Zenty | Professional A/V Solution Provider

User Manual [V1.0]

8x8 4K60H HDBaseT HDMI Matrix Extender 131ft. | 230ft.

ZT-116 | ZT-MT88EA

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HIGH DEFINITION MULTIMEDIA INTERFACE

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1. Introduction

The ZT-MT88EA is a professional UHD 4K HDBaseT Matrix used for audio/video distribution. Supporting 8 HDMI inputs, 1 HDMI outputs along with 7 HDBaseT extension outputs, users can extend and distribute 4K signals up to 131ft., and 1080P signals up to 230ft. Each of the 7 HDBaseT receivers also support 2 HDMI outputs so that users can connect 2 displays to each receiver for maximum flexibility. All of the HDBaseT receivers are powered by the main transmitter box via Power over Cable function, helping remove the need for additional power supplies, and ensuring a clean and neat setup. Manage signal routing and EDID via various control methods, such as front panel buttons, RS232, IR remote, web interface, and Zenty mobile app. RS232 control port allows for easy integration with 3rd party control systems. Save up to 8 fully customizable routing presets for easy operation.

2. Features

- Incorporates HDBaseT technology
- HDMI 2.0 version supports 4K@60Hz YUV4:4:4, 18G, HDR10
- Route any one of the 8 HDMI Sources to any one of the 8 HDMI Displays
- 8 outputs (includes 7*HDBaseT output and 1*HDMI output)
- Transmit up to 230ft. under 1080p, 131ft. under 4K@60Hz
- HDCP 2.2/1.4 compliant
- Wide-band Bi-Direction IR routed control (38~56KHz)
- 1 x Analog Audio and 1 x SPDIF Audio extraction output
- Supports RS232 Pass Through
- Front Panel Button with LCD, IR Routing, RS232, TCP/IP, PC Tool Control
- PoC (Receivers powered by HDBaseT Matrix)
- 1U rack design with mounting ears
- AC 110V~220V/50HZ/60HZ input

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3. Package Contents

- (1) x Main Unit (HDBaseT Matrix) and 7x Receivers
- (1) x Power Cable
- (1) x Remote control
- (16) x IR Transmitter cables, 16x Wide-Band IR Receiver cables
- (1) x CD for control software & user manual

4. Specifications

Operating Temperature Range	-5°C ~ 40°C (23°F ~ 104°F)
Storage Temperature Range	-10°C ~ 60°C (-14°F ~ 140°)
Operating Humidity Range	5 – 90% RH (No condensation)
Input Video Signal	0.5 – 1.0 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Bandwidth	18Gbps
Video Format Support	4K 60HZ YUV 4:4:4 4K 30Hz, 1080P / 1080i / 720P / 576P / 480P / 576i / 480i
HDCP Compliance	1.4 | 2.2
Video Output	HDMI 2.0 | HDMI 1.4 (Over HDBaseT and HDMI)
Audio Format Support	PCM, Dolby 5.1, DTS 5.1 digital audio
Maximum Transmission Distance	1080P: 230ft. | 4K: 131ft.
Power Consumption	100W (Max)
Dimensions (L x W x H)	480mm x 348mm x 44mm 18.90” x 13.70” x 1.73”
Net Weight	8.82 lbs.

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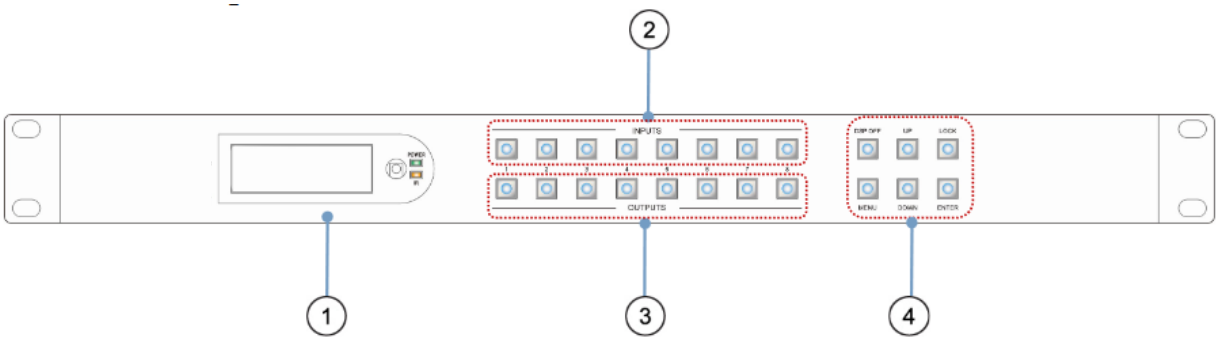
5. Panel Descriptions



① LCD: Showing Matrix information

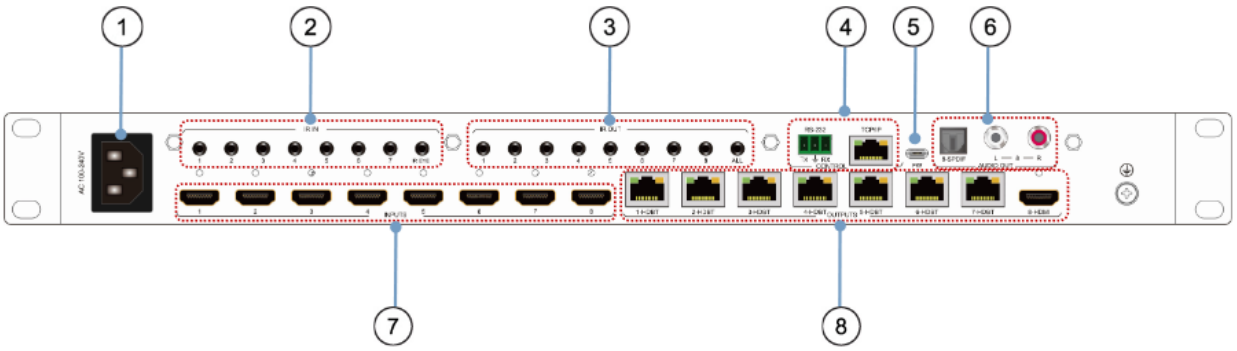
② Input button OUT1~8

③ Output button IN1~8

④ Function button: DSP OFF; MENU; UP; DOWN; LOCK; ENTER

DSP OFF : Short press output N, then press DSP OFF to turn off the output.

Long press Output 8 to select all output, then press DSP OFF to turn off all the output.



① AC 100-240V power port

② IR in port x7 & IR EYE

③ IR out port x8 & All out

④ RS232; TCP/IP control port

⑤ FW USB port

⑥ Audio output port (8-SPDIF & L R Analog)

⑦ HDMI Input x8

⑧ HDBaseT out x7 & HDMI out

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5.1 Input / Output Channel Key Operation

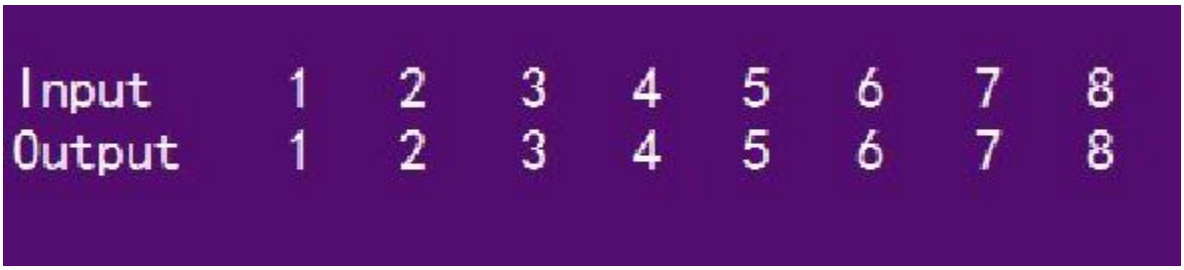
Channel	Button method
Any Key	The first operation of the button can wake up the screen
Input 1-8	Directly press the number key, such as input channel 1, and select "1" to press (only when the output port is selected, the input channel number will be valid)
Output 1-8	Directly press the number key, such as the output channel 5, select the key "5" and press it again to cancel the selection;Long press output channel 8 to select all channels, and long press again to cancel
MENU	Function Button; Enter the function option or back to previous option
ENTER	Confirm Button: enter function selection mode
UP	Button for UP option
DOWN	Button for NEXT option
DSP OFF	Shut down the current selected output
LOCK	Long press lock (button built-in blue light on), Long press again to cancel lock (button built-in blue light off)

5.2 Video Switching Operation

5.2.1 Video Switching

The signal switch includes 8 free switching channels, which can be configured as input/output according to the requirements, forming a matrix of 1 x 8 ~ 8 x 1, which can switch any input. Signal to 1 channel output or all channel output.

The specific operation is as follows:



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Switch the input to the output

Operation format: "output channel" + "input channel"

For Example: Output port 2,5,8 switch to input 7

Operation: Press OUT number "2" "5" "8" + IN number "7" to complete the switch

5.2.2 Video Control

The video interface has two sub menus:

1. Video Switch

2. Video On/Off

The specific operation is as follows:

1. Video Switch:

Switching any output to one input or all outputs to the same input

①Select “Video” in the menu and press “ENTER”

②Then use “UP”, ”DOWN” button to select “Switching”

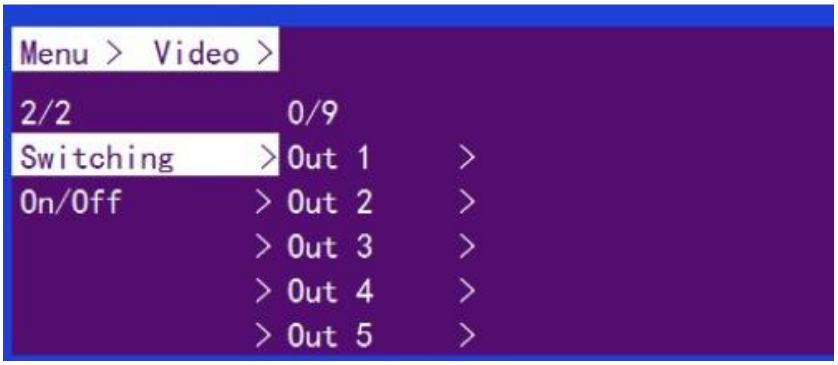
③Press “ENTER” enter next page

④Press “UP”, ”DOWN” button to select the output (The ninth port means ALL)

⑤Press “ENTER”

⑥Press “UP”, ”DOWN”to select the input

⑦Press “ENTER”, switching is done



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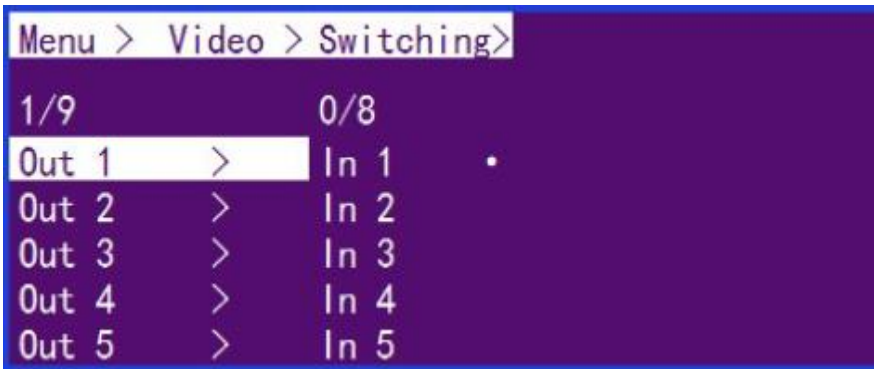


2.Video On/Off

Turn on/off any output video or all outputs video

①Select “Video”in the menu and press “ENTER”

②Then use “UP”, ”DOWN” button to select “On/Off”

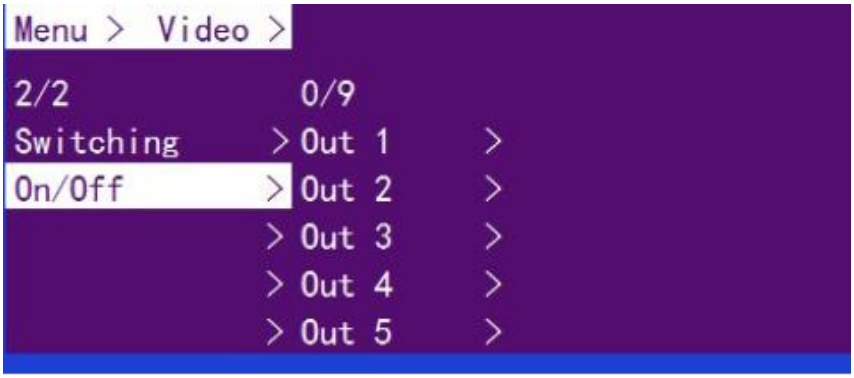
③Press “ENTER” enter next page

④Press “UP”, ”DOWN” button to select the output (The ninth port means ALL)

⑤Press “ENTER”

⑥Press “UP”, ”DOWN” to select “On” or “Off”

⑦Press “ENTER”, switching is done



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5.2.3 Audio Separation

The Audio Control has NINE sub menus:

1. Out 1 ~ Out 8
2. Mute (Default)

The specific operation is as follows:

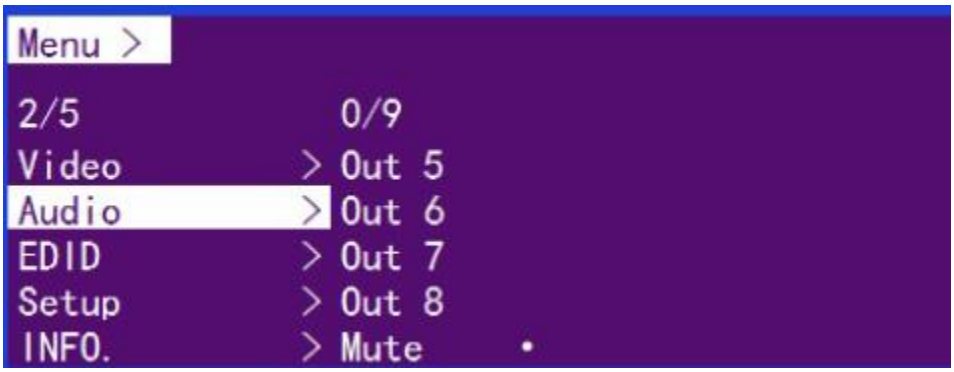
Audio interface can be set to output Audio (Analog or SPDIF), then choose Audio output or mute

Operating instructions:

Select "Audio" from the main menu and press "ENTER" to confirm

Press the up and down buttons to select "Out" or "Mute" and press "ENTER" to confirm the.

The bottom of the selected state will turn white with white dots at the back



5.3 EDID Set Mode Interface

Default EDID

Default1	4K60 444 HDR AC-35.1	Default5	4K30 444 3D LPCM2.0
Default2	4K60 444 HDR LPCM7.1	Default6	4K60 420 HDR 3D AC-35.1
Default3	4K60 444 HDR LPCM2.0	Default7	4K60 420 3D LPCM2.0
Default4	4K60 444 LPCM2.0	Default8	1080P60 444 3D LPCM2.0

EDID Mode can set each input's EDID, Include: Default EDID; User EDID; Copy EDID; Copy HDBT EDID.

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Specific operations are as follows:

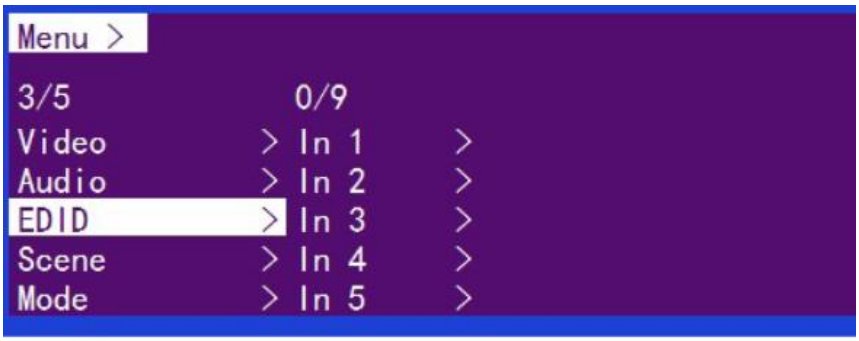
①Select “EDID” in the menu and press “ENTER”

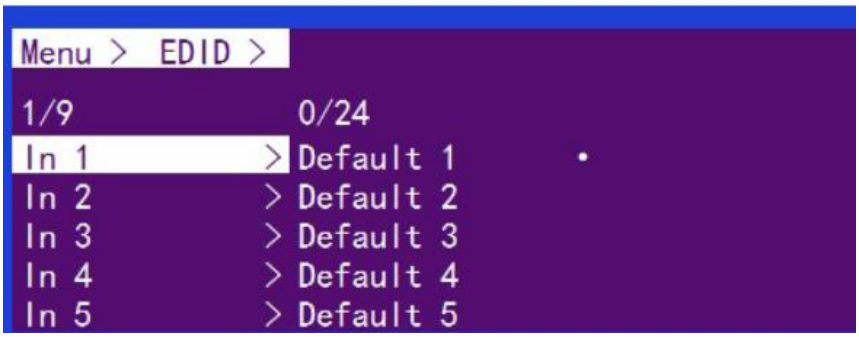
②Then use “UP”, ”DOWN” button to select the input (The “In9”means ALL input)

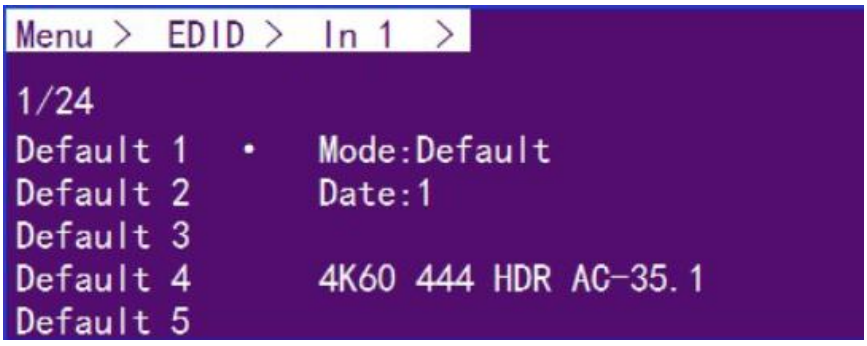
③Press “ENTER” enter next page

④Press “UP”, ”DOWN” button to select the MODE that you need, then press “ENTER” to select the EDID

⑤After confirming EDID, specific information of the EDID (resolution, audio, EDID mode) will be displayed.







5.4 Setup Mode Interface

SETUP mode can set the device’s RS-232 baud rate, DHCP, Reboot, Factory Specific operations are as follows

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1. RS-232 Baud Rate setting:

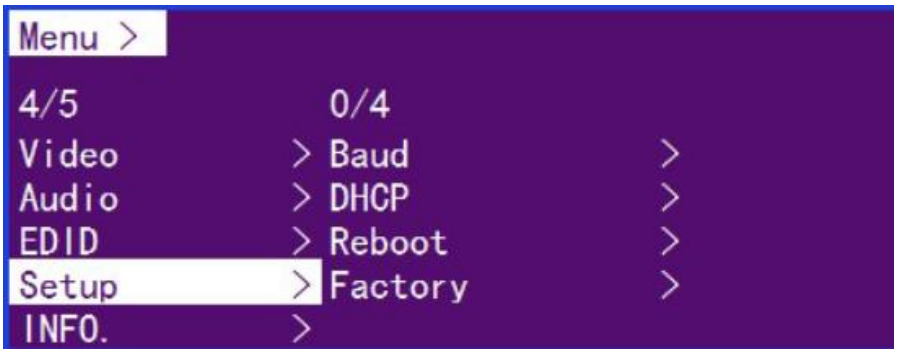
It has 7 kinds of baud rates inside the device: 2400; 4800; 9600; 19200; 38400; 57600; 115200

Default Baud Rate is: 115200

①Select “Setup” in the menu and press “ENTER”

②Then use “UP”, ”DOWN” button to select the “BAUD” and press “ENTER”

③Press “UP”, ”DOWN” button to select the baud rate and press “ENTER” to confirm



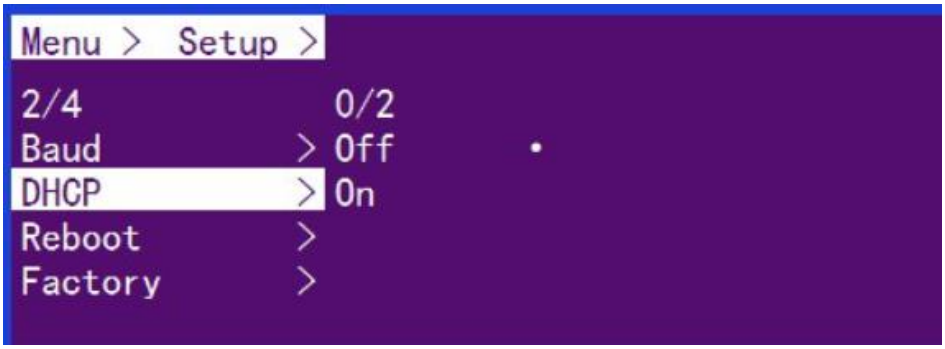
2. DHCP On/Off setting (Default OFF)

On means Dynamic; Off means Static

①Select “Setup” in the menu and press “ENTER”

②Then use “UP”, ”DOWN” button to select the “DHCP” and press “ENTER”

③Press “UP”, ”DOWN” button to select “On” or “Off” and press “ENTER” to confirm



3. Reboot setting

①Select “Setup” in the menu and press “ENTER”

②Then use “UP”, ”DOWN” button to select the “Reboot” and press “ENTER”

③Press “UP”, ”DOWN” button to select “No” or “Yes” and press “ENTER” to confirm

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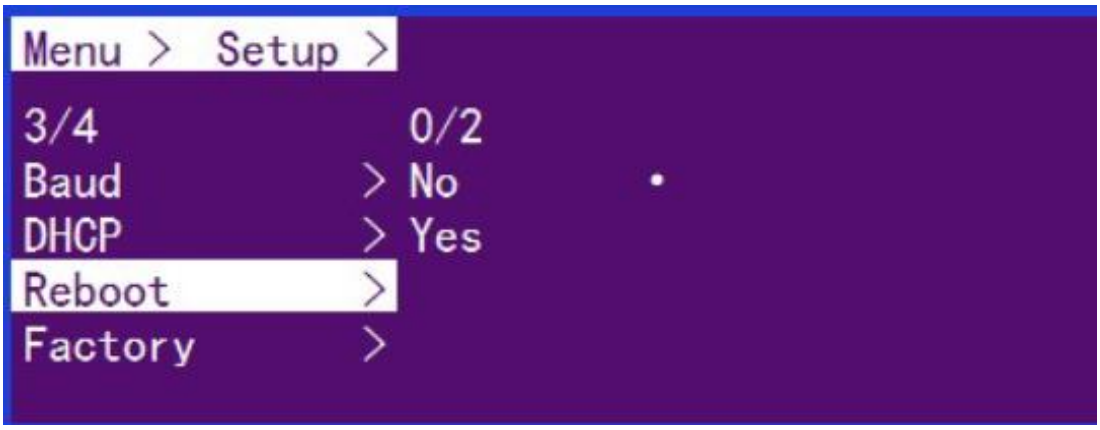
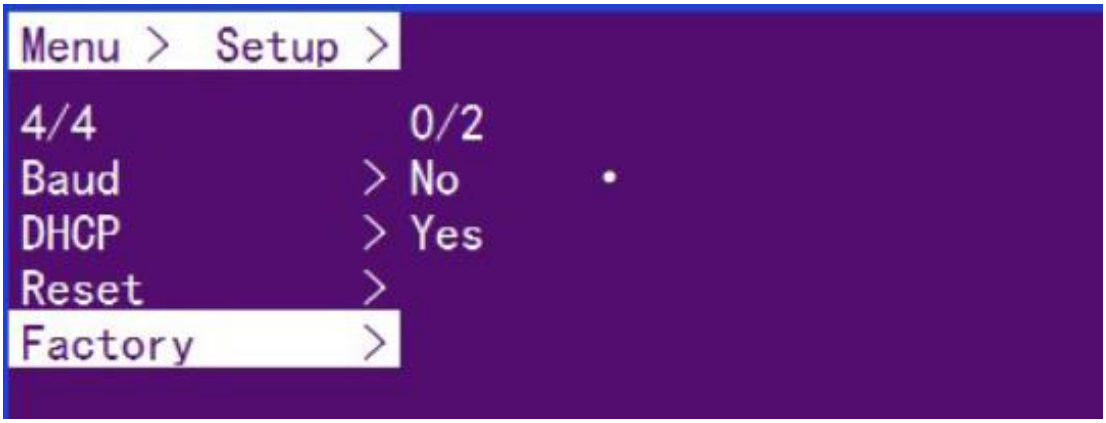


4. Factory setting

①Select “Setup” in the menu and press “ENTER”

②Then use “UP”, ”DOWN” button to select the “Factory” and press “ENTER”

③Press “UP”, ”DOWN” button to select “No” or “Yes” and press “ENTER” to confirm



5.5 Info Mode Interface

Check the device information: IP or System information

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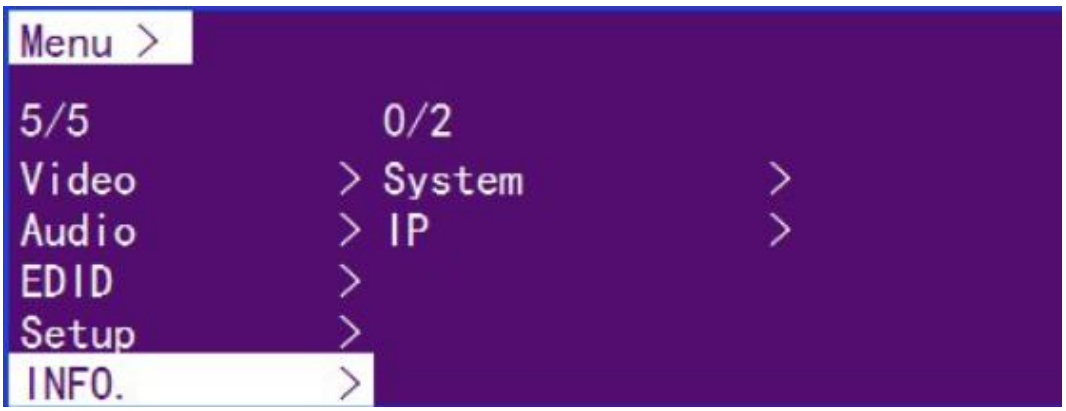

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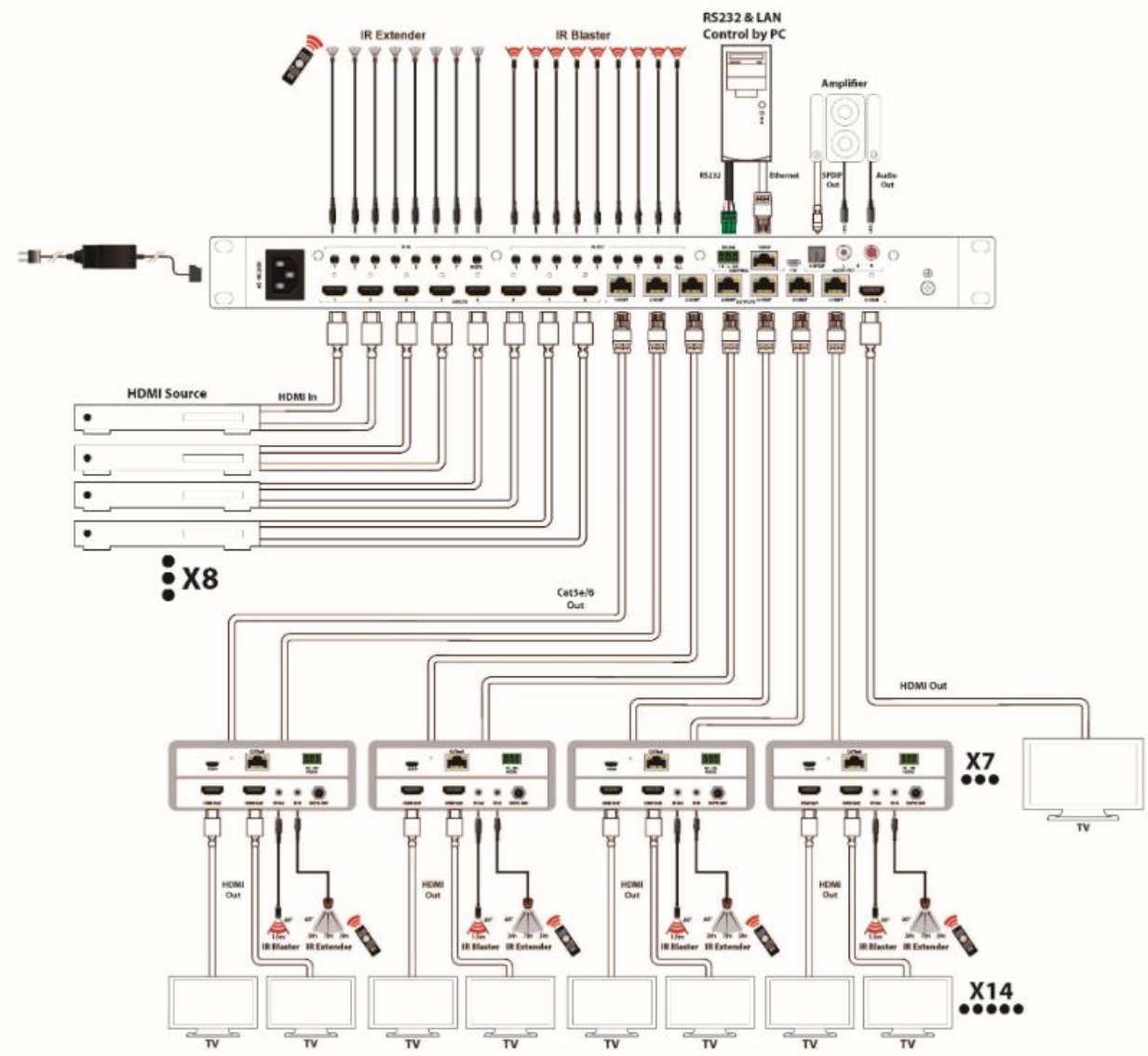
6. Application Diagram



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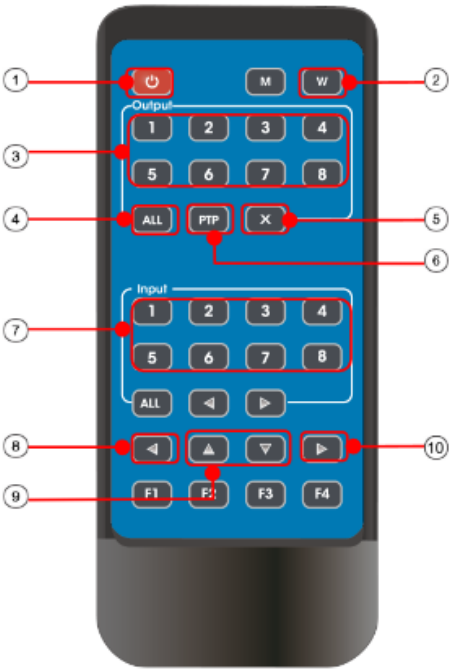
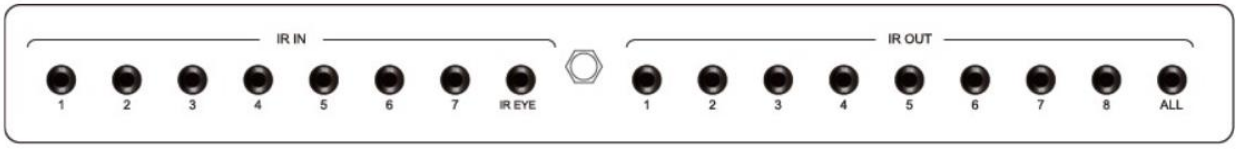
7. Remote Control Description

① Standby Mode
② Lock or Unlock the Panel Button
③ Choose output from 1-8
④ Choose all the outputs.
⑤ X: Turn on/off output port which you select
⑥ PTP button: Mirror all inputs and outputs
(Ex. Input 1 to output 1, input 2 to output 2, etc)
⑦ Choose input from 1-8
⑧ Menu (back to previous option) button
⑨ UP and DOWN button
⑩ Enter button



8. IR System

The matrix can pass the IR signal through the IR system to the HDMI source or pass the IR signal from the HDMI source to the HDMI sink



Dual way IR setup:

Step 1: "IR IN" is for HDBaseT output, "IR OUT" is for input channel

Step 2: "IR IN EYE" Controlled by all input IR; "IR OUT ALL" Controlled by all output IR.

Step 3: HDBaseT receiver support connect with IR receiver to control the Matrix by remote

Step 4: Matrix IR channel "IR IN EYE" support connect with IR-RX cable to control the Matrix by remote

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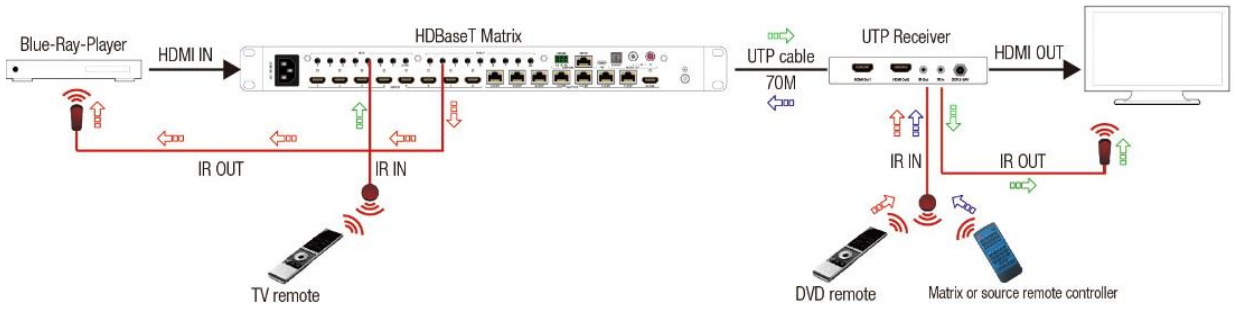

9. Command Control

Control software operation:

The serial control software is illustrated with SSCOM32 as an example.

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.

In the parameter configuration area, the serial number of serial port and PC connection is selected, and the baud rate of the communication protocol is completed: 115200 (default), data location: 8. Stop bit: 1, check bit: no, you can input the instruction in the command input area and control the machine or remote receiver.

Instructions:

1. All commands start from “#”, command head “%c”: “d” parameters, “l” lock, “s” save.
2. The “_” in the commands cannot omit. Parameter: %d: 0 means ALL.
3. Command head & Parameter1 & Parameter2... need to add one “SPACE”.

The following table is only an example. Please refer to the list of instructions.

Instruction description	instruction	parameter 1	parameter 2	parameter 3
Video switch	#video_%c	out%d	matrix=%d	matrix=%d
Audio Mode	#audio_%c	in%d	enc=%d	/
EDID	#EDID_%c	in%d	mode=%d	data=%d

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Please refer to the " Command list" for details.

Example: Output5 switch to input 6 channel off:

Operation format: #video_d out5 matrix=6 onoff=0

10. Web Control

10.1 Change PC's IP Address

1). Connect the Ethernet port of matrix to the Ethernet port on PC by a crossover cable with RJ45 connectors.

2). Configure your PC as follows:

① Click **Start > Control Panel > Network and Sharing Center.**

② Click **Change Adapter Settings.**

③ Highlight the network adapter you want to use to connect to the device and click **Change settings of this connection.**

3). The local Area commotion properties window for Network selection appears as below:

4). Click the Highlight **Internet Protocol Version 4 (TCP/IPv4).**

5). Click **Properties.**

6). Select **Use the following IP Address** for static IP addressing and fill in the details.

For TCP/IPv4 you can use any IP address in the range 192.168.1.1 to 192.168.1.255 (excluding 192.168.1.168).

7). Click **OK.**

8). Click **Close.**

Default IP Address: 192.168.1.168;

MASK: 255.255.255.0;

Gateway:192.168.1.1;

MAC:0008-DCCA-CF3F （Each device has a different MAC address)

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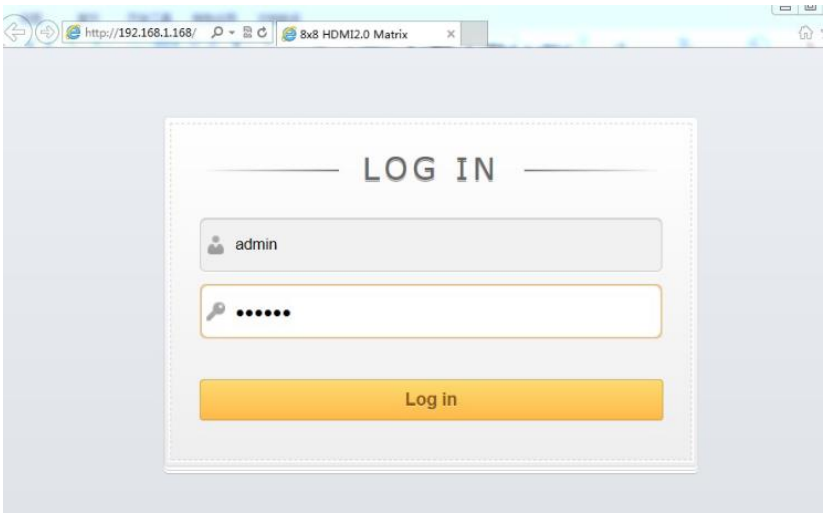
10.2 Enter Web and Control

1) Enter the default IP address of the matrix: 192.168.1.168.

2) You will see following picture and control:

(User Name: admin; Password: admin)

Note: web control is recommended to use Google, fire fox, IE8 and above browsers, using other browsers may not be compatible



WEB interface introduction:

1. Icon: the page title label displays the device name or type
2. Status display and description:

    2.1 Click the menu bar on the left, you can enter the corresponding operation interface

    2.2 After the operation is finished, there is no need to click the button like confirm, and it can be switched quickly. Please do not click continuously, otherwise the data refresh will be out of sync

    2.3 Video/Audio/EDID interface, input or output button, when there is device active or TV access the border of the corresponding button is shown as blue

3. Login interface:

Total 5 groups of accounts: accounts and passwords are 5-15 alphanumeric and underlined, other invalid or correct characters are intercepted; Account admin~admin4 total 4 accounts, password: admin

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Login page:

Get the IP address of web server according to serial port message /LCD display; To ensure network connectivity, enter IP address in the browser address bar and click to enter the login interface. Enter the correct account number and password to enter the interface

Note:

This web set a cookie, when the password and account are correct, if the browser is not closed, refresh the page again, will automatically log in, if you save the account password into the cookie, after closing the web page again enter the IP address can directly enter the control page

"VIDEO" interface description:

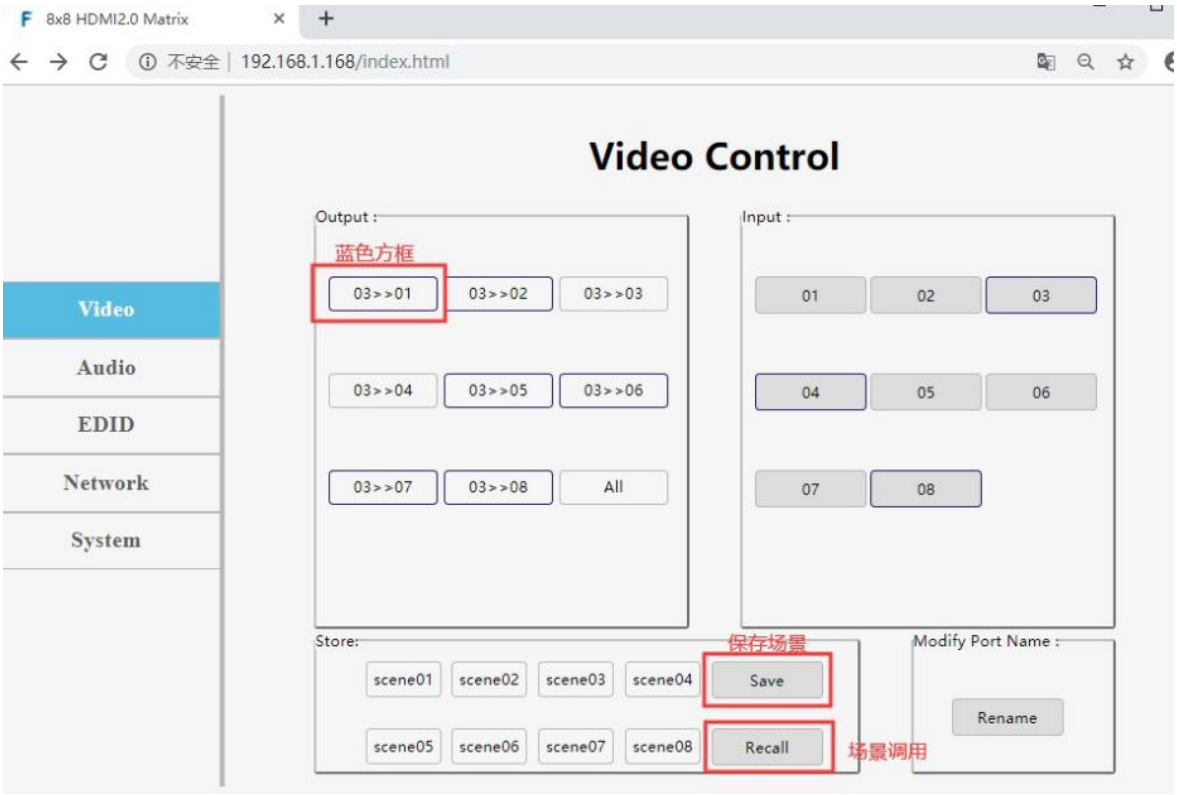
1. Output selection bar: [01>>0]~[08>>08], input option bar: 01~08 means input port; all means select all

2. Video switch: First select the output then select input to complete the switch. For example: select [03>>01], then click 01. Blue box will be displayed when signal source or TV is connected

3. Scenario application

Save: Select any one of preset 1-8, blue means selected, and then click save to complete the save

Apply: select any one of perset1~8 and click Apply again to complete the recall



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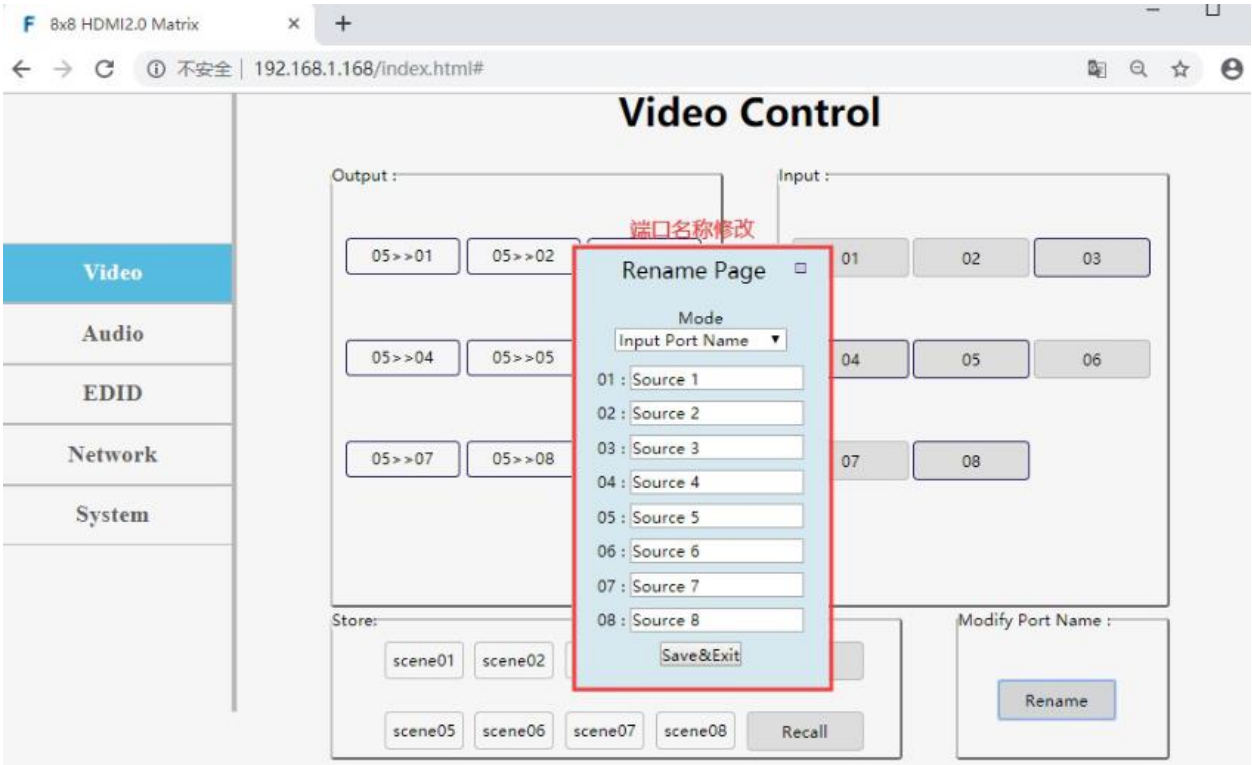
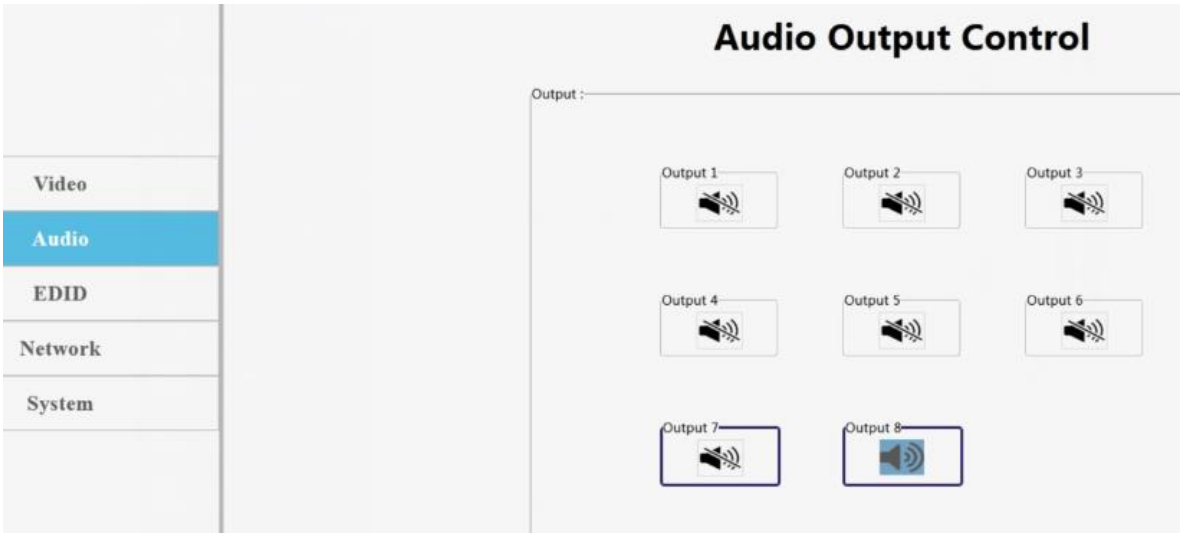
Rename: modify input/output port name. Operation steps: click into the interface of port modification, enter the name of modification in the new name column and click



"AUDIO" interface description:

1. Represents the output audio. You can only choose to output all or mute all
2. Just click the icon directly to complete the operation, rather than fast continuous operation



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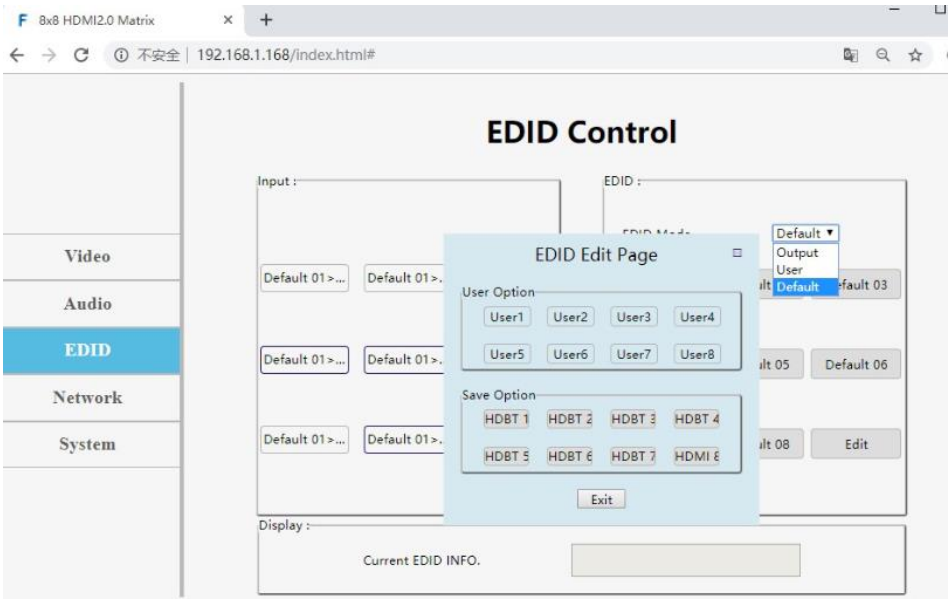
"EDID" interface description:

Default EDID:

Default1	4K60 444 HDR AC-35.1	Default5	4K30 444 3D LPCM2.0
Default2	4K60 444 HDR LPCM7.1	Default6	4K60 420 HDR 3D AC-35.1
Default3	4K60 444 HDR LPCM2.0	Default7	4K60 420 3D LPCM2.0
Default4	4K60 444 LPCM2.0	Default8	1080P60 444 3D LPCM2.0

Blue means selected



User EDID: uesr1~8 means the user's EDID. A total of 8 EDID can be saved.

Copy EDID: HDMI01>>01 means copy output HDMI01's EDID;

HDBT01>>01 means copy HDBT01's EDID

"Network" interface description:

1. The interface displays Mac address, IP address, sub code mask and gateway address

2.DHCP can only modify IP address, sub net mask and gateway in the off state, and does not support any parameter modification in the on state

3.DHCP switch: click Apply after click the white scroll bar to modify

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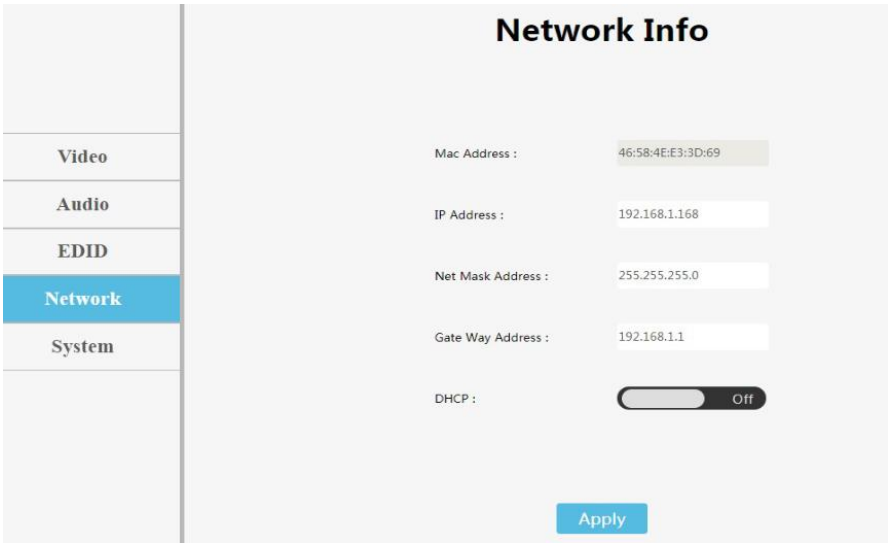
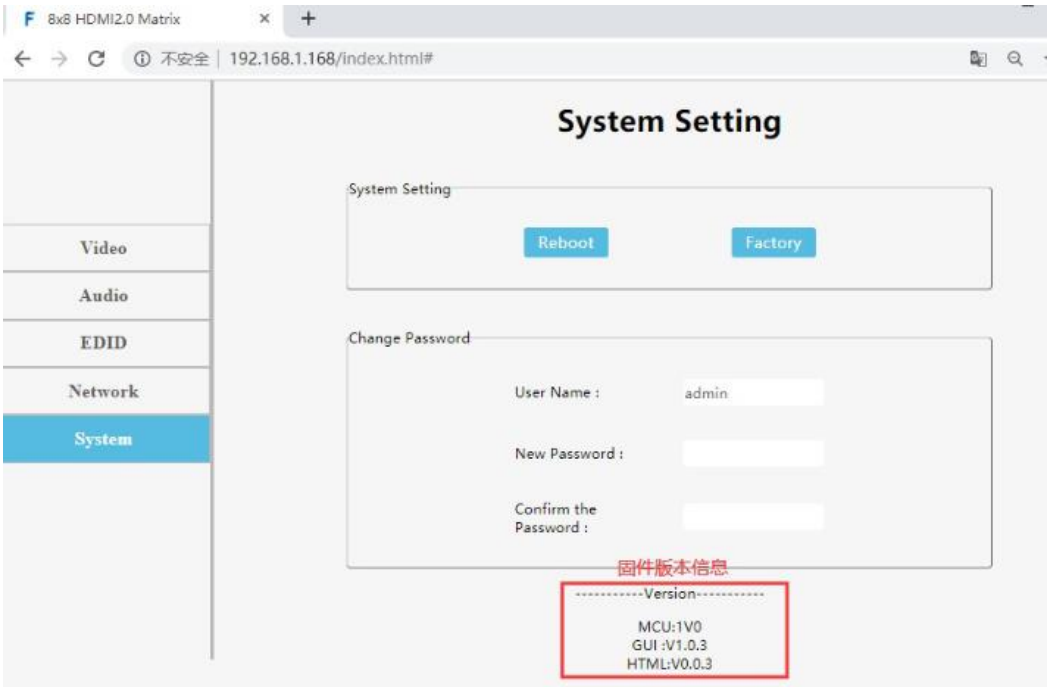


"System" interface description:

The username means change the logged-in user name. New password means enter the new password in the login interface, enter the new password again to confirm, and click apply to complete the modification after entering

(1. Matrix has 5 default accounts: admin~admin4, password: 123456. Account has level permissions

2. Only supports changing 6-15 characters of the account password in the form of letters, underscores and Numbers.)



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11. RS232 Pass Through

By RS232 Commands, the matrix can send RS232 data to control the receivers, also the receiver can send RS232 data to control the Matrix.

Please refer to the command list which included in the manual.

12. RS232 Online Upgrading Firmware

1. Use serial port upgrade, and the host dial code is pre- adjusted to the right to enter the serial port upgrade mode;

2.RS232/Micro USB connection computer and product, open special upgrade software, click "Refresh" to make serial number Refresh;

3.COM port to choose the port connected with the product;

4. The baud rate setting is consistent with the host baud rate (default 115200);

5. Upgrade instructions in the upgrade instruction box (some instructions are as follows);

A1 means MCU;

A1 01 means GUI;

F0 01 means HTML.

6. Click on the "..."Select the upgrade file for download;

7. Click "Update" and the system starts to upgrade;

8. The updated information box will prompt "Succeed" information when the upgrade is completed, and the representative program has been upgraded successfully.

Note: Before burning, it is confirmed that HDMI/HDBT input and export are suspended. If other devices are connected, the host will automatically stop the upgrade.

If the upgrade progress bar is stopped in the middle of the upgrade, then the host will need to be rebooted, then the serial port will be upgraded

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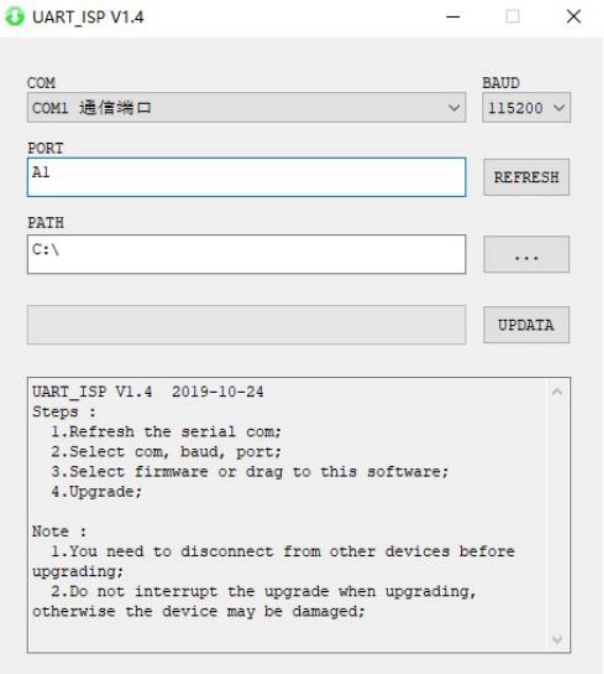

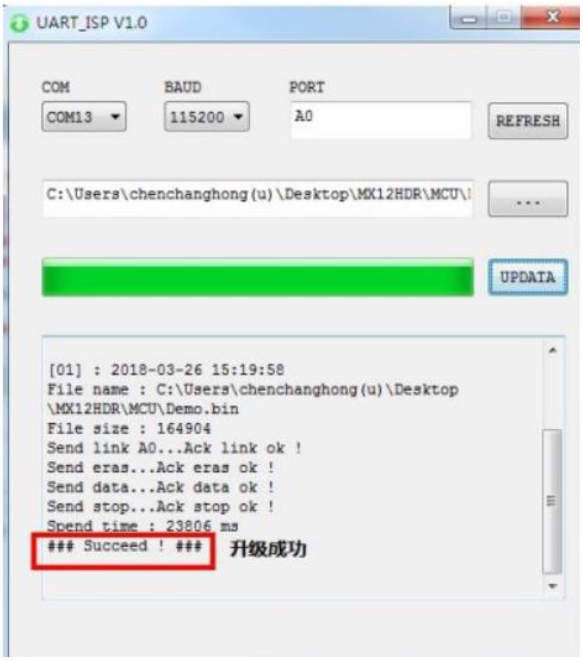

13. Maintenance

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

14. Warranty

If your product does not work properly because of a defect in materials of workmanship, our company (referred to as “the warrantor”) will, for the length of the period indicated as below, “Parts and Labor (5) Years”, 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 products purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

15. 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.

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16. Limited Warranty Limits and Exclusions

This Limited Warranty ONLY COVERS failures due to defects in material 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, mis-adjustment 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 attributed to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER “LIMITED WARRANTY COVERAGE”. THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTAIL 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.) PARTS AND SERVICE, WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY, ARE YOUR RESPONSIBILITY.

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