

8x8 HDMI2.0 Matrix

Support 4K@60hz YUV4:4:4, 18Gbps, HDR

OPERATION MANUAL

4K2K

HDCP2.2



Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

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1. INTRODUCTION

This 8x8 4k HDMI Matrix supports the transmission of video (resolutions up to 4K2K@60Hz, HDCP 2.2, HDMI2.0) and multi-channel digital audio from 8 HDMI sources to 8 HDMI outputs and 8 SPDIF Output. This matrix supports high resolution digital audio formats such as Dolby TrueHD and DTS-HD Master Audio as well as 3D video content.

Controllable via Panel buttons, local IR, RS-232, IP or Web GUI. We can provide control drivers for all the major control systems. This unit also supports HDR10 to bring ultimate visual experience. It is designed to save end users' time and energy for they are able to update the system by the creative micro USB interface. In addition, this matrix also allow additional options for integration of third-party control systems, we could provide control drivers for control systems such as Control 4.

2. APPLICATIONS

- Video/TV wall display and control
- Security surveillance and control
- Commercial advertising, display and control
- University lecture hall, display and control
- Retail sales and demonstration

3. PACKAGE CONTENTS

- 1x HDMI Matrix
- 1x 12V DC power supply
- 1x Remote control
- 1x IR Ext RX Cable
- 1x mounting kit
- 1x CD for control software & user manual

4. SYSTEM REQUIREMENTS

- HDMI source equipment such as media players, game consoles or set-top boxes.
- HDMI receiving equipment such as HDTV, monitors or audio amplifiers.
- The use of "Premium High Speed HDMI" cables is highly recommended

5. FEATURES

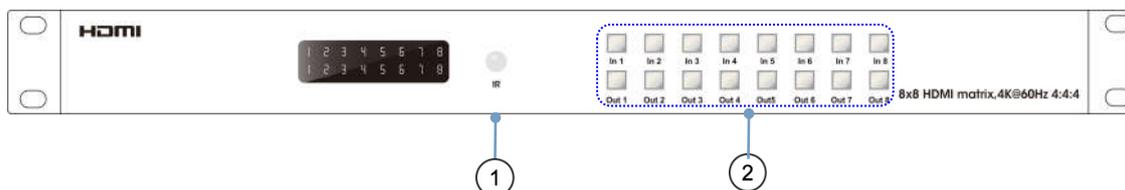
- HDMI 2.0 version (Support 4K@60Hz YUV4:4:4)
- Support 3D
- Bandwidth upto 18Gbps
- HDCP2.2 input ,HDCP2.2 output
- HDCP1.4 input, HDCP1.4 output
- Support HDR10
- 8xHDMI Input, 8xHDMI output with 8xSPDIF Audio
- Any one of the 8 Ultra HD sources to any one of the 8 Ultra HD displays
- Support Dolby True HD and DTS-HD master audio
- Micro USB interface for user to upgrade firmware
- Controllable via front-panel buttons, IR remote, RS232, IP , Web GUI, Android App Control
- 1U rack design, easy installment
- Unit size: L440XW220XH44.5mm

6. SPECIFACATIONS

Bandwidth	18 Gbps
Resolution	480p@60hz,576P@50hz,720P@60hz, 1080P@24hz,1080P@50hz,1080P@60hz,4K@24hz,4K@30hz, 4K@60hz YUV4:2:0, 4K@ 60hz YUV4:4:4
Video Input Connectors	8xHDMI Type A, 19-pin, female
Video Output Connectors	8xHDMI Type A, 19-pin, female
RS-232 serial port	DB9, female
Ethernet port (IP control)	RJ45, female
IR Ext port	1x3.5mm stereo jack
Rack-Mountable	Rack ears included
Dimensions(WxHxD)	L440XW220XH44.5mm
Net Weight	2.8kg
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	14°F to 140°F (-10°C to 60°C)
Power consumption	23W(Max)

7. OPERATION CONTROLS AND FUNCTIONS

7.1 Front Panel



① **IR WINDOW:** Accepts IR signals from the included IR remote for control of this unit only.

② **OUTPUT 1~8 & INPUT 1~8:** Press output keys (1~8) to select output source; then press input buttons to select input source (1~8). And also could press and hold Input & Output buttons for 3 second to set up below functions:

- ◆ **Locking & Unlocking:** Press and hold the Input8 for 3 seconds to lock all button functions on the front panel. Press and hold Input8 for 3 seconds again to release the lock function.
- ◆ **Checking & Setting IP Address / DHCP:** Press and hold the Input7 for 3 seconds to enter into the mode of checking IP address and DHCP. Press and hold Input5 for 3 seconds to Exit. Press below buttons shortly to revise the IP address and DHCP accordingly.

Press Input1 button to let cursor move LEFT

Press Input2 and/or Output2 button to revise the data

Press Input3 button to let cursor move RIGHT

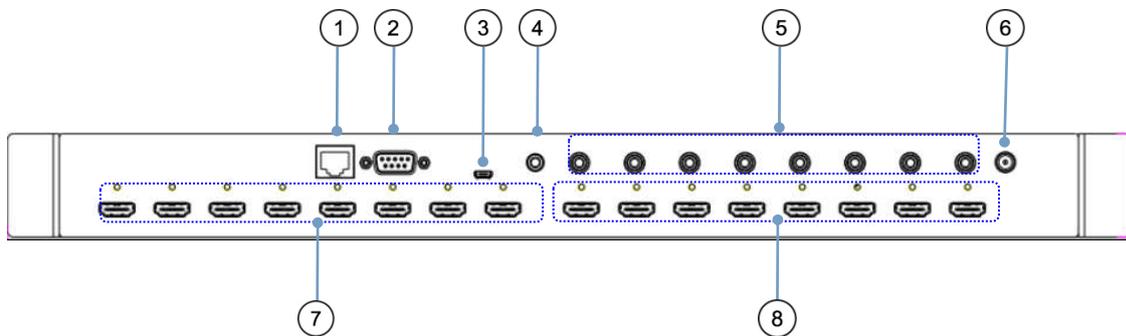
Press Output1 button to confirm revising

- ◆ **Checking & Setting EDID:** Press and hold the Input6 for 3 seconds to enter into the mode of checking EDID. Press and hold Input5 for 3 seconds to Exit. Press below buttons shortly to revise the EDID accordingly.

Press Input2 and/or Output2 button to revise the data

Press Output1 button to confirm revising

7.2 Rear Panel



① **IP CONTROL:** Connect directly, or through a network switch, to your PC or laptop to control the unit via telnet/WebGUI.

② **RS232:** Connect directly to a PC, laptop or other serial control device to send RS-232 commands to control the unit

③ **MICRO USB:** This slot is reserved for firmware update use only

④ **IR IN:** Connect to the provided IR Extender to extend the IR control range of the unit. Ensure that the remote being used is within direct line-of-sight of the IR Extender.

⑤ **SPDIF Audio Output:** Audio output is from the selected HDMI source

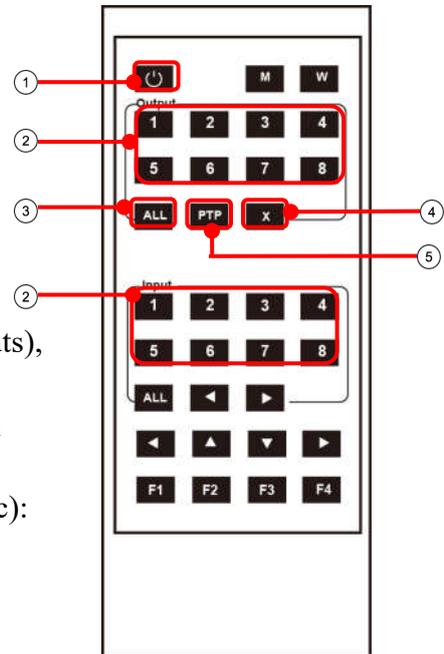
⑥ **DC POWER:** Plug the 12V DC power adapter into the unit and connect it to an AC wall outlet for power.

⑦ **INPUT 1~8:** Connect to HDMI source equipment such as media players, game consoles or set-top boxes. DVI sources are supported with the use of an HDMI to DVI adapter.

⑧ **OUTPUT 1~8:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.

7.3 Remote Control Description

- ① Standby Mode.
- ② OUTPUT-X select INPUT-Y:
Press OUTPUT-X (X means 1 to 8 of outputs)
Press INPUT-Y (Y means 1 to 8 of inputs)
- ③ All outputs select INPUT-Y:
Press ALL button in zone OUTPUT
Press INPUT-Y button (Y means 1 to 8 of inputs),
then INPUT-Y switched to ALL OUTPUTS.
- ④ Cancel Button: Cancel the switching operation
- ⑤ PTP button: Mirror all inputs and outputs
(Ex. Input 1 to output 1, input 2 to output 2, etc):
Press PTP button in Zone OUTPUT.



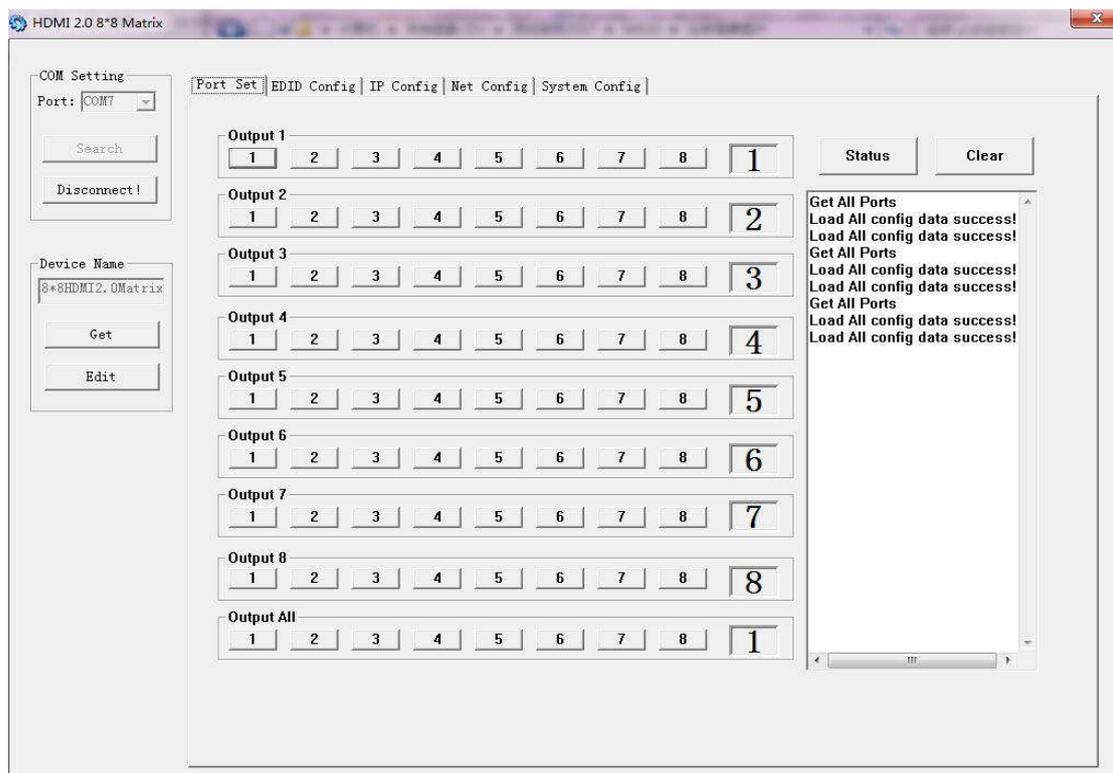
RS232 Pin Assignment

Matrix		Remote Control Console	
PIN	Assignment	PIN	Assignment
1	NC	1	NC
2	Tx	2	Rx
3	Rx	3	Tx
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

7.4. RS232 Control

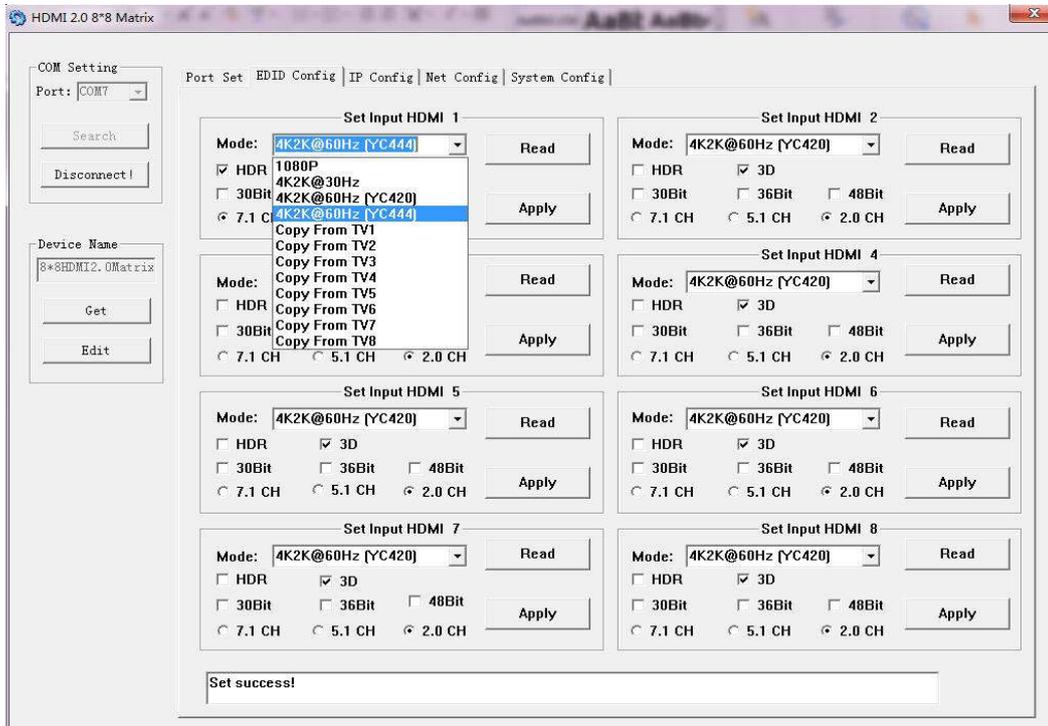
Software control

- ◆ Connect the 8x8 Matrix to PC with a RS232 cable, open the software on your PC. On the COM Setting session, select the COM port according to your PC and click “Connect” to get connected.
- ◆ On this COM setting session, you can also change the Device name, Device name support up to 16 characters. Save or edit your status by clicking the Edit button.
- ◆ Come to Port Set session to select or switch your input sources for each output, We can read the current status by clicking the “Status” button, or Clear our historical operating record by clicking “Clear” button. The right down blank shows the operating history.



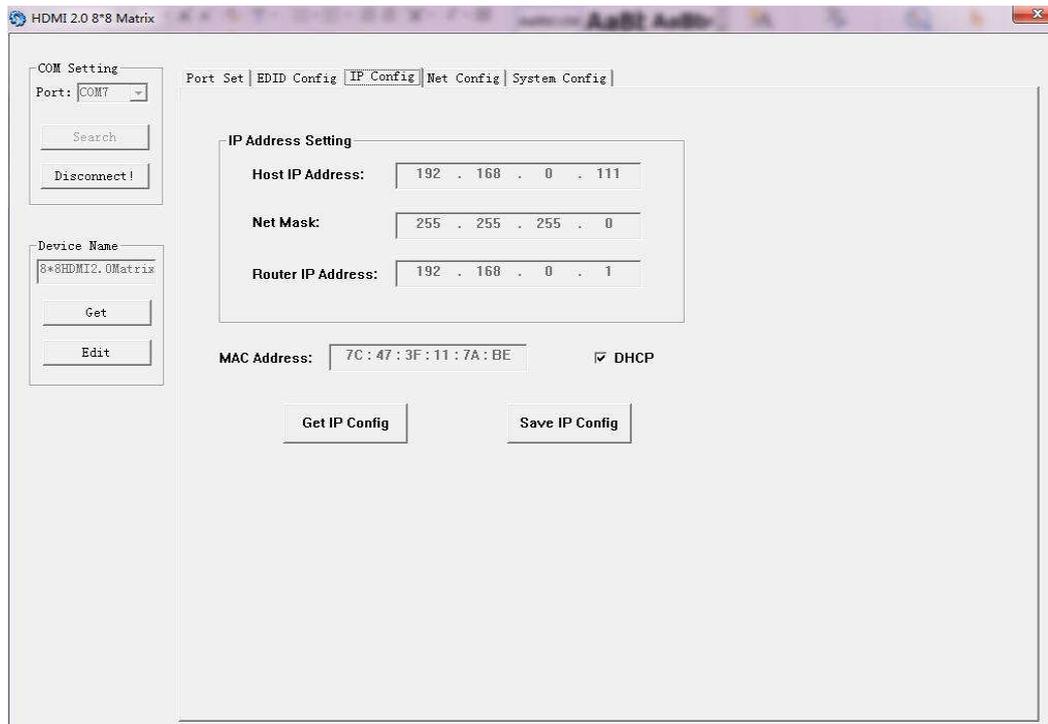
Picture 1

- ◆ The EDID session helps us to Read and Configure EDID for each input, such as HDR, 3D, Data rates and Audio channel.



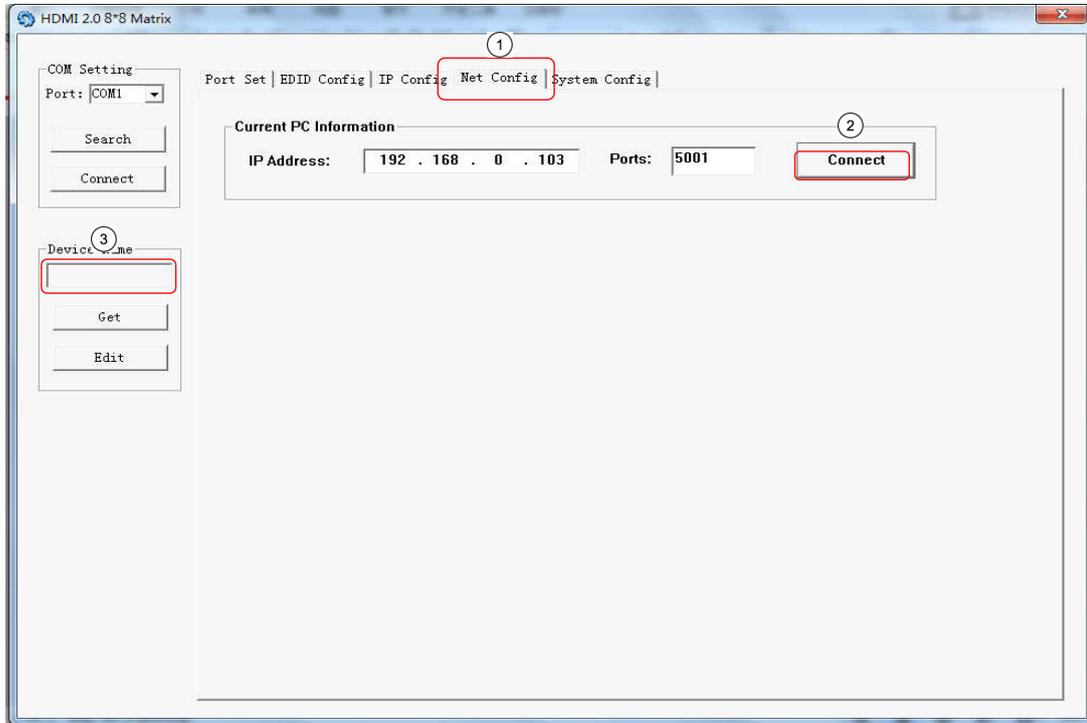
Picture 2

- ◆ The IP configure session helps to read and configure the IP address and MAC of the Matrix. Check DHCP if you want the router to assign an IP for the Matrix automatically .



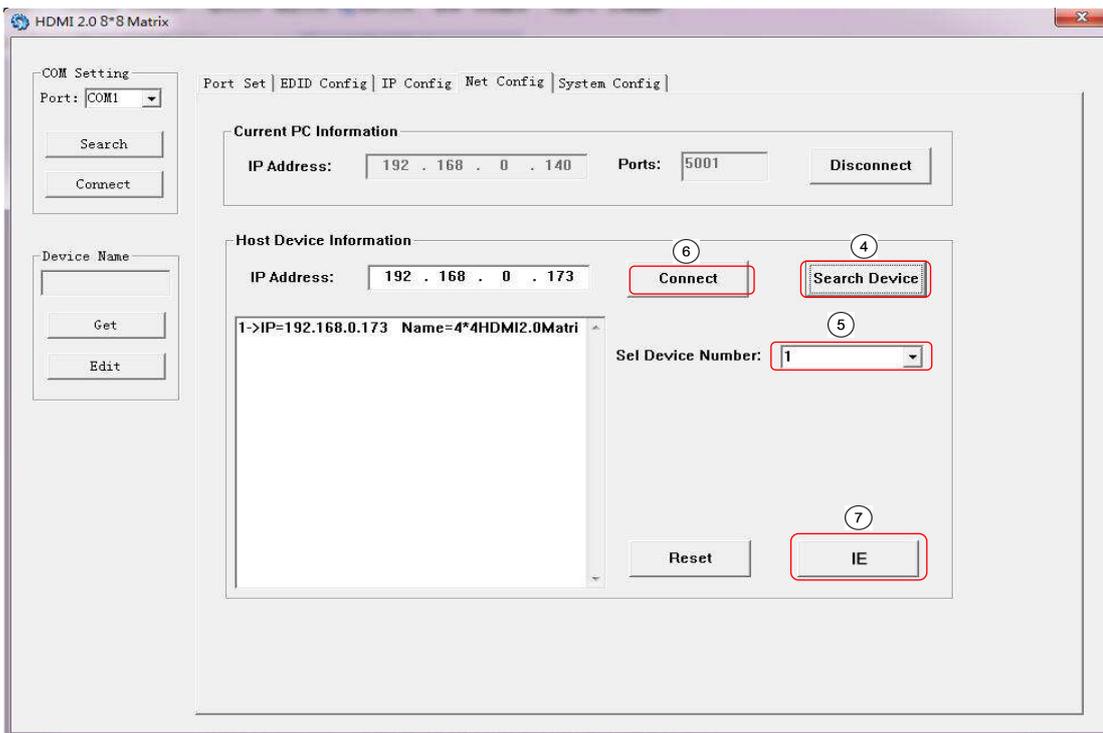
Picture 3

- ◆ The Net Config session allows us to configure the PC and Matrix in the same LAN with the IP Address and connection.
- ◆ Click “Net config” → “Connect” → “Search Device” → “Sel Device Number” → “Connect” then you can see the device name, it means successful connection .



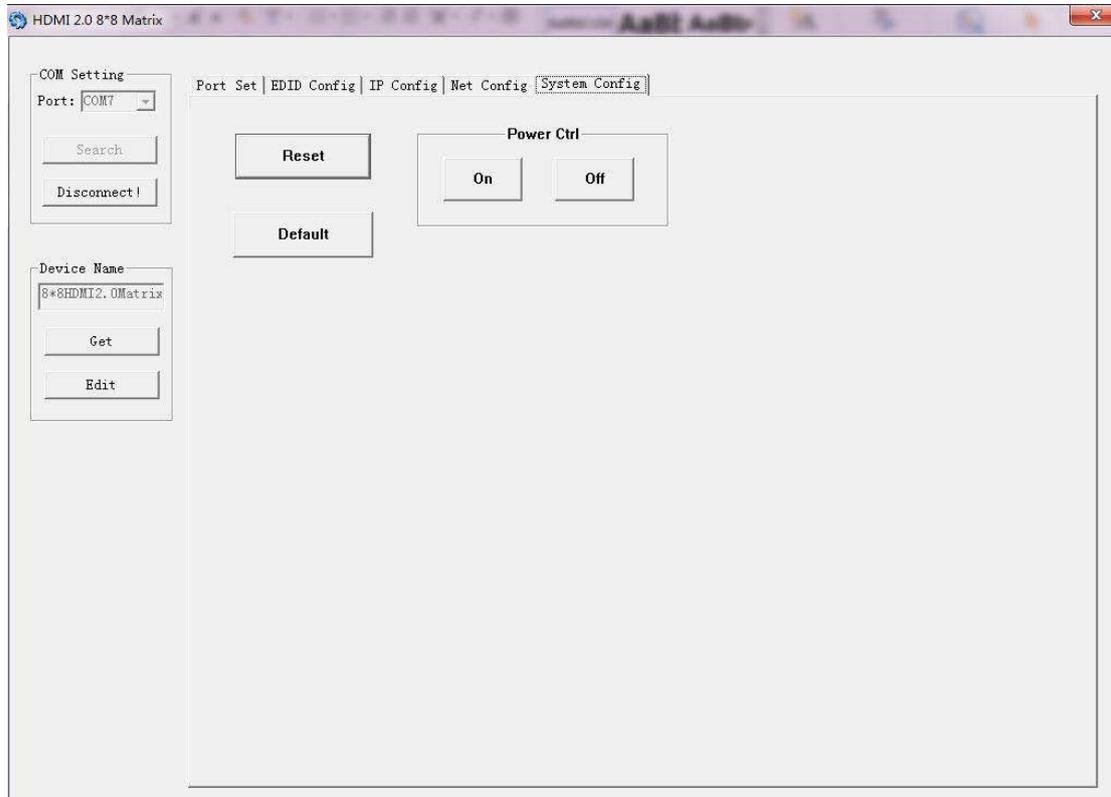
Picture 4

- ◆ You can also click “IE”, easy and click to enter into web.



Picture 5

- ◆ The last session is System Config, which allows power ON/OFF or reset, default the Matrix.



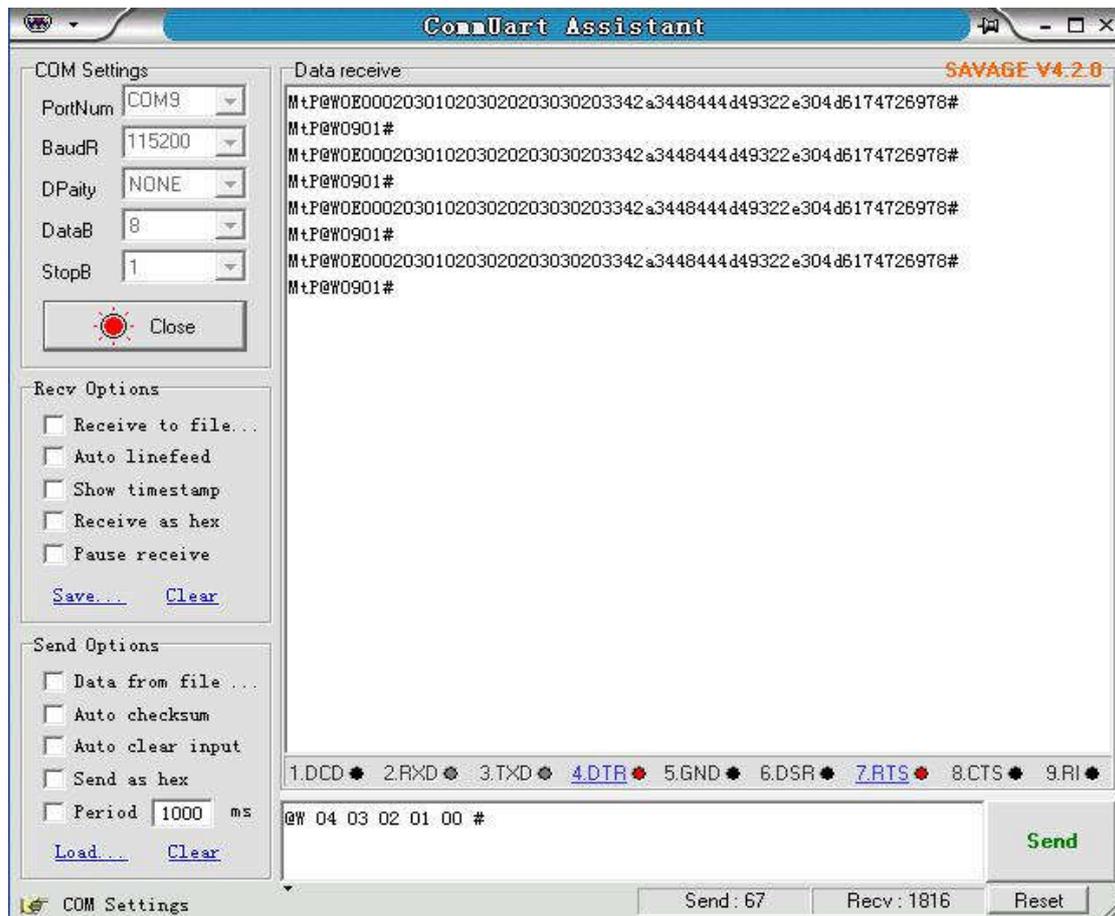
Picture 6

8. Command Control

- 1). Open CommUart Assistant.
- 2). Comport setting:

Baud Rate:	115200 bps
Parity:	None
Data Bits:	8 bit
Stop Bits:	1 bit

- 3). Enter Port Command in Send options.



Picture 7

4). Command

Command	Function	Note
@W 04 00 01 02 03	PTP Function	Mirror all inputs and outputs (Ex. Input 1 to output 1, input 2 to output 2, etc)
@W 50 #	Reboot	
@W 51 #	Restore Setting	Factory
@W 0F 00 #	Standby	00: Standby Mode 01: Cancel "Standby Mode"

5). Select HDMI input for HDMI output

Command	Description
00	Output1
01	Output2
02	Output3
03	Output4
11	Output5
12	Output6
13	Output7
14	Output8
04	All Output
00	Input1
01	Input2
02	Input3
03	Input4
04	Input5
05	Input6
06	Input7
07	Input8

E.g: @W 00 00 #: Ouput 1 display Input1



6). EDID Setting

@W XX AA BB #:

Parameter Description:

XX for configuration of “**INPUT EDID**”

Command	05	06	07	08	15	16	17	18
Description	Input1	Input2	Input3	Input4	Input5	Input6	Input7	Input8

AA for selecting “**Video EDID Mode**”

Command	00	01	02	03
Description	1080P	4K2K_30	4K2K_60(YC420)	4K2K_60(YC444)

Command	04	05	06	07
Description	Copy Output 1	Copy Output 2	Copy Output 3	Copy Output 4

Command	08	09	0A	0B
Description	Copy Output 5	Copy Output 6	Copy Output 7	Copy Output 8

Note: If current EDID is AA=00 {1080P}, then use AA=04 to COPY Output 1's EDID, but if TV1 isn't connected to the TV, then it will automatically return to the mode AA=00 {1080P} before COPY.

BB for selecting belowing function

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
HDR	48Bit	36Bit	30Bit	7.1CH	5.1CH	2CH	3D
1	1	1	1	1	1	1	1
0	0	0	0	0	0	0	0

“1” : select the function, “0” : not select the function.

E.g: 11001001: HDR, 48Bit, 7.1CH, 3D

Chang Binary code “11001001” to hexadecimal format “C9”.

E.g: @W 05 03 C9 #

The EDID of input 1 is: 4K2K_60(YC444)、HDR、48Bit、7.1CH、3D.

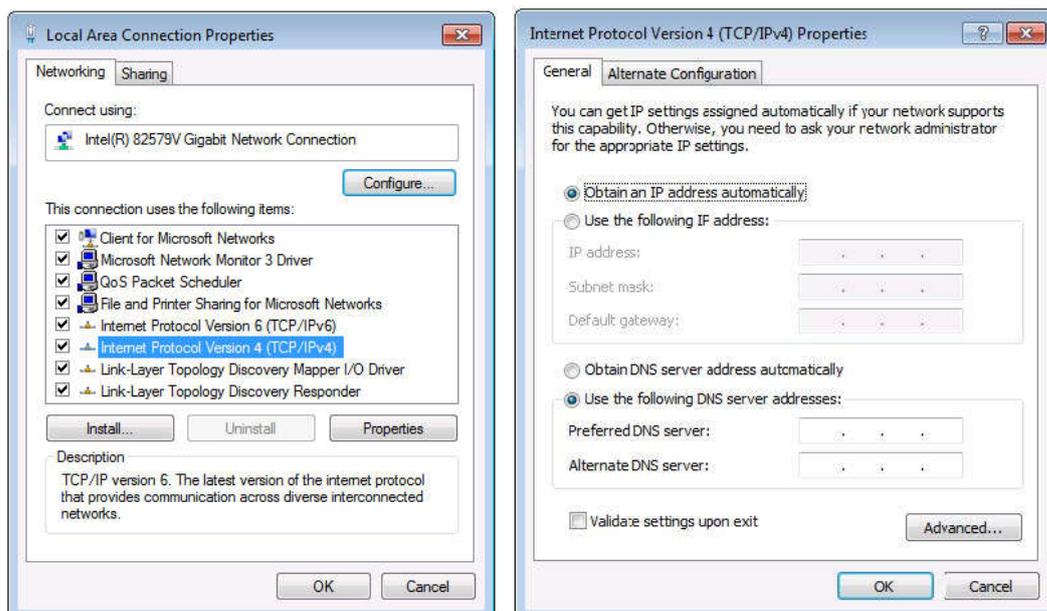
9. Web Control

9.1. Address Information

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

9.1.1 Change the IP address of your PC.

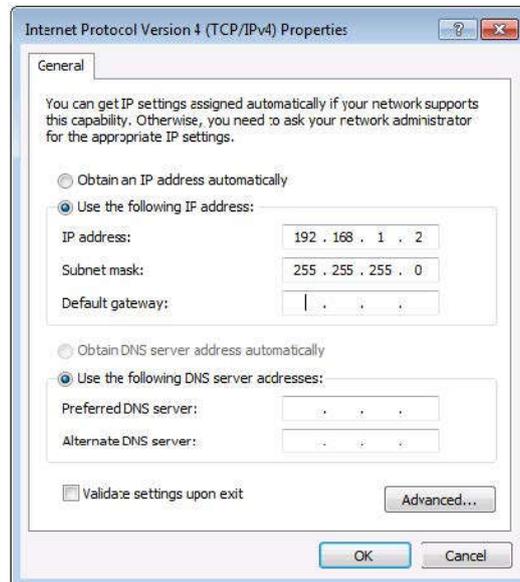
- 1). Connect the HDMI Matrix and PC to the LAN.
- 2). Configure your PC as follows:
 - ① Click **Start > Control Panel > Network and Sharing Center.**
 - ② Click **Change Adapter Settings.**
 - ③ Highlight the network adapter you want to use to connect to the device and click **Change settings of this connection.**
- 3). Connect to the device and click change settings of this connection:
- 4). Highlight **Internet Protocol Version 4 (TCP/IPv4)** by clicking on the item.
- 5). Click **Properties.**



Picture 8 & 9

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 192.168.1.2 to 192.168.1.254 (excluding 192.168.1.168).



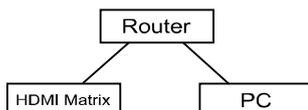
Picture 10

7). Click **OK**.

8). Click **Close**.

9.2. DHCP Setting

1) . Connect the HDMI Matrix and PC to the LAN under the Matrix DHCP Mode.



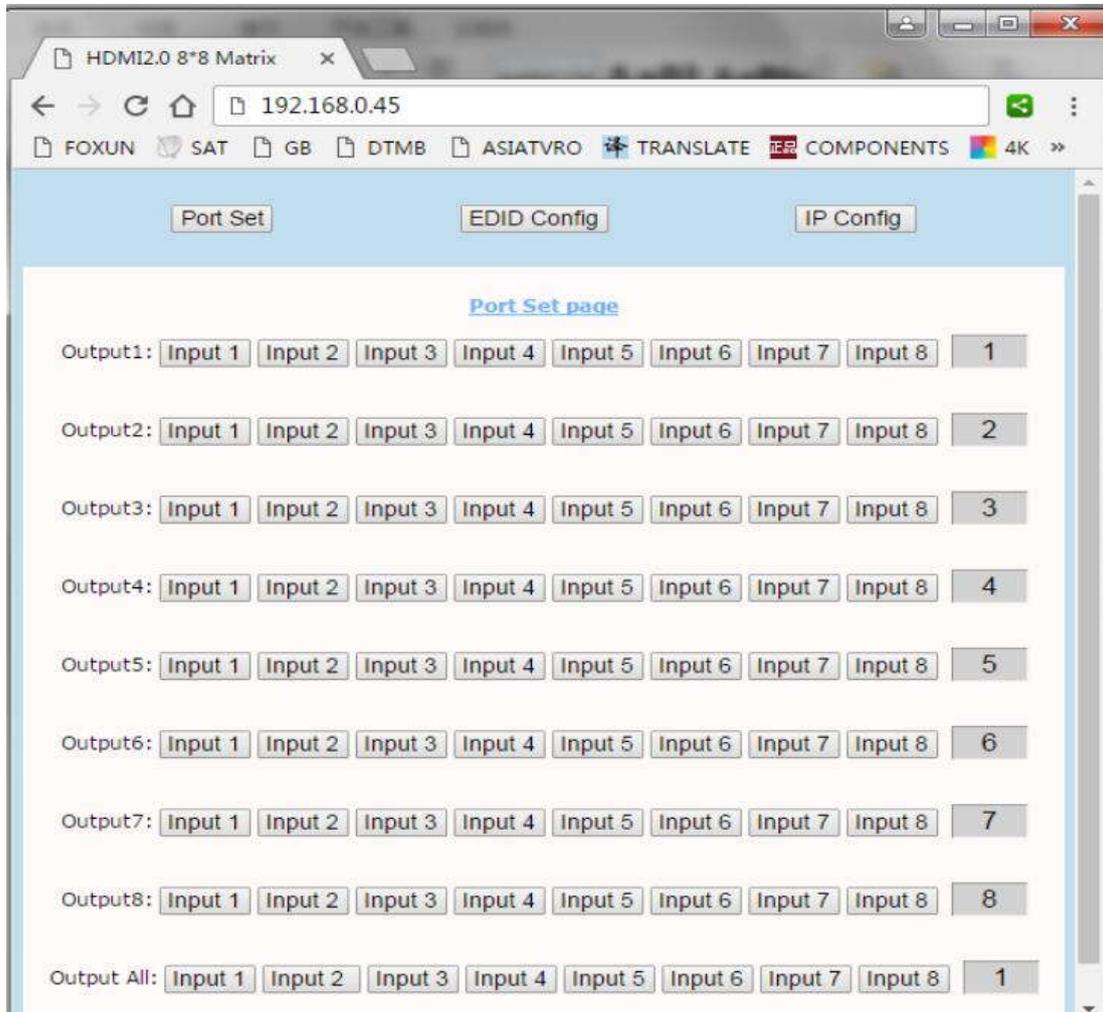
2) . Open the PC tool (included in the CD).



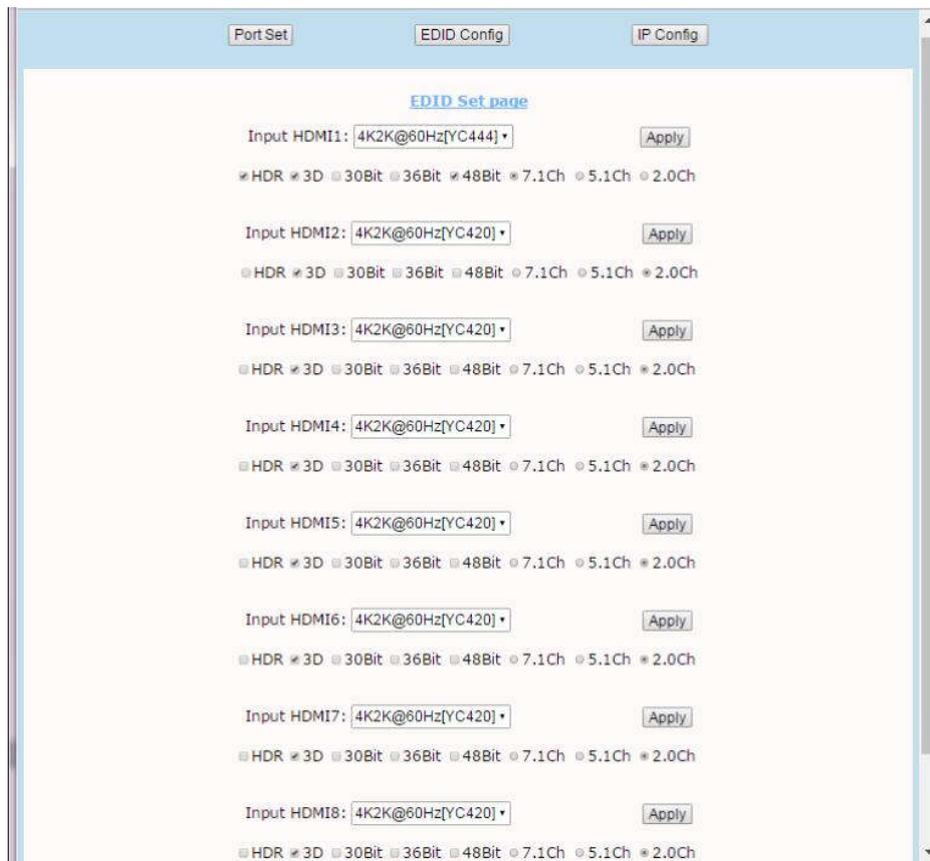
3). Search the IP address of HDMI Matrix, please refer to picture 4 & picture 5.

4). Open the web browser and enter the IP address you searched, then you can set the function as below pictures:

9.3. Page of Port Setting & EDID & IP & Firmware Upgrade



Picture 11: Port Setting Page



Picture 12: EDID Setting Page



Picture 13: IP Configuration Page



Picture 14: Firmware Upgrade Page

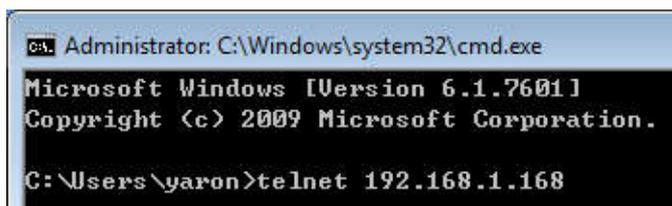
10. Telnet Control

10.1. Login Telnet

Press “Windows” + “R” to enter Operation page and type “cmd”



Typing “telnet 192.168.1.168” to enter login page



Typing ID and Password “Admin” to login

```

C:\> Telnet 192.168.1.168

WELCOME!
ID:Admin

Password:*****
    
```

10.2. How to get commands

Typing “ Help” to check all the commands

```

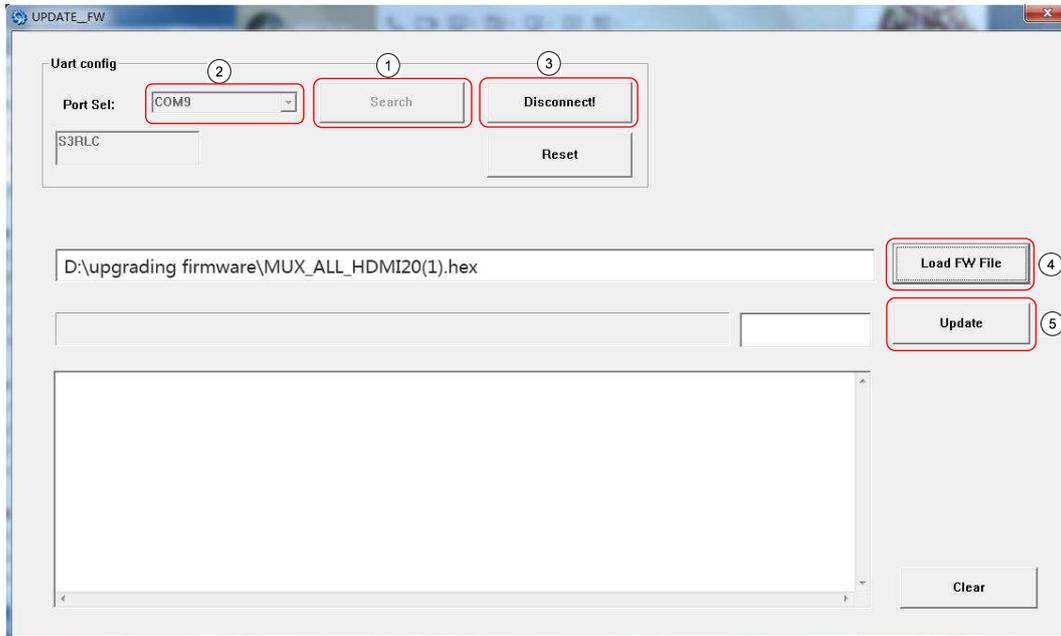
C:\> Telnet 192.168.1.168

WELCOME!
ID:Admin

Password:*****
=====
Successfully connected!
=====
>help
help
exit          Disconnect telnet
reset         System reset
set-swp       Set switch port.  i.e. set-swp 2,1<In1 to Out2>
set-net-ip    Set host ip  i.e. set-net-ip 192.168.1.168
set-net-mask  Set mask address  i.e. set-net-mask 255.255.255.0
set-net-gate  Set gate ip  i.e. set-net-gate 192.168.1.1
set-net-dhcp  Enable or disable dhcp  i.e. set-net-dhcp 1<1:enable dhcp 0:
disable dhcp>
set-device-name  Modify the machine name  i.e. set-device-name HDMI_MUX
get-swp          i.e. get-swp 1<get Out1>
get-net-info     Get current net  information
get-device-name  Get the machine name
get-sig-format  Get the signal format for all input ports
>
    
```

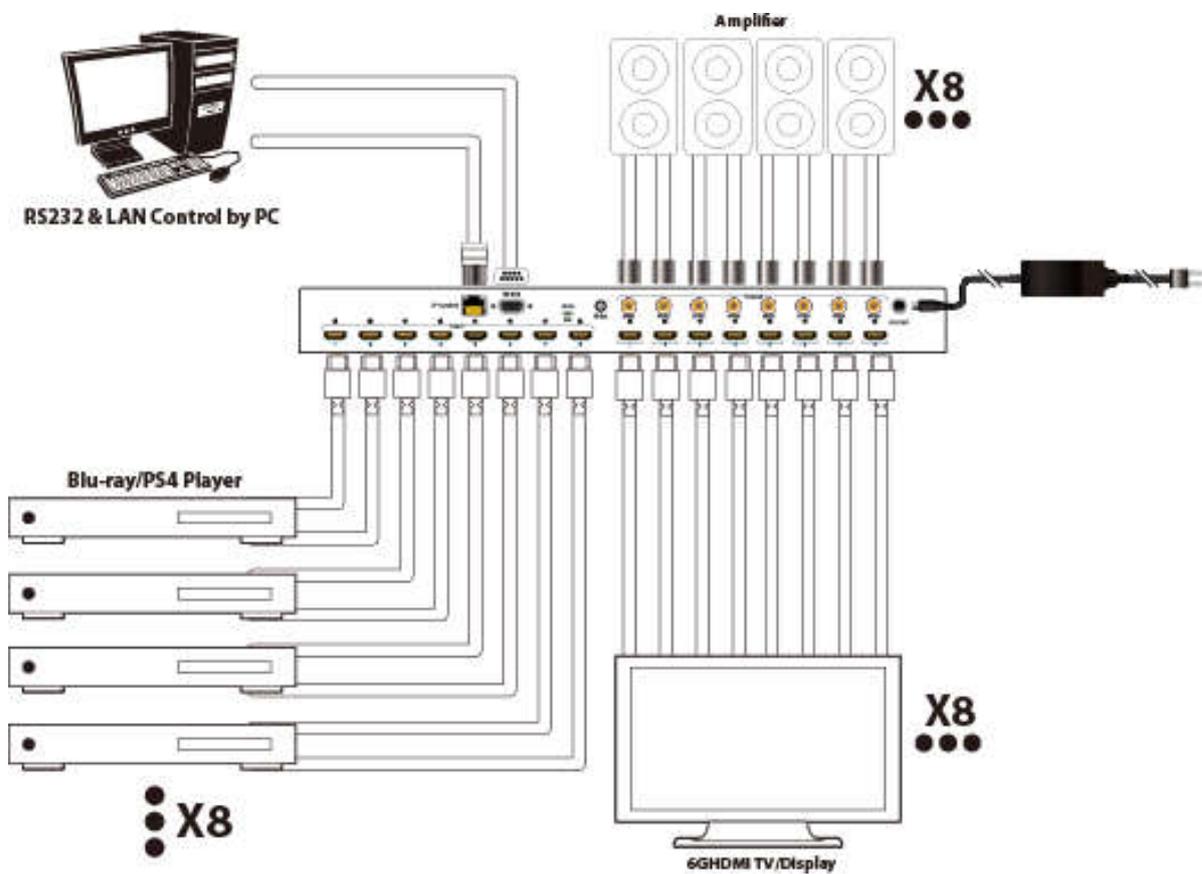
11. Micro USB to update firmware

- 1). Connect the HDMI Matrix with PC via USB or RS232 port.
- 2). Open the software to upgrade firmware (Included in the manual).
- 3). Click “Search” choose the port, then click “connect”, then you can see “S3R(C)”, click “Load FW File” to upload the firmware,click “update”, the firmware can be upgraded in one minute.



Upgrading firmware

12. CONNECTION DIAGRAM



13. MAINTENANCE

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

PRODUCT SERVICE

(1) **Damage requiring service:**

The unit should be serviced by qualified service personnel if:

- The DC power supply cord or AC adaptor has been damaged;
- Objects or liquids have gotten into the unit;
- The unit has been exposed to rain;
- The unit does not operate normally or exhibits a marked change in performance;
- The unit has been dropped or the cabinet damaged.

(2) **Servicing Personal:** Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized service personnel.

(3) **Replacement parts:** Please ensure the defective parts to be replaced by manufacturers or the same specifications 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: Limited Warranty Limits and Exclusions

- If your product does not work properly because of defective materials or workmanship, our Company (referred to as "the warranter") 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 whether to repair or replace the product will be made by the warranter.
- 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.(Please prepaid and insured for the unit and then ensure it was packed carefully in the original carton. Besides, detailed complaint description and your contact information should be attached in it.)This Limited Warranty is only valid for the original purchaser and only covers the newly purchased product. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.
- This Limited Warranty ONLY COVERS failures result from defective 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 damages that caused by acts of God.
- 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 WARRANTY. (for example, it excludes damages for lost time, cost of someone remove or re-install an installed unit that was applicable, round trips, loss of or damage to media or images, data or other recorded content. Please note that the items listed above are not exclusive, but only for illustration)
- THE PURCHASER OR USERS SHOULD TAKE RESBONSIBILITY FOR PARTS AND SERVICE THAT DOES NOT COVERED IN THIS LIMITED WARRANTY .