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PRO-Matrix88-aud
8x8 HDMI 2.0a Matrix 4K HDR with audio extractor

User's Guide

1 YEAR WARRANTY   RoHS   FC   CE

Congratulations for owning a gofanco product. Our products aim to meet all your connectivity needs wherever you go.

Have fun with our products!

Please read this manual carefully before first use.

If you need more information about our products, please visit www.gofanco.com.

For technical support, please email us at support@gofanco.com.

For drivers/manuals download, please go to http://www.gofanco.com/download.

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1. Safety and Notice

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

The **PRO-Matrix88-aud** **8x8 HDMI 2.0a Matrix 4K HDR with audio extractor** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the PRO-Matrix88-aud 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.

2. Introduction

The **PRO-Matrix88-aud** **8x8 HDMI 2.0a Matrix 4K HDR with audio extractor** 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) audio from any of the eight HDMI sources to the remote displays at the same time. PRO-Matrix88-aud supports HDR and the true 4K2K video! Besides, this device supports the separation of high quality digital S/PDIF (RCA) audio from the incoming HDMI signal without losing any active audio channels from audio bit-stream

With the upmost HDR/4K2K@60 4:4:4 8bits and high definition audio support, PRO-Matrix88-aud is well suited for use in home theater, conference room presentation systems, or other similar setting or application.

3. Features

- HDMI 2.0a compliant
- Supports 4K2K@60 4:4:4 8bits
- Supports HDR* (4K2K@60 4:2:0 10bits)
- HDCP 2.2 compliant and 1.4 compliant
- Wide frequency range: 25MHz~600MHz
- Video bandwidth: 18Gbps
- Supports default EDID and EDID learning from display
- Connect up to eight HDMI source devices and independently distribute
- any source to any of the eight HDMI displays
- Supports 7.1 channel audio
- Supports ARC & Audio Extraction via RCA
- S/PDIF(RCA) audio Format: PCM2, Dolby 5.1, DTS 5.1
- The matrix switcher can switch every output channels from any HDMI inputs by
- Push button, IR remote control, RS-232, Web Interface, Control 4, IP control and
- cloud control
- Surface & rack mountable
- Fast response time – 3~4 seconds for channel switch

  * HDR = High Dynamic Range.

4. Specifications

Item		Description
Technical		
Role of usage		True 8x8 matrix
HDMI compliance		HDMI 2.0a
HDCP compliance		HDCP 1.4/ HDCP 2.2
Video bandwidth		Single-link 594MHz [18Gbps]
Video support		HDR 4K2K@60(4:2:0 10bits)/ 4K2K@60 (4:4:4 8bits)
Audio support		Surround sound (up to 7.1ch) or stereo digital audio
ESD protection		Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]
PCB stack-up		8-layer board [impedance control — differential 100Ω; single 50Ω]
Input		8x HDMI/ 1x RS-232/ 1x Ethernet/ 1x IR socket for IR receiver
Output		8x HDMI+ 8x RCA
HDMI Input selection		Push button / IR remote control / RS-232 control/ Web control/ Control 4/ IP control/ Cloud 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		
Housing		Metal enclosure
Dimensions [L x D x H]	Model	440 x 234 x 44mm [1'4" x 9.2" x 1.7"]
	Package	526 x 318 x 156mm [1'7" x 12.5" x 6.1"]
	Carton	543 x 335 x 344mm [1'8" x 13.2" x 1'1"]
Weight	Model	2645g [93.3oz]
	Package	3899g [8.6 lbs]
Fixedness		1RU rack-mount with ears Wall hanging holes
Power supply		12V 7.5A DC
Power consumption		55 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]

5. Panel Description

Front Panel
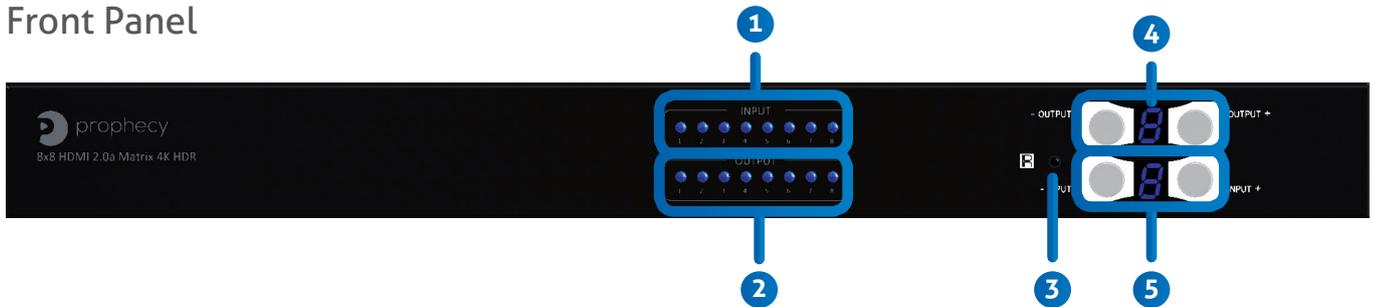
1. **Source Status:** Input source detection LED
2. **Display Status:** Output display detection LED
3. **IR SENSOR:** IR sensor for receiving the IR commands from IR remote
4. **Output Push Button & 7-segment LED:** Front panel push buttons used to select the number of display channel &LED display for 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. **INPUT 1-8:** HDMI inputs
7. **Audio OUT:** ARC & Audio Extraction
8. **OUTPUT 1-8:** HDMI outputs
9. **RS-232:** RS-232 control port
10. **Power Switch**
11. **Ethernet:** Ethernet control port
12. **System IR Receiver:** Ext. IR receiver
13. **+12V DC:** 12V DC power jack

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6. Package Contents

- 1x PRO-Matrix88-aud
- 1x DC 12V 7.5A
- 1x IR Remote control*
- 1x Rack-mounting ear set

- 1x IR Receiver
- 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.

7. Connection Diagram
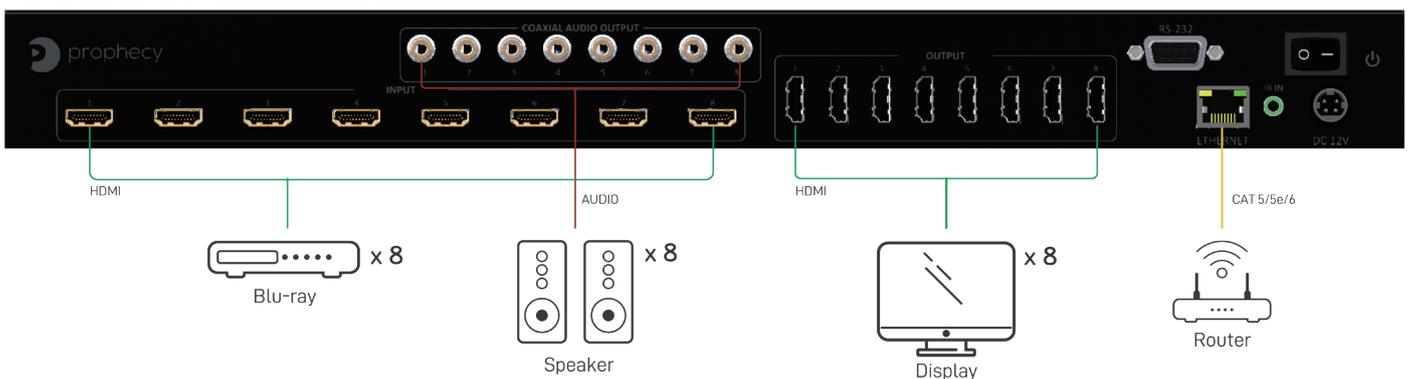
8. Hardware Installation

PRO-Matrix88-aud as master

1. Connect all sources to HDMI Inputs on the 8x8 HDMI Matrix PRO-Matrix88-aud.
2. Connect all displays to HDMI Outputs on the 8x8 HDMI Matrix PRO-Matrix88-aud.
3. Connect the +12V 7.5A DC power supply to the 8x8 HDMI Matrix PRO-Matrix88-aud.

9. Operation Approach

Method A: Push-in Button

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

Method B: IR Remote Control
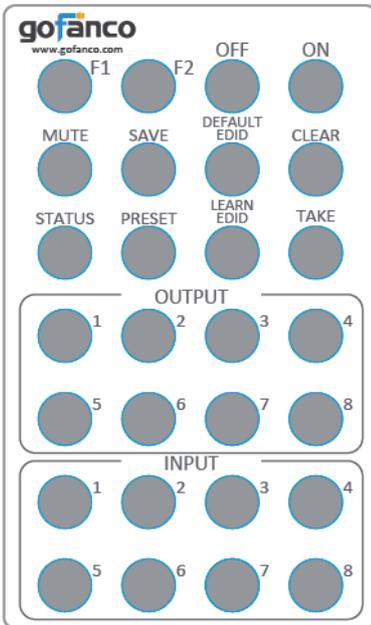
Button	Function
OFF	Standby mode
ON	Power on the matrix switcher
MUTE	Turn off output's video and audio
STATUS	Preset output status
SAVE	Save current mapping mode
PRESET	Preset mapping mode
DEFAULT EDID	Begin default EDID selection
LEARN EDID	Begin EDID learning from one output
CLEAR	Clear the previous IR operation procedure
TAKE	Trigger the previous setting
F1	Reserved
F2	Reserved

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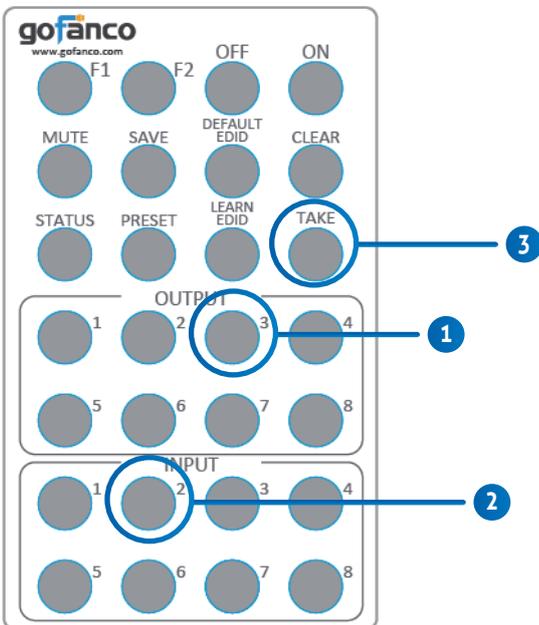
Operation	Procedure		7-Segment LED
IN/OUT Switch	**Output Number (1~8) + Input Number (1~8)**		
Ex: Input 2 To Output 3	1. Press output number key "3" to select Output 3		3 -
	2. Press input number key "2" to select Input 2		3 2
	3. Press "TAKE" button		

2. Example of function key

| Operation	Procedure	7-Segment LED	
Output Status	**Status + Output Number (1~8) + Take**		
Ex: Output 4 (Input 2)	1.Press "STATUS" button	- -	
	2.Press 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 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 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 number key "2" to select default EDID 2	2 d	
	3.Press number key "3" to select Input 3	2 3	
	4.Press "TAKE" button	0 0 (success)	F 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 number key "4" to select Output 4	4 L	
	3. Press number key "3" to select Input 3	4 3	
	4.Press "TAKE" button	0 0 (success)	F F (fail)
Mute Output	**Mute + Output Number (1~8) + Take**		
Ex: Mute Output 3	1. Press "MUTE" button	- 0	
	2. Press number key "3" to select Output 3	3 0	
	3.Press "TAKE" button		

Method C: Software Control through RS-232 port

System Requirement

(1) OS Information: MS WinXP/7
(2) Baud rates: 115200
(3) Software size: 2 MB
(4) Minimum RAM requirement: 256 MB
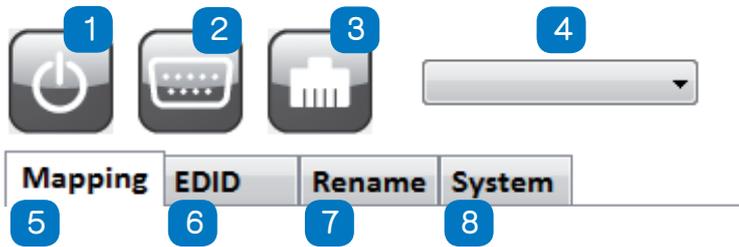
1	Power ON/ Standby mode
2	Control SW via RS-232
3	Control SW via IP
4	COM Port Selection
5	I/O Routing Button
6	EDID Button
7	Rename I/O Button
8	Network Setting, Default Reset & Firmware Update Button

1. I/O Routing Button
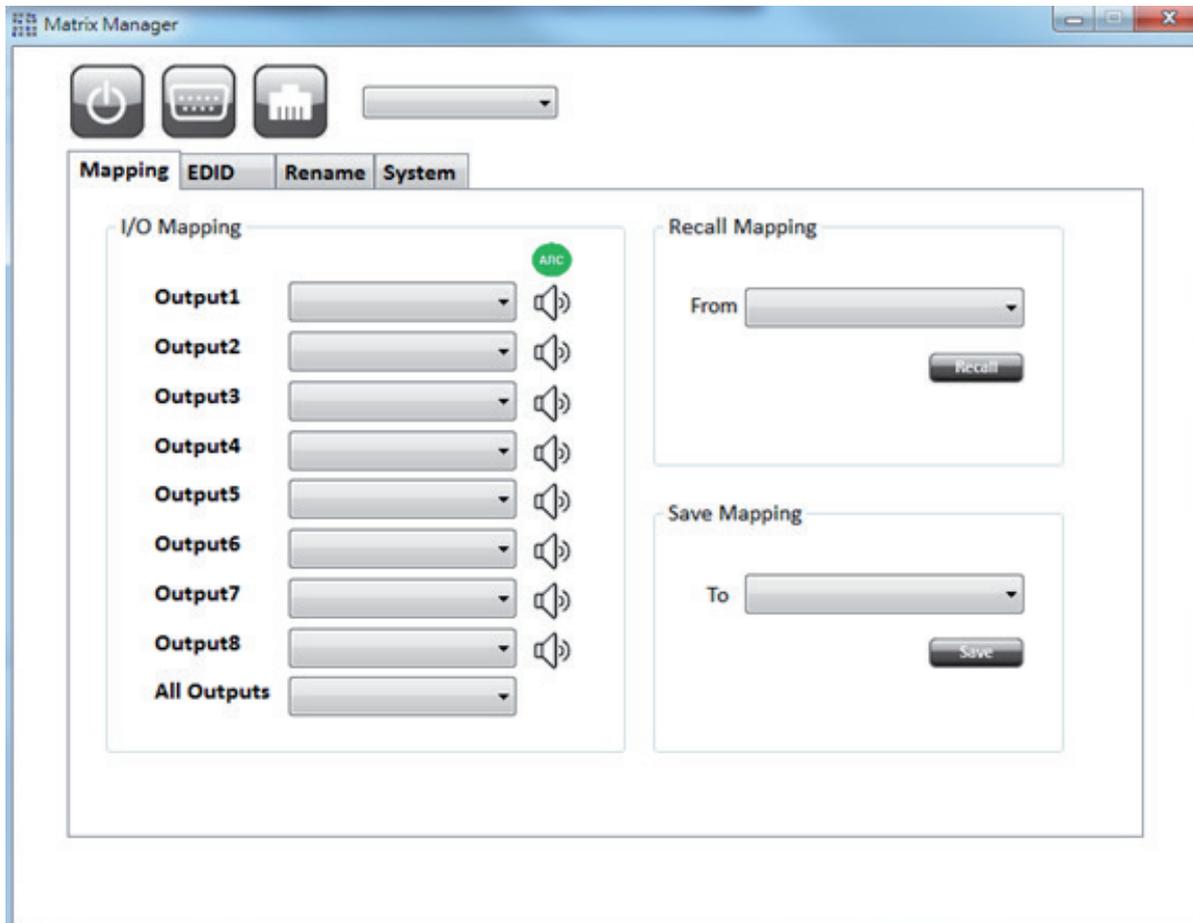
- **I/O Mapping:**
  (1) Switch the input for each output
  (2) ARC: Enable/ Disable ARC

- **Recall Mapping:**
  (1) Select the stored Mapping(1-16)
  (2) Click "Recall" button to recall previous mapping which are saved

- **Save Mapping:**
  (1) Select Mapping(1-16)
  (2) Click "Save" button to save current mapping

2. EDID Button

- **Learn EDID from Default to Input**
  (1) Select Default EDID(1-17 Default EDID)
  (2) Select designated Input
  (3) Click "Apply" button to learn from default EDID

- **Learn EDID from Display to Input**
  (1) Select output
  (2) Select designated Input
  (3) Click "Apply" button to learn from display EDID

- **Load EDID File to Input**
  (1) Click "Load File" button to select the EDID file
  (2) Select designated Input
  (3) Click "Apply" button to load EDID File

- **View EDID**
  (1) Select Input or HDMI output
  (2) Click "View" button to read and analyze the EDID

3. Rename I/O Button

- **Rename I/O:**
  (1) Rename the Inputs
  (2) Rename the Outputs

- **Rename Mapping:**
  (1) Rename the Mappings

4. System Button
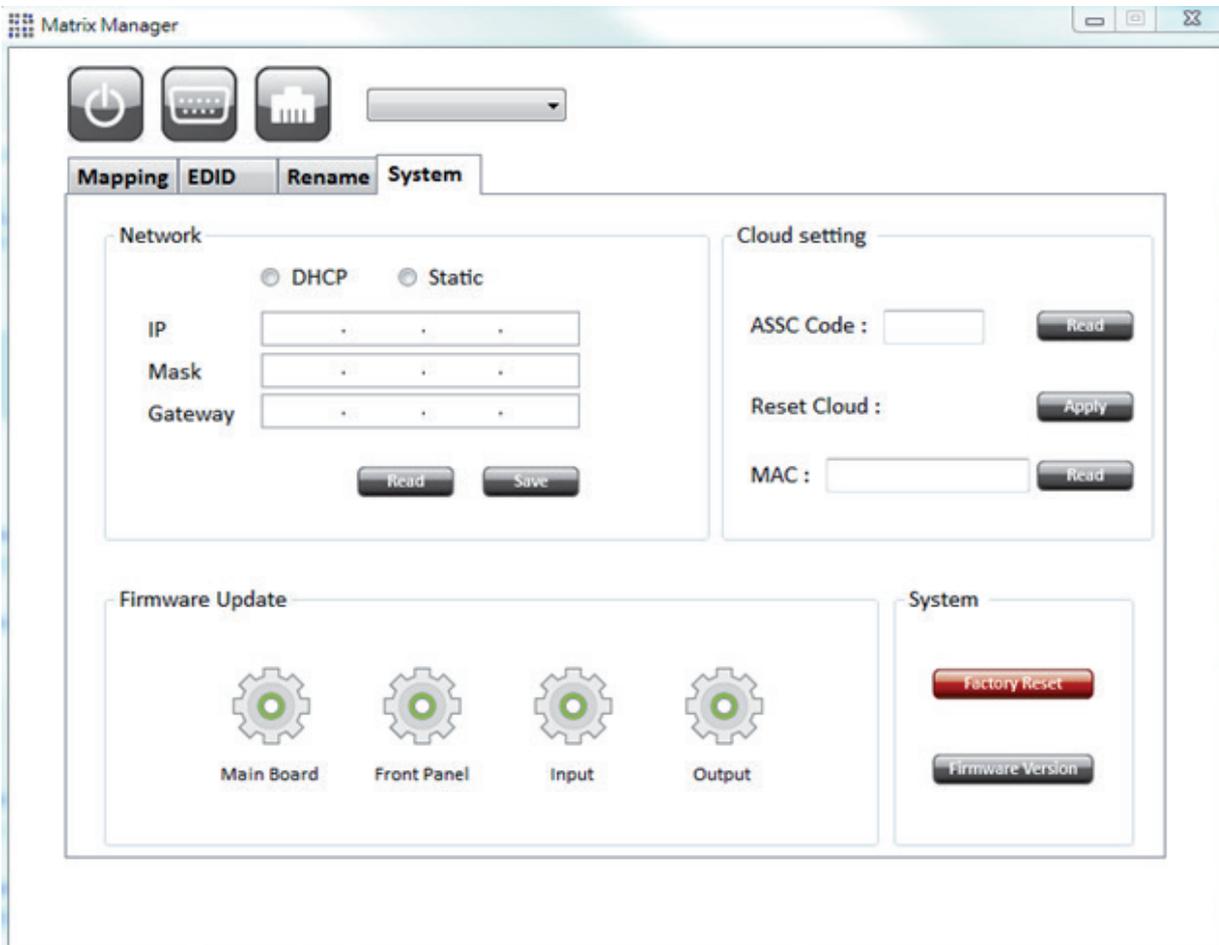
- **Network-DHCP mode**
  (1) After selecting DHCP, device will reboot automatically
  (2) Click "Read" button to automatically get the IP address Information

- **Network-Static mode**
  (1) After selecting static, device will reboot automatically
  (2) Key in the "IP", "MASK", "GATEWAY" information.
  (3) After setting IP address, please click "Save" button to save IP address Information. The device will reboot automatically

- **"Save" Button**
  Save the IP address which is manually entered

- **"Read" Button** *The default IP address is 192.168.1.70
  Read the IP address from the device

- **Cloud setting-Association Code**
  To get an "association code". The device can use this code to pair with cloud server.

- **Cloud setting-Reset Cloud**
  To reset cloud after a successful pairing

- **Cloud setting-MAC**
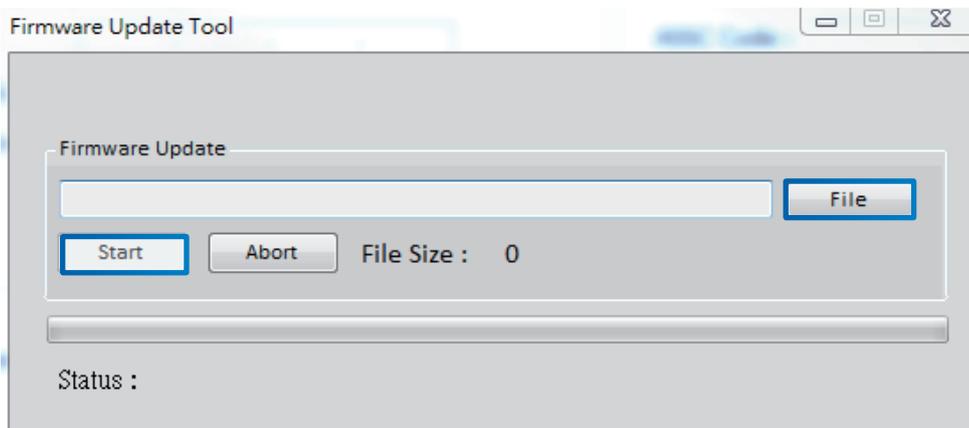 Read the device's MAC address information

- **Firmware Update-Main Board**
  (1) Click "Main Board" button and another window will pop-up
  (2) Click "File" button to load firmware
  (3) Click "Start" button to do firmware update
  (4) Please power cycle after firmware update complete

Firmware Update Tool

Firmware Update

File

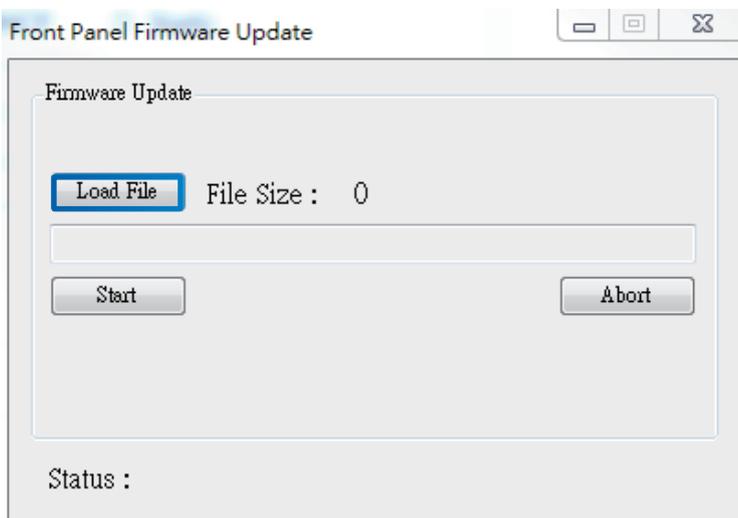Start   Abort   File Size :   0

Status :

- **Firmware Update-Front Panel**
  (1) Click "Front Panel" button and another window will pop-up
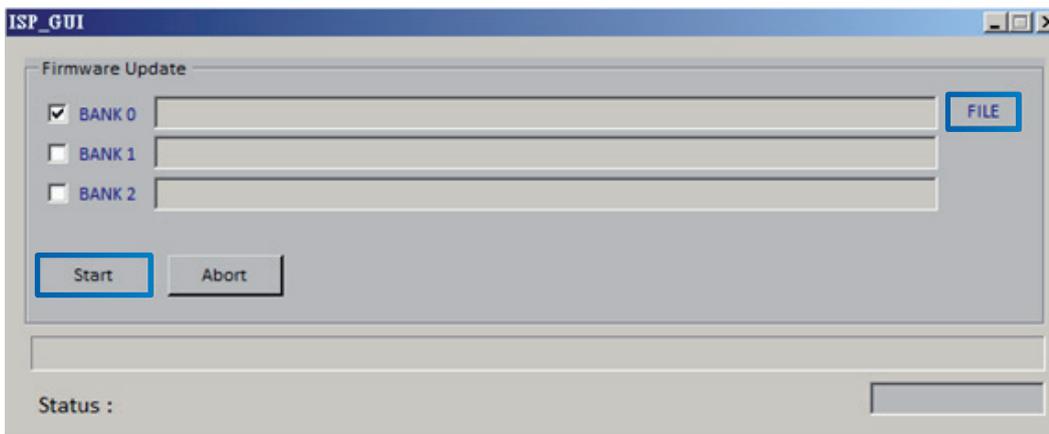 (2) Click "Load File" button to load firmware
  (3) Click "Start" button to do firmware update
 (4) Please power cycle after firmware update complete

Front Panel Firmware Update

Firmware Update

Load File   File Size :   0

Start   Abort

Status :

- **Firmware Update-Input**
    (1) Click "Input" button and another window will pop-up
    (2) Click "File" button to load firmware
    (3) Click "Start" button to do firmware update
    (4) Please power cycle after firmware update complete

- **Firmware Update-Output**
    (1) Click "Output" button and another window will pop-up
    (2) Click "File" button to load firmware
    (3) Click "Start" button to do firmware update
    (4) Please power cycle after firmware update complete
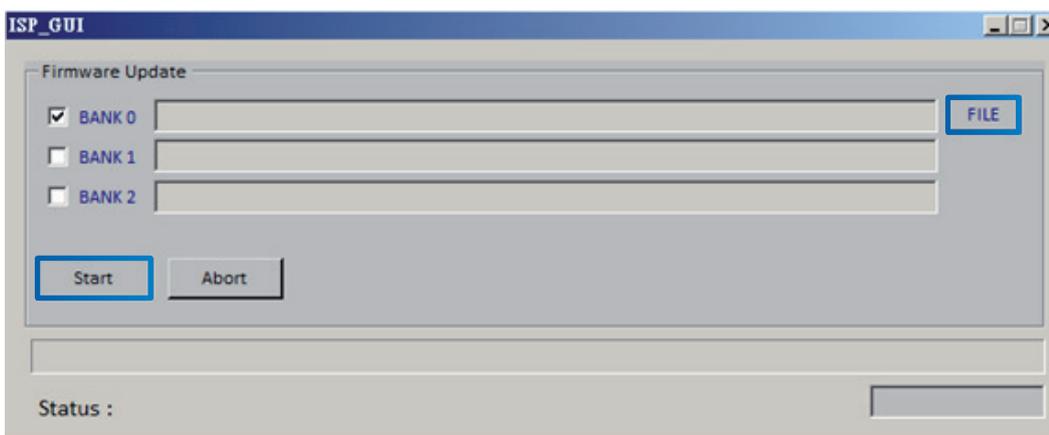
- **System-Factory Reset**
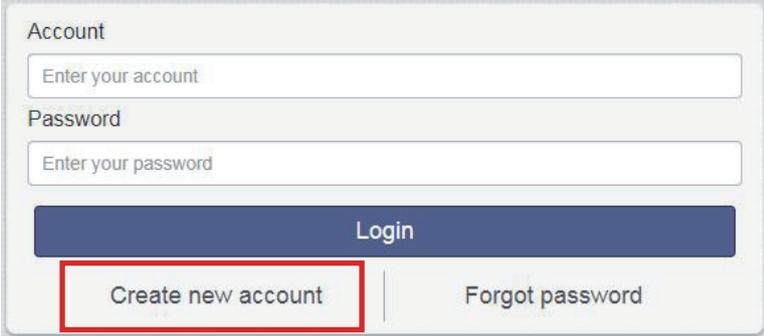   To do factory default reset

- **System-Firmware Version**
    To get the F/W version information

Method D: Control through "intriCloud" on internet

- **Create Account**

   The first time to use the intriCloud service, please create a new account.

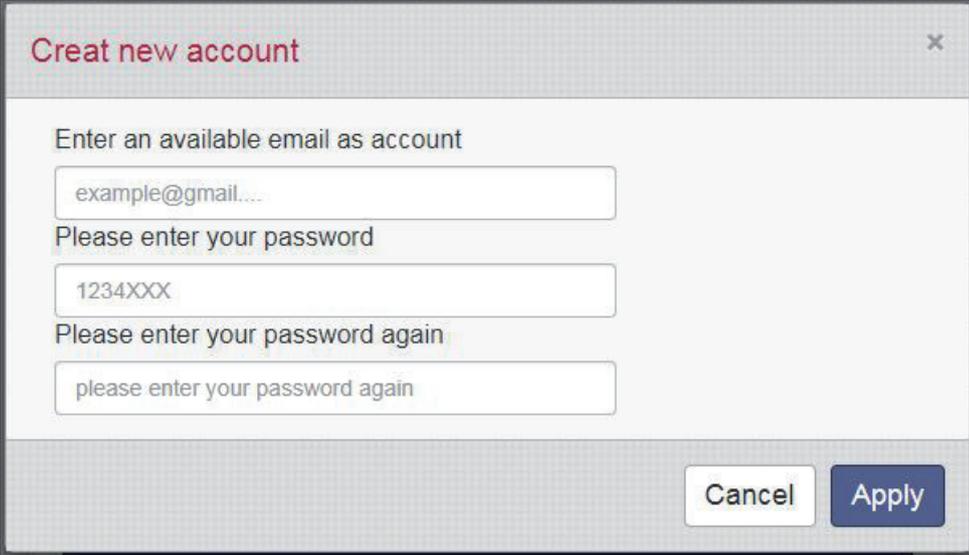   1. Access intriCloud (www.intri.cloud) and click "Create new account".

   2. The Registration page will pop up and please fill in your email and password information to create your private account.
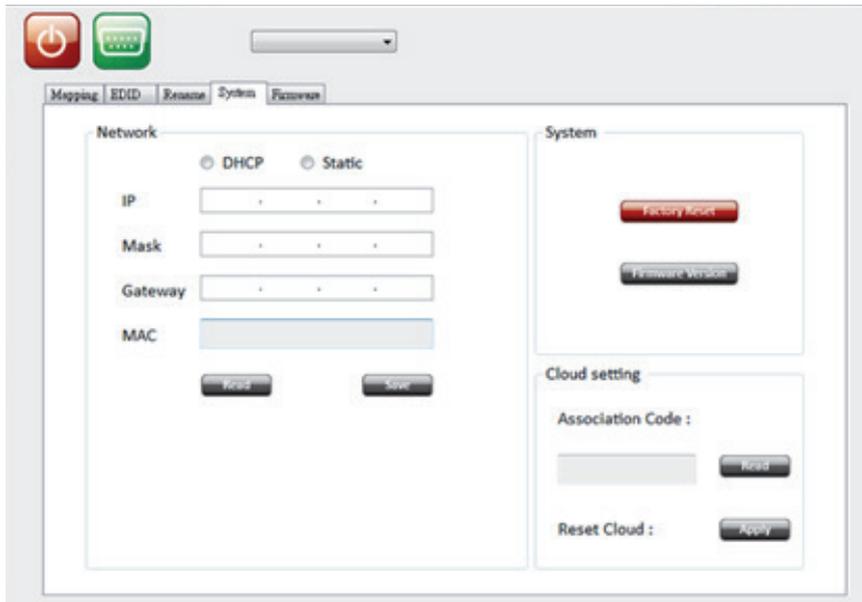
● Add Device to intriCloud

1. First, please make sure the Matrix is connected to your Ethernet with internet access.

2. Connect the Matrix to your Windows computer (Windows 10) via a USB Type A (male) to USB Mini-B 5-pin (male) cable (cable not included). The Matrix will add a Prolific USB to Serial COM port. Use this COM port in Step 4.

3. Run the application "Matrix_Serial from the included CD-ROM and the application pictured below will open. *Note: if your system doesn't have a CD-ROM, go to **www.gofanco.com/download**, search for this product by its part# PRO-Matrix88-aud, and click on "Control Programs" to download the software.

4. Select the proper COM port from the drop down box, then click the serial port icon on the upper left corner of the application box to connect to the Matrix, when the icon turns green select the System tab.

5. Select DHCP, if your network has a DHCP server, otherwise select Static.

   Please wait 10-15 seconds after making the selection before going to the next step.

   5a) For DHCP, the IP address is automatically assigned, click Read to display the settings.

   5b) For Static, enter the IP address, Mask, and Gateway, then click Save. (Please see your Network admin for the proper settings)
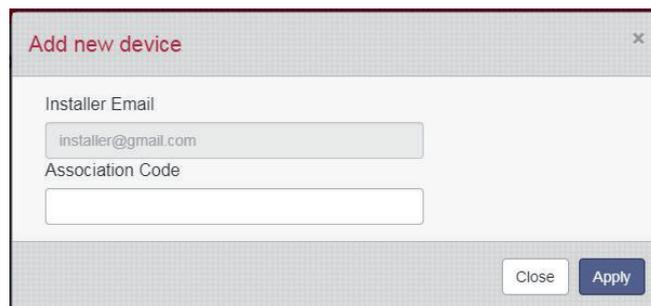
1. In Cloud setting, click on Read to obtain an Association Code. Write down this code, you'll need it to configure your intriCloud account later.

2. Access your intriCloud account and log in to your account. On the upper right corner, click "Add Device".
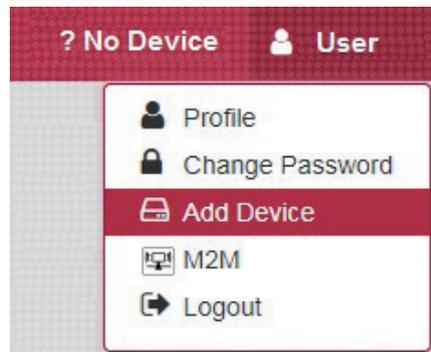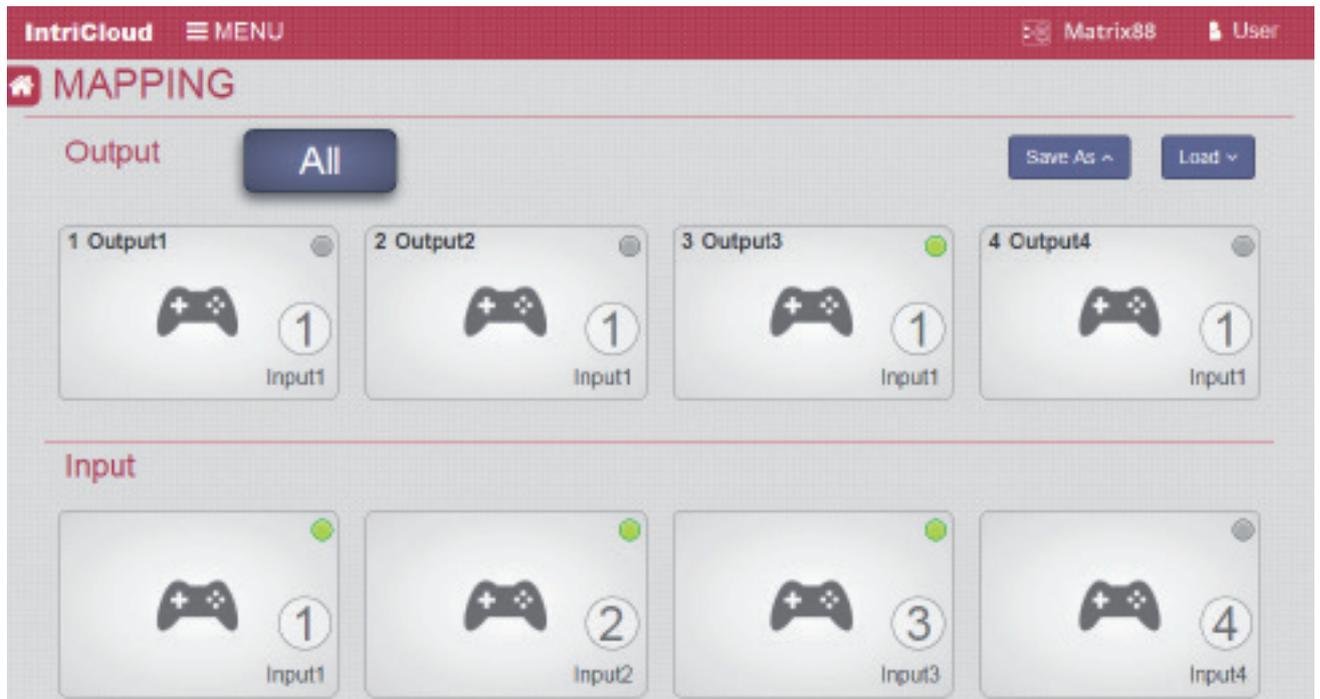

3. Enter the Association code and click Apply for pairing with your Matrix.

1. After adding the device, the device name will show on the upper right corner. You can click the button to switch to device control.
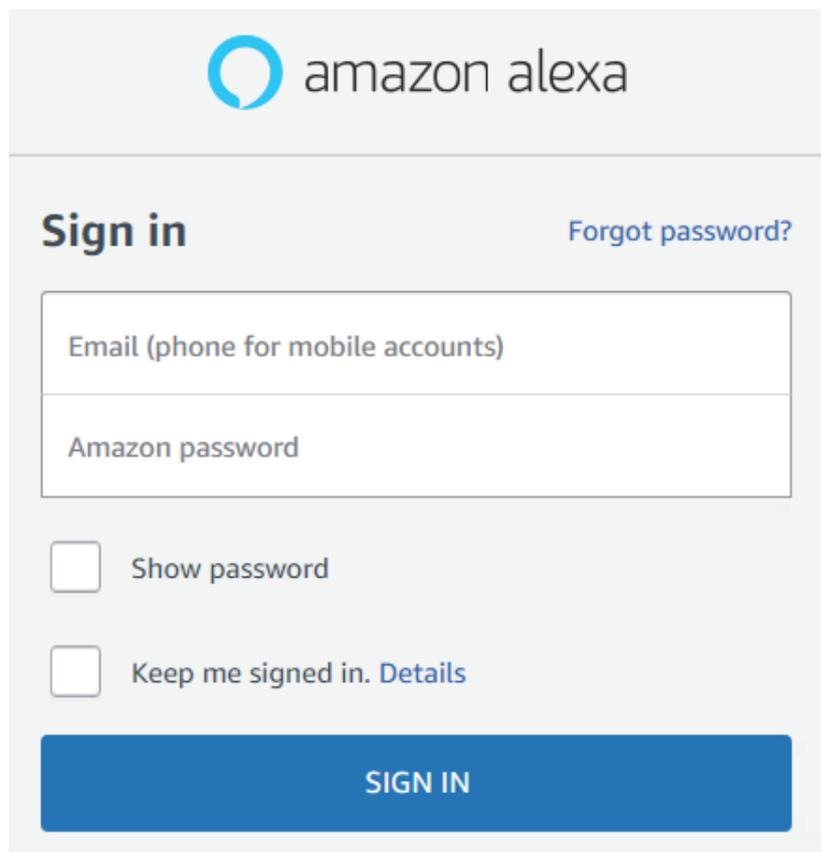

2. The intriCloud is ready for use.

3. Drag and drop any Input to any Output to change viewing options

Method E: Amazon Echo (Alexa) control

- **Connecting your intriCloud to Alexa. Make sure your Echo device is linked to your Amazon account before continuing.**

  1. Go to alexa.amazon.com. Create an account or login using an existing amazon account.

1. Install intriCloud for Echo. Search using keyword "Intri Cloud" in Skills page and click "Enable". Then go to Settings (next to "Disable Skills") to link it.
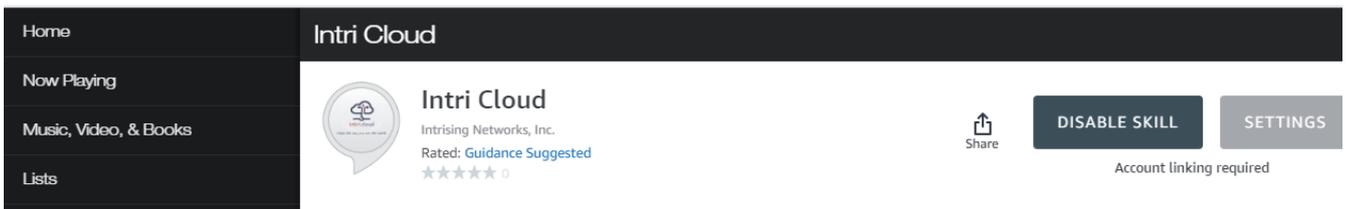
2. Click "Link Account" and the "IntriCloud" sign in box will pop up. Type in your Intri Cloud account and password, to successfully link Intri Cloud and Amazon Alexa.
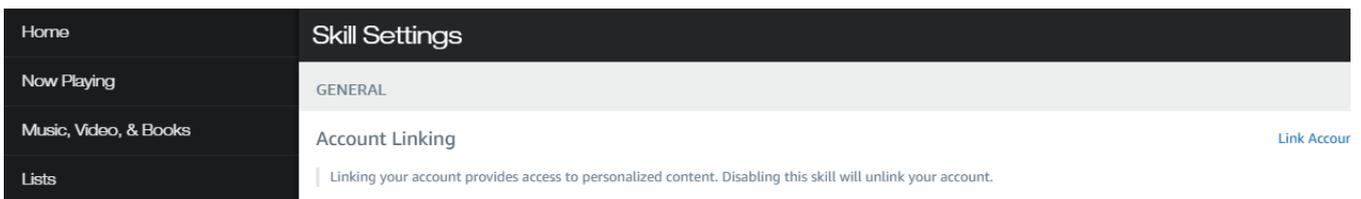
- **Voice Control**

  Step 1. "**Alexa, open la la land**" (into IntriCloud)

  Step 2. "**list device**" (What device connected to your IntriCloud)

  Step 3. "**select device**" (Select the device which you want to control)

  Step 4. "**play (input) on (output)**" (adjust your display array)

- **Voice Commands**

Command	description
open la la land	into Intri Cloud
list device	show out what device connected to Intri Cloud
select device	select the device which you want to control
play "input" on "output"	adjust your display array
play "input" on all	play a HDMI source on all displays
mute "output"	close a HDMI output
mute all	close all HDMI output

Notes: "Input" & "Output" should be the name which displays in RS232 Rename page or Intri Cloud website Mapping page.

10. 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 **TWO methods** to do EDID Learning as below,
1. IR Remote Control: Please refer to the **Operation Approach\ Method B: IR Remote Control (Page 9.)**
2. Software Control: Please refer to the **Operation Approach\ Method C: Software Control through RS-232 port (Page 11.)**

There are **seventeenembedded 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

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

10. 4k2k@30 2ch

11. 4k2k@30 7.1ch

12. 4k2k@30-3D-PCM2CH(2ch)

13. 4k2k@30-3D-BITSTR(7.1ch)

14. 4k2k@60-420-3D-PCM2CH(2ch)

15. 4k2k@60-420-3D-BITSTR(7.1ch)

16. 4k2k@60-3D-PCM2CH(2ch)

17. 4k2k@60-3D-BITSTR(7.1ch)

11. 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, 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 manually 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 input source. For example, if user 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 outpt-3 would get the HDMI signals from every HDMI input, please learn EDID information from output3 to all four HDMI inputs. For more information about EDID Learning, please refer to EDID LEARNING section.

Q My TV can support 1080p, but why there is no audio?

A . Thefactory 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 When I set an audio amplifier (AV receiver) between TV and the matrix to extract 7.1ch audio, but why there is 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 matrix and 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, why only the TV equipped with amplifier can have 7.1ch audio, and the others don't have 7.1ch audio even no 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 is definitely no audio.

12. Limited Warranty

The SELLER warrants the **PRO-Matrix88-aud** **8x8 HDMI 2.0a Matrix 4K HDR with audio extractor** 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.

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 PRO-Matrix88-aud features and specifications is subject to change without further notice**.**

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