16x16 HDBaseT-Lite Matrix with POC & 4K2K

P/N: AV-GM07L3-S1

Safety and Notice

The **AV-GM07L3-S1** 16x16 HDBaseT-Lite Matrix with POC & 4K2K has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **AV-GM07L3-S1** 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 adapter 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.

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INTRODUCTION

The **AV-GM07L3-S1** 16x16 HDBaseT-Lite Matrix with POC & 4K2K 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 four HDMI sources to the remote displays at the same time. Through only one low cost Cat-5/5e/6 LAN cables, not only high quality video and audio can be transmitted to the display sites, but also users can switch among four 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 & 4K2K@30 (HDBaseT technology)
- Extends the transmission up to 60m (198ft) from the HDMI source at Full HD 1080p 48-bit and 40m (130ft) at 4K2K@30
- Supports PoC(Power over Cable) which can power both units from TX side with power supply
- HDCP 1.4 compliant
- Bi-directional IR pass-though
- Allows controlling local HDMI sources or display through control path
- Allows to control main matrix center through control line at remote receiver
- Pure unaltered uncompressed 7.1ch digital HDMI over Cat.5/5e/6 cable transmission
- 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 channels to any HDMI inputs by Front Panel, IR remote control, RS-232 and IP control
- Easy installation with rack-mounting
- Fast response time – 2~4 seconds for channel switch

PACKAGE CONTENTS

- 1x AV-GM07L3-S1
- 17x IR receiver
- 1x Rack-mounting ear set
- 1x Installation software CD

- 1x UL AC C13 power cord
- 16x IR blaster*
- 1x IR Remote control*
- 1x User Manual

> * Additional IR remote controllers and IR blasters can be purchased as optional accessories to control the HDMI sources located separately.
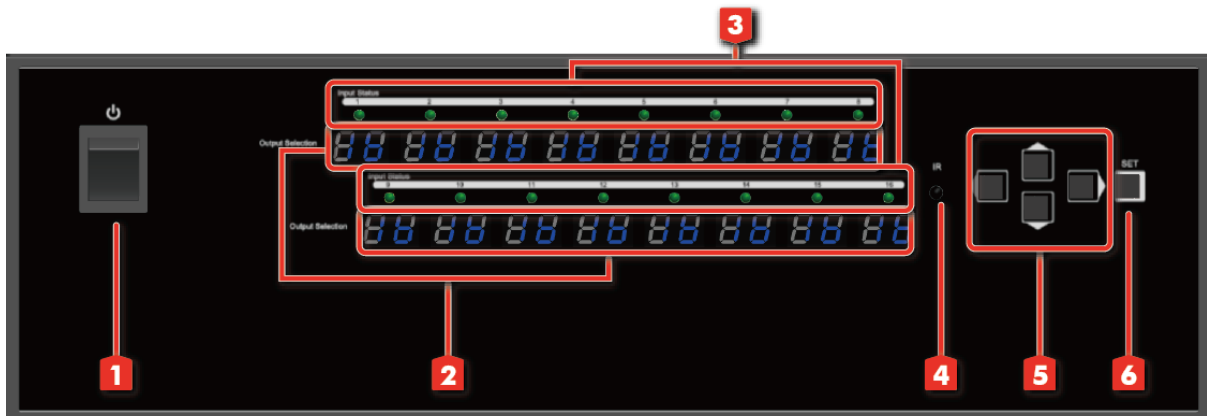
SPECIFICATIONS

Model Name	AV-GM07L3-S1
Technical	**AV-GM07L3-S1**
Role of usage	True 16x16 matrix switcher Transmitter [TX]
HDMI compliance	HDMI Deep Color & full 3D & 4K2K@30
HDCP compliance	Yes [HDCP 1.4]
Video bandwidth	Single-link 340MHz [10.2Gbps]
Video support	480i / 480p / 720p / 1080i / 1080p@60/ 4K2K@30
Audio support	Surround sound (up to 7.1ch) or stereo digital audio
HDMI over UTP transmission range	1080p@60 60m (198ft) [CAT5e]
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	16x HDMI / 1x RS-232 / 1x Ethernet /17x IR socket for IR receiver
Output	16x HDMI / 16x RJ-45(HDBaseT) /17x IR socket for IR blaster
HDMI Input selection	Push-in button / IR remote control / RS-232 control / Ethernet 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[Reversed mode]
RS-232 connector	DE-9 [9-pin D-sub female]
USB connector	None
3.5mm connector	Earphone jack for IR blaster **[All IR Out]** IR control on all source devices **[IR1~IR16]** IR control on individual source device Earphone jack for IR receiver **[System IR]** Receives IR commands from remote control **[IR1~IR16]** Receives IR commands from individual remote control
Mechanical	**AV-GM07L3-S1**
Enclosure		Metal case

| Dimensions (L x W x H)	Model	440 x 349 x 131mm [1'4" x 1'1" x 5.1"]
	Package	528 x 458 x 273mm [1'7" x 1'5" x 10.7"]
	Carton	542 x 472 x 296mm [1'8" x 1'5" x 11.6"]
Weight	Model	9.9kg [21 lbs]
	Package	14.6kg [32 lbs]
Fixedness		3 RU rack-mount with ears Wall hanging holes
Power supply		AC Power 100-240V
Power consumption		120 Watts [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

Transmitting unit ► AV-GM07L3-S1

Front Panel

1. **Power Switch:** Power ON/OFF switch
2. **7-segment LED:** for output 1-16 status
3. **Source Status:** Input source indicator LED
4. **IR SENSOR:** IR sensor for receiving the IR commands from IR remote
5. **Push Button:** Select the output and input
6. **Push Button:** Enter Button

Rear Panel
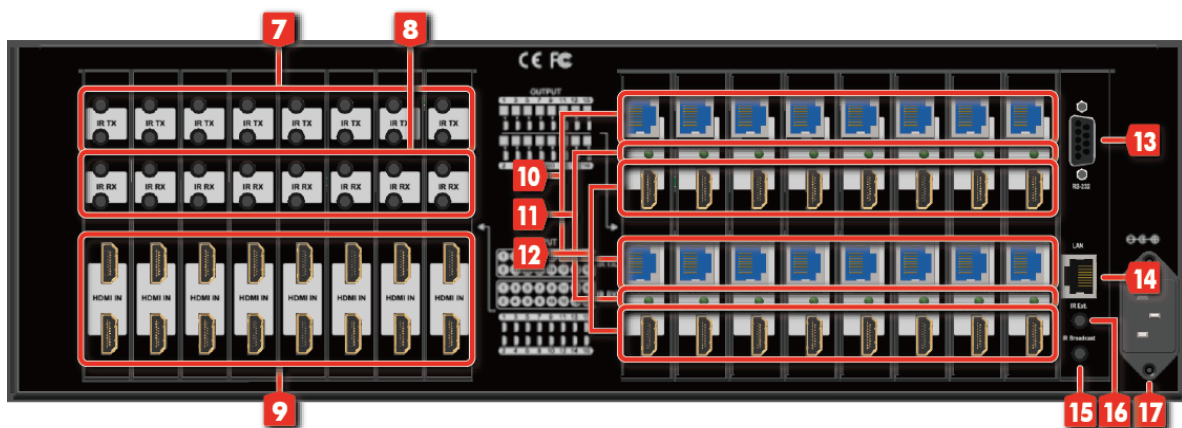
7. **IR Blaster 1-16:** 3.5mm IR blaster socket for individual HDMI source control
8. **IR Receiver 1-16:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
9. **INPUT 1-16:** HDMI inputs
10. **Output Port 1-16:** RJ-45 outputs for each output channel
11. **LED:** Link indicator
12. **HDMI Local Loopout Port 1-16:** Local loopout HDMI outputs for each output channel
13. **RS-232:** RS-232 control port
14. **Ethernet:** Ethernet control port
15. **All IR Output:** 3.5mm IR blaster socket for HDMI source control on all 16 inputs

16. **System IR Receiver:** Ext. IR receiver
17. **AC Power:** 100-240V

Receiving unit ► CV-57VA-RX [Sold Separately]

1. **LED:** Power LED, Status LED, Link LED, HDCP LED
- ➢ Power LED: This LED light always shine is meant that works fine.
- ➢ Status LED: This LED light is blinking it means functions well.
- ➢ Link LED: This LED light always shine is meant that works fine.
- ➢ HDCP LED: HDCP ON – the LED light always shine
  HDCP OFF – the LED light is blinking

2. **Latch-locking power jack:** Connect to 12V DC power supply
3. **RJ-45:** Plug in a Cat-5/5e/6 cable that needs to be linked to the receiving unit CV-57VA-RX
4. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
5. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
6. **RS-232 (terminal block format):** The order of RS-232 pin are TX, RX, GND (from the left side to the right)
7. **HDMI OUT:** Connects to a HDMI display with HDMI male-male cable

IR Extenders

IR Blaster   IR Receiver

IR Sockets

AV-GM07L3-S1

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 1-16: IR blaster connected here can only transmit IR command signals from the remote receivers that are setting at respective input channel from 1 to 4.

System IR: Receives IR commands from remote control

IR RECEIVER 1-16: Receives IR commands from individual remote control

CV-57VA-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-GM07L3-S1 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
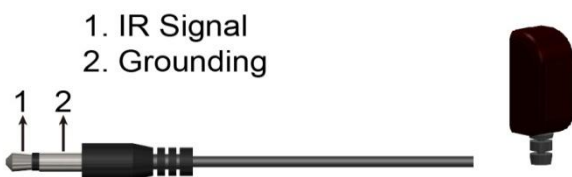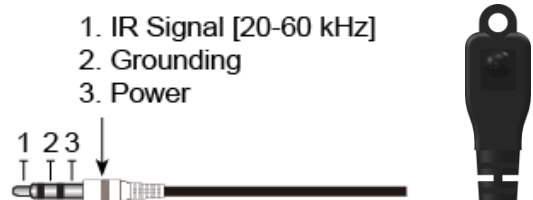
1. IR Signal
2. Grounding

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

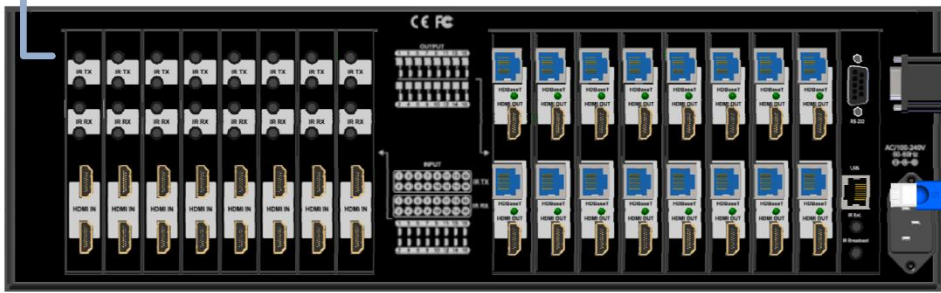# CONNECTION DIAGRAM

HDMI
CAT5/5e/6
RS-232
IR (outgoing)
IR (incoming)

IR Remote
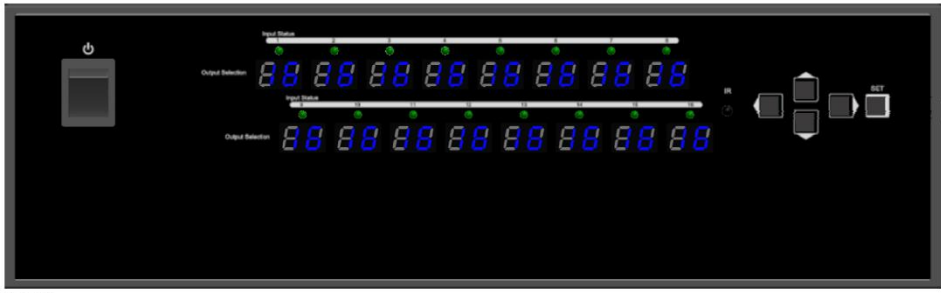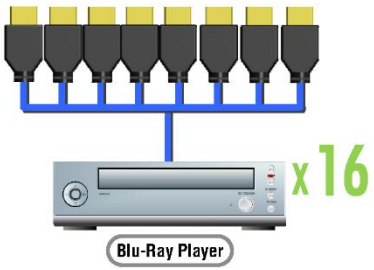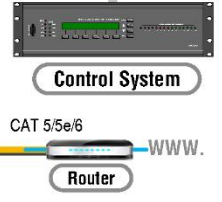
FRONT

x16
IR-Transmitter

REAR

Control System

CAT 5/5e/6
WWW.
Router

x16
Blu-Ray Player
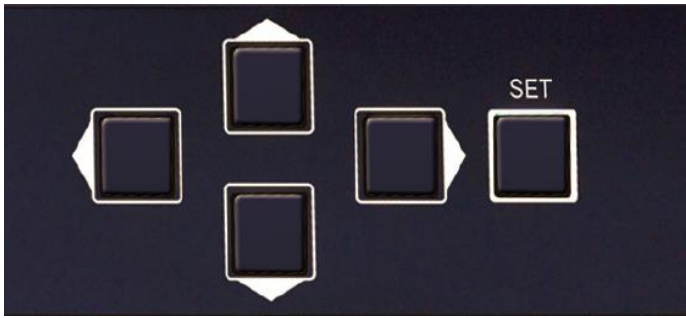
CAT 5/5e/6

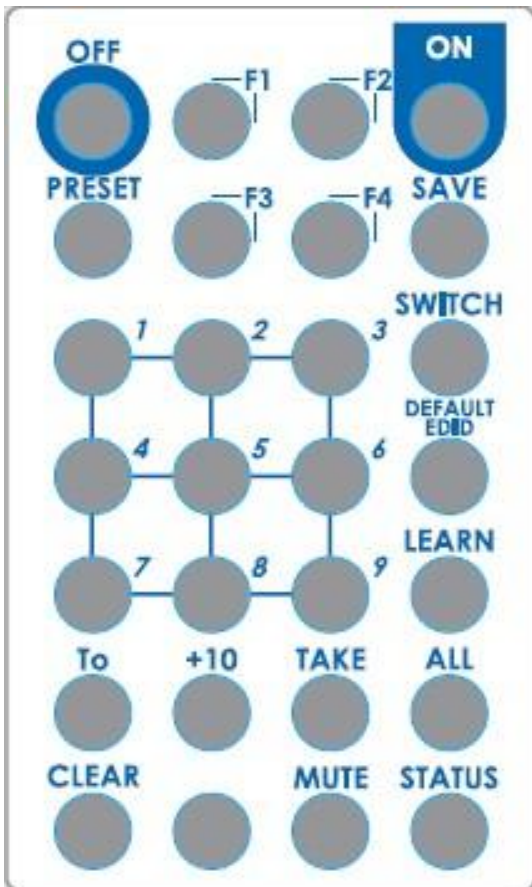Incoming IR Signal

x16
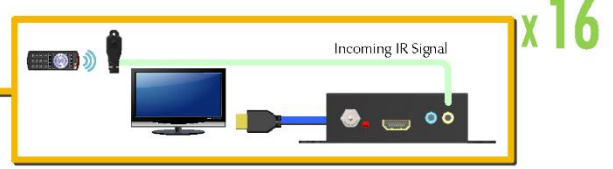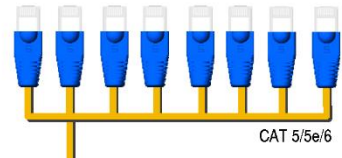
OPERATION APPROACH

Method A: Push-in Button

Input / Output Mapping

    1) Use the "LEFT" or "RIGHT" push button to select the output desired to switch sources to.

    2) Use the "UP" or "DOWN" push button to select the specific source

    3) Press "SET" to start & confirm

Method B: IR Remote Control

Button	Function
ON	Power on the matrix switcher
OFF	Standby mode
PRESET	Preset mapping mode
SAVE	Save current mapping mode
Number button 1-9	Select a number
+10	Select a number
To	Transfer key
TAKE	Trigger the previous setting
MUTE	Turn off/Mute the selected Output
SWITCH	Begin input and output selection
DEFAULT EDID	Begin default EDID selection
LEARN	Begin EDID learning from one output
ALL	Select all inputs or outputs
CLEAR	Clear the previous IR operation procedure
STATUS	Reserved
F1	Reserved
F2	Reserved
F3	Reserved

	F4	Reserved

Example of function key

| Operation	Procedure	7-Segment LED
IN / OUT Switch	Switch + number(input) + To + number(output) + Take	
	1. Press "SWITCH" button	- -
	2. Press number key "3" to select Input	- 3
Ex: Input 3 To Output 4	3. Press "To" button	- 3
	4. Press number key "4" to select Output	4 3
	5. Press "TAKE" button	4 3
	Switch + number(input) + To + All(output) + Take	
	1. Press "SWITCH" button	- -
	2. Press number key "3" to select Input	- 3
Ex: Input 3 To Output All	3. Press "To" button	- 3
	4. Press "ALL" to select All Output	A 3
	5. Press "TAKE" button	4 3
Factory Reset	Status + Status + Status + Take	
	1. Press "STATUS" button	- -
	2. Press "STATUS" button	d -
	3. Press "STATUS" button	d d
	4. Press "TAKE" button	1 1
Learn default EDID	Default EDID + number(1-16 default EDID) + To + number(input) + Take	
	1. Press "DEFAULT EDID" button	E d
	2. Press number key "2" to select default EDID	2 d
Ex: Default EDID 2 Input 3	3. Press "To" button	2 D
	4. Press number key "3" to select Input	2 3
	5. Press "TAKE" button	0 F 0 (success) F (fail)
	Default EDID + number(output) + To + All(input) + Take	
	1. Press "DEFAULT EDID" button	E D
Ex: Default EDID 2 Input All	2. Press number key "2" to select default EDID	2 D
	3. Press "To" button	2

	D
4. Press "ALL" to select All Input	2 A
5. Press "TAKE" button	0 F 0 (success) F (fail)

Learn Output EDID	Learn + number(output) + To + number(input) + Take	
	1. Press "LEARN" button	E L
	2. Press number key "2" to select Output	2 L
Ex: Learn Output 2 Input 3	3. Press "To" button	2 L
	4. Press number key "3" to select Input	2 3
	5. Press "TAKE" button	0 F 0 (success) F (fail)
	Learn + number(output) + To + all(input) + Take	
	1. Press "Learn" button	E L
	2. Press number key "2" to select Output	2 L
Ex: Learn Output 2 Input All	3. Press "To" button	2 L
	4. Press "ALL" to select All Input	2 A
	5. Press "TAKE" button	0 F 0 (success) F (fail)
Save Current Mapping	Save + number(output) + Take	
	1. Press "SAVE" button	d -
Ex: Save current mapping to 5:	2. Press number key "5" to select the storage site	5 -
	3. Press "TAKE" button	
Preset Mapping	Preset + number(1-16 storage site) + Take	
	1. Press "Save" button	P -
Ex: Learn Output 2 Input All	2. Press number key "5" to select the storage site	5 -
	3. Press "TAKE" button	

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

System Requirement

    1) OS Information: MS WinXP/7

    2) Baud rates: 9600

   3) Software size: 3 MB

    4) Minimum RAM requirement: 256 MB
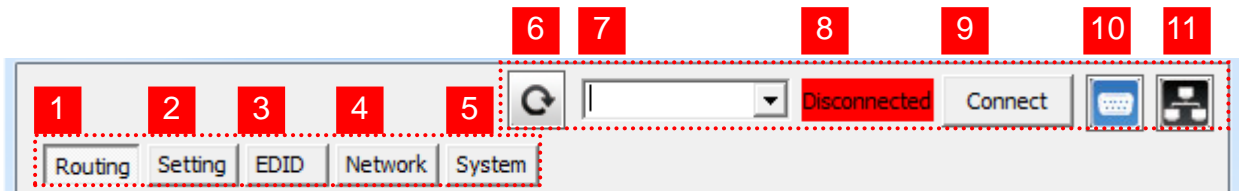
1	I/O Routing Button
2	Rename I/O Button
3	EDID Button
4	Network Button
5	F/W Update & Default Reset Button
6	Refresh COM Port
7	COM Port Selection
8	Connection Status
9	Connect/Disconnect Button
10	Control SW via RS-232
11	Control SW via Network

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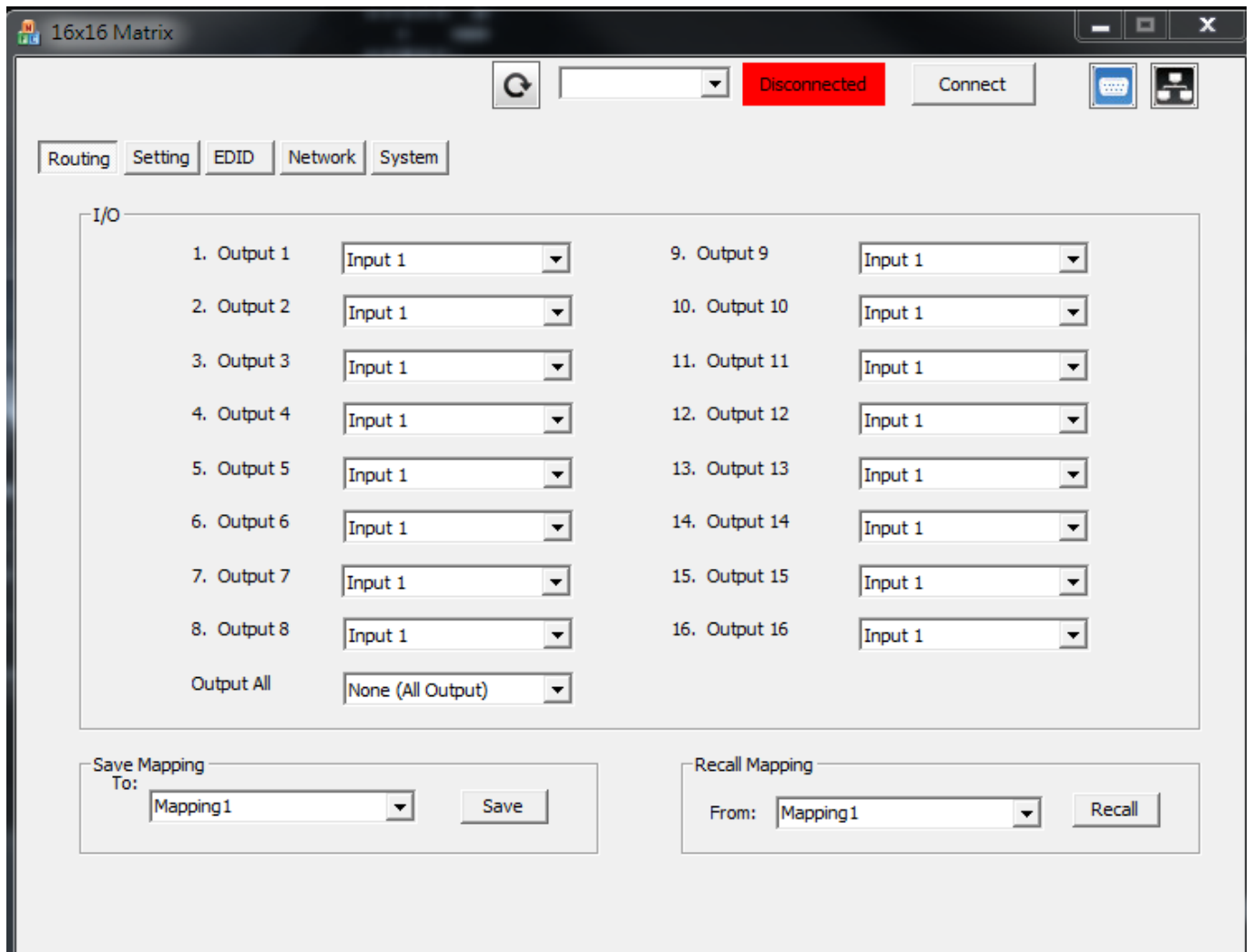
> ➤ I/O:
>   Select the input

> ➤ 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

2. Rename I/O Button
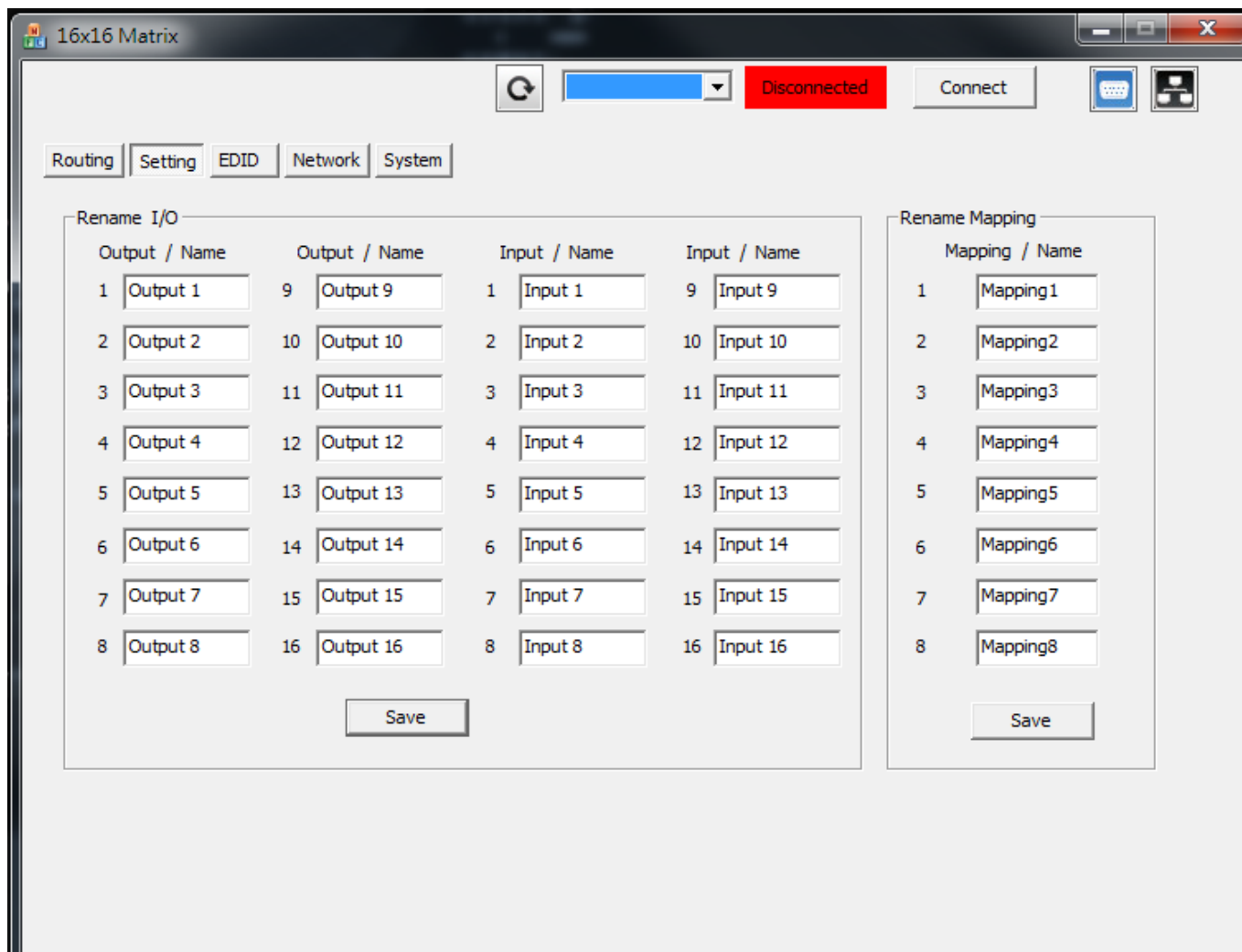
➢ **Rename I/O:**

Rename output name
Rename input name

➢ **Rename Mapping:**

Rename Mapping name

3. EDID Button
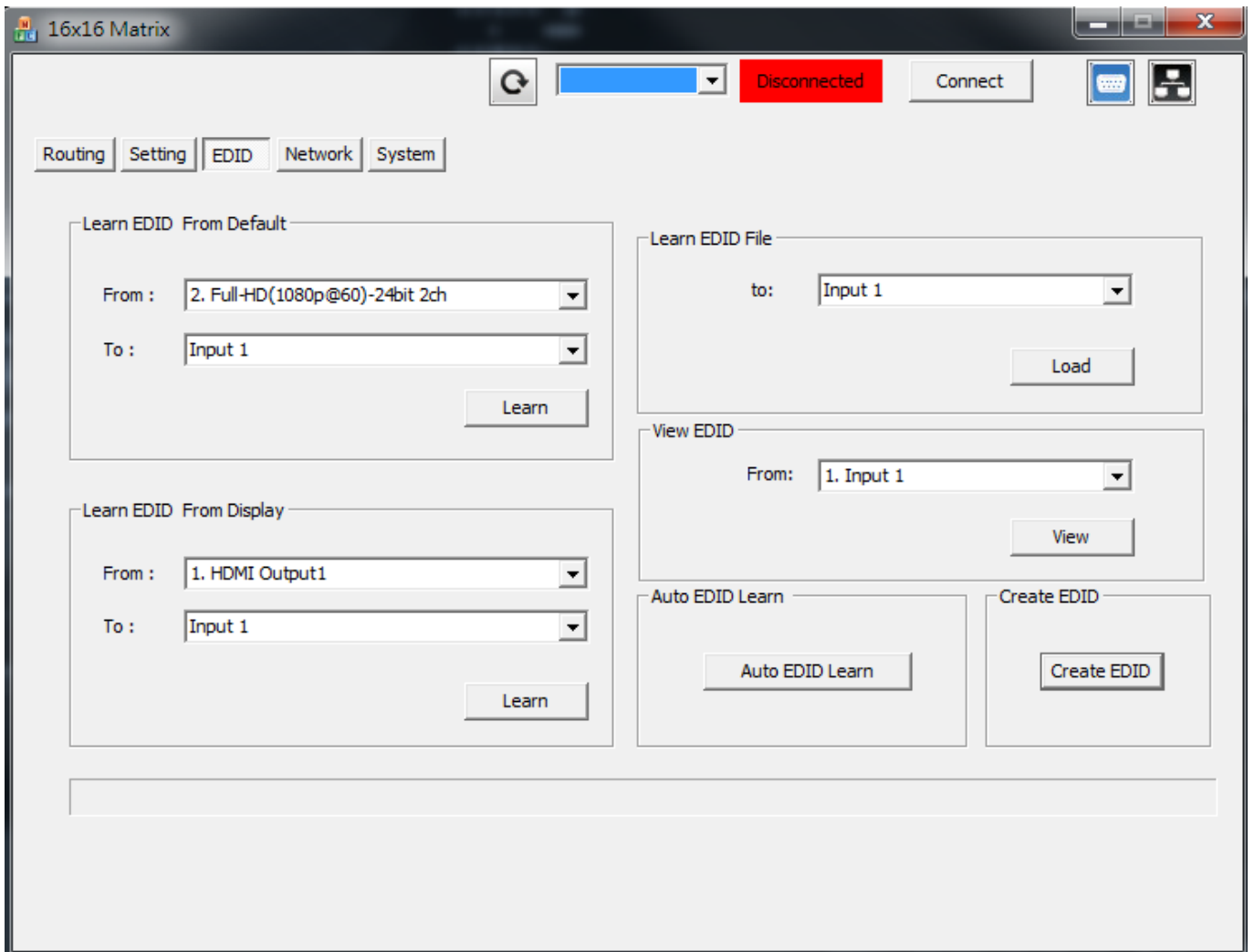
➢ Learn EDID from Default

Select Default EDID(1-10 Default EDID)

1. Full-HD(1080p@60)-24bit 2D & 2ch & Dolby 5.1ch

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

9. 4K2K@30Hz 24-Bit 7.1ch

10. 4K2K@30Hz 24-Bit 2ch

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

4. Network Button
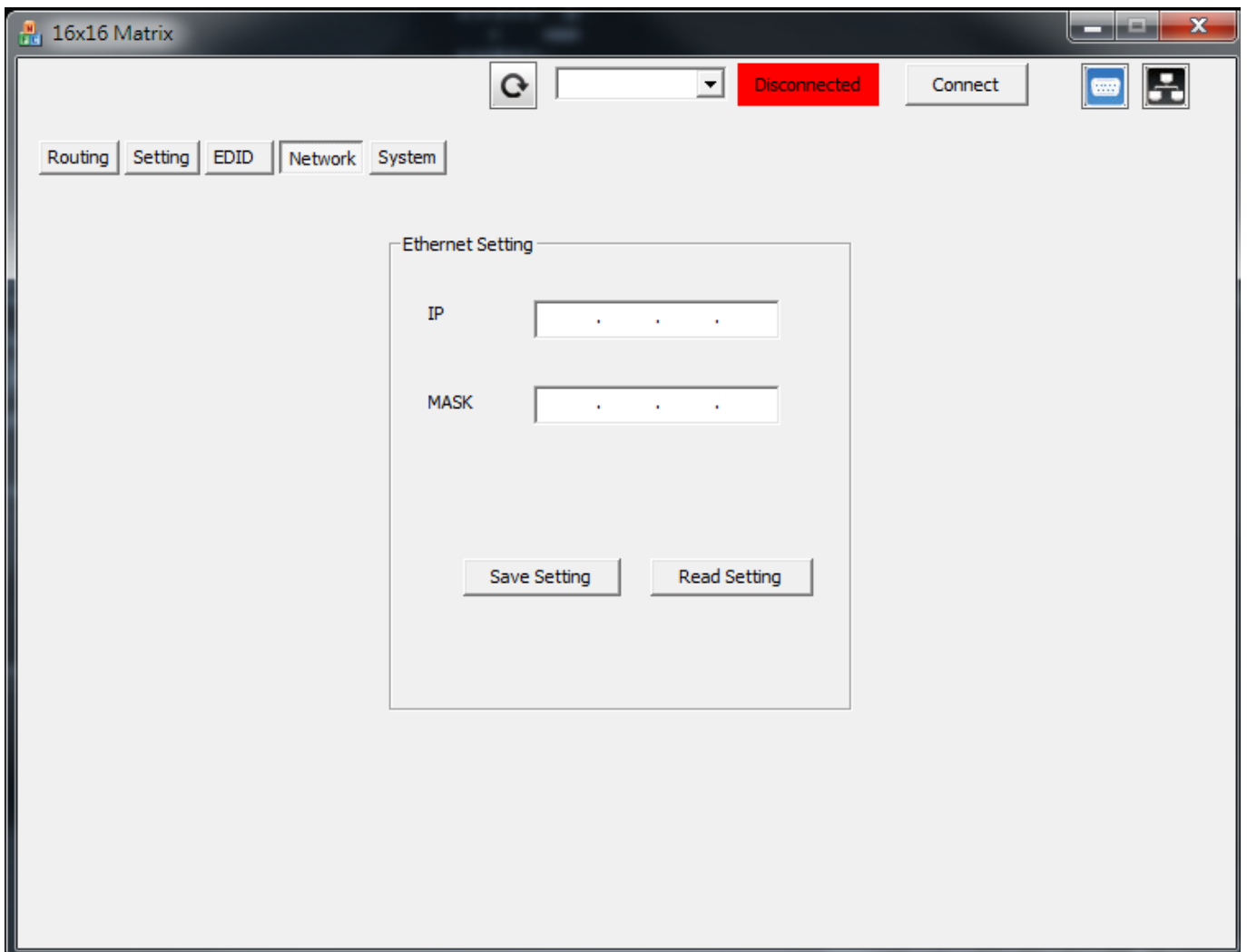
➢ Save Setting

Save the IP address which you key in on the column

➢ Read Setting:

Read the IP address from the device

PS: The default IP address is 192.168.1.111

5. System Button
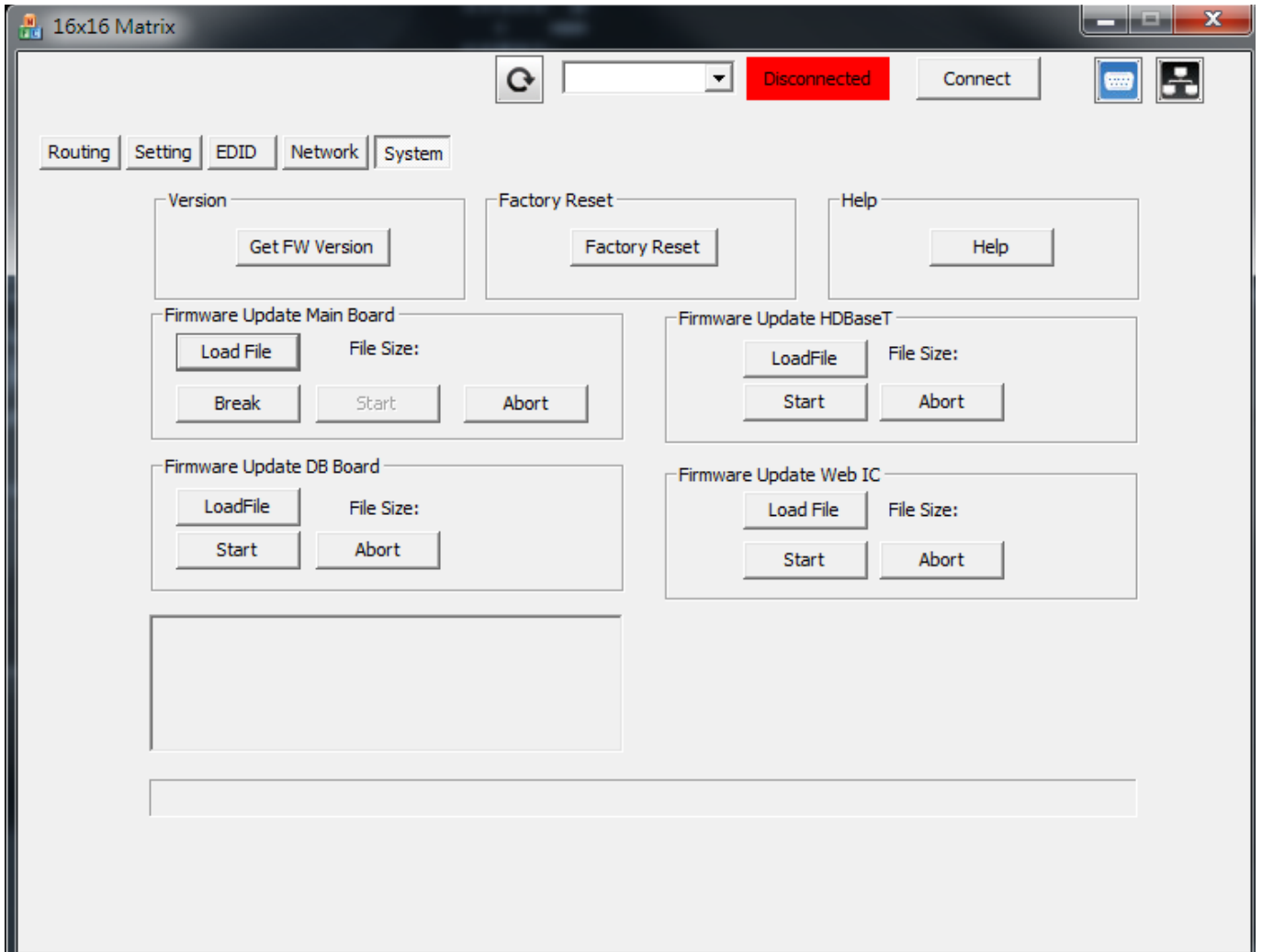
➢ Version:

Get the firmware version information

➢ Factory Reset

To do factory default reset

➢ Help

To view the steps of the firmware update

➢ Firmware Update Main Board

➢ Firmware Update Valens

➢ Firmware Update DB Board

➢ Firmware Update Web IC

6. Refresh COM Port Button

7. COM Port Selection
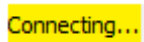
Click "" button to select COM Port

8. Connection Status

➢ Connected Status:

➢ Connecting Status:

➢ Disconnected Status:

9. Connect/Disconnect Button

Click this button "" to change connection status

10. RS-232 Button

➢ Click "" button to switch to RS-232 function.

➢ If RS-232 is connected, the button will show the sign image to let you know.

11. Ethernet Button

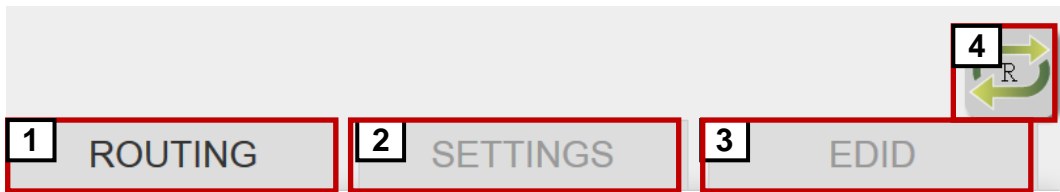➢ Click "" button to switch to Ethernet function

➢ If Ethernet is connected, the button will show the sign image to let you know.

Method D: Web Interface Control

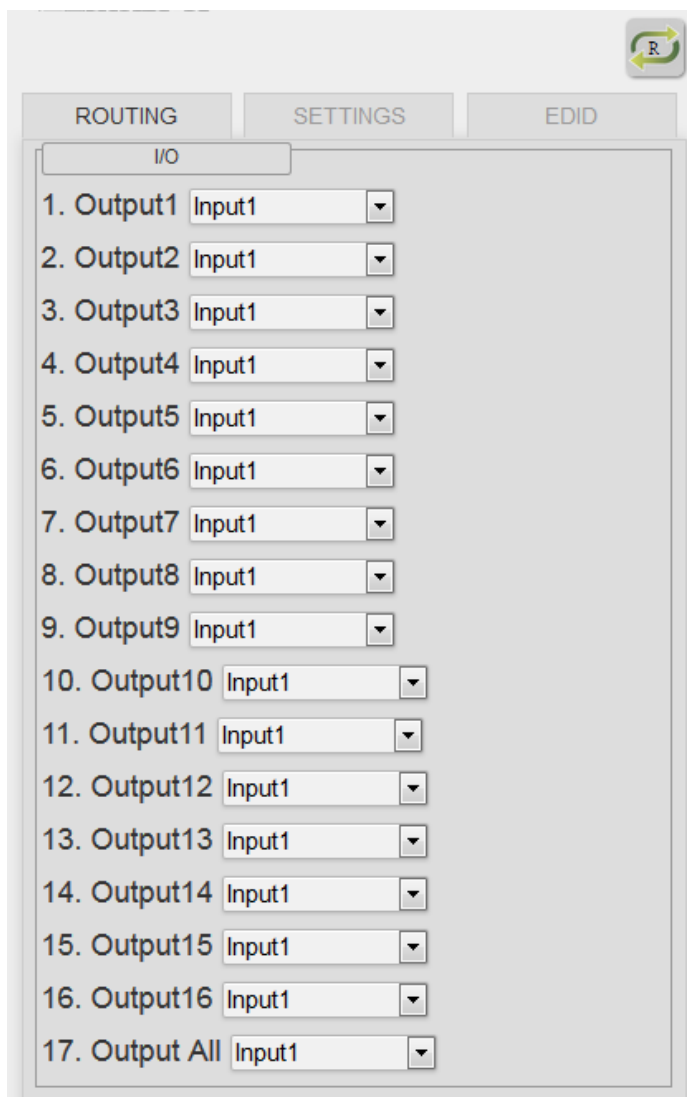**The default IP address:** 192.168.1.111

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 change: (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 (1-10 Default EDID)
> 1. Full-HD(1080p@60)-24bit 2D & 2ch & Dolby 5.1ch
>
> 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
>
> 9. 4K2K@30Hz 24-Bit 7.1ch
>
> 10. 4K2K@30Hz 24-Bit 2ch
>
> 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 **THREE methods** to do EDID Learning as below,

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

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

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

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

1. Full-HD(1080p@60)-24bit 2D & 2ch & Dolby 5.1ch

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

9. 4K2K@30Hz 24-Bit 7.1ch

10. 4K2K@30Hz 24-Bit 2ch

WARRANTY

The SELLER warrants the **AV-GM07L3-S1** 16x16 HDBaseT-Lite Matrix with POC & 4K2K 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-GM07L3-S1 features and specifications is subject to change without further notice.**

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

April, 2018