



User Manual

v1.0.1

Contents

- Contents 2
- Overview 3
- Features 3
- Package Contents 3
- Specifications 4
- Panel Description 5
- Installation 7
- Wiring Diagram 8
- Control of the Video Wall Processor 10

Overview

This product is a 4K 4 displays landscape orientation video wall processor, which allows fast switching between 2 HDMI Input sources. It supports 1x4 (row * column) and 2x2 (row * column) video wall layout modes, and features HDMI 2.0, HDCP 2.3, and resolutions up to 4K@60 4:4:4 8bit. With one analog audio output port built-in, the unit can output de-embedded audio from the selected input source and also supports set audio output delay time to synchronize audio and video output. Each input supports EDID setting, and each output has independent auto scaler function to enable best quality video output. Multiple control options including front panel buttons, RS232 and LAN (telnet & web UI) enable the unit can meet different requirements.

This product is designed for professional markets, such as shopping mall, corporate training rooms, hotel meeting rooms, and digital menu in restaurant etc.

Features

- Supports 1x4 (row * column) and 2x2 (row * column) video wall layout modes, and select source between two HDMI inputs.
- Supports HDMI 2.0 with 4K@60Hz 4:4:4 8bit, especially 3840x600 wide-screen resolution.
- HDCP 2.3 and backwards compatible.
- EDID management including EDID presets, EDID copy and customized EDID.
- Each HDMI output supports an independent auto scaler for outputting the best quality video.
- Supports fast switching between two HDMI.
- An analog audio output port outputs de-embedded audio from selected input, and can set audio output delay time.
- Supports power on/off the displays automatically via CEC function.
- Supports multiple control options, including front panel buttons, RS232 and LAN (telnet & web UI).

Package Contents

- 1 x Video Wall Processor
- 1 x DC 12V Power Adapter
- 1 x AC Power Cord with US Pins
- 1 x AC Power Cord with EU Pins
- 1 x AC Power Cord with AU Pins
- 1 x AC Power Cord with UK Pins
- 1 x Phoenix Male Connector (3.5mm, 3 Pins)
- 1 x Phoenix Male Connector (3.5mm, 5 Pins)
- 4 x Mounting Brackets (with Screws)
- 1 x Quick Start Guide

Specifications

Technical

Input/Output Ports	2 x HDMI IN, 4 x HDMI OUT, 1 x RS232, 1 x AUDIO OUT (3.5mm phoenix connector, 5 Pins), 1 x LAN CONTROL, 1 x DC 12V
Input/Output Video Type	Max: 4K@60Hz 4:4:4 8bit, HDCP 2.3
Input Resolution Supported	800x600 ₈ , 1024x768 ₈ , 1280x768 ₈ , 1280x800 ₈ , 1280x960 ₈ , 1280x1024 ₈ , 1360x768 ₈ , 1366x768 ₈ , 1440x900 ₈ , 1600x900 ₈ , 1600x1200 ₈ , 1680x1050 ₈ , 1920x1200 ₈ , 720x576P ₆ , 1280x720P _{6,7,8} , 1920x1080P _{2,5,6,7,8} , 3840x600 ₈ , 3840x2160 _{2,3,5,6,8} , 4096x2160 _{2,3,5,6,8} , 2 = at 24 Hz, 3 = at 25 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = 60 Hz
Audio Format	HDMI IN/OUT: PCM 2.0 AUDIO OUT: Stereo
Maximum Data Rate	18Gbps
Control Method	Front panel buttons, RS232, LAN (Telnet API & Web UI)

General

Operating Temperature/RH	0°C ~ 45°C (32°F ~ 113°F)
Storage Temperature/RH	-20°C ~ 70°C (-4°F ~ 158°F)
Humidity	10% ~ 90%, non-condensing
ESD Protection	Human-body model: ±8kV (air-gap discharge)/ ±4kV (contact discharge)
Power Supply	DC 12V, 3A
Power Consumption (max)	16W
Dimensions (W x H x D)	215mm x 42mm x 140.2mm/8.46" x 1.65" x 5.52" (Without mounting brackets)
Weight	1.12kg/2.47lbs

Transmission Distance

HDMI	Input: 15m/50ft Output: 10m/33ft	1080P@60Hz 24bpp
	Input/Output: 10m/33ft	4K@30Hz 4:4:4 24bpp 4K@60Hz 4:2:0 24bpp
	Input/Output: 3m/10ft	4K@60Hz 4:4:4 24bpp

Panel Description

Front Panel



A	Power LED	<ul style="list-style-type: none">On: The device is powered on.Off: The device is powered off.
B	INPUT SELECT Button & LED 1	INPUT SELECT Button 1: Press to select HDMI IN 1 as input source. LED 1: <ul style="list-style-type: none">On: The HDMI IN 1 is selected as input source.Off: The HDMI IN 1 is not selected as input source
C	INPUT SELECT Button & LED 2	INPUT SELECT Button 1: Press to select HDMI IN 2 as input source. LED 2: <ul style="list-style-type: none">On: The HDMI IN 2 is selected as input source.Off: The HDMI IN 2 is not selected as input source.

Rear Panel



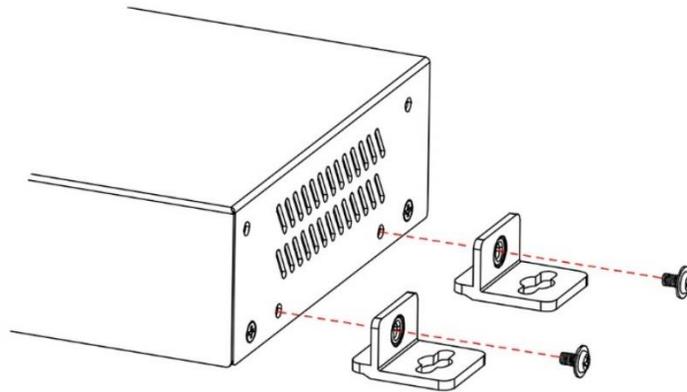
A	DC 12V	Connect to the provided DC 12V power adapter.
B	HDMI IN 1 & 2	Connect to HDMI sources.
C	HDMI OUT 1~4	Connect to HDMI displays for video wall connection.
D	RS-232	Connect to a RS232 enabled control device for API control.
E	LAN CONTROL	Connect to a network device (e.g., network switch, router, computer, etc.) for LAN control (Web UI & Telnet).
F	AUDIO OUT	Connect to an audio receiver for outputting de-embedded audio.

Installation

Note: Before installation, please ensure the device is disconnected from the power supply.

To install the device on a suitable place:

1. Attach the bracket to one side of the enclosure using the screws provided. The bracket is attached to the enclosure as shown.



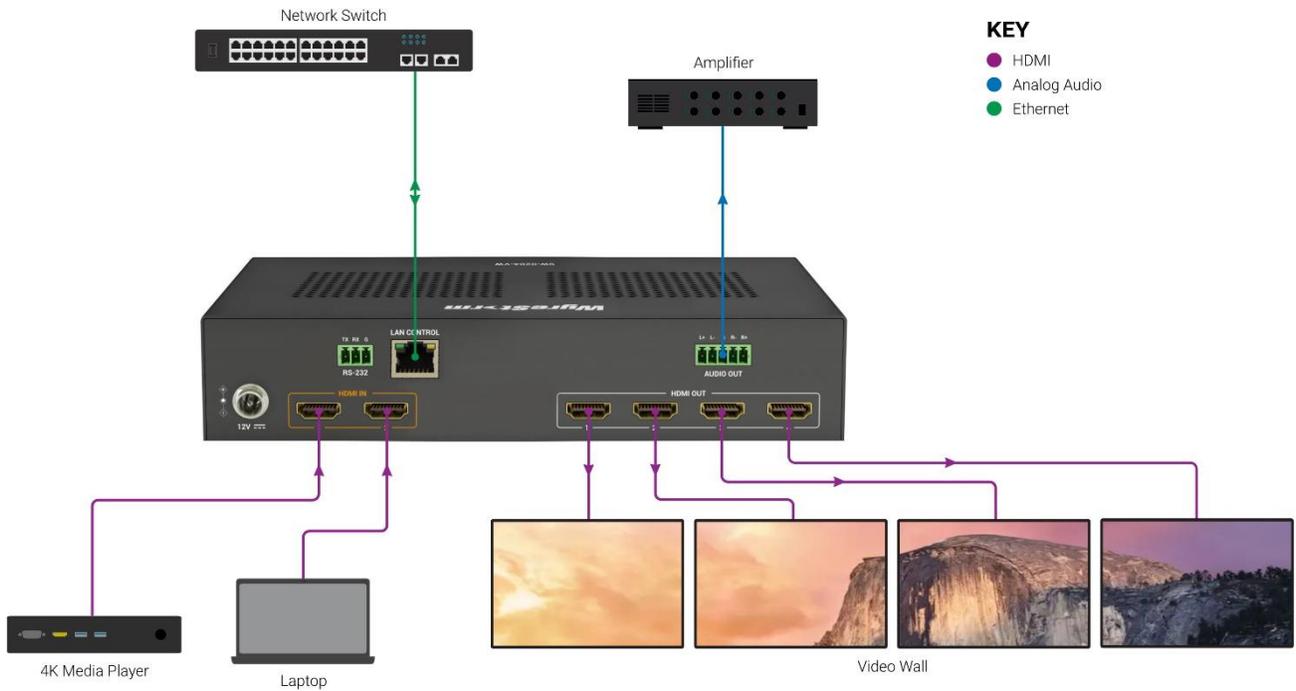
2. Repeat step 1 for the other side of the enclosure.

3. Attach the brackets to the surface or location desired using screws (not included in the package).

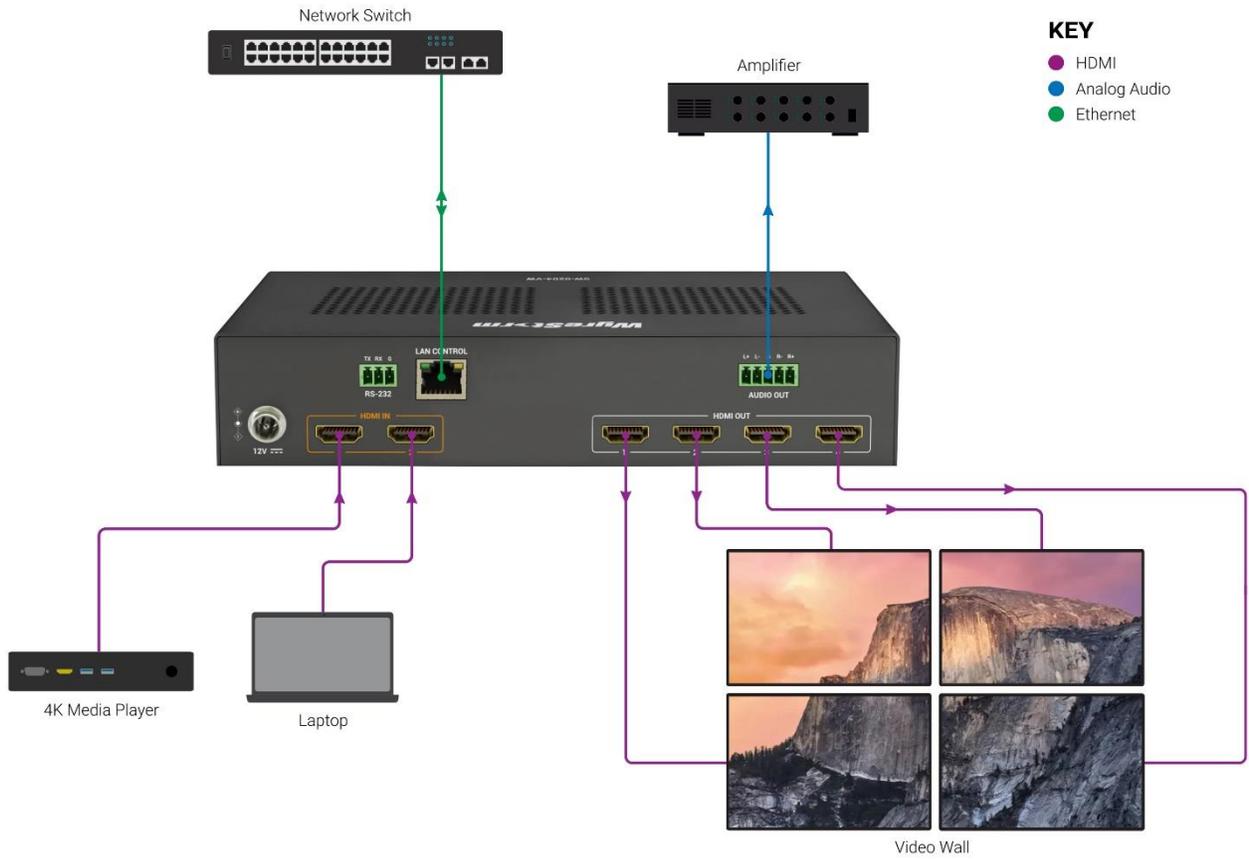
Wiring Diagram

The video wall processor supports 1x4 (row * column) and 2x2 (row * column) video wall layouts. Users can select any input as source of the video wall, set output distribution, set bezel correction and set 180° rotation of output image (to facilitate video wall setup using TV display) through API commands or web UI. Detail information, please refer to the separate document "API Command Set_SW-0204-VW" or "Web UI Control" section.

1x4 Layout Mode:



2x2 Layout Mode:



Control of the Video Wall Processor

The device supports multiple control options, including front panel buttons, RS232, LAN (web UI & telnet).

Front Panel Button Control

The device features two buttons on front panel for source selection. Press button 1/2 to select HDMI IN 1/2 as input source, and the corresponding LED will be lit up.

Command Control

Advanced users may need to control the device via API commands. API commands can be obtained from the separate document "API Command Set_SW-0204-VW".

1. RS232

Connect a control PC to the RS232 port of the device. Before sending API commands to control the device, ensure the serial ports between this device and PC are configured correctly. A professional RS232 serial interface software (e.g., Serial Assist) may be needed as well.

Baud Rate	115200 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow Control	None

2. Telnet

Connect a control PC to the LAN port of the device. Before you intend to control the device through telnet API, you shall establish connection between this device and your computer.

The form of the command for telnet connection is below:

telnet ip (port)

- *ip*: The device's IP address.
- *port*: The device's port number, this is non-required for some Telnet control tools. Default setting is 23.

For example, if the device's IP address is 192.168.11.143, the command for telnet connection shall be the following:

telnet 192.168.11.143

Obtain IP Address of the Device

To obtain the device's IP address:

- 1) Connect a control PC to the RS232 port of the device.
- 2) Configure RS232 parameters for the PC's serial port correctly through a RS232 serial port tool, such as Serial Assist.
- 3) Input the command GET IPADDR<CR><LF> and send. You will get a response with IP address, see following:

Input:

GET IPADDR<CR><LF>

Response:

IPADDR 172.16.18.173 MASK 255.255.255.0 GATEWAY 172.16.18.1

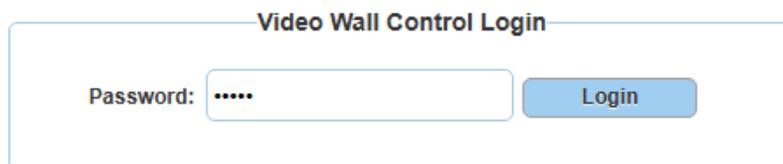
Web UI Control

The Web UI designed for the matrix allows basic controls and advanced settings of the matrix and can be accessed through a browser with latest version, e.g., Chrome, Safari, Firefox, Opera, IE10+, etc.

The default IP mode of the matrix is DHCP. Default login password for Web UI is "admin".

To get access to Web UI

1. Connect the LAN CONTROL port of the device to the ethernet switch with DHCP server, and connect the PC to the same ethernet switch.
2. Get the IP address through the "SmartSetGUI" tool on PC or sending command "GET IPADDR<CR><LF>" (see "Obtain IP Address of the Device" section).
3. Input the IP address obtained in the last step in the browser and press "Enter" key on keyboard.
4. The following window pops up. Input the password (default password: admin) and click Login:



When logging into the web UI for the first time, after clicking "Login", users will enter the following window to change login password. Input new password and click "Apply" to enter the main page.

Change Password

Please change your password to continue

New Password

Confirm New Password

Apply

Note: Password must be 4 to 16 characters in length, alphanumeric only.

Note: The new password must be 4 to 16 characters in length, alphanumeric only.



MX-0204-VW

Web UI Version: V1.0.4

Video Wall Control General Setting Advanced Setting

▶ Video Wall

▶ Audio Control

▶ Video Output Resolution

The main page includes three tabs: Video Wall Control, General Setting and Advanced Setting.

Web UI Introduction

1. Video Wall Control

1) Video Wall

Video wall layout

1x4
 2x2

Display 1	Display 2	Display 3	Display 4
OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4

Video wall outputs

	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4
Display 1				
Display 2				
Display 3				
Display 4				

Video wall inputs

	INPUT 1	INPUT 2
Source		

Bezel Adjustment

VW: 0
OW: 0
VH: 0
OH: 0

Apply

Video wall flip

OUTPUT 1 OUTPUT 2 OUTPUT 3 OUTPUT 4

UNIT: 1mm

This section allows users to select video wall layout, set output distribution, select input source, set bezel correction and set video wall image rotation

- Video wall layout: Click the circle (turn from white to green) in front of 1x4 or 2x2 to select corresponding video wall layout. By default, the layout is 1x4 mode. The schematic diagram on the right side shows the current selected layout mode.
- Video wall outputs: Click the button in the table to set the positions of the outputs in videowall (button turns from white to green once selection is done).

Default Setting:

In 1x4 mode: from left to right they are OUPUT 1, OUTPUT 2, OUTPUT 3 and OUTPUT 4.

In 2x2 mode:

Display 1: OUTPUT 1;

Display 2: OUTPUT 2;

Display 3: OUTPUT 3;

Display 4: OUTPUT 4.

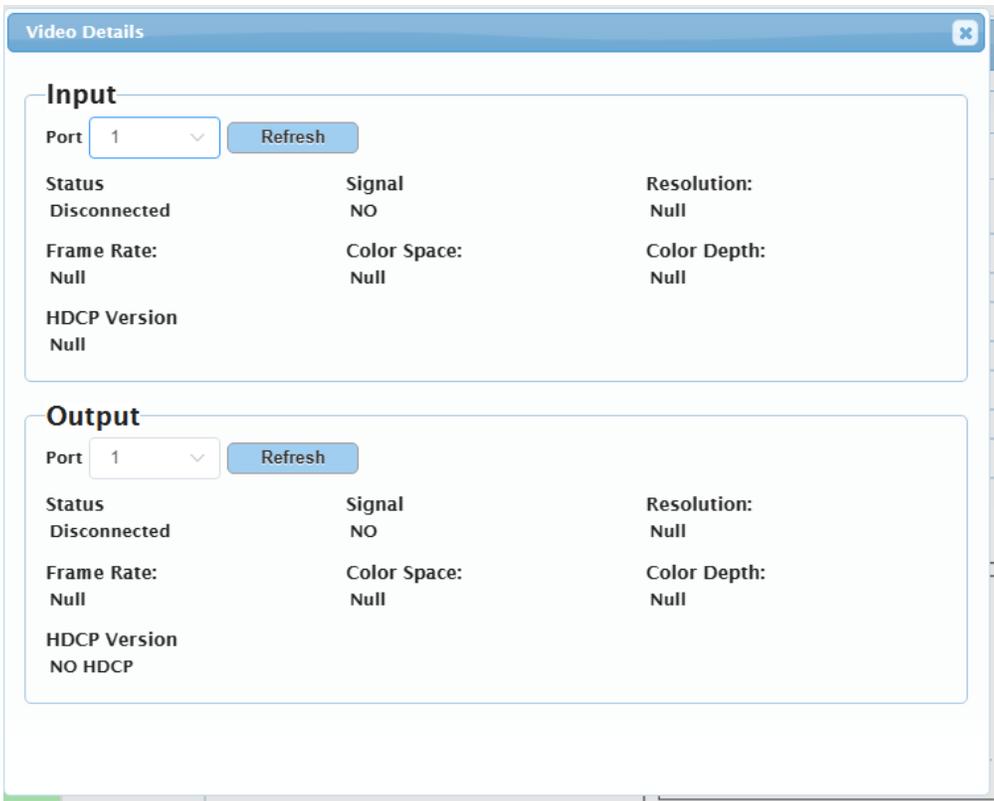
Note: Prefer to keep the OUTPUT port connect with the associated display in the video wall set-up, for example, OUTPUT 1 connects to Display 1.

- Video wall inputs: Click the button in the table to select input source for the videowall (button turns from white to green once selection is done).

Default setting: INPUT 1

- Video wall flip: Click the check box before the output 1-4 to set the corresponding image to be rotated 180°. Default setting: unchecked.
- Bezel Adjustment: Set bezel compensation, so that there is no position deviation of image from each screen in the videowall. Default settings: 0; Range: 0-10000
 - OW/OH: These are the outside width/height of each videowall display.
 - VW/VH: These are the inner width/height of each videowall display.
 - Apply: Click to apply the bezel correction settings.

Note: To ensure proper visual display, all videowall displays are recommended to be same size.
- Video Details: Click to enter the following window to get video details (such as connection status, signal and resolution) of input and output.



- Port: Click to select the input/output port to show its video details.
- Refresh: Click to refresh the current video information

2) Audio Control

▼ Audio Control

HDMI Audio MUTE

OUTPUT 1 ON

OUTPUT 2 ON

OUTPUT 3 ON

OUTPUT 4 ON

De-embedding Audio Control

Audio Out Mute OFF

Audio Out Delay (0~100ms)

This section allows users to set HDMI audio output to mute/unmute, set analog audio output to mute/unmute, and set delay time of analog audio output.

- HDMI Audio MUTE: Select to mute/unmute audio for selected HDMI output port. Default setting: ON (mute).
- De-embedding Audio Control:
 - Audio Out Mute: Click to set analog audio output to mute/unmute. Default setting: OFF (unmute).
 - Audio Out Delay (0~100ms): When De-embedding Audio Out Mute is set to ON, click the up and down arrow buttons to set audio out delay time. Default setting: 0ms.

3) Video Output Resolution

▼ Video Output Resolution

Auto **Manual**

Resolution

This section manages resolution configurations for output video wall. Two operation options are provided for each output.

- Auto: Select to automatically adapt to display EDID and resolution. E.g., If the display supports up to 4K@30Hz, the device will output signal with 4K@30Hz.
- Manual: Select a desired output resolution from the Resolution dropdown menu for the selected output port.

Default setting: Auto.

2. General Setting

▼ Source Naming

Input 1 Input 2

Note: The length of alias name is limited to 15 characters total. Save Reset

▼ Zone Naming

Output 1 Output 2 Output 3

Output 4

Note: The length of alias name is limited to 15 characters total. Save Reset

This section allows users to change to new input ports' names and output ports' names.

- Save: Click to save and apply all changes.
- Reset: Click to reset all changes.

Note: The length of each new name shall not exceed 15 characters

3. Advanced Setting

1) Low Power Mode

▼ Low Power Mode

Standby: OFF

This section provides setting of Lower Power Mode. In Low Power Mode, the device will shut down all video outputs and enter standby status.

- ON: Select to turn on Lower Power Mode to make the device enter standby status.
Note: When on is selected, the web UI page will log out, you need to re-login to enter the main page.
- OFF: Select to turn off Lower Power Mode to make the device work properly.

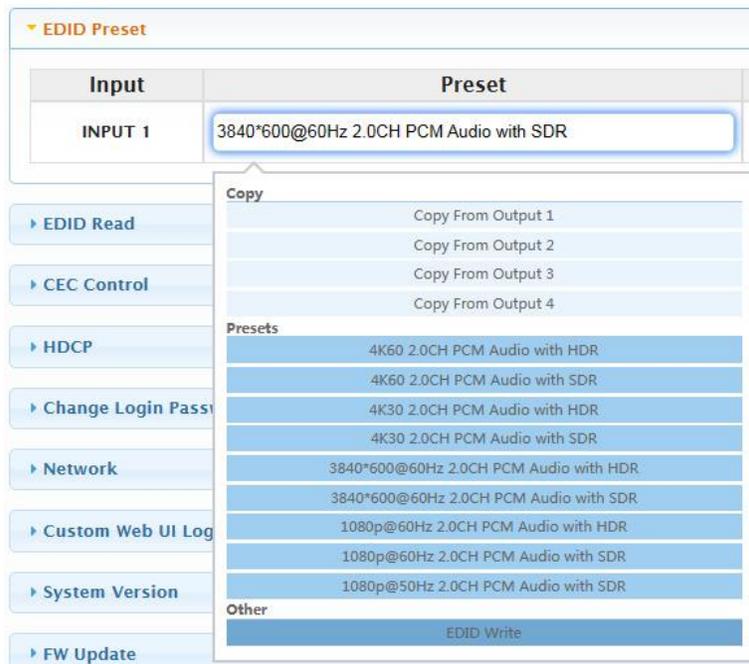
Default setting: OFF.

2) EDID Preset

▼ EDID Preset

Input	Preset	Input	Preset
INPUT 1	<input type="text" value="3840*600@60Hz 2.0CH PCM Audio with SDR"/>	INPUT 2	<input type="text" value="3840*600@60Hz 2.0CH PCM Audio with SDR"/>

This section allows users to configure EDID setting for each input port. Available EDID options are provided from the dropdown menu, click to select a desire option.

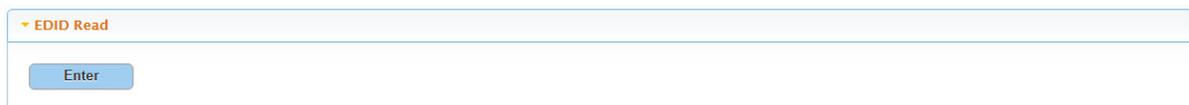


Default setting: in 1x4 mode: 3840*600@60Hz 2.0CH PCM Audio with SDR; in 2x2 mode: 4K60 2.0CH PCM Audio with SDR.

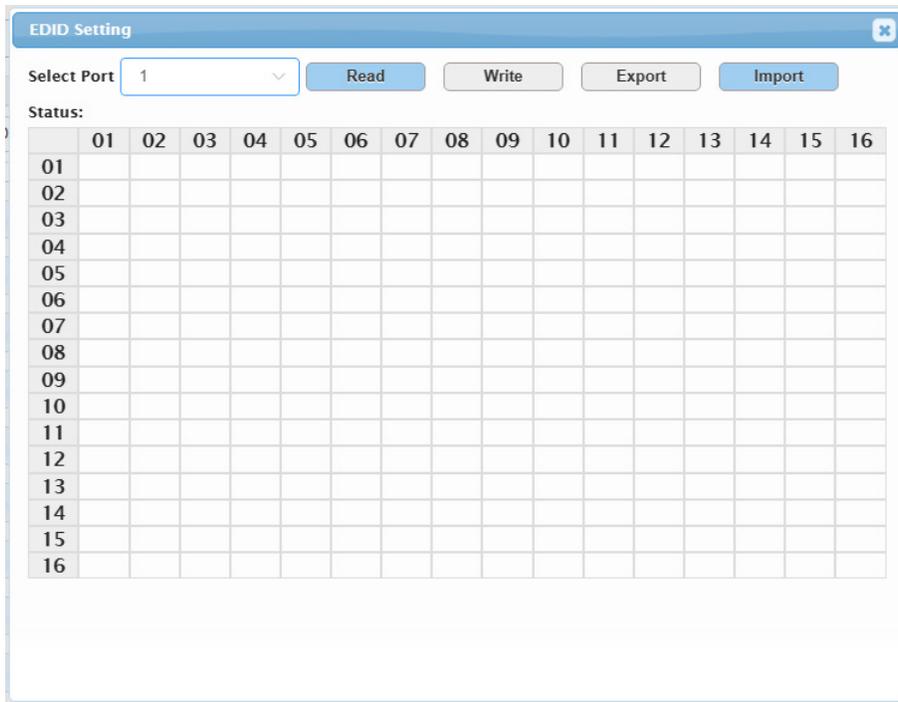
Note:

- In factory settings, different video wall layout modes have different default EDIDs. When users set EDID of inputs, in different video wall modes, the EDID of the corresponding inputs will be the EDID value set by users.
- When set EDID of an input to "EDID Write", EDID setting page will be opened, see "EDID Read" part to get detail setting information.

3) EDID Read



Click Enter to enter EDID Setting page, select the desired HDMI output and click to "Read" its EDID information.



- Read: Click to read the selected output port's EDID information.
- Write: Click to write EDID information to the selected input port.
- Export: Click to export EDID file to local computer.
- Import: Click to import EDID file from local computer.

4) CEC Control

▼ CEC Control				
Output	Manual		Auto	
	Display On	Display Off	On/Off	Delay Time(1~30min)
OUTPUT 1	Display On	Display Off	OFF	2
OUTPUT 2	Display On	Display Off	OFF	2
OUTPUT 3	Display On	Display Off	OFF	2
OUTPUT 4	Display On	Display Off	OFF	2

- Display On: Click to power on the display connected to the output selected.
- Display Off: Click to power off the display connected to the output selected.
- Auto On/Off: Select to enable or disable CEC Auto Control.

Default setting: Off

- Auto Delay Time (1~30min): Click the up/down arrow to set the time for the display to power off automatically when no signal is present. For example, if the time is set to 2 minutes, the output display will power off automatically when there's no signal at the display for 2 minutes

5) HDCP

This section allows you to enable or disable HDCP encryption of each input port.

- ON: Select to enable HDCP encryption for the selected input port.
- OFF: Select to disable HDCP encryption for the selected input port.

Default setting: ON

6) Change Login Password

This section is to change login password.

Default password: admin.

Note: Password must be 4 to 16 characters in length, alphanumeric only.

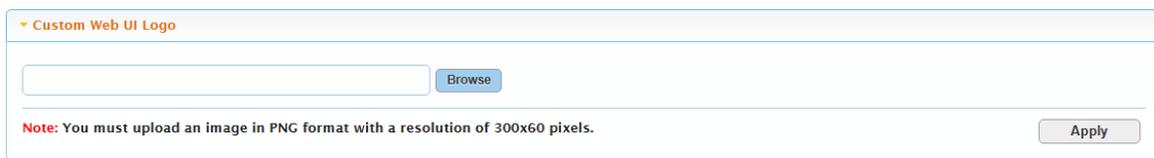
7) Network

This section is to set between the static and dynamic IP address.

- IP Type:
 - DHCP: When enabled, the IP address of the device is assigned automatically by the DHCP server connected.
 - Static: When enabled, you need to set up the IP address manually.Default setting: DHCP.
- Save: Click to save and perform the network setting, and the setting change will take effect immediately.

Note: When "Static" is selected, please ensure your PC is in the same network segment as the device.

8) Custom Web UI Logo



▼ Custom Web UI Logo

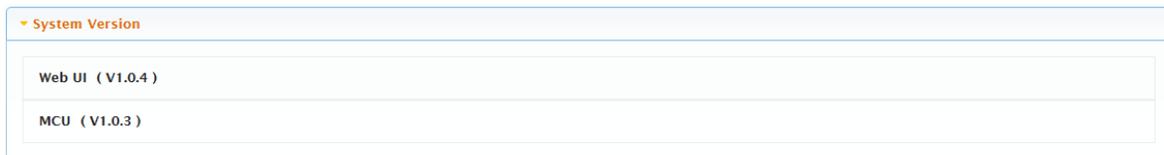
Note: You must upload an image in PNG format with a resolution of 300x60 pixels.

This section allows you to create your own logo for the Web UI.

To create customized Web UI logo: click "Browse" for the new logo file, and click "Apply".

Note: The new logo used should be in PNG format with a resolution of 300x60 pixels.

9) System Version



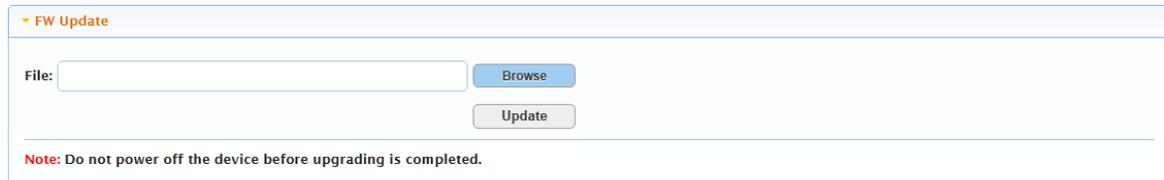
▼ System Version

Web UI (V1.0.4)

MCU (V1.0.3)

This section provides Web UI and MCU version information.

10) FW Update



▼ FW Update

File:

Note: Do not power off the device before upgrading is completed.

This section allows users to upgrade firmware.

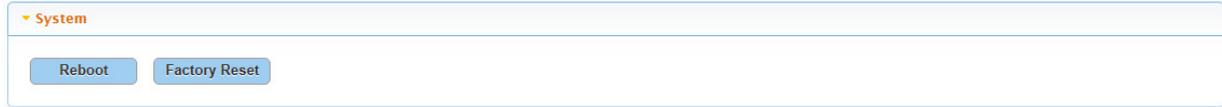
To update Firmware:

- a) Click "Browse" for the update bin file.
- b) Click "Update" to proceed. The update will be completed when the progress bar reaches 100%.

Note:

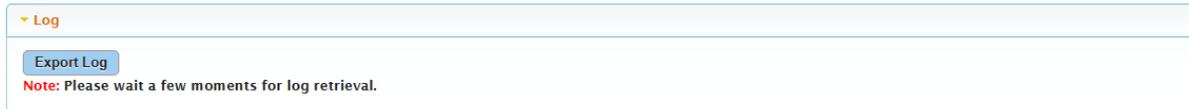
- The device will reboot automatically when firmware update is completed successfully. Please wait for about 2-3 minutes, then refresh and log in again.
- DO NOT power off the device during the updating process.

11) System



- Reboot: Click to reboot device.
- Factory Reset: Click to reset the device to factory default.

12) Log



This section displays system setting change records. Click "Export Log" to download the log to your local computer.