HD8X8

USER MANUAL

LINK™
BRAND

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SAFETY & NOTICE

The LINK HD8X8 8x8 HDMI Matrix Switcher with Full 3D Support has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment, the HD8X8 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.

TABLE OF CONTENTS

INTRODUCTION

The HD8X8 8x8 HDMI Non-UTP Matrix provides the most flexible and cost effective solution in the market to route high definition video source 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. This solution is well suited for use in home theater, conference room presentation systems, or other similar settings or applications.

FEATURES

- Support 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 displays
- The matrix master can switch every output channels to any HDMI inputs by push-in button, IR remote control, RS-232 control, and Ethernet control.
- 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 HD8X8
- 1x IR Receiver
- 1x DC 12V 5A
- 1x IR Remote control*
- 1x Rack-mounting ear set
- 1x Installation software CD
- 1x User Manual

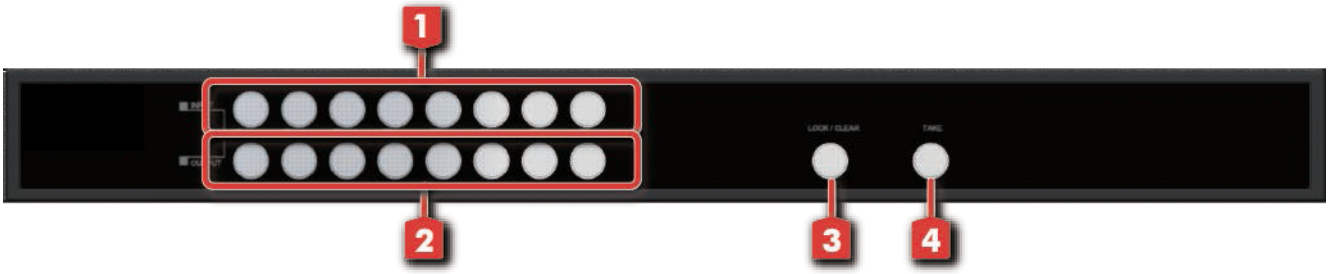
* Additional IR remote controllers and IR blasters can be purchased as optional accessories to control the HDMI sources located separately.

SPECIFICATIONS

Model Name		HD8X8
Technical		
Role of usage		True 8x8 matrix
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
ESD protection		[1] Human body model — ±19kV [air -gap discharge] & ±12kV [contact discharge] [2] Core chipset — ±8kV
PCB stack-up		4-layer board [impedance control – differential 100 Ω; single 50 Ω]
Input		8x HDMI / 1x RS -232 / 1x Ethernet / 1x IR socket for IR receiver
Output		8x HDMI
HDMI Input selection		Push -in button / IR remote control / RS -232 control / Ethernet control
IR remote control		Electro -optical characteristics: π = 25° / Carrier frequency: 38kHz
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		[System IR] Receives IR commands from remote control
Mechanical		HD8X8
Enclosure		Metal case
Dimensions (L x W x H)	Model	440 x 156 x 44mm [17.3 " x 6.1 " x 1 .7 "]
	Package	524 x 265 x 76mm [20.6 " x 10.4 " x 3"]
	Carton	542 x 411 x 300mm [21.3 " x 16.2 " x 1 1.8 "]
Weight	Model	2033g [71.7oz]
	Package	3062g [6.8 lbs]
Fixedness		1RU rack-mount with ears and Wall hanging holes
Power supply		12V 5A DC
Power consumption		20 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]

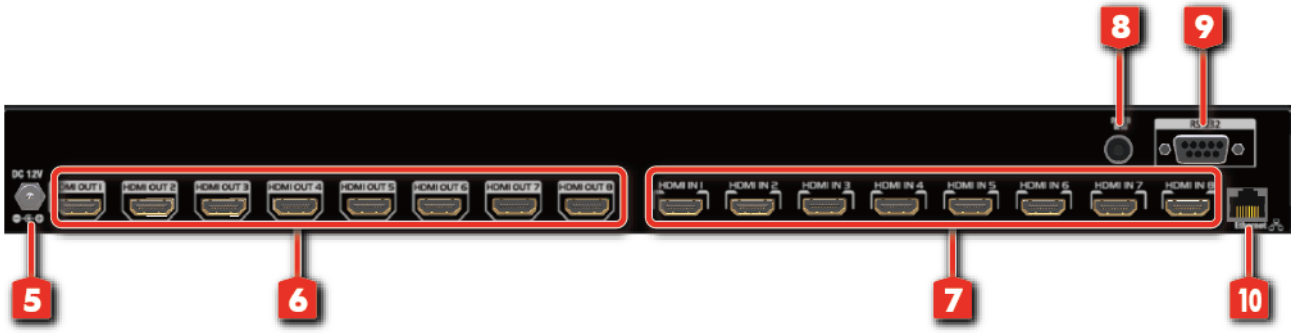
PANEL DESCRIPTIONS

FRONT PANEL



1. **PORT SELECT OUTPUT 1~8**: Push round button 1~8 for selecting output source channels. Round button shows blue light after selecting.
2. **PORT SELECT INPUT 1~8**:
   1)After selecting output round button, user can switch input port.
   2)Push round button #1~8 for selecting input source channels. Round button shows blue light after selecting.
   3)Example: Push output button #3 -> Push input button #4 -> Push TAKE button then action.
3. **LOCK CLEAR**: Push button to clean the I/O selection.
4. **TAKE**: Enter the selection.

REAR PANEL



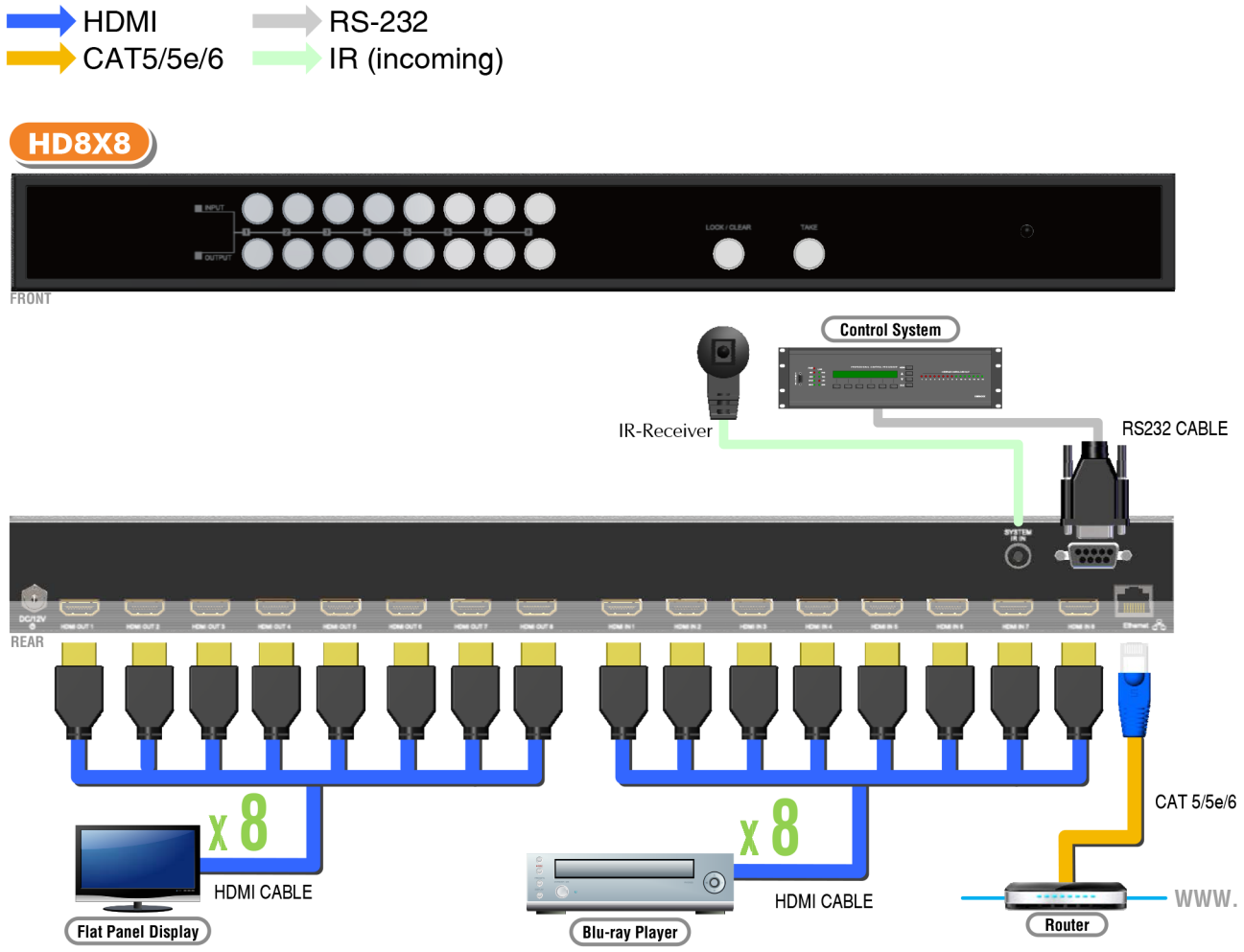
5. **+12V DC:** 12V DC power jack
6. **OUTPUT 1-8:** HDMI outputs
7. **INPUT 1-8:** HDMI inputs
8. **System IR Receiver:** Ext. IR receiver
9. **RS-232:** RS-232 control port
10. **Ethernet**: Ethernet control port

HARDWARE INSTALLATION

HD8X8 AS MASTER

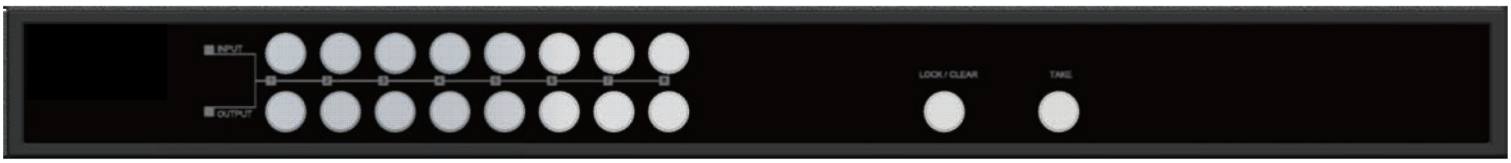
1. Connect all sources to HDMI Inputs on the 8x8 HDMI Matrix HD8X8.
2. Connect all displays to HDMI Outputs on the 8X8 HDMI Matrix HD8X8.
3. Connect the +12V 5A DC power supply to the 8x8 HDMI Matrix HD8X8.

CONNECTION DIAGRAM



OPERATION APPROACH

METHOD A: PUSH-IN BUTTON



1. Push output round button for selecting output source channels. Round button shows blue light after selecting.

2. After selecting output round button, user can switch input port.

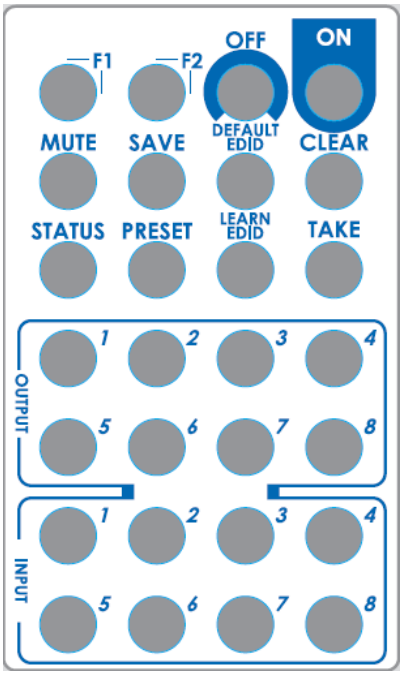
3. Push input round button for selecting input source channels. Round button shows blue light after selecting.

4. Push TAKE button then action.
   Example: Push output button #3 -> Push input button #4 -> Push TAKE button then action.

5. User can push LOCK/CLEAR button to lock/unlock front panel or clean the I/O selection
   1) CLEAR function: User can push this button to clean the I/O selection
   2) LOCK function: User can keep pushing this button for 3 seconds to lock front panel. This round button shows blue light after locking front panel.
   3) UNLOCK function: User can push this button to unlock front panel.

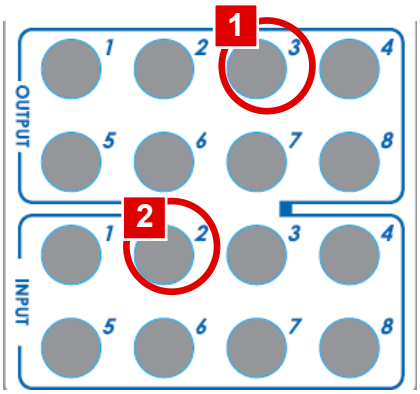
If no button activity for 5 minutes, the system will enter Sleeping Mode. In Sleeping Mode, all blue lights will turn off. Press any round button to wake up system.

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

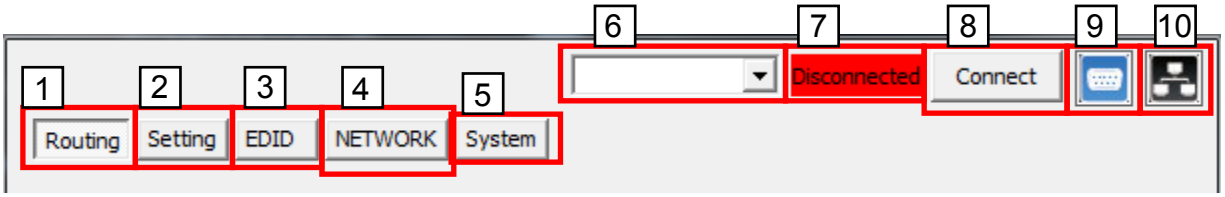
Operation	Procedure	7-Segment LED
Output Status	Status + Output Number (1~8) + Take	
Ex: Output 4 (Input 2)	1.Press "STATUS " button	- -
	2.Press output number key "4" to select Output 4	4 -
	3.Press "TAKE " button	4 2
Save Current Mapping	Save + Output Number (1-8 storage site) + Take	
Ex: Save current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

METHOD C: SOFTWARE CONTROL THROUGH RS-232 PORT / ETHERNET PORT

1. SYSTEM REQUIREMENT

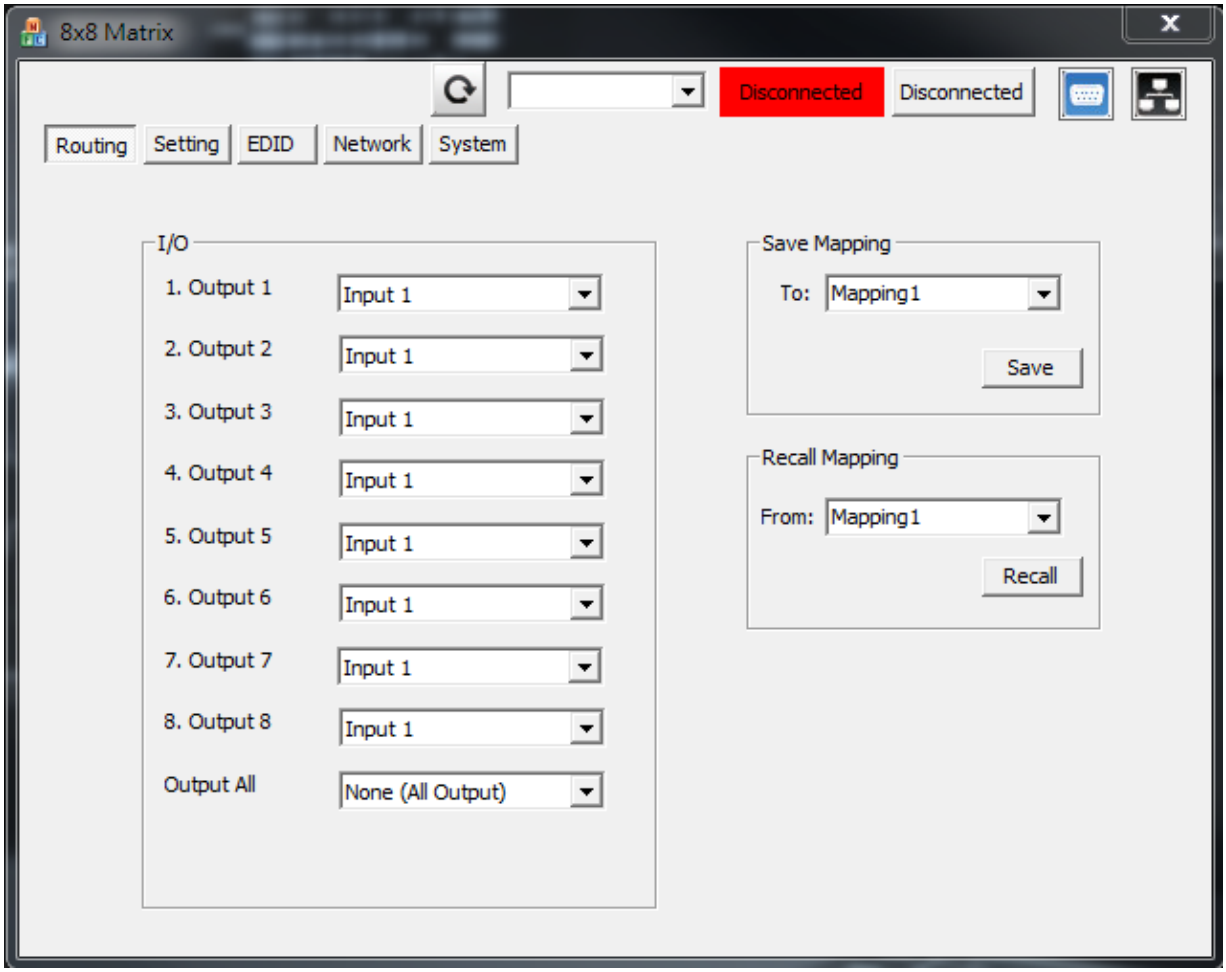
1) OS Information: MS WinXP/7
2) Baud rates: 9600
3) Software size: 3 MB
4) Minimum RAM requirement: 256 MB

METHOD D: SOFTWARE CONTROL THROUGH RS-232 PORT



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

1. I/O ROUTING BUTTON

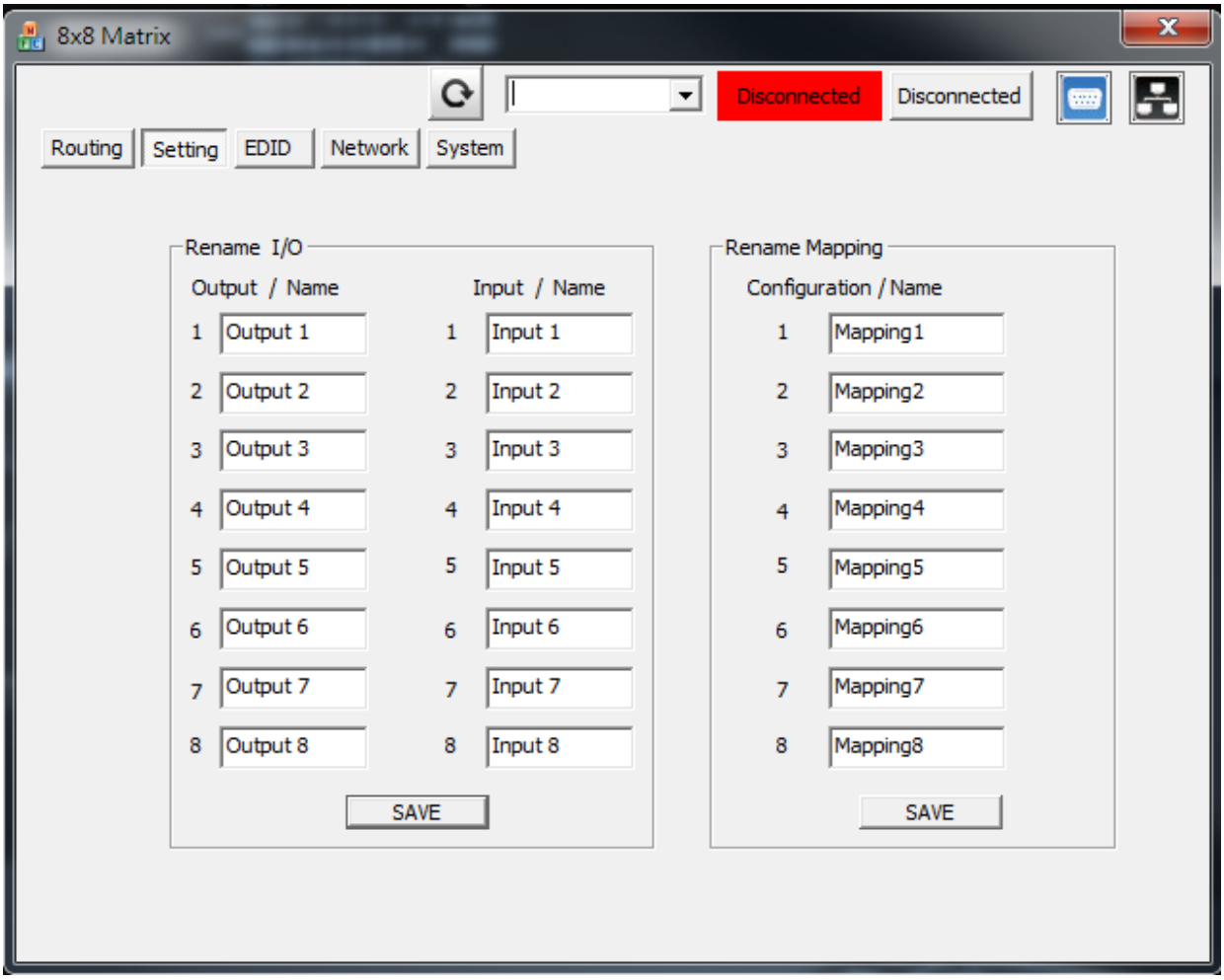


1) I/O:
   a) Select the input
   b) Click “Send” to change the I/O setting

2) Save Mapping:
   a) Select Mapping (1-8)
   b) Click “Save” button to save current mapping

3) Preset Mapping:
   a) Select Mapping (1-8)
   a) Click “Recall” button to recall previous mapping which are saved

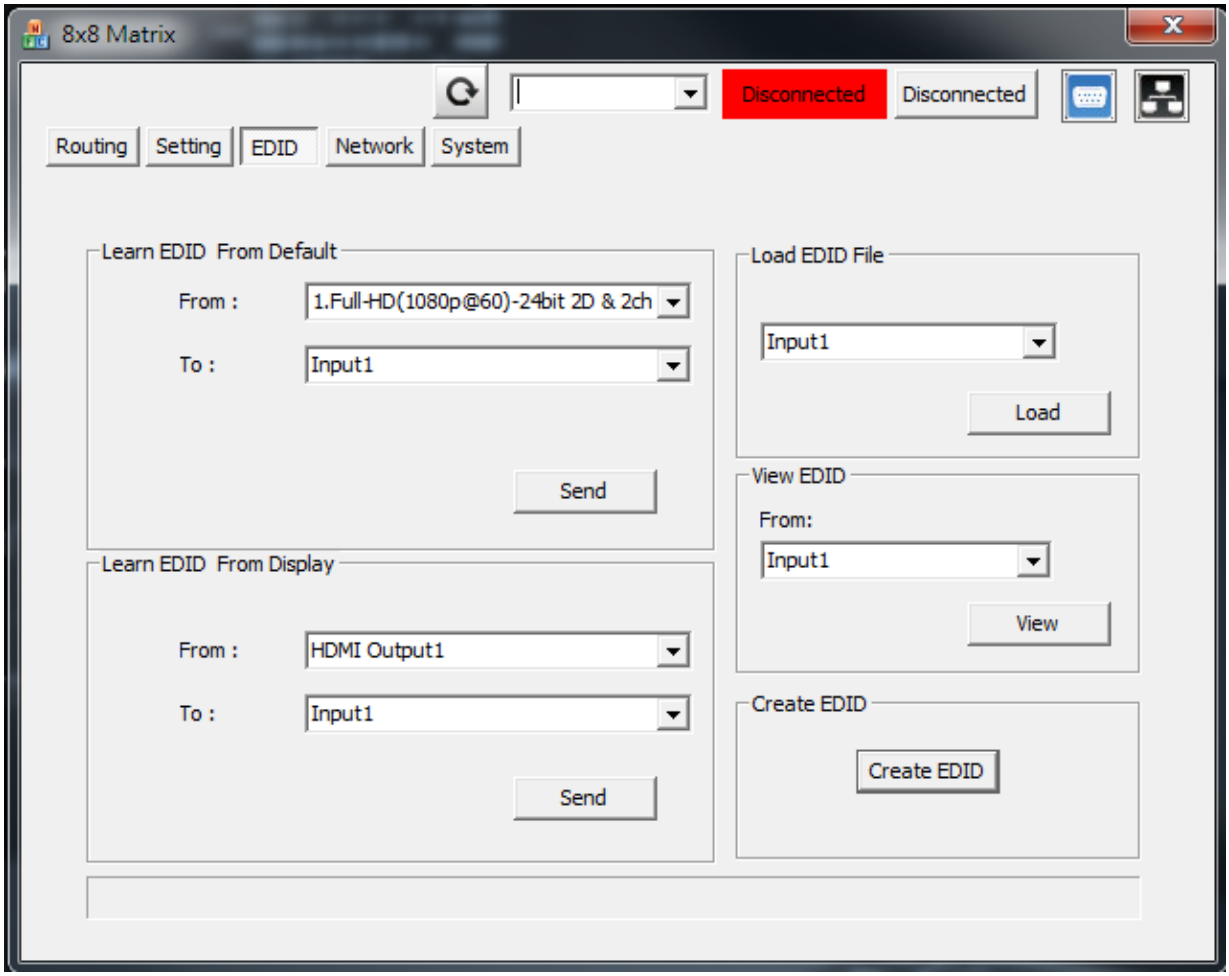
2. RENAME I/O BUTTON



1) Rename I/O:
   a) Rename output name
   b) Rename input name

2) Rename Mapping:
   a) Rename Mapping name

3. EDID BUTTON



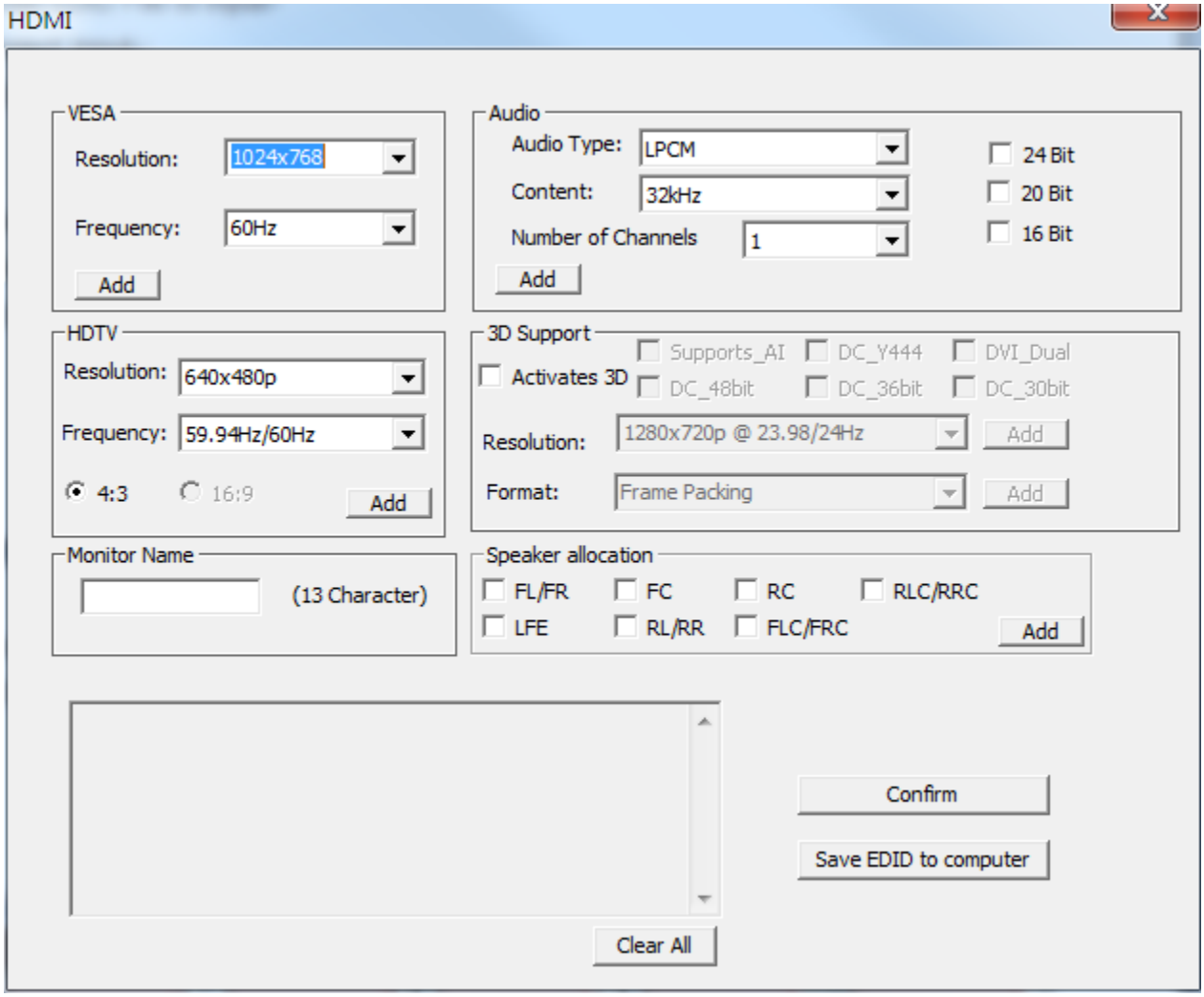
1) Learn EDID from Default
   a) Select Default EDID (1-8 Default EDID)
   b) Select Input
   c) Click “Send” button to learn default EDID

2) Learn EDID From Display
   a) Select output
   b) Select Input
   c) Click “Send” button to learn display EDID

3) Load EDID File to Input
   a) Select Input
   b) Click “Load” button to select the EDID file

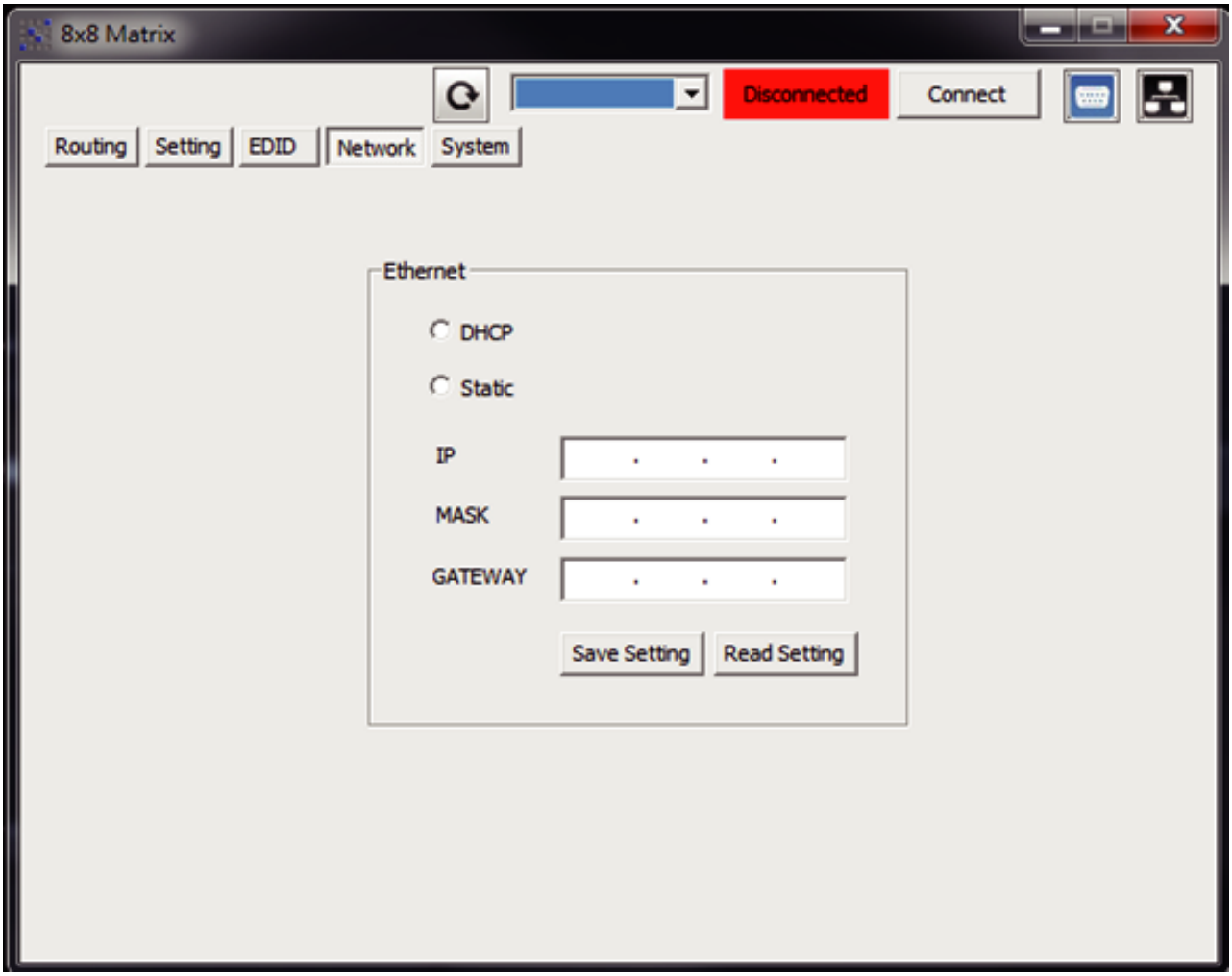
4) View EDID
   a) Select Input or HDMI output
   b) Click “View” button to read the EDID and analysis

5) Create EDID
   a) Click “Create” button to create EDID file



b) Select the EDID content
c) Click “Save EDID on Computer” to save the generated EDID as a file

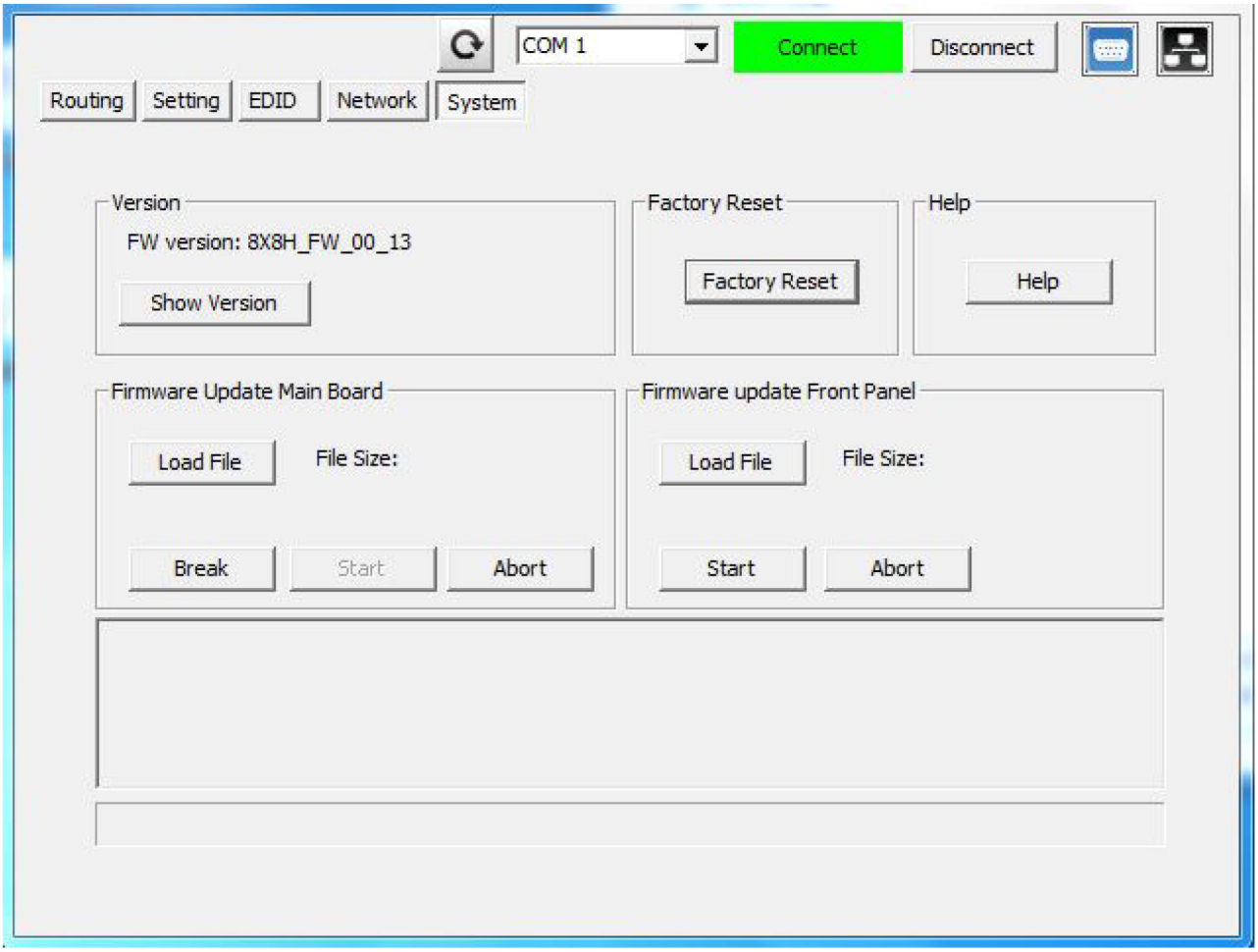
4. NETWORK BUTTON



a) DHCP mode
=> Click DHCP and then click the “Read Setting” button to get the IP address Info
b) Static mode
=> Click Static and then key in the “IP”, “MASK”, ”GATEWAY” info. After setting IP Address, please click “Save Setting” to save IP address Info
c) Save Setting
=> Save the IP address which you key in on the column
d) Read Setting:
=> Read the IP address from the device

PS: The default IP address is 192.168.1.111

5. SYSTEM BUTTON



1) Version:
   => To get the F/W version information
2) Factory Reset
3) Help
   => To view the steps of the firmware update
4) Firmware Update Main Board
5) Firmware Update Front Panel

6. COM PORT SELECTION

Click “ ” button to select COM Port

7. CONNECTION STATUS

1) Connected Status:

2) Connecting Status:

3) Disconnected Status:

8. CONNECT/DISCONECT BUTTON

Click this button “ 

” to change connection status

9. RS-232 BUTTON

1) Click “  ” button to switch to RS-232 function.
2) If RS-232 is connected, the button will show the sign image to let you know.

10. ETHERNET BUTTON

1) Click “  ” button to switch to Ethernet function
2) If Ethernet is connected, the button will show the sign image to let you know.

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 (Page 5)
2. IR Remote Control: Please refer to the Operation Approach\ Method B: IR Remote Control (Page 6-8)
3. Software Control: Please refer to the Operation Approach\ Method C: Software Control through RS-232 port (Page 9-15)

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

FAQ

Q: Can every TV work with the HDMI matrix?
A: Basically, the answer is YES. But if your TV can not support 1080p, please refer the EDID LEARNING section to learn EDID from your TV.

Q: What is EDID? Why do I need to learn EDID?
A: EDID contains the whole information of the display such as the resolution and audio setting which this display can support. Therefore, based on the EDID information, the media player will pick up the most suitable resolution and audio setting to the display. In order to faithfully transmit the EDID information from display to the media player, learning EDID from display to this device is necessary.

Q: What should I do to learn EDID for the matrix?
A: Due to the limitation of HDMI, the source device can only output one format of video and audio. In other words, the source device cannot output 720p and 1080p video at the same time, or output stereo and surround sound at the same time.Therefore, you may need to maunally setup each HDMI input for desirable audio/video output format. The mechanism of EDID Learning is to pick up the HDMI display with the lowest capability among the ones you would use for this source. For example, if you would like to play the input-2 upon output-2, output-3 and output-4, and only output-3 cannot support 1080p [support up to 720p only], please learn the EDID from the display connected to the output-3 at the Input-2 port. Of course, if output-3 would get to the HDMI signals from every HDMI input, please learn EDID information from output-3 to all four HDMI inputs. For more information about EDID Learning, please refer to EDID LEARNING section.

Q: My TV can support 1080p, why is there no audio?
A: The factory default EDID of this device is 1080p & 2ch audio. However, there would be a problem after you change to use 1080p & 7.1ch if the TV cannot support 7.1ch audio. Please use the default EDID, 1080p & 2ch audio.

Q: I set an audio amplifier (AV receiver) between the TV and the matrix to extract 7.1ch audio, why is there still no audio?
A: Basically, the default EDID of the chosen input can support 7.1ch audio, but the problem is that the EDID of the amplifier still cannot match the default setting. Therefore, the best method is to learn EDID from the amplifier directly. Please refer to EDID LEARNING section and follow the steps to learn the EDID. When learning EDID from the amplifier, user just needs to connect the matrixand amplifier. Please don't connect HDMI cable between amplifier and tv when the EDID learning is proceeding.

Q: When I play the same content upon multi-displays, only the TV equipped with the amplifier has 7.1ch audio. Why don't the others have 7.1ch audio or at least stereo?
A: Due to the limitation of HDMI, the source only can choose one video and one audio format to play, which can be either 1080p and 7.1ch or 1080p and stereo audio. It means when the user sets the matrix at 1080p and 7.1ch, the source will only play the content under this format. Therefore if the TV cannot decode 7.1ch audio, there will be no audio.

WARRANTY

The SELLER warrants the LINK HD8X8 8x8 HDMI Matrix Switcher with Full 3D Support free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year 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.

A 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 HD8X8 features and specifications are subject to change without further notice.