8x8 HDMI Deep Color & Full 3D over single Cat.X Matrix

To avoid EMI issue, <u>complete STP Cat6 cable</u> is strongly recommended!

P/N: AV-GM07U3-S1-V2

⚠️ Safety and Notice

The **AV-GM07U3-S1-V2** 8x8 HDMI Deep Color & Full 3D over single Cat.X Matrix has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **AV-GM07U3-S1-V2** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapters and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

ESD CAUTION

TABLE OF CONTENTS

INTRODUCTION

The **AV-GM07U3-S1-V2** 8x8 HDMI Deep Color & Full 3D over single Cat.X Matrix provides the most flexible and cost effective solution in the market to route high definition video sources plus multi-channel (up to 7.1-channel) digital audio from any of the eight HDMI sources to the remote displays at the same time. Through only one low cost Cat-5/5e/6 LAN cable, not only high quality video and audio can be transmitted to the display sites, but also users can switch among eight HDMI sources using the push-in button or remote control. Furthermore, the built-in IR extension function makes users at display site access the DVD player, PS3 or any HDMI supported devices directly!

FEATURES

- Supports HDMI Deep Color & full 3D
- HDCP compliant
- Allows any source to be displayed on multiple displays at the same time
- Allows any HDMI display to view any HDMI source at any time
- Supports 7.1 channel digital audio
- Supports default HDMI EDID and learns the EDID of displays
- The matrix master can switch every output channel to any HDMI input by push-in button, IR remote control, RS-232 control, and Ethernet control
- Allows controlling local HDMI sources such as DVD by attached IR extender from remote receiver to matrix master
- Extends video signal up to 35m (115 feet) over single CAT.X at 1080p and likely longer with better HDMI source device (such as PS4), better grade HDMI display (such as Sony X-series HDTV), and better quality solid CAT6 cable
- Easy installation with rack-mounting and wall-mounting designs for master and receiver respectively
- Fast response time – 2~5 seconds for channel switch

PACKAGE CONTENTS

- 1x AV-GM07U3-S1-V2
- 9x IR receiver
- 1x DC 12V 5A
- 1x Rack-mounting ear set
- 1x Installation software CD

- 1x User Manual
- 8x IR blaster*
- 1x IR Remote control*

SPECIFICATIONS

Model Name	AV-GM07U3-S1-V2	
Technical	AV-GM07U3-S1-V2	CV-57KJ3-RX
Role of usage	True 8x8 matrix switcher Transmitter [TX]	Receiver [RX]
HDMI compliance	HDMI Deep Color & full 3D	
HDCP compliance	Yes	
Video bandwidth	Single-link 225MHz [6.75Gbps]	
Video support	480i / 480p / 720p / 1080i / 1080p60 36-bit color	
Audio support	Surround sound (up to 7.1ch) or stereo digital audio	
HDMI over CAT5 transmission range	Full HD (1080p): 35m (115ft) [CAT.X] HD (720p/1080i): 50m (165ft) [CAT.X]	
HDMI equalization	N/A	8-level digital rotary control
Input TMDS signal	1.2 Volts [peak-to-peak]	
Input DDC signal	5 Volts [peak-to-peak, TTL]	
ESD protection	Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]	
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]	
Input	8x HDMI / 1x RS-232 / 1x Ethernet 1x IR socket for IR receiver	1x RJ-45 / 1x IR socket for IR receiver
Output	8x RJ-45 / 9x IR socket for IR blaster	1x HDMI / 1x IR socket for IR blaster
HDMI Input selection	Push-in button / IR remote control / RS-232 control / Ethernet control	IR remote control
HDMI source control	Controllable via IR pass-through from IR receiver at RX to IR blaster at TX	
IR remote control	Electro-optical characteristics: ◻ = 25° / Carrier frequency: 20-60kHz	
HDMI connector	Type A [19-pin female]	
RJ-45 connector	WE/SS 8P8C with 2 LED indicators	
RS-232 connector	DE-9 [9-pin D-sub female]	
3.5mm connector	Earphone jack for IR blaster **[All IR Out]** IR control on all source devices **[IR1~IR8]** IR control on individual source device Earphone jack for IR receiver **[System IR]** Receives IR commands from remote control **[IR1~IR8]** Receivers IR commands from individual remote control	Earphone jack for IR receiver **[IR]** IR control on individual display device Earphone jack for IR receiver **[IR]** Receiver IR commands from remote control
Mechanical	AV-GM07U3-S1-V2	CV-57KJ3-RX
Enclosure	Metal case	
Dimensions (L x W x H) — Model	440 x 218 x 44mm [1'4" x 8.5" x 1.7"]	91 x 74 x 24mm [3.6" x 2.9" x 1"]
Dimensions (L x W x H) — Package	524 x 265 x 76 mm [1'7" x 10.4" x 3"]	
Dimensions (L x W x H) — Carton	542 x 411 x 300 mm [1'8" x 1'3" x 11.8"]	
Weight — Model	2.6kg [5.7 lbs]	260g [9.2oz]
Weight — Package	4664g [10.36 lbs]	
Fixedness	1RU rack-mount with ears Wall hanging holes	Wall-mount with screws
Power supply	12V 5A DC	5V 2A DC

| Power consumption	30 Watts [max]	2 Watt [max]
Operation temperature	0~40°C [32~104°F]	
Storage temperature	-20~60°C [-4~140°F]	
Relative humidity	20~90% RH [no condensation]	

PANEL DESCRIPTIONS

Transmitting unit ► AV-GM07U3-S1-V2

Front Panel
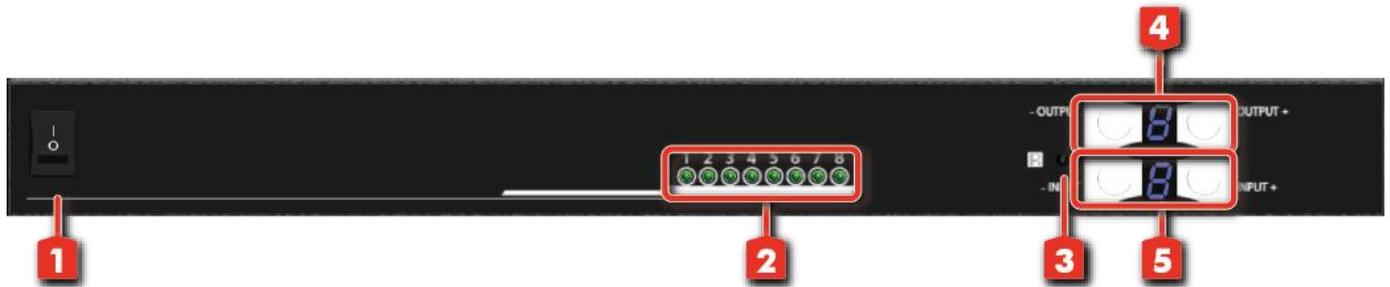
1. **Power Switch:** Power ON/OFF Switch
2. **Source Status:** Input source indicator LED
3. **IR SENSOR:** IR sensor for receiving the IR commands from IR remote
4. **Output Push Button & 7-segment LED:** Front panel push buttons used to select the number of display channel & LED display for output ports
5. **Input Push Button & 7-segment LED:** Front panel push buttons used to select the number of input source & LED display for input channels

Rear Panel
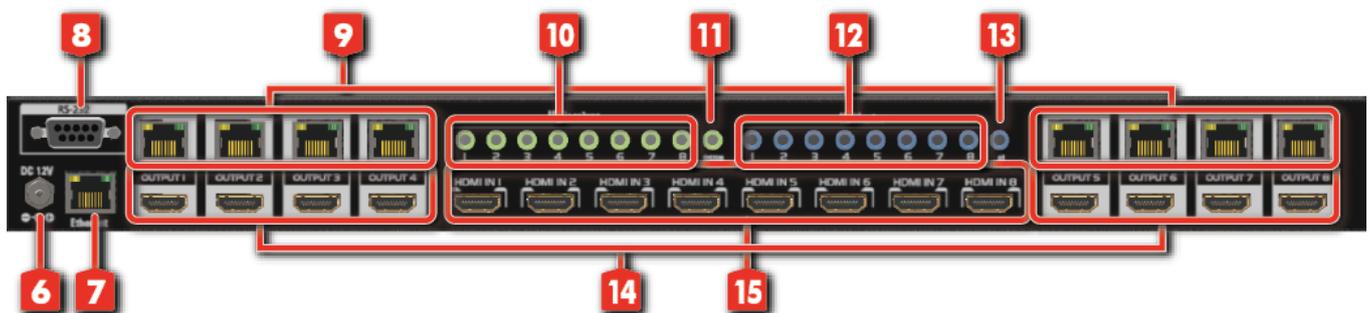
6. **+12V DC:** 12V DC power jack
7. **Ethernet:** Ethernet control port
8. **RS-232:** RS-232 control port
9. **Output Port 1-8:** RS-45 outputs for each output channel
10. **IR Receiver 1-8:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
11. **System IR Receiver:** Ext. IR receiver

12. IR Blaster 1-8: 3.5mm IR blaster socket for individual HDMI source control

13. All IR Output: 3.5mm IR blaster socket for HDMI source control on all 8 inputs

14. HDMI Local Loopout Port 1-8: Local loopout HDMI outputs for each output channel

15. Input 1-8: HDMI inputs

Receiving unit ► CV-57KJ3-RX

Front Panel   Rear Panel
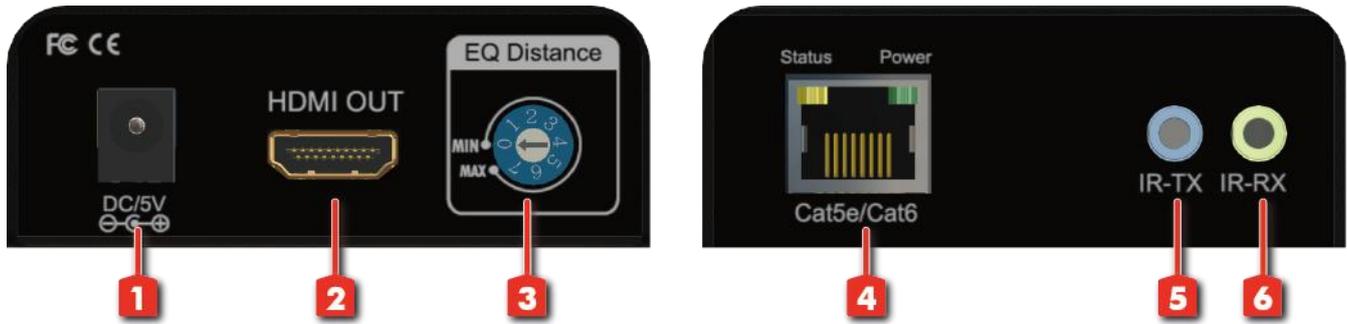
1. **+5V DC:** Connect to 5V DC power supply

2. **HDMI Output:** Connect to a HDMI display with a HDMI male-male cable

3. **Signal Level:** Adjust the 8-level equalization control to the received HDMI signals. The HDMI signal level varies from MAX (strongest) to MIN (weakest) for respective transmission length from longest possible range to short distance. Adjust the signal level from MIN to MAX until desired video quality is displayed. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!

4. **HDMI Signal In:** Plug in a Cat-5/5e/6 cable that needs to be linked to the receiving unit

5. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster

6. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver

HARDWARE INSTALLATION

1. Connect all sources to HDMI Inputs on the 8x8 HDMI over CAT.X matrix master AV-GM07U3-S1-V2.

2. Connect each CAT.X output port on the AV-GM07U3-S1-V2 to respective CAT.X input on the remote receiver CV-57KJ3-RX.

3. Connect each HDMI output on receiver to HDMI displays.

4. Connect IR blaster to the AV-GM07U3-S1-V2 and direct the IR blaster to point towards the built-in IR receiver of the HDMI source devices.

5. Connect the +12V 5A DC power supply to the AV-GM07U3-S1-V2 and +5V 2A DC power supply to the receivers

6. Power on all HDMI sources and displays.
8. Dial the 8-level rotary control switch to adjust the HDMI signal level until the picture and sound are clear. It is recommended to dial from weakest to strongest to find the optimal visual experience

IR PASS-THROUGH

IR Extenders

IR Blaster   IR Receiver

IR Sockets

AV-GM07U3-S1-V2

All IR Out: The default location for IR blaster to transmit all IR command signals received from any of the four remote receivers to all of the HDMI sources.

IR BLASTER 1-8: IR blaster connected here can only transmit IR command signals from the remote receivers that are setting at respective input channel from 1 to 8.

System IR: Receives IR commands from remote control

CV-57KJ3-RX

IR BLASTER: IR control on individual display device

IR RECEIVER: IR receiver connected here can receive all IR command signals from the IR remote controls of AV-GM07U3-S1-V2 and all other HDMI source devices.

CAUTION!

Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

Definition of IR Earphone Jack

IR Blaster   IR Receiver

1. IR Signal
2. Grounding

1 2

1. IR Signal [20-60 kHz]
2. Grounding
3. Power

1 2 3
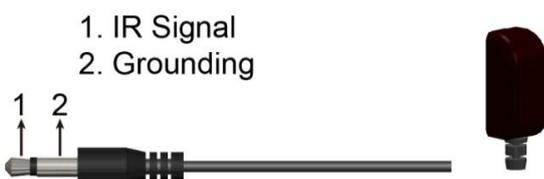
You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the matrix if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.

CONNECTION DIAGRAM
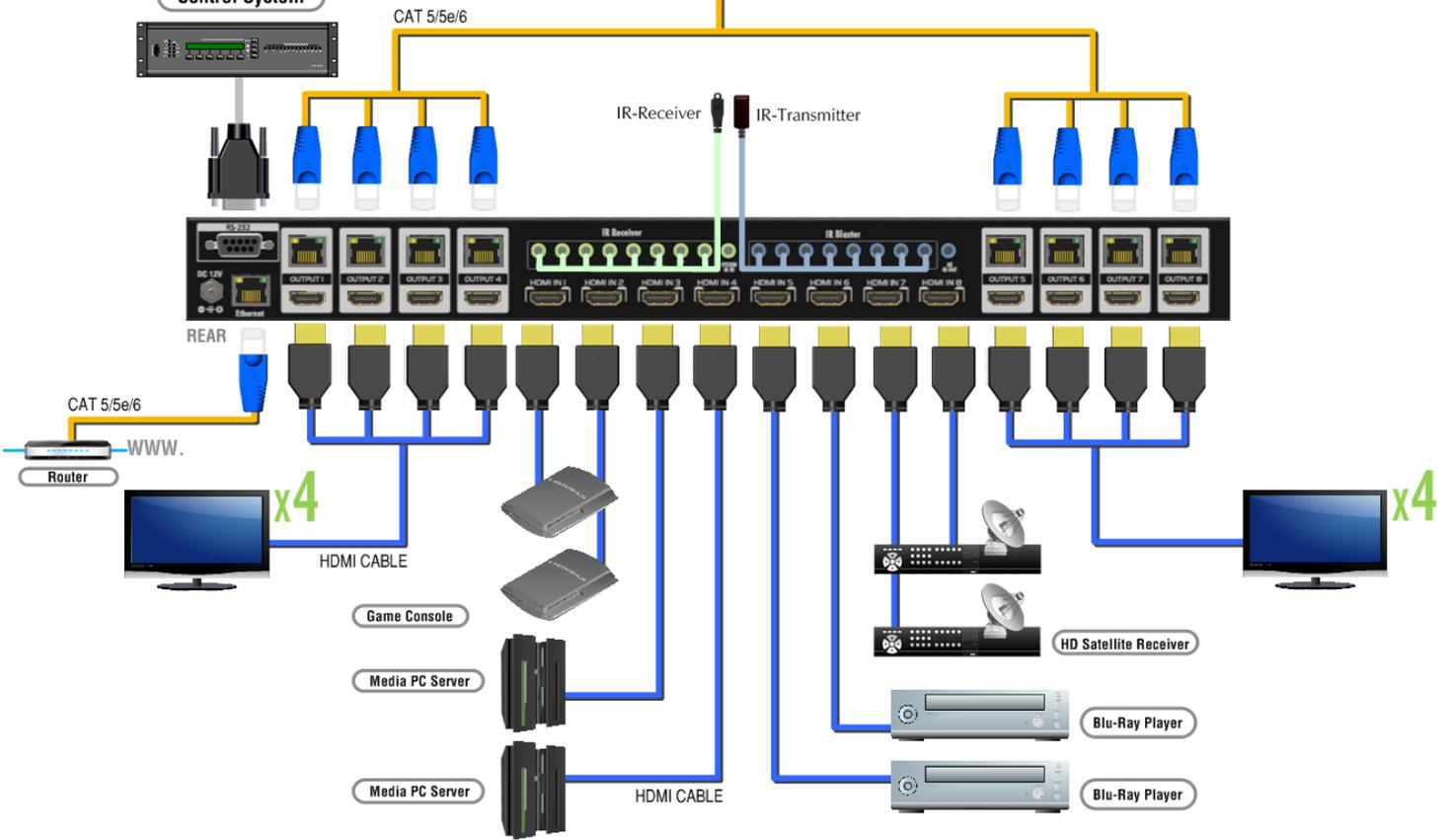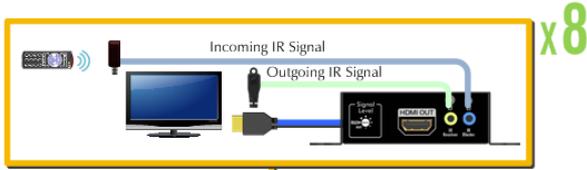
Method A: Push-in Button
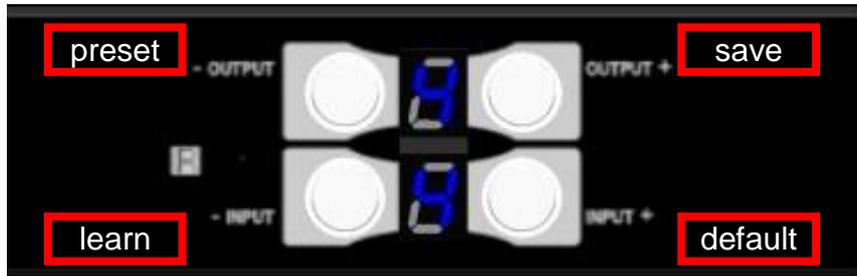
1. IN/OUT MAP

1) Use the "+"or "-" output push button to select the number of display

2) Use the "+"or "-" input push button to select the number of input source

"+": change selected input/output port in ascending order

"-" : change selected input/output port in descending order

After you select the desired input/output port, the LED will blink twice and the setting will be effective

2. Save Mapping Mode

1) Keep pushing "output+ (save)"button until the output LED shows "d." to enter the Save Mapping Mode.

2) Use the "+"or "-" input push button to select the mapping configuration (1~8) which you want to save current input/output mapping

3) After you select the desired mapping configuration number, the LED will blink twice and the mapping setting will be saved

4) If you push the "output- (preset)"button before the mapping setting is saved, the LED will show "—""—"to quit the Save Mapping Mode

3. Preset Mapping Mode

1) Keep pushing "output- (preset)"button until the output LED shows "P." to enter the Preset Mapping Mode.

2) Use the "+"or "-" input push button to select the saved mapping configuration (1~8) which you want to recall

3) After you select the desired mapping configuration number, the LED will blink twice and the mapping setting will be effective

4) If you push the "output+ (save)"button before the mapping setting is effective, the LED will show "一""一"to quit the Preset Mapping Mode

4. Default EDID Mode

1) Push "input+(default)"button to select the input channel which you want to learn default EDID and then keep pushing "input+(default)"button when you select your desired input channel

2) Push the "+"or "-" output push button and then the LED will show "E""d" one time to enter Learn Default EDID Mode

3) Use "+"or "-" output push button to select the default EDID mode(1~8)

4) Release "input+(default)"button after selecting the desired default EDID mode, and then the LED will blink twice and the setting will be effective

5) It will quit the Learn Default EDID Mode if you push the "input- (learn)"button before the setting is effective

6) The LED will show "0""0" if the setting is success

   The LED will show "F""F" if the setting is failure

5. EDID Learning Mode

1) Connect display to input 8(EDID port for learning EDID from display).

2) Push "input- (learn)"button to select the input channel which you want to learn EDID from EDID Port and then keep pushing "input- (learn)"button when you select your desired input channel

3) Push the "+"or "-" output push button and then the LED will show "E""Number" to enter Learn Output EDID Mode.
   Ex: Learn EDID Port to Input 2
   The LED will show "E""2"

4) Release "input- (learn)"button, and then the LED will blink twice and the setting will be effective

5) It will quit the Learn Output EDID Mode if you push the "input+ (default)"button before the setting is effective

6) The LED will show "0""0" if the setting is success

   The LED will show "F""F" if the setting is failure

Method B: IR Remote Control
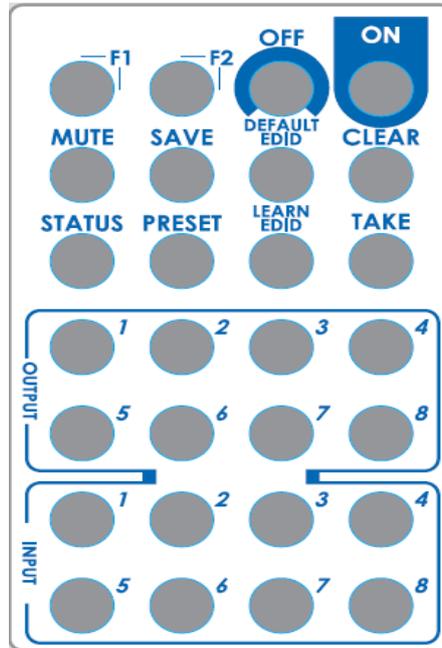
1. IN/OUT Switch

Operation	Procedure	7-Segment LED
IN/OUT Switch	Output Number (1~8) + Input Number (1~8)	
Ex: Input 2 To Output 3	1. Press output number key "3" to select Output 3	3 -
	2. Press input number key "2" to select Input 2	3 2
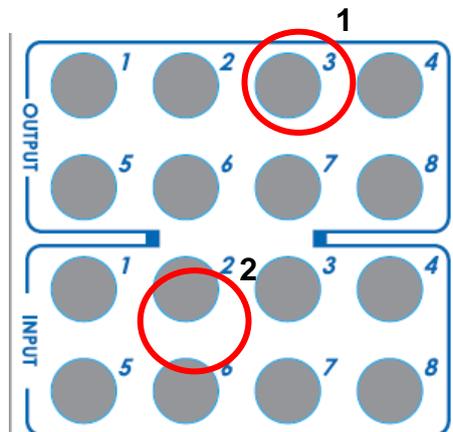
2. Function Key

Button	Function
OFF	Standby mode
ON	Power on the matrix switcher
MUTE	Turn off output's video and audio
STATUS	Preset output status
SAVE	Save current mapping mode
PRESET	Preset mapping mode
DEFAULT EDID	Begin default EDID selection
LEARN EDID	Begin EDID learning from one output
CLEAR	Clear the previous IR operation procedure

TAKE	Trigger the previous setting
F1	Reserved
F2	Reserved

Operation	Procedure	7-Segment LED	
Output Status Ex: Output 4 (Input 2)	Status + Output Number (1-8) + Take 1.Press "STATUS" button 2.Press output number key "4" to select Output 4 3.Press "TAKE" button	- - 4 - 4 2	
Save Current Mapping Ex: Save current mapping to 5	Save + Output Number (1-8 storage site) + Take 1.Press "SAVE" button 2.Press output number key "5" to select the storage site 5 3.Press "TAKE" button	d - d 5	
Preset Mapping Ex: Preset saved mapping from 5	Preset + Output Number (1-8 storage site) + Take 1.Press "PRESET" button 2.Press output number key "5" to select the storage site 5 3.Press "TAKE" button	P - P 5	
Learn default EDID Ex: Default EDID 2 Input 3	Default EDID + Output Number (1-8 default EDID) + Input Number (input 1~8) + Take 1.Press "DEFAULT EDID" button 2.Press output number key "2" to select default EDID 2 3.Press input number key "3" to select Input 3 4.Press "TAKE" button	E d 2 d 2 3 0 0 (success)	F F(fail)
Learn EDID Port EDID Ex: Learn EDID Port Input 3	Learn + Output 8 (EDID Port) + Input Number (input 1~8) + Take 1.Press "LEARN" button 2.Press output number key "8" to select EDID Port 3. Press input number key "3" to select Input 3 4.Press "TAKE" button	E L 8 L 8 3 0 0 (success)	F F(fail)
Mute Output Ex: Mute Output 3	Mute + Output Number (1~8) + Take 1. Press "MUTE" button 2. Press output number key "3" to select Output 3 3.Press "TAKE" button	- 0 3 0 3	

Method C: Software Control through RS-232 port / Ethernet port

1. **System Requirement**

   1) OS Information: Windows

   2) Baud rates: 9600

   3) Software size: 3 MB

   4) Minimum RAM requirement: 256 MB

1	I/O Routing Button
2	Rename I/O Button
3	EDID Button
4	Network Button
5	F/W Update & Default Reset Button
6	Refresh COM Port
7	COM Port Selection
8	Connection Status
9	Connect/Disconnect Button
10	Control SW via RS-232
11	Control SW via Network

2. Input Selection and Mapping

➢ I/O:
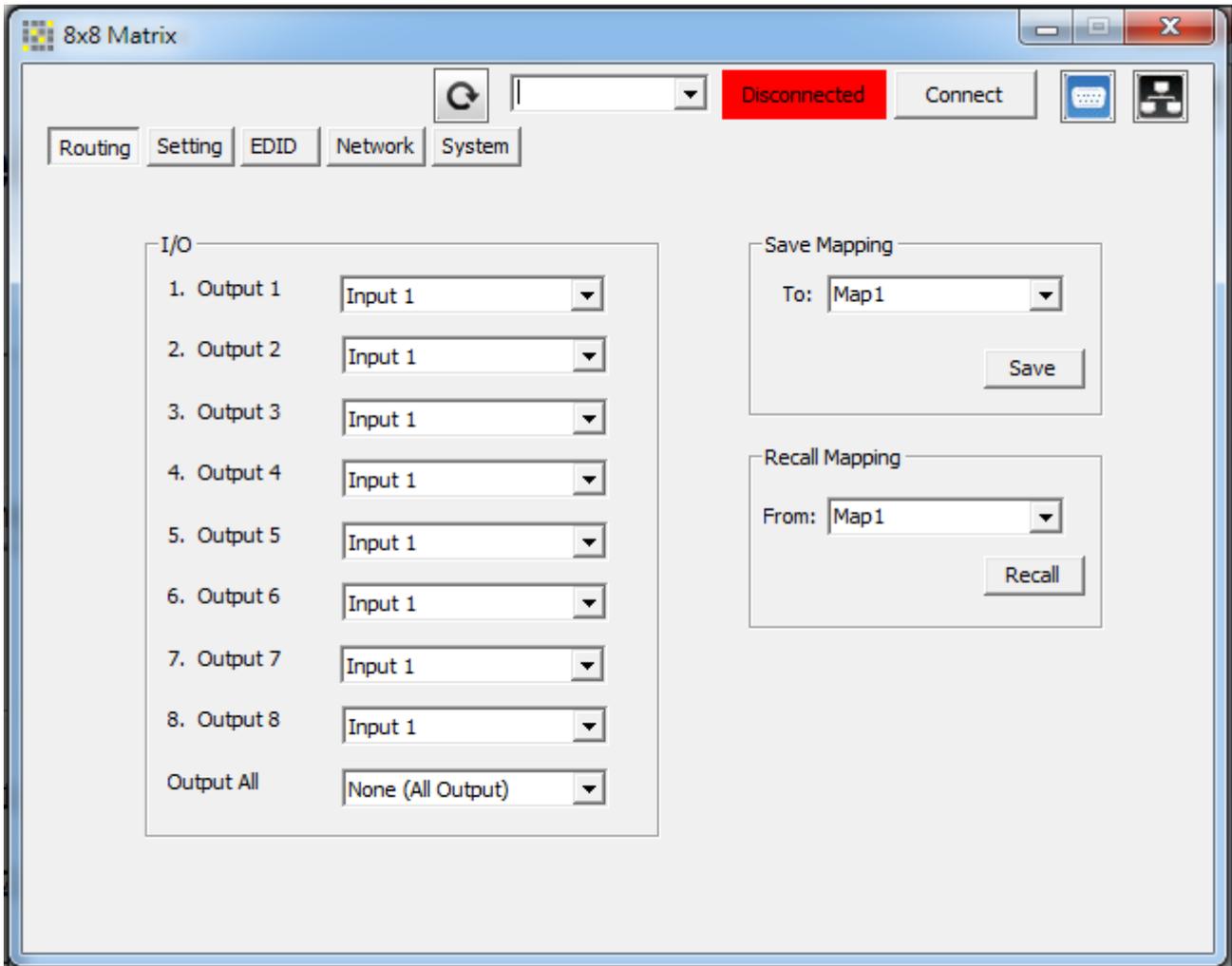
    Select the input

    Click "Send" to change the I/O setting

➢ Save Mapping:

    Select Mapping 1-8

    Click "Save" button to save current mapping

➢ Preset Mapping:

    Select Mapping 1-8

    Click "Recall" button to recall previous mapping which are saved

3. Rename I/O Button
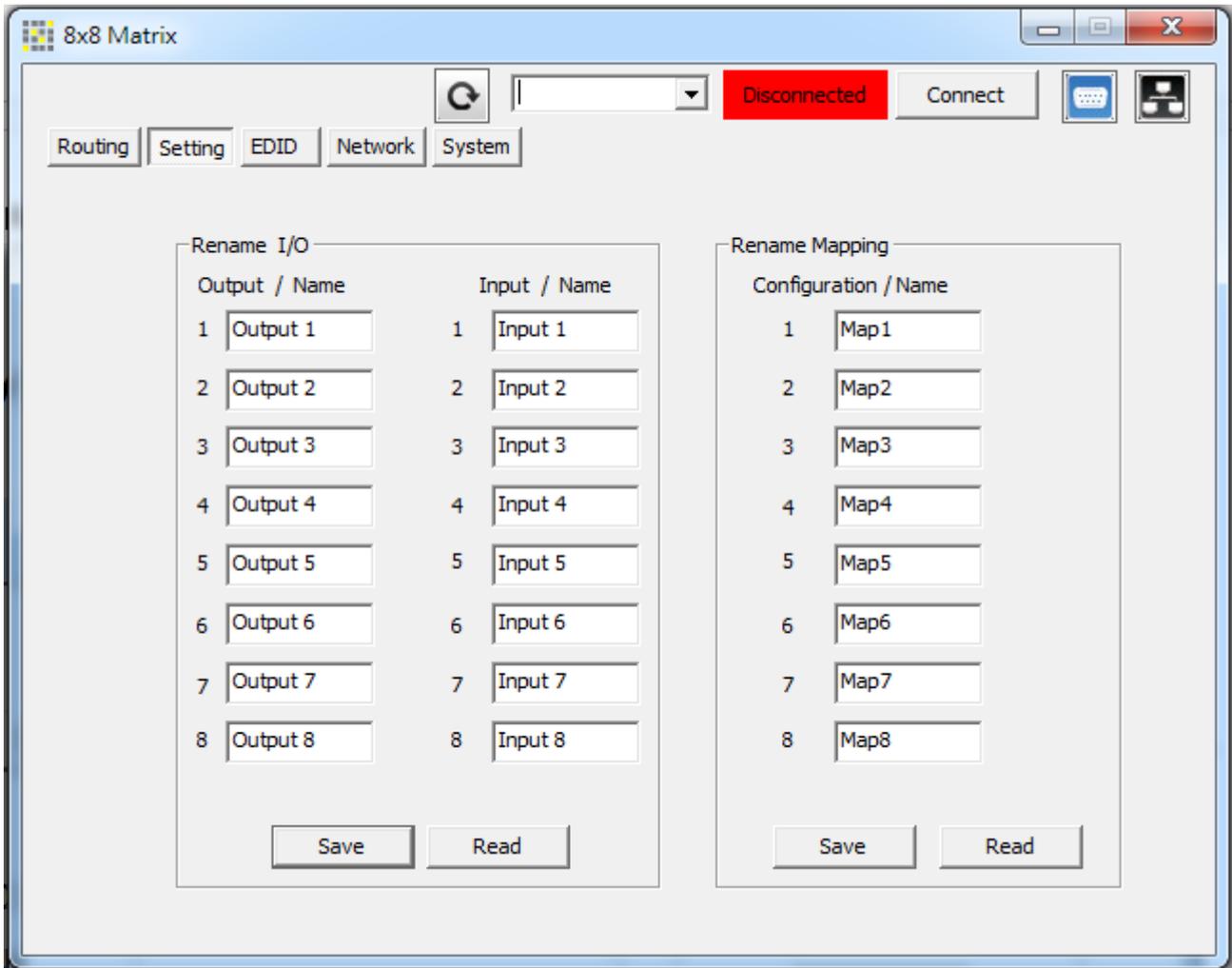
➢ Rename I/O:
   Rename output name
   Rename input name

➢ Rename Mapping:
   Rename Mapping name

4. EDID Button
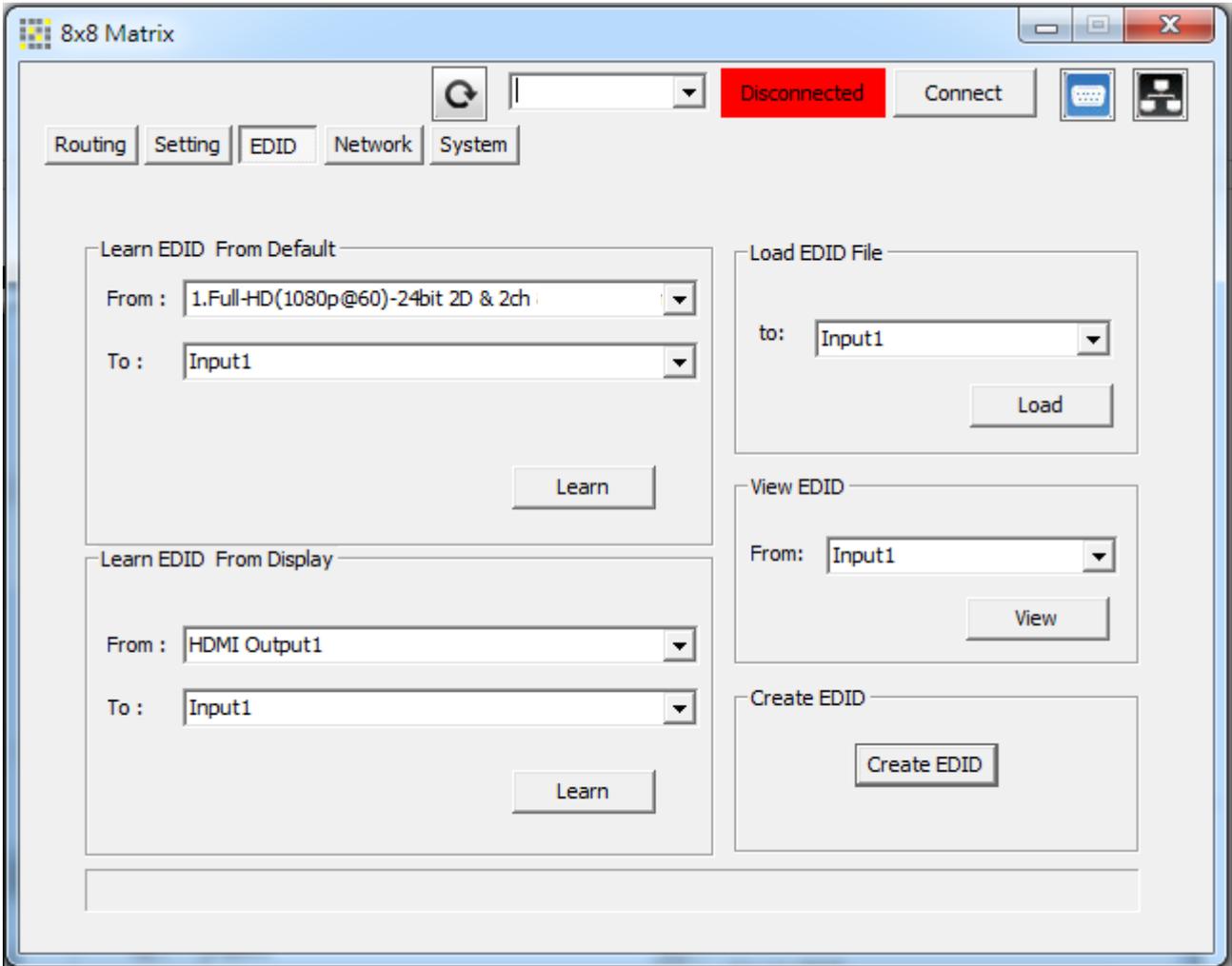
➤ Learn EDID from Default

Select Default EDID (1-8 Default EDID)

1. Full-HD(1080p@60)-24bit 2D & 2ch
2. Full-HD(1080p@60)-24bit 2D & 7.1ch
3. Full-HD(1080p@60)-24bit 3D & 2ch
4. Full-HD(1080p@60)-24bit 3D & 7.1ch
5. HD(1080i@60)(720p@60)-24bit 2D & 2ch
6. HD(1080i@60)(720p@60)-24bit 2D & 7.1ch
7. Full-HD(1080p@60)-36bit 2D & 2ch
8. Full-HD(1080p@60)-36bit 2D & 7.1ch

Select Input
Click "Learn" button to learn default EDID

➤ Learn EDID from Display

Select output
Select input
Click "Learn" button to learn display EDID

➢ Load EDID File to Input

  Select input

  Click "Load" button to select the EDID file

➢ View EDID

  Select input or HDMI output

  Click "View" button to read the EDID and analysis

➢ Create EDID

  Click "Create" button to create EDID file

  Select the EDID content

  Click "Save EDID on Computer" to save the generated EDID as a file

5. Network Button
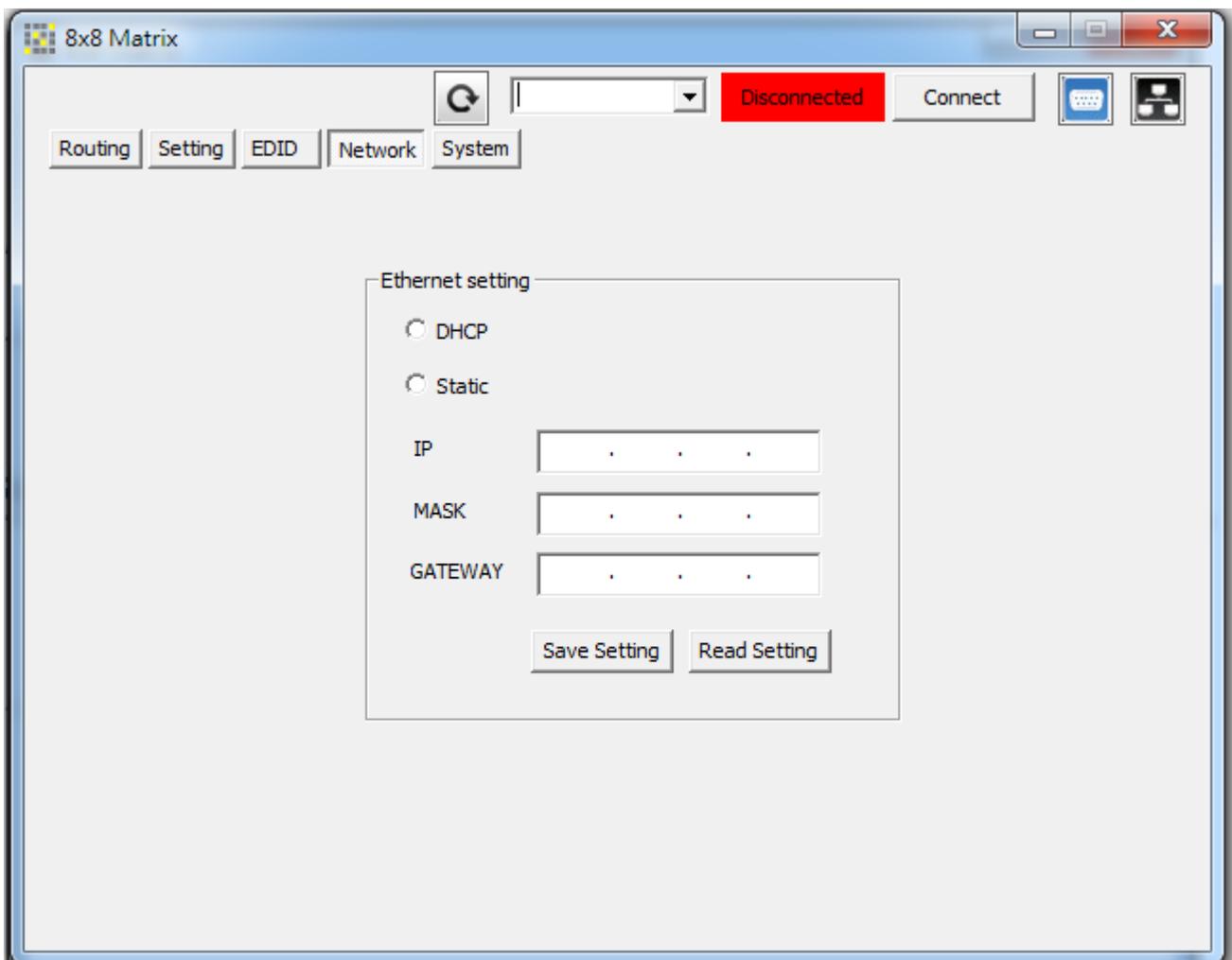
➢ DHCP mode

  Click DHCP to automatically get the IP address

➢ Static mode

  Click Static and then key in the "IP", "MASK", "GATEWAY" information. After setting

IP address, please click "Save Setting" to save IP address information

➢ Save Setting

Save the IP address which is manually entered

➢ Read Setting

Read the IP address from the device

6. **System Button**
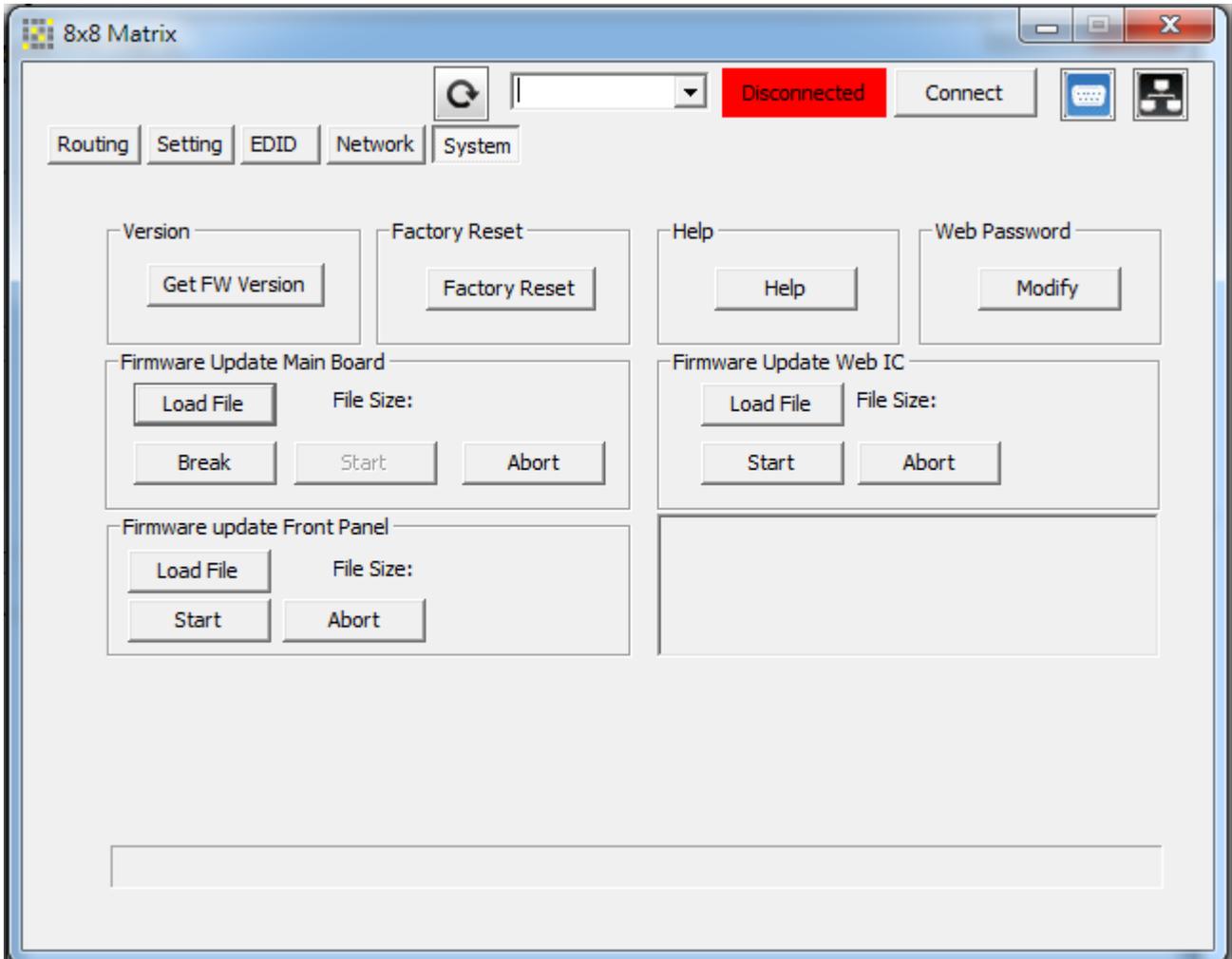
➢ Version

Get the firmware version information

➢ Factory Reset

To do factory default reset

➢ Help

To view the steps of the firmware update

➢ Firmware update

Firmware update main Board/Front Panel/Web IC

Method D: Web interface Control

The default IP address: 192.168.1.111

Account: admin

Password: matrix
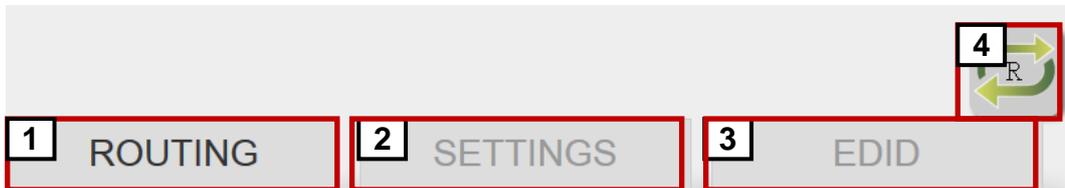
1	I/O Routing Button
2	Setting Button
3	EDID Button
4	Refresh I/O Status & Read I/O Name Button

1. I/O Routing Button
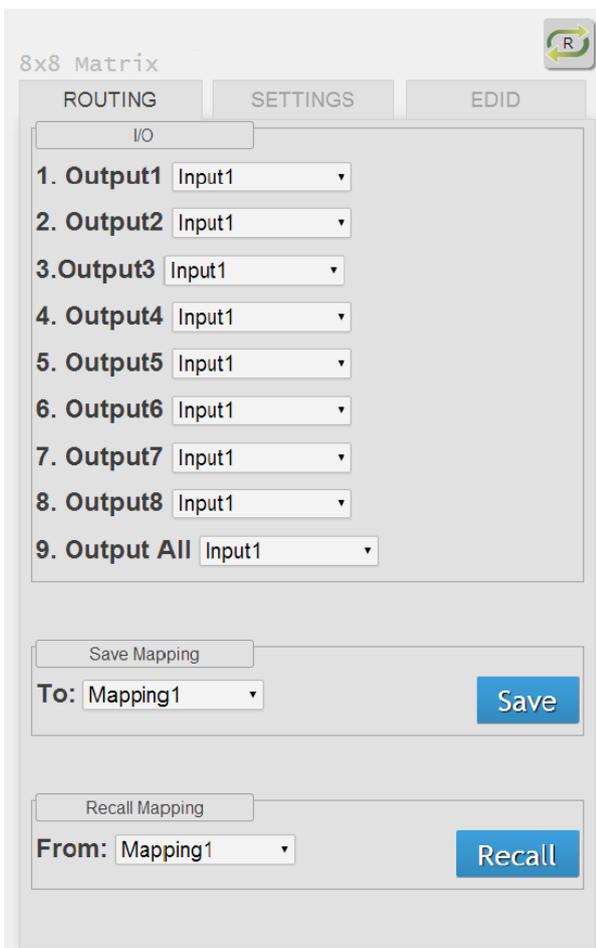
> ➢ I/O:
>   Select the input

➢ Save Mapping:
   Select Mapping (1-8)
   Click "Save" button to save current mapping

➢ Recall Mapping:
   Select Mapping (1-8)
   Click "Recall" button to recall previous mapping which are saved

2. Setting Button

➢ Rename I/O:
   Rename output name

Rename input name

➢ Rename Mapping:
  Rename Mapping name

➢ Password changing: (the password has to be 6 characters)
  Key in "old password"
  Key in "new password"
  Key in "new password" again

3. EDID Button

➢ Learn EDID from Default
  Select Default EDID (1-8 Default EDID)
  1. Full-HD(1080p@60)-24bit 2D & 2ch
  2. Full-HD(1080p@60)-24bit 2D & 7.1ch
  3. Full-HD(1080p@60)-24bit 3D & 2ch
  4. Full-HD(1080p@60)-24bit 3D & 7.1ch
  5. HD(1080i@60)(720p@60)-24bit 2D & 2ch
  6. HD(1080i@60)(720p@60)-24bit 2D & 7.1ch
  7. Full-HD(1080p@60)-36bit 2D & 2ch
  8. Full-HD(1080p@60)-36bit 2D & 7.1ch

Select Input

Click "Send" button to learn default EDID

➢   Learn EDID From Display

Select output

Select Input

Click "Send" button to learn display EDID

4. Refresh I/O Status & Read I/O Name Button

EDID LEARNING

The EDID learning function is only necessary whenever you encounter any display on the HDMI output port that cannot play audio and video properly. Because the HDMI source devices and displays may have various level of capability in playing audio and video, the general principle is that the source device will output the lowest standards in audio format and video resolutions to be commonly acceptable among all HDMI displays. In this case, a 720p stereo HDMI signal output would be probably the safest choice. Nevertheless, the user can force the matrix to learn the EDID of the lowest capable HDMI display among others to make sure all displays are capable to play the HDMI signals normally.

There are **Four methods** to do EDID Learning as below,

1. Front Panel Push-in Button: Please refer to the **Operation Approach\ Method A: Push-in Button (Page 8)**

2. IR Remote Control: Please refer to the **Operation Approach\ Method B: IR Remote Control (Page 10.)**

3. Software Control: Please refer to the **Operation Approach\ Method C: Software Control through RS-232 port (Page 14.)**

4. Web Control: Please refer to **Operation Approach\ Method D: Web Interface Control (Page 19.)**

There are **eight embedded default EDID** as below,

1. Full-HD(1080p@60)-24bit 2D & 2ch

2. Full-HD(1080p@60)-24bit 2D & 7.1ch

3. Full-HD(1080p@60)-24bit 3D & 2ch

4. Full-HD(1080p@60)-24bit 3D & 7.1ch

5. HD(1080i@60)(720p@60)-24bit 2D & 2ch

6. HD(1080i@60)(720p@60)-24bit 2D & 7.1ch

7. Full-HD(1080p@60)-36bit 2D & 2ch

8. Full-HD(1080p@60)-36bit 2D & 7.1ch

WARRANTY

The SELLER warrants the **AV-GM07U3-S1-V2** 8x8 HDMI Deep Color & Full 3D over single Cat.X Matrix free from defects in the material and workmanship for 3 years from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 3 years warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the AV-GM07U3-S1-V2 features and specifications is subject to change without further notice.**

Support
For more info or tech support
http://www.siig.com/support

April, 2018