Zenty | Professional A/V Solution Provider

User Manual [V1.0]

4K 60Hz 16x16 HDMI Matrix w/ Audio Routing

ZT-226 | ZT-MT16AR

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HDMI™ HIGH DEFINITION MULTIMEDIA INTERFACE RoHS compliant CE FC

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1. Features

- 16 x HDMI 2.0 input and 16 x HDMI 2.0 output
- HDMI 2.0 version support 4K@60Hz YUV4:4:4, 18Gbps, Deep color 8bit
- HDCP 2.2/1.4 compliant (follow input)
- Supports Dolby Vision, HDR10
- Supports LPCM up to 7.1, Dolby Atmos and DTS-X Atmos, 192KHz
- Supports 16x Analog Audio Matrix (3pin phoenix port)
- Supports Audio Return Channel (ARC)
- Supports Panel Button with LCD, IR Remote control, RS232 Control, TCP/IP Control
- Supports 4K downscale to 1080p
- Supports smart EDID management
- Supports DC 24V/4A Power input
- Supports FW updating through RS-232 port

2. Package Contents

- 1x Main Unit (HDMI Matrix)
- 1x DC 24V/4A power adapter
- 1x Remote control
- 1x IR Receiver cables
- 1x CD for user manual & Command list
- 17x 3Pin Phoenix terminal plug
- 1U rack design metal case with 2 mounting ears
- 1x USB2.0 to RS232 upgrade cable

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3. Specifications

General	
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	18G
Video Format Supported	4K@60Hz, YUV4:4:4 8bit 4k@30Hz/1080P/1080i/720P/576P/480P/576i/480i
HDCP Compliant	HDCP 2.2 and HDCP 1.4
Output Video	HDMI 2.0 Version
Audio Format Supported	LPCM up to 7.1, Dolby Atmos and DTS-X Atmos
Power Consumption	80watts (Max.)
Dimensions	L438xW334xH44 mm / 17.2x13x1.7 inches
Mass (Main Unit)	5.38 KG / 11.86 lbs.

VESA Resolution List			
Rate	Resolution	Supported	Mark
	640×480	√	

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60Hz	800×600	√	
	1024×768	√	
	1280×768	√	
	1280×1024	√	
	1600×1200	√	
	1400×1050	√	
	1920×1080	√	
	1280×720	√	
	1360×768	√	
	1920×1200	√	

Testing Resolution List				
Rate	I/P	Resolution	Supported	Mark
50Hz	I	576i	×	
	P	576P	√	
	P	720P / 1080P / 4K2K	√	
60Hz /59.94Hz	I	480i/1080i	√	
	P	480P / 720P / 1080P / 4K2K	√	
30/29.97Hz	P	720P / 1080P / 4K2K	√	

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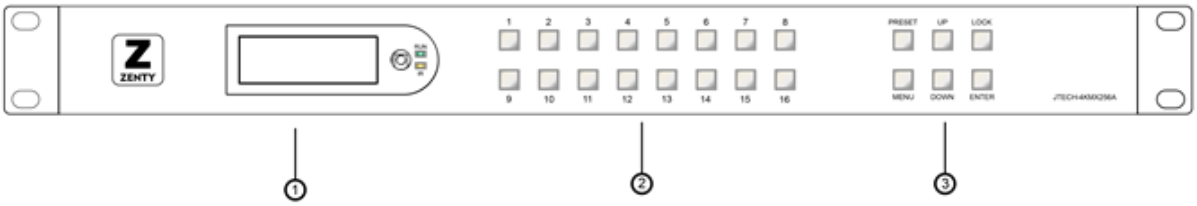
24Hz	P	1080P / 4K2K	√	
25Hz	P	720P / 1080P / 4K2K	√	

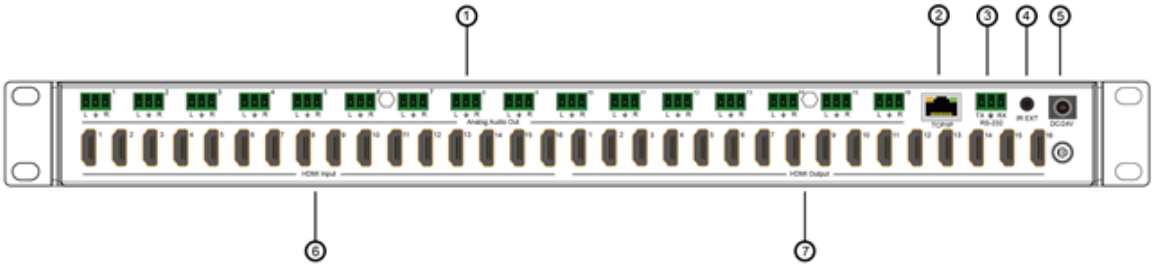
4. Panel Descriptions



① LCD: Showing Matrix information

② Output button OUT1~16 & Input button IN1~16

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



① Analog Audio out x16 (supports Audio Matrix and ARC function)

② TCP/IP port

③ RS232 port & FW update port

④ IR EXT

⑤ Power On/Off

⑥ HDMI input x16

⑦ HDMI output x16

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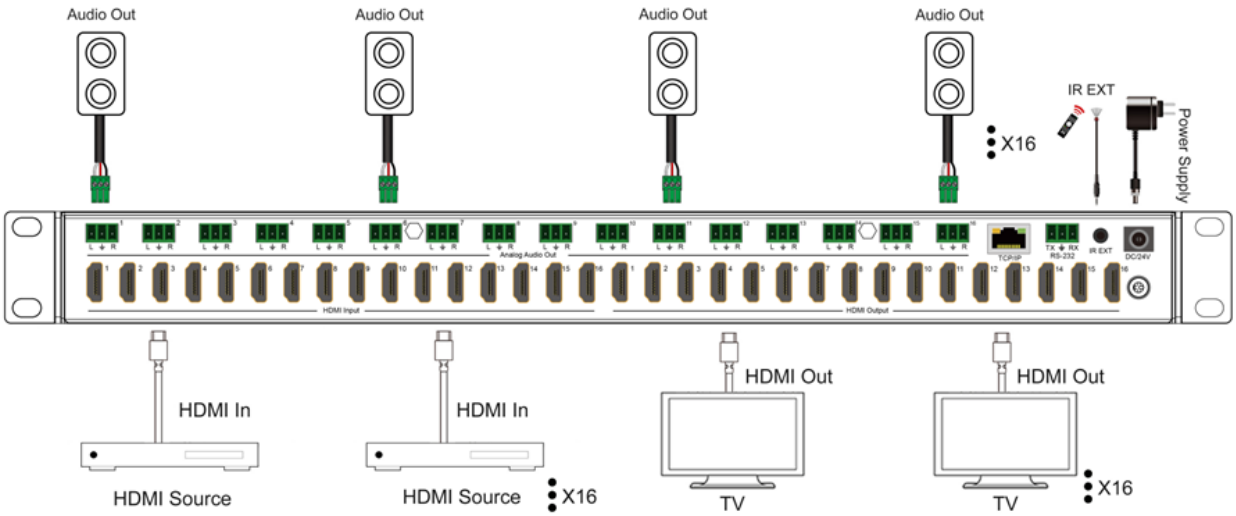
5. Wiring Diagram



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 1-16 Input 1-16	1: By using UP / DOWN Button to select Output or Input channel 2: 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 to select all channels, and long press again to cancel 3: 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
PRESET	Shortcut key for calling the preset
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

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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 16 free switching channels, which can be configured as input/output according to the requirements, forming a matrix of 1 x 16 ~ 16 x 1, which can switch any input signal to 1 channel output or all channel output.

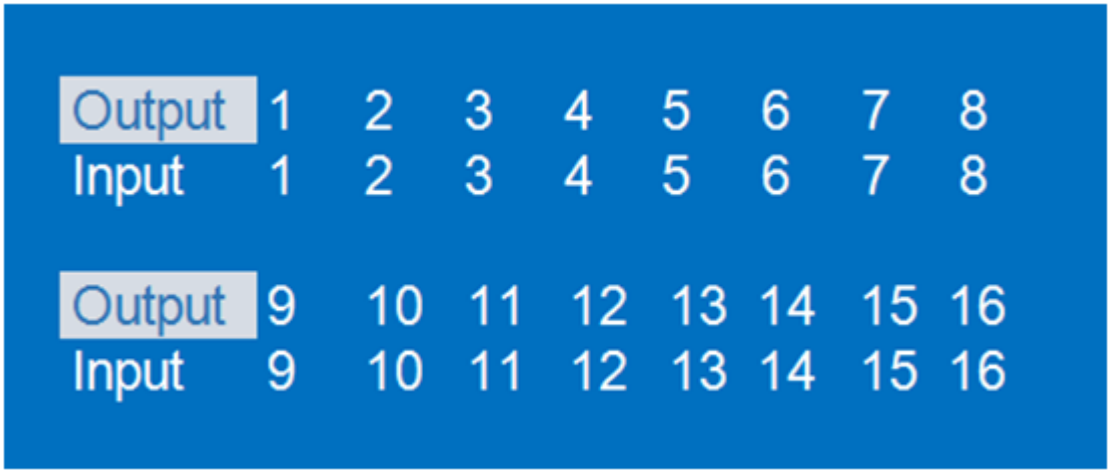
The specific operation as follows:

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" + Button “DOWN” + IN number "5" to complete the switch



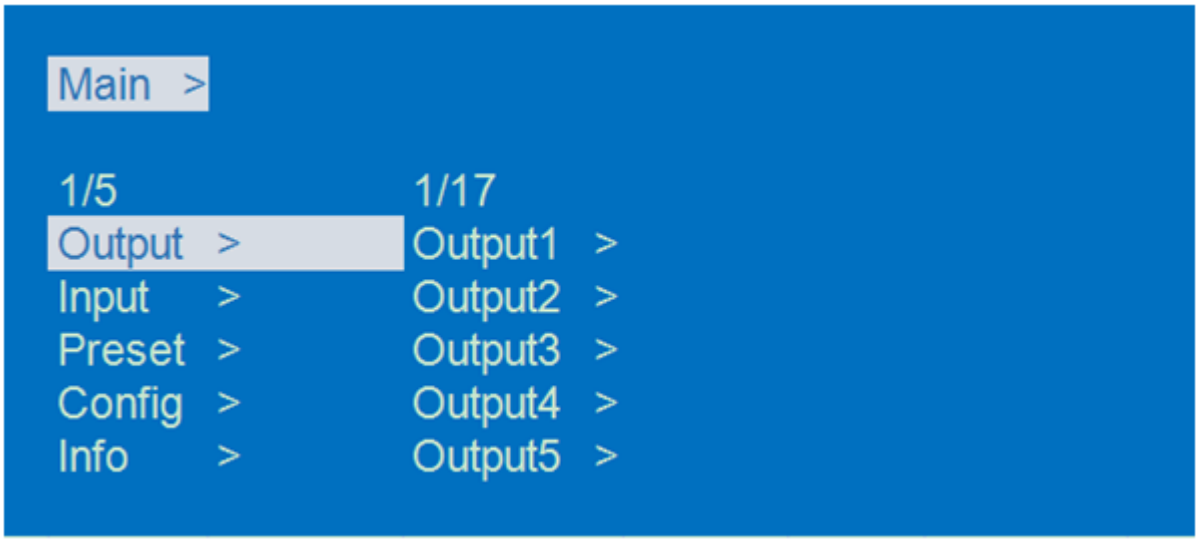
7.2 Video Control

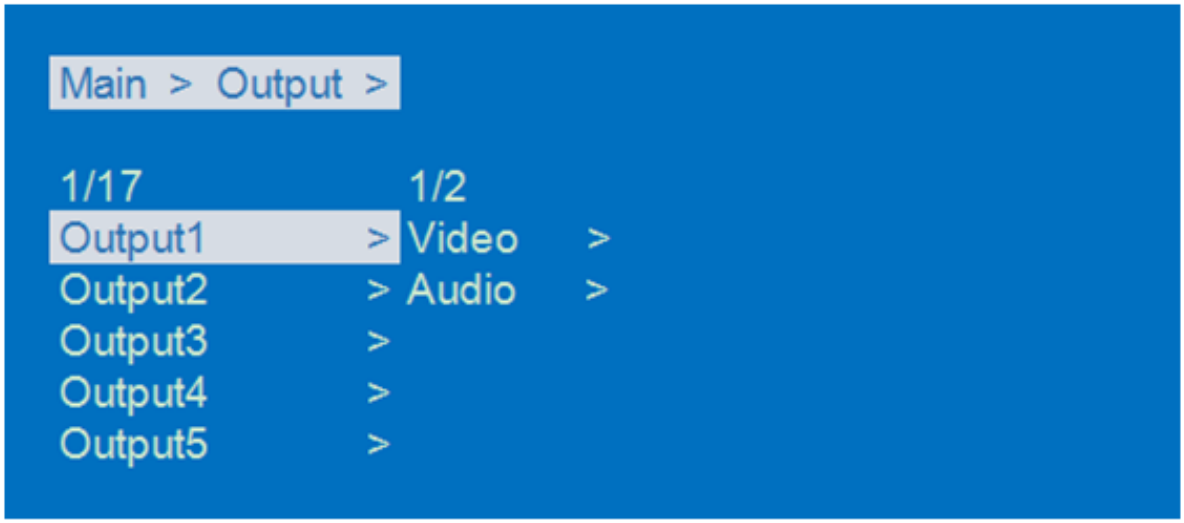
The Main interface have five sub-menus

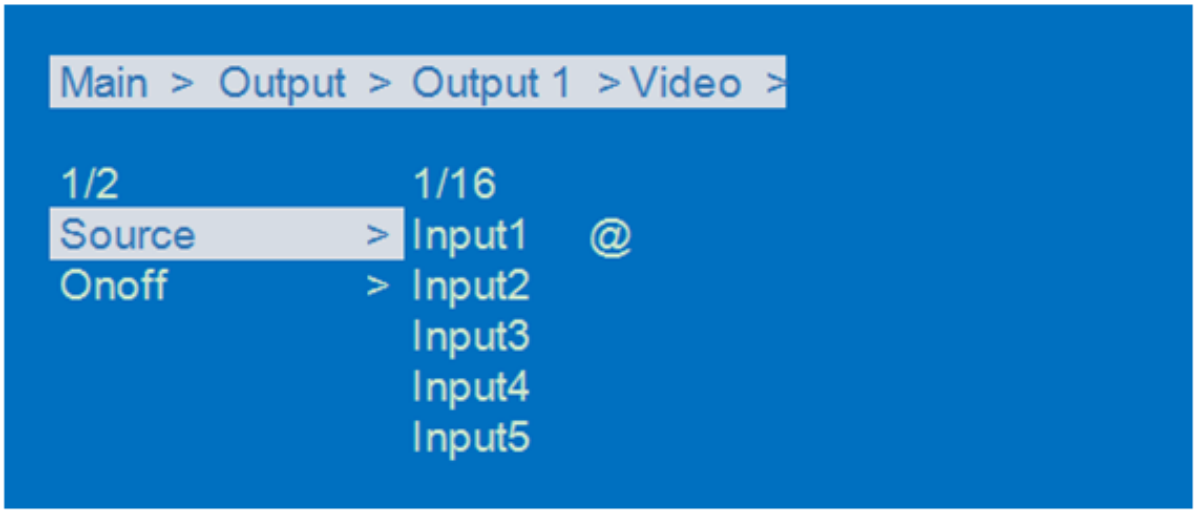
1. Output Setting

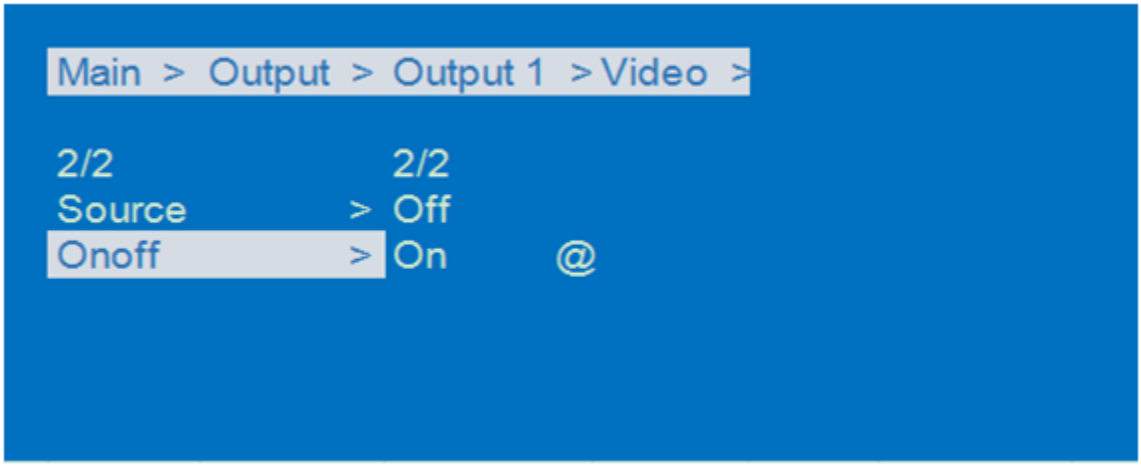
Including 17 sub menu (Output1~16, All). Each sub menu with Video and Audio option

Video supports switching the channels and turn on/off the video signals

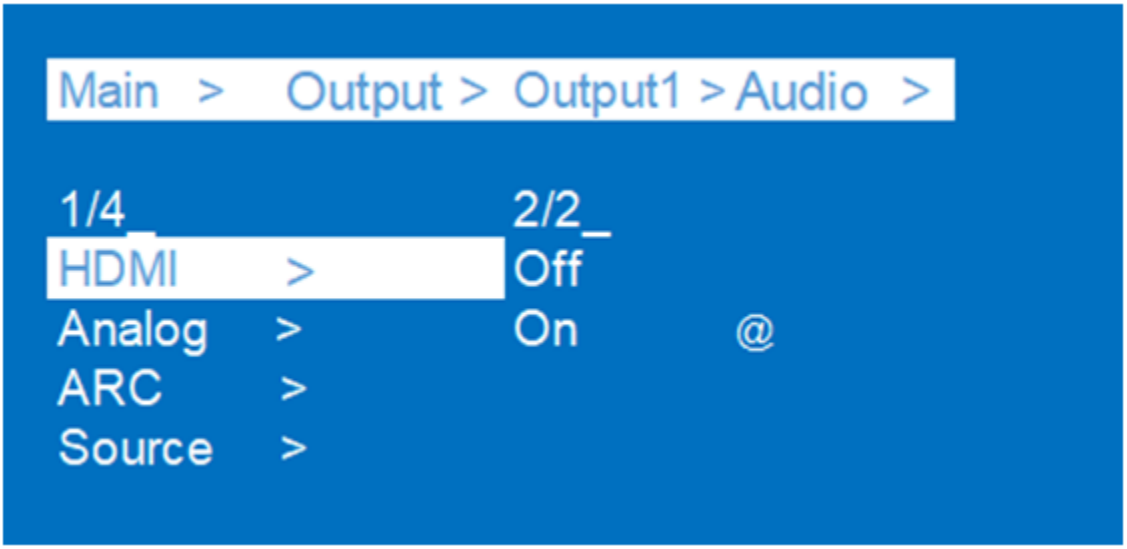


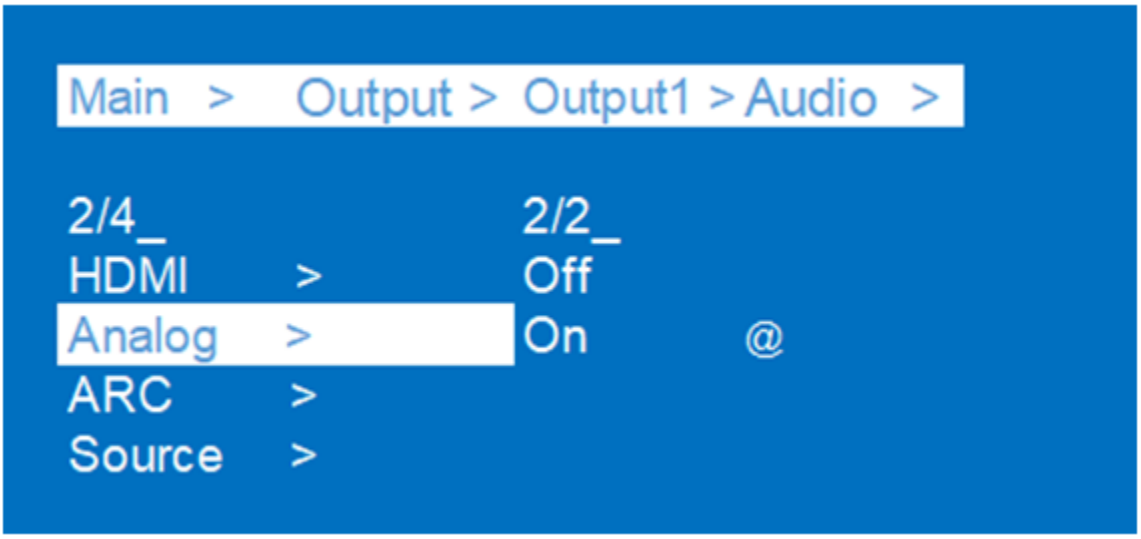






Audio supports turn on/off HDMI, Analog, ARC, and Source switching





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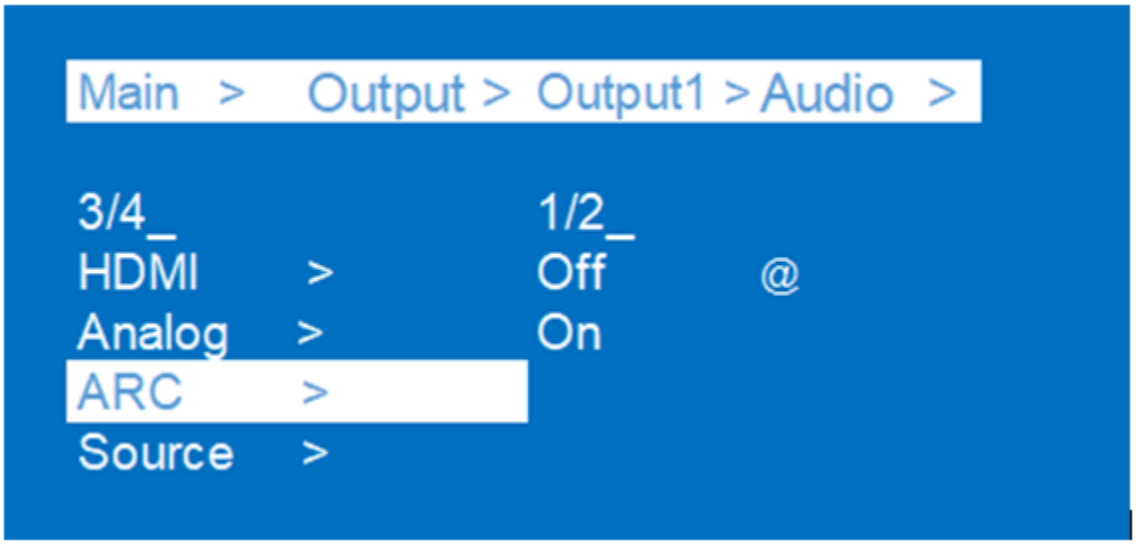
ARC function default Off

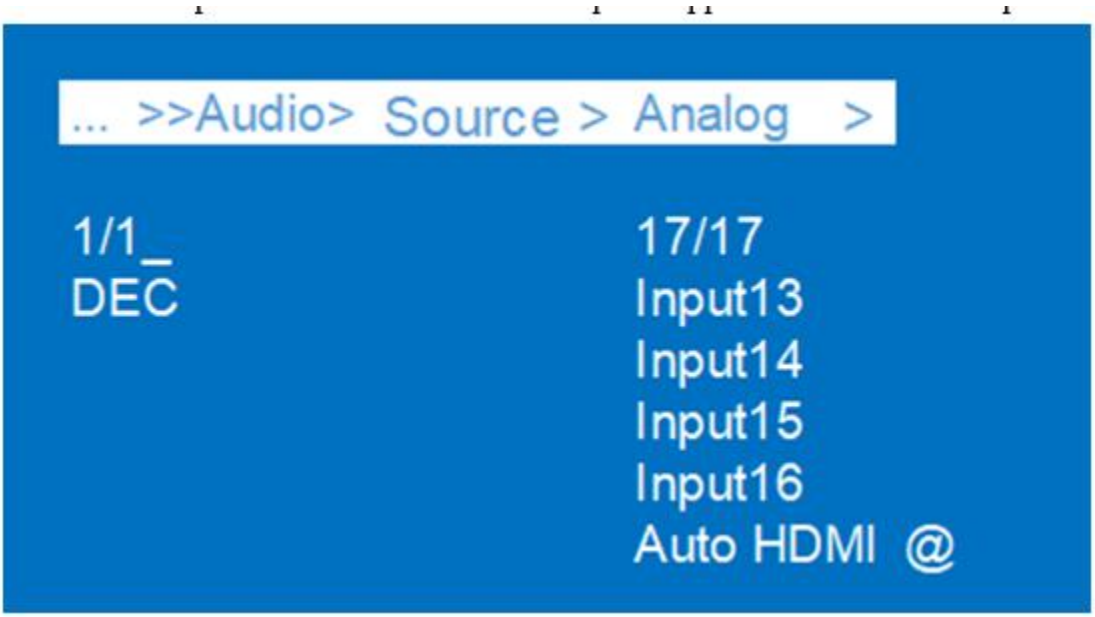
After turning On, connects HDMI Outputs to TV's ARC port, TV's audio will be return to the corresponding analog output port.

For example: Output 1 connect to the TV's ARC port >> Back to the analog 1.



Audio Matrix

Auto HDMI means Output's audio follow with the Input. Supports to select other input's audio



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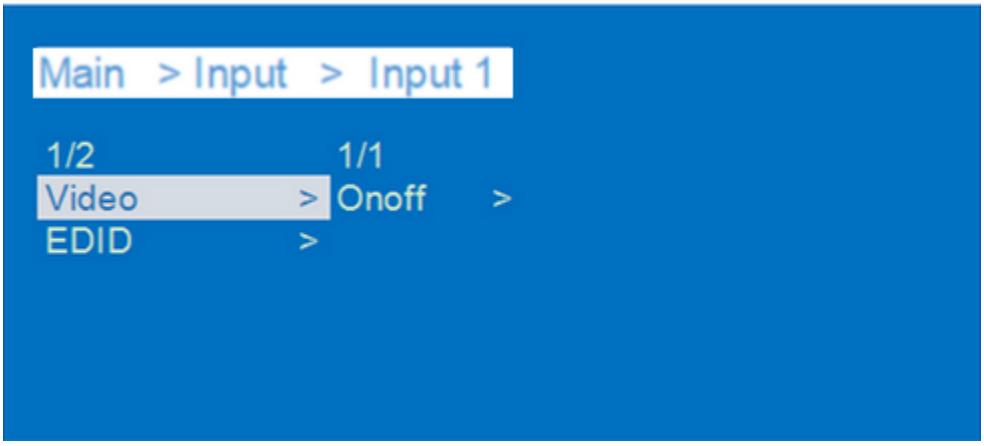
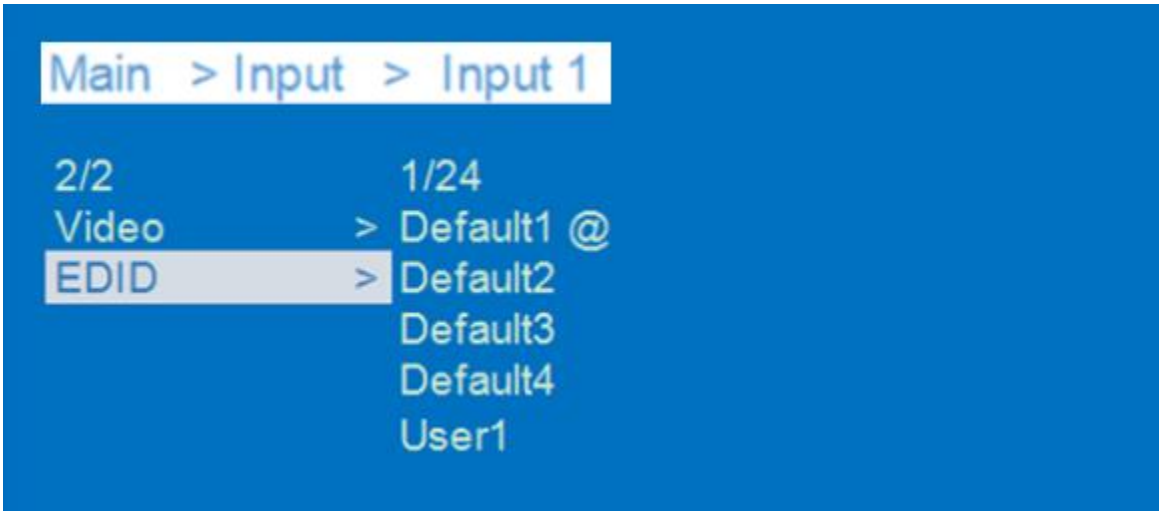
2. Input Setting

Including 17 sub menu (Output1~16, All). Each sub menu with Video and EDID option video supports turning on/off the video signals, and won't affect the Audio extraction.



EDID including 4xDefault, 4xUser, 16x Copy Output

Default-1	4096x2160P@60Hz 444 LPCM2.0	Default-2	4096x2160P@60Hz 420 LPCM2.0
Default-3	4096x2160P@30Hz 444 LPCM2.0	Default-4	1920x1080P@120Hz 444 LPCM2.0



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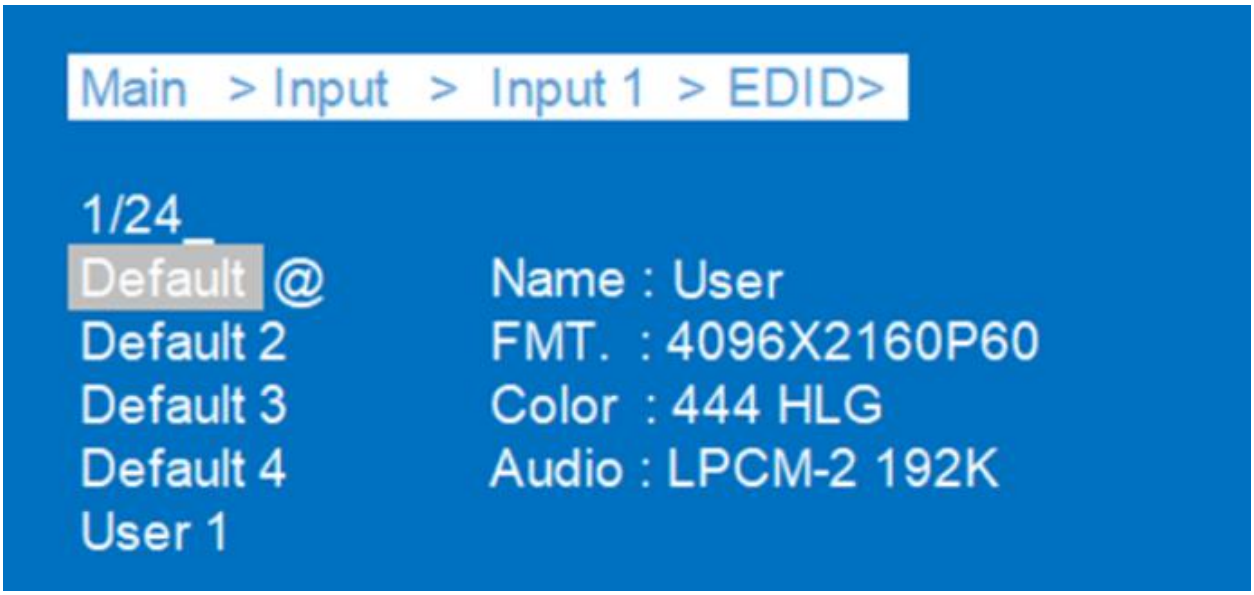
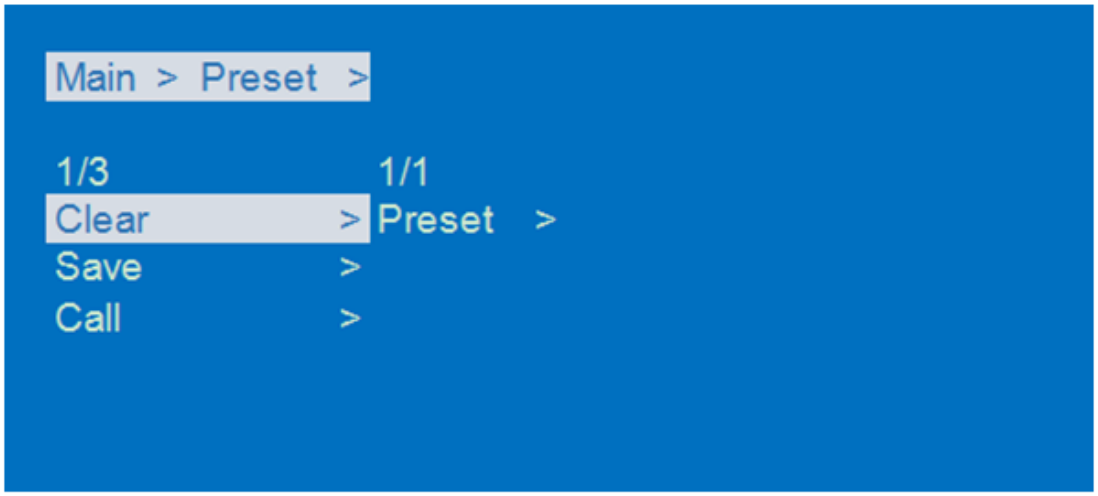
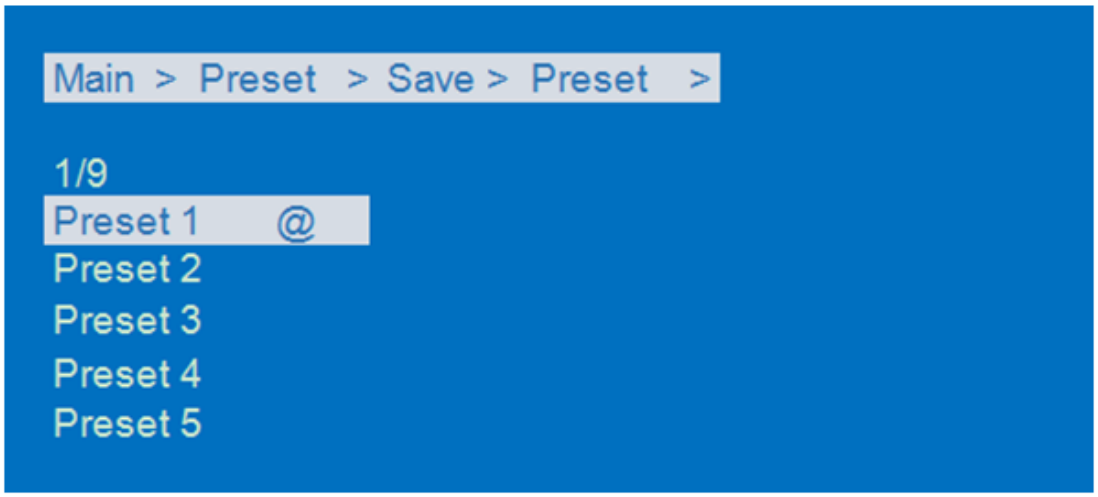


3. Preset setting

Including Clear, Save, Call option. Total support 8 presets.





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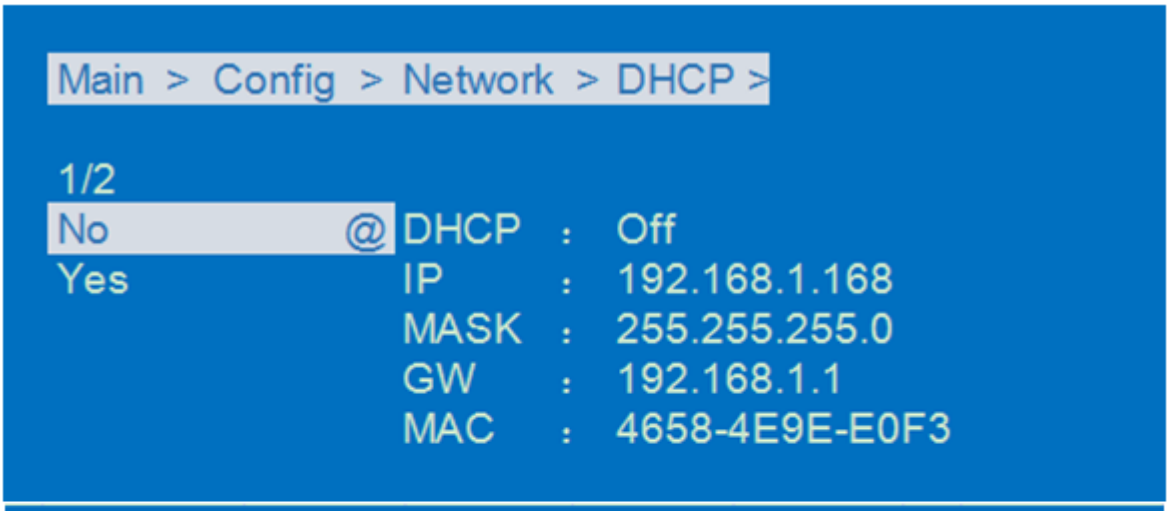
4. Config setting

Including Network, RS-232, User EDID, System



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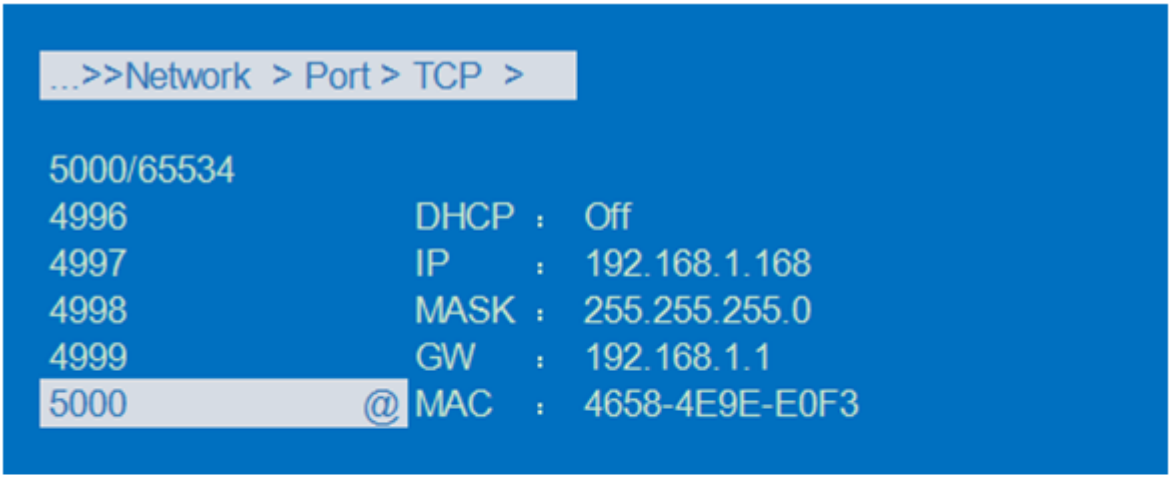
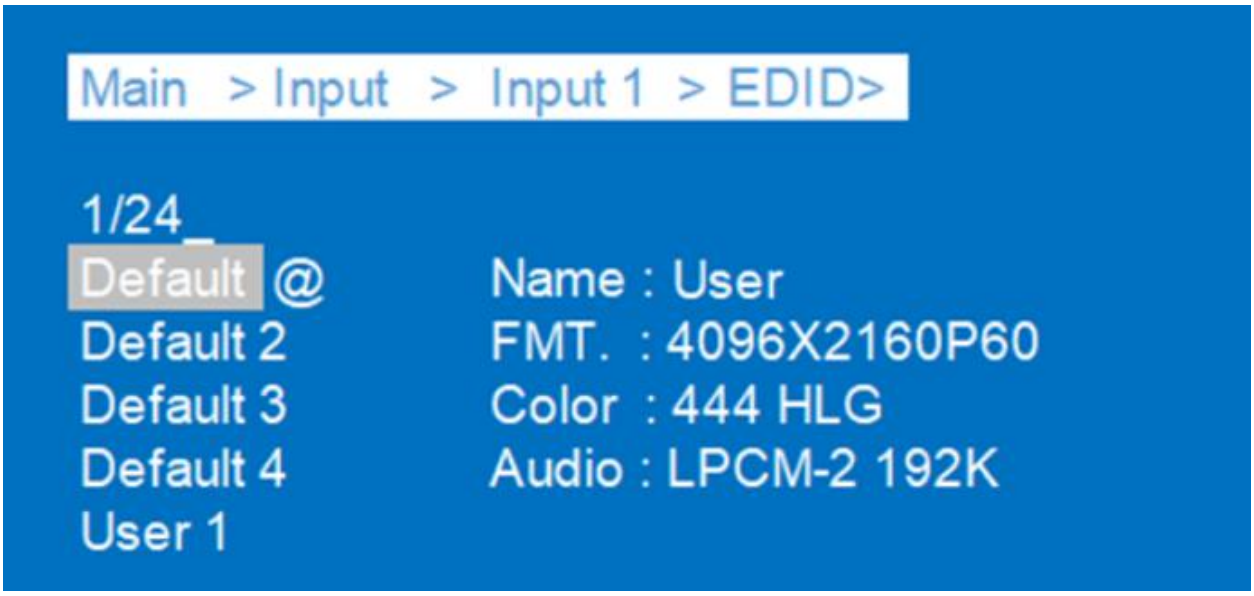
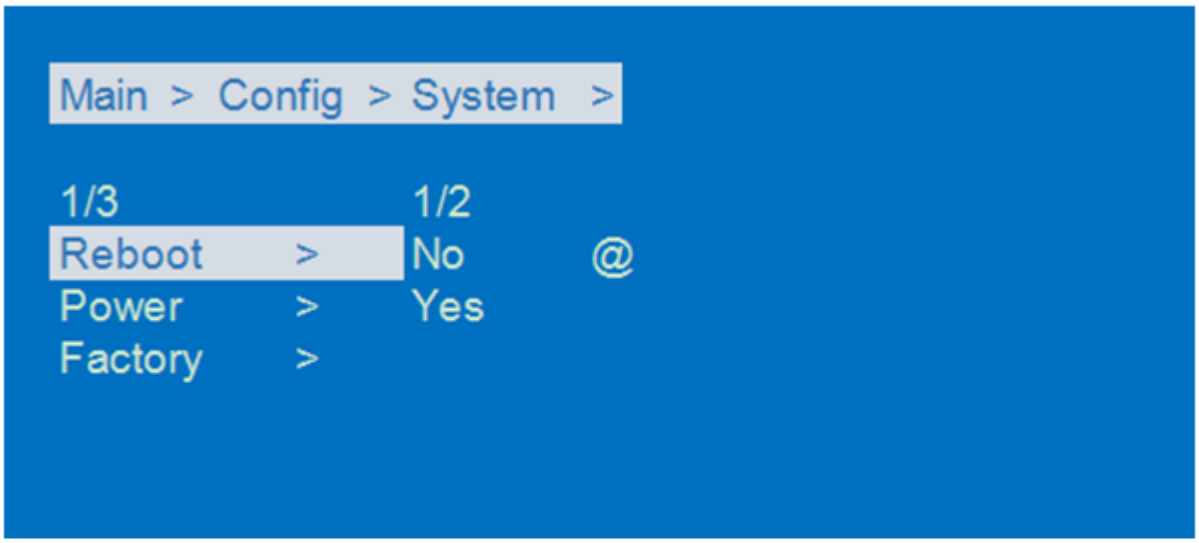
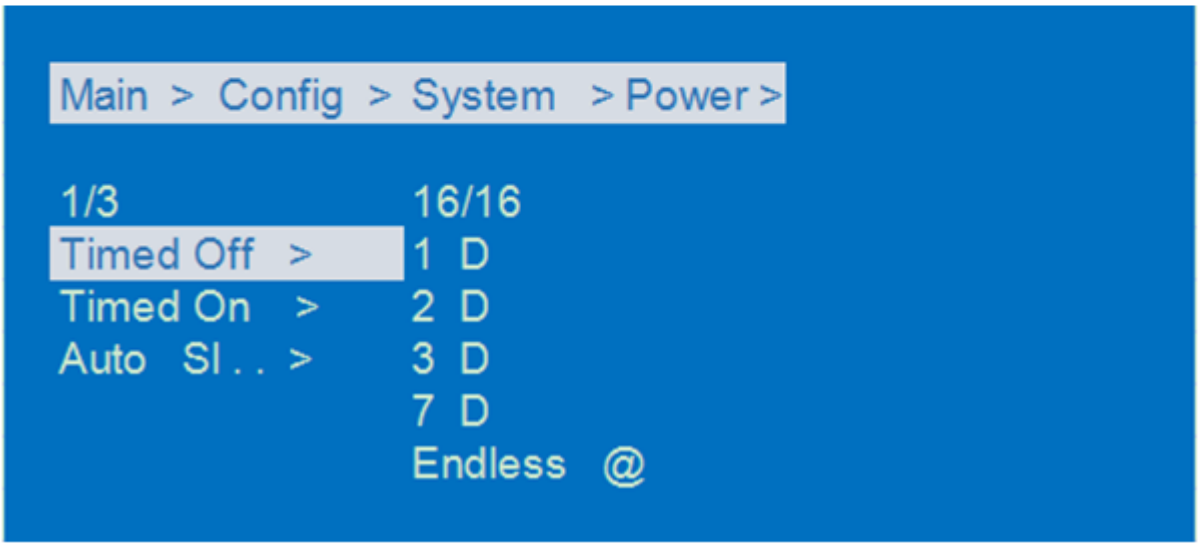
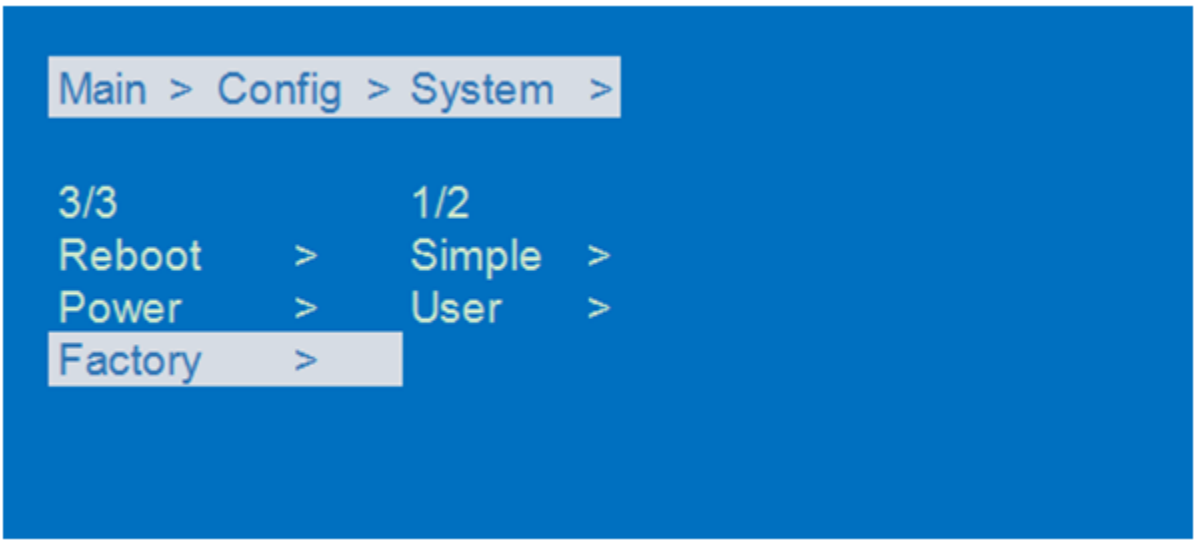

...>>Network > Port > TCP >
5000/65534
4996
4997
4998
4999
5000 @
DHCP : Off
IP : 192.168.1.168
MASK : 255.255.255.0
GW : 192.168.1.1
MAC : 4658-4E9E-E0F3

Main > Config > RS-232 > Baud >
6/6
9600
19200
38400
57600
115200 @


Main > Input > Input 1 > EDID>
1/24
Default @
Default 2
Default 3
Default 4
User 1
Name : User
FMT. : 4096X2160P60
Color : 444 HLG
Audio : LPCM-2 192K







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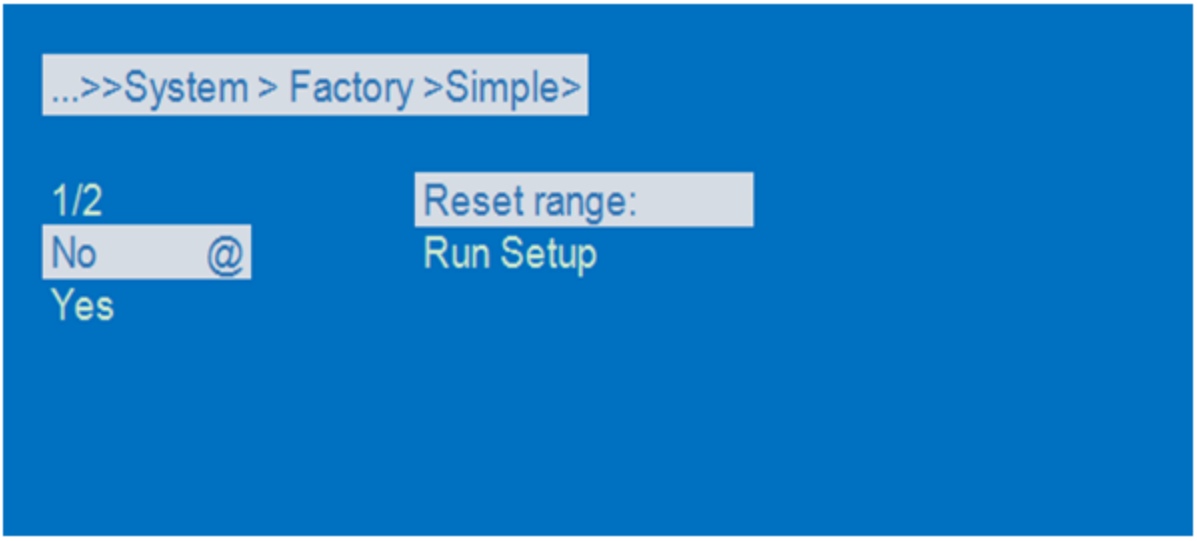


***Factory simple:** restore running info. (Includes video, audio, EDID Setup).

***Factory All:** reset all default setup functions.

5. Info setting

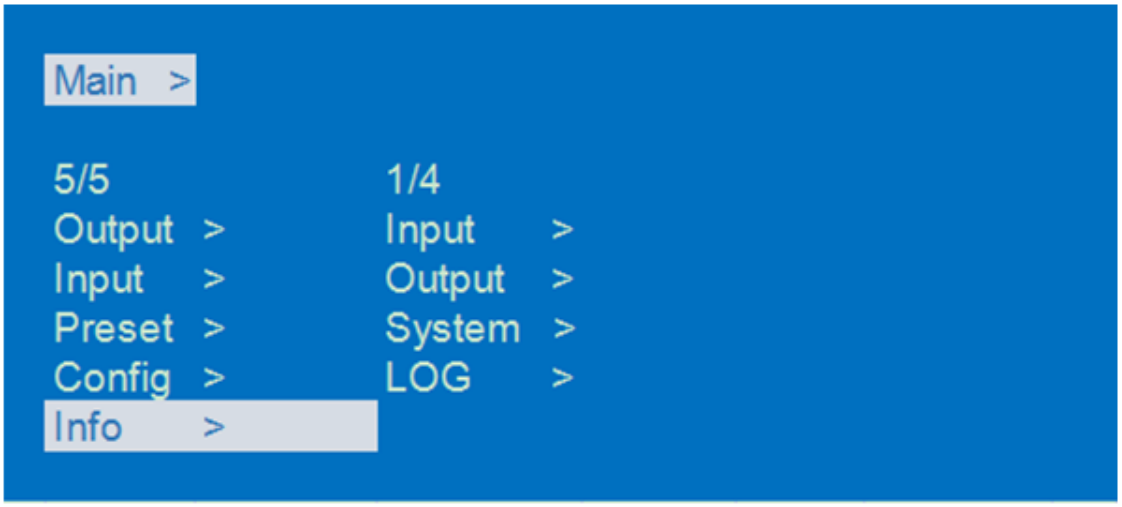
Including Input, Output, System, LOG

Input: Showing connection status, input resolution, deep color, audio format and HDCP version etc.

Output: Showing TV info.

System: Showing the device info., Versions, Network

LOG: Showing products common information like running time, booting times etc.



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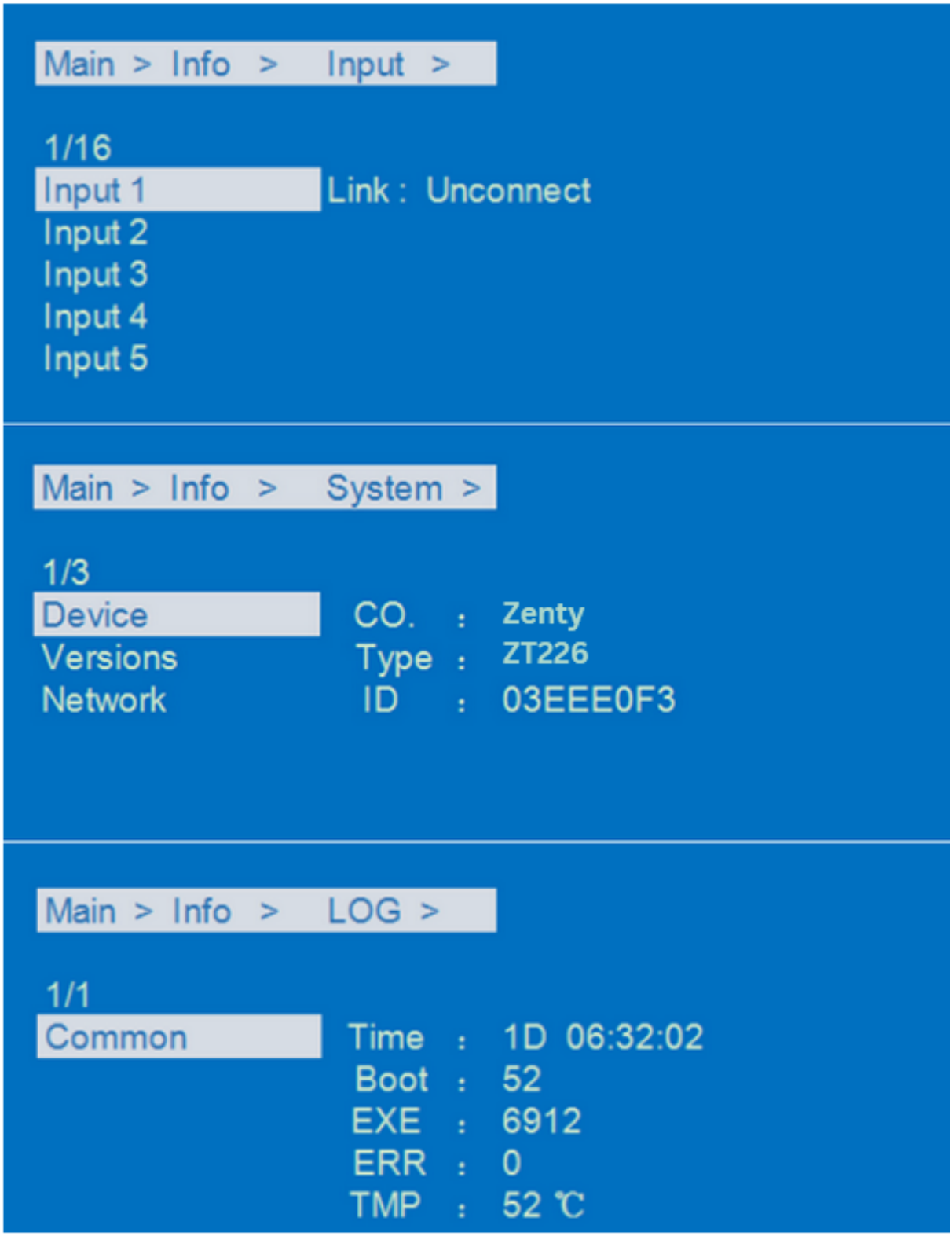
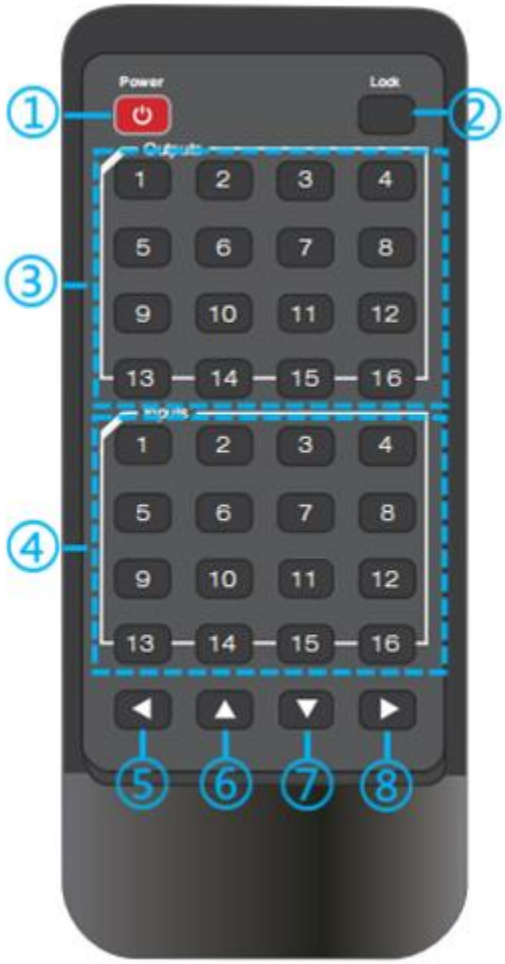

Main > Info > Input >
1/16
Input 1
Link : Unconnect
Input 2
Input 3
Input 4
Input 5
Main > Info > System >
1/3
Device
CO. : Zenty
Versions
Type : ZT226
Network
ID : 03EEE0F3
Main > Info > LOG >
1/1
Common
Time : 1D 06:32:02
Boot : 52
EXE : 6912
ERR : 0
TMP : 52 ℃

8. Remote Control Description

① Standby Mode
② Lock or Unlock the Panel Button
③ Choose output from 1-16
④ Choose input from 1-16
⑤ Menu (back to previous option) button
⑥ UP button
⑦ Down button
⑧ Enter button



9. RS232 Command Control

Default IP Address	192.168.1.168
TCP Port	5000
UDP Port	5001
Telnet Port	23
Baud Rate	115200

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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 config. 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

Such as changing IP address to be 192.168.1.168:

Command is: #network IP: 192.168.1.168

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(1~16).

3. Command head & Parameter1 & Parameter2... need to add one "SPACE".

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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

Supports multi-Outputs selecting, such as: #video_d out3,2,1 source=3

TCP/UDP Control

① Commands are the same as the RS232 commands

② TCP supports command feedback, UDP only for sending commands, no data feedback

③ Can’t support PUTTY type’s tools

Telnet Control

① ”window”+ “R” typing“cmd”+ “Enter”

② Typing: Telnet 192.168.1.168 (According to the correct IP address) + “Enter”

③ User: admin; Password: admin

④ Command: #cmd to get the command list

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```
ip=%d.%d.%d.%d
mask=%d.%d.%d.%d
gw=%d.%d.%d.%d
port_tcp=%d
port_udp=%d
device=%15T
--------------------------------
#menu
call=%16,d
cmd=%c%d
time_to_main=%d
select_run=%d
--------------------------------
#account
login
register%d
id=%15t
psd=%15t
--------------------------------
#uart
baud=%d
--------------------------------
#lcd
bl_lv=%d
bl_cnt=%d
--------------------------------
#factory
lv=%d
```

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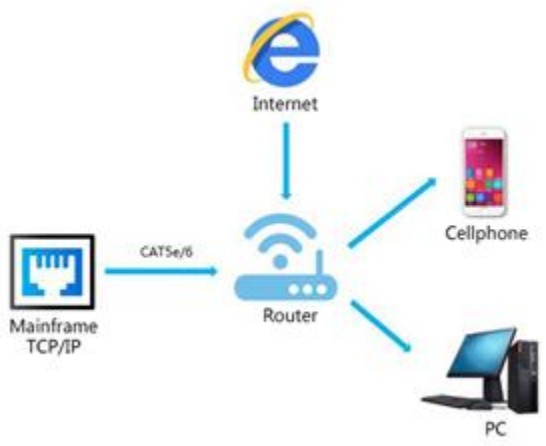
10. Web Control



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:

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)**.

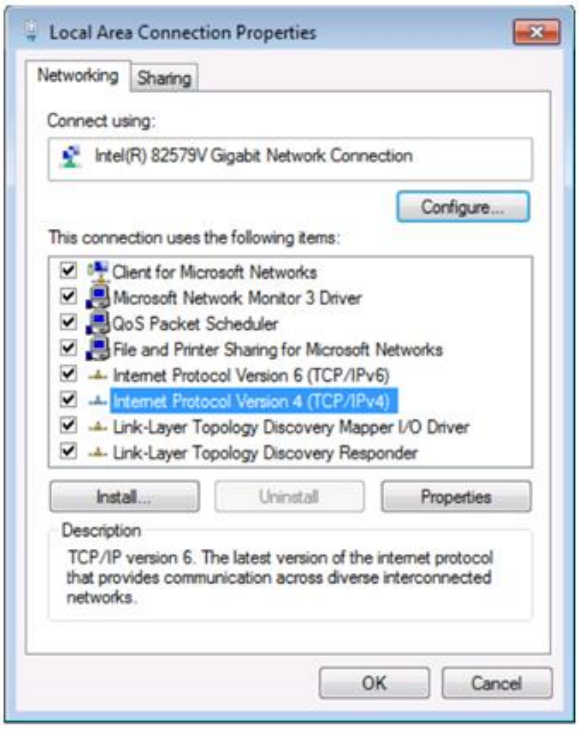
5). Click **Properties**.

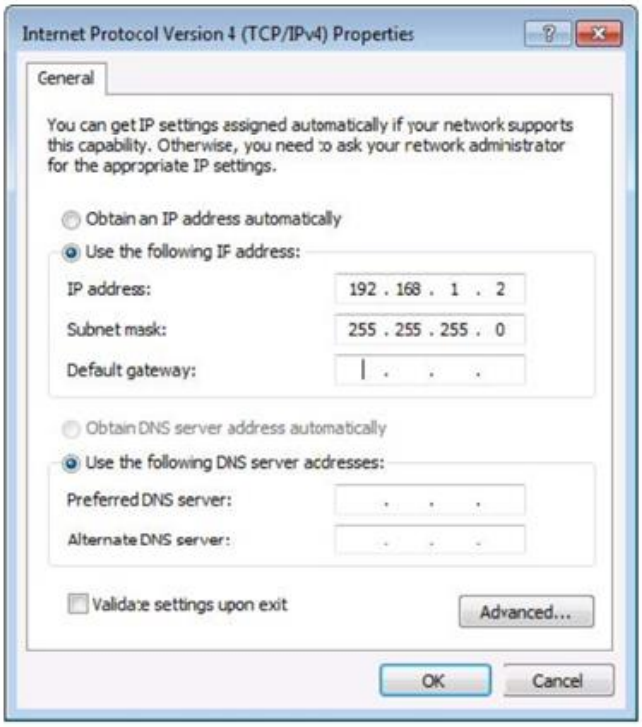
6). Select **Use the following IP Address** for static IP addressing and fill in the details.

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**.





10.1 Enter Web and Control

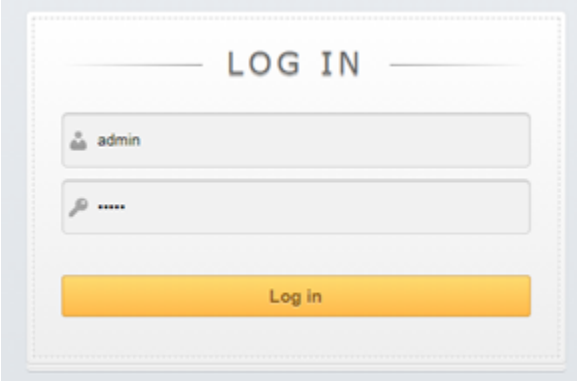
Enter the default IP address of the matrix: 192.168.1.168

Account: admin

Password: admin

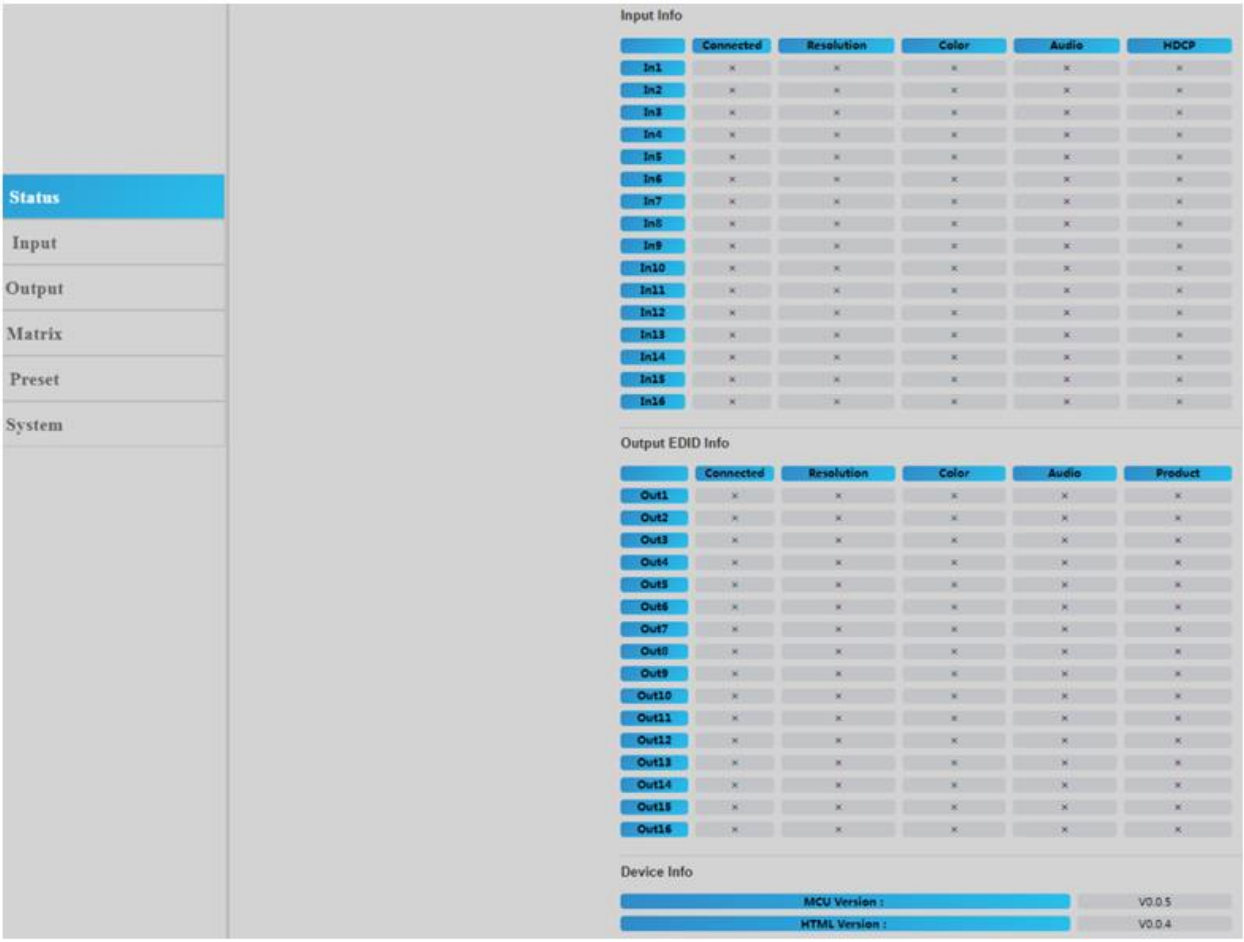
(If forgetting the account information, sending command: #factory root=8

back to the default account information)



10.2 Status Interface

Input Info & Output Info & Device Info:



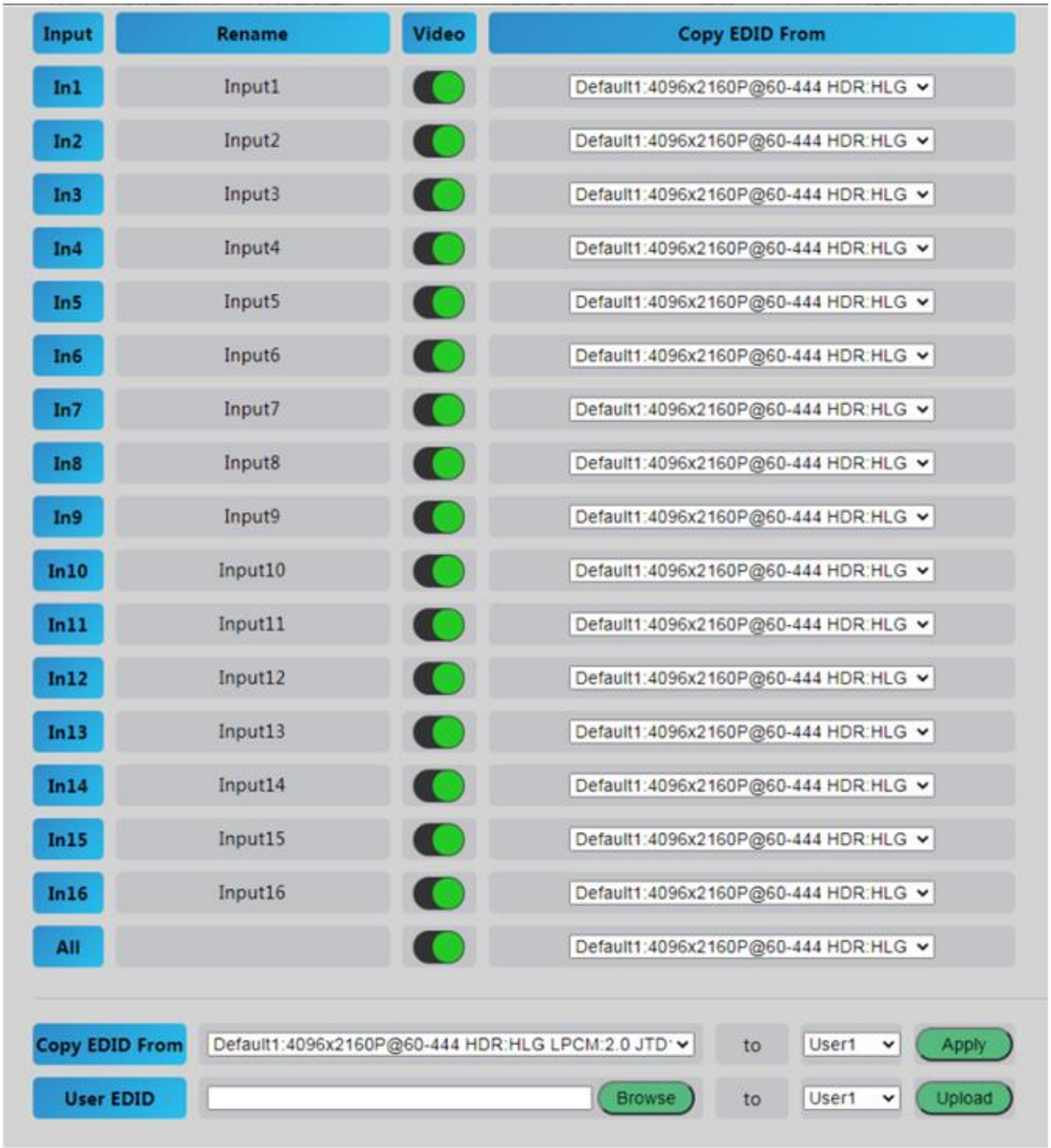
10.3 Input Interface

Rename: Double click to revise the input port's name, max 15 characters

Video: Turn On/Off the Input's video, won't affect the audio extraction

EDID: For setting and checking Default EDID, Copy output and User EDID information

USER EDID: Supports saving Default or Output's EDID to User EDID, and using the BIN documents upload to the User EDID



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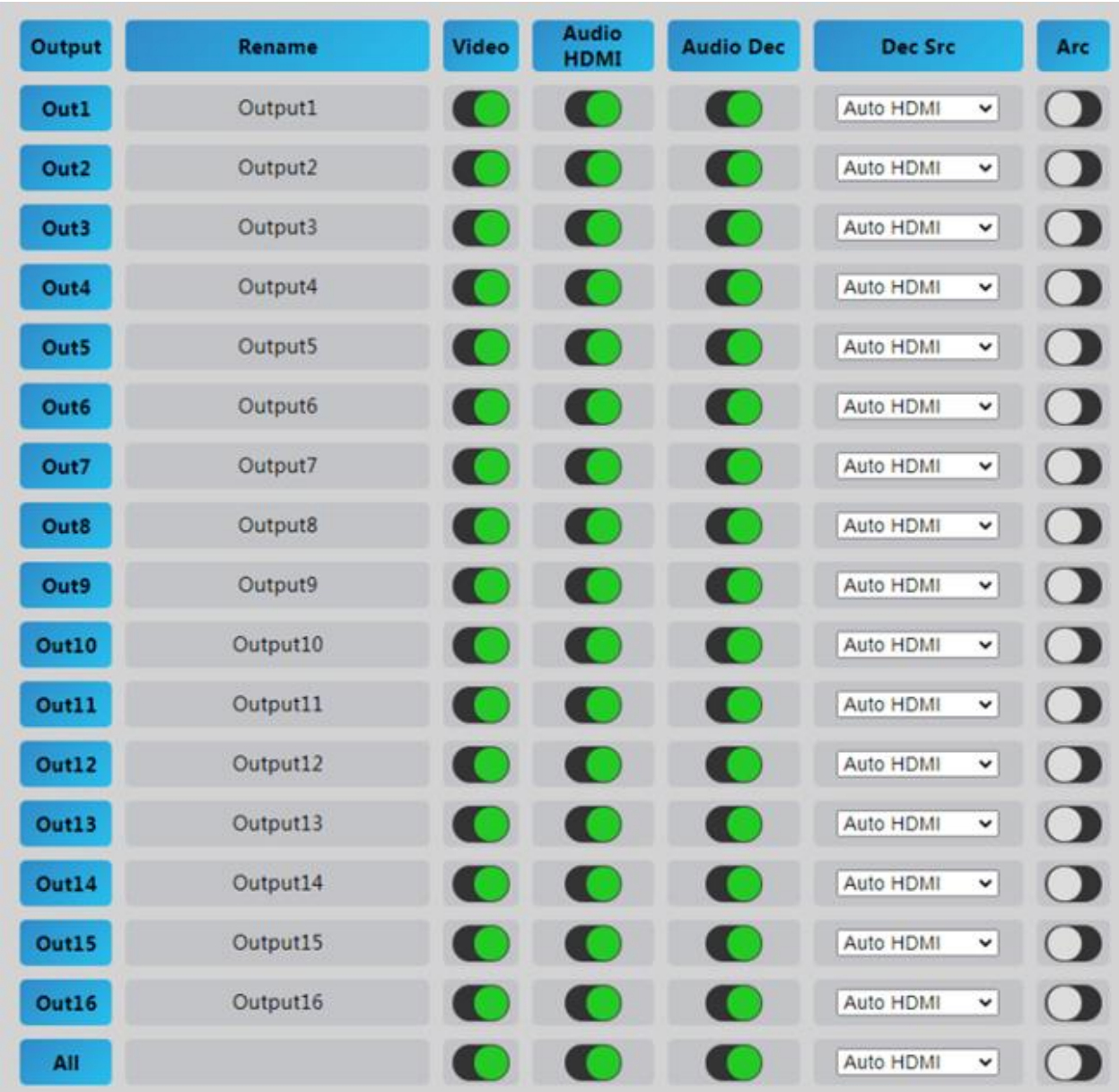
10.4 Output Interface

Rename: Double click to revise the output port's name, max 15 characters

Audio Dec and ARC can only enable one of them

Dec Src means decode the source audio from HDMI 1~16,

Auto HDMI means follow with the output's selection



Output	Rename	Video	Audio HDMI	Audio Dec	Dec Src	Arc
Out1	Output1				Auto HDMI	
Out2	Output2				Auto HDMI	
Out3	Output3				Auto HDMI	
Out4	Output4				Auto HDMI	
Out5	Output5				Auto HDMI	
Out6	Output6				Auto HDMI	
Out7	Output7				Auto HDMI	
Out8	Output8				Auto HDMI	
Out9	Output9				Auto HDMI	
Out10	Output10				Auto HDMI	
Out11	Output11				Auto HDMI	
Out12	Output12				Auto HDMI	
Out13	Output13				Auto HDMI	
Out14	Output14				Auto HDMI	
Out15	Output15				Auto HDMI	
Out16	Output16				Auto HDMI	
All					Auto HDMI	

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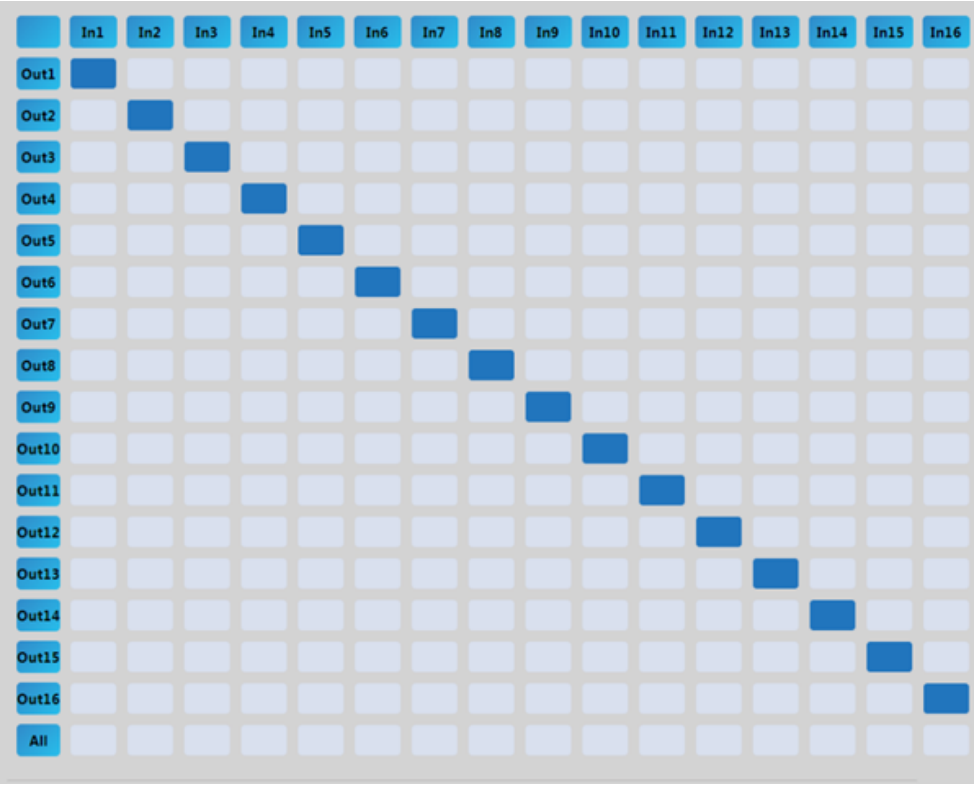
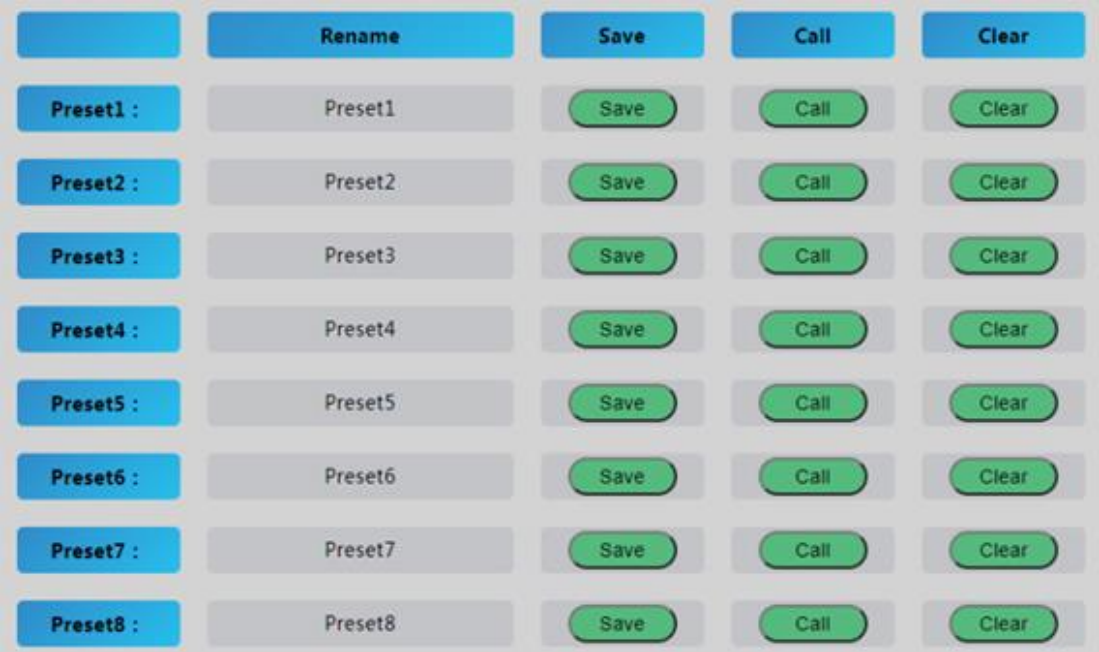
10.5 Matrix Interface



10.6 Preset Interface



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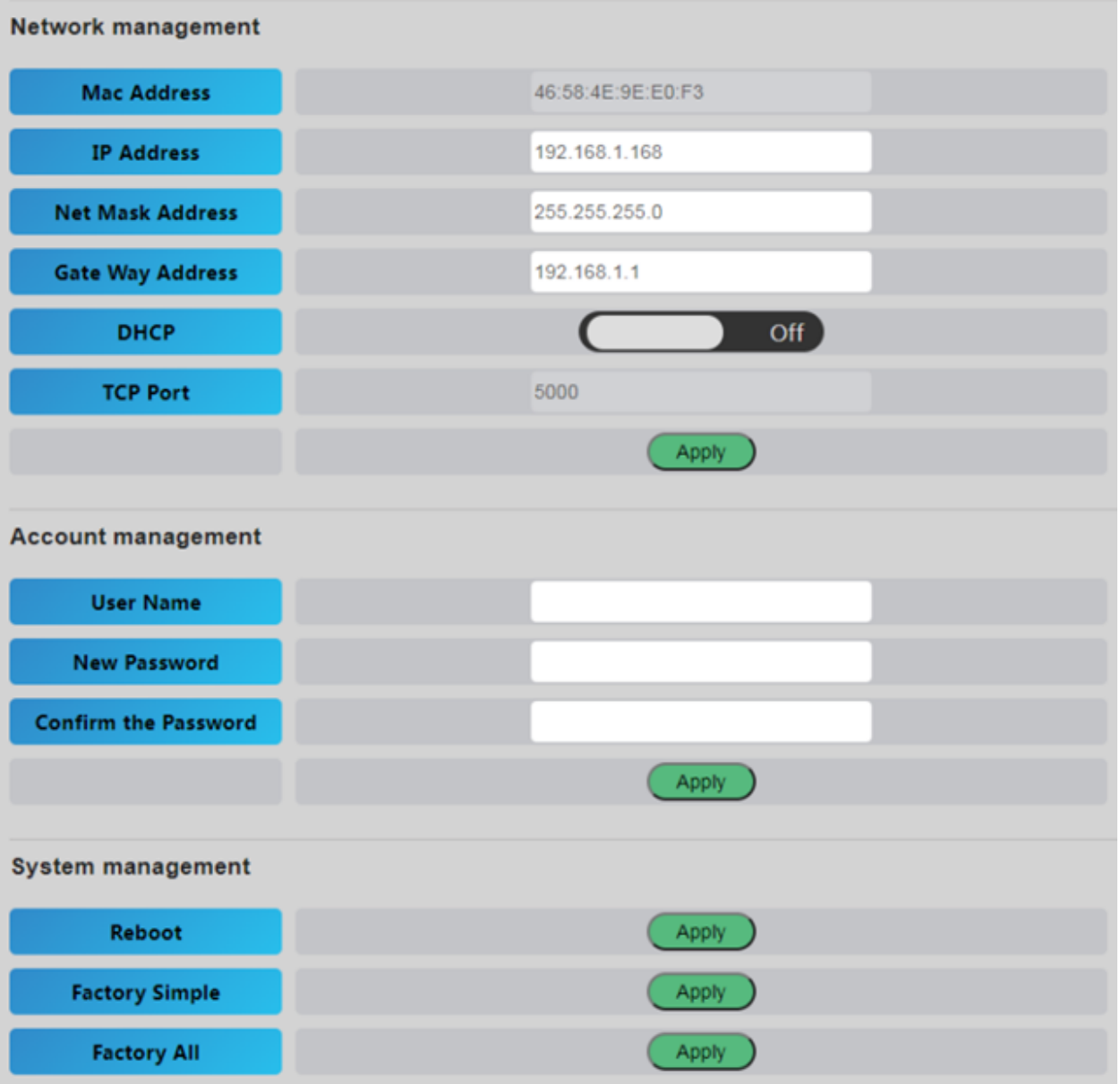
10.7 System Interface



*Factory simple: restore running info. (Includes video, audio, EDID, Setup).

*Factory All: reset all default setup functions.

11. 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)

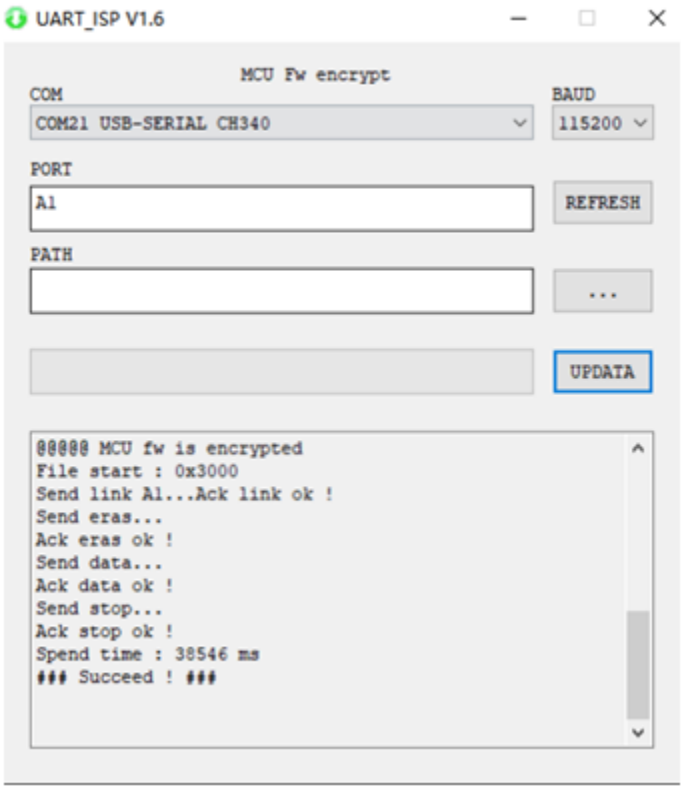
A1 means MCU

C0 means CPLD

F0 means HTML

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



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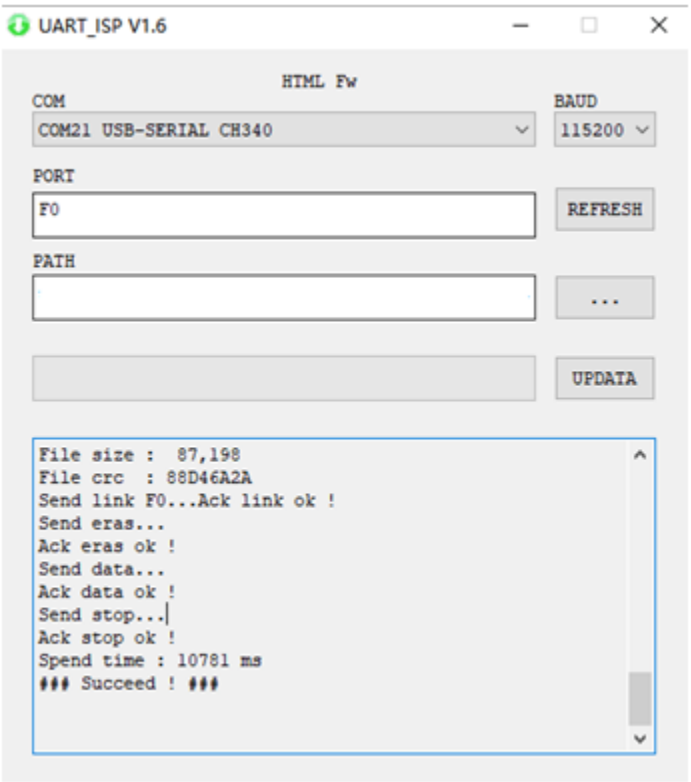
HTML (WEB GUI) Upgrade:

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



12. Maintenance

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

13. 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.

14. 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.

15. 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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