# Operation Manual for LCD Splicing screen

Department: R & D department

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# Table of Content

## I. Composition of Splicing screen

The company splicing products embedded splicing function, divided into splicing machine and splicing box + screen body two, the control mode is through RS232 serial port ring splicing unit connected to the computer using control software control, the difference is that the machine uses a double male RS232 line in and out of the series, RS232 input port connected to the computer end, The splicing box uses a standard straight line in and out serial connection, and the input port uses an RJ45 to RS232 connector to connect the serial line to the computer control end.

A complete Mosaic consists of the following parts:

Splicing unit: responsible for the incoming signal is processed internally and displayed on the screen.

Distributor (matrix, processor): responsible for sending the video signal into each splicing unit, the difference is the distributor to copy a signal for multiple signals, the matrix for each way to copy the input signal for multiple signals according to the need to send to different screens, the processor will be different types of signals converted to HDMI signals in order to put on the screen.


Fig. 1.1.1 One-to-eight HDMI video distributor

Fig. 1.1.2 8-in 8-out HDMI matrix

Signal cables: the signal cables that are required for splicing projects of HDMI, DVI and VGA signals, and their quantity and length depend on engineering requirements.

Control cables: Standard RS232 serial port cables are used for connection between splicing units, standard RJ45 direct connecting network cables are used for connection between splicing boxes and a RS232 to RJ45

adapter is added finally, and RS232 serial port cables or a piece of USB to serial port cable can be used on the computer control side. See Fig.1.1.3 for example of USB to serial port cable.

Fig. 1.1.3 USB to serial port cable

Brackets and exteriors: Aiming at supporting the whole splicing wall, they are classified into vertical type and front-maintenance type. Featured with convenient and stable installation, the vertical type is erected and fixed on the ground with gaskets and expansion bolts by drilling holes on the ground. And the front-maintenance type is fixed on wall by drilling holes, which facilitates maintenance in later phases, but its installation and adjustment is complicated.

## II. Wiring of Splicing screen

### 1. Wiring of control cables for Splicing screen

The connecting cables for splicing screen of this company include signal cables and control cables. The entire large screen is serially connected by the control cables in the mode of one-in one-out looping, and there are mode of RS232 serial port cable looping and mode of RJ45 network

cable looping, the detailed wiring principle is shown as Fig. 2.1.1.

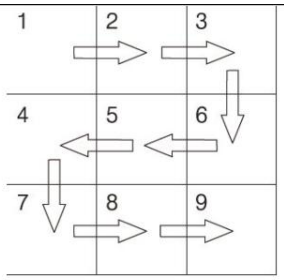
| | | |
|---|---|---|
| **Rs232 in** |  | "Rs232" signal ports are all 1-in 1-out; the program shown on the left is not the only solution (for reference only)<br>First level: 1#<br>Second level: 2#<br>Third level: 3#<br>..... |

Fig. 2.1.1

The first level of the splicing unot can be selected freely.It is not necessarily 1#.The number of splicing units should be set in OSD menu manually.Please refer to the following three principles:

- The number begins with 1.
- The number increases from left to right.
- The number increases from top to bottom.

The connection principle of splicing units follows:

- Each splicing unit must be connected.
- Signal cable used must be as short as possible.

For additional matrix devices,a serial cable is needed to connect the RS232 output port of the splicing unit and RS232 port of matrix.

With regard to extra matrix device, a serial port cable is required for connecting the RS232 output port at the terminal of the splicing units and the RS232 port of the matrix.

## 2.Wiring of signal cables for Splicing screen

The signal types that are supported for splicing are HDMI and DVI, VGA and supports splicing display of various types of signals as above.

| | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 |

Fig. 2.2.1 Splicing units numbering diagram (opposite to the large screen)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| OUT | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | RS232OUT |
| IN | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | RS232IN |

Fig. 2.2.2 Numbering of input/output channels of the matrix

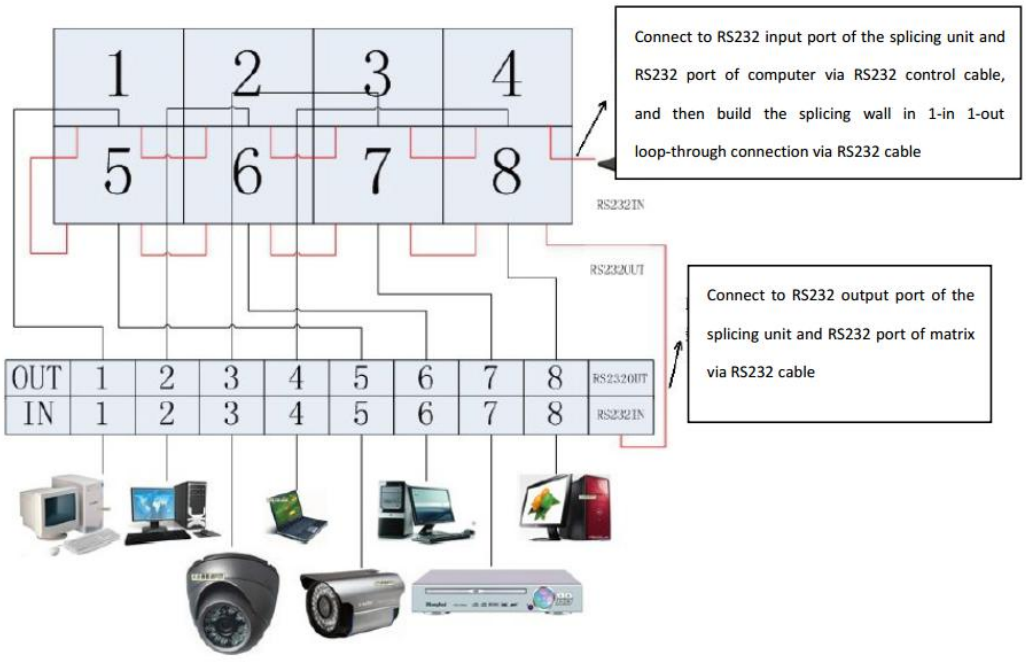



Fig. 2.2.3 Wiring diagram of splicing single serial port controlled matrix (The signal cables in black)

## III. How to Operate Splicing screen Software

1. Interface of control software

Note: A part of menus and options may be slightly different due to software update, but the operation is basically the same.

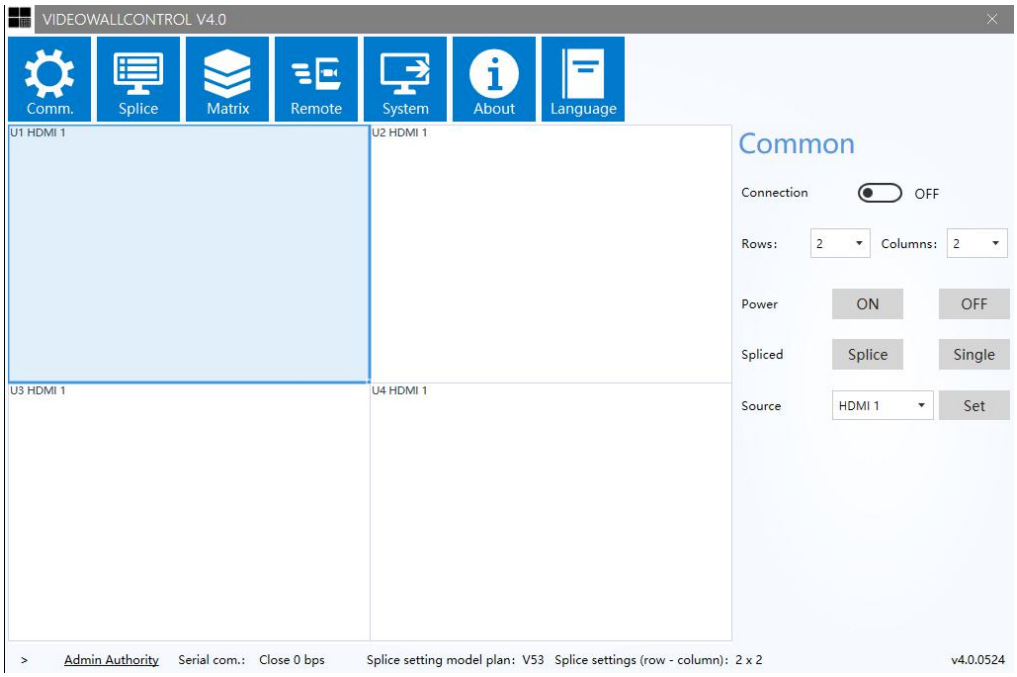



Fig. 3.1.1 Interface of splicing control software

2. Communication settings

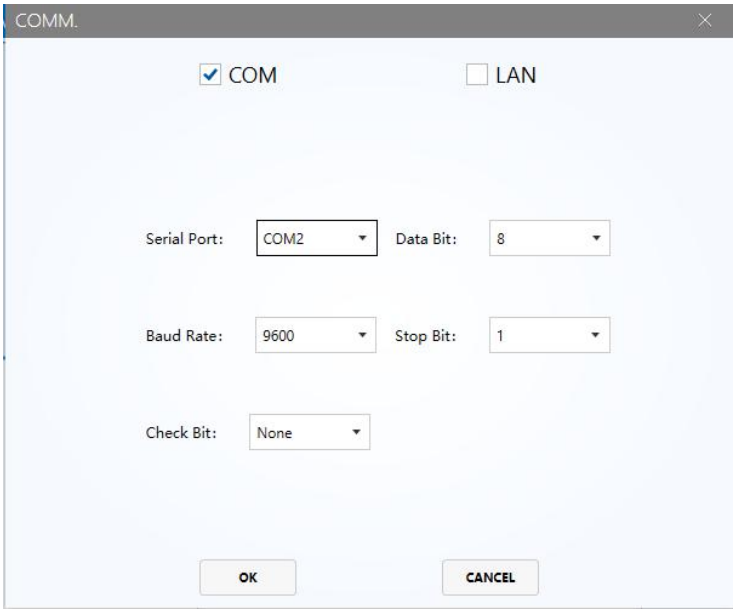



Fig.3.2.1 Communication settings page

The [COM (Serial)] and [LAN (Network)] in [Communication Settings] correspond to the serial setting and network setting respectively.

When the [serial] communication is enabled, as shown in Figure 3.2.1 above, select the serial port number connected in accordance with the serial connection configuration (you can correspondingly view the COM port occupied by the RS232 line connected to the computer console (Figure 3.2.2), the baud rate needs to be set to 9600, the data bits, parity bits, stop bits are set according to the actual situation, usually save the default state, finish by clicking [OK].

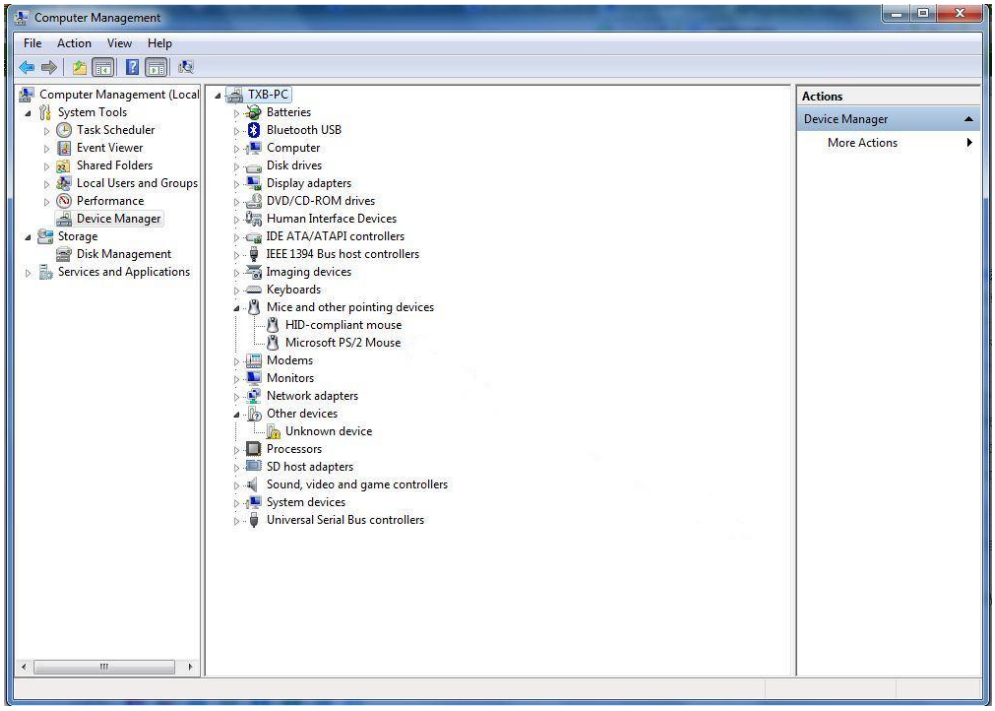



Fig. 3.2.2 View serial port number in device manager

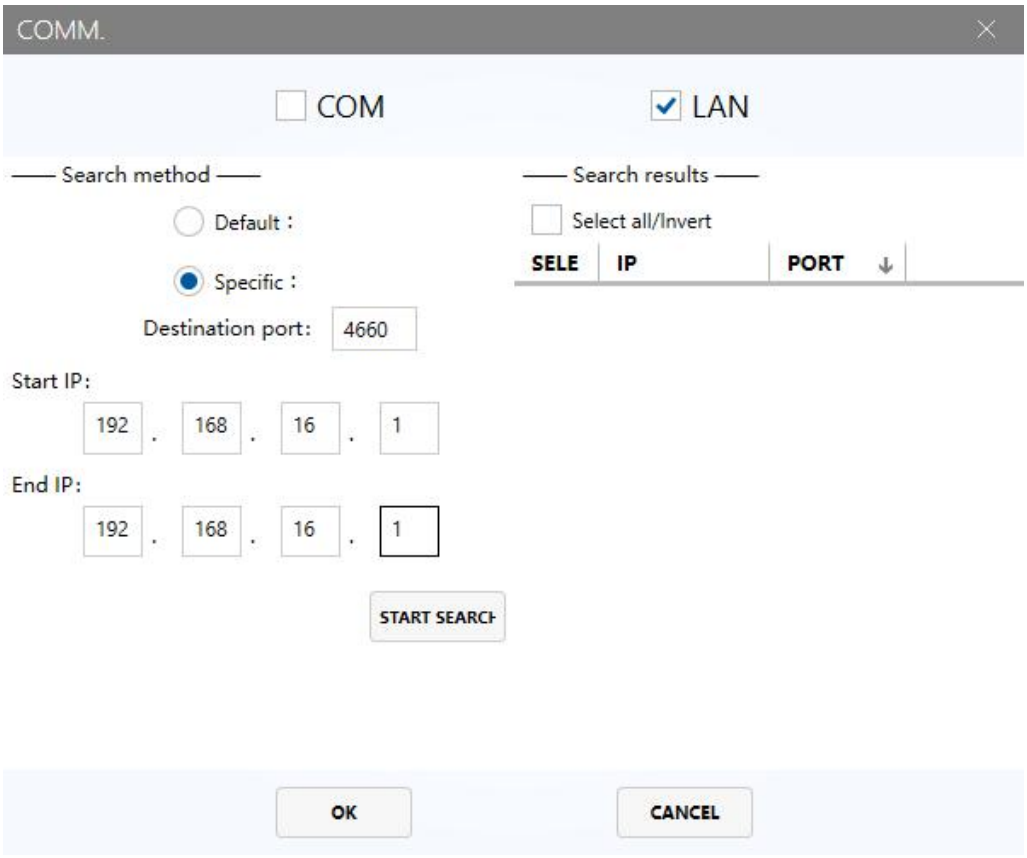



Fig.3.2.3 Communication Lan setting

When [Network] communication is enabled, as shown in Fig. 3.2.3 above, the network connection requires the corresponding connected device to support connection via LAN, and the search of the device is performed under the open network connection. Select the corresponding [search mode] - **default search** to broadcast the current LAN. The received device returns the IP information of the device to prove that the device can be connected. For **Specific search**, the device is detected based on an IP network segment and the port of the device. The device exists if it can be connected. The above two ways to LAN communication connection search; to ensure that there are results for the search of the

device to be selected (said to connect), to complete the connection configuration click [OK].

## 3. Splicing setting

In Splicing Settings, you can control the splicing rows and columns and configure the corresponding splicing scheme. As shown in fig. 3.3.

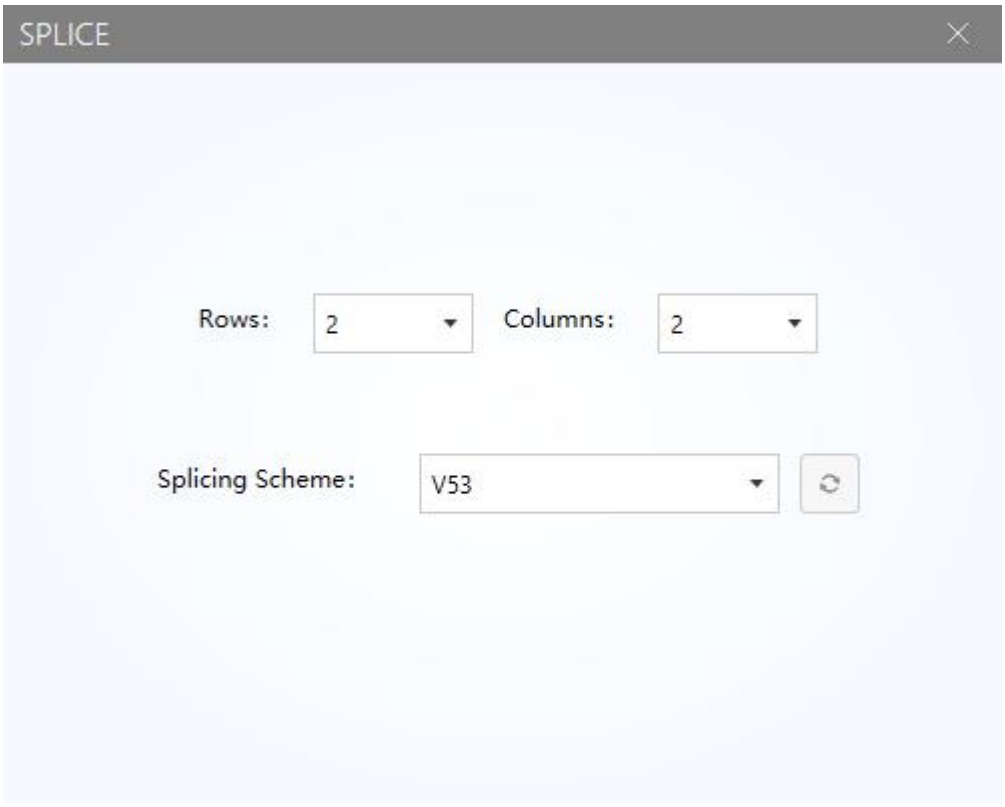



Fig.3.1 Splicing settings

When selecting the corresponding rows and columns of splicing, the rows and columns determine the number of splicing operations (example: 2*2). There are compatibility Settings for different motherboards in [Mainboard Type]. Select the corresponding model (it can be refreshed automatically when unknown) and load the

corresponding board type information. The software can be compatible with the normal use of various motherboards.

## 4. Remote control

[Remote control] It is equivalent to virtual remote control interface, as shown in Fig. 3.4. You can enter the menu, using the virtual button menu, source selection switch and exit.

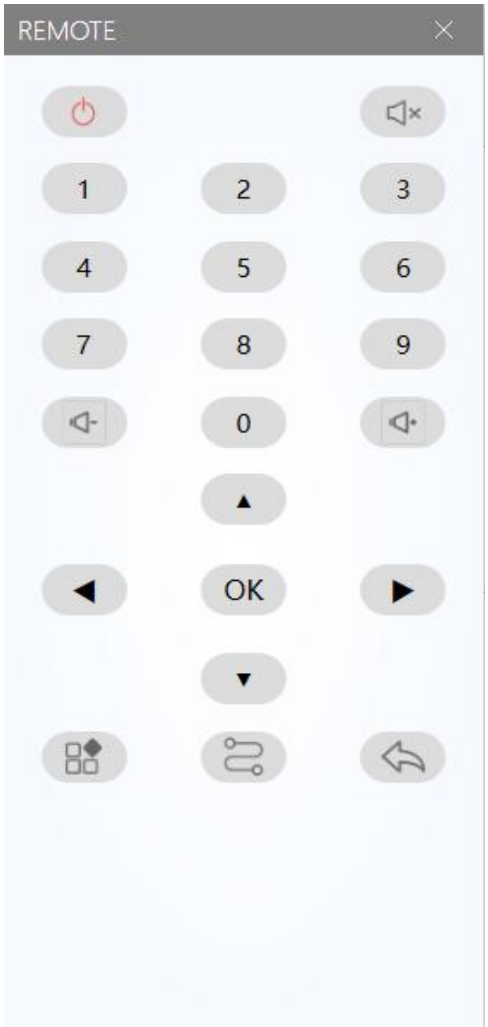



Fig.3.4 Remote control

## 5. Picture color temperature

[Picture Color temperature] It can adjust and control the image data, white-dark balance and dark balance of each unit, as shown in Fig. 3.5.


Fig.3.5 Picture color temperature adjustment

## 6. System

The system software version and system working time of the splicing unit can be viewed in [System], as shown in Fig. 3.6.

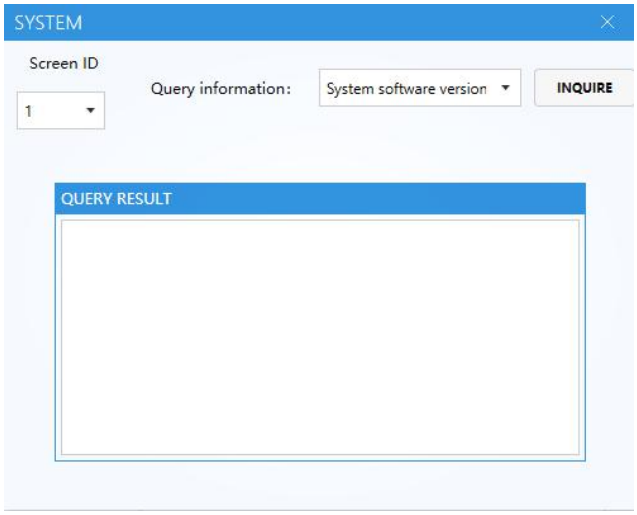



Fig. 3.6 System information

## 7. About

Version information of the corresponding control software.

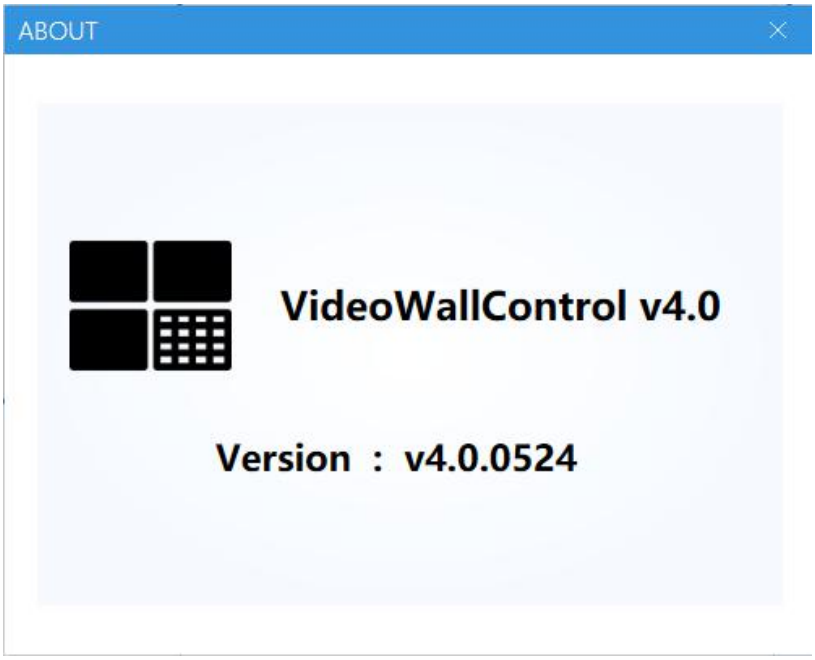



Fig. 3.7 About software version

## 8. Language

The software display language can be switched with [Chinese-English].

## 9. Splicing units

The row and column display unit corresponding to the splicing setting represents the one-to-one correspondence of the actual control splicing. For example, the splicing settings of (2 x 2) are shown in Figure 3.9:

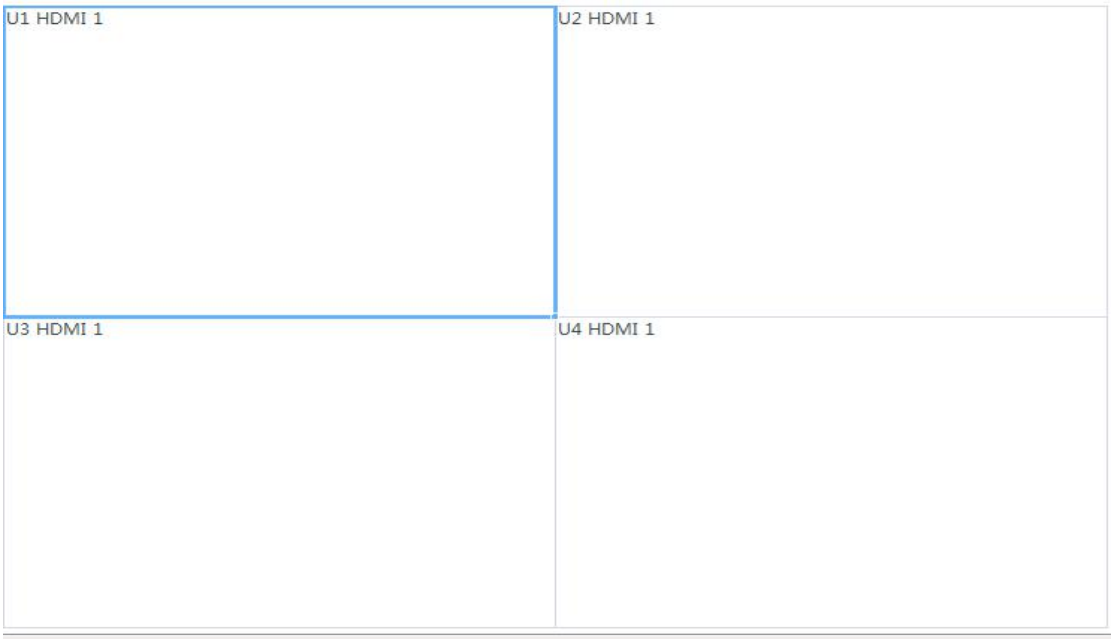



Fig. 3.9 Rows and columns of the splicing unit

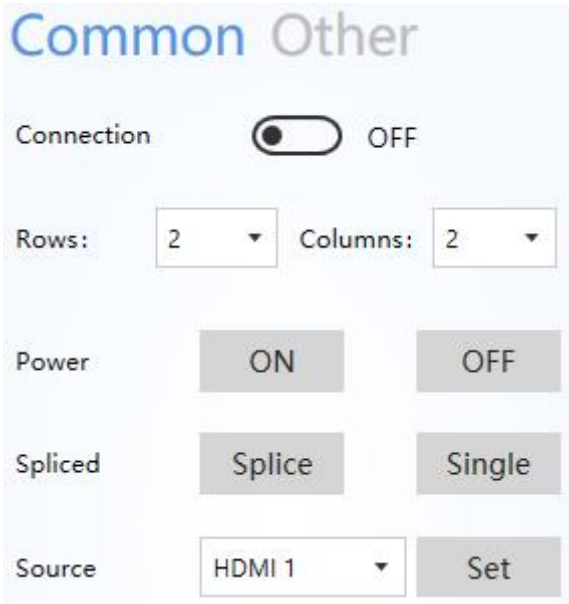
Each unit of the row and column corresponds to the screen of the splicing control. [U*] represents the unit ID, which needs to correspond to the splicing device of the control. [HDMI*] represents the corresponding display source. After selecting the source, the right mouse button menu can be used for fast function control, as shown in the picture below:

[Splice] —— Splice and composite display of screen images
[Single] —— Separate the composite splice screen into single displays

[Backlight-Off] —— Turn off the backlight display of the splicing screen
[Backlight-On] —— Turn on the backlight display of the splicing screen

[Local Source] —— Switch the input source of the splicing unit
[Device SN Set] —— Modify the sequence number of a splicing unit
[Screen ID Set] —— Bind the ranks positions and ID addresses in one-to-one correspondence
[Picture Color] —— Enter Color Temperature page of screen adjustment
[Seam Adjust ] —— Enter Splicing Display page for seam adjustment

## 10. Common settings




Common functions in the splicing are displayed uniformly, so that users can operate directly and easily

[Connection] —— According to the Communication Settings, enter the Connection for operating and controlling

[Rows/Columns] —— Adjust the rows and columns of the splicing screen

[Power] —— Control the power supply status of the screen

[Spliced] ——Operating the display image of the splicing screen for spliced composition

[Source] ——Switch the input source of the screen

## 11. Other

The Settings of Other are hidden by default and will be displayed only after entering Admin Authority (Authority Code: 333) in the status bar, as shown in Fig.

3.11:

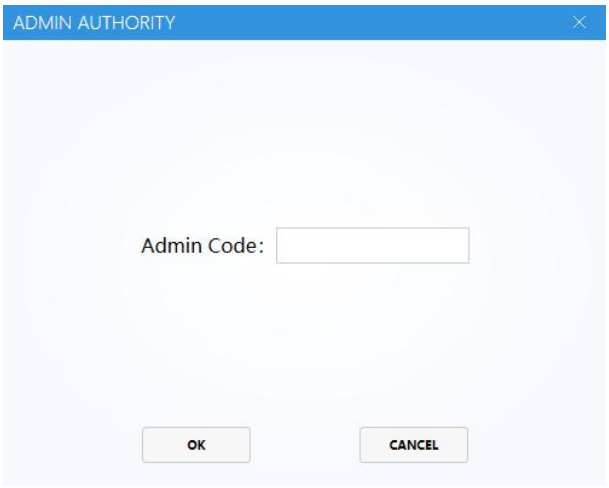
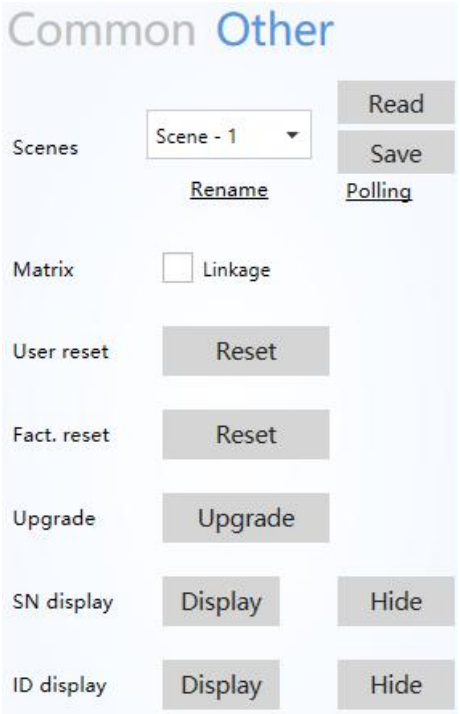



Fig. 3.11 Admin Authority page




[Scenes] —— Retrieve and display the splicing plan, save the setting, rename and poll the plan

[Matrix] —— Switch the external matrix

[User reset] —— Operating splicing screen to do user reset

[Fact.reset] —— Operating splicing screen to do factory reset

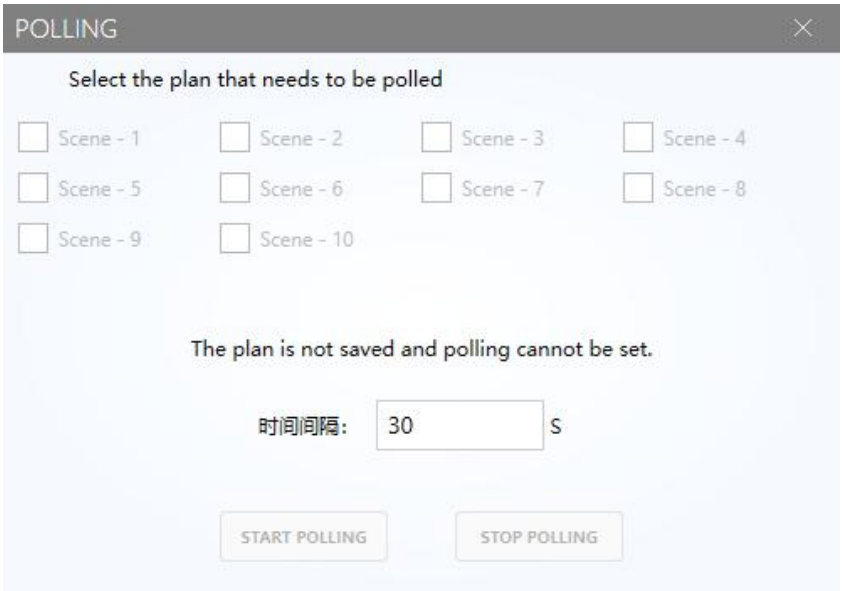
[Upgrade] —— Upgrading via USB

[SN display] —— Check all the spliced serial numbers

[ID display] —— Check all the splicing ID

[Rename] —— Customize the name of the current plan, select the wanted plan for editing and modification, then complete the modification after confirmation, as shown in Fig. below:


[Polling] —— Periodically set polling switching for saved plan scenarios, enable automatic display of existing saved plans, select the scenario to be rotated, set the corresponding time and start the rotation, as shown in Fig. below:



## 12. Status Bar

The status bar displays the main information of the current splicing setting, including the splicing state, the setting splicing scheme, the rows and columns, and the software version.

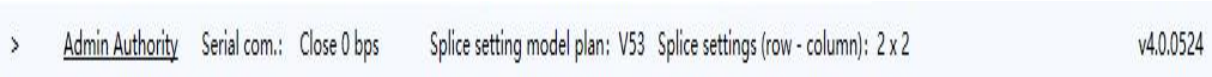



Fig. 3.12 Status Bar

## 13. Screen ID Bindings

When the splicing software is used to operate the splicing screen, the ID address corresponding to the screen unit must be set through the serial number first. Only when the ID address corresponds to the screen unit can it be effectively controlled.

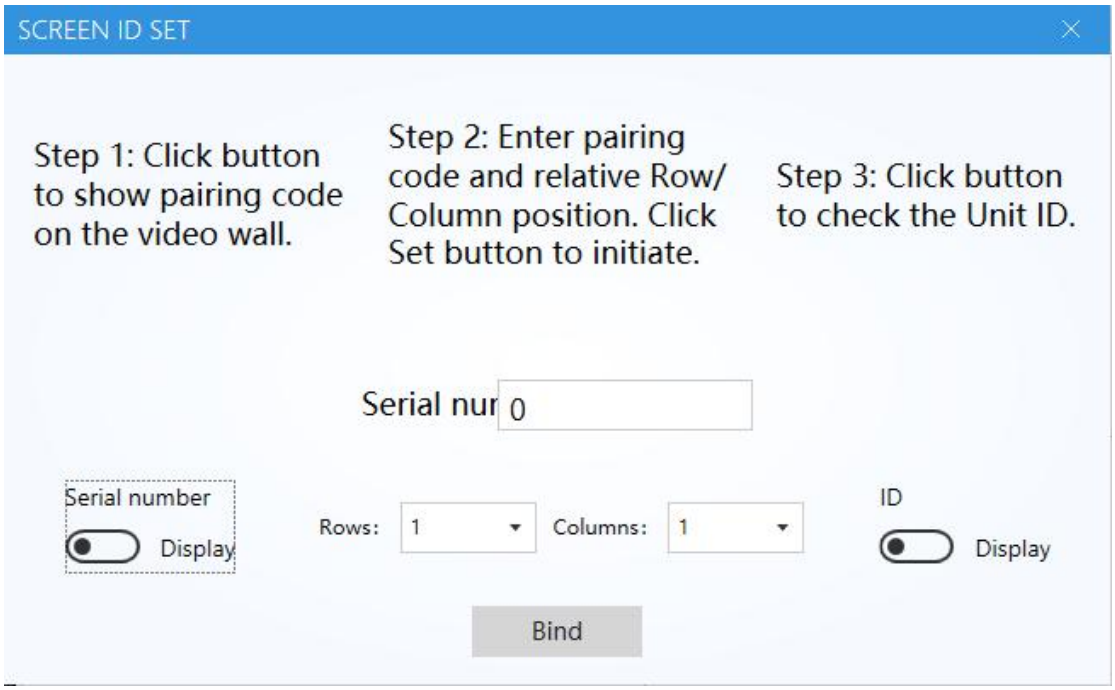



Fig. 3.13 Screen ID bindings

Set binding ID address: as shown in Fig. 3.13, first display all the splicing serial

numbers, then enter the corresponding serial number in [Device Serial Number] according to the serial number currently displayed on the screen, select the corresponding row and column according to the splicing screen position, click "Bind" for applying, and then perform the same operation on the next screen. After setting all screens in turn, you can display them to check whether they are correct. The software can effectively processing after confirming that all ids are bound.

## 14. Seam adjustment

[Seam Adjustment] Fine-tune the horizontal and vertical direction of the image display of each unit after splicing, as shown in Fig. 3.14.

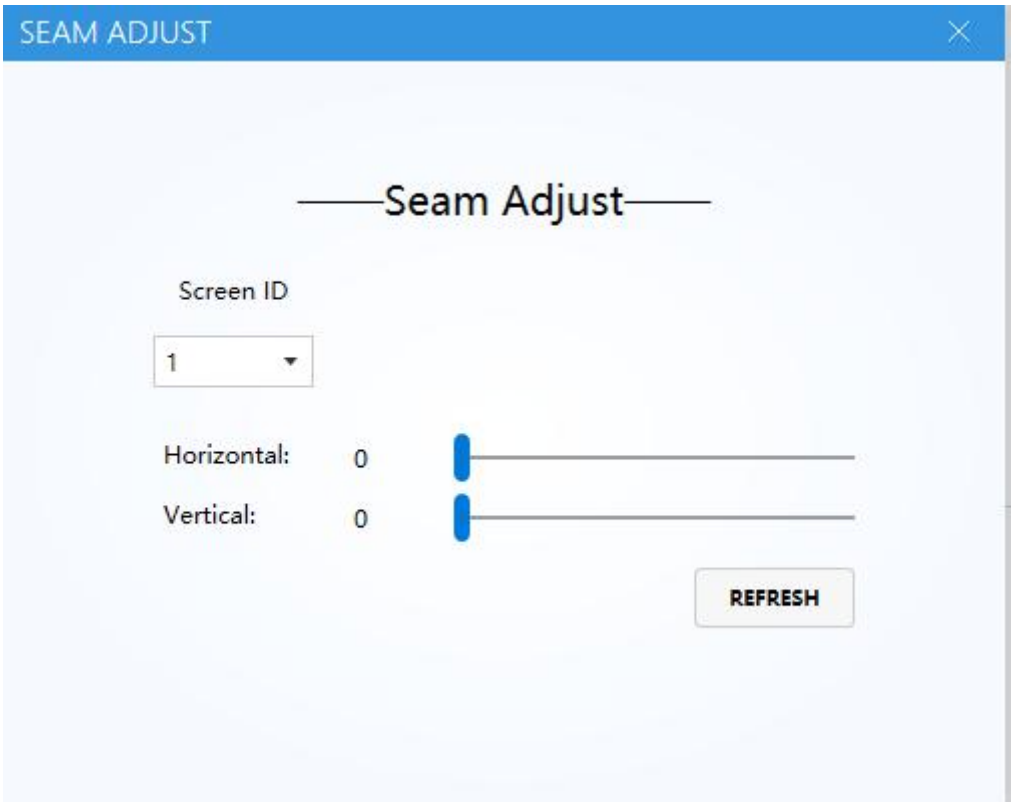



Fig. 3.14 Seam adjustment

## 15. Serial number settings

[Serial number settings] The serial number of the splicing unit can be modified. To set the serial number, the device need to be connected separately. In the case of series connection, all the serial numbers of the device will be overwritten. Authority code (123654) as shown in Fig.3.15.

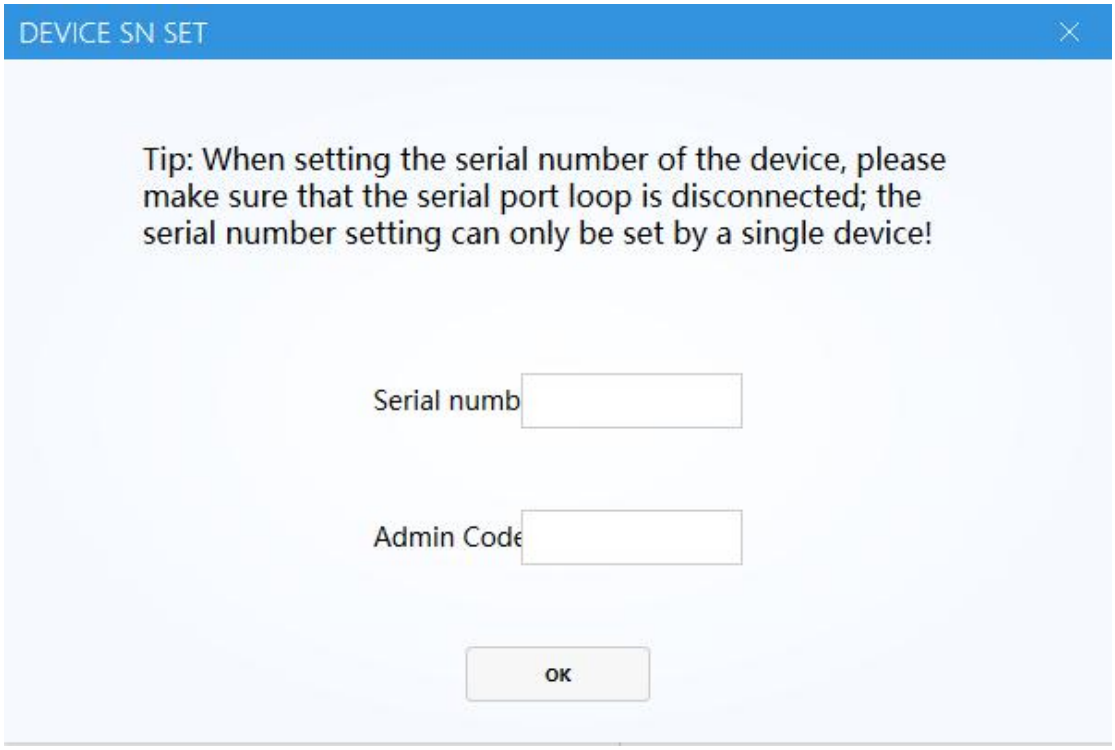



Fig. 3.15 Serial number setting

## 16. Matrix

[Matrix] For linkage control of splicing external matrix devices, you need to set the protocol model of the corresponding matrix (different vendors have different matrix protocols), the address of the matrix (the device address is usually 0), and the number of channels (output channels are set according to the number of splicing). The matrix number

corresponds to different matrix protocols, and the linkage control can be controlled only when the matrix corresponding to the protocol is selected. See Fig. 3.16.

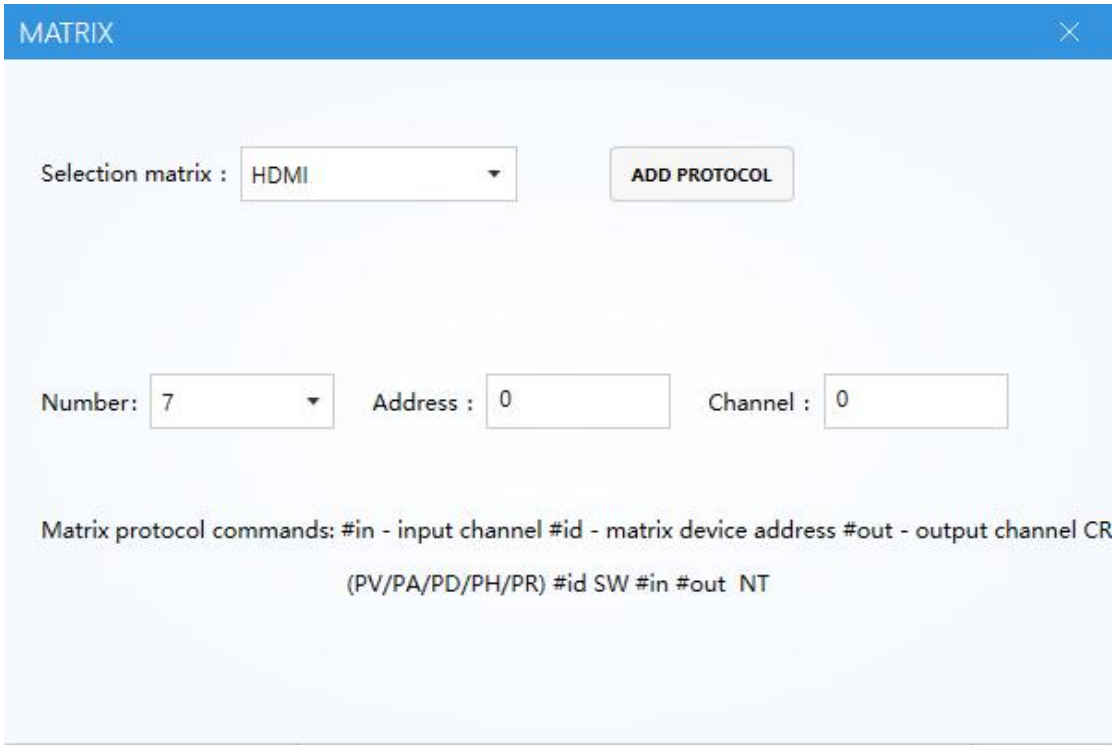
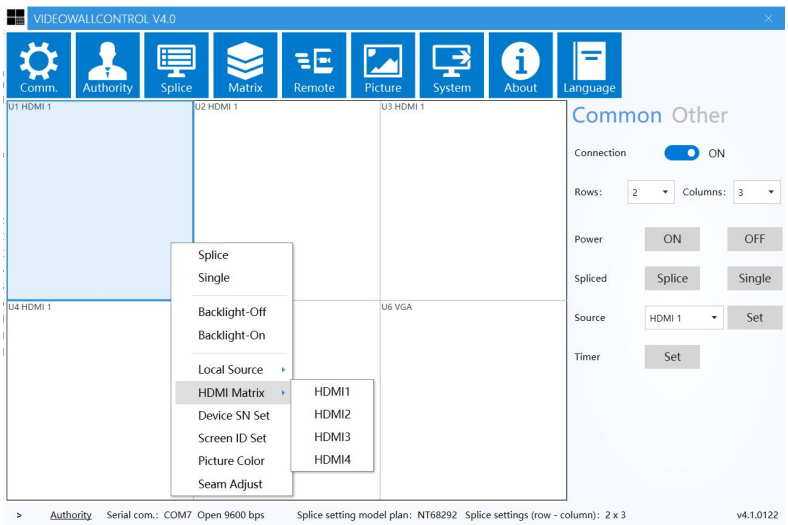



Fig. 3.16 Matrix settings

When [Matrix] is done, enable matrix linkage setting, right - click menu on the page to switch matrix source settings. Shown as Fig. below:



# IV. Troubleshooting

## 1. Prompt serial port opening error

If an error occurs as shown in Fig. 4.1.1 when software is opened, check the connection of the entire RS232 control line to ensure normal connection and communication, and check the COM port Settings of the local computer to ensure correct configuration, as shown in Fig. 4.1.2 (taking the common USB-to-serial cable as an example, COM19 is the COM port occupied by the USB-to-serial tool).


Fig. 4.1.1

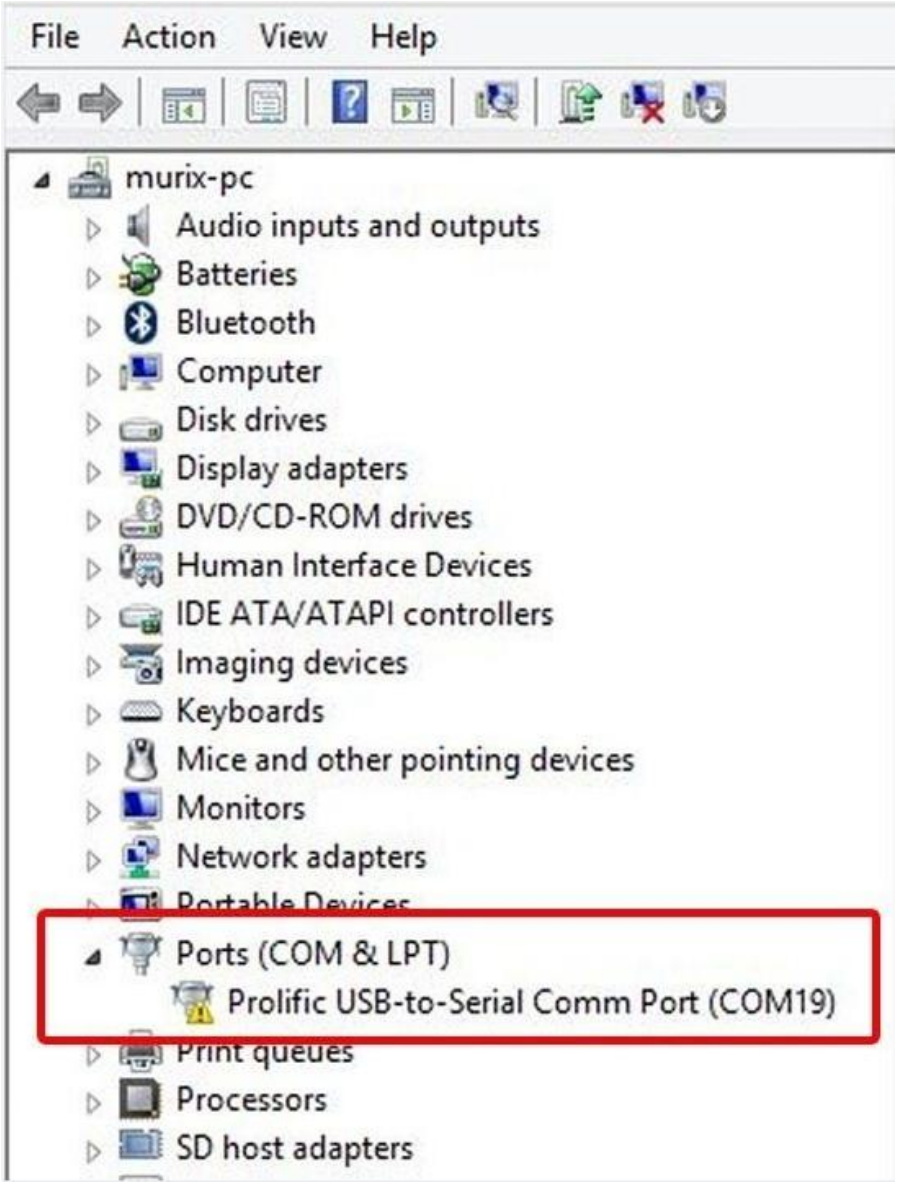



Fig. 4.1.2

## 2. Abnormal image display

When the screen is awoke and abnormal display is found, such as color spots, flashing lines, jitter, etc., first check whether there is any damage on the appearance of the screen, then cross detect signal lines and signal ports of external devices, and finally try to enter factory mode to reset.

There are two ways to enter factory mode:

1). Press Menu+8202 for the remote control, select the screen for control

software.

2) select [Unit Setting], and click OSD+8202/SOURCE+2580.

If the abnormality still exists after the above investigation and processing, please contact our technical personnel to solve the problem. Thank you for using our products.

## 3. RS232 relevant configuration

In order to allow secondary development of centralized control for some customers, RS232 communication command for starting up and shutdown and relevant configuration is hereby described as below:

- RS232 communication settings:

  Baud rate: 9600pbs

  Data bit: 8bits

  Stop bit: 1bits

- RS232 communication command for startup and shutdown:

  RS232 command for startup: 69 D0 C6

  RS232 command for shutdown: E5 FD 20 71 8C

All above commands are hexadecimal, and please contact technical staff of this company for further requirements.

## Appendix:

# Detailed Instructions for Installation of V53/NT68292 Splicing Control Software

OS: Windows XP/WIN7/WIN8/WIN10, Chinese/English ver.

Min. configuration CPU: Intel MMX 233MHz

Memory: 128MB

Graphic card: PCI or AGP graphic card above 8MB

Hard drive: 1.5G

Serial COM port: Std. RS232 COM or compatible models.

Other devices: mouse, keyboard

**Instruction of Installation:**

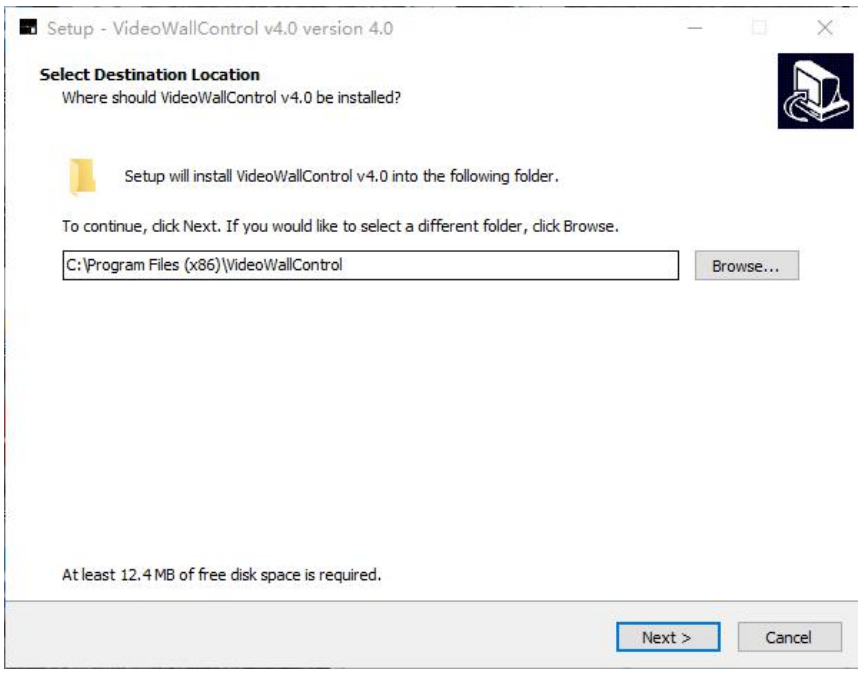
Decompress the software package, and open the decompressed folder:


Unzip VideoWallControl v4.0 to install. This software is developed based on .net framework 4.6.1，C#. If the local machine has not installed .net framework 4.6.1, the software will not run normally. .net Framework 4.6.1 is included in the Environment Dependency file, so you do not need to download it separately (you can also download and install it automatically if you are connected to the Internet).

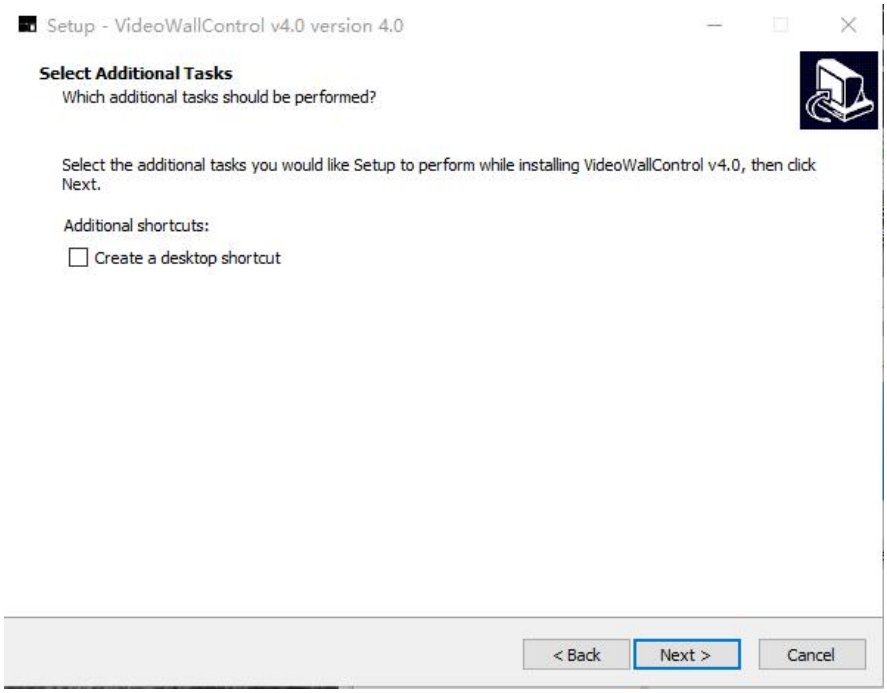

.net framework installer in Environment Dependency

## Software installation procedure:

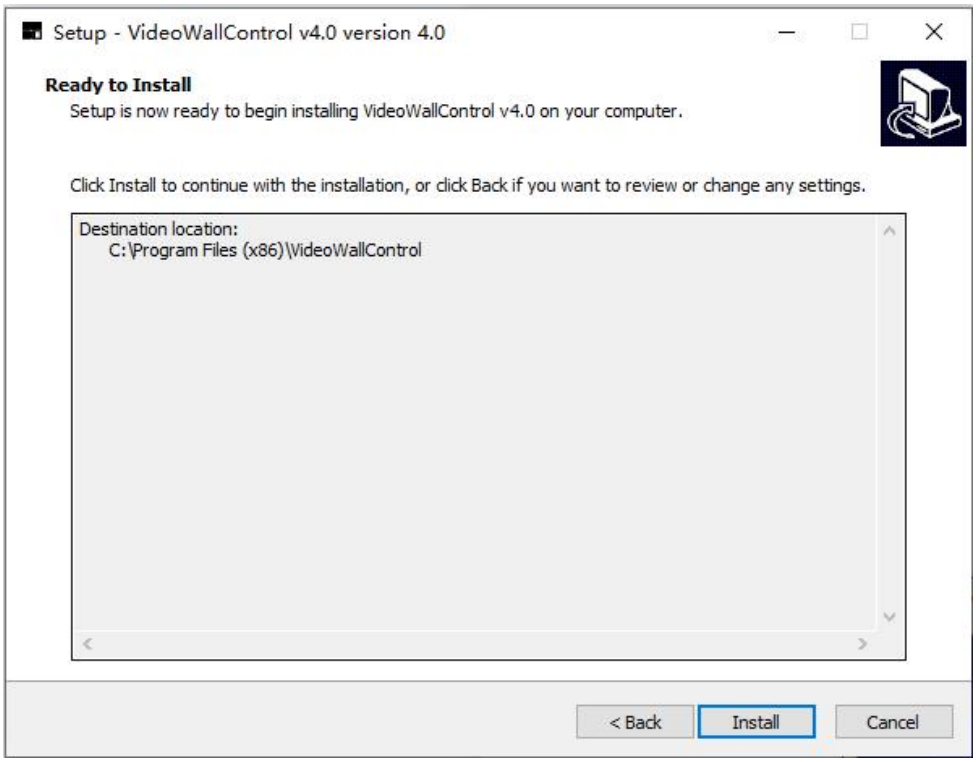

Installation wizard — Next/确定



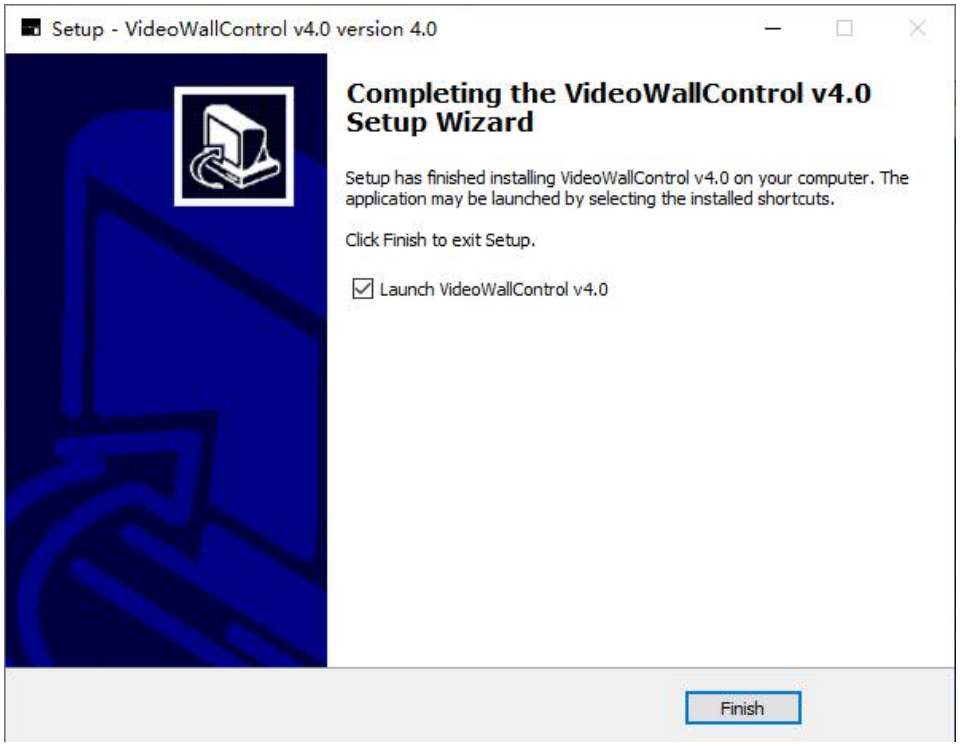

Chose the installation path — Next




Identify shortcuts to the software — Next



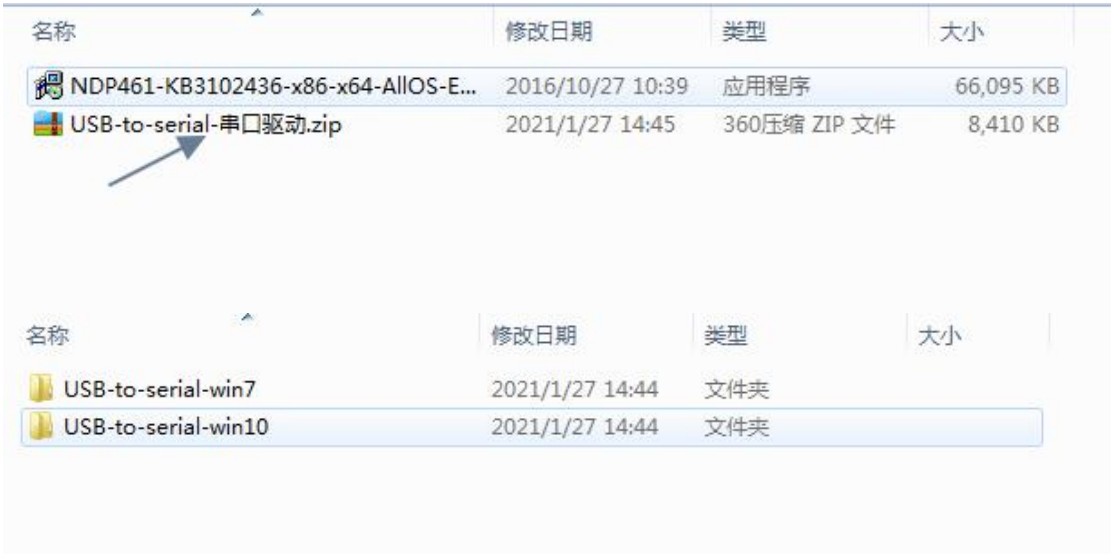

Confirm software installation — Next step




Finish software installation — Close installation wizard

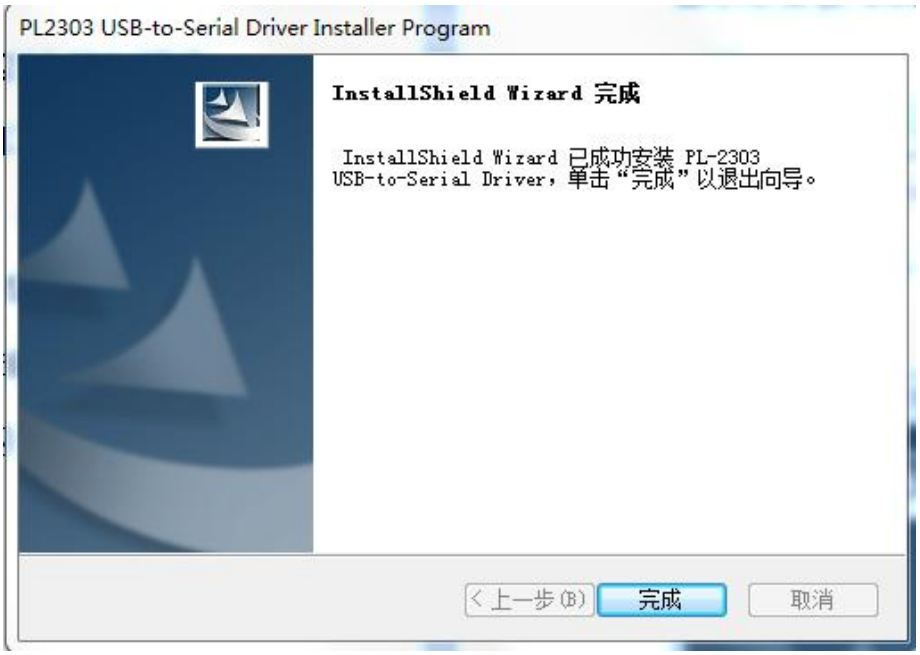
## Serial port driver installation

With regard to systems that USB to RS232 driver is not installed,please unzip the USB-to-serial-serial driver folder and install the driver for Windows 7 and Windows 10 as prompted.



Run PL2303_Prolific_DriverInstaller_v1190.exe


Click“下一步/Next”




Click“完成/Finish”

Instruction：

.net Framework and USB-to-RS232 drivers delivered with the installation program are recommended. Otherwise, the system may fail to run properly due to compatibility problems. (If the above instructions cannot solve your installation problems, please contact the distributor to provide specific measures)