

HDMI 2X2 4K Video Wall Controller with USB TYPE-C /DVI /2-port HDMI Inputs

Operating Instructions



Dear Customer

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.

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1. FEATURES

- Support USB TYPE-C /DVI /2 HDMI input.
- Support 4K 2x2 video wall, cascading to create 2x3,3x4 and max 10x10 video wall.
- Support output image 180° rotation.
- Support highest resolution up to 4K@30HZ 4:4:4 for Type-C and HDMI inputs, 1920x1200 for DVI input.
- Support EDID management:Two default EDID: 4K30HZ, 1080P.
- Support HDCP2.2/1.4.
- Support panel button; IR remote; RS232 command and Web GUI to control.
- Support SPDIF and Analog audio extraction
- 1U rack design, easy installment.
- DC 12V 2A power supply.
- Unit size:L438XW190XH44 mm.

2. NOTICE

Our company reserve the right to make changes in the hardware, packaging and any accompanying documentation without prior written notice.

3. SPECIFICATIONS

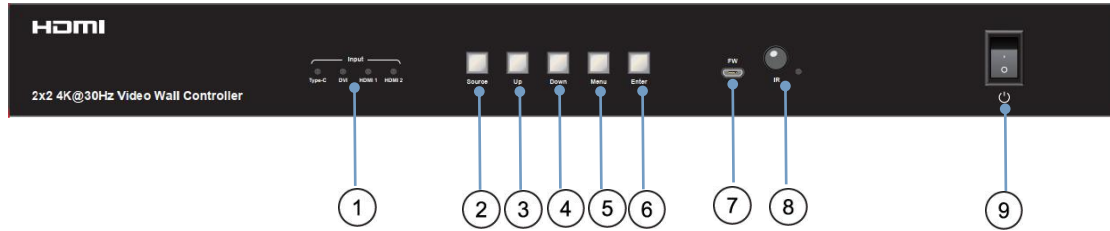
Operating Temperature Range	0 to +40°C (32 to +104°F)
Operating Humidity Range	5 to 90 % RH (no condensation)
Input Video Signal	0.5-1.0 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Video Format Supported	Ultra HD TV/FHDTV: 4K@30hz/1080P
Audio Format Supported	LPCM 16bit ,24bit,44.1KHz/48KHz
Input ports	2xHDMI, 1xUSB TYPE-C, 1xDVI
Output ports	5xHDMI
Splitter mode	1x4 HDMI Splitter
Preset Video wall modes	1x1; 2x2; 4x1; 1x4; 3x2-1; 3x2-2; 4x2-1; 4x2-2; 4x3-1; 4x3-2; 4x3-3
Cascade video wall modes	3x3; 4x4; 4x6; 5x6; 6x6 and so on, max10x10 video wall
Control Way	Panel contro; Web GUI; Remote control; RS232 control
Power consumption	15watts(Maximun)
Dimension (mm)	L438XW190XH44 mm
Weight	2500g

4. PACKING CONTENTS

- 1) Main Unit: HDMI 2X2 4K Video Wall Controller
- 2) 1x Power supply 12V2A
- 3) 6x Screws, 2x detachable mounting ears
- 4) 1x CD(Including User manual, RS232 command list)
- 5) 1x Remote controller
- 6) 1x USB cable (for firmware update)

5. PANEL DESCRIPTIONS

Front Panel

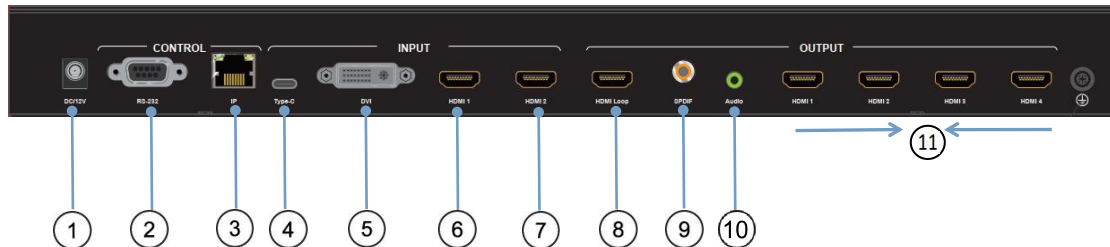


- ① Input status light: The selected source has green light
- ② Source: Short press to select source from Type-C→DVI→ HDMI1→HDMI2 Input
- ③ Up: Long press to choose device setting in the OSD menu
- ④ Down: Long press to choose device setting in the OSD menu
- ⑤ Menu/Left: Long Press to return to the main menu, short press to back to previous menu
- ⑥ Enter/Right: Short press to enter the sub-menu, if there is no sub menu, short press it to confirm the setting selection
- ⑦ Firmware port: Use usb cable to upgrade firmware
- ⑧ IR: Receive the IR signal from the remote controller to control the device
- ⑨ Power: Turn on or turn off the power

Note: 1. Long press "Up" and "Down" together for 5 seconds can modify the output format, The current input status indicator flashes at a frequency of 5Hz, and then cyclically switches at 1.5S intervals. The four indicators correspond to a resolution of 4k30-1080p-720p-auto.

2. Long press "Menu" and "Enter" together for 5 seconds can reset the device.

Rear Panel

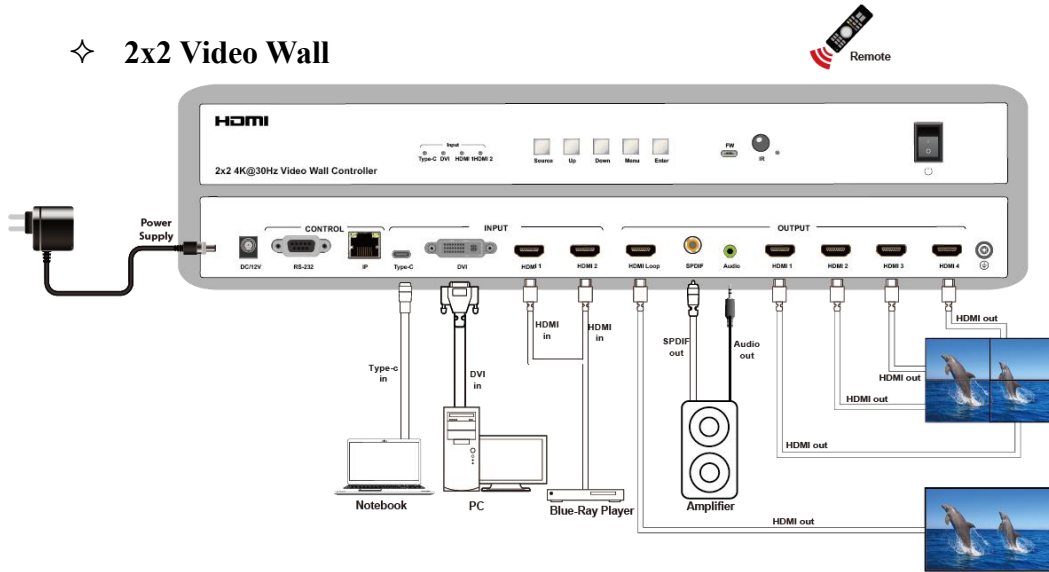


- ① DC12V2A Input
- ② RS232 port
- ③ Ethernet port
- ④ Type-C input port

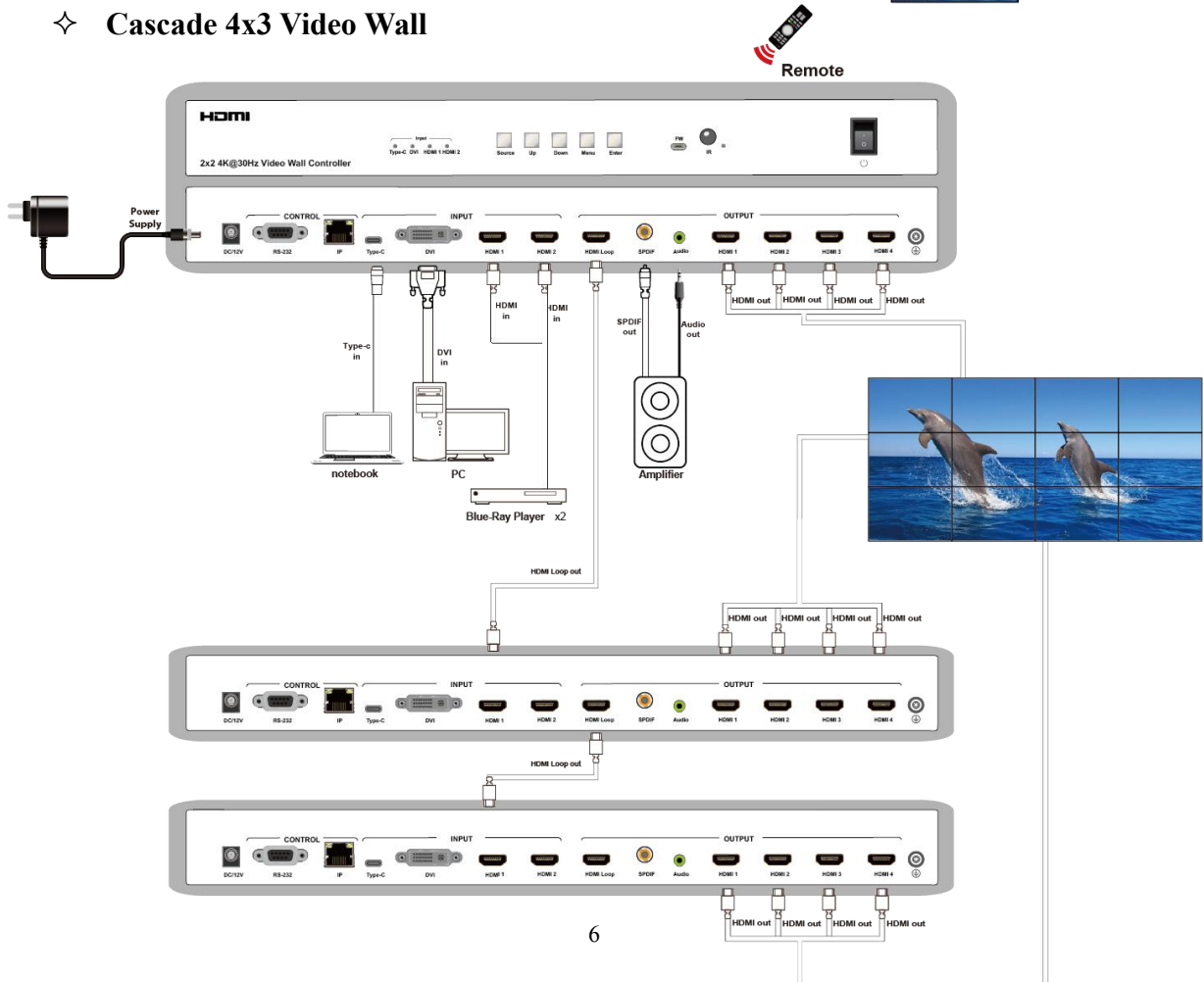
- ⑤ DVI input port
- ⑥ HDMI input1
- ⑦ HDMI input2
- ⑧ HDMI loop output
- ⑨ S/PDIF port
- ⑩ Analog Stereo port
- ⑪ HDMI output1 to HDMI output4

6. CONNECTING AND OPERATING

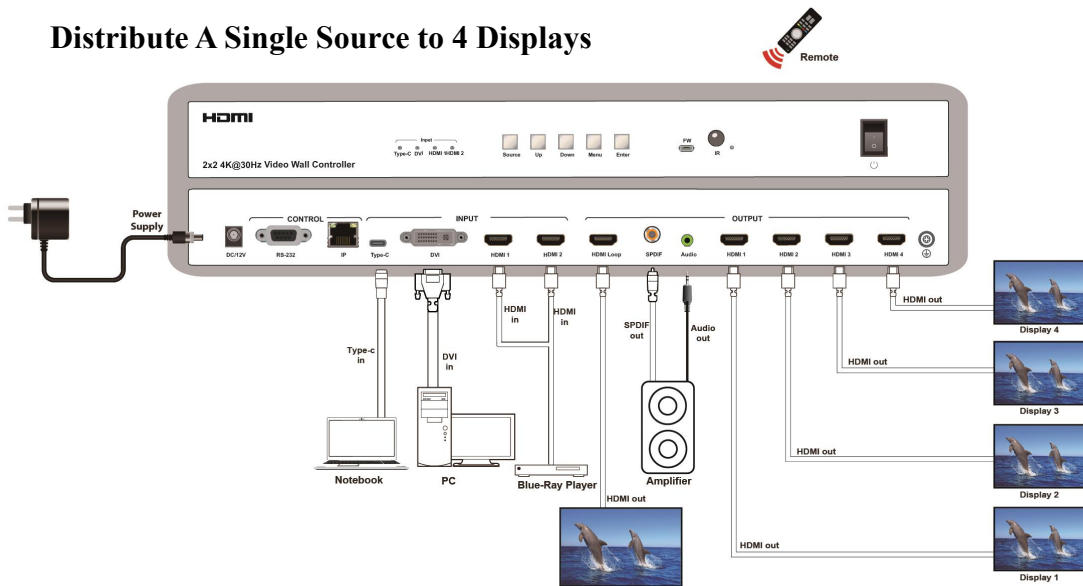
✧ 2x2 Video Wall



✧ Cascade 4x3 Video Wall



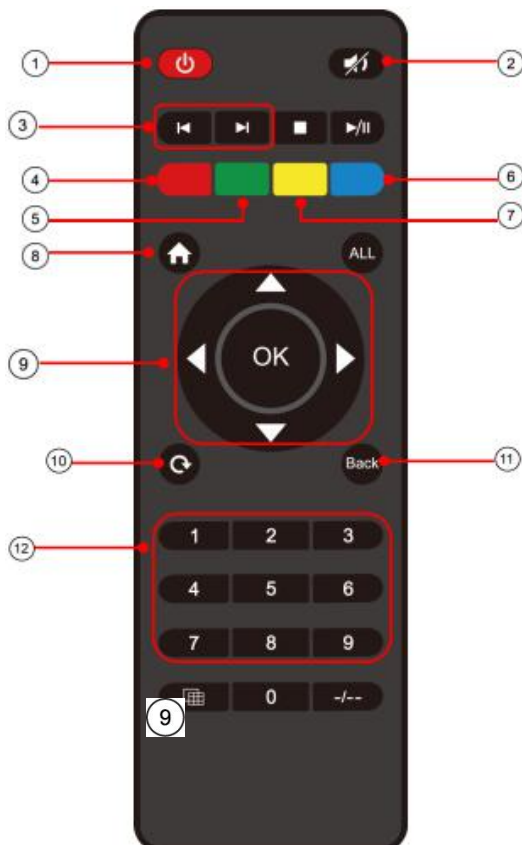
Distribute A Single Source to 4 Displays



- 1) Connect the sources into the video wall controller and Press the button on the remote, then choose the input Signal (DVI, 2 HDMI in, USB TYPE-C,).
- 2) Connect HDMI OUT to display equipment.
- 3) Power on the Video Wall Controller.
- 4) Control the device by Panel button / Remote/ RS232 Command/ Web GUI.

7. CONTROL INSTRUCTION

7.1 Remote Control



1. Power on/off •
2. Mute
3. Source switching
4. Switch signal source of IN1 (TYPE C)
5. Switch signal source of IN2 (DVI)
6. Switch signal source of IN4 (HDMI 2)
7. Switch signal source of IN3 (HDMI 1)
8. Menu
9. ▲:UP ▼:Down ◀:Left/Menu ▶:Right/Enter OK:Right/Enter
10. Display and hide OSD menu
11. Return to menu interface
12. 1-4: select the input source IN1---IN4

Note 1: The function of Right/Enter in the remote controller is the same as the "Right/Enter" on the panel.

7.2 Video Setting By Panel Control

Press the "Source" button to select the input from Type-C→DVI→HDMI1→HDMI2.

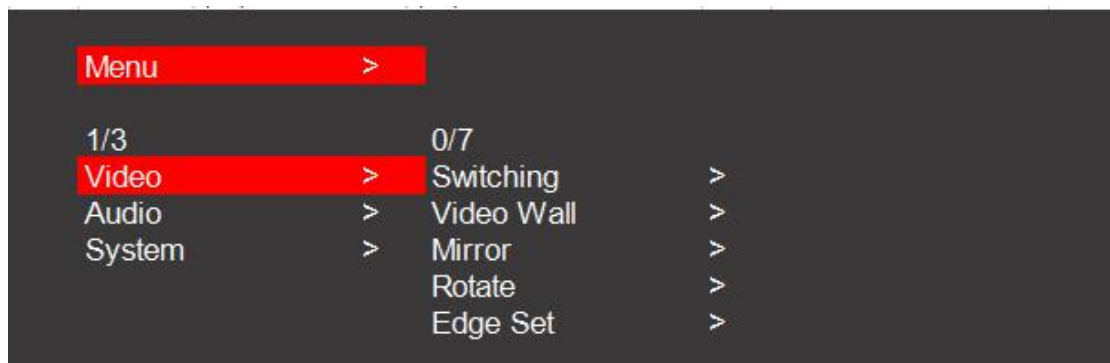
Note: 1.The video switching OSD interface only shows four output channels and the current input signal channels, and it can only switch one input source to all output channels when the input and output are both connected to the device.

2. No operation for 20S, the OSD interface turns off, press any button to wake it.



Output	1	2	3	4
Input	1	1	1	1

OSD interface



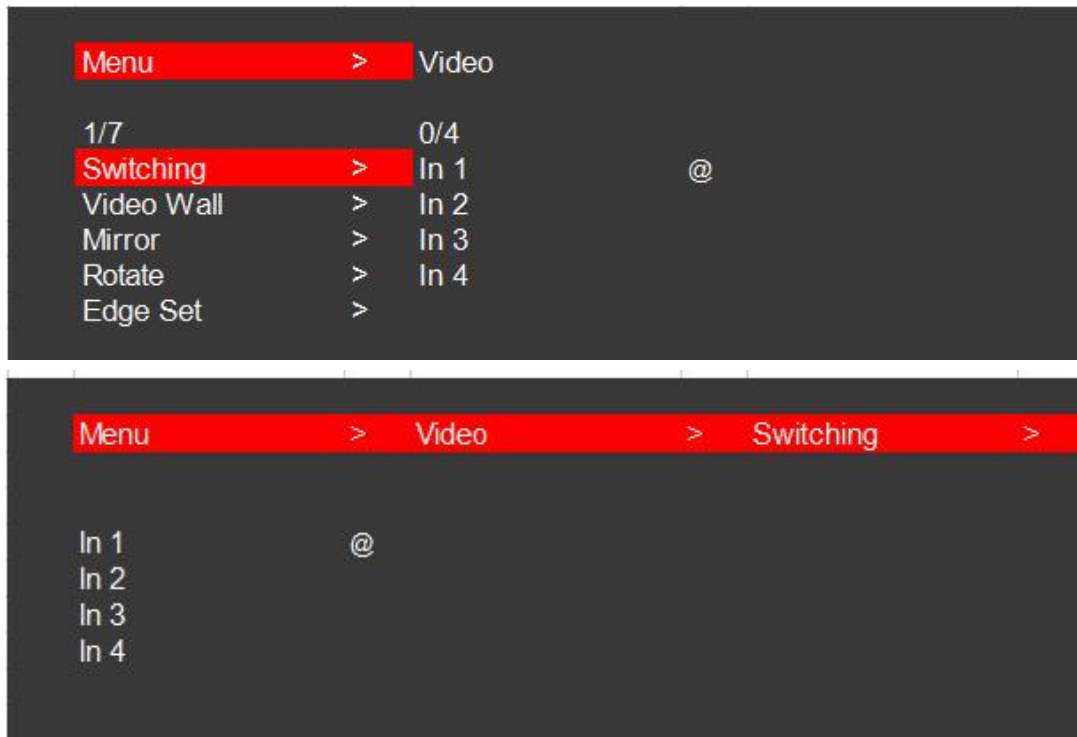
OSD video menu

7.2.1 Video Switching

Press "Menu" on the panel to enter the "Switching" menu,
Press "Up/Down" to select the input, Press "Menu/Enter" to confirm or back to the previous menu,

The selected one has a "@" to mark.

In1 → Type-C input, In2 → DVI input, In3 → HDMI input1, In4 → HDMI input2; the default input is HDMI input1.

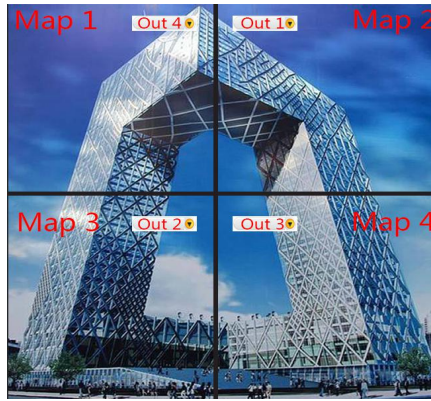


Video switching interface

7.2.2 Video Wall Setting

Press the "Left/Menu" on the panel to enter the "Video Wall" menu, Press "Up/Down" to select or set up the video wall mode, Press "Menu/Enter" to confirm or back to the previous menu, the selected one has a "@" to mark.

- ◆ "Preset" : Including 11 kinds of common scenes such as 2x2, 3x1,4x1,1x4 and so on.
- ◆ "Set Up": "H_NUM " represents the total amount of display on the horizontal axis,
- ◆ "V_NUM" represents the total amount of display on the vertical axis,
- ◆ "Cascade" represents which cascading level the device is, support 25 layers in total,
- ◆ "Port Map" represents each display corresponding to which HDMI output port.



2x2 Video wall port map

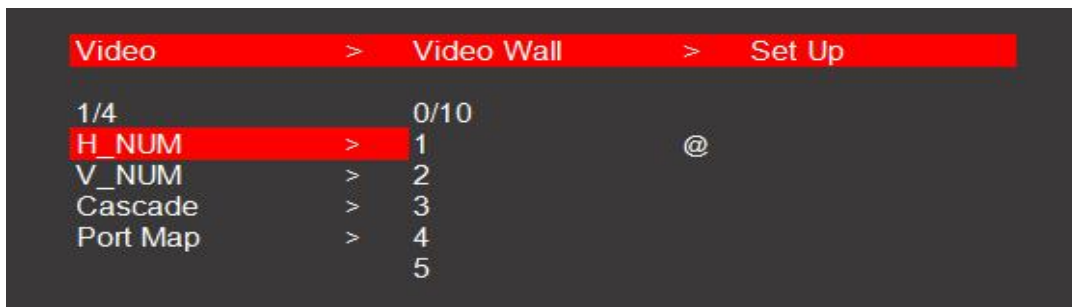


Eg: Map2 correspond to Output1, OSD shows "Out1"

- Note: 1. Output screens under the same cascade layer can be connected to any output port in this layer.
 2. The position of Map1 to Map4 in the same cascading layer is stable no matter how the output ports arrayed, the rule for "Port Map" is from left to right, from top to bottom as showed in the above picture.



Preset video wall mode



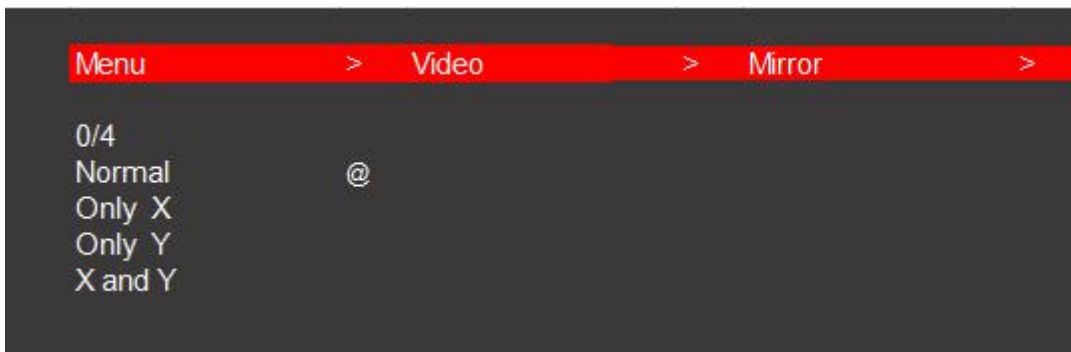
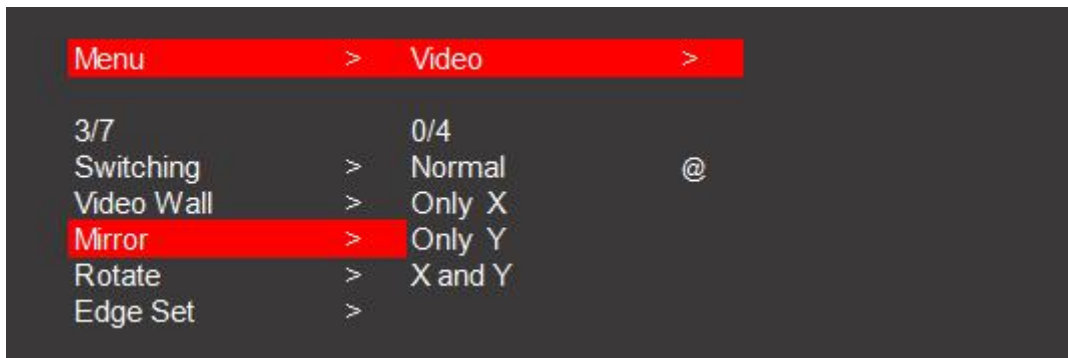
Video wall set up



7.2.3.Mirror

Press the "Left/Menu" on the panel to enter the "Mirror" menu,
Press "Up/Down" to select the mirror mode, Press "Menu/Enter" to confirm or back to the previous menu.

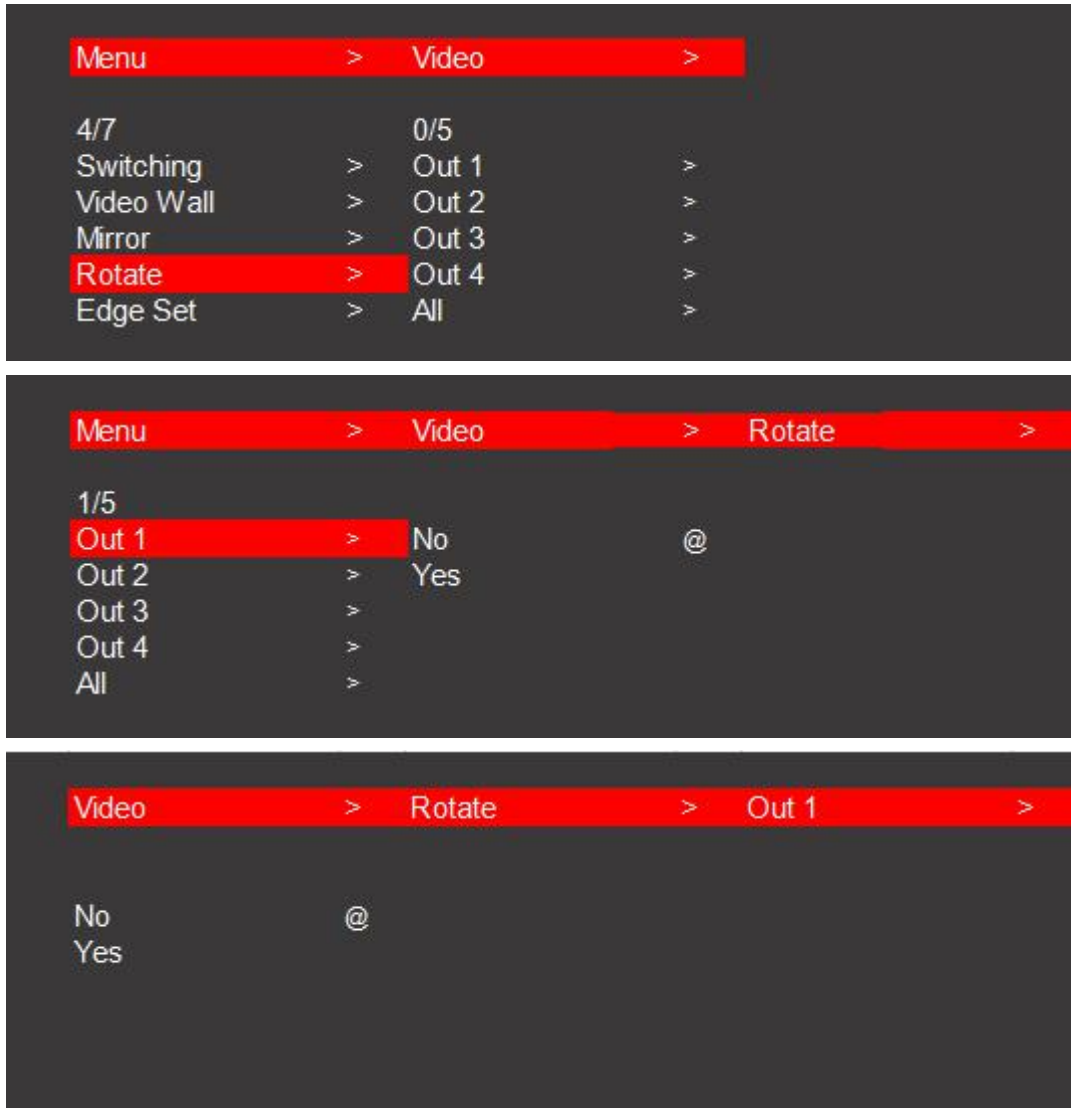
- ◆ "Normal" represents default mode (without mirror function),
- ◆ "Only X" represents horizontal mirror,
- ◆ "Only Y" represents vertical mirror,
- ◆ "X and Y" equals to rotation 180 degree.



Mirror interface

7.2.4.Rotate

Press the "Left/Menu" on the panel to enter the "Rotate" menu,
Each output image support 180 degree rotation, select "Yes" or "No" to set up,
The selected one has "@" to mark.

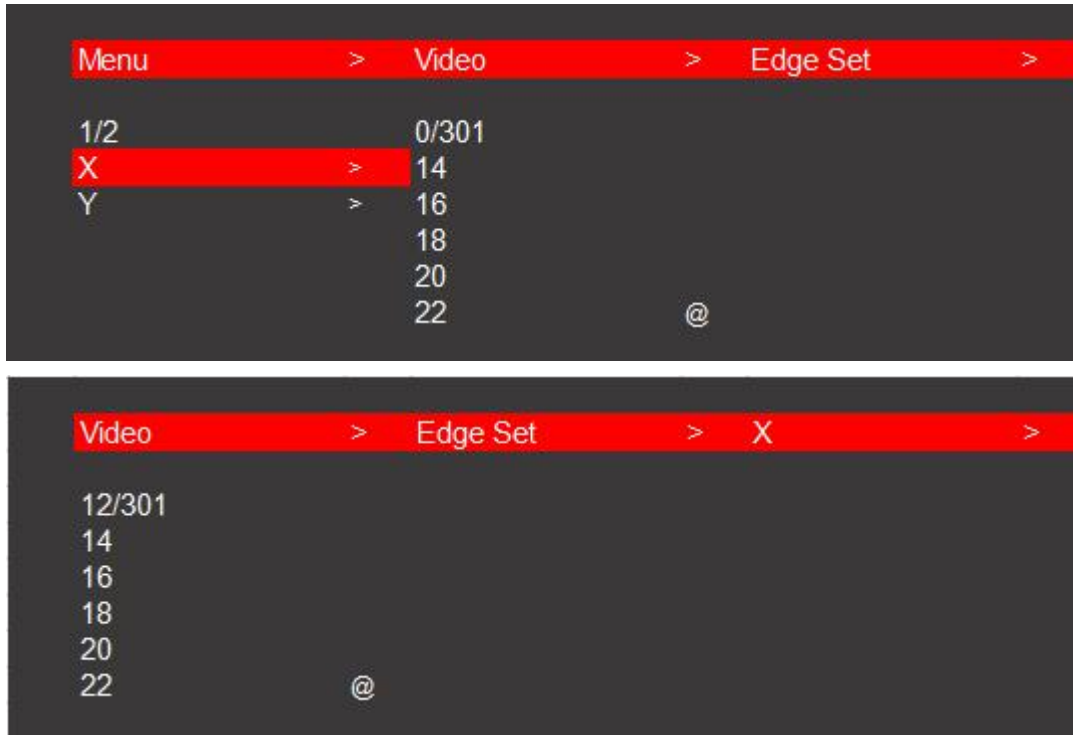


Rotate interface

7.2.5. Edge

Press the "Left/Menu" on the panel to enter the "Edge Set" menu,
 Press the "Up" or "Down" on the panel to select, then press "Enter" to confirm,
 The selected one has a "@" to mark.

- ◆ "X" represents the margin setting between the horizontal displays, each image is divided into 302 units.
- ◆ "Y" represents the margin setting between the vertical displays, each image is divided into 302 units.
- ◆ The default margin of both horizontal and vertical display screen is 3.5mm frame size.



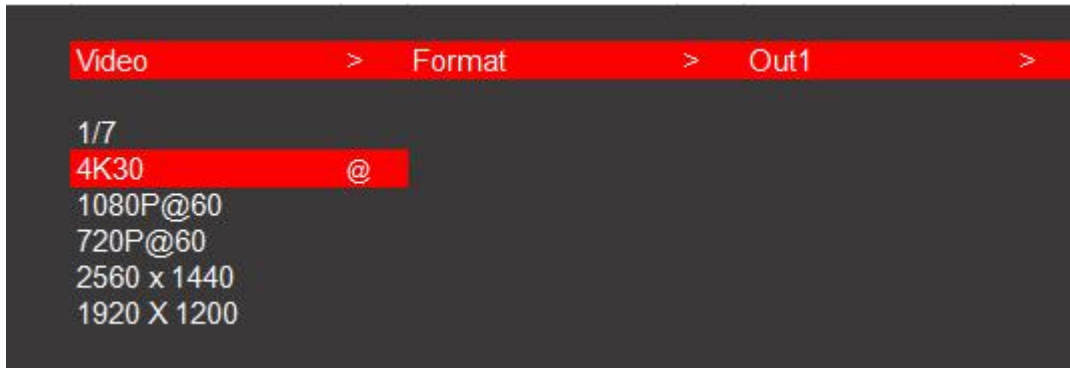
Edge set interface

7.2.6. Format

Press the "Left/Menu" on the panel to enter the "Format" menu,

- ◆ Format including 4K30; 1080P@60; 720P@60; 2560x1440; 1920x1200; 1366x768 and Auto for each output or all outputs to choose by Pressing the "Up" or "Down" button, press "Enter" to confirm the selection, the selected one has a "@" to mark.
- ◆ Default is Auto format.



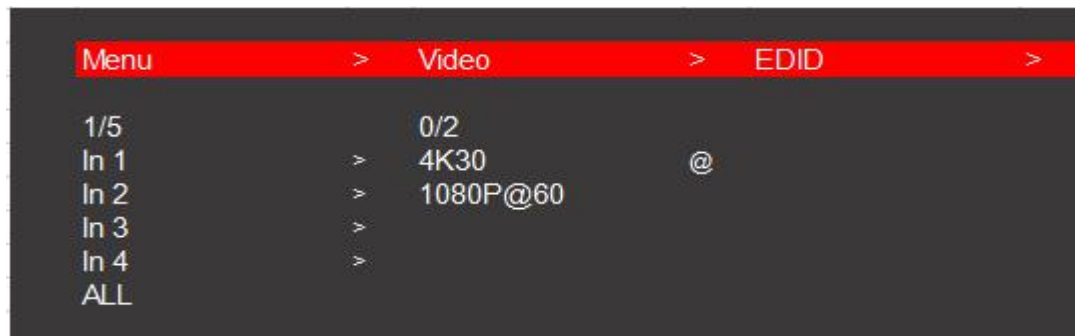


Format interface

7.2.7. EDID

Press the "Left/Menu" on the panel to enter the "EDID" menu, Press the "Up" or "Down" on the panel to select, press the "Enter" to confirm the selection, the selected one has a "@" to mark.

- ◆ EDID including "4k30hz" and "1080p@60" for each input or all inputs to choose,
- ◆ Default is "4k30hz".



EDID interface

7.3. Audio Setting By Panel Control

7.3.1. Audio input setting

Press the "Left/Menu" on the panel to enter the "Audio" menu,

Press the "Up" or "Down" on the panel to select, press the "Enter" to confirm the selection, the selected one has a "@" to mark,

- ◆ For HDMI input1 and HDMI input2, there is "CH2.0" and "CH5.1" to choose, default is CH2.0, Support digital audio 5.1 channel only when input is HDMI.

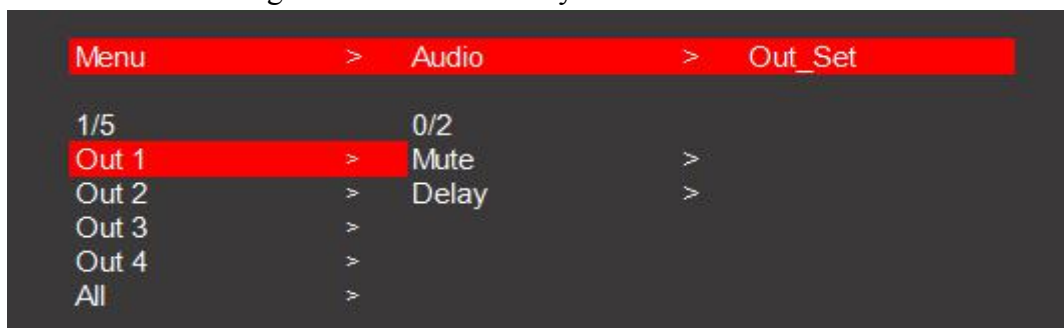


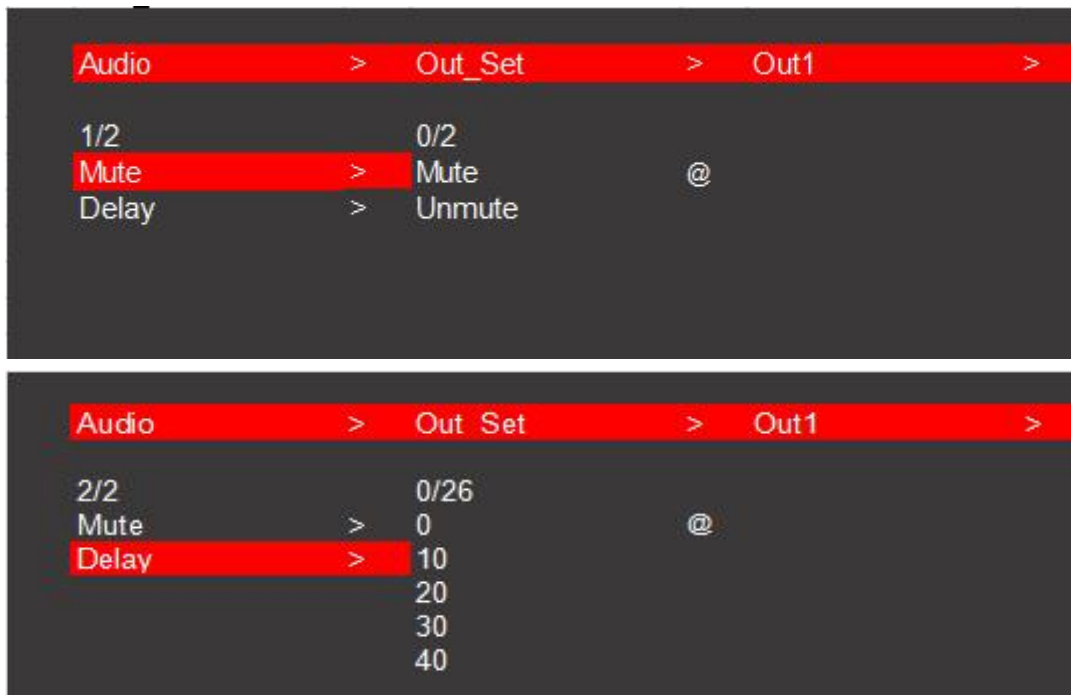
Audio input setting interface

7.3.2. Audio output setting

Press the "Left/Menu" on the panel to enter the "Audio" menu,
Press the "Up" or "Down" on the panel to select,press the "Enter" to confirm the selection, the selected one has a "@" to mark.

- ◆ For each output or all outputs, there is "Mute" and "Delay" to choose,
- ◆ The default settings is Unmute and Delay 30ms.





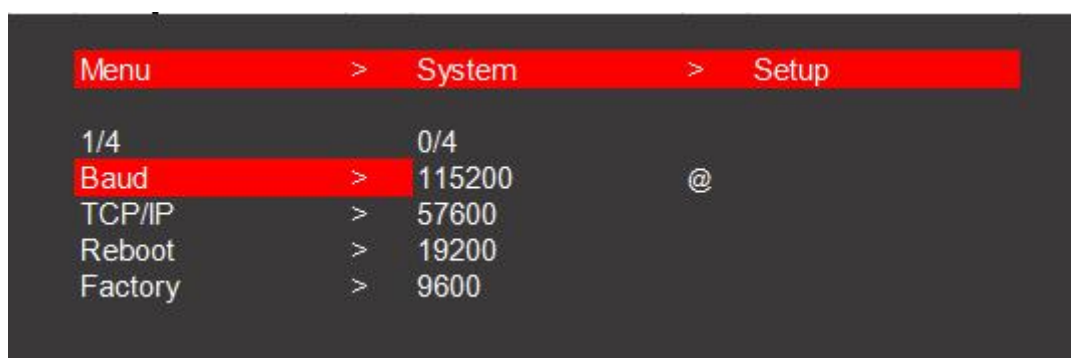
Audio output setting interface

7.4. System Setting By Panel Control

7.4.1. Baud rate

Press the "Left/Menu" on the panel to enter the "Setup" menu then the "Baud" menu, Press the "Up" or "Down" on the panel to select, then press the "Enter " to confirm, The selected one has a "@" to mark.

- ◆ It contains 4 kinds of Baud rate including to choose.



Baud rate interface

7.4.2 TCP/IP setting

Press the "Left/Menu" on the panel to enter the "TCP/IP" menu, Press the "Up" or "Down" on the panel to select, then press the "Enter " to confirm, The selected one has a "@" to mark.

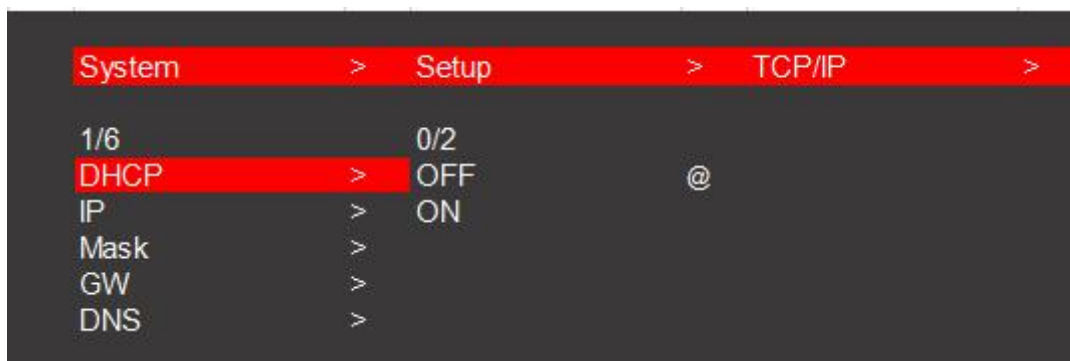
It contains set up for " DHCP ON/OFF "; "IP Address"; Mask"; "GW"; "DNS"

Eg: IP address setting:

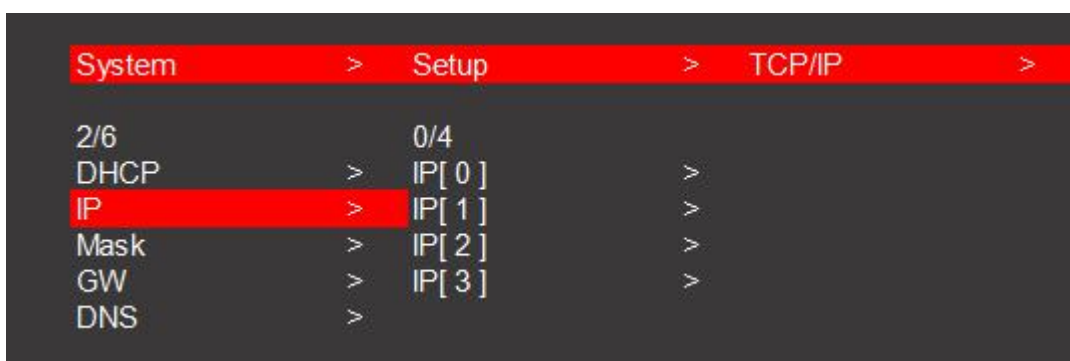
- 1) Modify the IP to 192.168.1.100, press the "up" and "down" to select IP [0], IP [1], IP [2], and IP [3] to enter the next sub-item (each sub-item can be set from 0 to 255), press the the "up" and "down" again to select "192", "168", "1", and "100" respectively, and click "ENTER" to confirm.
- 2) After confirming the IP address, press the "up" and "down" keys to select "Apply", and press the "ENTER" to enter and select "YES" to check whether the modification is successful.
- 3) Note: 1. The operation steps of IP / MASK / GW / DNS setting are basically the same;
- 4) The above parameters can be modified manually under static DHCP, otherwise it cannot be modified.
- 5) The modified parameters need to conform to the network protocol, otherwise it cannot be modified and it will only display "Setting IP error" in the interface.



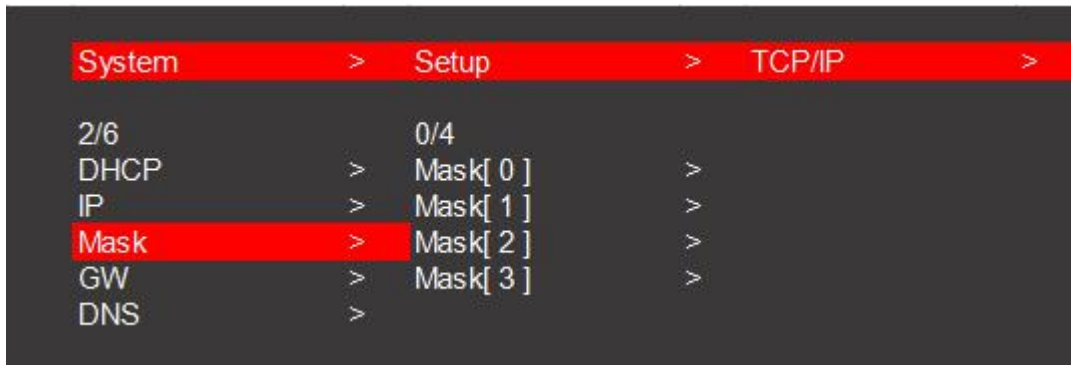
TCP/IP main interface



DHCP ON/OFF



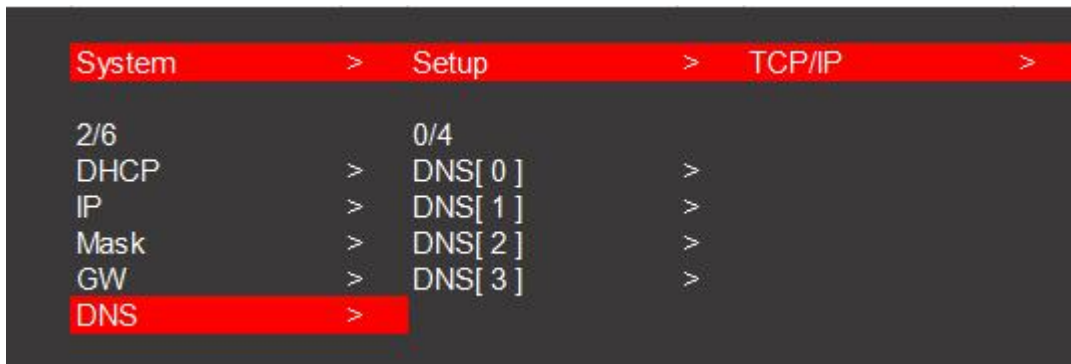
IP address



Mask address



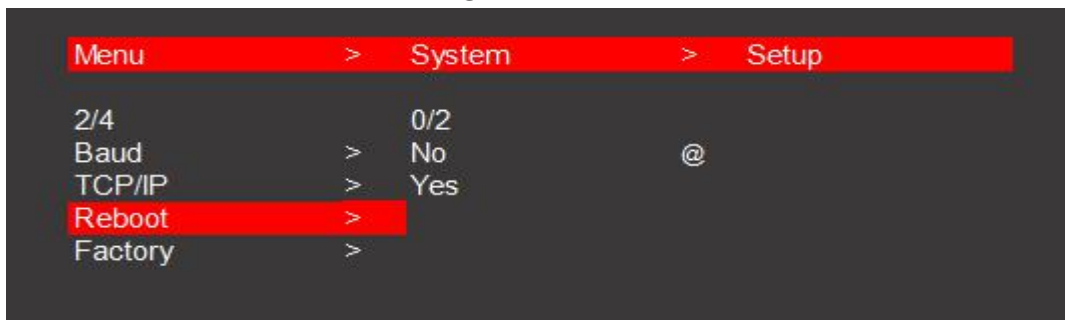
Gateway address



DNS Interface

7.4.3 Reboot

Press the "Left/Menu" on the panel to enter the "Reboot" menu,
Press the "Up" or "Down" on the panel to select "Yes" or "No" , then press the "Enter"
to confirm, the selected one has a "@" to mark.

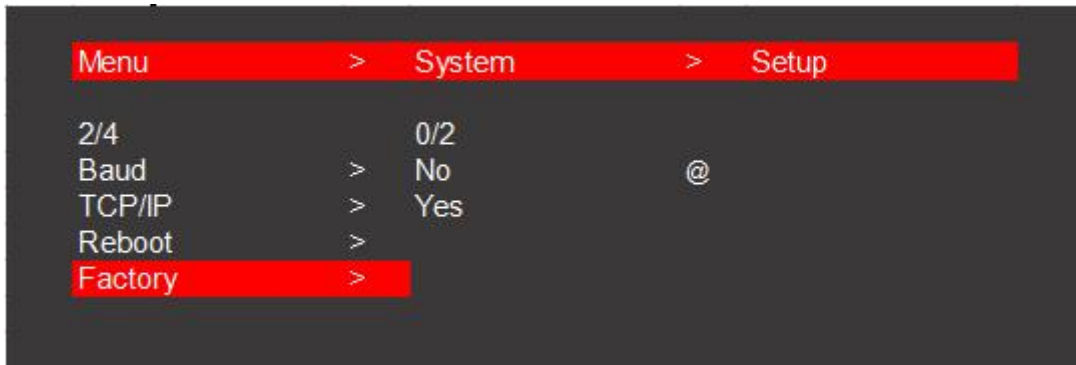


Reboot interface

7.4.4 Factory reset

Press the "Left/Menu" on the panel to enter the "Factory" menu,
Press the "Up" or "Down" on the panel to select "Yes" or "No" , then press the "Enter"
" to confirm,

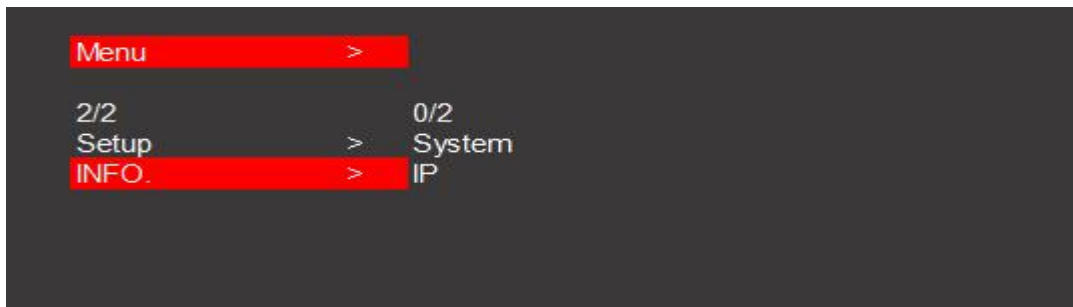
The selected one has a "@" to mark.



Factory reset interface

7.4.5 System information

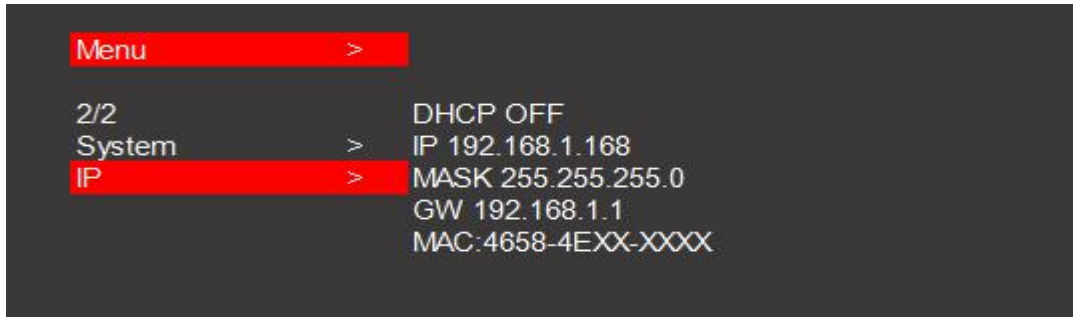
Press the "Left/Menu" on the panel to enter the "INFO" menu,
Press the "Enter " to check the current setting of the device,
It Contains "System" and "IP"specific information.



Info interface



System information



IP information

7.5. Web Control

The host computer such as PC is connected to the control device through the TCP/IP network port.

The control mode is divided into two types: connect with a computer without network for single device control or connected to the LAN to realize multi-machine control simultaneously

Control without network:

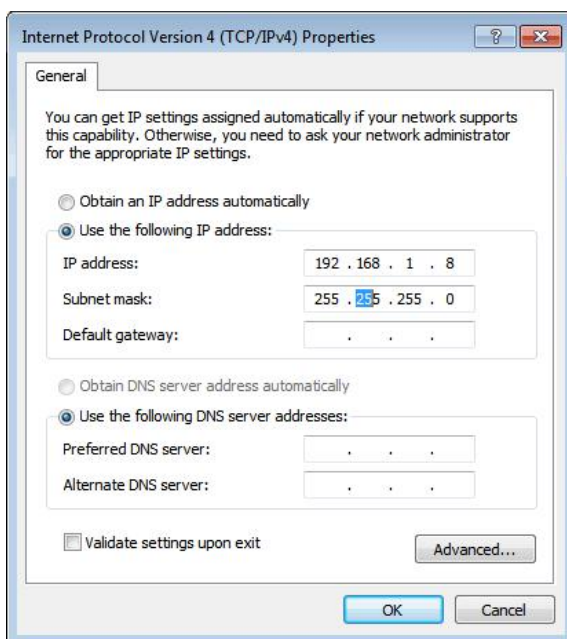
When the host computer is connected to a computer without network through the TCP/IP port, the host computer is consistent with the control computer network segment. It can be controlled by direct connection; when the network segment is inconsistent, the network segment should be same for the control computer as the host computer

Default IP address:192.168.1.168

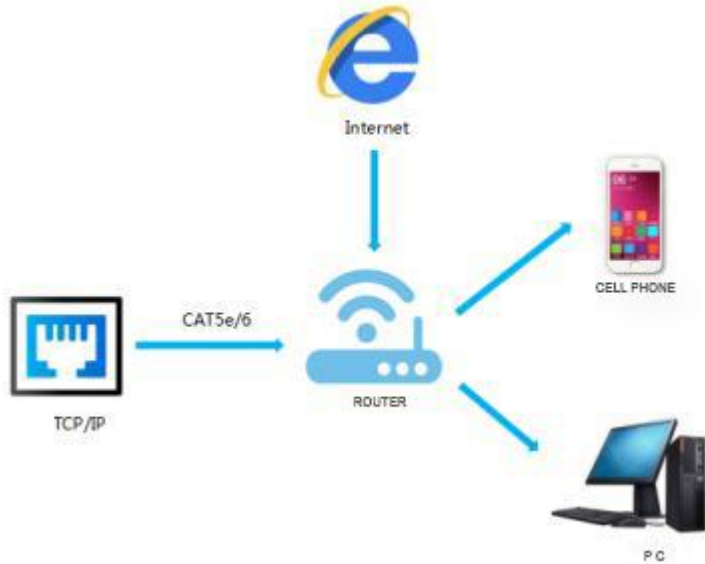
Default MASK:255.255.255.0

Default GW:192.168.1.1

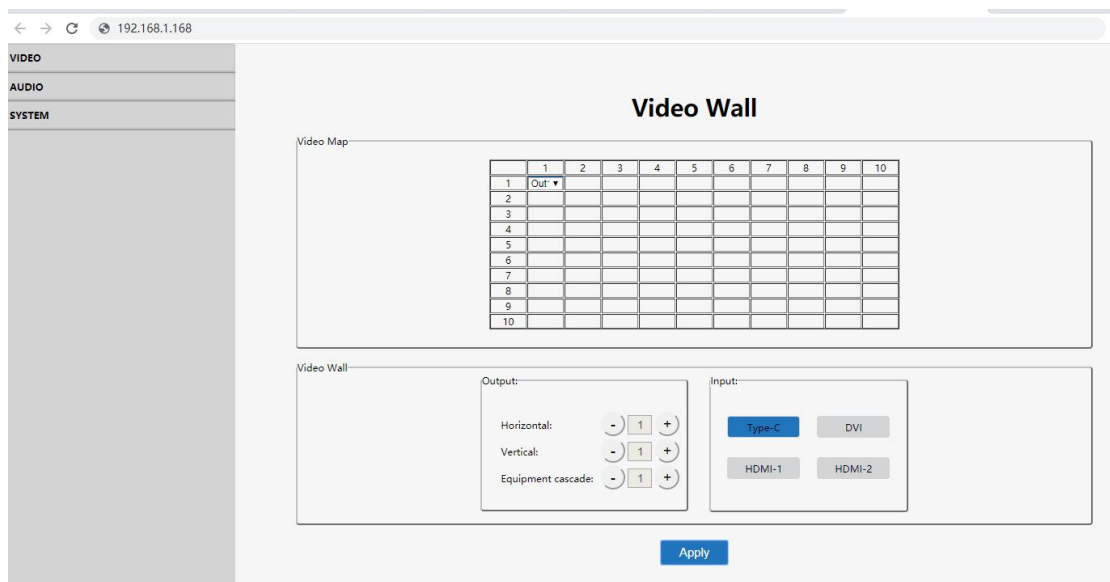
MAC:4658-4Exx-xxxx



Connecting to LAN to realize multi-user remote control devices (such as mobile phone, other PC) in Ethernet environment, it is necessary to ensure that the IP segment of the host is consistent with that of the connected LAN, it also need to open the DHCP and enter the related IP address to control.



7.5.1 Interface introduction



Status display instructions:

- (1) Click the navigation bar above, then enter the corresponding operation interface.
- (2) Do not click continuously; Click again after the setting is successful. If the setting is invalid, please click the button again.

Browser compatibility

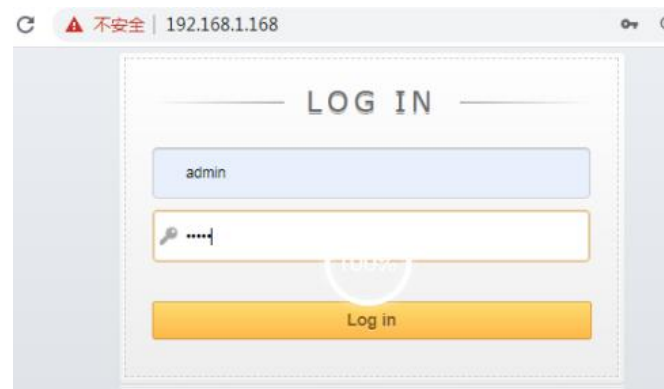
- (1) Use the browser such as Google, firefox, apple with the latest browser version for better compatibility, The other browsers may result in incompatible problems.
- (2) If you use the Internet explorer browser, pls make use the version number is higher than IE10.
- (3) The display effect is different in each browsers.
- (4) If the settings is invalid or error, refresh the page and get latest data again.

Login in method

Default IP login in: use the correct account and password to enter the interface



Note: a. This web has cookies, when the password and account are correct while the browser is not closed, If the user refresh the page again, it will log in automatically.
b. After changing the IP account or password,when you log in again,please use the new IP, account and password to log in again.

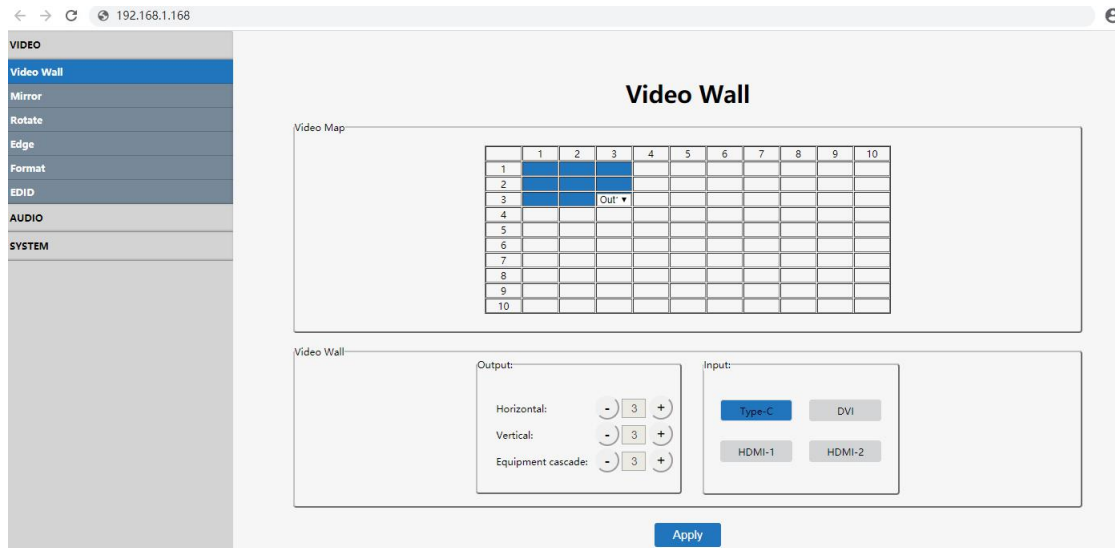


Operating instructions

Take the default IP address login as an example:

- (1) IP configuration: IP configuration is required, whether using single device control or LAN multi-device control.
- (2) After configuration, pls enter the default IP address into the browser, enter the web end login interface, enter account number: admin, password: admin click on the "Log in" of the yellow bar below the account, as shown in the figure;

7.5.2 Video wall setting



Note: This interface is used to set up video walls or cascade.

Interface introduction:

- (1) Video Map column: to identify the location of the output port mapping, you can change the output port position through the drop-down menu.
- (2) Output column: screens in horizontal and vertical directions, plus the parameters of the equipment cascade layers.
- (3) Input column: source selection for the video wall. (Type-C, DVI, HDMI1, HDMI2).
- (4) Default 2x2 video wall, the device can also realize 1x1 1x4 4x1 2x3 3x2 3x3 and max 10x10 video walls through cascade.
- (5) The max screen amount in the horizontal direction is 10pcs.
- (6) The max screen amount in the vertical direction is 10pcs.
- (7) The max cascade layer amount is 25 layers.
- (8) Note: The parameters can be set up by clicking the "+" or "-" key in the Output column, and mouse clicking to select the input. The selected one has blue color.

Operating instructions

Eg1: Select TYPE-C port as input source to make a 2x2 video wall by 1pcs device, TV 1 ~ 4 are connected to output port 2/4/1/3 for mapping function.

- (1) In the Output section, select both the "Horizon" and "Vertical" as number 2, and the "Equipment Cascade" as number 1 (There is only one device. The cascade layer must be 1, otherwise the setting is invalid).
- (2) Then select "Type-C" in the Input section and click "apply".
- (3) In the Video Map column, click and select the output ports to out2, out4, out1, out3 according to TV 1 ~ 4, and then click "apply" to complete the mapping operation.

Eg2: Select DVI port as input source to make a 2x3 video wall by 2 devices. TV 1 ~ 4 are connected to output port 2/4/1/3 of device 1 respectively, and TV 5 ~ 6 are connected to output port 3/4 of device 2.

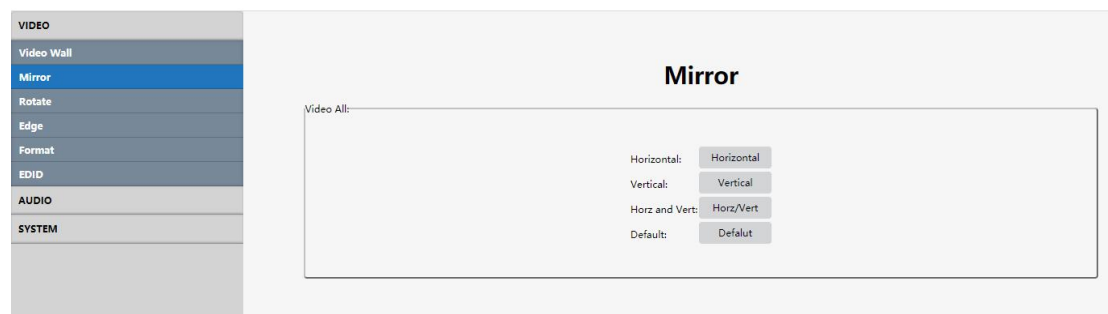
Operation Steps of device1:

- (1) In the Output section of the first device, select the "Horizon" as number 2, "Vertical" as number 3, and the "Equipment Cascade " as number 1.
- (2) Then select "DVI" in the Input section and click "apply".
- (3) In the Video Map column, click and select the output ports to out2, out4, out1, out3 according to TV 1 ~ 4, and then click "apply" to complete the mapping operation of device 1.

Operation Steps of device2:

- (4) In the Output section of the second device, select the "Horizon" as number 2, "Vertical" as number 3, and the "Equipment Cascade " as number 1
- (5) Select the input port as the HDMI Loop out of the device1, then click "apply".
- (6) In the Video Map column of device, click and select the output ports to out3 and out4 respectively according to TV 5 ~ 6, and then click "apply" to complete the mapping operation.

7.5.3 Mirror



Interface introduction:

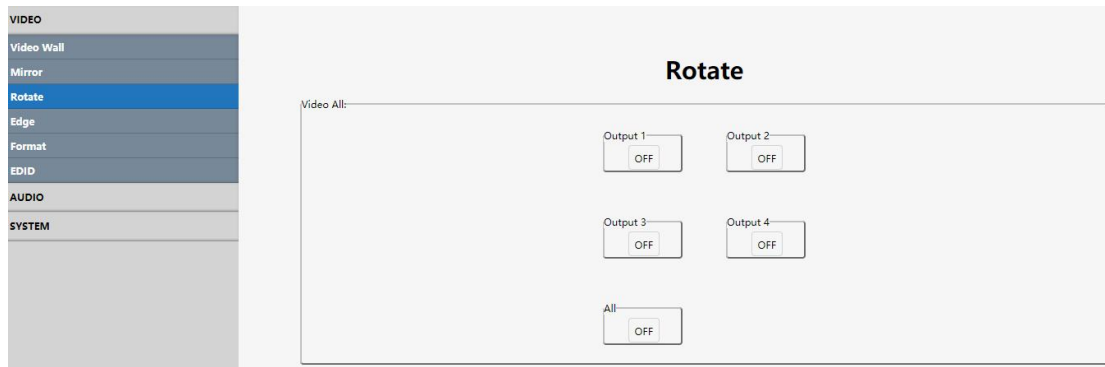
Click the Mirror in the navigation bar on the left. The interface has only one "Video All" column to adjust the Horizontal /Vertical/Both Horizontal and Vertical/ Default.

Note: You can only choose one option at each time.

Operating instructions

Click on the corresponding button to send instructions.

7.5.4 Rotate



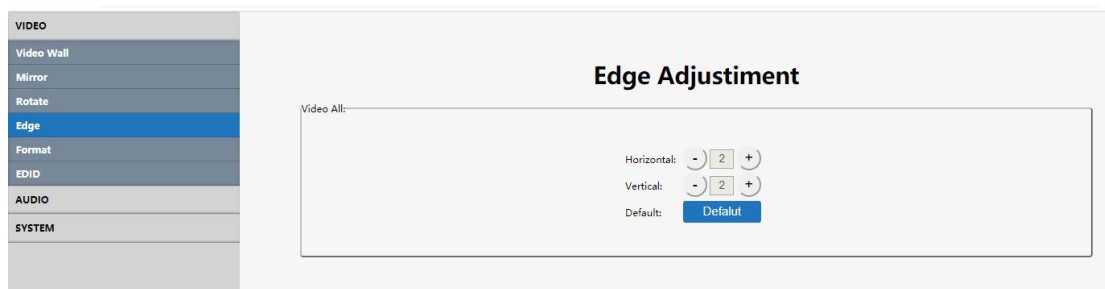
Interface introduction:

The interface support each output image rotation 180 degree, support rotate a single image at a time or rotate all output images at once.

Operating instructions

Click on the "ON/OFF" button to adjust.

7.5.5 Edge



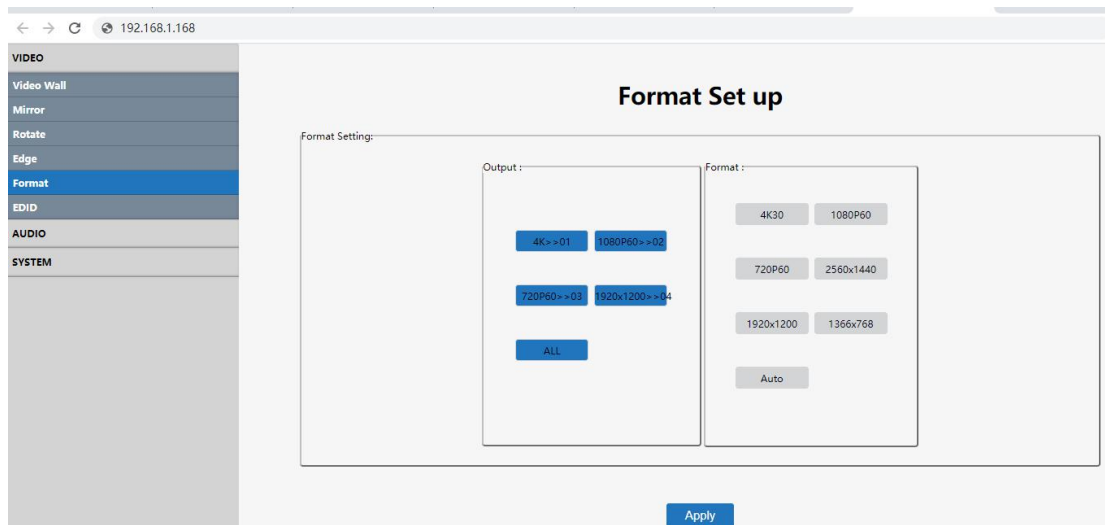
Interface introduction:

The default edge of booth horizontal and vertical display screen is 3.5mm frame size, each image is divided into 302 units.

Operating instructions

Click on the "+/-" button on both Horizontal and Vertical to adjust.

7.5.6 Format



Interface introduction:

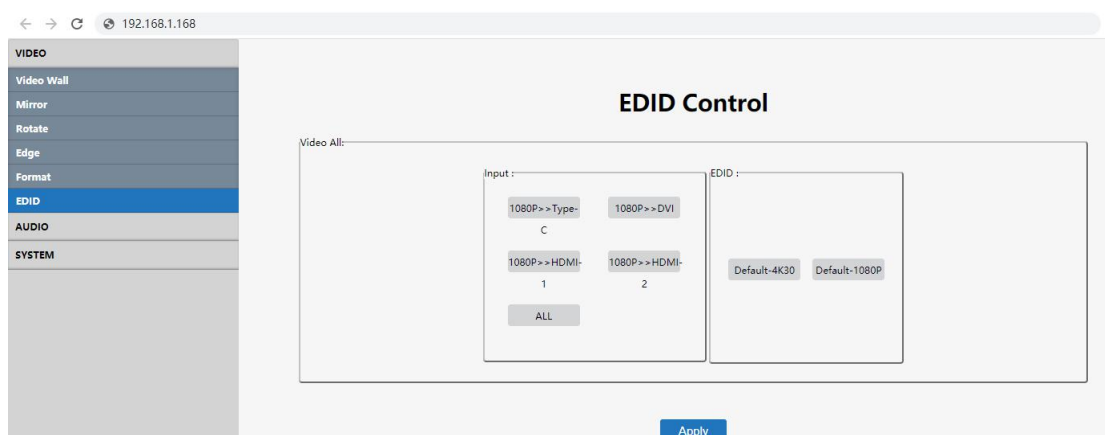
The interface is used to adjust the output format, the left output section including HDMI Output1、HDMI Output2、HDMI Output3、HDMI Output4 and ALL, the right format section including 4K@30Hz、1080P@60Hz、720P、2560x1440、1920x1200、1366x768 and AUTO.

Operating instructions

Eg: Select all output format as 4k@30HZ

Click on the "ALL" button in the output section first, then select the "4K30" button in the format section, click "Apply" to confirm.

7.5.7 EDID



Interface introduction:

The interface is to set up the EDID for each input port or all the input at once.

INPUT Section: the back content of the ">>" indicates the input source, and the front content of the ">>" indicates the current EDID information. It support set up the EDID separately for each input or select all input as the same EDID .

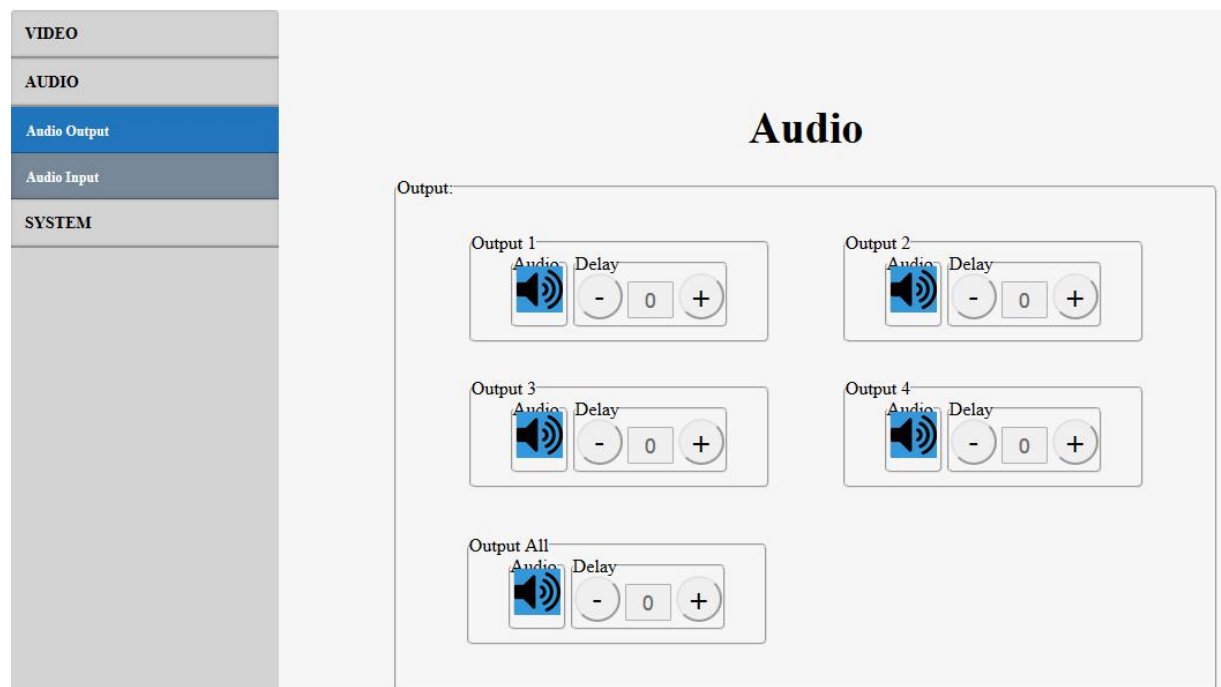
EDID Section: There are two built-in EDID including 4K@30hz and 1080P.

Operating instructions

Select the input source that needs to change the EDID in the INPUT section ("ALL" means select all input sources), the bottom of the input source is blue;

Select the EDID need to be copied in the EDID section, and click "Apply" to complete the setting.

7.5.8 Audio output setting




Interface introduction:

The interface is used to switch and delay the audio of one output or all outputs. The bottom is blue when the audio is turned on, and the bottom is white after mute; click "All" to quickly select the output; the blue border indicates The output port is connected, otherwise it is not; the default audio is turned on, and the delay is 30ms.

Operating instructions

The default settings are Unmute and delay 30ms;

Click on the "-/+" button to adjust delay time; options from 0 to 250, per unit is 10ms;

Click on the  button to choose mute or unmute.

7.5.9 Audio input setting



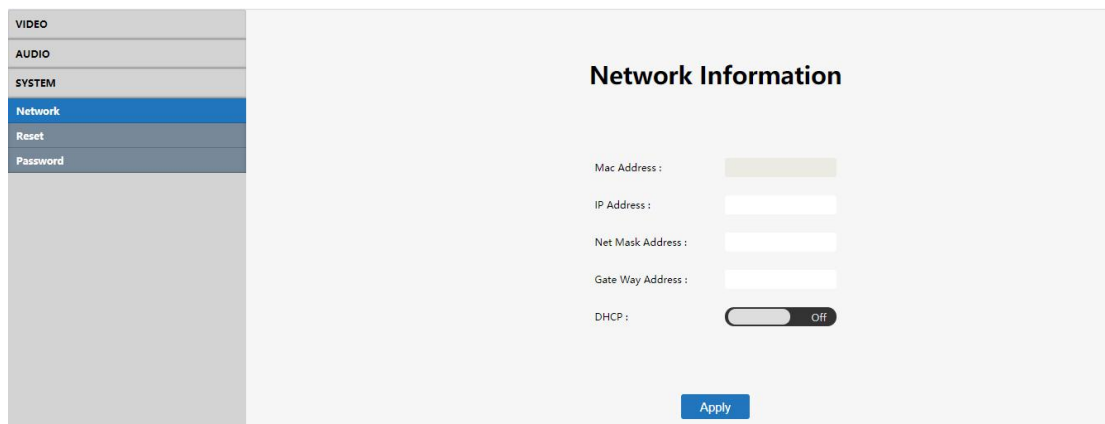
Interface introduction:

It shows PCM2.0 and 5.1 to choose for HDMI Input1 and HDMI Input2.

Operating instructions

Click on the "2.0/5.1" button separately to select the audio format for HDMI input1 and HDMI output2.

7.5.10 Network interface



Interface description:

It used to set up and display the basic information including IP/ MAC address, Net mask address, gate way address and DHCP.

Operating instructions:

MAC address: can only be displayed, cannot be modified.

Static IP: Default DHCP OFF.

Dynamic IP: click the "DHCP" button to open the DHCP. The following IP address and other information can not be modified, but current IP address information can be displayed.

Note: DHCP switch is a compound switch, DHCP On and DHCP Off are two choices. When Off is displayed, DHCP is closed; when On is displayed, DHCP is open (click HDCP button to switch DHCP function without clicking "Apply").

7.5.11 Reset



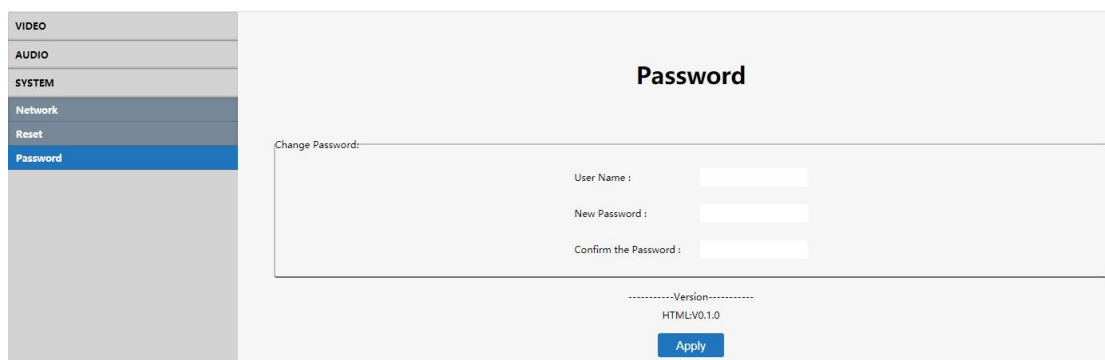
Interface introduction:

The interface is used to restart the device and restore factory settings.

Operating instructions

Click on each function button to achieve its function(as shown in the figure above), the bottom of the selection is blue.

7.5.12 Password



Interface description:

It use to change the login password. You can only change the current login account password.

Default account passwords: admin

Operating instructions:

When you Change your account and password, it can support only 5-15 digits, alphanumeric and underlined.

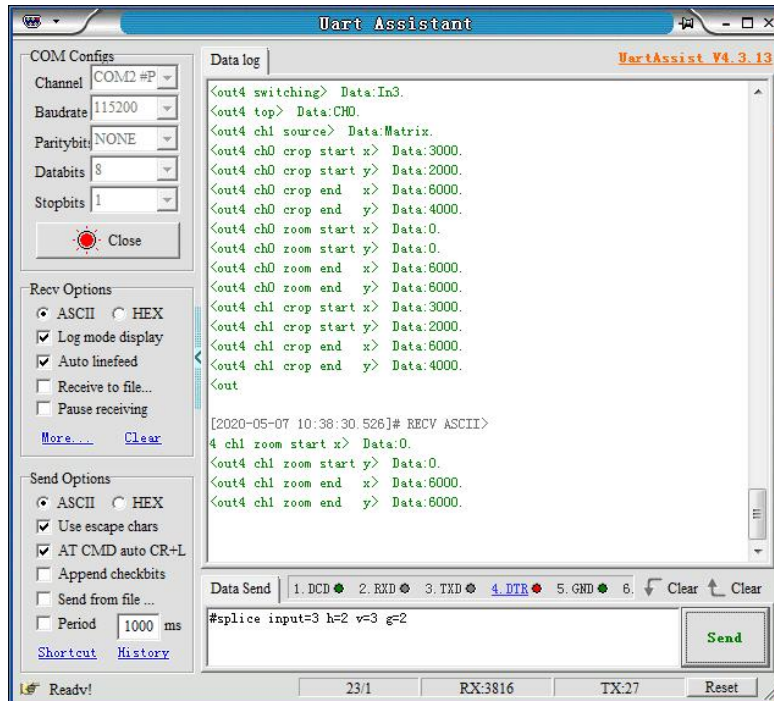
(It only support change the account name and password of the currently logged in account, which will take effect next time).

8. RS232 CONTROL

Function description: plug in the USB port to RS232 tool, double-click to open the



software [sscom5.12.1](#), and then enter the main interface of the software, as shown below:



Instructions:

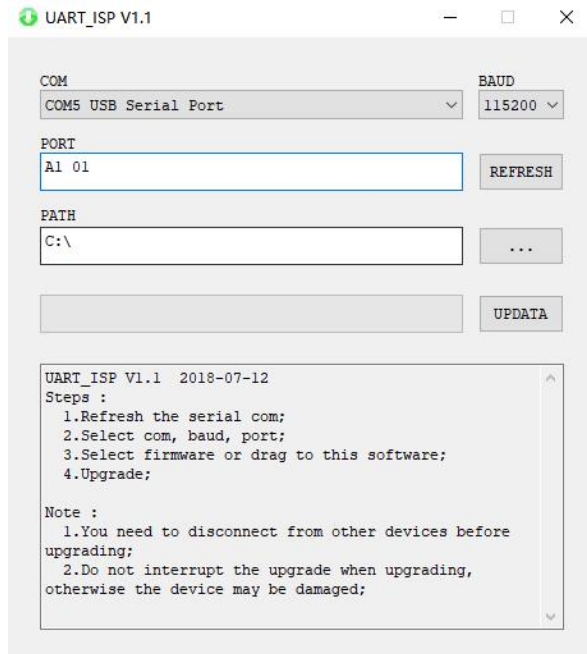
1. All instructions begin with "#".
Instruction header c% : d---operation parameter, I---operation lock,
 2. "_" means underline, indispensable.
Primary parameter d% : 0---all outputs, 1-X---specifies outputs (1-4), secondary parameters are the same as the first
 3. A space should be added between the instruction header, first-level parameters and attribute parameters. Please check the instruction sheet for property parameters
- Note: "/" indicates that this parameter is not used.

➤ For RS232 command details, pls refer to the document in CD.

9 FIRMWARE UPDATE

9.1 MCU update

Open the software [UART_ISP.exe](#) on the PC, select the correct port and baud rate 115200, enter A1_01 (_ represents space) in the port, then select the program ([VW22_XXX_XXX_app_XXX.bin](#)) in the path, and click update to complete the upgrade.



9.2 GUI Update

Open the software [UART_ISP.exe](#) on PC, select the correct port and baud rate 115200, enter F0_01 (_ represents space) in the port, then select the program ([xxxx.bin](#)) in the path, and click update to complete the upgrade.

Note: Pls reboot the device after GUI update.

