

# LS8

## Eight lan ports 2 in 1 video controller

Version: v2.4

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## Manual



TEL 400 159 0808

Web: [www.kystar.com.cn](http://www.kystar.com.cn)

**Beijing KYSTAR Technology Co., Ltd.**

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

## Version record

version number	Change details	发布时间
V1.0	First release	2019.11.28
V2.0	Modify the load height to 2000	2020.06.12
V2.1	Modify the format of the text	2020.09.09
V2.2	Optimize device images	2020.12.09
V2.3	change cover	2021.10.25
V2.4	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

- Maximum load of 4.8 million pixels, a maximum width of 3840 pixels, and a maximum of 2000 pixels;
- Support software control of the host computer to realize visual and quick operation;
- Support dual-windows display, PIP, POP, and the position of the window is arbitrary;
- Supports perfect switching of fade in and fade out;
- Support the independent operation of the control panel, the design of the knob and the number buttons make the equipment easier to use;
- Support 6 channels of HD and SD video signal input, 4 channels of audio input, 1 channel of audio output;
- Support keyboard lock function to prevent misoperation of field personnel after construction and commissioning;
- Supports saving and invoking of five scene modes;
- Support DVI ring-out, easy to achieve multi-machine cascade;
- Support graphic drag and drop, network port layout is convenient and fast.
- Comply with EU RoHS standards;
- CE, FCC certification.

### III、 Technical indicators

The video processor adopts the latest patented video processing technology, and has the video conversion capability of any format input and corresponding format output. Video signals including CVBS (composite video), HDMI, VGA (RGB) and DVI-D can be processed and enhanced to meet customer application needs. The detailed specifications are as follows:

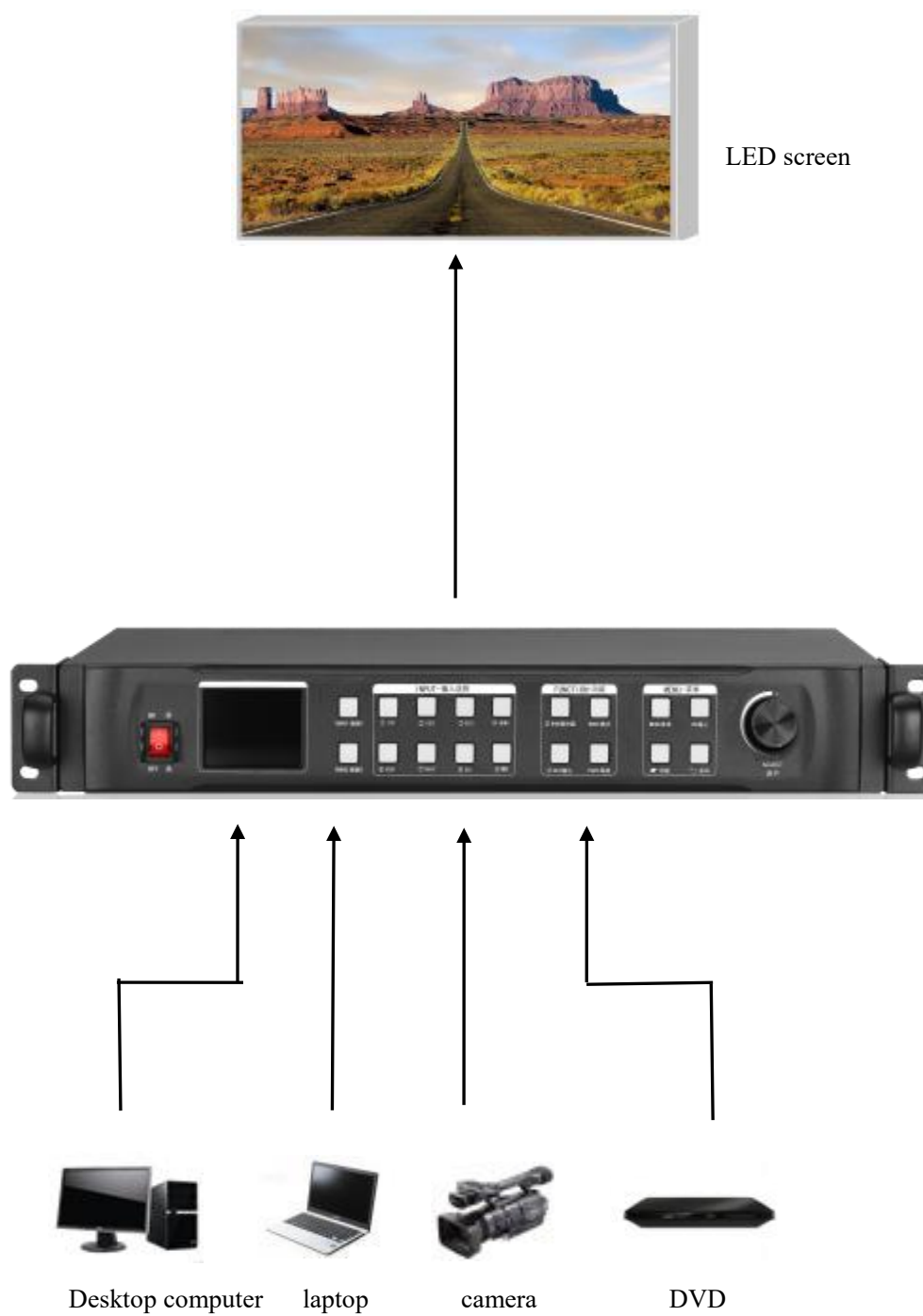
Input port		
Type	Number	Specification
CVBS (BNC)	2	NTSC/PAL adaptive, support 3D comb filter
VGA	2	VESA standard, maximum support 1920×1080@60Hz
DVI	1	1.3 standard, maximum support 1920×1080@60Hz
HDMI	1	1.3A standard, maximum support 1920×1080@60Hz
1/8" TRS Audio	4	3.5mm stereo interface, 2.0Vp-p / 10 KΩ

Output port		
Type	Number	Specification
LAN	6	LAN port, used to transfer data to the receiving card, the maximum load is 3.9 million pixels.
DVI-LOOP	1	Loop out the DVI signal, exactly the same as the DVI input source
1/4" TRS Audio	1	6.3mm stereo interface, 2.0Vp-p / 10 KΩ

Control port		
Type	Number	Specification
USB (Type-B)	1	USB-CFG interface for connecting PC host computer control
UART (RJ-45)	1	RS232 commander

Machine specification	
Input power	100-240VAC 50/60Hz 0.6A
Working temperature	0-45°C
Dimensions	483×246×72mm (L×W×H)
Net weight	5KG
Power consumption	36W

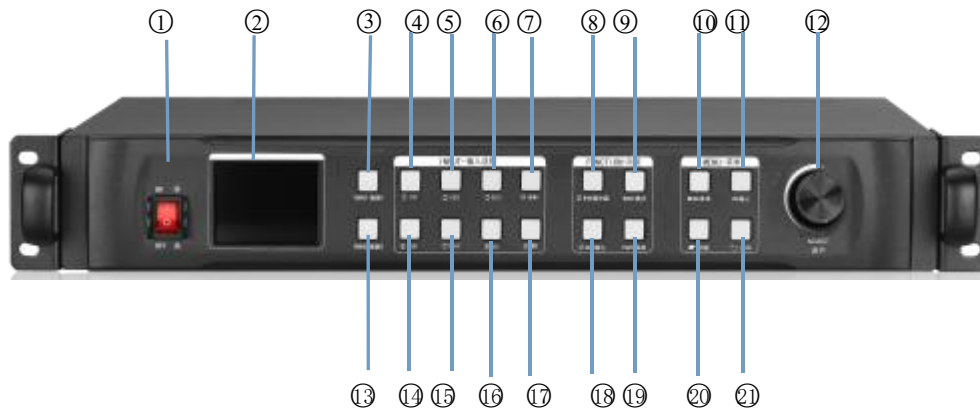
## IV、 Working sketch





## V、Panel Structure

Front panel

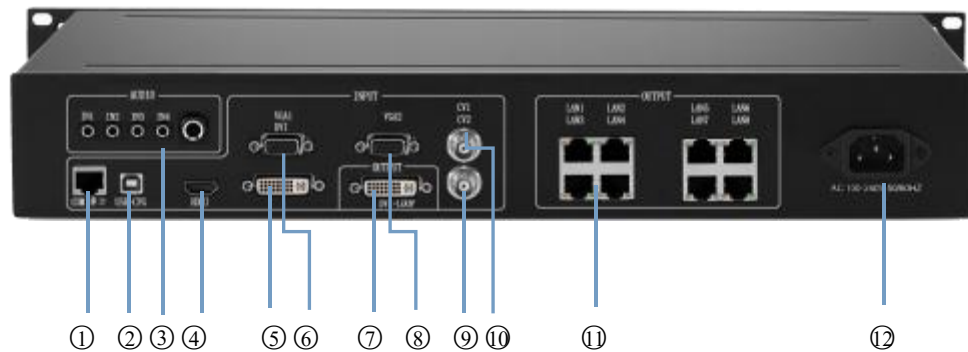


- 1、 POWER-----Equipment switch, OFF - power off, ON - power on
- 2、 LCD-----Text display screen, display menus, parameters and other information
- 3、 WIN-1-----Screen 1 Selection Key
- 4、 CV-1-----CVBS1 button
- 5、 CV-2-----CVBS 2 button
- 6、 number 3-----number 3 key function
- 7、 HDMI-----HD Multimedia Channel Key
- 8、 PIP-----double windows set key
- 9、 MODE-----call mode
- 10、 MENU-----menu key
- 11、 OK----Confirmation key, Click to enter the next interface when navigating mode
- 12、 ADJUST-----The knob enlarges and decreases, and the key is determined by pressing it.
- 13、 WIN-2-----window 2 Selection Key
- 14、 VGA-1-----VGA1 select key
- 15、 VGA-2-----VGA2 selection key
- 16、 DVI-----DVI selection key
- 17、 EXT. -----Extended Interface Signal Source Key
- 18、 OUT-----Switch between output black screen and normal; Note: Blue screen is switched by knob.
- 19、 PART-----part and full switch

20、Navigation keys-----User navigation mode, used as step size switch key when adjusting data size

21、arrowhead tag-----back key

back panel



1、 UART-----Connecting PC Software through 9-pin Serial Port to RJ45 Network Port

2、 USB-CFG-----Connecting PC Software through USB Square Port

3、 Audio-----Input and Output Interfaces of Audio Signals

4、 HDMI-----HDMI signal input interface such as notebook

5、 DVI-----DVI signal input interface such as desktop

6、 VGA-1-----VGA signal input interface such as notebook

7、 DVI-LOOP-----Loop Out Interface of DVI Signal

8、 VGA -2-----VGA signal input interface such as notebook

9、 CV-1-----Compound signal input interface such as camera

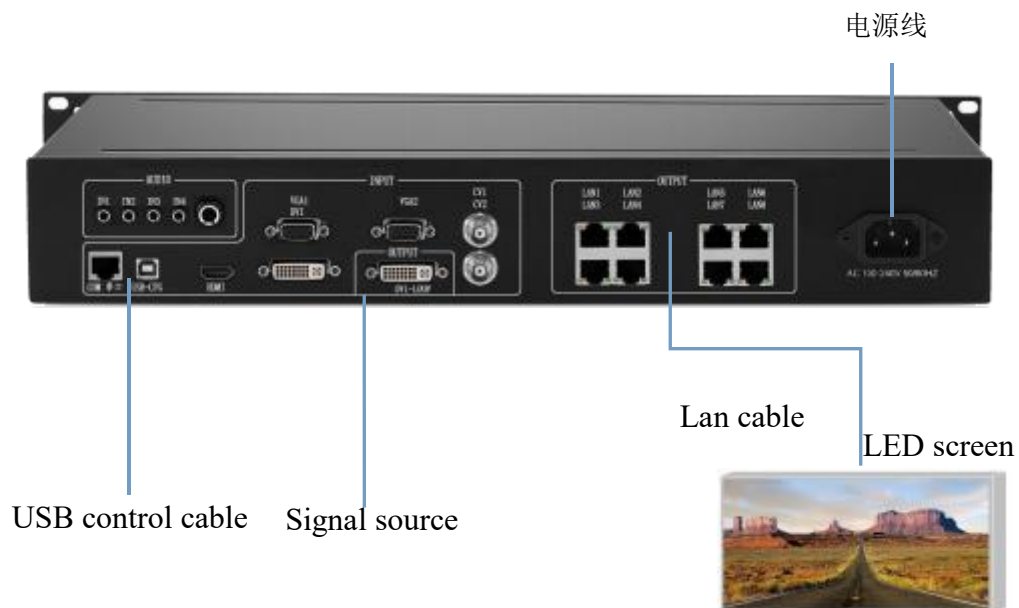
10、 CV-2-----Compound signal input interface such as camera

11、 LAN1-8-----Network Port Output Port

12、 power-----220V Power

## VI、 Wiring and installation

### Wiring diagram



### Installation steps

- 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 ) :

Wizard
<p>Welcome to wizard</p> <p>★ [Screen ]</p> <p>Image</p> <p>Note: Knob to change, press ok to next</p>

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:

Wizard
<p>Please enter password</p> <div><input type="text"/></div> <p>Press ok to next</p>

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

Select whether to import the box file:

Wizard
<p>Whether to import box files</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>★ [[ Yes ]]</p> <p>No</p> </div> <p>Note:Knob to Change,press Ok to next</p>

Wizard
<p>Select Box File</p> <div style="text-align: center;"> <p>★ [[SYS_P3_64x64_128X128]]</p> <p>SYS_P4_64X32_128X384</p> </div> <p>Note:Knob to Change,press Ok to next</p>

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
<p>Set Box &amp; Row</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div>Col</div> <div style="border: 1px solid black; padding: 2px 10px; text-align: center;">20</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div>Row</div> <div style="border: 1px solid black; padding: 2px 10px; text-align: center;">20</div> </div> <p>Note:Knob to Change,press Ok to next</p>

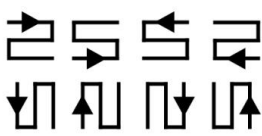
Note: Number of rows/columns in the box refers to the number of horizontal/vertical receiving cards used in the large screen.

Set the cabinet splicing method:

Wizard									
Set ETH Route									
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 10px;">H1</td> <td style="padding: 2px 10px;">H2</td> <td style="padding: 2px 10px;">H3</td> <td style="padding: 2px 10px;">H4</td> </tr> </table>	H1	H2	H3	H4	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td style="padding: 2px 10px;">V1</td></tr> <tr><td style="padding: 2px 10px;">V2</td></tr> <tr><td style="padding: 2px 10px;">V3</td></tr> <tr><td style="padding: 2px 10px;">V4</td></tr> </table>	V1	V2	V3	V4
H1	H2	H3	H4						
V1									
V2									
V3									
V4									
<small>Note:Knob to Change,press Ok to next</small>									

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

Set the cabinet connection method:

Wizard
Set Box Layout

<small>Note:Knob to Change,press Ok to next</small>

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

Display whether normal:

Wizard
Display Right?
★ [ YES ] NO
<small>Note:Knob to Change,press Ok to next</small>

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.

Wizard	
Set screen pixels	
H-SIZE:	<input type="text" value="1920"/> STEPX8
V-SIZE:	<input type="text" value="1080"/> Finger
Change	
Note:Knob to Change,press Ok to next	

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

Save settings:

Wizard
Saving

Note:Knob to Change,pressOk to next

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

## Image navigation

Wizard
<p>Welcome to wizard</p> <p>Screen</p> <p> [Image]</p> <p>Note:Knob to Change,press Ok to next</p>

Set the number of windows

Wizard
<p>Set Num of windows</p> <p>Num of win <input type="text" value="1"/></p> <p>Note:Knob to Change,press Ok to next</p>

Select the input source:

Wizard
<p>Select Input</p> <p>Input: HDMI</p> <p>Note:Knob to Change,press Ok to next</p>

Note: Select the input signal source

Whether local display is needed:



Wizard
<p>Local Display ?</p> <p>☆ 【ESC】 OK</p> <p>Note:Knob to Change,press Ok to next</p>

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, "location" - where to start intercepting; "size" - how big to intercept. The interface is as follows:

Local display settings:

Wizard
<p>Local Display ?</p> <p>H-POS: <input type="text" value="0"/></p> <p>V-POS: <input type="text" value="0"/></p> <p>H-SIZE: <input type="text" value="768"/></p> <p>V-SIZE: <input type="text" value="768"/></p> <p>Note:Knob to Change,press Ok to next</p>



Save settings:

Save mode	
☆ [[ Mode 1 ]]	<div>Note</div> <div></div>
[[ Mode 2 ]]	
[[ Mode 3 ]]	
[[ Mode 4 ]]	
[[ Mode 5 ]]	
Note:Knob to Change,press Ok to next	

End of navigation:

Wizard Success
<p>Welcome to wizard</p> <p>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) screen	Navigation 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	English
		Chinese	
	(2) factory	confirm	
		cancel	
	(3) support	Please contact the sales staff. 400-159-0808	
	(4) Scheduled Tasks	Enable	
		Disable	
	(5) effect	Cut	
		Effect	
		Time	
	(6) VGA adjust	Horizontal position	default
		Vertical position	default
		Horizontal size	default
		Vertical size	default
	(7) Picture Quality Settings	brightness	50
		Contrast	50
		saturation	50
		sharpening	14

	(8) Freeze	Freeze	
		Active	
	(9) Voice	Mute	
		Out	
		Volume	50
		Select source	
	(10) master	(1) Load hotkey	Enable
			Disable
		(2) Key locked	Enable
			Disable
		(3) Resend config	Ok
			ESC
		(4) Read config	Ok
			ESC
		(5) Frame Frequency Settings	60Hz
			50Hz
			30Hz
		(6) Color temperature correction	
		(7) 多 Multi-machine synchronization	
		(8) upgrade online	
		(9) HDCP delayed	
		(10) ADC Correcting	
		(11) Initialization	

## 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.

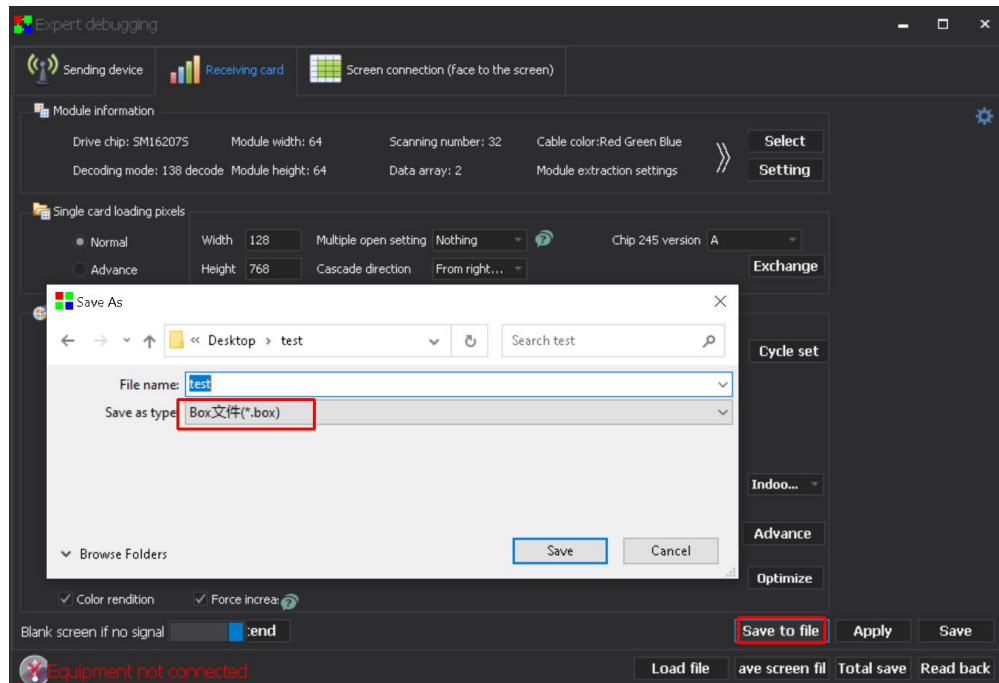
② Connection problems. When the signal line interface contacts badly or there is a problem inside the wire, the large screen will appear abnormal phenomena such as color stripes, flower screens and so on. Check carefully whether the pin in the signal line is broken or inclined and change the signal line.

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

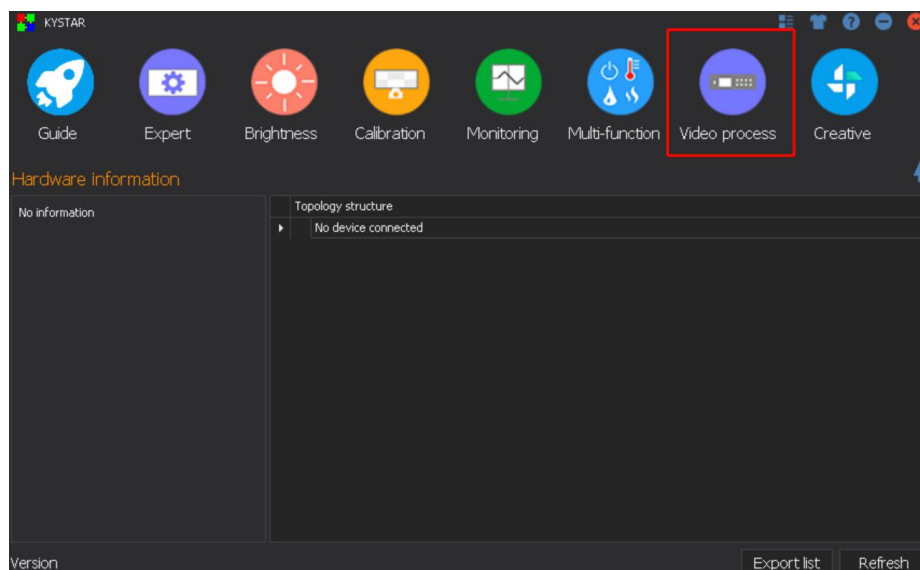
### 1. Save cabinet files

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

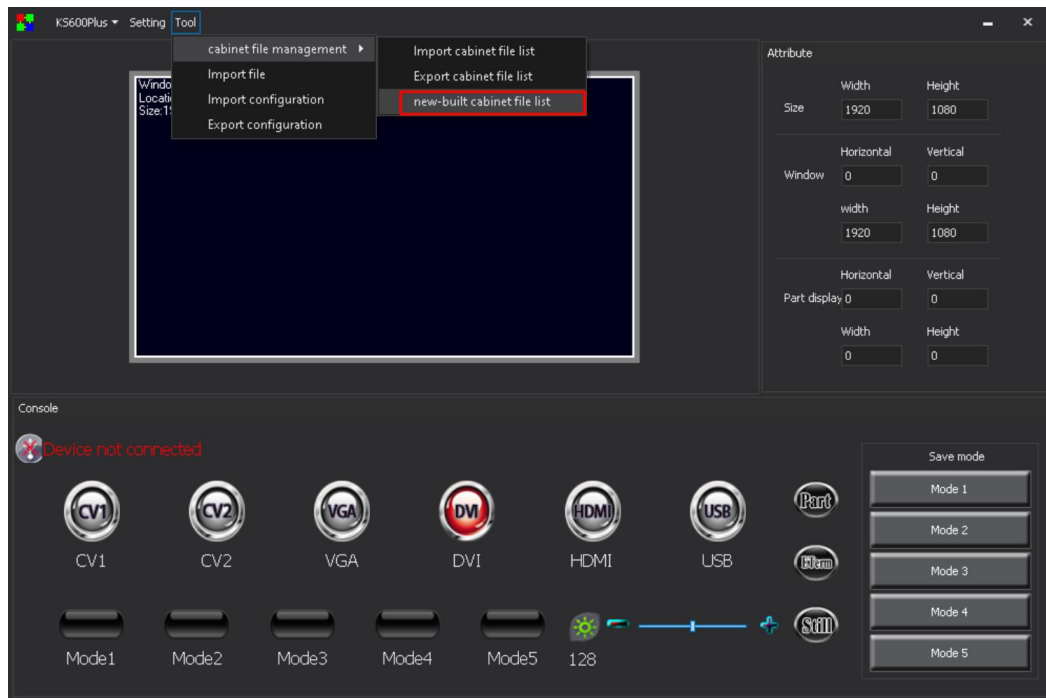


### 2、 new cabinet file

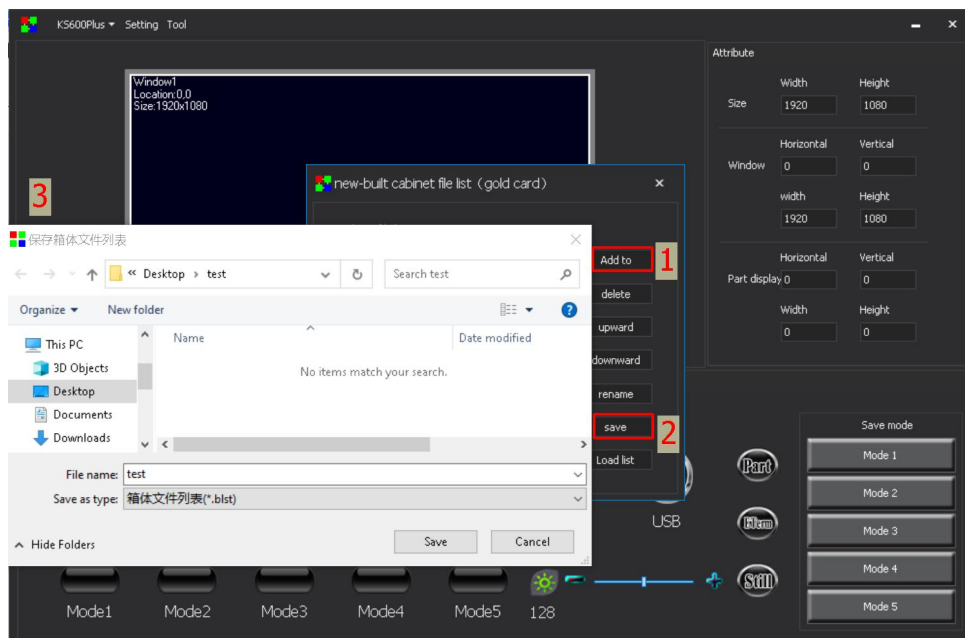
Select the video processing option of the main menu of the software, and select the list of new box files from the tool menu inside:





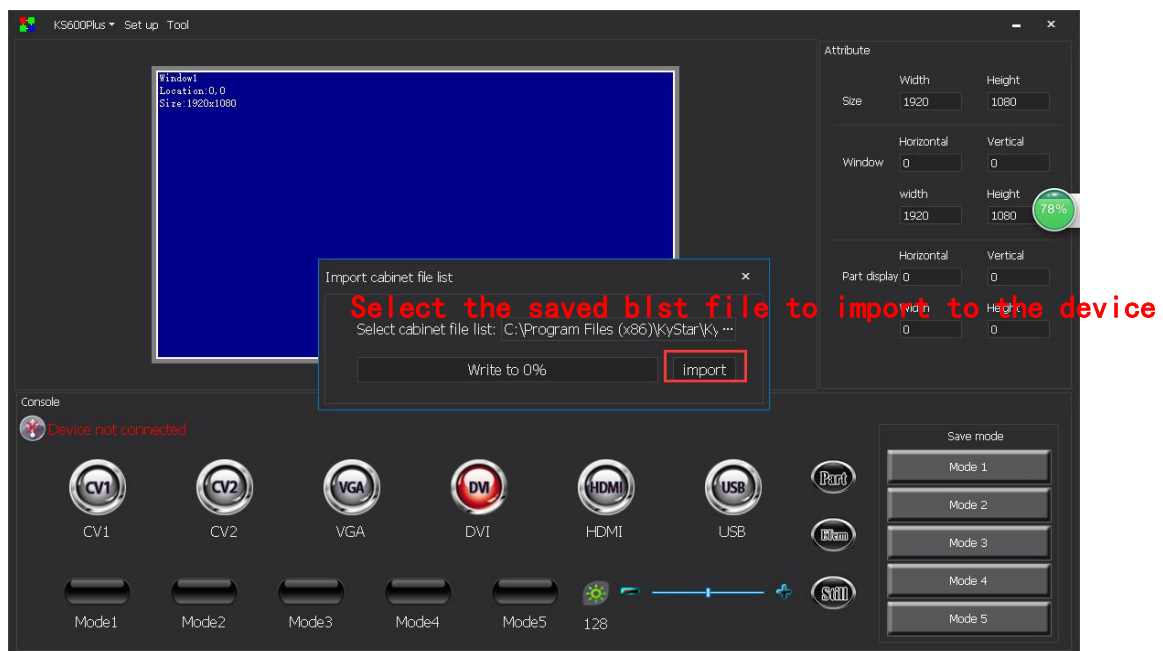
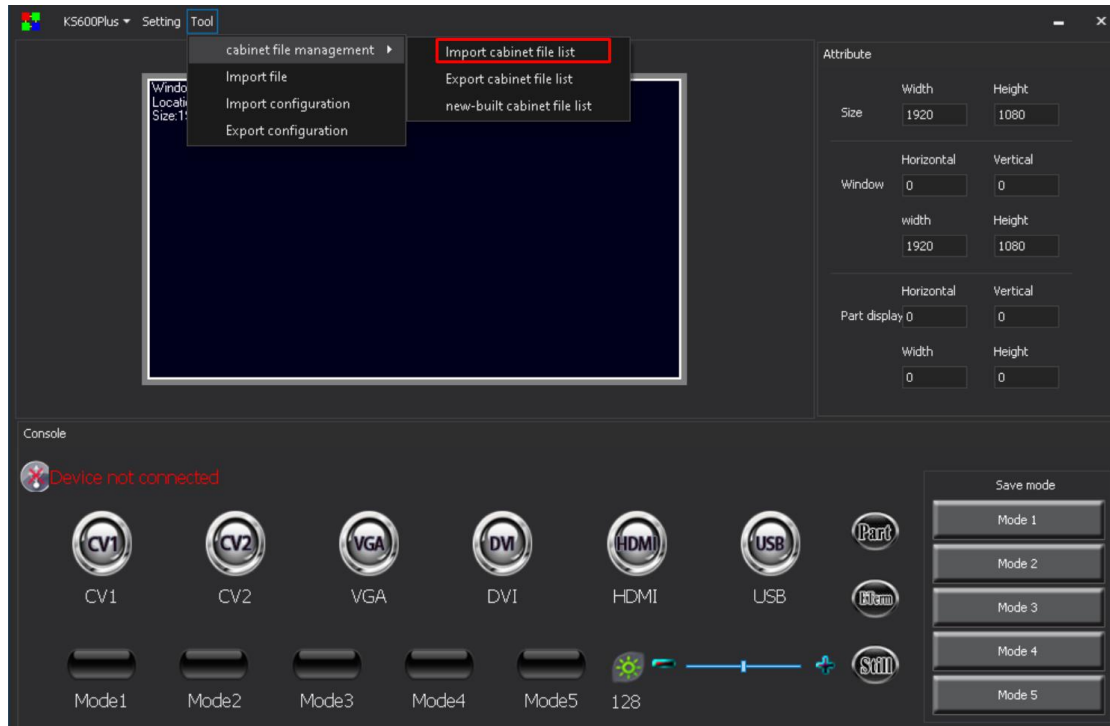


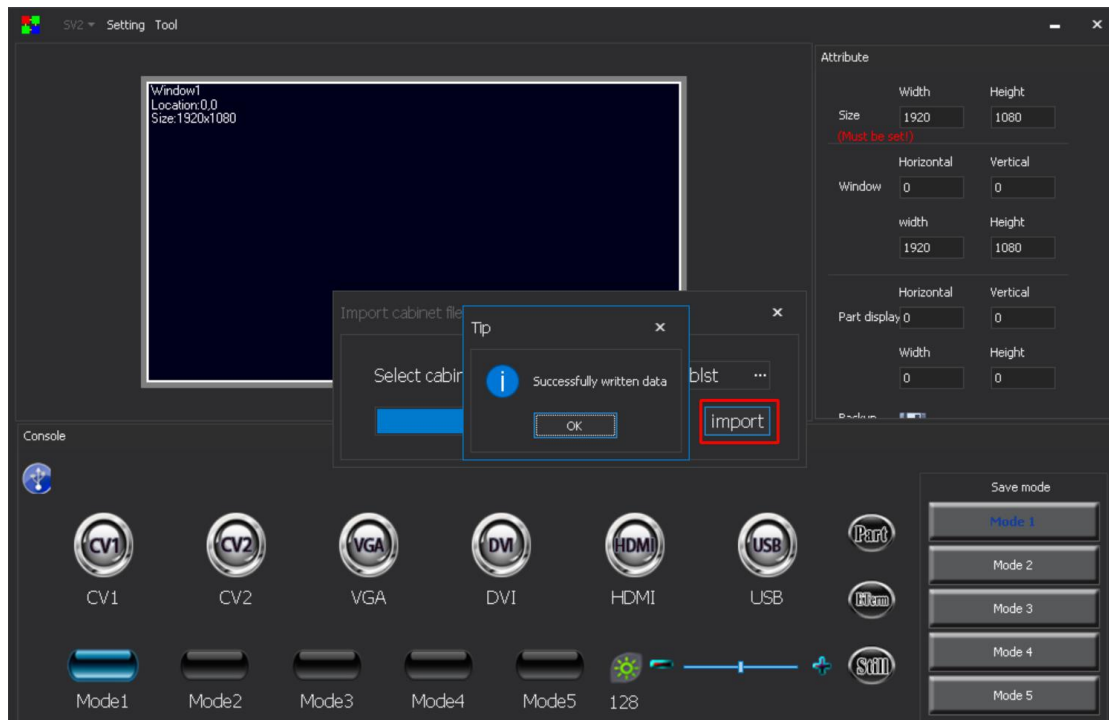
Select Add in the pop-up window, add the required box file to the list, and then save it as a blst file:



### 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 will be displayed on the LCD screen.