PR Series

User manual

Shenzhen Absen Optoelectronic Co.,Ltd.

Catalogue

Safety Information

WARNING!

Please read the safety measures listed in this section carefully before installing, powering on, operating, or doing maintenance on 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, and crushing hazard.

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 electric 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.

• Maintain good ventilation around the display screen, controller, power supply and other devices, and keep a minimum 0.1 meter gap with other objects.

• 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 55 ℃.

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.

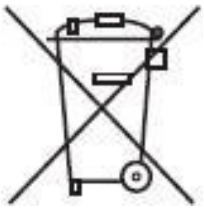
• When stacking products, please hold products firmly to prevent tipping or falling.

• 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.



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: 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.

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.

1. Product Introduction

The PR series display is specially designed for Virtual Production Volume and high end stage rental use. It is mainly used in Virtual Production Volume & high end rental applications for large concerts, shows, auto shows, business activities, etc., as a medium for video broadcast, information release, and so on.

The pixel pitch of PR series is P1.9mm, P2.5mm, P3.9mm, P5.2mm.

PR series including 2 types of cabinet size:

500*500*93mm，carbon fiber + die casting aluminum material, only 9.5kg/cabinet;

500*1000*93mm, carbon fiber + die casting magnesium material, 13.5kg/cabinet;

The PR series uses double-layer structure with modern cabinet, featuring excellent flatness, high quality cabinet and module finish, and high structural strength.

Indoor: PR1.9/PR2.5
Outdoor: PR3.9/PR5.2

Indoor: PR2.5
Outdoor: PR3.9/PR5.2

Curve Products (500*500mm Cabinet Products support 0-7.5° arc splicing)

1.1 Product Main Features

• One paltform for film production: PR series is dedicated design for Virtual Production Volume. PR3.9 and PR5.2 is used for ceiling, with 6000nit brightness, 7680Hz refresh rate, 16bit grayscale, PR1.9 and PR2.5 is used for backdrop, with 1500nit brightness, 7680Hz refresh rate, 16bit grayscale. PR2.5 use ultra high color gamut lamp and supper black level technology, the color rendering index up to 99.99%, the contrast ratio up to 10000:1, which can support excellent in-camera visual effect.

PR1.9, PR2.5: Recommended for building backdrops

PR3.9, PR5.2: Recommended for building ceilings

• Excellent in camera visual effects: PR full series products support HDR,16bit gray scale, 7680Hz refresh rate, PR2.5 support maxinum 251Hz frame rate, 99.99% DCI-P3 color gamut, 10000:1 contrast ration,which gives excellent in camera visual effects.

• The revolutionary carbon fiber and die-casting alloy composite structure of the PR Series makes panels lightweight and durable.

All round tubes are alternatives to conventional handles for safer and easier operation.

• 500*500mm cabinets support 0-7.5 ° splicing, which cater different volume's requirements.

• Ture one-step locking system enables one-man installation.

• Modular design supports modules and power boxes fast front and rear maintenance.

1.2 Product Specifications

PR Backdrop Products:

Parameter		PR1.9	PR2.5
Physical Parameters	LED Type	Black SMD1212	Black SMD1515
	Pixel Pitch (mm)	1.9	2.5
	Cabinet Pixels	256x256	200x200 200x400
	Pixel Density (Pixels / m^2)	1048576	160000
	Module size (L × W)/(mm)	250x250	
	Panel size (L × W × H)/(mm)	500x500x93	500x500x93 500x1000x93
	Cabinet Material	Carbon fiber + Die-casting aluminum	Carbon fiber + Die-casting aluminum/ Carbon fiber + Die-casting magnesium
	Cabinet Weight (kg/Cabinet)	9.5	9.5/13.5
	Grayscale	16	16
	Refresh Rate (Hz)	7680	7680
	Drive Mode	1/8	1/8
	Signal Transmission Distance (m)	UTP cable: < 100 m; Single-mode fiber: < 10 km	
Optical Parameters	Brightness (nit)	1500	1500
	Viewing Angle (H/V)(°)	160/140	160/160
Electrical Parameters	AC Input Voltage (V)	100-240	
	Power Consumption (Max/Avg.)(W/m^2)	680/227	600/200
Environmental Parameters	Storage Temperature (°C)	- 40~ + 60	
	Working Temperature (°C)	- 10~ + 40	
	Storage Temperature (RH)	10 % ~90 %	
	Working Humidity (RH)	10 % ~90 %	
	Ingress Protection	IP40/21	
Leasing Product Installation	Panel Installation Method	Hanging, stacking	
	Maximum number of hoisted cabinets	20	20/10

Remark: Power consumption tolerance: ±15%, according to the actual situation.

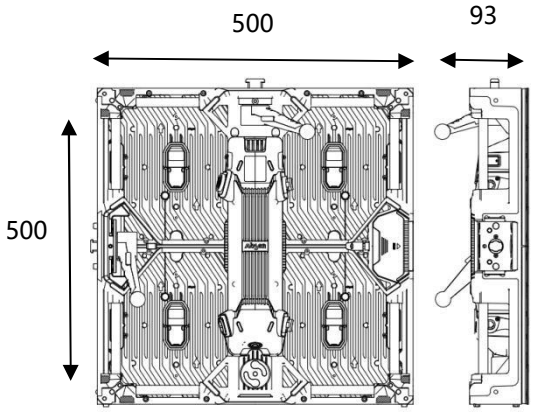
PR Ceiling Products:

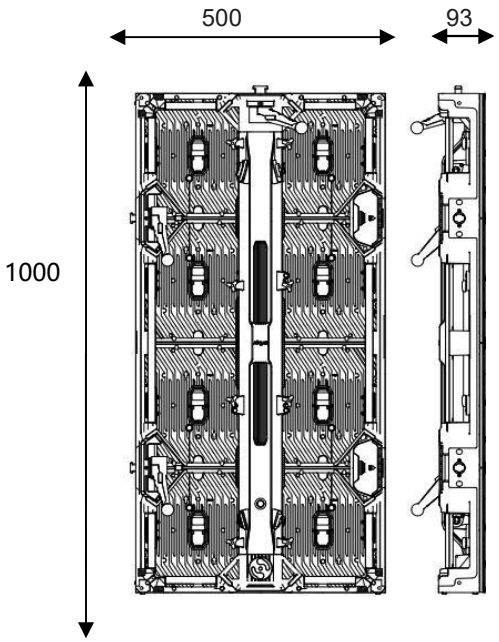
Parameter		PR3.9	PR5.2
Physical Parameters	LED Type	SMD1921	SMD1921
	Pixel Pitch (mm)	3.9	5.2
	Cabinet Pixels	128x128 128x256	96x96 96x192
	Pixel Density (Pixels / m^2)	85536	36864
	Module size (L × W)/(mm)	250x250	250x250
	Panel size (L × W × H)/(mm)	500x500x93 500x1000x93	500x500x93 500x1000x93
	Cabinet Material	Carbon fiber + Die-casting aluminum/ Carbon fiber + Die-casting magnesium	
	Cabinet Weight (kg/Cabinet)	9.5/13.5	
	Grayscale	16	16
	Refresh Rate (Hz)	7680	7680
	Drive Mode	1/8	1/4
	Signal Transmission Distance (m)	UTP cable: < 100 m; Single-mode fiber: < 10 km	
Optical Parameters	Brightness (nit)	6000	6000
	Viewing Angle (H/V)(°)	160/160	160/160
Electrical Parameters	AC Input Voltage (V)	100-240	
	Power Consumption (Max/Avg.)(W/m^2)	600/200	580/194
Environmental Parameters	Storage Temperature (°C)	- 40~ + 60	- 40~ + 60
	Working Temperature (°C)	- 20~ + 50	- 20~ + 50
	Storage Temperature (RH)	10 % ~90 %	10 % ~90 %
	Working Humidity (RH)	10 % ~90 %	10 % ~90 %
	Ingress Protection	IP65/54	IP65/54
Leasing Product Installation	Panel Installation Method	Hanging, Stacking	Hanging, Stacking
	Maximum number of hoisted cabinets	20/10	20/10

Remark: Power consumption tolerance: ±15%, according to the actual situation.

1.3 Cabinet dimension figure (mm)

Unit: mm

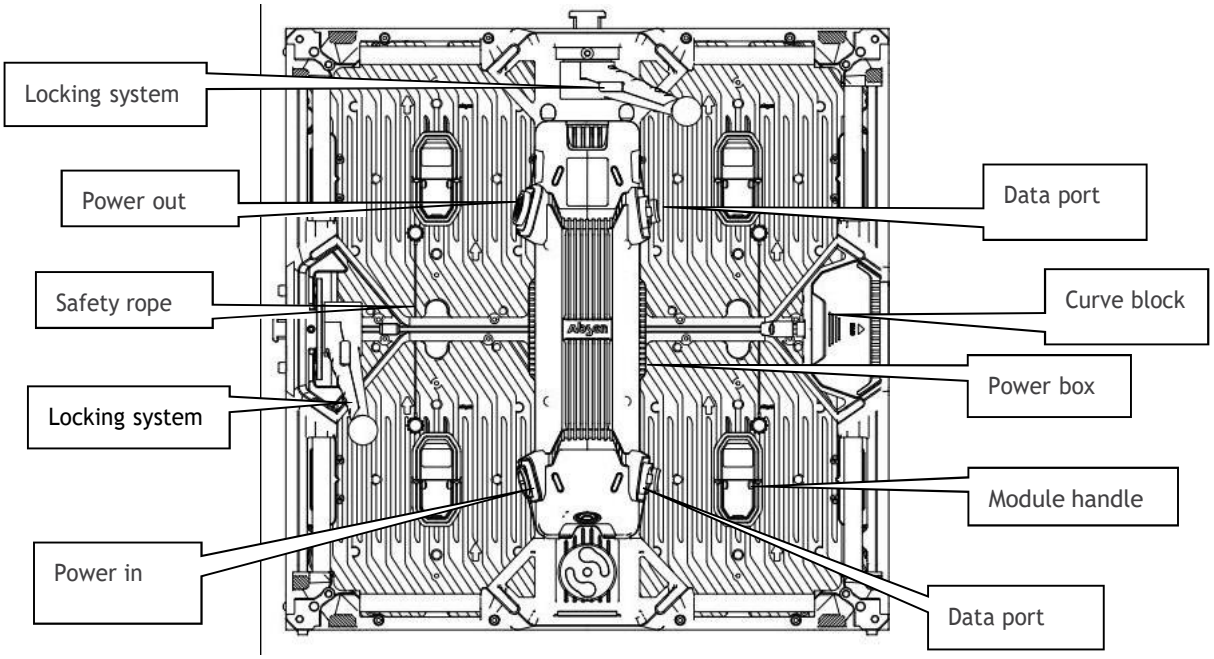




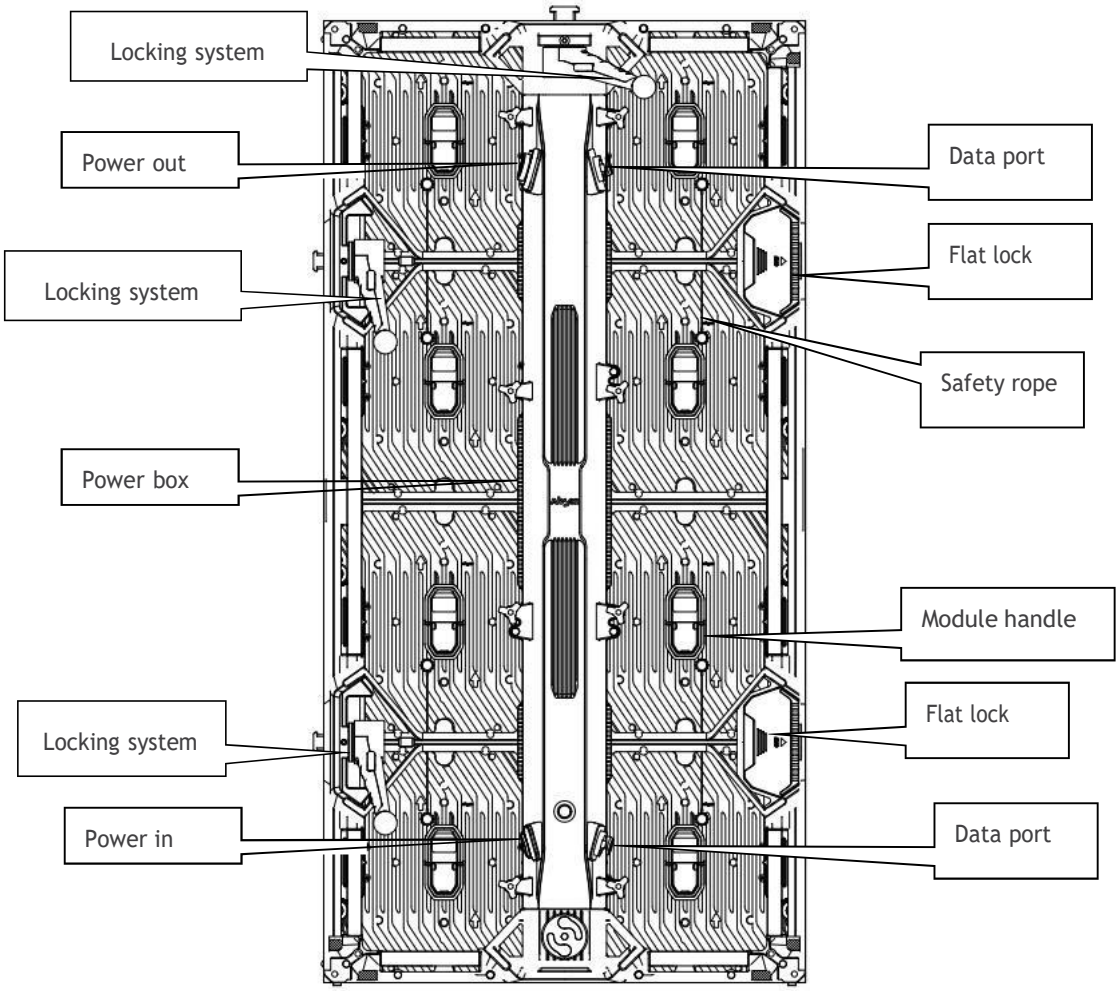
2. Product Components

2.1 Cabinet Introduction

500*500mm cabinet:



500*1000mm cabinet:



3. Product Installation

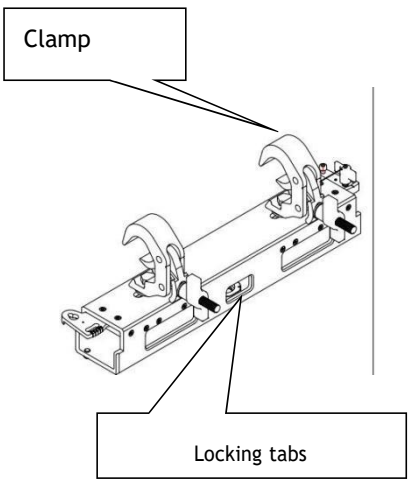
The product is suitable for various forms of installation, including rigging, stacking and ceiling installation. The 500*500mm cabinet can support radian connection from 0 ° to +7.5°.

3.1 Hanging Installation

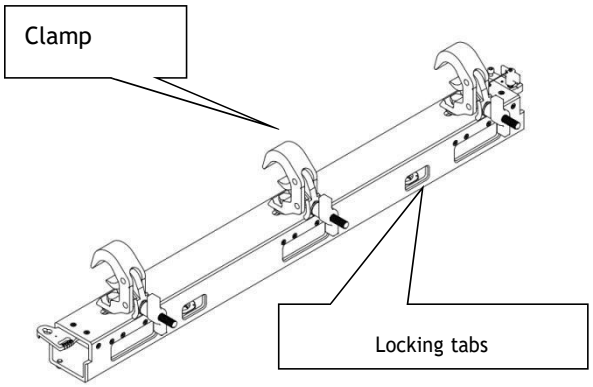
3.1.1 Hanging bar Illustration

Used for rigging installation, including single, double hanging bar.

Single hanging bar



Double hanging bar



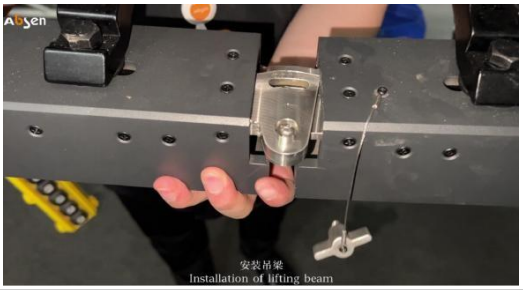
3.1.2 Hanging bar installation

Hanging bars can load a max number of 20 500×500mm panels and 10 500×1000mm panels.

Installation steps:

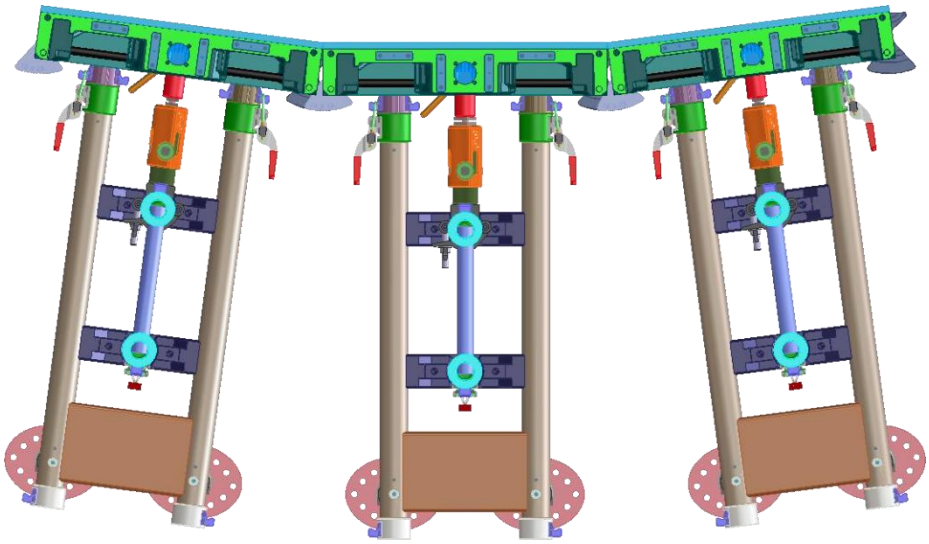
1. Fix the Hanging Bar on the Truss
2. Align the upper lock on the cabinet with the mounting hole on the hanging beam
3. Insert the upper lock to the hanging beam
4. Rotate the locking handle to the right side and connect cabinet with hanging beam tightly
5. Tighten the second cabinet as described above,then tighten the left and right cabinet
6. Repeat above action to install the 1st row cabinet
7. Repeat above action to install the 2nd row cabinet

Note: For detailed installation steps, see the product installation video

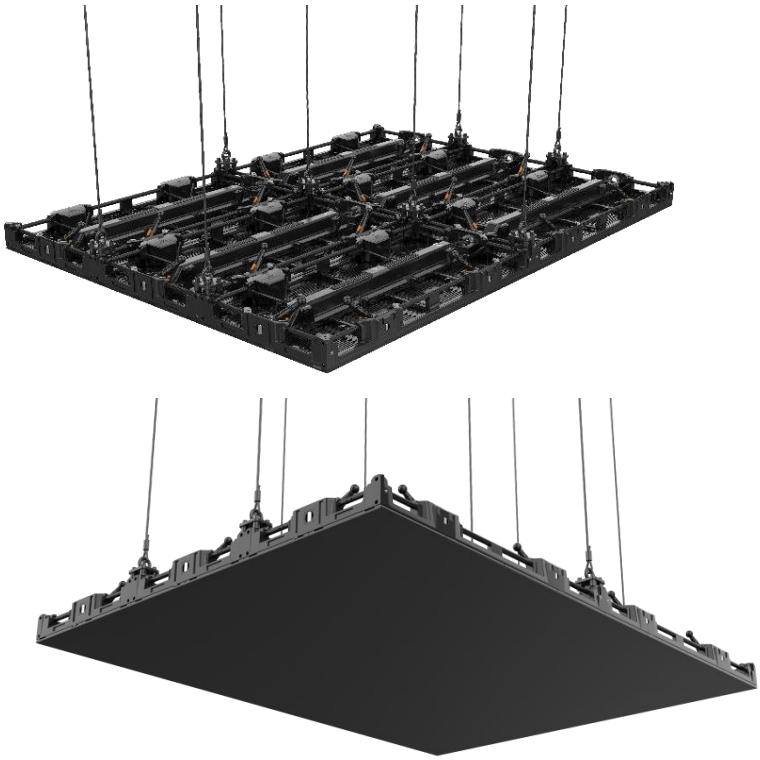
STEP	Graphic
1, Fix the Hanging Bar on the Truss	
2, Align the upper lock on the cabinet with the mounting hole on the hanging beam	
3, Insert the upper lock to the hanging beam	
4, Rotate the locking handle to the right side and connect cabinet with hanging beam tightly	
5, Tighten the second cabinet, as described above, and connect left and right cabinet tightly	

6,Repeat above action to install the 1st row cabinet	
7,Repeat above action to install the 2nd row cabinet	

3.2 Stacking Installation



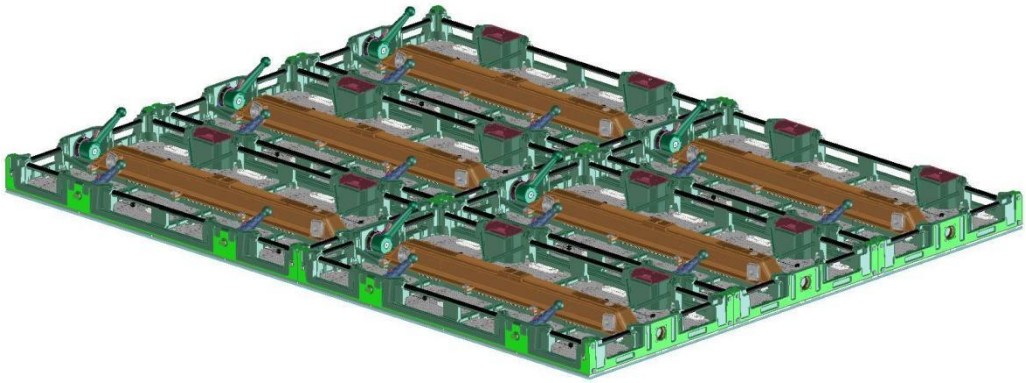
3.3 Ceiling Installation



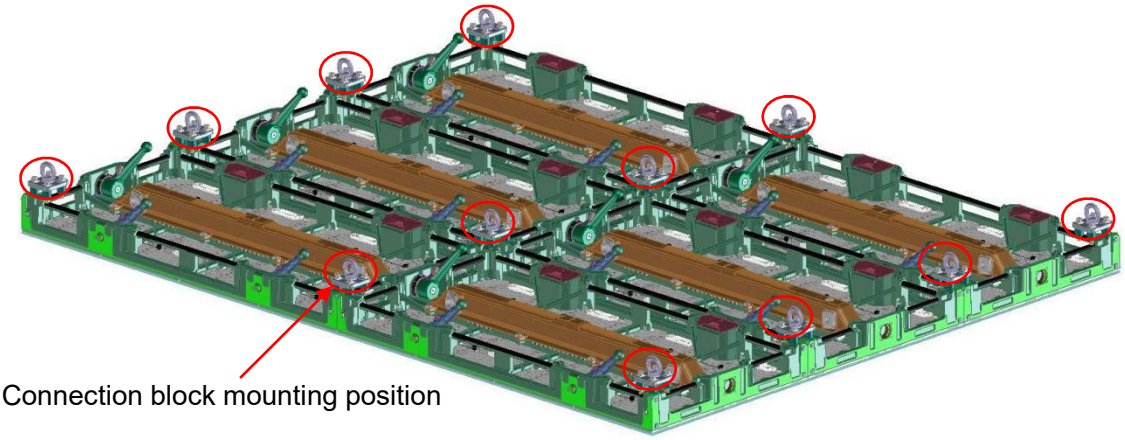
Suggest use PR3.9 or PR5.2, 500*1000mm cabinets to realize set up a ceilling wall quickly.

Installation Steps:

1. Lay the box flat on the ground and connect the locks between the boxes.(Note: Refer to the above operation method for the connection between boxes.)



2. Use M8 screws to install the lifting connecting blocks, and install them all inside the box to ensure lifting safety.



3. Use electric hoist to lift the screen body to complete the lifting installation

4. Product Cabling

4.1 Preparation Before Cabling

Please check carefully if the connection of power and signal circuit is correct before supplying power and signal to the screen. Please make sure that there is no short circuit between the L line, N line and PE line of each cabinet's AC power input by using multimeter.

Power connection instructions: Please calculate and select the appropriate model of distribution box or socket according to the maximum power consumption. Please consult your electrician or distribution cabinet manufacturer for specific selection method. The input voltage of cabinet is 100-240V/AC and 3X2.5mm/sqm power cable is used between distribution box and the cabinet. Please confirm the input voltage, the number of cabinets loaded on each power cable will be different upon different voltages and product models. (Please feel free to contact our after-sales service department if you are not sure).

4.2 Power Supply and Signal Cable Wiring

Cable connection

			
Name:Power Cable Dimension: 1m Max Current :16A	Name:long Power Cable Dimension: 10m Max Current :16A	Name:Display DATA cable Dimension: 20m	Name:Panle DATA cabel Dimension: 1m

Network cables and power cables of all series are connected by aviation connector, as showed in pictures above.

Note: The connecting cables between the cabinets should pass through the cabinets as much as possible. If the connection method changed, please set the same connection method in the software settings. Please refer to the software for more details.

Operation steps:

1) Load capacity of main power cable and main network cable
2) Checking

After the cabinet wiring is completed, use a multimeter to measure whether there is a short circuit between the AC input (L / N / PE) and DC output (VCC / GND) of the power supply. If so, please check the circuit carefully. Please make sure the circuit is normal

before starting up. To avoid the entire screen being burned due to the wrong working voltage, please pay attention to the working voltage range of the cabinet during use.

3) Turn on screen and check the effect

Play high-definition content after starting up, such as video, text, images, etc. It is suggested to make sure the resolution of the content is in consistent with that of the screen, otherwise the content will be compressed, thus affecting the overall performance.

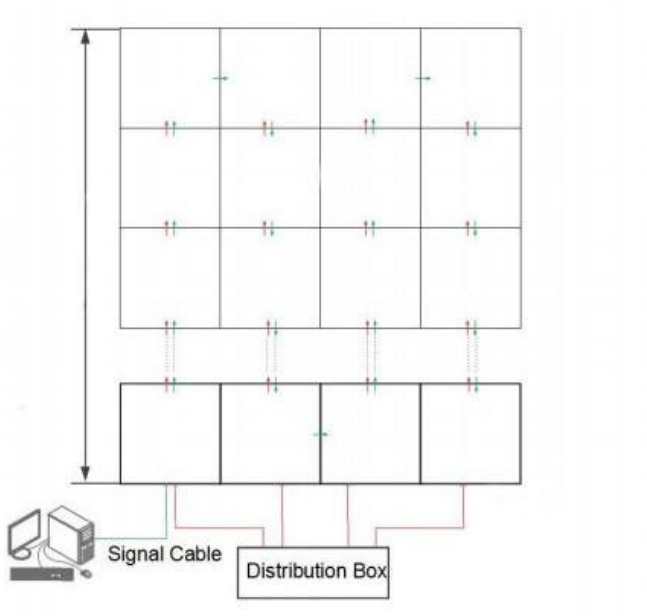
4) For software operation, please refer to the software instruction manual.

Under different cabinet sizes and different input voltages, there are differences in the number of cabinets that wires are able to carry. See the following table for details:

Using environment	Cabinet dimension	Product model (AC100-240V, 3x2.5mm2)	Qty of cabinet (AC100-240V, 3x2.5mm2)
Backdrop	500x500	PR1.9	20
		PR2.5	20
	500x1000	PR2.5	10
Ceiling	500x500	PR3.9	20
	500x1000	PR3.9	20
	500x500	PR5.2	20
	500x1000	PR5.2	10

Please calculate the resolution according to each box pixel and connect the signal line according to the load range of the sending card. No more than 655360 pixels can be loaded on each network port.

4.2.1 Standard Cable Wiring

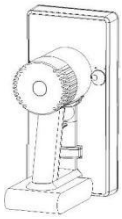


This product cannot store or display video content solely on itself. To perform normal work , the screen requires video source from the output device such as PC, laptop, medi a payer, etc. and one or more sending box to receive and feed the source to it.

5. Maintenance

5.1 Tools for Maintenance

Preparation of maintenance tools:

	Type	Function	Picture
List	Front maintenance tool	Installing and fixing module	
	Phillips screwdriver	Installing and disassembling module & power supply & screw on receiving card	
	multimeter	Measuring power lines and distribution boxes	
	Small Phillips screwdriver	Installing and removing mask	
	Spirit level	Measuring structure	
	laser spirit level	Measuring installation position	
	band tape	Measuring distance of installation hole	

5.2 Maintenance Instructions

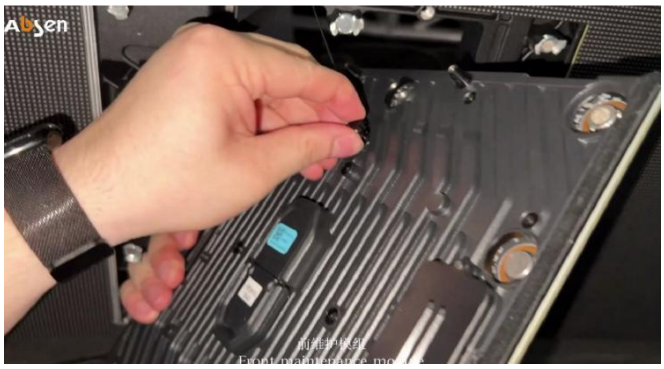
5.2.1 Module Maintenance

The module of PR series support front or rear maintenance.

Module front maintenance

Step1: Attach the vacuum maintenance tool to the module and press the maintenance tool switch for 5 seconds. Pull it vertically and pull the module off the panel.

Step2: Loosen the safety rope.



Step3: Remove the failure module.

Step4: Lock safet rope and replace with a good module.

Module rear maintenance

Step1: Loosen the safety rope and hold the module handle, and push module forward. Remove the failure module.

Step2: Replace with a good module and lock the safety rope.

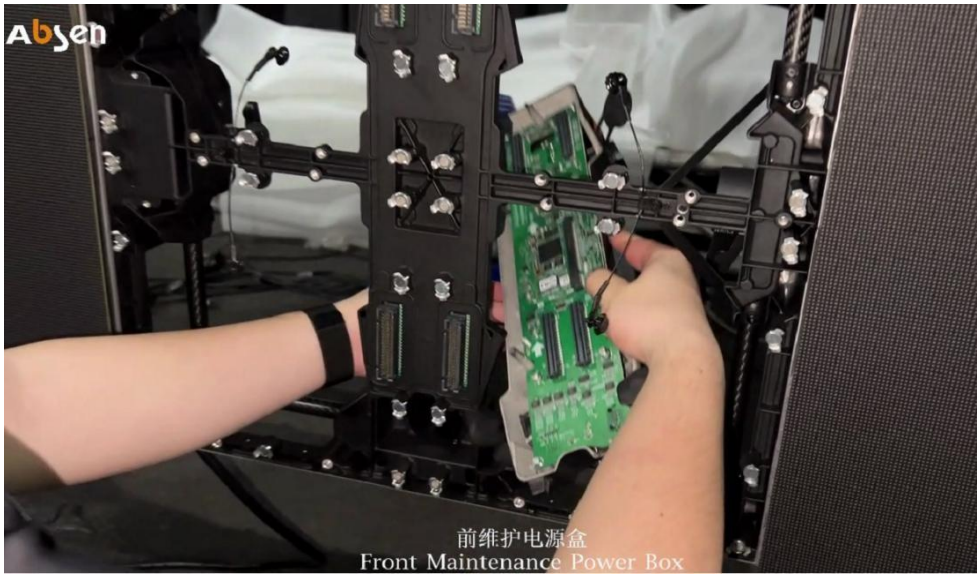
5.2.2 Power Box Maintenance

500×500mm cabinet, front maintenance：

Step1: Take apart four modules from front.

Step2: Press the PRESS button at power box's upper left side.

Step3: Take out he failure bower box and replace a good one.



500×500mm cabinet, rear maintenance：

Step1: Press the PRESS button at power box's upper left side.

Step2: Take out he failure bower box and replace a good one.

500x1000 cabinet, front maintenance:

Step1: Take apart eight modules from front.

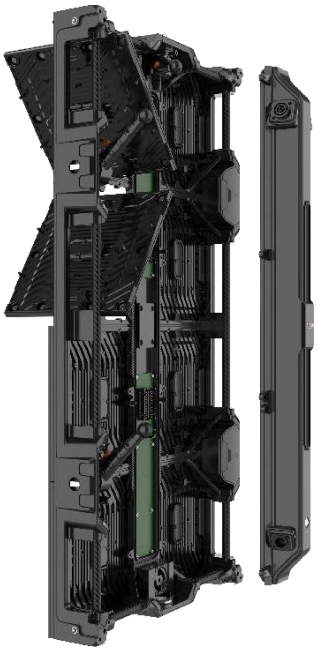
Step2: Loosen the eight captive screws at power box.

Step3: Take out he failure bower box and replace a good one.

500x1000 cabinet, front maintenance:

Step1: Loosen the eight captive screws at power box.

Step2: Take out he failure bower box and replace a good one.



Attention: It is necessary to cut off power supply of cabinets during the maintenance of the power box to avoid electric shock.

5.2.3 Receiving Card and HUB Card Maintenance

Receiving card

For example: The R2+ receiving card is connected to the Hub board through the card slot. Meanwhile, the Hub board is also connected to the module, power supply and data cable. The Hub board help transit power and data. （R2+ Interfaces have similar functions with other types of receiving cards）

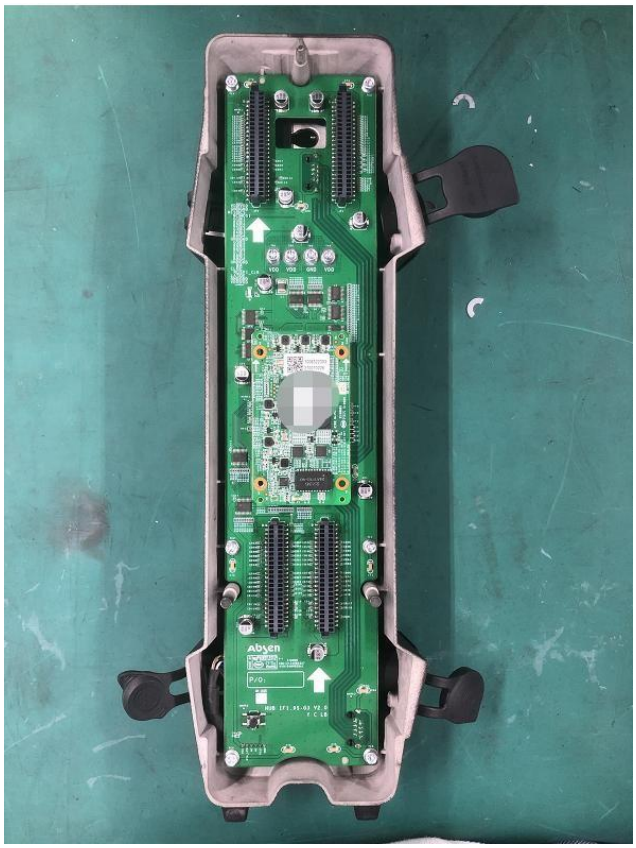
All series of products support receiving card, HUB board rear maintenance.

Maintenance for receiver card:

1. Remove the screws of the receiving card (please note the Red frame mark);
2. Unplug the receiving card and replace it;
3. Install a new receiving card on the HUB card, please note that the receiving card direction should correspond to the arrow direction on the HUB card (please note the yellow frame mark);
4. Install the fixing screws.

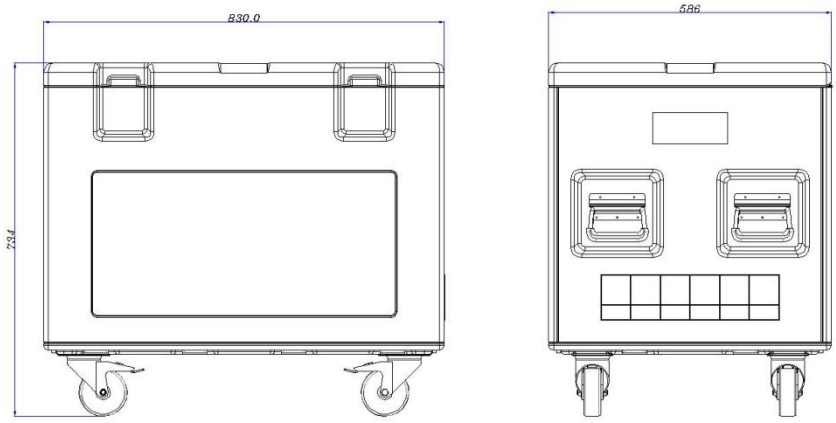
Maintenance for the HUB Board :

Step 1: remove the power box;
Step 2: release the screws on receiving card;
Step 3: release the screws on the HUB board ;
Step 4: install the HUB board back (note the direction of the HUB board and the corresponding screw hole);
Step 5: install the receiving card back(note that the receiving card direction should correspond to the arrow direction on the HUB board;)
Step 6: install the screw;
Step 7: install the power box and module.

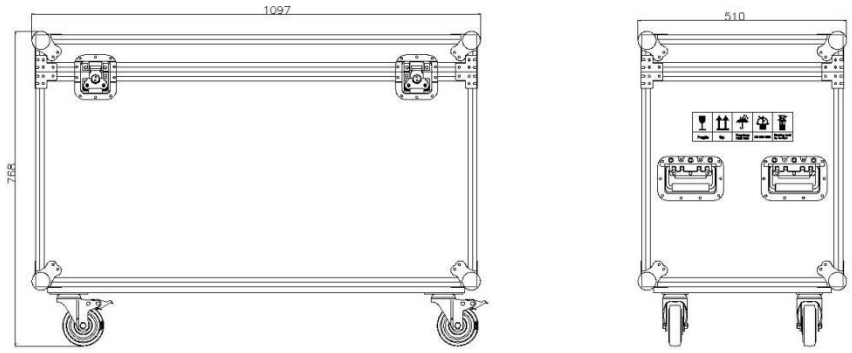


5.2.4 Flight Case

Place the LED panels horizontally to prevent SMD damage.
Flight cases are optimised to fit in vehicles for low cost transport. Fully stackable to save space.
NT series flight case only have 6-in-1 type.
6-in-1 for 500x500mm cabinet package
4-in-1 for 500x1000mm cabinet package



6in1 design.



4 in 1 design.

6. Common faults and troubleshooting

No.	Common faults	Solution
1	Some modules are black	1. Check whether the power plug of the corresponding module is tightly inserted;
		2. Check whether the power cable of the corresponding module is burnt out;
		3. Check whether the switch power supply of the corresponding module has no output;
		4. Check whether the flat cable of the corresponding module is malfunctioning;
		5. Replace the flat cable of the corresponding module;
		6. Replace the module;
		7. Replace the receiving card;
		8. Send rcfg file;
2	The whole screen is black	1. Check whether the screen power is on;
		2. Check whether the DVI cable or HDMI cable is loose;
		3. Check whether the main data cable is well inserted;
		4. Check whether the sending card is powered on and whether the running indicator is flashing;
		5. Replace the sending card;
		6, Connecting the computer to an LCD display, check whether there is output on video card;
		7. Update the video card driver;
		8. Replace the computer;
3	Screen show scr ambled image	1. Check whether the power plug of the receiving card is well inserted;
		2. Check whether the power cable of the receiving card is burnt out;
		3. Check whether the power supply has no output;
		4. Check the data cable of the receiving card;
		5. Replace the data cable;
		6. Send the rcfg file;
		7. Upgrade the firmware version of the receiving card;
		8. Replace the receiving card;
4	Chromatic aberration between modules	1. Check whether the module power plug is well plugged;
		3. Check whether the main data cable is well inserted;
		4. Check whether the sending card is powered on and whether the running indicator is flashing;
		4. Replace the module;
		5. Replace the receiving card;
5	All panels display the same content	1. Set the screen connection on software;
		2. Check whether the data port is wrong.

6	No control system detected	1. Check the USB cable;
		2. Check whether the computer USB port is malfunctioning;
		3. Update the USB driver;
		4. Replace the USB cable;
		5. Replace the sending card;
7	No multi-function card detected	1. Check whether the distribution box is in the automatic state;
		2. Check whether the multi-function card is powered;
		3. Replace the power supply of the multi-function card;
		4. Check whether the main data cable is inserted into the wrong data port;
		5. Check whether the sending card data port is malfunctioning;
		6. Re-add the multi-function card;
		7. Replace the multi-function card;
		8. Replace the sending card;
8	No full screen display	1. Check whether the setting of the playback window is normal;
		2. Check the output resolution of the video processor;
		3. Check the output window of the video processor;

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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