

# MA-5422HR

4x2 HDMI 2.0a Matrix Switcher

## User Manual



 **x.v.Color**



rev: 161026  
Made in Taiwan



## Safety and Notice

The **MA-5422HR 4x2 HDMI 2.0a Matrix Switcher** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **MA-5422HR** 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 **MA-5422HR 4x2 HDMI 2.0a Matrix Switcher** 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. This solution is well suited for use in home theater, conference room presentation systems, or other similar setting or application.

## FEATURES

- HDMI 2.0a compliant
- Supports 4K2K@60 4:4:4 8bits
- Supports HDR\*, which is 4K2K@60 4:2:0 10bits\*\*
- HDCP 2.2 and 1.4 compliant
- Wide frequency range: 25MHz~600MHz
- Video bandwidth: 18Gbps
- Supports xvYCC, x.v.Color & Deep Color
- Supports Dolby Digital(+), DTS-HD and Dolby TrueHD audio
- 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 default HDMI EDID and learns the EDID from displays
- The matrix master can switch every output channel to any HDMI input by IR remote control, RS-232 control, IP control and web interface (Cloud).
- Easy installation with rack-mounting and wall-mounting designs for master and receiver respectively



\* HDR = High Dynamic Range.

\*\* The video bandwidth of 4K2K@60 4:2:0 10bits (HDR) is 384MHz, and the 4K2K@60 4:4:4 8bits is 594MHz

## PACKAGE CONTENTS

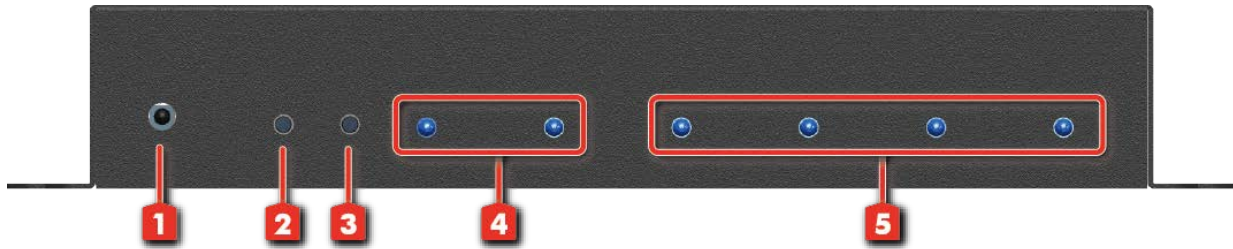
- 1x MA-5422HR
- 1x IR Remote control (28 keys)
- 1x Rack-mounting ear set
- 1x DC 12V 2A power supply
- 1x User Manual
- 1x Installation software CD

# SPECIFICATIONS

Model Name		MA-5422HR
Technical		
Role of usage		True 4x2 matrix
HDMI compliance		3D & 4K2K@60Hz
HDCP compliance		HDCP 2.2
Video bandwidth		Single-link 594MHz [18 Gbps]
Video support		Up to 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]
Input		4x HDMI / 1x RS-232 / 1x Ethernet
Output		2x HDMI
IR remote control		Electro-optical characteristics: $\pi = 25^\circ$ / Carrier frequency: 38kHz
HDMI connector		Type A [19-pin female]
RJ-45 connector		WE/SS 8P8C with 2 LED indicator
RS-232 connector		DE-9 [9-pin D-sub female]
<b>Mechanical</b>		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	222 x 70 x 36mm [8.7" x 2.8" x 1.4"]
	Package	264 x 170 x 77mm[10.3" x 6.7" x 3"]
	Carton	430 x 358 x 291mm[1'4" x 1'2" x 11.5"]
Weight	Model	447g [1lbs]
	Package	945g [2lbs]
Fixedness		1RU rack-mount with ears and Wall hanging holes
Power supply		12V 2A DC
Power consumption		6 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



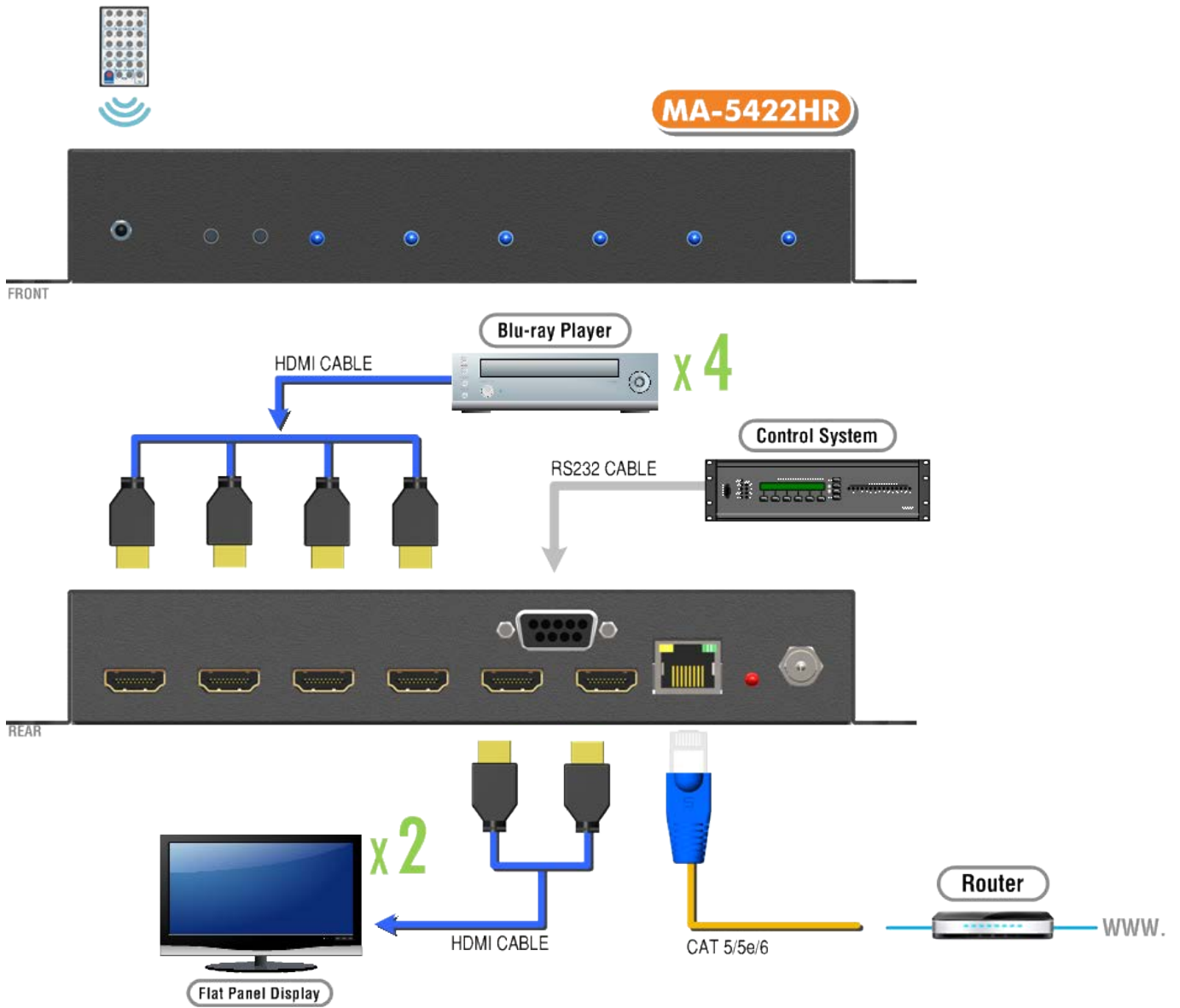
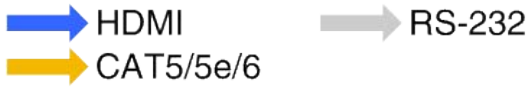
- 1. IR SENSOR:** IR sensor for receiving the IR commands from IR remote
- 2. Port 2 Channel Push Button:** Select input channel
- 3. Port 1 Channel Push Button:** Select input channel
- 4. Output Status LED:** When user connect the display, the indicator LED will light (from the left to the right is output 2, output 1)
- 5. Selected Source Status LED:** When users use port channel push button, the indicator LED will show the selected source. (from the left to the right is input 1, input 2, input 3, input 4)

## Rear Panel



- 6. Input 1-4:** HDMI inputs
- 7. Output 1-2:** HDMI outputs
- 8. Ethernet:** Ethernet control port
- 9. Power Status:** Power indicator LED
- 10. +12V DC:** +12V DC power jack
- 11. RS-232:** RS-232 control port

# CONNECTION DIAGRAM



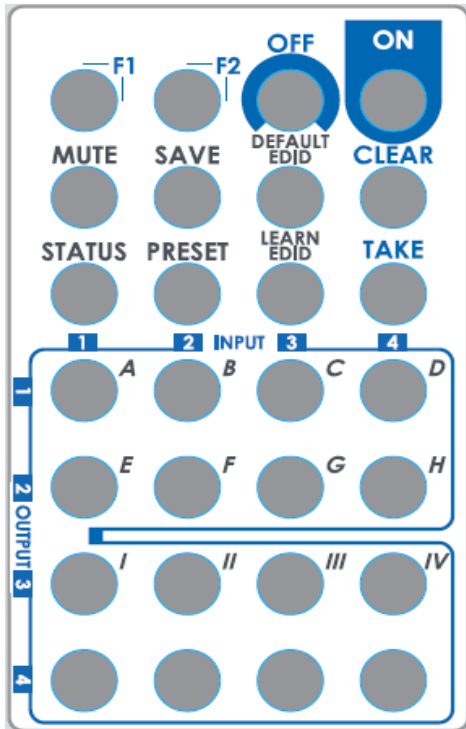
# OPERATION APPROACH

## Method A: Push-in Button

### IN/OUT MAP

- (1) Use Port 1 or Port 2 Channel Push Button to select the source
- (2) Input1~4 can be selected in order

## Method B: IR Remote Control



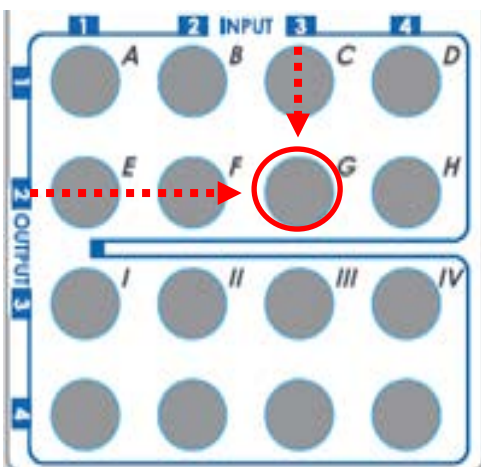
Button	Function
OFF	Standby mode
ON	Power on the matrix switcher
MUTE	Turn off output's video and audio
STATUS	Preset output status
SAVE	Save current mapping mode
PRESET	Preset mapping mode
DEFAULT EDID	Begin default EDID selection
LEARN EDID	Begin EDID learning from one output
CLEAR	Clear the previous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

### 1. IN/OUT Switch

Push the button on the checkerboard to select input & output port.

Ex: Select input 3 to output 2

Push the red circle button as below to select input 3 to output 2



## 2. Example of function key

Operation	Procedure
<b>Output Status</b>  Ex: Output 2 (Input 2)	<b>Status + A~B (output 1~2) + Take</b> 1. Press "STATUS" button 2. Press number key "B" to select output 2 3. Press "TAKE" button
<b>Save Current Mapping</b>  Ex: Save current mapping to 5	<b>Save + A~H (1~8 storage site) + Take</b> 1. Press "SAVE" button 2. Press number key "E" to select the storage site 3. Press "TAKE" button
<b>Preset Mapping</b>  Ex: Preset saved mapping from 5	<b>Preset + A~H (1~8 storage site) + Take</b> 1. Press "PRESET" button 2. Press number key "E" to select the storage site 3. Press "TAKE" button
<b>Learn Default EDID</b>  Ex: Default EDID 2 to input 3	<b>Default EDID + A~H (1~8 default EDID) + I~IV (input 1~4) + Take</b> 1. Press "DEFAULT EDID" button 2. Press number key "B" to select default EDID 2 3. Press number key "III" to select input 3 4. Press "TAKE" button
<b>Learn Output EDID</b>  Ex: Learn output 2 to input 3	<b>Learn + A~B (output 1~2) + I~IV (input 1~4) + Take</b> 1. Press "LEARN" button 2. Press number key "B" to select output 2 3. Press number key "III" to select input 3 4. Press "TAKE" button
<b>Mute Output</b>  Ex: Mute output 2	<b>Mute + A~B (output 1~2) + Take</b> 1. Press "MUTE" button 2. Press number key "B" to select output 2 3. Press "TAKE" button

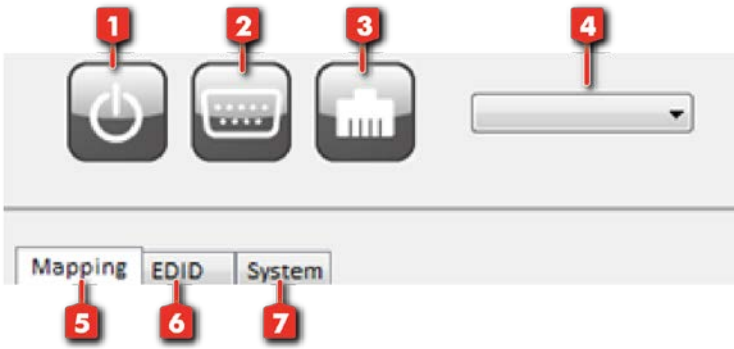
## Method C: Software Control through RS-232 port

### 1. System Requirement

- (1) OS information : MS Win XP/7/8/10
- (2) Baud rates: 9600
- (3) Software size: 1MB
- (4) Minimum RAM requirement: 256MB

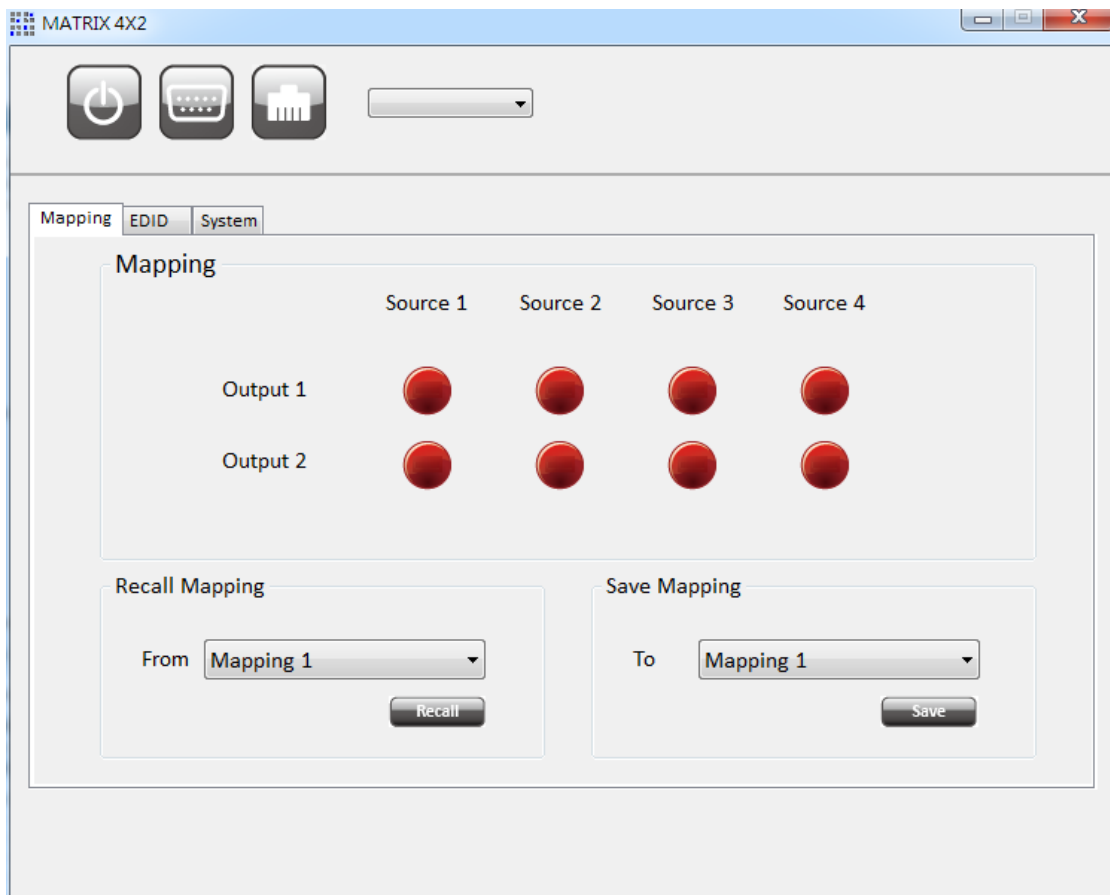


## 2. Control interface



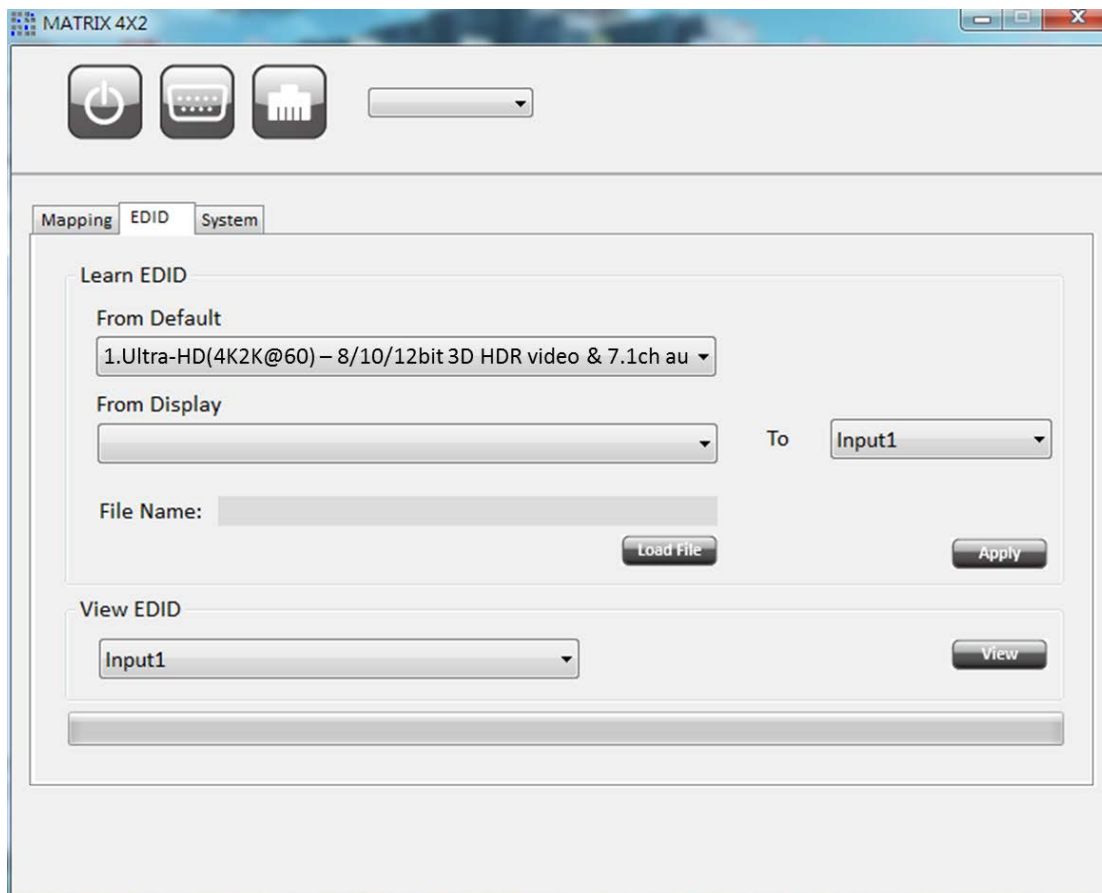
1. Power ON/Standby mode
2. Control SW via RS-232
3. Control SW via Network
4. COM port selection
5. I/O Mapping Tab
6. EDID Tab
7. System Tab

### (1) I/O Mapping Tab



- Mapping
  - Click the button on the checkerboard to select input and output port
- Recall Mapping
  - Select the stored Mapping 1~2
  - Click the “Recall” button to recall previous mapping which are saved
- Save Mapping
  - Select Mapping 1~2
  - Click “Save” button to save current mapping

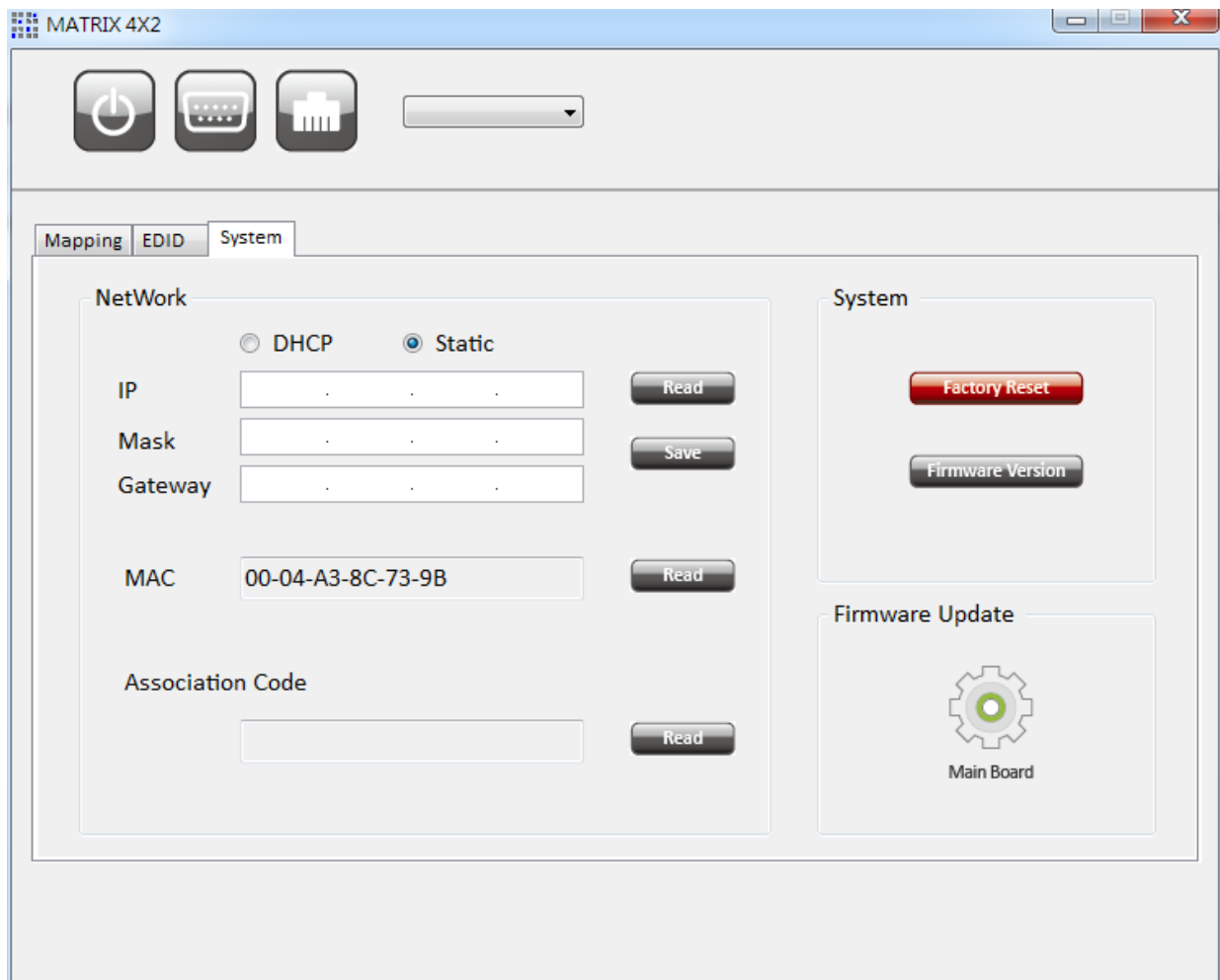
## (2) EDID Tab



- Learn EDID from default to input
  - Select default EDID (1-8 default EDID)
    1. Ultra-HD(4K2K@60) – 8/10/12bit 3D HDR video & 7.1ch audio
    2. Ultra-HD(4K2K@60) – 8/10/12bit 3D HDR video & 2ch audio
    3. Ultra-HD(4K2K@30)(4K2K@60 420) – 8bit 3D HDR video & 7.1ch audio
    4. Ultra-HD(4K2K@30)(4K2K@60 420) – 8bit 3D HDR video & 2ch audio
    5. Full-HD(1080p@60) – 12bit 3D video & 7.1ch audio
    6. Full-HD(1080p@60) – 8bit 2D video & 2ch audio
    7. Full-HD(1080p@60) – 8bit 2D video & 7.1ch audio
    8. HD(1080p@30)(1080i@60)(720p@60) – 8bit 2D video & 2ch audio
  - Select designated input
  - Click “Apply” button to learn default EDID
  
- Learn EDID from display to input
  - Select output
  - Select designated input
  - Click “Apply” button to learn display EDID

- Load EDID from file to input
  - Click “Load File” button to select the EDID file from computer
  - Select designated input
  - Click “Apply” button to load EDID file and learn to input
  
- View EDID information
  - Select input or HDMI output
  - Click “View” button to read and analyze the EDID information

### (3) System Tab



- Network-DHCP mode
  - Select DHCP and click “Read” button to automatically get the IP address
  
- Network-Static mode
  - Select Static and then key in the “IP”, “MASK”, “Gateway” information. After setting IP address, please click “Save” button to save IP address information
  
- Read Button **\*The default IP address is 192.168.1.111**
  - Read the IP address from the device

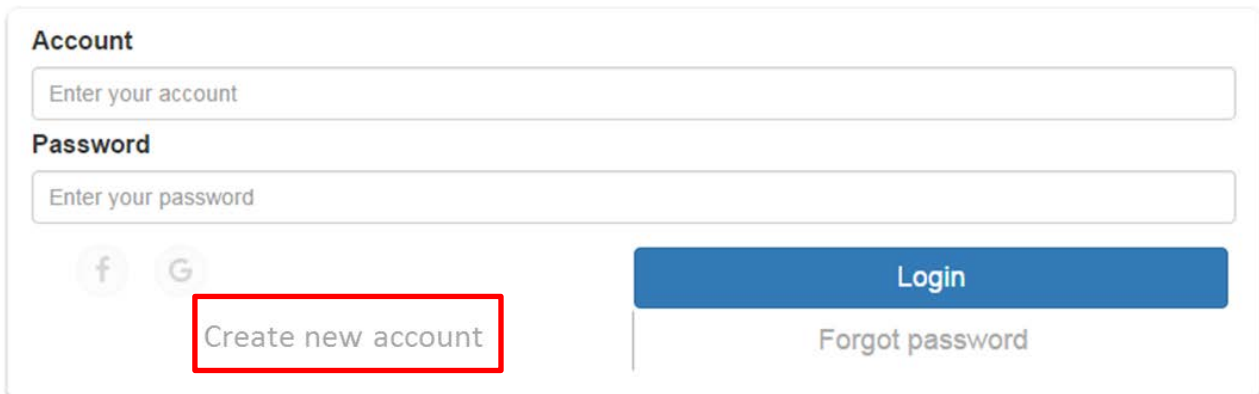
- Save Button
  - Save the IP address which is manually entered
  
- MAC
  - Read the device's MAC address information
  
- Associate Code
  - The get an “associate code”. The device can use this code to pair with cloud server
  
- System-Factory reset
  - To do factory default reset
  
- System-Firmware Version
  - Get the firmware version information
  
- Firmware Update
  - Firmware update device

## Method D: Cloud Control (Eagleyes) through Ethernet port

### Create Account

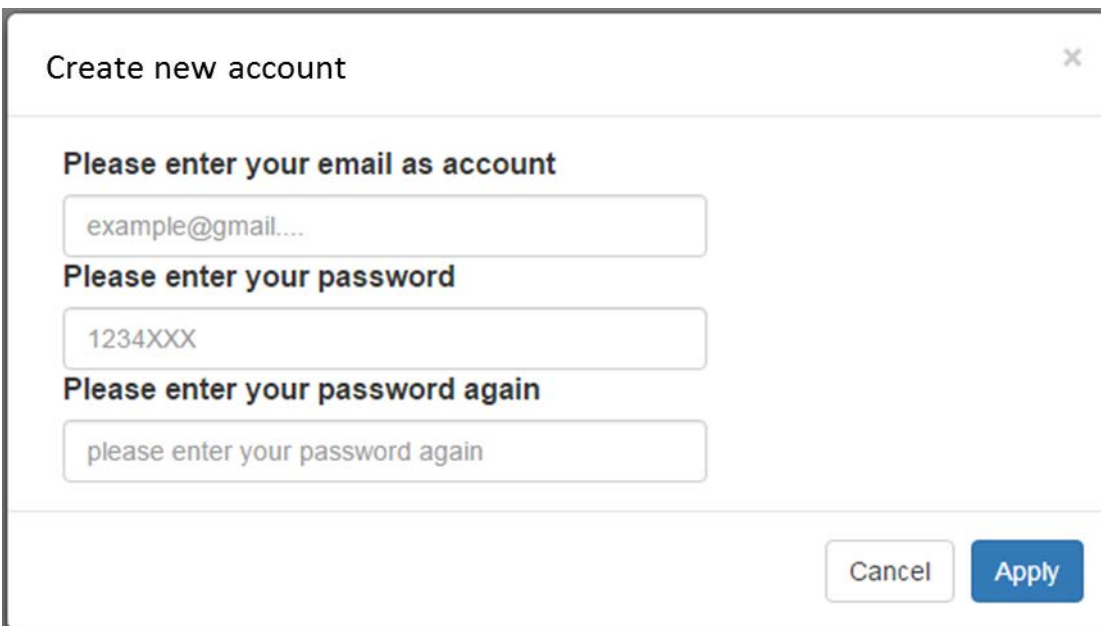
The first time to use the Eagleyes service, please create a new account.

1. Access Eagleyes (<http://www.eagleyes.io>) and click "Create new account".



The screenshot shows the login interface for Eagleyes. It features two input fields: "Account" with the placeholder "Enter your account" and "Password" with the placeholder "Enter your password". Below these fields are social media icons for Facebook and Google. A blue "Login" button is positioned to the right. A "Create new account" button is highlighted with a red rectangular border. Below the "Login" button is a link for "Forgot password".

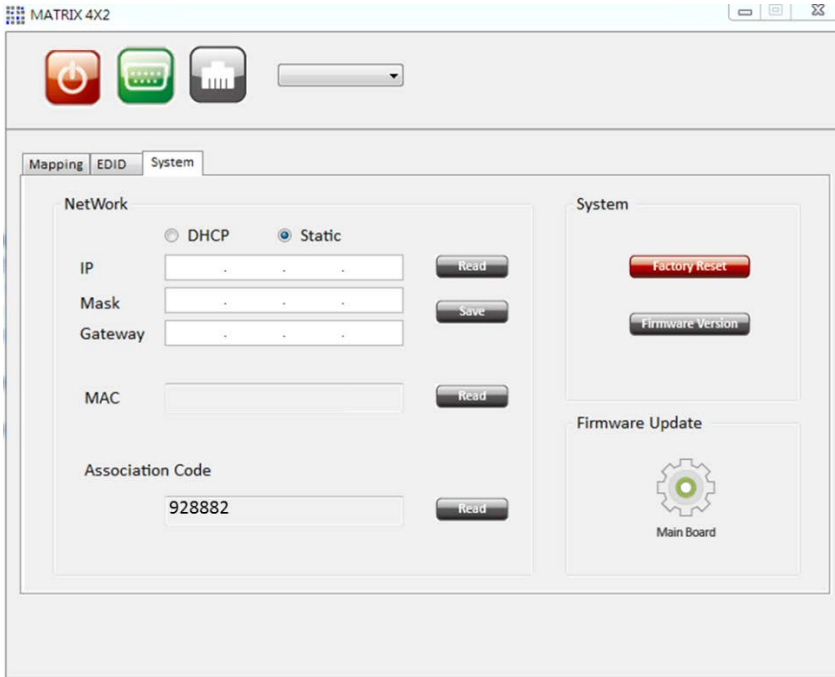
2. The Registration page will pop up and please fill in your email and password information to create your private account.



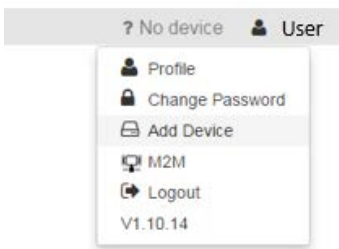
The screenshot shows a "Create new account" modal window. It contains three input fields: "Please enter your email as account" with the placeholder "example@gmail...", "Please enter your password" with the placeholder "1234XXX", and "Please enter your password again" with the placeholder "please enter your password again". At the bottom right, there are "Cancel" and "Apply" buttons.

## Add Device to Eagleyes

1. Firstly, please make sure the device is connected to the Ethernet. Then please executing the software with device to get the association code (Note: the status of software is connected).



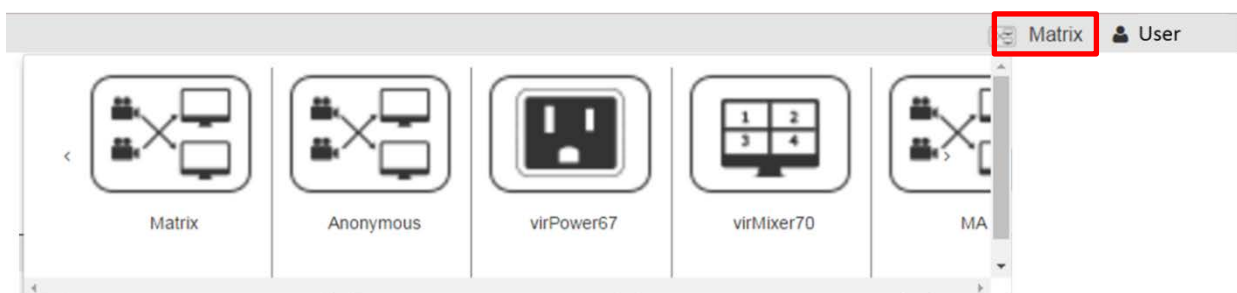
2. Access Eagleyes (<http://www.eagleyes.io>), and then log in your account on the right top corner. Click **Add device** to add the device which you just got its association code.



3. Enter the Installer Email for online support in the future, and the Association Code for pairing with your device.



4. After adding the device, the list of device related to your account will show on the right top corner. You can click the button to switch device for control.



The EDID learning function is to resolve audio and video playing issues at HDMI output port. 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 of playing the HDMI signals normally.

The method on doing EDID learning please refer to the software control section (Page 6.).

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

1. Ultra-HD(4K2K@60) – 8/10/12bit 3D HDR video & 7.1ch audio
2. Ultra-HD(4K2K@60) – 8/10/12bit 3D HDR video & 2ch audio
3. Ultra-HD(4K2K@30)(4K2K@60 420) – 8bit 3D HDR video & 7.1ch audio
4. Ultra-HD(4K2K@30)(4K2K@60 420) – 8bit 3D HDR video & 2ch audio
5. Full-HD(1080p@60) – 12bit 3D video & 7.1ch audio
6. Full-HD(1080p@60) – 8bit 2D video & 2ch audio
7. Full-HD(1080p@60) – 8bit 2D video & 7.1ch audio
8. HD(1080p@30)(1080i@60)(720p@60) – 8bit 2D video & 2ch audio

# WARRANTY

The SELLER warrants the **MA-5422HR 4x2 HDMI 2.0a Matrix Switcher** 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 MA-5422HR features and specifications is subject to change without further notice.**