



## 4x4 HDMI 1.3 & Full 3D support over CAT5 Matrix with IR Pass-through



P/N: AV-GM0783-S1E



## Safety and Notice

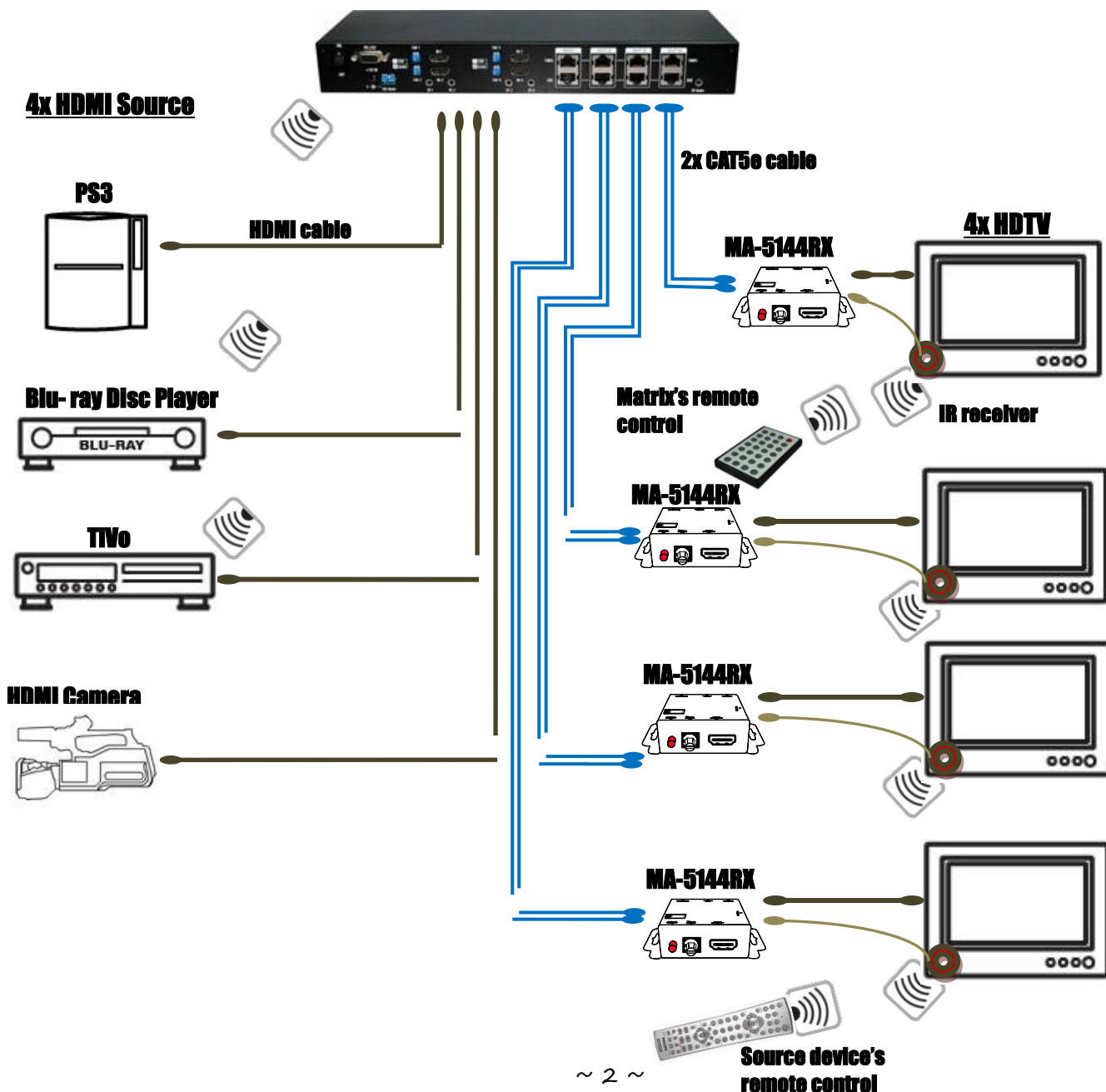
The AV-GM0783-S1E 4x4 HDMI 1.3 & Full 3D support over CAT5 Matrix with IR Pass-through has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the AV-GM0783-S1E should be used with care. Please read 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



# Introduction

The AV-GM0783-S1E 4x4 HDMI 1.3 & Full 3D support over CAT5 Matrix with IR Pass-through 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 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, Ethernet or remote control. With single power design at the source site, each remote module is easily installed without power supply. Furthermore, the built-in IR extension function makes users at display site access the DVD player, PS3 or any HDMI supported devices directly!



# Features

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- High Speed HDMI-Deep Color & Full 3D support
- HDCP compatible
- 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 push-in button, IR remote control, Ethernet, or RS-232 control
- Allows controlling local HDMI sources such as DVD and TiVo by attached IR extender from remote receiver to matrix master
- Allows to control matrix master through IR remote control at remote receiver's site
- Extends video signal up to 35m (115 feet) over CAT5e at 1080p and likely longer with better HDMI source device (such as PS3), better grade HDMI display (such as Sony X-series HDTV), and better quality solid CAT6 cable
- Easy installation with rack-mounting and wall-mounting designs for master and receiver respectively
- Fast response time – 2~5 seconds for channel switch

## Specifications & Package Contents

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Model Name	AV-GM0783-S1E	
Technical	MA-5144	MA-5144RX
Role of usage	True 4x4 matrix switcher Transmitter [TX]	Receiver [RX]
HDMI compliance	High Speed HDMI-Deep Color & Full 3D support	
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	
HDMI over CAT5 transmission range	Full HD (1080p): 35m (115ft) [CAT5e] / 40m (130ft) [CAT6] HD (720p/1080i): 50m (165ft) [CAT5e] / 55m (180ft) [CAT6]	

HDMI equalization		N/A	8-level digital rotary control
Input TMDS signal		1.2 Volts [peak-to-peak]	
Input DDC signal		5 Volts [peak-to-peak, TTL]	
ESD protection		[1] Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge] [2] Core chipset — ±8kV	
PCB stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]	
Input		4x HDMI 1x RS-232 1xRJ-45 Ethernet Control	1x RJ-45 TMDS 1x RJ-45 DDC 1x IR socket for IR receiver
Output		4x RJ-45 TMDS 4x RJ-45 DDC 5x IR socket for IR blaster	1x HDMI
HDMI Input selection		Push-in button/IR remote control/RS-232 control	Push-in button / IR remote 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: τ = 25° / Carrier frequency: 38kHz	
HDMI connector		Type A [19-pin female]	
RJ-45 connector		WE/SS 8P8C with 2 LED indicators for connecting to receiver & WE/SS 8P8C for Ethernet Control	
RS-232 connector		DE-9 [9-pin D-sub female]	
3.5mm connector		Earphone jack for IR blaster [IR Main] IR control on all source devices [IR1~IR4] IR control on individual source device	Earphone jack for IR receiver [IR] Receives IR commands from remote control
DIP switch [MA-5144 only]		[SW1~SW4] 2-pin for EDID and audio setting modes [SW Main] 4-pin operation mode & firmware update	
Mechanical		MA-5144	MA-5144RX
Enclosure		Metal case	
Dimensions (L x W x H)	Model	340 x 110 x 44mm [1'1" x 4.3"x1.7"]	90x 85 x 25mm [3.5"x3.3"x1"]
	Package	545 x 230 x 110mm [1'10" x 9.1" x 4.3"]	
	Carton	580 x 570 x 260mm [1'11"x1'11"x10.2"]	
Weight	Model	1220g [2.7 lbs]	180g [6.3 oz]
	Package	3.2 kg [7.0 lbs]	
Fixedness		1U rack-mount with ears Wall hanging holes	Wall-mount with screws
Power supply		5V 6A DC	Not necessarily required <sup>1</sup>
Power consumption		20 Watts [max]	1 Watt [max] (provided by MA-5144)
Operation temperature		0~40°C [32~104°F]	

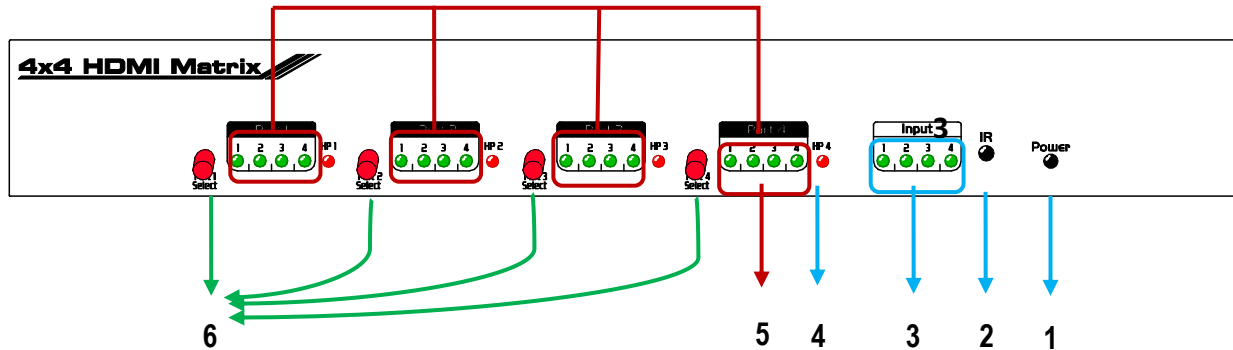
Storage temperature	-20~60°C [-4~140°F]	
Relative humidity	20~90% RH [no condensation]	
Package Contents	1x MA-5144 1x IR blaster <sup>2</sup> 2x Rack-mounting ear 1x IR remote control <sup>2</sup> 1x User Manual	4x MA-5144RX 4x IR receiver 8x Wall-mounting screws 1x 5V 6A in-line power adapter 1x C5-type power cord



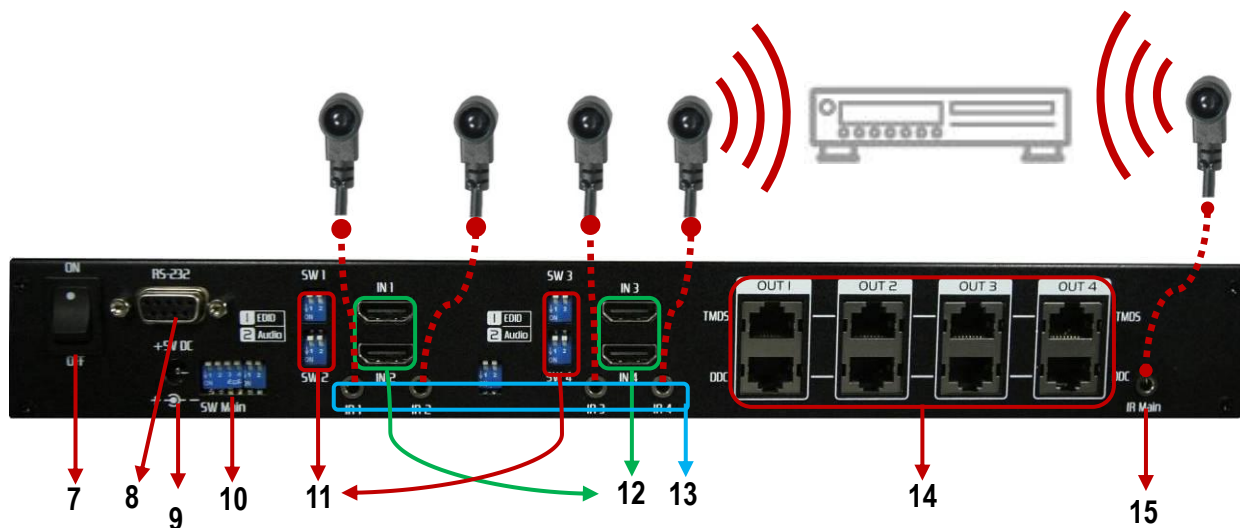
<sup>1</sup> *The MA-5144RX has been tested extensively and found that it doesn't require external power supply. If in rare situation you find it cannot work with the MA-5144, please use any +5V power adapter to plug in the power jack and see if it can work. If not, please contact your technical support for further service.*

<sup>2</sup> *Additional IR remote controllers and IR blasters can be purchased as optional accessories to control the HDMI sources located separately.*

## MA-5144



1. Power: Power indicator LED
2. IR: IR receiver
3. Input: Input source indicator LED
4. HP1-HP4: Connection status indicator LED for each output channel
5. Port1-Port4: Input source channels mapping LED for each output channel
6. Port1 Select-Port4 Select: Push-in button for selecting input channel



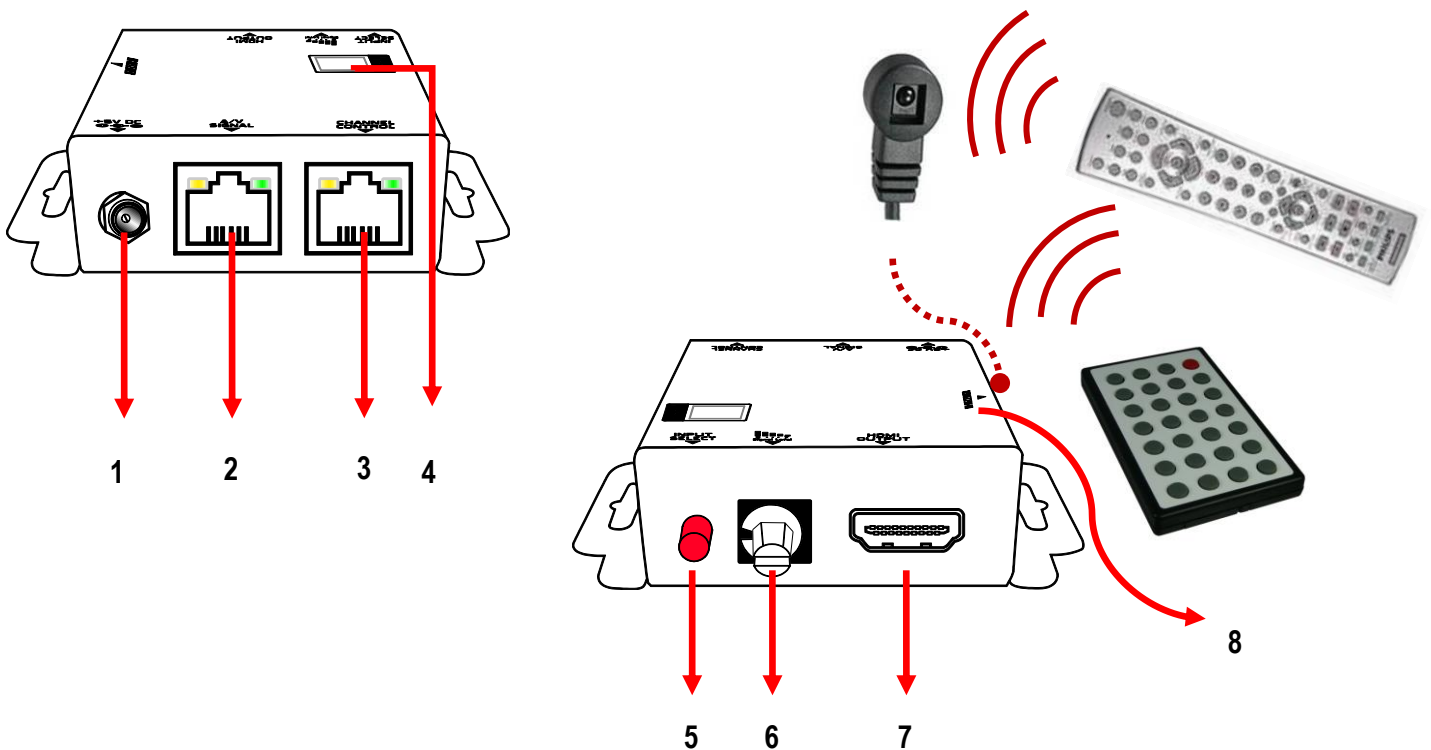
7. ON-OFF: Power ON/OFF
8. RS-232: RS-232 control port
9. +5V DC: 5V DC power jack
10. SW Main: DIP switches [see DIP Switch section in p.8]
11. SW1-SW4: DIP switch [see DIP Switch section in p.7]
12. IN1-IN4: HDMI inputs

- 13. **IR1–IR4:** IR extender jacks for individual HDMI source control with IR blasters
- 14. **OUT1–OUT4:** RJ-45 TMDS/DDC outputs for each output channel
- 15. **IR Main:** IR extender jack for all HDMI source control **[default socket for IR blaster]**



# MA-5144RX

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1. **+5V DC:** Spare power jack for over 60m transmission when the RX may need external power to work\*.
2. **A/V SIGNAL:** Plug in the CAT5 connected to the respective **A/V SIGNAL** port on the MA-5144
3. **CHANNEL CONTROL:** Plug in the CAT5 connected to the respective **CHANNEL CONTROL** port on the MA-5144
4. **INPUT CHANNEL:** Display the current showing HDMI source channel
5. **INPUT SELECT:** Push button for switching input source channel in sequential order
6. **Signal Level 0-7:** Adjust the 8-level equalization control to the received HDMI signals. The HDMI signal level varies from 0 (strongest) to 7 (weakest) for respective transmission length from longest possible range to short distance. Please adjust the signal level from 7 to 0 and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!
7. **HDMI Output:** Connect to HDTV with a HDMI cable
8. **IR RECEIVER:** Plug in IR receiver



*\* The MA-5144RX has been tested extensively and found that it doesn't require external power supply. If in rare situation you find it cannot work with the MA-5144, please use any +5V power adapter to plug in the power jack and see if it can work. If not, please contact your technical support for further service.*

## SW1-SW4 for EDID/Audio

DIP Switch Position		Video	Audio	Description
Pin#1	Pin#2			
OFF [↑]	OFF [↑]	Up to 1080p	Surround	<b>Default Mode 1</b> <sup>1</sup> – EDID up to 1080p video & surround sound audio output up to 7.1ch (DTS-HD Master & Dolby TrueHD)
OFF [↑]	ON [↓]	Up to 1080p	Stereo <sup>2</sup>	<b>Default Mode 2</b> – EDID up to 1080p video and stereo audio for basic compatibility among HDTVs
ON [↓]	OFF [↑]	Up to 720p/1080i	Stereo	<b>Safe Mode</b> <sup>3</sup> – EDID up to 720p/1080i video and stereo audio for basic compatibility among HDTVs
ON [↓]	ON [↓]	Bypass <sup>4</sup>	Bypass <sub>4</sub>	<b>EDID Learning Mode</b> <sup>5</sup> – for learning EDID from the display while playing any received HDMI audio format



### Note

<sup>1</sup> Factory default setting of [SW1]-[SW4] is pin-1 at OFF[↑] & pin-2 at OFF[↑] for 1080p video and surround sound audio.

<sup>2</sup> If the HDTV shows video but without audio, please try to set audio mode to stereo.

<sup>3</sup> If you encounter any unsolved audio/video output problem during system installation, please turn any [SW1]-[SW4] to pin-1 at ON[↓] & pin-2 at OFF[↑] for safe mode to select the system EDID up to 720p(1080i) video and stereo audio for system check. However, the safe mode cannot be initiated if your HDMI source is set to enforce 1080p output. In this case, please reconfigure your HDMI source to all resolution output for troubleshooting.

<sup>4</sup> Bypass means the matrix will maintain playing the original format of HDMI signals in video and perhaps audio. By setting at this mode, the users may encounter compatibility issue among different kinds of HDMI sources and displays. If you cannot get the audio and/or video output normally at the system installation, please change the DIP switch setting to default mode or even safe mode to verify the functionality of the device.

<sup>5</sup> To learn the EDID of HDMI display for respective HDMI source devices, please see the [EDID Learning] section in the next page for more information

## SW Main for firmware update (for technical support only)

DIP Switch Position	Pin#1	Pin#2	Pin#3	Pin#4
Normal Operation Mode <sup>6</sup>	OFF [↑]	OFF [↑]	OFF [↑]	ON [↓]
Firmware Update (Block A) <sup>7</sup>	ON [↓]	ON [↓]	OFF [↑]	ON [↓]
Firmware Update (Block B) <sup>7</sup>	ON [↓]	ON [↓]	OFF [↑]	OFF [↑]



### Note

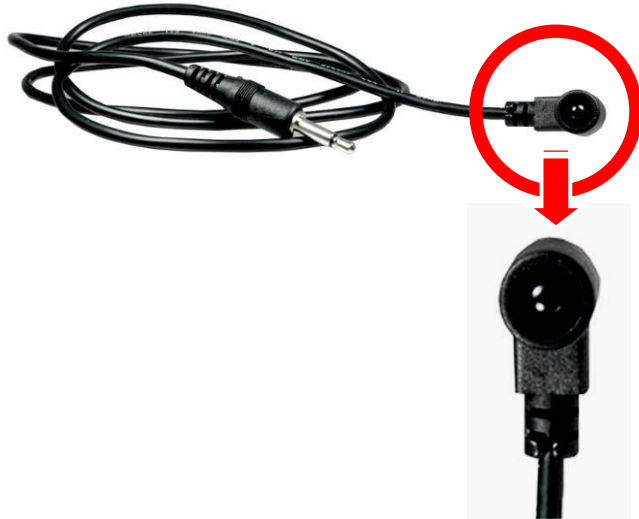
<sup>6</sup> *Factory default for SW Main is pin#1-OFF[↑], pin#2-OFF[↑], pin#3- OFF[↑], & pin#4- ON[↓].*  
PLEASE MAINTAIN THIS SETTING AT ANYTIME FOR REGULAR USE!

<sup>7</sup> *Sequence for firmware update*

- [1]. Power off the MA-5144.
- [2]. Set the DIP switch position to Firmware Update Mode.
- [3]. Power on the MA-5144.
- [4]. Power off the MA-5144.
- [5]. Set the DIP switch position to Normal Operation Mode.
- [6]. Power on the MA-5144.

## IR Extender

IR Blaster



IR Receiver



## IR Sockets

### MA-5144

IR Main: The default location for IR blaster to transmit all IR command signals received from any of the eight remote receivers to all of the HDMI sources.

IR PASS-THROUGH 1-4: 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.

### MA-5144RX

IR RECEIVER: IR receiver connected here can receive all IR command signals from the IR remote controls of MA-5144 and all other HDMI source devices.

## Definition of IR Earphone Jack

IR Blaster

1=IR signal [20-60KHz]  
2=Grounding



~ 12 ~

IR Receiver

1=Power  
2=IR signal [20-60KHz]  
3=Grounding





*You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the matrix if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.*

## Supported IR Data Format

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Data Format	Suitable	Not Recommended
NEC	<input checked="" type="checkbox"/>	
RC5	<input checked="" type="checkbox"/>	
TOSHIBA MICOM CODE	<input checked="" type="checkbox"/>	
GRUNDIG CODE	<input checked="" type="checkbox"/>	
SONY 12 BIT CODE	<input checked="" type="checkbox"/>	
SONY 15 BIT CODE	<input checked="" type="checkbox"/>	
SONY 20 BIT CODE	<input checked="" type="checkbox"/>	
RCA CODE		<input checked="" type="checkbox"/>
RCM CODE		<input checked="" type="checkbox"/>
MATSUSHITA CODE		<input checked="" type="checkbox"/>
MITSUBISHI CODE	<input checked="" type="checkbox"/>	
ZENITH CODE	<input checked="" type="checkbox"/>	
JVC CODE	<input checked="" type="checkbox"/>	
M50560-001P	<input checked="" type="checkbox"/>	
MN6125H	<input checked="" type="checkbox"/>	
MN6125L	<input checked="" type="checkbox"/>	
MN6014_C5D7	<input checked="" type="checkbox"/>	
MN6014-C6D6	<input checked="" type="checkbox"/>	
MC14457P	<input checked="" type="checkbox"/>	
LC7464(AHEA)	<input checked="" type="checkbox"/>	
GEMINI_CM	<input checked="" type="checkbox"/>	

## MA-5144 as master

1. Connect all sources to HDMI Inputs on the 4x4 HDMI over CAT5 matrix master MA-5144
2. Connect each DDC output on the MA-5144 to respective DDC input on the remote receiver MA-5144RX
3. Connect each TMDS output on the MA-5144 to respective TMDS input on the remote receiver MA-5144RX
4. Connect IR blaster to the MA-5144 and direct the IR blaster to point towards the built-in IR receiver of the HDMI source devices
5. Connect the +5V 6A DC power supply to the MA-5144
6. Power on all HDMI sources
7. Power on the MA-5144

## MA-5144RX as receiver

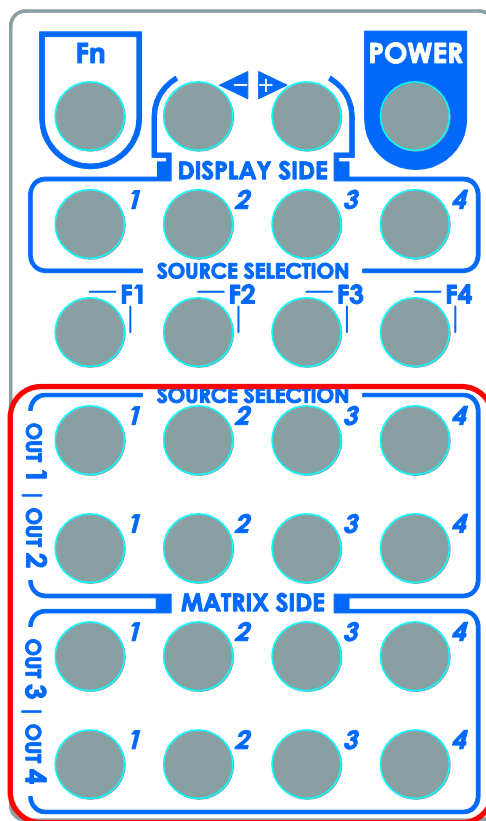
1. Connect each HDMI output to HDMI displays
2. Connect the TMDS input on the MA-5144RX to the TMDS output on the MA-5144
3. Connect the DDC input on the MA-5144RX to the DDC output on the MA-5144
4. Connect IR receiver and place the IR receiver at the appropriate position that can receive the IR signals sent from the users
5. Dial the 8-level rotary control switch to adjust the HDMI signal level until the picture and sound are clear. It is recommended to dial from 7 to 0 to find the optimal visual experience

## Source Side

### Method A: Push-in Button

Push the red switch button on output port to select which port to be changed.

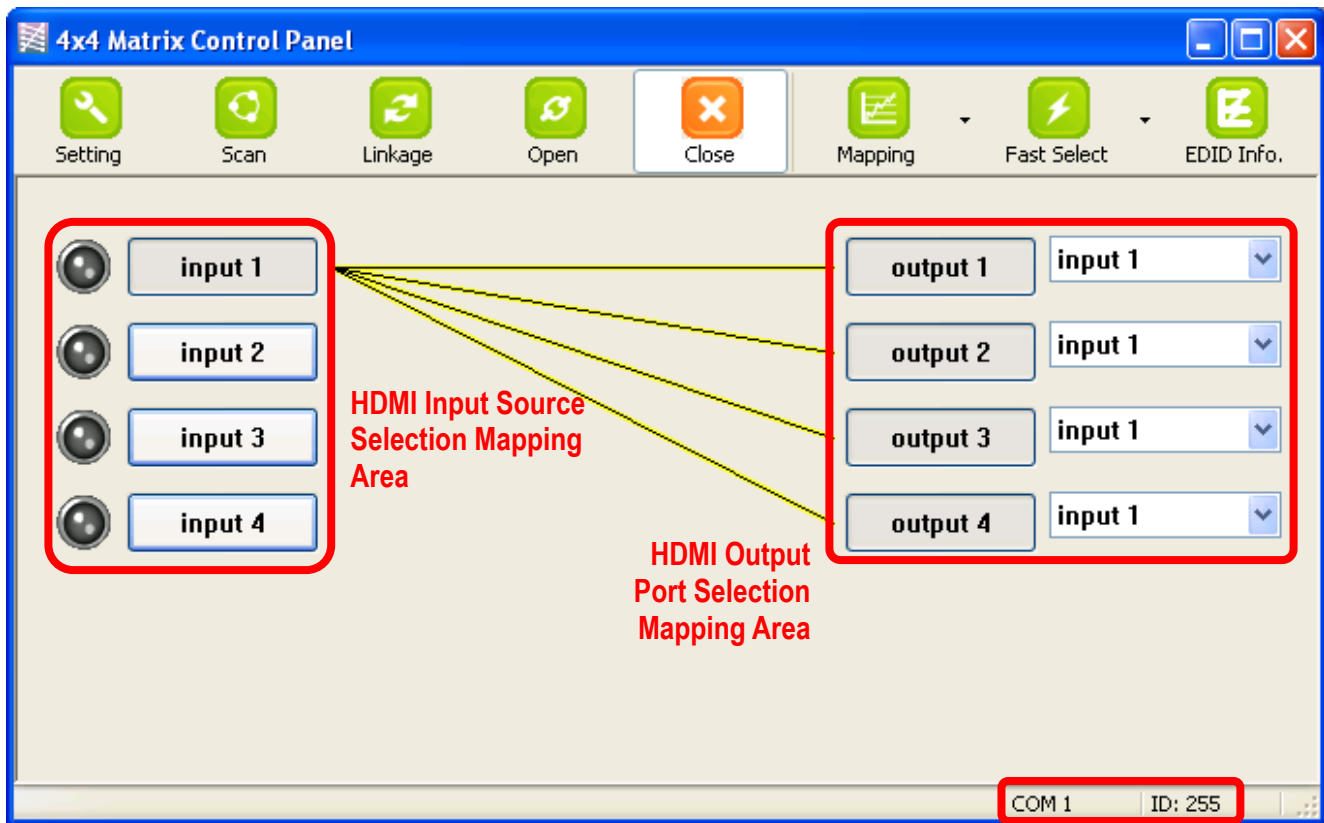
### Method B: IR Remote Control



Choose the output port you want to make channel switch from OUT1 to OUT4 then press 1-4 channel button to choose the HDMI input source shown on the chosen output display.



## Method C: Software Control through RS-232 or Ethernet



Software Control Menu

Status Indicator

### 1. Setting button:

Click Get button to read back device ID.

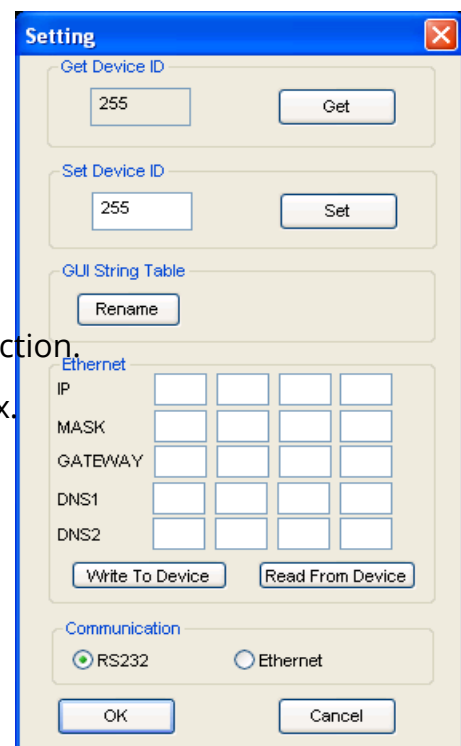
Click Set button to write device ID.

Click Rename button to open the String Table.

Tick RS-232 or Ethernet Control via Communication Selection.

Click Write To Device button to save the setting to matrix.

Click Read From Device to read the setting from matrix.



Setting for Ethernet Control only can be done under RS-232 connection. After that, Ethernet

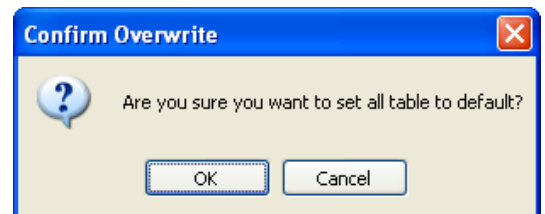
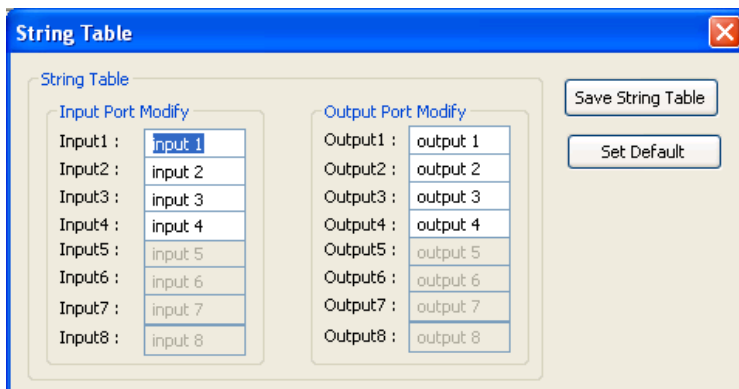
*Control will be active.*

In the String Table, assign the captions for each input and output port for easy recognition.  
**For example**

*Rename the Input1 to "Blu-ray player", Input2 to "Sat. receiver," input3 to "Game console," input4 to "AV receiver," input5 to "HDMI camcorder," ... etc., and rename output1 to "Conf. RM1," output2 to "Conf. RM2," output3 to "Lobby," output4 to "Main projector," ... etc.*

Click Save String Table to save the caption setting (turn effective after program restart).

Click Set Default to pop up the confirmation message below to erase the captions and reset the string table back to default setting (turn effective after program restart).



## 2. Scan button:

### Serial Port Scan

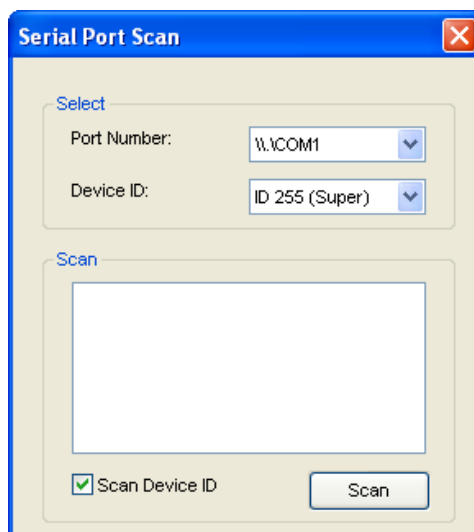
Click Scan button, the machine will scan the all COM port and show them.

Select the RS232 serial port connected to the Matrix switch.

And set device ID 255 is for all device.

Only the same device id or 255 can get the command you sent.

Click OK. Get the new status from the Matrix switch (the port you select.)



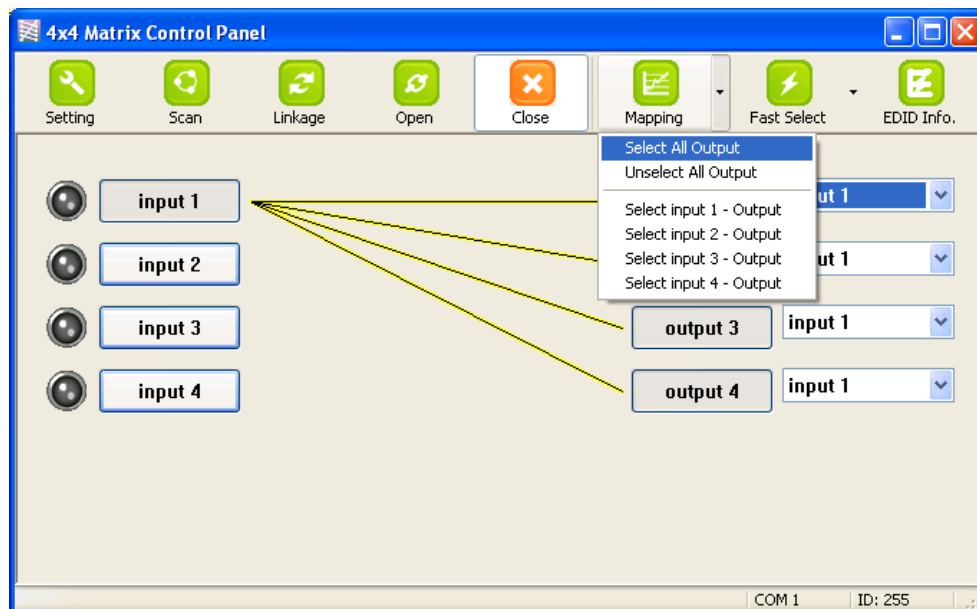
### 3. Linkage button:

Click Linkage button to read back all status.

### 4. Open/Close button:

Click this button to close or open COM port.

### 5. Mapping button:



#### Select All Output

Select "set all output", and then select the source on main menu.  
You can quickly set all output to the same source.

#### Unselect All Output

Release output selection.

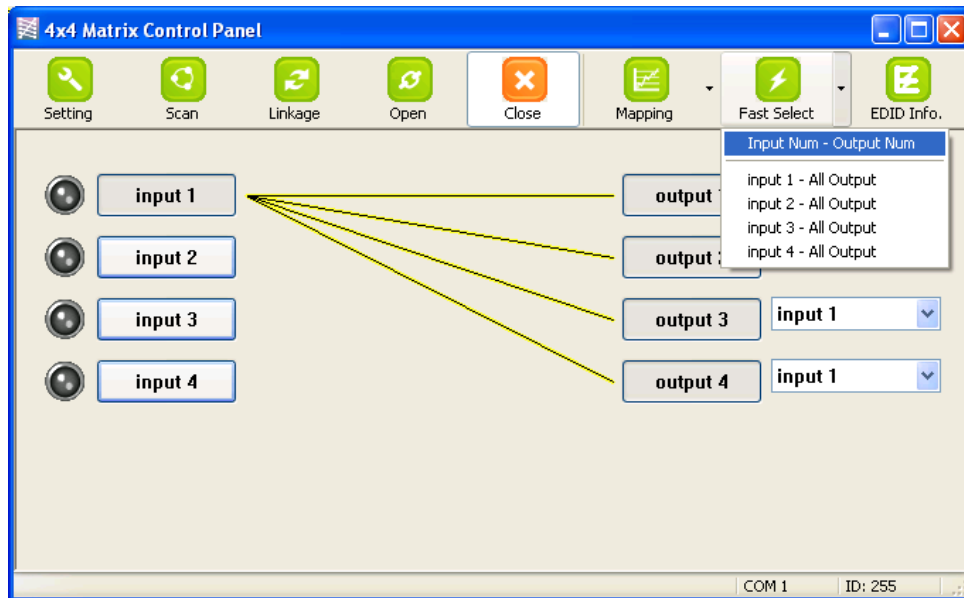
#### Select Input1~4-Output

Select Input Source. Then select the output port icon.

#### For example

Select input source 1. Then select output ports one and two. The video and audio will be sent to ports one and two.

## 6. Fast Select button:



Click Fast select button. Quick setting.

Input one > Output Port one

Input two > Output Port two

.....

Click Fast select pull down menu.

Select Input Num-Output Num

Input source #1 > Output port #1

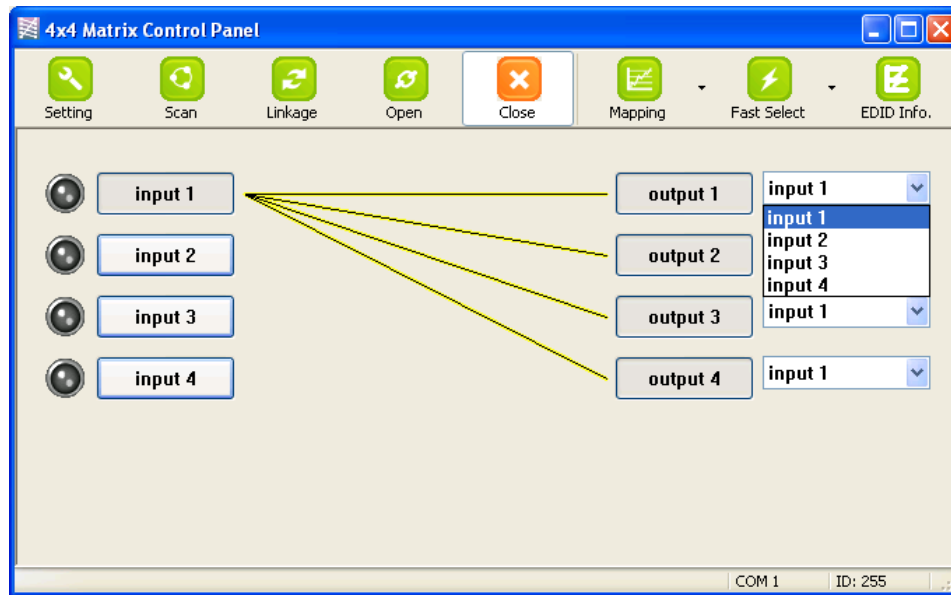
Input source #2 > Output port #2

.....

Select Input\* - All Output

Send the same source to all output.

## 7. Output Port:



Pull down menu and select which source to be sent to this output port.

### One by one setting

On main menu screen

First select input source. Then select the output ports which you want to send the video and audio from this source. When you select the input source, the source will change to gray. When you select the output port one by one, the selected output port will change to gray.

The linking line will change to yellow.

### Group setting

First select output ports one by one. Then select the input source. The selected output ports change the setting at the same time.

### By using Terminal:

Baud rate: 9600  
Data length: 8bit  
Parity check: No  
Stop bit: 1

### Command Set:

COMMAND	ACTION	COMMAND	ACTION	COMMAND	ACTION
ST	System Status	C5	Output C select Input 5	F3	Output F select Input 3
VR	Firmware Version	C6	Output C select Input 6	F4	Output F select Input 4
A1	Output A select Input 1	C7	Output C select Input 7	F5	Output F select Input 5
A2	Output A select Input 2	C8	Output C select Input 8	F6	Output F select Input 6

<b>A3</b>	Output A select Input 3	<b>D1</b>	Output D select Input 1	<b>F7</b>	Output F select Input 7
<b>A4</b>	Output A select Input 4	<b>D2</b>	Output D select Input 2	<b>F8</b>	Output F select Input 8
<b>A5</b>	Output A select Input 5	<b>D3</b>	Output D select Input 3	<b>G1</b>	Output G select Input 1
<b>A6</b>	Output A select Input 6	<b>D4</b>	Output D select Input 4	<b>G2</b>	Output G select Input 2
<b>A7</b>	Output A select Input 7	<b>D5</b>	Output D select Input 5	<b>G3</b>	Output G select Input 3
<b>A8</b>	Output A select Input 8	<b>D6</b>	Output D select Input 6	<b>G4</b>	Output G select Input 4
<b>B1</b>	Output B select Input 1	<b>D7</b>	Output D select Input 7	<b>G5</b>	Output G select Input 5
<b>B2</b>	Output B select Input 2	<b>D8</b>	Output D select Input 8	<b>G6</b>	Output G select Input 6
<b>B3</b>	Output B select Input 3	<b>E1</b>	Output E select Input 1	<b>G7</b>	Output G select Input 7
<b>B4</b>	Output B select Input 4	<b>E2</b>	Output E select Input 2	<b>G8</b>	Output G select Input 8
<b>B5</b>	Output B select Input 5	<b>E3</b>	Output E select Input 3	<b>H1</b>	Output H select Input 1
<b>B6</b>	Output B select Input 6	<b>E4</b>	Output E select Input 4	<b>H2</b>	Output H select Input 2
<b>B7</b>	Output B select Input 7	<b>E5</b>	Output E select Input 5	<b>H3</b>	Output H select Input 3
<b>B8</b>	Output B select Input 8	<b>E6</b>	Output E select Input 6	<b>H4</b>	Output H select Input 4
<b>C1</b>	Output C select Input 1	<b>E7</b>	Output E select Input 7	<b>H5</b>	Output H select Input 5
<b>C2</b>	Output C select Input 2	<b>E8</b>	Output E select Input 8	<b>H6</b>	Output H select Input 6
<b>C3</b>	Output C select Input 3	<b>F1</b>	Output F select Input 1	<b>H7</b>	Output H select Input 7
<b>C4</b>	Output C select Input 4	<b>F2</b>	Output F select Input 2	<b>H8</b>	Output H select Input 8



## Display Side

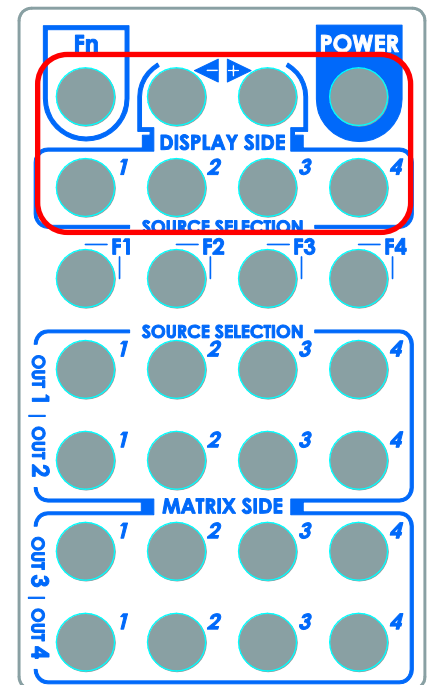
### Method A: Push button for switching input channels

Press the INPUT SELECT push button to switch the input source on the respective output port connected to the matrix receiver in sequential order. The selected input source will be displayed on the seven segment display of INPUT CHANNEL.

### Method B1: IR remote control for switching input channels

Please decide which input channel to be selected by pressing Source Selection 1 to Source Selection 4. If you can use left and right button to enter IR control mode and select the input channel in ascending and descending order respectively. The setting will be effective in a couple of seconds.

	Switch input port in descending order*
	Switch input port in ascending order*
SOURCE SELECTION 1	Switch the display channel at the remote site to input port 1
SOURCE SELECTION 2	Switch the display channel at the remote site to input port 2
SOURCE SELECTION 3	Switch the display channel at the remote site to input port 3
SOURCE SELECTION 4	Switch the display channel at the remote site to input port 4



Note

Right (  ) button to switch input source in ascending order (1, 2, 3, 4, 1, 2, .....)

Left (  ) button to switch input source in descending order (1, 4, 3, 2, 1, 4, .....)

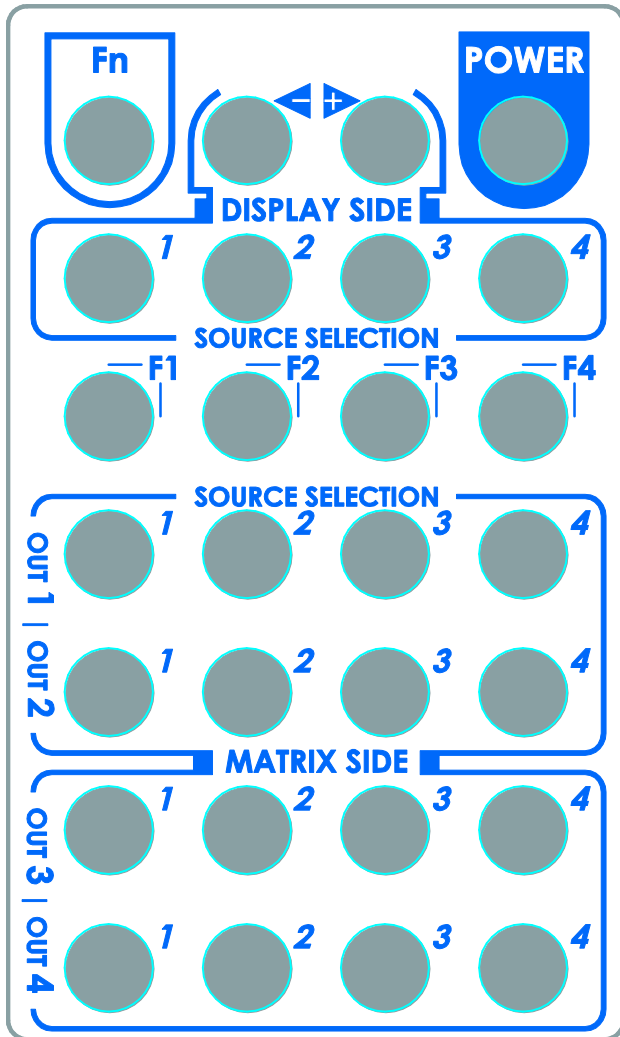
### *Method B2: IR remote control for controlling the HDMI sources*

Users can use the corresponding IR remote to control the HDMI source.

## IR Discrete Code

Default Custom

Code — IR2 Code: 00 FF



Function 0x17	◀ 0x0A	▶ 0x0C	POWER 0x02
SOURCE SEL. 1 0x54	SOURCE SEL. 2 0x55	SOURCE SEL 3 0x56	SOURCE SEL. 4 0x01
F1 0x57	F2 0x58	F3 0x59	F4 0x06
Output Port 1			
Input 1 - 0x18	Input 2 - 0x5B	Input 3 - 0x19	Input 4 - 0x07
Output Po2			
Input 1 - 0x1B	Input 2 - 0x5A	Input 3 - 0x1A	Input 4 - 0x04
Output Po3			
Input 1 - 0x0E	Input 2 - 0x0D	Input 3 - 0x12	Input 4 - 0x05
Output Po4			
Input 1 - 0x1C	Input 2 - 0x1D	Input 3 - 0x1F	Input 4 - 0x1E



## Custom Code — IR3 Code: 0x12 0x21

	Output 1	Output 2	Output 3	Output 4
Source 1	0xA1	0xB1	0xC1	0xD1
Source 2	0xA2	0xB2	0xC2	0xD2
Source 3	0xA3	0xB3	0xC3	0xD3
Source 4	0xA4	0xB4	0xC4	0xD4

## Custom Code — IR4 Code: 0x13 0x31

	Output 1	Output 2	Output 3	Output 4
Source 1	0xAE	0xBE	0xCE	0xDE
Source 2	0xAD	0xBD	0xCD	0xDD
Source 3	0xAC	0xBC	0xCC	0xDC
Source 4	0xAB	0xBB	0xCB	0xDB

Note: Using terminal to set Custom Code

Example: Set custom code from 0x01 0xEE to 0x13 0x31

>>IR4 ----- command (using RS-232 terminal command mode)

>>IR4 ----- echo

Command	Custom Code
IR2	0x00 0xFF
IR3	0x12 0x21
IR4	0x13 0x31

For further information, please check the installation CD.

*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 by performing the procedures stated below.



**SW1-SW4 Pin#1 and Pin#2 must be set "ON" & "OFF" for EDID Learning Mode**

DIP Switch Position		Video	Audio	Description
Pin#1	Pin#2			
ON [↓]	OFF [↑]	Bypass	Bypass	EDID Learning – for learning EDID from the receiver

## Method 1: Manually connect HDMI displays to HDMI input ports

1. Power up the matrix master unit. Connect the HDMI display that its EDID needs to be learned to any of the HDMI INPU1-INPU4 port where your source device has trouble to show the picture normally.
2. To learn the display's EDID for source device connected to respective HDMI INPU1-INPUT4 port, pull both pins of respective DIP switch **SW1-SW4** up-and-down to stay at ON[↓]-OFF[↑] and wait for about 5 seconds to complete the EDID learning process. You DON'T NEED to pull up the DIP switch again unless you want to learn another display's EDID by pulling both DIP switch pin-1 & pin-2 of **SW1-SW4** up-and-down one more time.
3. Repeat step1 & step2 if you want to learn the EDID of this HDMI display on any other HDMI input ports that have same trouble playing the audio/video properly.

1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI/HDMI EDID information.
2. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz LAN cable and ASTRODESIGN Video Signal Generator VG-859C.
3. The transmission length is largely affected by the type of LAN cables, the type of DVI sources, and the type of DVI display. The testing result shows solid LAN cables (usually in bulk cable 300m/1000ft form) can transmit a lot longer signals than stranded LAN cables (usually in patch cord form). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP CAT5e cable shows longer transmission range than stranded STP CAT6 cable. For long extension users, solid LAN cables are the only viable choice.
4. EIA/TIA-568-B termination (T568B) for LAN cables is recommended for better performance.
5. To reduce the interference among the unshielded twisted pairs of wires in LAN cable, one can use shielded LAN cables to improve EMI problems, which is worsen in long transmission.
6. Because the quality of the LAN cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of LAN cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
7. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.
8. The MA-5144RX has been tested extensively and found that it doesn't require external power supply. If in rare situation you find it cannot work with the MA-5144, please use any +5V power adapter to plug in the power jack and see if it can work. If not, please contact your technical support for further service.
9. Additional IR remote controls and IR blasters can be purchased as optional accessories to control the HDMI sources located separately.



## Performance Guide for HDMI over LAN Cable Transmission

Performance rating		Type of LAN cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	★ ★ ★	★ ★ ★ ★	★ ★ ★ ★ ★
	Shielded (STP)	★ ★ ★	★ ★ ★	★ ★ ★ ★
Stranded	Unshielded (UTP)	★	★ ★	★ ★
	Shielded (STP)	★	★	★ ★
Termination		Please use EIA/TIA-568-B termination (T568B) at any time		

### 1. The quality of output video is not good enough, how can I do?

Please adjust the 8-level equalization on the receiver units. The HDMI signal level varies from 0 (strongest) to 7 (weakest) for respective transmission length from longest possible range to short distance. It is recommended to switch from 7 to 0 to find the optimal visual experience.

### 2. Can I use any kind of LAN cable?

Please check the NOTICE section for more information about how to pick up a suitable cable.

### 3. Can every TV work with the HDMI matrix?

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.

### 4. What is EDID? Why do I need to learn EDID?

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.

### 5. What should I do to learn EDID for the matrix?

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 the DIP switch for 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 output-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.

**6. My TV can support 1080p, but why there is no audio?**

The default setting of this device is 1080p & 7.1ch audio, so there would be a problem if the TV cannot support 7.1ch audio. Please change the DIP switch of the chosen input from Default Mode to Safe Mode.

**7. 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?**

Basically, the default DIP switch setting 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.*

**8. 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?**

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.

**9. I have tried every method above, why there is still no audio anyway?**

It is because the media player cannot recognize the EDID of the display. Therefore please adjust the DIP switch of this input to **EDID Learning & Stereo Mode** to have audio properly.

SW1-8 Position		Video	Audio	Description
Pin 1	Pin 2			
ON [↓]	ON [↓]	Bypass	Stereo	<b>EDID Learning &amp; Stereo Mode</b> – for learning EDID from the display while enforcing stereo output if any HDTV cannot play surround sound normally

## Limited Warranty

The SELLER warrants the **AV-GM0783-S1E 4x4 HDMI 1.3 & Full 3D support over CAT5 Matrix with IR Pass-through** to be 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-GM0783-S1E v1.2/v1.3 features and specifications is subject to change without further notice.



### Support

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

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