MR Series User Manual





Shenzhen Absen Optoelectronic Co.,Ltd.

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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.

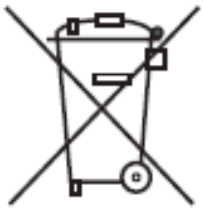
• When stacking products, please hold products firmly to prevent tipping or falling.

• 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 resp onsible 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 frequen cy energy and, if not installed and used in accordance with the instruction manual, may c ause harmful interference to radio communications. Operation of this equipment in a resi dential 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

1.1 Product Info

MR series is a LED product specially designed for floor display use, it is mainly used in rental application for car show, TV studio, concert stage, virtual production, etc., as a medium for video broadcast, interactive, and so on.

MR series uses die casting aluminum structure, and the display has excellent flatness, high quality cabinet and module finish, and structural strength. The cabinet dimension is 500 x 500 x 91mm.



1.2 Product Key Features

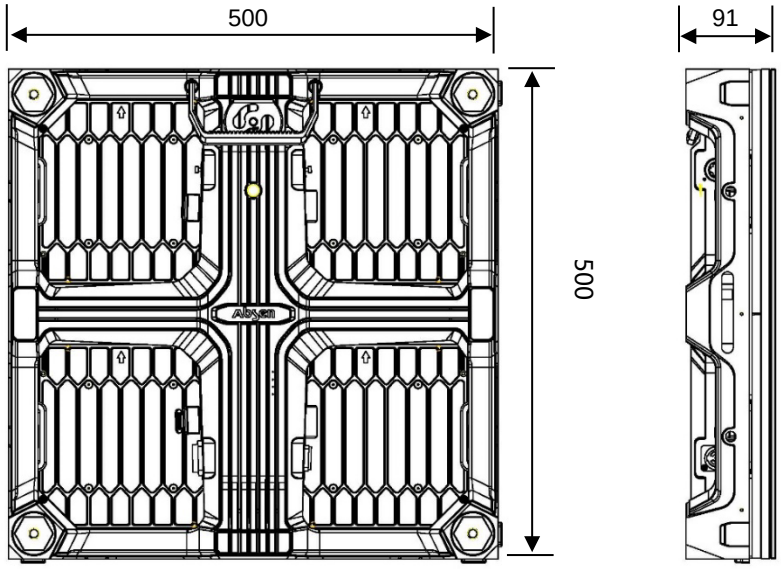
- Excellent visual effect: The cabinet cover is made of tempered glass, which has unparalleled smoothness and neatness on its surface. The cabinet is dustproof and waterproof, contrast ratio 3000:1, and the viewing angle greater than 160 degree.
- Lighter, thinner, and height adjustable: the cabinet's thickness is only 91mm, with the weight is 16kg, on which load-bearing capacity is more than 625Kg， and safety factor is greater than 3 times.
- Interactive: interactive and non-interactive versions are available with the compatible design of electronic.
- Fast installation and easy maintenance: quick positioning, height adjustment, and modular design for which the cabinet is easy dissembly, and it can be maintained front about cabinets and modules.
- Support various installation methods such as hanging, stacking, fixed installation, etc.

1.3 Product Specifications

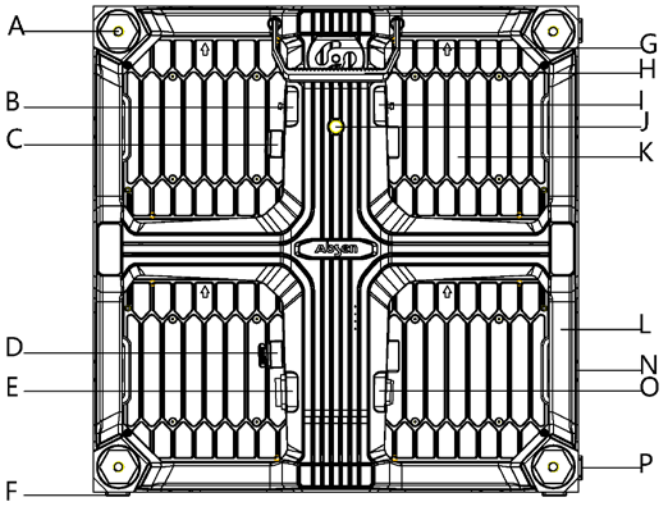
Parameter		MR4.8
Phyiscal Parameter	LED Type	SMD 3in1 1921
	Pixel Pitch(mm)	4.8
	Panel Dimensions (WxHxD)/(mm)	500x500x91
	Pixel Per Panel	104x104
	Panel Weight (kg)	16
Optoelectronic Parameter	Panel Material	Die Casting Aluminum
	Module Dimensions (WxH)/(mm)	250x250
	Brightness (nit)	1000
	Contrast Ratio	3000:1
	Refresh Rate (Hz)	3840
	Gray scale （Bit)	14
	Color Temperature (K)	6500
Application Parameter	Viewing Angle (H/V) (°)	160/160
	Driving Type	1/7
	AC Operating Voltage (V)	100～240
	Power Consumption (Max./Avg.)(W/m²)	640/214
	Storage Temperature (℃)	-40～+60
	Operating Temperature (℃)	-20～+50
	Storage Humidity (RH)	10%～85%
	Operating Humidity （RH)	10%~90%
	IP Rating （Front/Rear)	IP65/IP54
	LED Lifetime (H)	100000
	Module Maintenance	Front
	PSU & Others Maintenance	Front
	Panel Installation Type	Hanging/Stacking/Fixed
	Max Rigging QTY.	/
	Certificate	CE,ETL,FCC,ROHS

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

1.4 Dimension Figure (mm)



1.5 Product Diagram



A.-Adjustable cushion
B/I-Signal interface
C/D-Buckle
E-Power in
F-Bottom positioning
G-Mounting holes for stacking
H-Handle
J-Test button
K-Module
L-Frame
N-Reserve holes
O-Power out
P-Side positioning

2.Product Installation

MR4.8 is installed flat on the ground during installation as a dedicated floor LED display, meanwhile, the cabinets are locked with eccentric hooks and they are installed and maintained by air pump suction tools.

2.1 Preparation Before Installation

2.1.1 Installation Tools

	Type	Function	Picture
Checklist	Blade	Open the carton	
	Air pump suction cup tool	Used to install and maintain PC glass panels.	
	PH2 Phillips screwdriver	use to install and remove the screws on the module& power box& receiving card.	
	Multimeter	Used to measure power cords and distribution boxes.	
	Spirit level	Used to detect the flatness between the cabinets.	
	Rubber hammer	Used to adjust the flatness of the cabinet structure.	
	8mm Hexagonal wrench	Used to lock the cabinet and adjust the height of the adjustment angle.	

2.2 Precautions Before Installation

2.2.1 Before Installation

1. Steel structure construction: construction in accordance with the requirements of the drawings, during which must cooperate with pipeline construction and be supervised by the person in charge of installation.

2. Tool preparation: match and prepare the types of tools commonly used in display installation and maintenance, including screwdrivers, wrenches, front maintenance tools, and multimeters.

3. Confirm the power distribution plan: give a specific plan based on the actual display size, and order to determine the specifications and quantity of the power distribution box, the main power line, and the number of power lines. According to the total pixel points and order, determine the specification quantity of the sending box, the video processor, and the quantity of the network cable.

4. Precautions for power distribution:

- Wiring needs to be neat, and on-cable wires must be laid with ducts.
- Lay the signal wires separately from the power wires to avoid interference.
- Consider three-phase power balance during wring, and try to have the same number of display cabinets for each phase of electrical load.
- The wire terminal of the cable needs to be fixed.
- Number the power and signal wires, and route them according to the drawings to facilitate troubleshooting.
- Lay out the main power cord from the display screen to the distribution box according to the actual cabinets arrangement with considering safe current-carrying.
- Voltage loss needs to be considered when wiring long distances to ensure that the voltage of the display is within the allowable range.

2.2.1 During Installation

1. **Cabinet installation:** sufficient manpower must be provided for equipment handling to ensure safety. After unpacking, be careful to handle the LED cabinet gently, and do not knock it to cause damage to the appearance and function of the cabinet. Install the LED screen to check whether the module is placed flat and aligned. The power cord and network cable should be connected to confirm whether the power wiring is in place and correct, whether the network cable is inserted in place, and the screen connection sequence is correct.

2. **Wiring sequence:** first connect the power cord and t signal cables between LED cabinets , and then connect the main power cord from the distribution box or socket ,and connect the main signal cable from controllers..

3. **Installation of distribution box:** The installation of distribution box must be firm and reliable. The protective grounding is reliable.

4. **Power connection:** first confirm that the power supply terminal is in the "disconnected" state, and the self-consumption terminal must be connected (equipment switch or distribution box, etc.). Connect the power supply terminal only after checking that the connection of the power terminal is correct. Connect the protective ground first, then connect the neutral line, and finally connect the phase line. After the power supply is connected: check the power supply terminal switch or equipment power distribution voltage, and "cut off" the power supply after confirming that it is correct. The power cord must be

distinguished by color, ground wire, neutral wire and A, B, C and other phase wires.

5. **Cabinet adjustment:** Check whether the display screen is flat and clean. Fine-tune the gap between the module and the module, and between the cabinets. When installing, make sure that the LED cabinets must be locked with screws to ensure the left and right/up and down flatness between the cabinets.

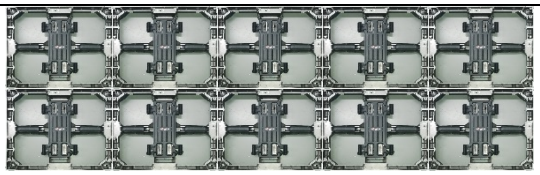
6. **Power-on detection:** fault judgment, check the appearance of power-on detection whether there is a bad cabinet and whether the picture output is correct; if a fault occurs, judge according to the fault phenomenon and eliminate the fault.

2.3 LED Floor Screen Installation

2.3.1 LED Floor Screen Installation List

NO.	Name	Photos	Installation position and function
1	MR4.8LED floor cabinet frame		The cabinet frame is installed on the ground
2	MR4.8 display panel		Installed on the cabinet frame
3	power cable		Connect adjacent cabinets
4	Signal cable		Connect adjacent cabinets
5	Main power cable		Connect the cabinet and controllers
6	Main power cable		Connect the cabinet and power distribution box

2.3.2 Installation Steps

Steps	Photo
Step1：Lay the MR4.8 cabinet frame on the ground, and confirm that the adjusting foot cup of the frame is at the smallest place by default, and the frame is in contact with the ground;	
Step 2: Align the adjacent cabinet frames, place the electronic level on the corners of the adjacent frames, and check the level of flatness. According to the actual situation, use an 8mm hexagonal wrench to adjust the height of the foot cup clockwise until it is flat;	
Step 3: Use a hexagonal screwdriver to insert into the eccentric lock hole to lock the two adjacent cabinets;	
Step 4: Repeat the above steps to install all the cabinet frame;	
Step 5: Connect the power cables and signal cables;	
Step 6: Install the LED display panel and commissioning the LED display	

3.Power and Signal Cables Connection

3.1 Product Component Description

The distribution box is a low-voltage distribution box, which is composed of switch cabinets, measuring instruments, protection devices and auxiliary equipment. According to electrical wiring requirements, it is installed on a metal box or screen.

In normal operation, the circuit can be switched manually or automatically. The measuring instrument displays various parameters; some electrical parameters can be adjusted by the measuring instrument; when there is deviation from the normal working state, it can indicate or send a signal.

The components in the LED display distribution box mainly include: main switch, AC contactor, circuit breaker (air switch), lightning arrester (optional), timer, function card, delayer, voltage indicator, current indicator, Thermal relay, etc.

Power capacity: Absen mainly has 15KW, 30KW, 60KW, 90KW, 120KW, 150KW, 180KW distribution boxes.

Control mode: intelligent distribution box, ordinary distribution box.

Installation environment: indoor and outdoor.





Selection of distribution box and main cables:

Distribution box specifications	15KW	30KW	45KW	60KW
International copper core cable specifications (mm²)	4*4+1*2.5	4*10+1*6	4*16+1*10	4*25+1*16
Distribution box specifications	90KW	120 KW	150 KW	180 KW
International copper core cable specifications (mm²)	4*50+1*35	4*70+1*35	4*95+1*50	4*120+1*70

Remarks:

The three-phase voltage in the table is 380V, and the single-phase voltage is 220V.

The input terminal of the distribution box is a three-phase five-wire system with a three-phase voltage of 380V, and the output terminal has a single-phase voltage of 220V.

4*X+1*X in the table: 4 means L+L+L+N wire, 1 means PE wire, X means main cable size; if the single-phase voltage is 110V, the international copper core cable model must be twice the size .

Cables:

			
power cable Current:16A(max)	Main power cable Current:16A(max)	Main signal cable	signal cable

All series of network cables and power cables are connected by aviation connectors, as shown in the figure above:

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

Steps:

1) The load capacity of the main power cable and the main network cable.

2) Check: To measure whether there is a short circuit between the AC input (L / N / PE) and the DC output (VCC / GND) of the power supply. If there is a short circuit, check the wiring carefully. Please check whether the circuit is normal before starting up. In order to avoid the burning of the entire screen caused by the wrong working voltage, please pay attention to the working voltage range of the cabinet when using.

3) Open the screen and check the effect

Play high-definition content, such as videos, texts, pictures, etc. after booting. It is recommended to ensure that the resolution of the displayed content is consistent with the resolution of the screen, otherwise the content will be compressed, which will affect the overall performance.

4) Please refer to the software manual for software operation.

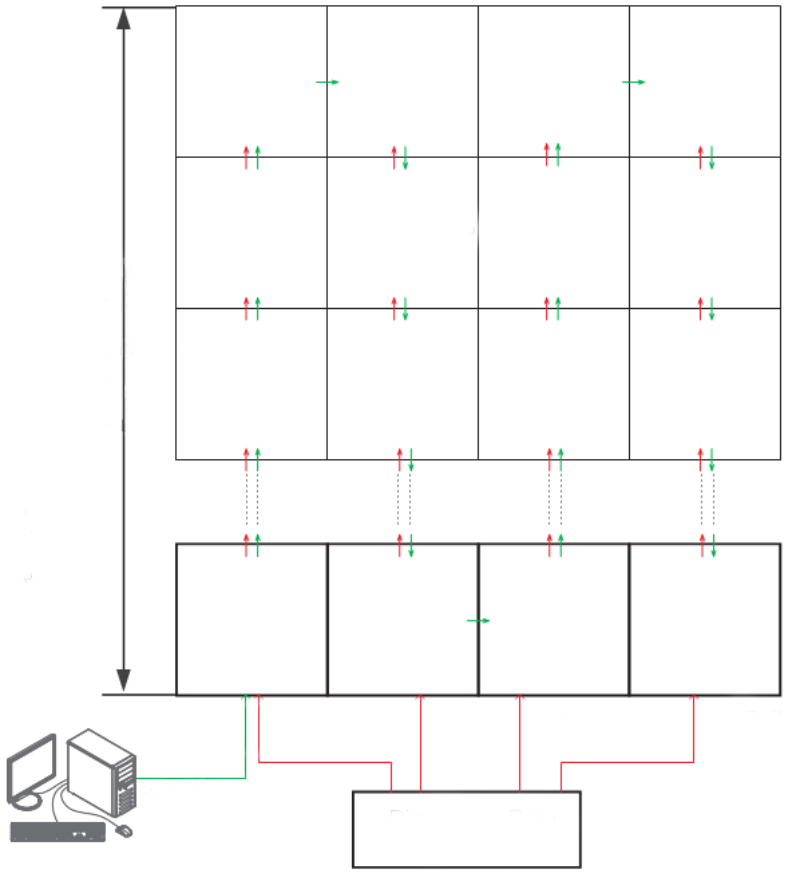
3.2 Standard Loading

Under different cabinet sizes and different input voltages, there are differences in the number of cabinets that can be loaded by wires. The number is shown in the following table:

Use environment	Cabinet size(mm)	Product model	Number of loaded cabinets(220V)	Number of loaded cabinets（110V）
Indoor & Outdoor	500×500	MR4.8	14	7

Please calculate the resolution according to the pixels of each box, and connect the signal lines according to the loading range of the sending card. Note that the range of loaded pixels for each network port cannot exceed 655360 pixels.

3.3 Power and Signal Connection Diagram



4.LED Screen Commissioning

4.1 LED Screen Software Setup

4.1.1 Preparations for Screen Commissioning

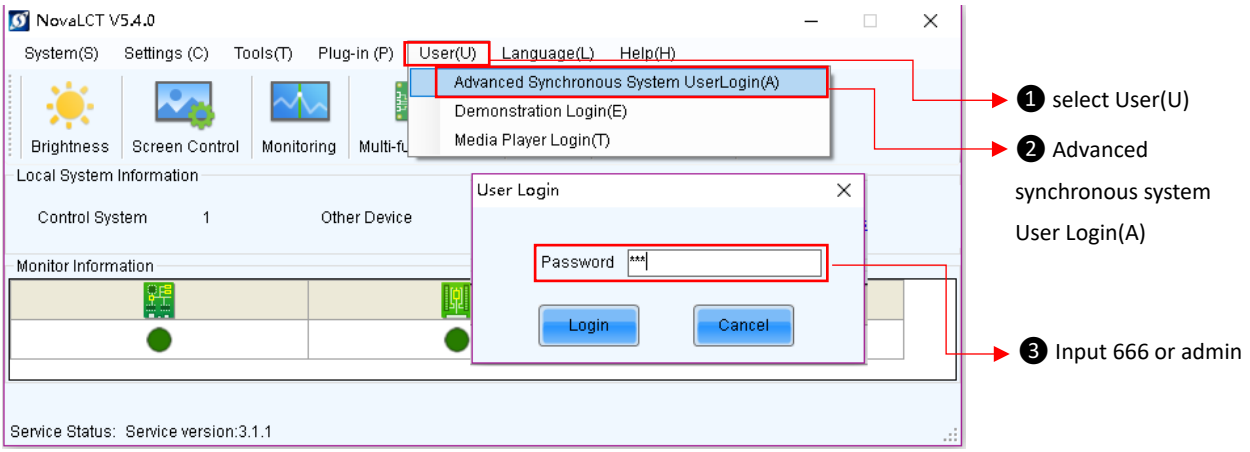
After the screen is installed, confirm that the main signal cables are connected to the controller, the main power cables are connected to the distribution box and the power is turned on, the USB control cable and HDMI cable between the control box and the computer which are connected.

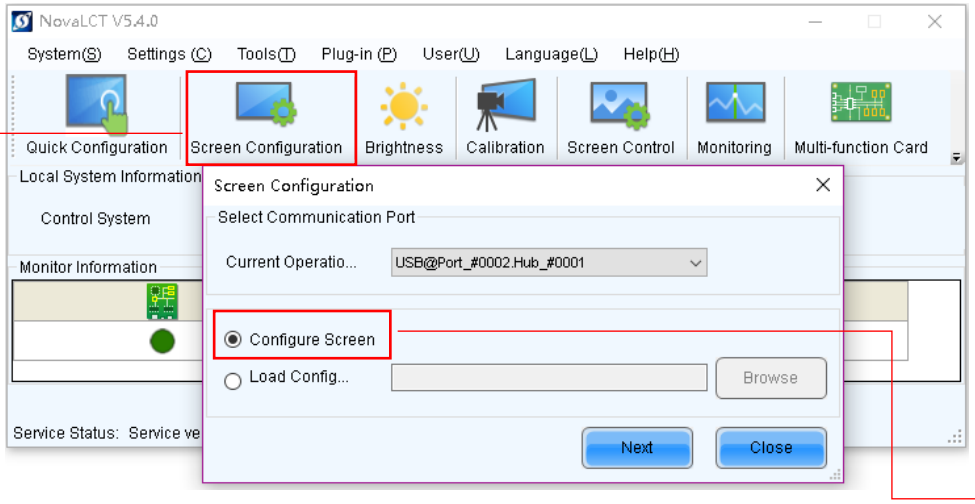
4.1.2 Software Commissioning Steps

Step 1: Set the display mode of the control computer to copy or extend mode. Press the windows + P keys on the keyboard at the same time to enter the computer projection interface, and select the copy mode. Or set up multiple monitors on the computer's graphics control interface. After the setting is completed, the LED display will light up and display the screen content on the computer.

Step2: Install NovaLCT software, run NovaLCT 

, click the menu bar login option-synchronous advanced login, enter the user login password 666 or admin, select the display configuration to enter the configuration interface.

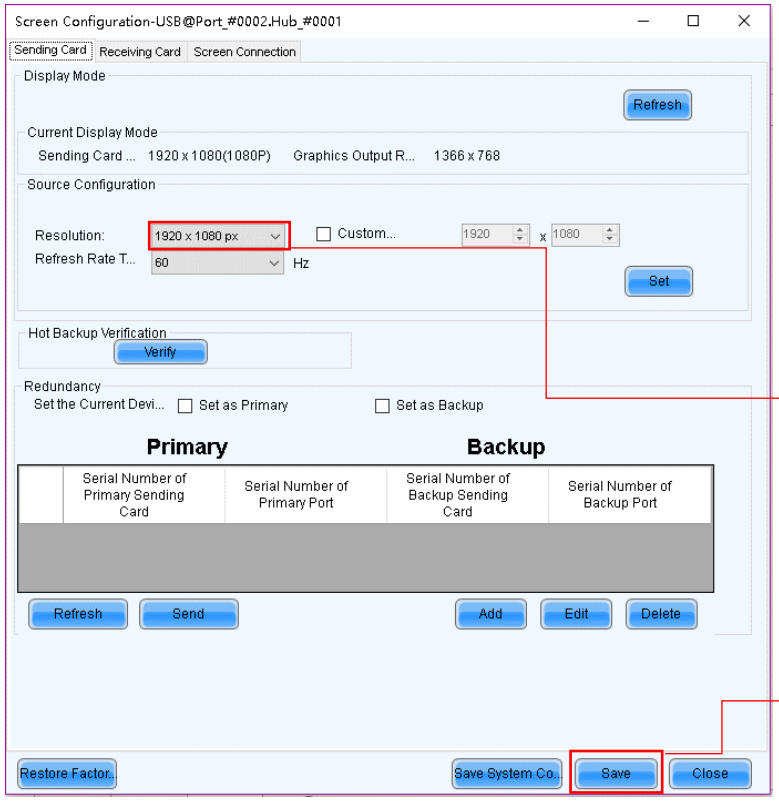




❹ Click Screen Configuration

❺ Select Configure Screen, then go to Next

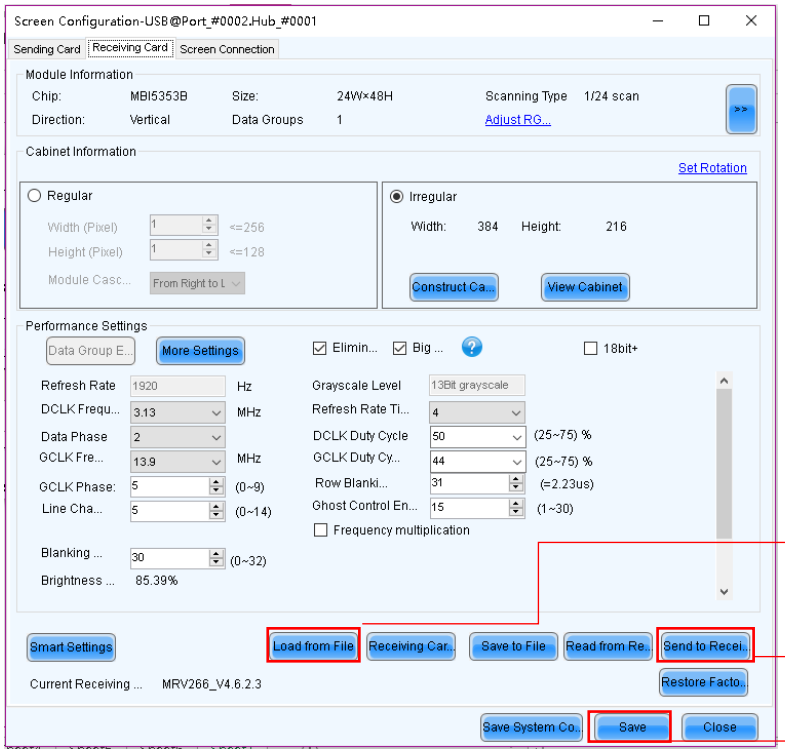
Step 3: Set the parameters of the sending card



❶ Set the resolution equal to or greater than the resolution of

❷ Click Save

Step 4. Set the receiving card parameters



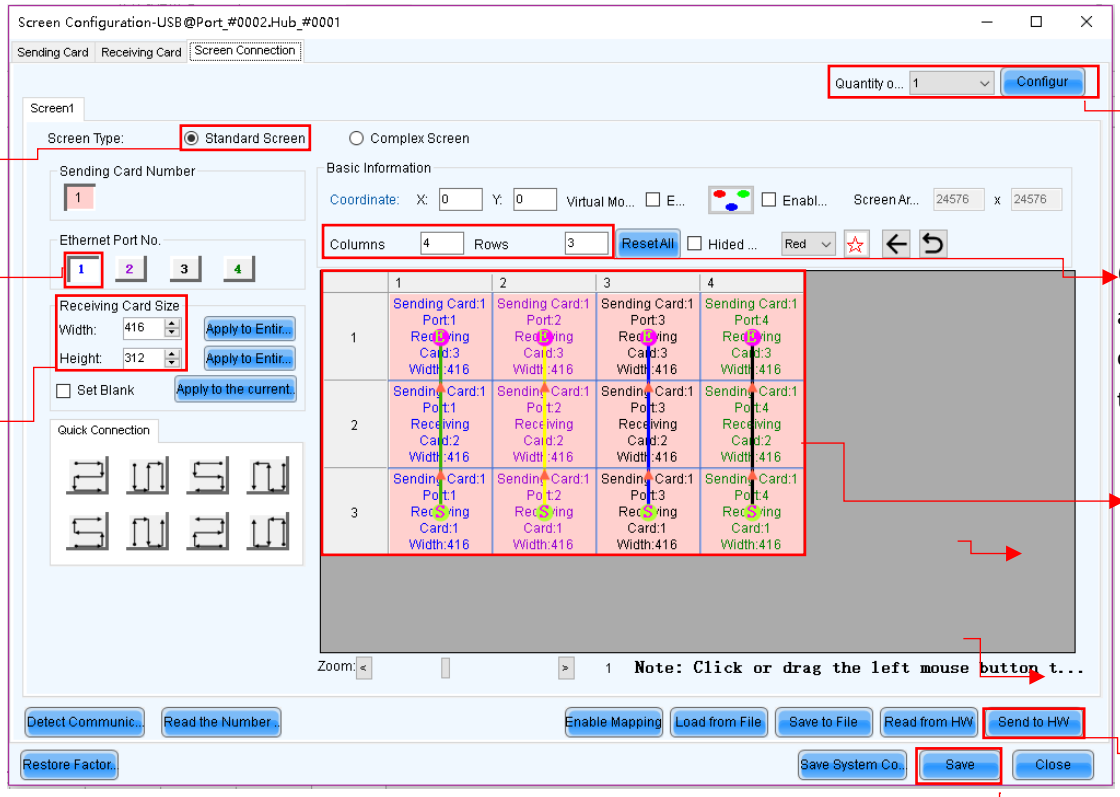
❶Load the rcfgx file from the factory

❷Send to receiving card

❸Click Save

Remark: If the display is abnormal, you can load the rcfgx file provided by the factory and send it to the receiving card.

Step 5. Set the LED screen connection according to the signal wiring.



❷ Choose a standard display

❹Choose the sending card port

❺set the LED cabinet resolution

❶ Configure the number of screens

❸ Set the arrangement of the LED cabinets and generate a topology map

❻ Signal topology diagram (front view of the LED screen), set the connection according to the signal wiring)

❼Send to hardware

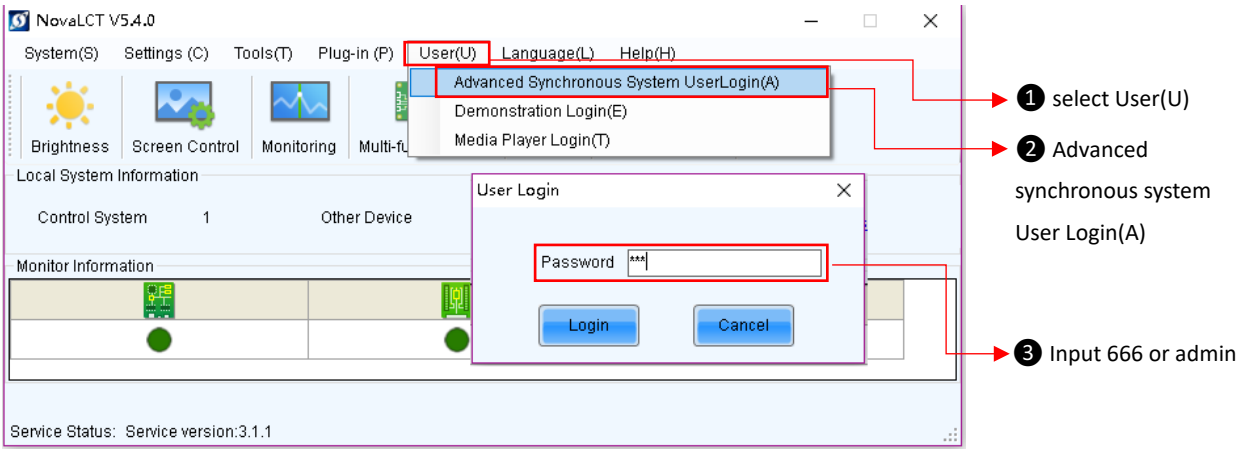
❽ Click Save

4.2 Read Module Calibration Coefficients

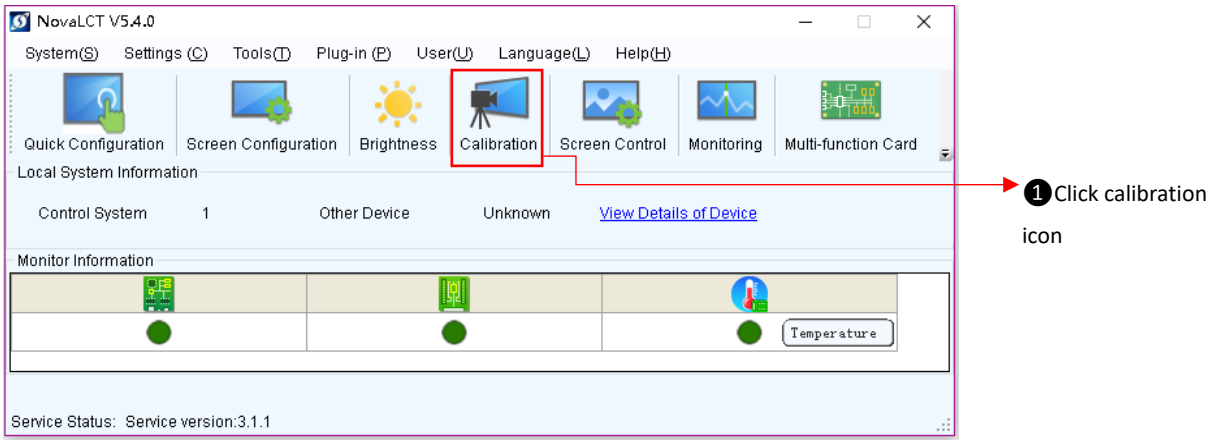
When the LED module or the receiving card is replaced, the display effect of the LED cabinet will become unclear and blurry. You need to read the module light board Flash correction coefficient in the NovaLCT software and save it to the receiving card.

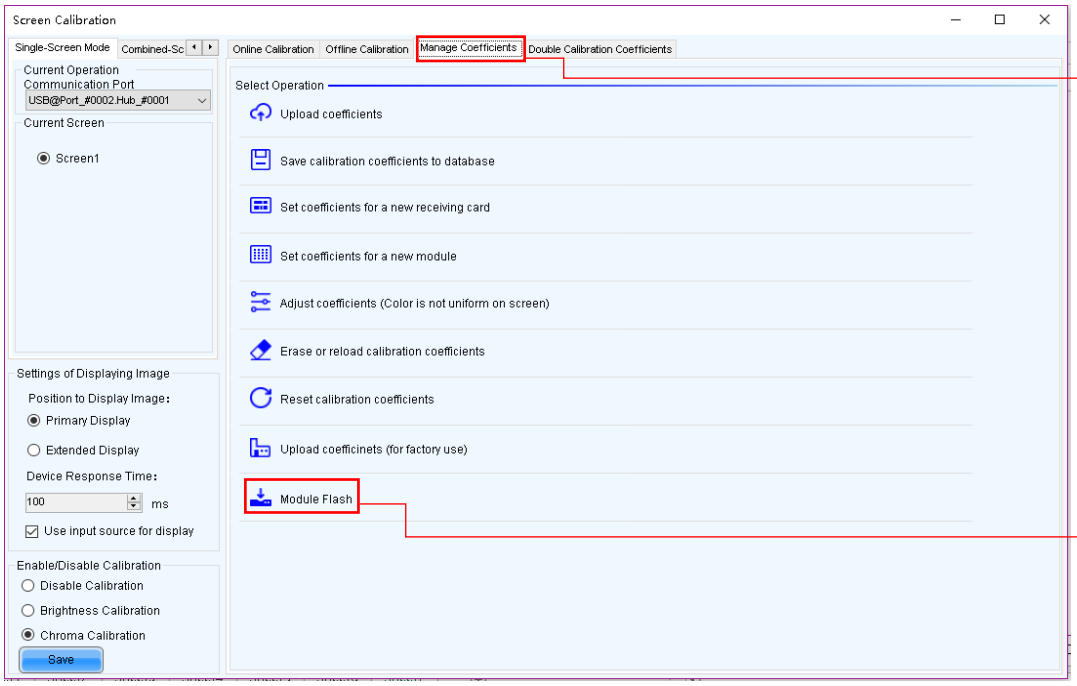
Note: The LED display needs to be configured correctly.

Step 1: Click the login option in the menu bar-Synchronous advanced login, and enter the user login password 666 or admin to enter the user login interface.



Step 2: Click Calibration, enter the screen calibration interface, select the coefficient management, then select the module Flash, select the replacement module or the receiving card, check the module flash coefficient and save it to the receiving card.





❷Choose Manage Coefficients

❸Click Module Flash



❹ Select by Topology

❺ Select the cabinet for replacing the module or receiving card

❻View Module calibration coefficients

❼Save Calibration Coefficients

5.Product Maintenance

5.1Tools Preparation

NO.	Name	Photo	QTY
1	Air pump vacuum suction cup		2pcs
2	PH2 screwdriver		1pcs
3	PH00 screwdriver		1pcs

5.2 Maintenance Instructions

5.2.1 PC Glass Panel Maintenance

The PC glass panel of the MR4.8 floor cabinet can be quickly removed in 8-10 seconds using the air pump vacuum suction cup.: Attach the air pump vacuum suction cup to the module panel to be taken out, press and hold the hand pump for 5-6 down to the contracted state, and then Hold the handle to extract the PC glass panel. Press the air release valve, remove the suction cup, and then attach the air pump vacuum suction cup to the spare PC glass panel to absorb firmly, and then place the entire PC glass panel on the box frame according to the direction indicated.

Step	Photo
Step 1: Attach the vacuum suction cup of the air pump to the surface of the module to be taken out, and press and hold the hand pump 5-6 down to the contracted state.	
Step 2: Hold the handle with both hands and pull out the PC glass panel forcefully.	

Step 3: Press the air release valve, remove the suction cup, and then attach the air pump vacuum suction cup to the spare PC glass panel, and press and hold the hand pump 5-6 down to the contracted state.	
Step 4: Hold the handle with both hands and place the PC glass panel on the cabinet frame	
Note: When placing the PC glass panel, you need to confirm that the direction of the arrow on the back of the panel is consistent with the direction of the arrow on the box frame	

5.2.2 Modules Maintenance

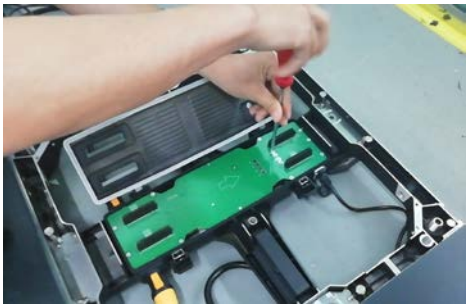
The MR4.8 floor cabinet is composed of 4pcs 250x250mm modules, and the 4 modules are fixed on the connecting plate and fixed with the PC glass panel and assembled into one body.

Step	Photo	
Step 1: Attach the air pump vacuum suction cup to the module panel to be taken out, press and hold the hand pump 5-6 down to the contracted state, and then hold the handle to extract the PC glass panel。		
Step 2: Confirm the location of the faulty module, use a PH2 Phillips screwdriver to remove the 30pcs KM3x6mm screws that fix the module, and remove the connecting piece.		
Step 3: Use a PH00 Phillips screwdriver to remove the 8pcs PM2x6mm screws that fix the module and the glass PC panel, and take out the faulty module.		

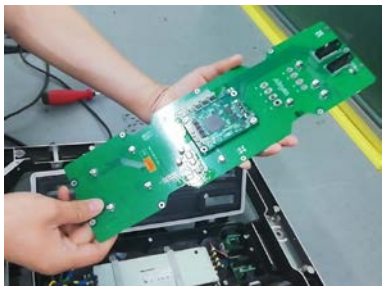
5.2.3 Maintenance of Receiving Card and Adaptor Board

Adapter board maintenance: After taking out the PC glass panel with an air pump vacuum suction tool, open the two buckles of the power box, use a PH2 Phillips screwdriver to remove the 11 screws that fix the adapter board, and then remove the adapter board.



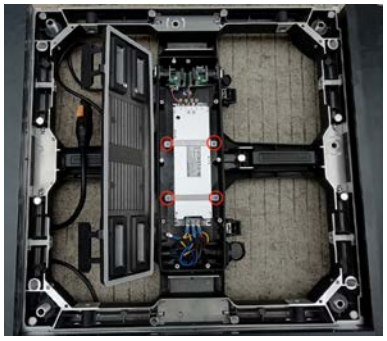


Receiving card maintenance: After removing the adapter board according to the operation in 6.2.3, the receiving card is on the back of the adapter board. Use a PH2 Phillips screwdriver to remove the two screws fixing the receiving card to complete the replacement.



5.2.4 Power Supply Maintenance

Use a PH2 Phillips screwdriver or an electric screwdriver to remove the three screws on the AC input end and unplug the power AC cord, then remove the four screws that fix the power supply, and take out the power supply.

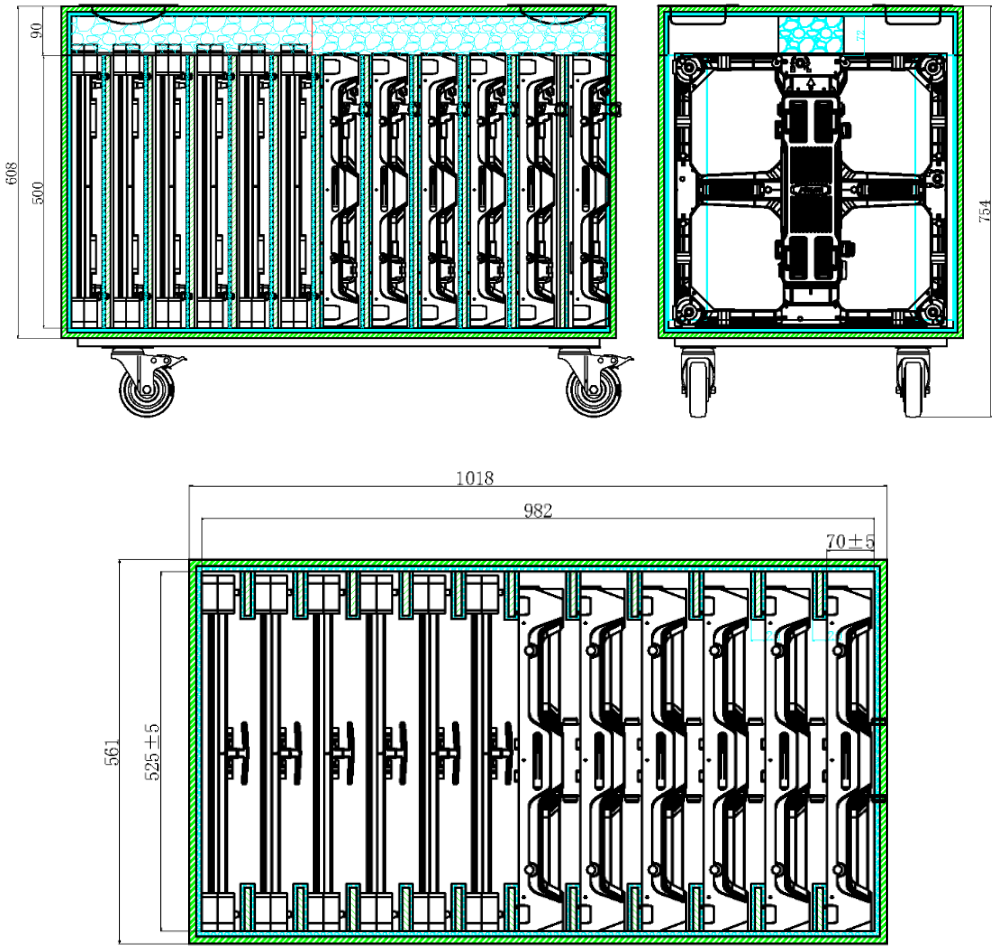




6.Product Packaging

The MR4.8 box body adopts a flight box 1 pack 6 packaging design, and the box body frame and the display panel are separately placed in the same flight box.

Unit: mm



six in one flight case

7.Common Faults and Troubleshooting Methods

NO.	Common faults	Solution
1	Some modules do not light up	1. Check whether the power plug of the corresponding module is inserted tightly;
		2. Check whether the power cord of the corresponding module is burned out;
		3. Check whether the power supply has no output;
		4. Check whether the module ribbon cable is faulty;
		5. Replace the corresponding module cable;
		6. Replace the module;
		7. Replace the receiving card;
		8. Send the receiving card rcfgx file;
2	The whole screen does not light up	1. Check whether the power of the screen is turned on;
		2. Check whether the DVI cable or HDMI cable is loose;
		3. Check whether the main network cable is plugged in tightly;
		4. Check whether the sending card is powered on and the running indicator is flashing;
		5. Replace the sending card;
		6. Connect an LCD monitor and check if the graphics card has output;
		7. Update the graphics card driver;
		8. Replace the computer;
3	Fuzzy screen on the whole screen	1. Check whether the power plug of the receiving card is inserted tightly;
		2. Check whether the power cord of the receiving card is burned out;
		3. Check whether the power supply has no output;
		4. Check the network cable of the receiving card;
		5. Replace the network cable;
		6. Send and receive card parameters;
		7. Upgrade the firmware version of the receiving card;
		8. Replace the receiving card;
4	The module shows color difference	1. Check whether the power plug of the module is inserted tightly;
		2. Check the LED module batch and Order NO.;
		3. Replace the LED module
		4. Check the module calibration coefficients
		5. Replace the receiving card;
5	The display content of all LED cabinets is the same	1. Set the display connection;
		2. Whether the network port of the sending card is inserted incorrectly;

6	The control system is not detected	1. Check the USB cable;
		2. Check whether the computer USB port is faulty;
		3. Update the USB driver;
		4. Replace the USB cable;
		5. Replace the sending card;
7	Multi-function card is not detected	1. Check whether the distribution box is in automatic state;
		2. Check whether the multi-function card has electricity;
		3.Replace the power supply of the multi-function card;
		4. Check whether the main network cable is plugged into the wrong sending card network port;
		5. Check whether the network port of the sending card is faulty;
		6. Add a multi-function card again;
		7. Replace the multi-function card;
		8. Replace the sending card;
8	The LED display is not full screen	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.

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