

# MA-5344A

**4x4 HDMI Scaler Matrix  
with video wall function**

## User Manual



**HDCP**™  
HIGH-DEFINITION CONTENT PROTECTION

**HDMI**™  
HIGH-DEFINITION MULTIMEDIA INTERFACE

Full HD  
**1080**

**7.1 CH**  
**AUDIO**

 **x.v.Color**



rev: 130902  
Made in Taiwan



## **Safety and Notice**

The **MA-5344A 4x4 HDMI Scaler Matrix with video wall function** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **MA-5344A** 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-5344A 4x4 HDMI Scaler Matrix with video wall function** provides the most flexible and cost effective solution in the market. The new MA-5344A can be used as a conventional matrix switch, routing up to 4 different HDMI video sources to any monitor independently or be used as video wall processor, splitting a chosen image from 4 sources to 4 displays. On top of that, it can work as "combo" gear, showing any individual input source in full-screen for any selected display while other displays are working in video wall mode.

## FEATURES

- HDCP compliant
- 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 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 for channel switch
- Four HDMI outputs from 640x480 to 1920x1200
- Supports HDMI/ DVI input, from 640x480 to 1920x1080@60, interlaced or progressive
- Resize, position, zoom, rotation, fade-in fade-out output video
- Each HDMI output has an independent controllable display area
- User-selectable output settings, up to 1920x1200
- Image parameters and layouts are automatically saved in flash memory of the device and can be recalled for later use
- Several Image parameters and layouts can be saved in computers and can be loaded for later use
- Software control through RS-232 and Ethernet
- Firmware upgradable for support of new features and technology enhancements
- 1U size

## PACKAGE CONTENTS

- 1x MA-5344A
- 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

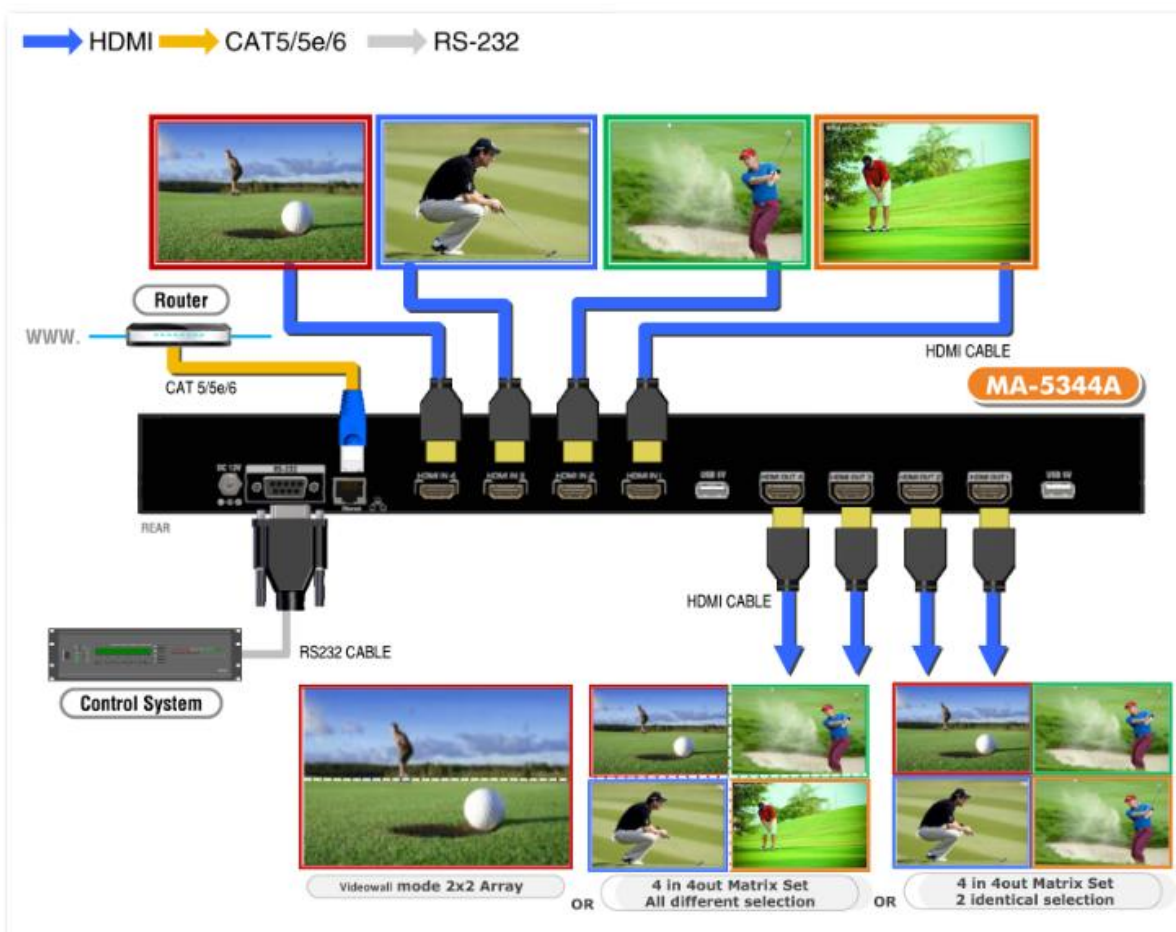
Model Name	MA-5344A	
<b>Technical</b>		
Role of usage	True 4x4 matrix	
HDCP compliance	Yes	
Video bandwidth	Single-link 225MHz [6.75Gbps]	
Video support	480i / 480p / 720p / 1080i / 1080p60 / 1920x1200@60Hz 30-bit color	
Video Format Support	HDMI/DVI	
Video loop-out	No	
Audio support	Surround sound (up to 7.1ch) or stereo digital audio	
ESD protection	Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge]	
PCB stack-up	8-layer board [impedance control — differential 100Ω; single 50Ω]	
Input	4x HDMI / 1x RS-232 / 1x Ethernet	
Output	4x HDMI /2x USB	
Control	RS-232/Ethernet/Front Panel	
Input TMDS signal	1.2 Volts [peak-to-peak]	
HDMI connector	Type A [19-pin female]	
USB connector	Type A for power supply	
RS-232 connector	DE-9 [9-pin D-sub female]	
RJ-45 connector	WE/SS 8P8C with 2 LED indicators	
<b>Mechanical</b>		
<b>MA-5344A</b>		
Enclosure	Metal case	
Dimensions (L x W x H)	Model	440 x 247 x 42mm [17.3" x 9.7" x 1.7"]
	Package	528 x 398 x 130mm [1'7" x 1'3" x 5.1"]
	Carton	570 x 580 x 260mm [22.4" x 22.8" x 10.2"]
Weight	Model	1322g [46.6oz]
	Package	4500g [9.9 lbs]
Fixedness	1U rack-mount with ears and Wall hanging holes	
Power supply	12V 5A DC	
Operation temperature	0~40°C [32~104°F]	
Storage temperature	-20~60°C [-4~140°F]	
Relative humidity	20~90% RH [no condensation]	

# HARDWARE INSTALLATION

## MA-5344A as master

1. Connect all sources to HDMI Inputs on the 4x4 HDMI Matrix MA-5344A.
2. Connect all display to HDMI Outputs on the 4x4 HDMI Matrix MA-5344A.
3. Connect the +12V 5A DC power supply to the 4x4 HDMI Matrix MA-5344A.

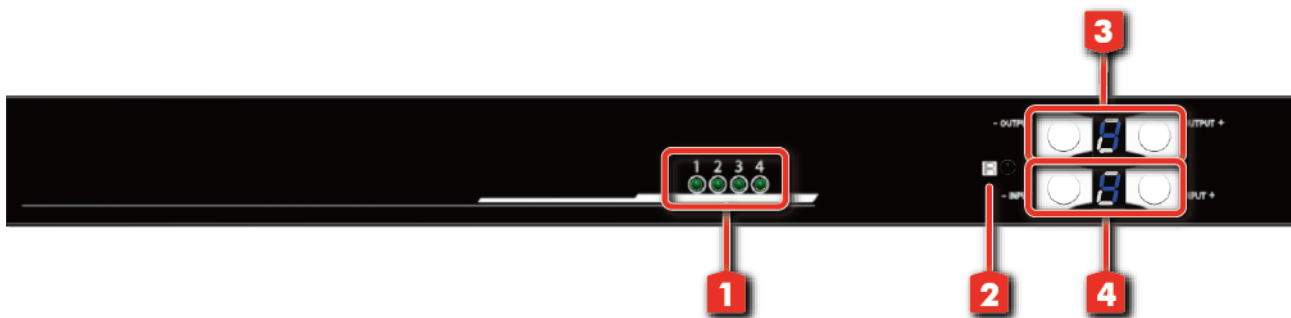
## CONNECTION DIAGRAM



# PANEL DESCRIPTIONS

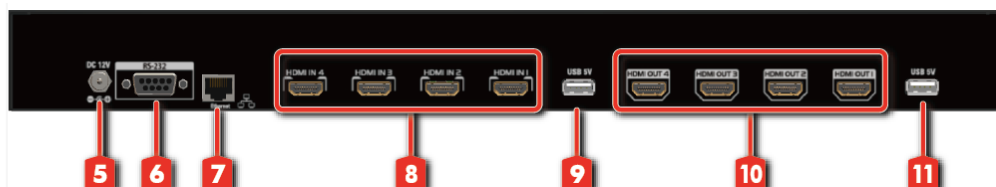
## Transmitting unit ► MA-5344A-TX

### Front Panel



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

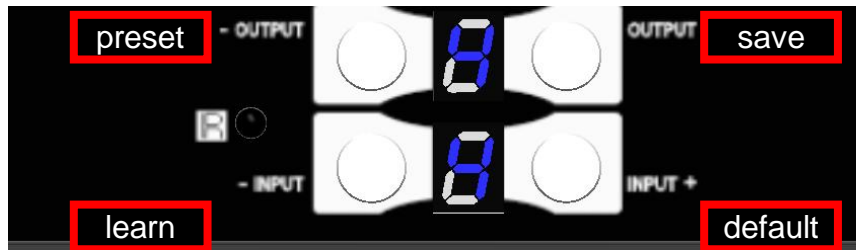
### Rear Panel



- 5. +12V DC:** 12V DC power jack
- 6. RS-232:** RS-232 control port
- 7. Ethernet:** Ethernet control port
- 8. INPUT 1-4:** HDMI inputs
- 9. USB 5V**
- 10. Output 1-4:** HDMI outputs
- 11. USB 5V**

# OPERATION APPROACH

## 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 (0~7) 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 (0~7) 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 “\_” “\_” to quit the Preset Mapping Mode

#### 4. Default EDID Mode

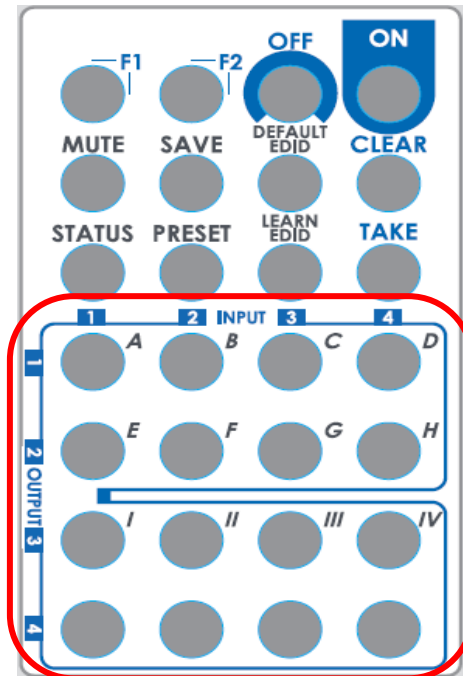
- 1) Push “input+ (default)”button to select the input channel which you want to learn default EDID and then keep pushing “input+ (default)”button when you select your desired input channel
- 2) Push the “+”or “-” output push button and then the LED will show “E”“d” one time to enter Learn Default EDID 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) Push “input- (learn)”button to select the input channel which you want to learn EDID from HDMI output and then keep pushing “input- (learn)”button when you select your desired input channel
- 2) Push the “+”or “-” output push button and then the LED will show “E”“L” one time to enter Learn Output EDID Mode
- 3) Use “+”or “-” output push button to select the output port number
- 4) Release “input- (learn)”button after selecting the desired output port number, 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

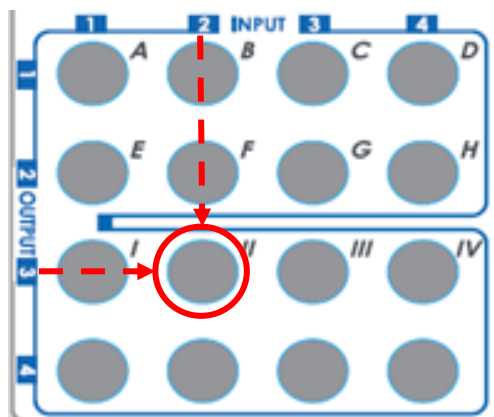


### 1. IN/OUT Switch

Push the button on the checkerboard to select Input & Output port.

Ex: Select Input 2 to Output 3

Push the red circle button as below to select Input 2 to Output 3



### 2. Function Key

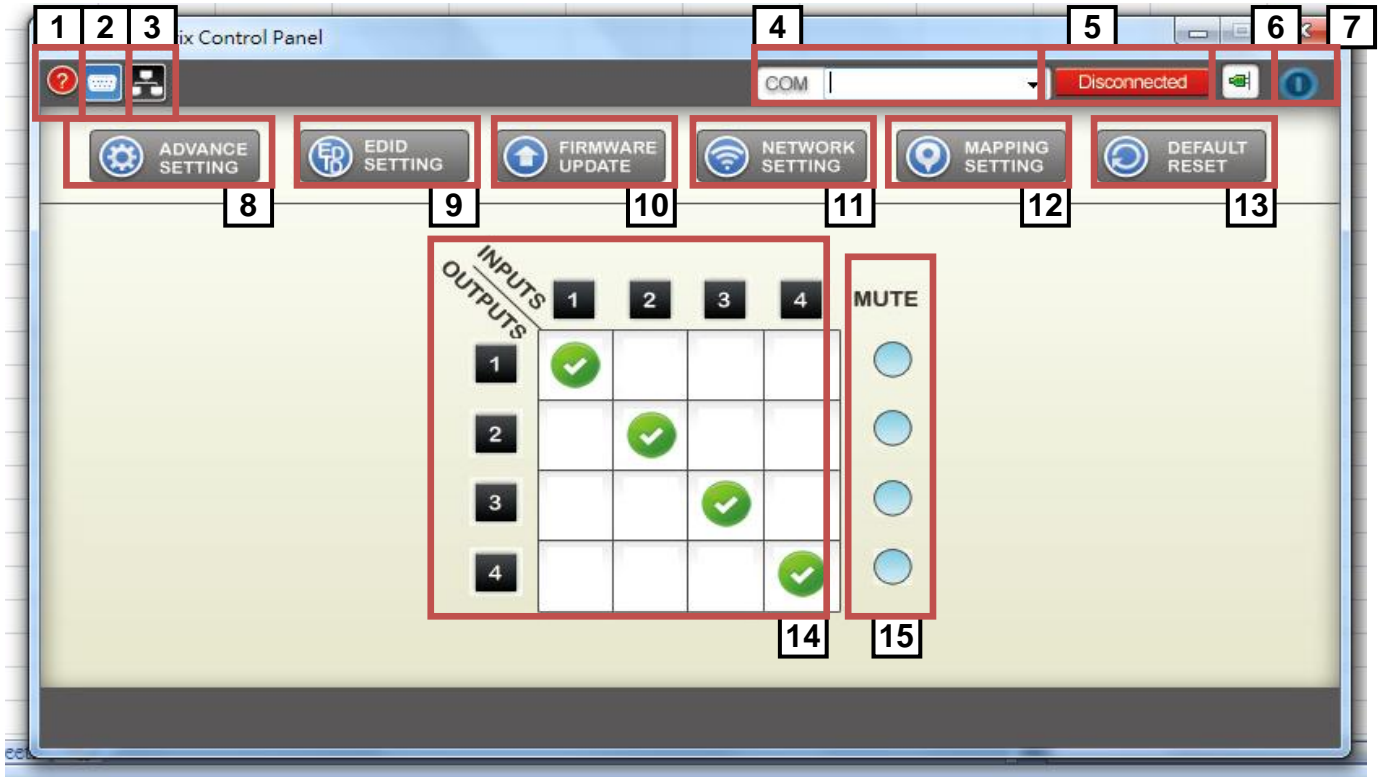
Button	Function
OFF	Standby mode
ON	Power on the matrix switcher
MUTE	Turn off output's video and audio
STATUS	Preset output status
SAVE	Save current mapping mode
PRESET	Preset mapping mode
DEFAULT EDID	Begin default EDID selection
LEARN EDID	Begin EDID learning from one output
CLEAR	Clear the previous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

Operation	Procedure	7-Segment LED
<b>Mute Output</b>	<b>Mute + A~D(Output 1~4) + Take</b>	
<b>Ex: Mute Output 3</b>	1. Press "MUTE" button	– <b>0</b>
	2. Press number key "C" to select Output 3	<b>3</b> <b>0</b>
	3. Press "TAKE" button	<b>3</b> <b>0</b>
<b>Output Status</b>	<b>Status + A~D(Output 1~4) + Take</b>	
<b>Ex: Output 4 (Input 2)</b>	1. Press "STATUS" button	– –
	2. Press number key "D" to select Output 4	<b>4</b> –
	3. Press "TAKE" button	<b>4</b> <b>2</b>
<b>Save Current Mapping</b>	<b>Save + A~H(1-8 storage site) + Take</b>	
<b>Ex: Save current mapping to 5</b>	1. Press "SAVE" button	<b>d</b> –
	2. Press number key "E" to select the storage site 5	<b>d</b> <b>5</b>
	3. Press "TAKE" button	
<b>Preset Mapping</b>	<b>Preset + A~H(1-8 storage site) + Take</b>	
<b>Ex: Preset saved mapping from 5</b>	1. Press "PRESET" button	P –
	2. Press number key "E" to select the storage site 5	P <b>5</b>
	3. Press "TAKE" button	
<b>Learn default EDID</b>	<b>Default EDID + A~H(1-8 default EDID) + I ~IV (input 1~4) + Take</b>	
<b>Ex: Default EDID 2 Input 3</b>	1. Press "DEFAULT EDID" button	E <b>d</b>
	2. Press number key "B" to select default EDID 2	<b>2</b> <b>d</b>
	3. Press number key "III" to select Input 3	<b>2</b> <b>3</b>
	4. Press "TAKE" button	<b>0</b> F 0 (success)    F(fail)
<b>Learn Output EDID</b>	<b>Learn + A~D(Output 1~4) + I ~IV(input 1~4) + Take</b>	
<b>Ex: Learn Output 4 Input 3</b>	1. Press "LEARN" button	E L
	2. Press number key "D" to select Output 4	<b>4</b> L
	3. Press number key "III" to select Input 3	<b>4</b> <b>3</b>
	4. Press "TAKE" button	<b>0</b> F 0 (success)    F(fail)
<b>F1</b>	<b>F1 + I ~IV(input 1~4) + Take</b>	
<b>Ex: All Outputs Select Input 3</b>	1. Press "F1" button	A –
	2. Press number key "III" to select Input 3	A <b>3</b>
	3. Press "TAKE" button	

## 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





1	Version Button for FW/ SW	9	EDID Button
2	RS-232 Button	10	Firmware Update Button
3	Ethernet Button	11	Network Button
4	COM Port Selection	12	Mapping Button
5	Connect/Disconnect Status	13	Default Reset Button
6	Connect Button	14	In/Out Switch Button
7	Power On/Off Button	15	Mute Output Button
8	Advance Setting		

### 2. Connecting matrix and controller


**Step1:** Use RS-232 cable to connect the RS-232 port on matrix and PC

**Step2:** Open the software and then choose the correct com port

**Step3:** Click connection button “”


**Step4:** Make sure the connection status is on connected status “”

### 3. FW/SW Version Button


Click “” button to show version information




### 4. RS-232 Button

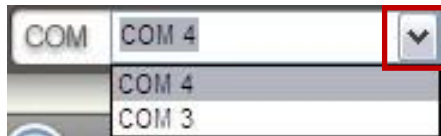
- 1) Click “” button to switch to RS-232 function.
- 2) If RS-232 is connected, the button will show the sign image to let you know.

### 5. 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.

### 6. COM Port Selection

Click “” button to select COM Port



### 7. Connection Status



- 1) Connected Status:




- 2) Connecting Status:



- 3) Disconnected Status:




### 8. Connect/Disconnect Button

Click this button “” to change connection status



### 9. Power On/Off Button

Click this button to power on/off

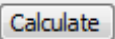
“” **Power on status(Blue):** Click this button to power off device(Standby Mode)

“” **Power off status(Red):** Click this button to power on device

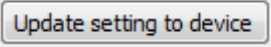
## 10. Advanced Setting

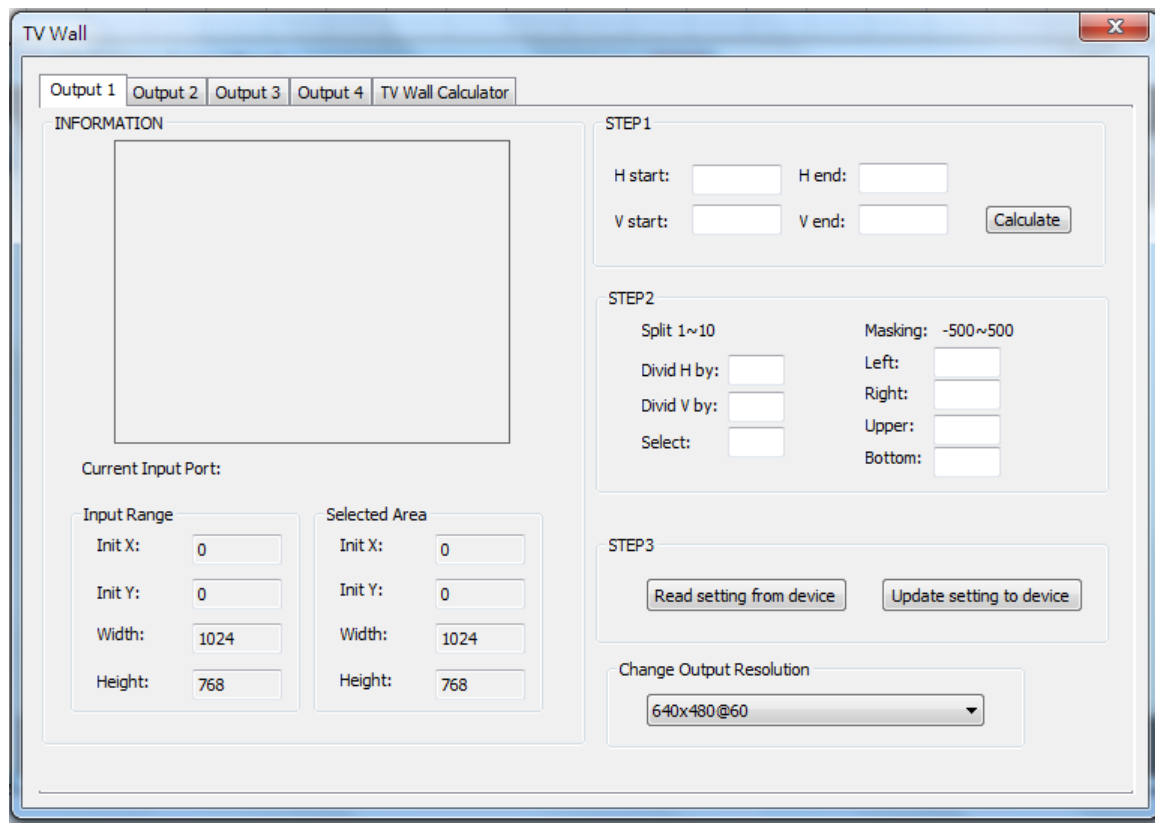
Select the button then pop-up the window below.

1) First, user can click “  ” then data will show in left portion.

2) Second, user can identify “Height Start/End” or “Vertical Start/End” then click  .  
The calculated result will act in “INFORMATION” portion.

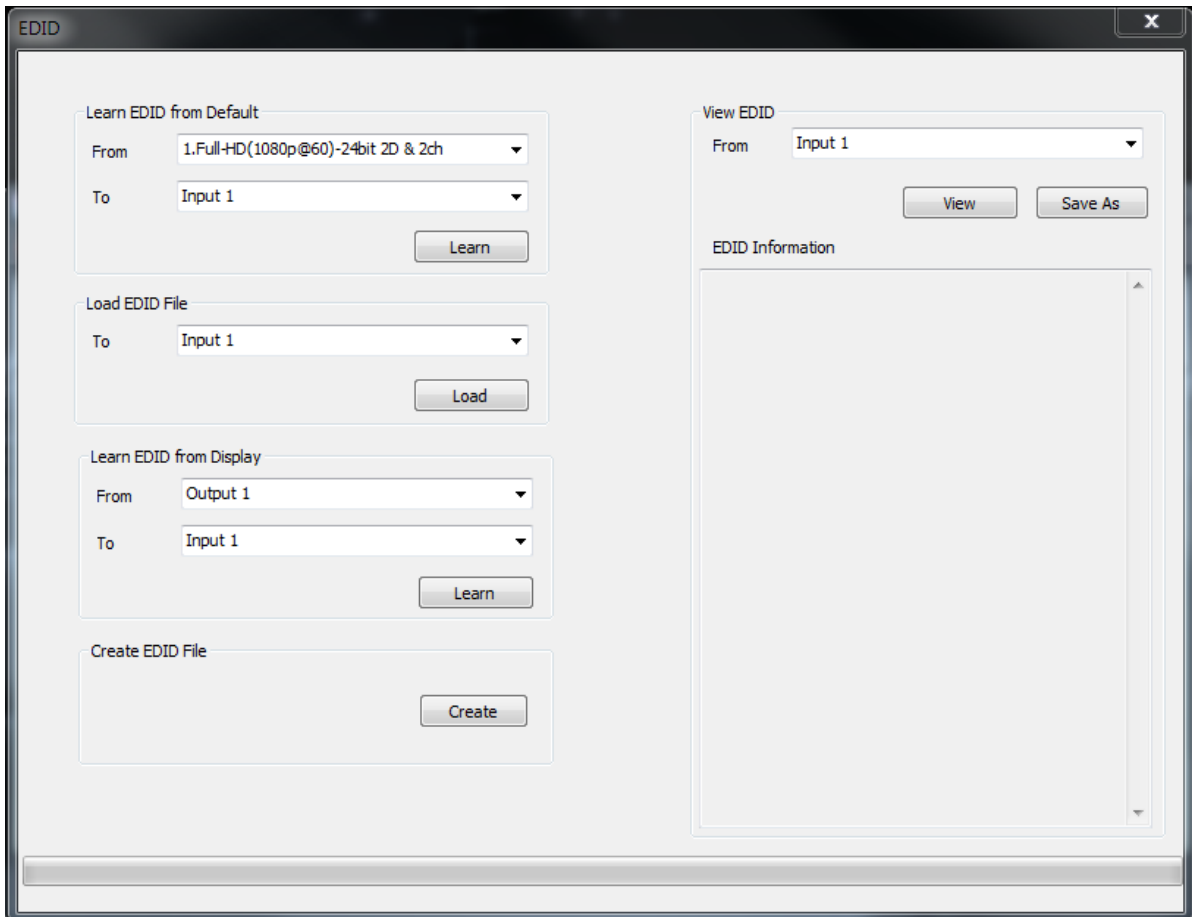
3) Third, user can split/fine tuning the value.

4) Final, use can update the setting to device by clicking  .



- **Output1~Output4 button:** Setting for output1~4.
- **TV Wall Calculator:** Calculator(inch) for Outer/Inner screen size.
- **Input Range:** Input resolution record.
- **Selected Area:** The output area you identify.
- **Init X:** Initial value X
- **Init Y:** Initial value Y
- **H Start:** Height Start value
- **V Start:** Vertical Start value
- **Split:** Divid Height value and Vertical value in selection1~10
- **Masking:** Fine Tune
- **Change Output resolution:** Change the output resolution which you want.

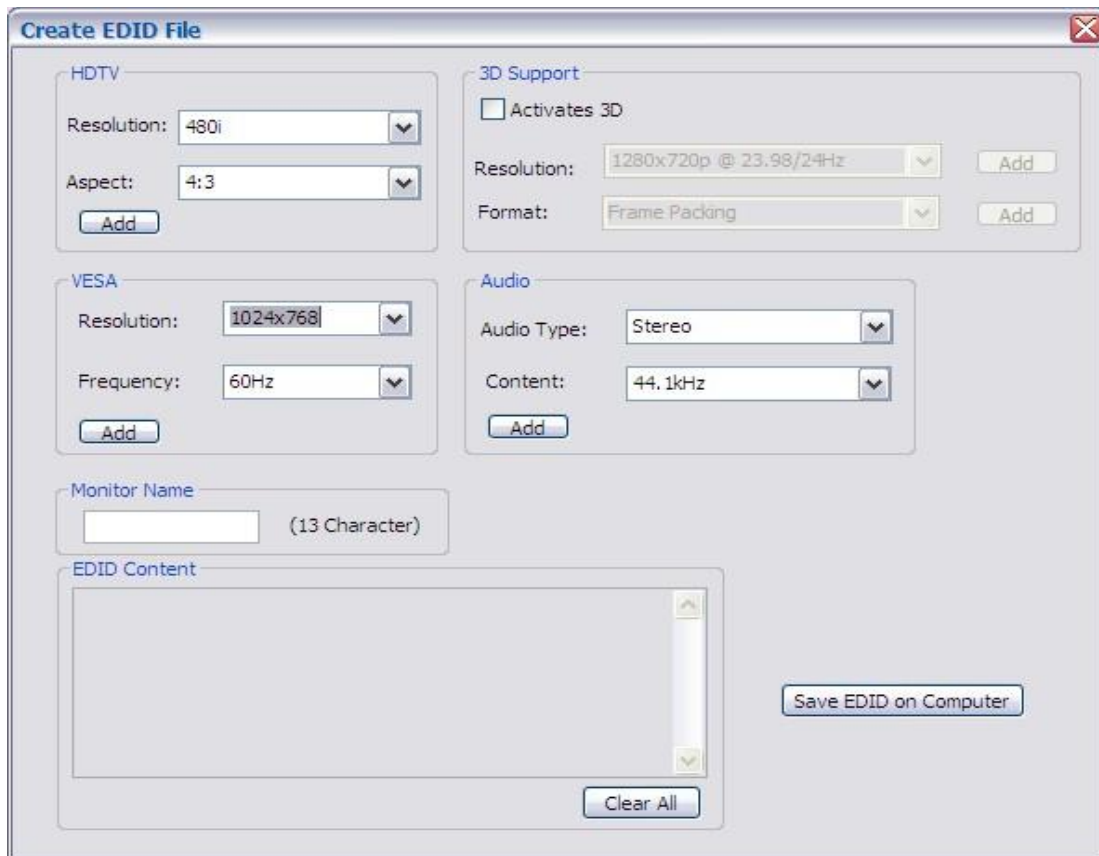
## 11. EDID Button



- 1) Learn EDID from Default
  - a) Select Default EDID(1-8 Default EDID)
  - b) Select Input
  - c) Click "Learn" button to learn default EDID
- 2) Load EDID File to Input
  - a) Select Input
  - b) Click "Load" button to select the EDID file
- 3) Learn EDID From Display
  - a) Select Output
  - b) Select Input
  - c) Click "Learn" button to learn display EDID

#### 4) Create EDID File

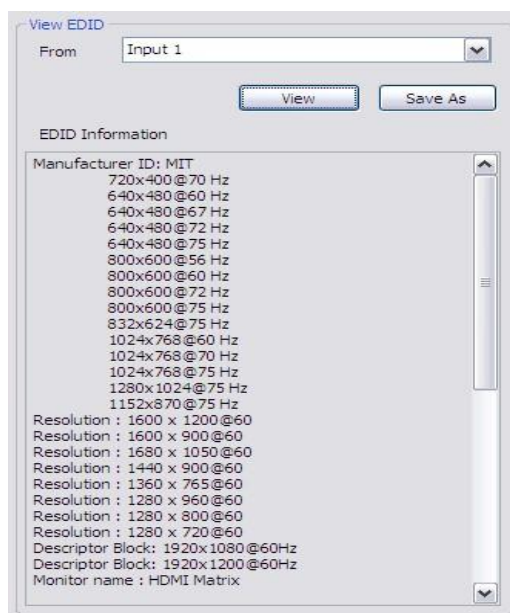
- a) Click “Create” button to create EDID file



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

#### 5) View EDID Content


- a) Select Input, HDMI output, or From File
- b) Click “View” button to read the EDID and analysis



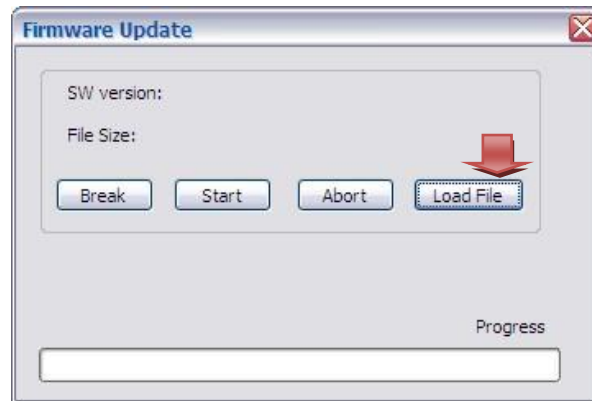
- c) Click “Save As” to save the read EDID as a file on computer

## 12. Firmware Update Button



**Step1:** Make sure RS-232 is connecting and the connecting status is “”

**Step2:** Click “FIRMWARE UPDATE” Button and then will be a pop-up windows



**Step3:** Click “Load File” to select the firmware file which you want to update

**Step4:** Click “Break” button

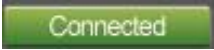
**Step5:** Quickly pull out and reconnect the power input connector

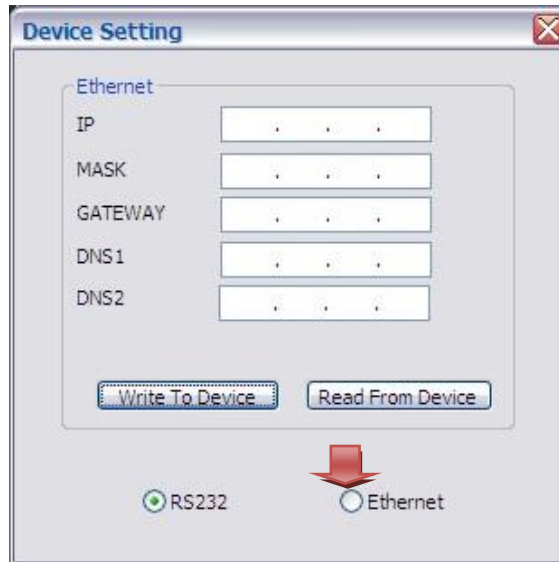
**Step6:** Click “Start” button and the firmware will start writing



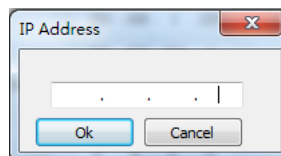
### 13. Network Button




- Step1:** Make sure the connection status is on connected status “  ”
- Step2:** Connect matrix to network through IP control port
- Step3:** Click “NETWORK” Button and then will be a pop-up windows



- Step4:** Click “Read From Device” to read the device IP address
- Step5:** Select “Ethernet” button and then will be a pop-up windows



- Step6:** Key in the device IP address to the pop-up windows and click OK
- Step7:** Click the Connect Button “  ” to connect then you start control by Ethernet

**\*Remark: Switch controlling by clicking the shortcut button**



**RS-232 Button:**

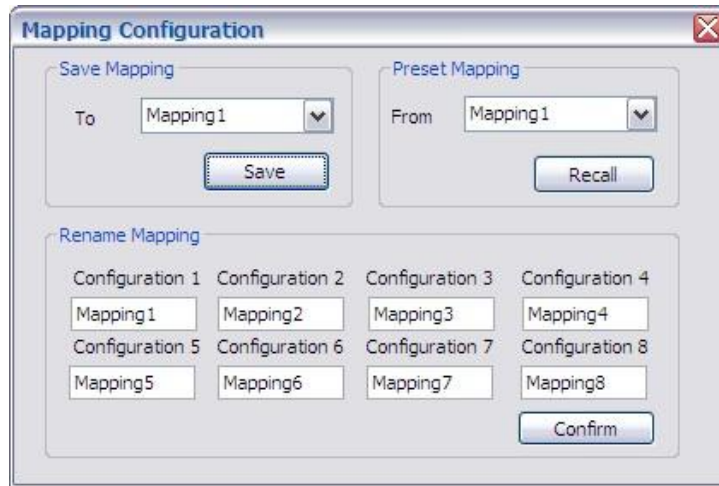
Click the button and then click “Connect Button” to start



**Ethernet Button:**

Click the button and then click “Connect Button” to start

## 14. Mapping Button



### 1) Save Mapping:

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

### 2) Preset Mapping:

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

### 3) Rename Mapping:

- a) Rename the mapping(Mapping1-Mapping8)
- b) Click “Confirm” button to confirm the change

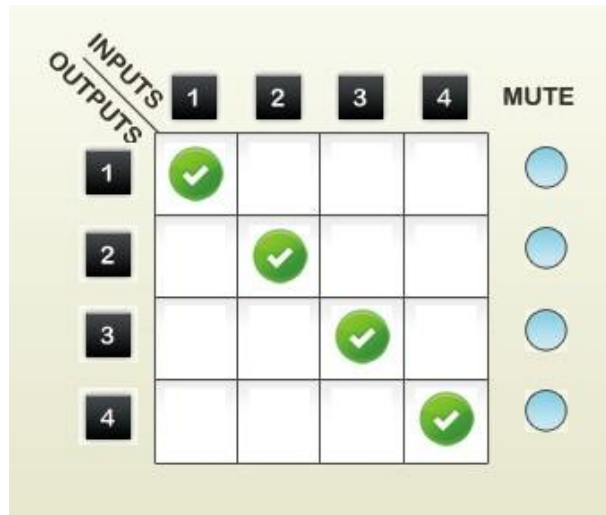
## 15. Default Reset Button

Click this button to do factory default reset

The default reset process will take about 80~90 seconds

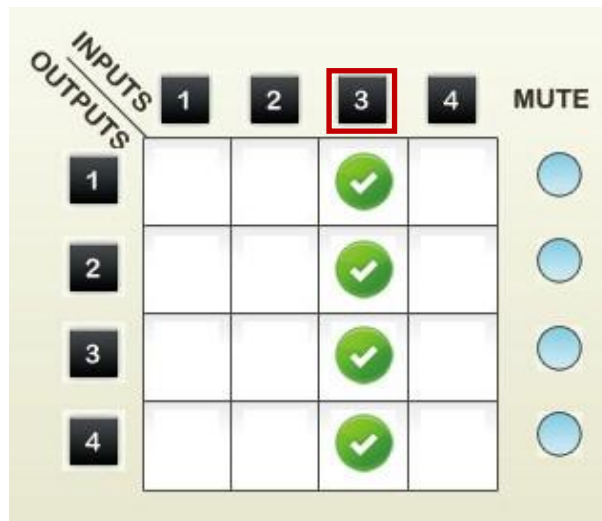
## 16. In/Out Switch Button

Click the button on the checkerboard to select Input & Output port



User can click the input number button to let all outputs select the same input

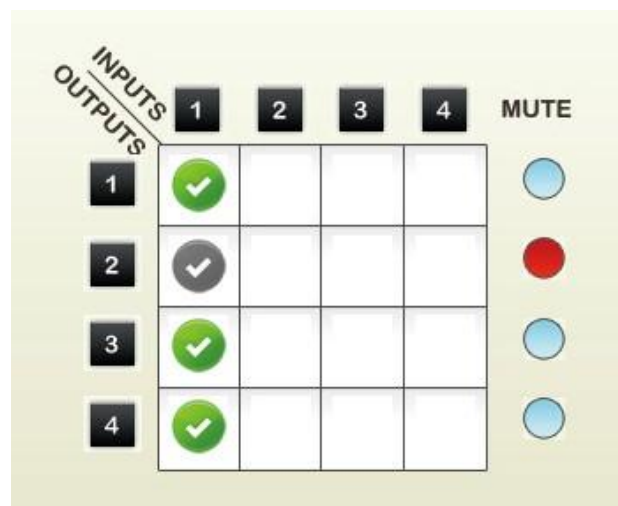
Ex: All outputs select input 3



## 17. Mute Output Button

Click the circle button to turn off output's video and audio

Ex: Mute Output 2



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 7~9)**
3. Software Control: Please refer to the **Operation Approach\ Method C: Software Control through RS-232 port (Page 10~18)**

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

1. Full-HD(1080p@60)-24bit 2D & 2ch
2. Full-HD(1080p@60)-24bit 2D & 7.1ch
3. HD(1080i@60) (720p@60)-24bit 2D & 2ch
4. HD(1080i@60) (720p@60)-24bit 2D & 7.1ch
5. Full-HD(1080p@60)-30bit 2D & 2ch
6. Full-HD(1080p@60)-30bit 2D & 7.1ch

# WARRANTY

The SELLER warrants the **MA-5344A 4x4 HDMI Scaler Matrix with video wall function** 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-5344A** features and specifications is subject to change without further notice.