WyreStorm MX-0402-MST 4K HDR 4×2 Presentation Matrix User Manual

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WyreStorm MX-0402-MST 4K HDR 4×2 Presentation Matrix

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Panel Description

Front Panel

#	Name	Description
1	Power LED	On: The device is powered on. Off: The device is powered off.

Rear Panel

#	Name

Installation and Wiring

Warning! Before installation and wiring, disconnect power from the device. During wiring, connect and disconnect the cables gently.

Installation

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

FAQ

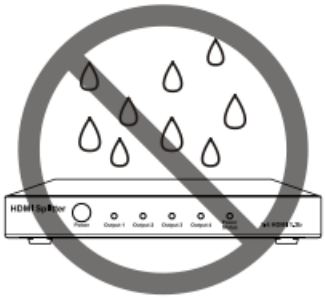
Q: What should I do if the Power LED does not turn on?
A: Ensure that the power supply is connected correctly and that the power source is functional. If the issue persists, contact customer support for assistance.

MX-0402-MST
4K HDR 4×2 Presentation Matrix with USB 3.2 KVM and MST

User Manual
Version: V1.0.0

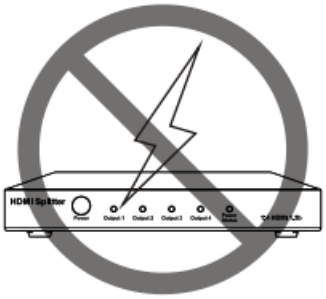
Important Safety Instructions

1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.

3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.

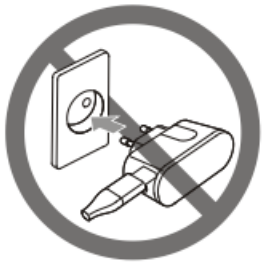


4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

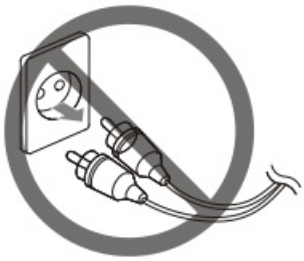
5. Do not place sources of naked flames, such as lighted candles, on the unit.

6. Clean this apparatus only with dry cloth.

7. Unplug this apparatus during lightning storms or when unused for long periods of time.



8. Protect the power cord from being walked on or pinched particularly at plugs.



9. Only use attachments /accessories specified by the manufacturer.

10. Refer all servicing to qualified service personnel.

Introduction

Overview

This product is a 4×2 conference presentation matrix switcher. It features 2 HDMI inputs and 2 USB type-C inputs to be switched to two HDMI outputs, and supports resolutions up to 4K@60Hz 4:4:4 8bit. The two full-featured USB 3.2 type-C ports support transmitting video & audio data, USB data, ethernet connecting and charging the connected devices (up to 60W for each port). One of the USB-C IN port supports DP MST mode, which can transmit two 4K video outputs.
The two HDMI outputs support 4K-to-1080P downscaler, which can meet the requirements for connecting displays with different resolutions. Two USB 3.2 Type-B ports + two USB 3.2 type-C ports can be switched to the USB devices connected to USB 3.2 type-A ports. Built-in one balanced audio output, output de-embedding audio from HDMI OUT1 or HDMI OUT 2.
Two ETHERNET ports provide device control, USB NIC and VLAN functions. One RS-232 port supports API command control, and TCP to RS-232 routing, it also can be used to control the connected third-party device.
The device supports multiple control options, including front panel buttons, RS-232, and LAN (telnet & web UI).
The conference room multi-input presentation switcher can be used as the core device for conference applications to simplify conference room layout and wiring.

Features

- 4×2 conference presentation switch, integrating with video, audio, USB, control and ethernet.
- Dual USB type-C and dual HDMI + USB 3.2 type-B inputs, and all ports support cable lock connections.
- Full-featured USB type-C inputs, supports 4K video, USB 3.2 data,
- USB NIC, and 60W charging function.
- One USB type-C input supports DP MST mode, which can transmit two video signals with 4K resolution each to two outputs.
- Support automatic switching, USB and video independent switching, button switching, API switching and Web UI control.
- Provides 4x USB 3.2 type-A ports for connecting conference equipment, such as cameras and Speakerphone.
- Support 4K-to-1080P downscaler for HDMI output 1/2.
- Provide one balanced audio port for connecting audio equipment to output de-embedded audio from HDMI output 1/2.
- One RS-232 connector for API command control, and TCP to RS-232 routing, it also can control the connected

third-party device and GPIO ports to connect various control and controlled devices.

- Each input port provides an independent USB to Ethernet bridge, four USB ports (two USB type-B + two USB type-C ports) sharing a 1G ethernet connection to the connected computers.
- Provide two independent RJ-45 ports for ethernet switching or VLAN setting.
- Support ethernet control, support HTTP and HTTPS, support 802.1x authentication.
- Support CEC control, and can be set through API commands or web UI.
- Front panel buttons provide basic switching operations.

Package Contents

- 1x MX-0402-MST
- 1x Power Adapter 20V/10A DC
- 2x USB-C 2m cables
- 2x USB 3.0 A to B 1.8m cables
- 4x Mounting Brackets
- 4x Bracket Screws
- 1x 5-pin Phoenix Connector
- 1x 3-pin Phoenix Connector
- 1x 8-pin Phoenix Connector
- 1x Quickstart Guide

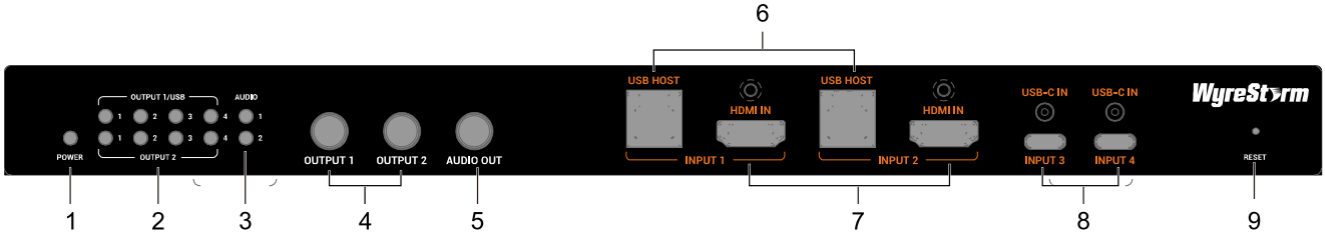
Specifications

Audio and Video	
Inputs	2x HDMI In: 19-pin Type A 2x USB-C
Outputs	2x HDMI Out: 19-pin Type A 1x Analog Audio Out (5-pin Phoenix Male Connector)
Output Video Encoding	HDMI 18Gbps
Audio Formats	**USB-C IN/HDMI IN/ HDMI OUT:** Up to 7.1ch, including PCM 2.0/5.1/7.1ch, Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS 5.1, DTS-HD Master Audio and DTS:X. **Analog Audio de-embedding:** 2ch Analog/PCM
Video Resolutions (Max)	3840x2160p @60Hz 4:4:4 8bit
Data Rate	**USB-C IN:** 5Gbit/s (per lane). **HDMI:** 18Gbps. **USB 3.2:** 5Gbit/s.

HDR Format	All HDR formats, including HDR 10, HLG, HDR 10+ and Dolby Vision
Supported Standards	DCI | RGB
Maximum Pixel Clock	600MHz
Power	
Power Supply	20V
Power Consumption	Up to 200W
Environmental	
Operating Temperature	0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing
Storage Temperature	-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing
Maximum BTU	Power consumption 13.1W (No USB-A load and USB-C charging) = 44.7 BTU/hr Power consumption 35.6W (with 22.5W USB-A and no USB-C charging) = 121.5 BTU/hr Power consumption 155.6W (with 22.5W USB-A and 2x 60W USB-C charging) = 531.1 BTU/hr
Dimensions and Weight	
Length x Width x Height	300mm x 180mm x 25mm
Weight	2.66kg
Regulatory	
Safety and Emission	CE | FCC | RoHS | RCM | EAC | UKCA

Panel Description

Front Panel

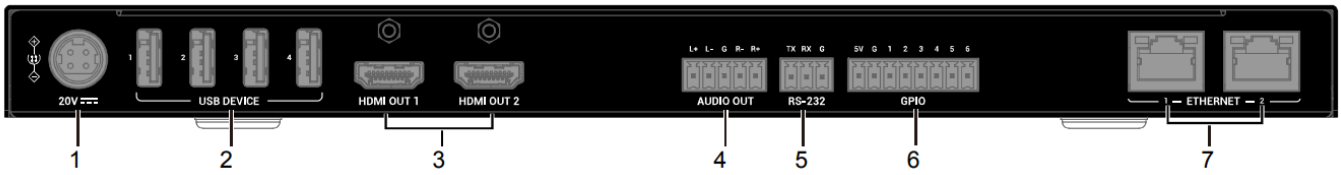


#	Name	Description

1	**Power LED**	**On:** The device is powered on. **Off:** The device is powered off.
2	**OUTPUT 1 & USB/ OUTPUT 2 LEDs**	**On:** The corresponding input source is selected. **Off:** The corresponding input are notselected.
3	**AUDIO OUT 1 & 2 LEDs**	**On:** The corresponding de-embedded audio from HDMI OUT 1/2 is selected as source for AUDIO OUT. **Off:** The corresponding de-embedded audio from HDMI OUT 1/2 is not selected as source for AUDIO OUT.
4	**OUTPUT 1 & 2 Selection Button**	Press the button to select input source for HDMI OUT 1/2.
5	**AUDIO OUT Selection Button**	Press the button to switch the audio source between the de-embedded audio from HDMI OUT 1 and HDMI OUT 2 for AUDIO OUT port.
6	**USB HOST 1&2**	USB 3.2 type-B ports. Connect to USB HOST devices. • USB HOST 1 and USB HOST 2 are bound with HDMI IN 1 and HDMI IN 2 respectively. • The two ports support Ethernet bridge, the laptop connected to the two ports can access the network the ETHERNET ports connected. The two USB Host ports and two USB type-C ports share 1G network.
7	**HDMI IN**	Connect to HDMI sources.
8	**INPUT 3 & 4 (USB-C IN)**	USB 3.2 type-C ports. Connect to USB-C sources. The two full-featured USB-C ports support the following three functions: • Supports audio, video and USB signal transmission, maximum 5Gbit/s data rate. • USB-C IN 3 and 4 support DP SST, one video output with 4K@60Hz signal transmission; • USB-C IN 4 supports DP MST, two video outputs with 4K@30Hz signal of each channel transmission; • Supports PD 3.0, and can supply up to 60W power for the connected device; • Supports 1G network connection, the laptop connected with these ports can access the ethernet the matrix connected; The following cable are recommended to use: USB Type-C to Type-C cable (USB 3.2 Gen 1×1 or above)

9	**Reset**	Insert a tool such as a Pin. • Press and hold it for about 5s: Reset the IP settings, including reset the IP mode to DHCP, and reset the login password to “admin”. • Press and hold it for about 15s: Reset the device to factory defaults.

Rear Panel



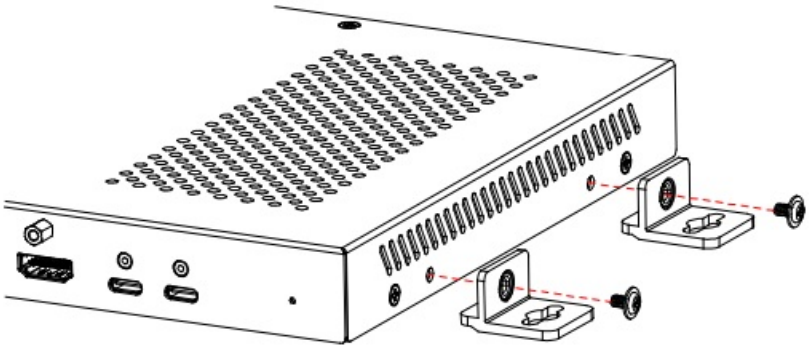
#	Name	Description
1	**20V**	Connect to the power adapter provided.
2	**USB DEVICE**	USB 3.2 type-A ports, 5V/1A output per port. Connect to USB devices such as camera and speakerphone.
3	**HDMI OUT (1-2)**	Connect to the HDMI display devices.
4	**AUDIO OUT**	Connect to audio receiver for outputting de-embedded audio from HDMI OUT 1/2.
5	**RS-232**	Connect to the RS-232 enabled device for RS-232 operation.
6	**GPIO**	Connect to GPIO devices. The device supports connecting to 6 GPIO devices.
7	**ETHERNET**	Connect to a network device (e.g., network switch, router, computer, etc.) for L AN control (Web UI & Telnet).

Installation and Wiring

Warning! Before installation and wiring, disconnect power from the device. During wiring, connect and disconnect the cables gently.

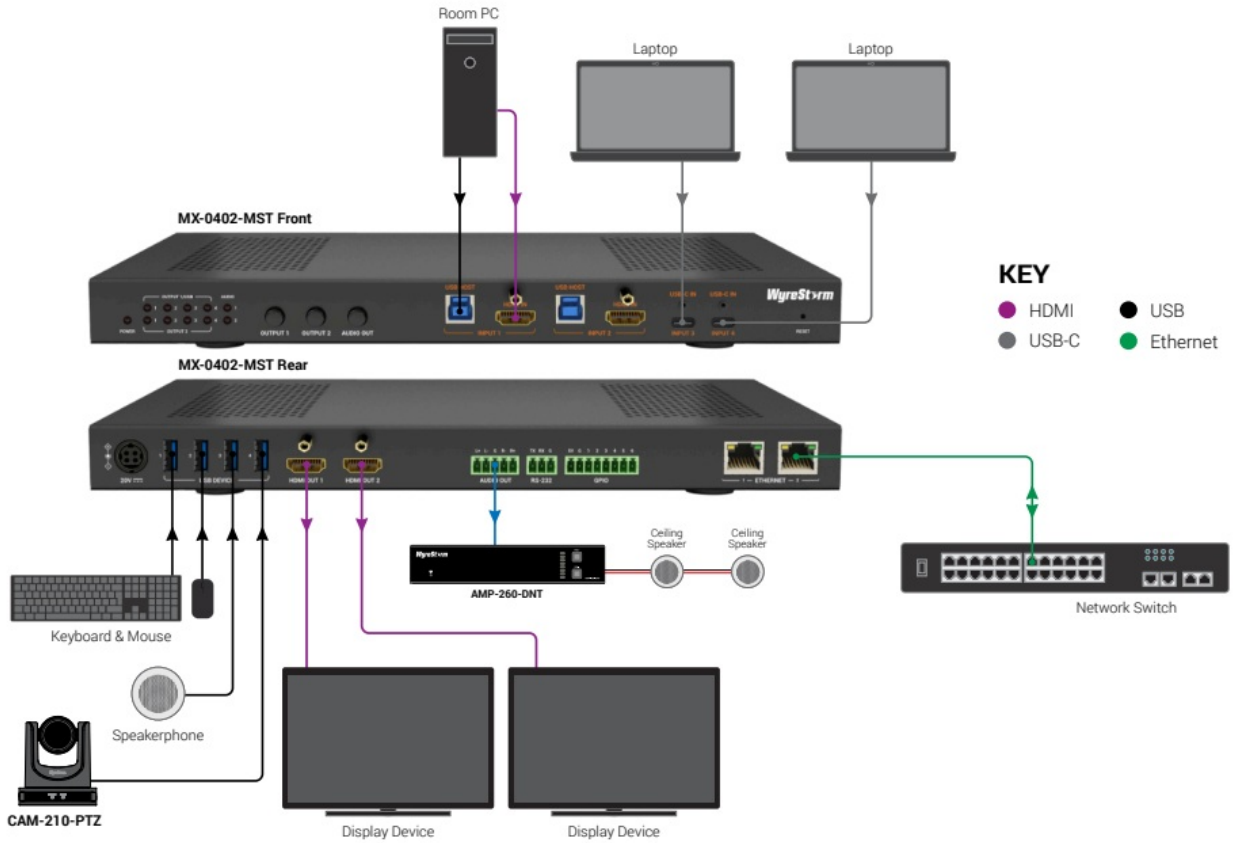
Installation

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

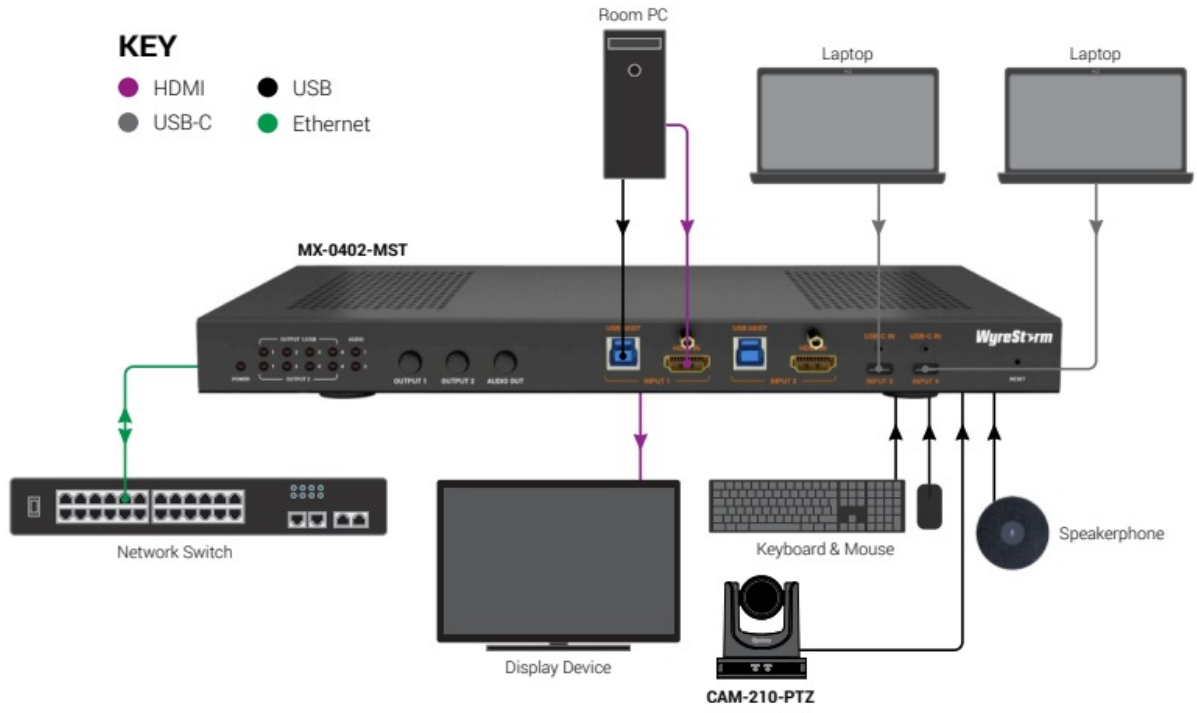


2. Repeat step 1 for the other side of the enclosure.
3. Attach the brackets to the surface or location desired using screws (not included in the package).

Wiring
Dual-Screen Conference Room with Room PC



USB-C Dual Video Screen Conference Room with Room PC



Note: By default, USB-C IN 4 is in DP SST mode, use the command “SET USBC4_M prm<CR><LF>” to set the

USB-C IN 4 to MST mode.
In this mode, the USB-C IN 3 is disabled, and the USB-C IN 4's source can transmit two video signals with 4K@30Hz each to the two HDMI outputs respectively.

Auto Switching

The device supports automatic switching (HDMI and USB-C video and USB). This function can be set to enable or disable through Web UI or API Commands. Automatic function follows the principle: last in first out.

Auto switching for video

- When a new video input connection is detected, the two HDMI outputs (connected with active displays) will automatically switch to the new input.
- When the video input selected by the current output is disconnected, it will automatically switch to the valid input port displayed last time.

Auto switching for USB

- If the USB-A devices are set to follow the output, the USB-A devices will follow the output to switch to the USB host the new video input bound. When the USB-A devices are set to independent, the USB-A devices will automatically switch when a new USB host connection is detected.
- When the USB host selected by the current USB-A devices is disconnected, if the USB-A devices are set to follow the output, it will follow the output switching automatically. If the USB-A devices are set to independent, USB-A devices will automatically switch to the valid USB host last time.

Note

- Please refer to web UI control section or separate document "API Command Set_MX-0402-MST" to get detail configuration information.
- Video automatic switching function can only detect valid signal, and USB signal detects 5V Vbus.

Button Control

Users can perform basic switching of input sources to outputs and audio source selection.

- Select an input source for the output display: Press output button 1/2 continuously to switch input source. The LED of input will light when the corresponding source selected.
- Select an audio input for AUDIO OUT: Press AUDIO button to switch audio source, the LED will light when the corresponding audio source is selected.

RS-232 Operation

RS-232 Control

Advanced users may need to control the device via API commands. Connect a RS-232 enabled device such as a PC to RS-232 port of the device. Detail command information, please refer to the separate document "API Command Set_MX-0402-MST"). Before sending API commands to control the device, ensure the serial ports between this device and PC are configured correctly. A professional RS-232 serial interface software (e.g., Serial

Assist) may be needed as well.

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

TCP to RS-232 Routing
Connect a third-party device to RS-232 port of the device. Users can set through web UI or API commands to configure the controlled third-party device's commands and other parameters to control the third-party device. TCP port number: 5000.

LAN Control

Obtain IP Address of the Device
To obtain the device's IP address:

1. Connect a control PC to the RS-232 port of the device.
2. Configure RS-232 parameters for the PC's serial port correctly through a RS-232 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

Note: When all is configured properly, users can control the device through commands, which are available in the separate document "API Command Set_ MX-0402-MST".

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)

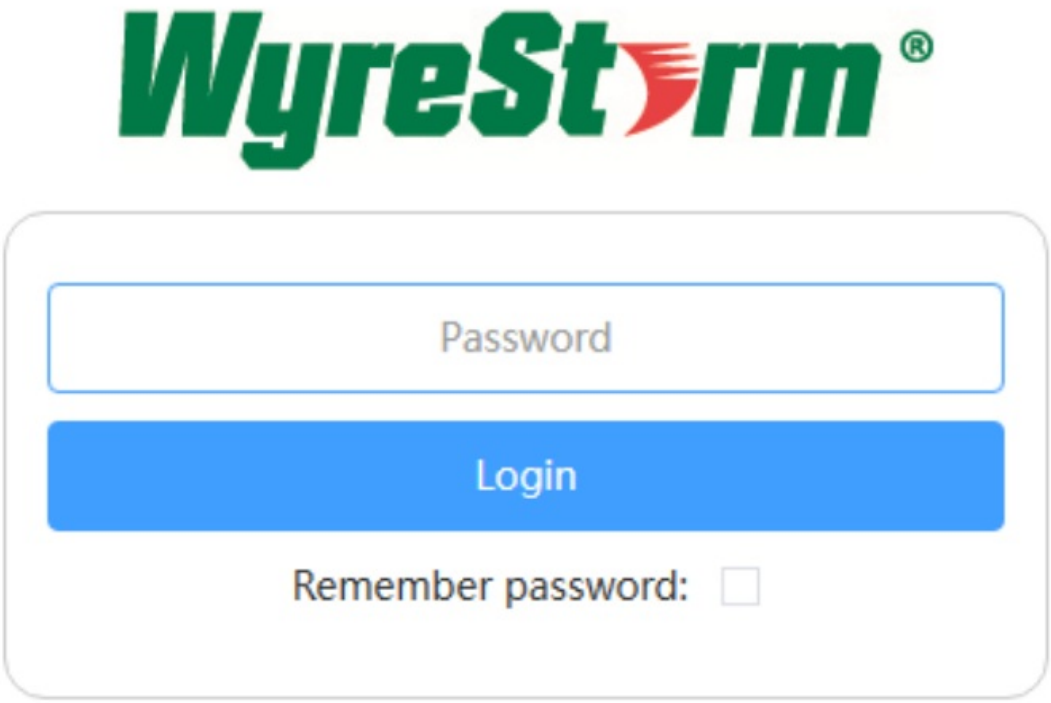
- ip: The device's IP address.
- port: The device's port number, this is non-required for some Telnet control tools. Default setting is 23.

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

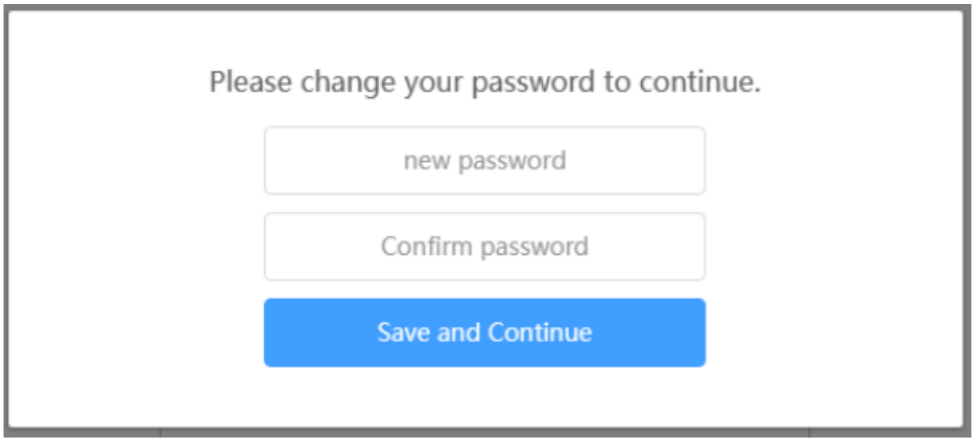
Web UI Control
The Web UI designed for this device allows for basic controls and advanced settings. It can be accessed through a modern browser with latest version, e.g., Chrome, Safari, Firefox, IE10+, etc.

To get access the Web UI:

1. Connect one of the two ETHERNET ports of the device to a local area network. (Ensure there's a DHCP server in the network so that the device can obtain a valid IP address.)
2. Connect the PC to the same network as this device.
3. Input the device's IP address in the browser and press Enter, the following window will pop up. (Refer to Obtain IP Address of the Device section to get the device's IP address quickly).
4. The following window pops up. Input the password (default password: admin) and click "Login".
5.



Input a new password in the dialog box and click "Save and Continue" to enter the main page. The password shall be alphanumeric with 4 to 16 characters in length.

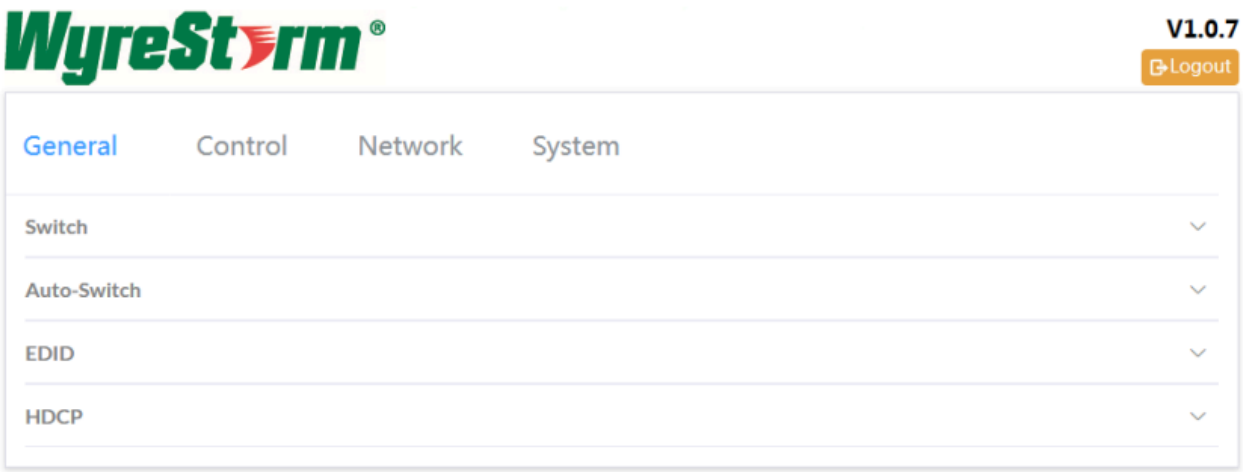


Note: If users forget the login password, the following ways can be used to restore the default password:

- Hold the "RESET" hole for about 5s to reset the IP mode to DHCP and login password to "admin".

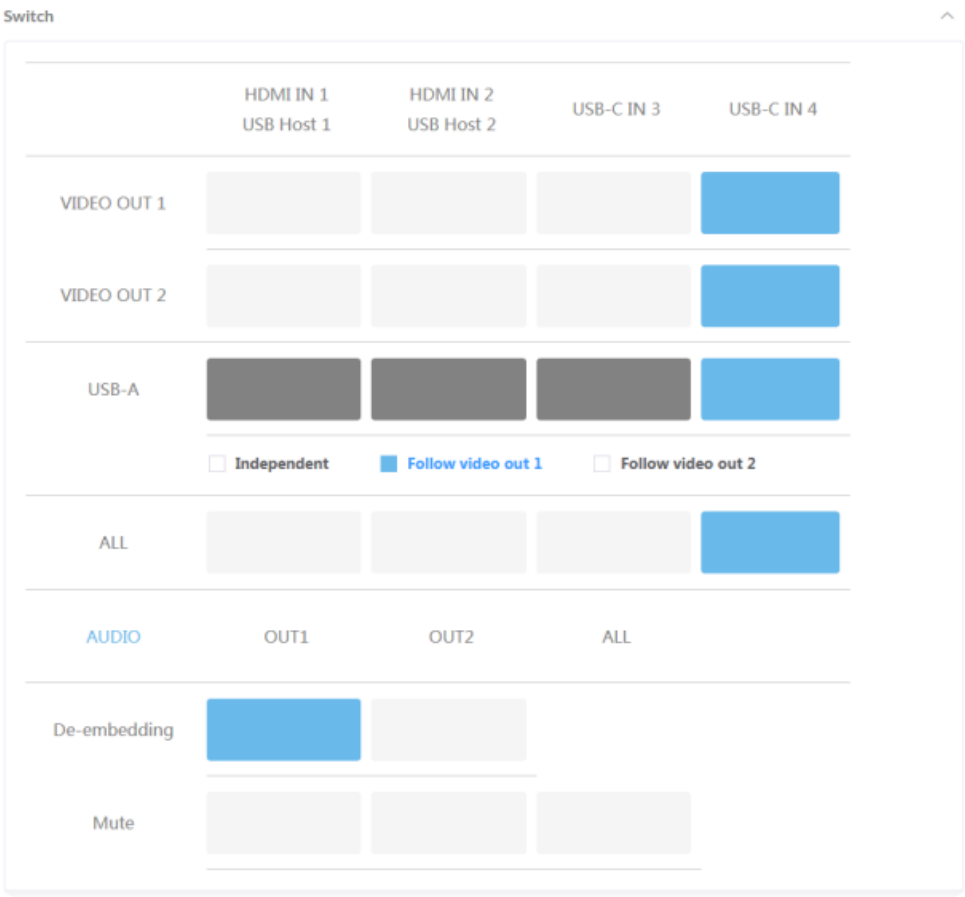
- Hold the “RESET” hole for about 15s to reset the device to factory defaults, which includes reset the login password.
- Send API command “RESET<CR><LF>” to reset the device to factory defaults, which includes reset the login password.

The main page consists of three tabs: General, Control, Network and System.



Web UI Introduction
Click the button on the up-right corner of the web page to logout and return to the login page.

General – Switch



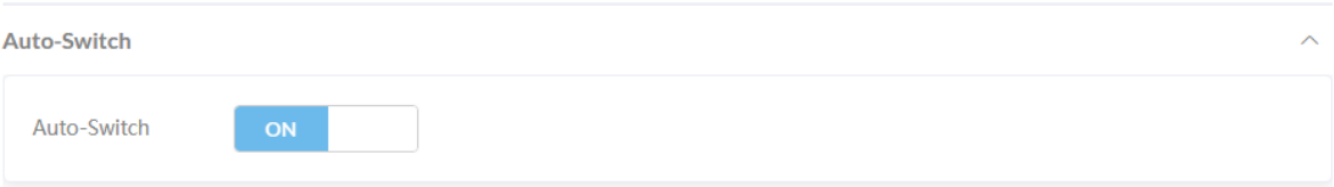
This section allows users to switch input for output, set USB-A switching, set audio switching, and mute audio.

- VIDEO SWITCH table: Click the button in the tale to switch one input source for VIDEO OUT 1 / VIDEO OUT 2 (Button turns from white to blue when the selection is done).
  Default setting: Both VIDEO OUT 1 and VIDEO OUT 2 are switched to USB-C IN 4.

USB-A table:

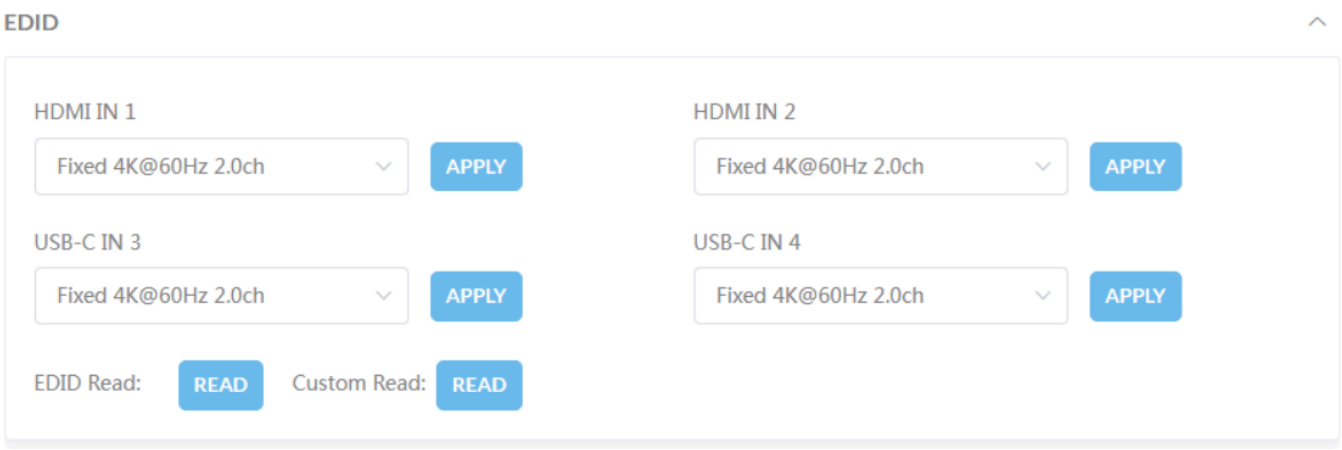
- Independent/Follow video out 1/Follow video out 2: Check the box before the option to set the USB-A switching rules.
- Default Setting: Follow video out 1.
- When select “Independent” mode, users can manually switch the USB host for the USB devices to be connected to by clicking the corresponding button in the table (button turns from white to blue when the operation is done). When select “Follow video out 1/2” mode, the USB host switching will follow the video switching.
- Selected USB host button is blue, and other buttons are dark grey, and can’t be selected.
- For example: when select “Follow video out 1”, if video out 1 select HDMI IN 1 as input source, the USB devices connected with USB-A ports will be connected to USB HOST 1.
- ALL: Click to select one input for all Video outputs and USB-A devices (button turns from white to blue when the operation is done).
- AUDIO: De-embedding: Click to select a de-embedding audio from HDMI OUT 1/2 for AUDIO OUT port. Default Setting: HDMI OUT 1.
- Mute: Click to set to mute the corresponding output audio (the button turns from white to blue when mute operation is done).
- Default Setting: Unmute.
- ALL: Click to mute all output audio.

Auto Switch



This section allows users to set auto switch function to ON/OFF. Default setting: ON.

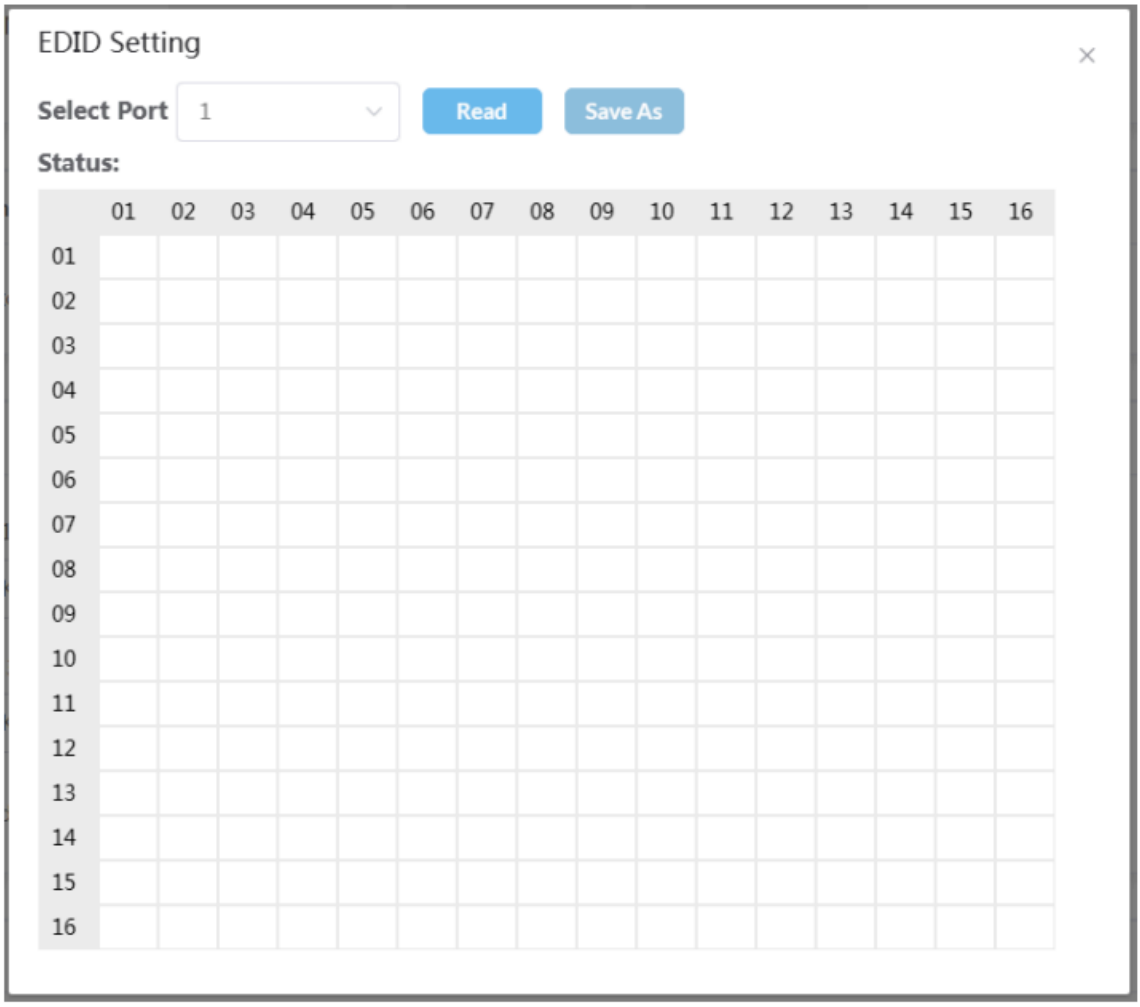
EDID



This section allows users to set EDID for inputs and read EDID of outputs. Select EDID for the corresponding input port, and click “APPLY” to take effect. Default setting for all inputs: Fixed 4K@60Hz 2.0ch.
EDID selectable includes:

- Copy from OUT 1;
- Copy from OUT 2;
- Fixed 4K@60Hz 2.0ch;
- Fixed 4K@60Hz 7.1ch;
- Fixed 4K@30Hz 2.0ch;
- Fixed 4K@30Hz 7.1ch;
- 1080P@60 2.0ch;
- 1080P@60 5.1ch;
- 1080P@60 7.1ch;
- Custom EDID 1;
- Custom EDID 2.

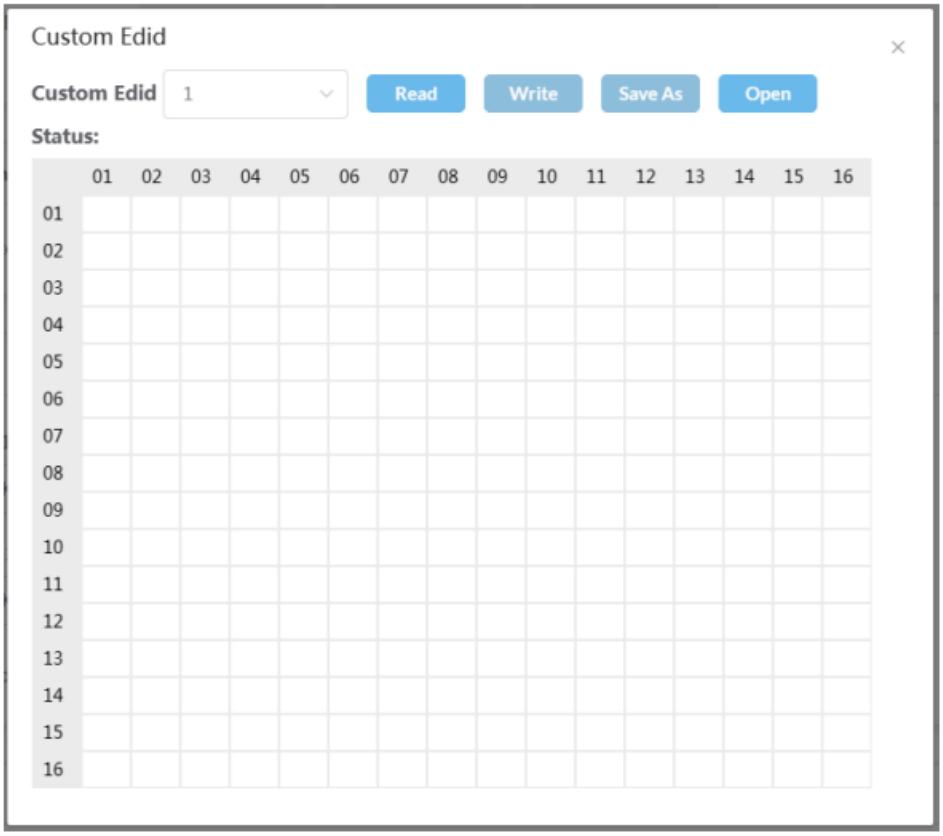
EDID Read: Click “READ” to enter the following page



Select Port: Click to select an output port from the drop-down menu.

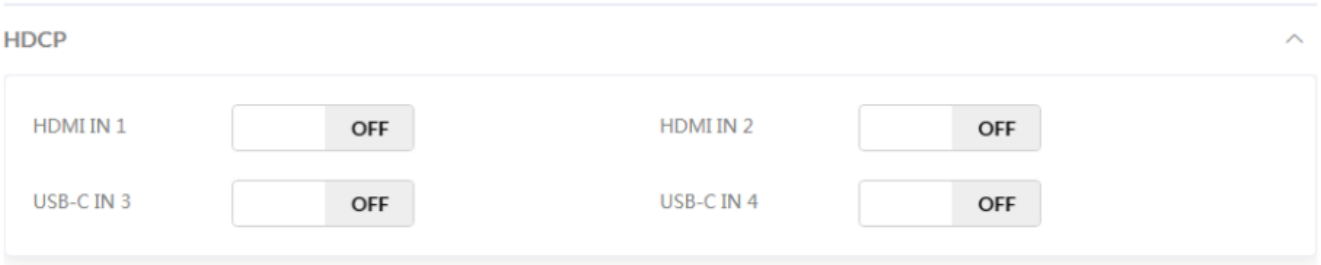
- Read: Click to read the EDID of the selected output. The result shows on the table of the page.
- Save As: Click to save the read EDID as a bin file to local PC.
- Status: Shows the status of reading EDID.

Custom EDID: Click “READ” to enter the following page:



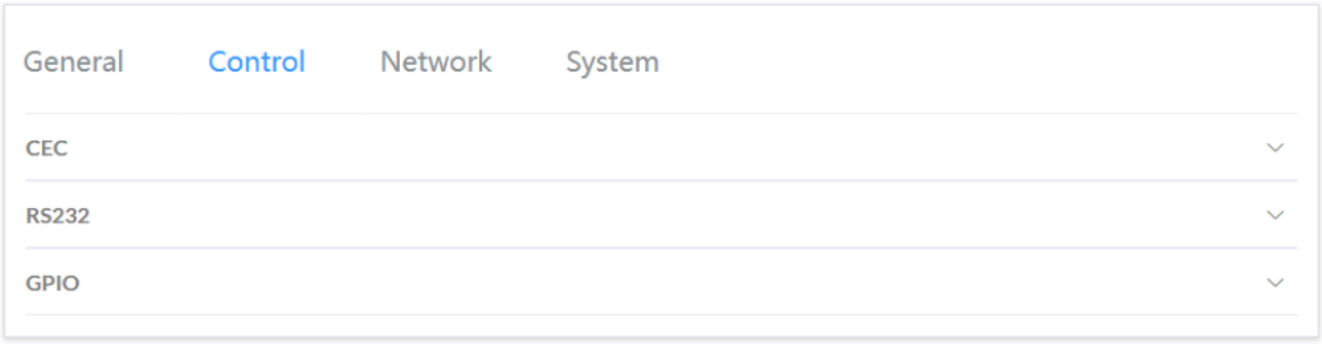
- Custom EDID: Select a customized EDID from the drop-down menu.
- Read: Click to read the selected customized EDID. The result shows on the table of the page.
- Write: Click to write the opened EDID to the selected customized EDID.
- Save As: Click to save the read customized EDID to local PC.
- Open: Click to select and open an EDID bin file from local PC.

HDCP

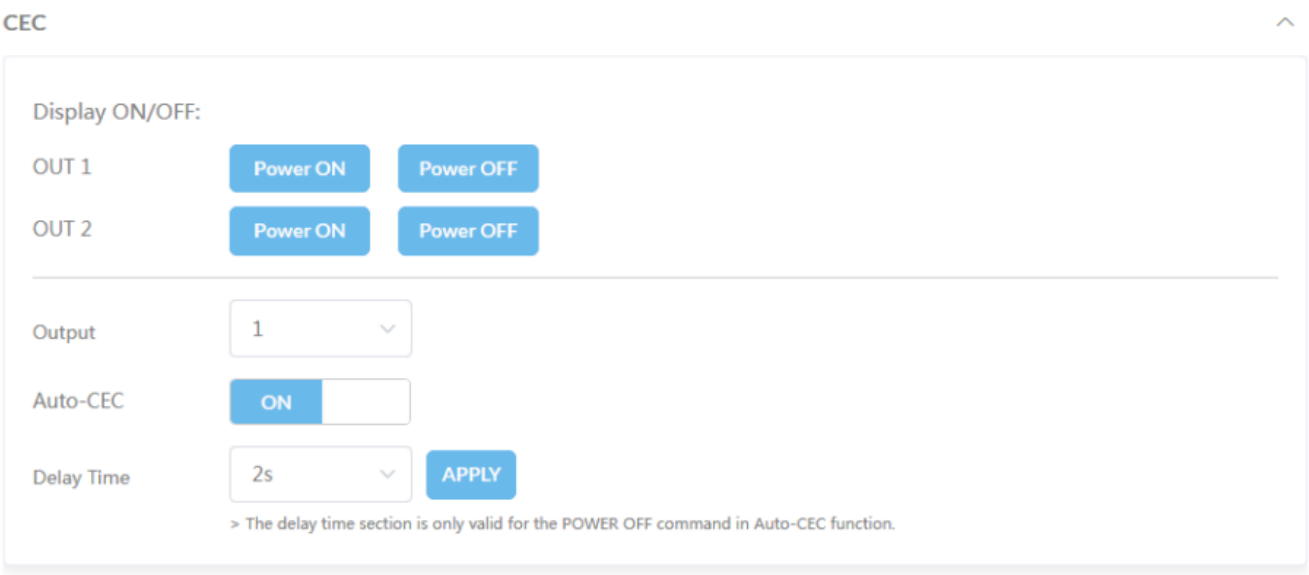


This section allows users to set HDCP function of inputs to ON/OFF. Click the button to enable/disable HDCP encryption of each input port, the default setting is “ON”.

Control



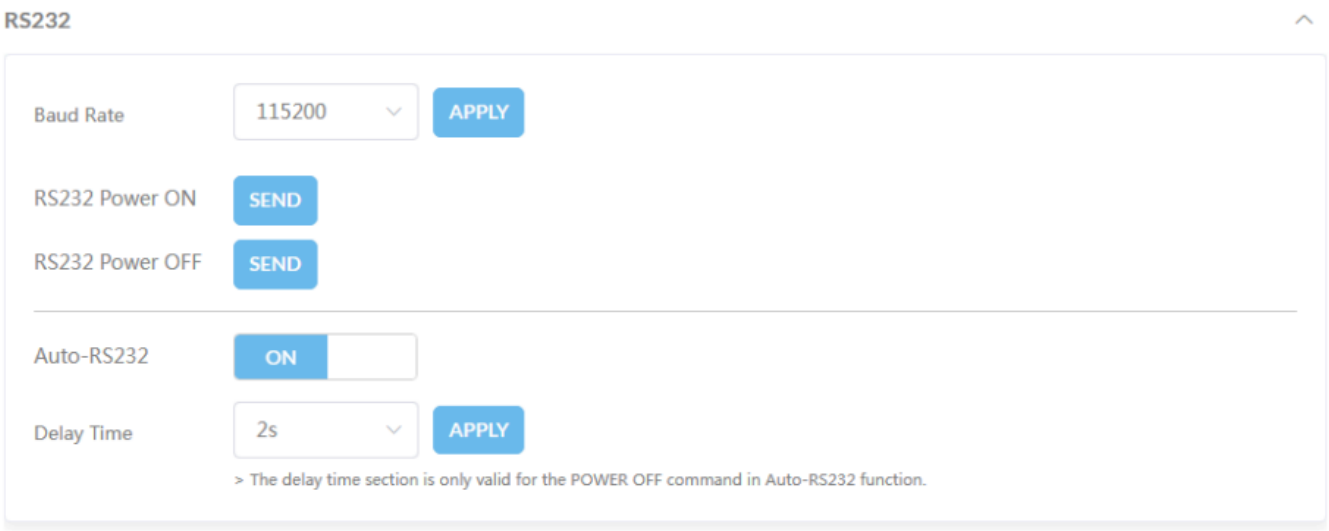
CEC



This section allows users to control the connected CEC enabled displays to power on/off, and set auto-CEC function.

- Display ON/OFF: Click to control the corresponding CEC-enabled display to power on/off immediately.
- Output: Select an output from the drop-down menu to set its auto-CEC function.
- Auto-CEC: Click to set the auto-CEC function of the selected output to ON/OFF. Default setting: ON.
- Display Time: Select the time for the display to power off automatically when no signal is present. For example, if Auto-CEC is set as on and the time is set to 2 minutes, the selected output display will power off automatically when there's no signal at the display for 2 minutes.
- Default setting: 2 minutes.

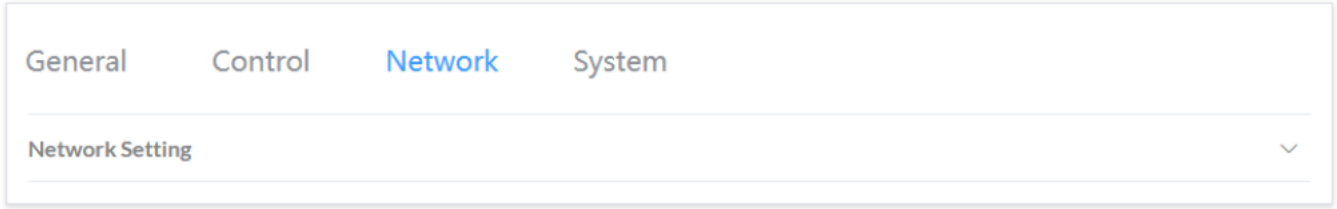
RS-232



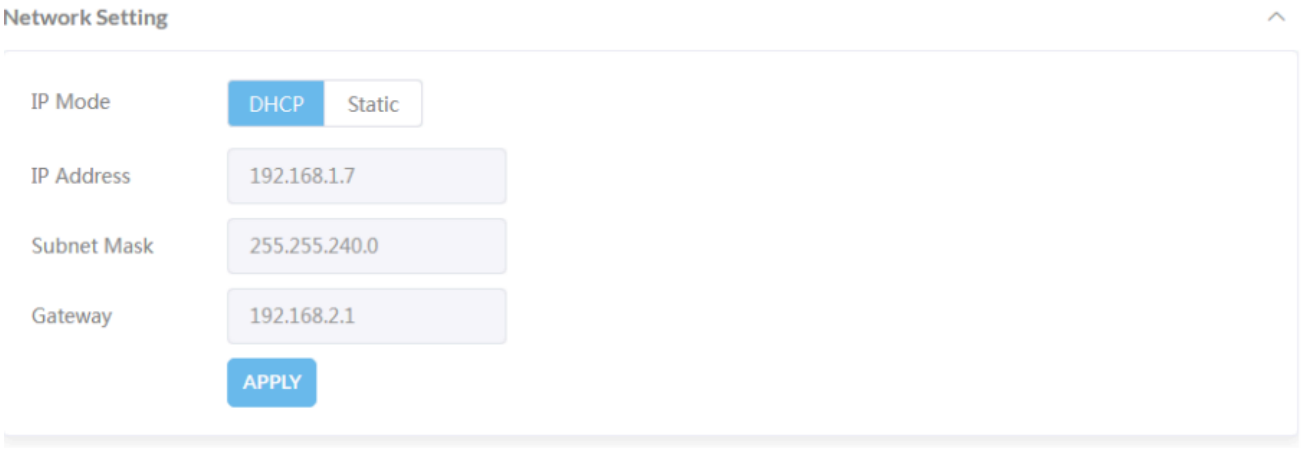
This section allows users to set parameters for RS-232 control and set auto RS-232 function.

- Baud Rate: Select baud rate from the drop-down menu and click “APPLY” to take effect. Default setting: 115200.
- RS-232 POWER ON/OFF: Click “SEND” to set the third-party device. RS-232 port connected to power on/off immediately.
- Auto-RS-232: Click to set auto-RS-232 function to on/off. Default setting: ON.
- Delay Time: Select the time for the third-party device RS-232 port connected to power off automatically when no signal is present. For example, if Auto-RS-232 is set as on and the time is set to 2 minutes, the third-party device RS-232 port connected will power off automatically when there’s no signal at the display for 2 minutes.
- Default setting: 2 minutes.
- APPLY: Click to perform the settings.

Network



Network Settings



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

IP Mode

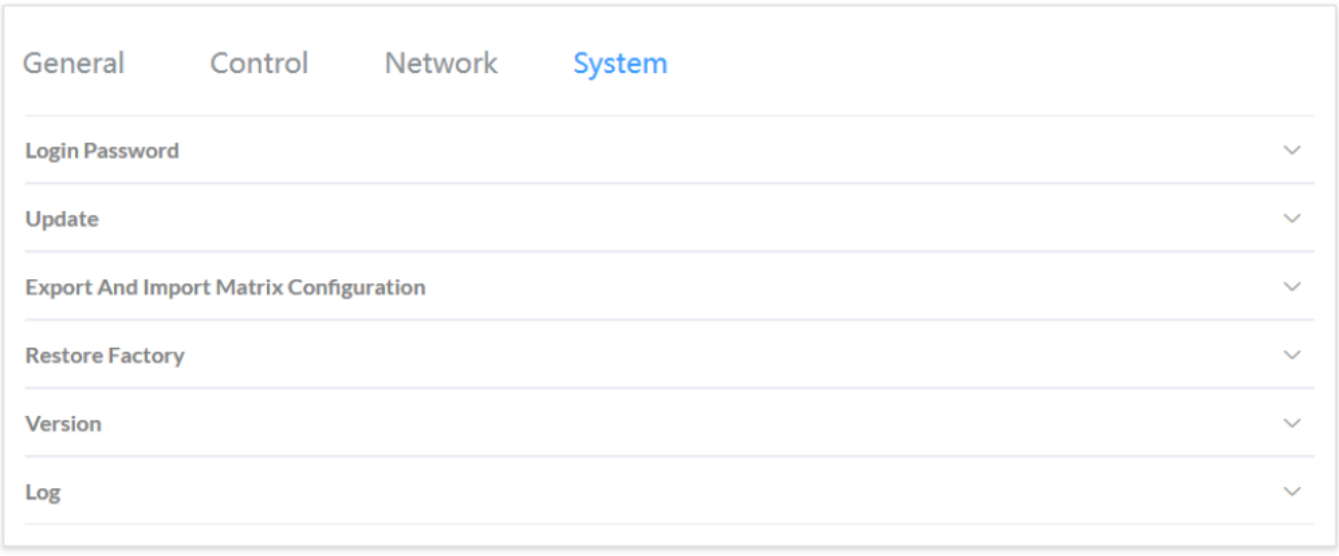
- DHCP: When enabled, the IP address of the Matrix is assigned automatically by the DHCP server connected.
- Static: When enabled, you need to set up the IP address manually.
- Default setting: DHCP

Apply
Click to save and perform the network setting, and the setting change will take effect immediately.

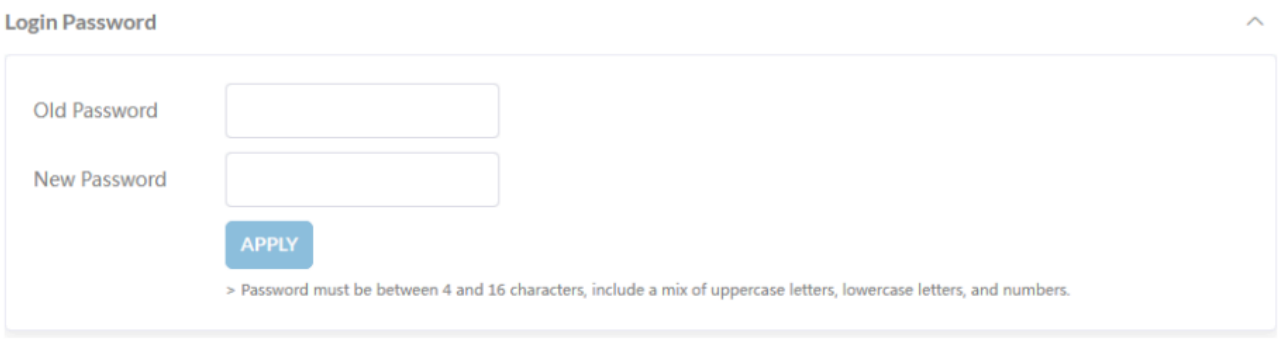
Note

- When “Static” is selected, please ensure your PC is in the same network segment as the device.
- Please wait for 2-3 minutes for the Matrix’s LAN module to reboot and reconnect after the network setting is changed.

System



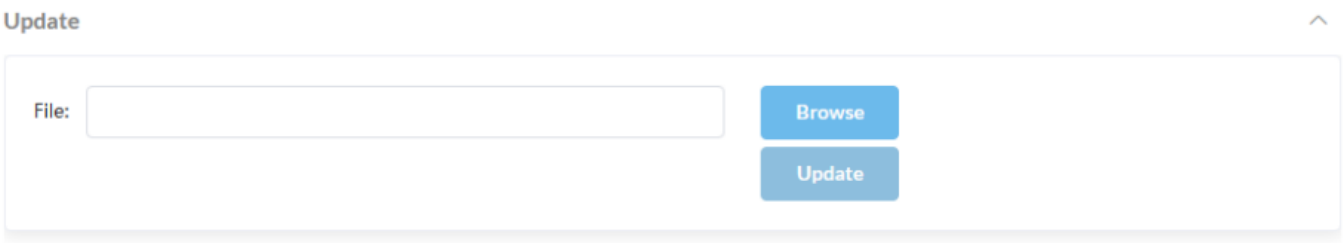
Log In Password



This section is to change login password.
Default setting: admin

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

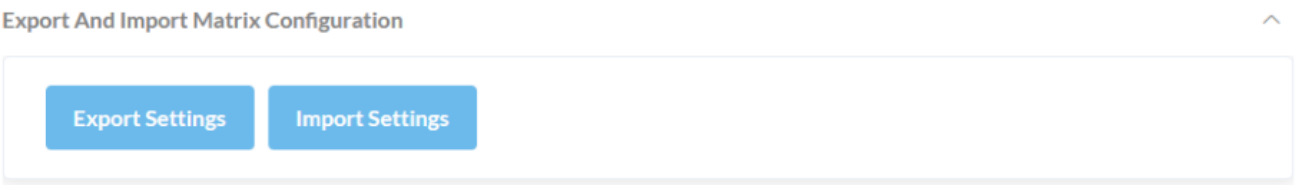
Update



- Click “Browse” to select the update file from local PC.
- Click “Update” to start the upgrading.

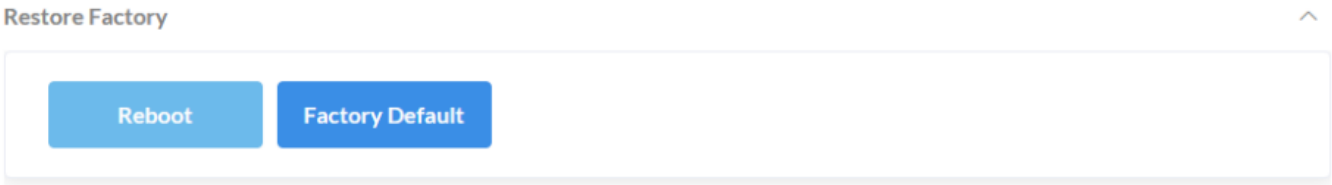
Note: The device will reboot automatically when firmware update is completed successfully. Please wait for about 2-3 minutes, then refresh and log in again. DO NOT power off the device during the updating process.

Export and Import Matrix Configuration



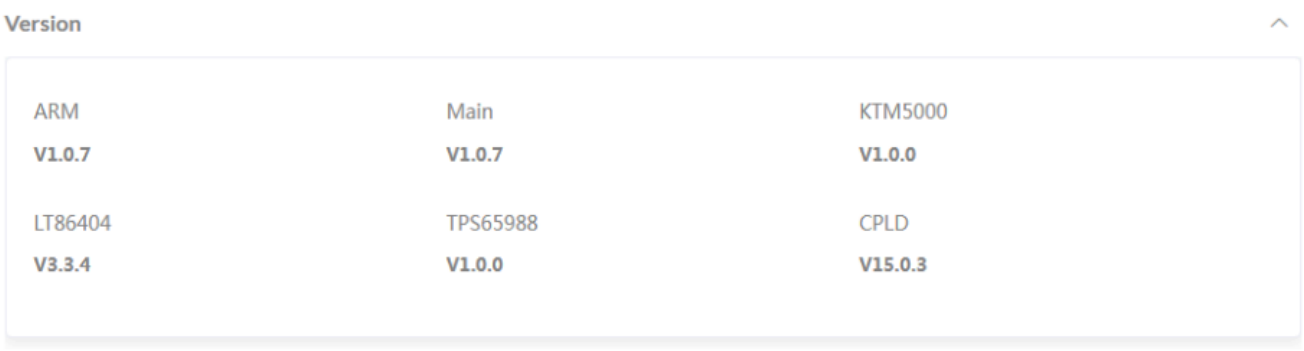
Export Settings: Click to export the settings file to local PC.
Import Settings: Click to import the settings file from local PC and applied the imported settings.

Restore Factory



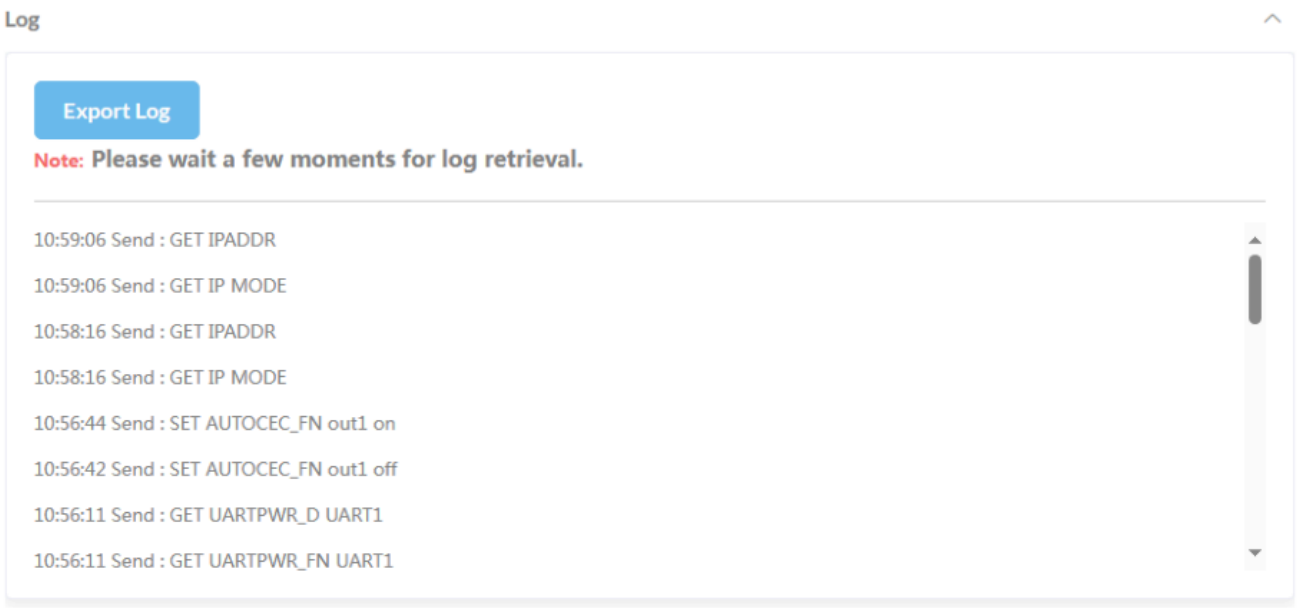
Reboot: Click to reboot the device.
Factory Default: Click to set the device to factory defaults.

Version



This section shows the current firmware version of the device.

Log



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

Documents / Resources

	WyreStorm MX-0402-MST 4K HDR 4x2 Presentation Matrix [pdf] User Manual MX-0402-MST 4K HDR 4x2 Presentation Matrix, MX-0402-MST, 4K HDR 4x2 Presentation Matrix, Presentation Matrix, Matrix

References

- **User Manual**