J-TECH DIGITAL®

USER MANUAL

4K 60Hz 8x8 HDMI Matrix Extender 213ft. (65m)

JTD-2980 | JTECH-4K88EX3

HDMI™ HIGH DEFINITION MULTIMEDIA INTERFACE

RoHS compliant

CE FC

J-TECH DIGITAL INC.
9807 EMILY LANE
STAFFORD, TX 77477
TEL: 1-888-610-2818
E-MAIL: SUPPORT@JTECHDIGITAL.COM

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1. Features

- 8 x HDMI inputs and 8 x Ethernet outputs with 8 x HDMI Loop out ports
- HDMI 2.0 version supports 4K@60Hz YUV4:4:4,18G, deep color max 12bit, HD 8CH digital audio format
- Extending 4K60Hz video signal to distances up to 213ft. (65m) over single Cat6 Ethernet cable
- HDCP 2.2/1.4 compliant (follows input)
- Dolby Vision, HDR10, HDR-HLG
- LPCM up to 7.1/24-bit/96 kHz, Dolby Atmos and DTS-X Atmos
- Ethernet port supports Telnet, UDP, http, TCP/IP protocol
- Wide-band Bi-Direction IR routed control (38~56KHz)
- 8 x analog audio extraction (5-pin phoenix port),
- 8 x analog audio in (3-pin phoenix port)
- Panel Button with LCD, IR Remote control, RS232 Control, TCP/IP Control
- Supports 4K downscale to 1080p
- Smart EDID management
- AC100~240V power supply, supports 8 x POC power outputs
- 3-Pin phoenix terminal plug for FW updating

2. Package Contents

- (1) x Main Unit (HDMI Matrix Extender)
- (1) x AC100~240V power cable
- (1) x Remote control
- (9) x IR Transmitter cables, 9x Wide-Band IR Receiver cables
- (1) CD for user manual & Command list

- (8) x 5-Pin Phoenix terminal plug
- (10) x 3-Pin Phoenix terminal plug
- 2U rack design metal case with 2 mounting ears
- (1) x USB2.0 to RS232 upgrade cable

3. Specifications

General	
Operating Temperature Range	-5°C ~ 40°C (23°F ~ 104°F)
Storage Temperature Range	-10°C ~ 60°C (-14°F ~ 140°F)
Operating Humidity Range	5 – 90% RH (No Condensation)
Input Video Signal	0.5 – 1.0V p-p
Input DDC Signal	5V p-p (TTL)
Bandwidth	18Gbit/s
Video Format Support	4K60Hz, YUV 4:4:4 8-bit 4K30Hz, 1080P / 1080i / 720P / 576P / 480P / 576i / 480i
HDCP Compliant	HDCP 2.2 I 1.4
Output Video	HDMI 2.0
Audio Format Support	LPCM up to 7.2 / 24-bit / 96kHz, Dolby Atmos, DTS-X Atmos
Maximum Transmission Distance	213ft. (65m)
Power Consumption	70W (Max.)
Dimensions (L x W x H)	Matrix: 438mm x 279mm x 88mm 17.24” x 10.98” x 3.46” Receiver:

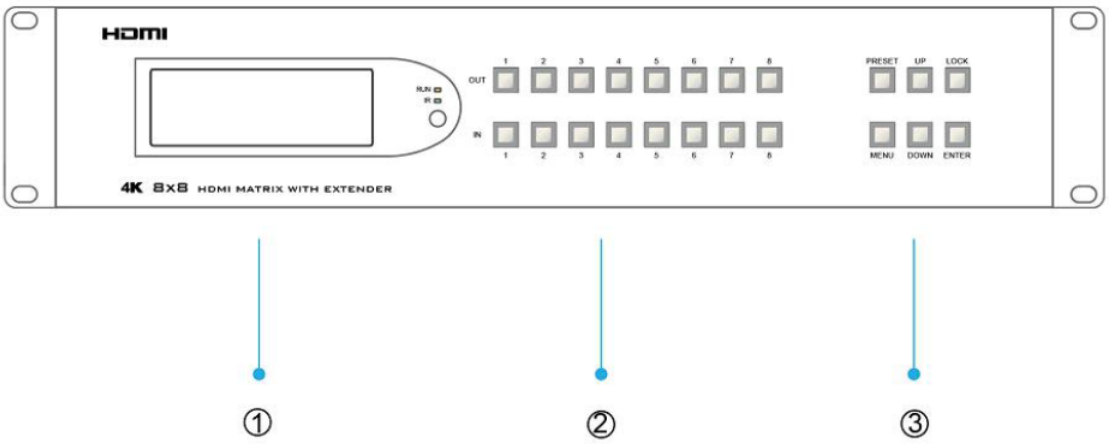
	110.2mm x 68.3mm x 18mm 4.34” x 2.69” x 0.71”
Net Weight	11.86lbs.

VESA Resolution List		
Rate	Resolution	Supported
60Hz	640 x 480	☑
	800 x 600	☑
	1027 x 768	☑
	1280 x 768	☑
	1280 x 1024	☑
	1600 x 1200	☑
	1680 x 1050	☑
	1920 x 1080	☑
	1280 x 720	☑
	1360 x 768	☑
	1920 x 1200	☑
	3840 x 2160	☑

Testing Resolution List			
Rate	I/P	Resolution	Supported
50Hz	I	576i	x
	P	576P	☑
	P	720P	☑
	P	1080P	☑

	I	1080i	☑
	P	4K2K	☑
60Hz / 59.94Hz	I	480i	x
	P	480P	☑
	P	720P	☑
	P	1080P	☑
	P	4K2K	☑
30 / 29.97Hz	P	720P	☑
	P	1080P	☑
	P	4K2K	☑
24Hz	P	720P	☑
	P	1080P	☑
	P	4K2K	☑
25Hz	P	720P	☑
	P	1080P	☑
	P	4K2K	☑

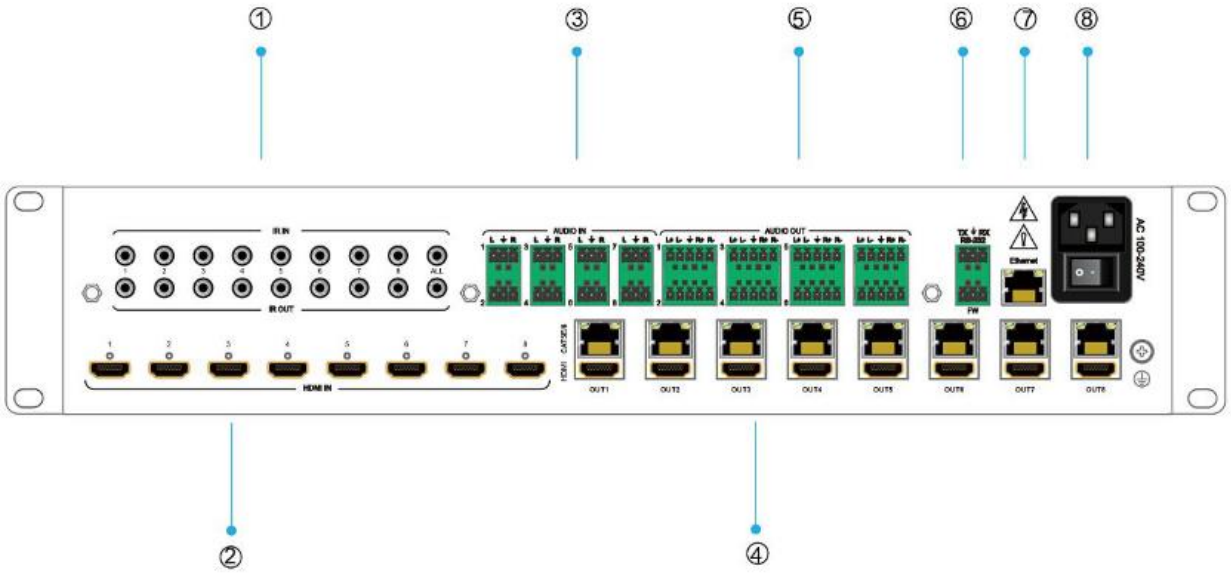
4. Panel Descriptions



① LCD: Showing Matrix information

② Output button OUT1~8 & Input button IN1~8

③ Function button: PRESET; MENU; UP; DOWN; LOCK; ENTER



① IR input port x8 & All in & IR output port x8 & All out

② HDMI input x**8**

③ Analog Audio in x8

④ Ethernet output x8 & HDMI Loop out x8

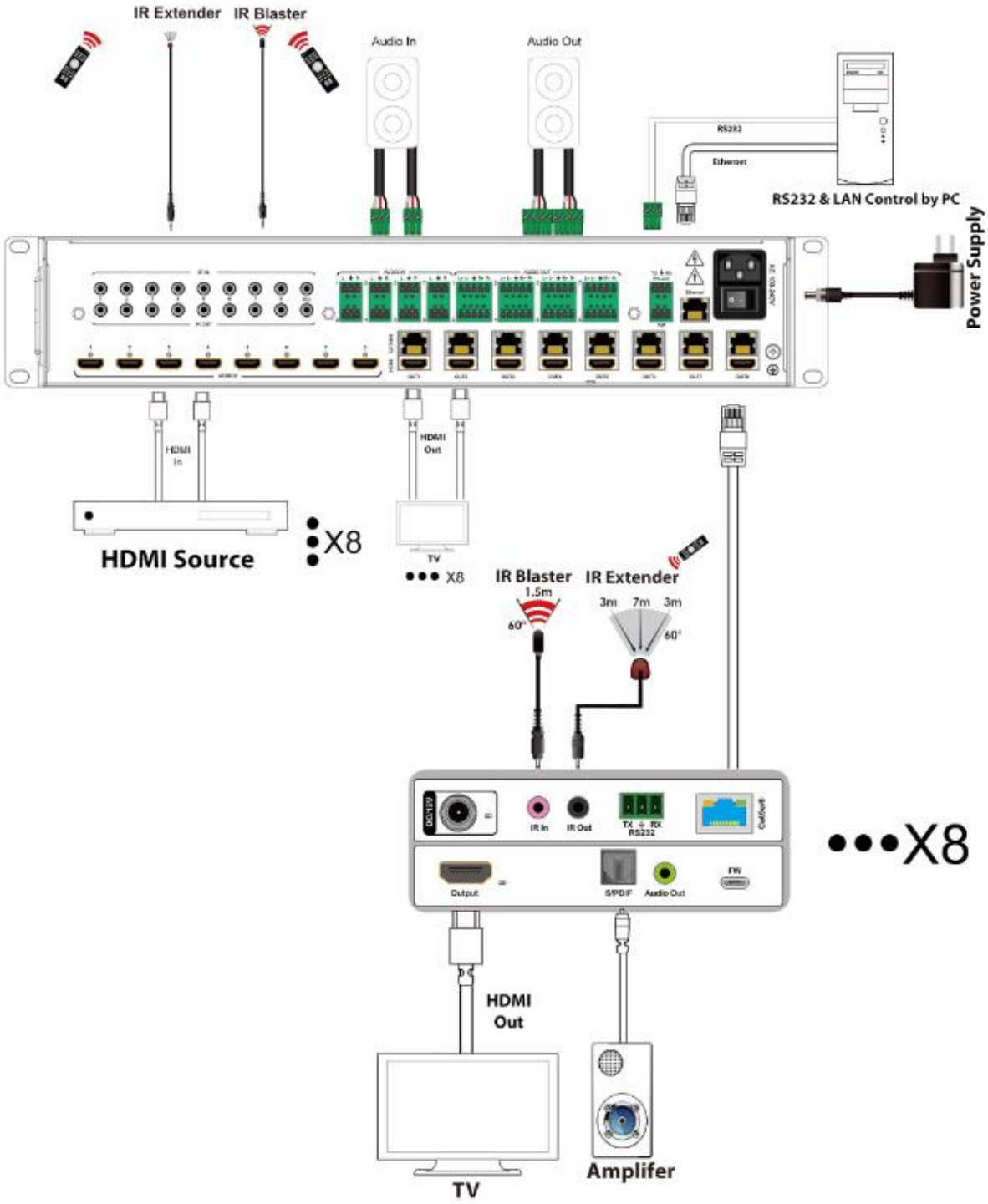
⑤ Analog Audio out x8

⑥ RS232 port & FW update port

⑦ Ethernet port

⑧ Power On/Off

5. Wiring Diagram



6. Input / Output Channel Key Operation

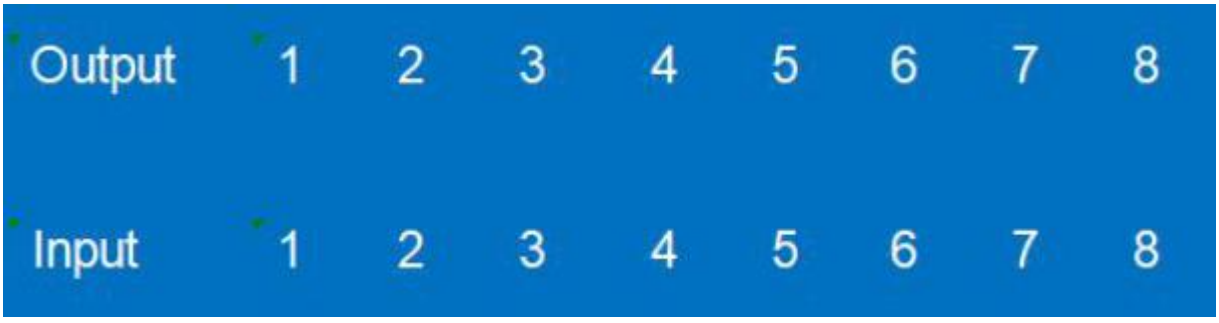
Channel	Button method
Any Key	The first operation of the button can wake up the screen and do the command
Output 1-8	Directly press the number key, such as the output channel 5, press button "5" and press it again to cancel the selection; Long press output 8 to select all channels, and long press again to cancel
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) Long press means all outputs select current input
MENU	Function Button; Short press to 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
MUTE	Select the output port,press MUTE button to close output,press again to awaken output
LOCK	Long press to LOCK(button blue light on), Long press again to UNLOCK (button blue light off)

7. Video Switching Operation

7.1 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 as follows:



Switch the input to the output

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

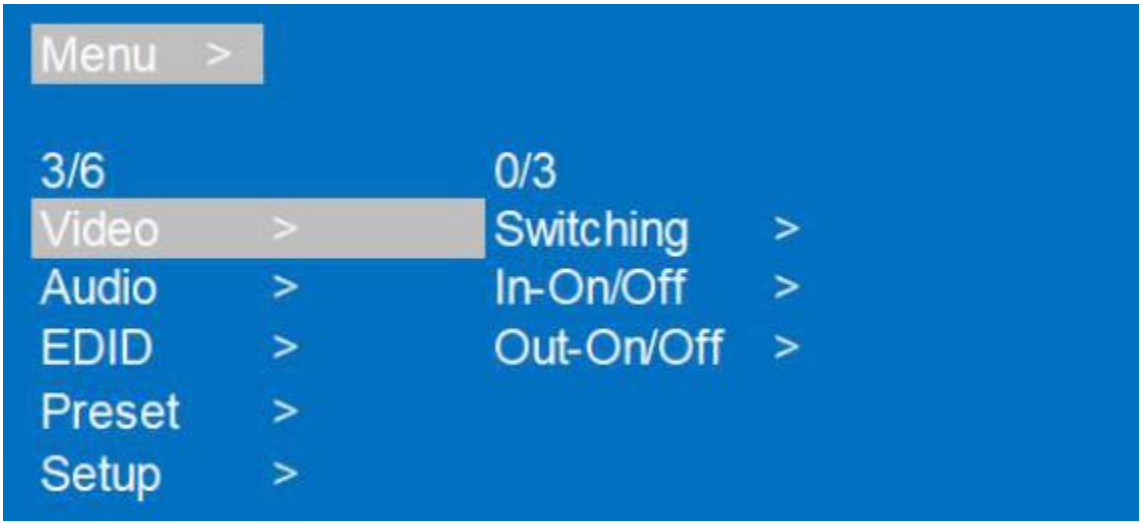
For Example: Output port 1 switch to input 5

Operation: Press OUT number "1" + IN number "5" to complete the switch

7.2 Video Control

The video interface has three sub menus:

1. Video Switching
2. Video-in On / Off
3. Video-out On / Off



The specific operation as follows:

1. Video Switching

Switch any output to one input or all outputs to the same input, default PTP.

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

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

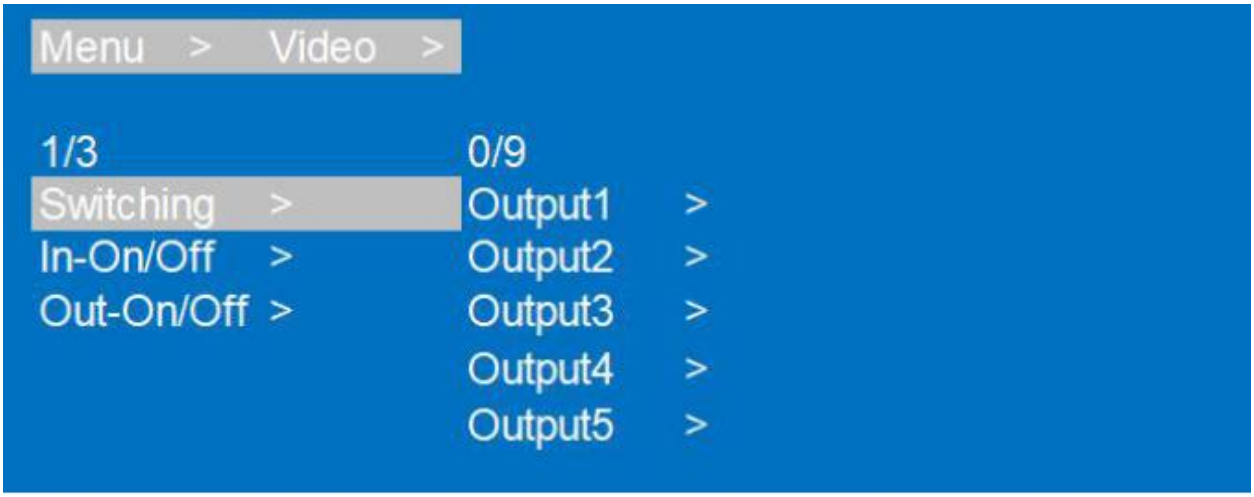
③Press “ENTER” enter next page

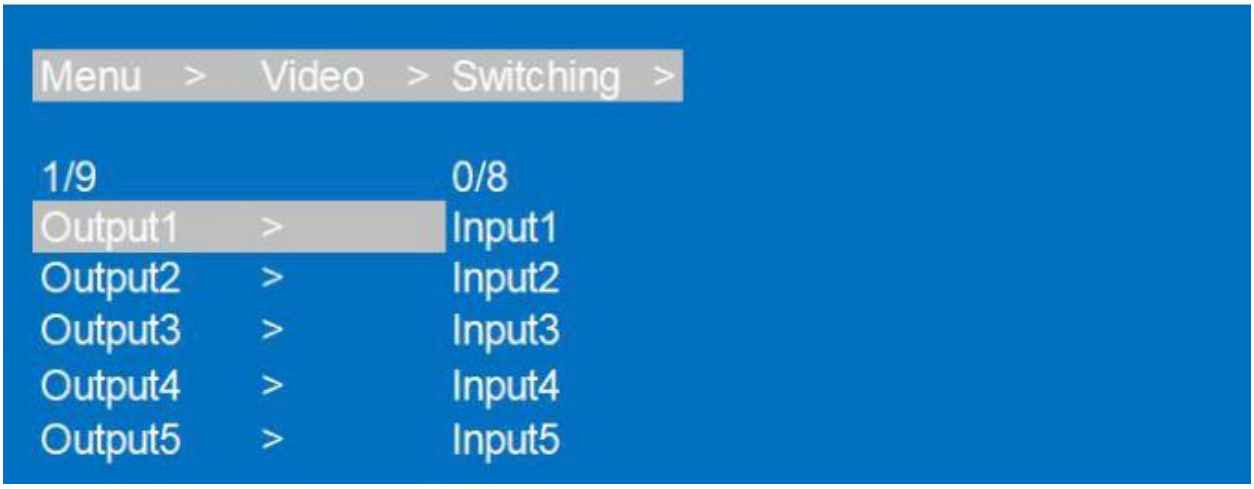
④Press “UP”,” DOWN” button to select the output（The ninth option means ALL outputs）

⑤Press “ENTER”

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

⑦Press “ENTER” Switching Done





2. Video-in 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 “In On/Off”

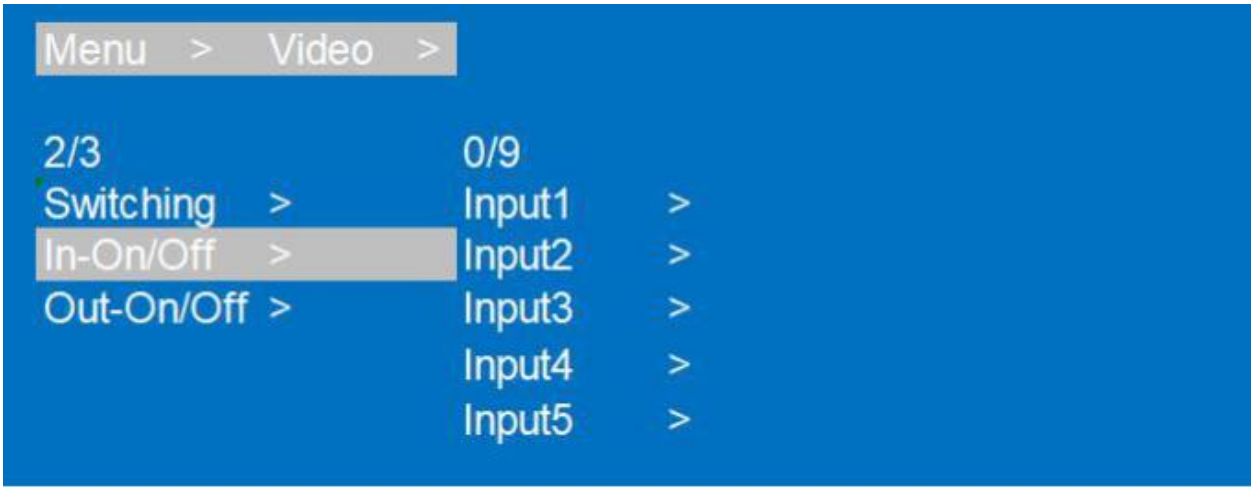
③Press “ENTER” enter next page

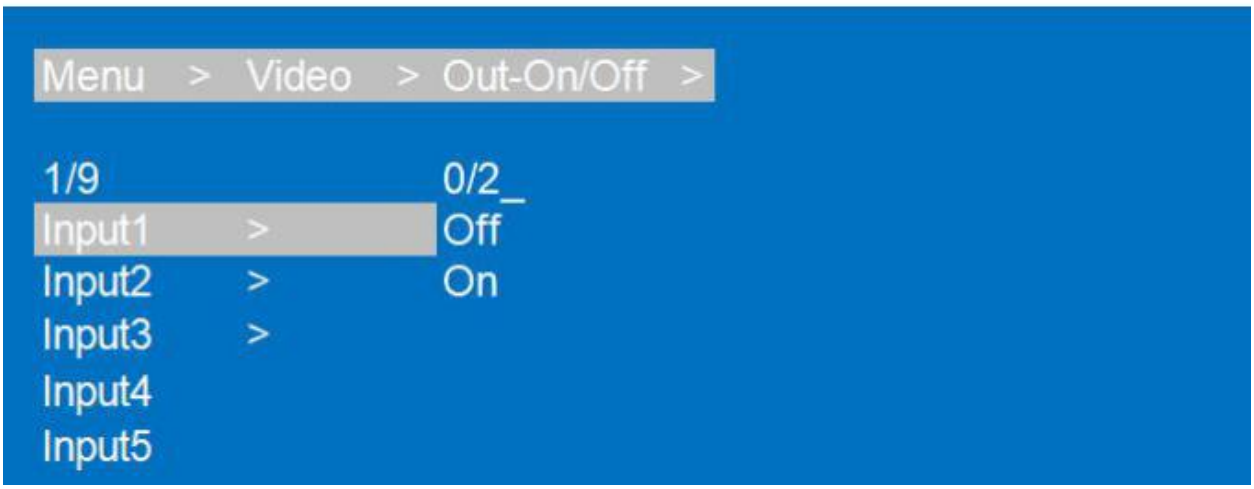
④Press “UP”, ”DOWN” button to select the input（The 9th option means ALL inputs）

⑤Press “ENTER” to enter next page

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

⑦Press “ENTER”, Switching Done





3. Video-out 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 “Output On/Off”

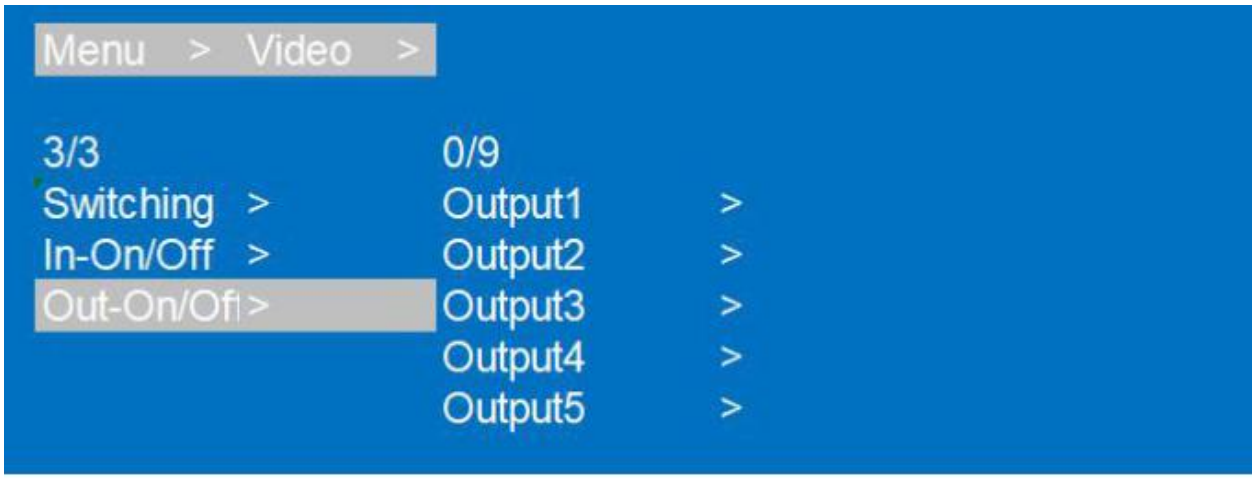
③Press “ENTER” enter next page

④Press “UP”,” DOWN” button to select the output（The 9th option means ALL outputs）

⑤Press “ENTER” to enter next page

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

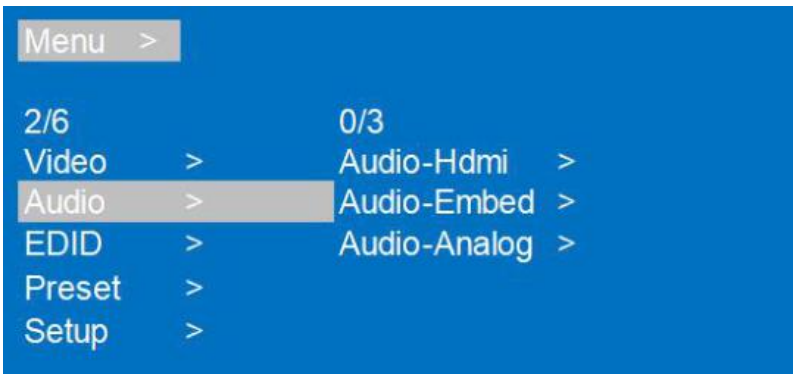
⑦Press “ENTER”, Switching Done



7.3 Audio Control

The Audio Control has three sub menus

1. Audio - HDMI (HDMI Input Audio)
2. Audio - Embed (Analog in)
3. Audio - Analog (Analog out)



The specific operation is as follows:

1. Audio - HDMI

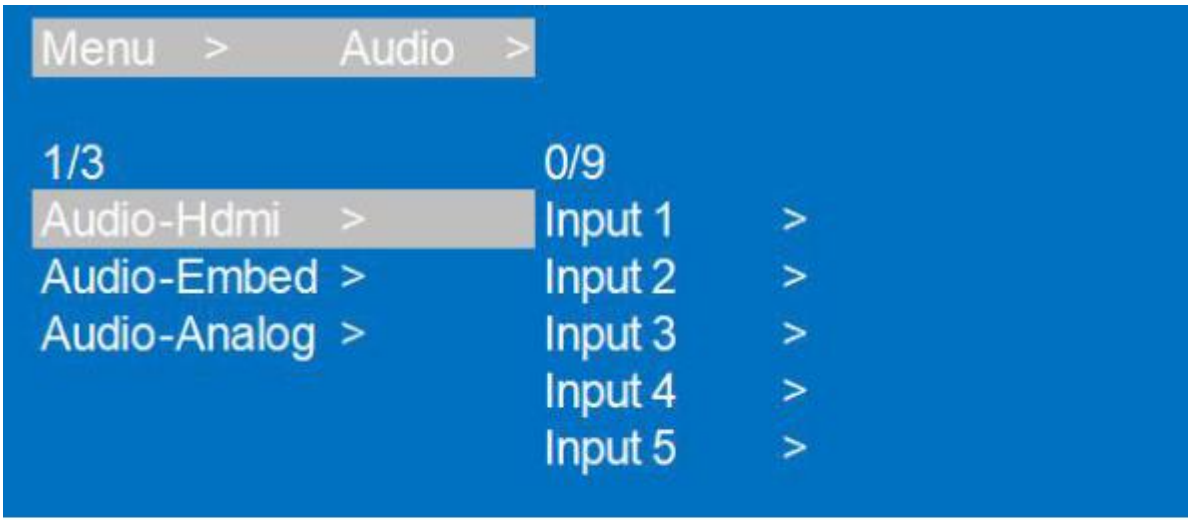
HDMI input audio switch. You can select any one of HDMI input source audio to be mute

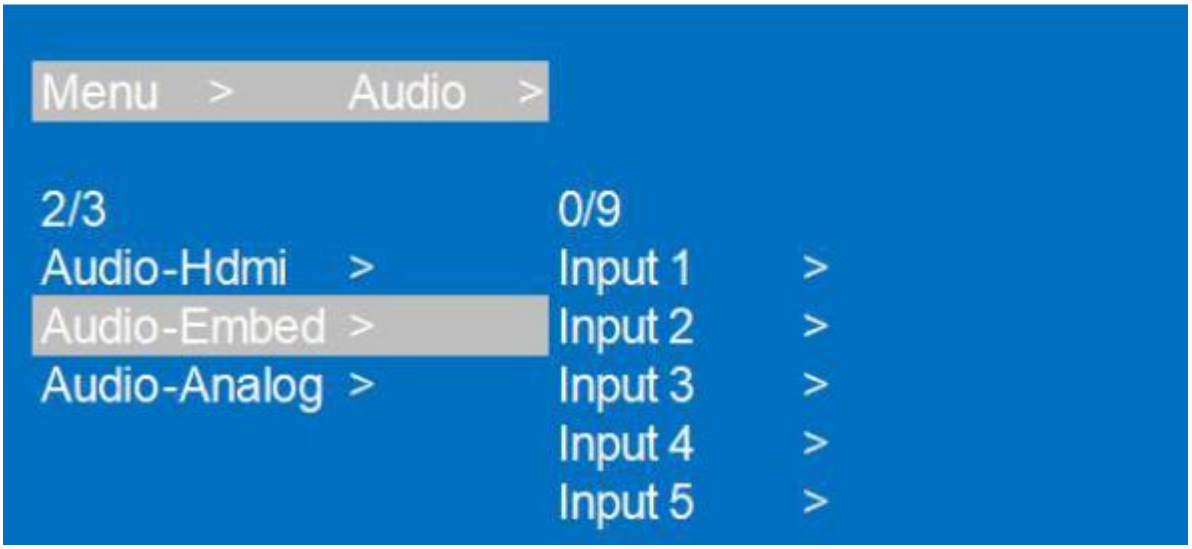
2. Audio Embed

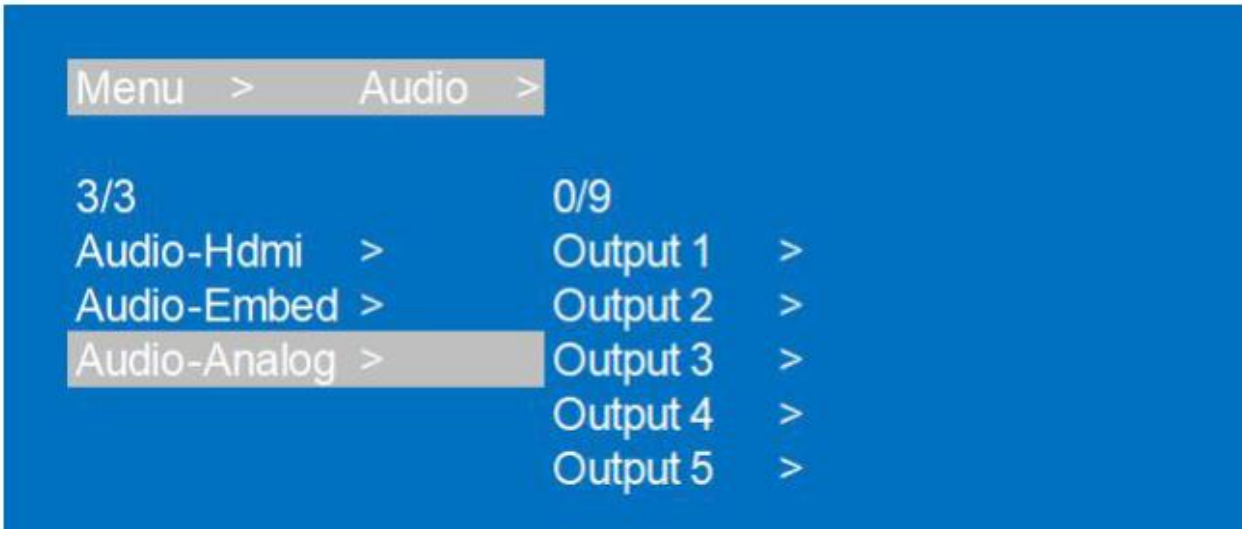
Audio can be embedded to HDMI input. The embedded sound will cover the original sound of the signal source. You can select any one of the inputs to embed

3. Audio-Analog Out

Can choose any one of the Analog audio outputs on or off





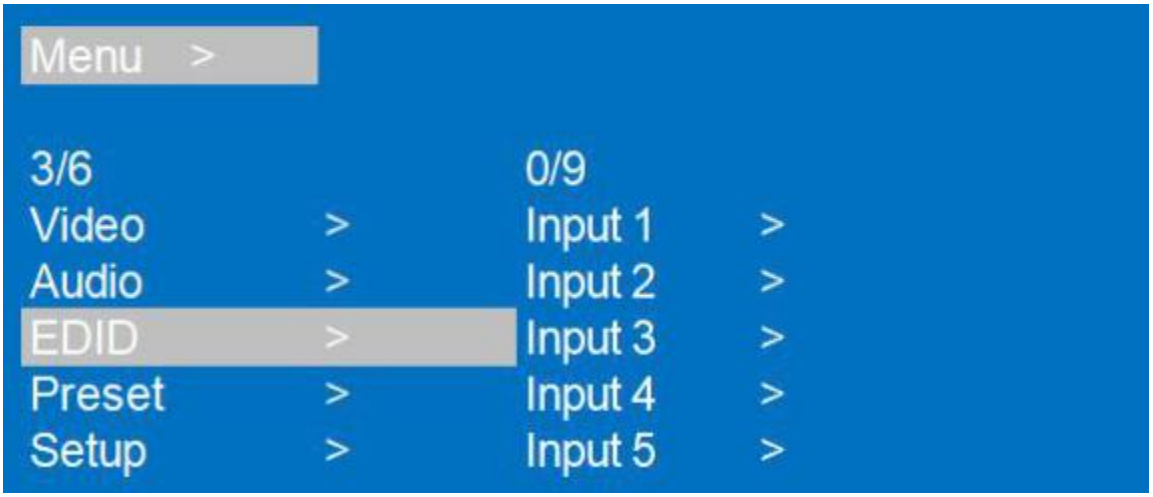


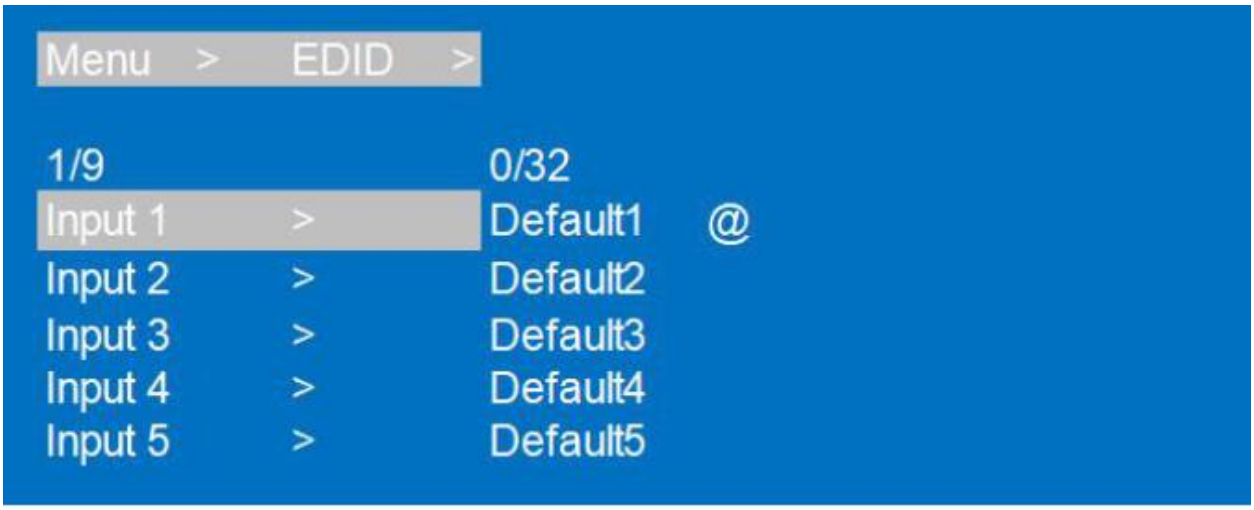
7.4 EDID Set Mode Interface

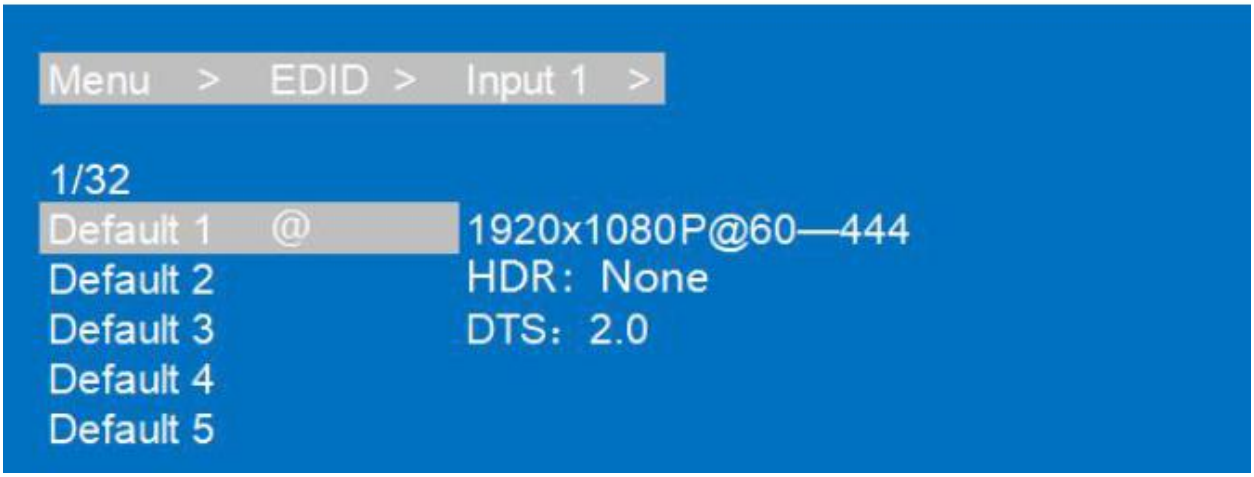
Default EDID

Default-1	1080P60hz-2.0	Default-5	4K60hz-YUV420-5.1
Default-2	1080P60hz-5.1	Default-6	4K60hz-YUV444-2.0-HDR:HLG
Default-3	1080P60hz-7.1	Default-7	4K60hz-YUV444-5.1-HDR:HLG
Default-4	4K60hz-YUV420-2.0	Default-8	4K60hz-YUV444-2.0-HDR10:HLG

EDID Mode can set each input's EDID, includes: Default EDID; User EDID; Copy EDID; Copy UTP Remote side EDID.







7.5 Preset Interface

The PRESET interface can save the current video, audio, EDID, system Settings, etc., and supports

8 different scenes. Scenes can be modified and cleared through web pages, commands, and panels.

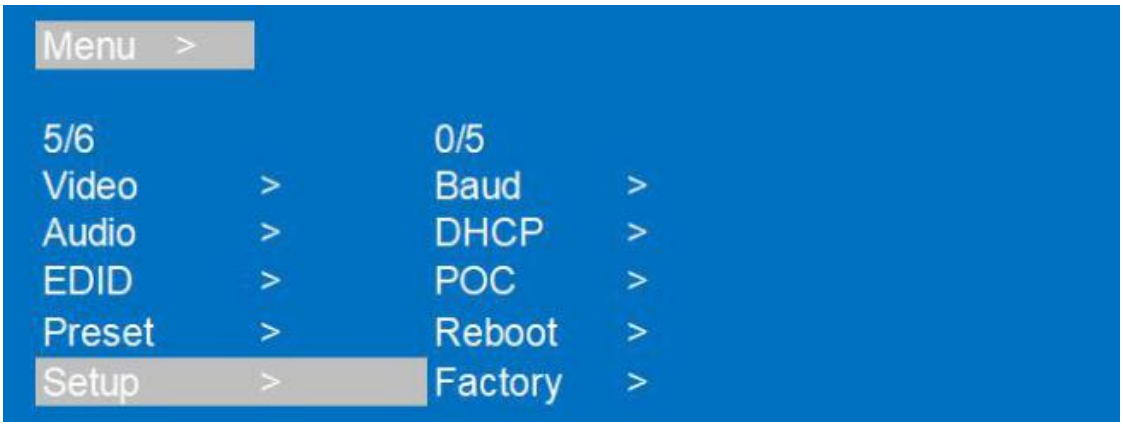
The default preset is consistent with factory Settings.

Preset has three sub menu:1. Call preset; 2. Save preset; 3. Clear preset;

7.6 Setup Mode Interface

SETUP mode can set the device's RS-232 baud rate, POC Switch, DHCP, Reboot, Factory

Specific operations are as follows



7.6.1 RS232 Baud Rate Setting

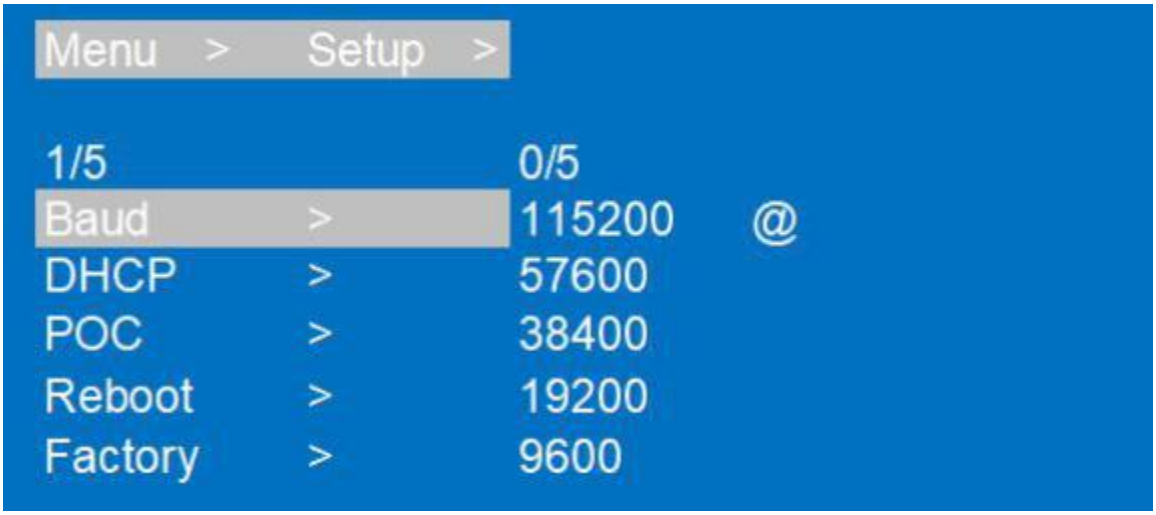
It has 5 kinds of baud rates inside the device: 9600,38400,19200,57600,115200

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



7.6.2 DHCP On/Off Setting

On means Dynamic; Off means Static

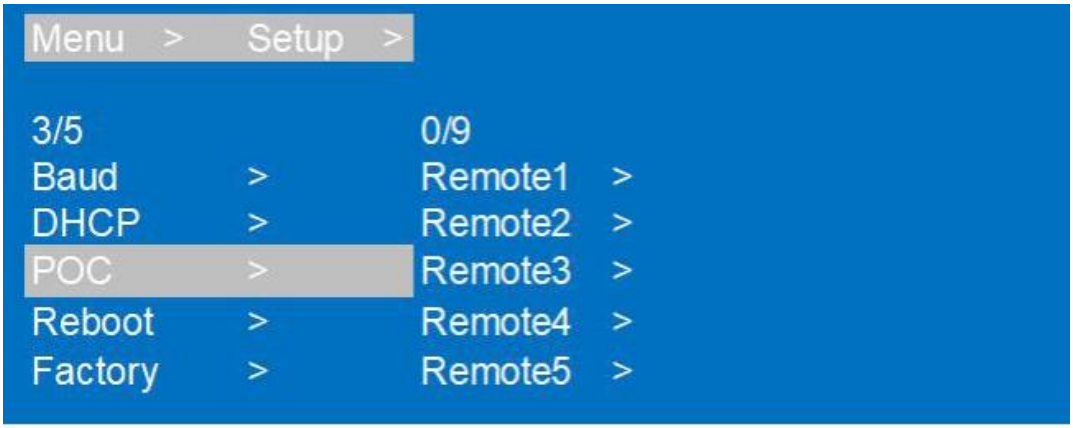
①Select “Setup” in the menu and press “ENTER”

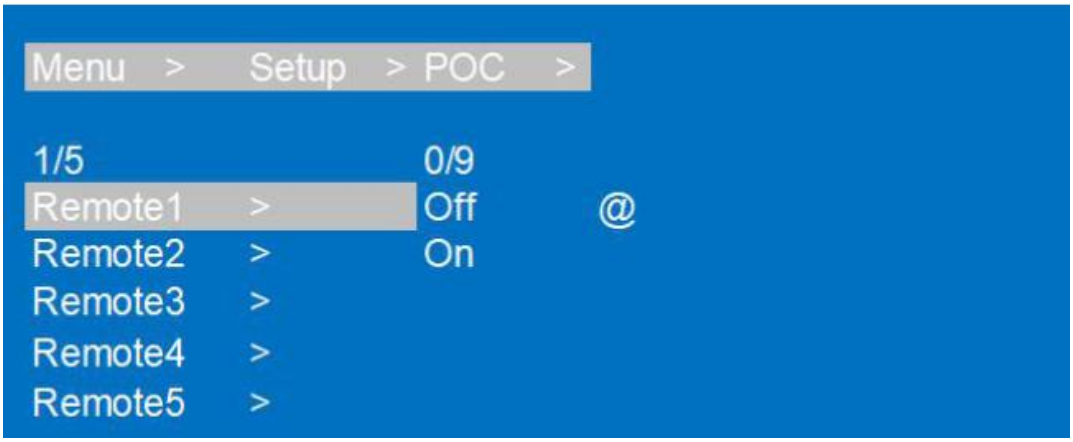
②Then use “UP”,” DOWN” button to select the “DHCP” and press “ENTER”

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

7.6.3 PoC Power Switch

The POC interface can select a certain UTP (Remote side) output switch to control POC power supply, and the default POC is "On".



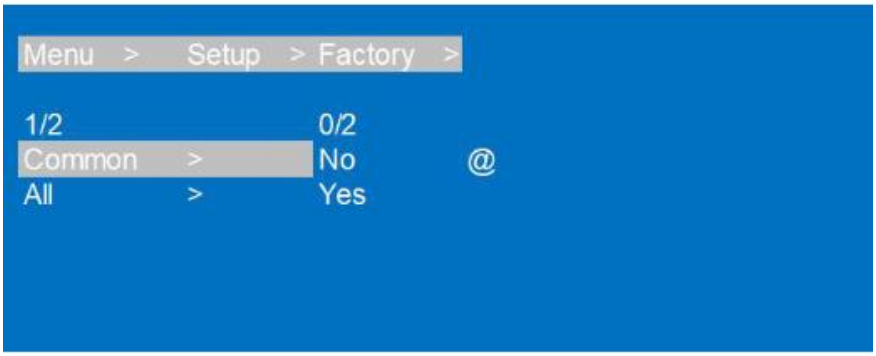


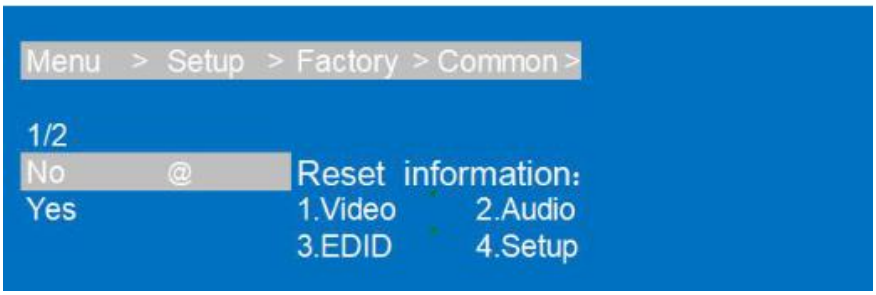
7.6.4 Reboot Setting

7.6.5 Factory Setting

Command: to resume running data, but it cannot change the setup you already saved, such as Save preset;

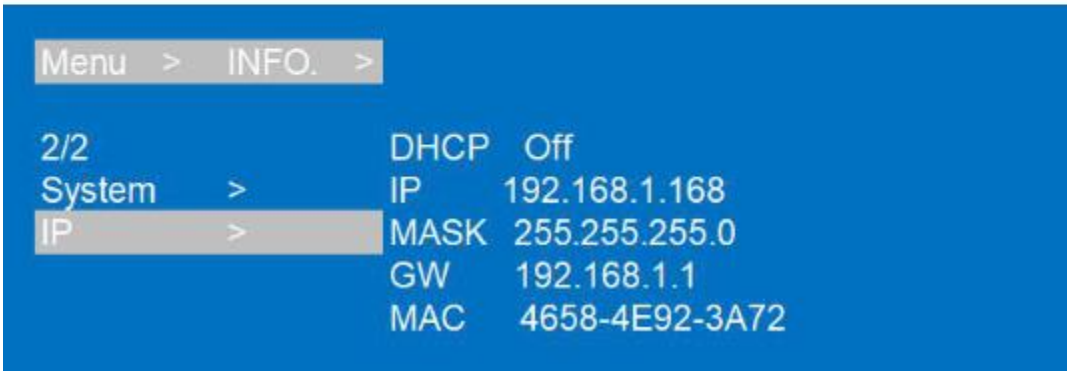
ALL: Reset all Video, Audio, EDID, Setup setting, Preset, Device name etc.



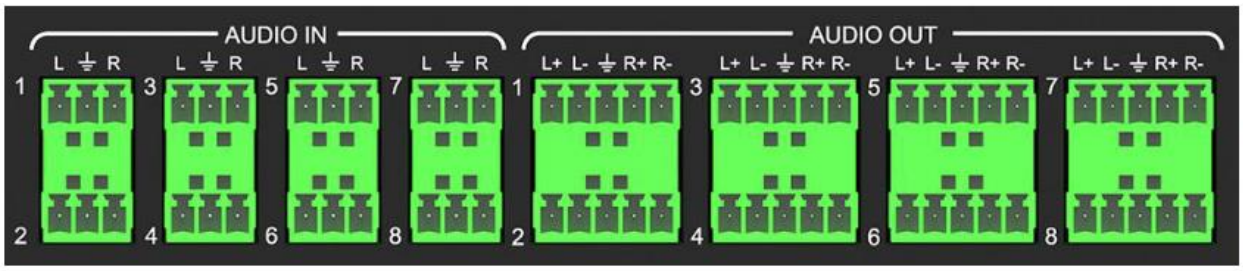


7.7 Info Mode Interface

Check the device information: IP or System information



8. Audio Embed / Extraction

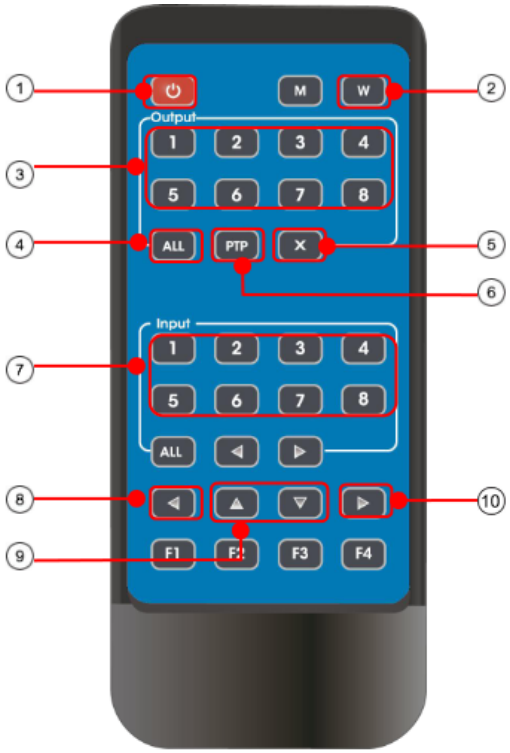


HDMI audio output supports uncompressed audio PCM, compressed audio Dolby and DTS, with a maximum support of 7.1 sound channels and a maximum sampling rate of 192KHz.

Analog audio supports PCM 2.0 channel.

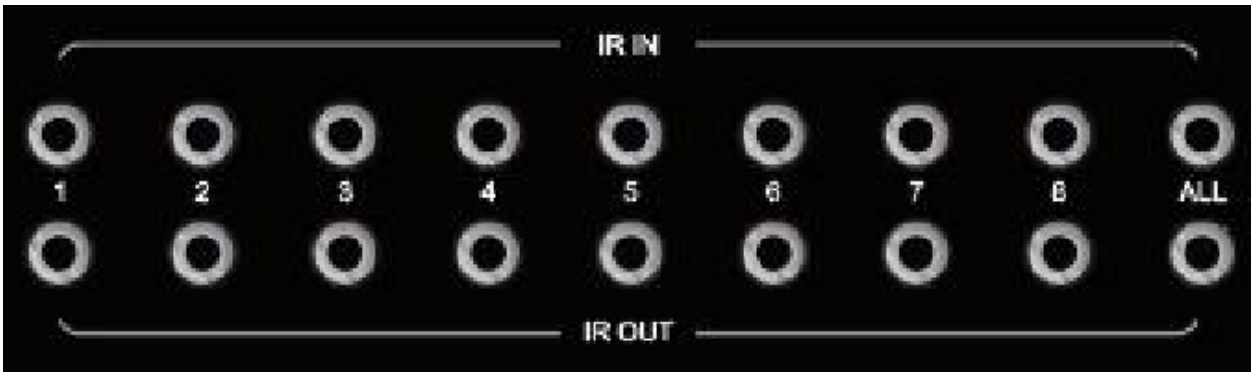
9. Remote Control Description

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
Note: When Press "Output" Button + "M" Button can turn on/off the Output's Audio



10. 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.

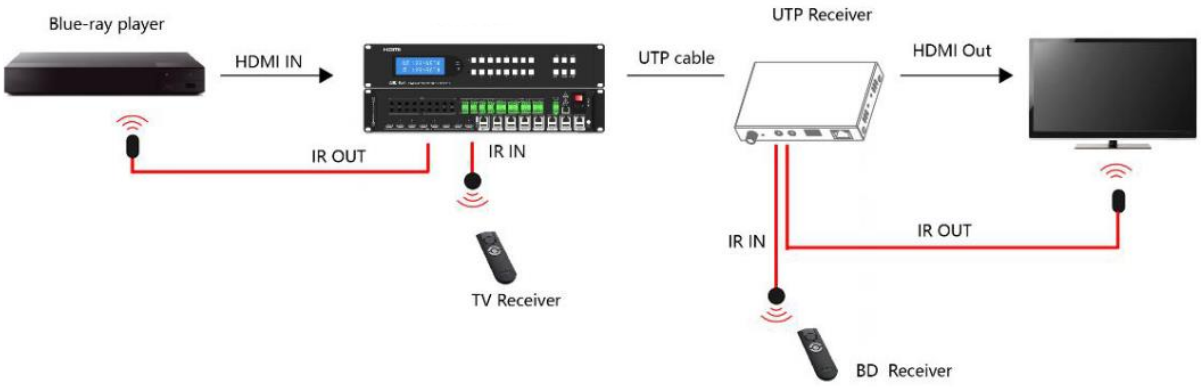


Dual way IR:

Step1: “IR IN” is for UTP output, “IR OUT” is for input channel

Step2: “IR IN ALL” Controlled by all input IR; “IR OUT ALL” Controlled by all output IR.

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



11. RS232 Pass-through & 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, select the serial port number that the serial line connects to the PC

Baud rate: 115200 (default)

Data location: 8.

Stop bit: 1

Check bit: no

Then can input commands in the command input area to control the local 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.1-x means specified output (1~8).
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	in%d	matrix=%d
Audio Mode Switch	#audio_%c	in%d	/	enc=%d
EDID	#EDID_%c	In%d	cfg=%d	/

Please refer to the " Command list" for details.

Example: ALL output switches to input 4.

Operation format: #video_d out0 matrix=4

12. Web Control

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:

Click Start > Control Panel > Network and Sharing Center.

Click Change Adapter Settings.

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.

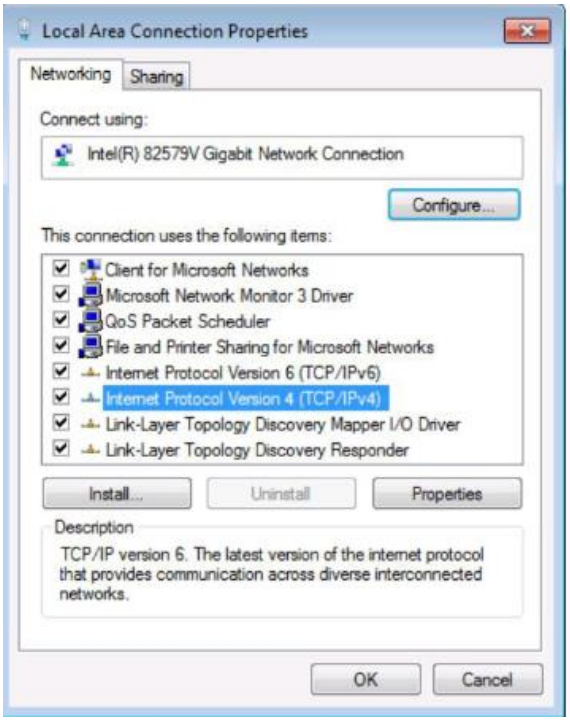
8. Click Close.

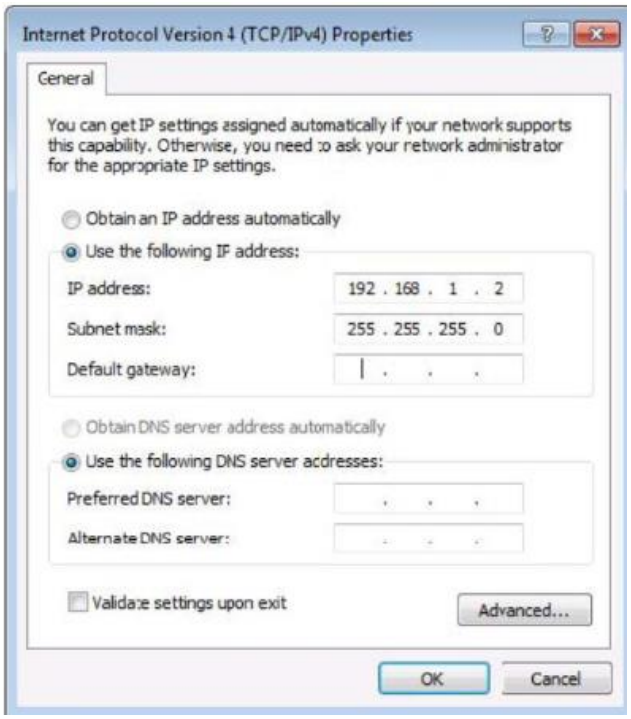
Default IP Address: 192.168.1.168

MASK: 255.255.255.0

Gateway:192.168.1.1

MAC:4658-4E96-406D





12.1 Enter Web and Control

Enter the default IP address of the matrix: 192.168.1.168

Account: **admin**

Password: **admin**

12.2 Status Interface

Input Info & Output Info & Device Info:

1. **CONNECT:** The input status display bar. After connecting with the device, it will check whether

the current input terminal has access signal source.

When no signal source connected, it will be displayed as "×", and when there is a normal working signal source connected, it will be displayed as "√".

2. **AUDIO-EMBED:** The Audio Embed status display bar. After connecting with the device, it will check whether the current HDMI output terminal has Audio Embed.

When audio is not embedded, it will be displayed as " × ". When audio is embedded, it will be displayed as "√".

3. **Connect (Local) and (Remote):** It will be displayed as "X" when there is no display device access,

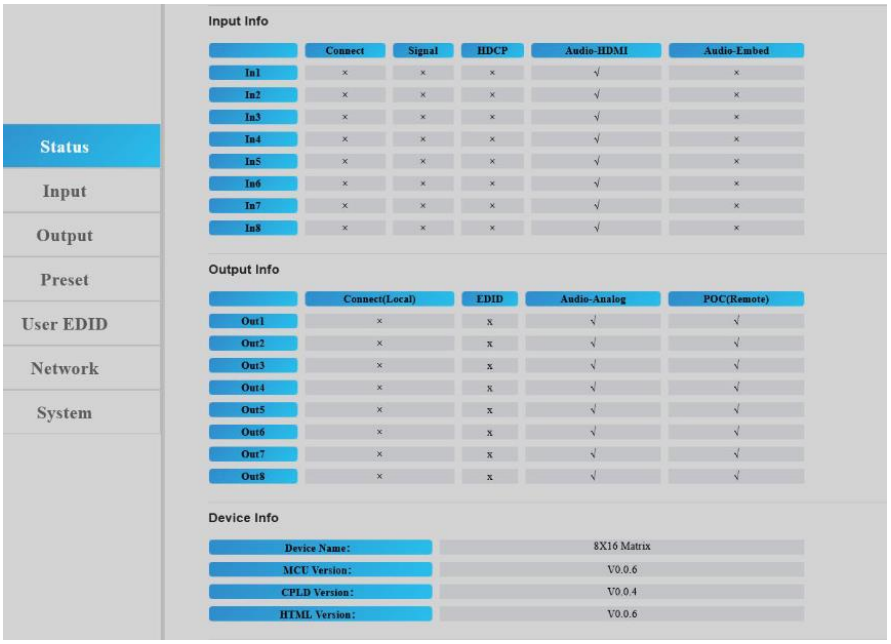
and "√" when there is display device access.

4. **Audio De-Embed:** Indicates if Audio separation is turned on. "X": means off. "√": means on

5. **Audio HDMI & UTP:** Indicates if the current local (HDMI) / Remote (UTP) Audio output is available. When the HDMI/UTP Audio output is turned off, displayed as " × ", and when the HDMI/UTP Audio output is turned on, displayed as "√".

6. **POC (Remote):** "ON" "OFF" means POC turned on or off

7. **HTML Version:** Current WEB Version



12.3 Input Interface

Restore: Click button to restore default status for input.

Double Click the Rename column can change the name of the ports.

Video /Audio-HDMI/Audio-Embed: turn on/off video, HDMI Audio, Audio Embed.

EDID: total 32 kinds of EDID to choose.

12.4 Output Interface

Restore: Click button to restore default status for output.

Double Click the Rename column can change the name of the ports.

Video /Audio-Analog/POC: turn on/off video, Analog Audio out, POC.

Source: can choose In1~In8.

12.5 Preset Interface

Restore: Click button to restore default status for preset scene.

Rename: Double Click “Preset 1~8” can change the name of the ports.

Save/Call: Save/Call preset.

12.6 User EDID Interface

Restore: Click button to restore default status for user EDID.

Rename: Double Click “User1~8” can change the name of the ports.

Copy EDID From: can copy Local1~8, Remote1~8, total 16 kinds of EDID to user.

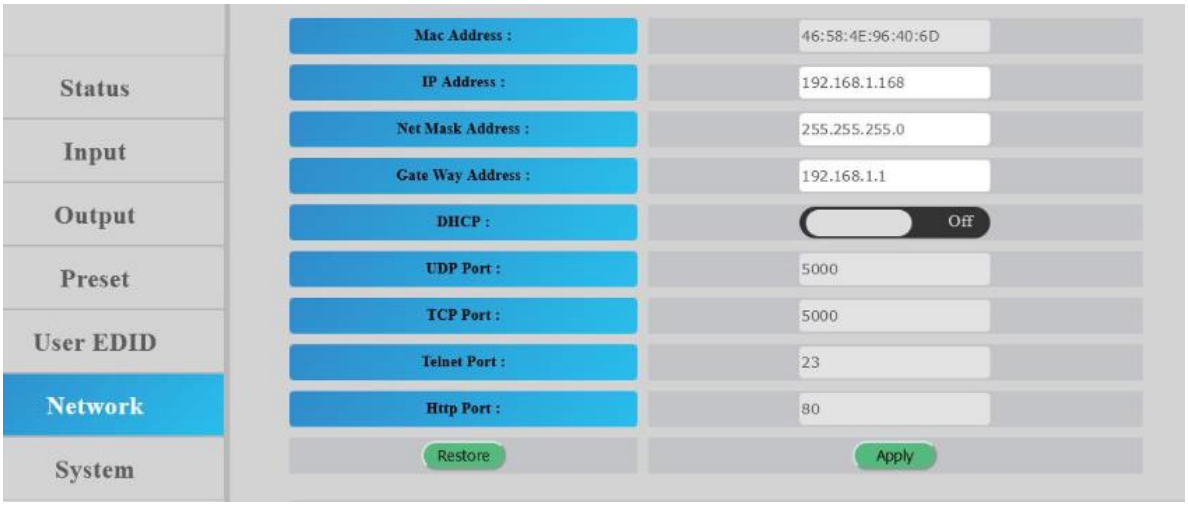
EDID Import: Click Upload button can upload user-defined EDID.

EDID Export: Click Download button can download the user-defined EDID you’ve uploaded to user.

12.7 Network Interface

This interface shows the Mac address, IP address, MASK, Gateway.

Only when DHCP is “off”, then you can modify IP address, MASK, Gateway



12.8 System Interface

1. Generic

Baud: can change Baud rate (9600,19200,38400,57600,115200).

LCD: can set the LCD breath holding time (5s,30s,60s,90s, on)

2. Account management

User Name: modify name of log in user.

New Password: new password to log in web interface.

Confirm the Password: type in new password again to confirm, then click “Apply”.

3. System

Reboot: click to reboot matrix.

User Reset (factory common): restore running info. (Include video, Audio, EDID, Setup).

Factory Reset: reset all default setup functions.

4. Firmware

Web page upgrade: click “Browse” to select the firmware, then click “Upgrade”.

13. Firmware Upgrade

First upgrade MCU (layer of application) and then upgrade CPLD, finally upgrade MCU,HTML (web page), (CPLD, HTML, MCU all support to use USB Micro port for upgrading)

A1 means MCU

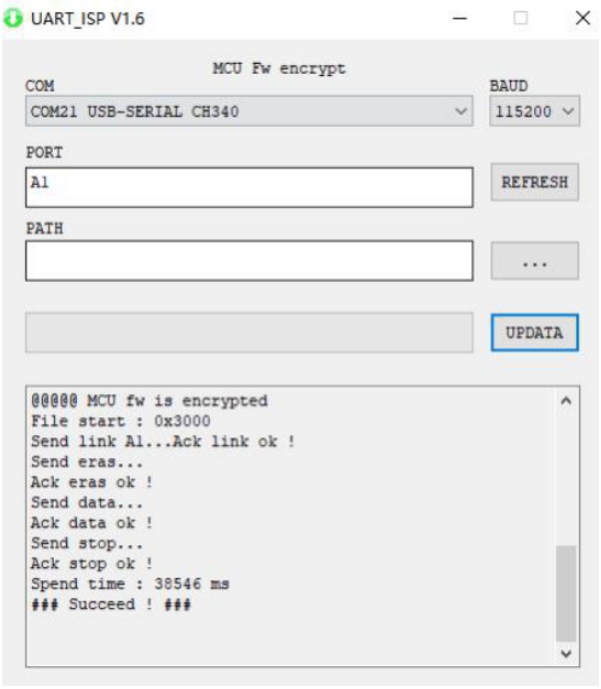
A1 01 means MCU

C0 01 means CPLD

F0 means HTML

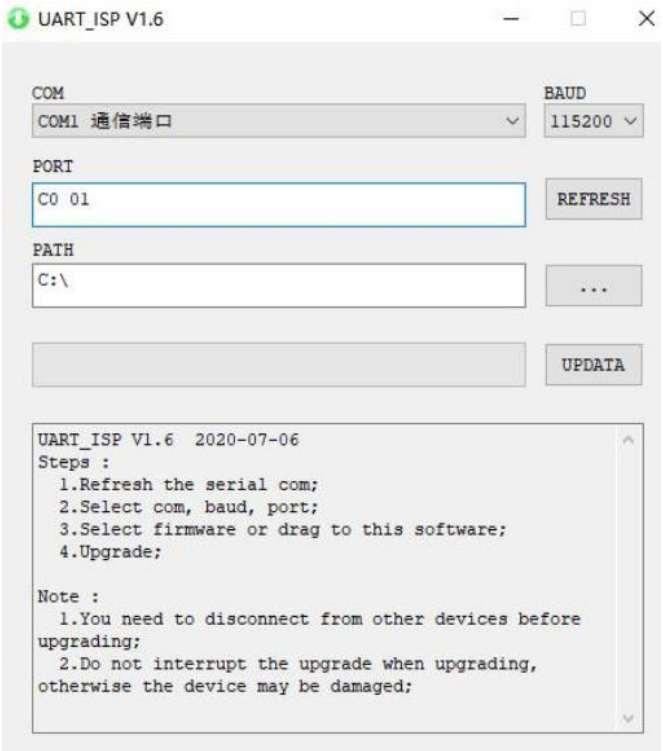
13.1 MCU Upgrade

Open the software UART_ISP_V1.6.exe on PC, select the correct port and baud rate 115200, enter "A1" in Port, then select the path of the program in PATH (XXX. Bin), and click UPDATA to complete the upgrade



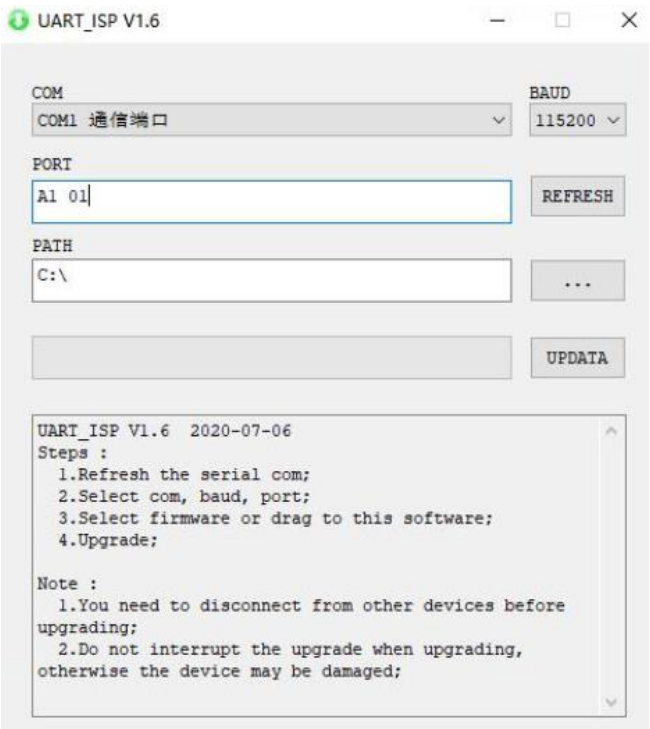
13.2 CPLD Upgrade

Open the software UART_ISP_V1.6.exe on PC, select the correct port and baud rate 115200, enter "C0 01" in Port, then select the path of the program (XXX. VME) in PATH, and click UPDATA to complete the upgrade.



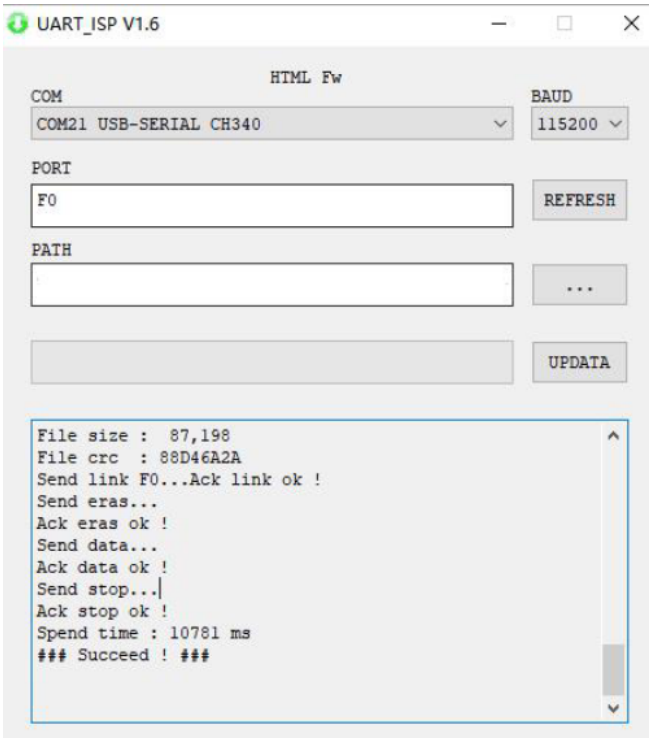
13.3 MCU Upgrade

Open the software UART_ISP_V1.6.exe on PC, select the correct port and baud rate 115200, enter "A1 01" in Port, then select the path of the program in PATH (XXX. Bin), and click UPDATA to complete the upgrade



13.4 HDMI (Web GUI) Upgrade

Open the software UART_ISP_V1.6.exe on PC, select the correct port and baud rate 115200, enter "F0" in Port, then select the path of the program (XXX. HTML) in PATH, and click UPDATA to complete the upgrade



14. Maintenance

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

15. 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 (18) Months”, 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.

16. 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.

17. 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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PUBLISHED BY J-TECH DIGITAL INC.

9807 EMILY LANE
STAFFORD, TX 77477
TEL: 1-888-610-2818
E-MAIL: SUPPORT@JTECHDIGITAL.COM