# VW-1404C

## 4-Display Video Wall Processor

## User Manual

HDCP — HIGH-DEFINITION CONTENT PROTECTION

HDMI — HIGH-DEFINITION MULTIMEDIA INTERFACE

Full HD 1080

dvi — digital visual interface

x.v.Color

RoHS Compliance

FC

CE

# Safety and Notice

The **VW-1404C** **4-Display 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 **VW-1404C** 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.

**ESD CAUTION**

## TABLE OF CONTENTS

# INTRODUCTION

The **VW-1404C** **4-Display 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 255 by 255 squares. Virtually any setups for the display layout can be possible by the provided software. The **VW-1404C** 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 **VW-1404C** 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 and optimize visual effects. Typical applications include digital signage, and broadcasting/education/ surveillance systems etc.

# FEATURES

- Four DVI/HDMI outputs from 640x480 to 1920x1200 with a local loop out for monitoring
- Supports HDMI/DVI input, from 640x480 to 1920x1200@60, interlaced or progressive
- Supports 1080p/WUXGA
- 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
- Each output can support OSD control to do edge correction
- Compact size
- Supports input rotation

# PACKAGE CONTENTS

- 1x VW-1404C
- 1x User Manual
- 1x 1U rack-mounting ear set
- 1x 12V 5A power supply
- 1x Installation software CD
- 1x IR Remote control (15 keys)

# SPECIFICATIONS

| Model Name | | VW-1404C |
|---|---|---|
| **Technical** | | |
| Role of usage | | Video Wall Processor |
| HDCP compliance | | Yes |
| Video bandwidth | | DVI [Single-link 4.95Gbps]   HDMI[2.25G to 6.75Gbps] |
| Video support | | Up to 1920x1200@60 / 1600x1200@60 |
| Video Format Support | | HDMI/DVI |
| Video loop-out | | No |
| Audio support | | Yes |
| ESD protection | | Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge] |
| PCB stack-up | | 8-layer board [impedance control — differential 100Ω; single 50Ω] |
| Input | | 1x DVI-D + 1x USB + 1xRJ45 |
| Output | | 4x DVI-D + 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] |
| USB connector | | Type A |
| RJ-45 connector | | WE/SS 8P8C |
| **Mechanical** | | **VW-1404C** |
| Enclosure | | Metal case |
| Dimensions (L x W x H) | Model | 288 x 180 x 42mm [11.3" x 7" x 1.7"] |
| | Package | 494 x 225 x 70mm [1'6" x 8.9" x 2.8"] |
| | Carton | 510 x 380 x 252mm [1'7" x 1'2" x 10"] |
| Weight | Model | 1450g [ 3.2lbs] |
| | Package | 2.6kg [ 5.733lbs] |
| Fixedness | | 1U rack-mount with ears and Wall hanging holes |
| Power supply | | 12V 5A DC |
| Power Consumption | | 7.6W |
| Operation temperature | | 0~40°C [32~104°F] |
| Storage temperature | | -20~60°C [-4~140°F] |
| Relative humidity | | 20~90% RH [no condensation] |

**VW-1404C as master**

1. Connect all sources to DVI/HDMI Inputs on the VW-1404C.

2. Connect all display to DVI/HDMI Outputs on the VW-1404C.

3. Connect the +12V 5A DC power supply to the VW-1404C

# CONNECTION DIAGRAM
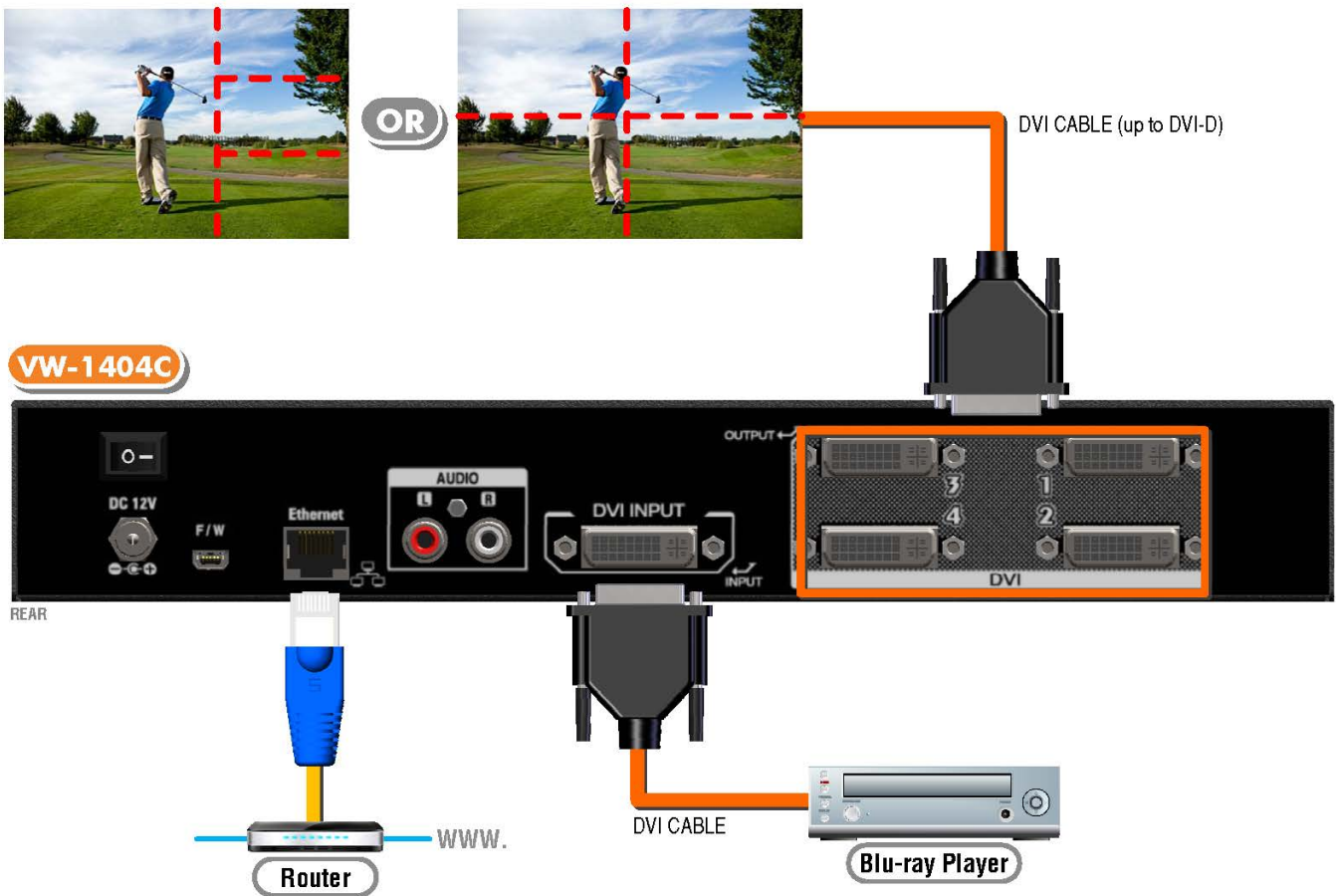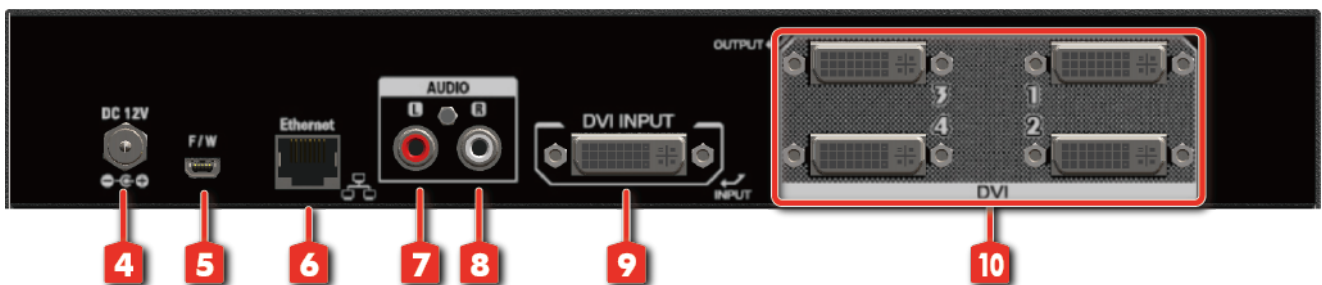
## Front Panel



1. **IR SENSOR:** IR sensor for receiving the IR commands from IR remote

2. **Power Status:** Power indicator LED

3. **Control buttons**

## Rear Panel



4. **+12V DC:** 12V DC power jack

5. **USB virtual com**

6. **Ethernet:** Ethernet control port

7. **Stereo audio output –L**

8. **Stereo audio output -R**

9. **INPUT:** DVI/HDMI input

10. **Output 1-4:** DVI/HDMI outputs

# SUPPORTED RESOLUTION

| Input resolution | Output resolution |
|---|---|
| 640x480 | 640x480@60Hz |
| 720x480 | 720x480@60Hz |
| 720x576 | 720x576@60Hz |
| 800x600 | 800x600@60Hz |
| 1024x768 | 1024x768@60Hz |
| 1152x864 | 1280x720@60Hz |
| 1280x720 | 1280x768@60Hz |
| 1280x768 | 1280x960@60Hz |
| 1280x800 | 1280x1024@60Hz |
| 1280x960 | 1366x768@60Hz |
| 1280x1024 | 1440x900@60Hz |
| 1360x768 | 1680x1050@60Hz |
| 1366x768 | 1920x1080@60Hz |
| 1400x1050 | 1920x1200@60Hz |
| 1440x240 | 1600x1200@60Hz |
| 1440x288(576i) | |
| 1440x900 | |
| 1600x900 | |
| 1600x1200 | |
| 1680x1050 | |
| 1920x540(1080i) | |
| 1920x1080 | |
| 1920x1200 | |

## Method A: IR Remote Control
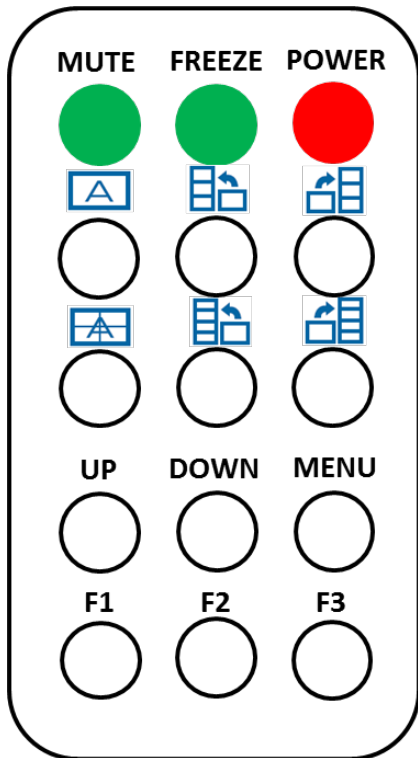
| Button | Function |
|---|---|
| POWER | Power On/Off the video wall processor |
| FREEZE | Pause the output's video and audio |
| MUTE | Turn off the output's audio |
| ⬚ | Fast switch to VW1x1 |
| ⬚ | Fast switch to VW3x1 (+90°) |
| ⬚ | Fast switch to VW3x1 (-90°) |
| ⬚ | Fast switch to VW2x2 |
| ⬚ | Fast switch to VW4x1 (+90°) |
| ⬚ | Fast switch to VW4x1 (-90°) |
| UP | Up key |
| DOWN | Down key |
| MENU | Call OSD menu and confirm |
| F1 | Reserved |
| F2 | Reserved |
| F3 | Reserved |

## Method B: Software Operation

## System Requirement and Precautions

1. Whenever power off VW-1404C, please stay unpowered at least 5 to 10 seconds to allow power capacitors to discharge.
2. The VW-1404C provides software control program which runs under Microsoft Windows 98, 2000, XP, 7 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-1404C.

## Start the software control program

When clicking on the executable file, the following dialog will pop-up. It has two ways to control the VW-1404C device (under Microsoft Windows 7, please run as administrator).

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

Ethernet Mode: Enter the device IP address and click the OK button.
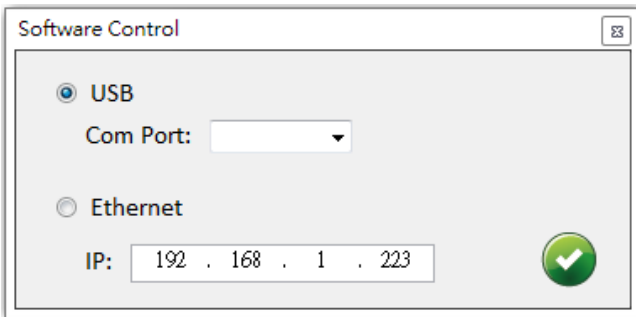


After the software control setting is accomplished, it will enter directly to control interface.
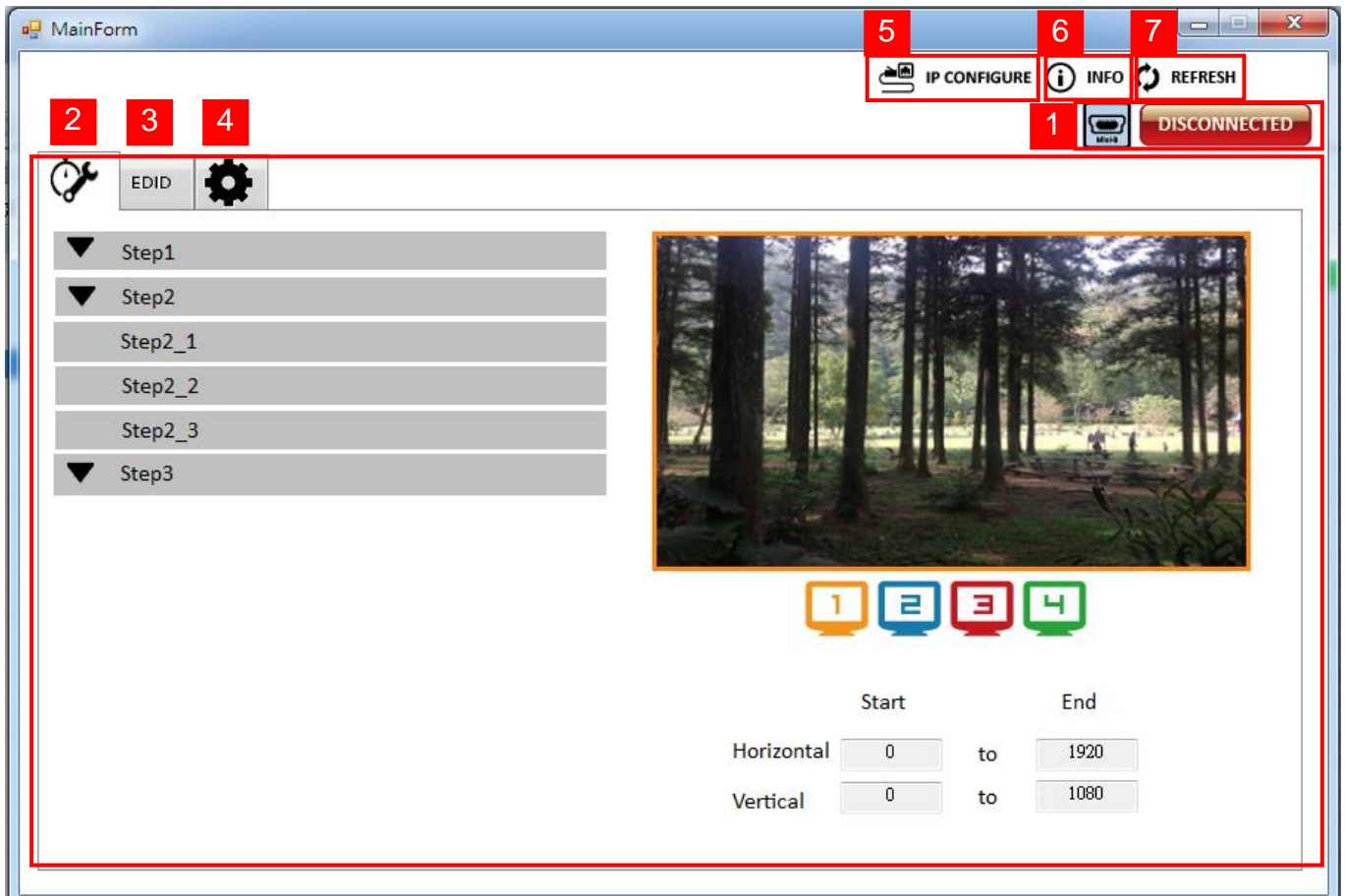
## Control Interface

1.  Connection Status:

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

2.  Quick Selection:

    In this part, you can set up the screen resolution, screen coordinate and split screen. At first, you should select the TV picture and you can set up the corresponding function. The different color of frame represents the different output TV. The information of coordinate shows the position of output TV.



|  | Start |  | End |
|---|---|---|---|
| Horizontal | 0 | to | 1920 |
| Vertical | 0 | to | 1080 |

(1)  Step 1

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

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.

* Notice 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

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 supports of 720p or 1080p resolution).

➢ 3x1: This mode will divide the screen into 3 parts and rotate the figure. The remains 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.
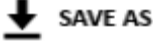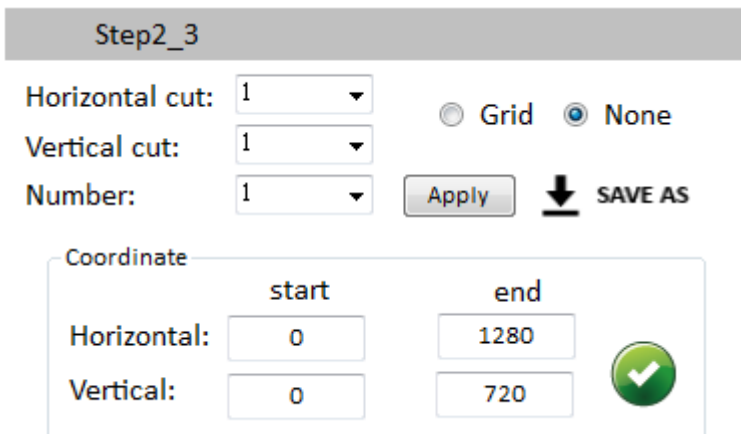
(4) Step 2-2

You can load and read configuration from the existing file.
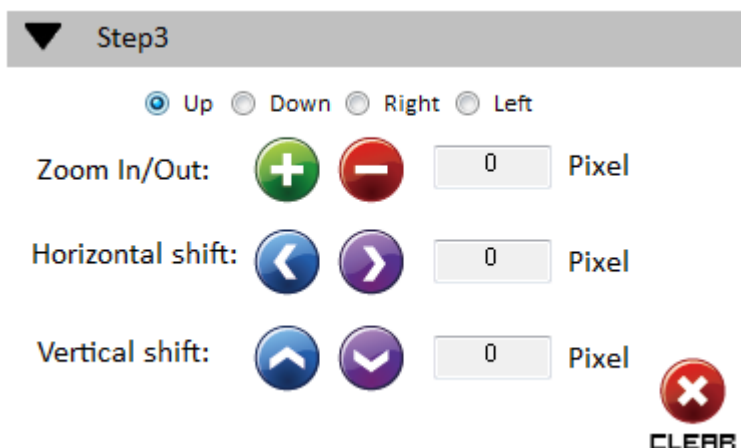
Step2_2

Load From File    Apply

(5) Step 2-3

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, then 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.

Step2_3

Horizontal cut: 1       ○ Grid   ⊙ None
Vertical cut:   1
Number:         1       Apply   ↓ SAVE AS

Coordinate
                start           end
Horizontal:      0              1280
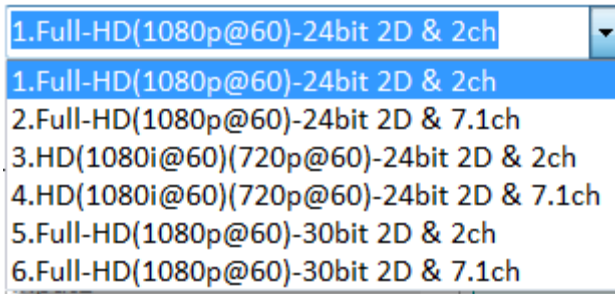Vertical:        0              720       ✓

(6) Step 3

➤ Zoom In/Out: You can increase/decrease a pixel from the edge of image by clicking ⊕ ⊖ 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.

▼ Step3

        ⊙ Up  ○ Down  ○ Right  ○ Left

Zoom In/Out:      ⊕ ⊖    0    Pixel

Horizontal shift: ◀ ▶    0    Pixel

Vertical shift:   ▲ ▼    0    Pixel    ⊗ CLEAR

3. EDID (Extended display identification data)
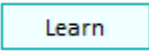
 (1) Learn EDID From Default

➢ Select Default EDID (1-6 default EDID).

```
1.Full-HD(1080p@60)-24bit 2D & 2ch          ▼
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
```
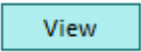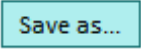
➢ Click [ Learn ] button to learn default EDID.

 (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.
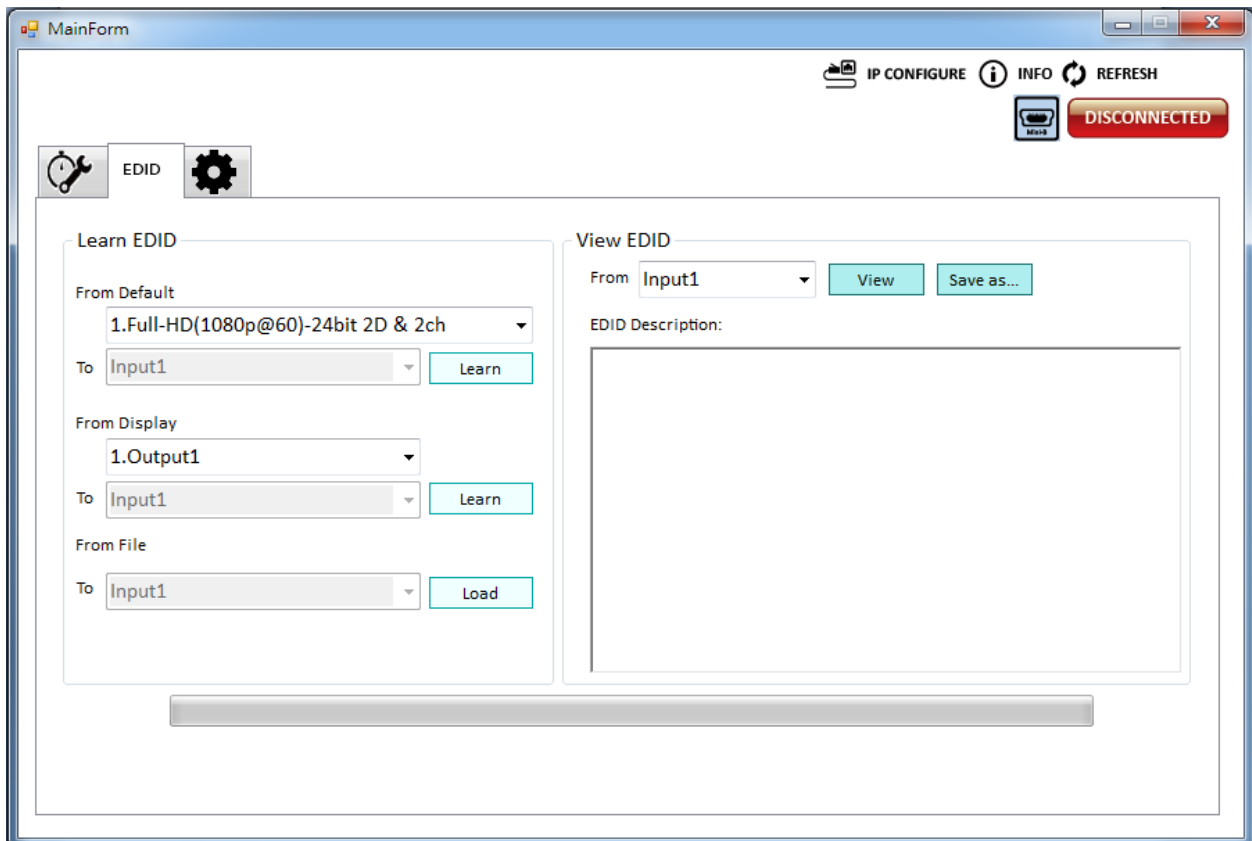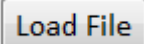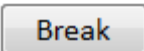
4. Advanced Setting

(1) Firmware Update

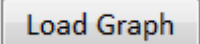- ➢ Make sure your USB is connecting and the connecting status is **CONNECTED**

- ➢ Click **Load File** button to select the firmware file which you want to update.

- ➢ Click **Break** button.

- ➢ Recycle power.

- ➢ Click **Start** button and the firmware will start to update.

(2) Machine Name

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

(3) Change Graph

You can change the default graph 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.

(4) Factory Reset

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

- ➢ This default reset process will take about 10 seconds.

Confirm

Are you sure you want to perform Factory-Reset command?
(The process will take about 10 seconds!)

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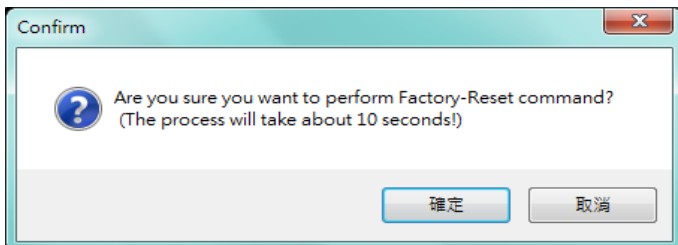
- ➢ After pop-up a dialog indicates complete, please restart this machine.

Complete

確定
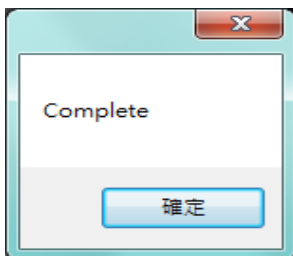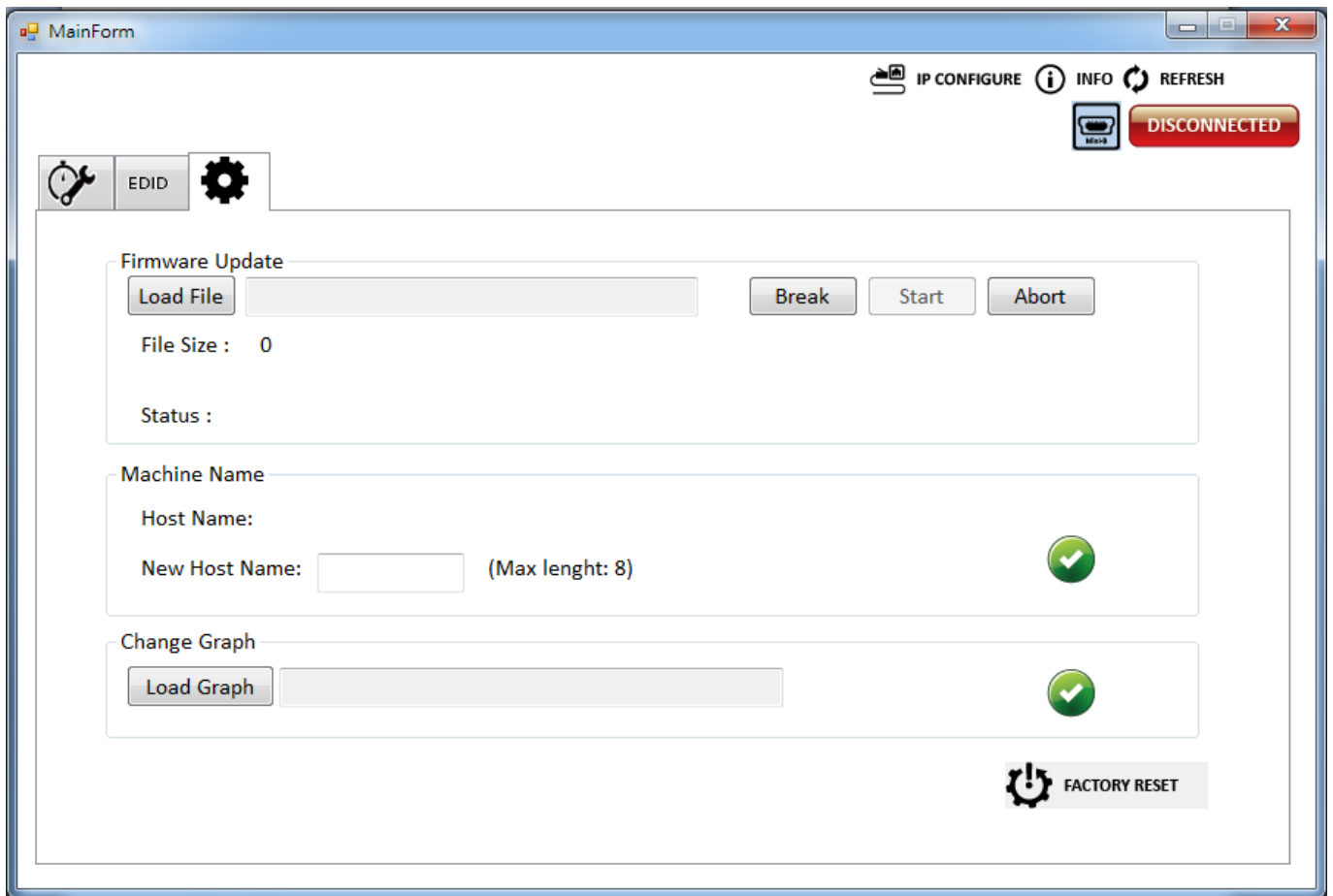
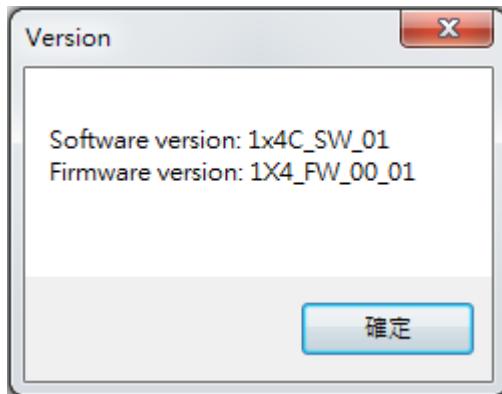5. IP Configure

You also can use the Ethernet to control software program. First, you should click the

 button to setup network set. Next, you can read the Ethernet setting from device or manually set to device. After the step of IP configuration, please restart the machine.
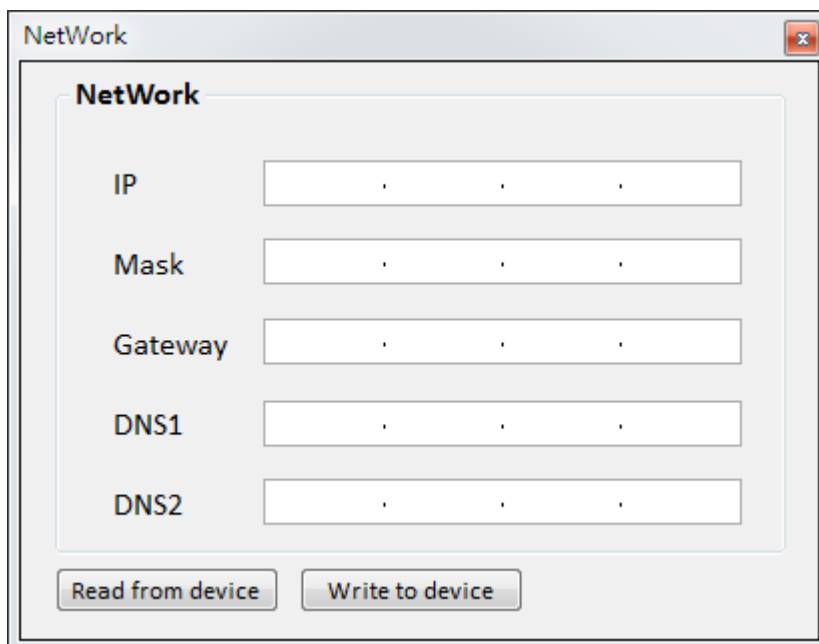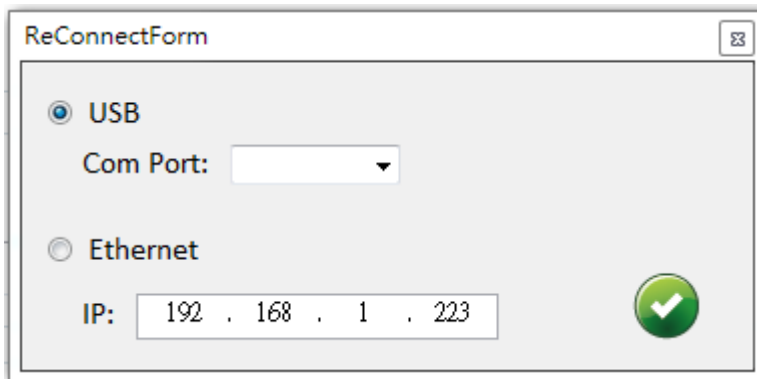
6. Info

Read the software and firmware version.



7. 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. After you click this button, pop-up a "ReConnectForm" window, shows you can select the approach to connect this 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.

There is **a method** to do EDID Learning as below:

Software Control: Please refer to the **Operation Approach\ Method B: Software Control through RS-232 port (Page 7~15.)**

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

# WARRANTY

The SELLER warrants the **VW-1404C** **4-Display 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-1404C features and specifications is subject to change without further notice.**