



User Manual

4x4 Matrix 4K (60Hz 4:4:4) HDR10 and Audio Extraction
Model PT-MA-HD44M
Designed in Germany

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VersionV1.0

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Preface

Read this user manual carefully before using this product. Pictures shown in this manual are for reference only. Different model layouts and specifications are subject to the physical product.

This manual is for operation instructions only, not for any maintenance usage.

In the constant effort to improve our product, we reserve the right to make changes in functions or parameters without prior notice or obligation.

Trademarks

Product model and logo are trademarks. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without the prior written consent.

SAFETY PRECAUTIONS

To ensure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

Introduction to PT-MA-HD44M

The PT-MA-HD44M is a HDMI 2.0 4x4 Matrix supporting 4K@60Hz (4:4:4) HDMI. It enables any one of the 4 HDMI sources to any one of the 4 HDMI displays, and with Phoenix and Coaxial ports for audio extraction. As well as supporting multiple control modes, such as front panel buttons with display, IR, RS232 and TCP/IP control

Features

- 18Gbps (4K 60Hz 4:4:4), HDR10, HLG, Dolby Vision and HDCP 2.2 support
- PCM2.0, Dolby True HD and DTS-HD master audio, LPCM7.1 pass through with S/PDIF and analogue stereo extraction
- IR, RS232, TCP/IP, comprehensive web GUI and front panel menu LCD control
- Ultra compact product housing

Package Contents

Please take an inventory of the package contents to ensure you have all the items listed below. If anything is missing or damaged, please contact your distributor for a replacement.

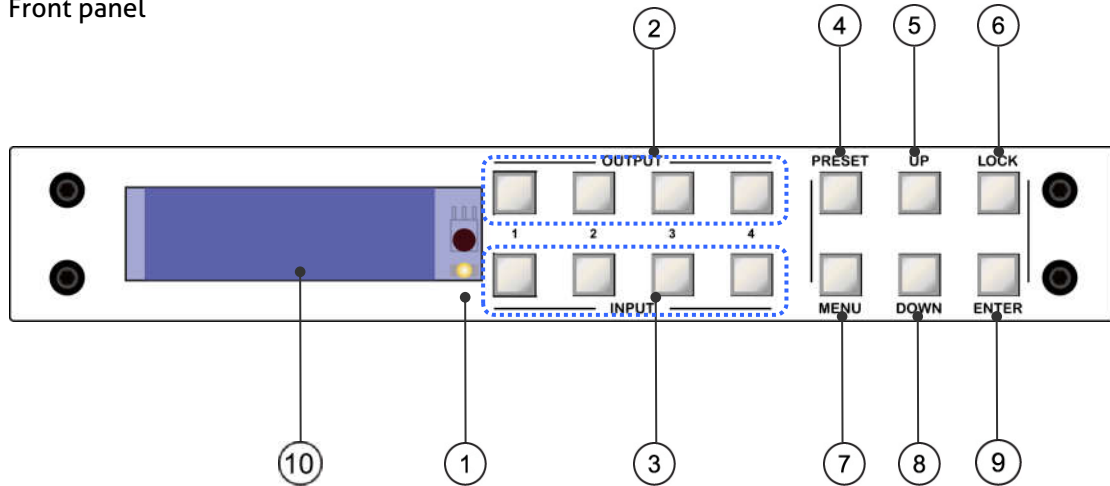
- 1 x Main Unit (PT-MA-HD44M)
- 1 x Remote control
- 5 x Phoenix 3 pin for RS232 cable termination & L/R Audio termination
- 1 x Power Adaptor (12V 2A)
- 1 x IR Ext RX Cable
- 1 x User Manual

Specifications

Operating Temperature	0°C to +40°C
Operating Humidity	5 to 90%RH (No Condensation)
Max resolution	4K@ 60hz YUV4:4:4
HDCP Compliant	HDCP2.2 and HDCP1.4
Output Video	HDMI2.0 and HDMI 1.4
Audio Format Supported	PCM2.0, Dolby True HD and DTS-HD master audio, LPCM7.1
RS-232 serial port	3PIN Phoenix connector
Ethernet port (IP control)	RJ45, female
IR Ext port	1x3.5mm stereo jack
Bandwidth	18 Gbps
Default IP	192.168.1.168
Dimensions(WxHxD)	L216.2xW128.5xH34mm
Net Weight	0.47kg
Power consumption	14W(Max)

Panel Descriptions

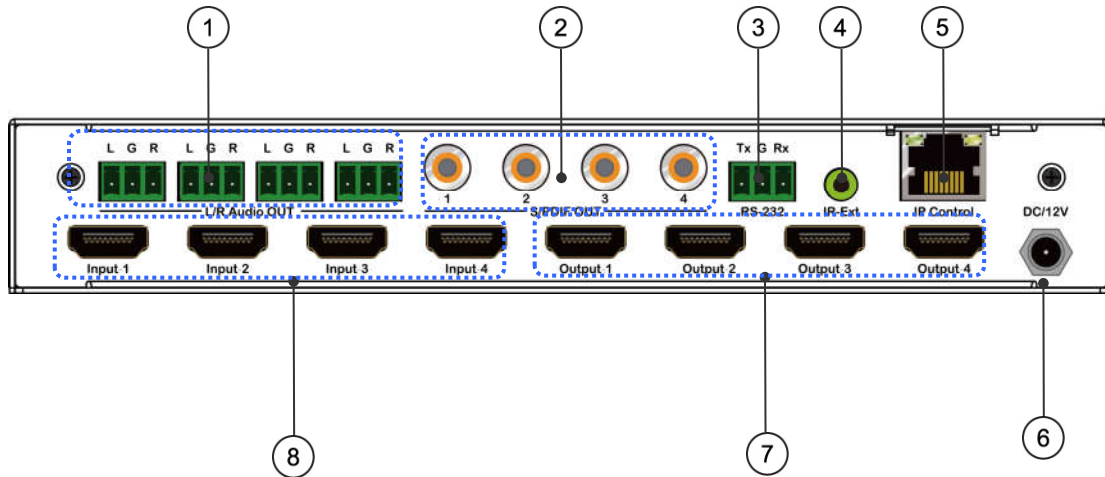
Front panel



- ① IR receive window.
- ② Output 1-4: Short press to choose one output, press again to cancel; Long press to choose all output, long press again to cancel.
- ③ Input 1-4: Short press to choose one input (workable only if choose the output already); Long press to choose one input for all output.
- ④ PRESET: Short press to preset
- ⑤ UP: Short press to up
- ⑥ LOCK: Long press to lock, long press again to unlock; When locked, all buttons is locked except for the lock button.
- ⑦ MENU: Press for main menu interface or to return to the previous menu interface.
- ⑧ DOWN: Short press for down
- ⑨ ENTER: Short press for confirm
- ⑩ LCD screen

Note: Unit can be controlled by front panel button, for simple operations such as: video switching, EDID control, baud rate adjustment. When in the menu, the user must press buttons within 30s; after 30s, LCD screen will return to audio channel interface automatically; if exceed 60s, LCD screen will switch off.

Rear panel

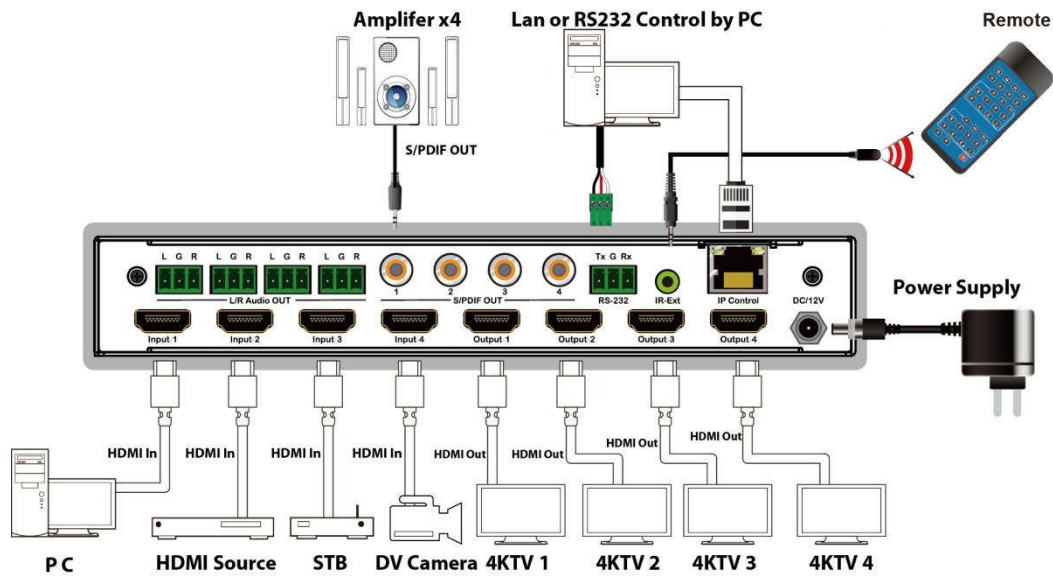


- ① Analog audio out
- ② S/PDIF audio out
- ③ RS232 for control
- ④ IR-Ext
- ⑤ Ethernet port
- ⑥ DC12V/2A input
- ⑦ HDMI output port
- ⑧ HDMI input port

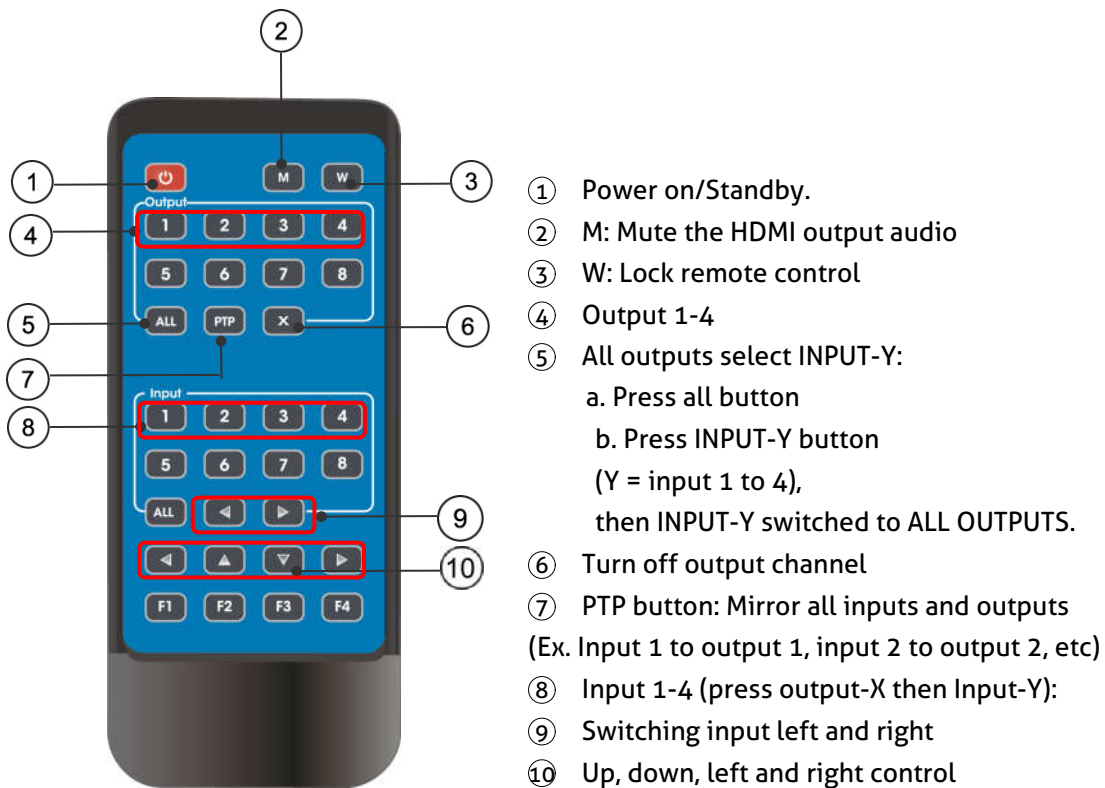
Connecting and Operating

1. Connect source devices to input ports of the matrix
2. Connect HDMI output ports to TV or other HDMI sink devices.
3. Optional: Connect RS232 cable from PC RS232 port.
4. Optional: Connect an Ethernet cable from the TCP/IP port on the matrix to a local area network.
5. Connect 12V POWER supply to DC power socket.
6. Power on the matrix, HDMI sources and displays.

Application Diagram



Remote Control Description



Note: all buttons are short press, no function for long press

Power on/standby: short press to standby mode, LCD screen will show "System Shutdown", HDMI output 5V will disconnect and TV will go blank. Short press again to wake device, HDMI output returns to normal.

Video switch: output+input (eg: output1+input2, switch output1 to input1)

Turn off HDMI output audio: output+M (eg: output1+M, turn off output1 audio)

Lock remote control: short press "W" to lock, short press again to unlock.

Turn off output channel: output+X (eg: Output1 + X,output1 turns to be black screen, output+X again to return to normal)

Switching input left and right: output + <(>); (eg: All + <, TV image will change according to the switching input and skip automatically if no input signal).

Panel Control Description

1.1 Video switch operation

Signal switching includes 4 switching channels, which can be randomly configured as input/output according to requirements to form a 1×4~4×4 matrix. It can switch any input signal to 1 channel output or all channel output.

Operation format:"output channel"+"input channel",or long press "input channel"

Output	1	2	3	4
Input	1	2	3	4

For example:

1. Switch output1 to input4

Operation: press output1+input4 to complete switch

2. Output 2,1,3 switch to input 2

Operation: press output2,1,3+input2 to complete switch

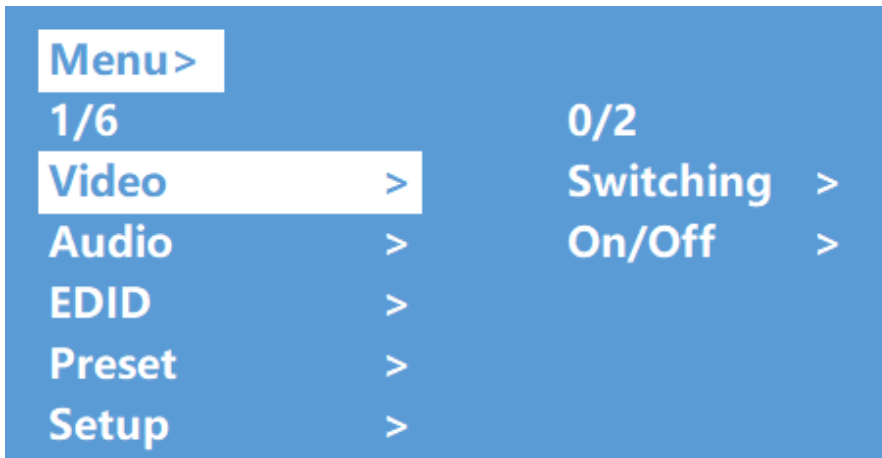
3. All outputs switch to input4

Operation: long press output4+long press input4 to complete switch

Note: press output+input to switch; then can press input button again to switch input (no need to repeatedly press output (if exceeds 10s, need to press output again))

1.2 Video control

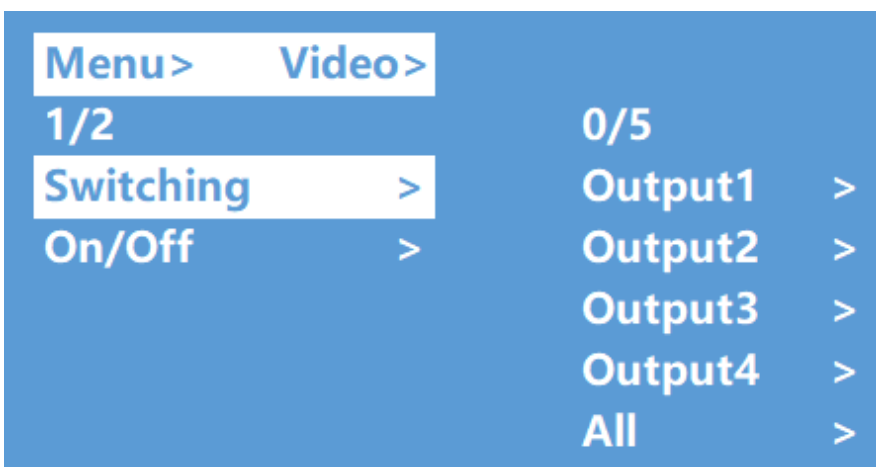
There are 2 sub-menus in video interface:1. switching 2. On/Off

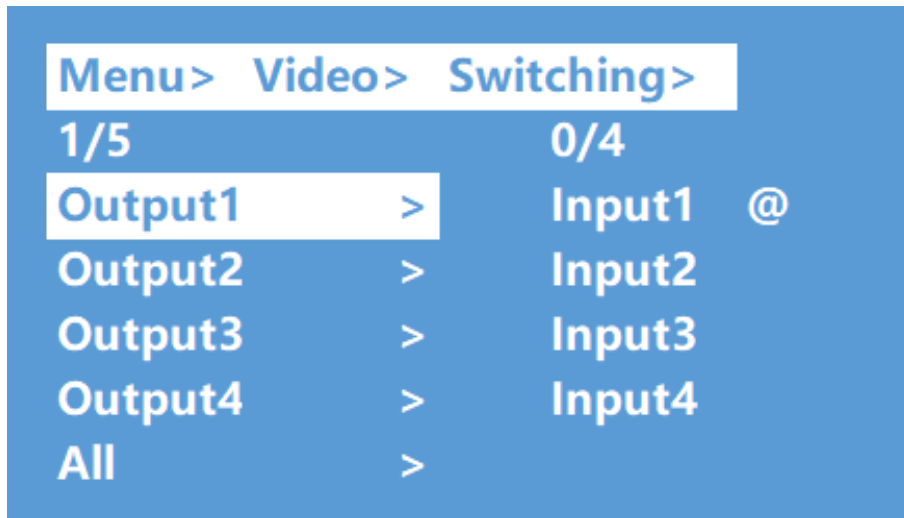


Video switching

Operation:

- ① select "Video "in the main menu, press "ENTER" button.
- ② press "up and down" button to choose "Switching" .
- ③ press "ENTER" to enter the next sub-menu
- ④ press the "up and down" button to select "Output1~4" ("All" means all output, "Switching"), the bottom color of the selected output turn to white
- ⑤ press "ENTER "to enter the next sub-menu
- ⑥ press the "up and down" button to select input, the bottom color of the selected input turn to white
- ⑦ press "ENTER "button to complete video switching



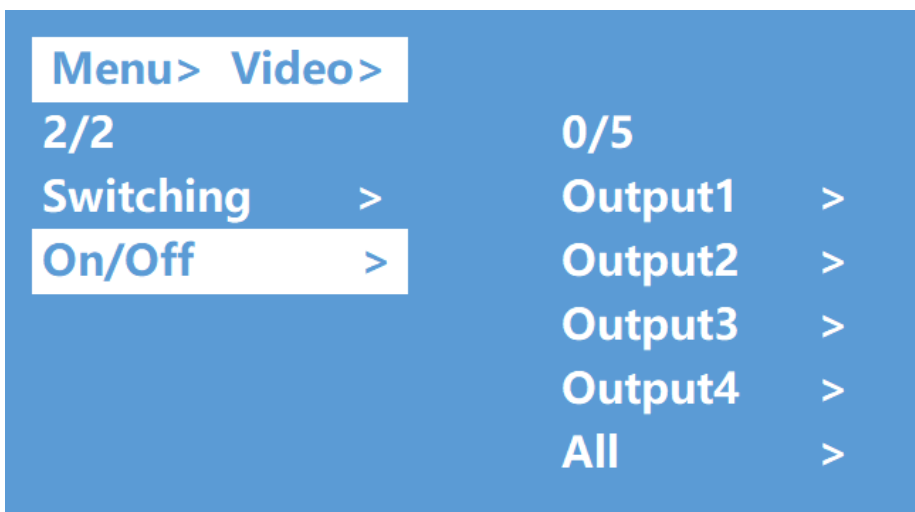


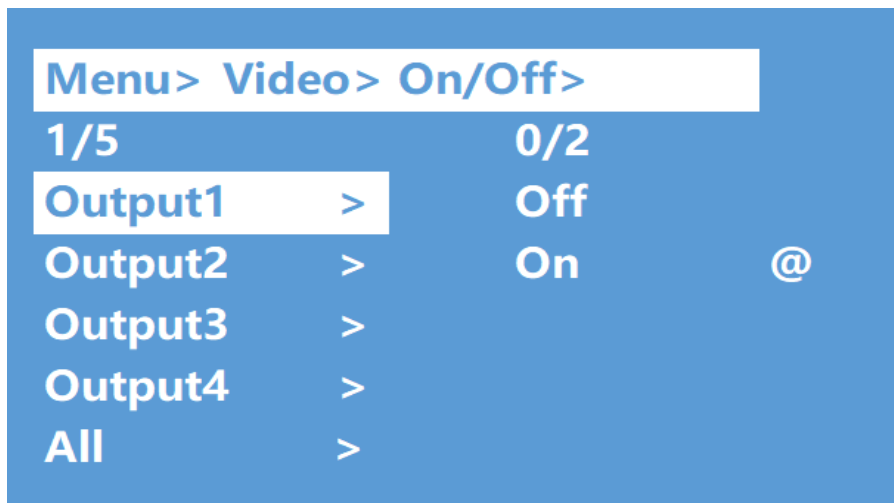
Output switch control

You can image mute any output port, or image mute all output ports. Output video is default not muted

Operation:

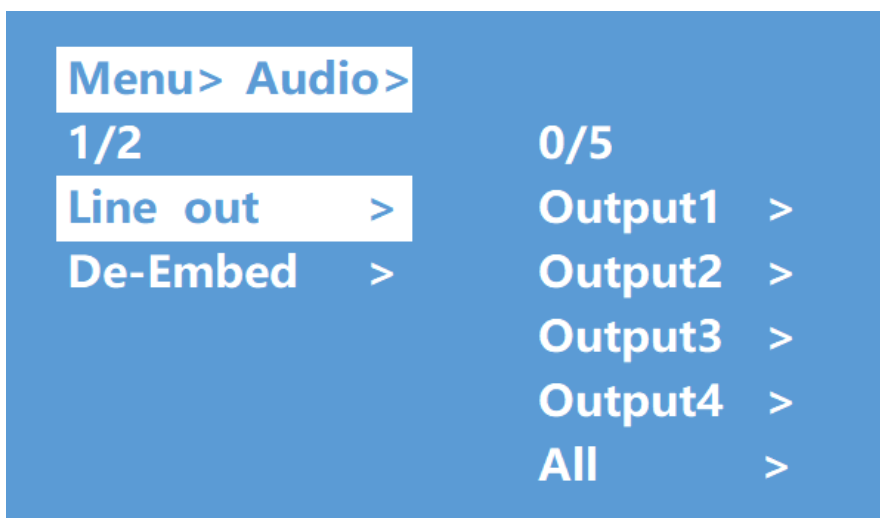
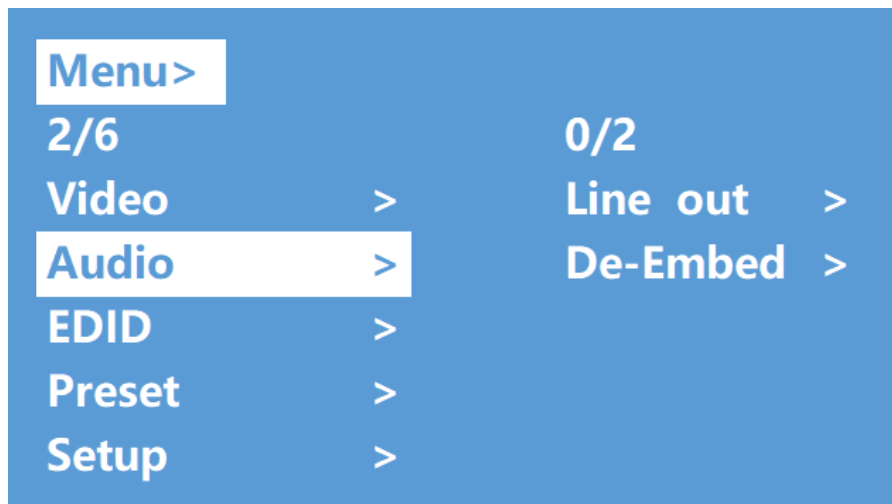
- ① in the main menu, select "Video" and press "ENTER" button
- ② press "up and down" button to select "On/Off"
- ③ press "ENTER" button to enter the next sub-menu
- ④ Press "up and down" button to select "output1-4"(All means all output), the bottom color of the selected output turn to white
- ⑤ press "ENTER" to enter the next sub-menu
- ⑥ select Output-HDMI1~4, press "ENTER" button to enter the next sub-menu
- ⑦ press the "up and down" button to select "Off" or "On"
- ⑧ Press "ENTER" button to confirm that the output port is open/closed.





1.3 Audio control interface

There are 2 sub-menus in audio control interface: Line out, De-Embed (both are default open)



Switch output audio

"Line out" means switch HDMI output audio, able to mute the TV sound from any one channel HDMI output.

Operation:

1. Select "Audio in" main menu and press "ENTER" button.
2. press "up and down" button to select "Line out", press "ENTER" button, the bottom color of the selected turn to white. Able to select output1-4 and all via pressing "up and down" button, press "ENTER" button to choose "on" and "off"
3. eg: mute sound of TV which connected to HDMI output1, operation: "Audio" + "ENTER" + "Line out" + "Output1-HDMI1" + "Off", will return to upper-menu after "ENTER" .

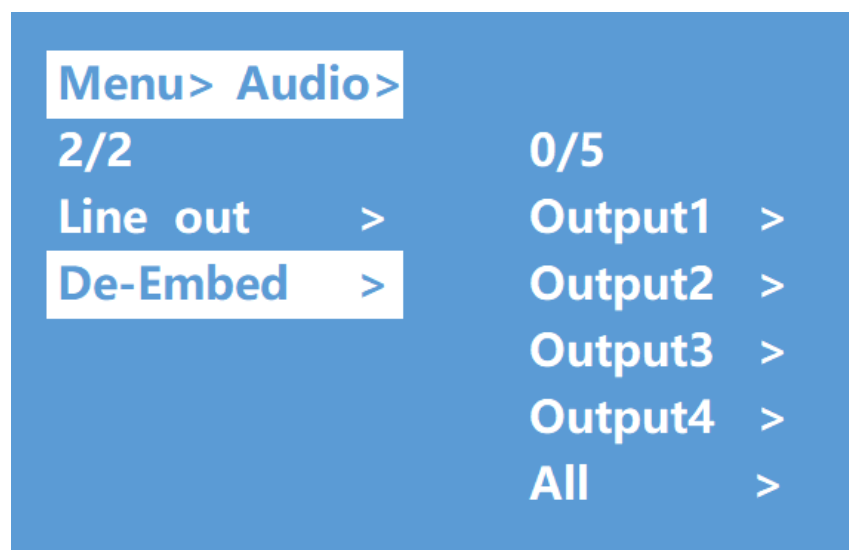
Audio extraction control

"De -Embed" - Select the output audio for both analog and SPDIF audio

Channel audio output, or mute

Operation:

- ① select "Audio" in main menu and press "ENTER" button.
- ② press "up and down" button to select "De -Embed", press "ENTER" button, the bottom color of the selected turns to white, Able to select output1-4 and all via pressing "up and down" button, press "ENTER" button to choose "on" and "off"
- ③ eg: turn off audio extraction of HDMI output1, operation: "Audio" + "ENTER" + "De -Embed" + "Output1" + "Off", will return to upper-menu after "ENTER"

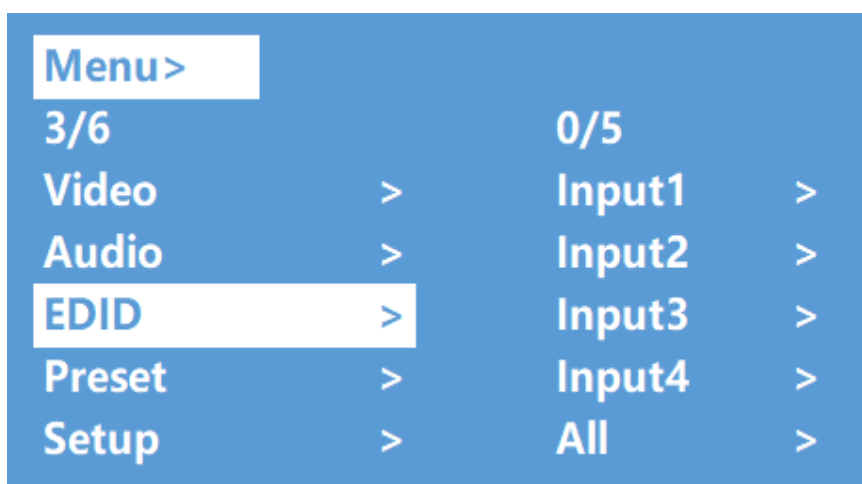


1.4 EDID setting interface:

EDID management: User EDID, built-in EDID, Copy EDID mode.

The default EDID is "Default1"

Default1	4K60 444-LPCM: 2.0, HDR:HLG	Default2	4K60 420-LPCM: 2.0, HDR:None
Default3	4K30 444-LPCM: 2.0, HDR:None	Default4	1080P60 444-LPCM: 2.0, HDR:None



Example: switch default1 to output1:

Operation:

1. select "EDID" in main menu and press "ENTER" button
2. press "up and down" button to select "Input 1" (All = all inputs)
3. press "ENTER" button to enter the next sub-menu
4. press "up and down" button to select "Default1", the bottom color of the selected turn to white, press "ENTER" to complete setting
5. behind the selected EDID, it will show the max supported resolution, audio format and audio channel.

Menu> EDID>

1/5

0/17

Input1 >

Default1 @

Input2 >

Default2

Input3 >

Default3

Input4 >

Default4

All >

User1

Menu> EDID> Input1>

1/17

Default1 @ 3840x2160@60-444

Default2 > HDR:HLG

Default3 > LPCM:2.0

Default4 > FXN1234

User1 >

1.5 Preset application

Preset interface can save the current video, audio, EDID, system setting, etc..., supports 8 different presets, can preset through web, command, panel button, and recall.

Preset control interface has three sub-menu:

Call scene

Save scene

Clear scene

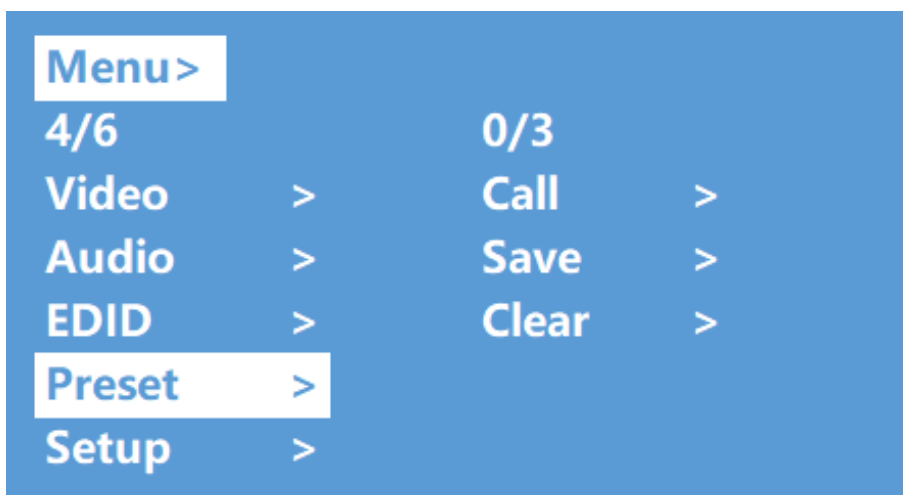
Operation:

① select "Preset" in main menu and short press "ENTER" button to enter preset interface; able to call, save and clear preset.

② save preset: select Save-> anyone of Preset1~8->ENTER.

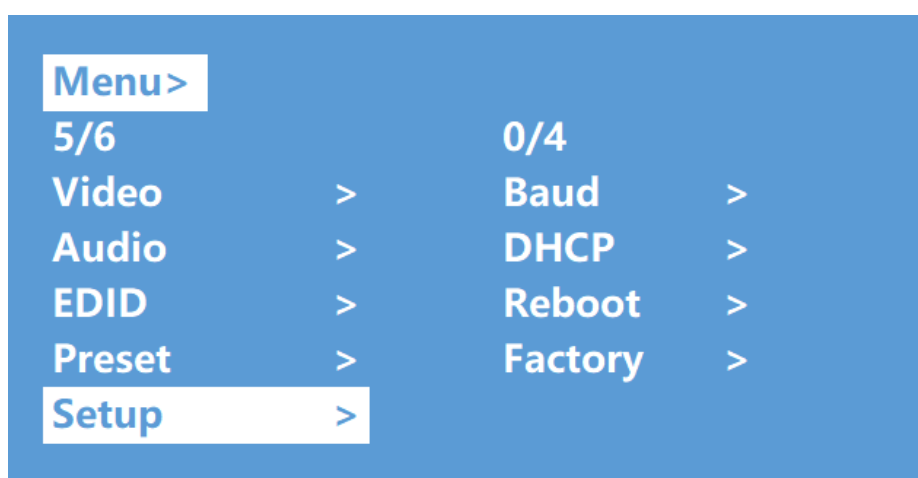
③ call preset: Call->any of the saved Preset1~8->ENTER.

④ clear preset: Clear->any of the saved Preset1~8->ENTER (the saved preset will return to the default).



1.6 Setup interface

Setup interface can set serial port baud rate, DHCP switch, device reboot and factory reset.



Baud rate setting

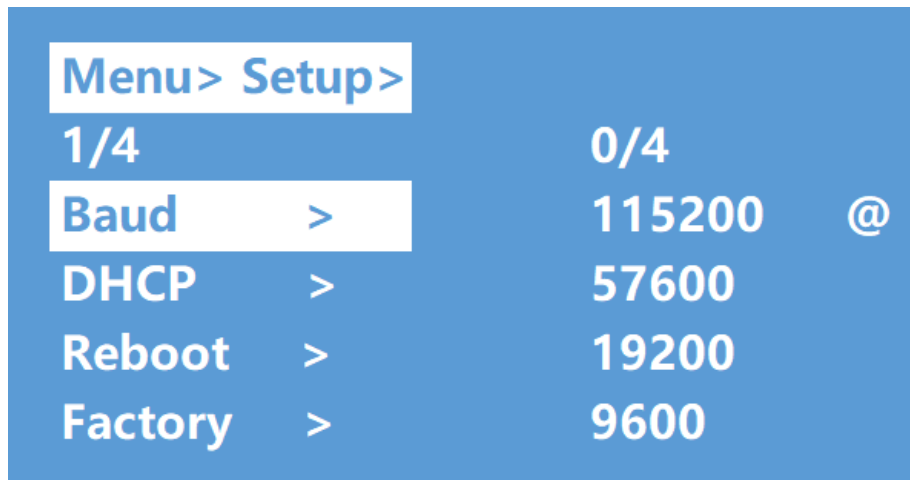
4 options for baud rate setting: 9600,19200,57600,115200.

The default serial port is 115200

Below example is setting baud rate to 9600.

Operation:

1. Select "Setup" in main menu and press "ENTER" button.
2. Press "up and down" button to select "Baud"
3. Press "ENTER" to enter the next sub-menu.
4. Press "up and down" button to select "9600"
5. Press "ENTER" to complete setting

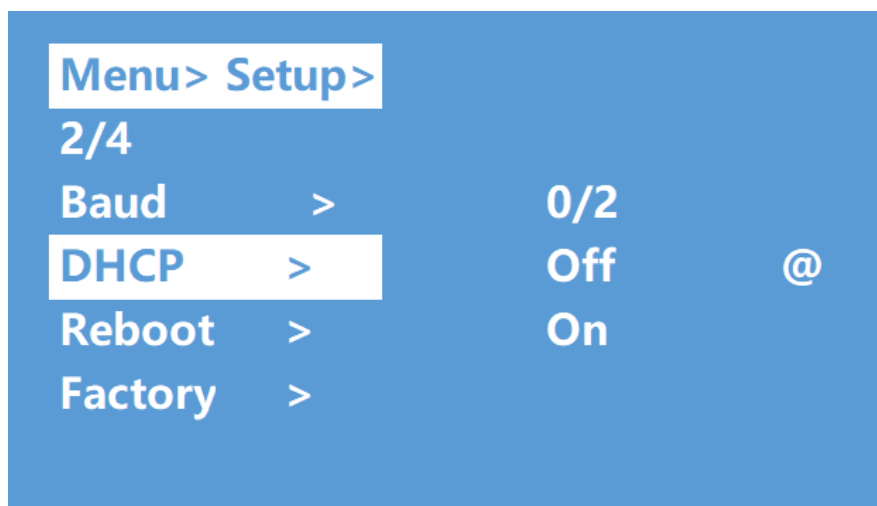


DHCP switch

DHCP On: dynamic IP address; DHCP Off: static IP address (default is DHCP off)

DHCP on operation:

1. Select "Setup" in main menu and press "ENTER" button.
2. Press "up and down" button to select "DHCP" setting
3. Press "ENTER" to enter the next sub-menu.
4. Press "up and down" button to select "On"
5. Press "ENTER" to open DHCP to allocate IP address automatically.

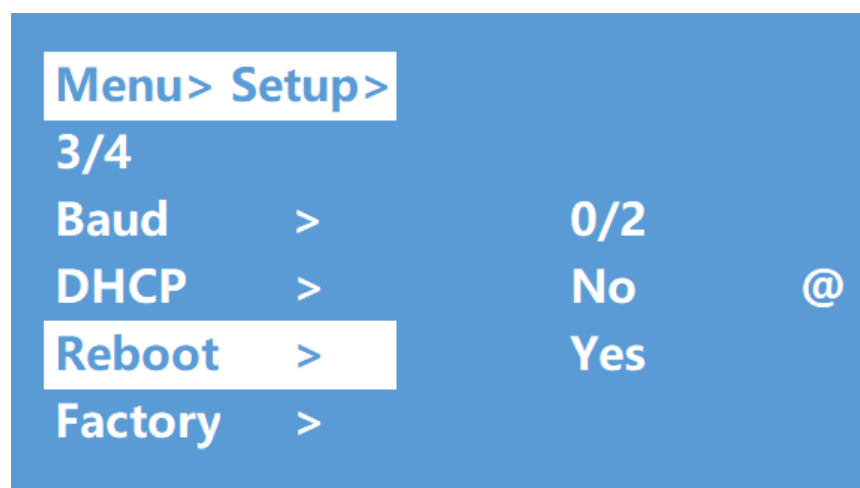


Reboot

Reboot device, default is "NO".

Operation:

- ① select "Setup" in main menu and press "ENTER" button
- ② press "up and down" button to select "Reboot"
- ③ press "ENTER" to enter the next sub-menu.
- ④ press "up and down" button to select "Yes"
- ⑤ press "ENTER" to complete reboot device.



Factory reset

It is an initializing setting for the device function (default is "NO"). There are two factory settings:

1. Factory common: factory reset for video switch, EDID, audio and setting (IP address can't be factory reset when under "common").
2. Factory All: factory set for video switch, EDID, audio, setting, preset and device name.

Eg: factory all operation:

- ① select "Setup" in main menu and press "ENTER" button
- ② press "up and down" button to select "Factory"
- ③ press "ENTER" to enter the next sub-menu.
- ④ press "up and down" button to select "ALL" and press "ENTER" button
- ⑤ press "up and down" button to select "Yes" and press "ENTER" button

Menu> Setup>

4/4

Baud >

DHCP >

Reboot >

Factory >

0/2

Common >

All >

Menu> Setup> Factory >Common>

1/2

No @

Yes

Reset information:

1.Video

2.Audio

3.EDID

4.Setup

Menu> Setup> Factory >All>

1/2

No @

Yes

Reset information:

1.Video

2.Audio

3.EDID

4.Setup

5.Preset

6.Name

1.7 Query information interface

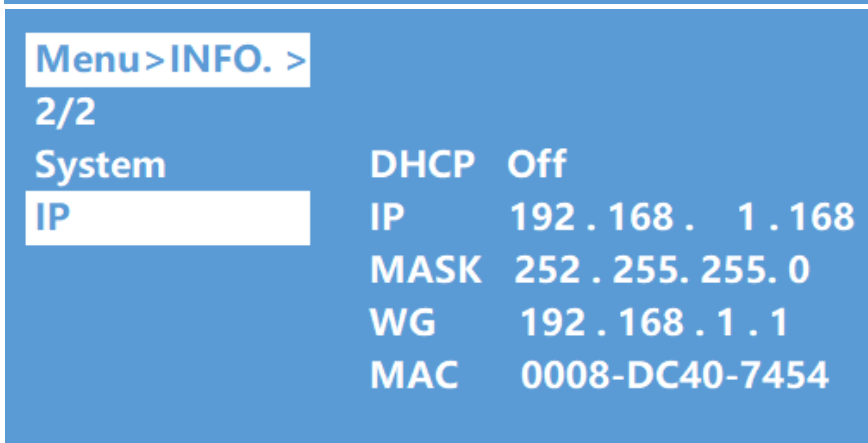
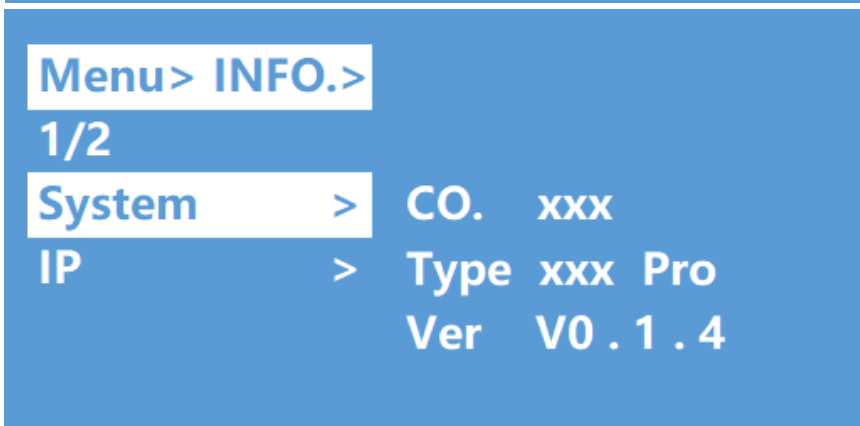
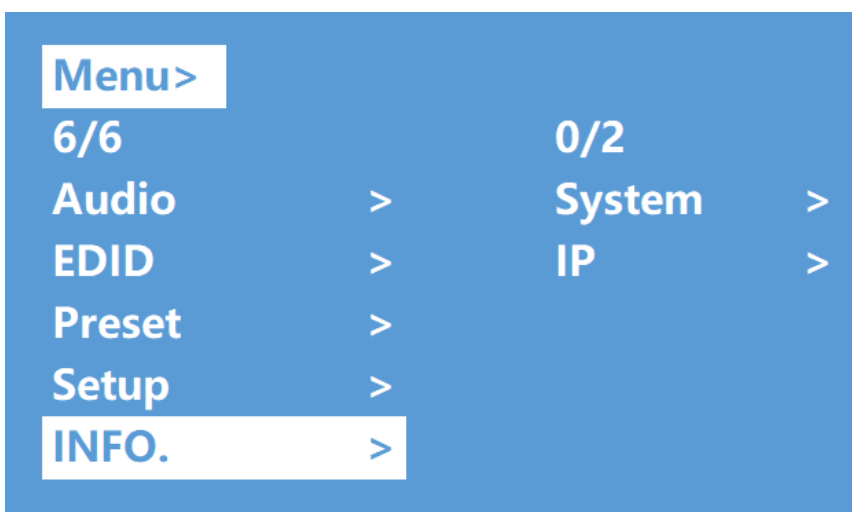
Query IP and system information.

System interface: query company name, device name and version information

IP interface: query device IP address, MAC address and DHCP status.

Operation:

- ① select "INFO" in main menu and press "ENTER" button
- ② press "up and down" button to select "System" or "IP", bottom color will turn white when selected
- ③ press "ENTER" to enter the next sub-menu, then able to query device information.



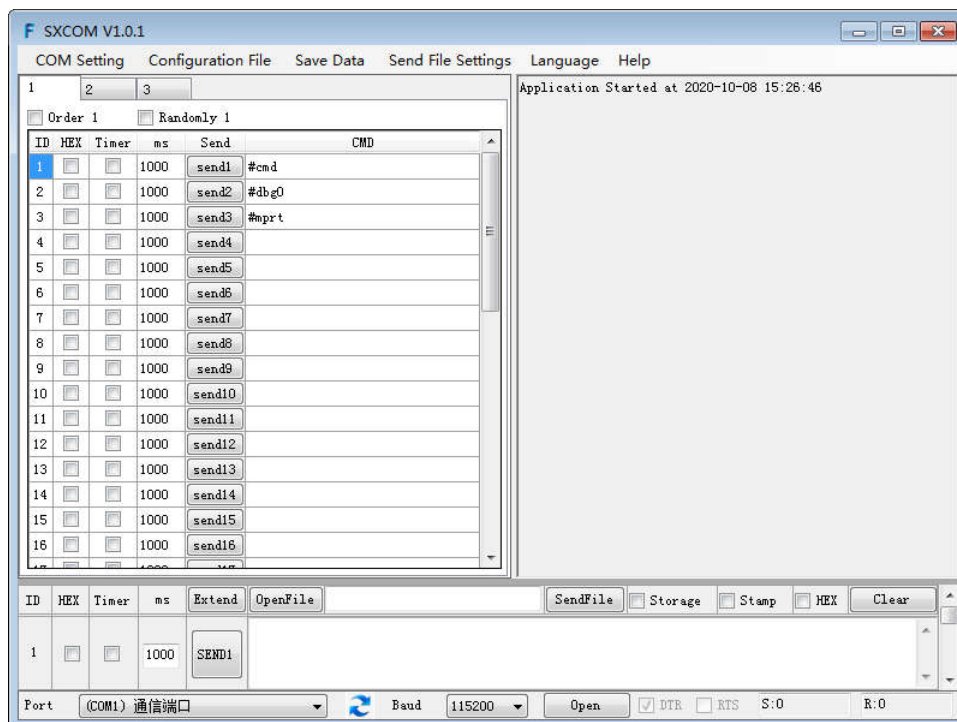
RS232 Control

Comport setting:

Choose correct COM port that connect to PC in parameter configuration area

Baud Rate:	115200 bps(Default)
Parity:	None
Data Bit:	8 bit
Stop Bit:	1 bit

Enter Port Command in Send options.



Command List

- 1). All commands start with "#"
- 2). "_" the underline cannot omit.
- 3). Command head,Parameter and target need to add one "SPACE".

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

Type	Format	Value	Regulation
Command head	#cmd		
Explain	Can be used to search command, after receiving command, the system will feedback all open command format fields		
Example1	#cmd		
	Search all open command		

Web Control

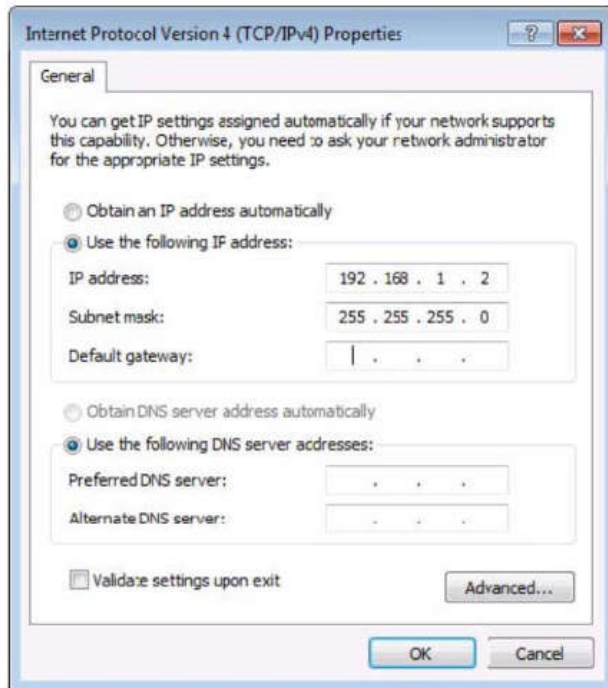
Static IP Add:	192.168.1.168
Sub-Mask:	255.255.255.0
Gateway:	192.168.1.1
Dynamic IP	OFF
TCP/IP/UDP Port	5000
Telnet	Account and Password: Admin Note: Capitalize the first letter Port: 23

Default IP address for log-in: **192.168.1.168**

Change IP address of PC

Before configuring the device through the website, it is necessary to configure the IP address of the computer configured with the device (mainly to ensure that the computer and the device are set in the same network segment).

- 1). Open the network control center and set the computer's IP address:
- 2). Choose to use Static IP, with the IP address set to 196.168.1.x (x ranges from 0 to 254, but cannot be consistent with the device's IP address),
- 3). Subnet mask set to 255.255.255.0
- 4). Gateway set to 192.168.1.1

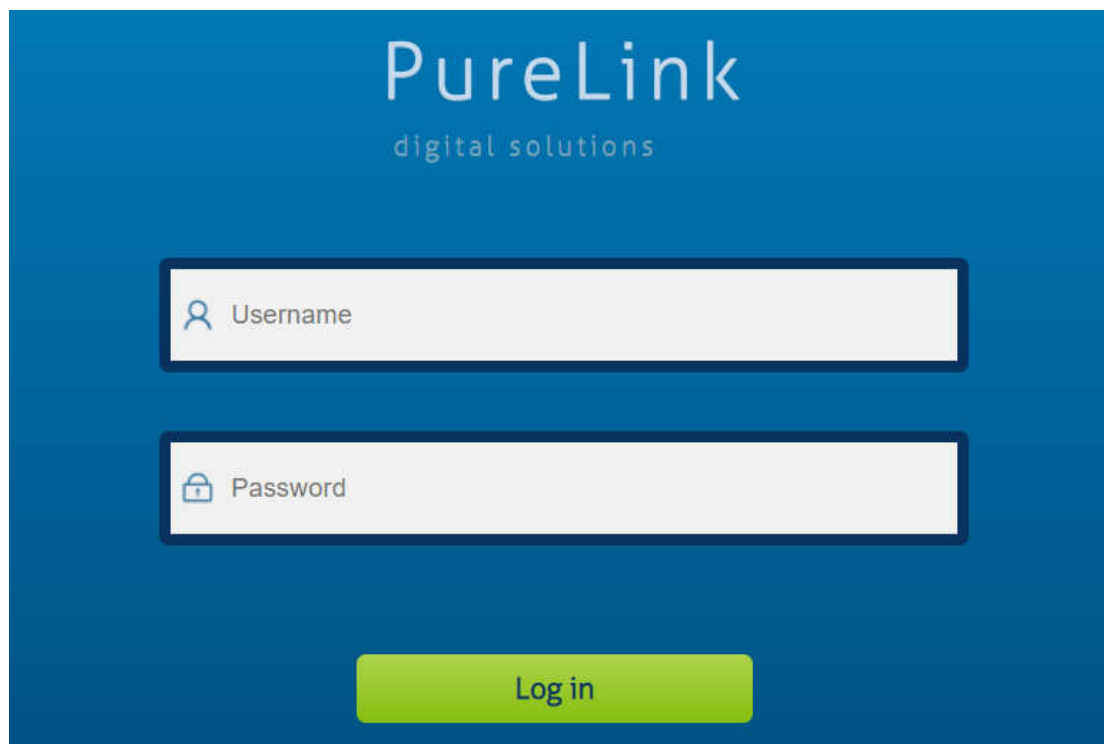


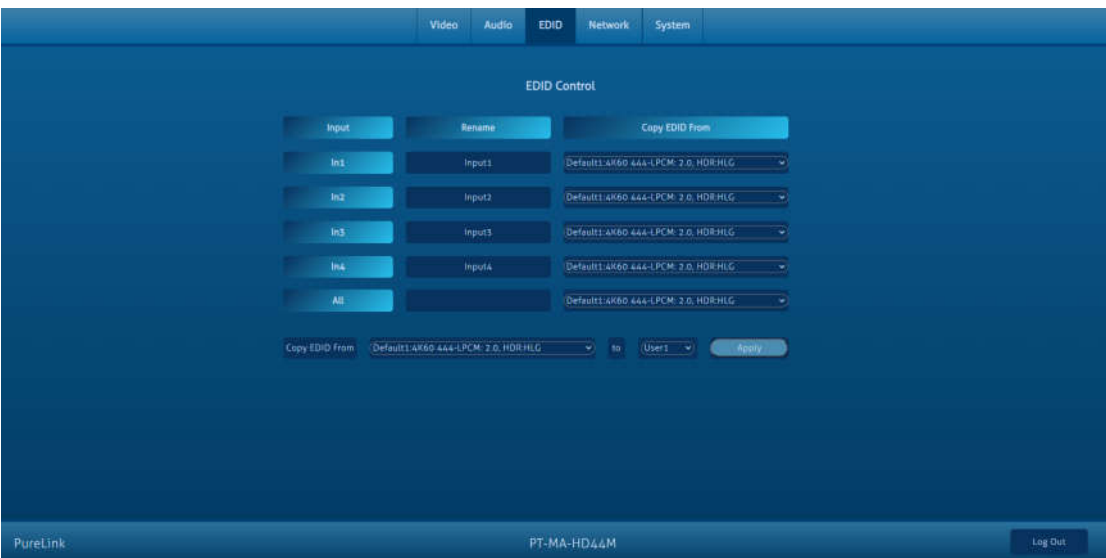
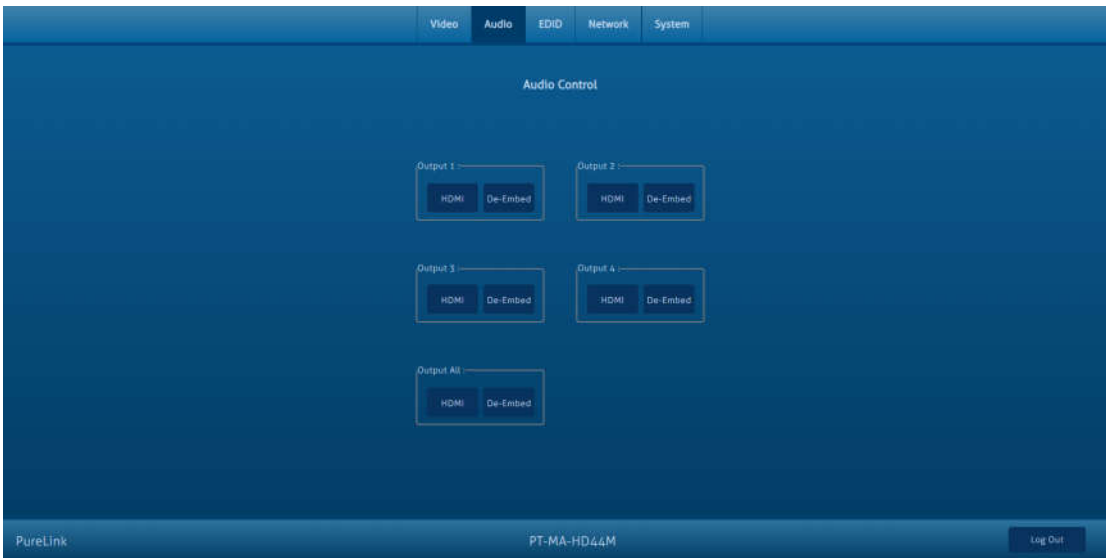
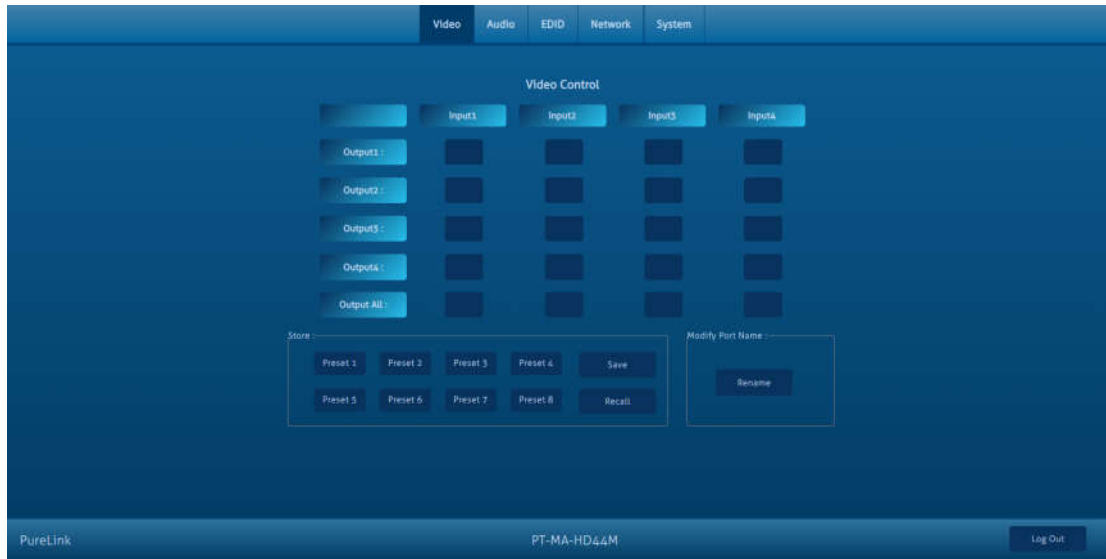
Log in by browser

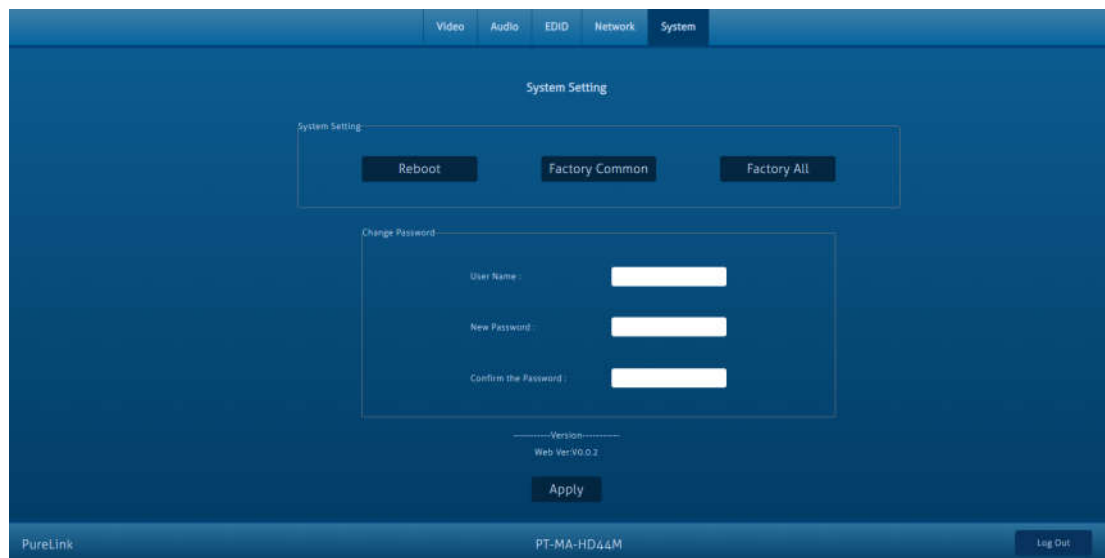
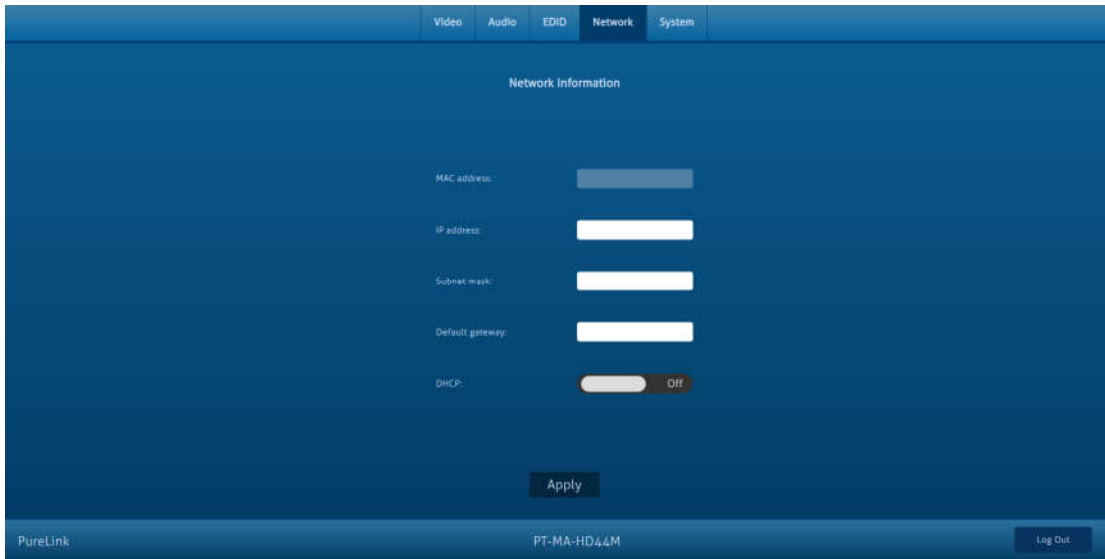
Type in user name and password

(default user name: admin; default password: admin)

Note:suggest to use latest version of Google, firefox, IE11 browser for better compatibility.







Firmware Upgrade

Web upgrading after MCU application layer upgrade (Both Web and MCU application layer Support RS232 port upgrading), if burning with encrypted firmware, it may fail to burn or can't work normally. Should decrypt firmware before burning.

Burning ways as below:

MCU application layer upgrade

Connect unit to PC with USB2.0 to RS232 cable, open software

"UART_ISP_V1.6.exe"

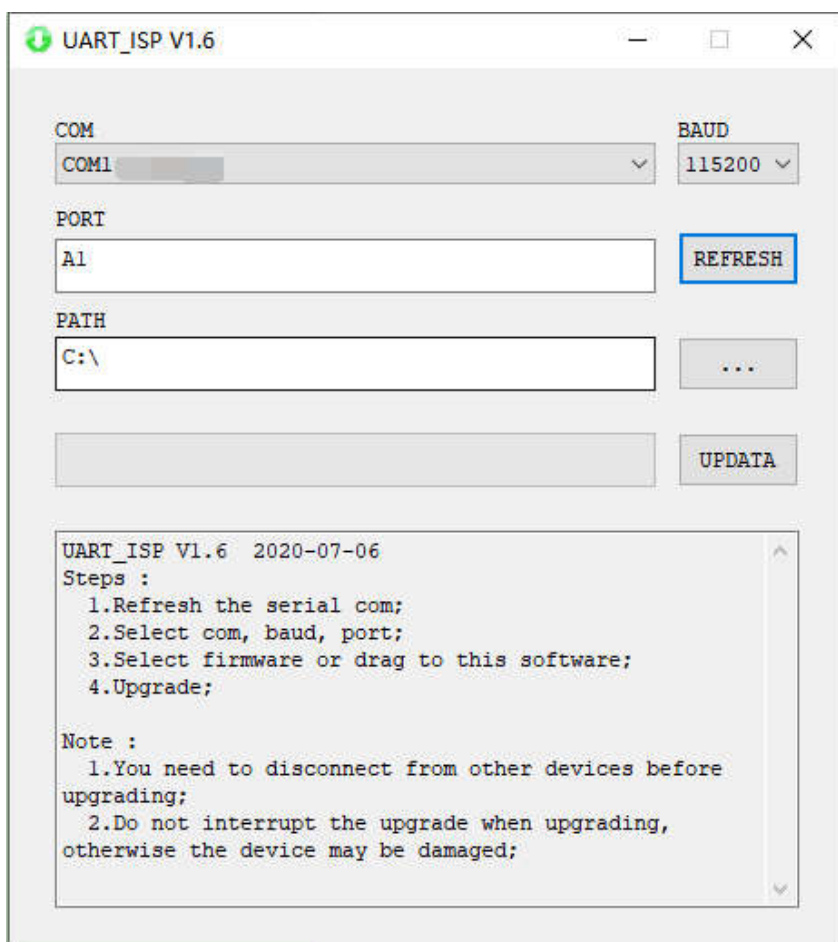
select correct port,

set baud rate: 115200,

type in "A1" in PORT

select PATH

then click UPDATA to finish upgrading.



Web Upgrade

Connect unit to PC with USB2.0 to RS232 cable

open software "UART_ISP_V1.6.exe"

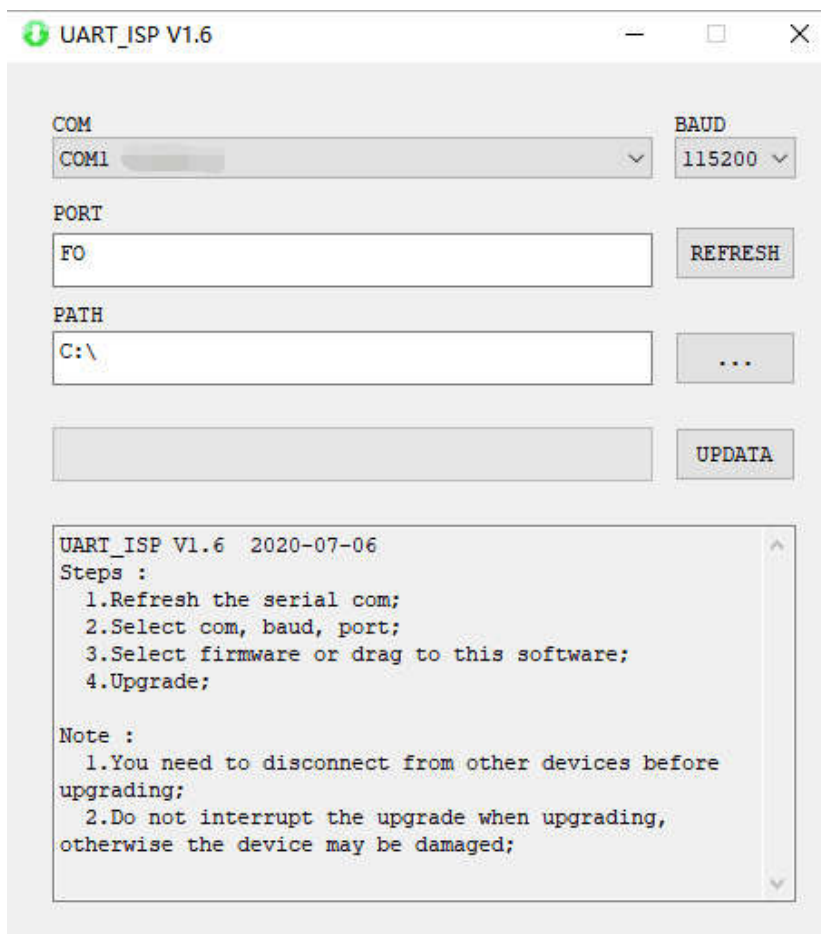
select correct port

set baud rate:115200

type in "FO" in PORT

select PATH

click UPDATA to finish upgrading.



After-Sales Service

If there appear some problems when running the product, please check and deal with the problems referring to this user manual. Any transport costs are borne by the users during the warranty.

- 1) Product Limited Warranty:** This product will be free from defects in materials and workmanship for **two years** (The purchase invoice shall prevail).
Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.
- 2) What the warranty does not cover (servicing available for a fee):**
 - Warranty expiration.
 - Factory applied serial number has been altered or removed from the product.
 - Damage, deterioration or malfunction caused by:
 - Normal wear and tear.
 - Use of supplies or parts not meeting our specifications.
 - No certificate or invoice as the proof of warranty.
 - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
 - Damage caused by force majeure.
 - Servicing not authorized by distributor.
 - Any other causes which does not relate to a product defect.
 - Delivery, installation or labor charges for installation or setup of the product.
- 3) Technical Support:** For any questions or problems, contact your distributor or reseller and tell them the respective product name and version, the detailed failure situation as well as the formation of the cases.

Asking for Assistance

Technical Support:

Phone: +49 5971 800299 - 0

Fax: +49 5971 800299 – 99

Technical Support Hours:

8:30 AM to 5:00 PM Monday thru Thursday

8:30 AM to 4:00 PM Friday

Write to:

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