

KLS4

Four port 2-in-1 video controller

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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 edition released	2021.03.31
V1.1	Increase the input and output to the widest 4096 and the highest 4096 Modify some content descriptions in the text	2021.07.08
V1.2	Modify the description of network port specifications	2021.09.18
V1.3	Modify the cover	2021.10.25
V1.4	Correct size data	2021.11.18

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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I、 Product discussion

With the rapid development and application demand of LED display industry, various control requirements for large screen control system emerge as the times require. However, due to the limitations of the large screen control system in image processing, picture control and signal format conversion, there are some weak links in the large screen control system of LED, which can not meet the needs of users. The main problems are as follows:

1. The signal source access format of large LED screen control system is limited. At present, only digital DVI signal is commonly used. Many signal sources (such as VGA) can not be displayed directly on the large LED screen through the control system.

2. The image processing effect of traditional signal acquisition card is poor, which causes great loss to the clarity of the picture while converting the signal format.

3. The large LED screen control system can only capture the corresponding points of the large LED screen for display, while in some customer sites, it is necessary to display any size or complete computer desktop screen at will.

4. The large LED screen control system can only capture the corresponding points of the large LED screen for display, while in some customer sites, it is necessary to display any size or complete computer desktop screen at will.

In view of the above problems, our company independently developed a number of video processing products. The product adopts advanced control and image processing technology, which can not only realize switching between signals quickly and steadily, but also process multi-level pictures. In addition, the product can be controlled by keyboard and PC computer on the device, which makes the operation simple and convenient.

II 、 Product characteristics

- Supports independent operation of the control panel, the design of the knob and number keys makes the device easier to use;
- Support two working modes: two-in-one Processor and Sending card;
- Support the software control of the host computer to realize visual and quick operation;
- Support brightness and contrast, enhance image display effect;
- Support arbitrary scaling of screen size;
- Support motion compensation, no tailing appears on the screen;
- Support noise reduction processing to reduce noise stains;
- Support 4 channels of high-definition video signal input, 4 channels of network port output;
- Supports up to 2.6 million custom input resolutions, with a maximum width of 4096 and a maximum of 4096;
- Supports up to 2.6 million custom output resolutions, with a maximum width Support retransmission configuration and read-back configuration function, no host computer can realize maintenance;
- Support keyboard lock function to prevent misoperation of on-site personnel after construction and commissioning;
- Supports saving and recalling of five scene modes;
- Support navigation (smart setting) quick setting;
- International standard height of 1.5U, easy to carry and install;

III、 Technical indicators

The video controller adopts the latest patented video processing technology, and has the video conversion capability of any format input and corresponding format output. Video signals such as HDMI and DVI-D can be processed and enhanced to meet customer application requirements. The detailed specifications are as follows:

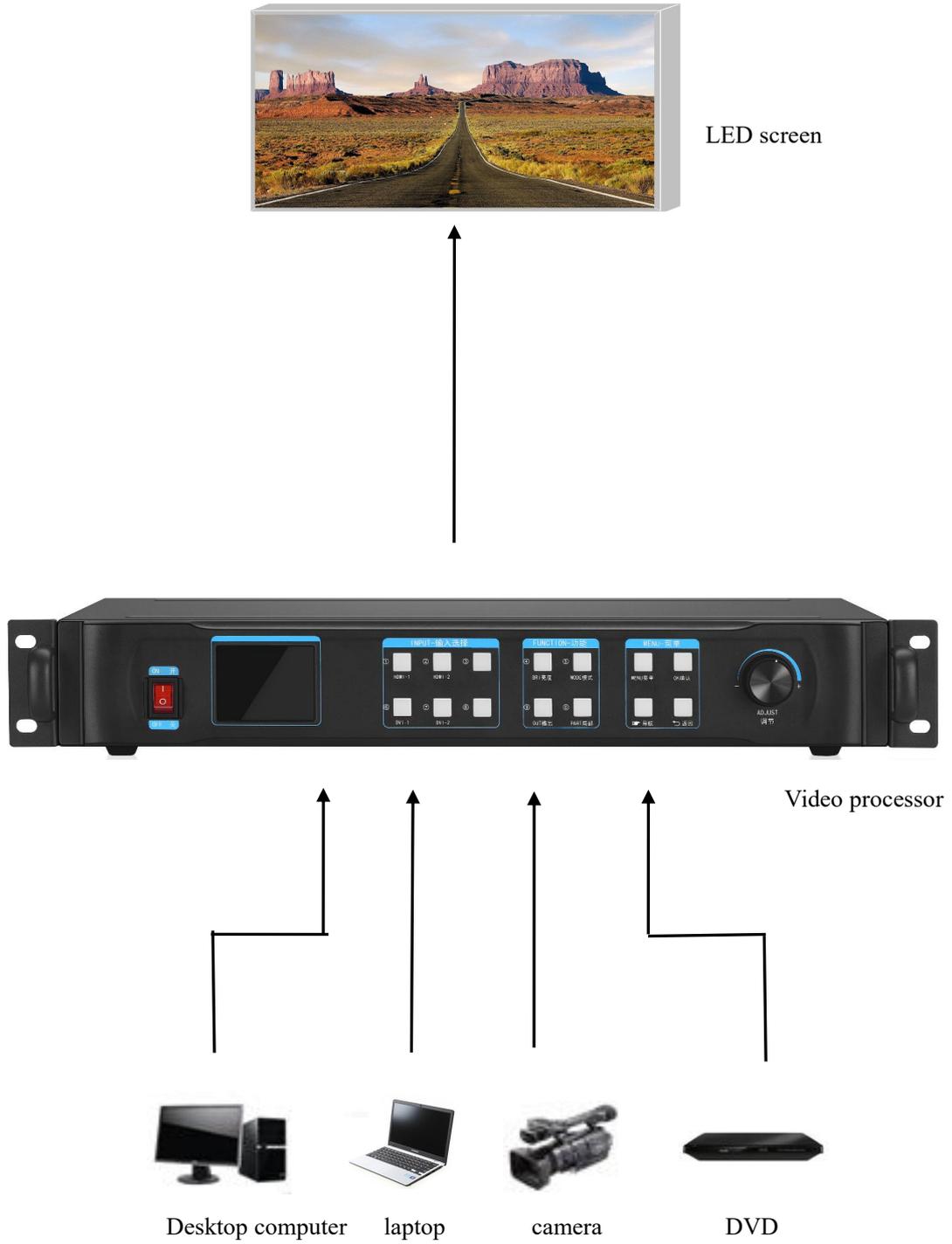
Input port		
Type	quantity	Specification
DVI	2	1.3 standard, support custom input resolution, maximum width/height 4096, maximum resolution 2.6 million
HDMI	2	1.3A standard, support custom input resolution, the maximum width is 4096, the maximum resolution is 2.6 million pixels
1/8" TRS audio	1	3.5mm stereo jack, 2.0Vp-p / 10 K Ω

output port		
Type	quantity	Specification
LAN	4	LAN port, used to transmit data to the receiving card, the maximum bandwidth is 2.6 million pixels

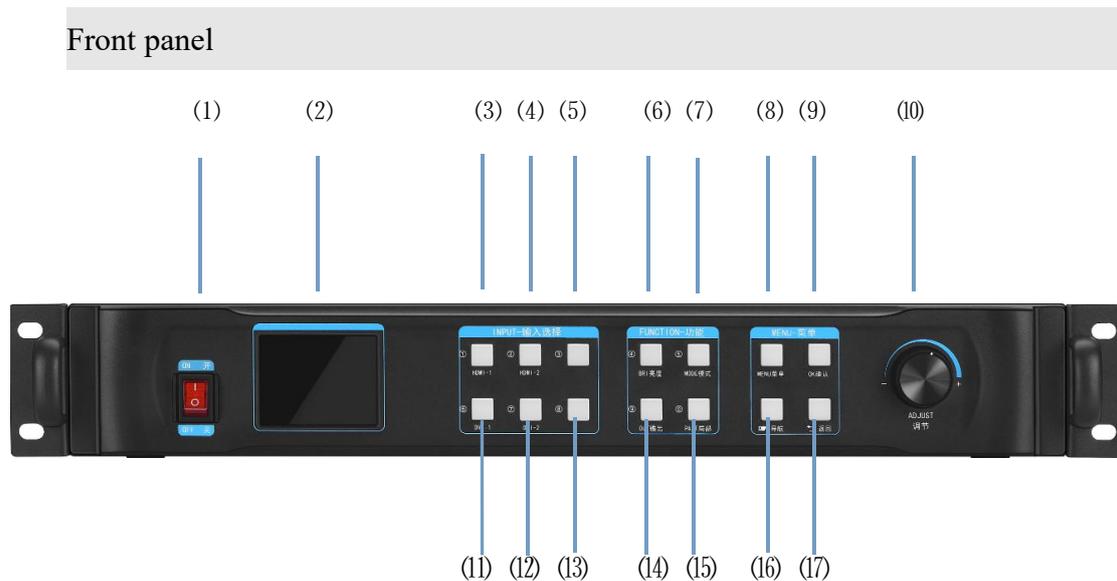
control port		
Type	quantity	Specification
USB (Type-B)	1	USB-CFG interface, used to connect PC upper computer control
UART (RJ-45)	1	Serial port protocol

Whole machine specification	
Input power	100-240VAC 50/60Hz 0.6A
Operating temperature	0-45°C
Dimensions	480×246×73mm (L×W×H)
net weight	5KG
Whole machine power consumption	36W

IV、Working sketch

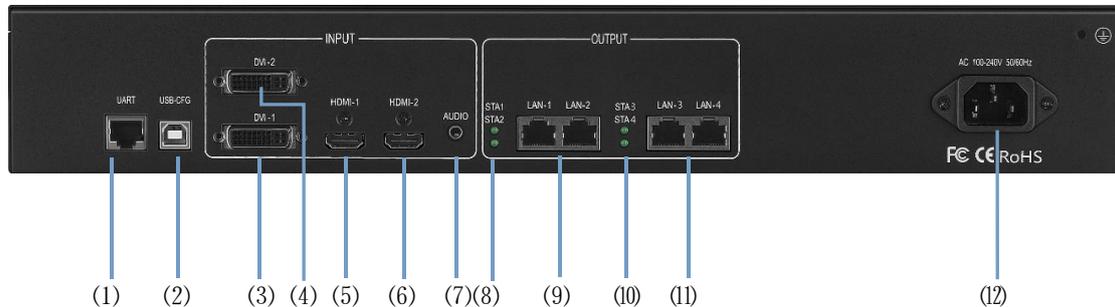


V、Panel Structure



- (1) POWER-----Device switch, OFF - power off, ON - power on
- (2) LCD-----Text display, displaying menus, parameters, etc.
- (3) DVI-----Digital signal channel key
- (4) HDMI-----HD multimedia channel button
- (5) VGA-----Analog signal channel key
- (6) BRI-----Brightness setting
- (7) MODE-----User mode call
- (8) MENU-----Menu
- (9) OK-----Confirm button, click to enter the next interface when navigating mode
- (10) ADJUST-----Knob increase the decrease button, press the OK button
- (11)/(12) CV1~2-----Composite signal channel button
- (13) USB-----USB signal channel button
- (14) OUT-----Switch between output black screen and normal; Note: Blue screen is switched with knob
- (15) PART-----Do partial panorama switching
- (16) Navigation key-----User navigation mode, as a step value switch when adjusting the data size
- (17) Arrow sign-----back key

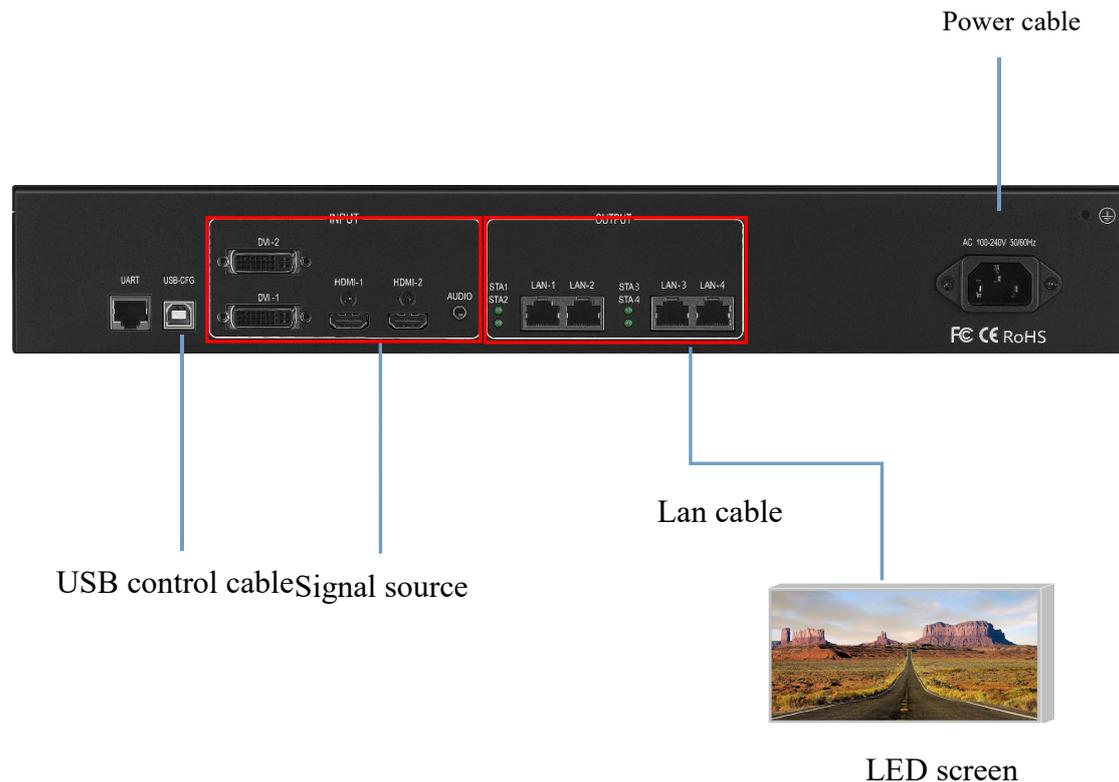
Back panel



- (1) UART -----Connect the host computer software through the 9-pin serial port to the RJ45 network port
- (2) USB-CFG -----Connect the host computer software through the USB port
- (3) USB -----Program upgrade port, USB source input interface
- (4) HDMI-----Laptop, etc. HDMI signal input interface
- (5) DVI -----DVI signal input interface such as desktop computer
- (6) VGA-----laptop and other VGA signal input interface
- (7) CV-1/2-----Composite signal input interface such as camera
- (8) AUDIO1/2-----Audio input interface
- (9) AUDIO -OUT-----Audio output interface
- (10) SAT1/2/3/4-----Network port 1/2/3/4 signal indicator
- (11) LAN1/2/3/4-----Network port output
- (12) Power port-----220V power

VI、 Wiring and installation

Wiring diagram



installation step

1、 Connect the DVI interface of the graphics card to the DVI-IN input port of the video processor as shown in the figure.

2、 Then connect as shown in the figure, connect the DVI interface of the graphics card to the DVI-IN input port of the video processor, and connect the DVI-OUT output port of the processor to the sending card;

3、 Make sure that the wiring is correct and power on to turn on the video processor.

VII、 Equipment commissioning

Navigation mode

This Wizard is suitable for most cases. It is simple to set up. With the prompt, you can gradually debug it to achieve the desired display effect. The processor automatically enters the

navigation mode when it is powered up.(or Click  Enter Navigation Mode) :



Note: Screen-adjusting navigation refers to debugging parameters of sending and receiving cards, which requires box files; image navigation refers to debugging parameters of large screen image and local display.

Click on "Screen-adjusting Wizard" and enter the password for setting the screen-adjusting:



Note: Set the password of "168", "666", "888" and "999" to adjust the screen.

Select whether to import the box file:

Wizard

Whether to import box files

★ [Yes]
 No

Note:Knob to Change,press Ok to next

Wizard

Select Box File

★ [[SYS_P3_64x64_128X128]]
 SYS_P4_64X32_128X384

Note:Knob to Change,press Ok to next

Note: The box files need to be imported into the equipment through the upper computer software.

The box files here refer to the parameters of the receiving card.

Set the number of cabinet rows/columns:

Wizard

Set Box & Row

Col

20

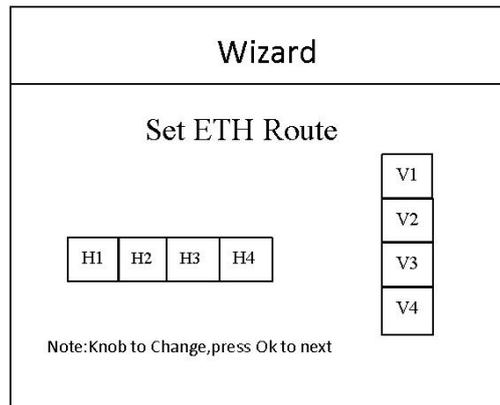
Row

20

Note:Knob to Change,press Ok to next

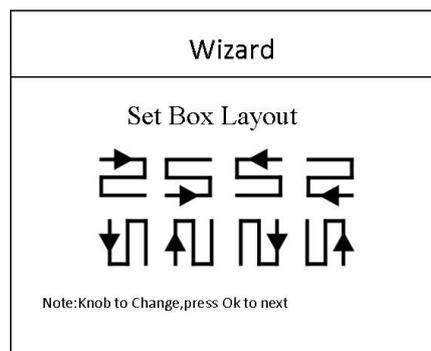
Note: Number of rows/columns in the box refers to the number of horizontal/vertical receiving cards used in the large screen.

Set the cabinet splicing method:



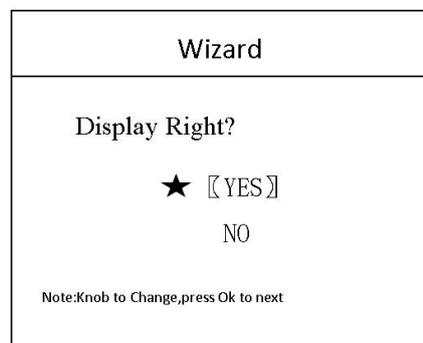
Note: The cabinet splicing method refers to the splicing method between the two network cables of the device.

Set the cabinet connection method:



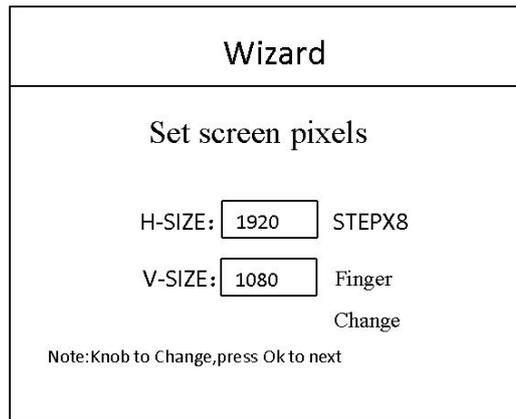
Note: Cabinet routing mode: Series mode between receiving cards should ensure that the direction of the two cable is the same.

Display whether normal:



Note: The screen displays normal click ok; if abnormal, click No, go back to selecting the cabinet file and set it again.

Set screen pixels.



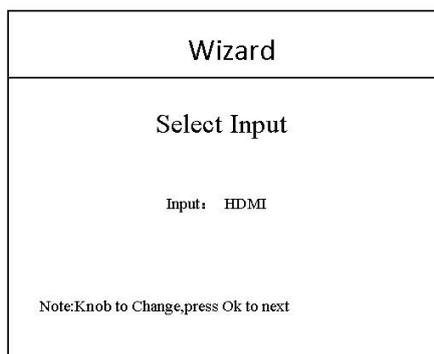
Note: Set screen pixels, the screen pixels is the resolution of the whole screen.

Save settings:



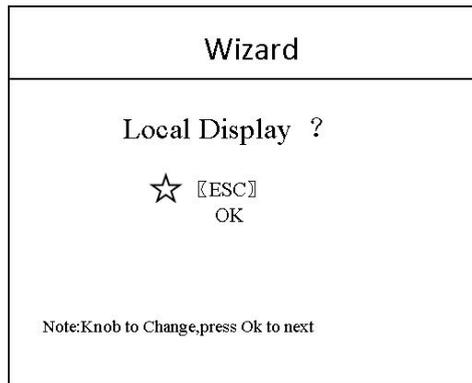
Note: Some parameters of the control system are saved here.

Select the input source:



Note: Select the input signal source

Whether local display is needed:



Note: This interface is to select whether it is necessary to intercept part of the image of the input signal source and display it on the LED screen.

Ps-The most common way to do "partial display" is to display the full screen of the playback window and switch to the panoramic display of the computer desktop at any time



full mode



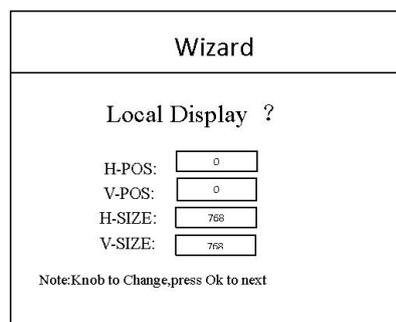
Part mode

Among them, "position" - where to start the interception; "size" - how big the interception is. The interface is as follows:

Local display settings:

Among them, "position" - where to start the interception; "size" - how big the interception is. The interface is as follows:

Local display settings:



Save mode settings:

Save mode			
☆ [[Mode 1]]	<table border="1"> <thead> <tr> <th>Note</th> </tr> </thead> <tbody> <tr> <td> </td> </tr> </tbody> </table>	Note	
Note			
[[Mode 2]]			
[[Mode 3]]			
[[Mode 4]]			
[[Mode 5]]			
Note:Knob to Change,press Ok to next			

End of navigation:

<h1>Wizard Success</h1>
<p>Welcome to wizard Wizard End</p>

The last step is to save the settings, in which mode one is automatically invoked after booting.

At this point, the setup of the processor is completed. In the process of using it, the signal can be switched directly with the front panel. When "local display" is needed,click  It can switch the "local/panoramic" of the current signal source. If multiple modes are saved,use  call different mode

Thank you again for using our video processor. Please refer to the back section for other details.

VIII、 Control menu

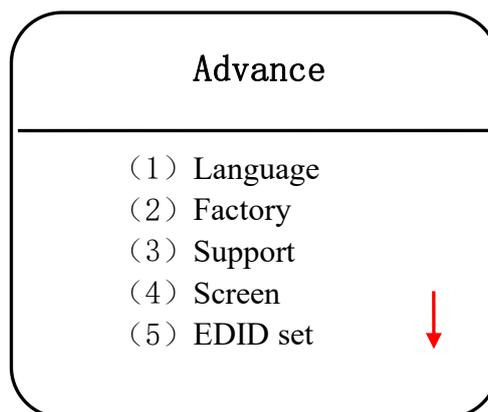
Main menu	Option	Defaults
(1) device mode	2 in 1 mode	
	Sending card mode	
(2) scaler parameters	Horizontal position	0
	Vertical position	0
	Horizontal size	1920
	Vertical size	1080
(3) part	Horizontal position	0
	Vertical position	0
	Horizontal size	0
	Vertical size	0
(4) save mode	Mode 1	
	Mode 2	
	Mode 3	
	Mode 4	
	Mode 5	
(5) user mode	Mode 1	
	Mode 2	
	Mode 3	
	Mode 4	
	Mode 5	

(6) more	(1) Language Settings	English	
	(2) factory	confirm	
		cancel	
	(3) Support	Please contact the sales staff. 400-159-0808	
	(4) screen parameter	Out width	1920
		Out height	1080
	(5) EDID setting	HDMI 1	Default
		HDMI 2	Default
		DVI 1	Default
		DVI 2	Default
	(6) resend config	Confirm	
		Cancel	
	(7) read config	Confirm	
		Cancel	
	(8) brightness	Brightness	128
		Red	128
Green		128	
Blue		128	

	(9) Contrast setting	Contrast	128
	(10) Voice	Mute	
		Out	
		Volume	
		Select source	
	(11) Multi-machine synchronization	Enable	
		Unable	
	(12) expert setting	1 Mode shortcuts	
		2 keyboard lock	

The functions of the top five options have been introduced earlier, and will not be repeated here. Regarding the output resolution, it will automatically change when you navigate to set the screen parameters, or you can select it manually.

Next, focus on explaining the meaning of each option in the "Advanced Menu":



(1) 、 Language

The language mode of the video processor is English by default, and users can switch between Chinese and English through the language setting menu in the advanced menu.

(2) Factory

When there is too much data in the video processor or the settings are confusing, you can choose to restore the factory settings.

(3) Support

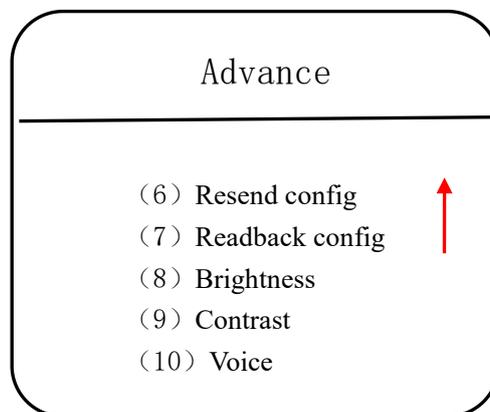
Provide customers with good after-sales service.

(4) Screen setting

Set the screen resolution, the screen resolution is the actual pixel size of the screen.

(5) EDID setting

Support EDID reading, modification and customization.



(6) Resend config

After replacing the receiving card, the parameters of the receiving card can be directly written into the receiving card through the video controller, and solidified into the receiving card, without sending from the host computer.

(7) Readback config

After the video controller is replaced, the device parameters can be directly read from the receiving card and solidified into the video controller without sending from the host computer.

(8) Brightness

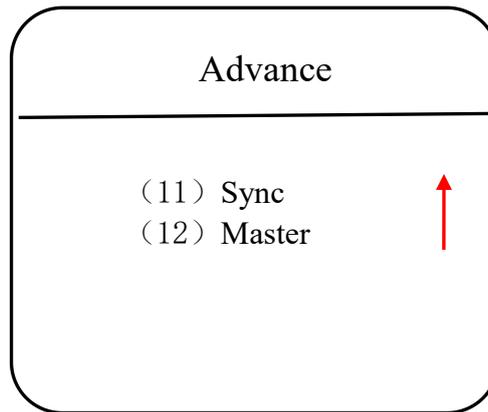
The video controller is equipped with a brightness setting function, which can directly control the brightness of the LED large screen, see the control menu table for details.

(9) Contrast setting

The video controller is equipped with a contrast setting function, which can directly control the contrast of the LED screen.

(10) Audio settings

You can set the volume and the audio input port that matches the signal source.



(11) Multi-machine synchronization

It is used for splicing large screens with multiple devices and can be turned on and off on this page.

(12) Master

①Mode shortcut key: When the mode shortcut key is enabled, the numbers 1-5 on the front panel only correspond to 5 user modes

②Keyboard lock: In order to prevent users from misoperation on the device, the video controller provides the function of keyboard lock. When the keyboard lock is turned on, press the MENU button 10 times to unlock.

IX、 frequently asked questions

Q1: DVI、 HDMI、 VGA、 CV、 USB port definition.

A:

DVI: Digital (HD) video signal is an interface standard introduced by DDWG (Digital Display Working Group) in 1999 by Silicon Image, Intel and other companies. It has been well optimized in speed, clarity and HDCP protocol. Signal sources are typically desktop computers, notebooks, etc.

HDMI : High Definition Multimedia Interface (HDMI) is a digital video/audio interface technology. It is a special digital interface suitable for image transmission. It can transmit audio and video signals at the same time. The maximum data transmission speed is 5 Gbps. Signal sources are usually cameras, notebooks, information dissemination systems, etc.

VGA: Analog Video Signal (Video Graphics Array) is a video transmission standard developed by IBM with PS/2 in 1987. It has many advantages, such as high resolution, fast display speed and rich color. It has been widely used in the field of color display. Signal sources are typically desktop computers, notebooks, song machines, matrices, etc.

CV: Composite video signal, also known as composite video signal, is a signal that packages all signals into a whole for transmission. Signal source is usually camera, DVD, TV box, song-ordering machine, video matrix and other equipment.

USB: Universal Serial Bus (USB), an external bus standard, is used to standardize the connection and communication between computers and external devices. It is an interface technology applied in the field of PC. USB was proposed jointly by Intel, Compaq, IBM, Microsoft and other companies in 1994. Signal source is usually U disk, SD card, etc.

Q2: Briefly describes the connection mode of video card, video processor, receiving card and large LED screen.

A: The video card's DVI (VGA) output port is connected to the DVI-IN (VGA-IN) input of the video processor. The output of the video processor's network port is connected to the terminal receiving card behind the screen through the network cable. The receiving card connects and controls part of the screen and cascades the whole screen.

Q3: How to set the keyboard lock of the video processor? How to unlock?

A: Menu - Advanced Menu - Expert Settings - Keyboard Lock. Keyboard can be locked after opening. Keyboard can be unlocked even by pressing MENU key 10 times.

Q4: What is the password to enter the screen navigation?

A: “168”“666”“888”“999” Any one is OK.

Q5: What are the possible reasons why the upper computer can't detect the equipment?

A: To use a computer to control the video processor, you need to connect its command transmission line. That is, the serial line.

Failure to connect may result from the following circumstances.

- ① The equipment is not powered on.
- ② The computer is not equipped with USB cable driver or the USB driver is damaged.
- ③ Serial line is not well connected or damaged.

If the above suggestions do not solve your problem, please contact our customer service staff in time. We will help you solve the problems in the first time.

Q6: The large screen of the video card directly connected with the sending card is displayed normally, and screen will appear black screen when it is connected to the video processor.

A: Observe whether the sending card indicates that the green light flashes normally. If the signal is given by the processor's output port, the possible reasons are as follows:

① The problem of signal source. When connecting the computer graphics card, the copy mode of the graphics card should be set. If not, the DVI port of the graphics card has no data output. Setup steps: Turn off the power supply of video processor - reinsert the line from video card to video processor - ATI graphics card reads and replicates automatically. NVIDIA graphics card needs to enter the graphics card control center and set up multiple display + double screen replicate mode.

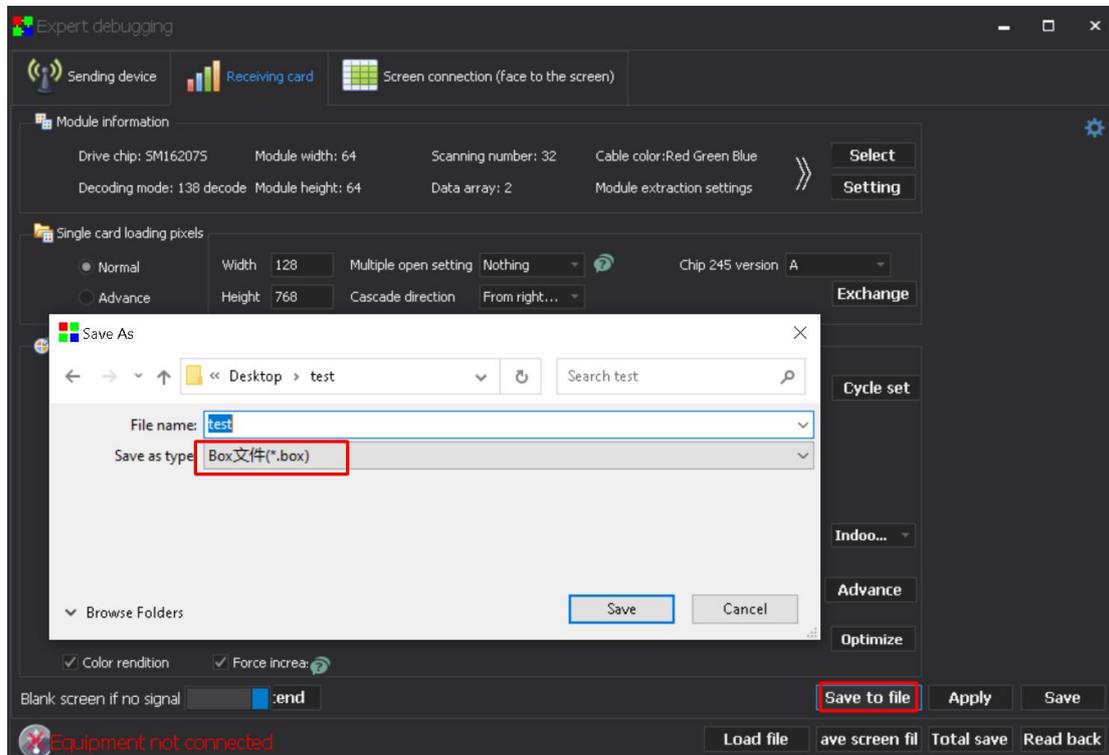
② Connection problems. When the signal line interface contacts badly or there is a problem inside the wire, the large screen will appear abnormal phenomena such as color stripes, flower screens and so on. Check carefully whether the pin in the signal line is broken or inclined and change the signal line.

If the above suggestions do not solve your problem, please contact our customer service staff in time. We will help you solve the problems in the first time.

X、 Method of Importing Box Files

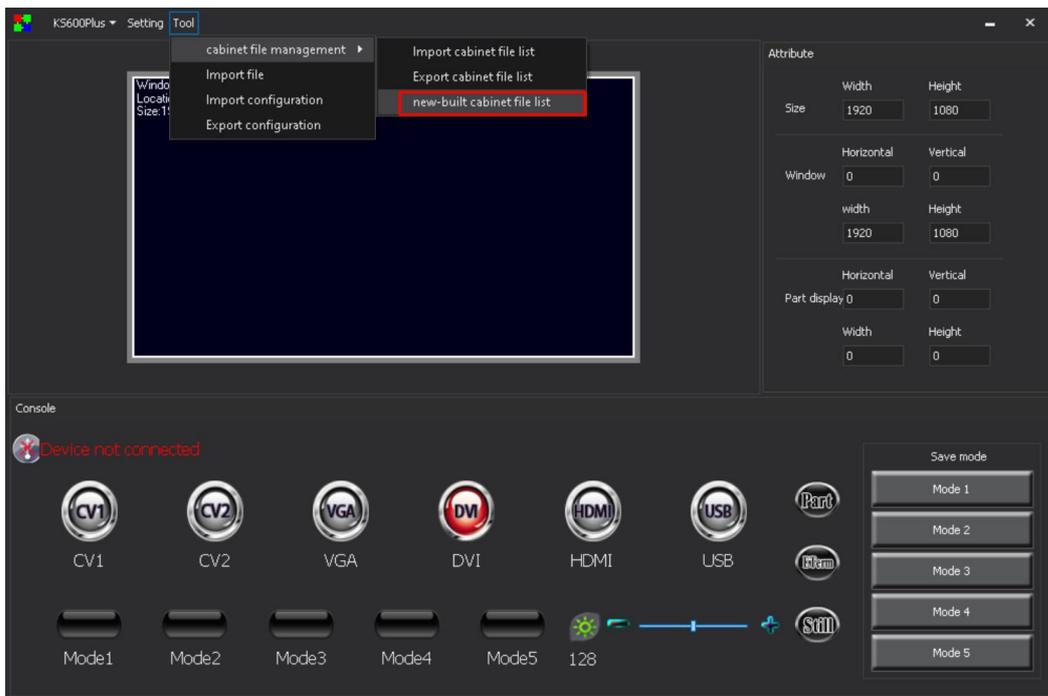
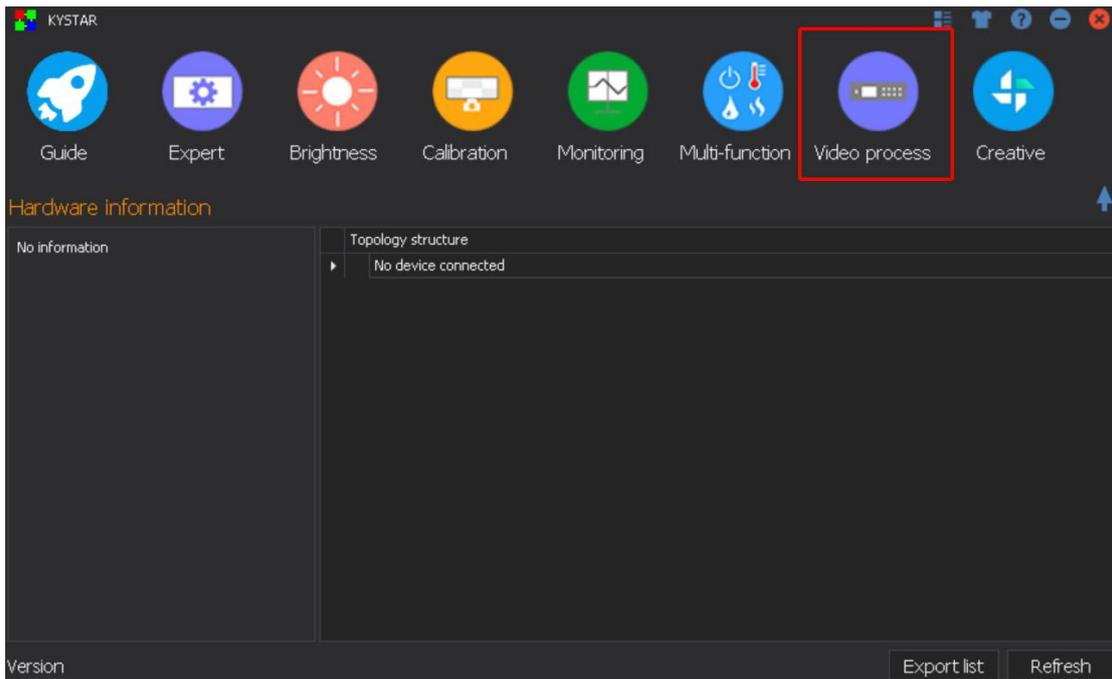
1. Save cabinet files

Expert screen adjustment interface has the option of saving box files:

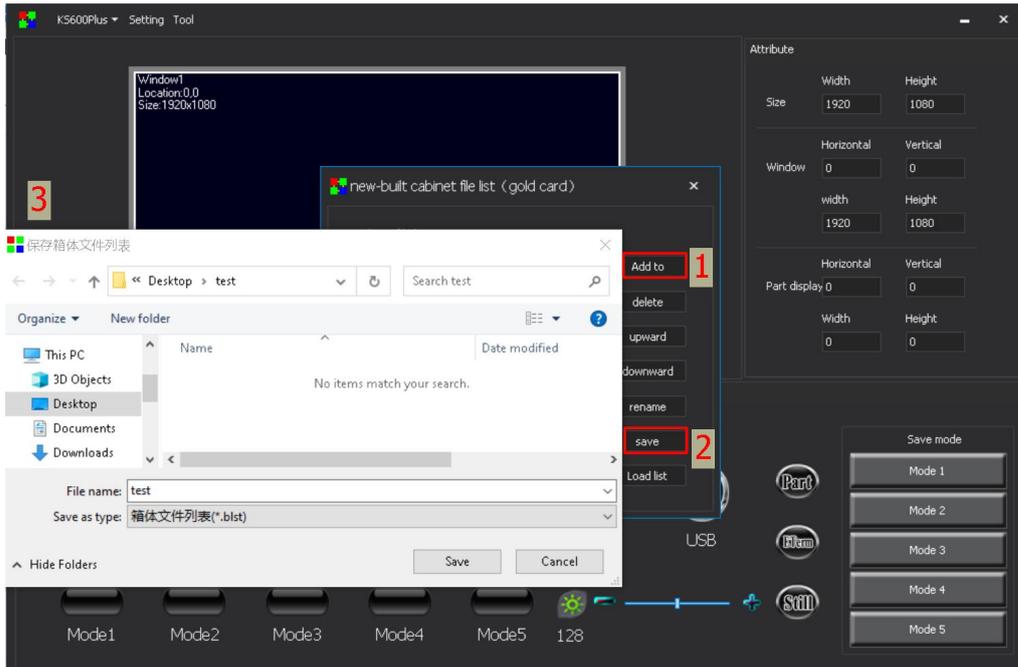


2、 new cabinet file

Select the video processing option of the main menu of the software, and select the list of new box files from the tool menu inside:

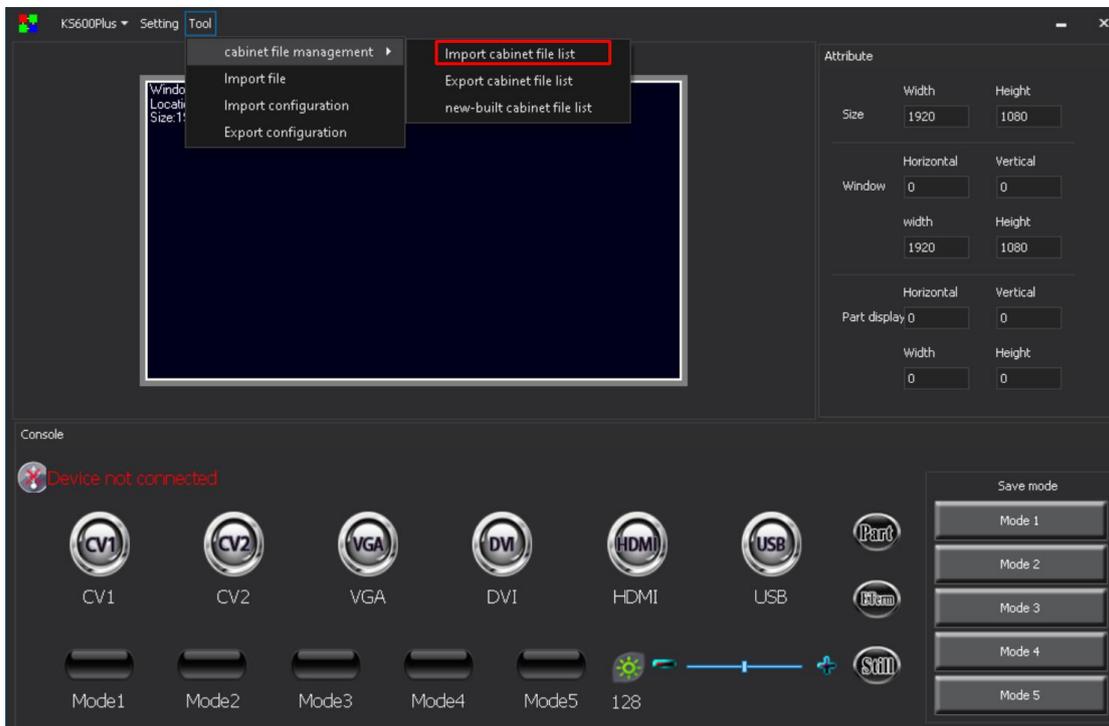


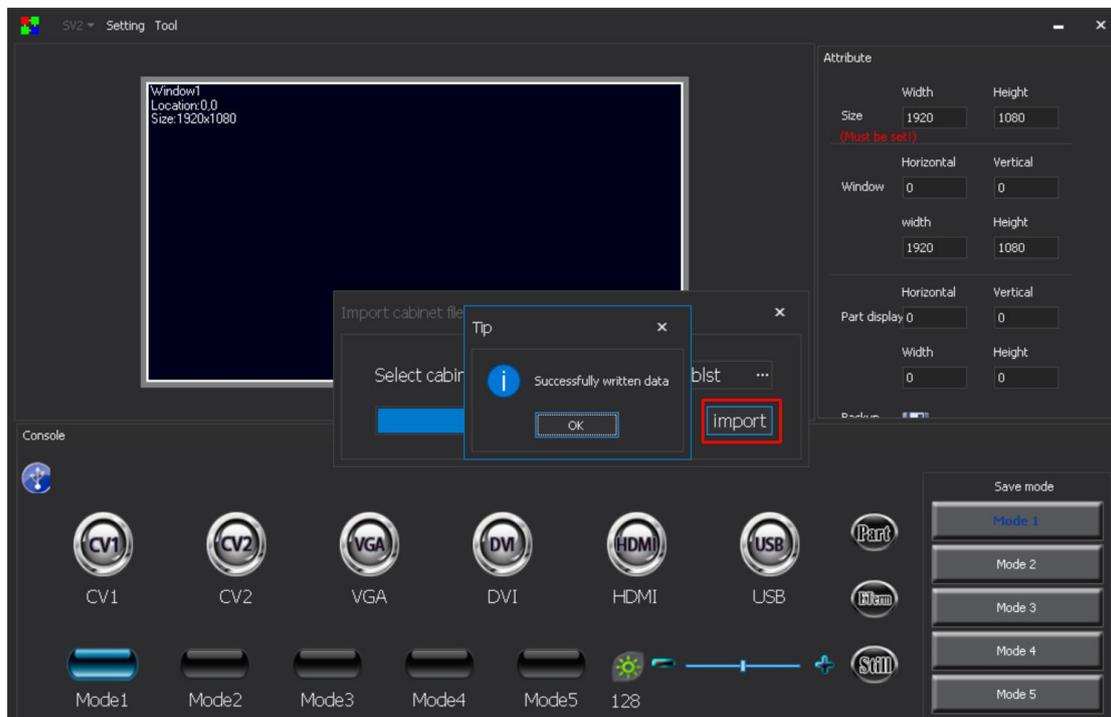
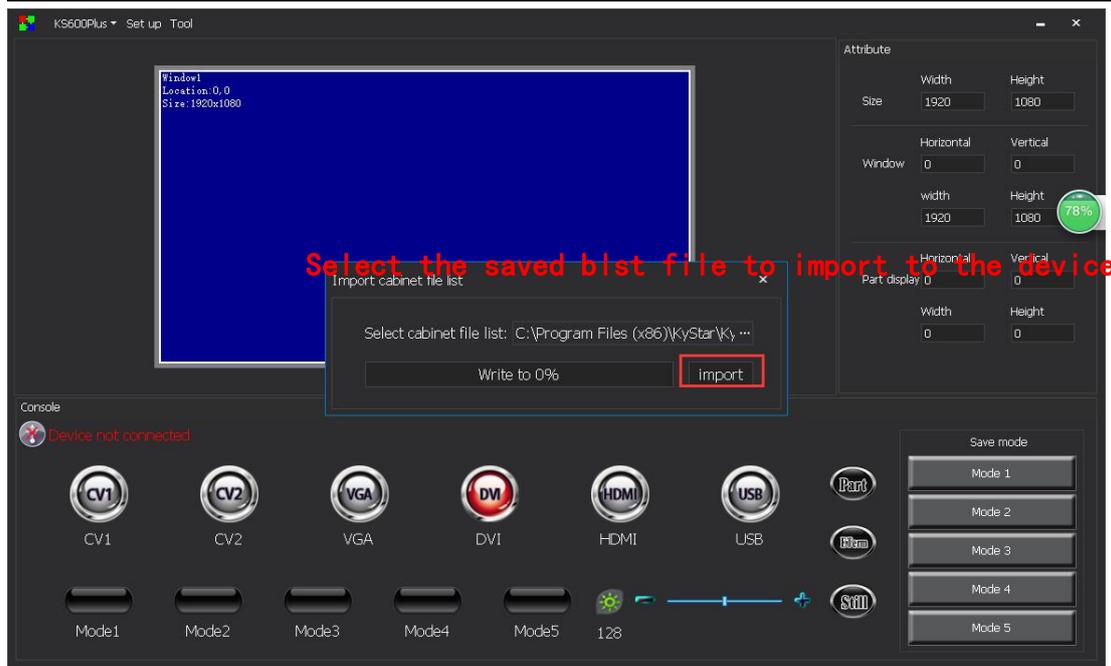
Select Add in the pop-up window, add the required box file to the list, and then save it as a blst file:



3、import cabinet file list

Select Add in the pop-up window, add the required box file to the list, and then save it as a blst file:





After the software prompts that the data is successfully written, it can be debugged by the video processor. When the processor selects the box file, the imported file file will be displayed on the LCD screen.