

VW-1404ZH-C

4K 1x4 Video Wall Processor

User Manual



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rev: 210119
Made in Taiwan

INTRODUCTION

The **VW-1404ZH-C 4K 1x4 Video Wall Processor** is a powerful, cost effective, and fully real time data/video processor for multiple flat panel displays or projectors. Virtually any setups for the display layout can be possible by the control software. The VW-1404ZH-C allows user to input HDMI up to 3840x2160/4096x2160@60Hz 4:4:4. And the embedded scaler converts signals from 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 VW-1404ZH-C sends the resulting processed video thru HDMI interface to the connected monitors/projectors based on the setup 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 HDMI outputs from 640x480 to 1920x1200
- Supports HDMI input from 640x480 to 3840x2160/4096x2160@60 (YUV 4:4:4), in progressive mode
- HDCP compliant
- HDMI 2.0a compliant
- Image parameters and layouts are automatically saved in flash memory of the device and can be recalled for later use
- Firmware upgradable for new features and technology enhancements
- The video wall processor can control by USB, push button, Ethernet, IR remote control, Control 4 and cloud control*
- Resize, position, zoom for each HDMI output video
- User-selectable output settings, up to 1920x1200
- Supports CEC (Power on/off)
- Supports remote control to switch 1x1, 2x2, 1x3 rotate, and 1x4 rotate mode
- Supports independent input rotation at the resolution up to 1080p
- 3840x2160@60 (YUV 4:4:4) can be divided and displayed onto four 1080p60 TV (2x2 layout only)
- Supports individual propagation delay on each display to have the best visual perception
- HDMI/Stereo output support 2 channel PCM audio; S/PDIF output supports Digital 2 channel audio
- Supports 4K60 4:4:4 input to 4 outputs with pixel-to-pixel 1080p60 4:4:4 mapping
- Overcomes frame tearing on a panel basis for each output



* Cloud support is thru an encrypted communication to provide the best private protection when using VW-1404ZH-C.

* VW-1404ZH-C does NOT support de-interlacing.

SPECIFICATIONS

Model Name		VW-1404ZH-C
Technical		
Role of usage		Video Wall Processor
HDCP compliance		Yes
Video bandwidth		Input – Single link 600MHz [18Gbps] Output –Single-link 225MHz [6.75Gbps]
Video support		Input – 3840x2160/4096x2160@60 (4:2:2 8bits) / 3840x2160/4096x2160@60 (4:4:4 8bits) Output – 1920x1080@60 / 1920x1200@60
Video Format Support		HDMI
Audio support		Yes
ESD protection		Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]
Input		1x HDMI + 1x USB + 1xRJ45
Output		4x HDMI + 1x 3.5mm phone jack + 1x coaxial
Control		IR remote control / Ethernet / USB (virtual) / Front Panel / Control 4 / Cloud Control / APP
Input TMDS signal		1.2 Volts [peak-to-peak]
HDMI connector		Type A [19-pin female]
Micro-USB connector		Type A
RJ-45 connector		WE/SS 8P8C
Mechanical		
Enclosure		Metal case
Dimensions	Model	290 x 107 x 40mm [11.4" x 4.2" x 1.5"]
[L x W x H]	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	1274g [2.8 lbs]
	Package	2735g [6 lbs]
Fixedness		1U rack-mount with ears and Wall hanging holes
Power supply		12V DC
Power consumption		12 Watts [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

PACKAGE CONTENTS

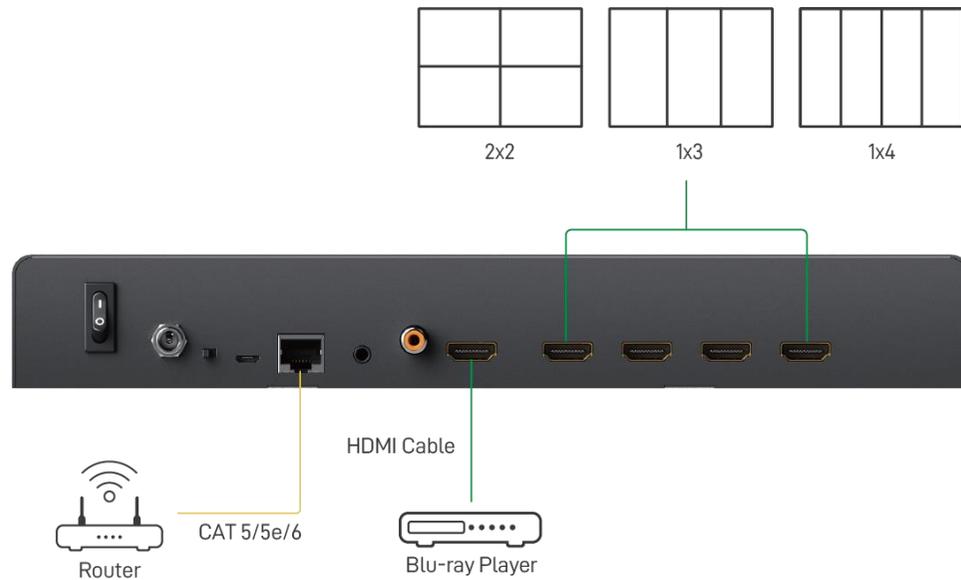
- 1x VW-1404ZH-C
- 1x 1U rack-mounting ear set
- 1x 12V power supply
- 1x IR Remote control (15 keys)
- 4x HDMI Cable (Male to Male)
- 1x User Manual

1x Installation software CD HARDWARE INSTALLATION

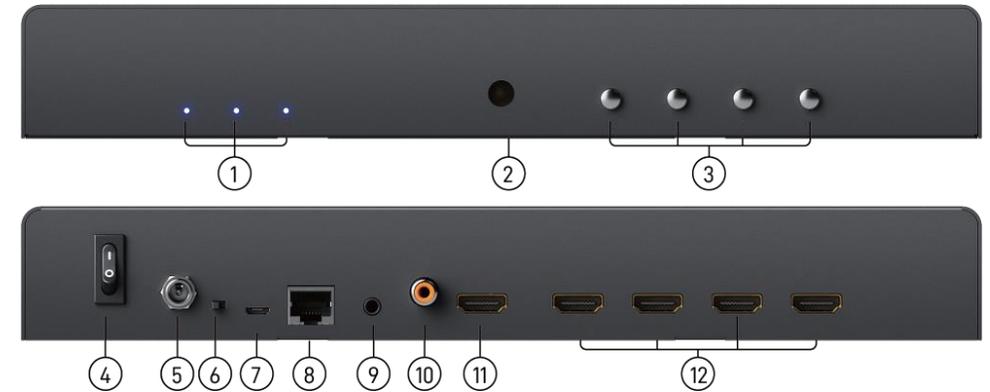
VW-1404ZH-C as master

1. Connect the sources to HDMI / DisplayPort Input of the VW-1404ZH-C.
2. Connect all displays to HDMI Outputs of the VW-1404ZH-C.
3. Connect the +12V DC power supply to the VW-1404ZH-C.

CONNECTION DIAGRAM



PANEL DESCRIPTIONS



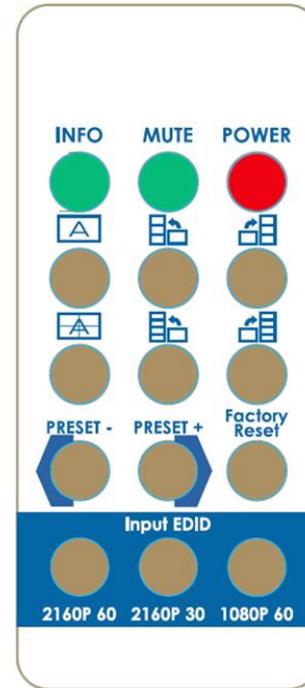
- 1. LED indicator:**
PWR – Power indicator LED
4K – If source resolution is 4K, the LED indicator will shine
Source – Source signal indicator LED
- 2. IR SENSOR:** IR sensor for receiving the IR commands from IR remote
- 3. Control buttons:**
Button 1 – In/Out resolution and IP address information
Button 2 – Fast switch to 1x1 and 2x2
Button 3 – Fast switch to 1x3, +90° and -90°
Button 4 – Fast switch to 1x4, +90° and -90°
- 4. Power Switch:** Power ON/OFF switch
- 5. +12V DC:** 12V DC power jack
- 6. Dip Switch:** reserved
- 7. USB virtual COM**
- 8. Ethernet:** Ethernet control port
- 9. Stereo audio output (3.5mm)**
- 10. S/PDIF audio output (Coaxial)**
- 11. HDMI Input**
- 12. HDMI Output 1-4**

SUPPORTED RESOLUTION

Input resolution	Output resolution
720x480@60Hz	640x480@60Hz
720x576@50Hz	720x480@60Hz
1280x720@60Hz	720x576@60Hz
1920x1080@30Hz	800x600@60Hz
1920x1080@60Hz	1024x768@60Hz
4K2K@30Hz	1280x720@60Hz
3840x2160@60Hz (4:2:2 8bits)	1280x768@60Hz
3840x2160@60Hz (4:4:4 8bits)	1280x960@60Hz
4096x2160@60Hz (4:2:2 8bits)	1280x1024@60Hz
4096x2160@60Hz (4:4:4 8bits)	1366x768@60Hz
	1440x900@60Hz
	1680x1050@60Hz
	1920x1080@60Hz
	1920x1200@60Hz
	1600x1200@60Hz

OPERATION APPROACH

Method A: IR Remote Control



Button	Function
INFO	Display device status (IN/OUT Resolution, EDID, Layout)
MUTE	Turn off the stereo audio output
POWER	Power ON/OFF the video wall processor
[Triangle in Square]	Fast switch to VW1x1 (Full Screen)
[Square with Triangle]	Fast switch to VW3x1 (-90°)
[Square with Triangle]	Fast switch to VW3x1 (+90°)
[Triangle in Square]	Fast switch to VW2x2
[Square with Triangle]	Fast switch to VW4x1 (-90°)
[Square with Triangle]	Fast switch to VW4x1 (+90°)
PRESET-	Previous custom layout
PRESET+	Next custom layout
Factory Reset	Factory default reset
2160p 60	Default EDID 2160p 60
2160p 30	Default EDID 2160p 30
1080p 60	Default EDID 1080p 60

Method B: Software Operation

System Requirement and Precautions

1. Whenever power off VW-1404ZH-C, please stay unpowered at least 5 to 10 seconds to allow power capacitors to discharge.
2. The VW-1404ZH-C provides software control program which runs under Microsoft Windows 7, 8.1, 10 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 VW-1404ZH-C.

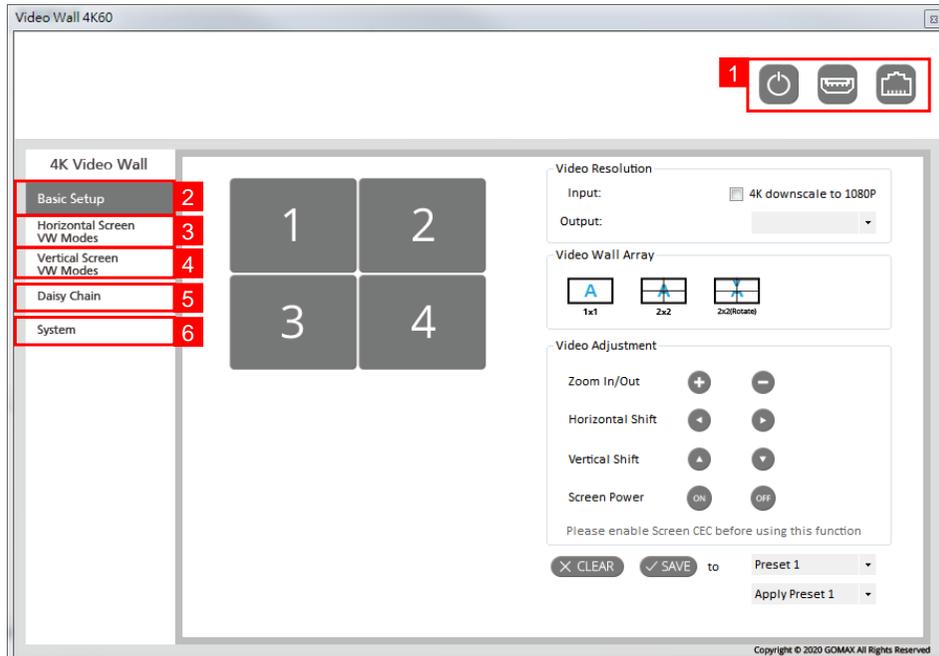
Start the software control program

Executing the control software, the following dialog will pop up. It has two ways to control the VW-1404ZH-C device (under Microsoft Windows 7, please run as administrator).

1. USB Connection: Use USB to connect the port on device and computer. Select correct virtual COM port and click **CONNECTED** button.
2. Ethernet Connection: Enter the device IP address and click **CONNECTED** button.



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

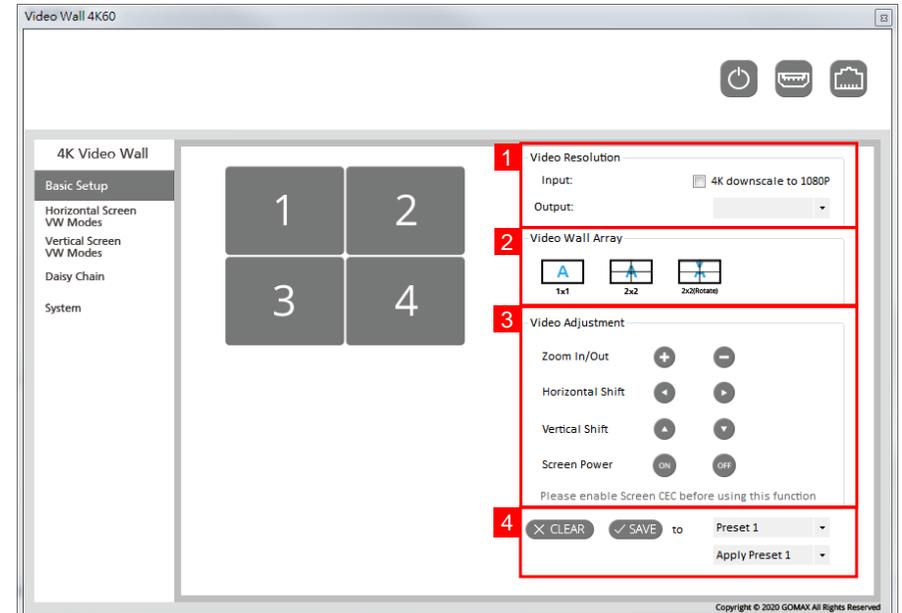


Control Interface

1. Connection Status:

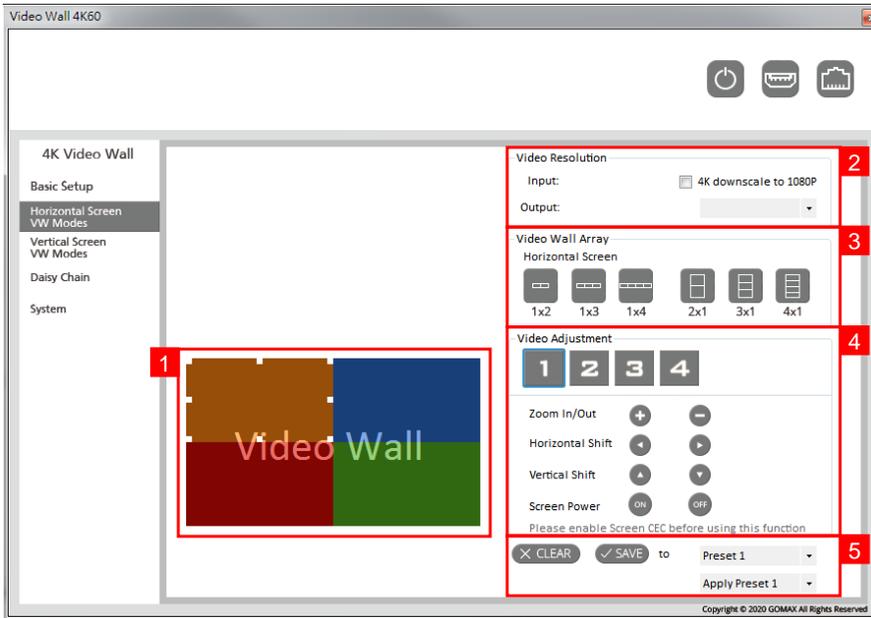
Show the connect information and status. When you successfully connect to the device, the graph of the power and connection way will change from blue to yellow. If you use USB control Mode to connect device, the graph is   . For IP control, the graph of Ethernet is   .

2. Basic Setup:



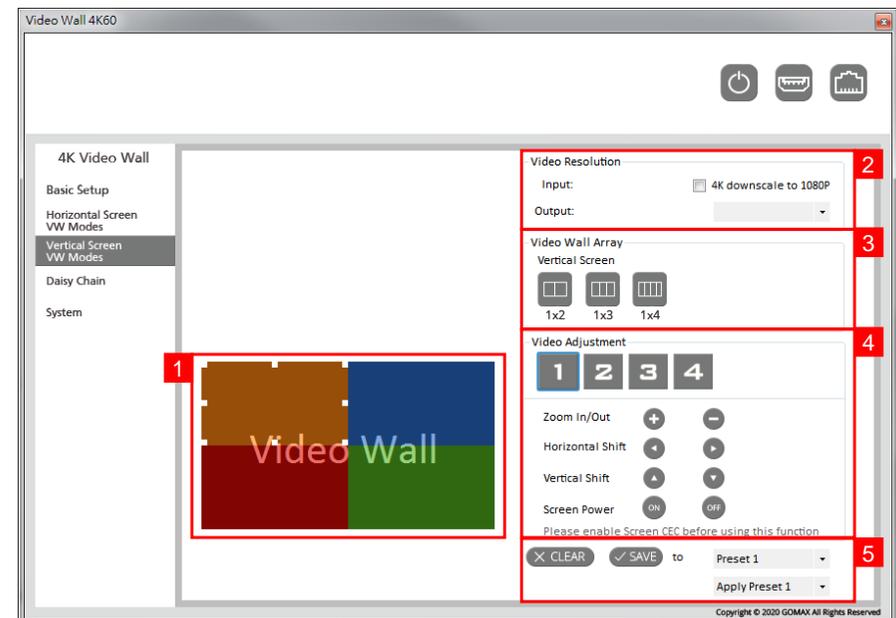
- (1) Video Resolution:
You can check input resolution and choose output resolution by using drop-down list. If the input resolution is 4K, you can click the option 4K downscale to 1080P downscale the resolution to 1080p.
- (2) Video Wall Array:
This function is not available when the input resolution is 4K2K@60Hz
You can select different display modes, including 1x1, 2x2, and 2x2(Rotated).
- (3) Video Adjustment:
Zoom In/Out, Horizontal Shift, Vertical Shift functions only support 2x2 mode
You can change the video size or move the video of each screen uniformly. In addition, you can also use the Screen Power function to turn on or turn off TVs.
- (4) Clear and Save:
If you want to clear the previous settings, you can click  button to restore the screens to default mode. Besides, we also provide 4 preset spaces to save the frequently used scenarios into the device.

3. Horizontal Screen VW Modes:



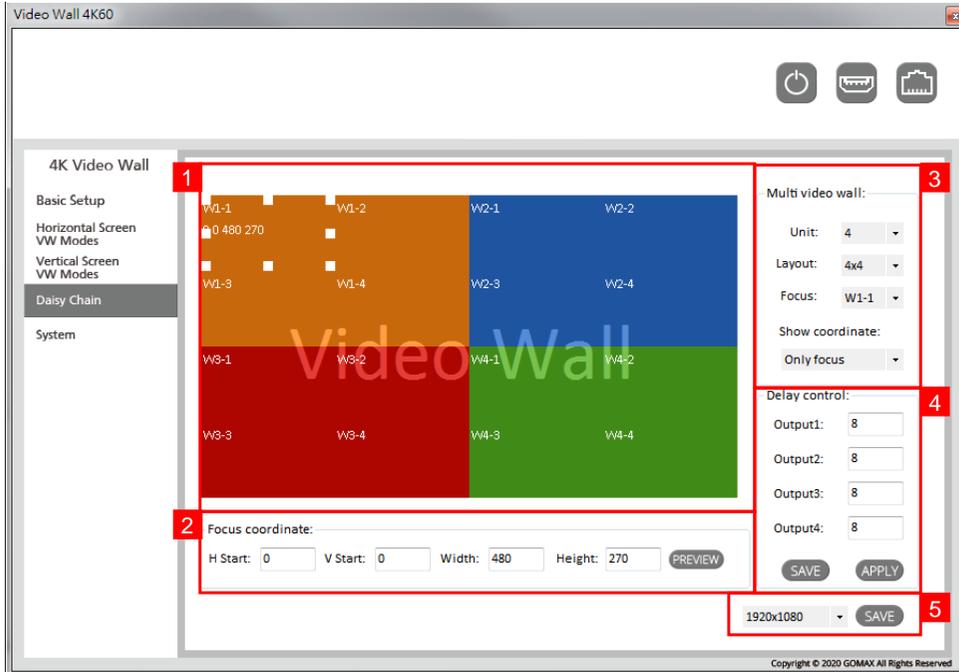
- (1) Output Layout Window:
You can view the screen status and control the position of output TV through the window. The different colors of window represent the different output TVs.
- (2) Video Resolution:
You can check input resolution and choose output resolution by using drop-down list. If the input resolution is 4K, you can click the option 4K downscale to 1080P to downscale the resolution to 1080p.
- (3) Video Wall Array:
This function is not available when the input resolution is 4K2K@60Hz
You can select different display modes, including 1x2, 1x3, 1x4, 2x1, 3x1, and 4x1. The examples are as follow:
 - 1x2 mode: The video will be divided into two parts from left to right and displayed on two TVs.
 - 3x1 mode: The video will be divided into three parts from top to bottom and displayed on three TVs. The remaining TV shows the full screen.
- (4) Video Adjustment:
You can change the video size or move the video of each screen individually. In addition, you can also use the Screen Power function to turn on or turn off TVs.
- (5) Clear and Save:
If you want to clear the previous settings, you can click button to restore the screens to default mode. Besides, we also provide 4 preset spaces to save the frequently used scenarios into the device.

4. Vertical Screen VW Modes:



- (1) Output Layout Window:
You can view the screen status and control the position of output TV through the window. The different colors of window represent the different output TVs.
- (2) Video Resolution:
You can check input resolution and choose output resolution by using drop-down list. If the input resolution is 4K, you can click the option 4K downscale to 1080P to downscale the resolution to 1080p.
- (3) Video Wall Array:
This function is not available when the input resolution is 4K2K@60Hz
You can select different display modes, including 1x2, 1x3, and 1x4. The examples are as follow:
 - 1x2 mode: The video will be divided into two parts from left to right, and rotated clockwise to be displayed on two TVs.
 - 1x3 mode: The video will be divided into two parts from left to right, and rotated clockwise to be displayed on three TVs. The remaining TV shows the full screen.
- (4) Video Adjustment:
You can change the video size or move the video of each screen individually. In addition, you can also use the Screen Power function to turn on or turn off TVs.
- (5) Clear and Save:
If you want to clear the previous settings, you can click button to restore the screens to default mode. Besides, we also provide 4 preset spaces to save the frequently used scenarios into the device.

5. Daisy Chain:



(1) Output Layout Window:

You can select the area by double left click of your mouse to adjust in the window. Then you can move the area position and change size directly. The different colors of window represent the different output TVs.

(2) Focus coordinate:

You can set the coordinates and size of the selected area, and click **PREVIEW** button after completing the settings.

- H Start / V start: Set the starting pixel value of the area.
- Width / Height: Set the width and height value of the area.

(3) Multi Video Wall:

- Unit: Video amount setting. Up to 4 units.
- Layout: Select video wall layouts. Max up to 4x4.
- Focus: Select the area you want to set.
- Show coordinate: Select the display coordinate modes. We provide 4 coordinate display modes, including No, Only focus, Only focus group, and All.

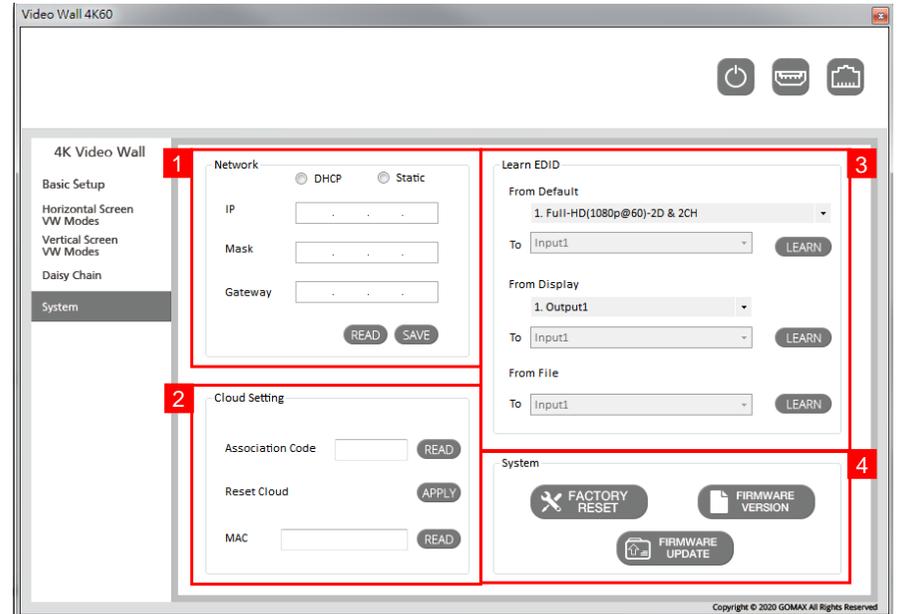
(4) Delay Control:

Each delay value should be the multiple of 8. You can apply your current settings to the output by clicking **APPLY** button or you can save it by clicking **SAVE** button.

(5) Video Resolution:

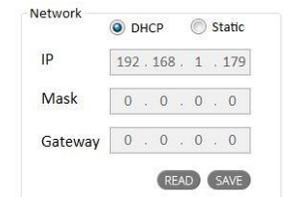
If you have clicked the option **4K downscale to 1080P** to downscale the resolution to 1080p in other modes, please select 1920x1080 output resolution. If you haven't clicked, please select 3840x2160 output resolution. After completing the settings, you can click **APPLY** button to save all settings with the current selected focus area.

6. System:



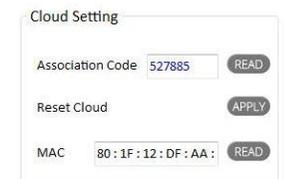
(1) Network:

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



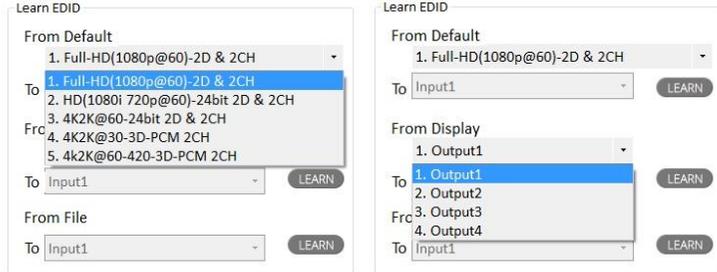
(2) Cloud Setting:

First, click the first **READ** button to get an "association code". The device can use this code to pair with cloud server. After a successful pairing, you can click **APPLY** button to reset cloud. Then, click the second **READ** button to get a string of codes to confirm if the paired device is correct.



(3) Learn EDID (Extended Display Identification Data):

- Learn EDID from default: Select default EDID (1-5 default EDID), then click **LEARN** button to learn default EDID.
- Learn EDID from display: Select the output, then click **LEARN** button to learn display EDID.
- Learn EDID from file: Click **LEARN** button to select the EDID file and write it into input.



(4) System:

- **FACTORY RESET:** Click **FACTORY RESET** button to do factory default reset. This default reset process will take about 5 seconds. After pop-up a dialog indicates complete, please restart this machine.
- **FIRMWARE VERSION:** Read the software and firmware version.



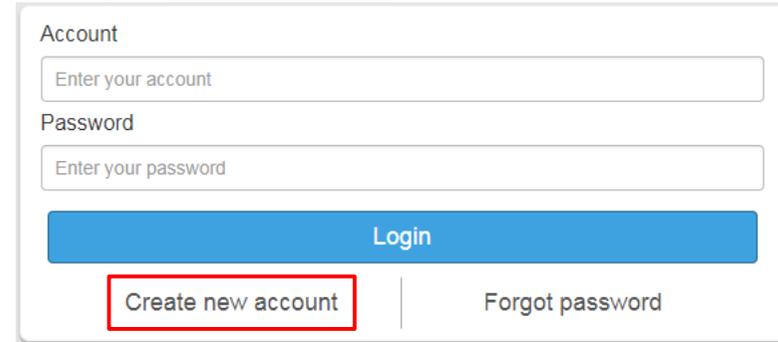
- **FIRMWARE UPDATE:**
 - I. Use CAT 5/5e/6 cable to connect the device's Ethernet port and router.
 - II. Set up the computer and device in the same domain.
 - III. Click **FIRMWARE UPDATE** button, then the update tool will pop up.
 - IV. Click **Load** button to load firmware.
 - V. Click **Start** button to start burning firmware.
 - VI. After the firmware is burned, the device will automatically restart and complete the firmware update.



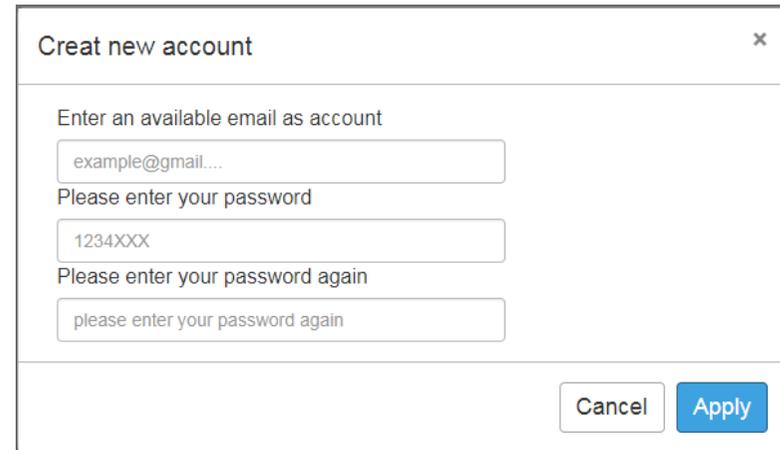
Method C: Cloud Control (Eagleyes) through Ethernet Port
Create Account

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

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

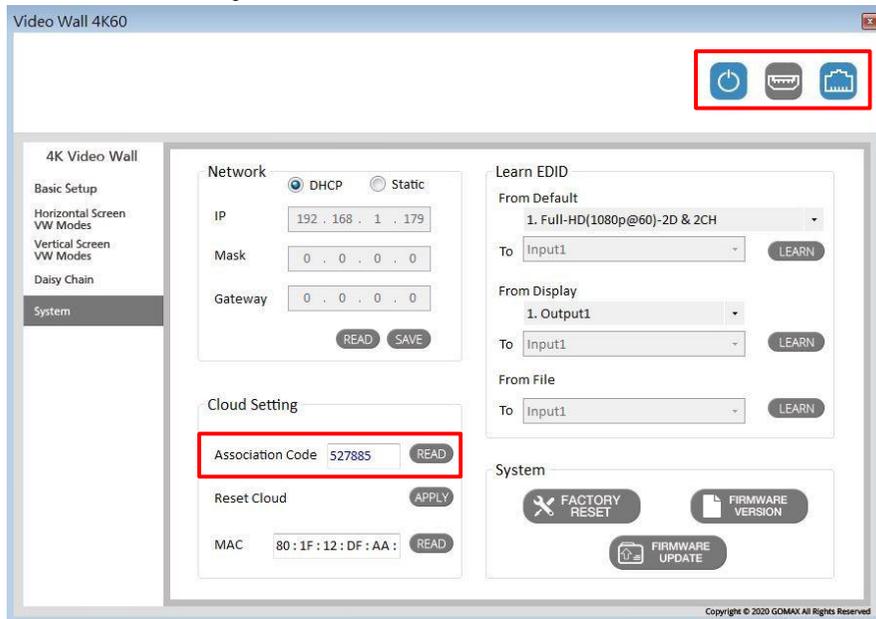


2. The Registration page will pop up and please fill in your email and password information to create your private account.

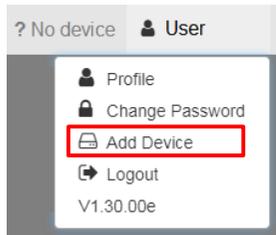


Add Device to Eagleyes

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

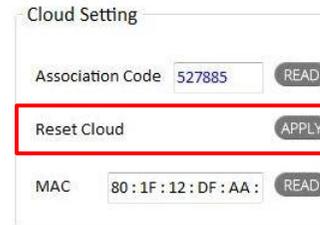


2. Access Eagleyes (<http://www.eagleyes.io>), and then log in your account on the right top corner. Click **"Add device"** to add the device which you just got its association code.

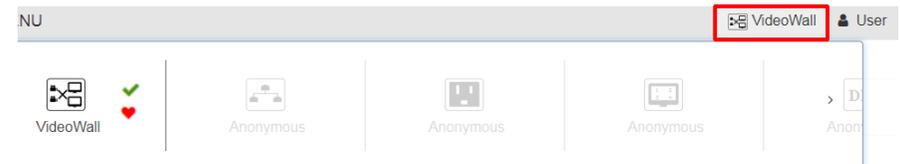


3. Enter the Installer Email for online support in the future, and the Association Code for pairing with your device.

4. Click **"APPLY"** button to reconnect cloud



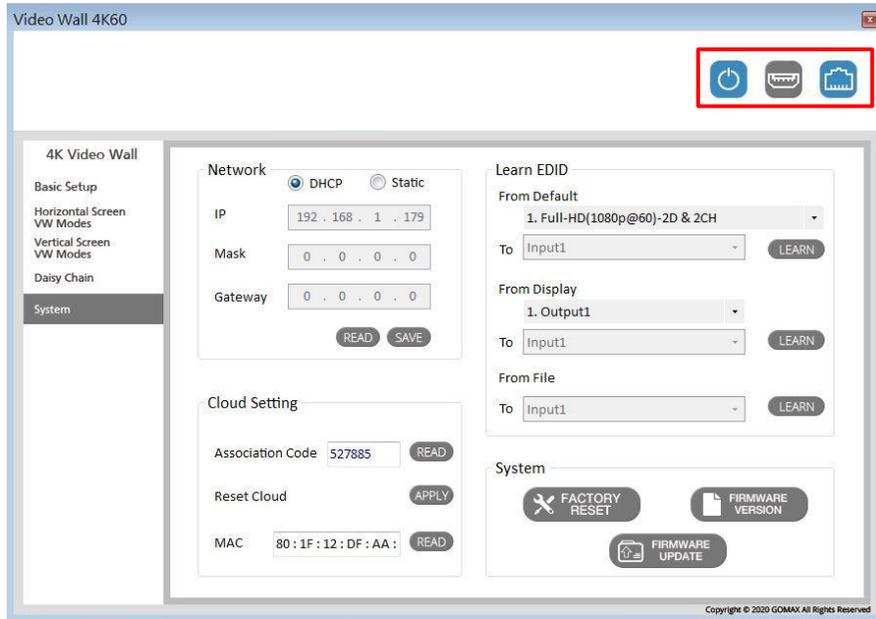
5. After adding the device, the list of device related to your account will show on the right top corner. You can click the button to switch device for control.



Method D: Web Control through Ethernet Port

Login

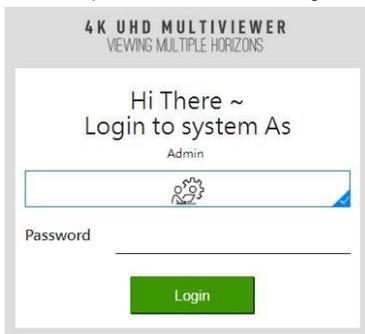
1. Firstly, please make sure the device is connected to the Ethernet. Then, please executing the software with the device, and confirm that the software is connected.



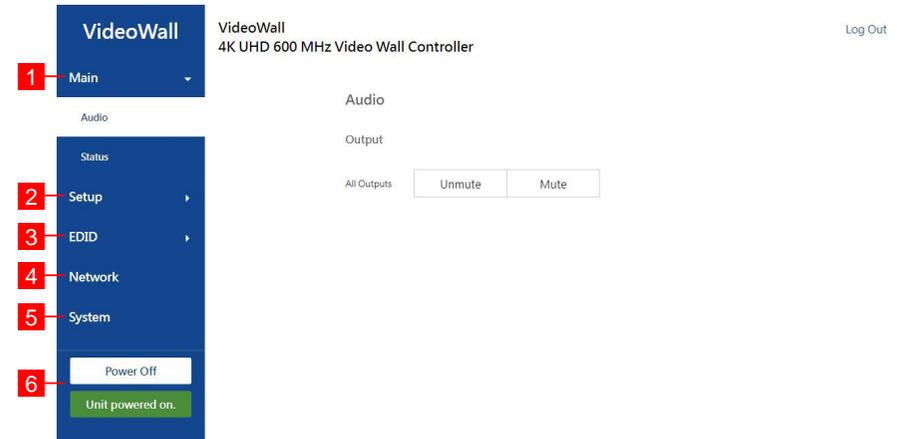
2. Click **"READ"** to get the IP address, then browse it.



3. Enter the password **"admin"** to login.



Control Interface



1. Main:

- (1) Audio:

You can unmute or mute all output audio.

Audio

Output

All Outputs

Unmute

Mute

- (2) Status:

You can check input and output status here.

Output

Feature	Output 1	Output 2	Output 3	Output 4
RSENSE	No	Yes	No	Yes
HPD	No	Yes	No	Yes
HDCP	No	Yes	No	Yes

Input

Feature	Input
Color Depth	8 bits
Color Space	YUV 444
HDCP	HDCP 1.4
Active Signal	Yes
Horizontal Resolution	1920
Vertical Resolution	1080
Progressive / Interlaced	Progressive
Refresh Rate	60Hz
Video Mode	HDMI

2. Setup:

(1) Output:

You can check input resolution and choose output resolution here. If the input resolution is 4K, you can click the option **Enable** to downscale the resolution to 1080p.

Input

4K Down

Output Resolution

Source 1920x1080 60Hz

640 x 480 60Hz	480p 60Hz	576p 60Hz	800 x 600 60Hz
1024 x 768 60Hz	720p 60Hz	1280 x 768 60Hz	1280 x 960 60Hz
1280 x 1024 60Hz	1366 x 768 60Hz	1440 x 900 60Hz	1680 x 1050 60Hz
1080p 60Hz	1920 x 1200 60Hz	1600 x 1200 60Hz	

(2) Layout:

We provide 8 quick select layouts, and 8 preset spaces to save the frequently used scenarios into the device. You can choose output 1-4 to set parameters, including Horizontal Start, Vertical Start, Horizontal End, Vertical End, and rotation method. Besides, you can move the area position and change size in the window directly.

Preset

Quick Selection



Custom Preset



Custom

Output

Horizontal Start Horizontal End

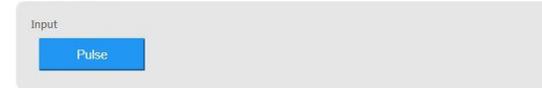
Vertical Start Vertical End

Save To

(3) HPD:

You can re-plug input and output by clicking **PULSE** button.

HPD Control



3. EDID:

(1) Mode:

You can select EDID mode of input.

EDID Mode

Input	EDID Mode
1	-- Internal --

(2) Info:

You can choose different input and output EDID through the drop-down list to check the feature and audio formats.

Choose EDID

Feature

24Hz Frame Rate	Y
Max Resolution	3840 x 2160
Max Color Depth	16 bits
Mode (DVI/HDMI)	HDMI
Max Audio Channels	2
Monitor Name	Matrix

Audio Formats

LPCM	2 Ch Max. 44kHz
DTS-HD	N
DTS Digital Surround™	N
Dolby® Digital	N
Dolby® TrueHD	N

(3) Update/Download:

You can click **BROWSE...** button to open EDID from file, and select the destination. Then press

UPLOAD button to upload EDID. You can also download EDID to your computer.

Upload EDID to Input

Select EDID File :

Download EDID to your Computer

Select EDID File :

4. Network:

- IP Settings: Set the Ethernet for the device and check relevant information here.
- Web Login Settings: Set new password for Administrator account.

IP Settings

MAC Address	80:1F:12:DF:DE:71	IP Address	192.168.1.84
HTTP Port	80	Subnet	0.0.0.0
Mode	<input type="checkbox"/> Static <input checked="" type="checkbox"/> DHCP	Gateway	0.0.0.0

Web Login Settings

Username	Administrator	Old Password	
New Password		Confirm New Password	

5. System:

In this function, user can read the firmware version here. In addition, you can click button to do factory default reset or click button to reboot the device.

Firmware Version: V1.0.4

Warning: All current settings will be lost

Factory Reset:

Reboot:

6. Power:

- Power Off / Unit powered on: The device is powered on. Click button to turn off the power
- Power On / In standby mode: The device is in standby mode. Click button to turn on the power.

<input type="button" value="Power Off"/>	<input type="button" value="Power On"/>
<input type="button" value="Unit powered on."/>	<input type="button" value="In standby mode."/>

Method E: APP Control through Ethernet Port

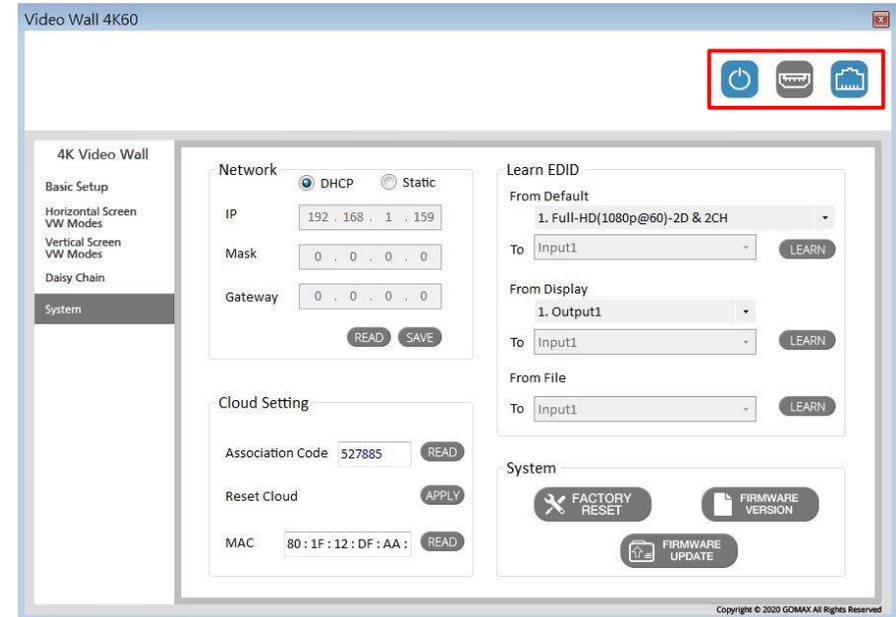
Download the APP

The first time to use the video wall APP, please search for "Video Wall" in Google Play Store or "Video-Wall" in App Store and download the App.

- Android: https://play.google.com/store/apps/details?id=com.gomax.gomax_vw_1404
- iOS: <https://apps.apple.com/app/id1515468591>

Add Device to APP

1. Firstly, please make sure the device is connected to the Ethernet. Then, please executing the software with the device, and confirm that the software is connected.



2. Click "READ" to get the IP address.

Network

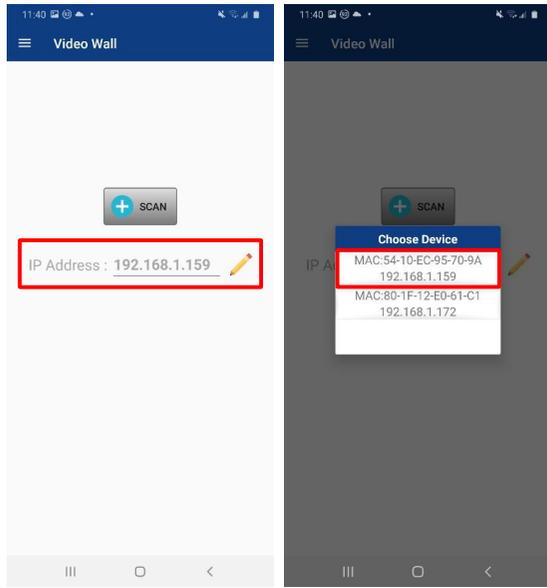
DHCP Static

IP: 192.168.1.159

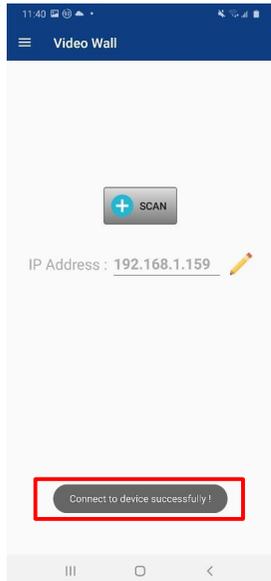
Mask: 0.0.0.0

Gateway: 0.0.0.0

3. Check your phone and device in the same domain. Then open the App, enter the "IP address" and click  button. Users can also click "SCAN" to choose device.



4. After adding the device, the message "Connect to device successfully" will pop up. Then you can start using the APP to control the device.



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.

The method on doing EDID learning please refer to the software operation section.

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

1. Full-HD(1080p@60)-24bit 2D & 2ch
2. HD(1080i 720p@60)-24bit 2D & 2ch
3. 4K2K@60-24bit 2D & 2ch
4. 4K2K@30-3D-PCM2CH
5. 4K2K@60-420-3D-PCM2CH(2ch)

WARRANTY

The SELLER warrants the **VW-1404ZH-C 4K 1x4 Video Wall Processor** 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 VW-1404ZH-C features and specifications is subject to change without further notice.**