line, "N" line and "PE" of each cabinet's AC inlet, and ensure there is no short circuit between the three lines (Use multimeter to measure).

- Power Supply Cabling Instructions

Please calculate and select the power distribution box or socket type based on maximum power consumption. Please consult your power distribution box manufacturer to specifically match. Cabinet's input voltage is 100-240V/AC, and 3X1.5mm<sup>2</sup> (3X16AWG) power cable is used to connect from distribution box cabinets.



- Cabinet terminal connection diagram



Signal interfaces,  
no difference for input and output

### Power Cable Wiring

The K Plus series use a  $3 \times 1.5 \text{mm}^2$  (3X16AWG) power cable to connect from the distribution box or socket to the bottom of the cabinet.

At an input voltage of 220V, one power cable can load 8 panels of K2.9D Plus; at an input voltage of 110V, one power cable can load 4 panels of K2.9D Plus.

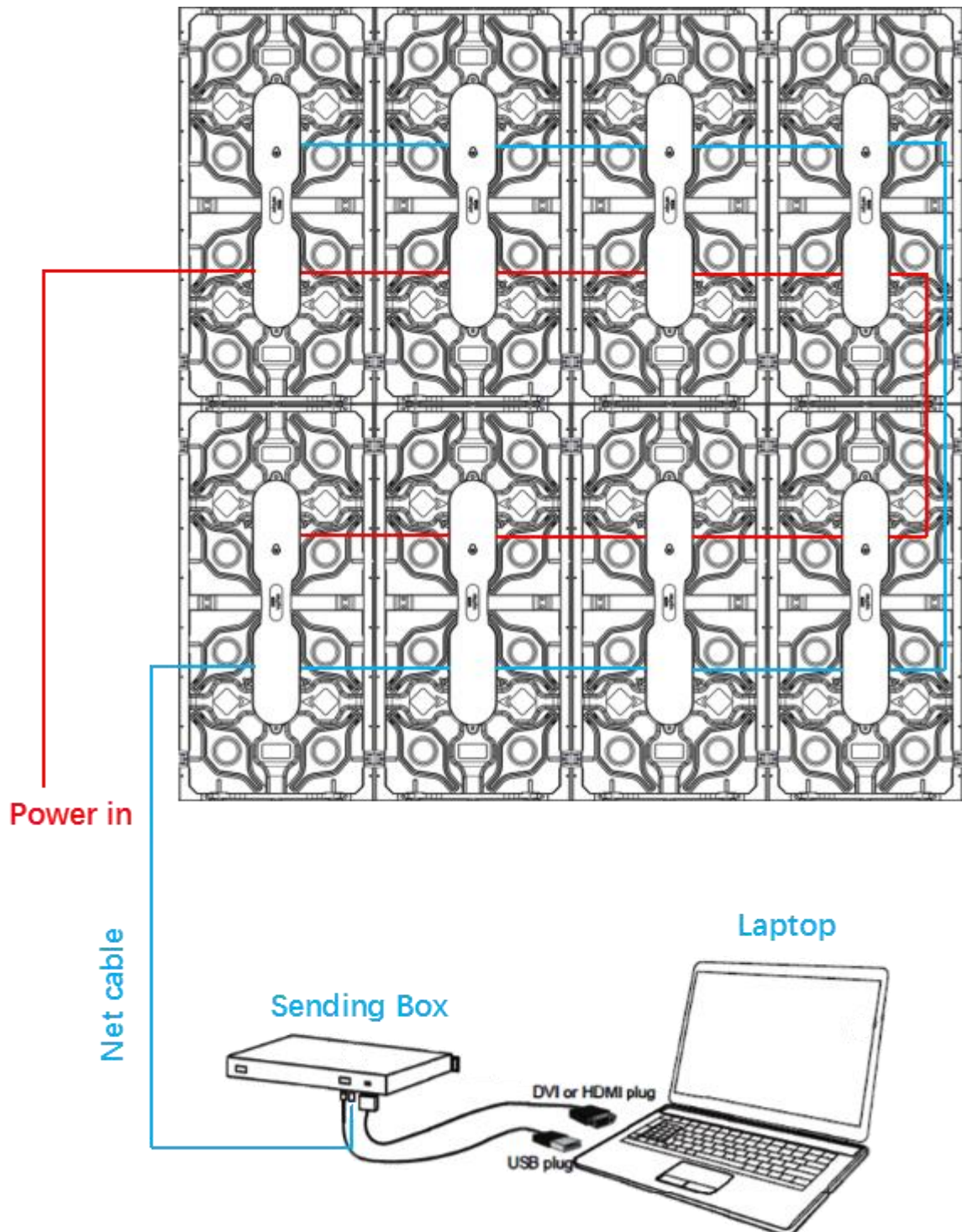
At an input voltage of 220V, one power cable can load 11 panels of K2.9 Plus; at an input voltage of 110V, one power cable can load 5 panels of K2.9 Plus.

At an input voltage of 220V, one power cable can load 12 panels of K3 Plus; at an input voltage of 110V, one power cable can load 6 panels of K3 Plus.

At an input voltage of 220V, one power cable can load 8 panels of K3D Plus; at an input voltage of 110V, one power cable can load 4 panels of K3D Plus.

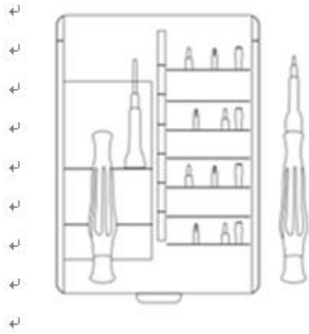
### Network Cable Wiring

The network cable is connected from left to right. Please calculate the resolution as per load range. Please note that the load pixel range for each network interface is not more than 650,000 pixels.

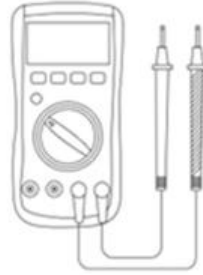


# Maintenance

## Preparation Tools



Screwdriver



Multimeter



Front Maintenance Tools

## Front & Rear Maintenance

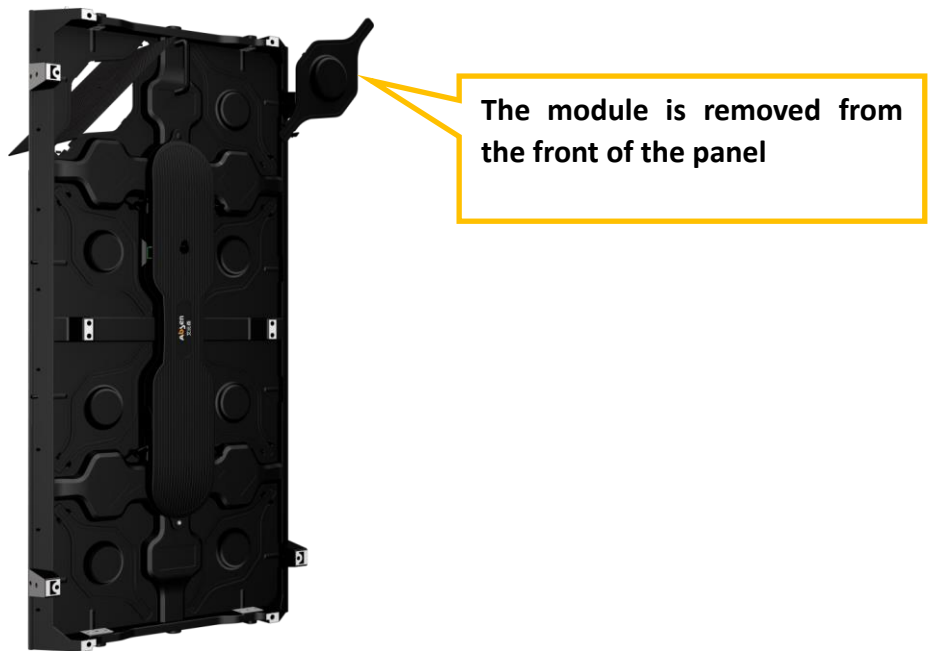
Module Front Maintenance: Use front maintenance tool to take off module.

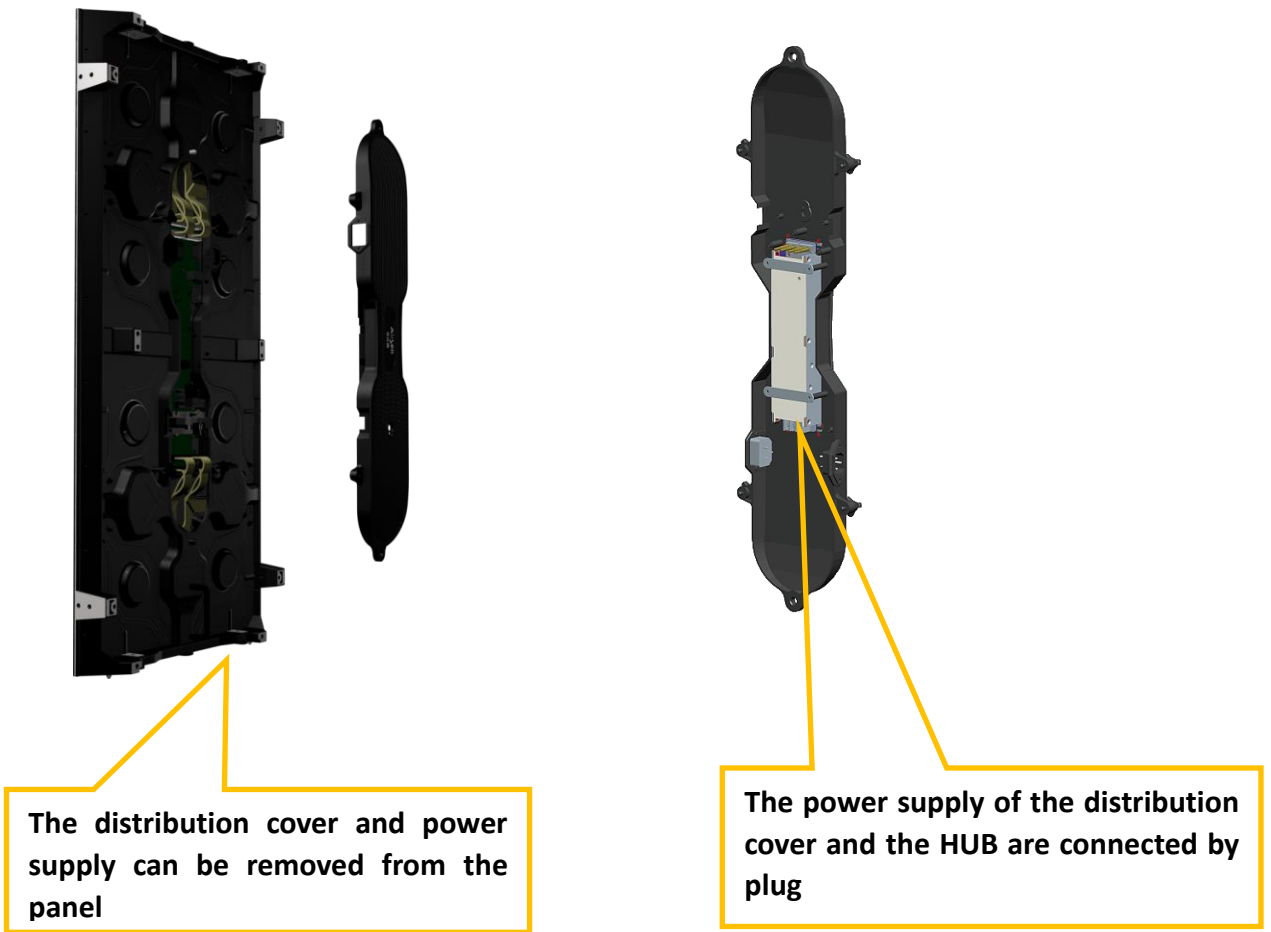


**Module Front Maintenance: Use front maintenance tool to take off module.**



Module Rear Maintenance:





**Check for Power Supply Short Circuit**



After completing the cabinet wiring, please use a multimeter to check if there is any short circuit at the AC input power supply (L / N / PE) and DC output terminal (VCC / GND). If there is a short circuit, please carefully investigate the wirings. Make sure all wirings are normal, and only then connect power to operate the unit.

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