灰度科技
HUIDU TECHNOLOGY

Instruction Manual

Two in one video processor

HD-VP1640A

V0.6 20250721

1 brief introduction

HD-VP1640A is a 2-in-1 LED display video processor that integrates 16 Gigabit Ethernet ports and supports four screen display. It has 7 synchronous signal inputs and supports up to 4K video signal input (some interfaces). Multiple synchronous signals can be switched freely, making it suitable for various occasions such as hotels, shopping malls, conference rooms, exhibitions, and studios that require synchronous playback. At the same time, the VP1640A comes standard with Wi Fi functionality and supports wireless control through mobile apps.

characteristic

input

- Supports 1-channel DP/1-channel Type-C (both cannot be used simultaneously), 1-channel HDMI 2.0, 2-channel HDMI 1.4, 2-channel DVI signal input, and allows for arbitrary switching of multiple video signals;
- 1 channel IR infrared remote control receiver;
- Supports 1 TRS 3.5mm standard dual channel audio input and HDMI/DP audio input.

output

Standard configuration includes 16 Gigabit Ethernet ports, which can be directly connected to the card receiver;

Maximum control of 10.4 million pixels, horizontal maximum support of 16000 pixels, vertical maximum support of 4000 pixels;

1 TRS 3.5mm standard dual channel audio output.

function

Support 4K@60Hz Synchronous signal input, point-to-point display;

Supports four screen display and allows for arbitrary layout of screens;

Supports 8 scene presets and calls;

Standard Wi Fi and support wireless control through mobile apps;

Supports brightness adjustment and button lock function.

2 Application scenarios

Connection diagram

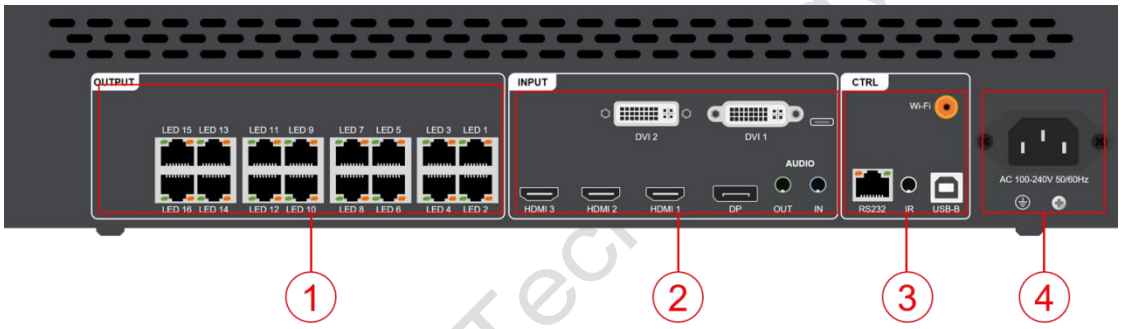
3 appearance

front panel

Button Description		
Number button description	Number button description	Number button description
1. Power switch controls AC power input	1. Power switch controls AC power input	1. Power switch controls AC power input
2 LCD display screen debugging display menu, screen parameters and other information	2 LCD display screen debugging display menu, screen parameters and other information	2 LCD display screen debugging display menu, screen parameters and other information
3 IR&MIC IR: Infrared Remote Control Reception	3 IR&MIC IR: Infrared Remote Control Reception	3 IR&MIC IR: Infrared Remote Control Reception
MIC: Microphone voice input (optional)	MIC: Microphone voice input (optional)	MIC: Microphone voice input (optional)
4 multifunctional buttons for selecting menus, adjusting	4 multifunctional buttons for selecting menus, adjusting screen parameters, and confirming	4 multifunctional buttons for selecting menus, adjusting screen parameters, and confirming operations

screen parameters, and confirming operations	operations	
5 MENU WIN1~WIN4: Select opened screen windows	5 MENU WIN1~WIN4: Select opened screen windows	5 MENU WIN1~WIN4: Select opened screen windows

Rear panel



input interface			
Serial number	Interface name	quantity	explain
2	Type-C	1	Type-C input interface Interface form: Type-C Signal standard: DP1.2 backward compatible Resolution: VESA standard, ≤ 3840 × 2160@60Hz Support audio input

			Note: Type-C and DP share the same button and default to DP mode. To enable Type-C, you need to go to the "Advanced Settings" to enable it. Please refer to the operating manual for specific instructions
	DP	1	DP input interface Interface form: DP Signal standard: DP1.2 backward compatible Resolution: VESA standard, ≤ 3840 × 2160@60Hz
	HDMI		HDMI 2.0 input interface x 1 (HDMI 1) Interface form: HDMI-A Signal standard: HDMI 2.0 backward compatible Resolution: VESA standard, ≤ 3840 × 2160@60Hz Support audio input HDMI 1.4 input interface x 1 (HDMI 2) HDMI 1.4 input interface x 1 (optional for HDMI 3) Interface form: HDMI-A Signal standard: HDMI 1.4 backward compatible

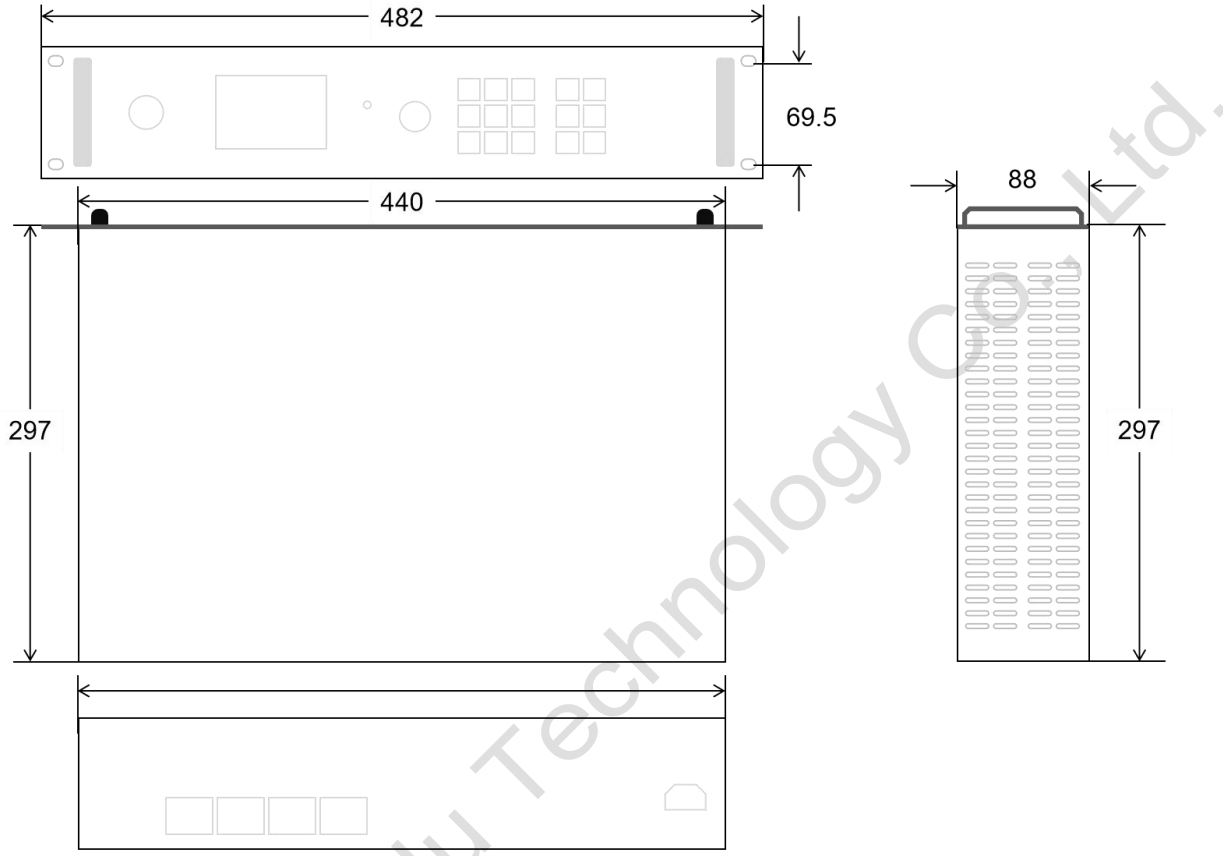
			Resolution: VESA standard, ≤ 3840 x 2160 @ 30Hz Support audio input Note: Choose between HDMI 3 and screen mirroring function
	DVI	2	DVI input interface Interface form: DVI-I socket Signal standards: DVI 1.0, HDMI 1.3 backward compatible Resolution: VESA standard, PC to 1920x1080, HD to 1080p Note: Standard DVI1 (DVI2 and SDI can only choose one)
2	AUDIO IN	1	TRS 3.5mm dual channel audio input interface
4	电源	1	AC 100~240V, 50/60Hz

Output interface			
Serial number	Interface name	quality	explain

1	Gigabit Ethernet port	16	Used for level connection card receiving and transmitting RGB data streams Each network port has a control range of 650000 pixels.
2	AUDIO OUT	1	TRS 3.5mm dual channel audio output interface Connect audio amplifier for high-power audio external playback

control interface			
Serial number	Interface name	quantity	explain
3	USB-B	1	Connect the computer for debugging devices
	RS232	1	Connect the central control equipment for centralized control
	Wi-Fi	1	Connect Wi Fi antenna
	IR	1	Used to connect an external infrared remote control extension cable

4 Dimensional drawing



5 Product usage

5.1 Operation steps

Step 1: Connect the display screen power supply to power on the screen

Step 2: Connect a playable input source to HD-VP1640A

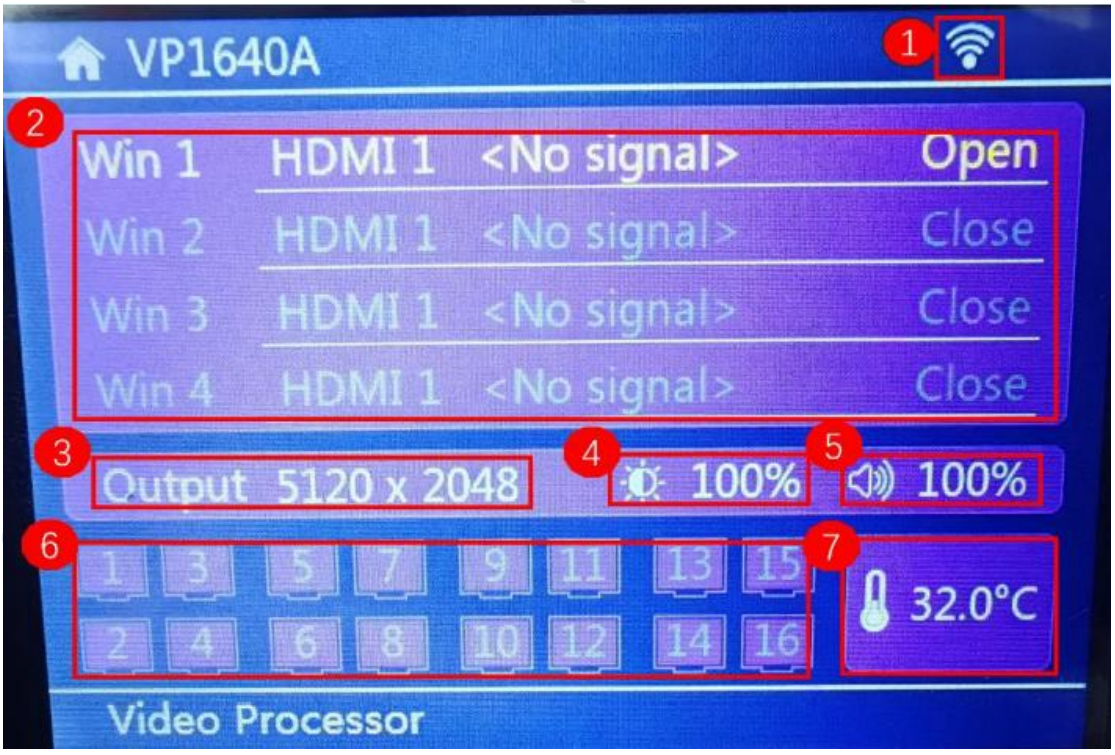
Step 3: Connect the computer to the USB serial port and debug the screen parameters (refer to the HDSet user manual for debugging screen parameters)

5.2 Input source switching

HD-VP1640A supports simultaneous access to 6 signal sources and can be switched to the input source that needs to be played at any time according to requirements.

To switch input sources, simply press the "Source" button on the front panel to quickly switch.

5.3 Interface Description



The icons in the next column, from left to right, are: output size, brightness, sound, network port usage

status, and internal temperature of the chassis.

1. Network port settings are used to set the load range and connection relationship of the sending card network port.

2. The screen layout is used to set the output screen and supports up to 4 screens to be displayed simultaneously.

3. Image effects are used to set image sharpness, contrast, saturation, color temperature, brightness, and other settings.

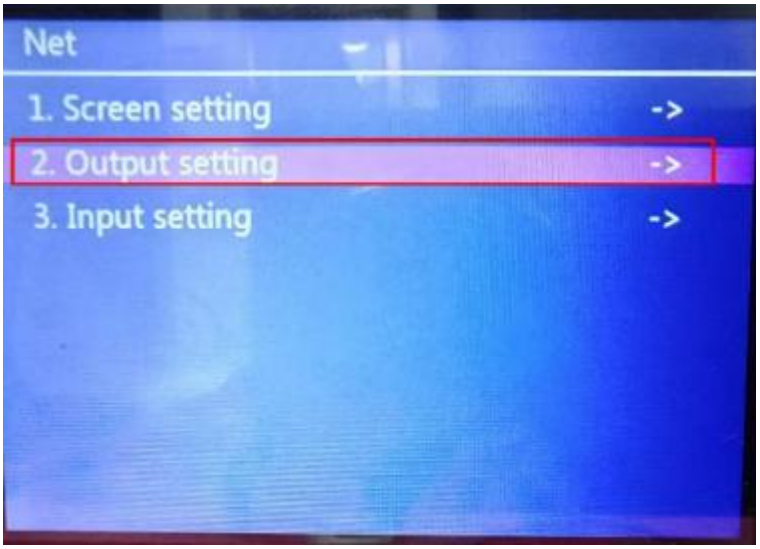
4. Image capture is used to capture the input source of the image, and the image and coordinates of the captured input source can be set.

5. Mode saving is used to save the currently set parameters to form a template file, which facilitates quick setting in the future.

6. Advanced settings are used to set the input source resolution and restore factory settings. Sound management, key lock settings, language management.

7. The firmware version is used for displaying the firmware version.

8. Language is used for device language switching.



1. Screen width and height settings, where screen width refers to the wide pixels of the display screen, and screen height refers to the high pixels of the display screen.

2. Output settings are used to set the coordinates and range of the network port

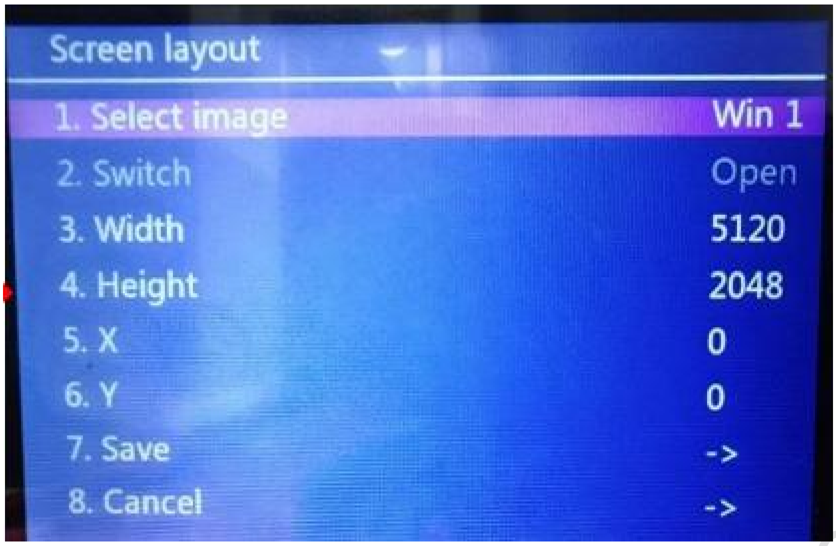
Horizontal width: 256- the width of the LED screen

Vertical height: 128- the height of the LED screen

Horizontal start: Set parameter range=LED screen width - horizontal width

Vertical start: Set parameter range=LED screen height - vertical height

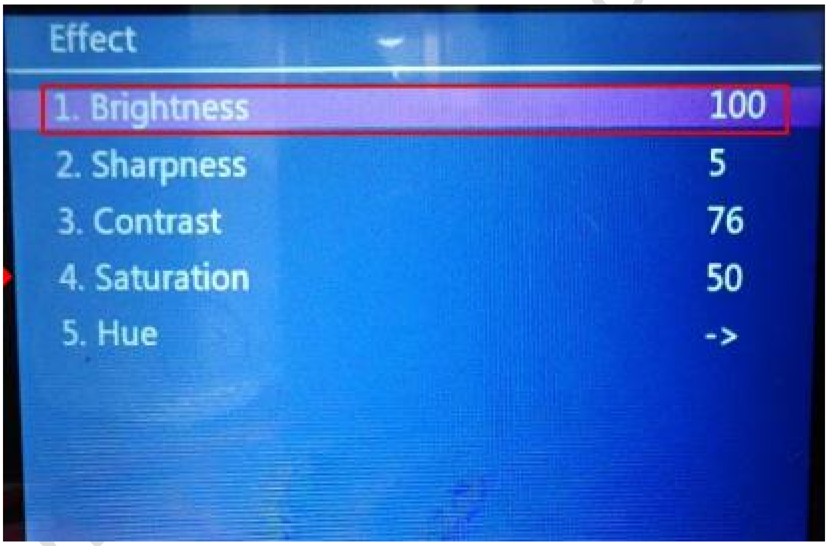
3. The connection relationship is set to handle the connection relationship of the receiving card. Currently, only standard universal mode is supported, and complex connection relationships are not supported.



The screen switch setting for screen 1 cannot be set to off

The horizontal starting value+horizontal width cannot exceed the width of the LED screen

Vertical starting value+vertical width cannot exceed the height of the LED screen



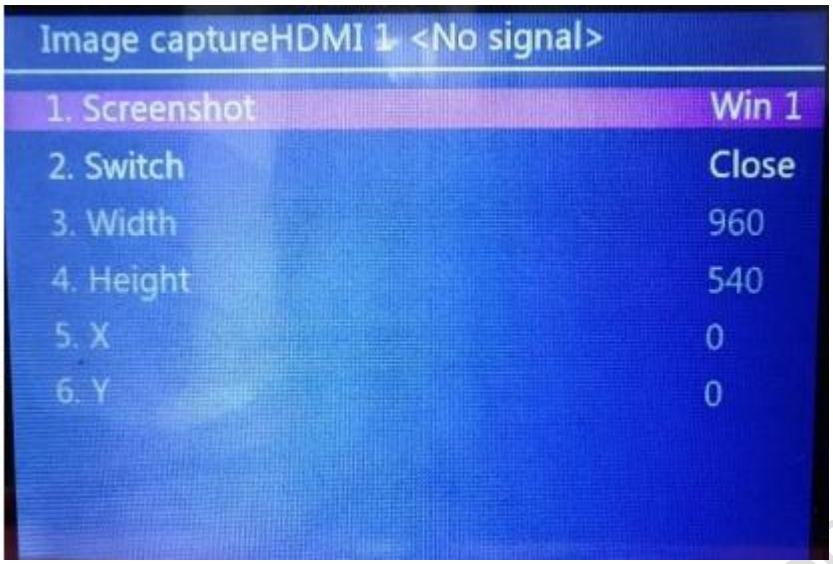
Brightness: 0-100 Default 100

Sharpness: 0-10, default 5

Contrast: 0-100 default 76

Saturation: 0-100, default 50

Color temperature: Warm, natural, cool, customizable. Default Warm



When the cutoff switch is turned off, the knob cannot select the cutoff width, height, horizontal, or vertical starting point.

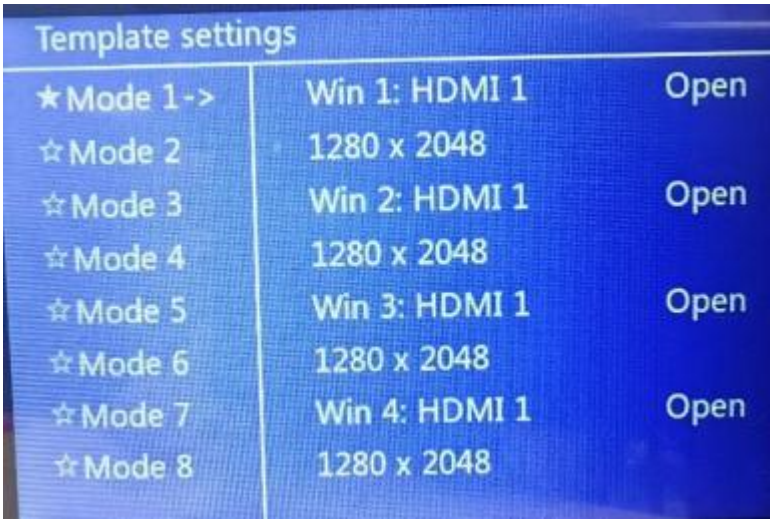
Cut width: 128- maximum width of input source

Cut height: 128- maximum height of input source

Horizontal start: Horizontal start value range=Input source width - Cut width

Vertical start: Vertical start value range=Input source width - Cut width

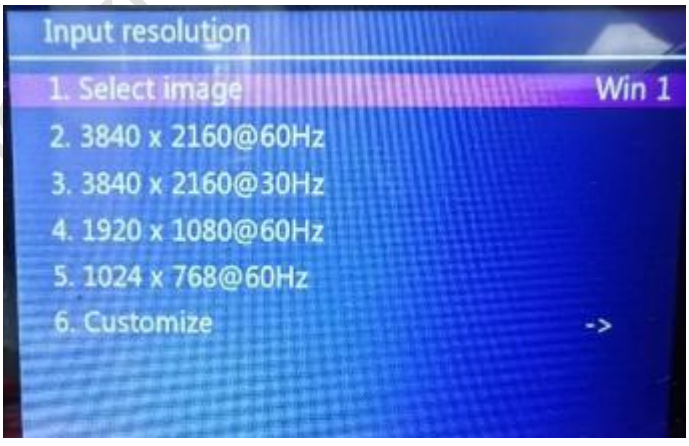
Note: If the size of the captured image is the same as that of the output image, it is displayed point-to-point. If the size of the captured image is different from that of the output image, it is displayed in zoom mode.



Existing templates support replacement, deletion, and loading

Template options that do not exist, support saving

Supports up to 8 template files



Supports 4 sets of universal resolutions and also supports custom resolution settings. Default is

60Hz

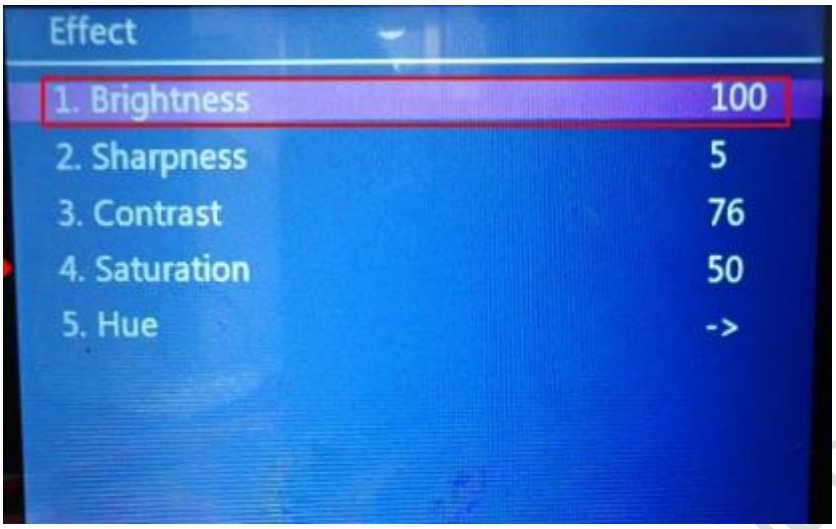
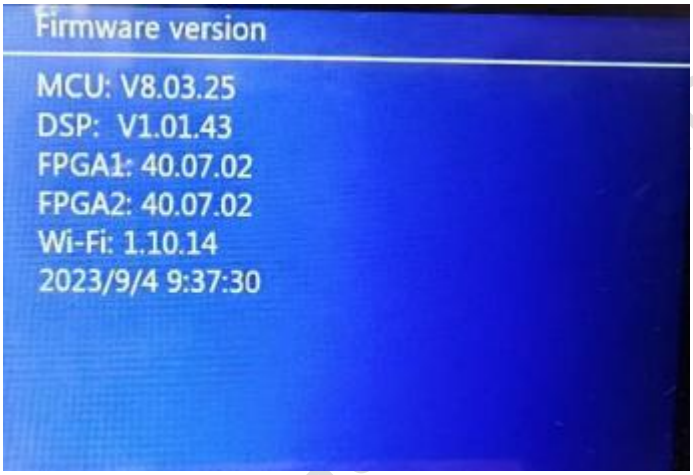


Image rotation support, normal display, horizontal mirroring, horizontal vertical mirroring, vertical mirroring

The button lock delay switch is enabled, supporting a maximum of 3600 seconds. If the set time is exceeded, the button lock will automatically lock. Release the key lock, press and hold the ESC and FREEZE keys for 3 seconds, and the key lock will automatically unlock.

Language selection: Supports English and Chinese



Firmware version display

Digital Function Description:

When entering a situation that requires inputting numbers, such as setting the width and height of the screen. The key board reuses relevant buttons. During the input of numbers, except for the reused button and ESC, the knob can be used, and other key functions are prohibited from use until exiting. The key reuse is as follows:

Original button function	Reuse functionality
WIN 1	1
WIN 2	2
WIN 3	3
DP	4
HDMI1	5
WIN 4	6
MODE	7
BRIGHT	8
HDMI2	9
HDMI3	0

Description of status lights for buttons

When the button is pressed, the light of the button will light up, and when released, it will turn off if there are no other requirements.

2. If the input source of the current window is DVI1/DVI2/HDMI 2/HDMI 2/HDMI 3/DP, if there is no input source signal, it will flash off at 125ms intervals until an input source signal is detected and remain on. If the input source signal is lost midway, it will continue to flash.

When the BLACK button is pressed, DVI1,DVI2,HDMI1,HDMI2,HDMI3,DP, All lights are off, the BLACK light remains on. After pressing the BLACK button again, the BLACK light will turn off. Then, proceed to the second step of the light status based on the input source light in the current window.

4. After pressing the FREEZE button, the button light will remain on and turn off when pressed again.

5. Which window is currently selected on the TV, WIN1, WIN2, WIN3, WIN4, and which button light will be illuminated. To switch between different windows, the input source's button light needs to synchronize with the current window's input source type.

6. Power off and restart. The following states need to be saved: the input source type of the current window, the status of the BLACK light, the status of FREEZE, and the selection status of win1, win2, win3, and win4.