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## USER MANUAL

## J-Tech Digital®
## HDMI 4K@60HZ 4:4:4 Matrix Extender

Model: JTECH-4K88-EX2



JTD-ID: 495

# Catalogue

# 1. Features

- Incorporate HDBaseT technology
- HDMI 2.0 version support 4K@60Hz YUV4:4:4, 18G, HDR10
- 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 70m under 1080p,40m under 4K@60Hz
- HDCP 2.2/1.4 compliant
- With wide-band Bi-Direction IR routed control(38~56KHz)
- Support 1x Analog Audio and 1x SPDIF Audio extraction output
- Support RS232 Pass Through
- Support Panel Button with LCD, IR Routing, RS232, TCP/IP, PC Tool Control
- Support USB updating
- Support POC (Receiver powered by HDBaseT Matrix)
- 1U rack design with mounting ears
- AC 110V~220V/50HZ/60HZ input

# 2. Package Contents

1). 1x Main Unit (HDBaseT Matrix) and 7x Receivers
2). 1x Power Cable
3). 1x Remote control
4). 16xIR Transmitter cables, 16x Wide-Band IR Receiver cables
5). 1x CD for control software & user manual

# 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) |
| Input Video Signal | 0.5-1.0 volts p-p |
| Input DDC Signal | 5 volts p-p (TTL) |
| Bandwidth | 18Gbit/s |
| Video Format Supported | 4K@60Hz,YUV4:4:4<br>4k@30Hz/1080P/1080i/720P/576P/480P/576i/480i |
| HDCP Compliant | HDCP2.2 and HDCP1.4 |
| Output Video | HDMI2.0 and HDMI 1.4 (over HDBaseT and HDMI) |
| Audio Format Supported | PCM, Dolby5.1, DTS5.1 digital audio |
| Maximum Transmission Distance | 1080P 70m, 4K 40m |
| Power Consumption | 100wtts (Max.) |
| Dimensions | L482 x W348 x H44 mm |
| Mass (Main Unit) | 4 KG |

## 4. Panel Descriptions
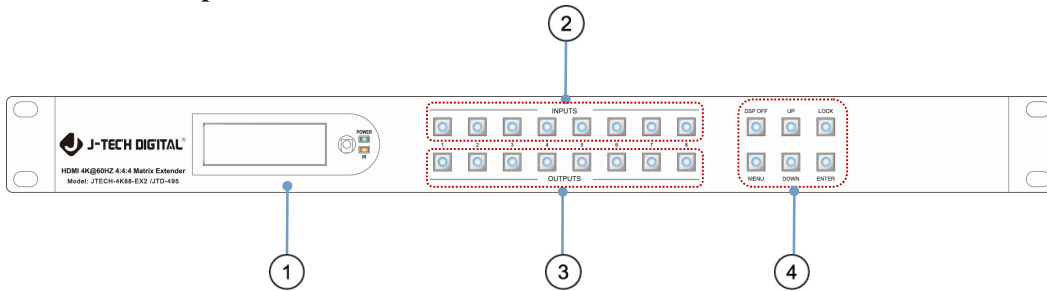


① LCD: Showing Matrix information

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.
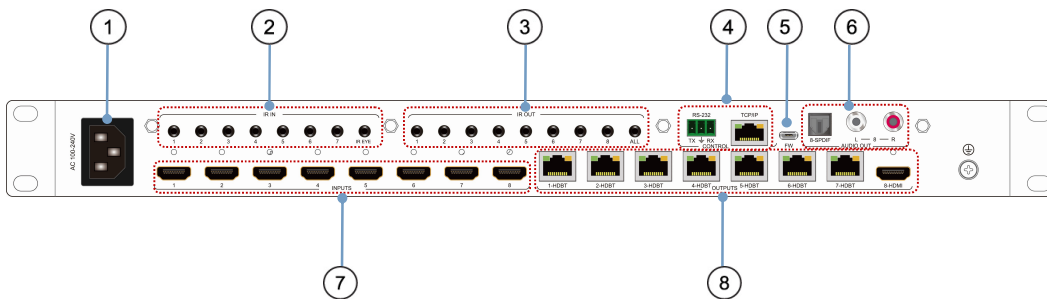


① AC 100-240V power port

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

## 4.1 Input / output channel key operation

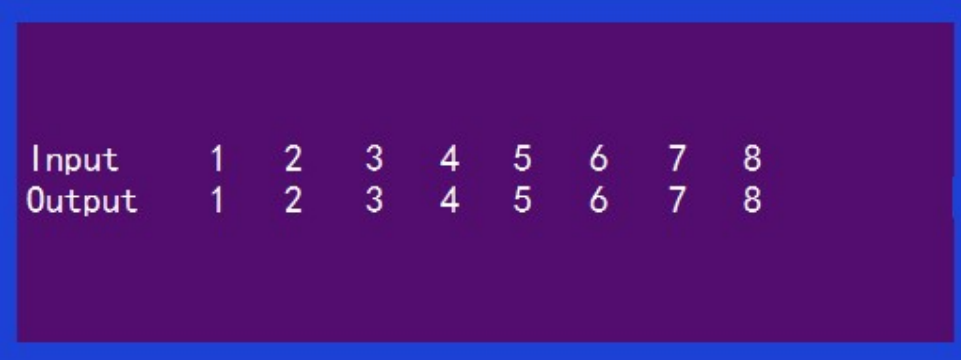| Channel | Button method |
|---|---|
| Any Key | The first operation of the button can wake up the screen |
| Input 1-8 | Directly press the number key, such as input channel 1, and select "1" to press (only when the output port is selected, the input channel number will be valid) |
| Output 1-8 | Directly 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) |

## 4.2 Video switching operation

### 4.2.1 Video switch

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:**



Video switching mode (P1)

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

### 4.2.2 Video Control

The video interface have two sub menu
1. Video Switch
2. Video On/Off

**The specific operation is as follows:**

1.Video Switch

Switch 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", Switch Done

```
Menu >

1/5              0/2
Video          > Switching >
Audio          > On/Off     >
EDID           >
Setup          >
INFO.          >
```

```
Menu >  Video >

2/2              0/9
Switching      > Out 1      >
On/Off         > Out 2      >
                 > Out 3      >
                 > Out 4      >
                 > Out 5      >
```

```
Menu >  Video > Switching>

1/9              0/8
Out 1     >      In 1        •
Out 2     >      In 2
Out 3     >      In 3
Out 4     >      In 4
Out 5     >      In 5
```
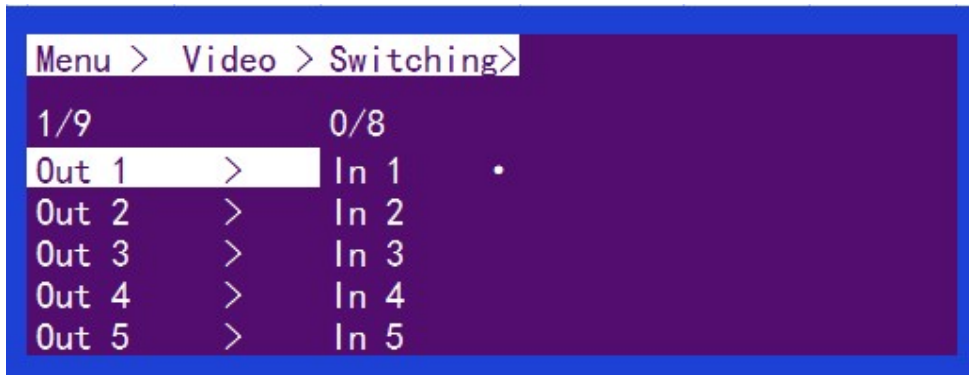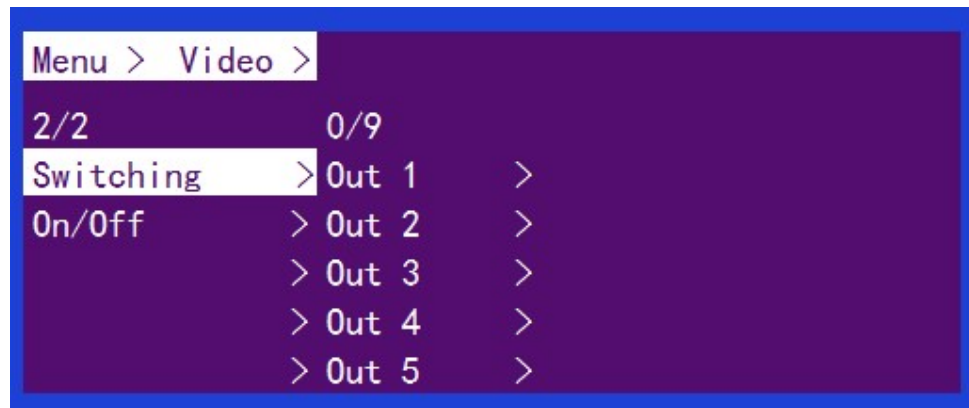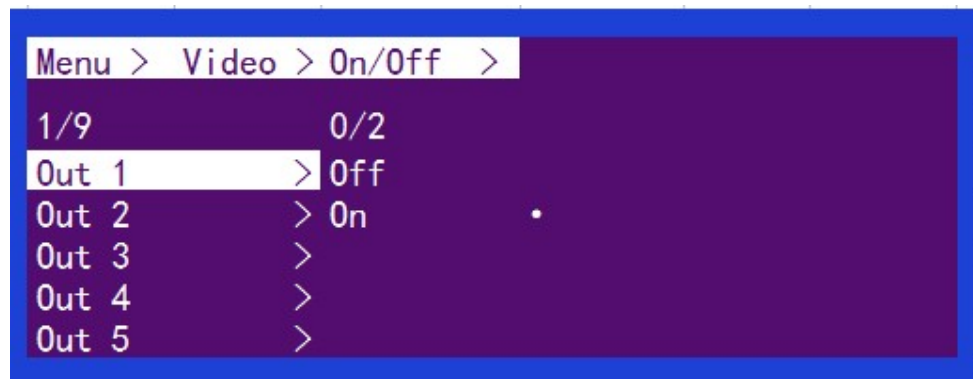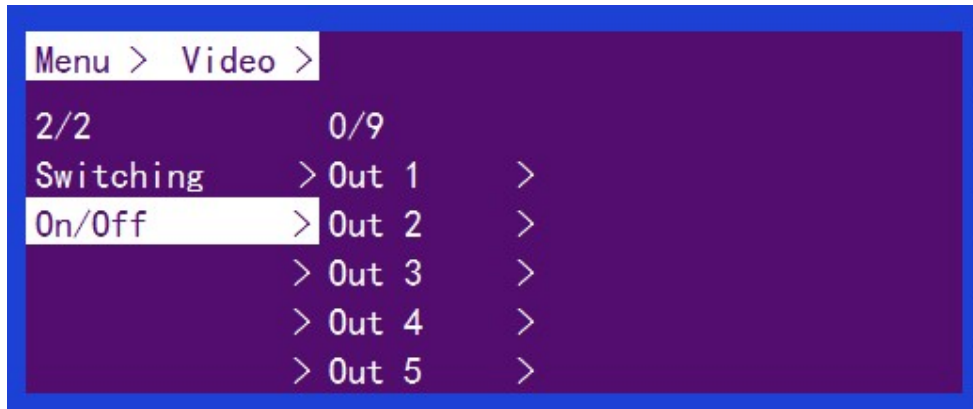
Video Switch (P2)

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", Switch Done

```
Menu >  Video >
2/2              0/9
Switching      > Out 1      >
On/Off         > Out 2      >
               > Out 3      >
               > Out 4      >
               > Out 5      >
```

```
Menu >  Video > On/Off  >
1/9              0/2
Out 1          > Off
Out 2          > On          ·
Out 3          >
Out 4          >
Out 5          >
```

Video On/Off (P3)

## 4.2.3 Audio Separation

The Audio Control have NINE sub menu

1. Out 1 ~ Out 8

2. Mute (Default)
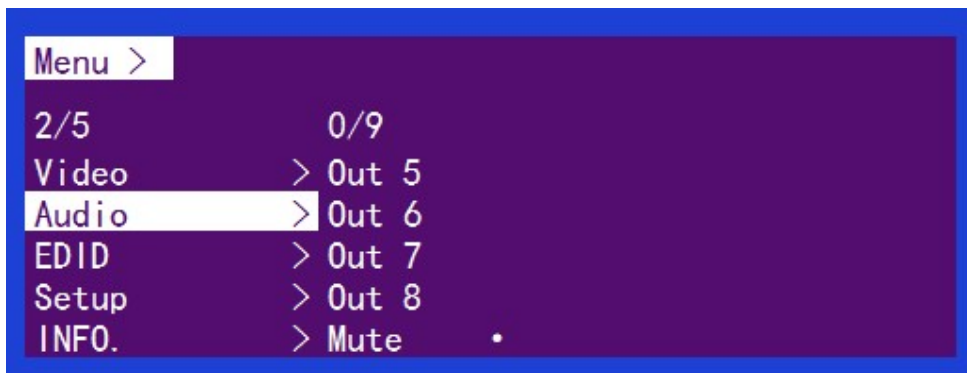
**The specific operation is as follows:**

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

```
Menu >
2/5              0/9
Video          > Out 5
Audio          > Out 6
EDID           > Out 7
Setup          > Out 8
INFO.          > Mute       ·
```

Audio mode   (P4)

## 4.3 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.**

**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.
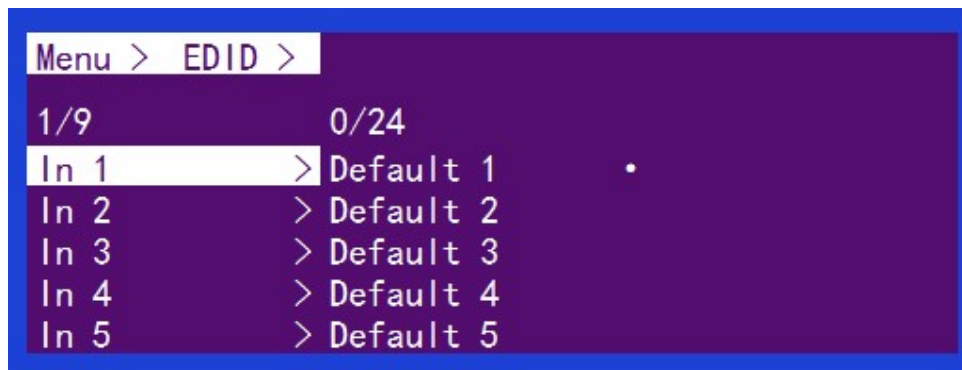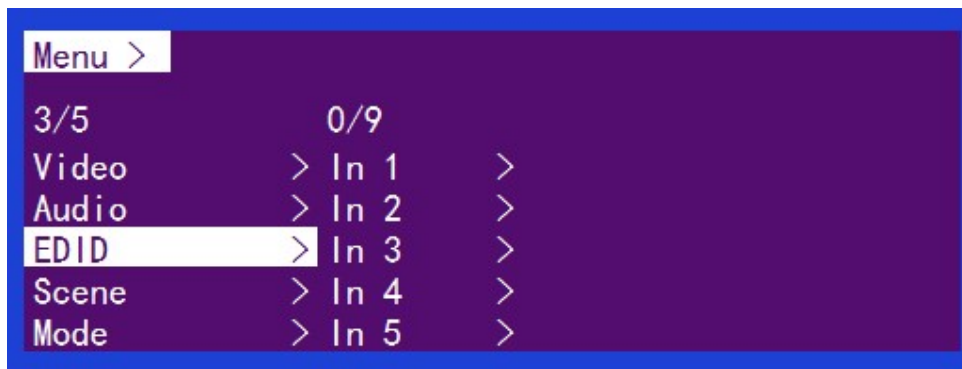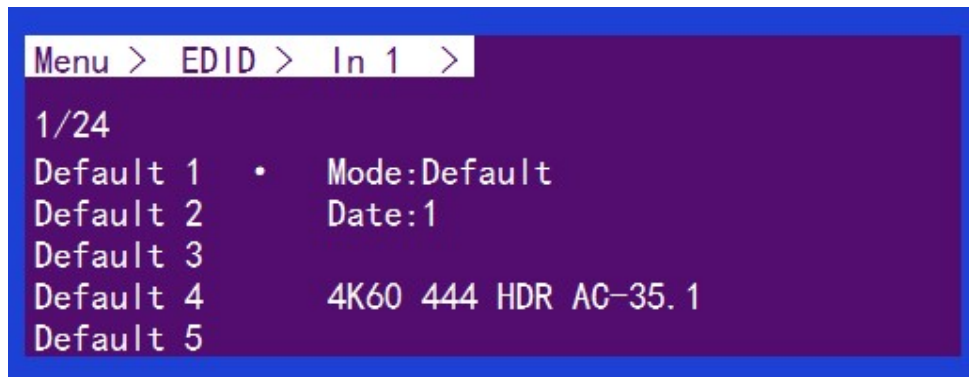
EDID Setting mode (P6)

## 4.4 SETUP mode Interface

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

### 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"
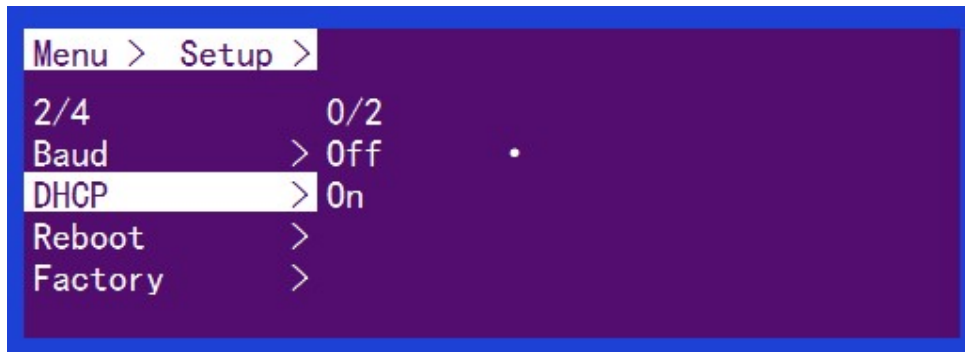③Press "UP" "DOWN" button to select the baud rate and press "ENTER" to confirm
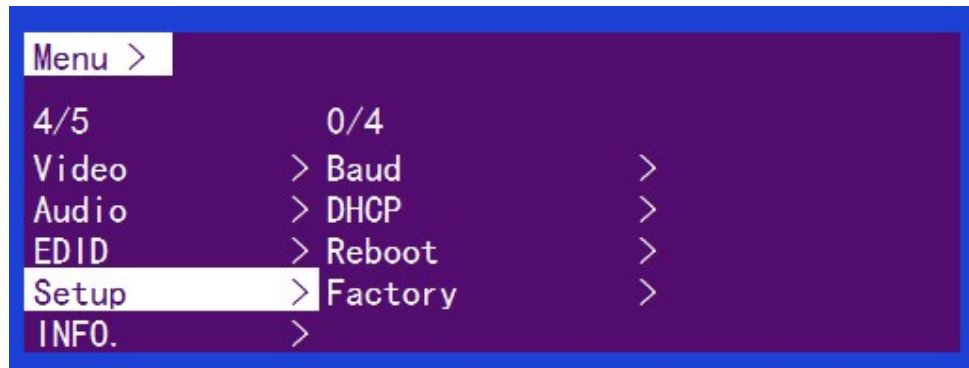


BAUD RATE setting (P7)

### 2. DHCP On/Off setting (Default OFF)
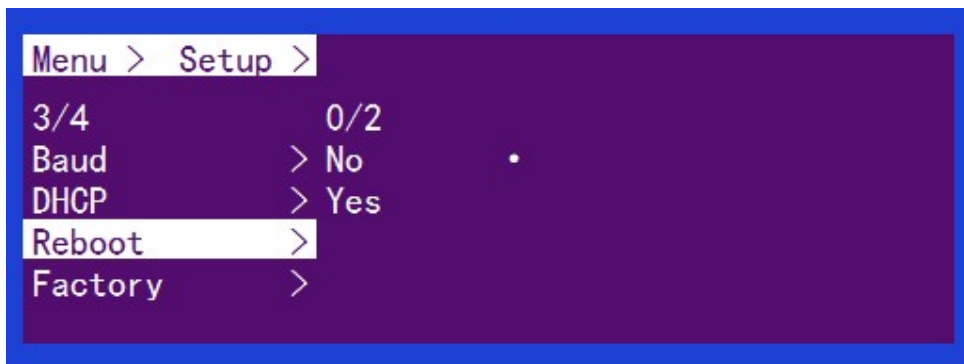
On means Dynamic; Off means Static
①Select "Setup" in the menu and press "ENTER"
②Then use "UP" "DOWN" button to select the "DHCP" and press "ENTER"
③Press "UP" "DOWN" button to select "On" or "Off" and press "ENTER" to confirm

DHCP setting (P8)

## 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
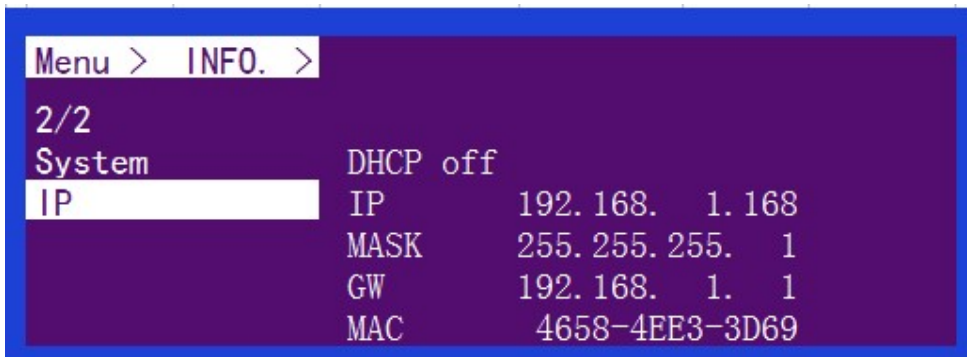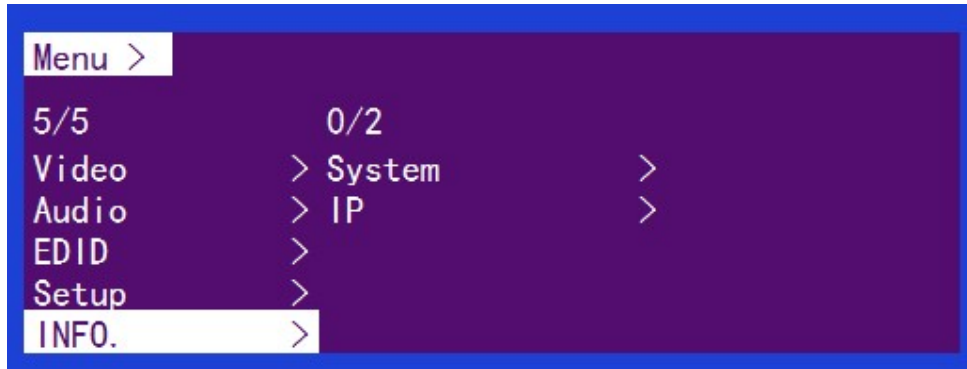


Reboot setting (P9)

## 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
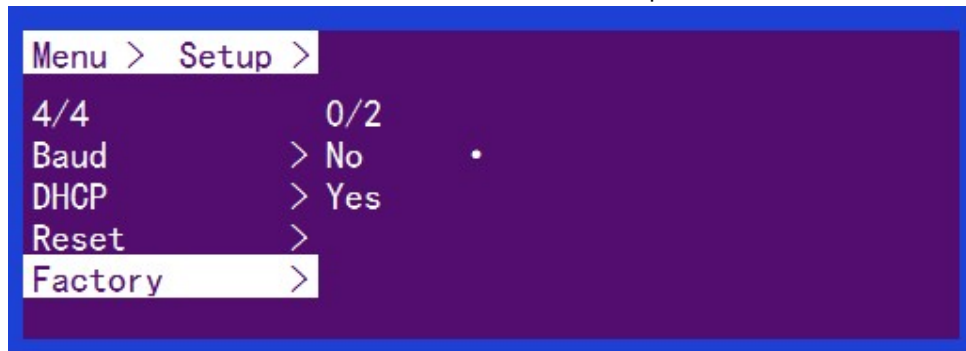


Factory setting (P10)

## 4.5 INFO mode Interface

Check the device information: IP or System information

```
Menu >
5/5                0/2
Video          > System          >
Audio          > IP             >
EDID           >
Setup          >
INFO.          >
```

```
Menu >  INFO. >
1/2
System                 co.      xxx
IP                     Type     xxx
                       Ver      1V0
```

```
Menu >  INFO. >
2/2
System                 DHCP off
IP                     IP        192.168.  1.168
                       MASK      255.255.255.  1
                       GW        192.168.  1.  1
                       MAC        4658-4EE3-3D69
```

INFO mode   (P11)

## 5. Application Diagram
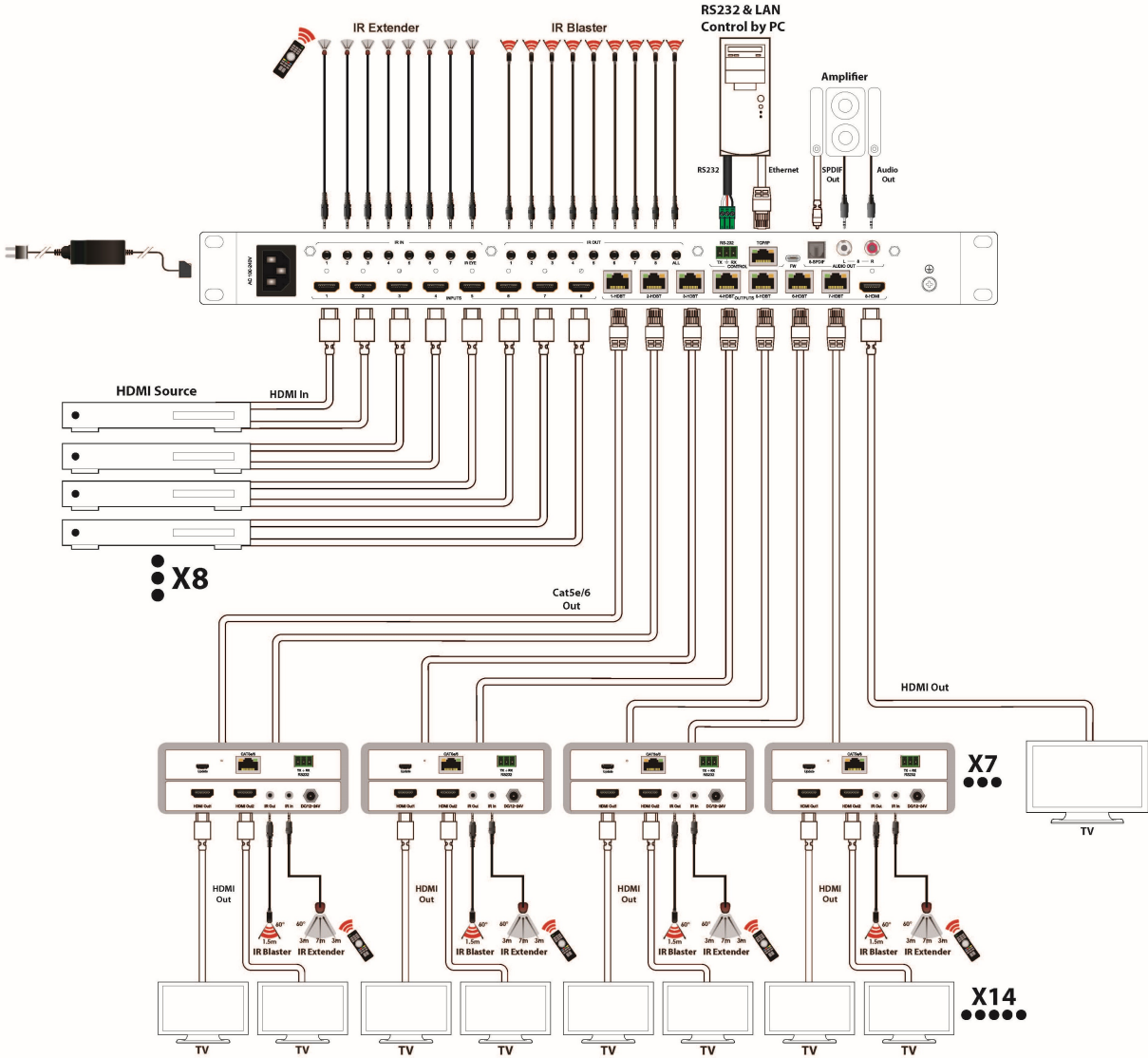
# 6. Remote Control Description

① Standby Mode

② Lock or Unlock the Panel Button

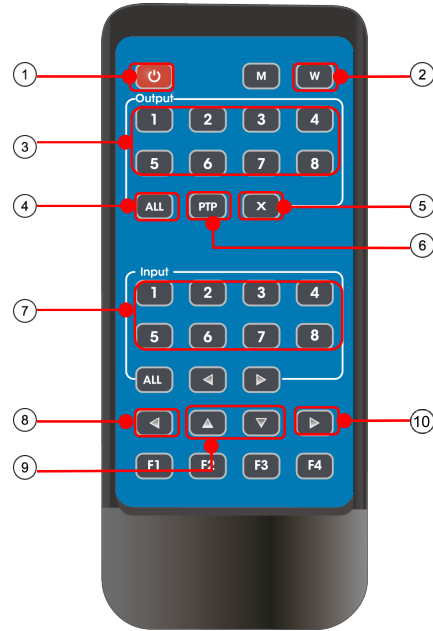③ Choose output from 1-8

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

# 7. 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
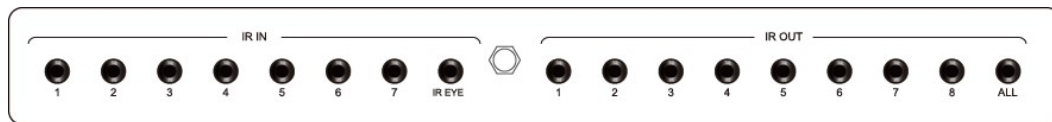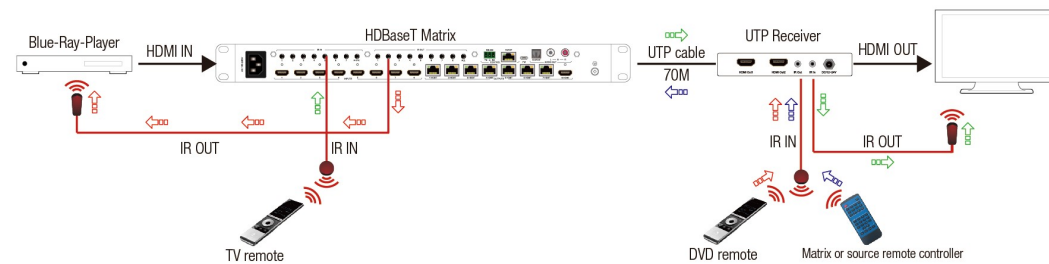
**Dual way IR using:**

Step1: "IR IN" is for HDBaseT output, "IR OUT" is for input channel

Step2: "IR IN EYE" Controlled by all input IR; "IR OUT ALL" Controlled by all output IR.

Step3: HDBaseT receiver support connect with IR receiver to control the Matrix by remote

Step4: Matrix IR channel "IR IN EYE" support connect with IR-RX cable to control the Matrix by remote

## 8. Command Control
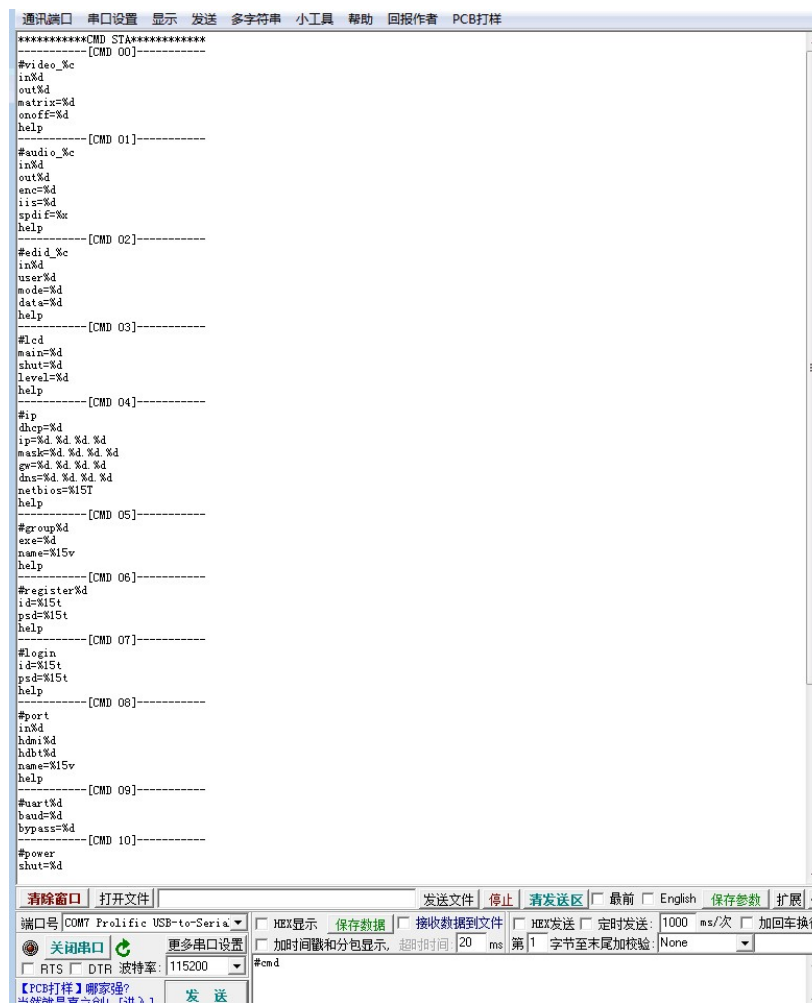
Control software operation:
The serial control software is illustrated with SSCOM32 as an example.
Basic Settings:



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.
**Enter the main interface of the software, as shown in the figure below.**



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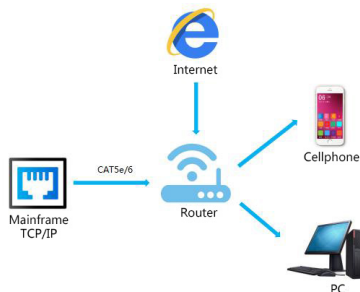
| Instruction description | instruction | parameter 1 | parameter 2 | parameter 3 |
|---|---|---|---|---|
| Video switch | #video_%c | out%d | matrix=%d | matrix=%d |
| Audio Mode | #audio_%c | in%d | enc=%d | / |
| EDID | #EDID_%c | in%d | mode=%d | data=%d |

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

## 9. Web Control



## 9.1. Change the IP address of your PC.

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**.

Operating Instruction

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**.
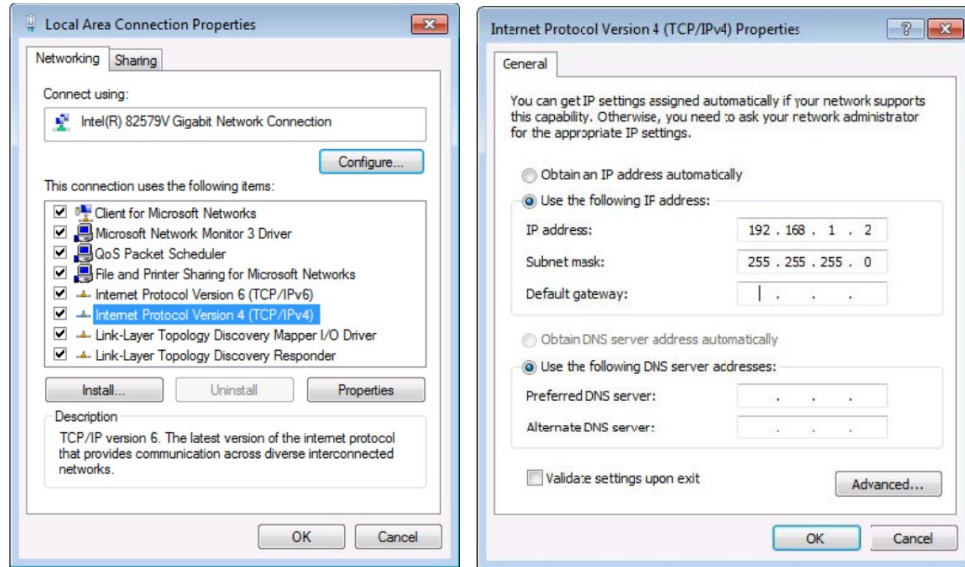


Web Control (P19)

**Default IP Address: 192.168.1.168;**
**MASK: 255.255.255.0;**
**Gateway:192.168.1.1;**
**MAC:0008-DCCA-CF3F （Each device have different MAC address)**

## 9.2. 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
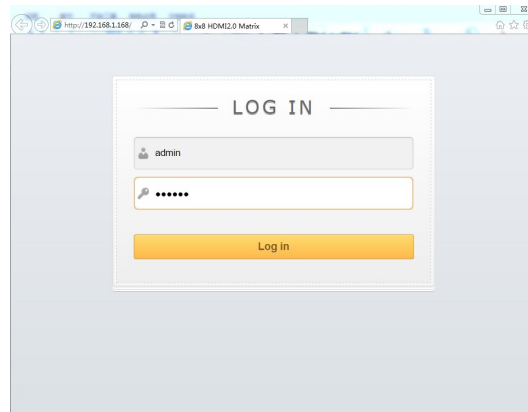


Web Control (P20)

Operating Instruction

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**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
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.
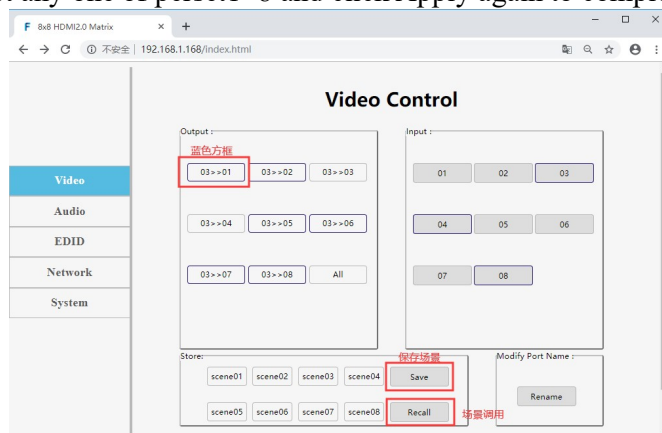For example: select [03>>01], then click 01
Blue box will be displayed when signal source or TV is connected
3. Scenario application
**Save: S**elect any one of preset 1-8, blue means selected, and then click save to complete the save
**Apply:** select any one of perset1~8 and click Apply again to complete the recall


Web control (P21)

Operating Instruction

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 Save&Exit
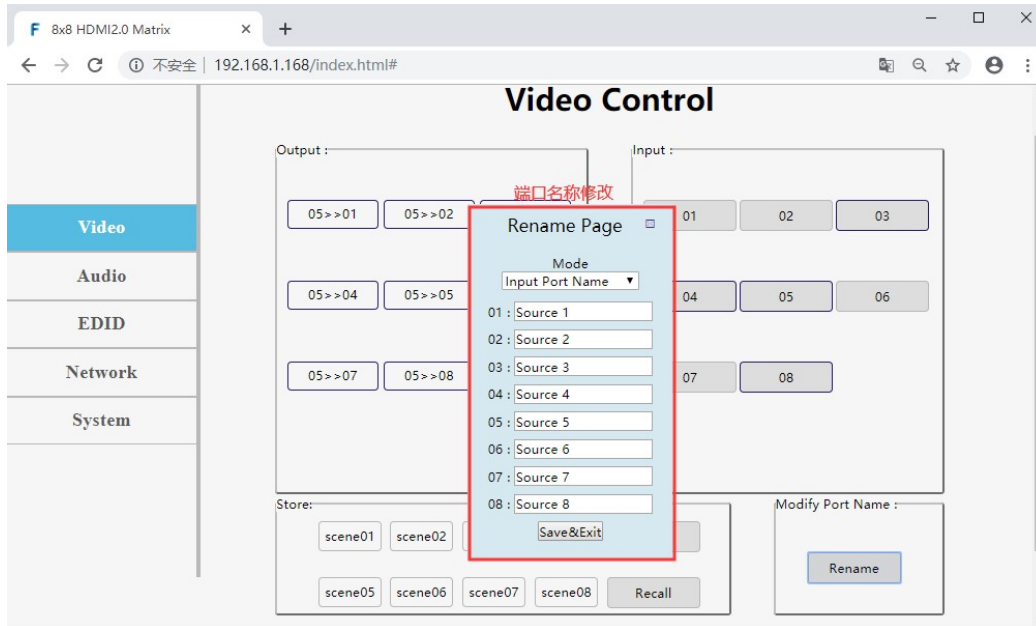


Web control(P22)

## "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



Web control(P22)

Operating Instruction
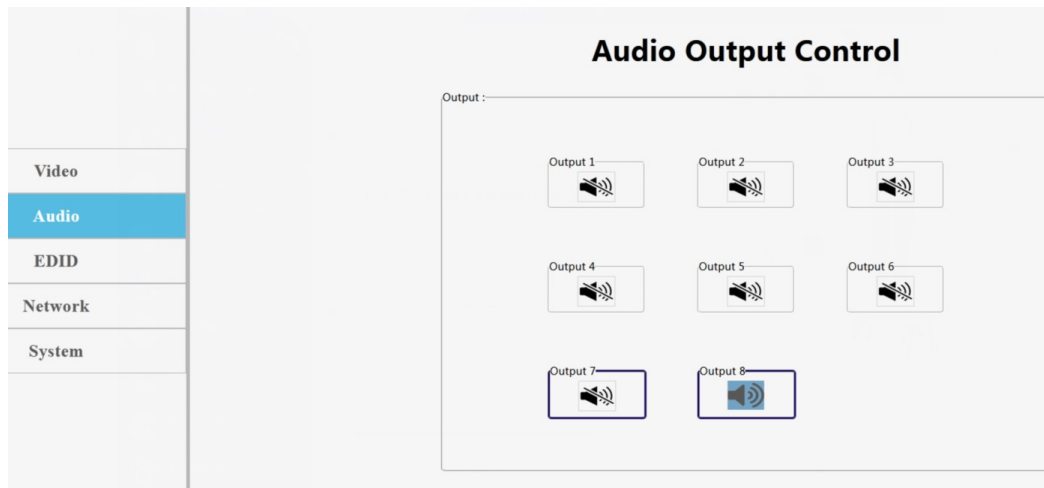
**"EDID" interface description:**

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
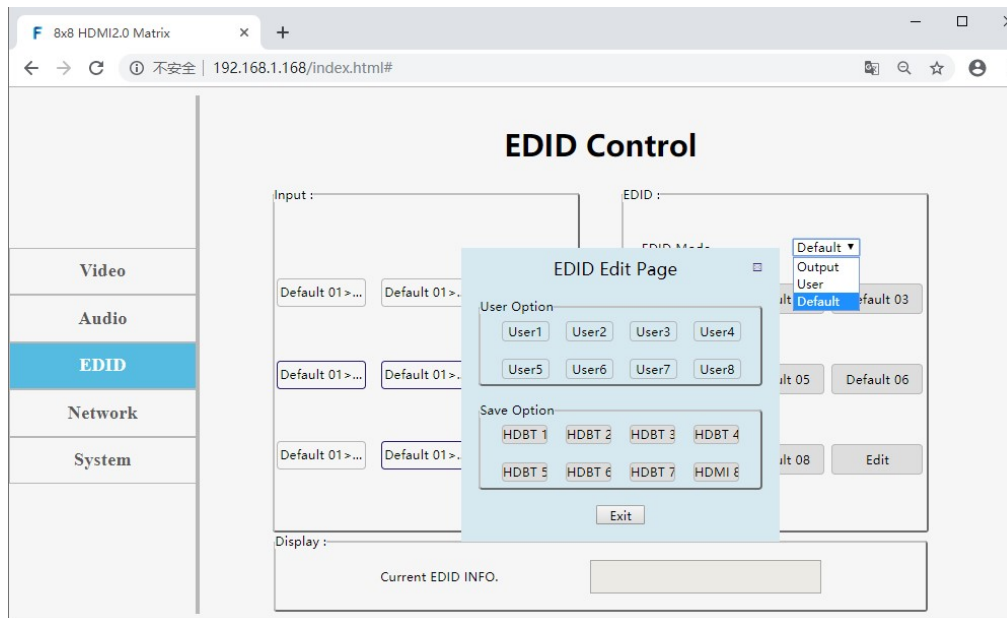


Web control(P23)

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

Operating Instruction

**"Network" interface description:**

1. The interface displays Mac address, IP address, sub code mask and gateway address
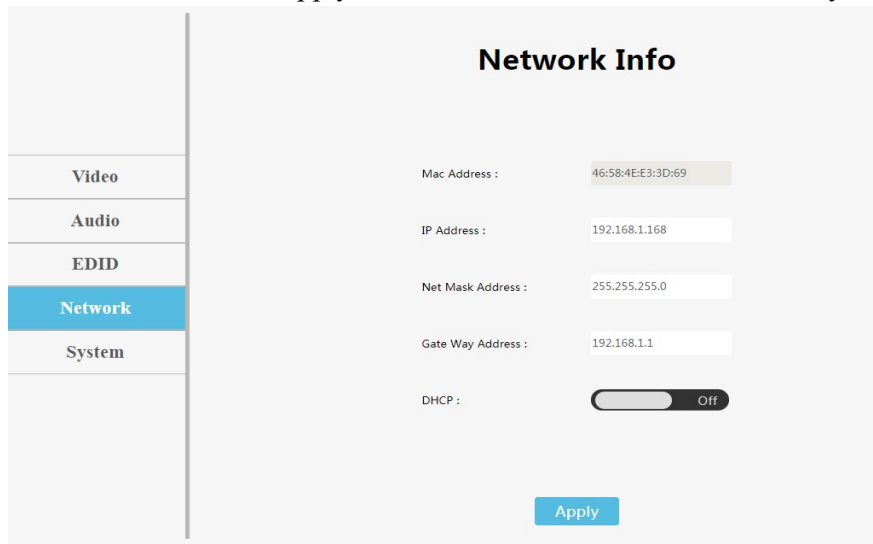2. DHCP can only modify IP address, sub net mask and gateway in the off state, and does not support any parameter modification in the on state
3. DHCP switch: click Apply after click the white scroll bar to modify



**System interface description:**

The user name 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.)
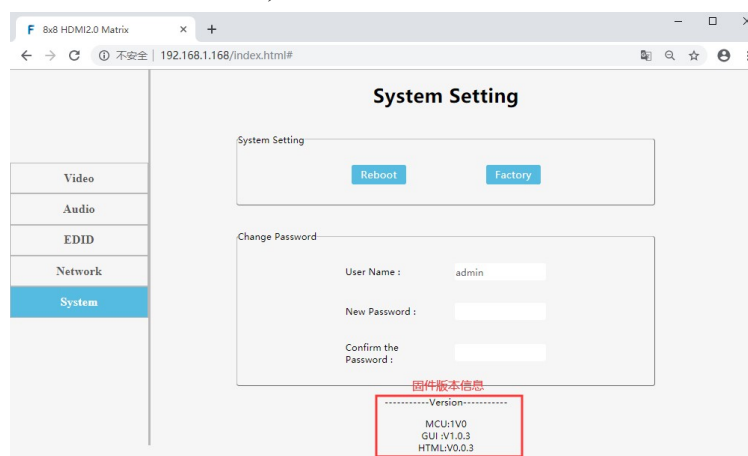


Web control(P25)

Operating Instruction

## 10. RS232 Pass through

By RS232 Command , 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.

## 11. 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.**
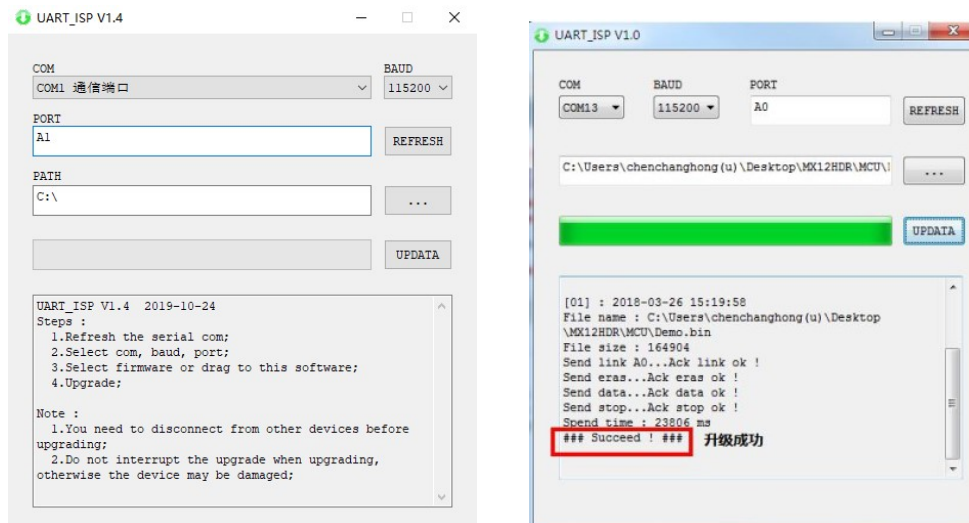
Operating Instruction

## MAINTENANCE

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner of benzine 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(2)Year, 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 of 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 WARRNTY. (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.