iMatrix C604

4K60 6x4 Seamless Matrix Switcher with USB C

User Manual V1.1

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1. INTRODUCTION

The **iMatrix C604** is a fixed 1RU 6x4 fast switching matrix with both USB-C and HDMI inputs. It builds in 4K60 scaler on all video outputs, and features seamless transition when switching video inputs. 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 matrix also features rich audio connections, which include analog microphone inputs, Dante 4x4 digital inputs and outputs, USB audio and line audio outputs.

The matrix is also integration friendly with flexible control options, including front panel buttons, RS232 and LAN control (Telnet & Web UI).

The matrix is designed for professional markets, such as high education classroom, corporate meeting rooms etc.

2. FEATURES

- Inputs and outputs support resolutions up to 4K@60Hz 4:4:4 8-bit.
- Supports HDCP 2.3 and is backward compatible.
- HDMI outputs support free scaler from 480p to 2160p, and provide 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.
- Supports USB host switching and USB device extension.
- Switching USB hosts include 1x USB 3.0 type-C port and 2x local USB3.0 type-B ports;
- USB devices include 4x local USB3.0 type-A ports.
- Versatile audio connection and DSP
- 2x Mic inputs, and 1x LINE input
- 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.
- Multi-Channel audio DSP Processing—Enables simultaneously processing of audio input and output signals, including gain, EQ, etc.
- Supports GPIO control and relay control.
- Multiple control options, including front panel buttons, RS-232 and LAN (Web UI &Telnet).

3. PACKAGE LIST

1 x iMatrix C604

1 x AC Power Cord

1 x USB 3.1 Gen 1 Type-C to Type-C Cable (2m, 5Gbps per lane)

3 x Phoenix Male Connector (3.5mm 3-Pin)

4 x Phoenix Male Connector (3.5mm 5-Pin)

1 x Phoenix Male Connectors (3.5mm 6-Pin)

2 x Mounting Brackets (1U, with Screws)

4. SPECIFICATIONS

Technical	
Input / Output Signal Type	4K@60Hz 4:4:4 8bit, HDCP 2.3
Input Resolutions	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 Resolutions	4096x2160[3,5] 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/MIC IN/LINE IN/LINE OUT: PCM 2.0
Maximum Data Rate	HDMI: 18Gbps USB-C: 5Gbps (per lane)

Technical	
Control Method	Front panel buttons, RS-232, LAN (Telnet API & Web UI)
General	
Operating Temperature/ Humidity	32°F ~ 113°F (0°C ~ 45°C), 10% ~ 90%, non-condensing
Storage Temperature/ Humidity	-4°F ~ 158°F (-20°C ~ 70°C), 10% ~ 90%, non-condensing
Power	AC 100~240V 50/60Hz
Power Consumption	TBD
ESD Protection	Human body model: ±8kV (air-gap discharge) / ±4kV (contact discharge)
Dimensions (W x H x D)	17.32" x 1.71" x 12.99" (440mm x 43.5mm x 330mm)
Net Weight	10.03lbs (4.55kg)

Transmission Distance

Cable Type	Range	Supported Video
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

5. PANEL OVERVIEW

5.1 FRONT PANEL

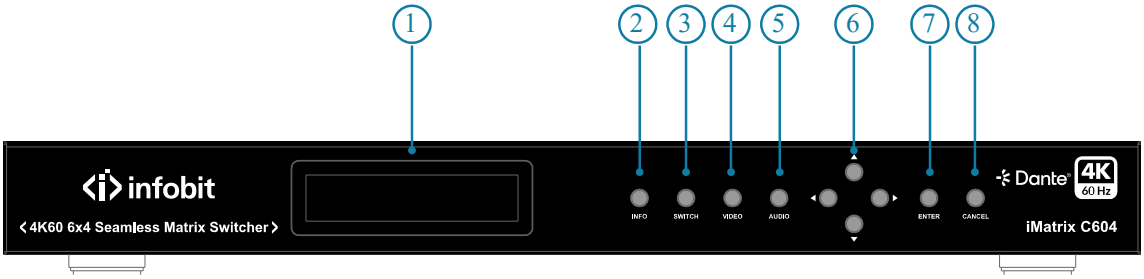


Figure 1: Front Panel

#	Name	Description
1	LCD Screen	Display the information of button operation.
2	INFO Button	Press to enter viewing device information mode on the LCD screen. In this mode, use the navigation buttons to turn pages and view the following information on LCD screen, including firmware version, IP address, fan speed, temperature, and physical address.
3	SWITCH Button	Press to enter input channel selection mode.
4	VIDEO Button	Press to display the video information of the selected input port on LCD screen, including resolution, color space and HDCP encrypted status.
5	AUDIO Button	Press to enter audio volume adjust mode.
6	Navigation Button	• INFO: Press the four navigation buttons to turn pages to display the device information. • AUDIO: Press the left/right button to switch audio output ports and the up/down button to increase/decrease volume. • SWITCH: Press the left/right button to switch output and the up/down button to select input for the selected output. • VIDEO: Press the left/right button to switch input port and the up/down button to turn the page to display video information of current selected input.
7	ENTER Button	Press to apply the settings.
8	CANCEL Button	Press to cancel the button operation or exit current mode.

Note: For detailed information on button operations, refer to the "**Control via Front Panel**" section.

5.2 REAR PANEL

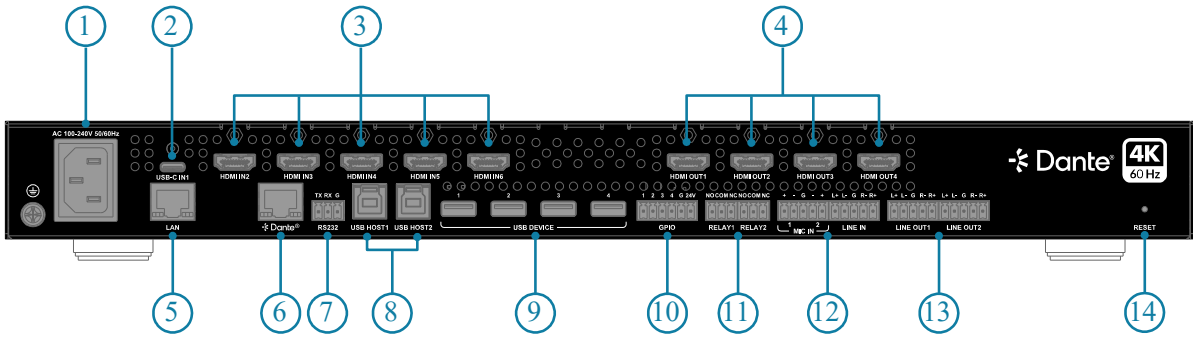


Figure 2: Rear Panel

#	Name	Description
1	AC 100~240V 50/60Hz	Connect to the power source using the provided AC power cord.
2	USB-C IN 1	USB 3.0 Type-C port; connect to a laptop with USB type-C port. The port supports the following functions: • Audio, video, and USB 3.0/2.0 signal transmission, with a maximum data rate of 5Gbps. • Power Delivery (PD) 3.0, capable of supplying up to 60W of power to the connected device. • 1G network connectivity, enabling the laptop to access the Ethernet through the connected matrix. The following cable are recommended to use: USB Type-C to Type-C cable (USB 3.0 or above)
3	HDMI IN 2~6	Connect to HDMI sources.
4	HDMI OUT 1~4	Connect to HDMI displays.
5	LAN	RJ45 port. Connect to Ethernet devices for LAN control (Web UI/Telnet).

#	Name	Description
6	DANTE	RJ 45 port. Connect to the network for Dante audio connection.
7	RS232	Connect to a RS-232 enabled control device for API control or RS-232 routing.
8	USB HOST 1~2	USB 3.0 Type-B ports. Connect to USB host devices.
9	USB DEVICE 1~4	USB 3.0 Type-A ports. Connect to USB devices.
10	GPIO	Connect to GPIO devices. Support connecting up to four GPIO devices.
11	RELAY 1~2	Connect to relay devices for relay control. • NO: Normally open; • NC: Normally closed; • COM: Common connector. Detail setting information about relay, please refer to "Device Control via Web UI" section.
12	MIC IN 1~2 & LINE IN	• MIC IN 1~2: Connect to microphones. • LINE IN: Connect to line in device.
13	LINE OUT 1~2	Connect to audio receivers.
14	RESET	Use a needle to press and hold the recessed reset button: • Less than 5s: Nothing will happen. • More than 5s but less than 15s: Reset the IP mode of the device to DHCP, and reset the login passwords of telnet and web UI to defaults. Both the default login password of telnet and web UI are "**admin**". • More than 15s: Reset the device to factory defaults.

6. INSTALLATION

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

The matrix occupies 1U 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 panels on both sides.

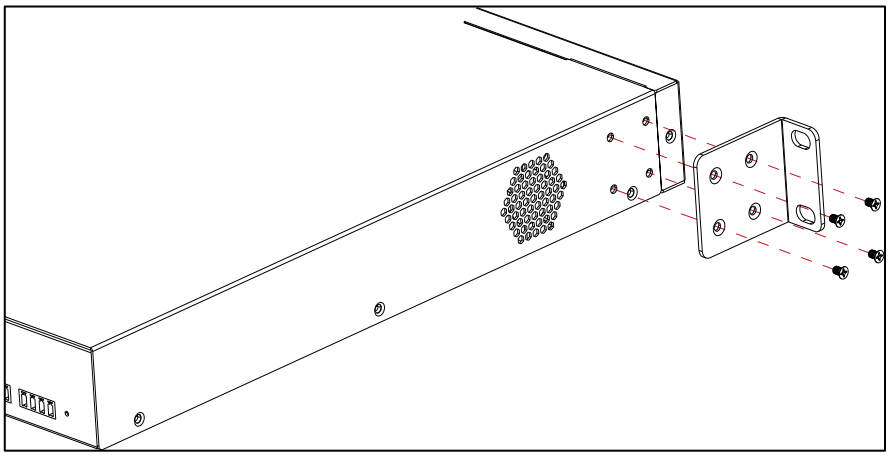


Figure 3: Installing Brackets

2. Affix the matrix to the mounting rack using the mounting screws.

7. APPLICATIONS

7.1 DANTE

The **iMatrix C604** supports 4x4 Dante audio transmission. Before using Dante function, please enable all devices are connected to the same network, as the Dante Controller is only available on wired connections.

Connect the “Dante” port to a local area network, and launch the “Dante Controller” software on the laptop connected in the same network (Refer to https://www.audinate.com/products/software/dante-controller to download the latest Dante Controller). Pair the transmitters and receivers (both the transmitters and receivers are connected with the same network) as required on the Dante Controller with the matrix. The paired transmitters can generate Dante audio and transmit it to the Dante in of the matrix through the network, and the paired receiver can receive Dante audio from Dante out of the matrix through the network. Users can set audio sources and audio outputs through API commands or web UI. Refer to the separate document **“*API Command Set_iMatrix C604*”** or “**Device Control via Web UI**” section for more information.

7.2 LOCAL PRESENTATION

It supports seamless switching between visitor's PC, Room PC, BYOD devices in meeting rooms or among teacher's laptop, class PC or document camera in education applications.

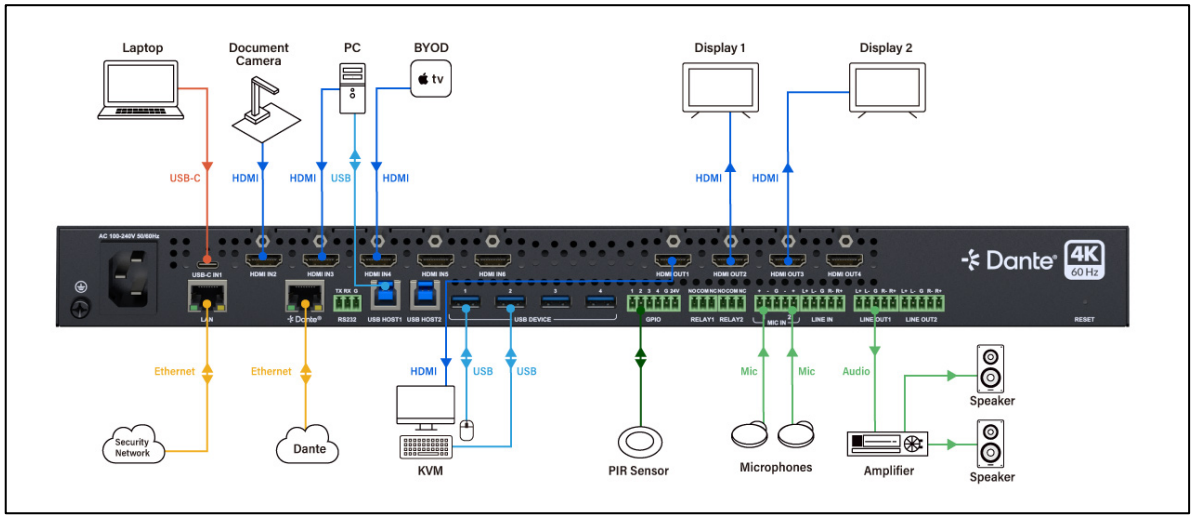


Figure 4: Application of Local Presentation

7.3 LARGE LECTURE HALL

It supports seamless switching among lecture's laptop, Room PC, document camera, web cameras, or BYOD devices in tranining applications.

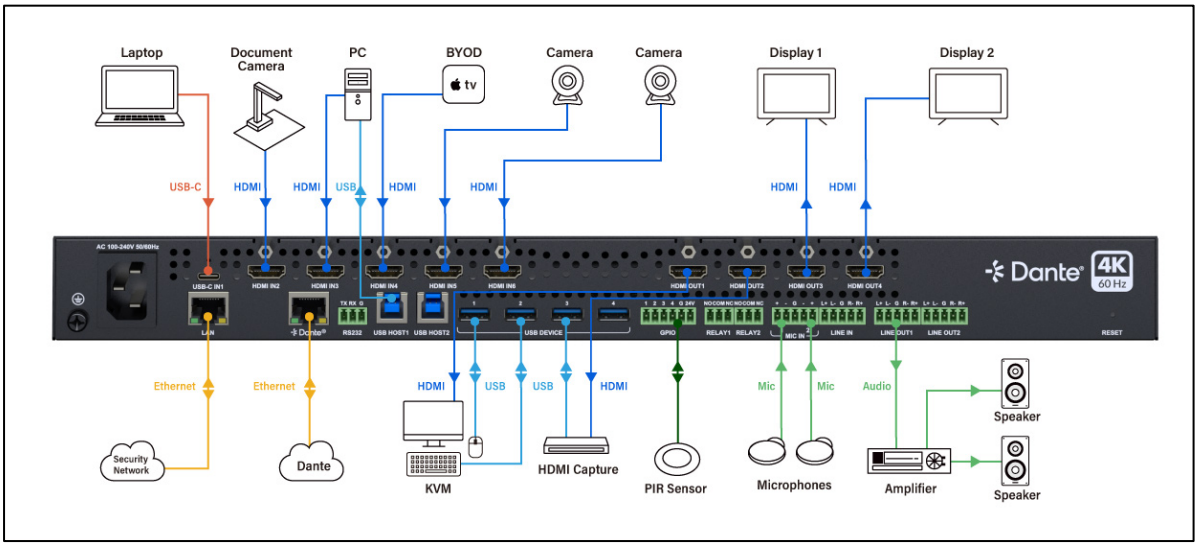


Figure 5: Application of Large Lecture Hall

7.4 BYOD MEETING ROOM

It supports seamless switching among meeting guest's laptop, Room PC or BYOD devices and share the web camera signals in meeting room applications.

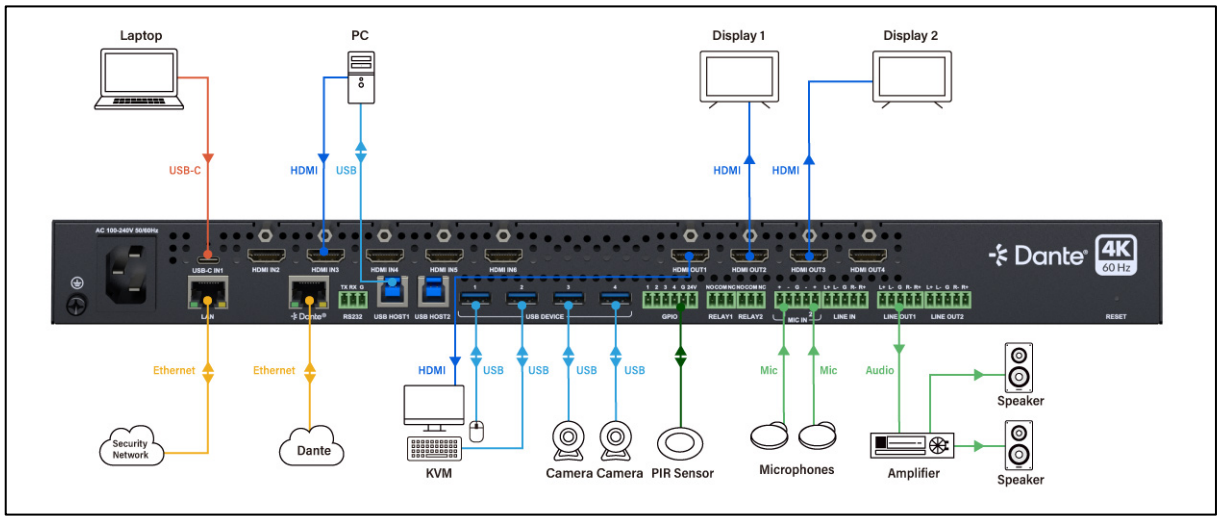


Figure 6-1: Application of Corporate Unified Communications with BYOD

7.5 BYOM MEETING ROOM

It supports passthrough the USB devices like videobar camera, webcam, microphone or speakerphone to USB C, USB B Host 1 and 2 which can connect to iShare X400 directly to allow users to use wireless BYOM at will.

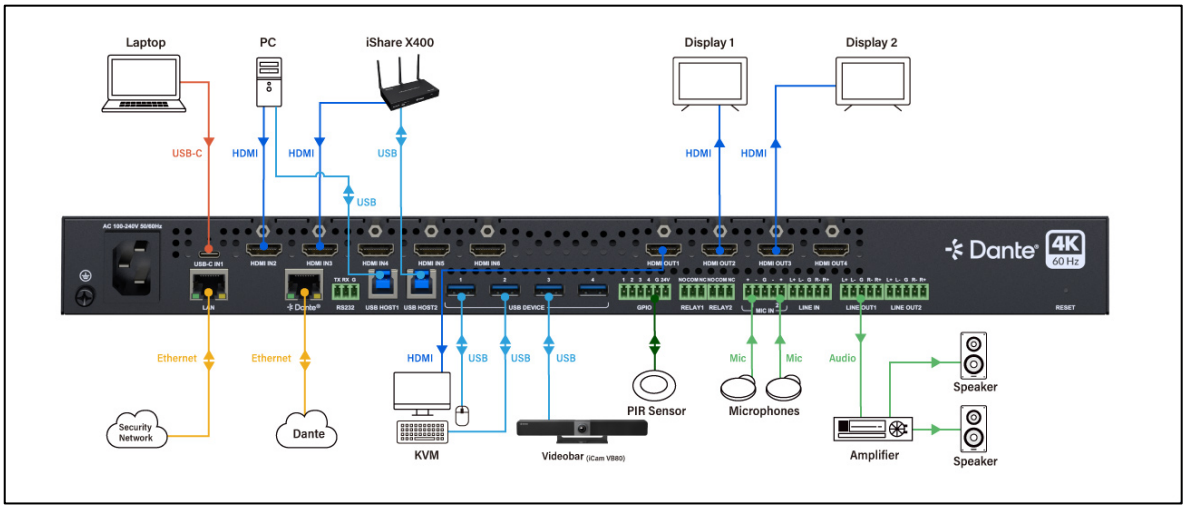


Figure 6-2: Application of Corporate Unified Communications with BYOM

8. OBTAIN IP ADDRESS

The default IP mode of the matrix is DHCP. If the matrix isn't connected to the network with DHCP server, it will automatically generate an IP address of 169.254.x.x (x indicates the number from 1 to 255).

Users can obtain IP address using the following methods:

View IP address from LCD screen on front panel. After the device starts up, the IP address will be displayed on the LCD screen, or you can press the INFO button to view it.

Sending API command "GET IPADDR<CR><LF>" via RS232 or telnet. See "Command Control" section to get detail information.

9. CONTROL VIA FRONT PANEL

The front panel button controls allow for basic functions such as switching input sources to output displays, adjusting audio volume, and accessing device information.

Power on the matrix. The LCD indicator will initially display "Starting…" and will then show the matrix's model and IP address once it's ready to operate.

9.1 SWITCH INPUTS FOR OUTPUTS

1. Press "SWITCH" button to enter switch mode.
2. Press the Left (◀) or Right (▶) button to select output channel. The ">" icon will indicate the currently selected output by moving to the corresponding channel number.
3. Press the Up (▲) or Down (▼) button to select input channel for current output.
4. Press "ENTER" button to apply the selection or press "CANCEL" to exit the mode and return to the main page.

9.2 ADJUST VOLUME OF AUDIO OUTPUTS

1. Press "AUDIO" button 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. Volume adjustment takes effect immediately and not needs to press “ENTER” button.
4. Press “CANCEL” to exit the mode and return to the main page.

9.3 GET INFORMATION OF DEVICE/INPUT VIDEO

Press “INFO” button to enter device information viewing mode or press “VIDEO” button to enter video information viewing mode.

Press the Up (▲) or Down (▼) button to select input port to view its video information in video information viewing mode, or turn the page to view the device’s information in device information viewing mode.

Press the Left (◄) or Right (►) button to turn the page to view the video information in video information viewing mode or flip to view the device’s information in device’s information viewing mode.

Press “CANCEL” to exit the mode and return to the main page.

10. CONTROL VIA COMMAND

Advanced users may need to control the device via API commands. API commands can be obtained from the separate document **“*API Command Set_iMatrix C604*”.**

Two methods are provided for controlling this device through API commands: **RS232** and **telnet**.

10.1 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.

Parameters	Default Value

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

10.2 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

11. CONTROL VIA WEB UI

The web UI is an intuitive software interface that enables users to easily manage and control the matrix via a browser. It is recommended to use Chrome, Safari, Microsoft Edge or Firefox browser with latest version for the best experience.

11.1 LOG IN

By default, the IP addressing mode for the device is **DHCP**.

To access the Web UI of the device:

Connect the LAN port of the device to a local area network equipped with a DHCP server. This allows the device to acquire the a valid IP address.

Connect your PC to the same network as the device.

Check the device's IP address through the LCD screen or sending API command, see **"Obtain IP address"** section to get detail information.

Input the device's IP address in the browser and press Enter. The Login window appears.

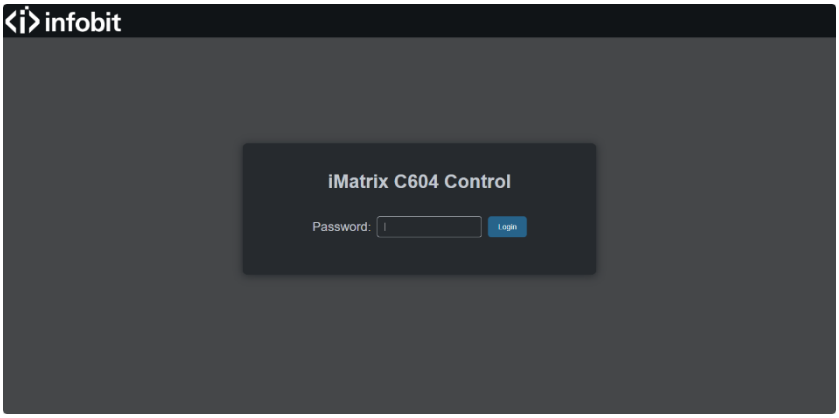


Figure 7: Login Window

Input the password and press Enter. Default password is **admin**.

You are required to change the password for the first login. Enter the old password and new password, and click **Apply**, the new password will be set. **Note:** The new password must be alphanumeric with 4 to 16 characters in length.

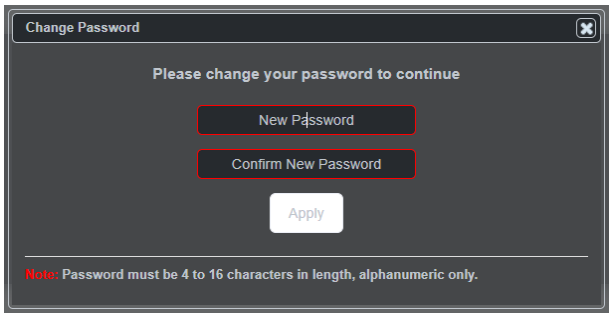


Figure 8: Change Password Window

The main page opens. Click the tabs on the navigation pane above to access the corresponding web page.

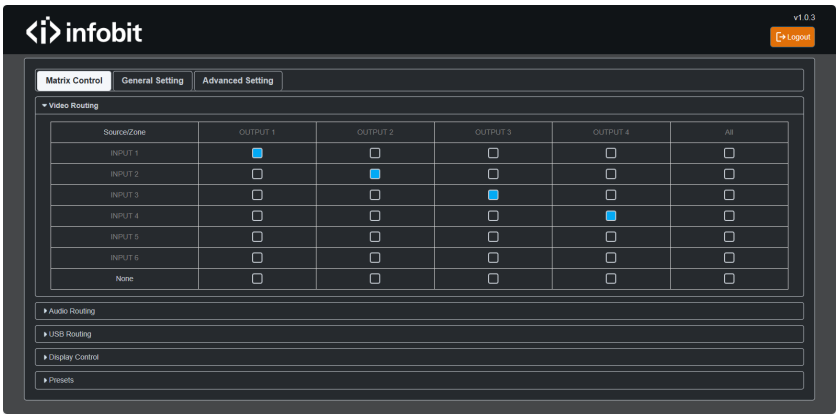


Figure 9: Main Page

11.2 WEB UI INTRODUCTION

: Click the “Logout” button on the up-right corner to exit the web UI setting page and return to login page.

11.2.1 MATRIX CONTROL

1. Video Routing

Figure 10: Video Routing

This section controls the distribution of input video sources to output displays. Click the button in the table to select an input for the output display (the button will turn from black to blue once selected).

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 3 routes to Output 3, Video Input 4 routes to Output 4.

2. Audio Routing

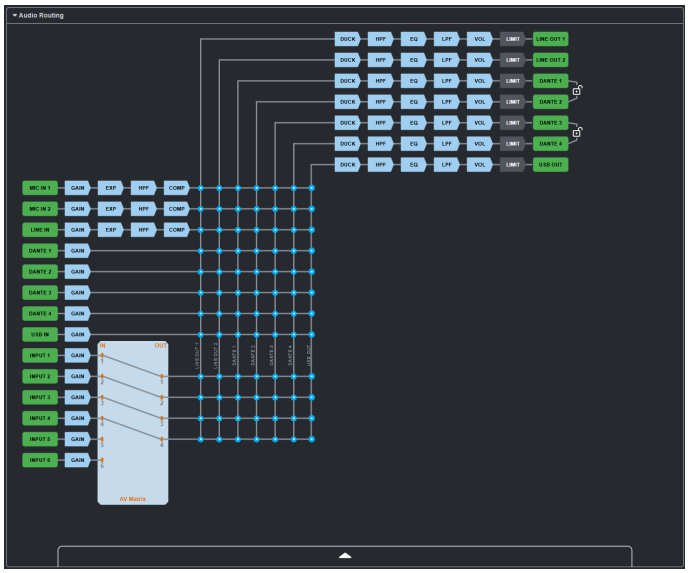


Figure 11: Audio Routing

This section allows for audio input switching for audio outputs and DSP configuration settings.

1）. Introduction of Audio Routing Page

Click an audio IN or OUT button or a DSP module, highlights the routing path. The corresponding button will have a yellow frame.

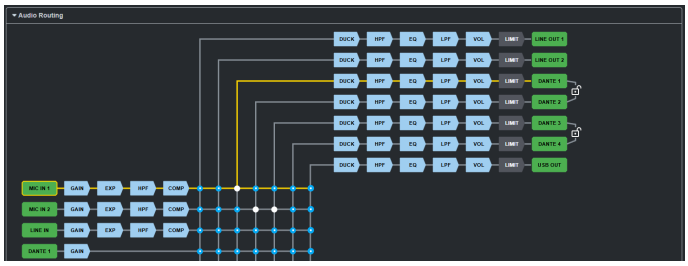


Figure 12: Highlight Audio Routing Path

The Grey blue zone shows the input and output distribution according video routing. When select audio source here, it indicates that select the de-embedded audio from the input source the corresponding output routed.

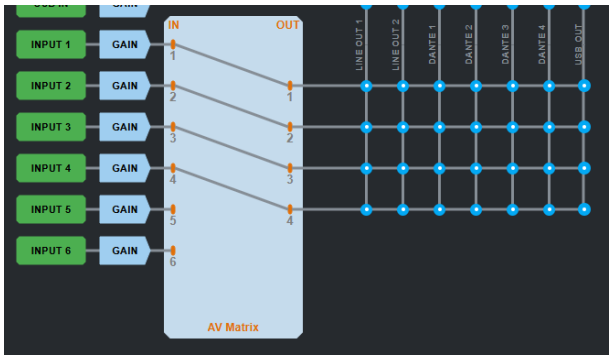


Figure 13: AV Matrix in Audio Routing Page

2). Switch Audio Input for Audio Output

Click the dot at the intersection of the corresponding audio lines to select an audio input for the audio output (the dot turns from blue to white once the selection takes effect). One audio output can select multiple audio inputs and one audio input can be selected for multiple outputs.

Figure 12 shows that MIC IN 1 is switched to DANTE OUT 1, and MIC IN 2 is switched to DANTE OUT 2 and 3.

Note: To prevent remote users from hearing feedback audio, during configuration, it is advisable to avoid selecting the USB IN as the input for the USB OUT audio channel.

3). Audio DSP Configurations for Audio Inputs

A. GAIN

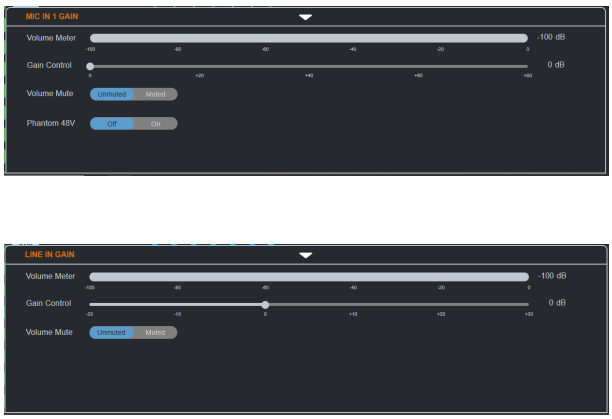


Figure 14: Audio Input Gain Setting

Parameter	Function
Volume Meter (For all audio inputs)	Display the active audio level of the corresponding audio input in real-time.

Parameter	Function
Gain Control (For all audio inputs)	Use the slider to adjust the audio gain. Default setting: 0dB; Range: 0~+80dB.
Volume Mute (For all audio inputs)	Click to set the corresponding audio to mute/unmute. Default setting: Unmuted. • When set to mute, the corresponding audio input button turns red. For example: MIC IN 2: MIC IN 2 is set to mute. • When set to unmute, the corresponding audio input button turns green. For example: DANTE 1: DANTE IN 1 is set to unmute.
Phantom 48V (For MIC IN 1/2)	Click to set phantom 48V to on or off. Default setting: Off. **Note:** When enabling Phantom 48V, ensure that the port is connected to a microphone that requires phantom power, as using it with an incompatible microphone may damage the device.

B. EXP

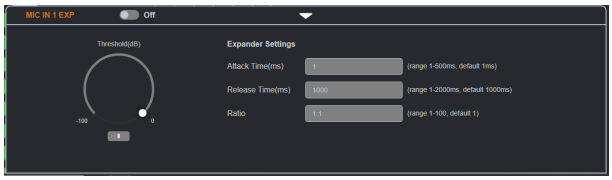


Figure 15: Audio Input Expander Setting

EXP—Expander (for MIC IN 1/2 and LINE IN 1), is used to increase the difference between the louder and quieter parts of an audio signal, making quiet sounds quieter and allowing louder sounds remain prominent. The expander attenuates the audio signal when its level falls below a specified threshold.

Click “On/Off” button to enable/disable Expander function. Default setting: Off.

When set it to on:

Parameter	Function
Threshold	Adjust the knob or enter a value to specify the input level, below which the expander will activate. For example, if the threshold is set to -40dB, any input signal that drops below -40dB will trigger the expander to reduce its level according to the specified expansion ratio. Default setting: 0dB
Expander Settings	• **Attack Time (ms)**: Enter a value to specify the period the expander takes to start reducing the level of a signal as it detects that the signal’s level has fallen below the expansion threshold. For rapid noise suppression, a shorter attack time is ideal. However, in scenarios where you want a more natural sound, a slightly longer attack might be more fitting. Range: 1~500ms; Default setting: 1ms. • **Release Time (ms)**: Adjust the knob or enter a value to specify the period the expander takes to stop reducing the level of a signal once the signal rises above the threshold. A shorter release time will make the expander stop acting more quickly, while a longer release time results in a more gradual release. Range: 1~2000ms; Default setting: 1000ms. • **Ratio**: To select the amount of the expansion applies to the audio signal from the dropdown menu.

Parameter	Function
	A ratio of x:1 attenuates the signal by level of xdB below the threshold for every 1dB that drops below the threshold. A higher ratio results in larger amount of signal level reduction. For example, If the expansion threshold is set to -40dB with a ratio of 3:1, when the input signal is at -43dB (3dB below the threshold), the signal will be attenuated to -49dB (down by 9dB) at the output. The quieter parts of the signal are now quieter. It's essential to adjust the ratio based on the nature of the noise and the audio. For subtle noise reduction, a lower ratio like 2:1 might suffice. For more pronounced noise, a higher ratio could be more effective. Range: 1~100; Default setting: 1:1

C. HPF

Figure 16: Audio Input High Pass Filter Setting

HPF—High Pass Filter (for MIC IN 1/2 and LINE IN 1), is used to allow high-frequency signals to pass through while attenuating (reducing the amplitude of) low-frequency signals.

In audio systems, high pass filters are used to remove low-frequency rumble or unwanted bass frequencies. For example, in a recording studio, a high-pass filter might be used to cut out the low-frequency noise caused by things like air-conditioners or vibrations from the floor. This helps to clean up the audio signal and make the sound more focused and clear.

Click "On/Off" button to enable/disable High Pass Filter function. Default setting: Off.

When set it to on:

Parameter	Function
Frequency	Adjust the knob or enter a value to specify the cutoff frequency, at and above which the filter allows signals to pass through more effectively, and below which the filter attenuates (reduces the amplitude of) the signals. Default setting: 20Hz

D. COMP

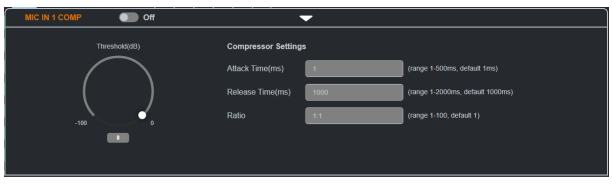


Figure 17: Audio Input Compressor Setting

COMP—Compressor (for MIC IN 1/2 and LINE IN 1), is used to reduce the difference between the louder and quieter parts of audio signals by attenuating the louder parts of the signal when they exceed a certain threshold. As a result, the loudest and softest parts are closer in volume, creating a more balanced sound.

Click “On/Off” button to enable/disable Compressor function. Default setting: Off.

When set it to on:

Parameter	Function
Threshold (dB)	Adjust the knob or enter a value to specify the input level, above which the compression will be applied to the audio signal. For example, if the threshold is set to 0dB, any input signal that rises above 0dB will trigger the compressor to reduce the its level according to the specified ratio. Default setting: 0dB
Compressor Settings	• **Attack Time (ms)**: Enter a value to specify the compressor takes to start compressing the level of a signal as it detects that the signal’s level has risen above the threshold. Range: 1~500ms; Default setting: 1ms. • **Release Time (ms)**: Enter a value to specify the period the compressor takes to stop compressing the level of a signal once the signal falls below the threshold. Range: 1~2000ms; Default setting: 1000ms. • **Ratio**: To select the amount of the compression applies to the audio signal from the dropdown menu. A ratio of x:1 compresses the signal to level of 1dB above the threshold for every xdB that rises above the threshold. A higher ratio results in larger amount of compression. For example, If the threshold is set to -10dB with a ratio of 3:1, when the input signal is at -4dB (exceeds by 6dB), the signal will be compressed to -8dB (divide 6 by 3 then plus -10) at the output. It’s essential to adjust the ratio based on the nature of the noise and the audio. For subtle noise reduction, a lower ratio like 2:1 might suffice. For more pronounced noise, a higher ratio could be more effective. Range: 1~100; Default setting: 1:1

4) Audio DSP Configurations for Audio Outputs

A. DUCK

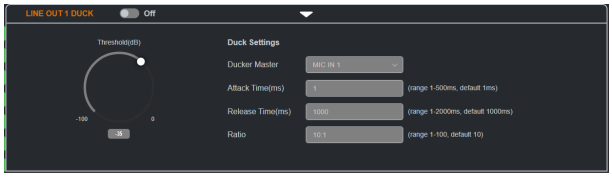


Figure 16: Audio Output DUCK Setting

When multiple audio outputs are present, the selected primary audio needs to play, and the ducking function will automatically reduce the volume of other audio signals.

Click “On/Off” button to enable/disable Duck function. Default setting: Off.

When set it to on:

Parameter	Function
Threshold (dB)	Adjust the knob or enter a value to specify the level threshold at which the master audio will cause the ducking of other audio signals to occur. If the level of the master audio exceeds the threshold, the ducking process is activated. For example, if ducking trigger threshold is set as -30dB, the ducking is triggered once the master audio's level exceeds -30dB. Default setting: -35dB
Duck Settings	• **Duck Master**: Click to 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. • **Attack Time (ms)**: Adjust the knob, or enter a value to specify how quickly the ducked signal's level will start to decrease when the ducking is triggered. A short attack time means that the level reduction of the ducked signal will happen almost immediately after the master audio signal exceeds the threshold. Range: 1~500ms; Default setting: 1ms. • **Release Time (ms)**: Adjust the knob, or enter a value to specify how quickly the ducked signal's level returns to its original level after the master audio has stopped or fallen below the threshold. A short release time means that the level of the ducked signal will quickly recover, while a long release time will cause a more gradual return to the original level. Range: 1~2000ms; Default setting: 1000ms. • **Ratio**: Input the ratio value to set the volume reduction ratio. The lower the value is set, the lower the volume of the specified audio input is when ducking is triggered. Range: 1~100; Default setting is 10.

B. HPF

Figure 19: Audio Output HPF Setting

This section is as similar as that of audio inputs, for more information refer to the "Audio DSP Configurations for Audio Inputs" > "HPF" section.

C. EQ

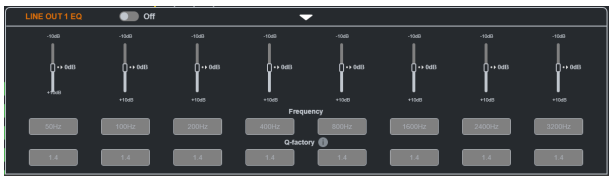
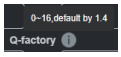


Figure 20: Audio Output HPF Setting

EQ—Equalizer, is used to change the balance of different frequency components in the audio signal.

Click On/Off button to enable/disable the EQ function. Default setting: Off.

When set it to on:

Parameter	Function
Frequency	Use the slider bars above the frequencies to adjust the audio amplitude in different frequencies. Default setting: 0dB; Range: -10dB ~ 10dB.
Q-factory	Input the Q-factor value in each frequency. When boosting or cutting a particular frequency, the Q- factor represents the width of the frequency range that is affected. Default setting: 1.4; Range: 0~16. Move the mouse to the icon "ⓘ" to check the range and default setting. 

D. LPF

Figure 21: Audio Output LPF Setting

LPF—Low pass filter, is used to cut off high frequencies and let lower frequencies pass.

Click On/Off button to enable/disable the LPF function. Default setting: Off.

When set it to on:

Parameter	Function
Frequency (Hz)	Adjust the knob or enter a value to specify the cutoff frequency, below which the filter allows signals to pass through more effectively, and above which the filter attenuates (reduces the amplitude of) the signals. Tip: To reset the value to factory default quickly, press and hold the "Ctrl" key and click the inside of the knob. Default setting: 20KHz

E. VOL

Figure 22: Audio Output VOL Setting

Parameter	Function
Volume Meter	Display the active audio level of the corresponding audio input in real-time.
Gain Control	Use the slider to adjust the audio gain. The default value is 0dB; Range: -100dB~0dB.
Volume Mute	Click to set the corresponding audio output to mute/unmute. Default setting: Unmuted. • When set to mute, the corresponding audio output button turns red. For example: LINE OUT 1: LINE OUT 1 is set to mute. • When set to unmute, the corresponding audio output button turns green. For example: LINE OUT 2: LINE OUT is set to unmute.

5) Audio Output Link

(Unlink) / (Link): Click to set the corresponding two outputs to link or unlink. Default setting: Unlink.

When set DANTE 1 and DANTE 2 / DANTE 3 and DANTE 4 to link, they will simultaneously select the same input source(s), share synchronized DSP configurations, and output stereo audio.

3. USB Routing

Figure 23: USB Routing

This section allows users to select USB host all USB devices connected.

Active USB Host Selection: Select the USB Host from the drop-menu.

Default Setting: USB-B Port1.

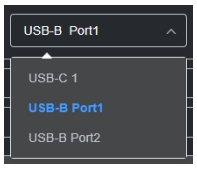


Figure 24: USB Routing Selection

For example, when select USB-B Port2, all USB devices will connected to USB-B Port 2.

4. Display Control

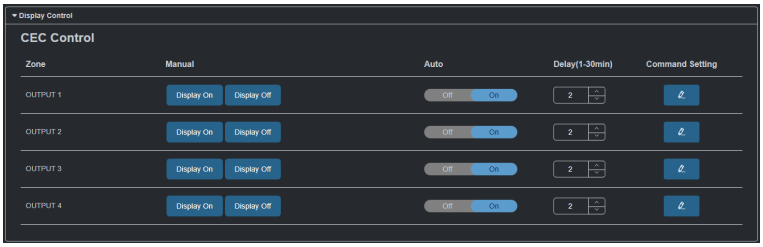


Figure 25: Display Control

- **Display On/Off**: Click to send the saved Display On/Off command to the connected CEC-enabled display to power on/off it immediately.
- **Auto (On/Off)**: Click to enable or disable the CEC Auto Control.

  Default setting: 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.

  Default Setting: 2 minutes.
- **Command Setting**: Click "" button to enter the following window to do command testing, set and save commands of Display On/Off.

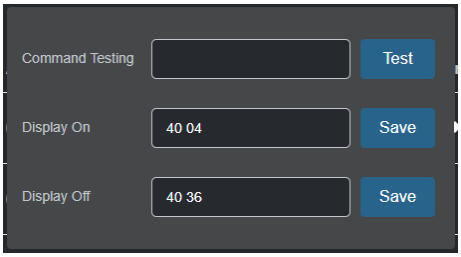


Figure 26: Command Setting

  - **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. Preset

Figure 27: Preset

This section allows users to save, activate and modify preset names.

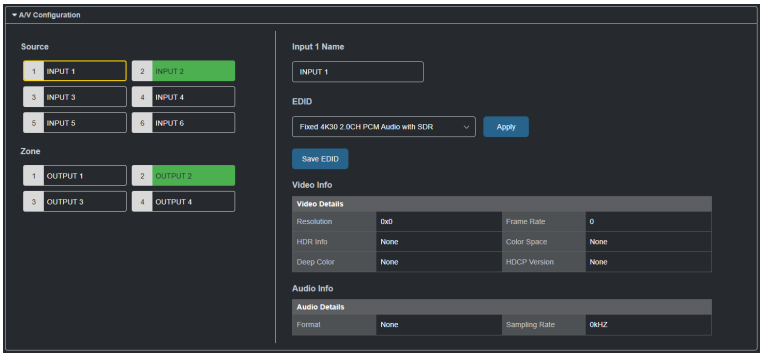
The Preset page is blank unless the user saved presets from any of the routing pages.

The matrix supports save 24 presets at maximum.

- **Preset Name**: Input a preset name.
- **Save**: Save the selection settings to the matrix.
- **Load**: Load the saved preset file from the matrix.

11.2.2 GENERAL SETTING

1). A/V Configuration



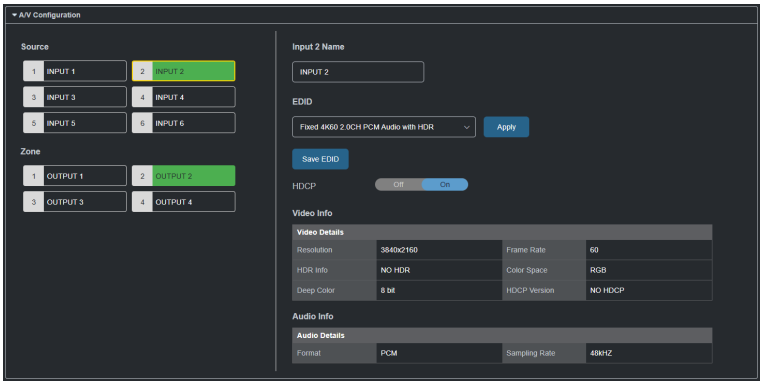


Figure 27: A/V Configuration-Source

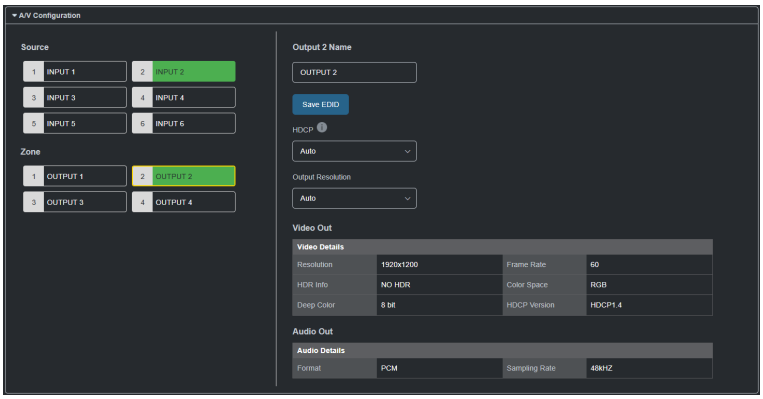


Figure 29: A/V Configuration-Zone

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 video and audio information of each output.

- **Source/Zone**: Select an input/output to set (the button will have an orange frame when the selection is done).
  - **Green button**: Indicates the corresponding input/output port is connected to active source/display.
  - **Black button**: Indicates the corresponding input/output port isn't connected with active source/display.
- **Input (1~6) /Output (1~4) Name**: Input a new name for the selected input/output.
- **EDID (Input 1~6)**: Select EDID for the corresponding input port, and click "Apply" to take effect. The default EDID of input 2-6 is Fixed 4K60 2.0CH PCM Audio with HDR, and the default EDID of the input 1 is Fixed 4K30 2.0CH PCM Audio with SDR.

  EDID Selection includes:

  Copy from Output 1;

  Copy from Output 2;

  Copy from Output 3;

  Copy from Output 4;

  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 SDR;

  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.

Figure 11: EDID Write

- **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 2~6)**: Click to enable/disable HDCP encryption of each input port, the default setting is “ON”.
- **HDCP**: 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 output port. The default setting is “AUTO”.
- **Video In/Audio In (for input 1~6)**: Shows the video and audio information of the selected input.
- **Video Out/Audio Out (for output 1~4)**: Shows the video and audio information of the selected input.

2). GPIO Settings

Figure 12: GPIO Settings-Digital In

This section allows users to set GPIO functions.

- **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:

Figure 13: GPIO Settings-Digital Out

  - **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.

3). Relay Settings

Figure 33: Relay Settings

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.

11.2.3 ADVANCED SETTING

1). Information

Figure 34: Information

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

2). Fan and Temperature

35: Fan and Temperature

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

3). Network

Figure 36: Network

IP Setting

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

LAN Port Merging

This section allows users to set DANTE LAN port to independent or merged.

Set the DANTE LAN port: Select the mode from the drop-down menu. Default setting: Independent.

- When set to Independent, the DANTE LAN port is isolated from another LAN port and used for DANTE audio connection. Only the other LAN port can access to Web

UI.

- When set to merged, the DANTE LAN port and another LAN port are interconnected. Any one of the two LAN ports can be connected for LAN control or DANTE audio.

  Note: When set to merged, don't connect the LAN ports to same network, otherwise it may cause network loops.

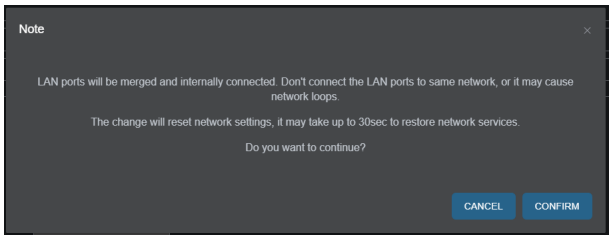


Figure 37: Security

4). Security

Figure 38: Security

- **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 "admin".

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

Figure 39: Security-TelnetS Enabled

- **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

Figure 40: Change Admin Login Password

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

Figure 41: FW Update

This section allows users to update firmware.

To update Firmware:

Click “Browse” for the update file.

Figure 42: FW Update-Upload Update File

The matrix will reboot automatically after upgrading is completed. Refresh the webpage and log in again to the web UI.

Note: Do not interrupt or power off the matrix during the upgrading.

7). System

Figure 44: 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 Command

Figure 45: Telnet API Command

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:

Figure 46: Telnet API Command Example

9). Log

Figure 47: Log

This section shows the operation log and commands return.

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