4-Display HDMI2.0a 4K 4:4:4 Video Wall Processor

Safety and Notice

The **AV-GM0A43-S1Z** 4-Display HDMI2.0a 4K 4:4:4 Video Wall Processor has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **AV-GM0A43-S1Z** 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.

TABLE OF CONTENTS

INTRODUCTION

The **AV-GM0A43-S1Z** 4-Display HDMI2.0a 4K 4:4:4 Video Wall Processor is a powerful, cost effective, and fully real time data/video processor for multiple flat panel displays or projectors. Thru digital transmission, the quality of the outcome videos is guaranteed. The output display is grained up to 2x2 squares. Virtually any setups for the display layout can be possible by the provided software. The **AV-GM0A43-S1Z** allows you to input DVI/HDMI, wherever positions and whatever sizes you want for viewing. The embedded scaler converts signals from either DVI/HDMI source to match the native resolution of monitors, flat panel displays, projectors as well as user-selectable output settings up to WUXGA (1920x1200). The **AV-GM0A43-S1Z** sends the resulting processed video thru DVI/HDMI interface to the connected monitors/projectors based on the display layout. The layout can be readily modified to fit your applications in digital signage, broadcasting, education and surveillance systems and optimize visual effects.

FEATURES

- Four DVI/HDMI outputs from 640x480 to 1920x1200
- Supports HDMI/DVI input, from 640x480 to 4K2K@60 (YUV 4:4:4), interlaced or progressive
- HDCP compliant
- 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
- Supports IR remote control
- Software control through USB and Ethernet
- Resize, position, zoom output video
- User-selectable output settings, up to 1920x1200
- Each DVI/HDMI output has an independent controllable display area
- Supports remote control to switch 1x1, 2x2, 1x3 rotate, and 1x4 rotate mode
- Supports independent input rotation at the resolution up to 1080p
- 4K2K60 (YUV 4:4:4) can be divided and displayed onto four 1080p60 TV (2x2 layout only)

PACKAGE CONTENTS

- 1x AV-GM0A43-S1Z
- 1x User Manual
- 1x 1U rack-mounting ear set
- 1x 12V power supply
- 1x Installation software CD
- 1x IR Remote control (15 keys)

SPECIFICATIONS

Model Name	AV-GM0A43-S1Z
Technical	
Role of usage	Video Wall Processor
HDCP compliance	Yes
Video bandwidth	Input – Single link 600MHz [18Gbps] Output – DVI [Single-link 4.95Gbps] / HDMI[2.25G to 6.75Gbps]
Input Video support	Input - 4K2K@60 (4:2:0 10bits) / 4K2K@60 (4:4:4 8bits) Output – 1920x1080@60 / 1920x1200@60
Video Format Support	HDMI/DVI
Audio support	Yes
ESD protection	Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]
PCB stack-up	8-layer board [impedance control — differential 100Ω; single 50Ω]
Input	1x HDMI/DVI + 1x USB + 1xRJ45
Output	4x HDMI/DVI + 1x Stereo
Control	IR remote control / Ethernet / USB (virtual com) / Front Panel
Input TMDS signal	1.2 Volts [peak-to-peak]
DVI connector	DVI-D [29-pin female, digital only]
HDMI connector	Type A [19-pin female]
Mini-USB connector	Type A
RJ-45 connector	WE/SS 8P8C

Mechanical		AV-GM0A43-S1Z
Enclosure		Metal case
Dimensions (L x W x H)	Model	288 x 180 x 42mm [11.3" x 7" x 1.7"]
	Package	376 x 240 x 112mm [1'2" x 9.4 x 4.4"]
	Carton	590 x 510 x 405mm [1'9" x 1'7" x 1'3"]
Weight	Model	1497g [3.3lbs]
	Package	2.1kg [4.6lbs]
Fixedness		1U rack-mount with ears and Wall hanging holes
Power supply		12V DC
Power Consumption		12W
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]

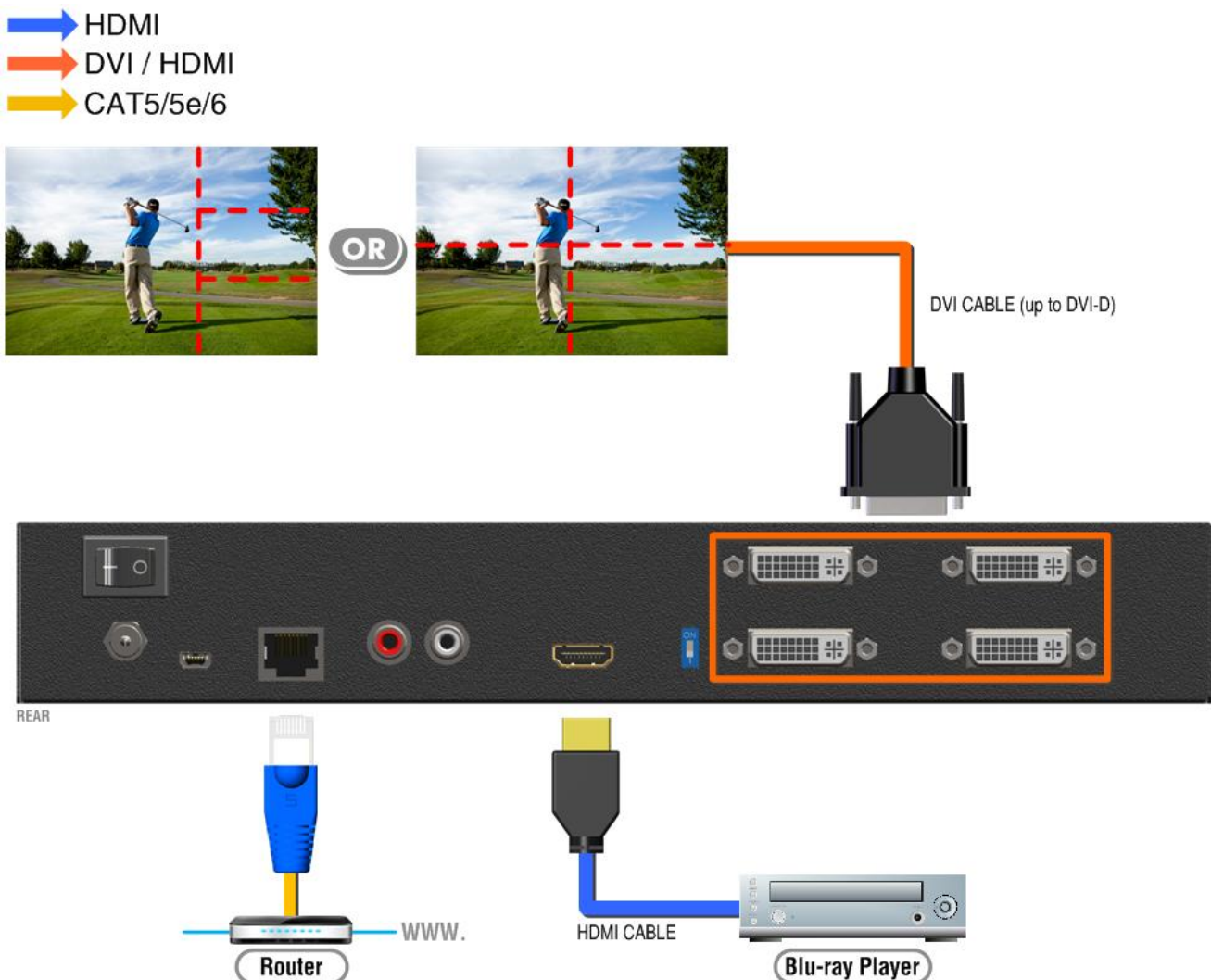| Relative humidity	20~90% RH [no condensation]

HARDWARE INSTALLATION

AV-GM0A43-S1Z as master

1. Connect all sources to DVI/HDMI Inputs on the AV-GM0A43-S1Z.

2. Connect all displays to DVI/HDMI Outputs on the AV-GM0A43-S1Z.

3. Connect the +12V DC power supply to the AV-GM0A43-S1Z

CONNECTION DIAGRAM

PANEL DESCRIPTIONS

Front Panel

1. **IR SENSOR:** IR sensor for receiving the IR commands from IR remote
2. **Power Status:** Power indicator LED
3. **Control buttons:**

   Button 1: Reserved

   Button 2: Reserved

   Button 3 – Previous: Previous rotation setting

   Button 4 – Fast switch to 1x1 and 2x2

   Button 5 – Fast switch to 3x1 -90° and 90°

   Button 6 – Fast switch to 4x1 -90° and 90°

Rear Panel
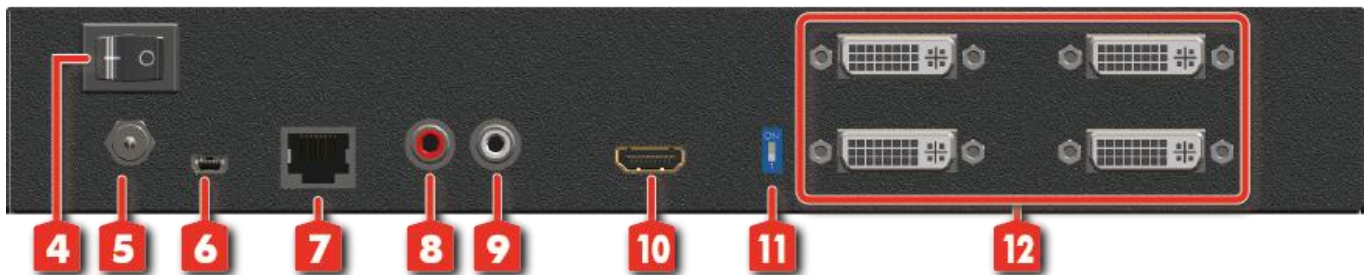
4. **Power Switch:** Power ON/OFF switch
5. **+12V DC:** 12V DC power jack
6. **USB virtual com**
7. **Ethernet:** Ethernet control port
8. **Stereo audio output –L**
9. **Stereo audio output -R**
10. **INPUT:** HDMI input
11. **Dip Switch:** For firmware update (Default mode: OFF)
12. **Output 1-4:** DVI/HDMI outputs

SUPPORTED RESOLUTION

Input resolution	Output resolution
720x480@30Hz	640x480@60Hz
720x480@60Hz	720x480@60Hz
720x576@30Hz	720x576@60Hz
720x576@60Hz	800x600@60Hz
1280x720@60Hz	1024x768@60Hz
1920x1080@30Hz	1280x720@60Hz
1920x1080@60Hz	1280x768@60Hz
4K2K@30Hz	1280x960@60Hz
4K2K@60Hz (4:2:0 10bits)	1280x1024@60Hz
4K2K@60Hz (4:2:2 10 bits)	1366x768@60Hz
4K2K@60Hz (4:4:4 8bits)	1440x900@60Hz
	1680x1050@60Hz
	1920x1080@60Hz
	1920x1200@60Hz
	1600x1200@60Hz

OPERATION APPROACH

Method A: IR Remote Control
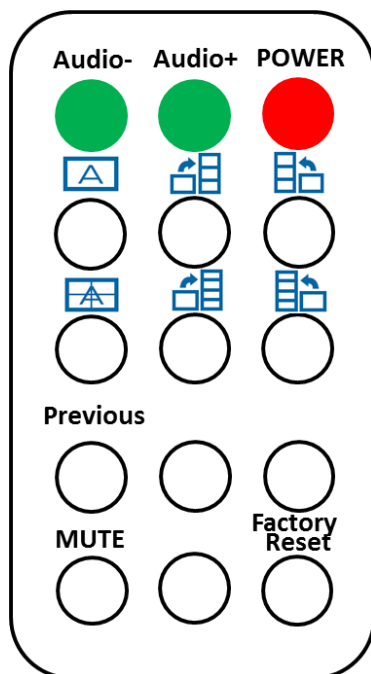
| Button	Function
POWER	Power On/Off the video wall processor
Audio +	Increase the audio volume
Audio -	Decrease the audio volume
⬛	Fast switch to VW1x1 (Full Screen)
⬛	Fast switch to VW3x1 (-90°)
⬛	Fast switch to VW3x1 (+90°)
⬛	Fast switch to VW2x2
⬛	Fast switch to VW4x1 (-90°)
⬛	Fast switch to VW4x1 (+90°)
Previous	Previous rotation setting
MUTE	Turn off the stereo audio output
Factory Reset	Factory default reset

System Requirement and Precautions

1. Whenever power off AV-GM0A43-S1Z, please stay unpowered at least 5 to 10 seconds to allow power capacitors to discharge.
2. The AV-GM0A43-S1Z provides software control program which runs under Microsoft Windows 98, 2000, XP, 7, 8 through the interface of USB virtual com control.
3. Before you click on the icon of the software, make sure you have secured the connection between your computer USB port and the AV-GM0A43-S1Z.

Start the software control program

Executing the control software, the following dialog will pop up. It has two ways to control the AV-GM0A43-S1Z device (under Microsoft Windows 7, please run as administrator).

USB Connection: Use USB to connect the port on device and computer. Select correct virtual Com port and click the OK button.

Ethernet Connection: Enter the device IP address and click the OK button.
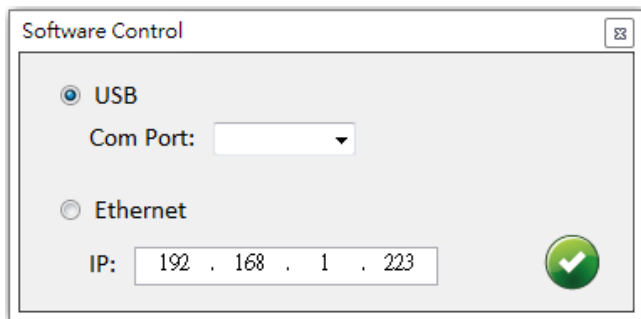
After the software control setting is accomplished, it will enter directly to the control interface.
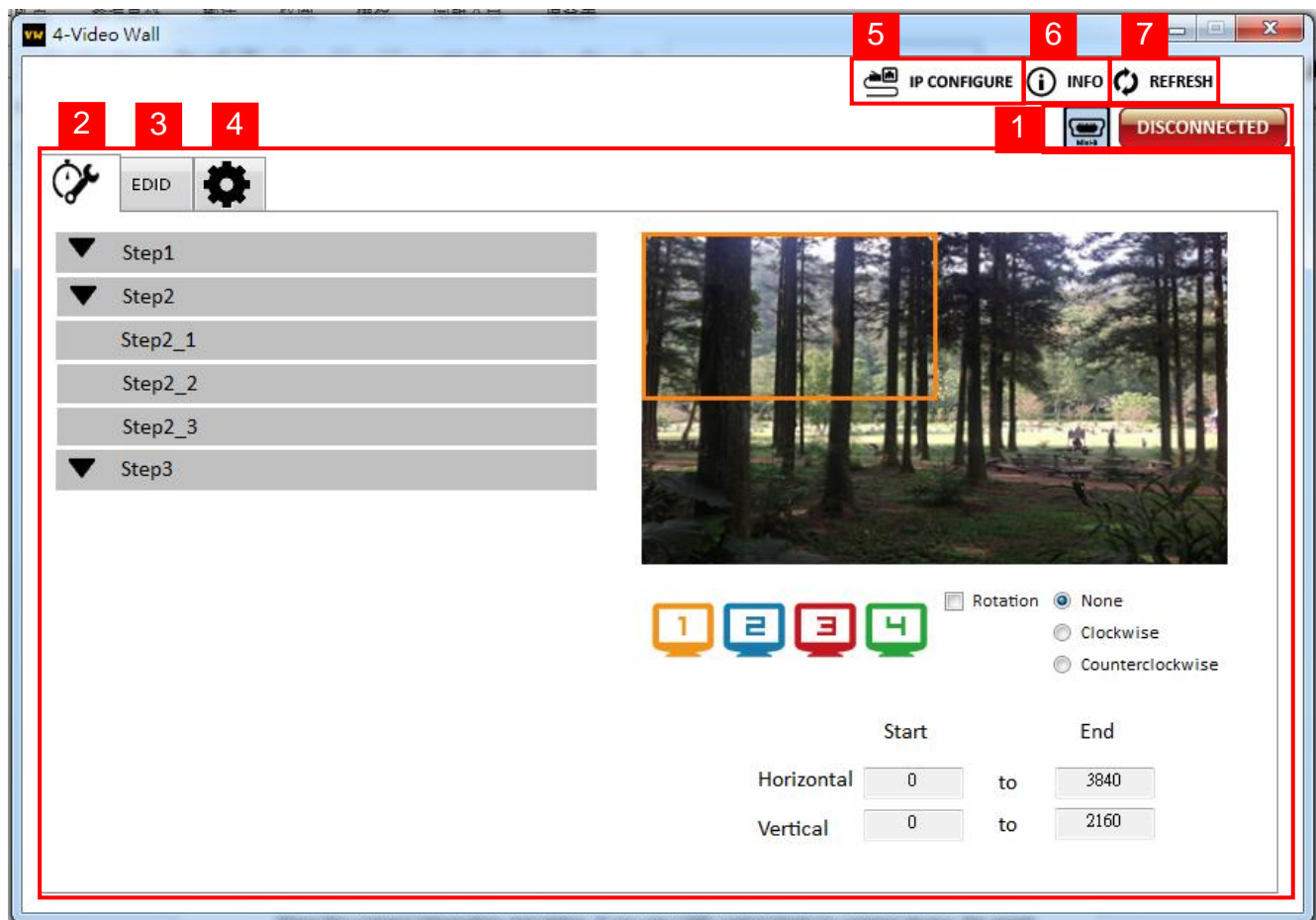
Control Interface

1. Connection Status:

   Show the connect information and status. If you use USB control Mode to connect device, the graph is . For IP control, the graph of Ethernet is .

2. Quick Selection:

   In this part, you can set up the screen resolution, screen coordinate and split screen. Firstly, you should select the TV picture and you can set up the corresponding function. The different colors of frame represent the different output TVs. The information of coordinate shows the position of output TV.

3. Rotation: *only at 720p or 1080p resolution
    Use the software for independent rotation for each input. You can select clockwise or counterclockwise to rotate the screen.

☑ Rotation ◉ None
            ◯ Clockwise
            ◯ Counterclockwise

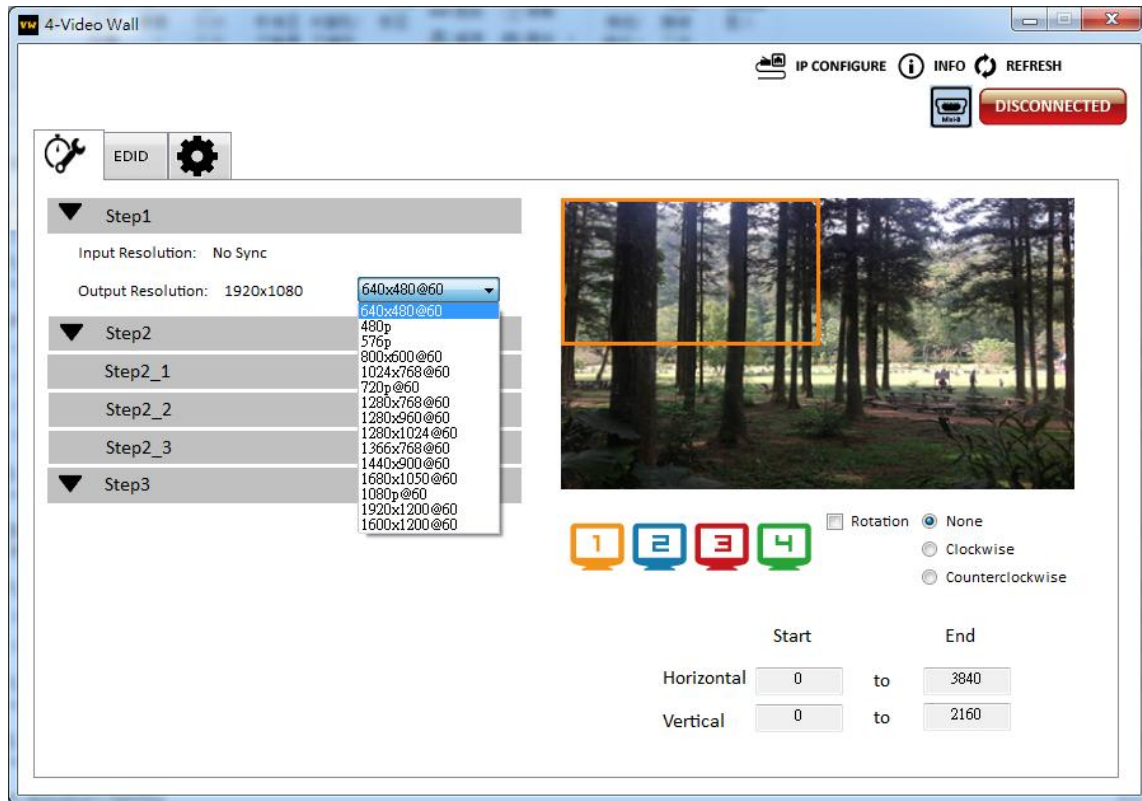H Start: [   ]   Width: [   ]   [preview]
V Start: [   ]   Height: [   ]   [Apply]

4. Output Selection and Resolution:

   (1) Step 1: check input resolution and choose output resolution

   Set the output resolution. You can choose the design display icon to select the output port and setup resolution. When setting the different resolution, the coordinate of output will also be changed.

   (2) Step 2: output setting

   In here, it has three modes can set up the output TV resolution, position, size and split screen. The details of different mode are described in step 2-1, 2-2 and 2-3.

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

   ➢ Quick Selection
   ➢ From file
   ➢ Custom define

(3) Step 2-1: quick selection
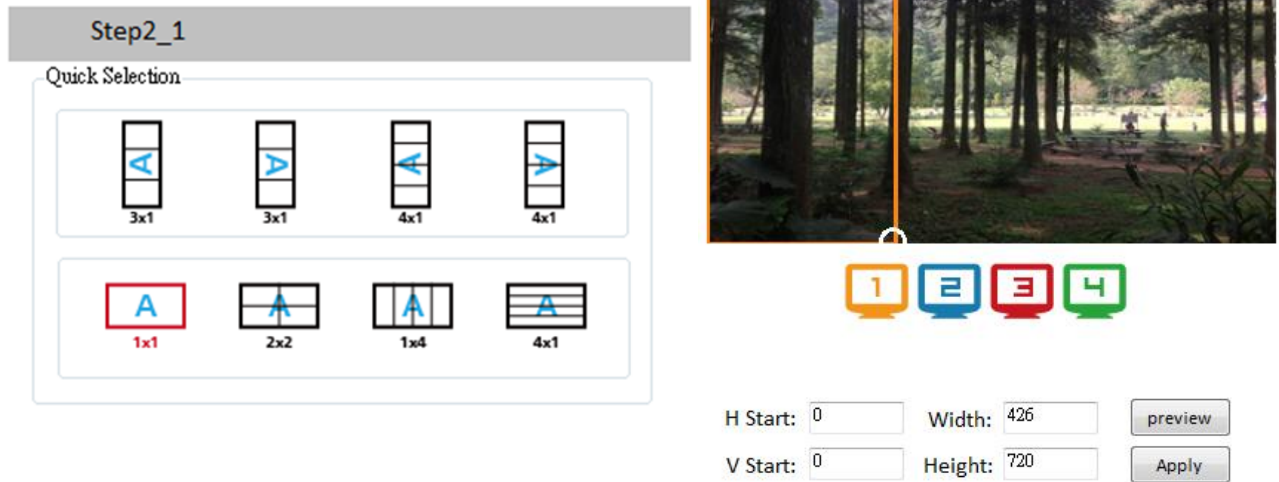
If you choose the Quick Selection mode in step 2, this window will automatically pop up. In this mode, you can select default screen split and rotate screen (rotate screen only at 720p or 1080p resolution).

➢ 3x1: This mode will divide the screen into 3 parts and rotate the figure. The remaining part shows the full screen.

➢ 4x1: The mode will divide the screen into 4 parts and rotate the figure.

When select the 3x1 or 4x1 mode, the picture in the right part of control interface will show a white circle. You can slide this white circle to resize the output screen. In addition, you also can input the number to adjust the coordinate.

> ℹ 4k2k60 (YUV 4:4:4) only can be displayed as an 2x2 layout (1080p60 for each output)

(4) Step 2-2: configuration from file

You can load and read configuration from the existing file on your PC/laptop.
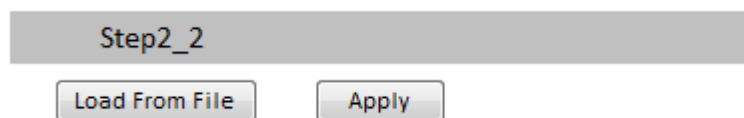
(5) Step 2-3: custom define

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 understand or estimate which part you may select, you can select 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.

(6) Step 3: adjust image

➢ 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.

5. EDID (Extended Display Identification Data)
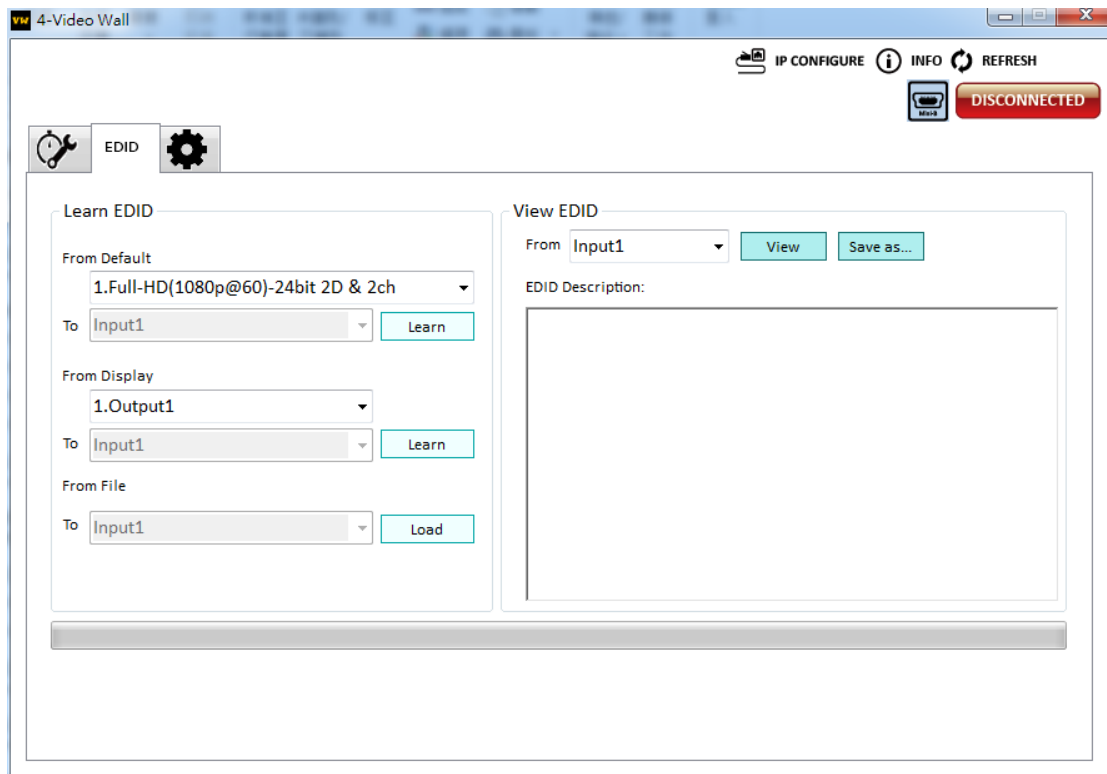
(1) Learn EDID from the default

➢ Select Default EDID (1-4 default EDID).
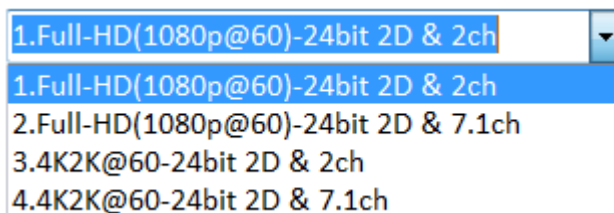
➢ Click [Learn] button to learn default EDID.

(2) Learn EDID from Display

➢ Select the Output.
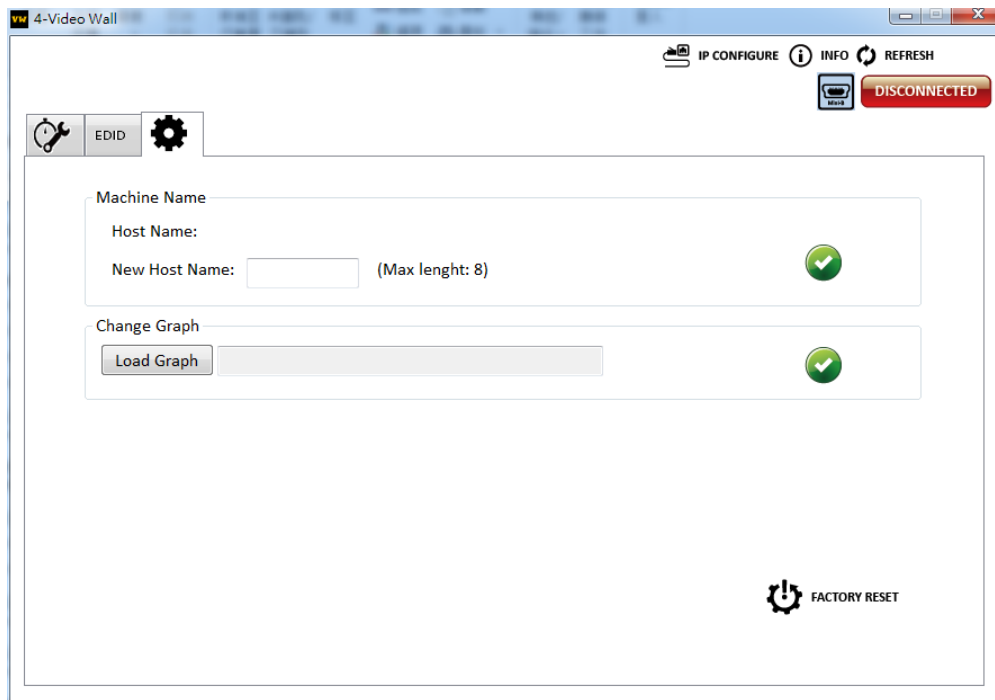
➢ Click [Learn] button to learn display EDID.

(3) Learn EDID from File

➢ Click [Load] button to select the EDID file and write it into input.

(4) View EDID content

➢ Select the EDID input source (Input, Output or From File).

➢ Click [View] button to read the EDID description and analysis.

➢ Click [Save as...] button to save the EDID as a file in the connected computer.
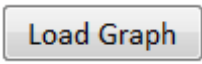
6. Advanced Setting

(1) Machine Name

You can set up your machine name in here. Please take a closer look at the length of string (Max Length: 8).

(2) Change Graph
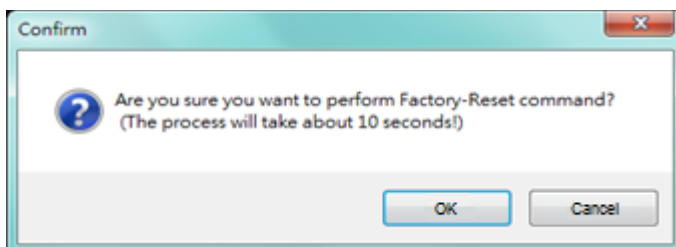
You can change the default graph (splash screen) on this machine.

➢ Click **Load Graph** button to select the graph.

➢ After loading the graph step, please click ✓ button to write this graph into device.

(3) Factory Reset

➢ Click **FACTORY RESET** button to do factory default reset.

➢ This default reset process will take about 10 seconds.

➢ After pop-up a dialog indicates complete, please restart this machine.

Complete

OK
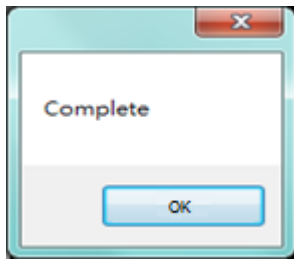
7. IP Configure

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

NetWork	NetWork
NetWork	**NetWork**
IP: 192 . 168 . 1 . 38	IP: 192 . 168 . 1 . 38
Mask: 255 . 255 . 255 . 0	Mask: . . .
Gateway: 192 . 168 . 1 . 1	Gateway: . . .
☐ DHCP Read from device Write to device	☑ DHCP Read from device Write to device

8. Info

Read the software and firmware version.

Version

Software version: 1x4C_SW_01
Firmware version: 1X4_FW_00_01

確定

9. Refresh

This function not only can refresh the information of setting but also can reconnect this device. You can click REFRESH button to update the control connection. A "ReConnectForm" window will pop up for you to select the approach to connect this device.

ReConnectForm

- ⦿ USB
  - Com Port: [▼]

- ○ Ethernet
  - IP: [192 . 168 . 1 . 223]   ✓

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 is **a method** to run EDID Learning as below:

Software Control: Please refer to the **Operation Approach\ Method B: Software Control through RS-232 port (Page 10.)**

There are **four embedded default EDIDs** as below,

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

2. Full-HD(1080p@60)-24bit 2D & 7.1ch

3. 4K2K@60-24bit 2D & 2ch

4. 4K2K@60-24bit 2D& 7.1ch

WARRANTY

The SELLER warrants the **AV-GM0A43-S1Z** 4-Display HDMI2.0a 4K 4:4:4 Video Wall Processor 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-GM0A43-S1Z 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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