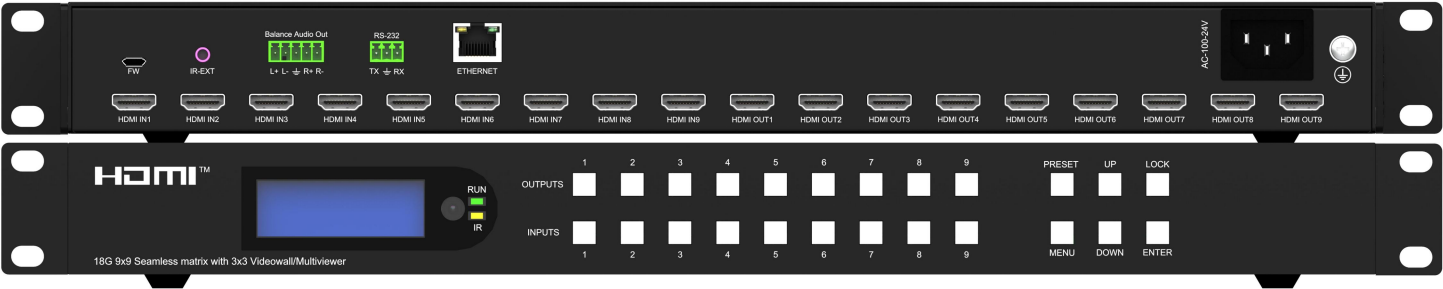


9x9 Seamless 4K60 Matrix 3x3Video Wall & Multi-Viewer

OPERATION MANUAL



Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

SURGE PROTECTION DEVICE RECOMMENDED

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

CONTENTS

Dear Customer	4
1. Features	4
2. Package Contents	5
3. Specifications	5
4. Panel Descriptions	6
4.1 Front	6
4.2 Rear	6
4.3 Button panel	7
5. Video switching operation	8
5.1 Video switch	8
5.2 Main menu	9
5.2.1 Output	9
5.2.2 Input interface	16
5.2.3 Preset	19
5.2.4 Config interface	21
5.2.5 Info	31
6. Audio	31
7. Remote Controller	32
8. RS232 control	33
9. Video wall/Multi-viewer	37
10. WEB Control	47
10.1 WEB	47
10.2 WEB interface	49
10.2.1 Matrix interface	49
10.2.2 Video interface	50
10.2.3 Output interface	51
10.2.4 Input interface	51
10.2.5 Preset interface	52
10.2.6 Network interface	53
10.2.7 System interface	54
11 Firmware updating	55
11.1 MCU	55
11.2 CPLD	56
11.3 WEB	56
12. Application Diagram	57

2. Package Contents

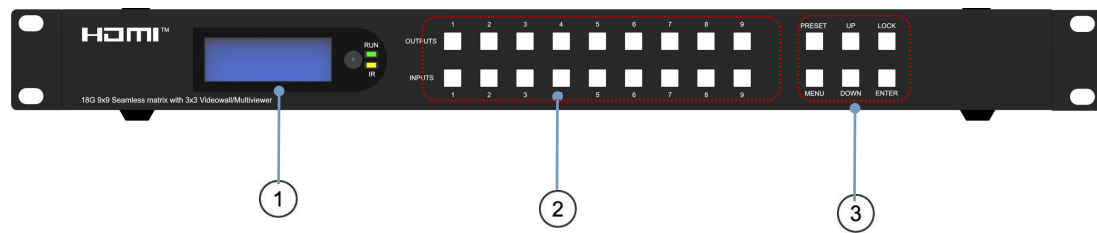
1. Main Unit x1
2. Power Adapter AC 100~220V
3. Remote Controller x1
4. Disk (User manual; Update software; Command list) x1

3. Specifications

Operating Temperature Range	-5 to +40°C(23 to +104 °F)
Storage Temperature Range	-10 to +60°C(-14 to +140 °F)
Operating Humidity Range	5 to 90 % RH (no condensation)
HDMI Input	9 x HDMI In
HDMI Output	9 x HDMI Out
Audio output	1 x 5 PIN Phoenix terminal
Video Format Supported	4k60Hz, 30Hz/1080P/1080i/720P/576P/480P/576i/480i
HDCP Compliant	HDCP2.2/1.4
Control way	Panel button/Remote/GUI/RS232/TCP/IP
Audio Format Supported	LPCM 2.0
USB	Firmware update
Dimensions	L438 x W413 x H43.4 mm
Mass (Main Unit)	4 KG

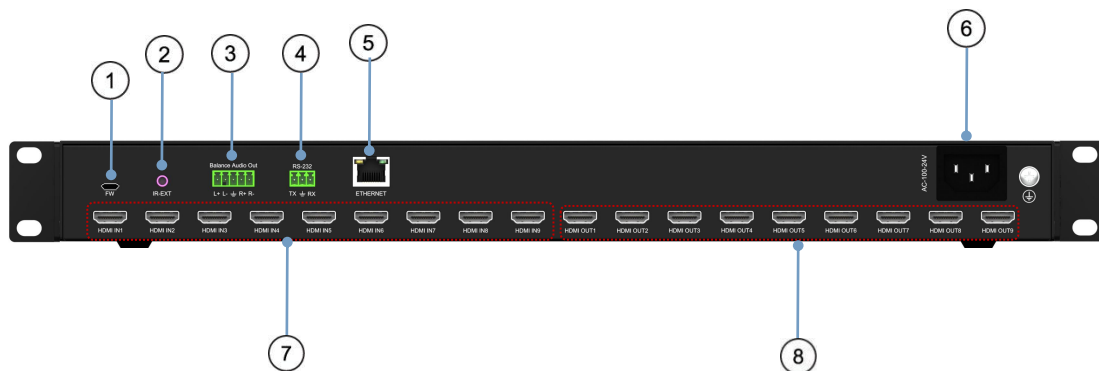
4. Panel Descriptions

4.1 Front



1. LED Display
2. OUT AND IN PUT 1~9 (When switching, first press OUT PUT then press INPUT)
3. Function button: PRESET; MENU; UP; DOWN; LOCK; ENTER

4.2 Rear



1. FW interface: used for firmware upgrade
2. IR
3. Audio output
4. RS232 port
5. Ethernet port
6. AC Power
7. HDMI Input port
8. HDMI Output port

4.3 Button panel

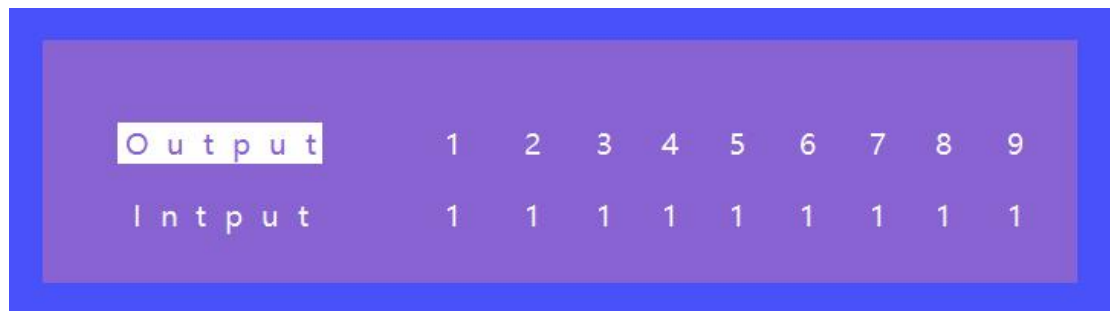
Channel	Button method
Any Key	The first operation of the button can wake up the screen and do the command
Output 1-9	Press the Output button to select the output, press again means cancel the selection; Long press mean select all, again means cancel
Input 1-9	Press the input button to select the input (only when selected the output, then input can be effected) Long press input to enter video wall mode
Menu	Function button: Enter menu or back to the last menu
ENTER	Function button: Confirm
UP	UP
DOWN	DOWN
PRESET	Select the preset mode
LOCK	Long press: LOCK the button; long press again to UNLOCK

5. Video switching operation

5.1 Video switch

The signal switch includes 9 free switching channels, which can be configured as input/output according to the requirements, forming a matrix of 1 x 9 ~ 9 x 1, which can switch any input signal to 1 output or all output.

The specific operation is as follows:



Picture-Input 1 switch to output 1~9

Switch the input to the output

Operation format: "Output channel" + "input channel"

1. Switch Output 1 to Input 5

Operation: Press the Output area's number "1" + Press the Input area's number "5" to complete the switch

2. Switch Output 2 5 8 to Input 7

Operation: Press the Output area's number: "2" "5" "8" + Press the Input area's number "7" to complete the switch

3. Switch All output to Input 4

Operation: Long press any number at Output area + Press the Input area's number "4" to complete the switch

5.2 Main menu

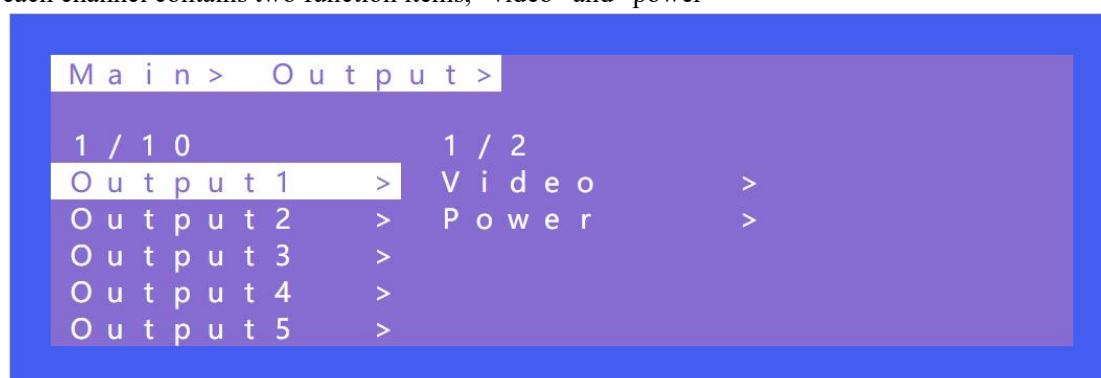
Menu include five types: "Output", "Input", "Preset", "Config", "Info"



Picture-Menu interface

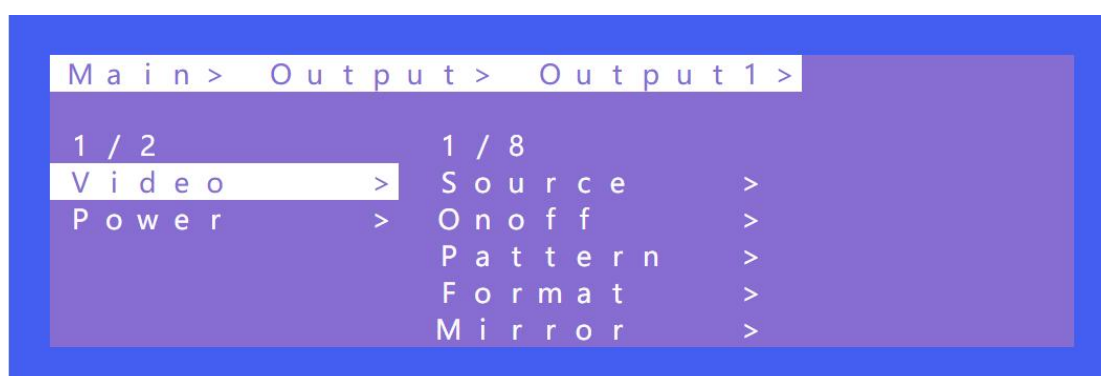
5.2.1 Output

The video interface had ten sub-menus: Out 1~9 and ALL, Used for single or all output settings, each channel contains two function items, "video" and "power"



Picture-Output choice

After selecting the "Output", there will be 8 sub-menus: source, onoff, pattern, format, mirror, coord, PIP, image.

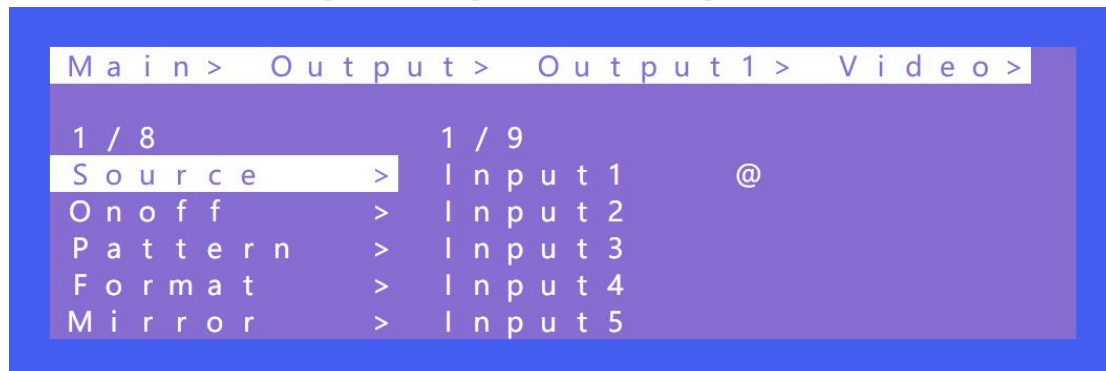


Picture-Output Interface

1) Source

Switch any output to any input or switch all output to the same input

The default 9×9 matrix, 9 input and 9 output is one-to-one output



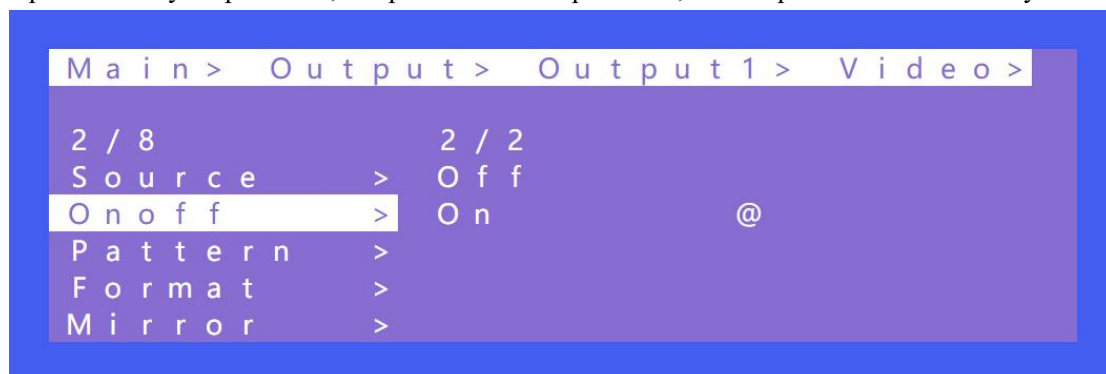
Picture-Video switch source

Operation:

1. Choose “Output” in the menu and press "ENTER"
2. Press “UP” and “DOWN” to select the “OUT1 to 9, All” , then press "ENTER"
3. Press “UP” and “DOWN” to select the “Video” , then press "ENTER"
4. Press “UP” and “DOWN” to select the “Source” , then press "ENTER"
5. Press “UP” and “DOWN” to select the “Input 1~9” to complete the SWITCHING

2) On/Off

Open/close any output video, or open/close all output video; The output video is enabled by default



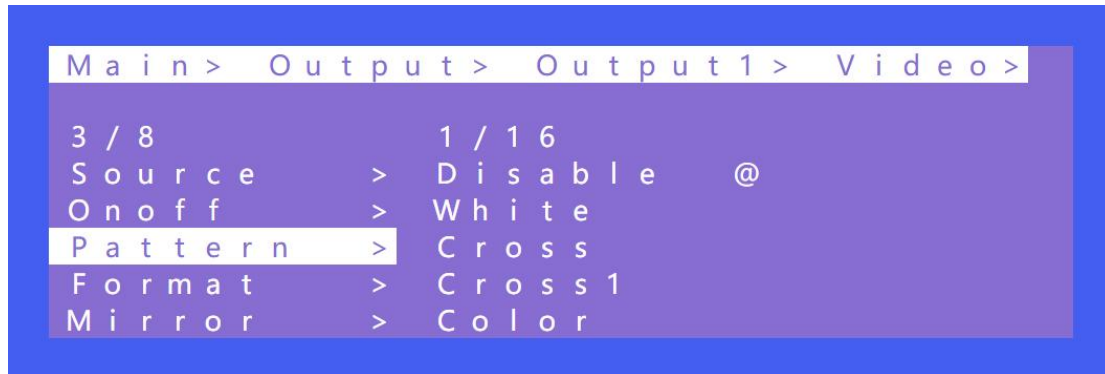
Picture-output on/off

Operation:

1. Choose “Output” in the menu and press "ENTER"
2. Press “UP” and “DOWN” to select the “OUT1 to 9, All” , then press "ENTER"
3. Press “UP” and “DOWN” to select “video”, press "ENTER"
4. Press “UP” and “DOWN” to select “on/off”, press "ENTER"
5. Press “UP” and “DOWN” to select “on or off”, press "ENTER"
6. Complete operation, No image after off

3) Pattern

The pattern mode can play the built-in image of the matrix to the TV, mainly used for some special occasions, such as: in 3x3 video wall mode, the use of cross or cross1 two images can test whether each TV border is reasonable.



Picture-Output the built-in image

1. Choose "Output" in the menu and press "ENTER"
2. Press "UP" and "DOWN" to select the "OUT1 to 9, All" , then press "ENTER"
3. Press "UP" and "DOWN" to select the "Video" , then press "ENTER"
4. Press "UP" and "DOWN" to select the "Pattern" , then press "ENTER"
5. Press "UP" and "DOWN" to select the "disable" or others

Please notice: disable means close built-in pattern, Items 2~16 are different built-in pattern

4) Format

Format can set format of output resolution, This function can force the output resolution format, but cannot provide the upgraded image quality.

For example, input 1080P@60Hz, output set to 4K@60Hz, although the TV display is 4K60Hz format, but the image quality is actually at 1080P@60Hz.



Picture- set output resolution format

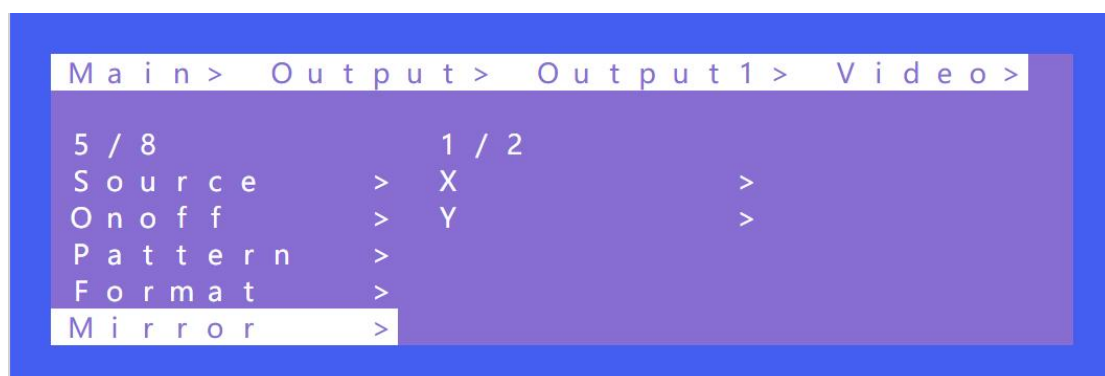
Operation:

1. Choose "Output" in the menu and press "ENTER"
2. Press "UP" and "Down" to select "Output1~9, All", and press "ENTER"
3. Press "UP" and "Down" to select "Video", and press "ENTER"
4. Press "UP" and "Down" to select "Format", and press "ENTER"
5. Press "UP" and "Down" to select "Resolution", and press "ENTER"
6. Press "enter" first will have a "10S" attempt time (if the TV does not support this resolution, it will return to the original resolution)
7. If the image can be displayed normally within the attempt time, press the "enter" to complete.

5) Mirror

This function can set left and right mirror, upper and lower mirror.

"X" means left and right mirror, "Y" means upper and lower mirror, This function is disabled by default, User can select three options: "Windows" "crop" "zoom", corresponding to crop and zoom images respectively. Windows means the current window image.



Picture-Output video mirror

Operation:

1. Choose "Output" in the menu and press "ENTER"
2. Press "UP" and "Down" to select "Output1~9, All", and press "ENTER"
3. Press "UP" and "Down" to select "Video", and press "ENTER"
4. Press "UP" and "Down" to select "Mirror", and press "ENTER"
5. Press "UP" and "Down" to select "X" or "Y", then press "ENTER"
6. Press "UP" and "Down" to select "Disable"/ "windows"/ "Crop"/ "Zoom", then complete.



Picture-left and right mirror

6) Coord

Coord is used to set coordinate parameters of images, three types: "Crop", "Zoom", "Gap".

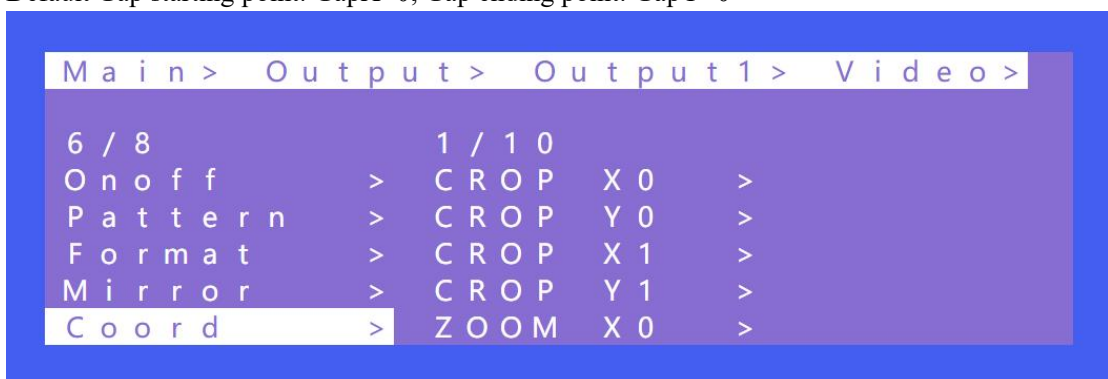
"Crop" and "zoom" have four parameters. They are cropX0, cropY0, cropX1, cropY1, zoomX0, zoomY0, zoomX1, zoomY1, and "Gap" has two parameters, GapX and GapY, for a total of 10 coordinate parameters.

This function can realize the parameter adjustment of multi-viewer and video wall function.

The default crop starting point is cropX0=0, cropY0=0, crop ending point is cropY1=6000, cropX1=6000.

The default zoom starting points are zoomX0=0, zoomY0=0, and zoom ending points are zoomX1=6000, zoomY1=6000.

Default Gap starting point: GapX=0, Gap ending point: GapY=0



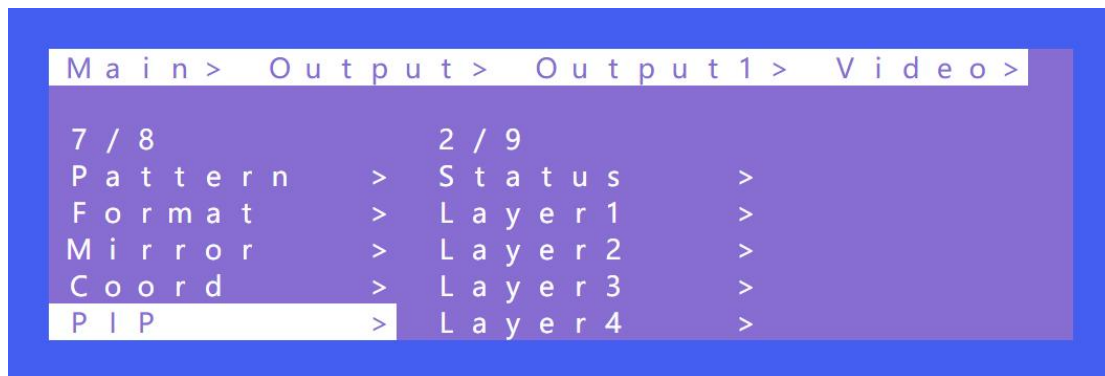
Picture-output1 image crop

Operation:

1. Choose “Output” in the menu and press "ENTER"
2. Press “UP” and “Down” to select “Output1~9, All”, and press "ENTER"
3. Press “UP” and “Down” to select “Video”, and press "ENTER"
4. Press “UP” and “Down” to select “Coord”, and press "ENTER"
5. Press “UP” and “Down” to select “Crop”/“Zoom”/ “Gap”, and press "ENTER"
6. The output TV will show the corresponding display effect

7) PIP

PIP is used to prioritize layers. By default, each output has four layers. In the multi-viewer mode, the sequence of the layers can be changed, and Each layer can choose output. Status can open/close this function.



Picture-set output layer

Operation:

1. Choose “Output” in the menu and press "ENTER"
2. Press “UP” and “Down” to select “Output1~9, All”, and press "ENTER"
3. Press “UP” and “Down” to select “Video”, and press "ENTER"
4. Press “UP” and “Down” to select “PIP”, and press "ENTER"
5. Press “UP” and “Down” to select “Status” to open/close layer.
6. Layer 1~9 can choose the corresponding output 1~9

8) Image

“Image” is used to set the parameter adjustment of the output image, it has four parameters: brightness, contrast, saturation, hue, the parameter range is 0~100, the default is 50.



Picture- set the parameter of the output image

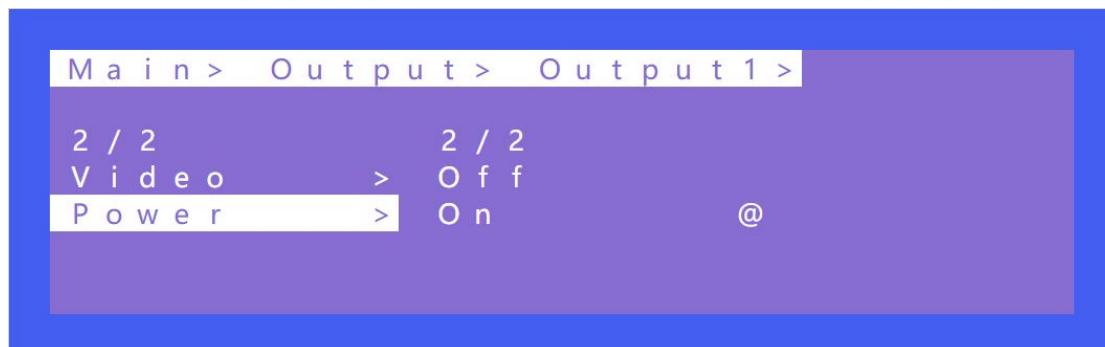
Operation:

1. Choose “Output” in the menu and press "ENTER"
2. Press “UP” and “Down” to select “Output1~9”(Cannot select all), and press "ENTER"
3. Press “UP” and “Down” to select “Video”, and press "ENTER"
4. Press “UP” and “Down” to select “Image”, and press "ENTER"
5. Press “UP” and “Down” to select “Brightness”/ “contrast”/ “saturation”/ “hue”, and press "ENTER"
6. Adjust according to the visual effect of the output image

9) Power

Power is used to close the HDMI output current, after the power is closed, the image will be completely closed and the default is opened.

This is different from the “on/off”, which also has a blue screen status image after “on/off” is off.



Picture-open/close HDMI current

Operation:

1. Choose “Output” in the menu and press "ENTER"
2. Press “UP” and “Down” to select “Output1~9, all”, and press "ENTER"
3. Press “UP” and “Down” to select “Power”, and press "ENTER"
4. Press “UP” and “Down” to select “ON” / “Off”.

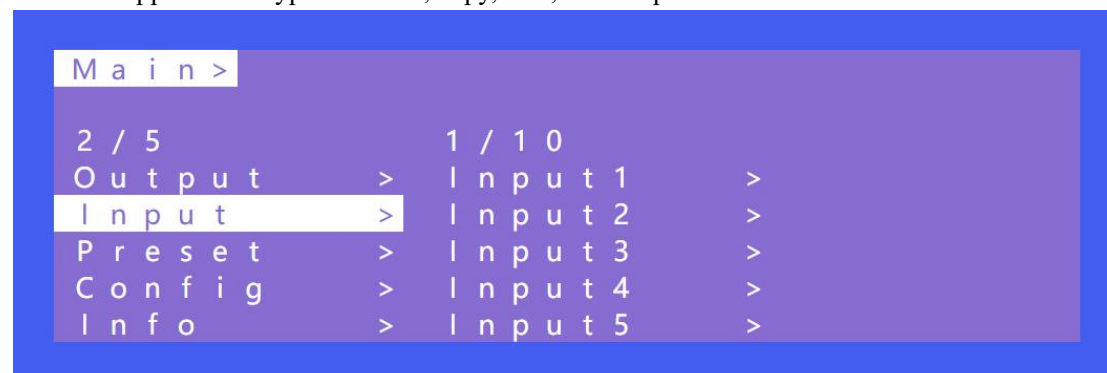
5.2.2 Input interface

Input interface with “Video”, “EDID” and “Audio” function options,

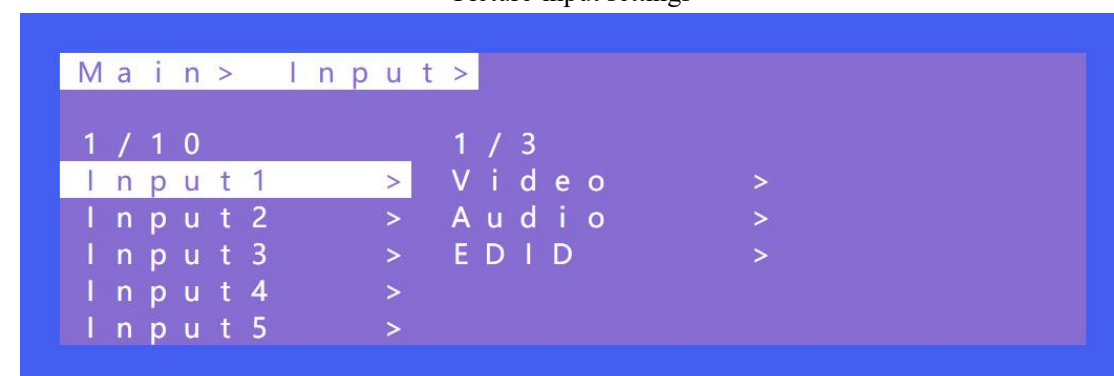
“Video” support on/off input channels and built-in pattern.

“Audio” support audio delay adjustment, unit is millisecond.

“EDID” supports four types: built-in, copy, user, and temp.



Picture-input settings

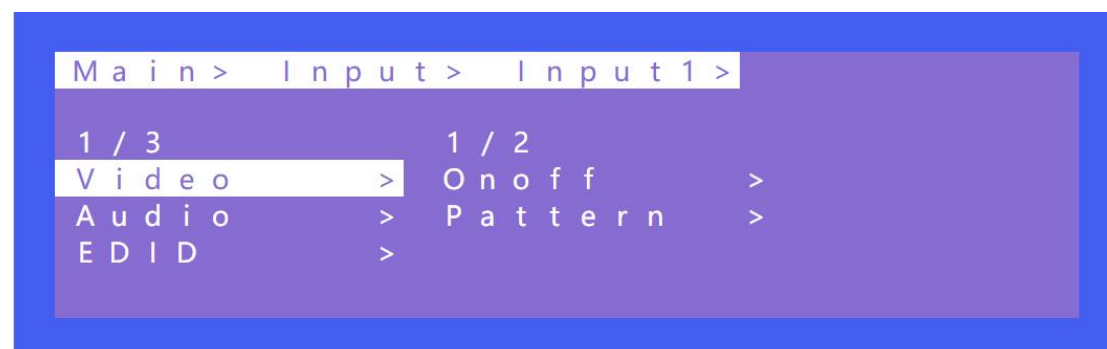


Picture-choose input 1

1) video

Video support on/off input channels, when “off” is selected, all outputs correspond to this input without images, and “on” is normally on.

“Pattern” can provide built-in images, and the image of the input signal source will be replaced when the built-in pattern is selected.



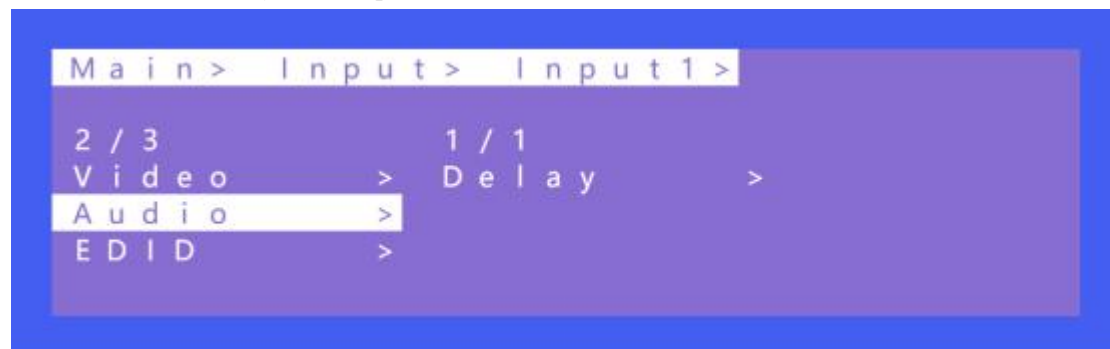
Picture: input 1 settings

Operation:

1. Choose "Input" in the menu and press "ENTER"
2. Press "UP" and "Down" to select "Input1", and press "ENTER"
3. Press "UP" and "Down" to select "Video", and press "ENTER"
4. Select "On" or "Off" to open/close input video

2) Audio

Audio can set the delay of the input audio.



Picture-Input Audio delay interface



Picture-Audio delay setting

Operation:

1. Choose "Input" in the menu and press "ENTER"
2. Press "UP" and "Down" to select "Input1", and press "ENTER"
3. Press "UP" and "Down" to select "Audio", and press "ENTER"
4. Press "UP" and "Down" to select "Delay", and press "ENTER"
5. Press "UP" and "Down" to select delay time(0~50 or auto), and Press "ENTER"

3) EDID

“EDID” can set EDID of every inputs, choose build-in EDID, user EDID, copy EIDI.

A total of 17 EDID, By default is default1

Default1	4K60 444-LPCM: 2.0-48Khz	Default2	4K60 420-LPCM: 2.0-48Khz
Default3	4K30 444-LPCM: 2.0-48Khz	Default4	1080P120 444-LPCM: 2.0-48Khz

The following uses the Default1 to switch to input port 1 as an example.

Operation:

1. Choose “Input” in the menu and press "ENTER"
2. Press “UP” and “Down” to select “Input 1”, and press "ENTER"
3. Press “UP” and “Down” to select “EDID”, and press "ENTER"
4. Press “UP” and “Down” to select “Copy”, and press "ENTER"
5. Press “UP” and “Down” to select “Default 1”, and press "ENTER"
6. The selected EDID will display some information about the EDID (resolution, audio format, channel).



5.2.3 Preset

“Preset” can save current video/audio/EDID/system setting,etc. Support 8 different scenes which can be modified and called through web page, command, panel. The default preset is consistent with the factory Settings

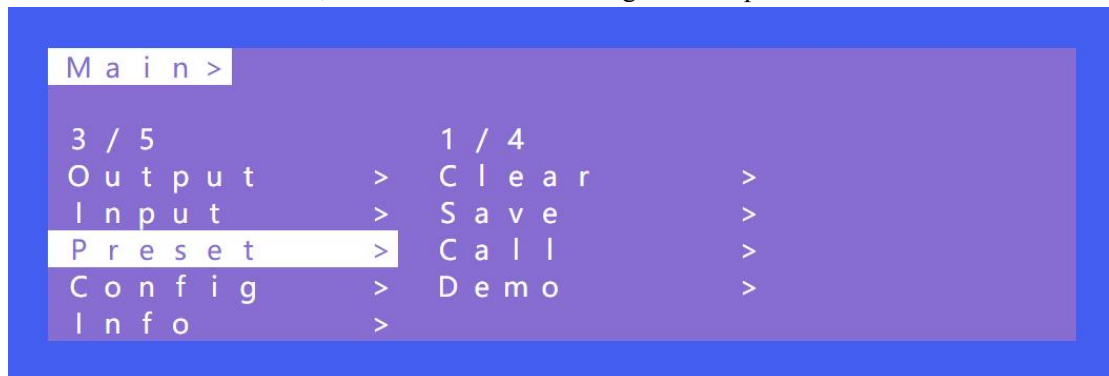
“preset” include four parameter options: “clear”, “save”, “call”, “demo”

Call: use a scene,

Save: save the current scene (overwrite)

Clear: clear scene

Demo: demonstration mode, it will be rotated according to the sequence of scenes



Picture-preset function

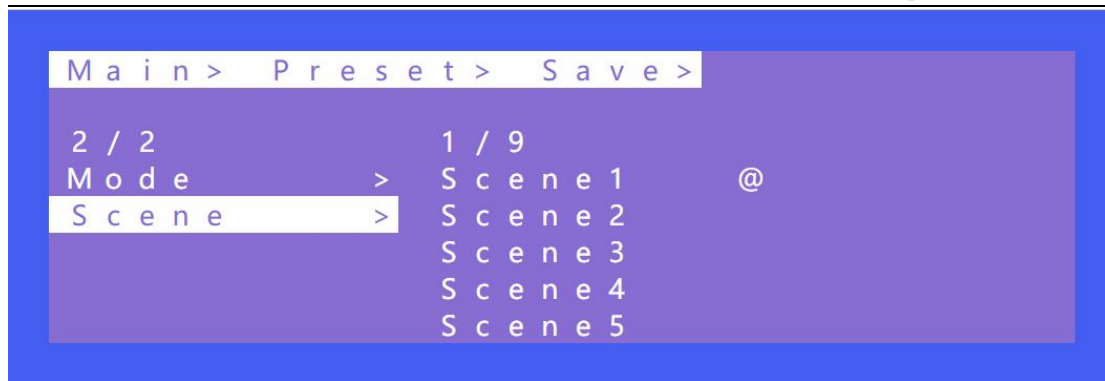
Operation:

1. Choose “Preset” in the menu and press "ENTER"
2. Press “UP” and “Down” to select “Clear”/ “Save”/ “Call”/ “Demo”, and press "ENTER"
3. Save preset: select “Save”, then press "ENTER", then select “Mode” or “Scene”, and press "ENTER"
4. Call preset: select “Call”, then press "ENTER", then select one of the saved preset “scene 1~8”, and press "ENTER".

The current operation settings are changed to the previously saved presets

5. Clear preset: select “Clear”, then press "ENTER", then select one of the saved preset “scene 1~8”, and press "ENTER".

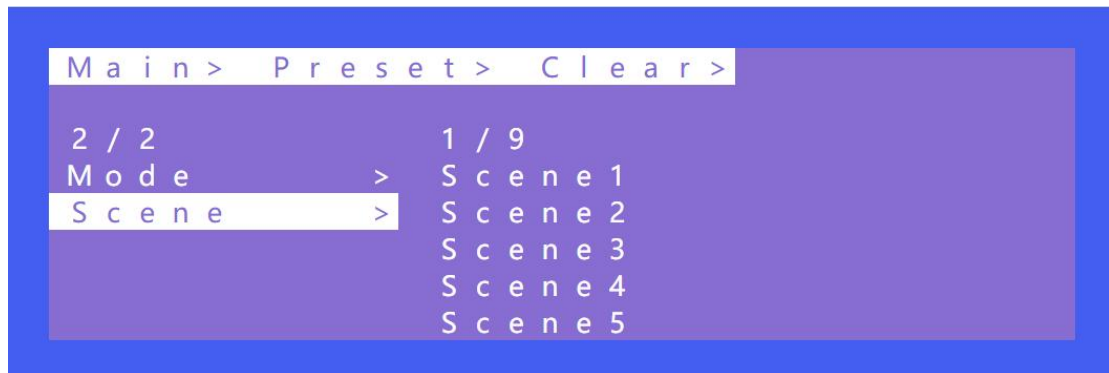
Saved preset scenes are restored to their default values.



Save: preset+save+scene+scene1 Picture-preset save



Call: preset+call+scene+scene1 Picture-preset call



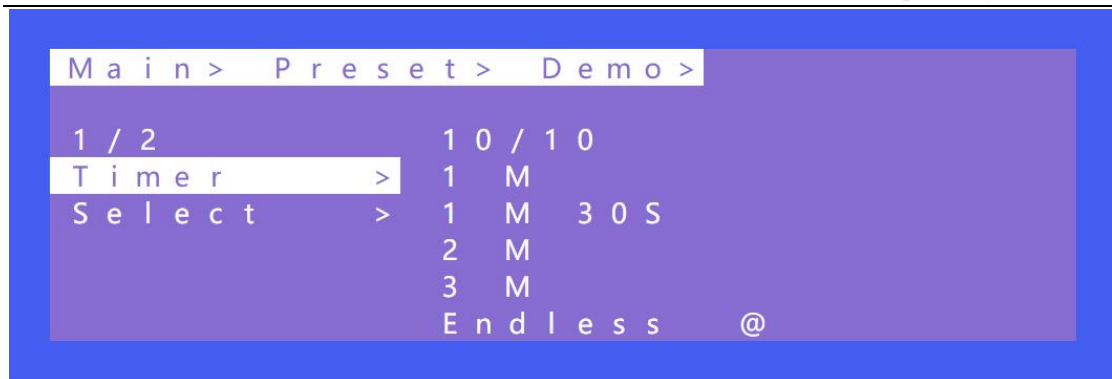
Clear: preset+clear+scene+scene1 Picture-preset clear

“Demo” operation:

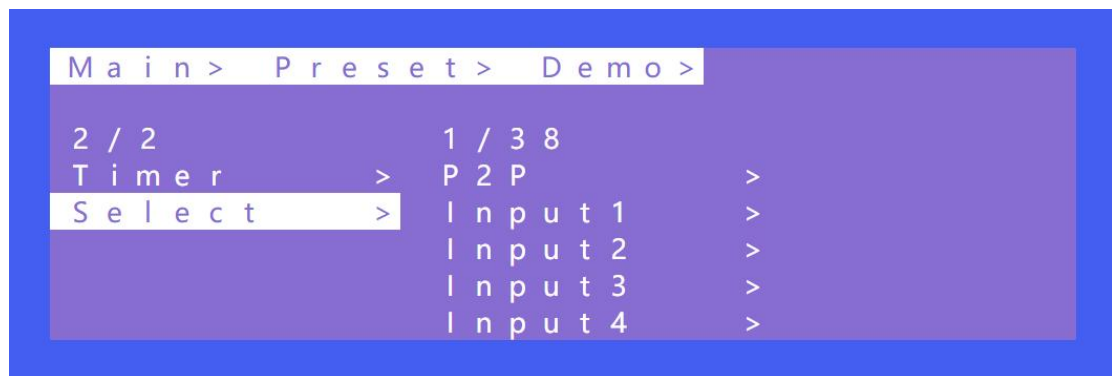
“Timer” can set the time of the carousel, The default is endless. The minimum is 3 seconds

“Select” can select whether to play this scene in the carousel. User can select “P2P” or others, If

“yes” is set, the carousel plays this scene. If “no”, the carousel is skipped this scene.



Picture-demo time setting



Picture-demo carousel scene setting

5.2.4 Config interface

“Config” include “Network”, “RS232”, “LCD”, “OSD”, “Menu”, “User EDID”, “Dec”, “System”, Some gray options are not selected, it needs a higher level to open, the level is divided into read-only and read and write, read-only can only be displayed but can not be changed, read and write can be displayed and changed.

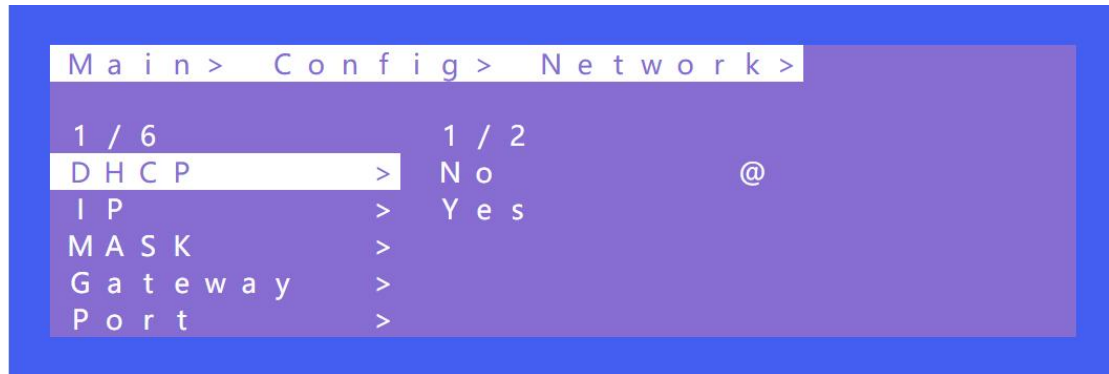


Picture-Config interface

1) Network

Network can set “DHCP”, “IP”, “MASK”, “Gateway”, “Port”, “MAC”,

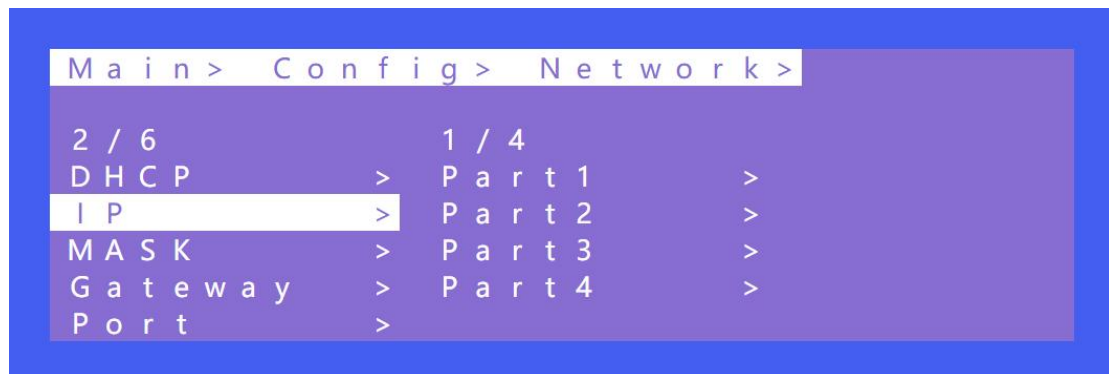
The Mac address cannot be changed. The default IP address is 192.168.1.168



Picture -DHCP setting

DHCP operation:

1. Select “Config” in the menu, and then press "ENTER"
2. Press “UP” and “Down” to select “Network”, and press "ENTER"
3. Press “UP” and “Down” to select “DHCP”, and press "ENTER"
4. Press “UP” and “Down” to select “No” or “Yes”, and press "ENTER"

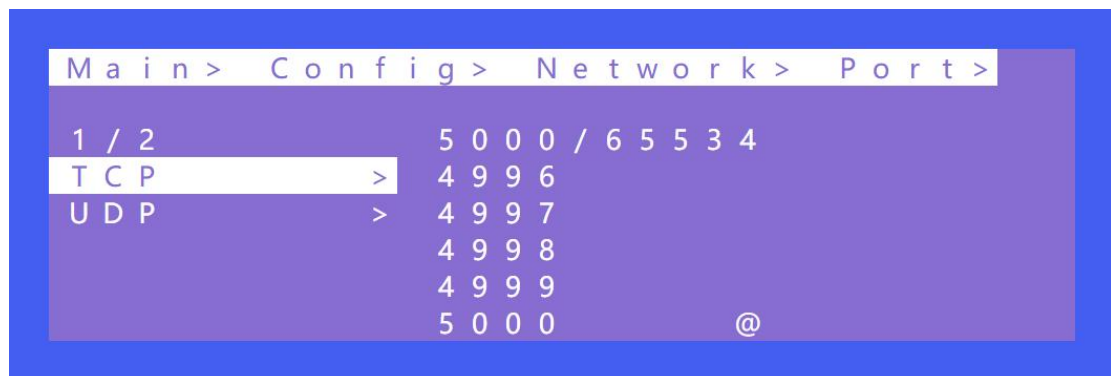


Picture-IP setting

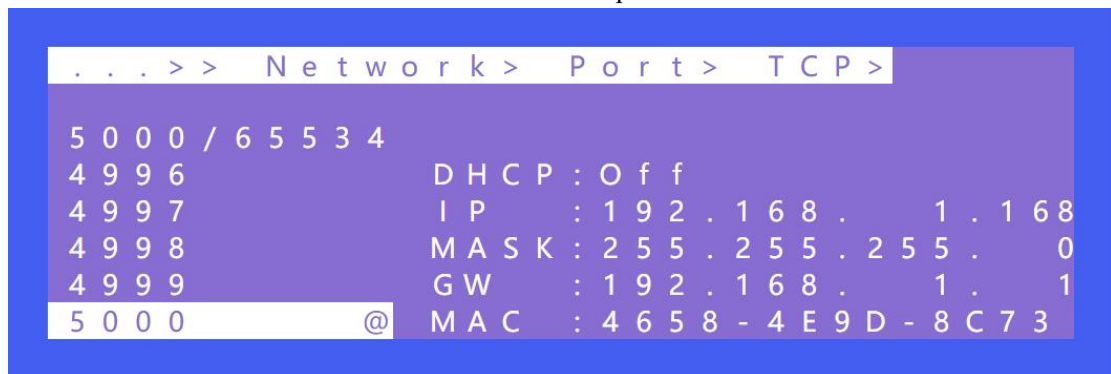
IP/MASK/Gateway, operation:

1. Select “Config” in the menu, and then press "ENTER"
2. Press “UP” and “Down” to select “Network”, and press "ENTER"
3. Press “UP” and “Down” to select “IP”/“MASK”/“Gateway”, and press "ENTER"
4. Press “UP” and “Down” to select “Part1~Part4”, and press "ENTER"
5. Press “UP” and “Down” to select “0~255”

TCP/UDP, the default Port: TCP 5000, UDP 4500



Picture -TCP port



Picture -TCP port modify

TCP/UDP port modify operation:

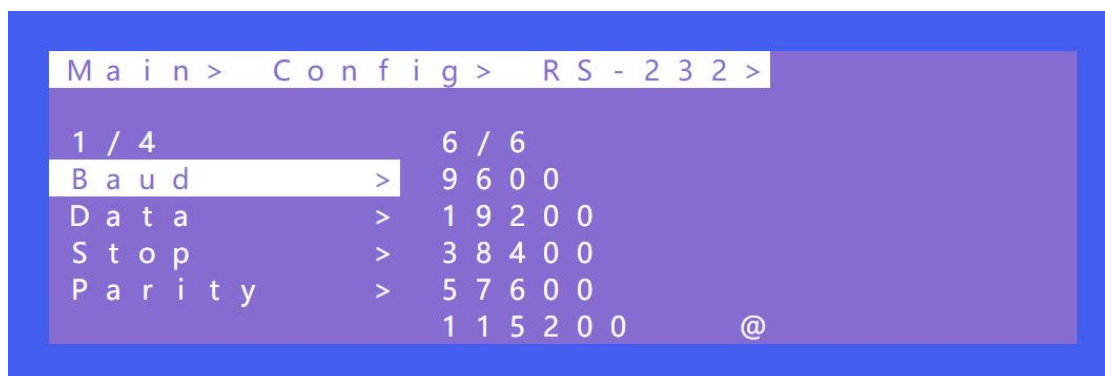
1. Select "Config" in the menu, and then press "ENTER"
2. Press "UP" and "Down" to select "Network", and press "ENTER"
3. Press "UP" and "Down" to select "Port", and press "ENTER"
4. Select "UDP" or "TCP", and press "ENTER"
5. Press "UP" and "Down" to select "1~65534", and press "ENTER"

2) RS-232

"RS232" include "Baud", "data", "stop", and "parity", By default, only the "baud" can be modified. the "data", "stop", and "parity" cannot be modified. These can only be modified by enabling read and write permissions.



Picture-RS232 interface



Picture-Baud modify

Operation:

1. Select “Config” in the menu, and then press "ENTER"
2. Press “UP” and “Down” to select “RS-232”, and press "ENTER"
3. Press “UP” and “Down” to select “Baud”, and press "ENTER"
4. Press “UP” and “Down” to select “4800~115200”, and press "ENTER"

3) LCD

User can set “bright” and “timer” on the LCD. “Bright” can adjust the brightness of the LCD screen.

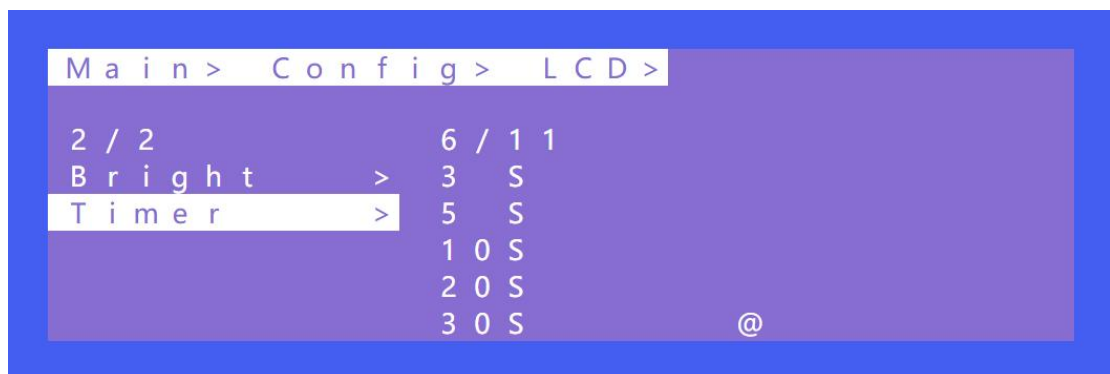
“Bright” 0 to 8 means the backlight level. “0” means off.

“Timer” can set the backlight time, By default, the backlight level is 8 and the time is 30 seconds.

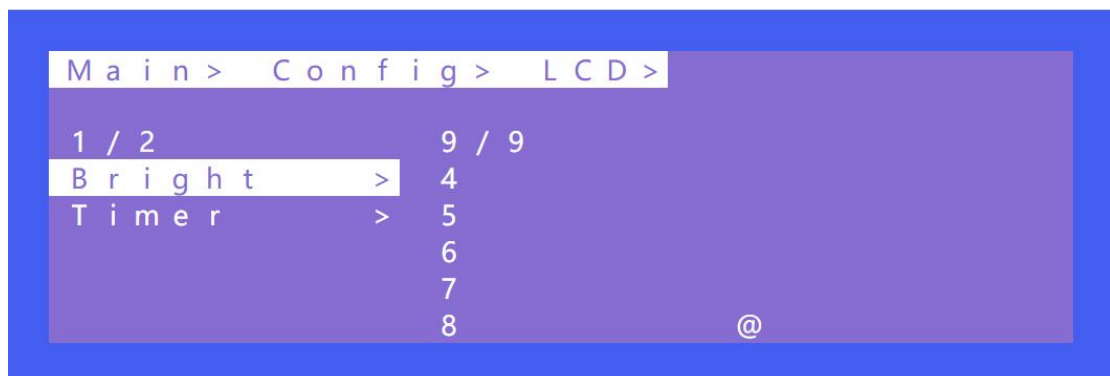
“Timer” can be set for 3 seconds to Endless



Picture-LCD interface



Picture- LCD backlight time modify



Picture-LCD brightness modify

Backlight level Operation:

1. Select "Config" in the menu, and press "ENTER"
2. Press "UP" and "Down" to select "LCD" and Press "ENTER"
3. Press "UP" and "Down" to select "bright" and Press "ENTER"
4. Press "UP" and "Down" to select "0~8" and Press "ENTER"

4) OSD

OSD include “User”, “Time”, “Menu”, “Info”.

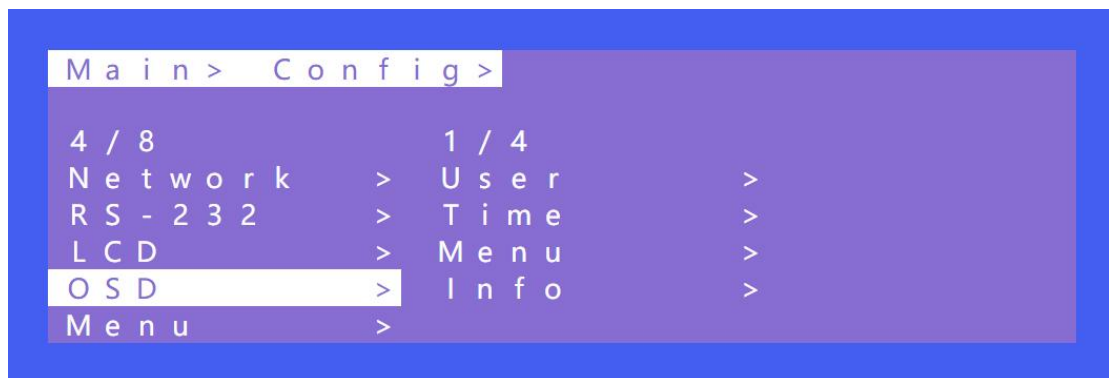
“User” means the output coordinate time of the OSD

“Time” means the running time after the device is powered on

“Menu” means the LCD is mapped to the TV

“Info” means the display time of audio and video information

When the value is set to 0 seconds, the OSD display is disabled. By default, “user” and “time” are endless, and “menu” and “info” are 0 seconds



Picture -OSD interface

OSD User Operation:

1. Select “Config” in the menu, and then Press "ENTER"
2. Press “UP” and “Down” to select “OSD”, and then Press "ENTER"
3. Press “UP” and “Down” to select “User”, and then Press "ENTER"
4. Press “UP” and “Down” to select “Time”, and then Press "ENTER"
5. Check the OSD display on the TV

5) Menu

Menu include “Timer” and “Select Run”

“Timer” means the time for the menu to return to the channel interface. The default is 30 seconds.

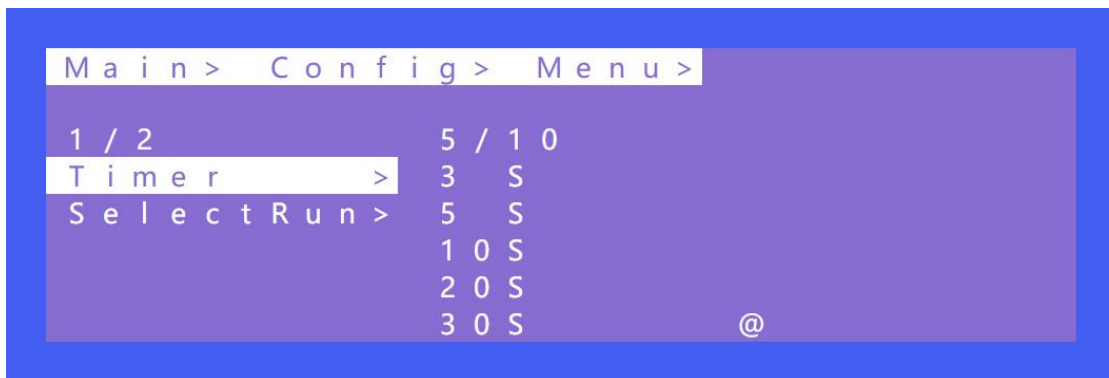
“Select Run” means whether the confirmation button is enabled for the last level sub-menu.

If “enable” is set, it need to press “enter” to effect. If “disable” is set, user doesn't need to press “enter”, it will be effective.

Notice: when the “disable” option of “select run” is selected, just press “Menu” to exit.



Picture-Menu interface



Picture-menu time modify

“Timer” Operation:

1. Select “Config” in the menu, and then Press "ENTER"
2. Press “UP” and “Down” to select “Menu”, and then Press "ENTER"
3. Press “UP” and “Down” to select “Timer”, and then Press "ENTER"
4. Press “UP” and “Down” to select time required, and press "ENTER"



Picture-menu select run modify

“Select Run” operation:

1. Select “Config” in the menu, and then Press "ENTER"
2. Press “UP” and “Down” to select “Menu”, and then Press "ENTER"
3. Press “UP” and “Down” to select “Select Run”, and then Press "ENTER"
4. Press “UP” and “Down” to select “Disable” or “Enable”, and then Press "ENTER"

6) User EDID

User EDID can store the EDID of the output display device of the connection matrix into user1~4, which can be stored in default, output, temp1, and then used in the EDID list



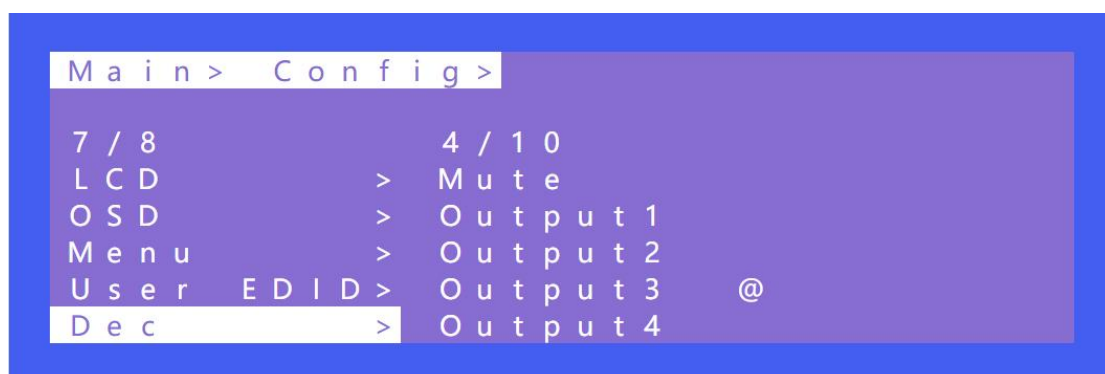
Picture-User EDID modify

Operation:

1. Select "Config" in the menu, and then Press "ENTER"
2. Press "UP" and "Down" to select "User EDID", and then Press "ENTER"
3. Press "UP" and "Down" to select "User 1", and then Press "ENTER"
4. Press "UP" and "Down" to select "default 1", and then Press "ENTER"

7) Dec

"Dec" can change the audio extraction corresponding to the output channel, the default is Output1 audio, Mute means to turn off the audio extraction.



Picture-Dec interface

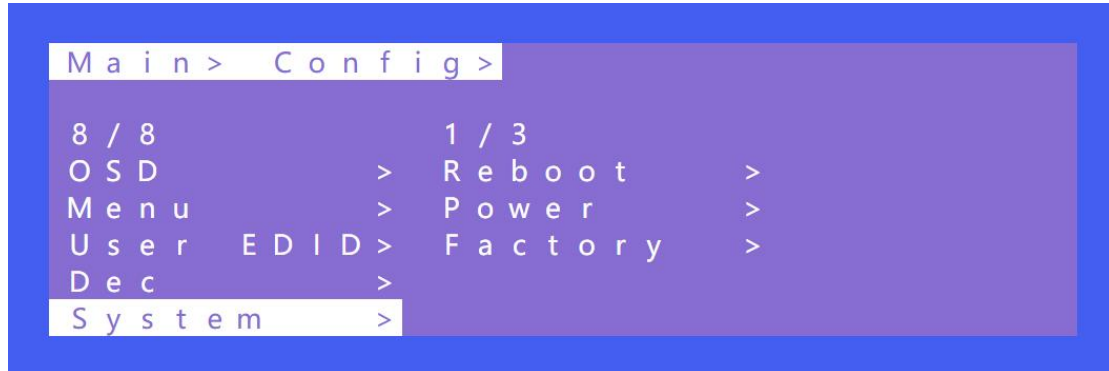
Mute Operation:

1. Select "Config" in the menu, and then Press "ENTER"
2. Press "UP" and "Down" to select "Dec", and then Press "ENTER"
3. Press "UP" and "Down" to select "Mute", and then Press "ENTER"

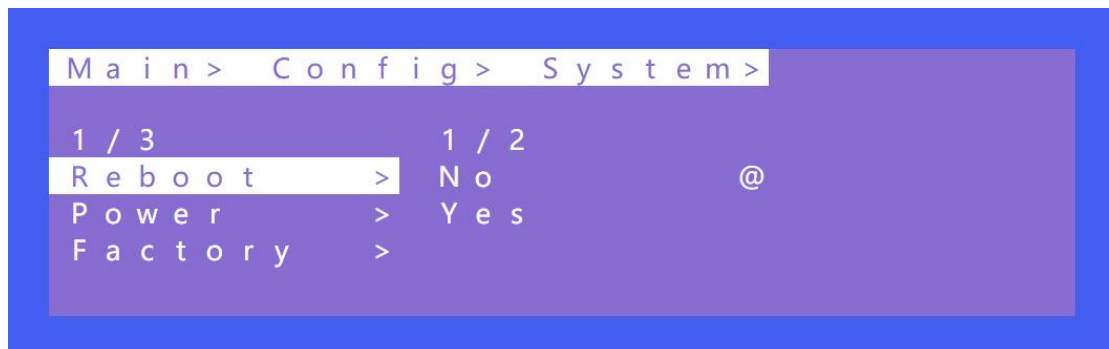
8) System

System include “reboot”、”power”、”factory” functions.

“Reboot” means device restart, ”power” means device sleep, ”factory” means restore factory setting



Picture-system interface

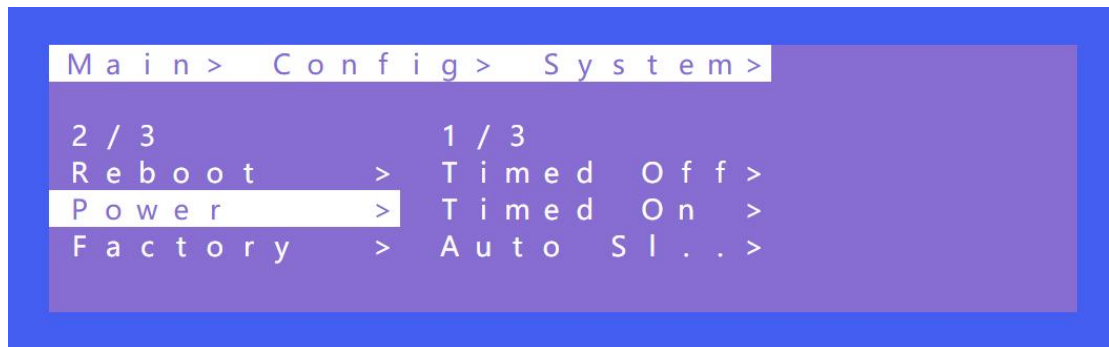


Picture-Reboot

Reboot operation:

- 1.Select “Config”in the menu, and then Press "ENTER"
- 2.Press “UP”and “Down”to select “System”, and then Press "ENTER"
- 3.Press “UP”and “Down”to select “Reboot”, and then Press "ENTER"
- 4.Press “UP”and “Down”to select “No”or “Yes”, and then Press "ENTER"

“Power” include three options, “Timed off” means timed standby, “Timed on” means timed wake-up, “Auto sleep” means auto hibernate



Picture-device power setting

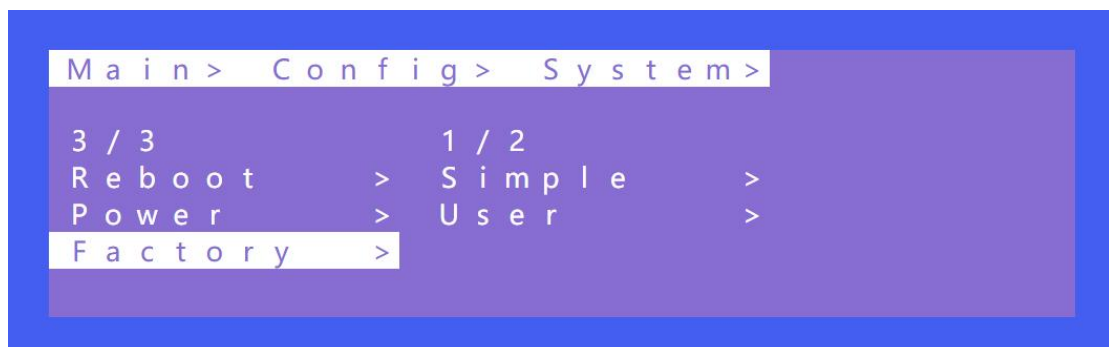
“Timed off” operation:

1. Select “Config” in the menu, and then Press "ENTER"
2. Press “UP” and “Down” to select “System”, and then Press "ENTER"
3. Press “UP” and “Down” to select “Power”, and then Press "ENTER"
4. Press “UP” and “Down” to select “Time off”, and then Press "ENTER"
5. Press “UP” and “Down” to select time to set.

“Factory” include “simple” and “user” parameters.

“Simple” means partial factory Settings are restored,

“User” means all factory Settings are restored. Do not clear registered accounts.



Picture-Factory setting

Operation:

1. Select “Config” in the menu, and then Press "ENTER"
2. Press “UP” and “Down” to select “System”, and then Press "ENTER"
3. Press “UP” and “Down” to select “Factory”, and then Press "ENTER"
4. Press “UP” and “Down” to select “Simple”, and then Press "ENTER"
5. Press “UP” and “Down” to select “Yes” to complete.

5.2.5 Info

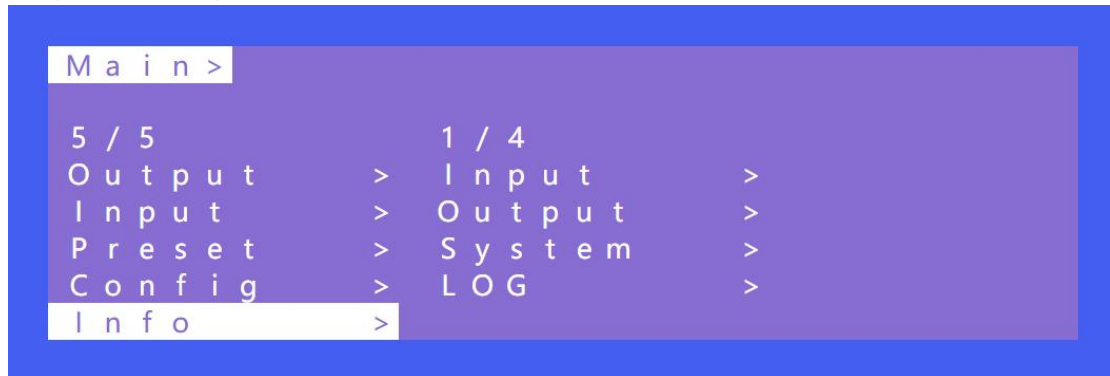
“Info” include “input”、”output”、”system”、”log”, only view and cannot be set and changed.

“Input”: signal source resolution

“Output”: output TV EDID

“System”: system information(network, version, company information)

“Log”: Matrix log



Picture-device info

Check system information operation:

- 1.Select “Info”in the menu, and then Press "ENTER"
- 2.Press “UP”and “Down”to select “System”, and then Press "ENTER"
- 3.Device information will be displayed.

6. Audio

The device has a balance audio output port, support analog audio extraction by 5 pin phoenix terminal plug.

7. Remote Controller



1. : Standby and power on
2. ... : Video switching, operation: number key+down key+input number
Such as + + , output 1 switch to input 2
3. Mute: Mute and open sound
4. Left and right seamless switching: Automatically select all output to switch according to the signal source
5. Image off, All output image are blue screen, such as +
6. home: The main video channel screen is displayed
7. Select all, Select all output, Such as: + , All outputs switch to input 1
8. Navigation key: Page up and down

9. Navigation key: Corresponding to the menu and enter keys on the panel
10. : Enter key
11. : Display and mask OSD menu
12. : Return to the top menu
13. : Preset key
14. : P2P mode 1-1, 2-2, 3-3, 4-4, 5-5, 6-6, 7-7, 8-8, 9-9
15. : Last level sub-menu +100 per page turn
: Last level sub-menu +10 per page turn

8. RS232 control

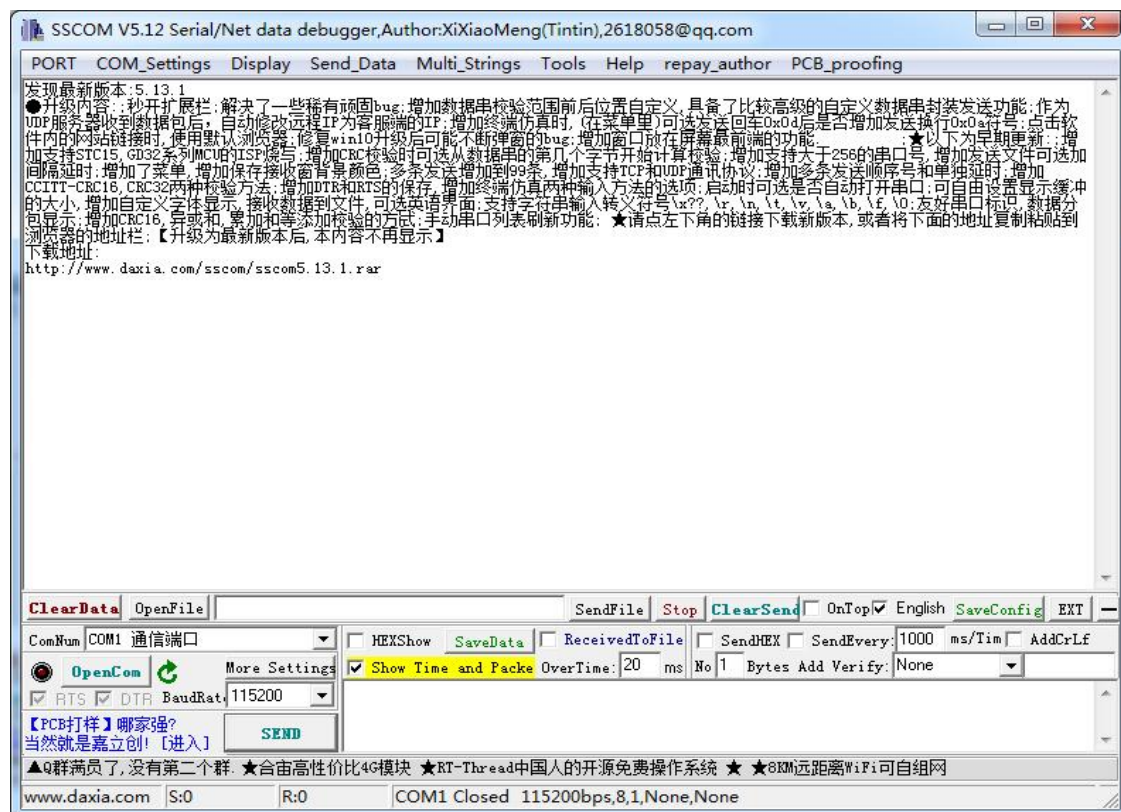
Control software operation:

The serial control software is illustrated with SSCOM5.13.1 as an example. User can find this software on the disk.

Basic Settings:



Double-click the software in the installation package to run specifically (as shown in figure 1 below) and install the RS232 software on the computer. Enter the main interface of the software, as shown in the figure below.



The device connect to the PC via a USB-to-serial port conversion and set the baud rate of the product to be consistent with the serial port assistant.

Parameter configuration:

Baud rate: 115200 (default); Data location: 8; Stop bit: 1; Check bit: no.

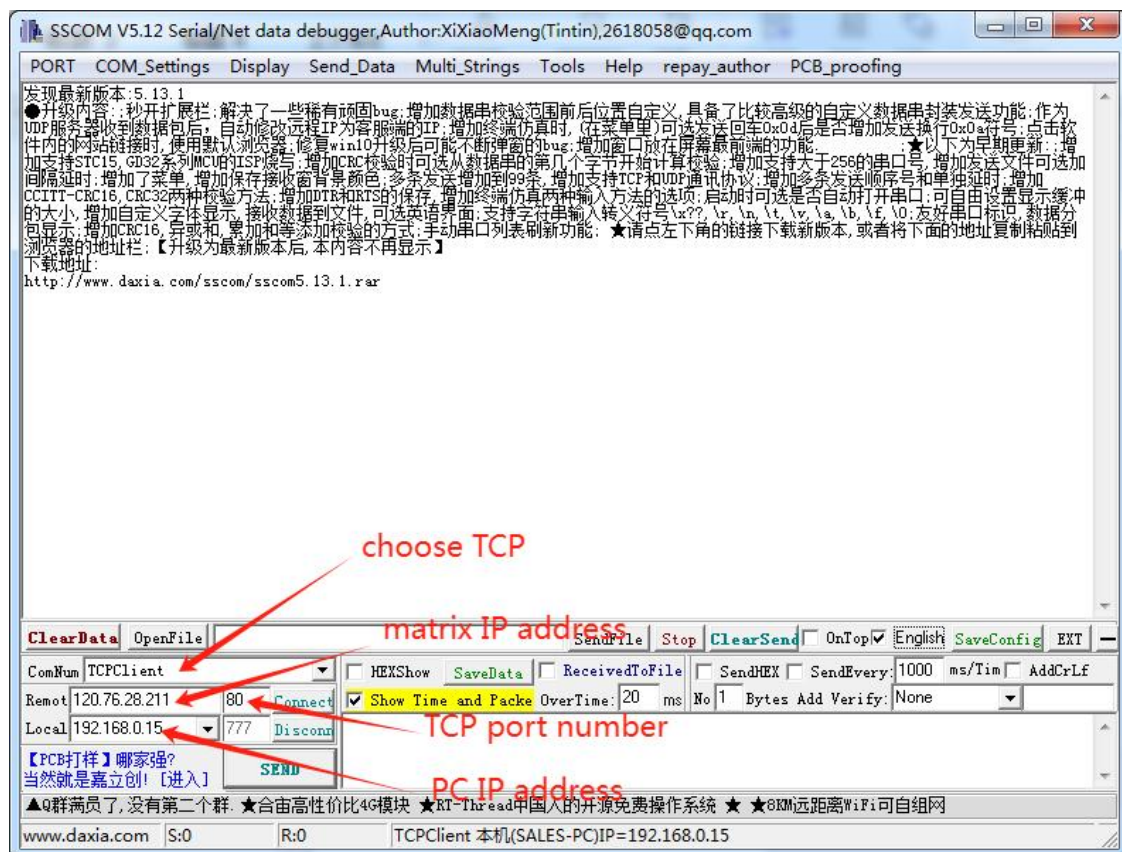
Instructions:

1. All commands start with "#"
2. "_" represents an underscore and is indispensable
3. A space is required between the command header, parameter, and target

User can find the command list on the disk.

UDP/TCP control:

1. The sent commands are consistent with the serial port. TCP can support command feedback, while UDP only supports sending data and cannot feedback matrix data
2. The matrix and the computer that sends the command must be in the same LAN.
3. Serial port tools such as "putty" are not supported.



Telnet control:

1. PC windows key + R, input “cmd”, then press Enter
2. Input “Telnet 192.168.0.57” (based on the matrix IP address), and press enter.

The port number is 23 by default.

```
C:\Users\Administrator>Telnet 192.168.0.57
```

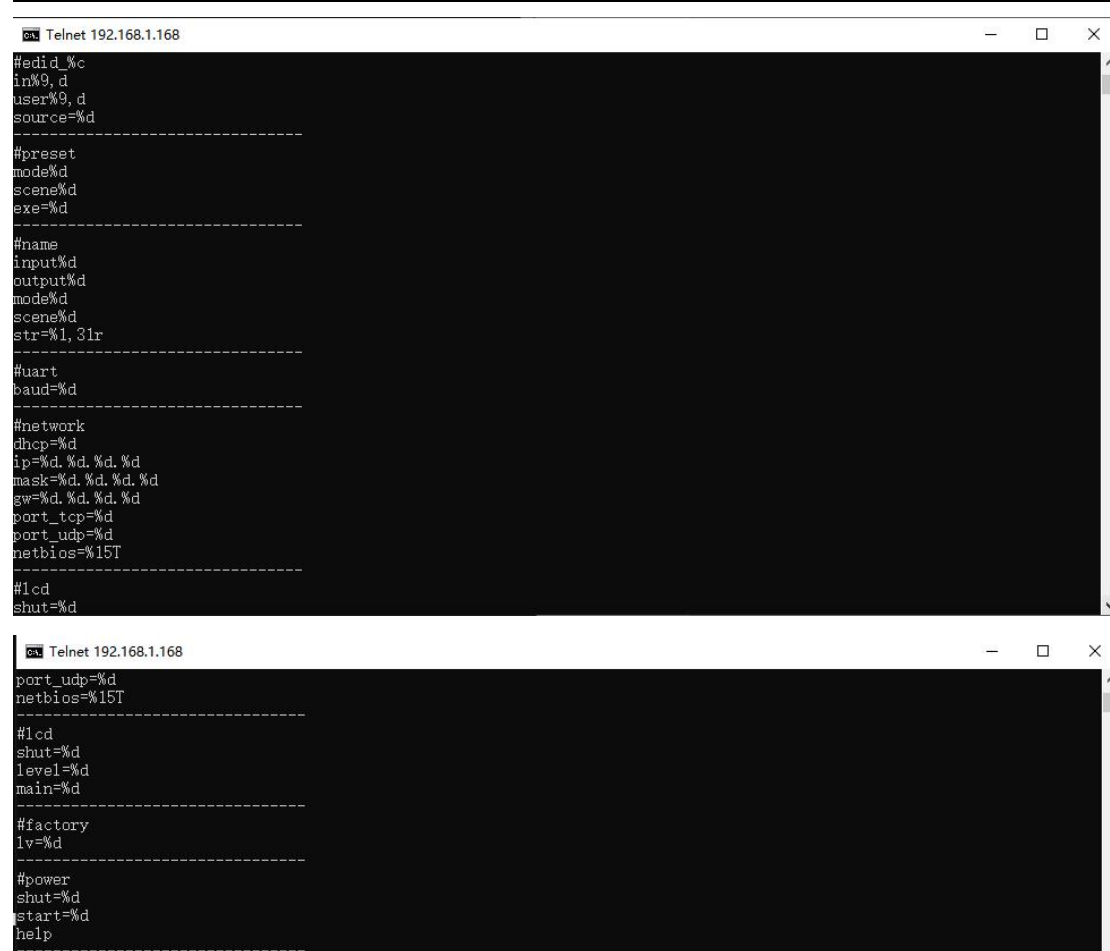
3. Enter the account(admin) and password(admin). Just log in your account

```
Account LV3 login
=====
      Successfully connected!
=====
```

4. Enter command to control, input the check command “#cmd” to test whether it can be sent successfully, the interface will display available command list.

For more command, please refer to the command list on the disk.

```
Telnet 192.168.1.38
-----
!cmd
-----
!video_%c
in%4,d
out%4,d
user%4,d
matrix=%d
format=%d
-----
!audio_%c
in%4,d
out%4,d
dec=%d
onoff=%d
delay=%d
-----
!ledid_%c
in%4,d
user%4,d
data=%d
-----
!lcd
shut=%d
level=%d
main=%d
-----
!mode:%d
-----
!preset:%d
exe=%d
```



The image displays two screenshots of a Telnet session window titled "Telnet 192.168.1.168".

The top screenshot shows the following prompts and input:

```
#edid_%c
in%0,d
user%0,d
source=%d
-----
#preset
mode%d
scene%d
exe=%d
-----
#name
input%d
output%d
mode%d
scene%d
str=%1,31r
-----
#uart
baud=%d
-----
#network
dhcp=%d
ip=%d.%d.%d.%d
mask=%d.%d.%d.%d
gw=%d.%d.%d.%d
port_tcp=%d
port_udp=%d
netbios=%15T
-----
#lcd
shut=%d
```

The bottom screenshot shows the continuation of the session with the following prompts and input:

```
port_udp=%d
netbios=%15T
-----
#lcd
shut=%d
level=%d
main=%d
-----
#factory
lv=%d
-----
#power
shut=%d
start=%d
help
-----
```

9. Video wall/Multi-viewer

1) Video wall include 17 modes



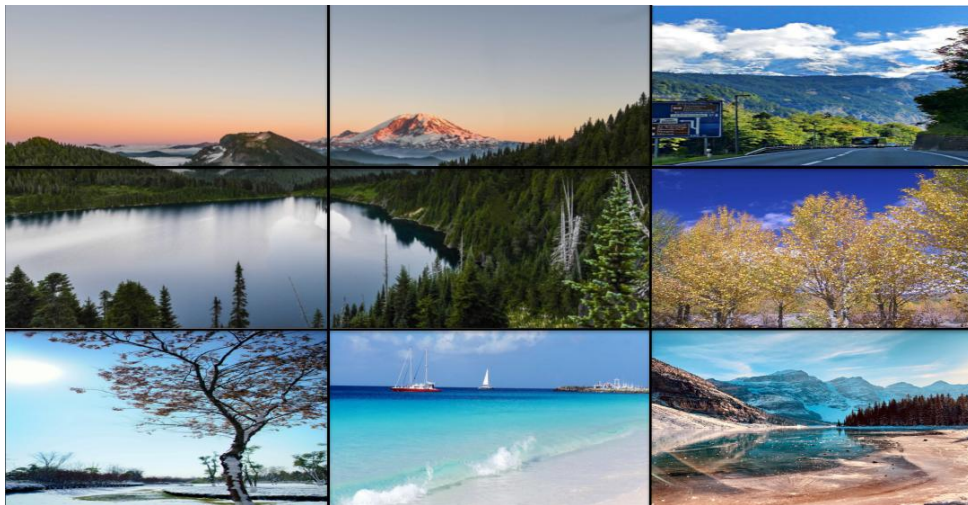
W-3x3



W-3x2 U



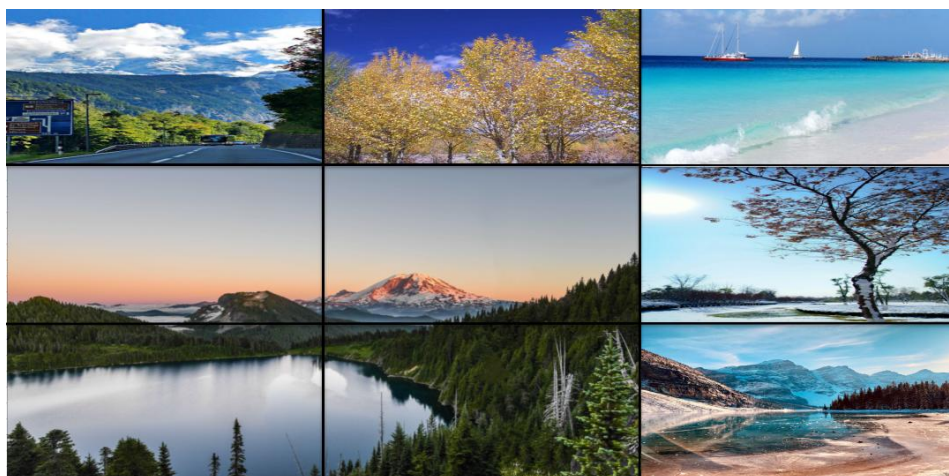
W-3x2 D



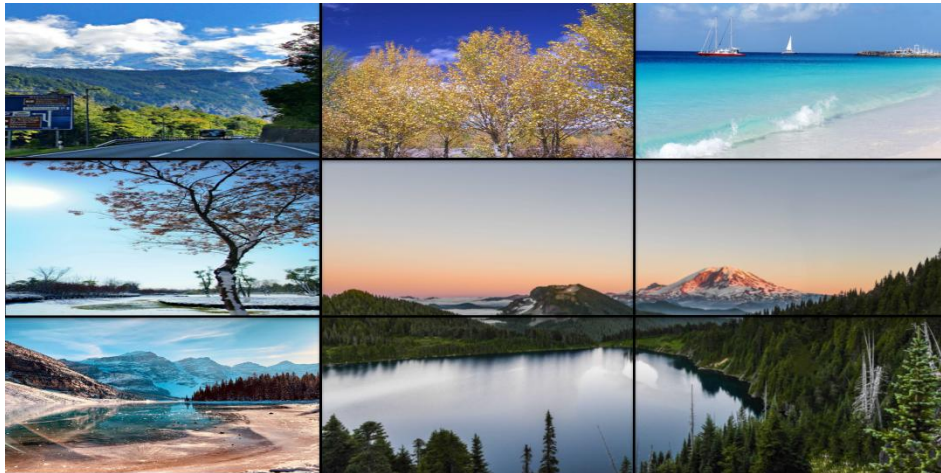
W-2x2 LU



W-2x2 RU



W-2x2 LD



W-2x2 RD



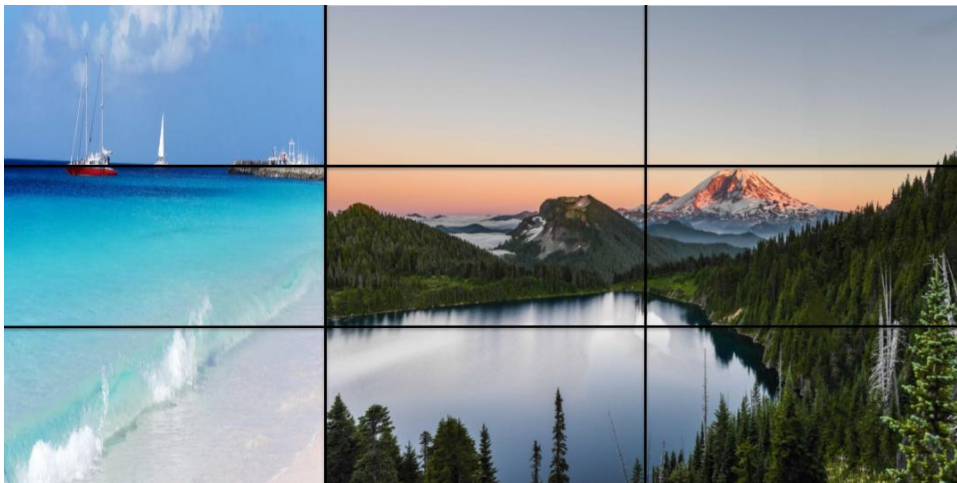
W-3x1 L



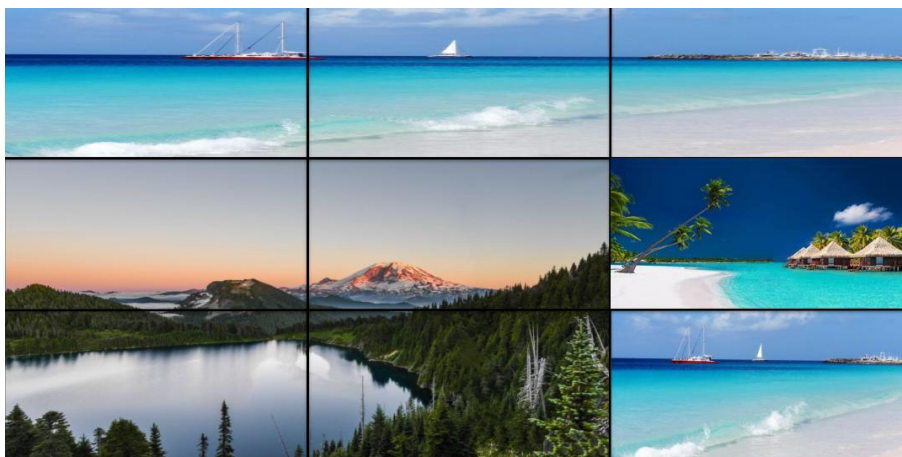
W-1x3 L



W-3x1 3x2



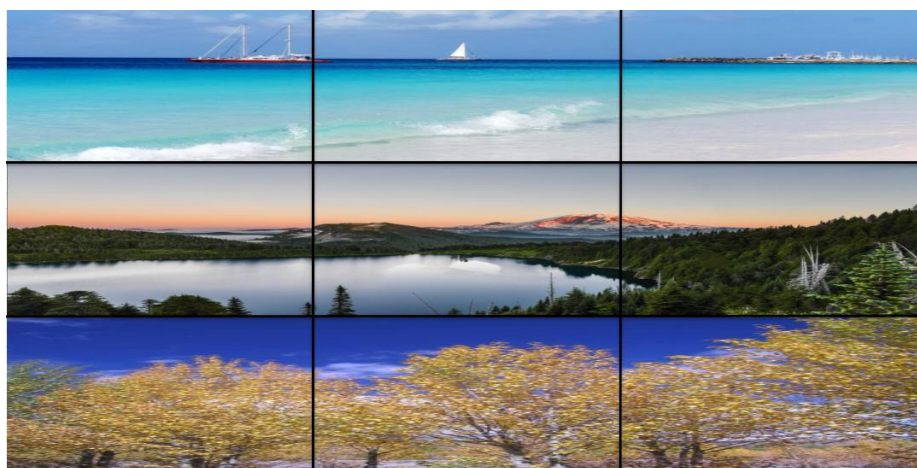
W-1x3 2x3



W-3x1U 2x2L



W-1x3L 2x2U



W-3x1x3



W-1x3x3



W-1x3 2x1x3

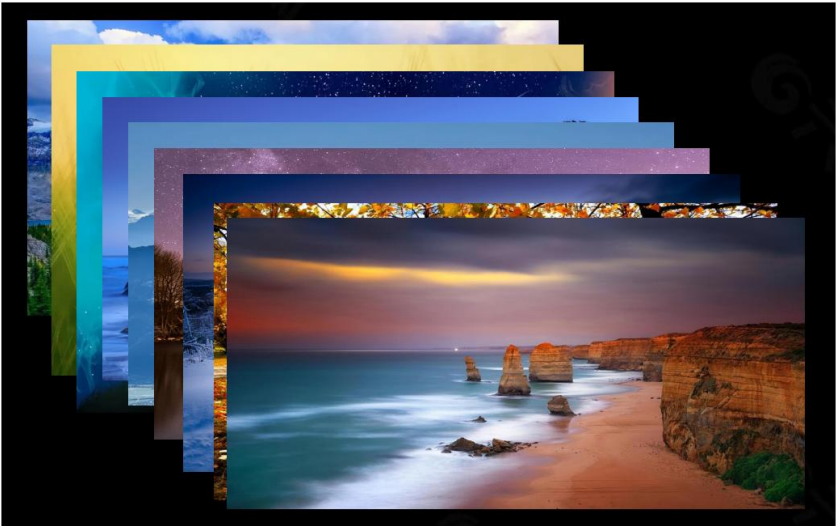


W-1x2x3 3x1

2) Multi-viewer include 11 modes

1	2	3
4	5	6
7	8	9

3x3 Grid-1



PIP 1

1	2
3	4

2x2 Grid-1

5	6
7	8

2x2 Grid-2

1	2	3
4	5	6

2x3 Grid-1

1	2	3
7	8	9

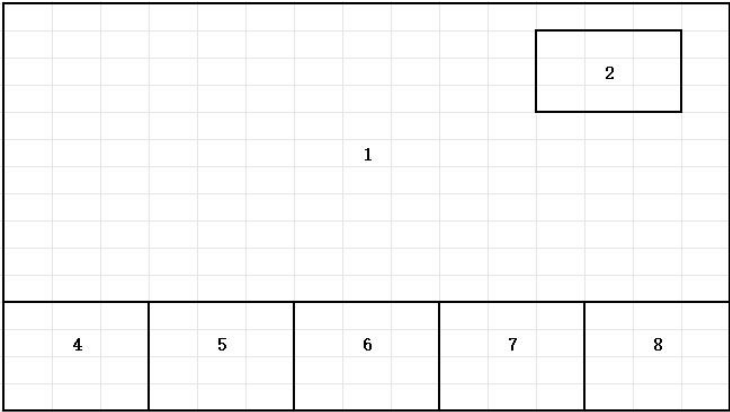
2x3 Grid-2

4	5	6
7	8	9

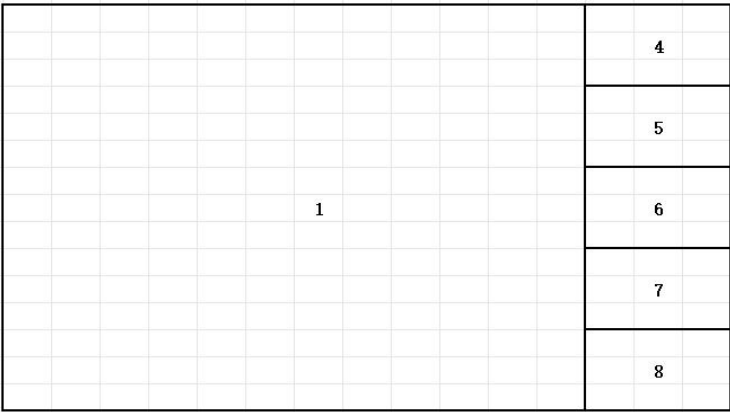
2x3 Grid-3

1			2		
4	5	6	7	8	9

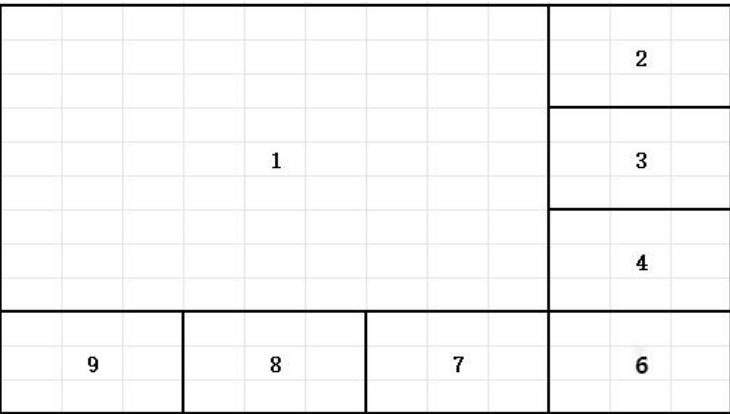
2Main-6Small



1Main-5Small-1



1Main-5Small-2

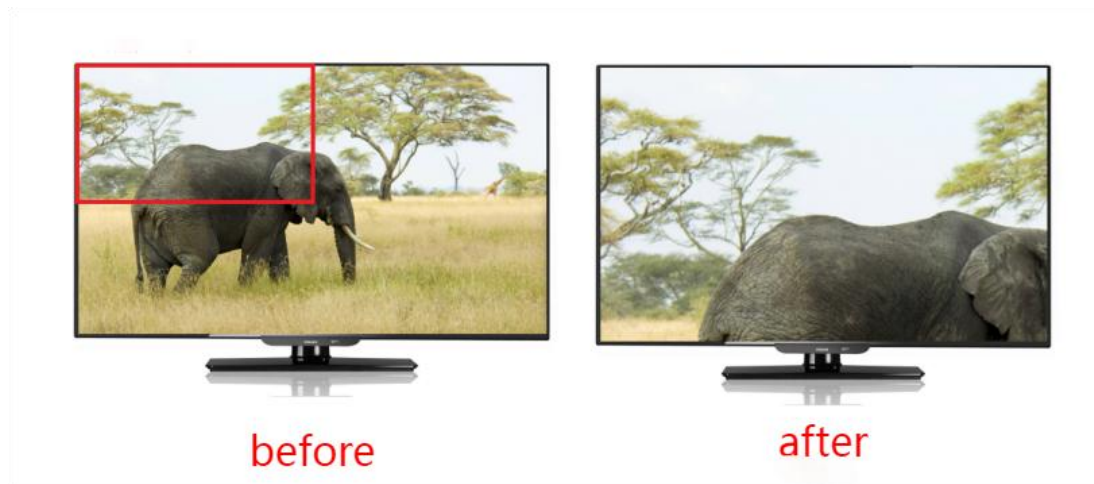


1Main-7Small

3) Picture cropping and change TV coordinates

Input CROP starting point: CROP X0 (0), CROP Y0 (0), input end point: CROP X1 (3000), CROP Y1 (3000)

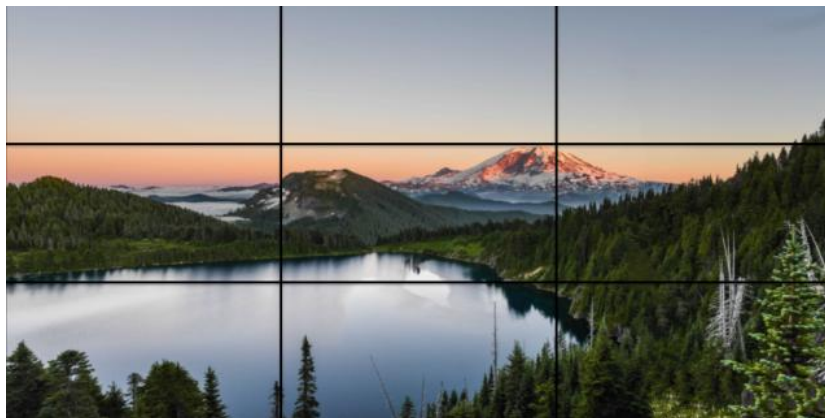
Input ZOOM starting point: ZOOM X0 (0), ZOOM Y0 (0), input end point: ZOOM X1 (6000), Zoom Y1 (6000)



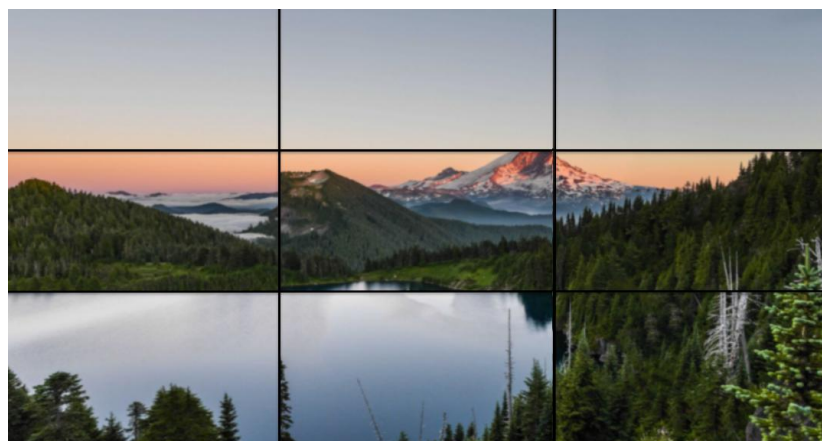
4) Change the distance between the walls

When switching the video wall scene, the gap value can be set to narrow and expand the distance between the video wall.

Change distance: Gap X (0), Gap Y (0)



Change distance: Gap X (1000), Gap Y (1000) Please change according to the actual size



10. WEB Control

Device is connected to the control device (such as: PC) through TCP/IP network port, which can be controlled by Command or through GUI man-machine interactive interface.

The control mode is divided into two types:

Be connected with a single non-networked computer for single control;

Be connected to the local area network, make multi - machine control at the same time

Note: web control recommended to use Google, fire fox browsers, using other browsers may not be compatible

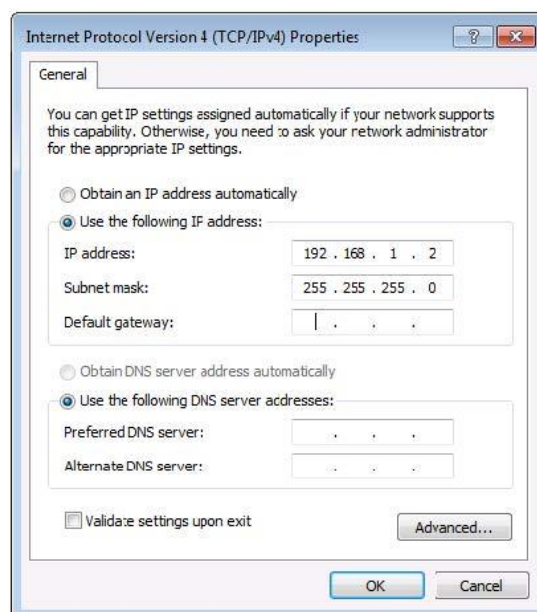
10.1 WEB

Default IP address of web page: 192.168.1.168

MASK: 255.255.255.0

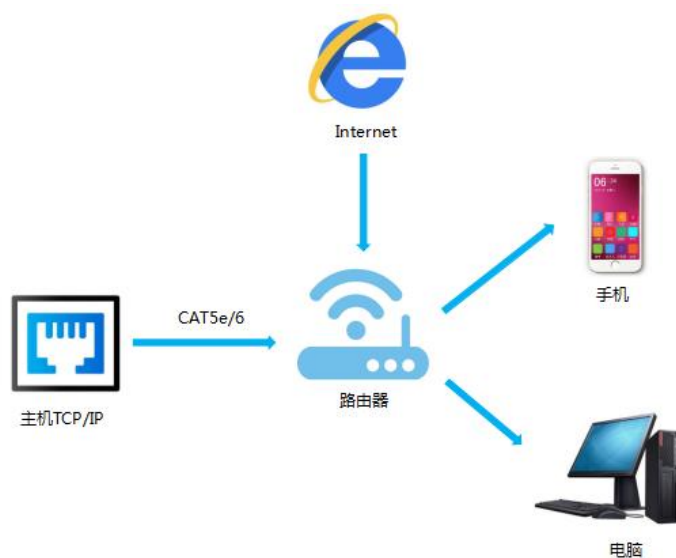
GW: 192.168.1.1

MAC: XXXX-XXXX-XXXX, MAC address will change with GUI module.



LAN multiple simultaneous control:

Connect to LAN to make the remote control of multi-user devices (such as mobile phones and other PCS) in the Ethernet environment, and ensure that the IP network segment of device is consistent with the IP network segment.

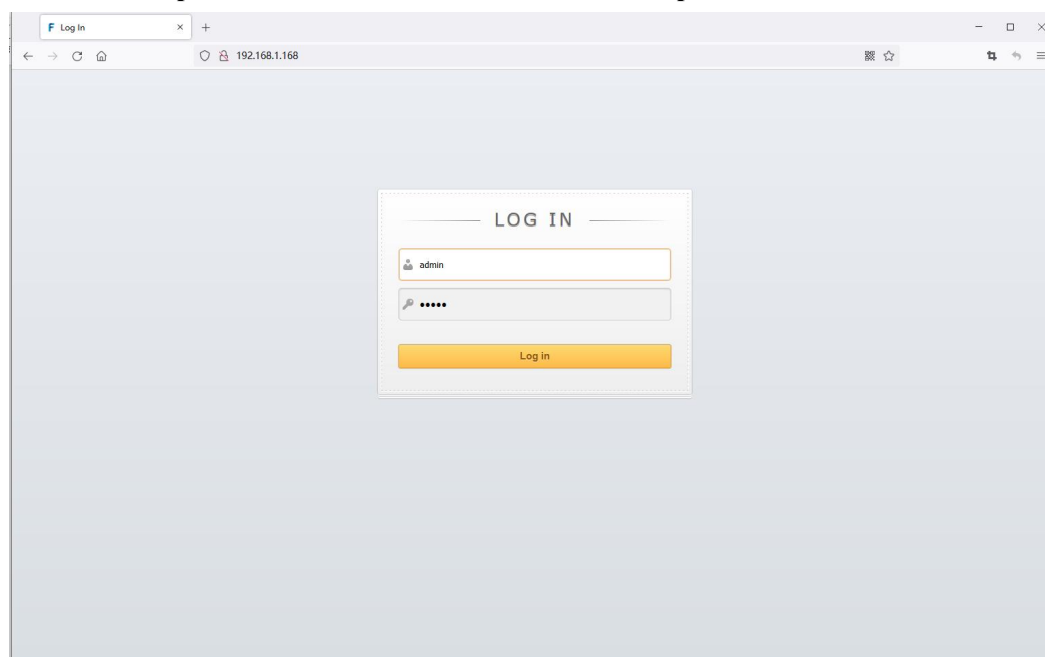


After setting, ENTER the browser and ENTER the default IP address, ENTER the web page LOGIN interface, ENTER the

Account number: admin

Password: admin

Click LOGIN or press ENTER to LOGIN, as shown in the picture:



Picture-web login

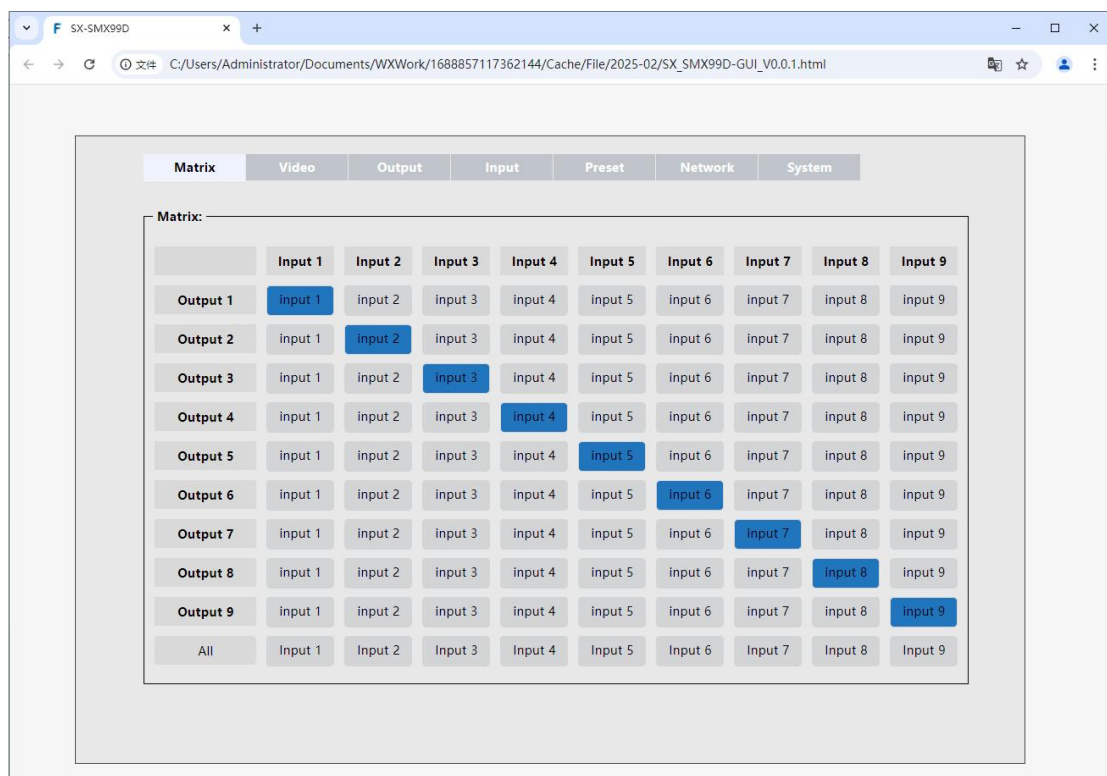
10.2 WEB interface

10.2.1 Matrix interface

1) Input 1~9 corresponds to the input of the matrix 1~9, output 1~9 corresponds to the output of the matrix 1~9, the mouse click button can directly realize the matrix switch

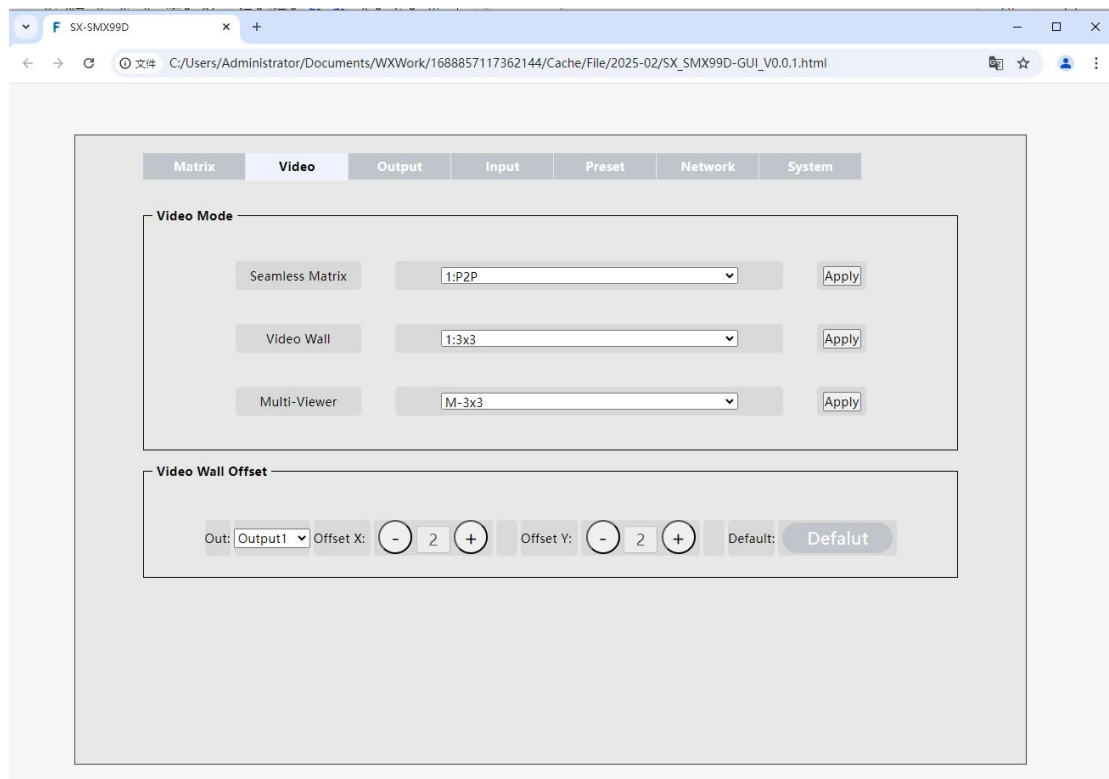
2) output all means that all outputs are switched to an input

3) When the button turns blue, it represents the input signal source corresponding to the current output TV



10.2.2 Video interface

This interface can set video mode(matrix/video wall/ multi viewer), Horizontal and vertical margin Settings



Operation:

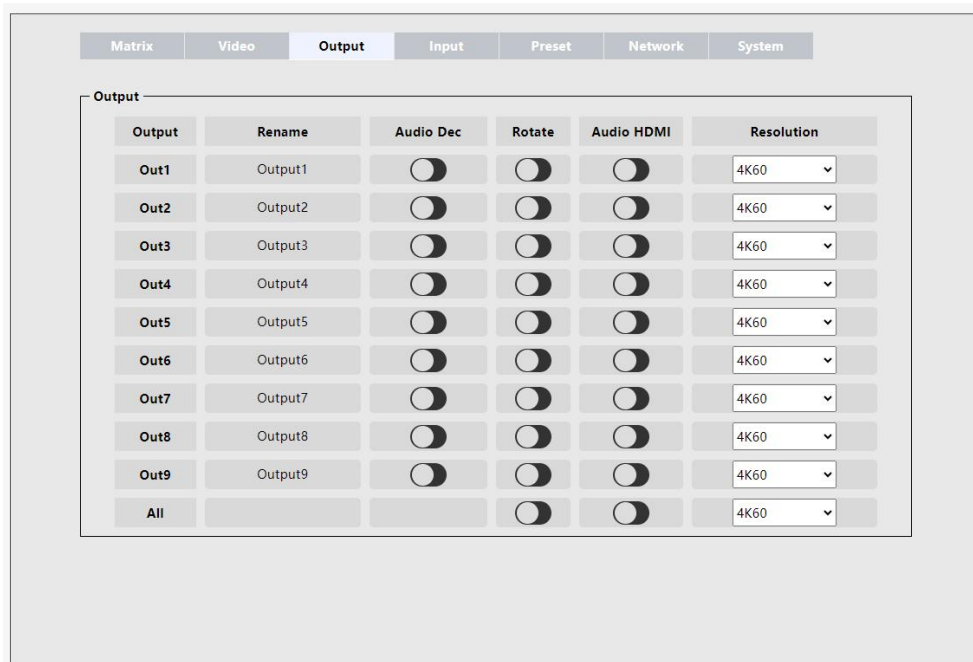
- 1)Seamless Matrix mode. There are 10 options in seamless matrix mode. Click Apply to enter the corresponding mode
- 2)Video Wall mode, there are 17 options, click Apply to enter the corresponding mode
- 3)Multi-viewer mode, there are 11 options, click Apply to enter the corresponding mode
- 4)Video wall offset, Horizontal and vertical margin Settings (user can select the offset of any output video, or select the offset of all output video), the range is 0 to 100, each time in 2 increments. The default X and Y axes are 0.

Operating instructions:

1. Select output and click the +/- button to adjust;
2. Click the Default button to return to the 0/0 default margin.

10.2.3 Output interface

- 1) Rename: change the name of the output, Double-click output1~9 to modify it
- 2) Audio Dec: on/off audio extraction, green is on, gray is off.
- 3) Rotate: image 180° rotation
- 4) Audio HDMI: on/off HDMI output audio, green is on, gray is off.
- 6) Resolution: output video format, the default is 4K60, It can be changed to 4K60、 4K30、 1080P60、 720P60、 2560x1600、 1920x1200、 1600x1200、 1366x768、 Follow output.



10.2.4 Input interface

- 1) Rename: change the name of the output, Double-click input 1~9 to modify it.
- 2) Audio delay: Adjusting audio delay, “+” “-” Per millisecond.
- 3) Copy EDID: change the EDID, there are 17 options.
- 4) User EDID: Different EDID can be set on the user EDID.

Matrix	Video	Output	Input	Preset	Network	System
Input						
Input	Rename	Audio Delay	Copy EDID			
In1	Input1	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
In2	Input2	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
In3	Input3	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
In4	Input4	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
In5	Input5	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
In6	Input6	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
In7	Input7	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
In8	Input8	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
In9	Input9	- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
All		- 0 +	Output 1:4096x2160P@60-444 HDR:HLG EAC3:7.1 SN▼			
User EDID						
Copy EDID From		Default 1:4096x2160P@60-444 HDR:None LPCM:2.0 F▼		to		User 1 ▼ Set

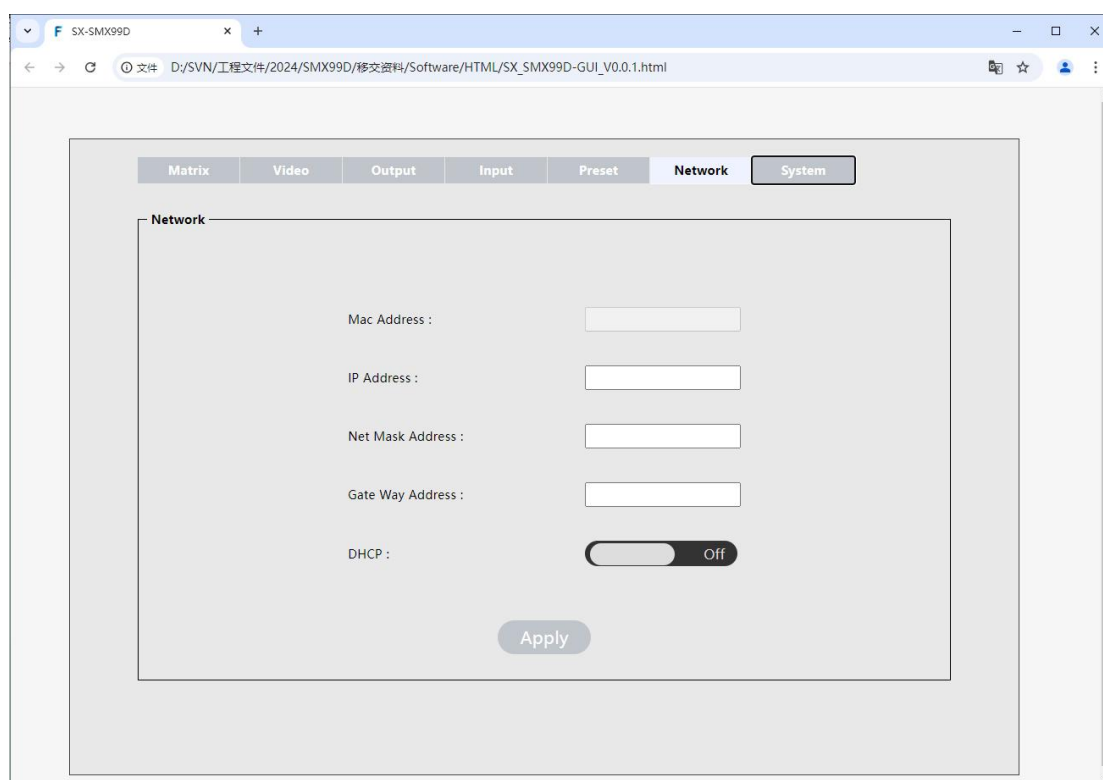
10.2.5 Preset interface

- 1) Rename: modify the name of the scene, Double-click output1~9 to modify it
- 2) Save: save the scene
- 3) Call: calling scene

Matrix	Video	Output	Input	Preset	Network	System
Output						
Preset	Rename	Save	Call			
Preset1	Preset1	Save	Call			
Preset2	Preset2	Save	Call			
Preset3	Preset3	Save	Call			
Preset4	Preset4	Save	Call			
Preset5	Preset5	Save	Call			
Preset6	Preset6	Save	Call			
Preset7	Preset7	Save	Call			
Preset8	Preset8	Save	Call			

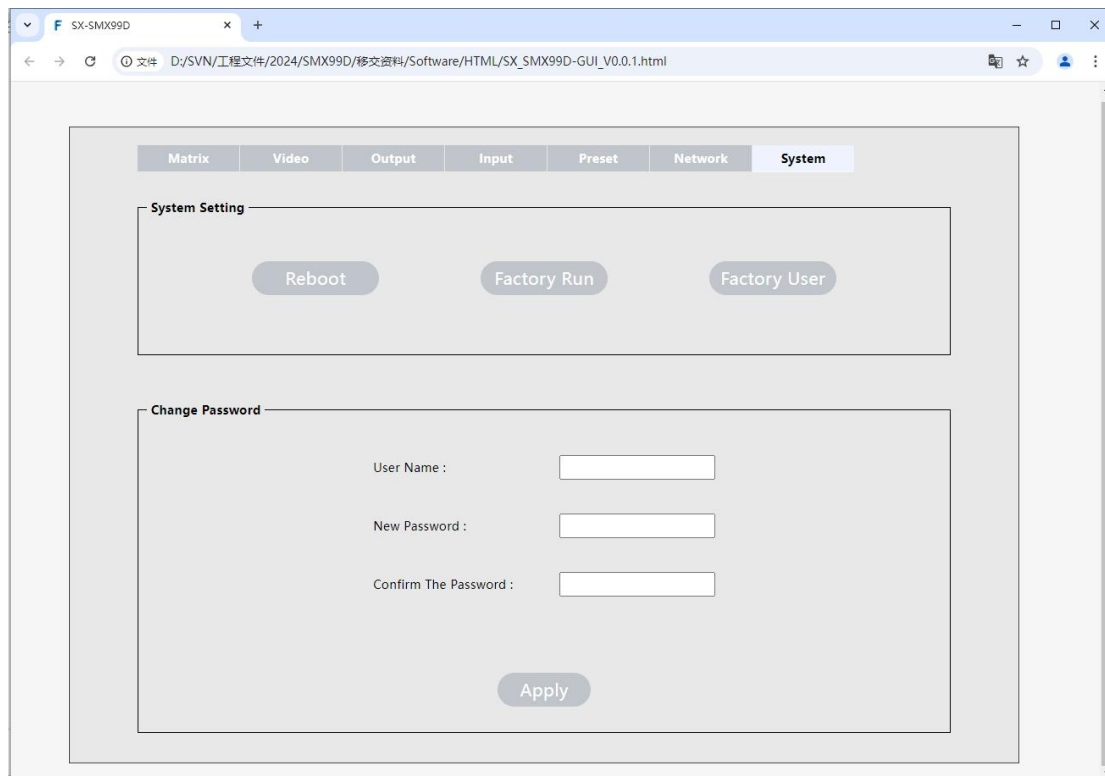
10.2.6 Network interface

- 1) MAC address can not modified, only view.
- 2) Static IP: When the static IP address is used, the IP address can be modified, and the application takes effect. The system counts down for eight seconds, and then automatically re-enters the web interface.
- 3) Dynamic IP: Use the key to switch to the DHCP Off state, the used dynamic IP address, the following IP address and other addresses, the dialog box becomes gray, cannot be modified, can display the current IP address information
- 4) The DHCP switch is a compound switch, with two options: DHCP On and DHCP Off. When Off is displayed, the current DHCP is disabled; when On is displayed, the current DHCP is enabled (Click the DHCP button to enable the DHCP function, without clicking Apply).



10.2.7 System interface

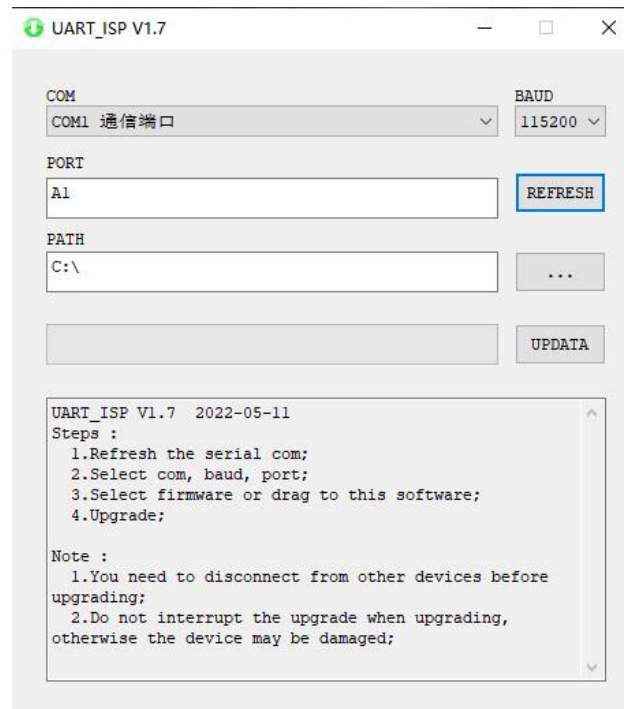
- 1) user name: change user name
- 2) new password: a new password for the login
- 3) confirm the password: enter new password again
- 4) Change account and password: The value can contain only 6 to 15 characters, letters, digits, and underline. (Only the account name and password of the current account can be changed.)
- 5) reboot: click the button to restart device
- 6) Factory Run: Click the button to restore the factory Settings of the running scene data
- 7) Factory User: Click the button to restore the factory Settings
- 8) After clicking, there will be a prompt to confirm the button. After restarting and restoring the factory, click the pop-up box to confirm the button and the web page will refresh again



11. Firmware updating

11.1 MCU

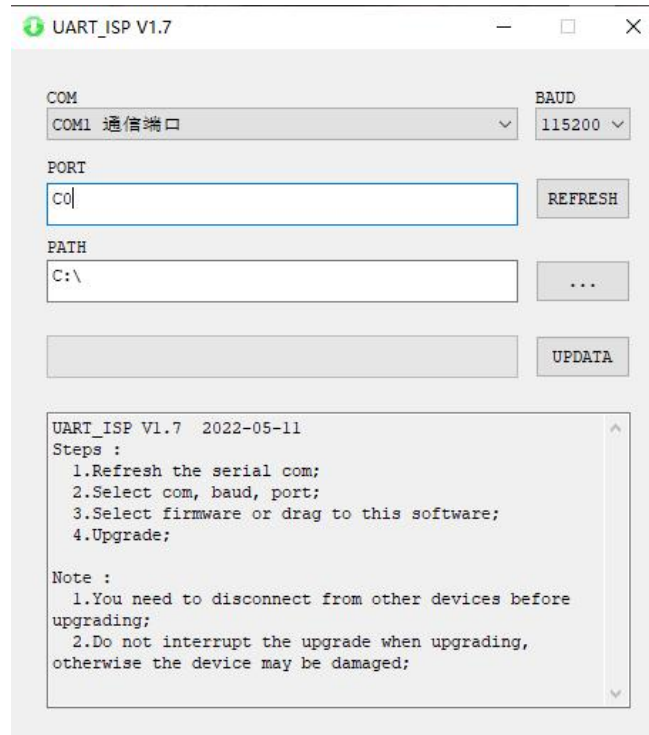
Open ART_ISP_V1.7.exe on the PC, select the correct port and baud rate of 115200, enter "A1" in port, and select the path of the program in path (XX.bin), and click update to complete the upgrade



(NOTE: Every time user need to update the firmware, please check with the Engineer first)

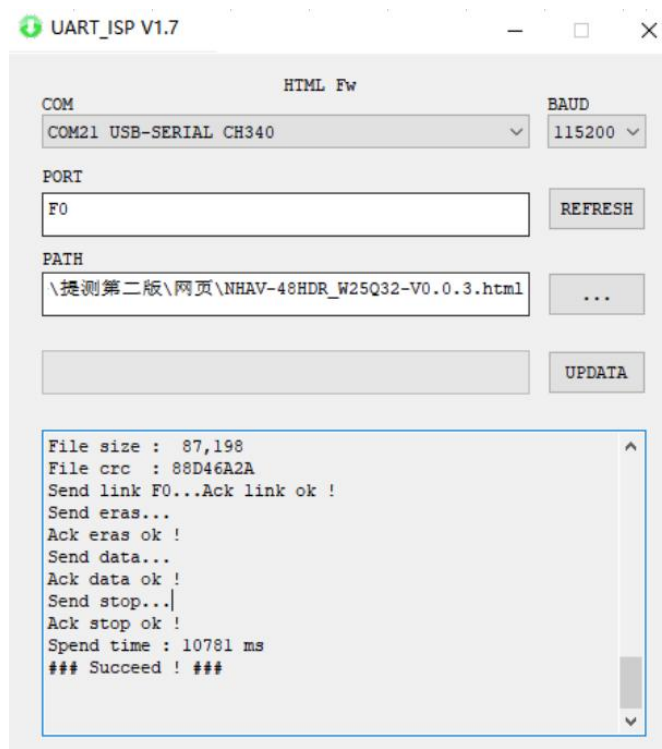
11.2 CPLD

Open ART_ISP_V1.7.exe on the PC, select the correct port and baud rate of 115200, enter "C0" in port, and select the path of the program in path (XX.vme), and click update to complete the upgrade



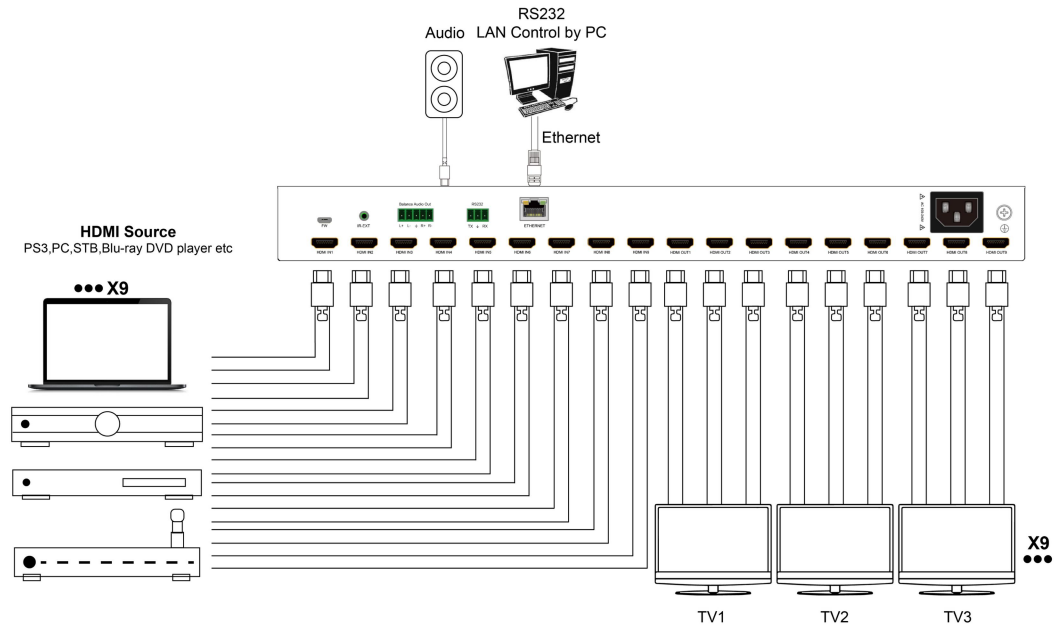
11.3 WEB

Open ART_ISP_V1.7.exe on the PC, select the correct port and baud rate of 115200, enter "F0" in port, and select the path of the program in path (XX.html), and click update to complete the upgrade.

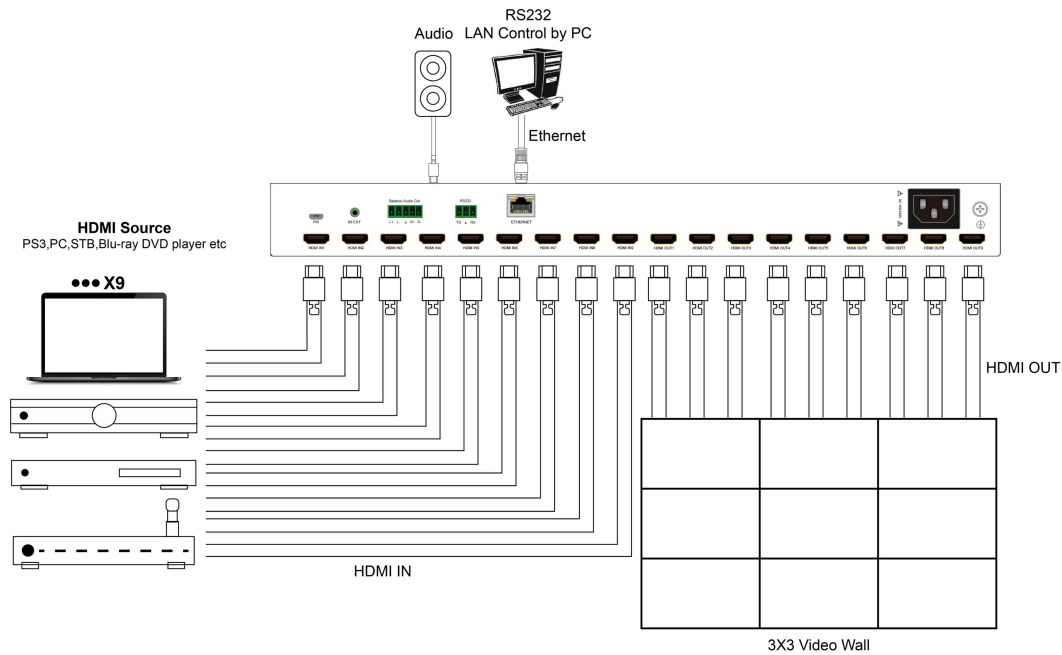


12. Application Diagram

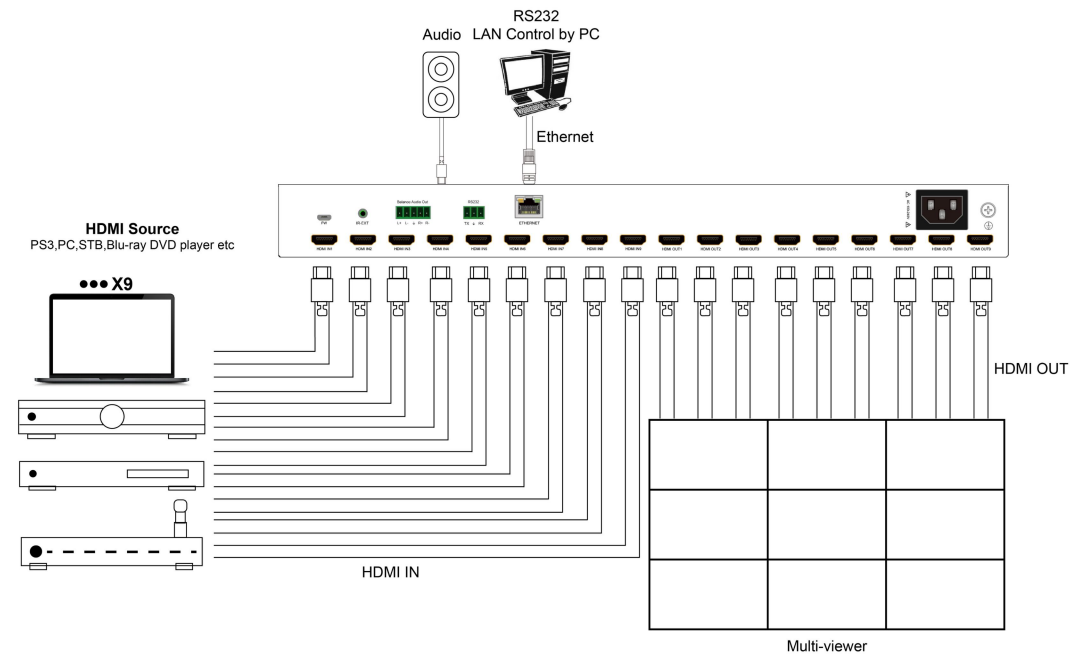
1. Seamless switch 9x9 HDMI Matrix



2. Diagram of 3x3 Video Wall Displaying



3. Diagram of 3x3 Multi-viewer Displaying



MAINTENANCE

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

PRODUCT SERVICE

(1) Damage requiring service:

The unit should be serviced by qualified service personnel if:

- (a) The DC power supply cord or AC adaptor has been damaged;
- (b) Objects or liquids have gotten into the unit;
- (c) The unit has been exposed to rain;
- (d) The unit does not operate normally or exhibits a marked change in performance;

The unit has been dropped or the cabinet damaged.

(2) **Servicing Personnel:** Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.

(3) **Replacement parts:** When parts need replacing ensure the servicer uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other Hazards.

(4) **Safety check:** After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

WARRANTY

If your product does not work properly because of a defect in materials or workmanship, our Company (referred to as "the warrantor") will, for the length of the period indicated as below, **(Parts)2Year, Labor(90) Days** which starts with the date of original purchase ("Limited Warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor.

During the "Labor" Limited Warranty period there will be no charge for labor.

During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

MAIL-IN SERVICE

When shipping the unit carefully pack and send it prepaid, adequately insured and preferably in the original carton. Include a letter detailing the complaint and provide a day time phone and/or email address where you can be reached.

LIMITED WARRANTY LIMITS AND EXCLUSIONS

1) This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage.

The Limited Warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or service by anyone other than a Factory Service center

or other Authorized Servicer, or damage that is attributable to acts of God.

2) THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY COVERAGE". THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the service, loss of or damage to media or images, data or other recorded content. The items listed are not exclusive, but are for illustration only.)

3) PARTS AND SERVICE, WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY, ARE YOUR RESPONSIBILITY.