

KS9800

Multi-windows splicing processor

Version: v2.0

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Manual



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Professional Ultra HD Video Display
Control system integrated solution and service provider

Version record

version number	Change details	release time
V1.0	first release	2019.05.01
V2.0	Modify the cover and add function point description	2021.10.25

Safety precautions



Danger

- There is high voltage in the equipment. Non-professional maintenance personnel should not open the back cover to avoid danger.



Warning

- This equipment is not waterproof equipment, please do waterproof treatment in wet environment;
- This device is not allowed to get close to fire or high temperature environment;
- If the device emits strange noise, smoke or strange smells, unplug the power plug immediately and contact the dealer.
- **It is strictly forbidden to plug and unplug the VGA, DVI, and HDMI signal cables under power.**



Attention

- 1 Please read this manual carefully before use ,and keep it for future;
- 2 this equipment is not suitable for non-professionals to operate and debug,please use under the guidance of professionals;
- 3 this equipment is not suitable for non-professionals to operate and debug, please use under the guidance of professionals;
- 4 Do not insert anything into the vent hole of the device to avoid damage or accidents to the device;
- 5 It is not appropriate to place the device on a heat sink or other high-temperature place;
- 6 It is not suitable to place this equipment in near water or other damp places;
- 7 Please properly organize and place the power cord to prevent damage;
- 8 If the following conditions exist,the power plug of the device should be unplugged and commissioned for maintenance;
 - When liquid splashes into the device
 - When the device is dropped or the chassis is damaged
 - When the device has obvious abnormality or performance is significantly deteriorated

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1 Introduction

This product is the industry's first real sense of the multi-window mosaic, is a professional video processing and control equipment, is specifically for the oversized screen, projection, LCD and other equipment splicing controller.

The company developed a multi-image splicing processor using FPGA Pure hardware architecture, no operating system, the whole system completely closed operation, simple operation, high stability.

Widely used in monitoring, dispatching command center, video conference center and so on.

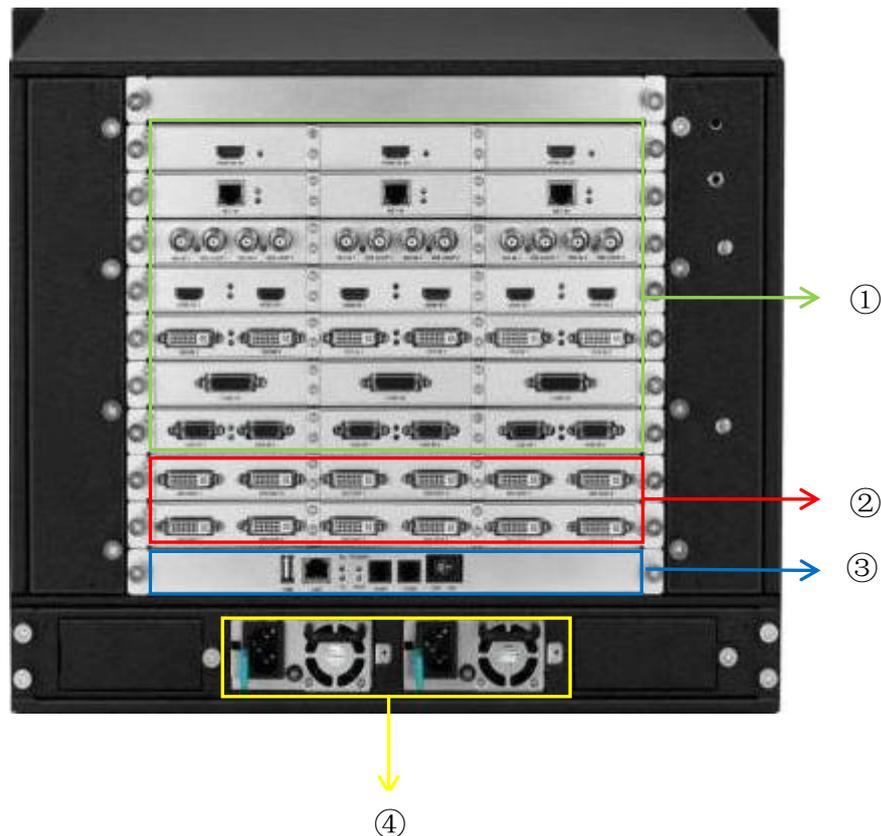
This software is designed for this platform management software, the user can through the software to the hardware equipment parameter setting and operation management, all operation flow intuitive and convenient.

Applies to Windows XP , Windows7 , Windows8 , Windows10 The operating system.

The following instructions are in Window7 example under the operating system.

2 Hardware Introduction

2.1 back panel introduction



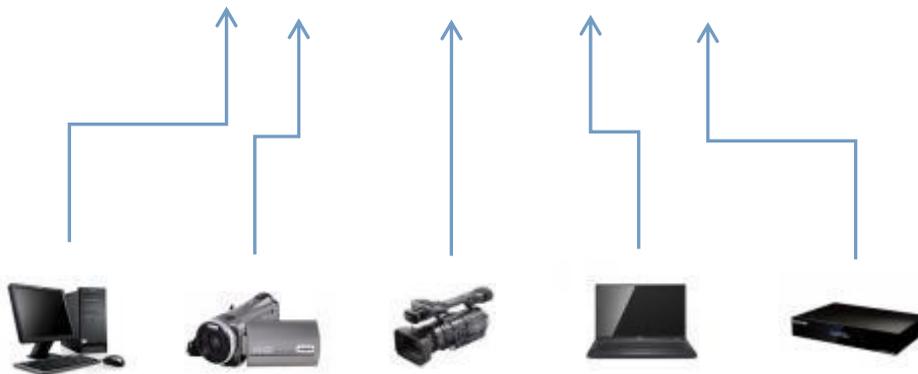
1、 Input board: can support DVI, VGA, CVBS, HDMI1.3 (2K), SDI (with loop-out), HDMI1.4 (4K30), HDMI2.0 (4K60), DP1.2 (4K60), etc. kind of signal input.

2、 Output board: DVI, HDMI1.3 (2K with backup), HDMI2.0 (4K60), DP1.2 (4K60), LAN port (can connect screen).

3、 Control board: including power switch, COM port, network port, status indicator, if you need to use SYNC multi-machine synchronization, you need to choose the synchronization version of the control card.

4、 Power supply: Up to 4 redundant power supplies, please refer to each U-shaped specification for details.

2.2 Wiring diagram

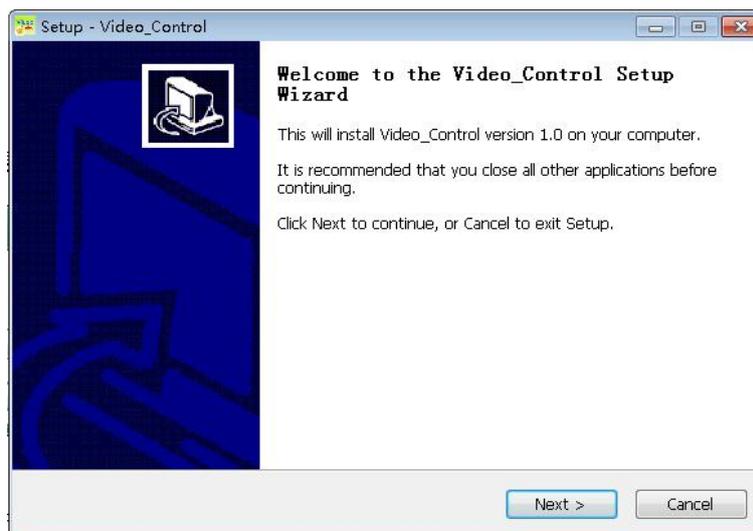


3 The Software installation

Download the "KYSTAR splicing processor control software" from the kystar official website, and double-click the exe file of the software installation package to enter the following installation interface:



After selecting the installation language, click OK and go to the Installation Wizard interface, as shown in the following illustration:



Install according to the wizard prompts, until the installation wizard is prompted to complete, and the software installation ends.

4 Equipment connection

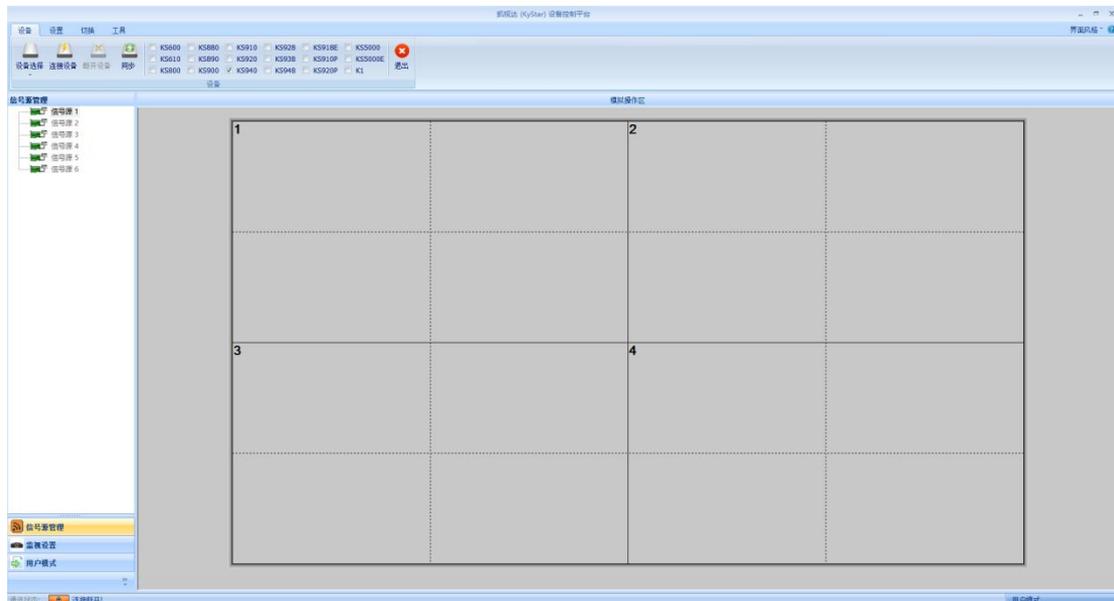
4.1 software open

Double-click the software shortcut on the desktop, open the software, and go to the software login page.



The first use of no password direct click to determine, if you set the user password requires the correct password to enter the software control / settings.

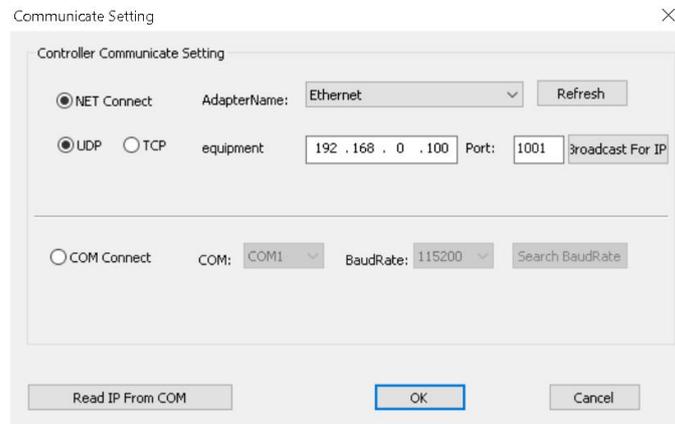
Click OK to enter the software main interface.



4.2 software connections

Click Device Selection, select Video wall , and then click Connecting Devices , Pop-up Communication

Settings window, as shown in the following illustration:



The software can choose NET or COM two ways to connect, choose a different connection way to prepare for different.

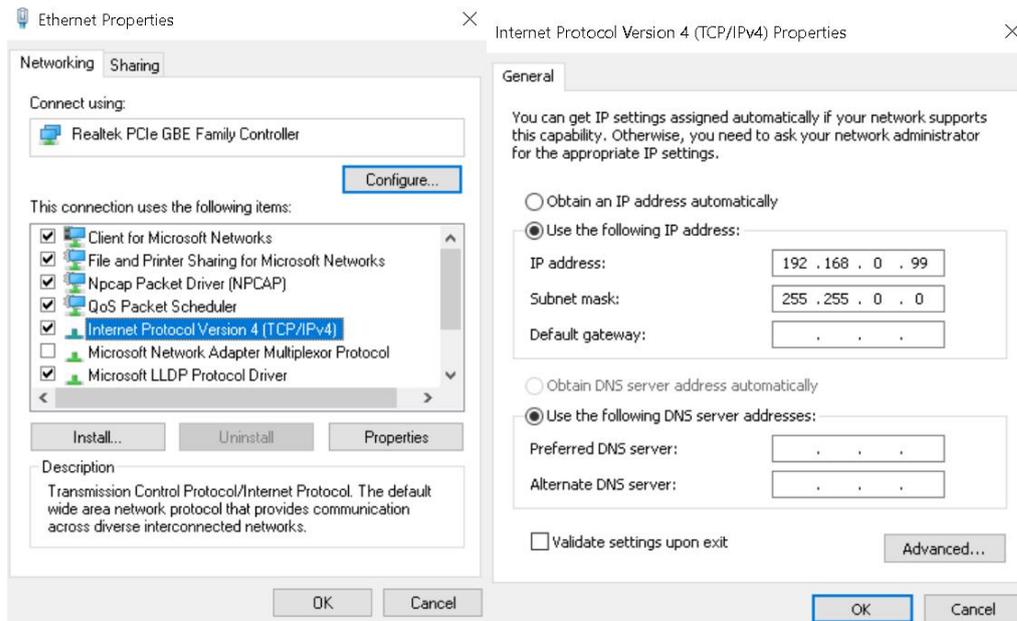
4.2.1 Select NET connection

(1) Wiring

Use CAT5 network cable, one end connected to the processor LAN Port, one end is connected to PC the network port of the, which can also be connected through a switch.

(2) Modify Local Area Connection IP

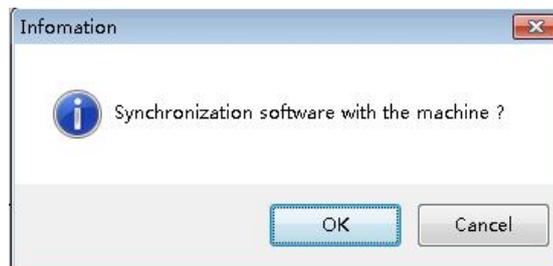
In Windows system, go to Start → Control Panel → View Network Tasks → Change Adapter Settings, you can find Local Area Connection, right-click Local Area Connection and select Properties, the following dialog will pop up, double-click Internet Protocol Version 4 (TCP/IPv4), and set the The data modification and other IP addresses in the same network segment of the splicer, for example, the default IP address of the splicer is 192.168.0.100, at this time, the IP address of the computer can be modified to 192.168.0.123, and the subnet mask is 255.255.255.0. As shown below.



Note: Device IP address defaults to 0 network segment, other device's IP the guarantees that the same field and different numbers are available for normal communication. To change The network segment of IP, you need to change the software settings now.

(3) Establish communication

In software communication, Select NET Connect , and click directly OK , if the connection succeeds, a prompt box will pop up, as shown in the following figure, and click OK .



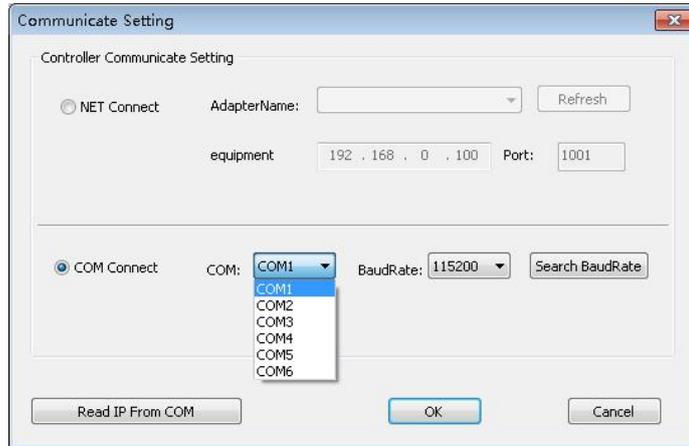
4.2.2 Select COM Connect

(1) Wiring

Use the supplied RS232 to RJ11 cable, one end is connected to the COM1 port of the processor, and the other end is connected to the serial port of the PC (USB to nine-pin serial port is supported).

(2) Modify COM Port

When software communicates, Select COM Connect :

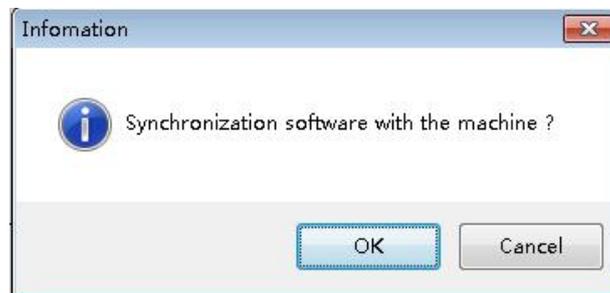


In General, the software automatically recognizes COM port, users do not need to set, click to confirm.

However, in some cases the PC machine may have more than one com port at work, causing software recognition errors, at this point you need to select com Port (Please try it in turn).

(3) Establish communication

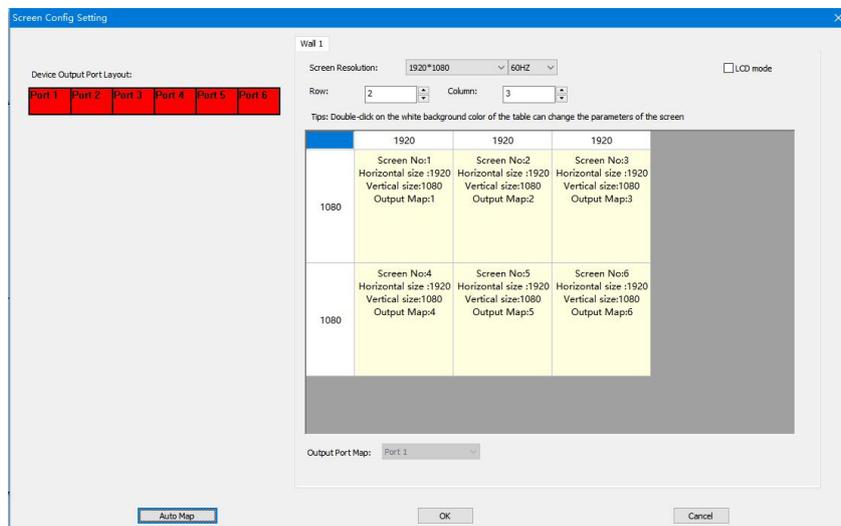
When software communicates, Select NET Connect , and click directly OK , if the connection succeeds, a prompt box will pop up, as shown in the following figure, and click OK .



5 Software Settings

5.1 Out settings

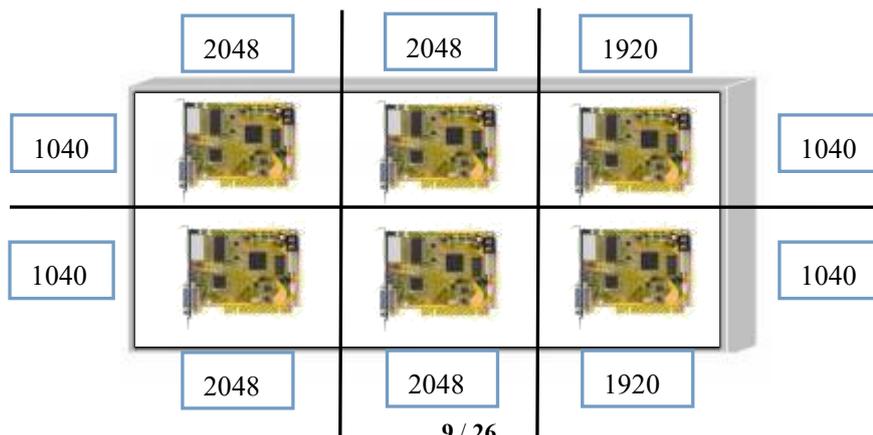
After the device is successfully connected, click "Screen Configuration" under "Main Function Area", and the screen parameter setting interface will pop up. The loading of each output port and the arrangement of the output ports are set in this interface.



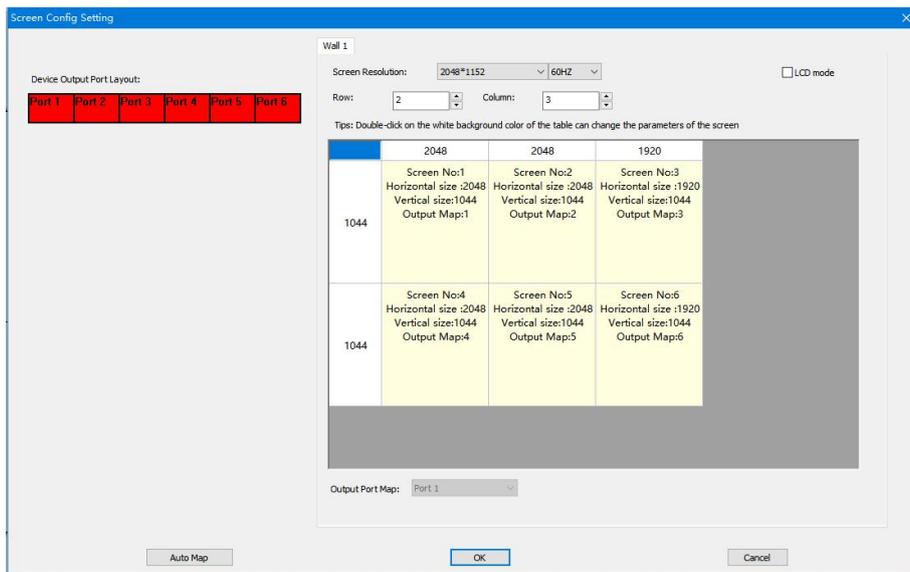
Screen Resolution The maximum resolution that the can output for each outlet, typically greater than the resolution of each card or display.

Row and Columns set on your own, above the layout diagram 1920 and the on the left 1080 the can be modified according to the actual number of load points, double-click the value to modify.

For example: Screen size is 6016*2080 , with six send cards, with load size and arranged as shown in the following figure:



Then, the screen parameter settings interface requires the following settings:

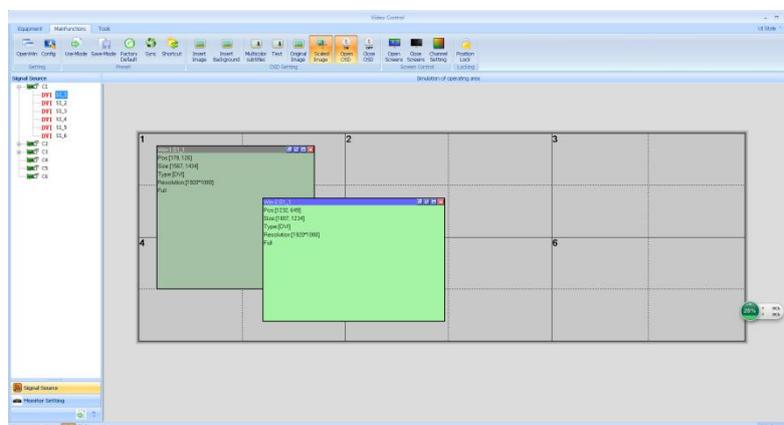


All screen brightness synchronization" This option is marked with a check mark to indicate that the modified color value is for all output ports, and remove the check mark to adjust the color for a single output port.

After setting the layout of the output ports and the number of loading points, click OK to return to the operation area.

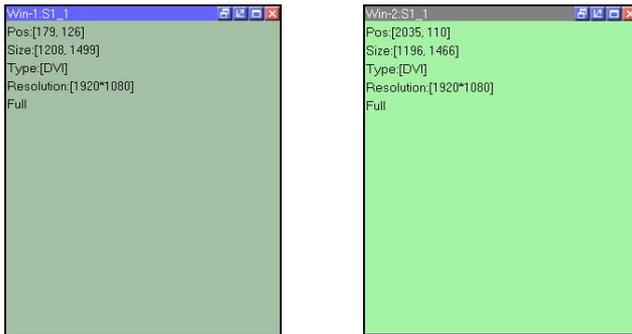
5.2 Open window

Through the above settings, the entire large screen has been spliced together. The gray area represents the entire large screen. How to display on the large screen requires a screen to be created. Here is an example of 2 lines and 2 to illustrate how to create a screen.



Hold down the left mouse button and drag in the operation area, and when you draw a rectangle, release it, and a window is created (or click New Open Window).

The top bar of the window has both gray and blue display, when the window is blue to indicate that the window is selected, you can do a direct operation, when the window is gray to indicate that the window is unchecked, if you want to operate the window, you need to left-click the top bar of the window, the top bar becomes blue to set the window. The selected and unchecked states are shown in the following illustration:

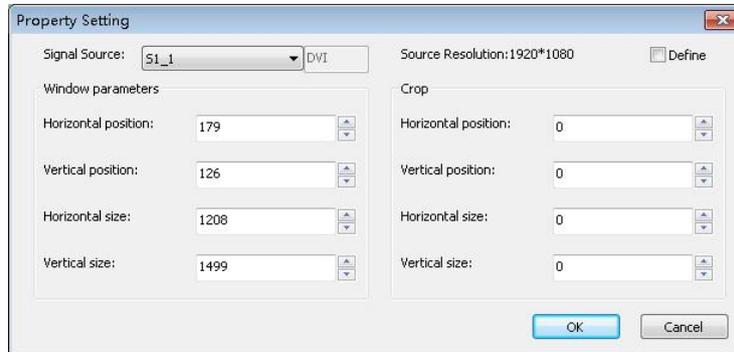


Right-click the window in the selected state to see a list of menu features for this window:

Name	Function description
Save Settings	Archive The parameters that are currently set to complete \$ Stalls
Top	Place the current window at the top level
Bottom	Place the current window at the bottom
Property	Set the properties of the current window
Full-Part Part-Full	Toggle between panorama and local mode: panorama is the input signal of the whole picture, local is the input signal local image (by changing the window properties of the input zoom to select the size and location of the local screen; if not set, and the window size is less than the resolution of the input signal, the default local screen size is the same as the window size, Start with (0,0)
Full-screen	The current window is paved with the entire screen
Maximize the Unit	The analog operation area is divided into areas by dotted lines and solid lines, and the current window may span multiple areas but not fully fill them, allowing the current window to be filled with spanned areas
Restore	Restores window size to adjustment (after full screen or cell maximization)

Shut down	Close (delete) the current window
Close all	Close all windows in the simulation operation area

Click Properties Visible:

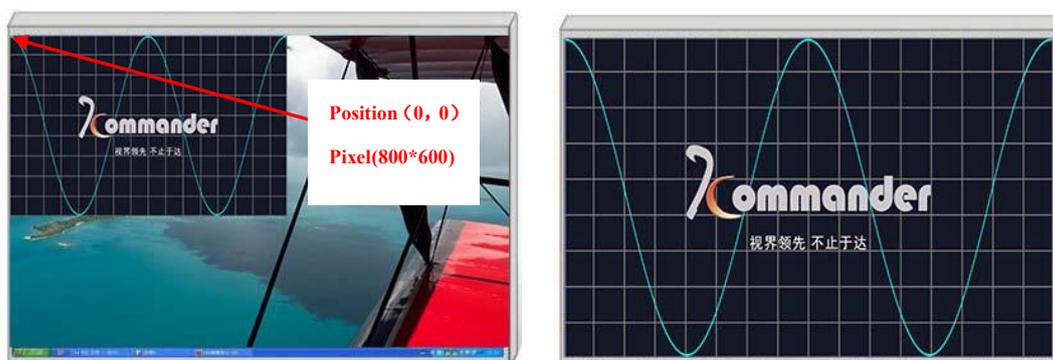


Property settings mainly include following three items: signal source selection, window parameters, local display.

Signal source selection Select the desired signal source for the current window, or you can directly click the signal source in the signal source column on the left to switch the signal.

The screen parameter is to set the size of the current window. If the entire screen is required, one screen will be played, and the size of the window can be set to the pixel size of the screen; if the effect of multiple screens needs to be displayed, adjust it according to the actual situation.

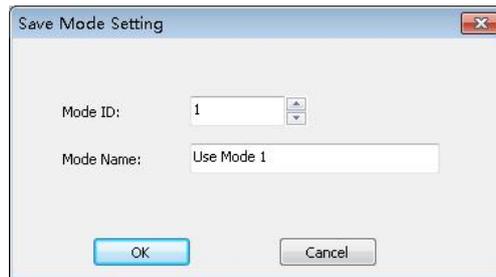
The parameters of the partial display are used to select the size and position of the input screen. When setting the partial display, it is necessary to set the horizontal and vertical positions of the input zoom of the window to 0, the horizontal size to 800, and the vertical size to 600, as shown in the screen below. The effect on the left side shows the complete computer desktop, and the right side shows the screen effect partially displayed in the specified input source area.



5.3 mode save and call

5.3.1 Mode Save

Click Save Mode in the main ribbon to eject the Save Mode Settings window, as shown in the following image:



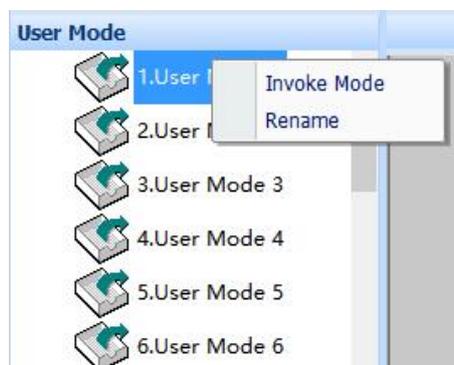
You can change the pattern as needed ID , that is, to save to the first few modes, you can also change the schema name as needed. (excluding the pre-monitoring and hot-backup settings).

P: The device defaults to boot mode one data, so it is recommended to save the most commonly used display mode data in the pattern 1 .

5.3.2 Mode Call

Click on the left side of the software interface, and double-click the corresponding mode to invoke the mode.

P: Right-clicking the user mode can modify the name of this mode, which is more intimate and convenient.

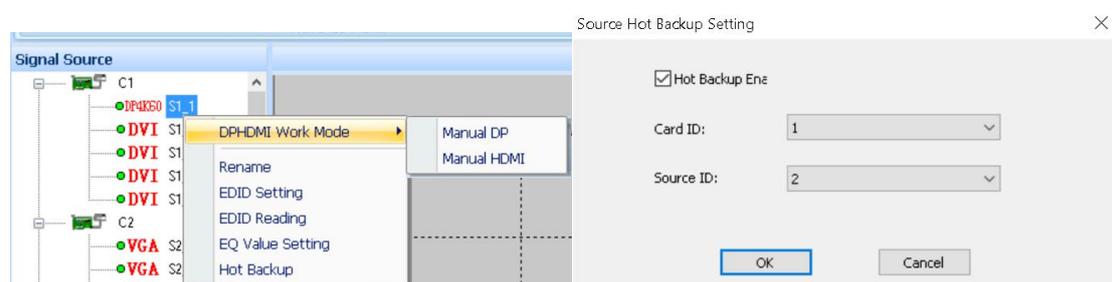


6 Function using

6.1 Input signal source hot backup

KS9800 supports input signal hot backup function, which can designate another input signal as a backup signal for a certain input signal. When the signal is lost, the backup signal can be automatically switched to ensure broadcast safety.

In the signal source management area on the left side of the main interface of the software, select and right-click the input signal source signal, select "Hot Backup", the input signal source hot backup setting dialog box will pop up, check "Hot Backup Enable", and select the signal source card ID and signal source ID parameters, determine the input signal source backup. As shown below:

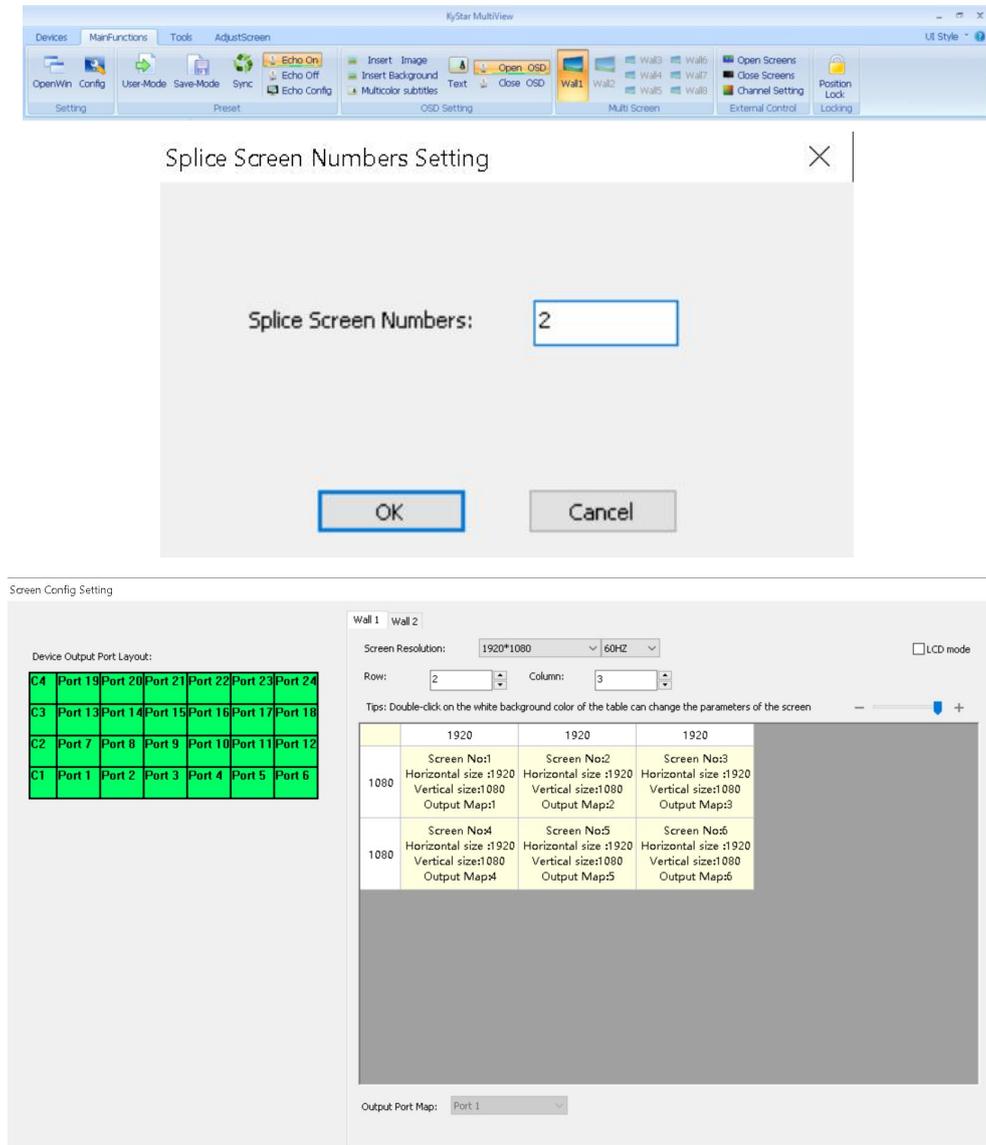


6.2 Group screen management

The KS9800 single machine supports up to eight groups of screens, and the corresponding output resolution of each group of screens can be set separately to cope with the mixed control of multiple display terminals in irregular screens or complex scenes.

1. Click "Screen Configuration" in "Main Function Area", set the number of grouped screens and click OK;
2. The screen parameter setting interface pops up. The six dotted field boxes in the

operation area correspond to the output outlets of the device (see from left to right below) one by one. After setting the parameters, you can switch the group screen in the multi-screen switching bar in the main function area.



6.3 Real-time screen display

This function requires an optional echo monitoring card, and the user can view the current input and output screen and the input signal screen in real time through the computer or mobile terminal.

- 1、 Connect the network port of the splicer control board, the network port of the

graphics card, and the network port of the computer to the same local area network, which needs to be in the same network segment.

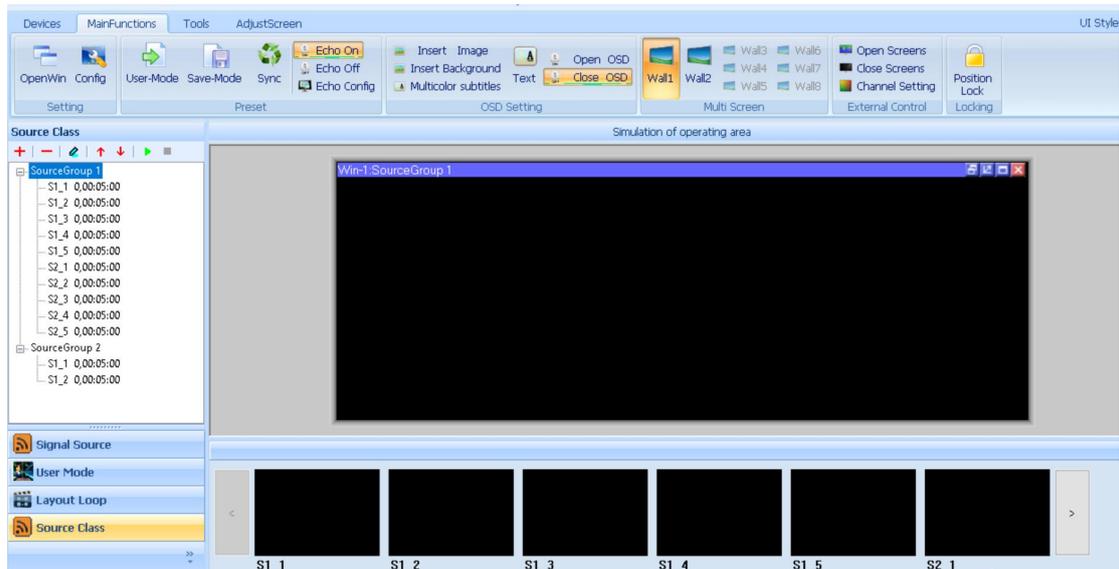
2、Click "Echo Settings" in the main functional area to set the IP address of the device's graphics card. The default address is 192.168.0.250. Click OK. If you need to change the IP address of the graphics card, please contact our technical engineer.



3. Click "Open echo" in the main functional area to view the echo on the software, and view the output signal screen synchronously in the analog operation area for real-time editing.

4. You can drag the input source of preview directly into the selected screen window to complete the signal source switch.

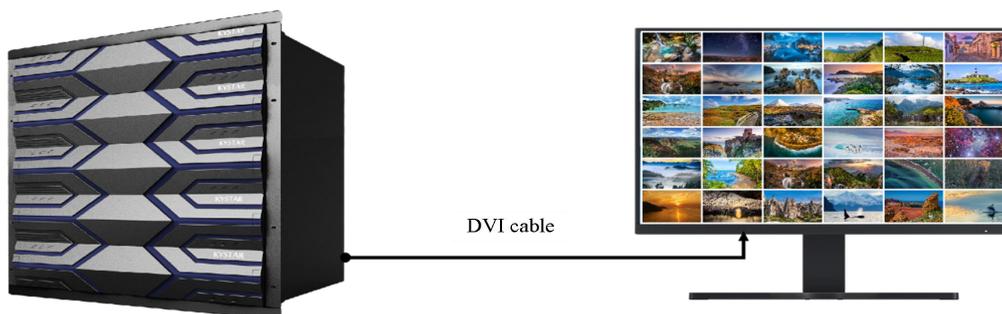
Note: The Kommander cloud control application can be installed on the Pad mobile terminal for setting and viewing



6.4 Local input monitoring

This function requires an echo monitoring card. Users can use the monitor to monitor input signals in real time.

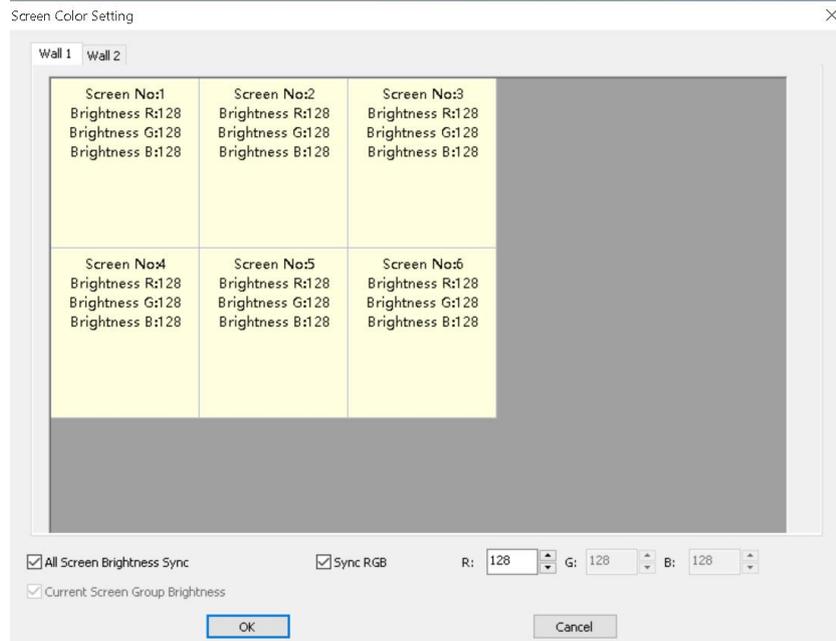
After connecting the LCD to the DVI-monitor port behind the device, the user can view the input source content on the LCD in real time, which is convenient for monitoring the signal source before switching.



6.5 Full-screen output brightness adjustment

On the main interface of the software, select the tool column and click "Brightness" to enter the screen brightness setting page. You can select "Synchronize RGB" to set RGB separately according to the degree of screen brightness color deviation.

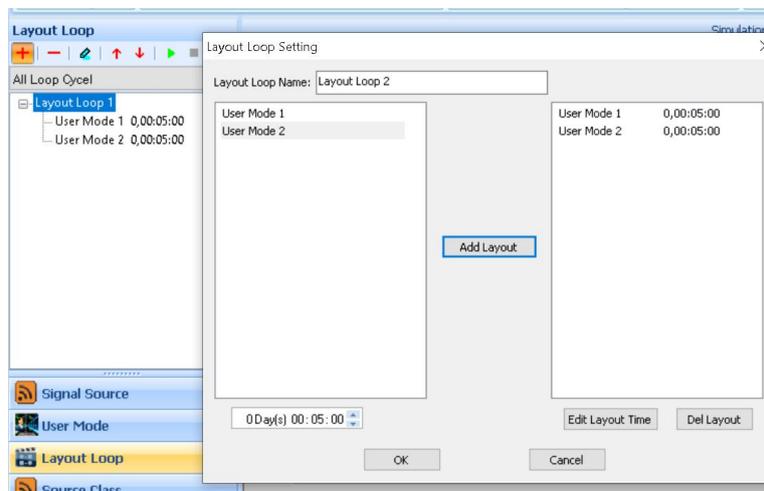
After All screen brightness Synchronization is selected, the brightness of all group screens can be adjusted in a unified manner. After this check box is deselected, The brightness of Current Screen Group Can be selected or deselected. If the brightness of an output port is adjusted separately, cancel the brightness synchronization of the current screen group.



6.6 Scene loop

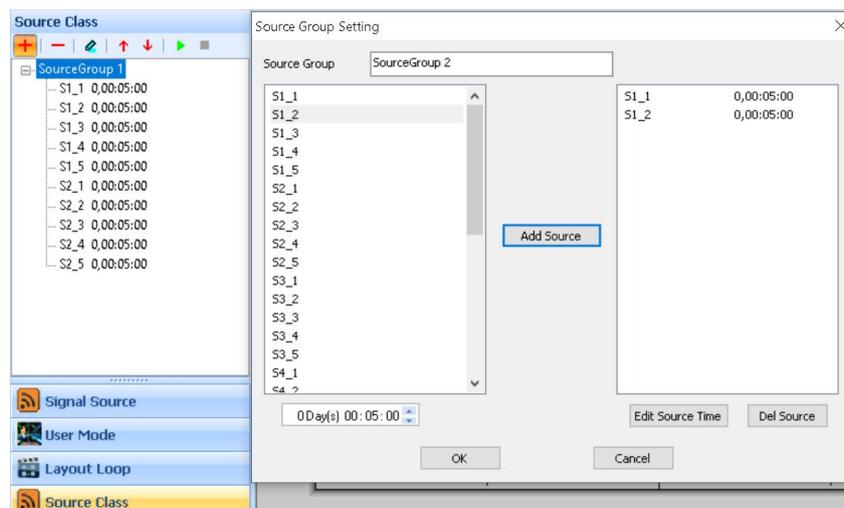
Users can set corresponding user modes according to different application scenarios. One or more user modes can be placed in the same roving group to play the roving scenes and achieve the effect of unattended.

Select scene rotation in the lower left corner of the main interface of the software, and click "+" to set parameters such as user mode and rotation time, and click OK. Click the "Triangle" logo in the scene rotation function column to play, etc.



6.7 Input signal source group

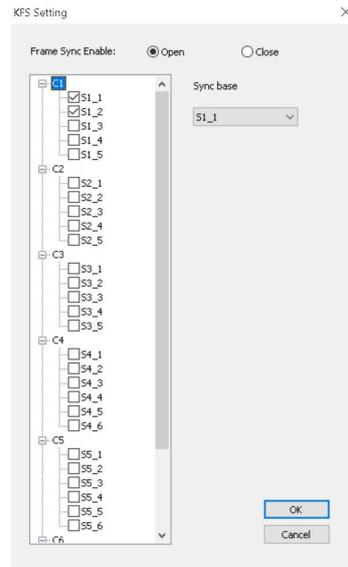
You can group signal sources by scenario or signal type for easy management. On the left side of the main interface of the software, select signal source group and click "+". On the setting interface of signal source group, select signal source, set time and other parameters and click OK. Click the "Triangle" symbol in the function bar of signal source to play.



6.8 KFS frame synchronization

The KS9800 supports the Kystar Frame Synchronization (KFS) technology. When interconnecting with the Kommander server, the KS9800 can fully synchronize multiple servers and achieve point-to-point display with a large screen resolution of 16K or higher.

On the main interface of the software, select the tool column and click "KFS". On the KFS setting interface, select "On", select synchronization baseline source parameters, and click "OK" to complete the operation.



6.9 Multi-machine synchronous

The KS9800 supports cascading of multiple kS9800s, which ensures that multiple KS9800s work at the same frequency.

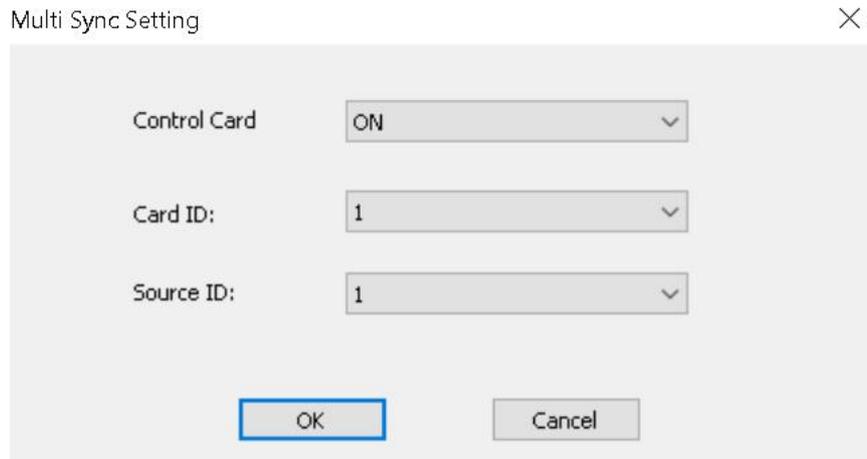
Multi-device synchronization solution 1: A control board with the SYNC function is configured. Connect the two devices using the SYNC cable attached with the device. If the SYNC indicator blinks, the two devices are synchronized.



Multi-machine synchronization scheme 2: The synchronization source is from the same input source, and the device needs to use the input board of the same interface type, such as DVI interface.

On the main interface of the software, select the tool column and click "Multi-machine Synchronization". On the multi-machine synchronization setting interface, set the synchronization signal from the specific splicer input source. Perform the same operation on multiple devices to be synchronized.

The synchronous signal source may use another processor, splicer, or splitter.



6.10 Output switch

The splicer output switch is generally used to quickly switch the output signal state without turning off the power supply of the device.

Select the tool column in the main interface of the software and click "Output on" and "Output off" to close or open



6.11 Configuring Import/Export

The splicing device supports configuration file import and export. After all modes are set, you can export the configuration file for backup. When data is lost due to device misoperation or the control board is replaced, you can directly import the configuration file to avoid reconfiguration.

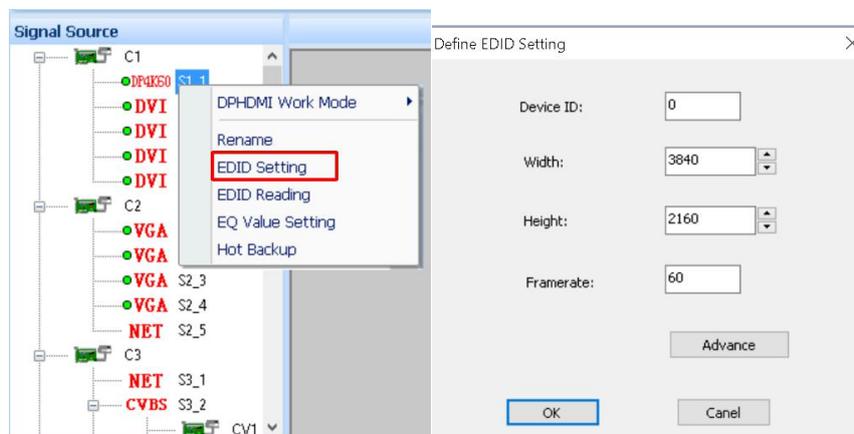
On the main window of the software, select the tool column and click Import configuration, Export Configuration to complete the operation.



6.12 Enter the source EDID Settings

The KS9800 can do EDID custom Settings on the input signal to accommodate various screen resolutions.

Select the tool column in the main interface of the software and click "EDID" to set EDID related parameters for the currently selected input source. Click "OK" to complete the operation. You can also right-click the signal source in the left list of the software and choose Set EDID to enter the page for setting EDID information.



6.13 IOS cloud control/Android Cloud control

KS9800 is also equipped with cloud control APP (compatible with IOS and Android). When the KS9800 and the mobile device are connected to the same LAN, you can control the KS9800 conveniently.

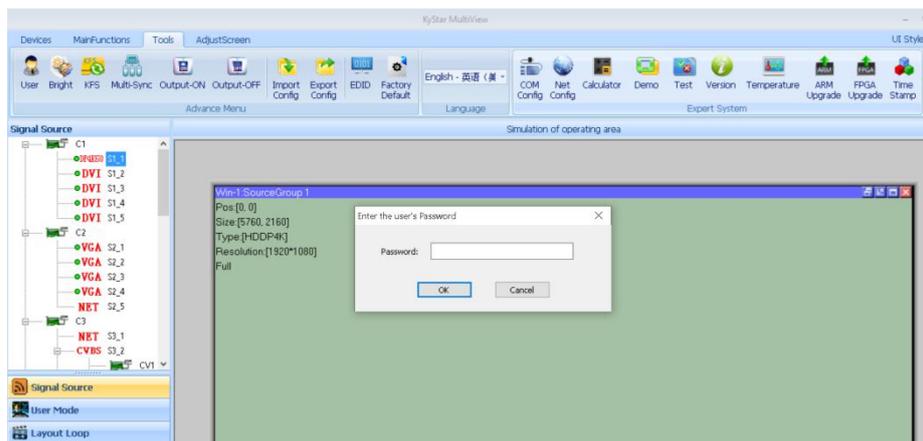
For detailed operation instructions, please refer to KS9800 cloud control instruction



6.14 Remote Online Upgrade

KS9800 can remotely upgrade the equipment program, so that the maintenance of the entire system is very simple.

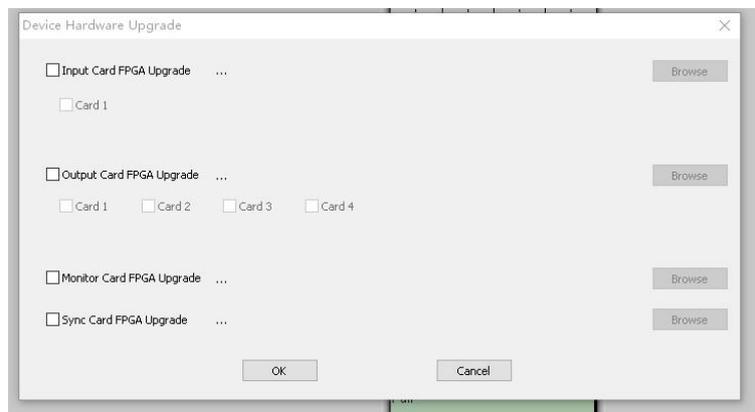
Click "ARM Upgrade" or "FPGA Upgrade" in the tool column on the main interface of the software, and enter the password to enter the upgrade



During the ARM upgrade, the system enters the BootLoader mode. You need to connect the device again to enter ARM Upgrade, select the upgrade file, and restart the device as prompted.

During FPGA upgrade, select the board to be upgraded, upgrade the same type at a

time, click Browse, select the upgrade file, complete the upgrade as prompted, and restart.



Note: Please be careful when performing the upgrade. Please complete the upgrade under the guidance of our technical engineers.

6.15 Hardware real-time monitoring

Through the upper computer software, users can real-time monitor KS9800 hardware temperature, self-test results, running status, firmware version and other information.

In the tool selection area of the main interface of the software, click "Test, Version Information, temperature Monitoring" in the column of expert system for real-time monitoring.

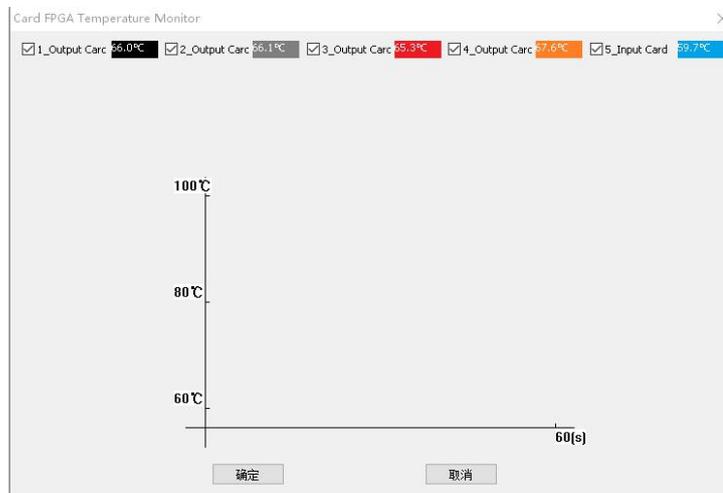
On the device configuration status page, you can view the running and control status of the board.

	Type	Mem_OK	Video_OK	Control_OK	FlashSafe_OK
16	None				
15	None				
14	None				
13	None				
12	None				
11	None				
10	None				
9	None				
8	None				
7	None				
6	None				
5	Input Card HDMI4K60 HDMI4K60	XXXX	●	●	●
4	Output Card HDMI HDMI	XXXX	●	●	●
3	Output Card HDMI HDMI	XXXX	●	●	●
2	Output Card HDMI HDMI	XXXX	●	●	●
1	Output Card HDMI HDMI	XXXX	●	●	●
Control Card		Control Card			

The version information page can check the type and program version number of each board, which is convenient for maintenance and status confirmation.

Type	ARM Version	FPGA Version
5 Input Card	2021-10-20 14:0:0	2021-9-8 15:2:0
4 Output Card	2021-12-14 15:0:0	2021-12-1 10:35:0
3 Output Card	2021-12-14 15:0:0	2021-12-28 10:35:0
2 Output Card	2021-12-14 15:0:0	2021-12-28 10:35:0
1 Output Card	2021-12-14 15:0:0	2021-12-28 10:35:0
Control Card	2022-1-22 17:198:24	2021-11-8 01:0:0

The temperature monitoring page is as follows, you can view the temperature value of each board, which is convenient for monitoring the hardware status.



7 FQA

Q1: DVI, HDMI, VGA and CV Port Definition.

A: DVI: DVI: Digital (HD) Video Signal, an interface standard jointly introduced by DDWG (Digital Display Working Group) combined by Silicon Image, Intel and etc. It has been optimized in speed, resolution, HDCP agreement and so on. Its signal source is normally desktop or laptop.

HDMI: High Definition Multimedia Interface, a digital audio/video interface technology. It's specialized digital interface and can send audio and video signal at the same time with the quickest data transmission of 5Gbps. Its signal source is usually camera, laptop or information publication system.

VGA: Analog Video Signal (Video Graphics Array), a video transmission standard introduced together by IBM in 1987 with PS/2 at the same time. VGA enjoys high resolution, rapid display rate, rich color and is widely applied among color displays. Its signal source is normally desktop, laptop, VOD and Matrix.

CV: Composite video signal, also called composite video, which can pack all signals together and transfer it as a whole. Its signal source is normally camera, DVD, Cable Box, VOD and video matrix.

Q2: Please give a brief introduction of the connection method of graphics, splicer, transmitting card, receiving card and LED.

A: Connect graphics DVI (VGA) output port with splicer DVI-IN(VGA-IN) input---output splicer DVI-OUT to transmitting card---connect transmitting card with terminal receiving card of the back screen by network cable---connect receiving card with each screen body with control and cover whole screen by cascade.

Q3: What is output resolution?

A: Output resolution is pixel mode output by single port of splicer and the largest control range of splicer output. Regular resolutions are: 1024*768, 1280*1024, 1600*1200 and 1920*1080, which are set with the same resolution mode of transmitting card.

Q4: What is administrator password set in PC Software?

A: No password. Just a click is ok.

Q5: What are the reasons for failure of serial connection with the application of serial splicing processor?

A: Possible reasons are as follows:

- ① Wrong selection of COM port. Just click “Confirm” and re-click “opening serial port” key.
- ② Occupation of serial port. Two or more software windows are not allowed to be open simultaneously.
- ③ Failure of serial port line connection or damage of the line.
- ④ Damage of COM drive of the board or serial port.

If suggestions above fail to solve your problems at last, please contact our customer service in time. We will help you to solve your problems as soon as possible.

Q6: What are the possible reasons for network overtime with network splicing processor?

A: Possible reasons are as follows:

- ① IP address of local connection is not in the same field with splicer.
- ③ Failure of network line connection or damage of the line.
- ③ Damage of network port of signal source.

If suggestions above fail to solve your problems at last, please contact our customer service in time. We will help you to solve your problems as soon as possible.