灰度科技
HUIDU TECHNOLOGY

Instruction Manual

Two in one video processor

HD-VP10

V1.0 20260423

1. Introduction

The HD-VP10 is a two-in-one video processor, integrating a traditional video processor and 10 gigabit Ethernet outputs. This simplifies on-site setup and improves product reliability. It supports 4-channel synchronous signal input, making it suitable for various occasions requiring synchronized playback, such as hotels, shopping malls, conference rooms, exhibition halls, and studios. Additionally, the device supports point-to-point input/output, resulting in clearer images on LED displays.

Features :

enter

- Supports a maximum of 4096*2160 @60Hz synchronous signal input ;
- Supports 1 DP1.2, 1 HDMI2.0, 1 HDMI1.4, and 1 3G-SDI (IN&LOOP, optional), allowing for seamless switching between multiple video signals;
- Supports one USB 3.0 port, supporting mixed playback of images and videos;
- Supports one TRS 3.5mm standard dual-channel audio input and HDMI/DP audio input;
- It supports one sensor input interface for connecting an external brightness sensor.

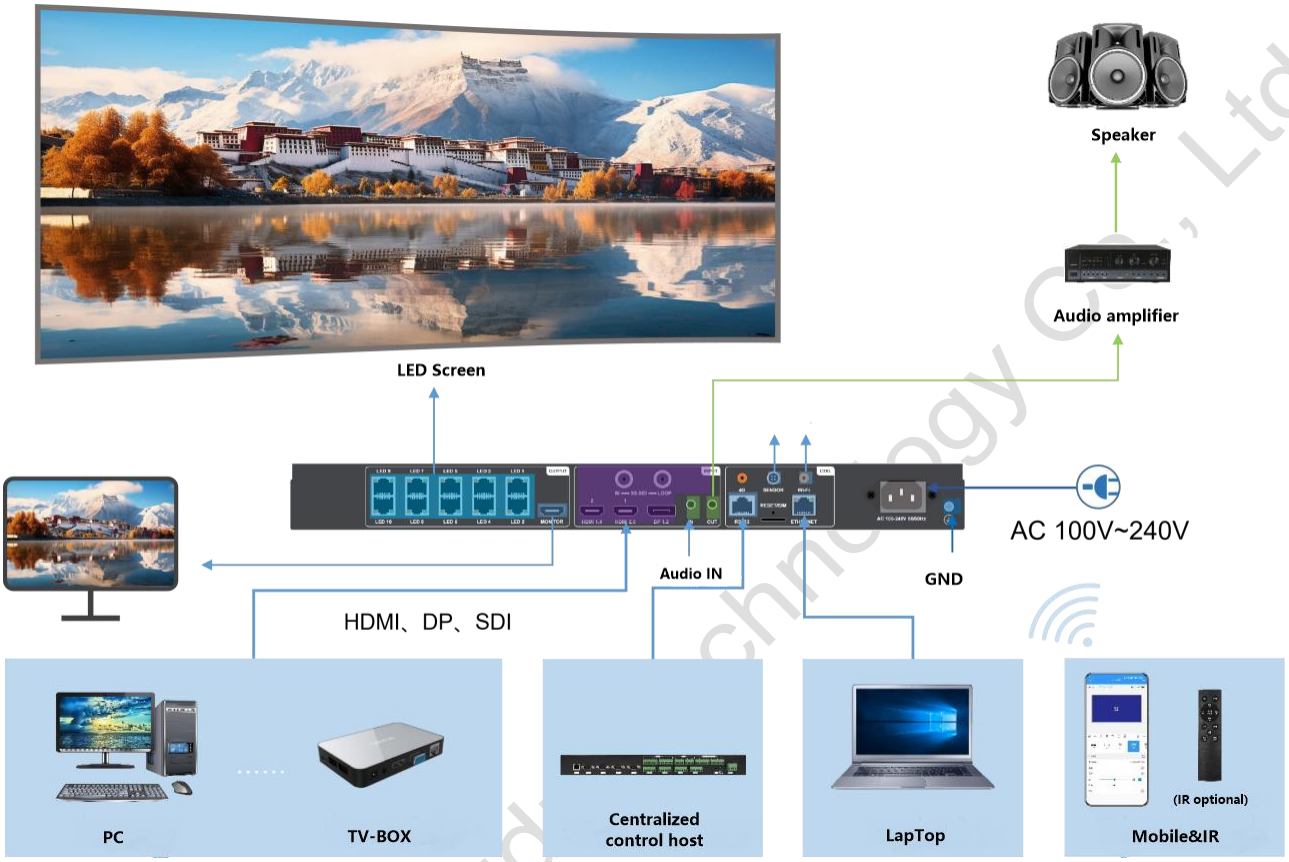
Output

- Supports dual-screen layout, with a maximum of 2×4K windows;
- Standard configuration includes 10 gigabit Ethernet ports for direct cascading of receiver cards;
- Maximum resolution is 6.5 megapixels, with a maximum horizontal resolution of 16,000 pixels and a maximum vertical resolution of 4,000 pixels.
- One HDMI output port is used to display the output preview image;
- One TRS 3.5mm standard dual-channel audio output.

Function

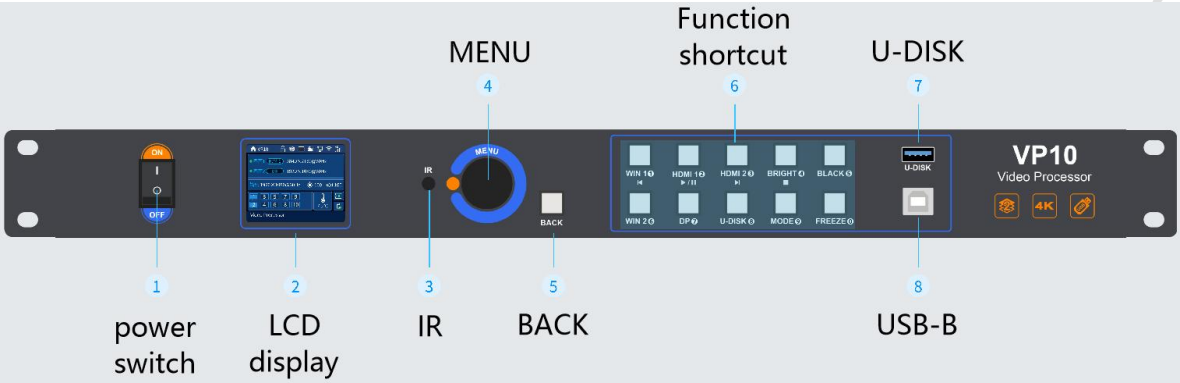
- Video signals can be switched, cropped, and scaled at will;
- Supports 256 scene presets and calls;
- Supports brightness adjustment, color temperature adjustment, and button lock functions;
- Supports arbitrary overlap of network ports and non-rectangular loads;
- Supports point-to-point display and limited-to-full conversion;
- Supports RS232 and RS485 serial port protocol control for interface with central control equipment;
- Supports LAN port communication debugging;
- Supports EDID import and export;
- Supports Wi-Fi Station mode and AP mode;
- Supports wireless control via mobile app;
- Supports 4G module and 4G antenna (optional).
- Supports infrared remote control (optional);
- SDI is supported (optional);
- Supports remote debt collection via Wi-Fi.

2 Application Scenarios



3. Appearance

Front panel



Button Instructions		
Serial Number	button	illustrate
1	power switch	Control AC power input
2	LCD display screen	Debug display of menu, screen parameters and other information
3	IR	Receive infrared remote control (optional)
4	MENU knob	Press the knob to enter the submenu or confirm the selection. Rotating the knob allows you to select menu items or adjust parameters.
5	BACK	Exit button /Back button
6	WIN1	Select/play a program file from the USB drive in the currently open screen 1 window.

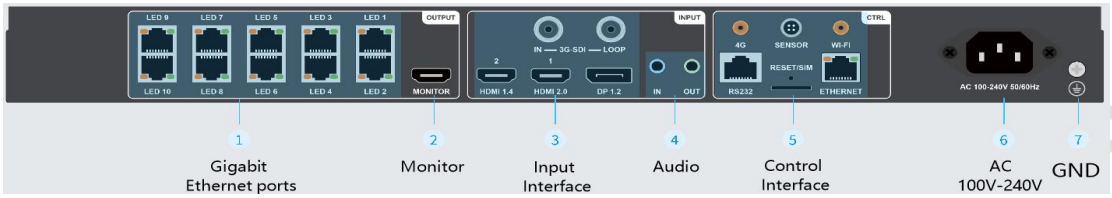
		Function key: The key's multiplex function is for numeric selection, typically used when setting the resolution.
	WIN2	Select the currently open screen 2 window. Function key: The key's multiplex function is for numeric selection, typically used when setting the resolution.
	HDMI1	Select HDMI 1 signal playback / pause or play USB flash drive programs. Function key: The key's multiplex function is for numeric selection, typically used when setting the resolution.
	HDMI2 (SDI)	Select HDMI 2 (SDI) signal to play /play the next program file from the USB drive. Function key: The key's multiplex function is for numeric selection, typically used when setting the resolution. The HDMI2/SDI button is reused; when the input source is HDMI2, clicking it again will switch to SDI.
	DP	Select DP signal playback Function key: The key's multiplex function is for

		numeric selection, typically used when setting the resolution.
	U-DISK	Select USB drive program playback Function key: The key's multiplex function is for numeric selection, typically used when setting the resolution.
	BRIGHT	Quickly bring up the brightness setting button / stop playback of USB flash drive programs
	MODE	Quickly bring up the preset template call menu Function key: The key's multiplex function is for numeric selection, typically used when setting the resolution.
	FREEZE	One-click freeze button Function key: The key's multiplex function is for numeric selection, typically used when setting the resolution.
	BLACK	One-click black screen button Function key: The key's multiplex function is for numeric selection, typically used when setting the resolution.

Input Interface			
Serial Number	Interface Name	quantity	illustrate
7	U-DISK	1	The USB 3.0 input interface allows you to insert a USB flash drive to play videos and images. Video file formats supported: mp4, avi, mpg, mkv, mov, vob, and rmvb. Video decoding specifications supported: MPEG-1/2, MPEG-4, H.264/AVC, MVC, H.265/HEVC, Google VP8, Google VP9, H.263, VC-1, and MOTION. Image file formats supported: jpg, jpeg, gif, png, and bmp. Video resolution: maximum supported resolution 4096×2160@60Hz. Image resolution: maximum supported resolution 4096×2160@60Hz.

Control Interface			
Serial Number	Interface Name	quantity	illustrate
8	USB-B	1	Connect to computer for device debugging.

Rear panel



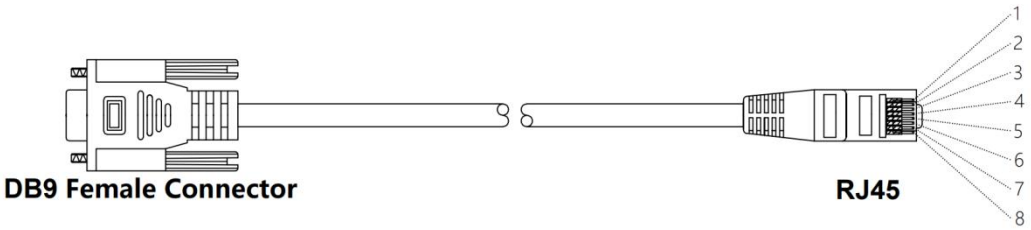
Output interface			
Serial Number	Interface Name	quantity	illustrate
1	Gigabit Ethernet ports	10	Used for cascading receiver cards, transmitting RGB data streams, with each network port controlling a range of 650,000 pixels, and supporting interfacing with multi-function cards.
2	MONITOR	1	HDMI 1.4 Output Interface Type: HDMI-A is used for preview output display, with a fixed output resolution of 1920×1080@60Hz. Audio output is not supported.
Input Interface			
Serial Number	Interface Name	quantity	illustrate
3	DP1.2	1	DP input interface Interface type: DP Signal standard: DP1.2 backward compatible Resolution: VESA standard, ≥720×480@60Hz, ≤ 4096×2160@60Hz

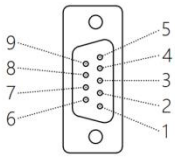
			Supported color spaces: RGB4:4:4/YCbCr4:4:4; Supported color depth: 8-bit/10-bit; Supported maximum width: 4096; Maximum height: 4096 Supports accompanying audio
	HDMI1	1	HDMI 2.0 input interface Interface type: HDMI-A Signal standard: HDMI 2.0 backward compatible Resolution: VESA standard, ≥800×600@60Hz, ≤ 4096×2160@60Hz Supported color spaces: RGB4:4:4/YCbCr4:4:4; Supported color depth: 8-bit/10-bit; Supported maximum width: 4096; Maximum height: 4096 Supports accompanying audio
	HDMI 2	1	Interface type: HDMI-A Signal standard: HDMI 1.4 backward compatible Resolution: VESA standard, ≤ 4096×2160 @ 30Hz Supported color spaces: RGB4:4:4/YCbCr4:4:4; Supported color depth: 8-bit/10-bit;

			Supported accompanying audio.
	3G-SDI IN	1	3G-SDI input interface (optional) Interface type: BNC Signal standards: SD-SDI, HD-SDI, 3G-SDI Resolution: VESA standard, ≤1920×1080@60Hz
	3G- SDI LOOP	1	SDI signal loop-out interface (optional) Interface type: BNC Signal standards: SD-SDI, HD-SDI, 3G-SDI Resolution: VESA standard, ≤1920×1080@60Hz
4	AUDIO IN	1	TRS 3.5mm dual-channel audio input jack
	AUDIO OUT	1	TRS 3.5mm dual-channel audio output interface Connect to an audio amplifier for high-power external speaker playback.
Control Interface			
Serial Number	Interface Name	quantity	illustrate
5	4G	1	Connect 4G antenna
	SENSOR	1	Supports external brightness sensor S107 (optional)
	Wi-Fi antenna interface	1	Connect a Wi-Fi antenna to enhance the Wi-Fi signal.
	RS232	1	RJ45 interface, supports RS232/RS485, for connecting to central control equipment .

	RESET	1	Supports factory reset
	SIM	1	Micro SIM card slot provides 4G network connectivity for remote control.
	ETHERNET	1	Connect to the local area network for debugging equipment.
power supply			
Serial Number	Interface Name	quantity	illustrate
6	power supply	1	AC 100 ~ 240V 50/60Hz
7	Grounding interface	1	Anti-static/leakage current protection to ensure personal safety and normal equipment operation.

The diagram below shows the RJ45 to DB9 adapter cable. It is an optional accessory; please contact Grayscale sales or technical support in advance if needed.





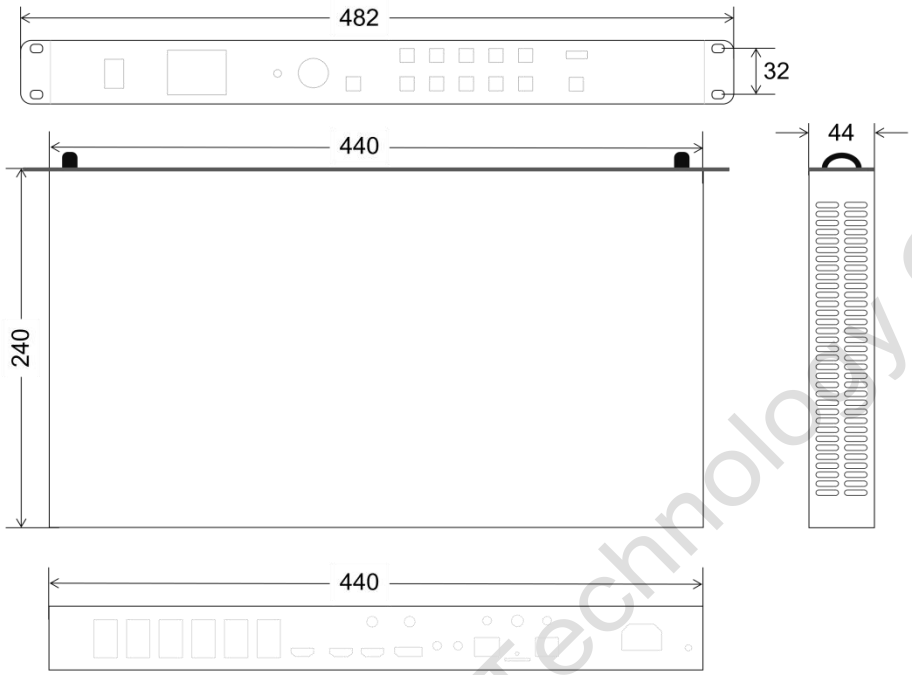
Line Ordering:

DB9 female connector	RJ45 connector
2-RX	TX-1(Red)
3-TX	RX-2(Blue)
5-GND	GND-3(Black)

* The remote control illustration is shown below. It is an optional accessory.

Please contact Grayscale sales or technical support in advance if you require it.

4. Dimensional drawing



5. Product Use

5.1 Operating Procedures

Step 1 Connect the display power supply to power the screen.

Step 2 Connect a playable input source to the HD - VP10 .

Step 3 Use the USB-B connection to the computer to adjust the screen parameters (**refer to the HDSet user manual for adjusting screen parameters).**

5.2 Input Source Switching

The HD - VP10 supports simultaneous input of four signal sources, allowing users to switch to the desired input source at any time.

You can quickly switch input sources by pressing the signal source button on the front panel ;

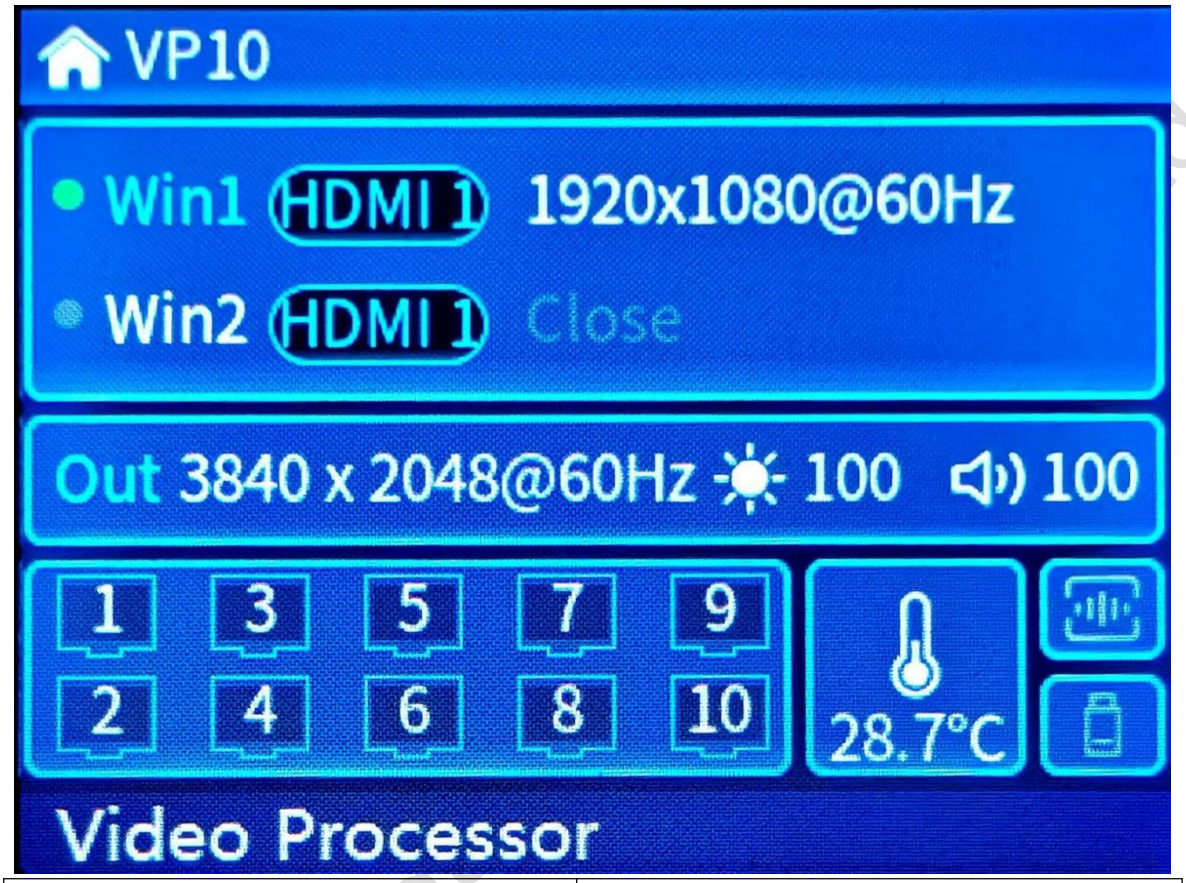
The signal source resolution can be changed by selecting the input source through the menu interface , as follows:

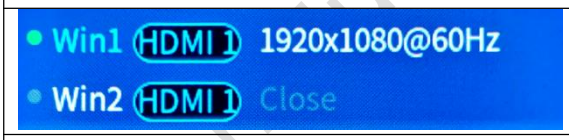
1. Press the knob to select " Image Input → Input Source ";
2. Rotate the knob to select the desired signal source ;
3. Select "Input Resolution" to set the resolution of the source device .

Note: The device is set to automatically lock by default in its initial state, meaning that the device button lock will automatically unlock after 60 seconds of inactivity!

Press BACK+FREEZE simultaneously to unlock.

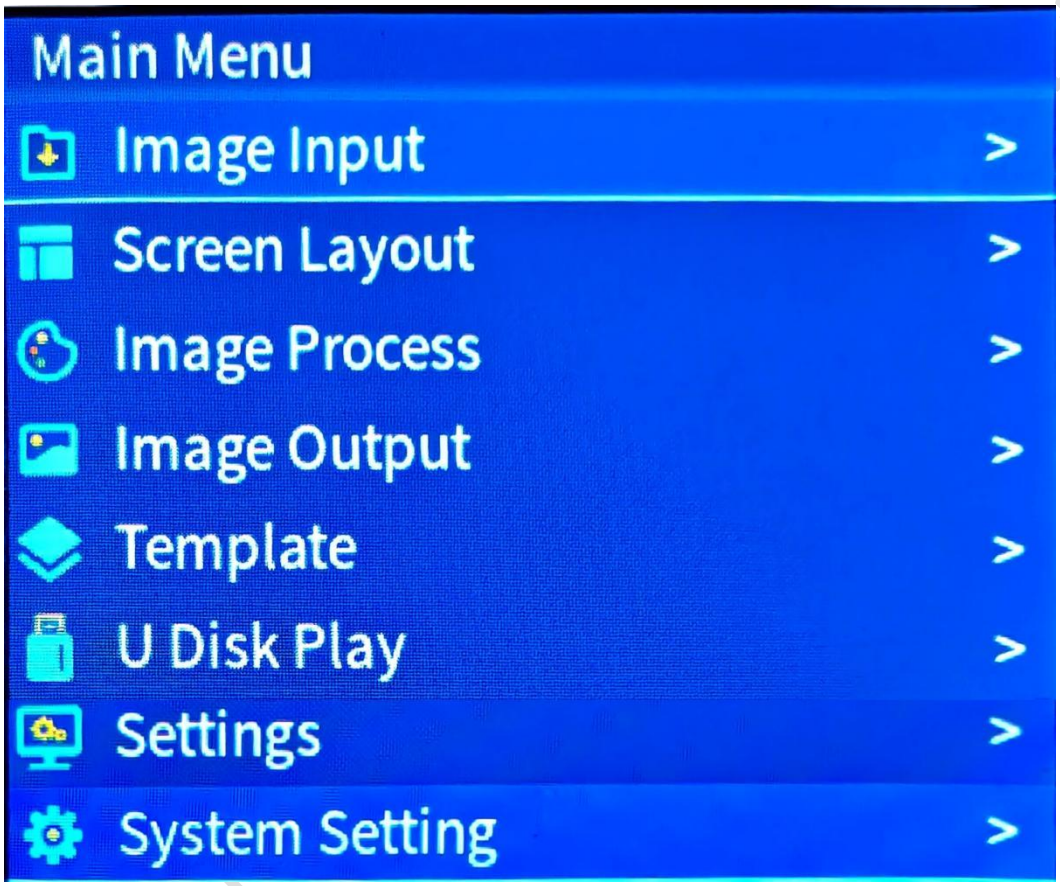
5.3 Interface Description



Display area	illustrate
	Window open status; Window input signal source and resolution recognition status;
	Device output resolution, brightness, and volume.
	The device's network port communication status is as follows: network port communication is normal and the corresponding network port area is lit.
	Display device current temperature
 	This monitors whether audio transmission is enabled, and is generally used when connecting to a multifunction card; it is off when not enabled and on when enabled.

 	USB flash drive playback mode is displayed; a checkmark will appear in the lower right corner when using USB flash drive playback.

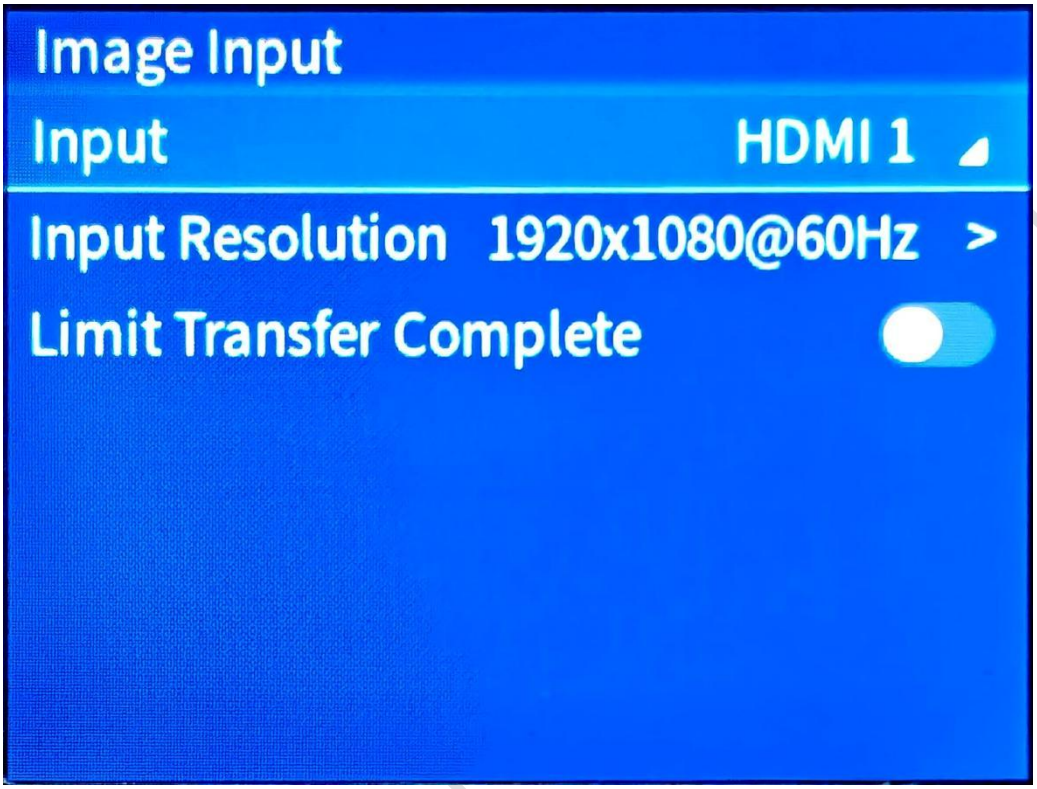
5.4 Main Menu Function Display Interface



1. Image Input: Used for quickly setting the output size and finite to full conversion functionality.
2. Screen layout : Used to set the output screen, supporting up to 2 screens to be displayed simultaneously and quickly setting preset layout templates, screen capture, and screen rotation .
3. Image processing : Used to set brightness , sharpness, contrast, saturation, hue, and color temperature.
4. Image output: Used to set black screen, freeze, test screen, and mapping switch.
5. Template settings: Used to set and save the user's current parameters to form a template file for easy and quick use later .

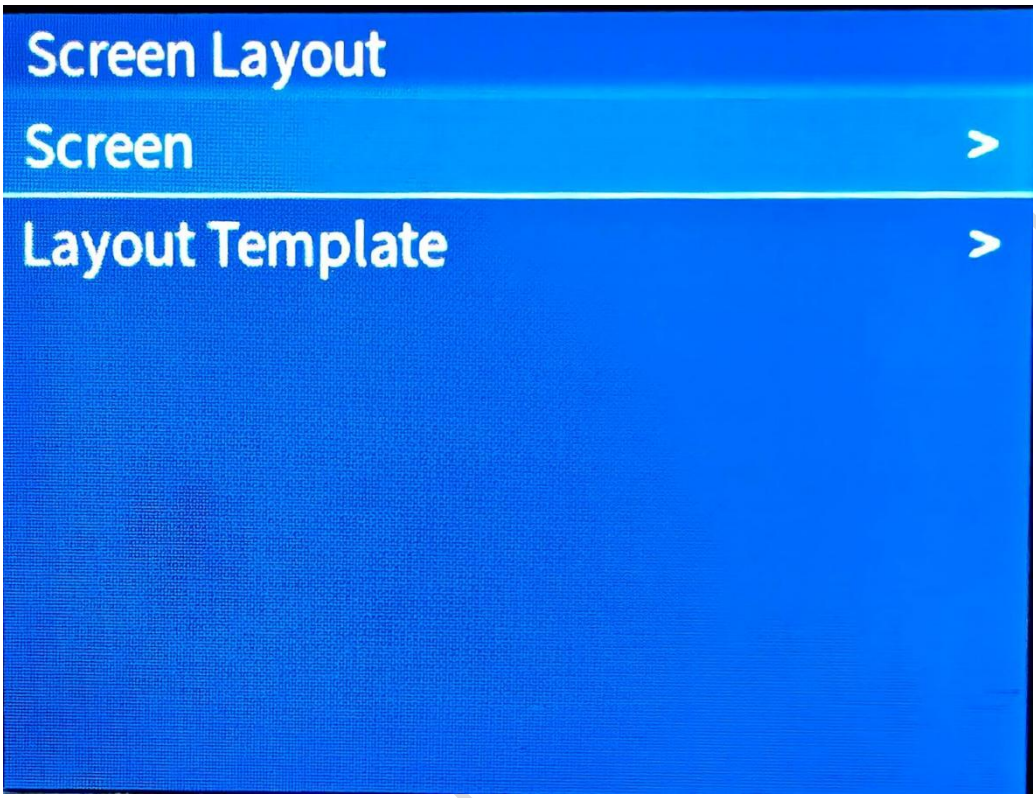
6. USB flash drive playback: Used to set the USB flash drive playback mode.
7. Advanced settings : for sound settings , wired network and Wi-Fi management , time settings , log export, device upgrade , and factory reset .
8. System Settings: Used to set the key lock delay switch, key lock time, timed return to main interface, return to main interface duration, display device model switch, no signal black screen, one-key black border, IR (infrared switch), signal detection, language settings, and about.

Image input



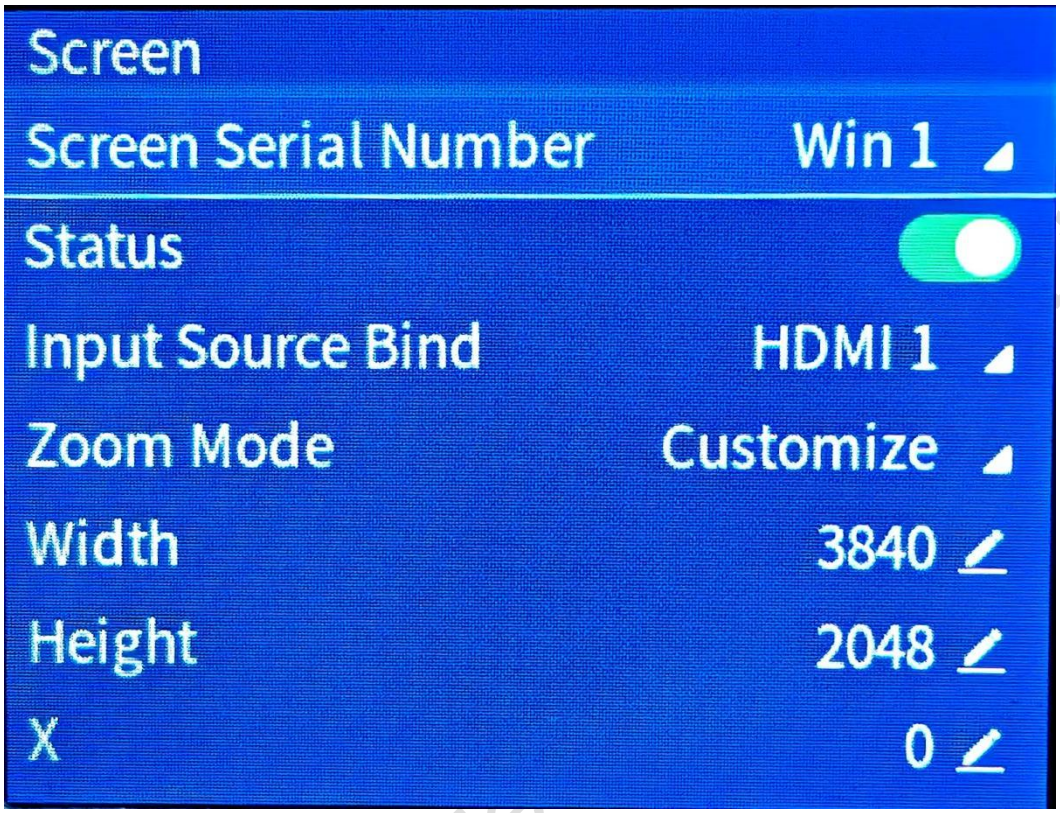
Quickly set and change the input source resolution, and enable the finite-to-full conversion function for the corresponding signal source.

Screen layout



Display settings: Allows you to configure the display settings for either screen 1 or screen 2.

The following parameters can be operated: screen number on/off, input source binding, scaling mode (supports full screen, point-to-point and custom), screen width and height settings and start point settings, input source cropping, screen rotation (supports normal, horizontal mirror, vertical mirror and HV mirror) and other functions.



Input source cropping:

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

Cutoff Width: 128 — Maximum width of input source .

Cutoff Height: 128 — Maximum height of input source

. Horizontal Start: Horizontal start value range = 0 ~ (Maximum width of input source - Cutoff width)

. Vertical Start: Vertical start value range = 0 ~ (Maximum height of input source - Cutoff width).

Note: If the captured image size is the same as the output image size, it is a pixel-to-pixel display; if the captured image size is different from the output image size, it is a scaled display.

Layout templates: Quickly switch between 4 built-in horizontal and vertical layouts.

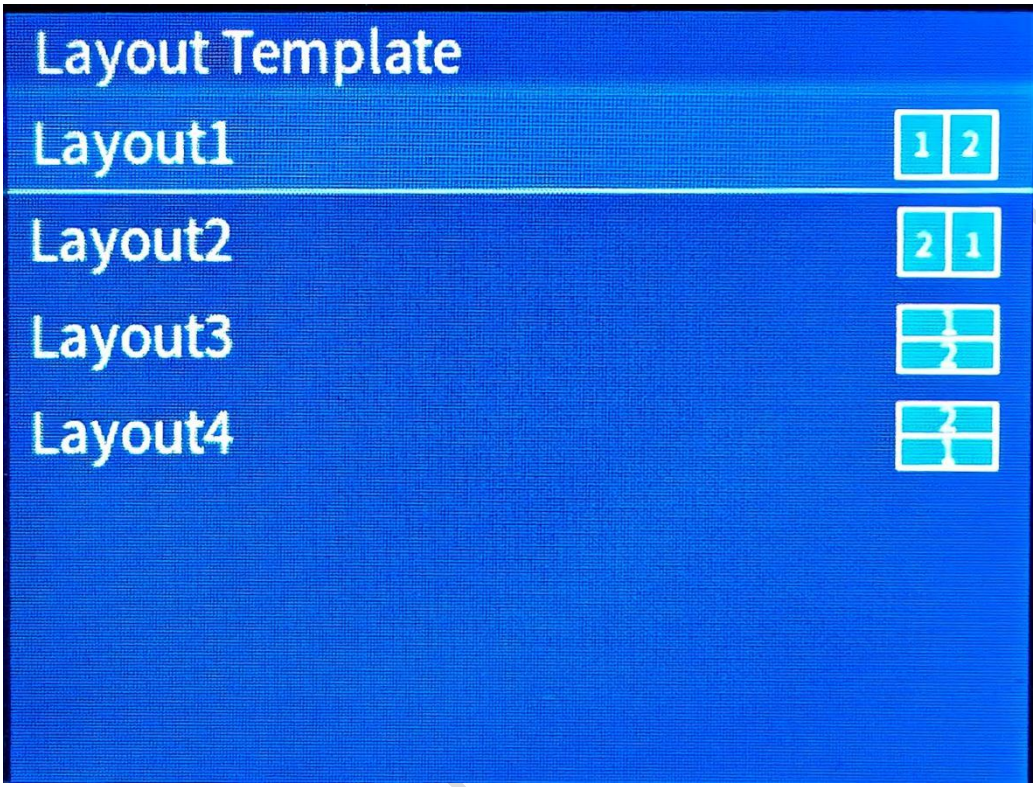
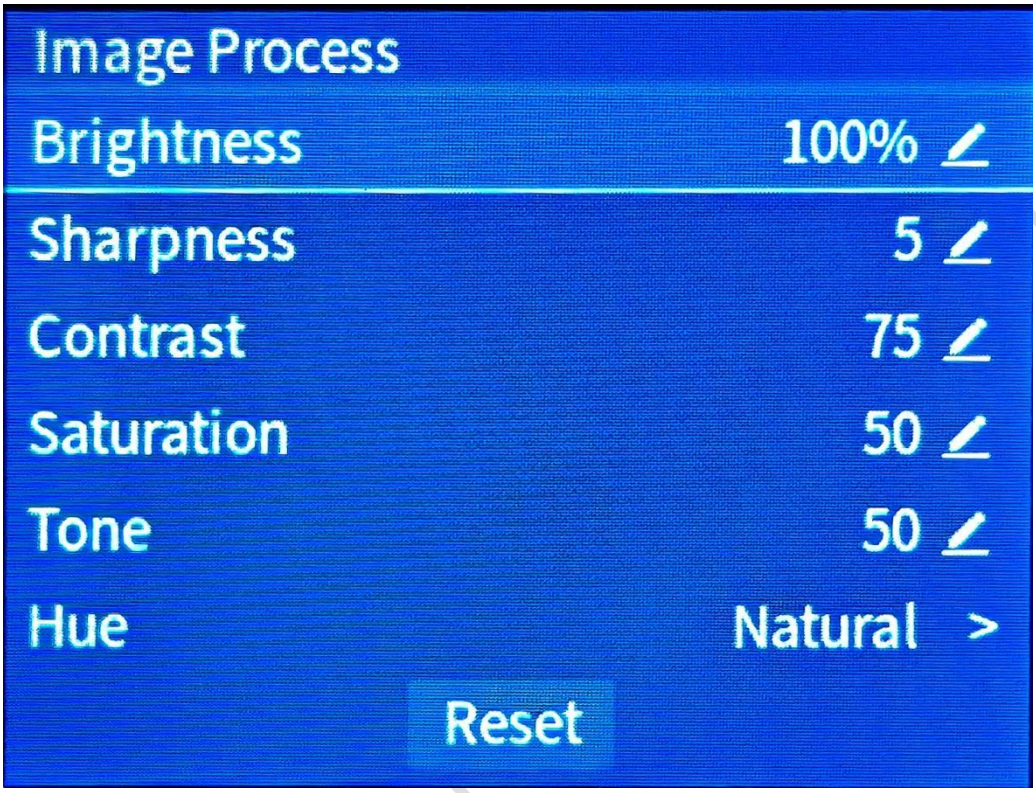
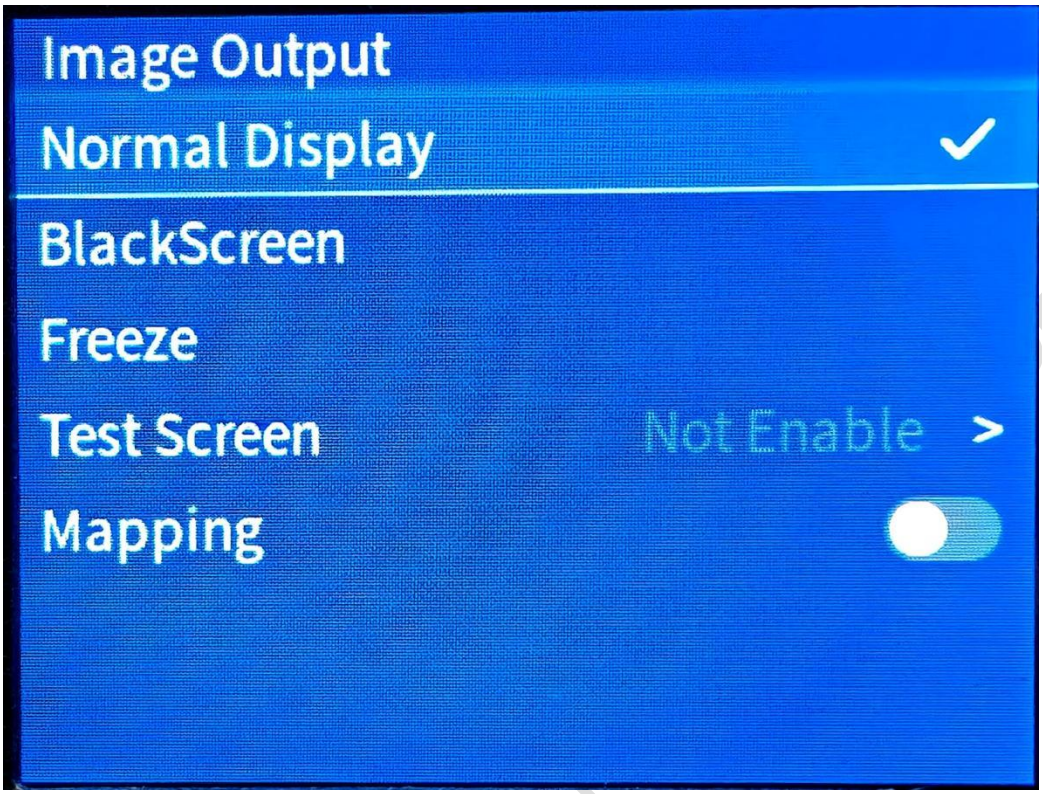


Image processing



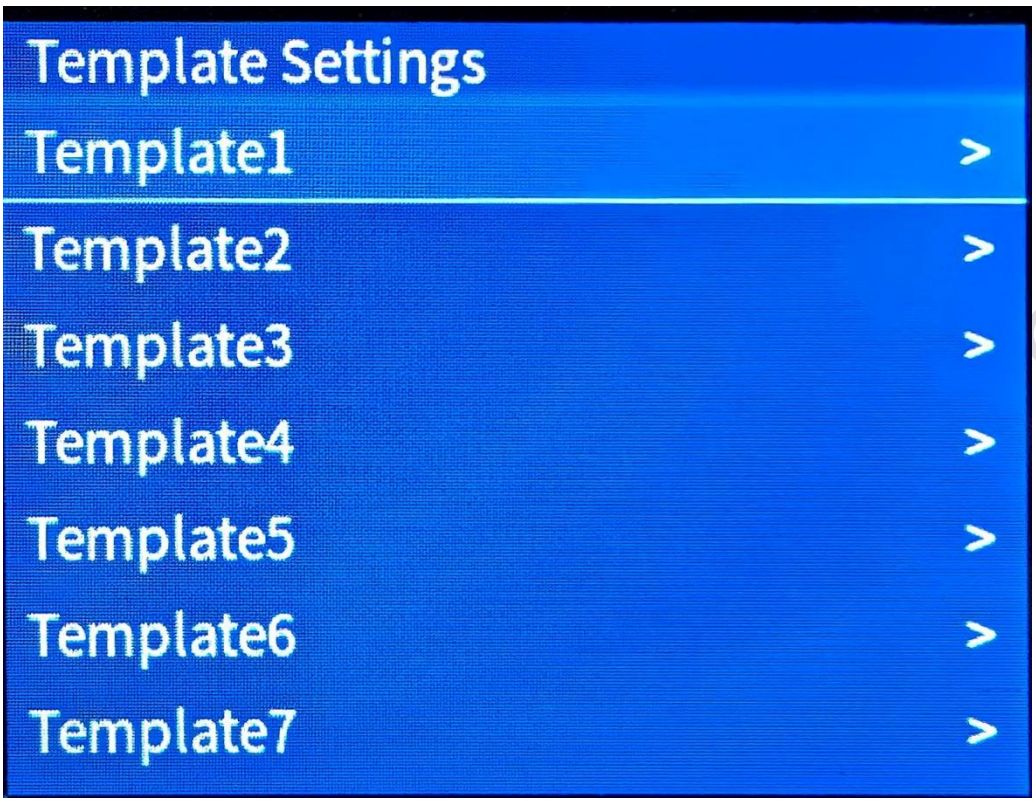
Screen brightness: 100 (default) ;
Sharpness: 5 (default);
Contrast ratio: 75 (default);
Saturation: 50 (default);
Hue: 50 (default);
Color temperature: Natural (default).

Image output



It can enable functions such as black screen, freeze, test screen (solid color, gradient, grid), and mapping.

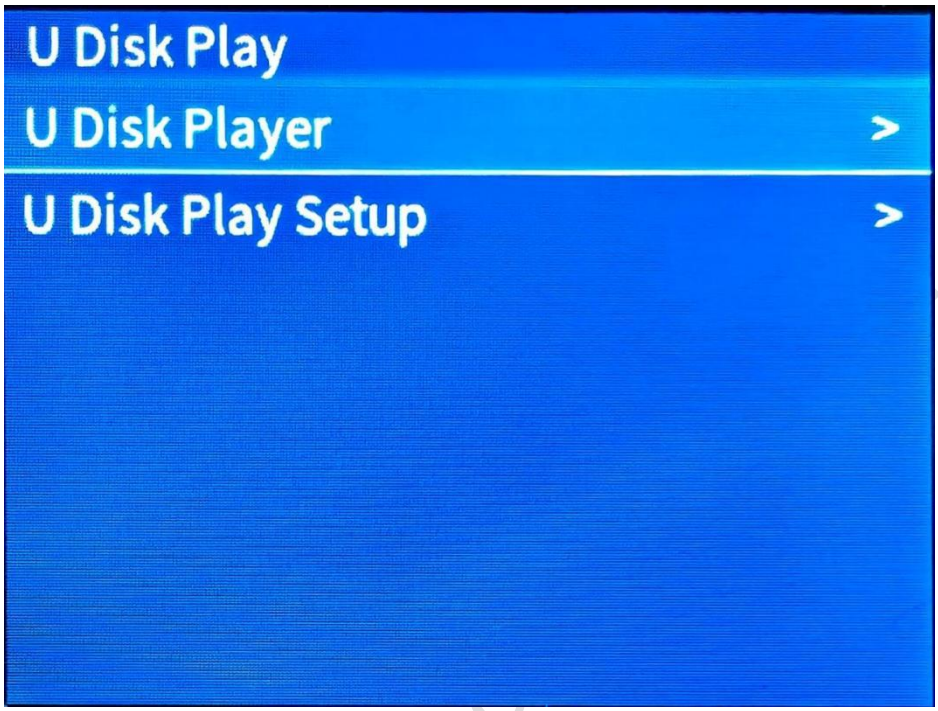
Template settings



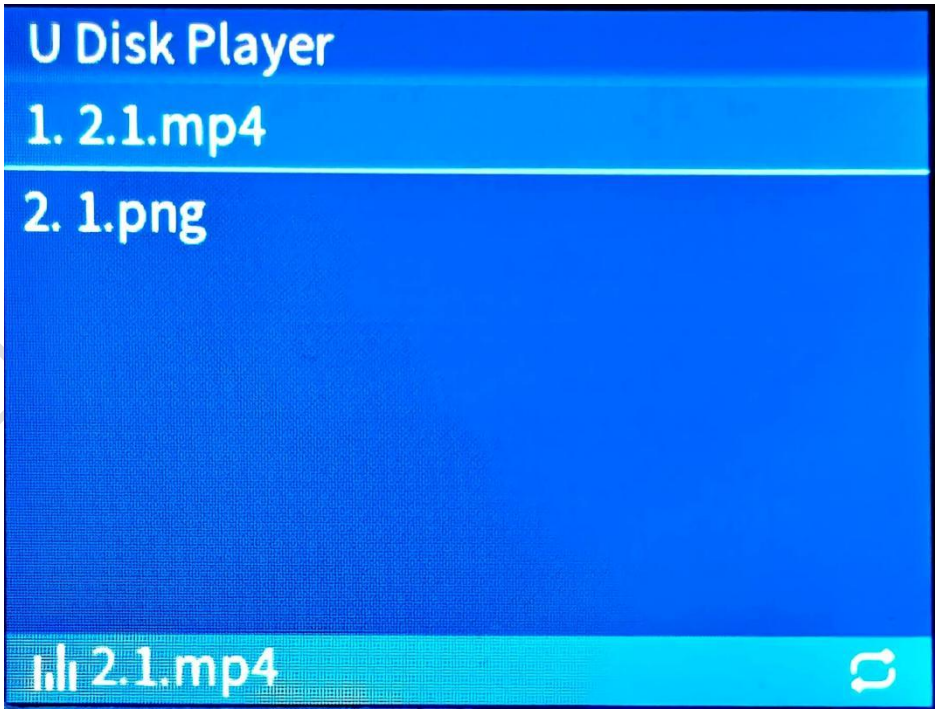
Existing templates can be replaced, deleted, and loaded .

Templates that do not exist can be saved ; supports up to 256 template files . Clicking the knob saves the current screen layout to the corresponding template; after successful saving, selecting the template allows you to load, replace, or delete it.

USB flash drive playback

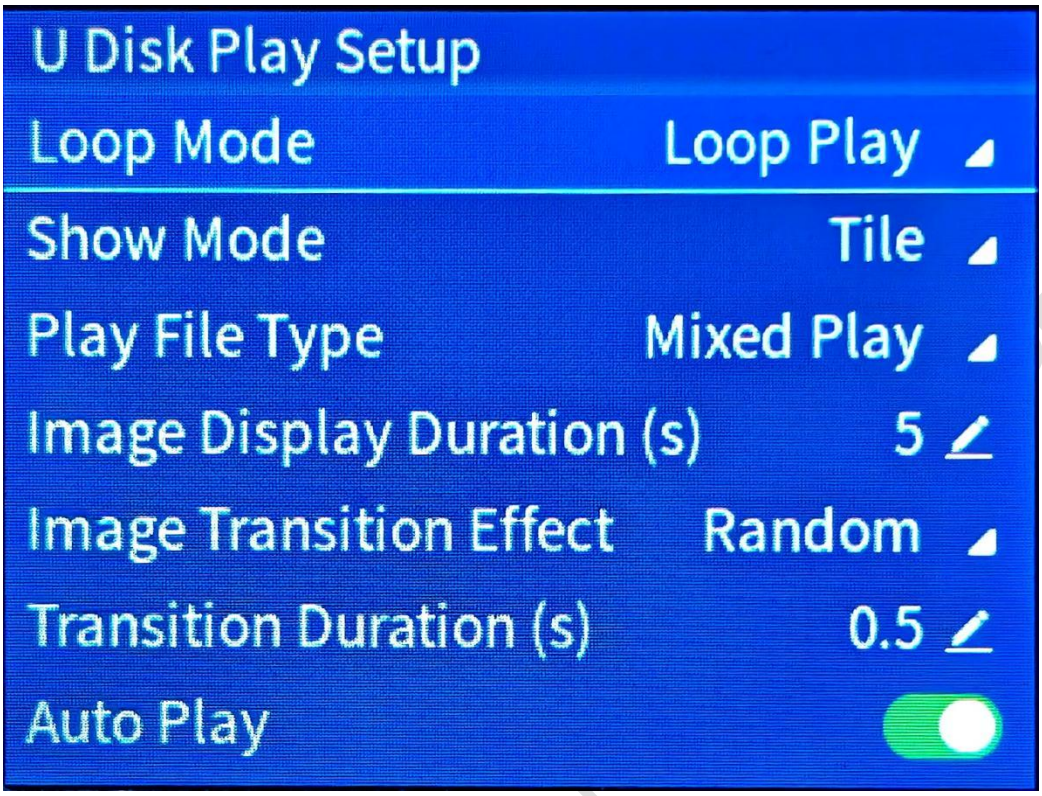


USB flash drive player



You can select materials on the USB drive for playback, pause, and other operations;

USB drive playback settings



Loop modes: loop playback, single loop, sequential playback;

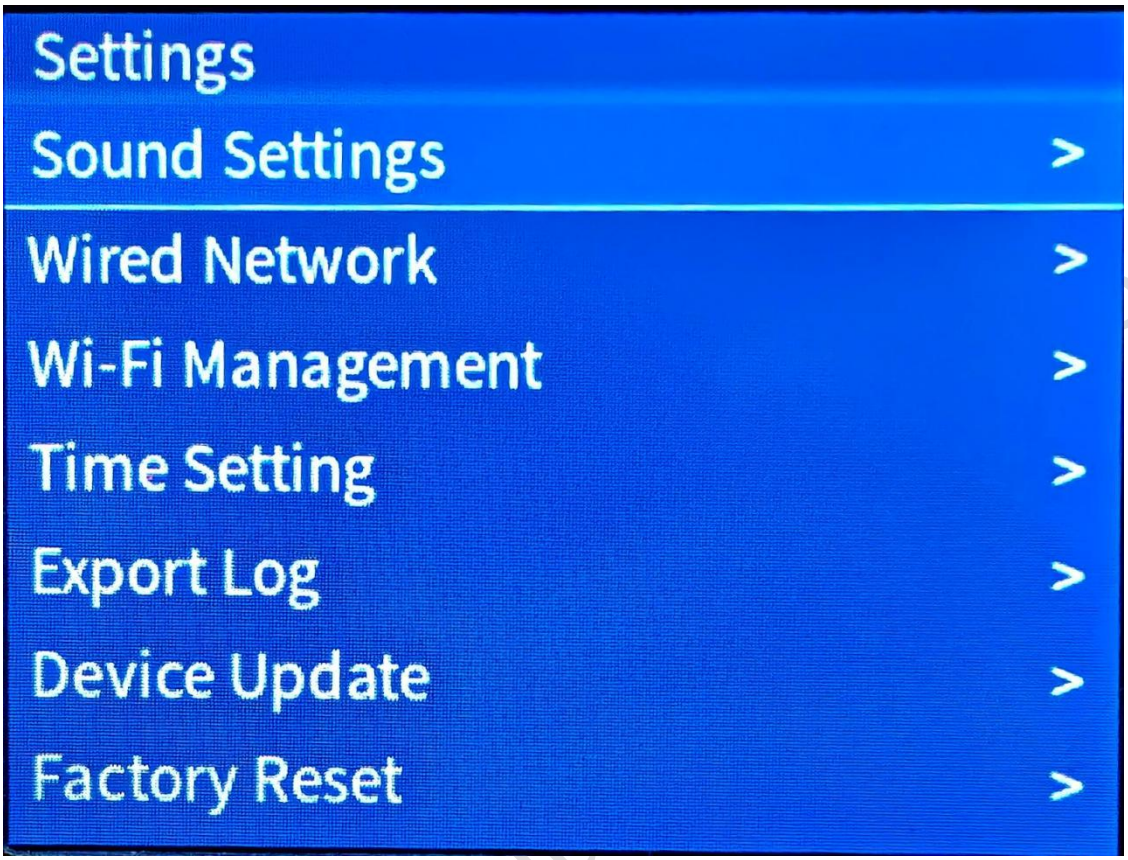
Display modes: Adapt, Tiled;

Playback file types: Mixed playback, video only, image only (default is mixed playback);

Image settings include image playback duration, image transition effects, and transition effect duration.

Automatic playback and resume playback switch;

Advanced settings



① Advanced Settings - Sound Settings

Mute switch;

Volume settings: The volume can be freely adjusted from 0 to 100.

Audio output settings: You can choose screen 1 or screen 2, analog (independent audio signal output);

② Advanced Settings - Wired Network

The network mode can be set to automatic or manual (automatic is the default).

③ Advanced Settings - Wi-Fi Management

Wi-Fi status: Wi-Fi can be turned on or off;

Wi-Fi Information: You can view the name and password of the current Wi-Fi network, as well as

the name and password of the Wi-Fi Station;

Wi-Fi Reset: Allows you to reset Wi-Fi.

④ Advanced Settings - Time Settings

NTP calibration switch, calibration time;

⑤ Advanced Settings - Export Logs

The device's operating logs can be exported to a USB drive;

⑥ Advanced Settings - Device Upgrade

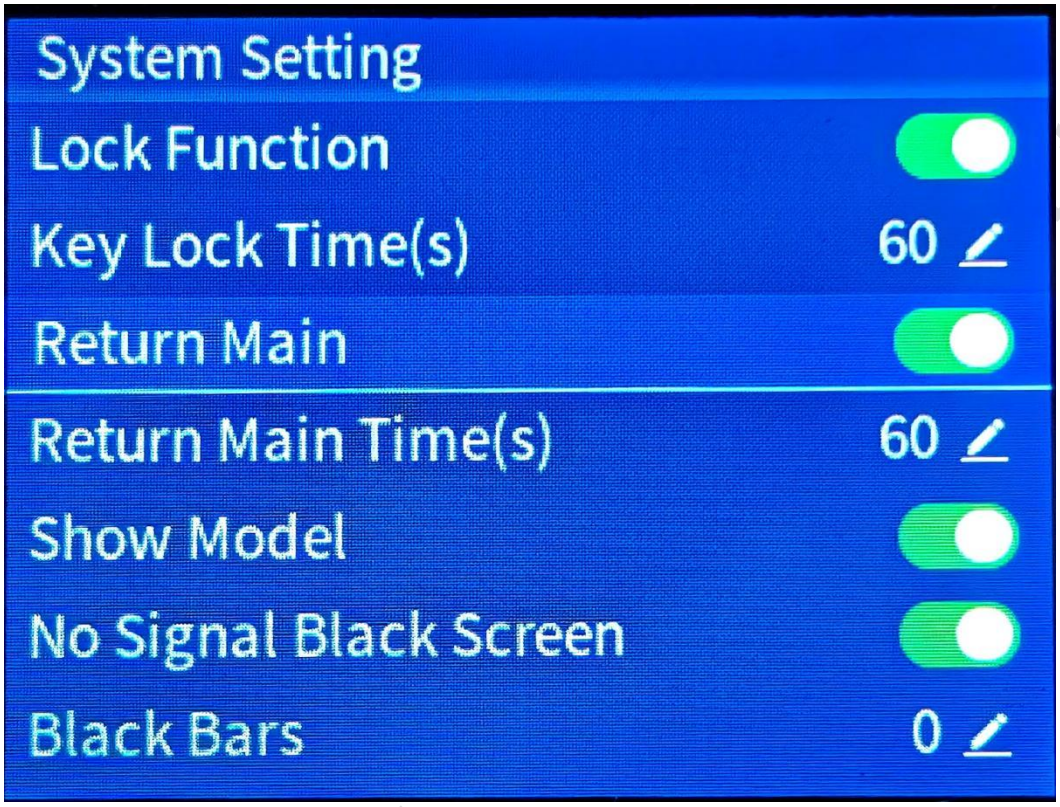
It can perform firmware upgrades on USB flash drives;

⑦ Advanced Settings - Factory Reset

There are two modes for restoring the device to factory settings:

1. Save user data; 2. Restore factory settings;

System Settings



Button lock delay switch : Supports a maximum time of 3600 seconds. The button lock will automatically lock after the set time is exceeded.To unlock the buttons : Press the BACK and FREEZE buttons simultaneously to automatically unlock the buttons.

Scheduled return to main interface: Supports a maximum time of 3600 seconds. After the set time is exceeded, the system will automatically return to the main interface.

Display device model: This can be turned on or off by displaying the device model name in the upper left corner of the main interface;

No signal, black screen: Automatically checks for a signal source; if no signal source is connected, a black screen will be displayed.

One-click black border: You can set a one-click black border operation on all four sides, with a

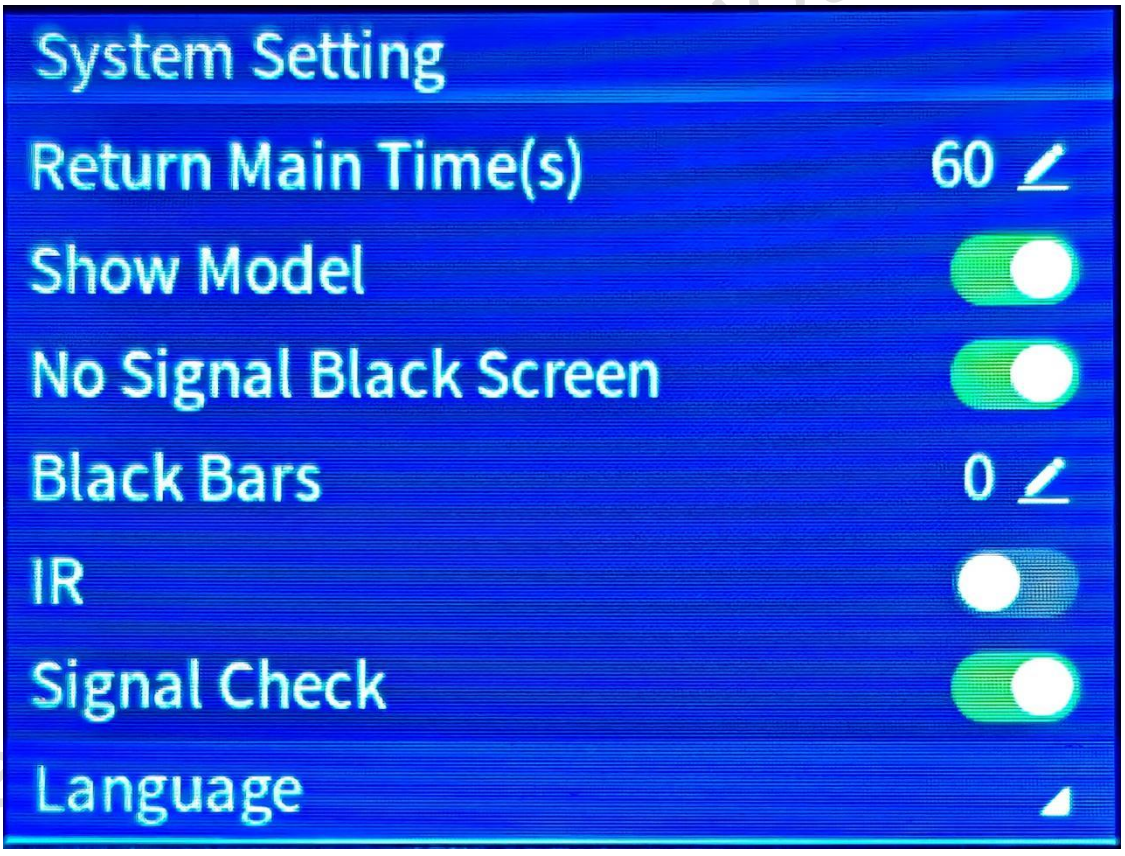
maximum setting of 64, which means 64 black dots on each of the four sides.

IR: Infrared function switch;

Signal check: If enabled, it can automatically pull the signal from the source when the signal is abnormal in the middle;

Language: Supports switching between Chinese and English by default;

About: You can view the current device ID, name, hardware version, and firmware version information of the current device (you need to press the knob);



Button status light description

1. the button illuminates when the button is pressed and turns off when the button is released unless otherwise required.
2. If the input source of the current window is DP/HDMI1/HDMI2 and there is no input source signal, it will flash off at 125ms intervals until an input source signal is detected, at which point it will remain constantly lit. If the input source signal is lost in the middle, it will continue to flash off.
3. WIN1 , WIN2 : The key light of the currently selected window on the TV will be lit. When switching between different windows, the key light of the input source needs to be synchronized with the input source type of the current window.
4. When the BLACK button is pressed , the BLACK light stays on and the screen goes black, while all other button lights go out. When the BLACK button is pressed again , the BLACK light goes out and the screen goes black. The other button lights then enter the button light status display in steps 2 and 3 according to the current window and input source .
5. When the FREEZE button is pressed , the FREEZE light stays on and the freeze function is activated, while all other button lights turn off. When the FREEZE button is pressed again , the FREEZE light turns off and the freeze function is deactivated. The other button lights then enter the button light status display in steps 2 and 3 based on the current window and input source light .
6. When power is off and restarted , the following states need to be saved: the input source type of the current window, and the selection status of WIN1 and WIN2 .
7. Button Lock: When the BACK+FREEZE buttons are pressed simultaneously, the button lock opens and all button lights illuminate; pressing BACK+FREEZE again simultaneously closes the button lock, and

the button lights return to their current state.

8. Engineering lock: When the engineering lock expires, all button lights will illuminate and the LCD panel will display "Service expired".
9. When the SDI interface signal is selected, press the HDMI2 button twice and it will automatically recognize and switch to the SDI signal.
10. USB flash drive: Press the U-DISK button until it stays on to enable USB flash drive playback mode. Press the U-DISK button again to enter the USB flash drive editing function. At the same time, the U-DISK button will turn off, and the WIN1, HDMI1, HDMI2, and BRIGHT buttons will stay on while all other buttons will turn off . Press the BACK button to exit when finished .