



# 4x4 HDMI Matrix + Video-Wall Processor

## User Manual





# Safety and Notice

The **4x4 HDMI Matrix + Video-Wall Processor** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment, the **4x4 HDMI Matrix + Video-Wall Processor** 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.



# Features

- HDMI 1.3 & HDCP 1.2 compliant
- Allows any HDMI display to view any HDMI source at any time
- Fast response time for channel switch
- Supports 7.1 channel digital audio
- Four HDMI outputs from 640x480 to 1920x1200
- 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, RS-232 control, and Ethernet control
- Supports HDMI input from 640x480 to 920x1080@60 , interlaced or progressive
- Resize, position, zoom for each HDMI output video
- Each HDMI output has an independent controllable display area
- 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
- Firmware upgradable for new features and technology enhancements
- User-selectable output settings, up to 1920x1200
- Supports individual propagation delay on each display to have the best visual perception

# Package contents

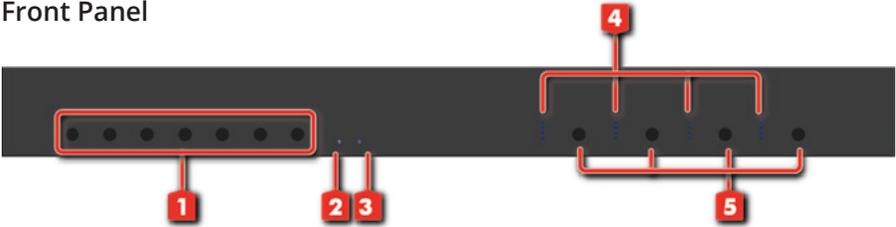
- 4x4 HDMI Matrix + Video-Wall Processor
- Power adapter DC 12V / 5A
- Rack-mounting ear set
- User Manual

# SPECIFICATIONS

Technical		
Role of usage	True 4x4 matrix	
HDCP compliance	Yes	
Video bandwidth	Single-link 225MHz [6.75Gbps]	
Video support	480i / 480p / 720p 1080i / 1920x1080@60 / 1920x1200@60 30-bit color	
Video Format Support	HDMI / DVI	
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	4x HDMI	
Control	RS-232 / Ethernet / Front Panel	
Input TMDS signal	1.2 Volts [peak-to-peak]	
HDMI connector	Type A [19-pin female]	
RS-232 connector	DE-9 [9-pin D-sub female]	
RJ-45 connector	WE/SS 8P8C	
Mechanical		
Enclosure	Metal case	
Dimensions (L x W x H)	Model	440 x 257 x 44mm [17.3" x 10.1" x 1.7"]
	Package	513 x 456 x 144mm [1'7" x 1'5" x 5.6"]
	Carton	535 x 320 x 495mm [1'8" x 1' x 1'6"]
Weight	Model	2820g [6.2 lbs]
	Package	3827g [8.5 lbs]
Fixedness	1U rack-mount with ears and Wall hanging holes	
Power supply	12V / 5A DC	
Power Consumption	15W	
Operation temperature	0~40°C [32~104°F]	
Storage temperature	-20~60°C [-4~140°F]	
Relative humidity	20~90% RH [no condensation]	

# Layout

## Front Panel



### 1. Control Buttons:

Button 1 - Fast switch to 1 x 1

Button 2 - Fast switch to 2 x 2

Button 3 - Fast switch to 1 x 4

Button 4 - Fast switch to 4 x 1

Button 5 - Fast switch to Quad view mode

Button 6 - Lock the device's function

Button 7 - Reset to default

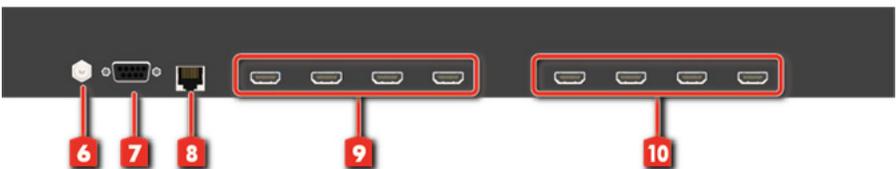
### 2. Power Status: Power LED

### 3. Lock LED: On when user turn on lock function

### 4. Source LED: The LED will show the selected source

### 5. Source select push button: Select input button

## Rear panel



### 6. DC jack: Connect to DC 12V/5A power adapter

### 7. RS-232: RS-232 control port

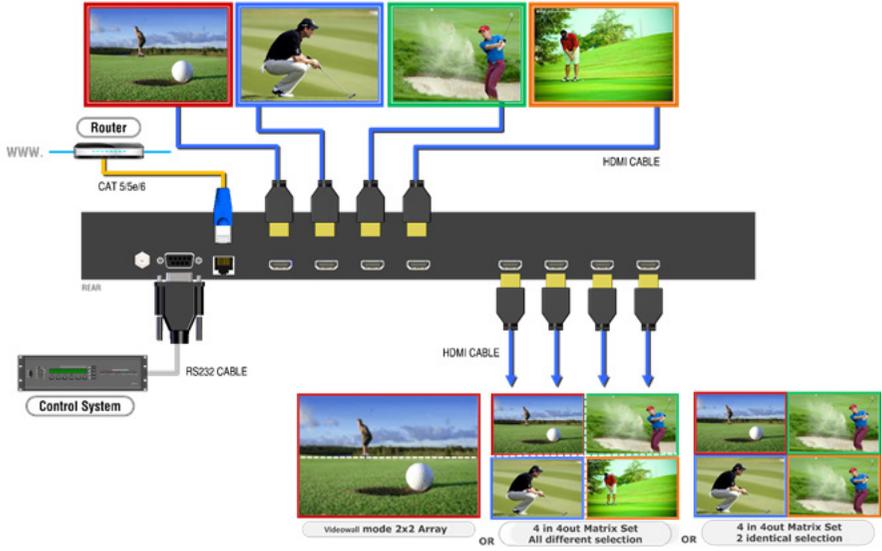
### 8. Ethernet: Ethernet control port

### 9. INPUT 1 - 4: HDMI inputs

### 10. Out 1 - 4: HDMI outputs

# Application

→ HDMI → CAT5/5e/6 → RS-232



# Software Operation

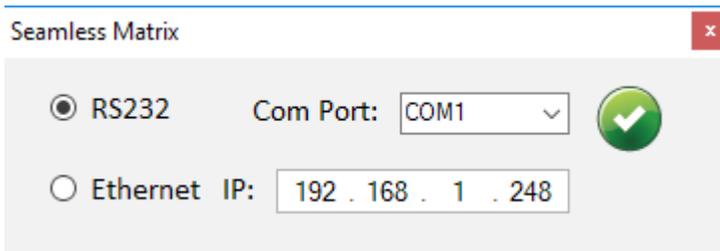
## System Requirement and Precautions

1. Whenever power off 4x4 HDMI Matrix + Video-Wall Processor, please stay unpowered at least 5 to 10 seconds to allow power capacitors to discharge.
2. The 4x4 HDMI Matrix + Video-Wall Processor provides software control program which runs under Microsoft Windows XP, 7, 8, 10 through the interface of RS-232 serial control.
3. Before you click on the icon of the software, make sure you have secured the connection between your computer COM port and the 4x4 HDMI Matrix + Video-Wall Processor

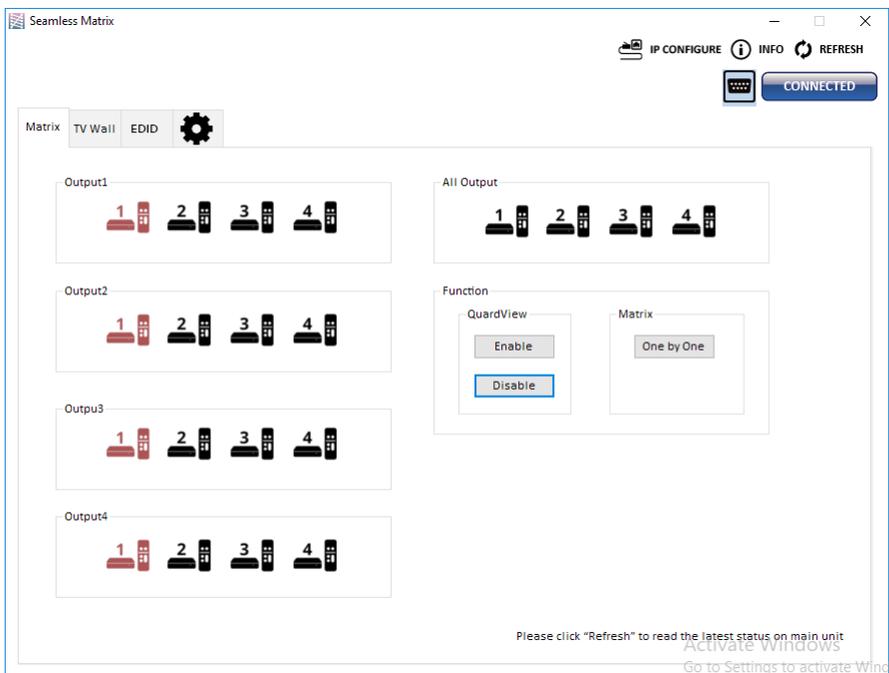
## Start the software control program

Executing the control software, the following dialog will pop up. It has two ways to control the 4x4 HDMI Matrix + Video-Wall Processor device (under Windows 7, please run as administrator).

1. RS-232 Connection: Use RS-232 to connect the port on device and computer. Select correct COM port and click the OK button.
2. Ethernet Connection: Enter the device IP address and click the OK button.



After the software control setting is accomplished, it will enter directly to the control interface.



## Control Interface

### 1. Connection Status:

Show the connect information and status. If you use RS-232 control Mode to connect device, the graph is  .

For IP control, the graph of Ethernet is  .

### 2. Matrix

You can assign arbitrary video source and switch quad view mode here. **\*When you enable the quad view function, the other matrix function is not available.**

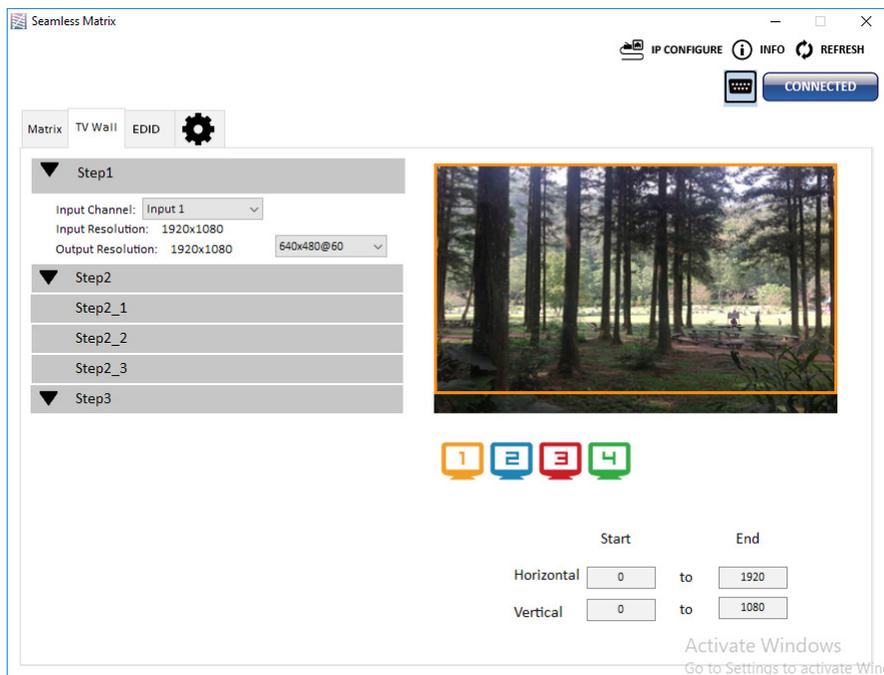
## TV Wall

**Step 1:** check input channel (video wall source), input resolution and choose output resolution Firstly, you should select the video source which you want to use as a video wall function.

The different colors of frame represent the different output TVs.

The information of coordinate shows the position of output TV.

When setting the different resolution, the coordinate of output will also be changed.



### Step 2: Output setting

It has three modes to set up the output TV resolution, position, size and split screen. The details of different mode will be illustrated in step 2-1, 2-2 and 2-3.

**\*Note that when you want to change to another mode, you need to go back to the step 2.**

Quick Selection

From file

Custom define

## Step 2-1: quick selection

If you choose the Quick Selection mode in step 2, this window will automatically pop up. In this mode, you can select default screen split

Matrix TV Wall EDID

▼ Step1  
▼ Step2  
Step2\_1

Quick Selection

Step2\_2  
Step2\_3  
▼ Step3

Start End

Horizontal  to

Vertical  to

## Step 2-2:

You can load and read configuration from the existing file on your PC/laptop.

Step2\_2

Load From File Apply

### Step 2-3: Custom define

In Custom define mode, you can define how to cut in both directions and the part you want to show on output TV. If you want to know or estimate which parts you select, you can click the Grid button to show grid on the graph. After the setting, please click the “Apply” button. Besides, you also can click the “SAVE AS” button to save the configuration for future usage. You can adjust the output position by setting coordinates.

Step2\_3

Horizontal cut:   Grid  None

Vertical cut:

Number:

Coordinate

	start	end	
Horizontal:	<input type="text" value="0"/>	<input type="text" value="1920"/>	<input checked="" type="checkbox"/>
Vertical:	<input type="text" value="0"/>	<input type="text" value="1080"/>	

### Step 3: Adjust image

▼ Step3

Up  Down  Right  Left

Zoom In/Out:    Pixel

Horizontal shift:    Pixel

Vertical shift:    Pixel

CLEAR

**Zoom In/Out:** You can change pixel size from the edge of image by clicking “+” and “-” button (the edge of image has four directions). After adjusting the image, the rest of this image will be auto-scaled to fulfill the screen.

**Horizontal shift/ Vertical shift:** You can arbitrarily move the image on each screen in horizontal direction or vertical direction. Move one pixel at a time.

## 4. EDID (Extended Display Identification Data)

The screenshot shows the 'EDID' configuration page in the Seamless Matrix software. The interface includes a top navigation bar with 'Matrix', 'TV Wall', and 'EDID' tabs, and a settings gear icon. On the right, there are utility buttons for 'IP CONFIGURE', 'INFO', 'REFRESH', and a 'CONNECTED' status indicator. The main content area is divided into two sections: 'Learn EDID' and 'View EDID'. The 'Learn EDID' section has three subsections: 'From Default' with a dropdown menu showing '1.Full-HD(1080p@60)-24bit 2D & 2ch' and a 'Learn' button; 'From Display' with a dropdown menu showing '1.Output1' and a 'Learn' button; and 'From File' with a dropdown menu showing 'Input1' and a 'Load' button. The 'View EDID' section has a 'From' dropdown menu showing 'Input1', 'View', and 'Save as...' buttons, and a large empty box for the 'EDID Description'.

## 5. Advanced Setting

The screenshot shows the 'Advanced Setting' page in the Seamless Matrix software. The interface includes a top navigation bar with 'Matrix', 'TV Wall', and 'EDID' tabs, and a settings gear icon. On the right, there are utility buttons for 'IP CONFIGURE', 'INFO', 'REFRESH', and a 'CONNECTED' status indicator. The main content area is divided into two sections: 'Firmware Update' and 'MISC'. The 'Firmware Update' section has two subsections: 'Control MCU Firmware Update' and 'Ethernet MCU Firmware Update'. Each subsection has a 'Load File' button, a file size display showing '0', and 'Start' and 'Abort' buttons. The 'MISC' section has a 'Background' dropdown menu showing 'Load Graph' and a green checkmark icon, and a 'FACTORY RESET' button with a power icon.

## (1) Firmware Update

Before you start to update, please make sure you have secured the connection between your computer COM port and the device

### Control MCU firmware update

1. Click the "Load File" button to select the file
2. Click the "Break" button to switch to firmware update mode
3. Power cycle your device to the boot-loader entry
4. Click the "Start" button and the firmware will start to update
5. After updating, please power cycle the device

### Ethernet MCU firmware update

1. Before you start to update Ethernet MCU, please make sure you have secured the Ethernet port connection between your Ethernet and the device
2. Click the "Load File" button to select the file
3. Click the "Start" button and the firmware will start to update
4. After updating, please power cycle the device

### MISC

You can change the default diagram (TV Wall diagram) on this software. **\*The file suffix of picture should be .bmp.**

1. Click "Load Graph" button to select the graph.
2. After loading the graph step, please click "Tick" button to write this graph into device.

### Factory reset

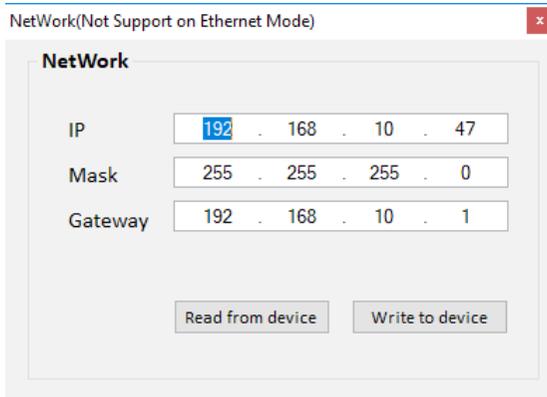
**(factory reset function cannot use when using Ethernet mode)**

1. Click "FACTORY RESET" button to do factory default reset.
2. This default reset process will take about 5~15 seconds
3. After pop-up a dialog indicates complete, please restart this machine

## 6. IP configure

You also can use the Ethernet to control software program. First, you should click the "IP CONFIGURE" button to setup the network. Next, you can read the Ethernet setting from your device and manually set to the device. After the step of IP configuration, please restart the machine

**\*This function does not support user use Ethernet mode to set.**



NetWork(Not Support on Ethernet Mode)

**NetWork**

IP: 192 . 168 . 10 . 47

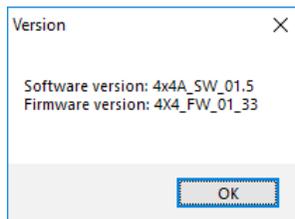
Mask: 255 . 255 . 255 . 0

Gateway: 192 . 168 . 10 . 1

Read from device    Write to device

## 7. Info

Read the software and firmware version.



Version

Software version: 4x4A\_SW\_01.5  
Firmware version: 4X4\_FW\_01\_33

OK

## 8. Refresh

When you click this button, it will refresh the device status.

# 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 sources and displays may have various level of capability in playing audio and video, the general principle is that the source will output the lowest standards in terms of 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 six embedded default EDIDs 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

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