MLED COG Installation Manual

V 1.0

BOE MLED Technology Co., Ltd.

Table of Contents

Chapter 1 Display Installation

1.1. Screen Frame Structure Installation

1.1.1. Installation Tools

Hexagon wrenches M5/M6, Phillips screwdrivers, LED suction cups, etc.

Tools for structural frame inspection and calibration include: level ruler, feeler gauge, laser level, etc.

Hexagon wrench	shaft screw (for cabinet locking),	laser level	M6 cabinet fixing screw	suction cup
				

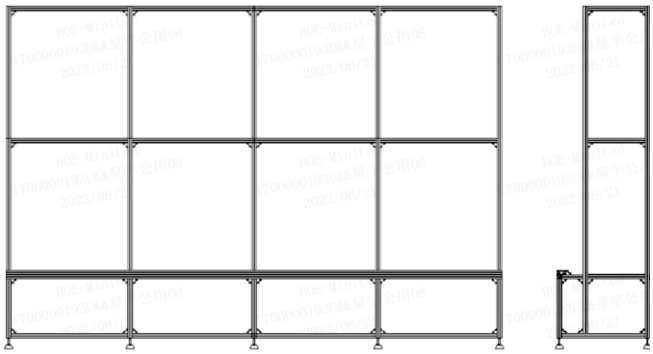
1.1.2. Necessary Accessories

40 aluminum profile, M6 combination screws, T-nuts, 40 corner brackets, alcohol, class 100 clean cloth, etc.

1.1.3. Floor-standing Screen Frame Installation & Leveling

1. Fabricate the screen support according to the cabinet drawings and site requirements. Confirm in advance whether the display surface protrudes from or is flush with the wall. Support materials can be 4040 profile or 4040 square steel.

2. Determine the installation position on site, assemble the prepared accessories to the corresponding positions, then check against the drawings to ensure all accessories are properly installed.



3. Level Adjustment

After the screen frame is installed, check the flatness with a level meter.First, use a laser level to inspect the front verticality of the screen frame and correct any deviations.Then check the levelness of the bearing surface for the bottom cabinets on the support. Adjust if the requirements are not met.

Once the screen frame installation is completed, place the cabinets on the frame according to their corresponding positions.Reserve sufficient space for the power input cables at the power input terminals of the cabinets.

1.2. Rules for Cabinet and Display Panel Assembly Sequence

During cabinet and display panel installation, strict compliance with the coding and installation rules is required.The cabinet layout drawing and module layout drawing will be packaged together with the product.Before installing the cabinets, you must locate the corresponding positions of the cabinets according to the cabinet layout drawing; otherwise, abnormal screen display will occur.

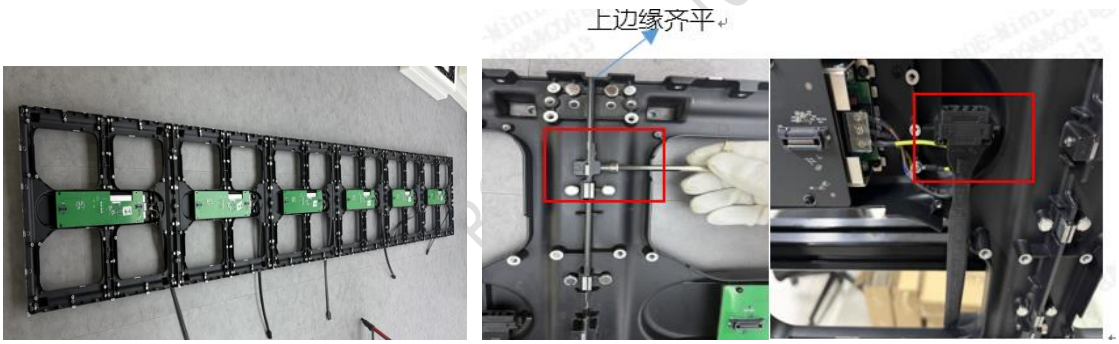
BOX 3-1	BOX 3-2	…	BOX 3-N
BOX 2-1	BOX 2-2	…	BOX 2-N

BOX 1-1	BOX 1-2	…	BOX 1-N

Box Arrangement and Numbering Rules

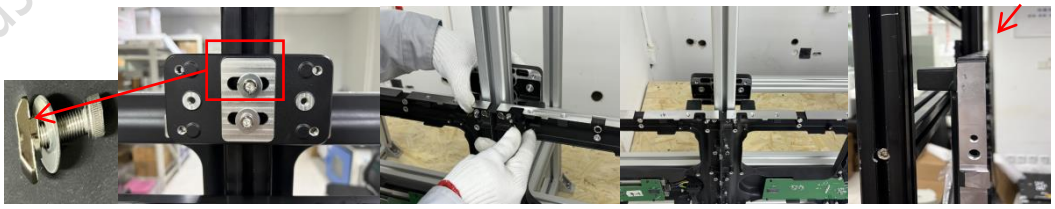
1.3. Cabinet Installation

1. Reasonably allocate the number of connections between cabinets according to the project scale. Taking 4K resolution as an example, lay out six cabinets flat on the ground. Use a hex wrench to lock the three axis screws between the short sides of each cabinet. During installation, ensure that the top edges of the cabinets are flush and that the cabinets are aligned smoothly to the touch in the Z-direction. Place the locked cabinets horizontally on the first row of the screen frame, and pay attention to the position of the power cable inlet.



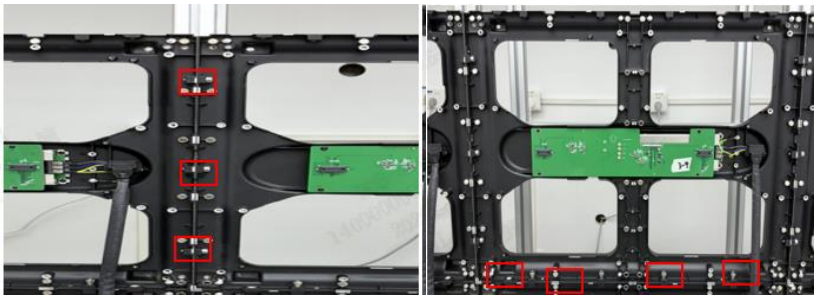
2. After the cabinets are secured to one another, they need to be fixed to the screen frame.First, fix the butterfly plates to the profiles using T-nuts on the back of the cabinets.Then, after mounting the cabinets onto the screen frame, use one butterfly plate to secure every two adjacent cabinets.

Do not over tighten the connection between the cabinets and the butterfly plates.After tightening, verify that the cabinets are level and free of distortion or deformation.



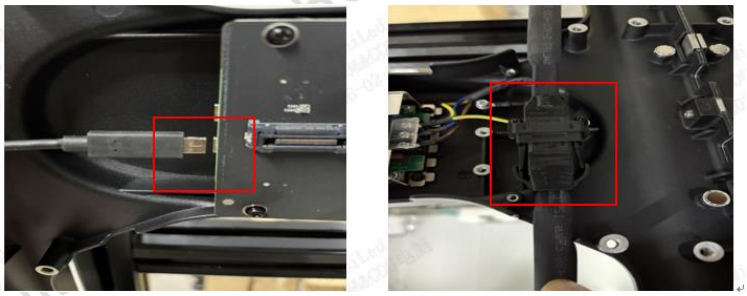
3. After fixing the first row of cabinets, install the second row in the same way.Place the second-row cabinets onto the first row by aligning the corresponding grooves.Secure the cabinets to each other with axis screws: seven axis screws per cabinet， tightened just enough for firm

fixation.At the same time, install and fix the butterfly plates on the rear side of the second row.



4. During cabinet installation, ensure that each row of cabinets has no obvious misalignment in the X-direction and no noticeable step difference in the Z-direction, and that all cabinets are horizontal, vertical and neatly aligned.

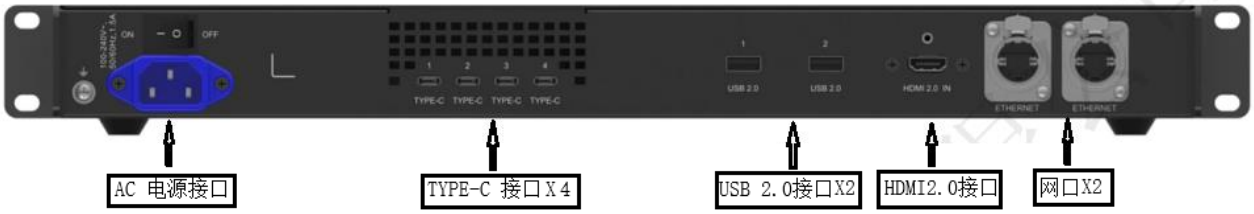
After the cabinets are assembled, start connecting the power cables and Type-C cables.Connect the female connector of the T-type power cable to the corresponding male power connector on the cabinet.Connect the Type-C cable to the receiver card. Note: The side of the Type-C port on the receiver card marked with the “J” logo should face outward.



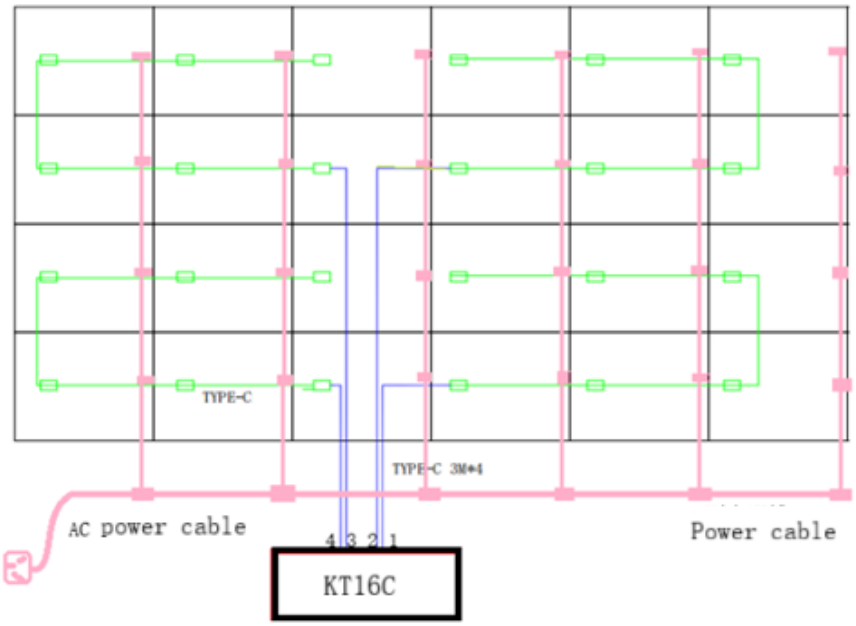
5.Wiring between Cabinets, Sender Box and Computer

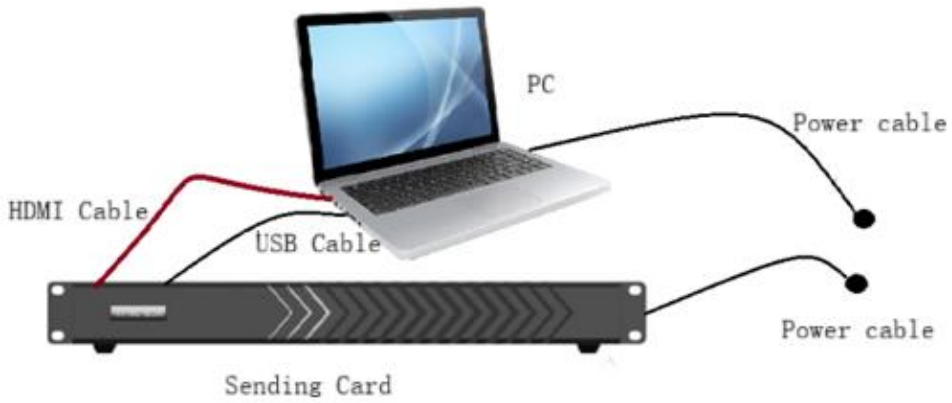
(1) After connecting the Type-C cables and power cables of the cabinets according to project requirements, perform the signal connection test (card detection) for the receiver cards.

(2) After connecting with the sender box using the Type-C cable (Note: The non-patterned side of the Type-C port on the sender card must face upward), connect the HDMI cable and square USB control cable of the sender box to the computer, then power on the sender box.



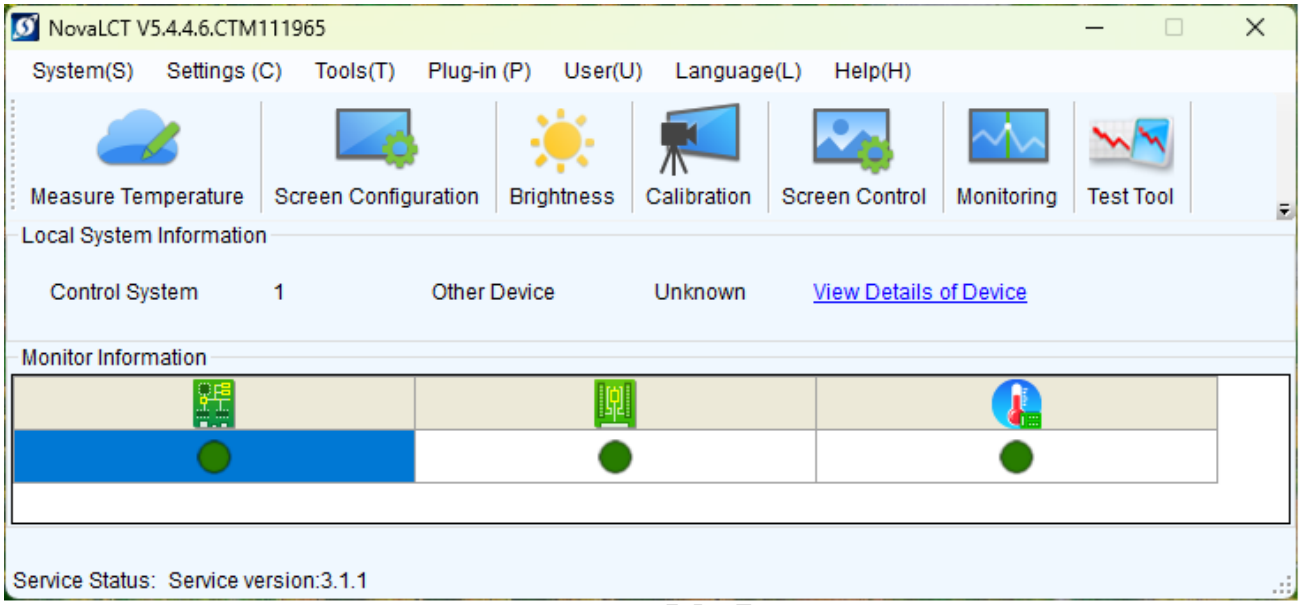
发送盒子KT16C 接口图

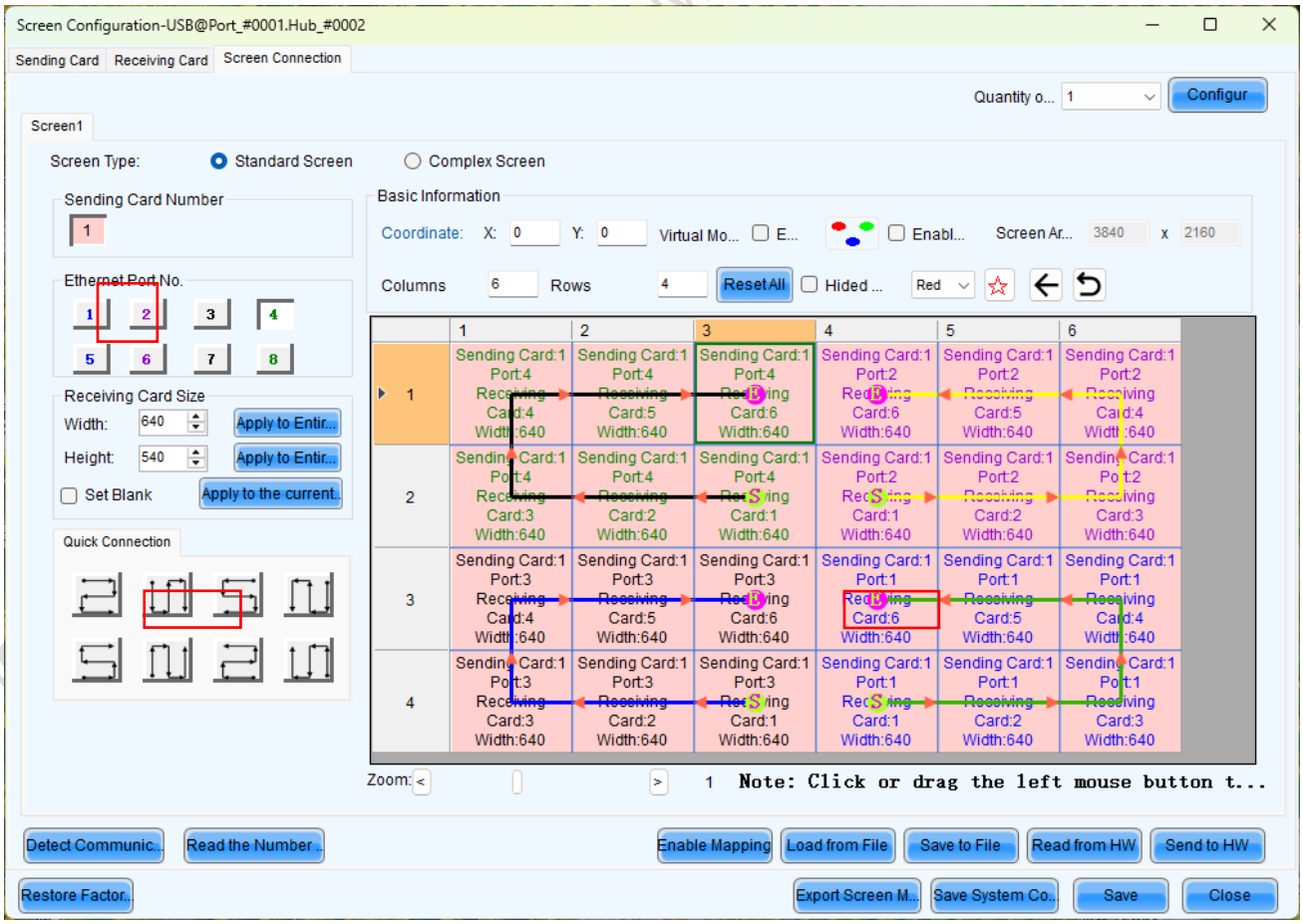




(3) Install the COG-specific LCT using the installation package.

(4) Open LCT, click Log In, then select Sync Advanced Login.Enter the password 666.Open Display Configuration, then click Display Connection.Set the light panel resolution to 640 × 540.Configure the display according to the project size and wiring layout.Click Send to Hardware.





6. If the number of receiver cards matches the installed quantity for the project, the wiring

connection is normal, and you may proceed to install the modules.If the number does not match the installed quantity, troubleshoot the cause of the abnormality and resolve it.

1.4. Display Panel Installation

Before installing the panel, please check the panel number. (The panel must be installed strictly according to the code and coding rules, otherwise it may cause abnormal screen display). First, install the modules in the bottom row of the screen, and install them sequentially from left to right. Use a laser level to horizontally align the first row of modules, ensuring that the modules are on the same line. Then, install the second and third rows of modules in sequence, also following the left-to-right order. (During installation, keep the top edges of the modules aligned and ensure there is no misalignment between adjacent modules).

Installation Steps:

1. Put on fitting gloves to avoid leaving marks on the module surface. Then use a suction cup to attach the bracket, making sure the suction cup avoids the seams of the module. Since the screen has been color-calibrated at the factory and there is corresponding code on the front of the module, install it from left to right accordingly. When installing, pay attention to the directional arrow on the bracket behind the module, and make sure it is aligned with the arrow on the cabinet HUB and the arrow at the center top of the Cabinet. During installation, first align and fit the positioning holes of the module bracket with the positioning posts of the cabinet. Then push the module upward and to the right, and slowly connect the module connector. After installation, gently shake the module left and right to ensure that the module connector is securely connected with no loose contact. To prevent the calibration data from being unreadable during the installation process, do not remove the label attached to the module while installing. Remove the label only after all modules have been installed and are displaying properly.



Suction cup attachment avoids seam positions

Align the positioning holes on the top of the module with the positioning posts of the cabinet.

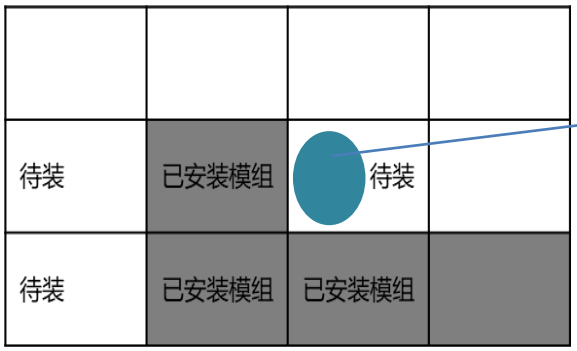
Push up and to the right to lock into place, then pull back down and to the left after installation.

Start installing from the bottom left corner and proceed row by row.

2. When installing a new display module, apply slight force in a direction away from the already installed modules, and slowly connect the module connector to the Cabinet HUB connector. Install it without misalignment to reduce the risk of the newly installed module touching the neighboring edges of the already installed modules, and do not touch the glass side with your hands. After the connector is installed, slowly move the module down to the left to adjust the seams.

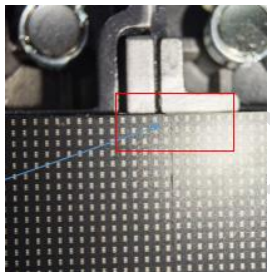
Module offset to the upper right

3. When installing the display module, it should be brought into contact with the cabinet slowly to avoid impacts caused by magnetic attraction, which could cause separation of the adhesive layer at the edges of the black film. During installation, the suction position of the suction cup should be close to the already installed module to prevent sudden magnetic attraction of the cabinet from causing instant adhesion, which may result in collision risk.

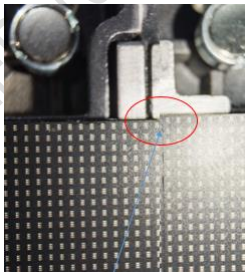


1. If there is an already installed module in the lower left corner of the newly installed module, the suction cup attachment position should be biased toward the lower left position to prevent the newly installed module from suddenly adhering to the cabinet under magnetic force, causing its lower left corner to collide with the installed

4. After the display module is installed, the pixel stitching of the module should be checked. If there is any pixel misalignment, it should be adjusted promptly to prevent module display abnormalities, collisions, and other issues.



The upper edges are flush with no misalignment



Module installation misalignment needs to be adjusted

Chapter 2 Display System Installation and Commissioning

2.1. Device required to light up the screen

LED Display Screen, Signal Connection Cable (HDMI cable), Signal Connection Cable (TYPE-C cable), Power Cable, Sending Card (Box), USB Data Cable, Control Computer.

2.2. Display screen control computer configuration and operating environment

1.Minimum hardware configuration

CPU：Intel Core i510400f processor @ 4.3GHz (6 CPU cores) or better;

Graphics Card：NVIDIA GeForce GTX1080(8GB) or better;

RAM：16GB RAM or better;

Hard drive：500GB or better;

System：Win XP/2003/Vista/7/10/11;

Network：No requirements;

Monitor：3840x2160 Resolution;

2. Recommended configuration

CPU：Intel Core i710700 processor @ 4.8GHz (8 CPU cores) or better;

Graphics Card：NVIDIA GeForce GTX2080(8GB) or better;

RAM：16GB RAM or better;

Hard drive：500 GB or better;

System：Win XP/2003/Vista/7/10/11;

Network：No requirements;

Monitor：3840x2160 Resolution;

2.3. Control Device Installation

1.Connect the computer graphics card and the sending card (box) with an HDMI cable, connect the computer and the sending card (box) with a USB data cable, connect the sending card (box) and the LED display with a signal connection TYPE-C cable, and plug the power cords of the computer and the sending card (box) into the socket.

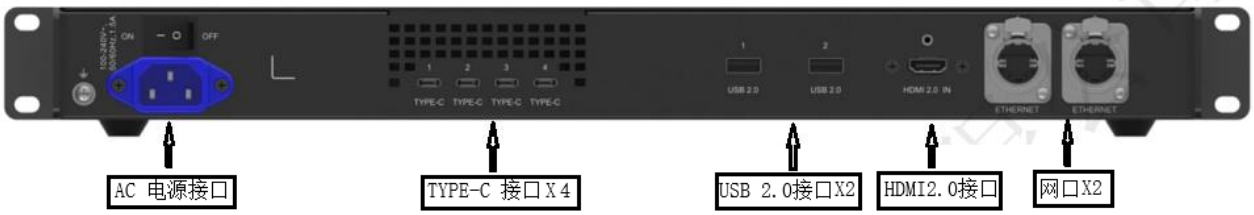
2. Power on the display, computer, and sending card (box).

Note: The USB data cable is used for transmitting control signals (such as power on/off, receiver card data) between the computer and the sending card (box).

Connect the USB-IN port of the sending card (box) to the computer's USB port with a USB cable.

Insert the LED display's TYPE-C cable into the TYPE-C output port OUT1-OUT4 of the sending card (box).

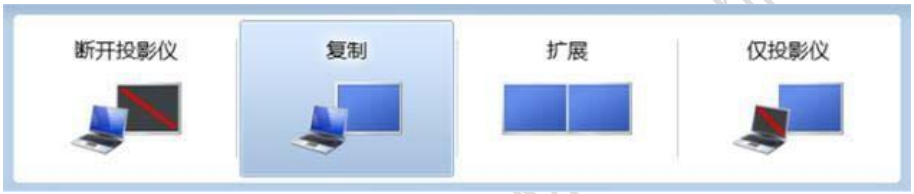
Plug the HDMI cable into the HDMI-IN port of the sender card (box).



发送盒子KT16C 接口图

2.4. Graphics Card Settings

Win7/Win8/Win10 Systems: Right-click on the desktop — Screen Resolution — Detect, select Extend mode, or use the Windows  + P shortcut keys to choose Duplicate mode or Extend mode.



1. Duplicate mode: The LED display shows content starting from the top left corner of the computer desktop. It is consistent with the desktop content.

2. Extended mode: The content on the LED display is the virtual screen extended from the far right of the computer desktop, and the content displayed on the computer desktop does not affect the display content on the LED screen.

3. Computer-only mode: The LED display screen is black with no content.

2.5. Display Screen Software Settings and Connection

2.5.1 Software Installation

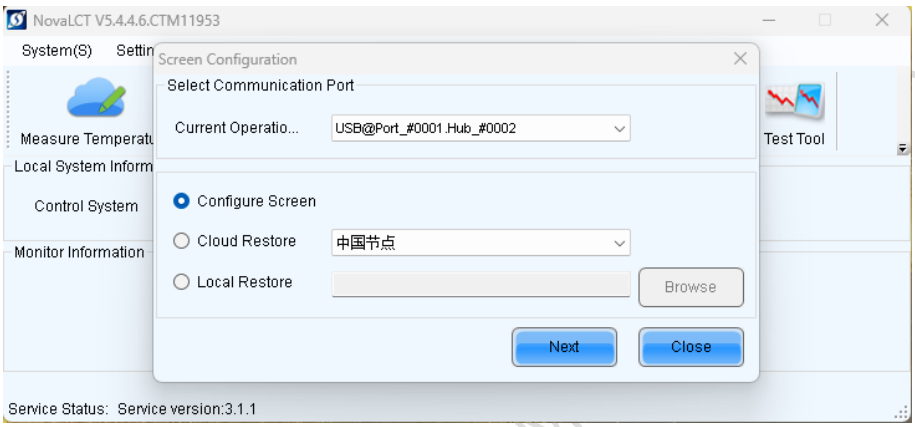
In the accompanying document bag, find the provided USB drive, and copy the files and programs inside to the computer. In the folder, find NovaLCT (Setup.exe) and double-click to open it; select the language you need to install (Simplified Chinese/English/Traditional Chinese) and click OK, then follow the instructions of the installation wizard to complete the software installation. If a firewall prompt appears, please choose to allow it. When the installation is successful, a shortcut  will be displayed on the desktop, and  and  will be shown on the taskbar.

2.5.2 Configure the Sending Box

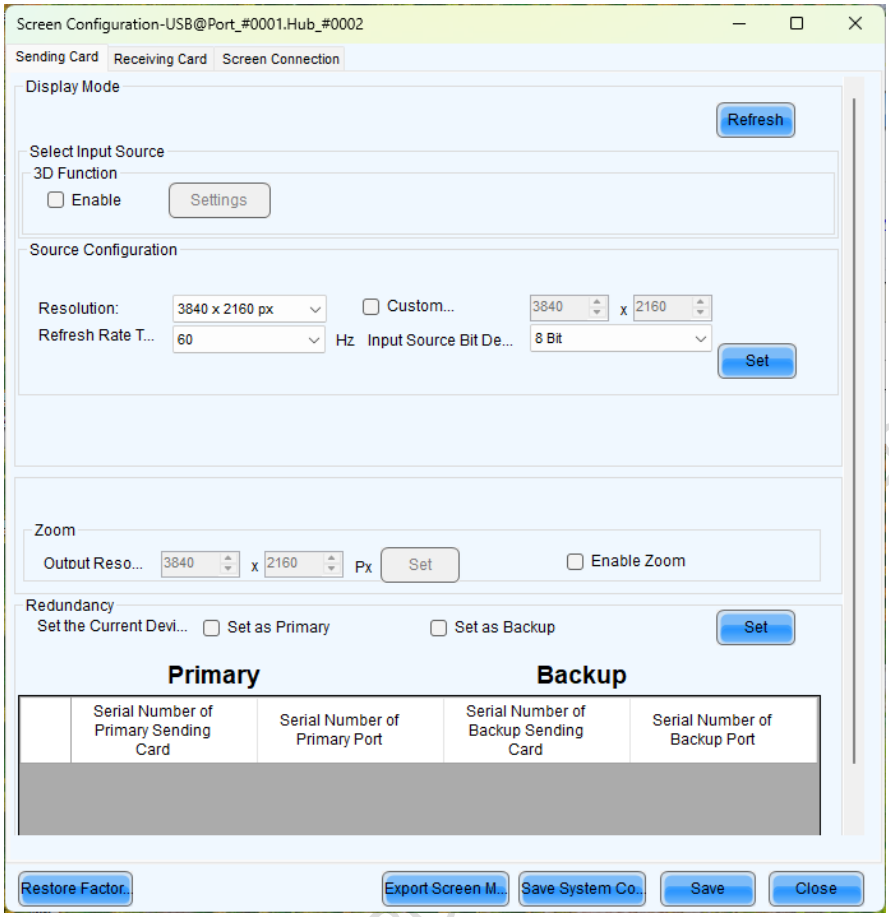
1. The sending box is generally already configured. If it is not configured, follow the steps below to configure it.

2. Select 'User > Advanced Synchronous System User Login', enter the password '666' to log in to configuration mode.

3. Select 'Screen Configuration > Next' to enter the screen settings window, as shown in the figure.



4. The sending card (box) configuration window can configure the video input source. Please select the corresponding signal source according to the actual usage situation, as shown in the figure. Selecting 'Auto Select'（待确认） can automatically recognize the signal source.



5. Configure Signal Source (Control Computer)

Copy Mode: Set the resolution of the sending card (box) to the computer graphics card resolution.

Extended Mode: The resolution of the sending card (box) can be set to the computer graphics card resolution or to another resolution. It is generally set according to the actual screen resolution, otherwise problems such as incomplete display or cropping of the image may occur.

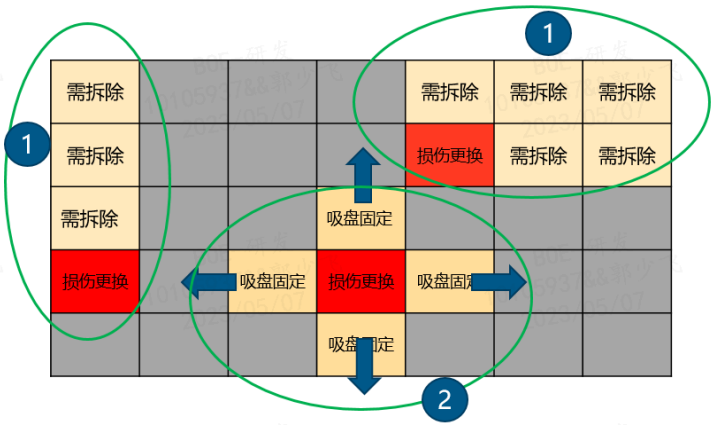
6. Click 'Save' to save the configuration parameters to the sending card (box).

Chapter 3 Cabinet Unit Replacement and Adjustment

3.1 Cabinet Unit Replacement

① When replacing, if the number of adjacent modules that need to be removed is ≤5EA, all modules in the upper left, upper right, lower left, or lower right should be removed before replacement. After replacement, reinstall the removed modules according to the module position numbers to their original positions;

② When the module in the middle of the screen needs to be replaced due to damage, push and pull the adjacent modules around the replacement position, and use a suction cup to vertically pick up and place the module to be replaced.



Precautions:

1. Whenever performing module disassembly and maintenance work, the power must be turned off for more than 10 minutes to ensure that the display screen cools down to room temperature.

2. When disassembling and maintaining the module, the display module in this position should first be moved within the X/Y plane to prevent adhesion between modules.

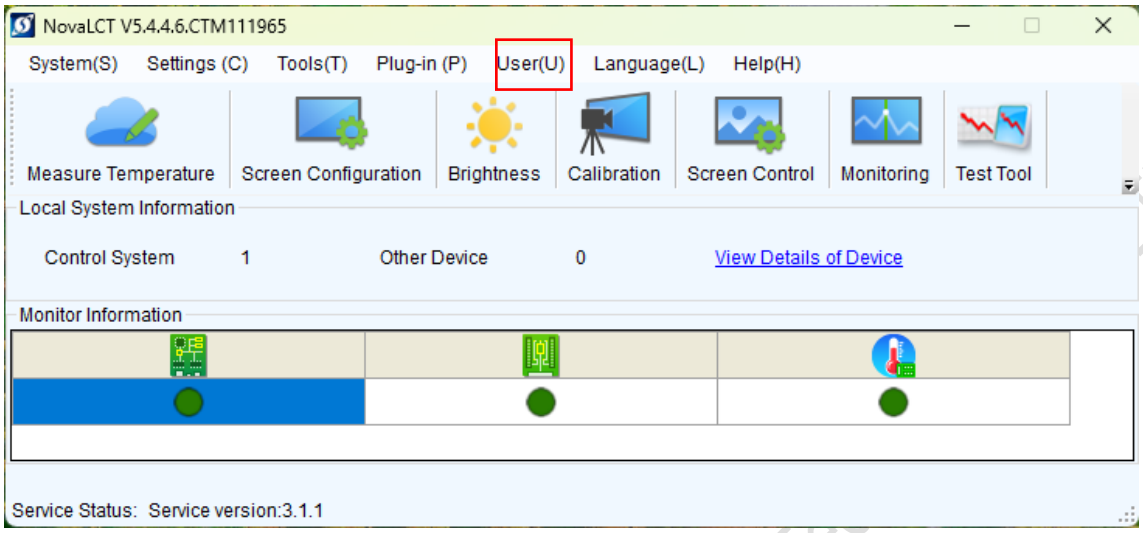
3. When disassembling the module, the module to be removed should first be moved in the empty direction to create a gap with the adjacent module. Then the module should be removed vertically with force.

4. When disassembling the module, measures should be taken to prevent adjacent modules from sticking and falling, and tools or manual assistance can be used to secure the surrounding modules.

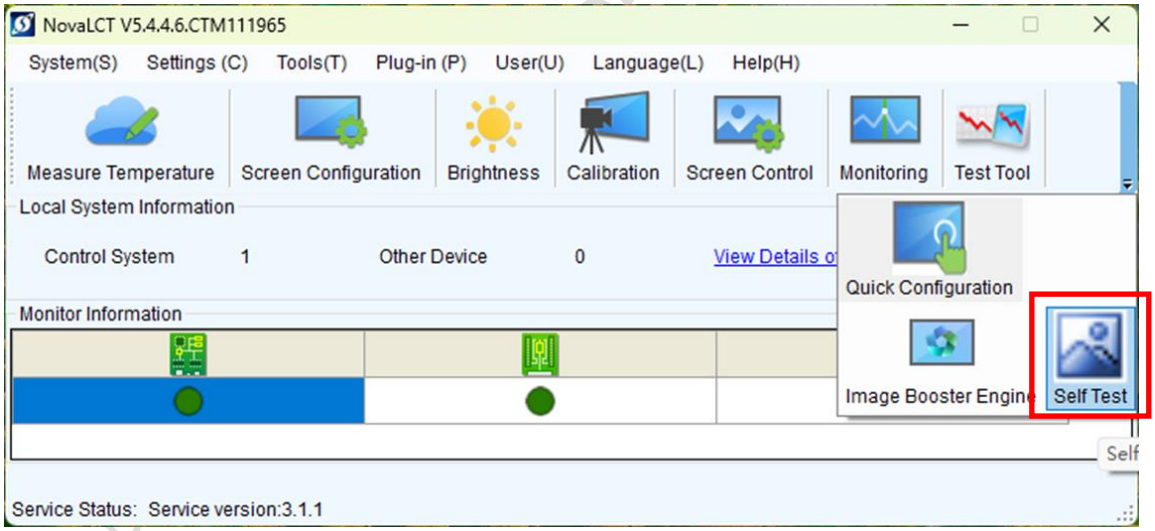
5. Repeat the aforementioned installation steps during installation

3.2 Module Gamma data read back to the receiver card

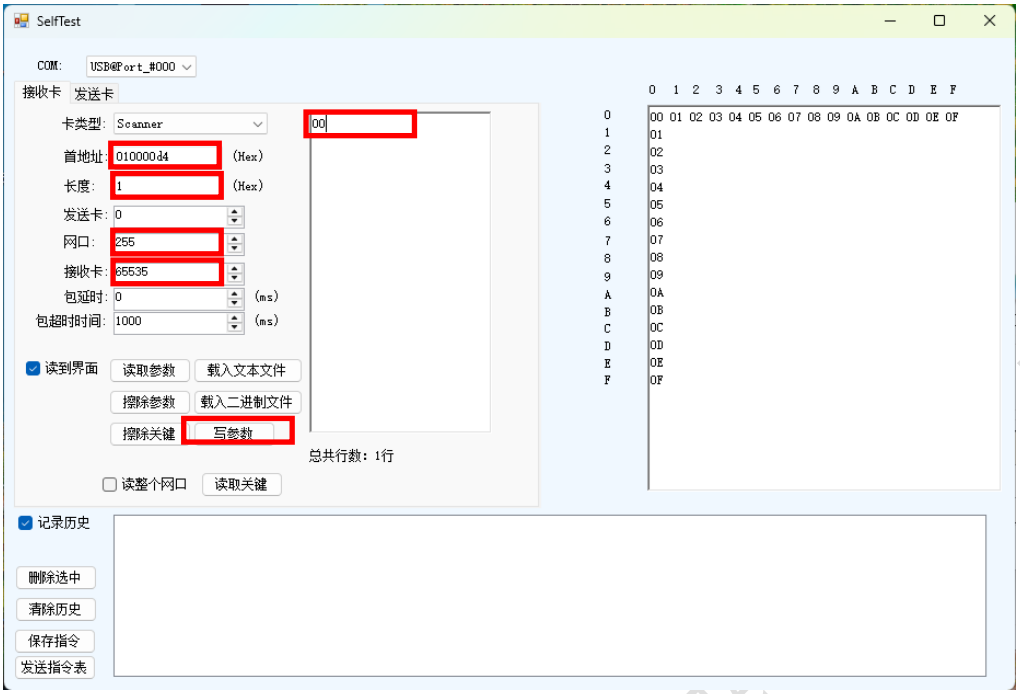
① Open LCT, click on Login, synchronize advanced login, and enter the password 666



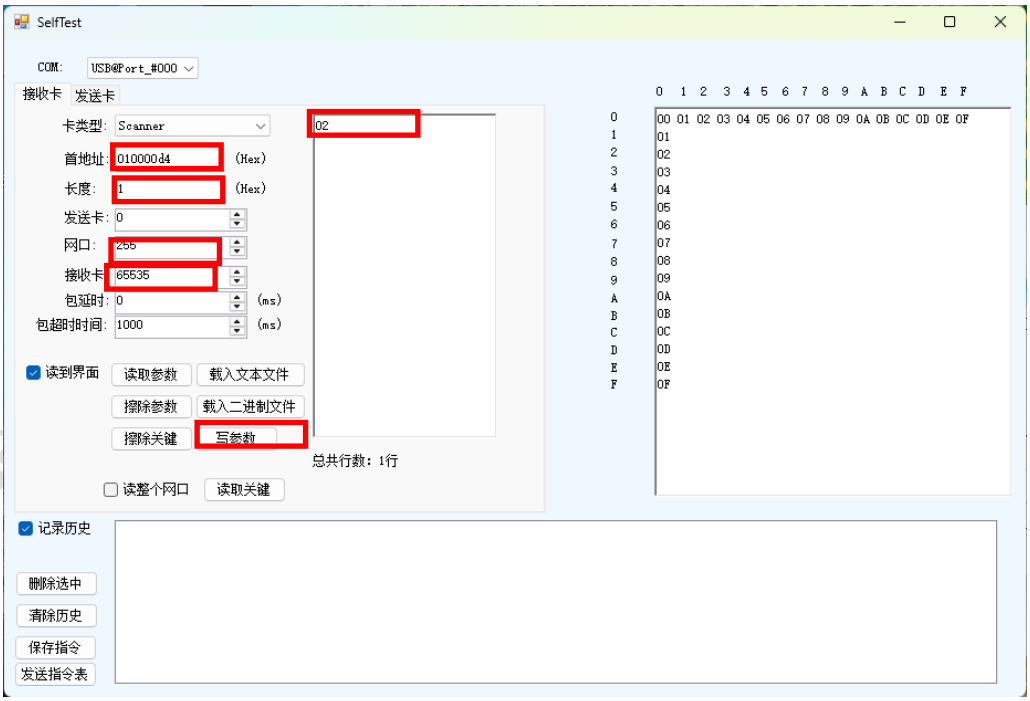
②Click on the blank area of LCT to enter "SelfTest", which will pop up the self-test button, then click the self-test button.



③Read the Gamma DAC value to the receiving card. In the pop-up window, enter the starting address as 010000d4, length as 1, network port as 255, receiving card as 65535, and value as 00, then click "Write Parameters".

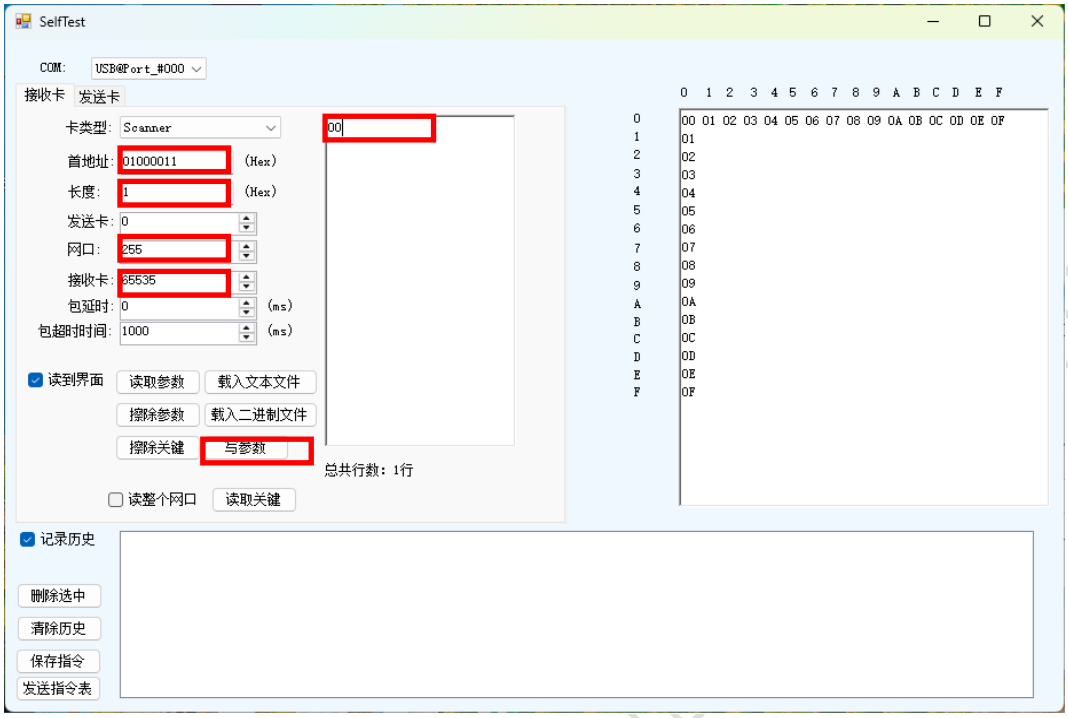


④Read the Gamma DGC value to the receiving card. In the pop-up window, enter the starting address as 010000d4, length as 1, network port as 255, receiving card as 65535, and value as 02, then click "Write Parameters".



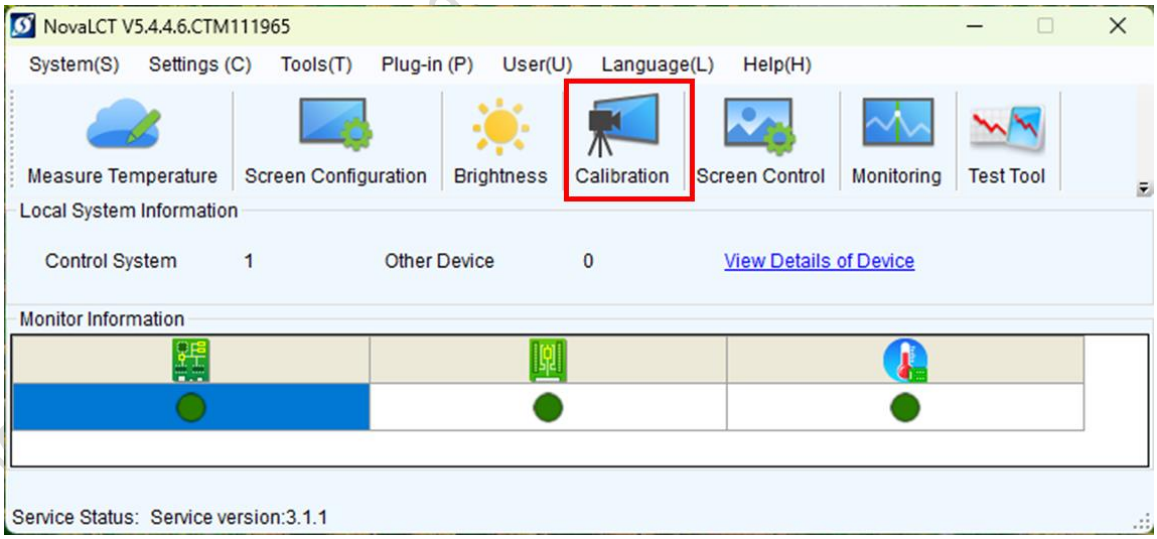
⑤Save the Gamma value to the receiving card. In the pop-up window, enter the starting address as 01000011, length as 1, network port as 255, receiving card as 65535, and value as 00,

then click "Write Parameters".

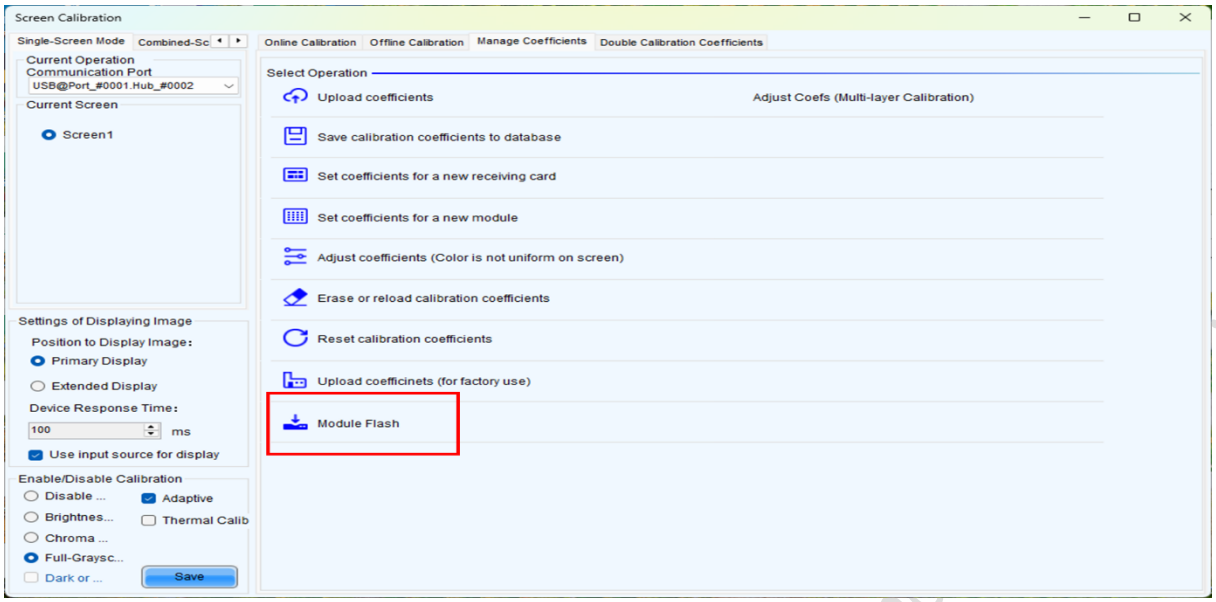


3.3 Read back the module's calibration data to the receiving card.

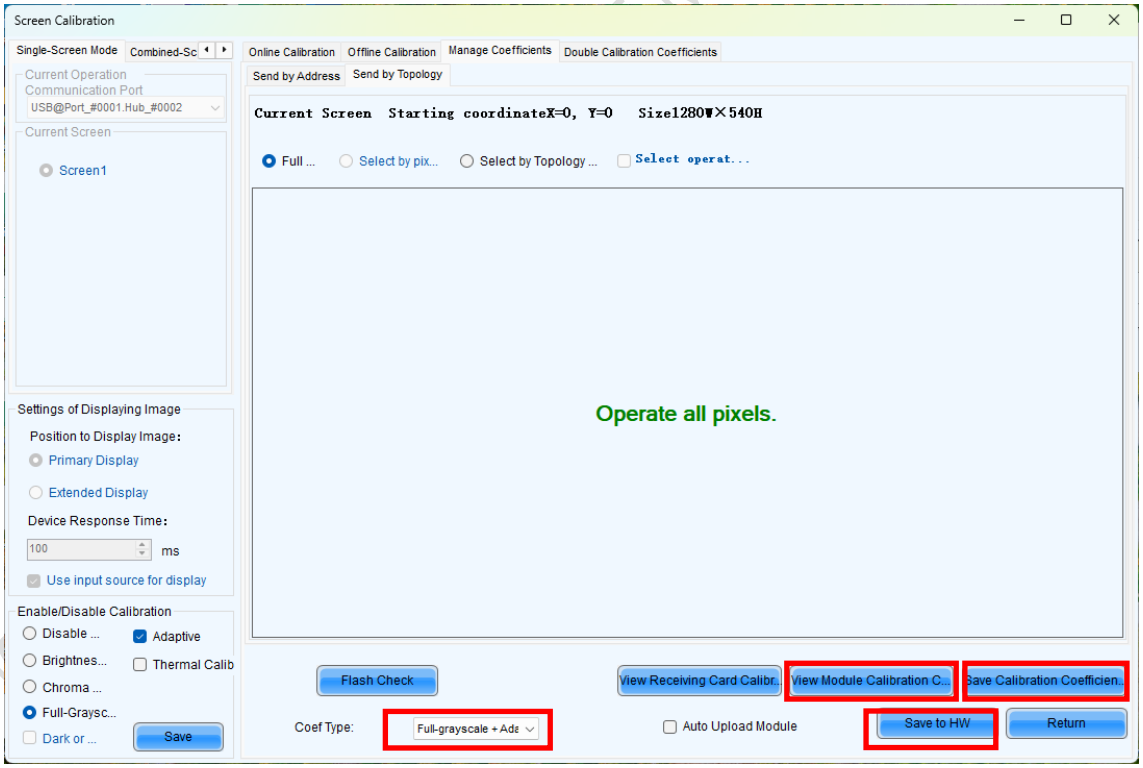
①Click the calibration button in LCT.



③Click Coefficient Management and select Module FLASH.

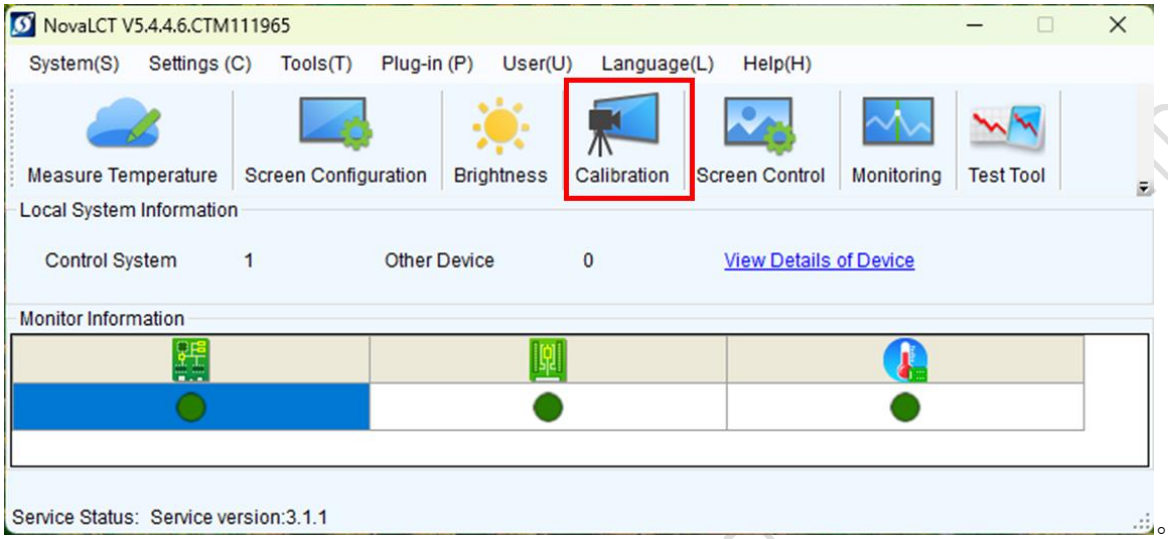


④ Select the coefficient type: Full Grayscale + Adaptive Calibration. Click to view the module calibration coefficients. After the readback is complete, click Save Calibration Coefficients to Receiving Card. Finally, click Save to HW . The module Calibration coefficient readback is complete.

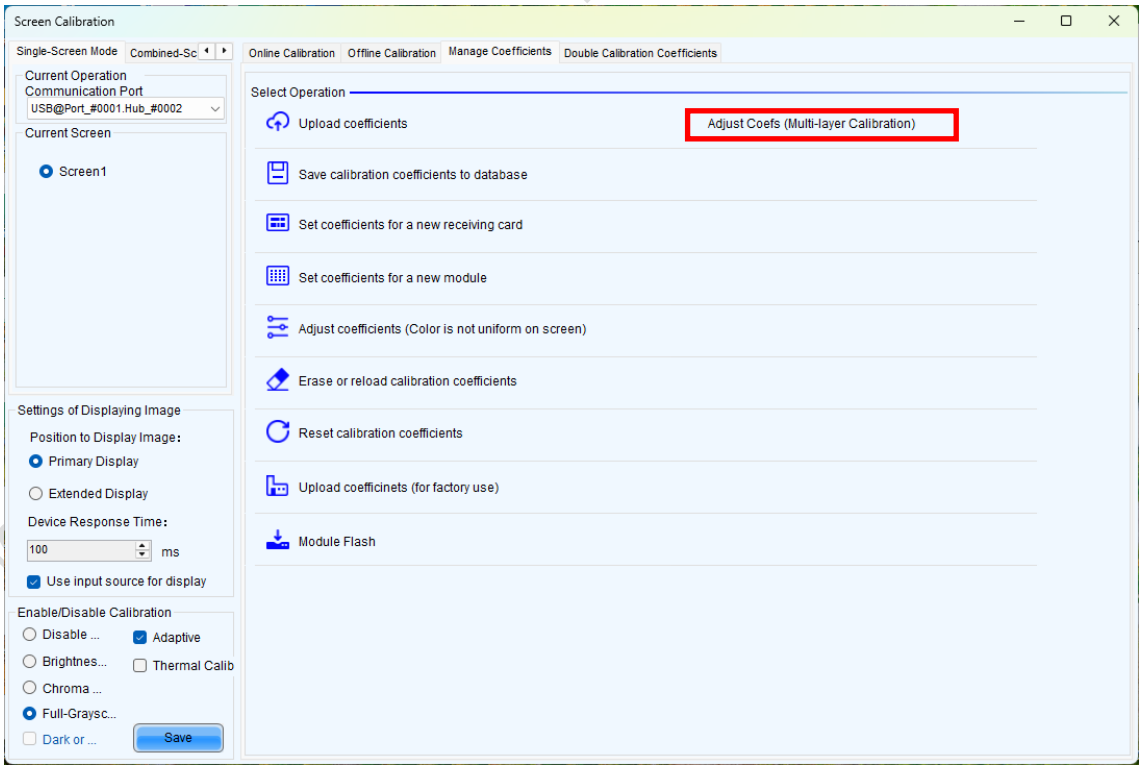


3.4 Fine-tune the module's calibration data.

①Check the display effect of the large screen. If the newly replaced unit board module shows color cast, perform fine-tuning; if no color cast is observed, skip fine-tuning. The fine-tuning steps are as follows: click the Calibration button.

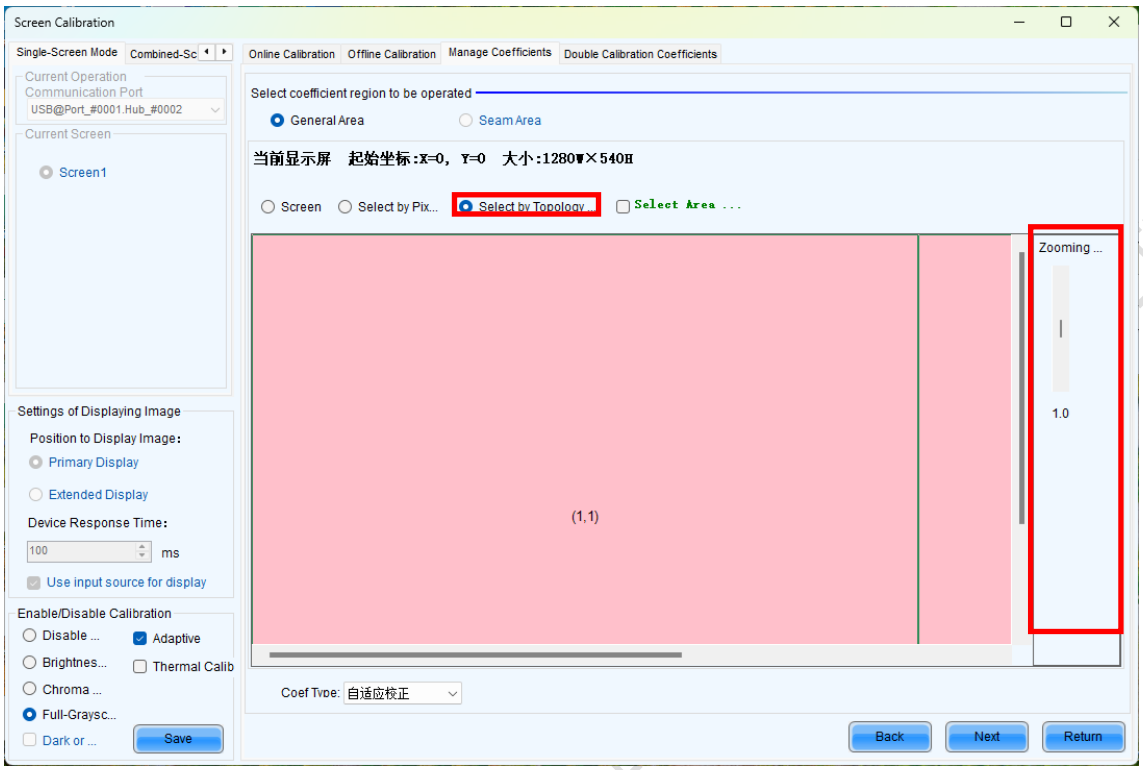


②Click Coefficient Management, then select Adjust Coefs.

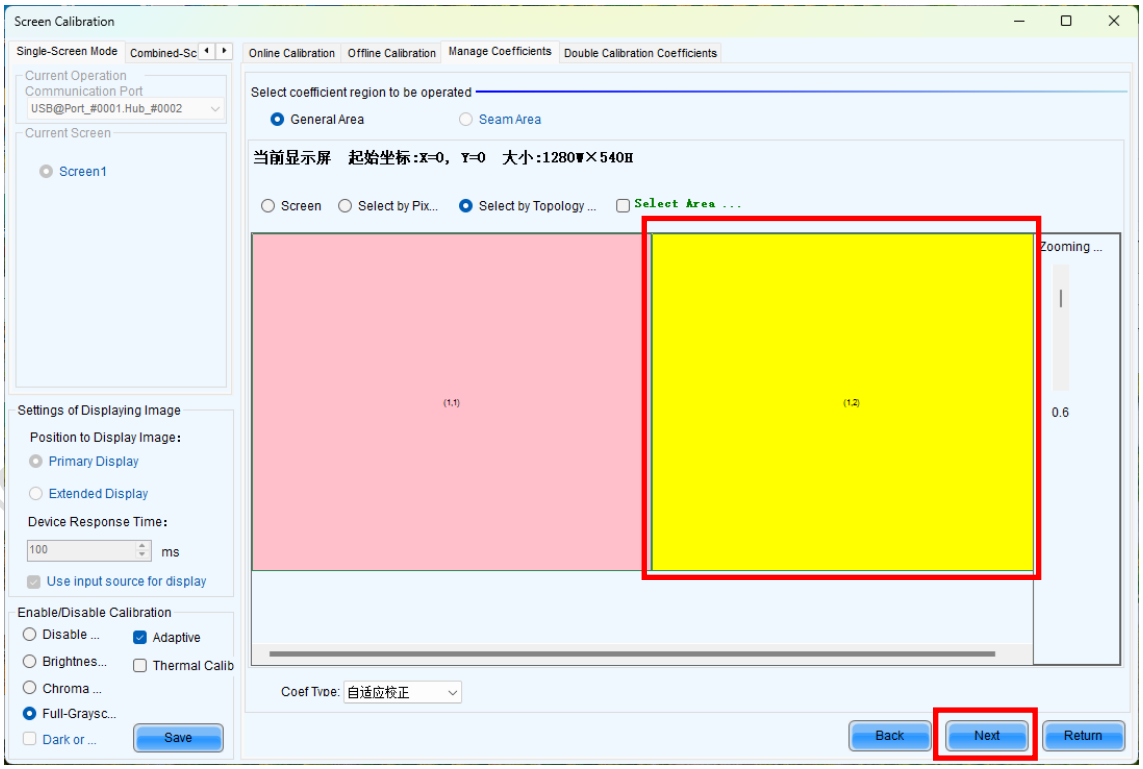


③Click to select by layout diagram or list, and drag the zoom ratio on the right to the

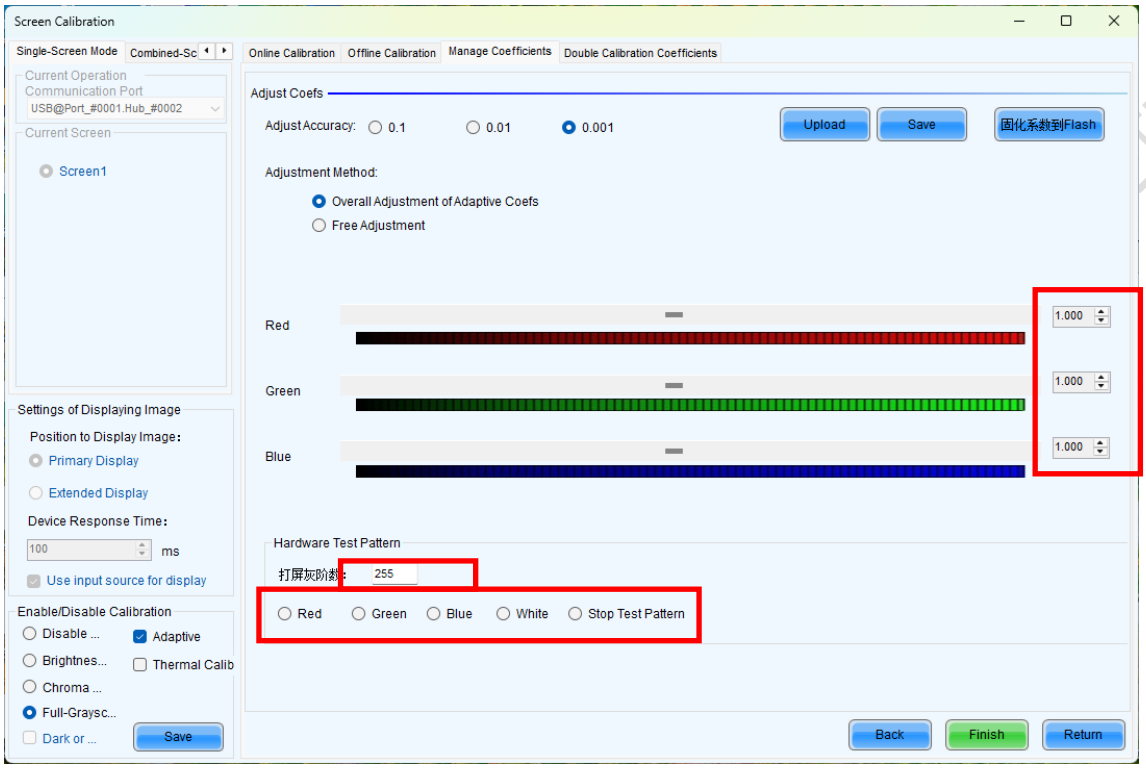
minimum.



④Select the replaced unit board cabinet, then click Next.

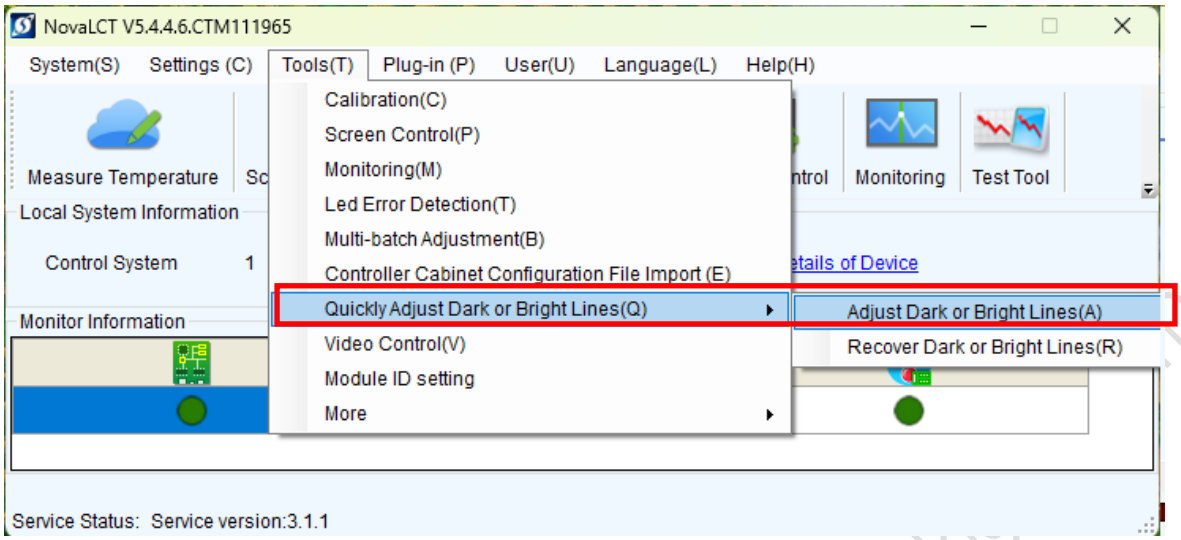


④Adjustment Precision: Select the adjust accuracy . Based on the color deviation degree of the cabinet, finely adjust the corresponding Red, Green, and Blue values until they are close to the adjacent cabinet, thus completing the fine-tuning of the unit module's calibration coefficients.

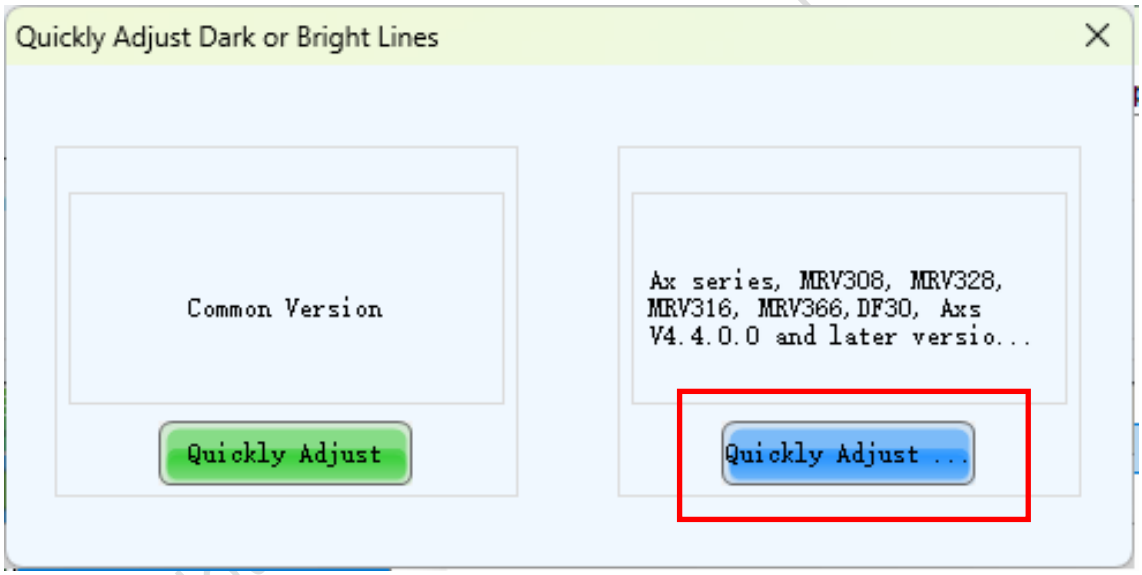


3.5 Fine-tune the bright or dark seams of the unit board module.

①Check the display effect of the large screen. If the seams of the newly replaced unit board module appear abnormally bright or dark, you can perform fine-tuning. If the seams display normally, no fine-tuning is needed. The fine-tuning steps are as follows: Click on the LCT toolbar and select "Quickly adjust bright/dark lines," then choose "Adjust bright/dark lines (A)."



②Click "Quickly Adjust bright/dark lines (New Version)".



③Click Row and column selection. In the layout diagram that appears, select the corresponding seams. Based on the actual display effect of the seams, if they appear too bright, adjust the parameter for the selected area to a smaller value and observe the effect. If they appear too dark, adjust the parameter for the selected area to a larger value and observe the effect. Continue this process until the seams are adjusted to a satisfactory state.