LS2

Two lan ports 2 in 1 video controller

Version: v2.4

Release Date: November 2021

Manual

KYSTAR

Version record

version number	Change details	release time
V1.0	first release	2018.12.12
V2.0	Modify device interface information	2019.11.28
V2.1	Modify the format of the text	2020.06.18
V2.2	Modify loading information	2020.12.09
V2.3	change cover	2021.10.25
V2.4	Correct size data, modify function description	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

catalog

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

- Professional Video Processor:

    HD Multi Format Signal input

    Transient or fading transitions between arbitrary signals

    Arbitrary free Zoom Display

- Integrated LED sending card：

    2 pcs network port output, the output max width 3840, the max high 1536

    Loading 1.3 million pixels

    Support without computer direct operation,3 Step configuration screen

- high-performance offline Player:

    Support USB playback, perfect support for various video and picture formats

    Offline scheduled tasks that automatically play or switch signals at a user-set time

- One-click configuration :

    Support readback configuration and resend configuration implementation, easily realize one-key repair

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	Specifications
CVBS（BNC）	2	NTSC/PAL Adaptive, support 3D comb filter
VGA	1	VESA Standard, maximum support 1920x1080@60hz
DVI	1	1.3 Standard, maximum support 1920x1080@60hz
USB	1	USB input, NTFS system supports up to 2T, FAT32 system supports up to 192G, and single file up to 4G
HDMI	1	1.3A Standard, maximum support 1920x1080@60Hz
1/8" TRS audio	2	3.5mm stereo interface, 2.0Vp-p / 10 KΩ

Output port		
Type	Number	Specifications
LAN	2	LAN port, used to transmit data to the receiving card, the output widest can reach 3840, the highest can reach 1536, the maximum load is 1.3 million pixels
1/4" TRS audio	1	6.3mm stereo interface, 2.0Vp-p / 10 KΩ

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

Machine specification	
Input power	100-240VAC 50/60Hz 0.6A
Working temperature	0-45℃
Dimensions	483×270.5×73mm（L×W×H）
Net weight	5KG
Whole machine power	36W

IV、Working sketch

LED screen

Video processor

Desktop computer   laptop   camera   DVD

V、Panel Structure

Front panel
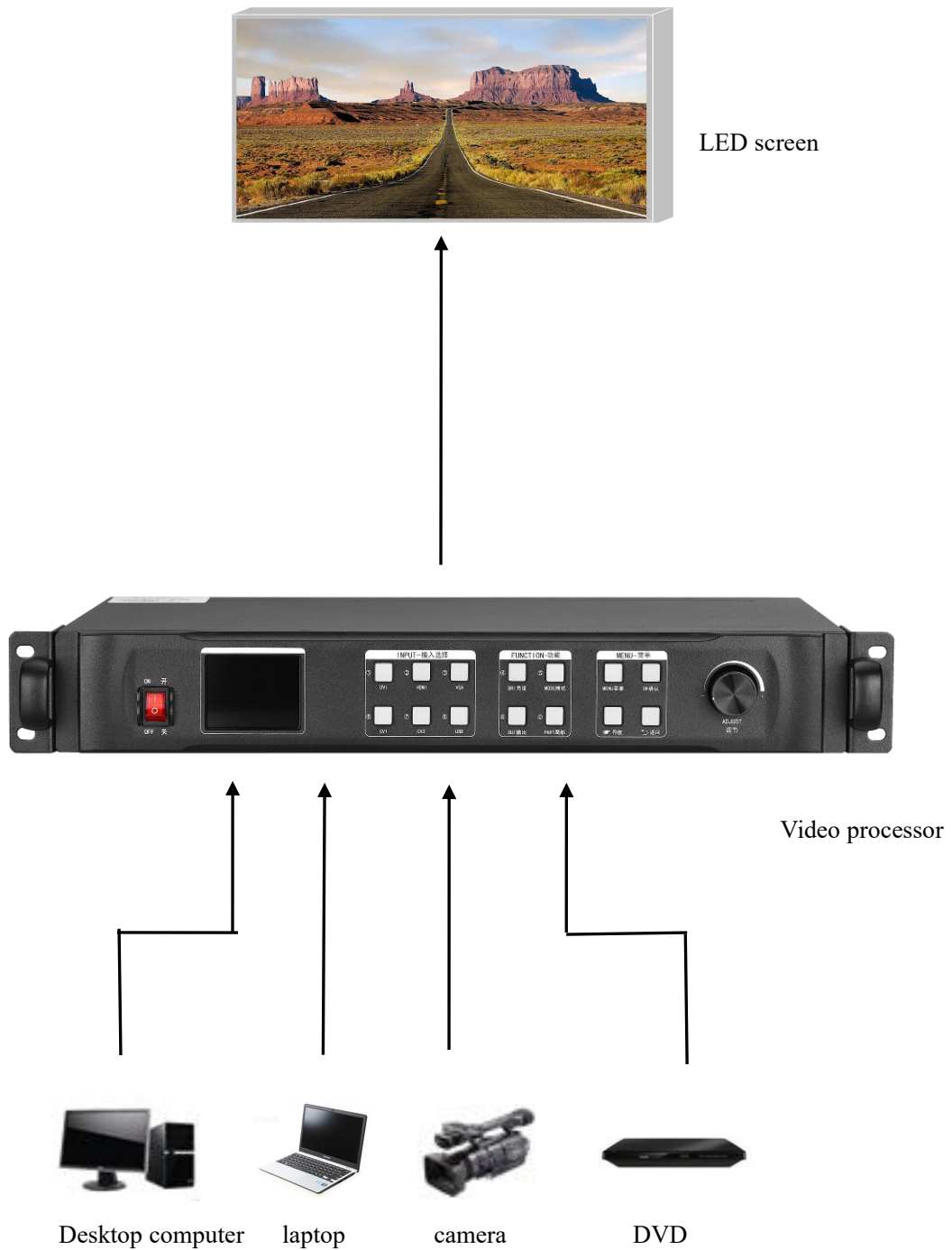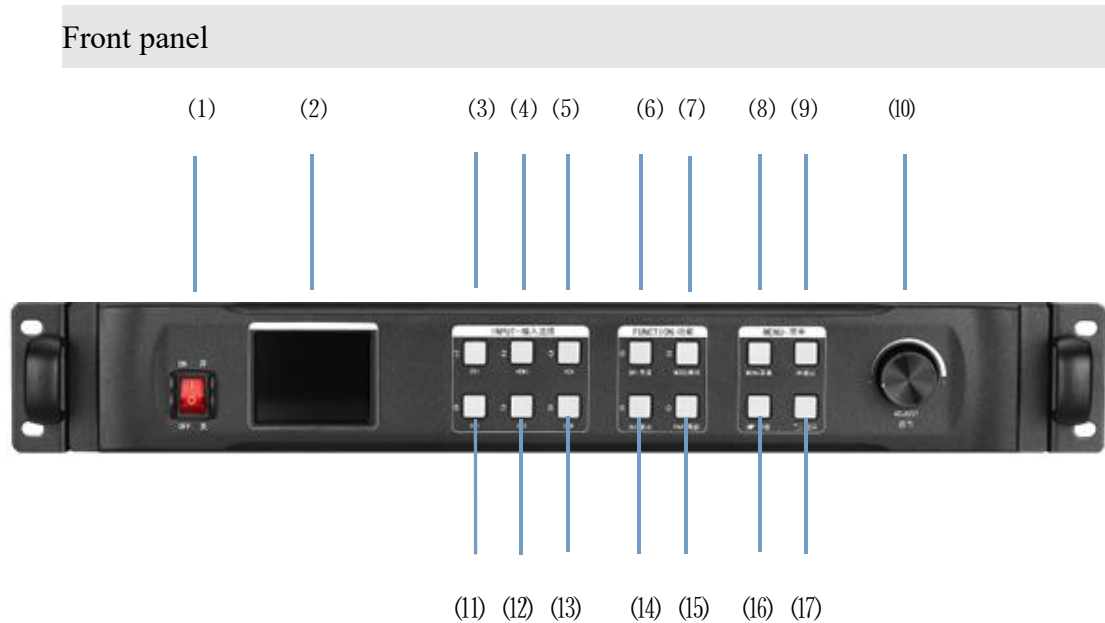
⑴ POWER---------------------------Device switch, OFF - power off, ON - power on

⑵ LCD------------------------------Text display, displaying menus, parameters, etc.

⑶DVI--Digital signal channel key

⑷ HDMI---HD multimedia channel button

⑸ VGA--Analog signal channel key

⑹ BRI--Brightness setting

⑺ MODE---User mode call

⑻ MENU---Menu

⑼ OK------Confirm button, click to enter the next interface when navigating mode

⑽ ADJUST--------------------Knob increase the decrease button, press the OK button

⑾ / ⑿ CV1~2---Composite signal channel button

⒀ USB---USB signal channel button

⒁ OUT-------------------------Switch between output black screen and normal; Note: Blue screen is switched with knob

⒂ PART---Do partial panorama switching

⒃ Navigation key---User navigation mode, as a step value switch when adjusting the data size

⒄ Arrow sign---back key

Back panel
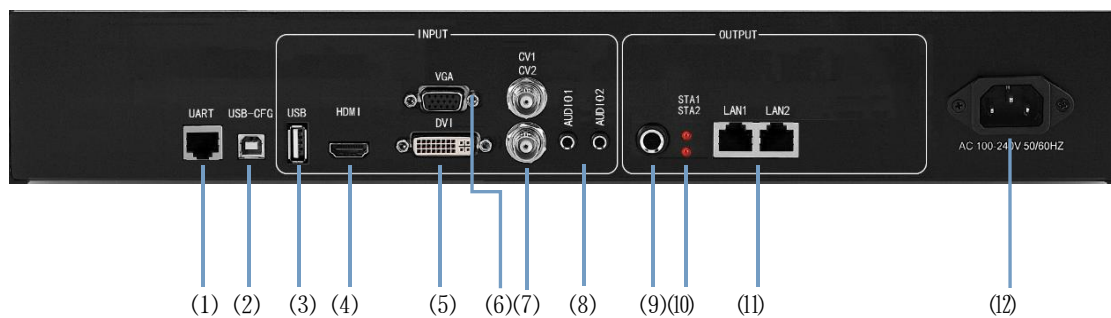
⑴ UART -------------------------------------Connect the host computer software through the 9-pin serial port to the RJ45 network port

⑵ USB-CFG ---------------Connect the host computer software through the USB port

⑶ USB --------------------------------Program upgrade port, USB source input interface

⑷ HDMI-------------------------------------Laptop, etc. HDMI signal input interface

⑸ DVI ---------------------------- DVI signal input interface such as desktop computer

⑹ VGA---------------------------------------laptop and other VGA signal input interface

⑺ CV-1/2------------------------------Composite signal input interface such as camera

⑻ AUDIO1/2---Audio input interface

⑼ AUDIO -OUT--Audio output interface

⑽ SAT1/2--Network port 1/2 signal indicator

⑾ LAN1/2--Network port output

⑿ Power port---220V power

VI、Wiring and installation

Wiring diagram

Power cable

USB control cable   Signal source   Output port

Lan cable

LEDscreen
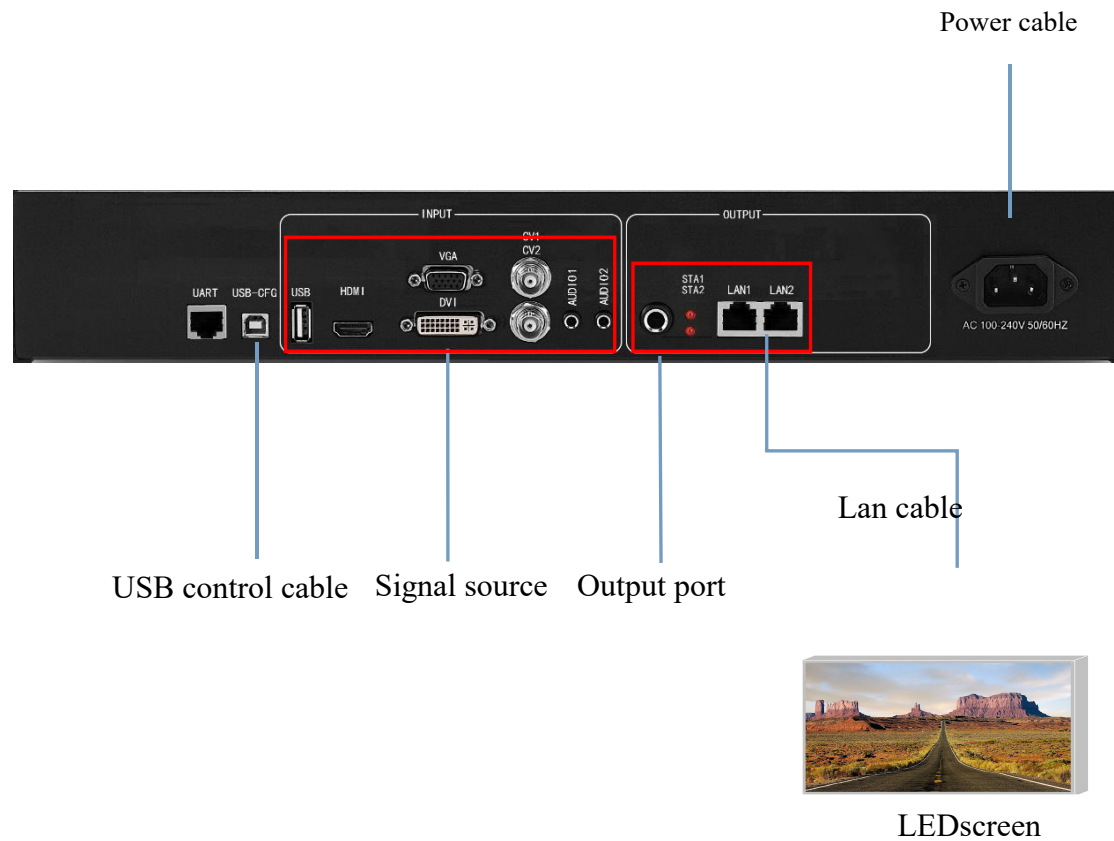
installation steps

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 [icon] Enter Navigation Mode）：

```
┌─────────────────────────────────┐
│            Wizard               │
├─────────────────────────────────┤
│                                 │
│        Welcome to wizard        │
│                                 │
│        ★  〖Screen〗            │
│            Image                │
│  Note：Knob to change，press ok to next │
│                                 │
└─────────────────────────────────┘
```

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               │
├─────────────────────────────────┤
│                                 │
│       Please enter password     │
│                                 │
│        ┌──────────────┐         │
│        │              │         │
│        └──────────────┘         │
│                                 │
│       Press ok to next          │
│                                 │
└─────────────────────────────────┘
```

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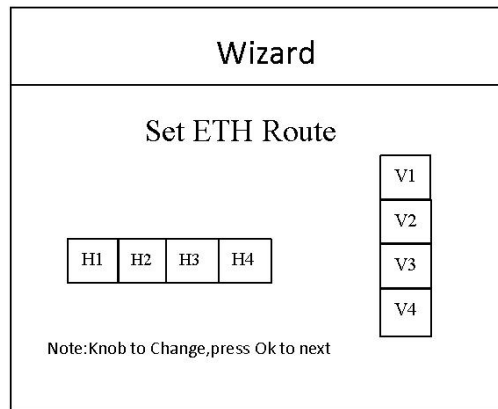
Note: Number of rows/columns in the box refers to the number of horizontal/vertical receiving cards used in the large screen.

Set the cabinet splicing method:

```
┌─────────────────────────────────────┐
│              Wizard                  │
├─────────────────────────────────────┤
│                                      │
│           Set ETH Route              │
│                              ┌────┐  │
│                              │ V1 │  │
│                              ├────┤  │
│                              │ V2 │  │
│   ┌───┬───┬───┬───┐          ├────┤  │
│   │H1 │H2 │H3 │H4 │          │ V3 │  │
│   └───┴───┴───┴───┘          ├────┤  │
│                              │ V4 │  │
│                              └────┘  │
│   Note:Knob to Change,press Ok to next│
│                                      │
└─────────────────────────────────────┘
```

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            │
│                                      │
│        (box layout arrows)           │
│                                      │
│   Note:Knob to Change,press Ok to next│
└─────────────────────────────────────┘
```
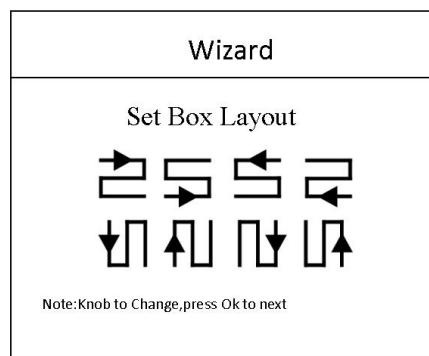
Note: Cabinet routing mode: Series mode between receiving cards should ensure that the direction of the two cable is the same.

 Display whether normal:

```
┌─────────────────────────────────────┐
│              Wizard                  │
├─────────────────────────────────────┤
│                                      │
│          Display Right?              │
│                                      │
│            ★ 〖YES〗                 │
│               NO                     │
│                                      │
│   Note:Knob to Change,press Ok to next│
│                                      │
└─────────────────────────────────────┘
```
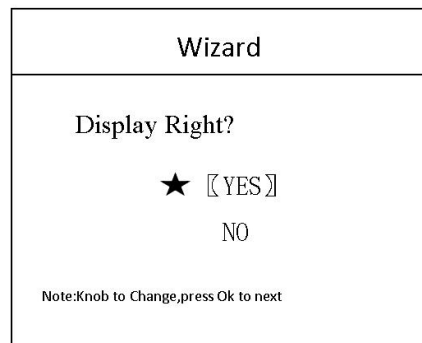
Note: The screen displays normal click ok; if abnormal, click No, go back to selecting the cabinet file and set it again.

Set screen pixels.

```
┌─────────────────────────────────────┐
│              Wizard                  │
├─────────────────────────────────────┤
│                                      │
│          Set screen pixels           │
│                                      │
│                                      │
│    H-SIZE： [ 1920 ]    STEPX8       │
│                                      │
│    V-SIZE： [ 1080 ]    Finger       │
│                         Change       │
│                                      │
│  Note:Knob to Change,press Ok to next│
│                                      │
└─────────────────────────────────────┘
```
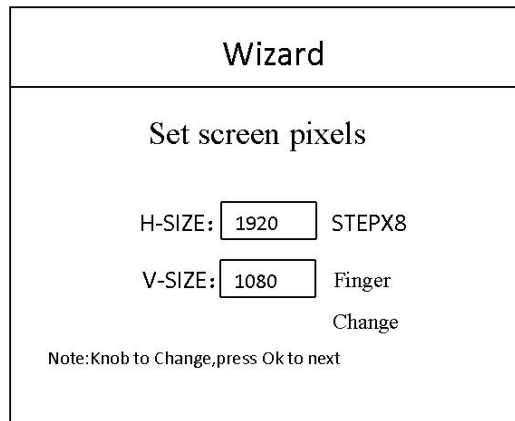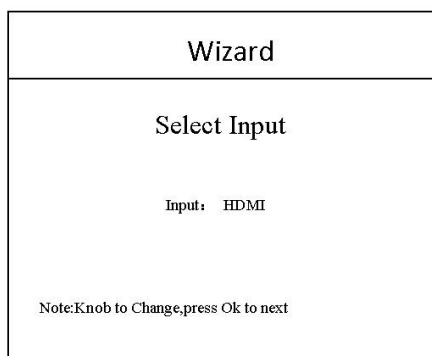
Note: Set screen pixels, the screen pixels is the resolution of the whole screen.

Save settings:

```
┌─────────────────────────────────────┐
│              Wizard                  │
├─────────────────────────────────────┤
│  Saving                              │
│                                      │
│   ▐█▌                                │
│                                      │
│                                      │
│                                      │
│  Note:Knob to Change,press Ok to next│
│                                      │
└─────────────────────────────────────┘
```

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

Select the input source:

```
┌─────────────────────────────────────┐
│              Wizard                  │
├─────────────────────────────────────┤
│                                      │
│           Select Input               │
│                                      │
│                                      │
│         Input：   HDMI               │
│                                      │
│                                      │
│  Note:Knob to Change,press Ok to next│
│                                      │
└─────────────────────────────────────┘
```

Note: Select the input signal source

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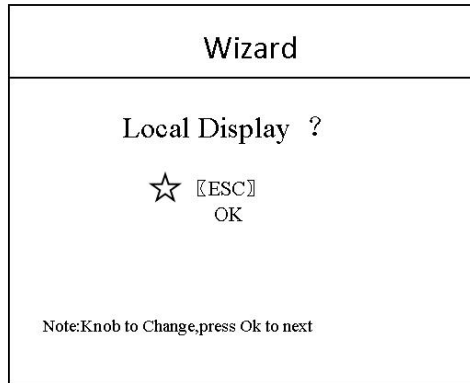
Note: This interface is to select whether it is necessary to intercept part of the image of the input signal source and display it on the LED screen.

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.
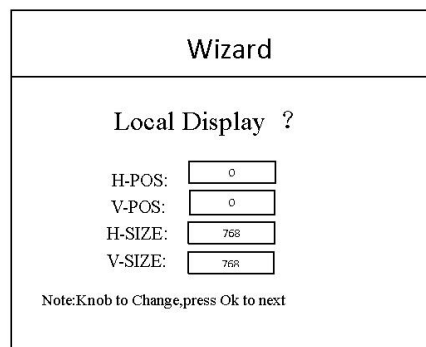

| full mode | Part mode |

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

Local display settings:

Save mode settings:

```
┌─────────────────────────────────────────┐
│              Save mode                   │
├─────────────────────────────────────────┤
│  ☆   〖Mode 1〗      ┌──────────┐        │
│                      │   Note   │        │
│      〖Mode 2〗      ├──────────┤        │
│                      │          │        │
│      〖Mode 3〗      │          │        │
│                      │          │        │
│      〖Mode 4〗      │          │        │
│                      │          │        │
│      〖Mode 5〗      └──────────┘        │
│                                          │
│  Note:Knob to Change,press Ok to next    │
└─────────────────────────────────────────┘
```

End of navigation:

```
┌──────────────────────────────────────────┐
│                                          │
│    Wizard Success                        │
│                                          │
├──────────────────────────────────────────┤
│                                          │
│          Welcome to wizard               │
│            Wizard End                    │
│                                          │
│                                          │
│                                          │
└──────────────────────────────────────────┘
```

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 [PART 0] It can switch the "local/panoramic" of the current signal source. If multiple modes are saved,use [MODE 5] call different mode

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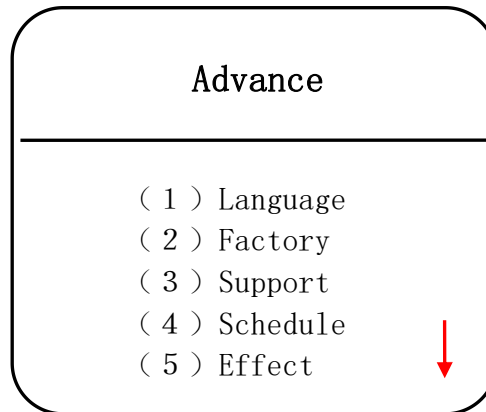
VIII、Control menu

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	Enable	
		Disable	
	（6）VGA adjust	Horizontal position	default
		Vertical position	default
		Horizontal size	default
		Vertical size	default
	（7）contrast	Contrast	128
		Red	128
		Green	128
		Blue	128

	（8）Freeze	Freeze	
		Active	
	（9）Brightness	Brightness	128
		Red	128
		Green	128
		Blue	128
	（10）Master	（1）Load hotkey	Enable
			Disable
		（2）Key locked	Enable
			Disable
		（3）Play Type	Video
			Picture
		（4）Resume	Enable
			Disable
		（5）Online load	OK
			ESC
		（6）Information	
		（7）Sharpness	
		（8）Voice	Mute
			Volume
			Select source
		（9）resend config	
		（10）read config	
		（11）EDID	

Among them, the functions of the first four options have been introduced before, and I will not repeat them here. Regarding the output resolution, it will automatically change when you navigate and set the screen parameters, or you can select it manually. Meaning of each option:

```
┌─────────────────────────────────┐
│                                 │
│            Advance              │
│  ─────────────────────────────  │
│                                 │
│     （1）Language               │
│     （2）Factory                │
│     （3）Support                │
│     （4）Schedule          ↓    │
│     （5）Effect                 │
│                                 │
└─────────────────────────────────┘
```

(1) 、Language

The language mode of the video processor is Chinese 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) 、Schedule

Not currently supported.

(5) 、Effect

 Divided into straight cut and special effects (fade in and out). When there are special effects, the picture effect looks novel.

```
┌─────────────────────────────────┐
│                                 │
│            Advance              │
│  ─────────────────────────────  │
│                                 │
│     （6）VGA adjust        ↑    │
│     （7）Contrast               │
│     （8）Freeze                 │
│     （9）Brightness             │
│     （10）Master                │
│                                 │
└─────────────────────────────────┘
```
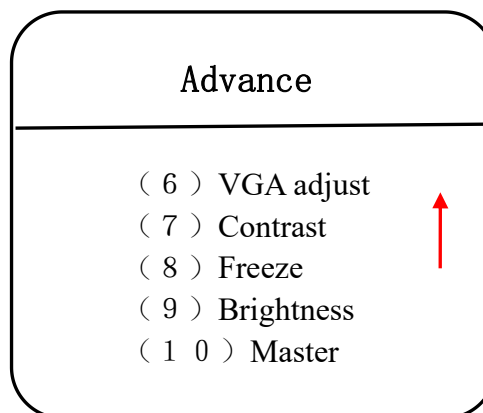
(6) 、VGA adjust

Since the VGA signal will be offset, the problem can be solved by setting the VGA.

(7) 、Contrast

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

(8) 、Freeze

This function is divided into two types: image activity and image still, which is equivalent to the start and pause functions of the player.

(9) 、Brightness

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

(10) 、Master

There are 11 functions including mode shortcut key, keyboard lock, play type, play memory, online upgrade, device information, sharpening setting, sound setting, resend config and readback config.

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

②In order to prevent users from misoperation on the device, the video processor provides a keyboard lock function. When it is turned on, press MENU 10 to unlock it.

③There are two types of playback: playing video and browsing pictures. You can put videos or pictures on the large LED screen to enjoy.

④The playback memory is to record the current playback progress. When switching back to the signal source again, you can continue playback without starting from the beginning.

⑤Online upgrade is used as video processor software upgrade and update. Copy the upgrade program to the U disk, insert it into the processor, and click this function to upgrade.

⑥The device information includes the device name, the number of large screen points, the number of network cables with load, and the load size of the other world network port.

⑦Sharpening settings can increase the clarity of the picture

⑧Sound settings can set the audio input that matches the signal source

⑨The retransmission configuration can be directly written to the receiving card parameters through the processor after the receiving card is replaced, without sending from the host computer.

⑩The readback configuration can directly read the device parameters from the receiving card after replacing the video processor, without sending from the host computer.

⑪Set the processor input resolution to achieve pixel-to-pixel display

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.

②The 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.
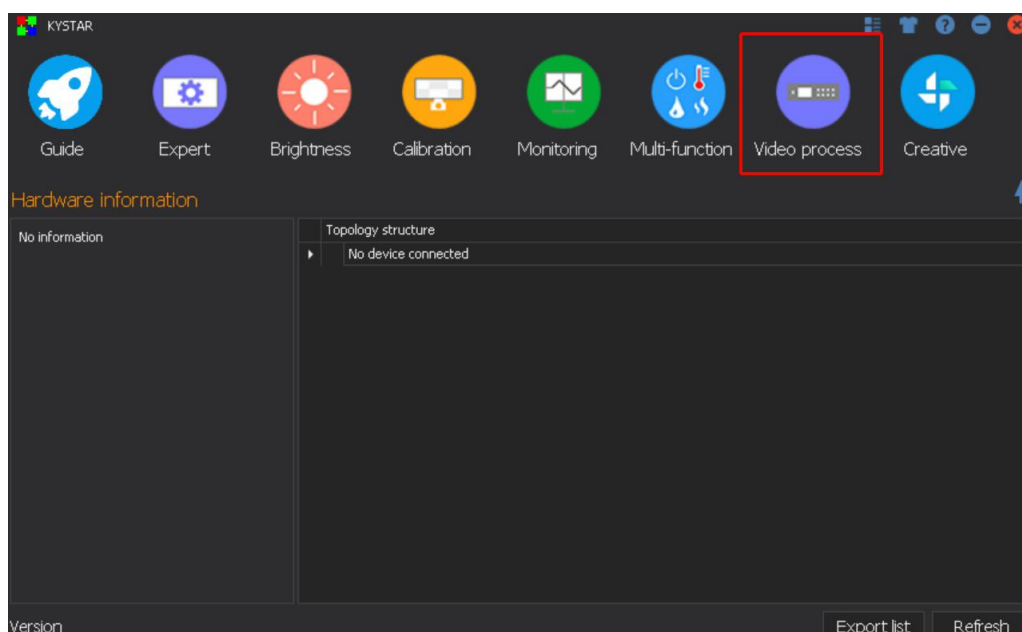
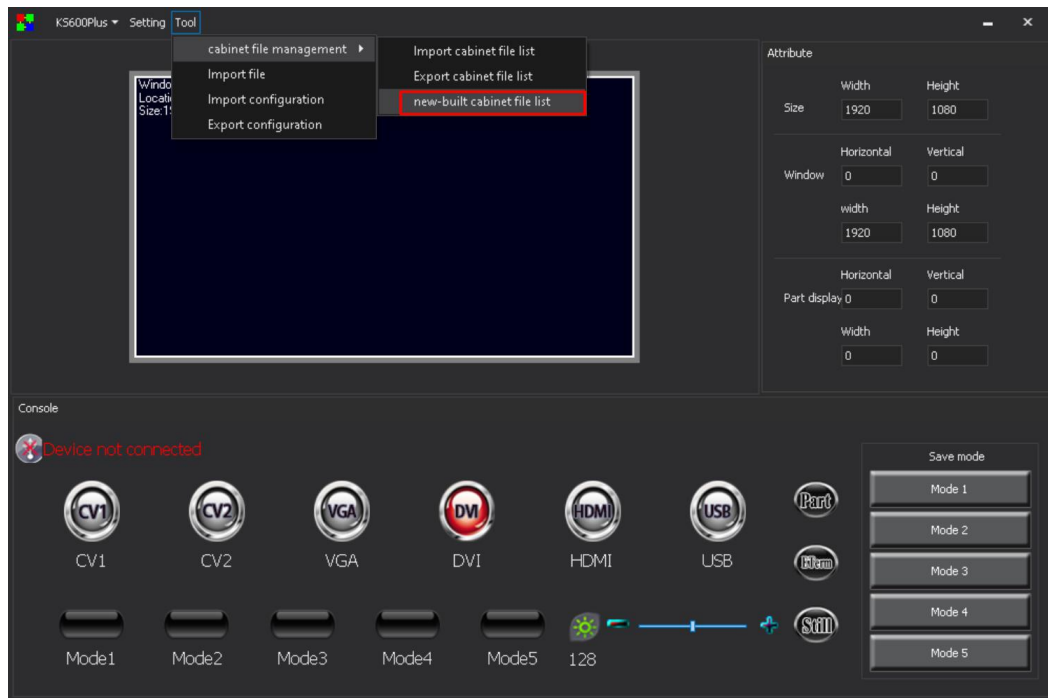# X、 Method of Importing Box Files

1. Save cabinet files

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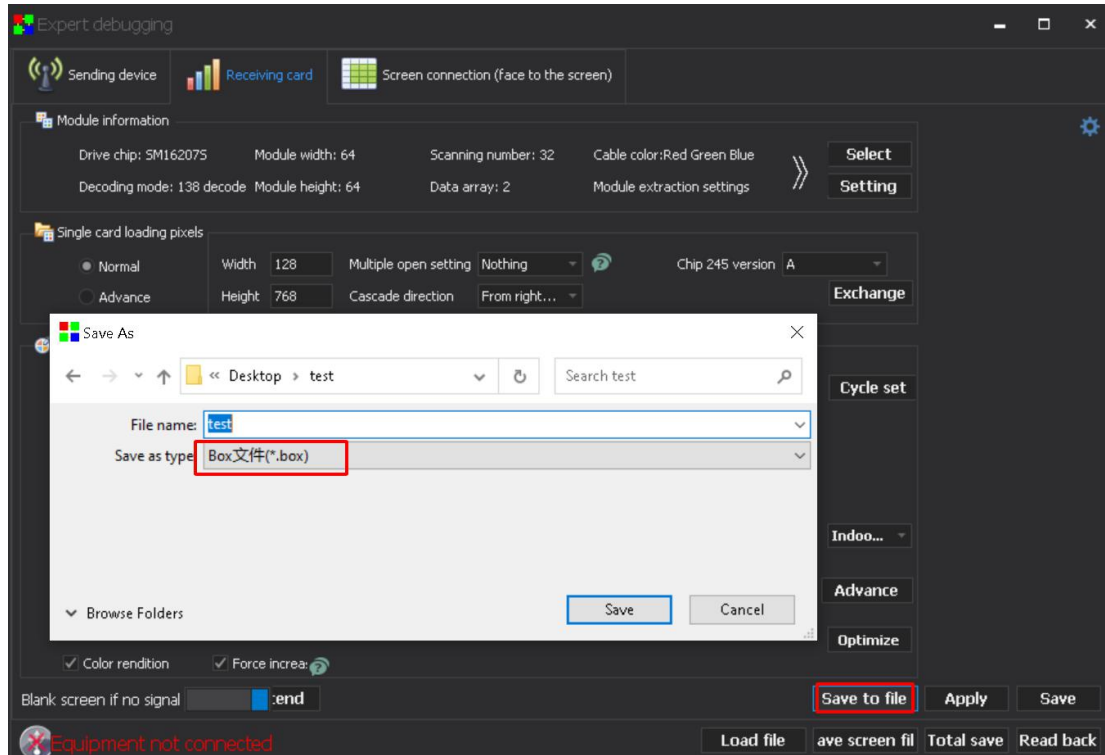
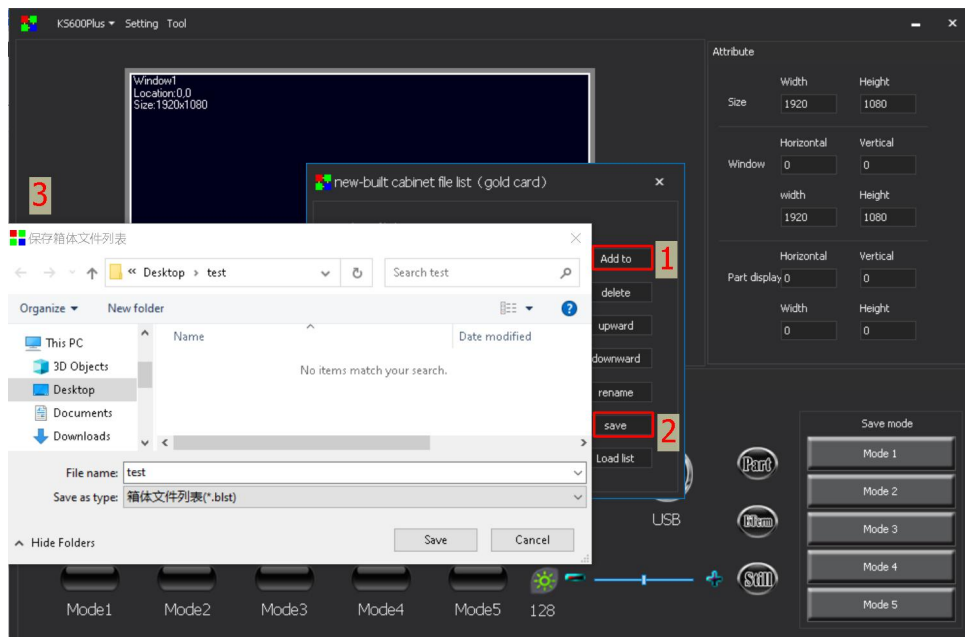

2、new cabinet file

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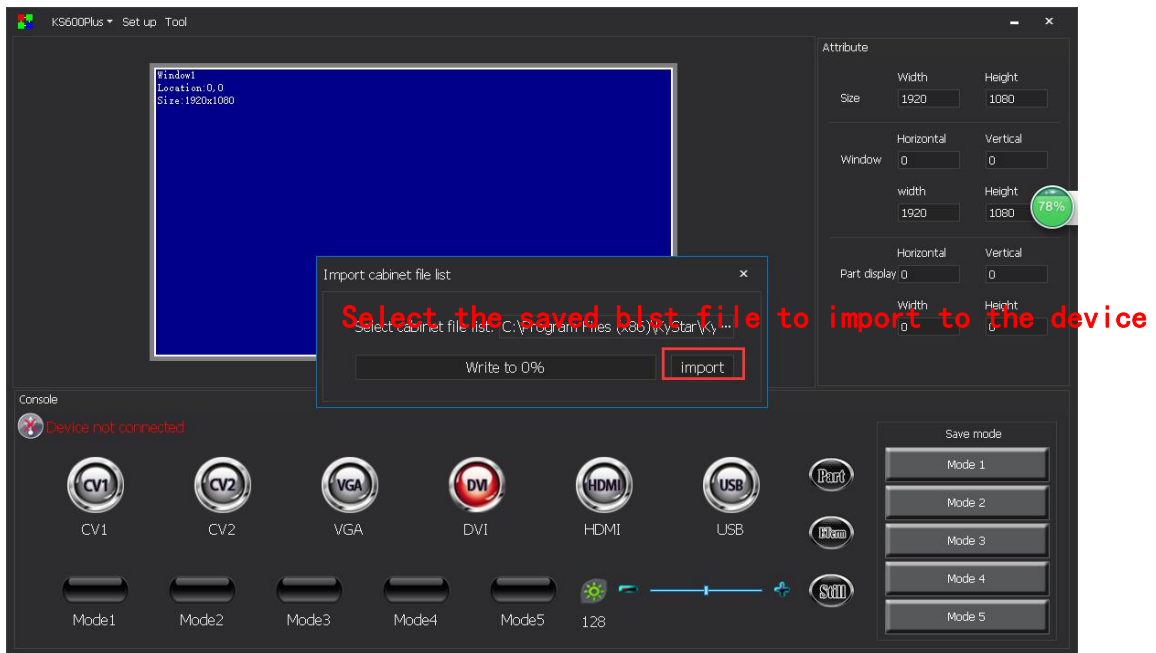
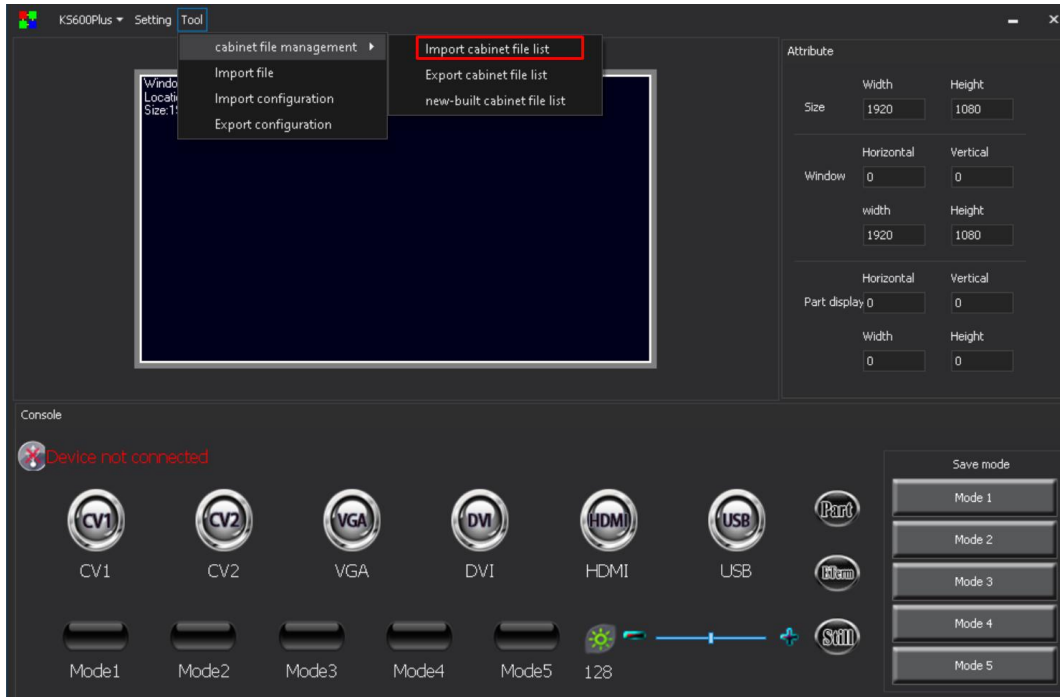box files from the tool menu inside:

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.