WyreStorm®

User Manual

v1.0

Contents

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WyreStorm.com
MX-1007-HYB User Manual | 231207

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Technical Support: 844.280.WYRE (9973)
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Overview

This product is a fixed 2RU 10x7 fast switching matrix with multi-format video connections and easy-to-use audio DSP. It builds in 4K60 scaler on all video outputs, and features seamless transition when switching video inputs. It features flexible video connection for both local and remote applications. The USB-C input is fully featured, which supports 4K60, USB 3.1 gen1, 1G network and PD 3.0 USB host charging up to 60watts. The HDBaseT3.0 input is built-in with VS3000 technology to extend 4K60 plus USB2.0 and control signals up to 330ft/100m over a single Cat 6a or above. The NetworkHD uses NHD-500 technology to transmit 4K60 plus USB2.0 and control signals over a single 1Gbps network. The NetworkHD capabilities are introduced to help spill-over applications, especially more than 330ft/100m by connecting via network switch.

The matrix features multiple audio inputs and outputs, analog and digital, and easy-to-use audio DSP to facilitate installation. It includes analog microphone inputs, Dante 4x4 digital inputs and outputs, USB audio and line audio outputs. There're three audio mixers built-in, two for local and one for remote. All three audio mixers have ducking built-in. It also supports to convert mixer audio to USB and feed to host PC for conferencing applications.

The matrix is also integration friendly with flexible control options, including front panel buttons, RS-232 and LAN control (Telnet & Web UI). And it supports Wyrestorm Sigma cloud connection and control for reboot, firmware upgrade and other features.

The matrix is designed for professional markets, such as corporate training rooms, hotel meeting rooms, and university classrooms.

Features

- Inputs and outputs support resolutions up to 4K@60Hz 4:4:4 8bit.

- Supports HDCP 2.3 and backward compatible.

- All outputs support free scaler from 480p to 2160p, which include HDMI, HDBaseT 3.0 and NHD-500. It provides seamless transition without seeing black screen switching.

- Full-featured USB-C input port, supports 4K@60Hz, USB 3.1 gen1, 1G network, and PD 3.0 charging up to 60 watts.

- HDBaseT 3.0 capabilities:

  ➢ All HDBaseT 3.0 ports support A/V, control signals, USB 2.0 up to 300Mbps and PoE (PSE) functions;

  ➢ All HDBaseT 3.0 ports are built-in with VS3000, to extend bundled signals up to 100m/330ft over a single Cat6a or above cable.

- The NHD 500 capabilities:

  ➢ All NHD-500 ports support A/V, control signals, USB 2.0 for spill-over applications

  ➢ NHD-500 supports to transmit 4K60 for 330ft/100m over a single Cat 6a cable, or even longer via 1Gbps network switch.

- Supports USB host switching and USB device extension:

  ➢ Switching USB hosts include 1x USB3.0 type-C port, 2x local USB3.0 type-B ports, 1x HDBT input port and 1x NHD 500 input port associated USB connection;

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- USB devices include 4x local USB3.0 type-A ports, 2x HDBT OUT ports and 1x NHD 500 output port associated USB connections;

- Versatile audio connection and DSP:

  - Supports 2x Mic inputs, and 1x LINE input;

  - Supports 1x USB audio input and 1x USB audio output, with 48KHz sampling frequency;

  - Dante 4x4 with various sampling rates;

  - HDMI audio de-embedding with sampling frequency up to 192KHz;

  - Supports 2x Balanced audio outputs, and each of them has an independent mixer, and supports ducking.

- Built-in 4-channel speaker outputs up to 4x 15watts@8ohm

- Supports RS-232 routing from matrix to extended outputs.

- Multiple control options, including front panel buttons, RS-232 and LAN (Web UI &Telnet).

- Sigma Cloud built-in.

Package Contents

- 1 x Matrix

- 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 USB-C Cable (L = 2m)

- 3 x Phoenix Male Connector (3.5mm, 3 Pins)

- 4 x Phoenix Male Connector (3.5mm, 5 Pins)

- 2 x Phoenix Male Connector (5.08mm, 1 Pins)

- 1 x Phoenix Male Connector (3.5mm, 6 Pins)

- 2 x Mounting Brackets (2U, with Screws)

- 1 x Quick Start Guide

Specifications

Technical

Input/Output Ports	1 x USB-C IN, 7 x HDMI IN, 1 x HDBT IN, 1 x NHD 500 IN, 2 x HDBT OUT, 4 x HDMI OUT, 1 x NHD 500 OUT, 2 x MIC IN, 1 x LINE IN, 2 x LINE OUT, 2 x AMP OUT, 2 x USB HOST, 4 x USB DEVICE, 2 x ETHERNET, 1 x RS-232, 2 x RELAY, 1 x GPIO, 1 x Dante (RJ45 port), 1 x AC 100~240V 50/60Hz, 1 x RESET
Input/Output Video Type	4K@60Hz 4:4:4 8bit, HDCP 2.3

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Input Resolution Supported	VESA: $800x600^8$, $1024x768^8$, $1280x768^8$, $1280x800^8$, $1280x960^8$, $1280x1024^8$, $1360x768^8$, $1366x768^8$, $1440x900^8$, $1600x900^8$, $1600x1200^8$, $1680x1050^8$, $1920x1200^8$ SMPTE: $720x576P^6$, $1280x720P^{6,7,8}$, $1920x1080P^{2,5,6,7,8}$, $3840x2160^{2,3,5,6,8}$, $4096x2160^{2,3,5,6,8}$ 2 = at 24 Hz, 3 = at 25 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = 60 Hz
Output Resolution Supported	$3840x2160^8$, $3840x2160^6$, $3840x2160^5$, $3840x2160^3$, $3840x2160^2$, $1920x1200^8$, $1920x1080^8$, $1920x1080^6$, $1680x1050^8$, $1600x1200^8$, $1600x900^8$, $1440x900^8$, $1366x768^8$, $1360x768^8$, $1280x1024^8$, $1280x960^8$, $1280x800^8$, $1280x768^8$, $1280x720^8$, $1280x720^6$, $1024x768^8$, $800x600^8$ 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	USB-C/HDMI/HDBT/NHD/MIC IN/LINE IN/LINE OUT/AMP OUT: PCM 2.0
Maximum Data Rate	HDMI: 18Gbps USB-C: 5Gbps (per lane)
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 ~ 140°F)
Humidity	10% ~ 90%, non-condensing
ESD Protection	Human-body model: ±8kV (air-gap discharge)/ ±4kV (contact discharge)
Power Supply	AC 100~240V 50/60Hz
Power Consumption (max)	242.5W
Dimensions (W x H x D)	440mm x 88mm x 362mm/17.32" x 3.46" x 14.25" (Without mounting brackets)
Weight	8.68kg/19.14lbs
Rack Space Required	2U

Transmission Distance

Note:

- Straight-through category cable wired to T568B standard is recommended.

- For max HDMI 2.0 resolution recommended cable is: Cat 6a U/FTP or F/FTP.

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Cat 5e/6	70m/230ft	4K@60Hz 4:2:0 36bpp 4K@30Hz 1080P@60Hz
Cat 5e/6	40m/131ft	4K@60Hz 4:4:4 24bpp 4K@60Hz 4:2:2 36bpp
Cat 6a (U/FTP)	100m/330ft	4K@60Hz 4K@30Hz 1080P@60Hz

Use Patches

Note:

Patches may be used in the installation, and the patches will obviously affect the transmission distance. Limits and distances are as follows:

- Support up to 2 patch cables, each not exceeding 5m.

- Patches must be installed on both ends of the device, refer to the following pictures:
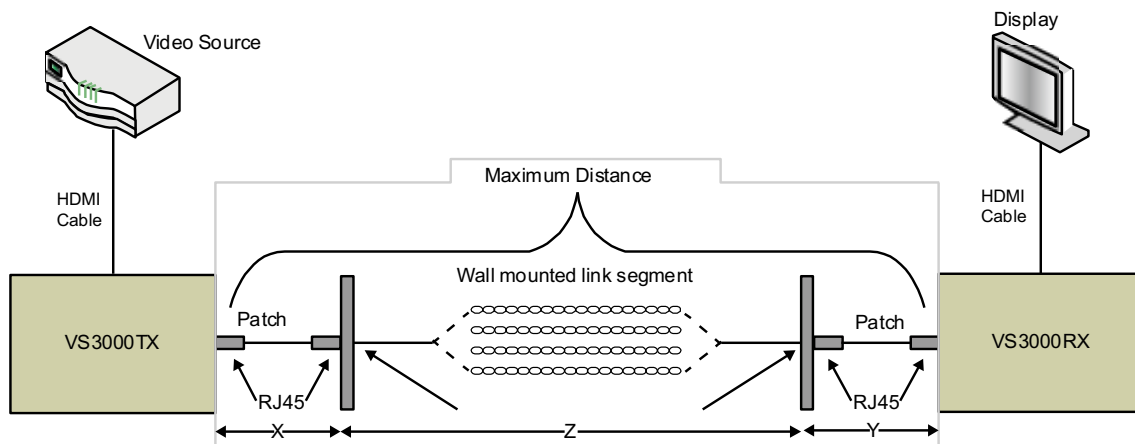
The standard specifies the following lengths for the three-segment cable installation:

- X = Left-side patch cable length ≤ 5 [meter]

- Y = Right-side patch cable length ≤ 5 [meter]

- Z = Wall segment ≤ Maximum Distance − X − Y [meter]

Cat 5e/6	70m/230ft (with Patches)	4K@60Hz 4:2:0 36bpp 4K@30Hz 1080P@60Hz
Cat 5e/6	30m/100ft (with Patches)	4K@60Hz 4:4:4 24bpp 4K@60Hz 4:2:2 36bpp

Cat 6a (U/FTP)	70m/230ft (with Patches)	4K@60Hz 4:4:4 24bpp 4K@60Hz 4:2:2 36bpp
Cat 6a (U/FTP)	100m/330ft (with Patches)	4K@60Hz 4:2:0 36bpp 4K@30Hz 1080P@60Hz

Cat 6a or above (for NHD IN/OUT)	100m/330ft or more when connected with an Ethernet switcher	4K@60Hz 4:4:4 24bpp
HDMI	Input/Output: 15m/49ft	1080P@60Hz
	Input/Output: 10m/33ft	4K@30Hz 4:4:4 24bpp
	Input/Output: 5m/16ft	4K@60Hz 4:4:4 24bpp
USB Type-C	2m/7ft	4K@60Hz 4:4:4 24bpp

Panel Description

Front Panel
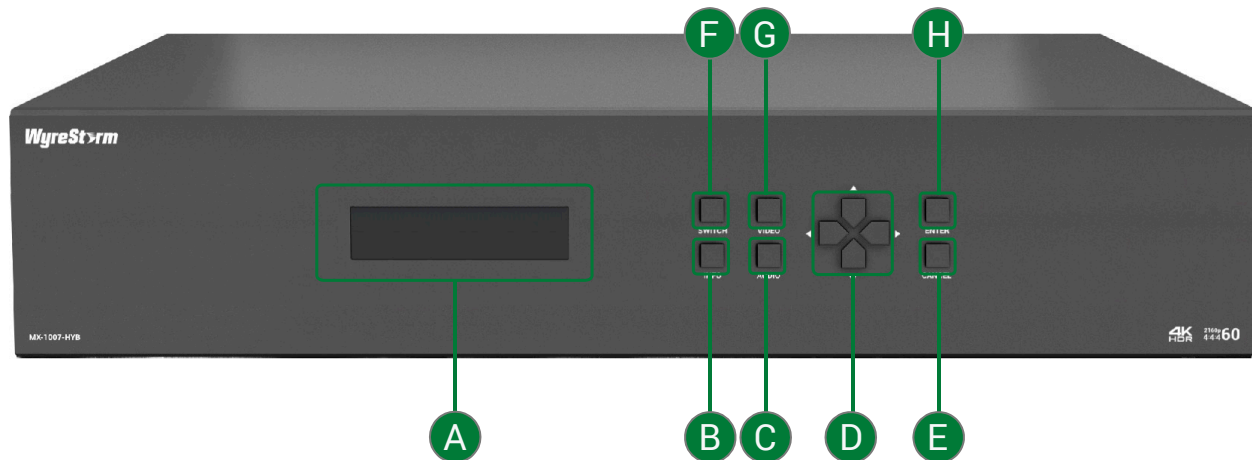
A	**LCD Indicator**	Display the information of the button operation.
B	**INFO Button**	Press the button, the LCD indicator window will display the device's information, including IP address, Fan speed, Mac address, firmware version and temperature.
C	**AUDIO Button**	Press the button, enter the volume adjustment mode.

D	**Selection Buttons**	• INFO: Press the four selection buttons to flip the page to display the information. • AUDIO: Press the left/right button to switch audio output ports. Press the up/down button to increase volume / decrease volume. • SWITCH: Press the left/right button to switch output. Press the up/down button to select input for the selected output. • VIDEO: Press the left/right button to switch input port. Press the up/down button to flip the page to display the video information.
E	**ENTER/CANCEL Button**	• ENTER: Press the button to perform the switching operation. • CANCEL: Press the button to cancel the operation or exit the current mode.
F	**SWITCH Button**	Press the button to enter input channel switch mode.
G	**VIDEO Button**	Press the button, the LCD indicator window will display the video information of selected input port, including resolution, color space, and HDCP.

Rear Panel
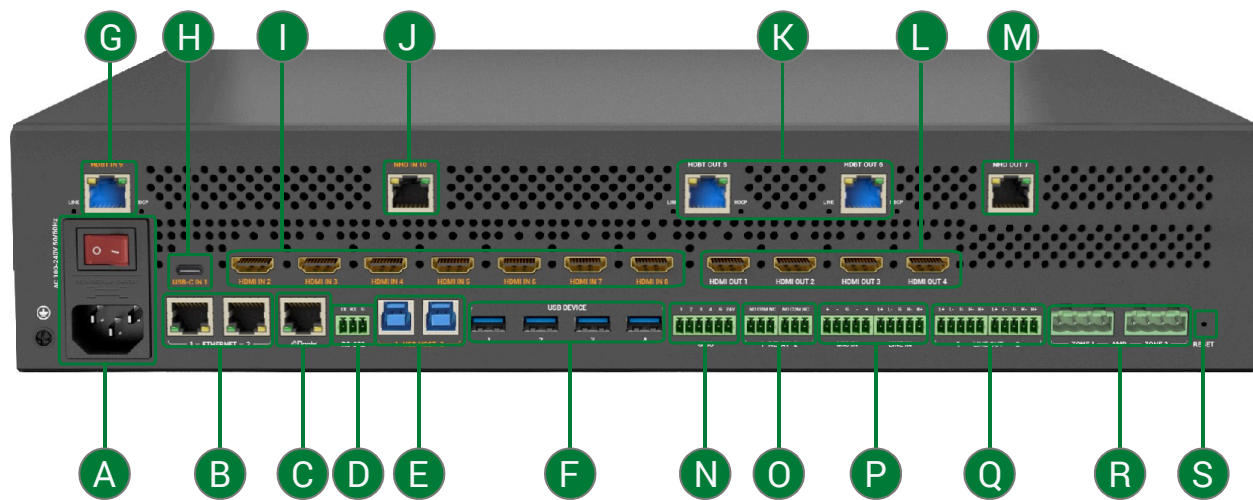
A	**AC 100~240V 50/60Hz Port and Power Button**	• AC 100~240V 50/60Hz Port: Connect to the power source via the provided AC power cable. • Power Button: Press the button to power on/off the device.
B	**ETHERNET 1&2**	Connect to the network, for web UI control, or telnet control.
C	**Dante**	RJ 45 port. Connect to the network for Dante audio connection.

|		
D	**RS-232**	Connect to a RS-232 enabled control device for API control or RS-232 routing.
E	**USB Host (1&2)**	USB 3.0 Type-B port. Connect to USB host devices.
F	**USB DEVICE 1~4**	USB 3.0 Type-A port. Connect to USB devices.
G	**HDBT 3.0 IN 9**	Connect to an HDBT transmitter (such as SW-120-TX3 or SW-120-TX3-US).
H	**USB-C IN 1**	USB 3.0 Type-C port. Connect to a laptop with USB type-C port. It supports three functions: • The port supports audio, video and USB 3.0/2.0 signals transmission, maximum 5Gbps data rate; • The port supports PD 3.0, and can supply up to 60W power for the connected device; • The port supports 1G network connection, the laptop connected with the port can access the ethernet the matrix connected; The following cable are recommended to use: USB Type-C to Type-C cable (USB 3.0 or above)
I	**HDMI IN 2~8**	Connect to HDMI sources.
J	**NHD 500 IN 10**	Connect to a NHD 500 transmitter (such as NHD-500-TX) or ethernet switch.
K	**HDBT 3.0 OUT 5&6**	Connect to HDBT receivers (such as RX3-100).
L	**HDMI OUT 1~4**	Connect to HDMI displays.
M	**NDH 500 OUT 7**	Connect to a NHD 500 receiver or Ethernet switch.
N	**GPIO**	Connect to GPIO devices. Support connecting up to four GPIO devices.
O	**RELAY**	Connect to relay devices for relay control.
P	**MIC IN 1 & 2 & LINE IN**	• MIC IN 1 & 2: Connect to microphones. • LINE IN: Connect to line out device.
Q	**LINE OUT 1 & 2**	Connect to audio receivers.
R	**AMP OUT**	Connect to speakers.
S	**RESET**	Use a needle to press the hole: • Less than 5s: Nothing will happen. • More than 5s but less than 15s: Reset the IP mode of the device to DHCP. • More than 15s: Reset the device to factory defaults.

Installation

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

The matrix occupies 2U space and can be placed on a solid and stable surface or installed on a standard equipment rack.

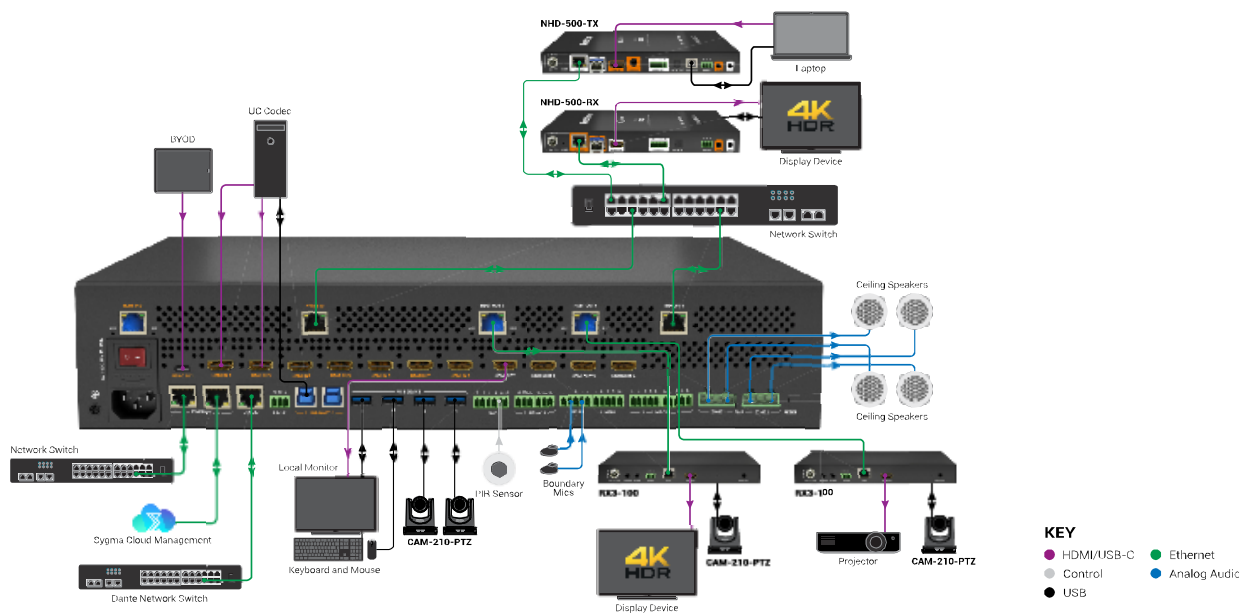To install the matrix on an equipment rack:

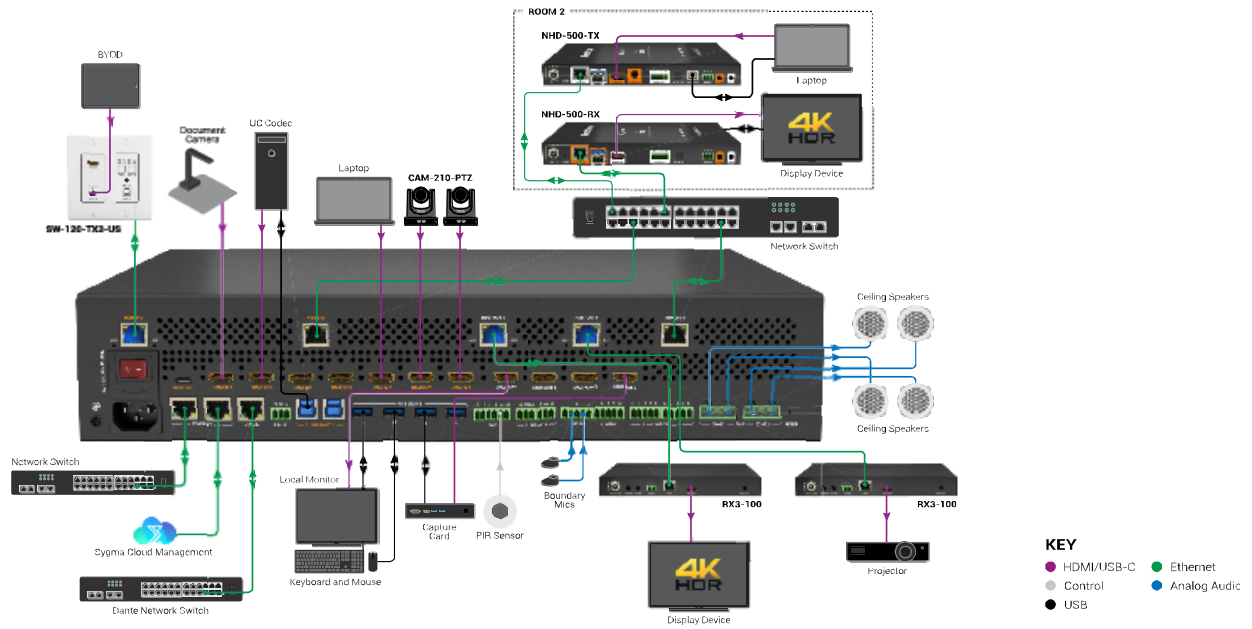1. Position and install the mounting brackets provided to the front panel.
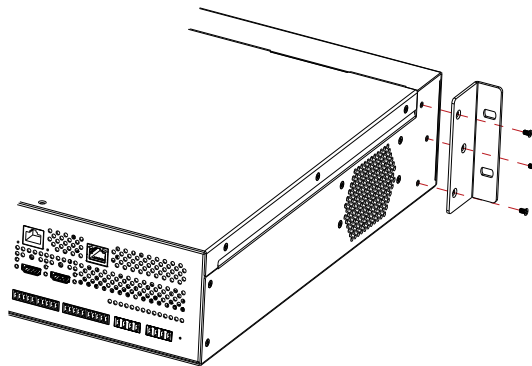
2. Install the matrix in the mounting rack by using the mounting screws to affix the matrix to the rack.
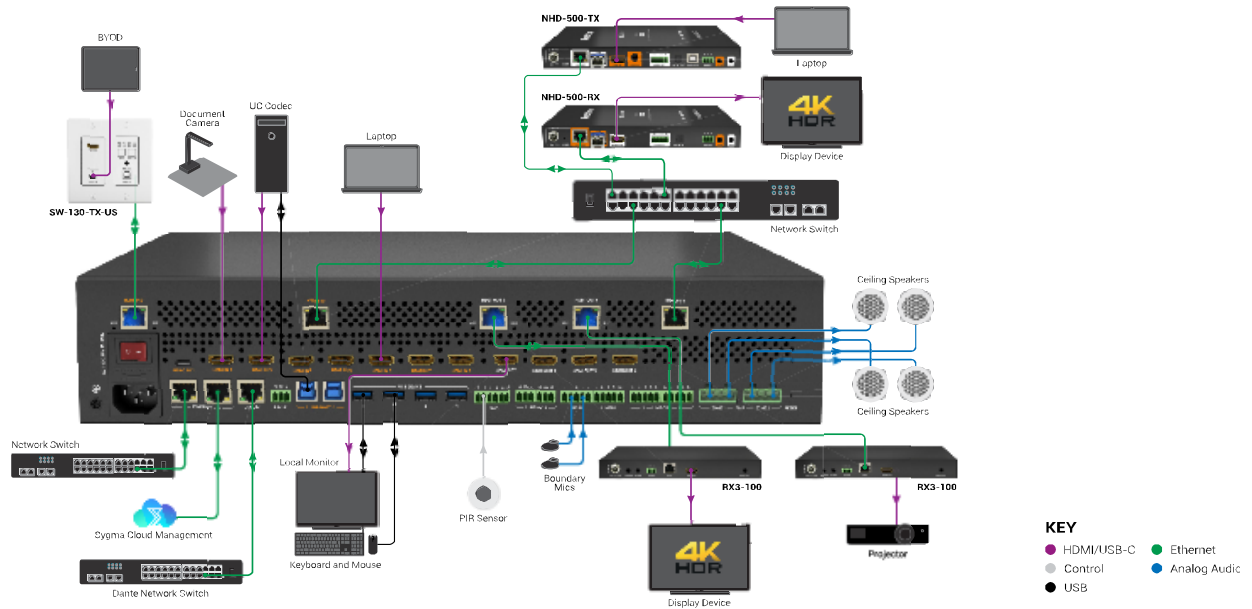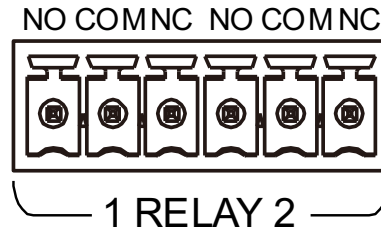
Wiring Diagram

Wiring 1:

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Wiring 2:

Wiring 3:

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Pinout Introduction

Relay

The matrix equips two relay ports.

- NO: Normally open;
- NC: Normally closed;
- COM: Common connector.

Note: Relay port configuration, please refer to "Web UI Control" section

AMP

The matrix equips two AMP ports, and supports connecting with 4 x 15watts 8Ω speakers, or 4 x 25watts 4Ω speakers, and also supports connecting with 2 x 30watts 8Ω speakers, or 2 x 50watts 4Ω speakers.

1) Connecting with 4 x 15watts 8Ω speakers, or 4 x 25watts 4Ω speakers

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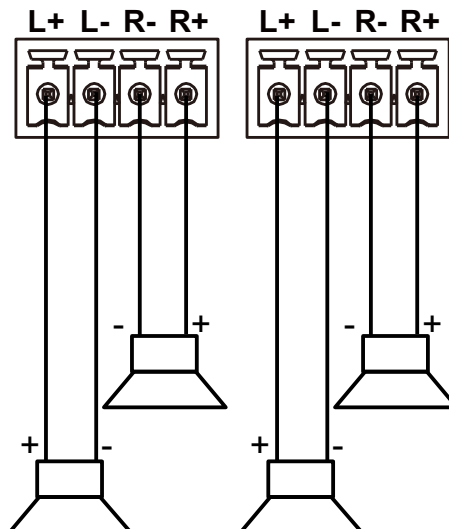
2) Connecting with 2 x 30watts 8Ω speakers, or 2 x 50watts 4Ω speakers

L+ L- R- R+   L+ L- R- R+
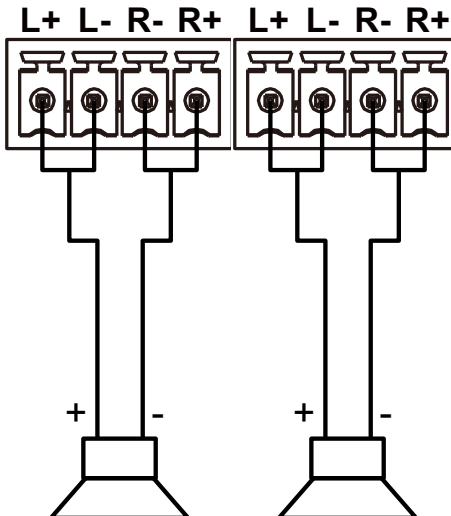
Control of the Matrix

The matrix can be controlled through Front Panel, RS-232, LAN (Web UI or Telnet).

Front Panel Control

Basic switch of input sources to output displays, audio volume adjustment, and information obtain can be achieved by using front panel controls.

1. Power on the matrix, the LCD indicator window will display "Starting", and wait until the window display the matrix's model and IP address, which indicates the matrix is ready to operate.

    1) Press "SWITCH" button to enter switch mode.

    2) Press the Left (◀) or Right (▶) button to select output channel. The ">" icon will move to the output port number users select currently.

    3) Press the Up (▲) or Down (▼) button to select input channel.

    4) Press "ENTER" button to confirm the selection or press "CANEL" to exit the mode and return to the main page.

2. Adjust volume of audio outputs (Audio out selected in Local mixer 1 and Local mixer 2 separately)

    1) Press "AUDIO" to enter volume adjustment mode.

    2) Press the Left (◀) or Right (▶) button to select audio output channel.

3) Press the Up (▲) or Down (▼) button to adjust volume of the selected channel.

4) Press "CANCEL" to exit the mode and return the main page.

3. Get device's information or video information

1) Press "AUDIO" to enter volume adjustment mode.

2) Press the Left (◀) or Right (▶) button to select audio output channel.

3) Press the Up (▲) or Down (▼) button to adjust volume of the selected channel.

4) Press "CANCEL" to exit the mode and return the main page.

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_MX-1007-HBY*".

Two methods are provided for controlling this device through API commands:

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	9600 bps
Data bits	8 bits
Parity	None
Stop bits	1 bit
Flow control	None

Note:

- When the matrix is used with SW-120-TX3/SW-120-TX3-US/ RX3-100 for RS-232 passing-through, the baud rate should be set to 115200.
- If users want to control the display connected with the receiver through RS-232 port, the corresponding baud rate needs to be set through the receiver.

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:

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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 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 any of the two ETHERNET ports of the matrix to the ethernet switch with DHCP server, and connect the PC to the same ethernet switch.

2. Get the IP address through the LED indicator window on front panel, using the "SmartSetGUI" tool on PC or sending command "*GET IPADDR<CR><LF>*".

3. Input the IP address obtained in the last step in your browser and press "Enter" key on keyboard. The following page can be access in:

- To implement basic video and audio control of the matrix, click "User" to login as User. When login as User, no password is required. In this mode, only the submenus in Matrix Control tab can be set.
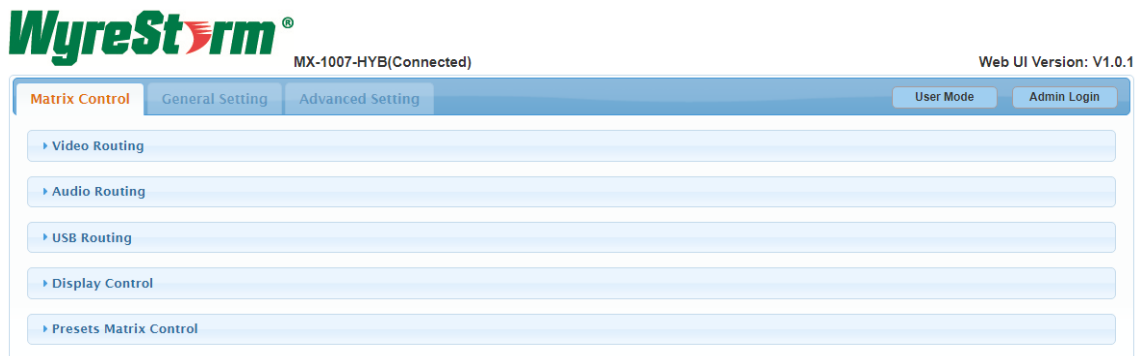
- If advanced setting is required, click "Admin" and enter the password to login as Admin.

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Matrix Control Login

| User | Admin |
Admin Password: [   ] Admin Login

The default password is "admin". When login web UI first time, after clicking "Admin 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.

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MX-1007-HYB(Connected)   Web UI Version: V1.0.1

| Matrix Control | General Setting | Advanced Setting | | User Mode | Admin Login |

▸ Video Routing

▸ Audio Routing

▸ USB Routing

▸ Display Control

▸ Presets Matrix Control

- In User mode, users can also click "Admin Login" on the upper right corner, then input the password enter Matrix Control, General Setting and Advanced Setting pages. The default password is "admin". When login the admin mode first time, users also need to change login password firstly. The operations are same with logging through the home page.

Admin Login

Password: [   ] Login

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

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Web UI Introduction

1. Matrix Control

1) Video Routing

This section manages distribution of input video sources to output displays. Click the button in the table to select the input for the output display (button turns from white to blue once selection is done).

- All: Click to route one input to all outputs.

- None: None input is routed to the output (or the output is turned off).

By default, Video Input 1 routes to Output 1...Video Input 6 routes to Output 6, Video Input 7 routes to Output 7.

2) Audio Routing

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This section allows users to select mixed audio sources, set ducking, and set mixer audio output.
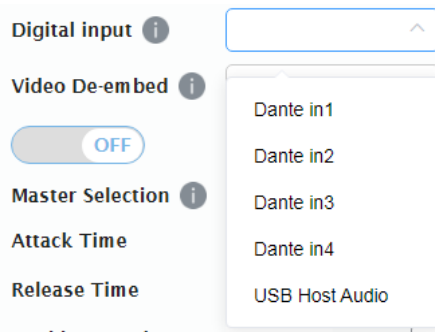
The matrix supports three audio mixer modes: Local Audio mixer1, Local Audio mixer2, Remote USB mixer.

When select Local Audio mixer1:

- Mixer inputs:

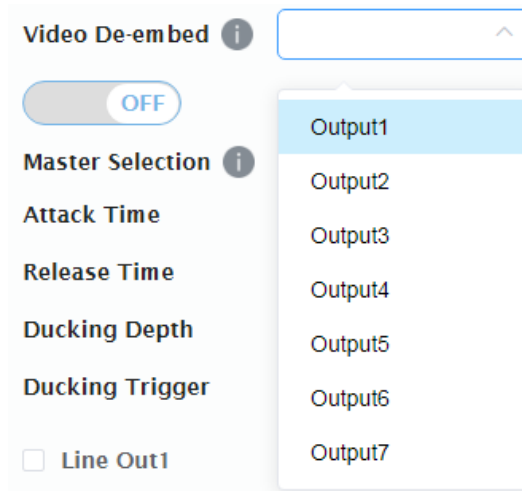 ➢ Analog input (multiple-choice): Select analog audio input source(s) from the drop-down menu.
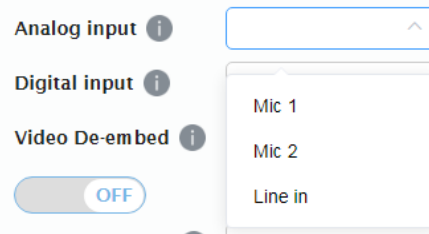
  ➢ Digital input (multiple-choice): Select digital audio input source(s) from the drop-down menu.

  Note: The matrix is equipped a built-in USB audio speaker, when the matrix is used for conferencing through remote conferencing software, and the laptop select the matrix USB audio speaker, this source is from the conferencing software. When select the USB Host Audio, it will be mixed to output from the output channels users selected.

  ➢ Video De-embed (multiple-choice): Select video de-embed audio as input source from the drop-down menu.

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Note: When select audio inputs in "Analog input", "Digital input" and "HDMI De-embed" parts, users can also adjust the sources' volume and set them to mute/unmute. The default volume of all inputs is -20dB, and the mute status is set to unmute. For example:
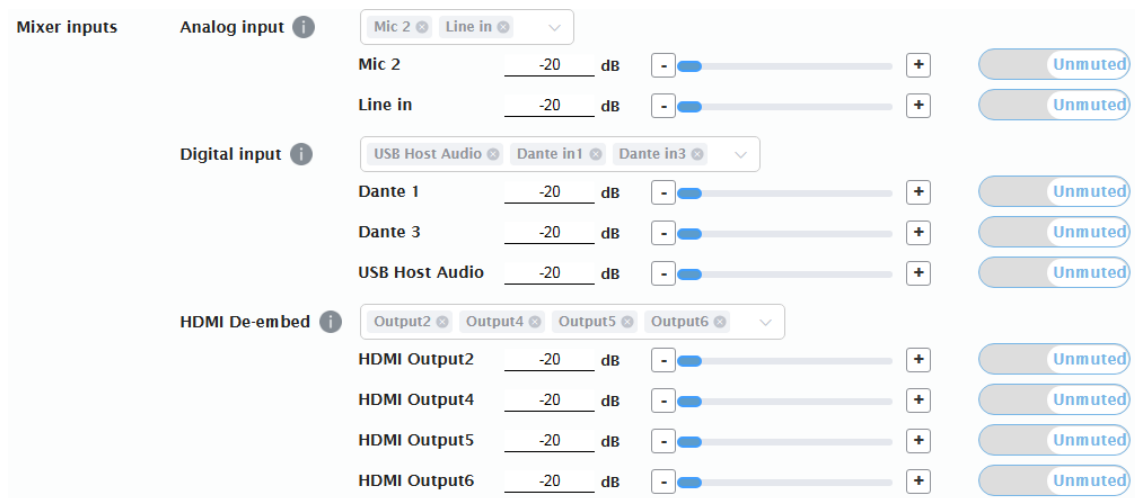
- Ducking: Set input audio ducking function to ON/OFF.

  ➢ Master Selection: Select the master input source from the drop-down menu for triggering ducking. When the selected input source reaches the ducking trigger, other inputs are ducked.

    For example, when select Mic 1 as master, other input sources' volume will be ducked down when Mic 1 is triggered ducking.
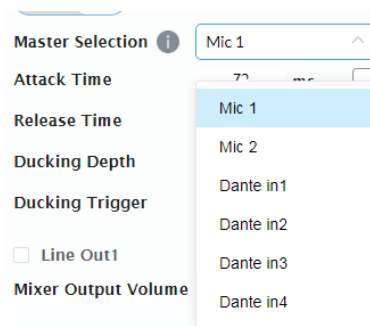

  ➢ Attack Time: Drag over the slider to specify the time it takes to lower the volume to the Ducking Depth after the Ducking Trigger threshold is met. Default setting is 72ms.

  ➢ Release Time: Drag over the slider to specify the time it takes to return to the regular volume from Ducking Depth. When the release time times out, the ducking audio's volume comes back up to its normal volume. Default setting is 868ms.

  ➢ Ducking Depth: Drag over the slider to specify the volume reduction. The lower the value is set, the lower the volume of the specified audio input is when ducking is triggered. Default setting is 100.

  ➢ Ducking Trigger: Drag over the slider to specify the volume threshold for ducking to occur. The lower the value is set, the easier the ducking is triggered.

  ➢ For example, if ducking trigger is set as -30dB, the ducking is triggered when the ducking master's volume reaches -30dB.

    Default setting is -35dB.

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- Mixer Outputs (multiple-choice): Click the check box to select the audio output channel(s) among Line Out 1, Amplifier Out, Dante 1-2, and NHD- 500 OUT. The audio outputs(s) will output the audio from the selected audio source. All selected audio outputs will output the same audio.

  ➢ Mixer Output Volume: Drag over the slider to set the mixer audio output volume. The default setting is -100dB.

  ➢ Muted/Unmuted: Set the mixer audio output to mute/unmute. The defaulting setting is unmuted.

When select Local mixer2:
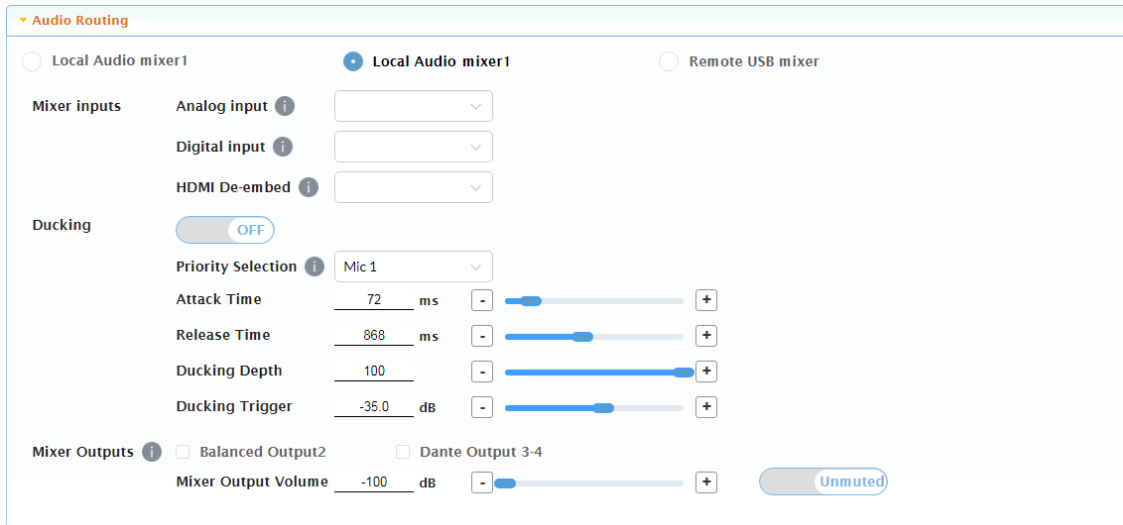
Mixer inputs and Ducking settings are same with Local Audio mixer1.

Mixer Outputs (multiple-choice): Click the check box to select the audio output channel(s) among Balanced Output2, and Dante 3-4. The audio outputs(s) will output the audio from the selected audio source. All selected audio outputs will output the same audio. Other settings are same with selecting Local Audio mixer1.

When select Remote USB mixer:
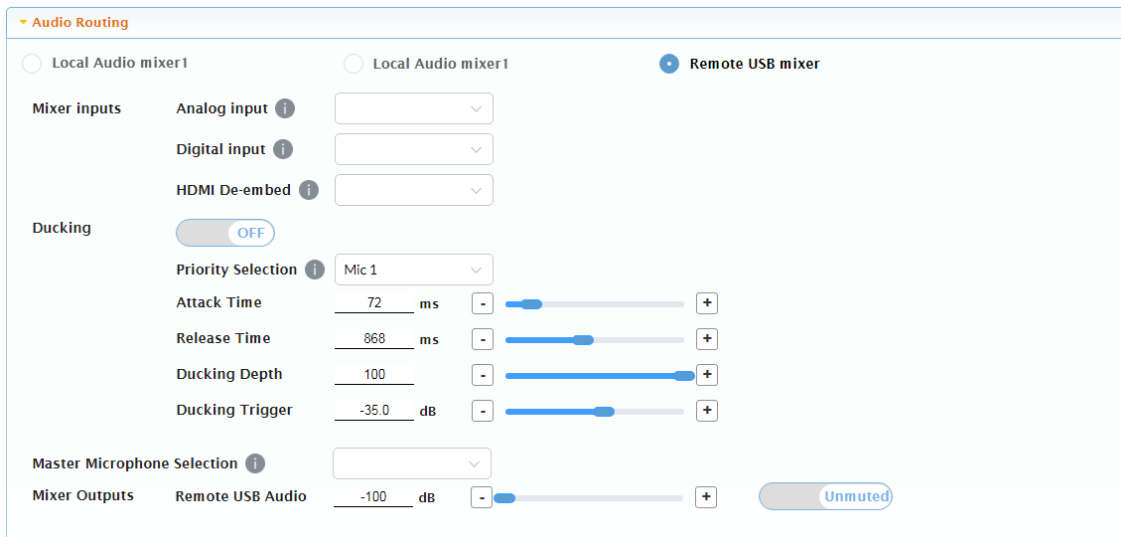
This section is used when the matrix is used for conferencing through remote conferencing software. The matrix is built-in a USB mic, when select this mixer and the connected laptop selected the matrix's USB mic, users can select the sources for the remote participants can receive, set AES, and set the audio volume to be transmitted through the conferencing software.

Analog input selection and HDMI De-embed selection are same with Local Audio mixer 1 and 2.

The digital audio input can be selected from the drop-down menu:

- Master Microphone Selection (multiple-choice): AEC function will be applied to this (these) input port(s).

- Mixer Outputs:

  ➢ Remote USB Audio: Drag over the slider to set the mixer audio output volume. The default setting is -100dB.

  ➢ Muted/Unmuted: Set the mixer audio output to mute/unmute. The defaulting setting is unmuted.
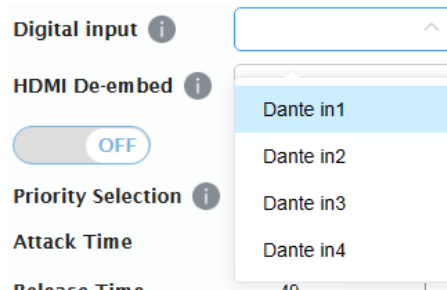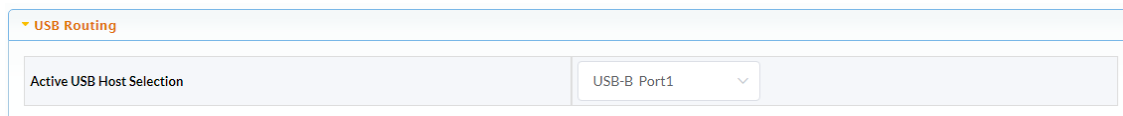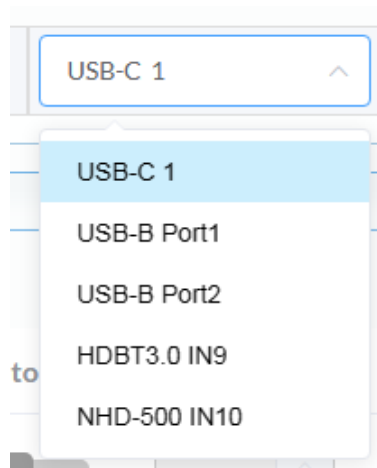
3) USB Routing

This section allows users to select USB host all the USB devices (including the local USB devices and remote USB devices (connected with HDBT receivers or NHD 500 receivers) connected.

Active USB Host Selection: Select the USB Host from the drop-menu. The default setting is USB-B Port1.

For example, when select USB-B Port1, all USB devices the matrix connected and the remote receivers connected are connected with USB-B Port 1.

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4) Display Control

- Display On: Click to send the saved Display On command to the connected CEC-enabled display to power on it immediately.

- Display Off: Click to send the saved Display Off command to the connected CEC-enabled display to power off it immediately.

- Auto On/Off: Click to enable or disable the CEC Auto Control. By default, the auto CEC control is ON.

- 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 Auto control is set as on and 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.

- Command Setting: Click "✐" to enter the following window to do command testing, set and save commands of Display On/Off.

➢ Command Testing: Input a Display on/off command, and then click "Send" to send it to the selected output to test if it takes effects.

➢ Display On/Off: Input the corresponding CEC command, then click "Save" to save it.

Note: If users want to change CEC commands, please refer to the CEC specification document.

5) Presets Matrix Control
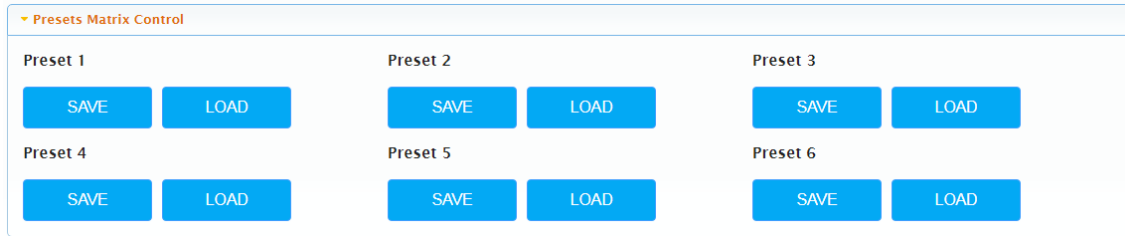
This section saves/loads the matrix control settings to or from the Matrix.

• Save: Save the selection settings to the matrix.

• Load: Load the saved preset file from the matrix.

2. General Setting

1) A/V Configuration

A/V Configuration

Source

1 INPUT 1	2 INPUT 2
3 INPUT 3	4 INPUT 4
5 INPUT 5	6 INPUT 6
7 INPUT 7	8 INPUT 8
9 INPUT 9	10 INPUT 10

Zone

1 OUTPUT 1	2 OUTPUT 2
3 OUTPUT 3	4 OUTPUT 4
5 OUTPUT 5	6 OUTPUT 6
7 OUTPUT 7	

Input 1 Name

INPUT 1

EDID

Fixed 4K30 2.0CH PCM Audio with SDR

Apply

Save EDID

HDCP   ON

Video In

Video Details			
Resolution	0x0	Frame Rate	0
HDR Info	None	Color Space	None
Deep Color	None	HDCP Version	None

Audio In

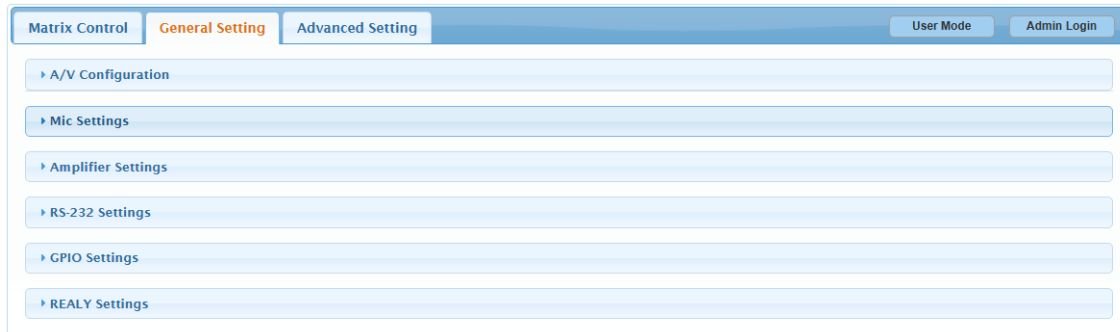| Audio Details			
Format	None	Sampling Rate	0kHZ

A/V Configuration

Source

1 INPUT 1	2 INPUT 2
3 INPUT 3	4 INPUT 4
5 INPUT 5	6 INPUT 6
7 INPUT 7	8 INPUT 8
9 INPUT 9	10 INPUT 10

Zone

1 OUTPUT 1	2 OUTPUT 2
3 OUTPUT 3	4 OUTPUT 4
5 OUTPUT 5	6 OUTPUT 6
7 OUTPUT 7	

Output 1 Name

OUTPUT 1

Save EDID

HDCP ⓘ

Auto

Output Resolution

auto

Video Out

Video Details			
Resolution	0x0	Frame Rate	0
HDR Info	None	Color Space	None
Deep Color	None	HDCP Version	None

Audio Out

Audio Details			
Format	None	Sampling Rate	0kHZ

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This section allows users to set name, EDID, HDCP and get video and audio information of each input source, and set name, save EDID, select HDCP, output resolution, and get output video and audio information.

- Source/Zone: Select an input/output to set (the selected input/output button turns from white to green).

- Input (1~10) / Output (1~7) Name: Input a new name for the selected input/output.

- EDID (for input 1-9): Select EDID for the corresponding input port, and click "Apply" to take effect. The default EDID of input 2-9 is Fixed 4K60 2.0CH PCM Audio with SDR, and the default EDID of the input 1 is Fixed 4K30 2.0CH PCM Audio with SDR.

  EDID Selection includes:

  Copy form HDMI Output 1;

  Copy form HDMI Output 2;

  Copy form HDMI Output 3;

  Copy form HDMI Output 4;

  Copy form HDMI Output 5;

  Copy form HDMI Output 6;

  Copy form HDMI Output 7;

  Fixed 4K60 2.0CH PCM Audio with HDR;

  Fixed 4K60 2.0CH PCM Audio with SDR;
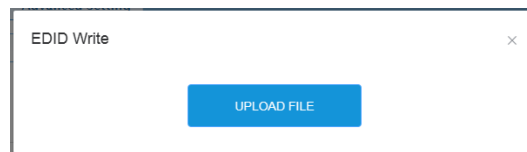
  Fixed 4K30 2.0CH PCM Audio with HDR;

  Fixed 4K30 2.0CH PCM Audio with SDR;

  Fixed 1080p@60Hz 2.0CH PCM Audio with HDR;

  Fixed 1080p@60Hz 2.0CH PCM Audio with HDR;

  EDID Write.

  When select EDID Write, users can click "UPLOAD FILE" in the popped window to select an EDID file from the local PC to write to the corresponding port.

- Save EDID: Click to save the EDID information of the select input/output as a bin file to local PC.

- HDCP (ON/OFF) (for input 2~9): Click to enable/disable HDCP encryption of each input port, the default setting is "ON".

- HDCP (for output 1~7): Select HDCP support for the selected output port from the drop-down menu (Auto, HDCP v1.X). By default, Output HDCP Support is "Auto", follow the input HDCP. For example, input HDCP is HDCP 2.2, output HDCP is also HDCP 2.2. When set it to HDCP v1.X, it means the HDCP of the output is set to HDCP 1.4.
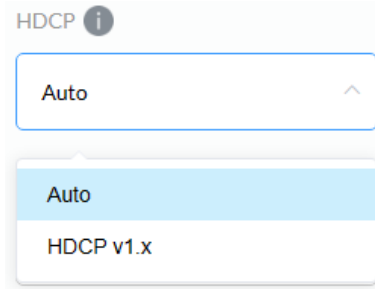
- Output Resolution: Select output resolution for the selected output port. The default setting is "AUTO".

- Video In/Audio In (for input 1~10): Shows the video and audio information of the selected input.

- Video Out/Audio Out (for input 1~10): Shows the video and audio information of the selected input.

2) Mic Setting
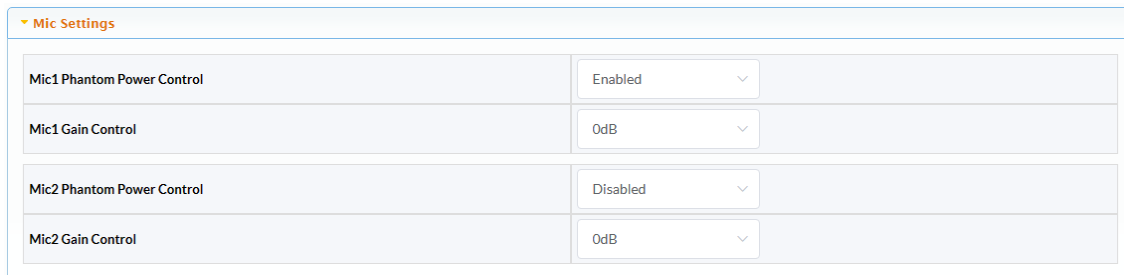
This section allows users to set phantom power control to enable/disable and set mic gain control value.

- Mic1/2 Phantom Power Control (Enabled/Disabled): Set phantom power of mic in1/2 to enable/disable. When set it to enable, please ensure a phantom microphone is connected to the corresponding mic in port to avoid a damage to the microphone. Both the default setting of Mic1 and Mic 2 Phantom Power Control are "Disabled".

- Mic1/2 Gain Control: Set gain control of the mic in1/2 from the drop-down menu, the default setting is 0dB.
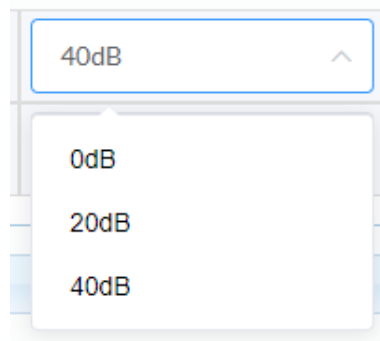
3) Amplifier Settings
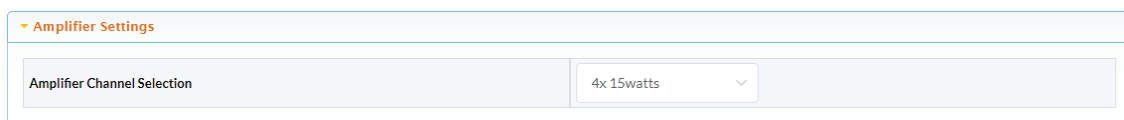
This section allows users set amplifier channel. The matrix supports two amplifier channel modes: 4 x 15watts and 2 x 30watts. The default setting is "4 x 15watts".

When set it to 4 x 15watts, the AMP out ports can be connected to 4 x 15watts 8Ω speakers or 4 x 25watts 4Ω speakers, and when set it to 2 x 30watts, the AMP out ports can be connected to 2 x 30watts 8Ω speakers, or 2 x 50watts 4Ω speakers.

See "Pinout Introduction" section to get detail connection information.

4) RS-232 Settings

This section allows users to set parameters for RS-232 routing (from matrix LAN port to HDBT and NHD ports).
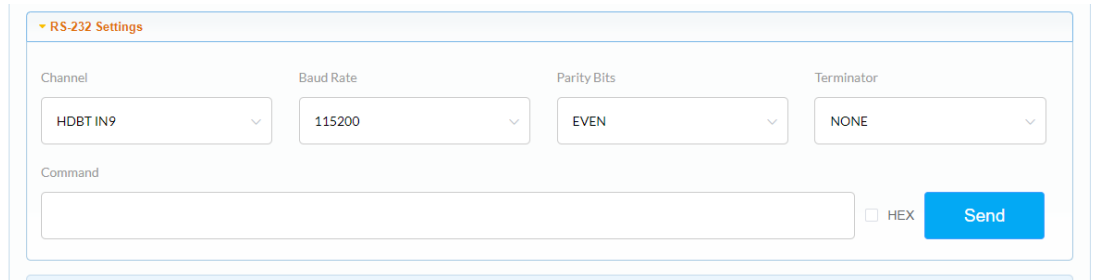
- Channel: Select remote RS-232 gateway port.

- Baud Rate: Select baud rate for the selected RS-232 port.

- Parity Bits: Select parity bits for the selected RS-232 port.

- Terminator: If commands in string format require a terminator, choose the appropriate terminator from the drop-down menu. The command in hex format doesn't require for a terminator.

    Explanation of the terminator:

    \r: Carriage Return<CR>

    \n: Line Feed <LF>

    \r\n: Carriage Return + Line Feed <CR><LF>

    none: No terminator required.

- Command: Input command to control third-party device connected with the remote receiver RS-232 port. If the command input is only available in Hex format, click the Hex checkbox and input the Hex command, then click the "SEND" button.

Note: The entered commands will only be sent to remote transmitter or receiver connected 3rd-party device. It needs to be supported by the 3rd-party device.

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5) GPIO Settings

▾ GPIO Settings	
GPIO Channel	1
GPIO Type	Digital In
Low-state Threshold(V)	1 ⓘ
High-state Threshold(V)	3 ⓘ
GPIO State	HIGH
	Apply

This section allows users to set GPIO pins.

- GPIO Channel: Select the port number from the drop-down menu to configure.

- GPIO Type: Select the GPIO trigger type from the drop-down menu between Digital In and Digital Out.

    When select Digital In (default):

    ➢ Low-state Threshold (V): Define the low detect voltage threshold (the range is 1 to 22V).

    ➢ High state Threshold (V): Define the high detect voltage threshold (the range is 2 to 23V).

    This mode reads the digital input of an external sensor device that is connected to the GPIO port, and detects High (upon passing Max threshold from Low state) or Low (upon passing Min threshold from High state) port states according to the user defined voltage threshold levels.

- GPIO State: If the detected result is less than the low-state threshold users set, it wills display "LOW" here, and if the result is more than the high-state threshold users set, it will display "HIGH" here.

    When select Digital Out:

▾ GPIO Settings	
GPIO Channel	1
GPIO Type	Digital Out
Pull-up Resistor	Disconnected
GPIO State	High
	Apply

    ➢ Pull-up Resistor: Set Pull-up Resistor to "Connected" / "Disconnected".

    ➢ GPIO State: Set GPIO state to "High" or "Low".

    When set the GPIO State to "High", and set Pull-up Resistor to "Connected", the matrix supplies an internal 5V Pull-up resistor. While set Pull-up Resistor to "Disconnected", the pull-up voltage is determined by the external connected pull-up resistor. When GPIO state is set to "Low", it will output low level.

- Apply: Click to confirm the settings.

6) Relay Settings

▾ REALY Settings	
Relay Channel	1 ⌄
Relay State	Off ⌄

This section allows users to configure relay ports.

- Relay Channel: Select relay channel between 1 and 2.

- Relay State: Set relay state from the drop-down menu. When it is set to "On", NO and COM pins of the selected relay port are connected, and NC and COM pins of the selected are disconnected. When it is set to "Off", NC and COM pins of the selected relay port are connected, and NO and COM pins of the selected relay port are disconnected.

3. Advanced Setting

Matrix Control	General Setting	**Advanced Setting**		User Mode	Admin Login
▸ Information					
▸ Fan and Temperature					
▸ Network					
▸ Security					
▸ Change Admin Login Password					
▸ FW Update					
▸ System					
▸ Telnet API Command					
▸ Log					

1) Information

▾ Information		
MODEL	MAC ADDRESS	IP ADDRESS
MX-1007-HYB	00:6f:90:bd:e9:aa	192.168.5.247
FIRMWARE VERSION		
1.0.1		

This section shows the device's information, including Model, Mac address, IP address and firmware version.

2) Fan and Temperature

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Fan and Temperature

Fan Speeds	Temperatures(°C)
[2760,2730]	[46]

This section shows the device's fan speed and temperature.

3) Network

Network

Mode
● DHCP ○ Static

Device IP Address

192.168.5.247

Subnet Mask

255.255.240.0

Device Gateway

192.168.2.1

Note: LAN Module will automatically reboot after changing Network setting.

Apply

Network is used to set between the static and dynamic IP address.

• DHCP: When enabled, the IP address of the Matrix is assigned automatically by the DHCP server connected.

• Static: When enabled, set up the IP address manually.

• Apply: Click to enable the network setting.

Note:

• When "Static" is selected, please ensure your PC is in the same network segment as the Matrix, i.e., the IP address of your PC should be set as 192.168.xxx.xxx.

• Please wait for 2-3 minutes for the Matrix's LAN module to reboot and reconnect after the network setting is changed.

4) Security

Security

Telnet over TLS	Disable ∨
HTTPS	Enable ∨

• Telnet over TLS (Disable/Enable): Set TLS (Transport Layer Security) to enable or disable, when it is set to enable, users can change the TelnetS login password. The default setting is "Disable". The default user name and password for logging in the Telnet is "admin" and "wyrestorm".

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

Security	
Telnet over TLS	Enable
Old Password	
New Password	
Confirm New Password	
Note: Password must be 4 to 16 characters in length(alphanumeric only).	Apply
HTTPS	Disable

- HTTPS (Enable/Disable): Set HTTPS to "Enable" or "Disable". The default setting is "Enable". HTTPS (Enable): Https is mandatory supported. HTTPS is a secure version of the HTTP protocol that builds an SSL encryption layer over HTTP and encrypts the transmitted data.

  HTTP network protocol is the most widely used hypertext transfer protocol, this method allows a third-party to listen in and eavesdrop on the transferred information. To ensure the secure data transmission, the HTTP can be disabled, and the all the information can be transferred via HTTPS. HTTPS protocol encrypts the clear text, so it becomes incomprehensible for a third-party and keeps the data secure.

5) Change Admin Login Password

Change Admin Login Password	
Old Password	
New Password	
Confirm New Password	
Note: Password must be 4 to 16 characters in length(alphanumeric only).	Apply

This section allows users to change admin password. The default password is "admin".

- Apply: Click to perform the change.

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

6) FW Update

FW Update	
File:	Browse
	Update
Note: Do not power off the matrix when updating.	

This section allows users to update firmware.

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<u>To update Firmware:</u>

1. Click "Browse" for the update .zip file.

2. Click "Update" to proceed.

3. The matrix will reboot automatically after upgrading is completed.
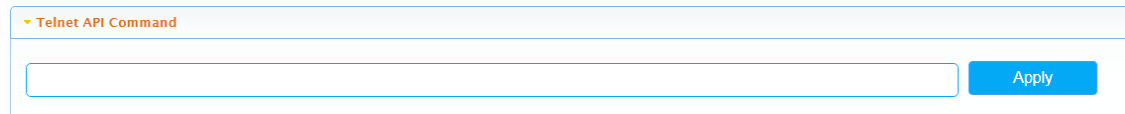
Note: Do not power off the matrix during the upgrading.

7) System
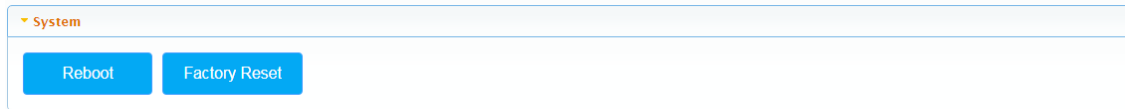
- Reboot: Click to reboot the device, and wait 2 minutes to re-access Web UI by refreshing the browser.

- Factory Reset: Click to reset the device to factory defaults, and wait 2 minutes to re-access Web UI by refreshing the browser.
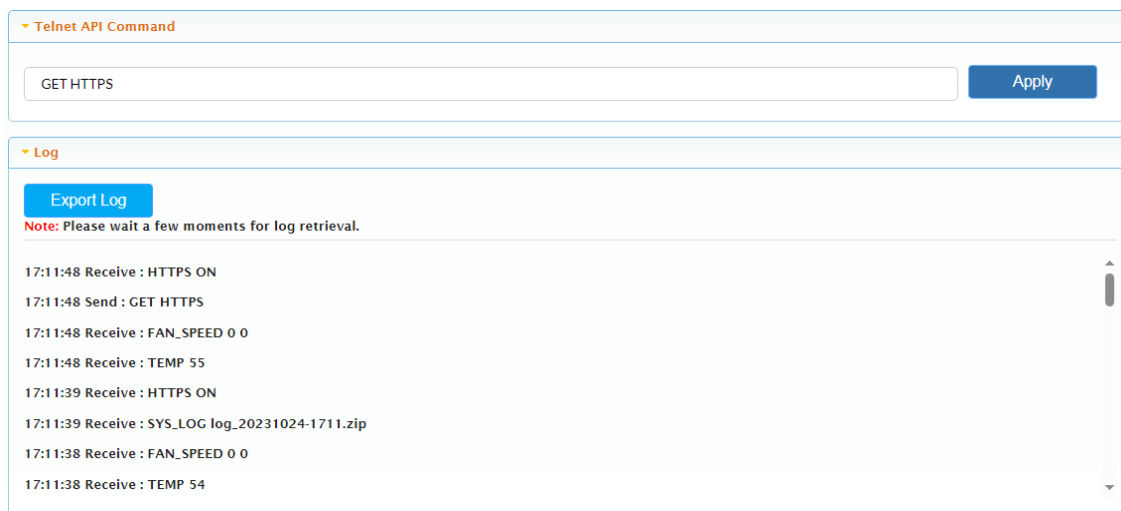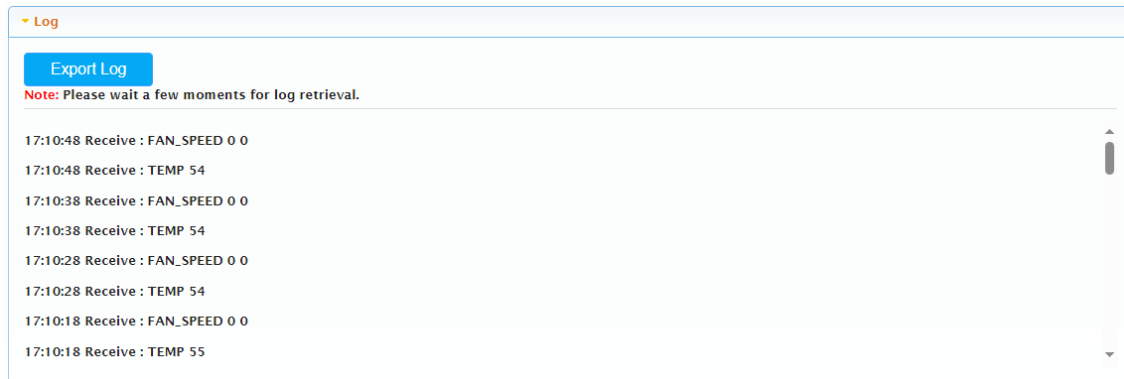
8) Telnet API

This section allows users to input and send API commands to the matrix. The return value will be display in "Log" part.

Apply: Click "Apply" to send the input command to the matrix.

For example:

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9) Log

This section shows the operation log and commands return.

Export Log: Click to export the log file to local PC.

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