



X4UH-CB

X4 Series Video Network Hub

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USER MANUAL

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Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating, or adjusting this product. Keep this manual for future reference.

Important Safety Note – Surge Protection Recommended

This product contains sensitive electronic components that may be damaged by electrical spikes, surges, lightning strikes, or static discharge. To protect and extend the service life of your equipment, we strongly recommend using a surge protection device.

Warranty Registration

Activate your warranty by registering your product at:

→ www.orei.com/register

Need Technical Support? We're Here to Help.

Our experienced Technical Support Team is available to answer your questions, offer expert advice, and help troubleshoot any issues to keep your project on track—on time and on budget.

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Send us an instant message—our team typically responds within moments during live support hours.

Introduction

The X4UH-CB is a high-performance video network hub designed to manage and control distributed AV systems utilizing the ToVi X4 Series models. Featuring dual network ports for dedicated control and multicast video traffic, it ensures efficient and secure network isolation while delivering exceptional performance and reliability.

Built to support a wide range of IP configurations—including Auto, DHCP, and Manual—the X4UH-CB also offers HTTPS, SSH, and SFTP compatibility for enhanced security. A built-in web-based GUI with Drag & Drop functionality allows for intuitive configuration and real-time image previews, streamlining project setup and management.

This hub supports a comprehensive suite of control options including video, audio, RS-232, IR, KVM, and CEC, making it a flexible solution for AV distribution. Additional features include GPIO control, wide-band IR signal reception, and compatibility with third-party control systems via LAN and RS-232.

Engineered with robust protection circuits and designed for 24/7 continuous operation, the X4UH-CB is ideal for mission-critical environments requiring stability, scalability, and ease of use.



Features

1. **Easy Project Creation** – Intuitive setup and system management with built-in control options.
2. **Multiple IP Configuration Modes** – Supports Auto, DHCP, and Manual settings for flexible network integration
3. **Enhanced Security Protocols** – Compatible with HTTPS, SSH, and SFTP for secure communication
4. **Web GUI Interface** – Built-in drag-and-drop Web GUI for easy control and system monitoring
5. **Image Preview** – Allows real-time monitoring of content streams
6. **Full System Control** – Supports video, audio, RS-232, IR, KVM, and CEC management on X4 Series Extenders
7. **Dual LAN Ports** – Isolates Control and Multicast networks; VIDEO LAN supports PoE for simplified power delivery
8. **Third-Party Control Support** – Integrates with external control systems via LAN or RS-232 ports
9. **IR Signal Reception** – Wide-band 12V IR receiver via 3.5mm input
10. **GPIO Control** – Includes 4-channel GPIO ports with selectable 5V/12V levels
11. **Industrial-Grade Protection** – Features multi-circuit, lightning, and ESD protection
12. **24/7 Reliability** – Engineered for continuous, round-the-clock operation in demanding environments

Package Contents

Package Contents

1.	X4UH-CB	1 pcs
2.	20kHz-60kHz 12V IR Receiver Cable (1.5 meters)	1 pcs
3.	3-pin 3.81mm Phoenix Connector (male)	1 pcs
4.	6-pin 3.81mm Phoenix Connector (male)	1 pcs
5.	Mounting Ear	2 pcs
6.	Machine Screw (KM3*6)	4 pcs
7.	12V/1A Locking Power Adaptor	1 pcs
8.	User Manual	1 pcs

Specifications

Technical	
Network Bandwidth	100M
Transmission Distance	100m (CAT5E/6/6A/7)
Control Ports	2 x 100M LAN [RJ45 connector] [VIDEO LAN supports PoE] 1 x IR IN [3.5mm audio jack, 12V level] 1 x DIGITAL I/O [6-pin 3.81mm phoenix connector] 1 x RS-232 [3-pin 3.81mm phoenix connector]
Dimensions	L: 204mm / 8.03in W: 98.5mm / 3.88in H: 21.5mm / 0.85in
Housing	Metal Enclosure
Color	Black
Weight	509g / 1.12lbs
Power Supply	12V/1A
Power Consumption	4.5W
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Operating Humidity	20%~80% relative humidity, non-condensing
Storage Humidity	10%~90% relative humidity, non-condensing

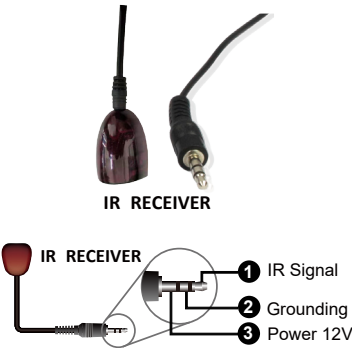
Operation Controls and Functions

Front Panel



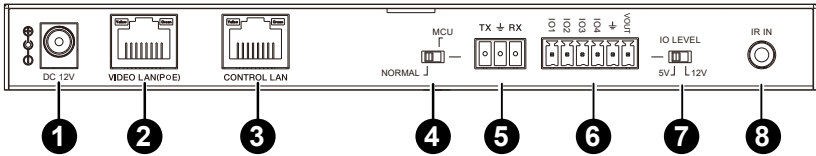
No.	Name	Function Description
1.	RESET button	Press and hold this button (about 10 seconds) until Status LED starts flashing. Controller will be reset automatically.
2.	POWER LED	The red LED will light on when the Controller is powered on.
3.	STATUS LED	The status LED will flash in yellowish-green every 1 second until Controller boots up completely and Control LAN is ready, then it becomes solid.

IR Pin Definition



Operation Controls and Functions

Rear Panel



No.	Name	Function Description
1.	DC 12V	DC 12V/1A power input port.
2.	VIDEO LAN (PoE)	100M Video LAN port, supporting PoE function. Note: When PoE is enabled, DC 12V/1A power supply is not required.
3.	CONTROL LAN	The TCP/IP control network port.
4.	MCU/Normal DIP switch	Normal mode (Default): The RS-232 port is used for serial port commands control. MCU mode: The RS-232 port is used for MCU software upgrade.
5.	3-pin Phoenix Connector	RS-232 serial communication port.
6.	6-pin Phoenix Connector	4 channel I/O level outputs, 1 channel grounding, 1 channel power supply to the outside.
7.	IO LEVEL DIP Switch	Used to control I/O level output and VOUT voltage. Switch to left: 5V I/O level output, VOUT is 5V. Switch to right: 12V I/O level output, VOUT is 12V.
8.	IR IN	12V IR signal input port.

Rack Mounting Instruction

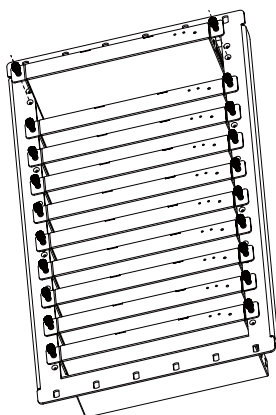
6U V2 Rack Mounting

This Controller can be mounted in a standard 6U V2 rack (Please contact your supplier for 6U V2 rack sale). The mounting steps are as follows:

Step 1: Use included screws to fix two mounting ears on the Controller, as shown in the figure below:

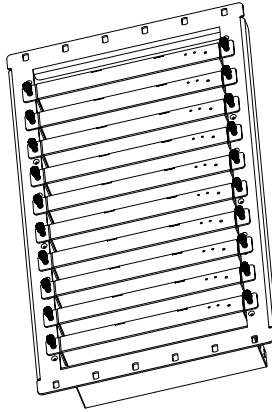


Step 2: Insert the Controllers with mounting ears into a 6U V2 rack (up to 10 units can be installed vertically), as shown in the figure below:



Step 3: Use screws to fix mounting ears on the rack to complete the mounting, as shown in the figure below:

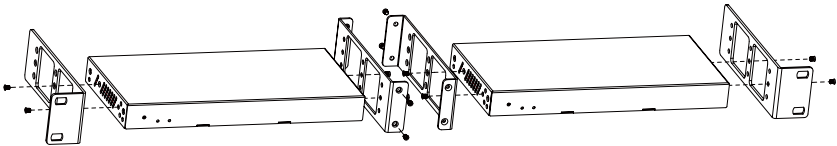
Rack Mounting Instruction



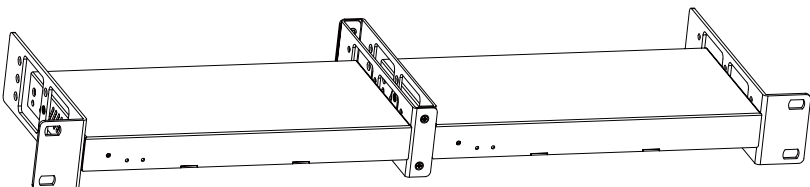
1U V2 Rack Mounting

This Controller also can be mounted in a standard 1U V2 rack. It is advised to install 2 units horizontally. The mounting steps are as follows:

Step 1: Use included screws to fix two 1U V2 rack panels on the Controller, and fix two rack panels on another Controller in the same way, as shown in the figure below:



Step 2: Fasten screws between two 1U V2 rack panels, so that two Controllers are mounted in a 1U V2 rack, as shown in the figure below:

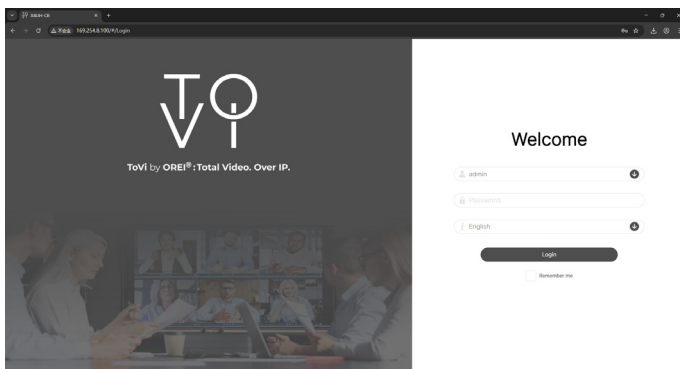


Web GUI Operation Guide

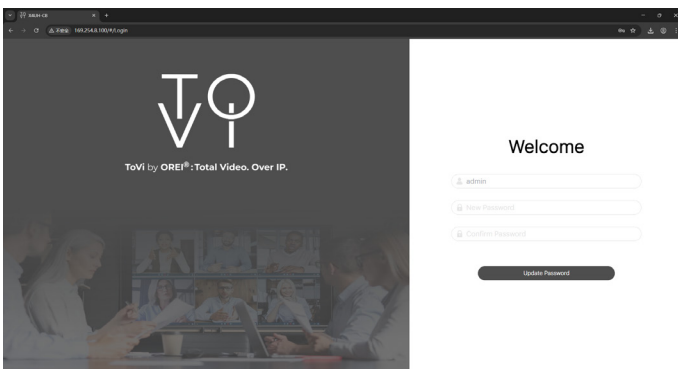
Preparation before Entering the System

You can use Controller's Web GUI to control all IP products at the Switch.
The operation steps are as follows:

Step 1: When the system is not connected to a router, directly input the Controller's default IP address (Control LAN port: 192.168.6.100; Video LAN port: 169.254.8.100) or the URL (http://controller.local) into the Web browser address bar on the PC to enter the Web GUI login interface.



At first login, please select the initial username (admin), and input the initial password (admin), and select the desired language on the above login interface. Then click "Login" to enter the password modification interface, as shown below.



Web GUI Operation Guide

Please set a six-digit password using letters or numbers, then use the new password to login the Web GUI.

For the first time, you need to set up the system, as shown in the following figure:

Welcome to X4UH-CB system setup guide. It leads you to create the system easily by following steps.

You can click the [Close] button to load an existing system in web page directly.

Close Next

Step 2: Click the “Close” button to load an existing system in web page directly, or click “Next” button to go to the next step.

To setup X4UH-CB system, you need to set the IP management mode of the Video LAN domain. The IP management modes are:

☒ Automatically managed by Controller Box.

This is the mode as factory default. The IP address assignments to Controller Box Video LAN, Encoders and Decoders will be managed by Controller Box firmware automatically. In this mode, there is no need to add router in the system on Video LAN domain.

☐ DHCP mode.

This is the mode for system in which there is a DHCP router on Video LAN domain to assign IP addresses for Controller Box Video LAN, Encoders and Decoders. The router acts as a DHCP server. It's recommended to set the net mask of router to 255.255.0.0.

☐ Static IP mode by manual settings.

This is the mode for system in case IP address resources can be assigned manually for Controller Box Video LAN, Encoders and Decoders.

Reminders as below:

a. The network settings of Controller Box Video LAN, Encoders and Decoders must be on the same subnet.

b. It's recommended to set the net mask of Controller Box Video LAN, Encoders and Decoders to 255.255.0.0.

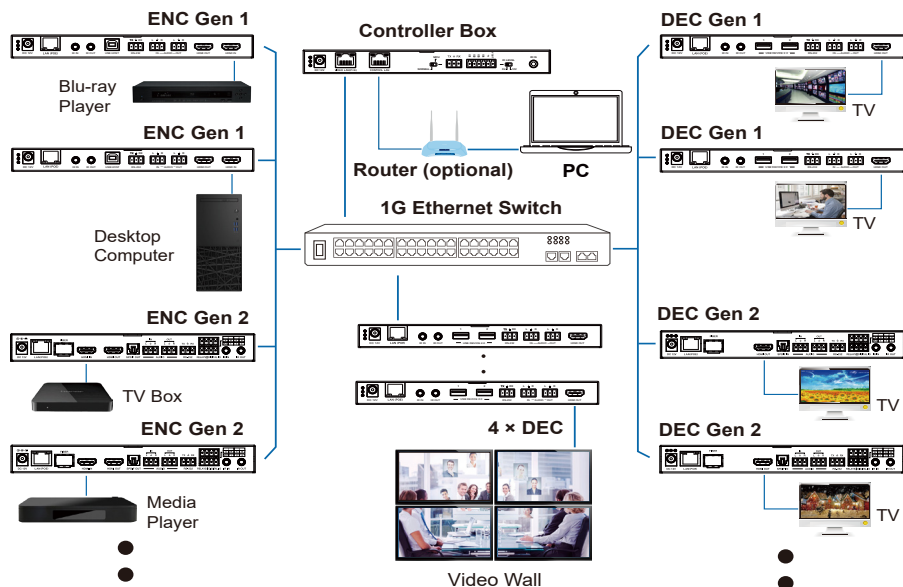
Close Next

On this interface, you need to set the IP mode of Video LAN.

Mode 1: Automatically managed by Controller Box.

The IP addresses of the Video LAN port, Encoder and Decoder will be assigned by the Controller automatically, and the connection method is as following.

Web GUI Operation Guide



Step 4: Click the “Next” button and wait for the completion to enter the interface as shown in the figure below.

Now you can select to automatically add all following discovered Encoders and Decoders to system or just list them in the web page and you can add each of them to system manually.

Please click the [Search] button to search Encoders and Decoders in the system:

- ☒ Automatically add Encoders and Decoders to system.
- ☐ List all discovered Encoders and Decoders.

Close

Next

Main Functions and Characteristics

If you select "Automatically add Encoders and Decoders to system" , and click the "Next" button to enter the Device page, the system starts to search for devices. After searching, an inquiry box will pop up. You can select "Stop Searching & Add to System" to stop searching and automatically add all searched devices to the system (presented in the Encoder/Decoder list), or select "Stop Searching & List" to stop searching and list the searched devices in the below "Device" tab area, then manually add them to the system, as shown below.

Searching device

Found 7 devices, including 3 Encoders and 4 Decoders.

If all anticipated devices have been discovered, you can click "Stop Searching & Add to System" to stop searching and add all these devices to the system. Or click "Stop Searching & List" to stop searching and list them in the below "Device" tab area, you need to manually add them to the system later.

Stop Searching & List

Stop Searching & Add to System

If you select "List all discovered Encoders and Decoders", and click the "Next" button to enter the Device page, the system starts to search for devices. After searching, an inquiry box will pop up. You can select "Stop Searching & Close" to stop searching and list searched devices in the below "Device" tab area, then manually add them to the system by clicking the "Add" button behind each device one by one or clicking "Add All Into System".

Now you can select to automatically add all following discovered Encoders and Decoders to system or just list them in the web page and you can add each of them to system manually.

Please click the [Search] button to search Encoders and Decoders in the system:

- ☐ Automatically add Encoders and Decoders to system.
- ☒ List all discovered Encoders and Decoders.

Close

Next

Web GUI Operation Guide

Searching device...

Found 7 devices, including 3 Encoders and 4 Decoders.

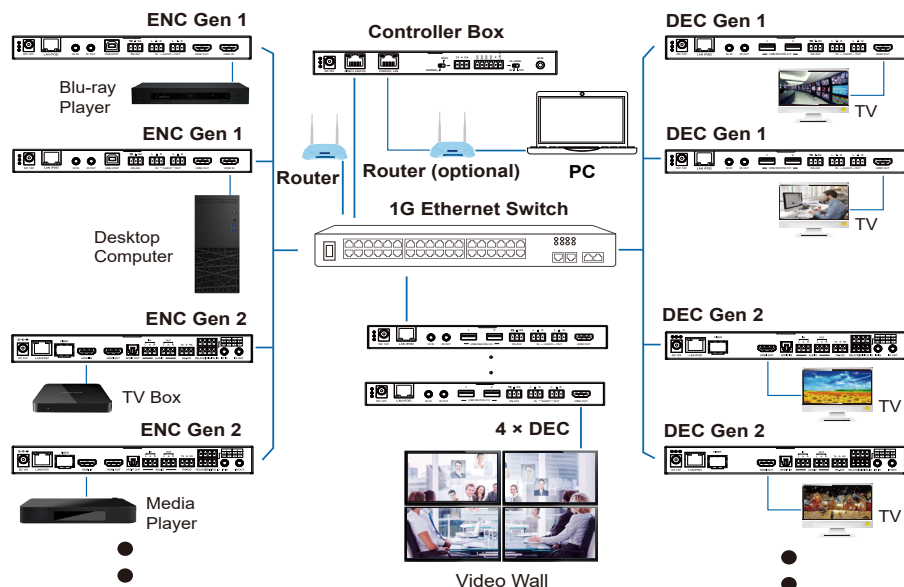
If all anticipated devices have been discovered, you can click "Stop Searching & Close" to stop searching and list them in the below "Device" tab area, you need to manually add them to the system later.

Stop Searching & Close

If you want to change the IP mode of Video LAN, you can click "Search Device Via Wizard" on the Device interface, and switch back to the IP mode select interface.

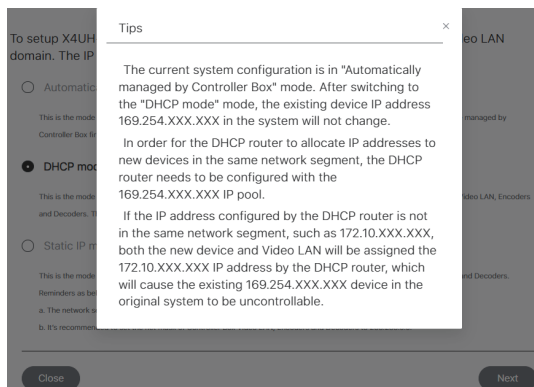
Mode 2: DHCP mode.

The IP addresses of the Video LAN port, Encoders and Decoders are assigned by the Router automatically, and the connection method is as following



Select "DHCP Mode" on the interface shown below, and click "Next".

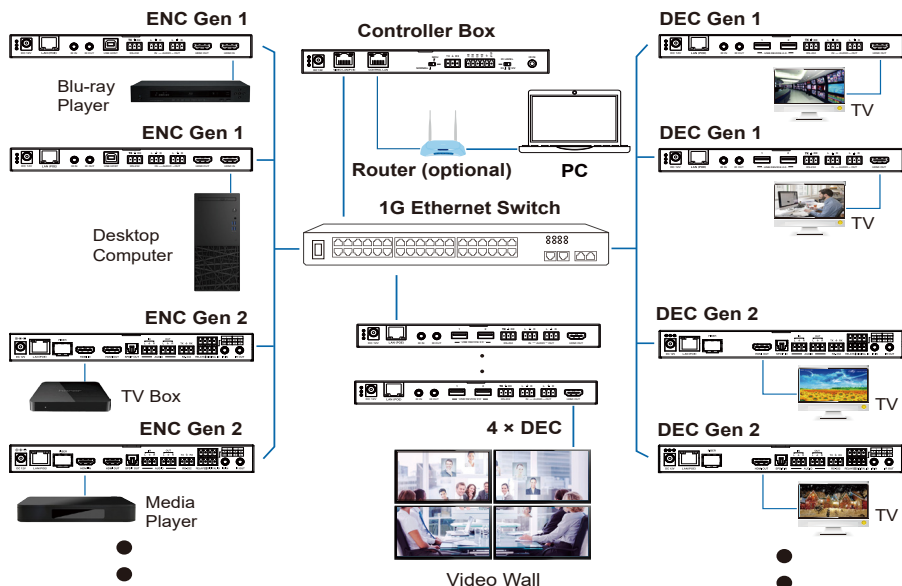
Web GUI Operation Guide



The rest of the steps are the same as the Mode 1 operation.

Mode 3: Static IP mode by manual settings.

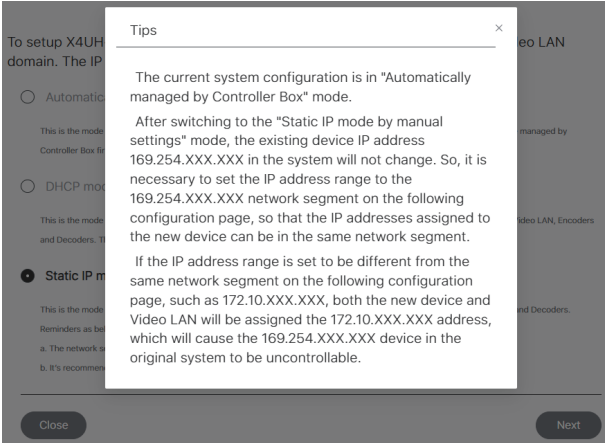
The IP addresses of the Video LAN port, Encoders and Decoders are manually set by the user, and the connection method is as following



Web GUI

Operation Guide

Select "Static IP mode by manual settings" on the interface shown below, and click "Next".



After entering the interface shown in the figure below, manually set the IP address, subnet mask and gateway of the Video LAN.

Controller Box Video LAN port Network Settings:

IP Address	169 · 254 · 8 · 100
Subnet Mask	255 · 255 · 0 · 0
Gateway	169 · 254 · 8 · 1

Reminder:

Once Controller Box Video LAN network is set, the IP addresses of following discovered Encoders and Decoders will be assigned to the same domain with Controller Box Video LAN. Please click the [Next] button to set the IP address range of Encoders and Decoders.

Close Next

Note: The IP network domain of the Video LAN port must be different from that of the Control LAN port.
For example, we set the Video LAN network as shown in the above figure, and click the "Next" button. After the progress reaches 100%, enter the interface as shown in the figure below.

Web GUI Operation Guide

Encoders and Decoders IP Addresses Range Settings:

Encoders IP Address From To

Decoders IP Address From To

Reminder:

To easily manage the IP addresses of Encoders and Decoders, it's strongly recommended that you can set the IP addresses of Encoders and Decoders to different segments correspondingly. For example:

Encoders IP address from 169.254.10.1 to 169.254.12.255
Decoders IP address from 169.254.20.1 to 169.254.22.255

On this interface, you can set the IP address range of Encoders and Decoders. After the setting is complete, click the "Next" button to enter the interface as shown in the figure below.

Now you can select to automatically add all following discovered Encoders and Decoders to system or just list them in the web page and you can add each of them to system manually.

Please click the [Search] button to search Encoders and Decoders in the system:

☒ **Automatically add Encoders and Decoders to system.**

☐ List all discovered Encoders and Decoders.

The rest of the steps are the same as the Mode 1 operation.

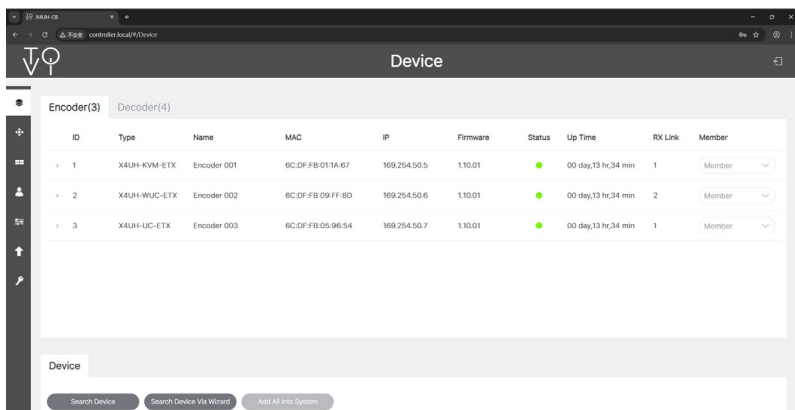
Web GUI Operation Guide

Functions and Operation

The main interface of the Web GUI consists of seven sections, including Device, Matrix, Video Wall, User, Controller Settings, Firmware Updates and Password. Click the item icon on the left to enter the corresponding interface.

Device

On this page, you can click the Encoder/Decoder tab to check the information of the Encoders and Decoders in the system, such as ID, Type, Name, MAC address, IP address, Firmware version, Online/Offline Status, Up Time, RX Link, Member/Source. Besides, you can configure each Encoder/Decoder after clicking the drop-down icon on the left side of ID. Please note that configuration options may be different for different models.



The screenshot shows the 'Device' page in the Web GUI. It features a sidebar on the left with icons for navigation. The main content area has two tabs: 'Encoder(3)' and 'Decoder(4)'. Below the tabs is a table with columns: ID, Type, Name, MAC, IP, Firmware, Status, Up Time, RX Link, and Member. There are three rows of data for Encoders. Each row has a drop-down arrow next to the ID. At the bottom, there is a 'Device' label and three buttons: 'Search Device', 'Search Device Via Wizard', and 'Add All into System'.

ID	Type	Name	MAC	IP	Firmware	Status	Up Time	RX Link	Member
1	X4UH-KVM-ETX	Encoder 001	6C-DF-FB-01-1A-67	169.254.50.5	1.10.01	Online	00 day,13 hr,34 min	1	Member
2	X4UH-WUC-ETX	Encoder 002	6C-DF-FB-09-FF-8D	169.254.50.6	1.10.01	Online	00 day,13 hr,34 min	2	Member
3	X4UH-UC-ETX	Encoder 003	6C-DF-FB-05-96-54	169.254.50.7	1.10.01	Online	00 day,13 hr,34 min	1	Member

Note: The Controller can simultaneously control different types of Encoders and Decoders in one system.

Encoder Configuration

Basic Settings

Name: The name of the Encoder can be changed. (Note: The maximum length is 16 characters. Special characters are not supported.)

Change ID: The ID of the Encoder can be set. (ID range:1-762)

Note: Both ID and name can not be duplicated.

Power LED Flashing: Click the drop-down menu to select the power LED flash status.

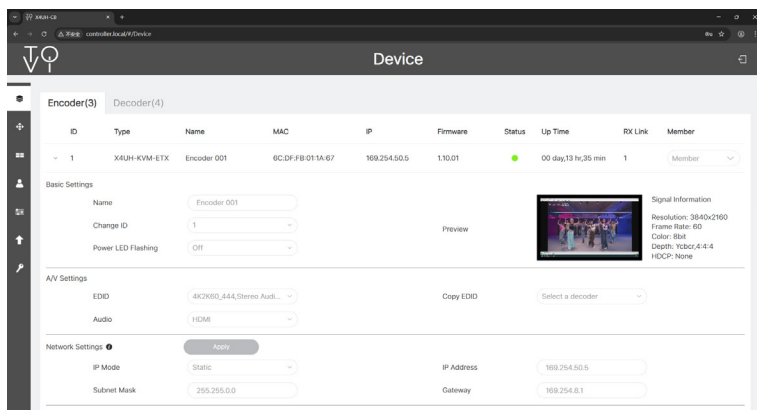
Off: The front panel power LED is steady on after flash status is turned off.

Flashing: The front panel power LED flashes.

Flashing 90s then off: The front panel power LED is steady on after flashing for 90s.

Preview: The preview of the Encoder.

Web GUI Operation Guide



A/V Settings

EDID: Click the drop-down menu to select the EDID for the Encoder.

Copy EDID: Click the drop-down menu to select a Decoder for EDID copy.

Audio: Click the drop-down menu to select the audio source (HDMI/Analogue).

(1) When HDMI is selected, Encoder HDMI input is the audio source for Encoder HDMI output and Decoder audio output.

(2) When Analogue is selected, Encoder audio input is the audio source for Encoder HDMI output and Decoder audio output.

Network Settings

IP Mode: Click the drop-down menu to set the IP mode (Static/DHCP).

IP Address: The IP address of the Encoder.

Subnet Mask: The Subnet Mask of the Encoder.

Gateway: The Gateway of the Encoder.

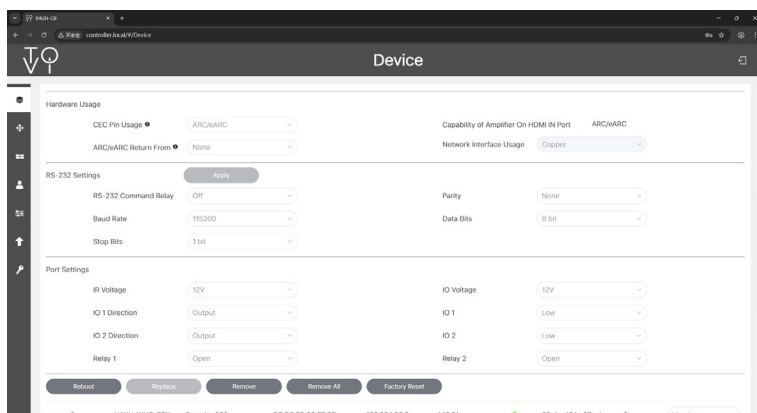
Notes:

(1) If the IP mode is set to "Static", you can manually set the IP Address, Subnet Mask and Gateway as required. Then click "Apply", the Encoder will immediately reboot to take effect.

(2) If the IP mode is set to "DHCP", it will search and be filled with the IP Address assigned by the router automatically.

(3) If the Encoder is actually alive in the system but with incorrect network segment settings, even though the Encoder is offline, its network settings including IP address can be changed and set to make it being discovered again.

Web GUI Operation Guide



Hardware Usage

CEC Pin Usage: Click the drop-down menu to set the CEC pin usage (ARC/eARC/CEC/Off). After switching, the Encoder will immediately reboot to take effect.

ARC/eARC Return From: Click the drop-down menu to select a Decoder for ARC/eARC audio return.

Note: Only Encoders with ARC/eARC function can perform this setting.

Capability of Amplifier On HDMI IN Port: It indicates the ARC capability supported by the Amplifier.

Note: When the amplifier on HDMI IN port only supports ARC, and the TV connected to the Decoder only supports eARC, the setting of "eARC Down grade To ARC" on the Decoder needs to set "On" to achieve the audio path working normally. The eARC down-grade of the Decoder will also apply onto all Encoders that select this Decoder.

Network Interface Usage: Click the drop-down menu to set the network port (Fiber/Copper).

Note: Only Encoders that integrate Copper and Fiber ports can perform this setting.

RS-232 Settings

RS-232 Command Relay: Click the drop-down menu to select On/Off to turn on/off the RS-232 command relay function..

Parity: Click the drop-down menu to set the parity.

Baud Rate: Click the drop-down menu to set the baud rate.

Data Bits: Click the drop-down menu to set the data bits.

Stop Bits: Click the drop-down menu to set the stop bits.

After setting, click "Apply" to take effect.

Web GUI Operation Guide

Port Settings

IR Voltage: Click the drop-down menu to select the 5V/12V IR voltage.

IO Voltage: Click the drop-down menu to select the 5V/12V IO voltage.

IO 1 Direction: Click the drop-down menu to set the IO 1 direction (Input/Output).

IO 1: Click the drop-down menu to set the IO 1 level (Low/High).

IO 2 Direction: Click the drop-down menu to set the IO 2 direction (Input/Output).

IO 2: Click the drop-down menu to set the IO 2 level (Low/High).

Relay 1: Click the drop-down menu to select Open/Close Relay 1.

Relay 2: Click the drop-down menu to select Open/Close Relay 2.

Reboot: Click the Reboot button to reboot the Encoder.

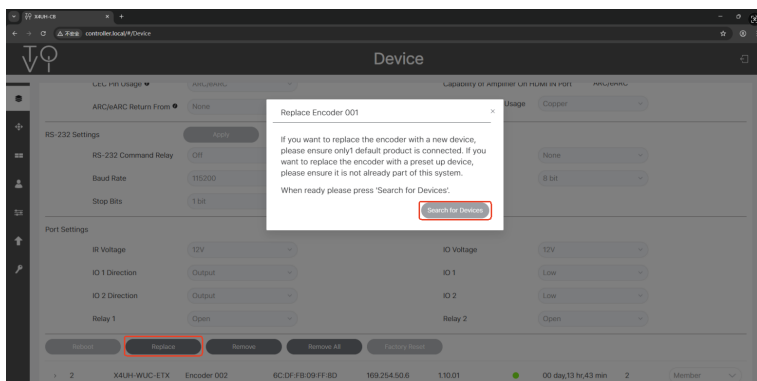
Replace: Click to replace the offline Encoder (which is in the system) with an online Encoder (which is not in the system).

For example, follow steps below to replace Encoder 001 with Encoder 006:

Step 1. Unplug the network cable of Encoder 001 to make it be offline. (Using external power supply.)

Step 2. Connect Encoder 006 to the system.

Step 3. Click the Replace button, which is clickable after Encoder 001 is set to be offline. Then a window will pop up, as shown below. At this moment, click "Scan for Devices" to search devices. After Encoder 006 is searched, select it and click "Replace" to replace Encoder 001.



Remove: Click the Remove button to remove the Encoder from the system.

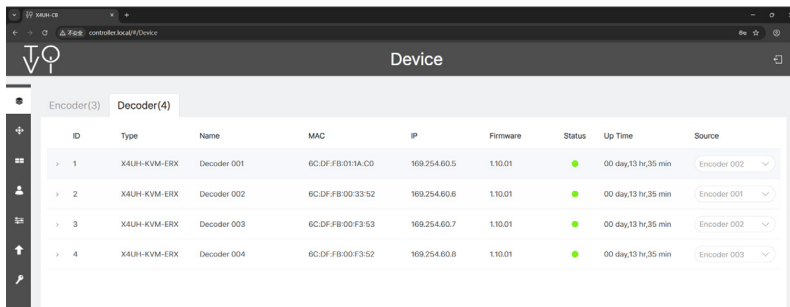
Remove All: Click this button to remove all Encoders from the system.

Factory Reset: Click this button to restore the Encoder to factory settings.

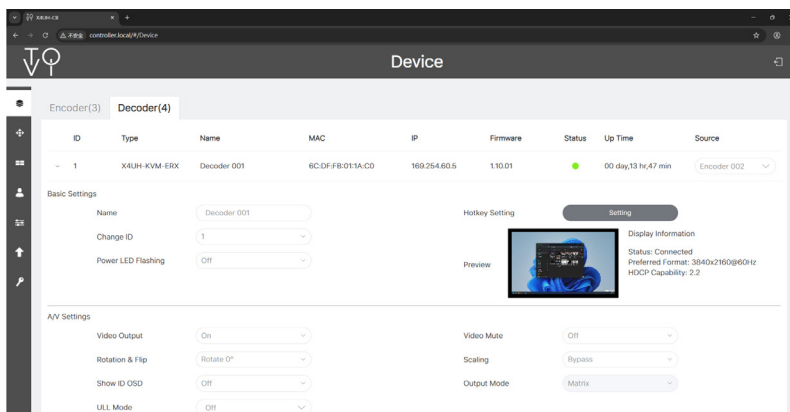
Web GUI

Operation Guide

Decoder Configuration



ID	Type	Name	MAC	IP	Firmware	Status	Up Time	Source
1	X4UH-KVM-ERX	Decoder 001	6C:DF:FB:01:1A:C0	169.254.60.5	1.10.01	●	00 day,13 h,35 min	Encoder 002
2	X4UH-KVM-ERX	Decoder 002	6C:DF:FB:00:33:52	169.254.60.6	1.10.01	●	00 day,13 h,35 min	Encoder 001
3	X4UH-KVM-ERX	Decoder 003	6C:DF:FB:00:F3:53	169.254.60.7	1.10.01	●	00 day,13 h,35 min	Encoder 002
4	X4UH-KVM-ERX	Decoder 004	6C:DF:FB:00:F3:52	169.254.60.8	1.10.01	●	00 day,13 h,35 min	Encoder 003



Basic Settings

Name:

Change ID:

Power LED Flashing:

Hotkey Setting:

Preview: 

Display Information: Status: Connected, Preferred Format: 3840x2160@60Hz, HDCP Capability: 2.2

AV Settings

Video Output:

Rotation & Flip:

Show ID OSD:

ULL Mode:

Video Mute:

Scaling:

Output Mode:

Basic Settings

Name: The name of the Decoder can be changed. (Note: The maximum length is 16 characters. Special characters are not supported.)

Change ID: The ID of the Decoder can be set. (ID range:1-762)

Note: Both ID and name can not be duplicated.

Power LED Flashing: Click the drop-down menu to select the power LED flash status.

Off: The front panel power LED is steady on after flash status is turned off.

Flashing: The front panel power LED flashes.

Flashing 90s then off: The front panel power LED is steady on after flashing for 90s.

Web GUI

Operation Guide

Hotkey Setting: You can set up to 20 sets of hotkeys for Decoders. Click the “Setting” button to pop up the Hotkey Setting window, as shown in the following figure. Click the “+” icon to create a new hotkey, and then set the ID, function key, toggle key, action, signal/target separately. Click the “-” icon to delete the corresponding hotkey settings.

Hotkey Setting ×

Index	ID	Function key	Toggle key	Action	Signal/Target	Delete
1	1	Left Ctrl	1	Subscribe From	Encoder 002	-
2	2	Left Ctrl	2	Share Source To	Decoder 003	-
3	+					

For example:

After completing the hotkey settings for ID 1 and 2, as shown in the above figure. Press the function key “Left Ctrl” and toggle key “1” simultaneously 3 times in 1 second to execute the action “Subscribe From” to the signal “Encoder 002”, that is, switch the signal source of Decoder 001 to Encoder 002. If press the function key “Left Ctrl” and toggle key “2” simultaneously 3 times in 1 second, the action “Share Source To” can be executed to the target “Decoder 003”, that is, the current signal source “Encoder 002” of Decoder 001 will be switched to Decoder 003 at the same time.

Notes:

- (1) Only Encoders and Decoders that support KVM functionality can perform hotkey settings.
- (2) The toggle keys are limited to the keys within the red box on the keyboard, as shown in the following figure.



Preview: The preview of the Decoder.

Besides, you can click the drop-down menu of “Source” on the Decoder list to select signal source for the Decoder.

A/V Settings

Video Output: Click the drop-down menu to select On/Off to turn on/off the video output.

Web GUI

Operation Guide

Video Mute: Click the drop-down menu to select On/Off to mute/unmute the video output.

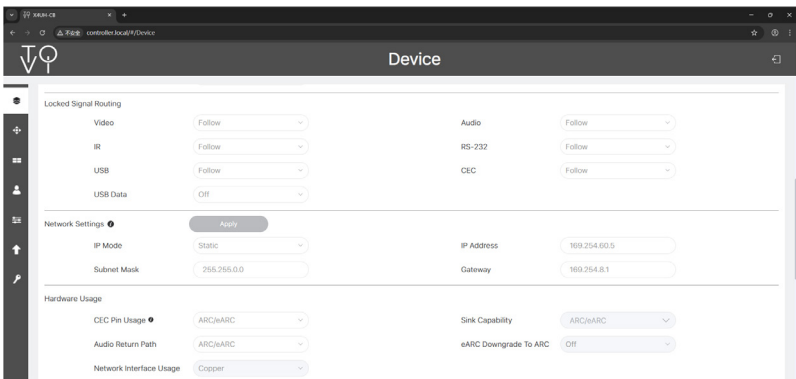
Rotation & Flip: Click the drop-down menu to select Rotate 0°/90°/180°/270° to rotate the image, or select Flip Horizontal/Vertical to flip the image.

Scaling: Click the drop-down menu to set the video output scaling resolution.

Show ID OSD: Click the drop-down menu to select On/Off to turn on/off the ID OSD display.

Output Mode: In the Video Wall mode, you can click the drop-down menu to select Matrix or Video Wall as the output mode. While, in the Matrix mode, this option cannot be selected.

ULL Mode: Click the drop-down menu to select On/Off to turn on/off the UUL mode.



Locked Signal Routing

Different signals can be independently routed between Encoders and Decoders, including Video, Audio, IR, RS-232, USB and CEC; When clicking the drop-down menu and selecting "Follow", the corresponding signal comes from the current Encoder.

Locked Signal Routing

Video	Follow
IR	Follow
USB	Follow
USB Data	Follow

In addition, you can click the drop-down menu of USB Data to select On/Off to turn on/off the USB data.

Web GUI Operation Guide

Network Settings

IP Mode: Click the drop-down menu to set the IP mode (Static/DHCP).

IP Address: The IP address of the Decoder.

Subnet Mask: The Subnet Mask of the Decoder.

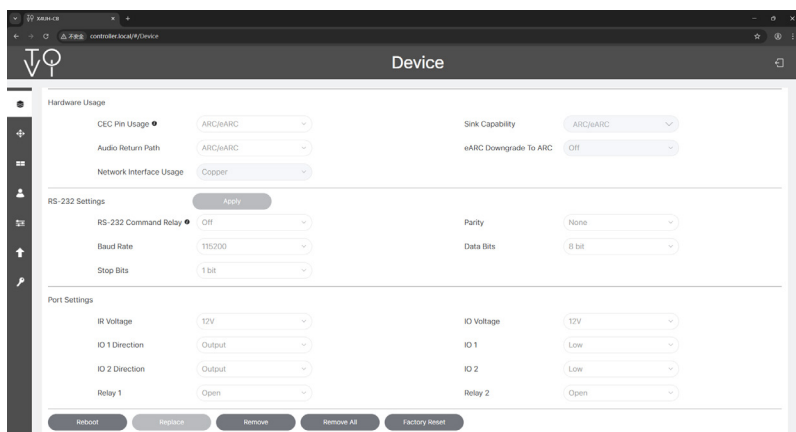
Gateway: The Gateway of the Decoder.

Notes:

(1) If the IP mode is set to "Static", you can manually set the IP Address, Subnet Mask and Gateway as required. Then click "Apply", the Decoder will immediately reboot to take effect.

(2) If the IP mode is set to "DHCP", it will search and be filled with the IP Address assigned by the router automatically.

(3) If the Decoder is actually alive in the system but with incorrect network segment settings, even though the Decoder is offline, its network settings including IP address can be changed and set to make it being discovered again.



Hardware Usage

CEC Pin Usage: Click the drop-down menu to set the CEC pin usage (ARC/eARC/CEC/Off). After switching, the Decoder will immediately reboot to take effect.

Sink Capability: It indicates the ARC capability (eARC/ARC/None) supported by the TV.

Audio Return Path: Click the drop-down menu to select the audio return path (ARC/S/PDIF).

eARC Downgrade To ARC: When the amplifier on HDMI IN port only supports ARC, and the TV connected to the Decoder only supports eARC, the setting of "eARC Downgrade To ARC" needs to set "On" to achieve the audio path working normally. The eARC downgrade of the Decoder will also apply onto all Encoders that select this Decoder.

Web GUI

Operation Guide

Note: The settings of “Sink Capability”, “Audio Return Path” and “eARC Downgrade To ARC” are available only for Decoders that support ARC/eARC.

Network Interface Usage: Click the drop-down menu to set the network port (Fiber/Copper).

Note: Only Decoders that integrate Copper and Fiber ports can perform this setting.

RS-232 Settings

RS-232 Command Relay: Click the drop-down menu to select On/Off to turn on/off the RS-232 command relay function..

Parity: Click the drop-down menu to set the parity.

Baud Rate: Click the drop-down menu to set the baud rate.

Data Bits: Click the drop-down menu to set the data bits.

Stop Bits: Click the drop-down menu to set the stop bits.

After setting, click “Apply” to take effect.

Port Settings

IR Voltage: Click the drop-down menu to select the 5V/12V IR voltage.

IO Voltage: Click the drop-down menu to select the 5V/12V IO voltage.

IO 1 Direction: Click the drop-down menu to set the IO 1 direction (Input/Output).

IO 1: Click the drop-down menu to set the IO 1 level (Low/High).

IO 2 Direction: Click the drop-down menu to set the IO 2 direction (Input/Output).

IO 2: Click the drop-down menu to set the IO 2 level (Low/High).

Relay 1: Click the drop-down menu to select Open/Close Relay 1.

Relay 2: Click the drop-down menu to select Open/Close Relay 2.

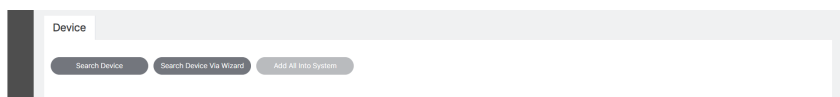
Reboot: Click the Reboot button to reboot the Decoder.

Replace: Click to replace the offline Decoder (which is in the system) with an online Decoder (which is not in the system). The method to replace Decoders is the same as the Encoder replacement.

Remove: Click the Remove button to remove the Decoder from the system.

Remove All: Click this button to remove all Decoders from the system.

Factory Reset: Click this button to restore the Decoder to factory settings.



Device

Search Device: Click this button to search devices which are not in the system.

Search Device Via Wizard: Click this button to switch back to the IP mode select interface and follow the Wizard to set up the system.

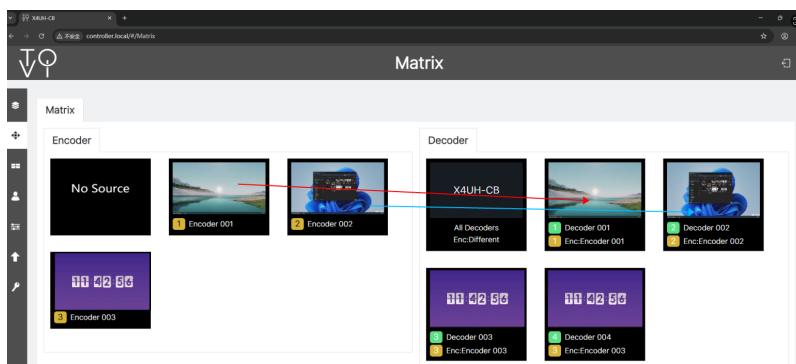
Add All Into System: Click this button to add all searched devices into the system, then the devices will be listed on the Encoder/Decoder list.

Web GUI Operation Guide

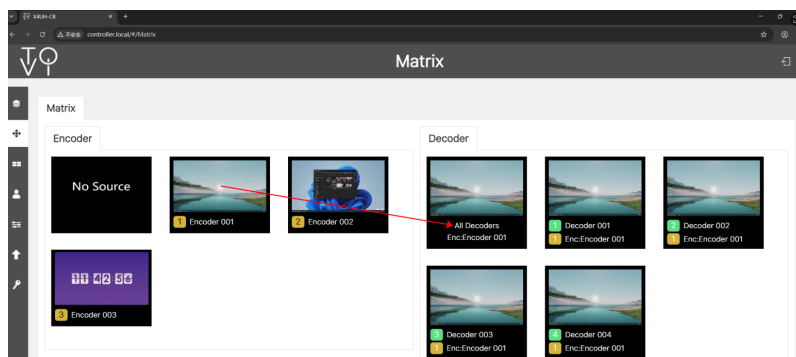
Matrix

Matrix Switching Function

1. Left-click the Encoder preview picture and drag it to Decoder, then release the mouse to realize one-to-one switching.



2. Left-click the Encoder preview picture and drag it to All Decoders, then release the mouse to realize one-to-all switching.

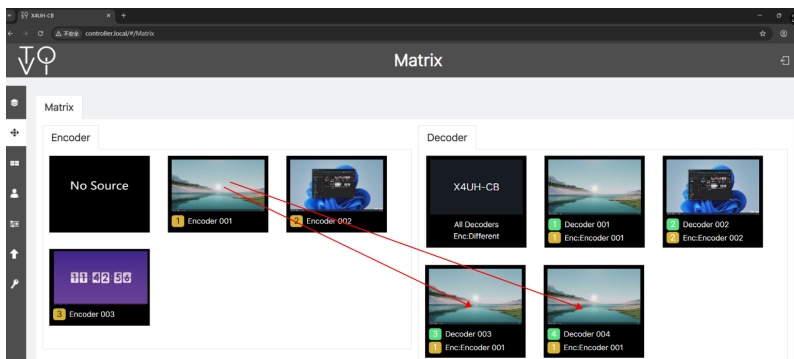


Note: Encoders can only be dragged to the Decoder preview of the same type to achieve signal switching. For one-to-all switching, only the Decoders of the same type will output the same signal.

Web GUI

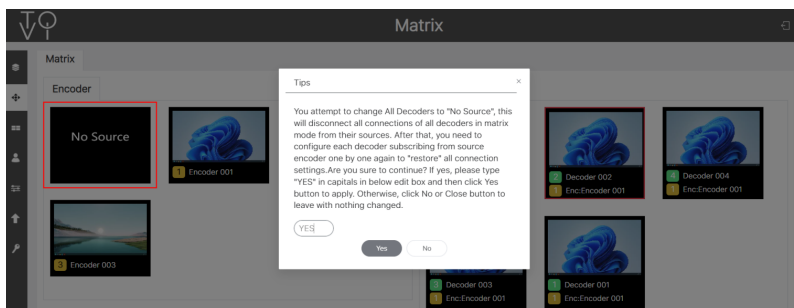
Operation Guide

3. Left-click the Encoder preview picture and drag it to multiple Decoders, then release the mouse to realize one-to-many switching.



Disconnect the Signal Connection

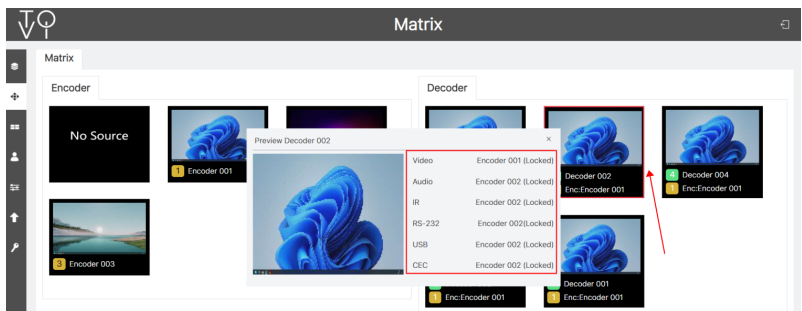
Click the "No Source" image in the Encoder preview list with the left mouse button and drag it to the Decoder preview image. Release the mouse to disconnect the Decoder from the signal source, and the corresponding display will show "No Source". If you drag the "No Source" image to "All Decoders" and release the mouse, a prompt window will pop up as shown below. Manually enter "YES" and then click "Yes", all Decoder signal sources in matrix mode will be disconnected. After that, you need to configure Encoders for Decoders again. Therefore, please proceed with caution.



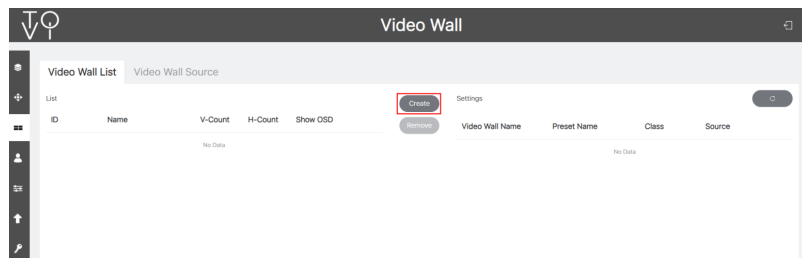
Corresponding Relationship Query

Double-click the preview image of Decoder to check the Video/Audio/IR/RS-232/USB corresponding relationship between the Encoder and Decoder.

Web GUI Operation Guide



Video Wall



Video Wall Creation

On the Video Wall List interface of this page, you can create and configure video wall as required. Please follow below steps to create and configure a video wall.

Step 1: Click "Create", a pop-up window will be shown as below.

Create a new Video Wall ×

Video Wall ID

1 ▼

Video Wall Name

Video Wall 1

Row Number

2 ▲▼

Column Number

2 ▲▼

Go

You can set the Video Wall ID, Video Wall Name, Row Number and Column Number. Then click "Go" to create the video wall.

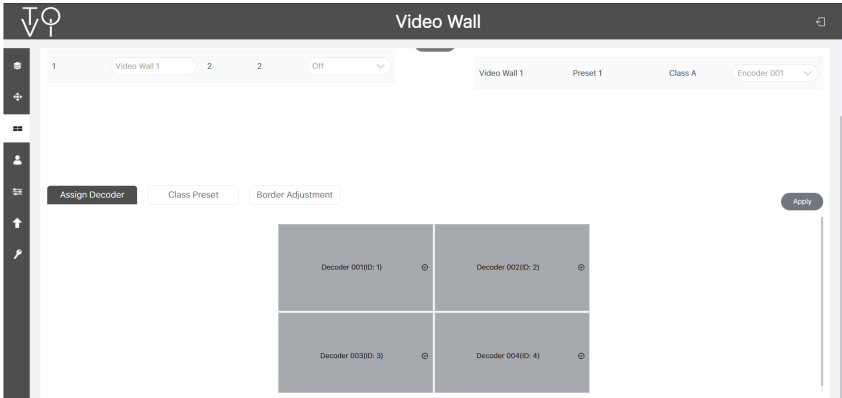
Web GUI

Operation Guide

Notes:

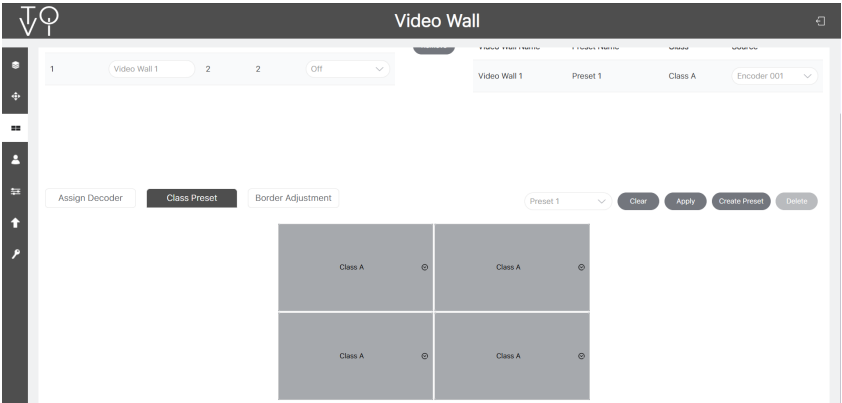
- (1) Up to 9 video walls can be created.
- (2) The video wall name can be changed after the video wall is created.

Step 2: Select the video wall that you want to configure, then click “Assign Decoder” at the bottom of the Video Wall List interface to enter the Decoder assignment interface. Click each screen to select the corresponding Decoder device, then click “Apply” to take effect.



Note: A Decoder can only be assigned to one video wall.

Step 3. Click “Class Preset” to enter the class configuration preset interface, then click each screen to select the corresponding Class as required (the same class name will form a video wall, you can create a regular or irregular video wall by Class Preset). Then click “Apply” to take effect.



Web GUI

Operation Guide

The preset name can be changed with letters or numbers (max length: 16 characters). Besides, you can click the drop-down menu icon behind the preset name to switch different presets (the selected preset will be high-lighted in Settings), click "Create Preset" to create up to 9 configurations for different application scenarios, click "Clear" to clear and reset video wall class settings, or click "Delete" to delete the current class preset from the system.

After setting, you should click "Apply" to take effect.

Step 4: Click "Border Adjustment" to enter the Border Adjustment interface, then click the drop-down menu to set the Base Width, Image Width, Base Height and Image Height. Finally, click "Apply" to adjust the border of each Decoder, or click "Apply All" to adjust the borders of all Decoders.

The screenshot displays the 'Video Wall' web interface. At the top, there's a header with a logo and the title 'Video Wall'. Below the header, there's a table with columns: ID, Name, V-Count, H-Count, and Show OSD. The first row shows 'Video Wall 1' with V-Count 2 and H-Count 2. To the right of this table is a 'Remove' button. Below the table, there's a section with three tabs: 'Assign Decoder', 'Class Preset', and 'Border Adjustment' (which is currently selected). Under the 'Border Adjustment' tab, there's a table with columns: [Row, Column] Display, Base Width, Image Width, Base Height, and Image Height. The table has four rows, each representing a decoder. Each row has input fields for the four dimensions, all currently set to 1000. To the right of each row are 'Apply' and 'Apply All' buttons. At the bottom of the interface, there's a sidebar with icons for various functions.

ID	Name	V-Count	H-Count	Show OSD
1	Video Wall 1	2	2	Off

Video Wall Name	Preset Name	Class	Source
Video Wall 1	Preset 1	Class A	Encoder 001
Video Wall 1	Preset 2	Class A	Encoder 001

[Row, Column] Display	Base Width	Image Width	Base Height	Image Height	Apply	Apply All
[1,1](Decoder 001)	1000	1000	1000	1000	Apply	Apply All
[1,2](Decoder 002)	1000	1000	1000	1000	Apply	Apply All
[2,1](Decoder 003)	1000	1000	1000	1000	Apply	Apply All
[2,2](Decoder 004)	1000	1000	1000	1000	Apply	Apply All

Note: The Base value cannot be more than 2 times the Image value.

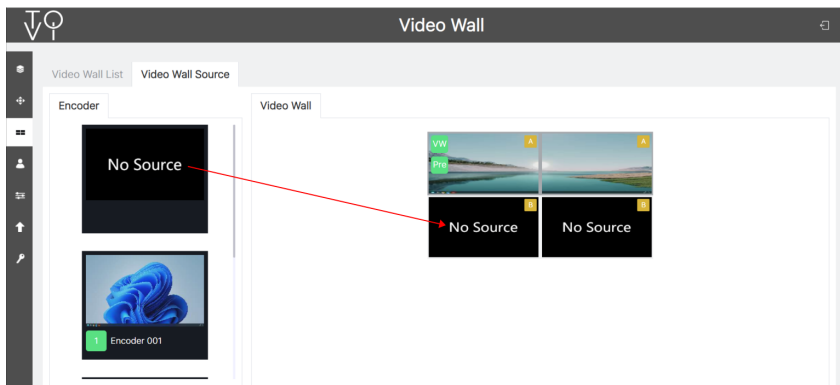
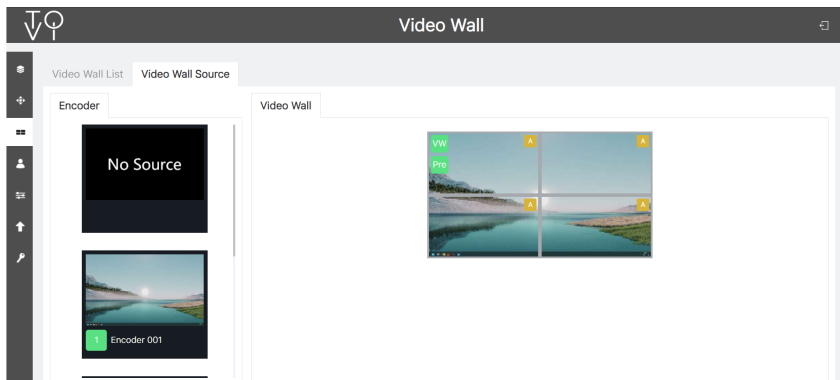
Video Wall Source

After the video wall is created and configured, you can click the Video Wall Source tab to check the video wall preview, video wall class, and its corresponding signal source. You can click the "VW" icon on the preview of video wall to switch different video walls, or click the "Pre" icon to switch different presets.

Besides, you can directly drag Encoders to the video wall to change signal sources. If you drag "No Source" to the video wall, then the signal source of the video wall will be disconnected, and the corresponding windows will display "No Source".

Web GUI

Operation Guide



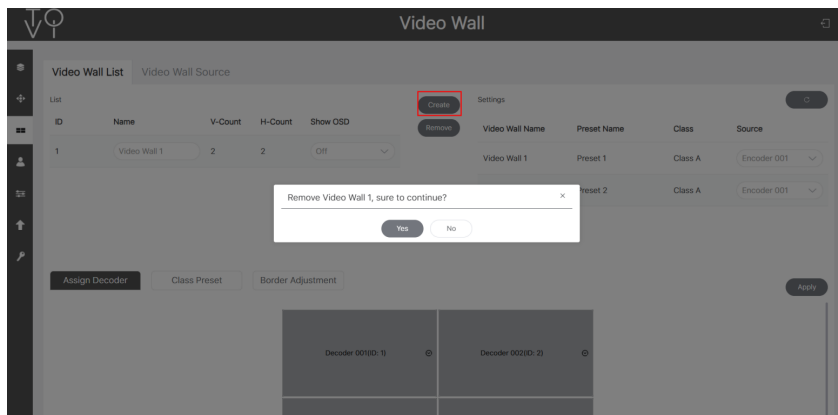
Notes:

- (1) If the Encoder is offline, it can't be dragged to the matrix of video wall.
- (2) Only Encoders of the same type can be dragged to the video wall to switch signals.

Video Wall Remove

If you want to delete a video wall, just select the video wall on the "Video Wall List", then click "Remove". A prompt window will pop up and you can delete it after clicking "Yes".

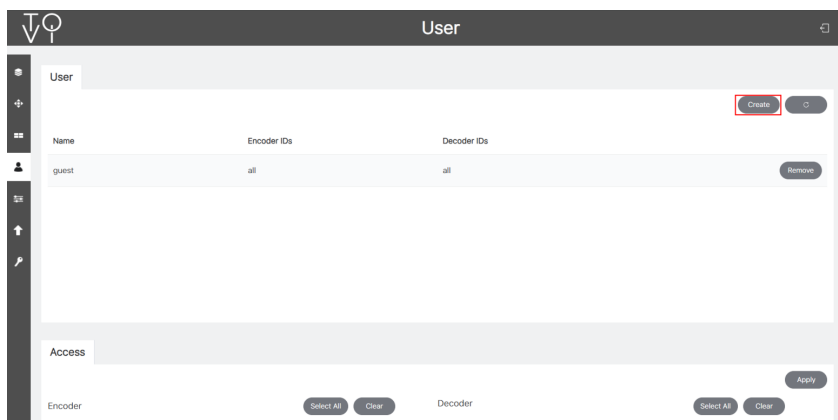
Web GUI Operation Guide



Notes:

- (1) Each Decoder can be set into a part of a video wall array. Each system can contain multiple video walls with different sizes. Each video wall can be assigned to different screens and different layouts that range from 1x2 up to 9x9.
- (2) The controller creates and manages the video wall configurations and provides a simplified control interface and API commands to third party control system.

User



Web GUI

Operation Guide

On this page, you can add new user accounts with their own control privileges. This will allow you to create a unique login and limit features such as inputs and outputs that each person has access to. Follow steps below to create a new User.

Step 1: Click "Create", a pop-up window will be shown as below.

Create User ×

User Name

user

User Password

Confirm Password

Go

Step 2. Input the User Name, User Password and Confirm Password. Then click "Go" to create the User.

Notes:

- (1) The user name requires a minimum of 6 characters and a maximum length of 12 characters. Special characters are not supported; The password has a minimum of 6 characters and a maximum of 8 characters.
- (2) The Password and Confirm Password must be the same.

↓

↑

+

×

≡

⌂

⌕

User

Create

⌕

Name	Encoder IDs	Decoder IDs	
guest	all	all	Remove
user	all	all	Remove

Access

Password

Encoder

Select All

Clear

Decoder

Select All

Clear

☒ Encoder 001

☒ Encoder 002

☒ Encoder 003

☒ Decoder 001

☒ Decoder 002

☒ Decoder 003

☒ Decoder 004

Apply

After the new User is created, you can select the Encoders and Decoders as required by checking the devices on the bottom of the User page one by one, or directly click "Select All" to select all devices in the system. Then click "Apply" to take effect.

Web GUI Operation Guide

Besides, you can click “Password” to change the User’s password, or click “Remove” to delete the User. If you want to login with the new User, just click the logout icon at the upper right corner of this page to log out, and then login with the new user name and password.

Name	Encoder IDs	Decoder IDs	
guest	all	all	Remove
user	all	all	Remove

Access **Password** Apply

Password

Confirm Password

Controller Settings

System Configurations

Save Load Clear

Controller Settings

General

Version	1.10.0[1.1]	GUI Version	2.00.03
RS-232 BaudRate	57600	SSH	Off
HTTPS	Off	Telnet	On
Telnet Port	23	SSH Port	22
Domain Name	controller		

Control Network Apply

System Configurations: Click “Save” to save the current configuration; click “Load” to load the system configuration JSON file and replace the current system configurations (It’s strongly recommended to save the current configurations before loading); click “Clear” to clear system configurations already created and configured in the controller, and you need to set up the system again.

Web GUI

Operation Guide

Controller Settings

General: The general settings of the Controller. You can check the Controller Version, GUI Version and Domain Name. In addition, you can set the RS-232 BaudRate, HTTPS, Telnet, Telnet Port, SSH and SSH Port.

The screenshot shows the 'Controller Settings' web interface. It features a dark sidebar on the left with navigation icons. The main content area is titled 'Controller Settings' and includes a search icon. The settings are organized into sections: General (HTTPS, Telnet, Telnet Port, SSH Port, Domain Name), Control Network (DHCP, IP Address, Subnet Mask, Gateway), Video Network (DHCP, IP Address, Subnet Mask, Gateway), and Controller Reset (Settings Reset, Network Reset, Reset All). Each section has an 'Apply' button. The 'Control Network' and 'Video Network' sections also have a 'Controller Reset' button.

Control Network: The network port configuration of the Controller connected to the router, PC directly or network Switch in where the PC for control is. When DHCP is set to "Off", you can manually set the IP Address, Subnet Mask and Gateway as required, then click "Apply" to take effect. When DHCP is set to "On", the system will search and fill the IP Address with the one assigned by the router automatically.

Note: When DHCP is set to "Off" which is in Static IP mode, the network settings of Control LAN and PC should stay in same network segment. Otherwise, the controller Web GUI can not be accessed from PC until you change PC network settings in same network segment.

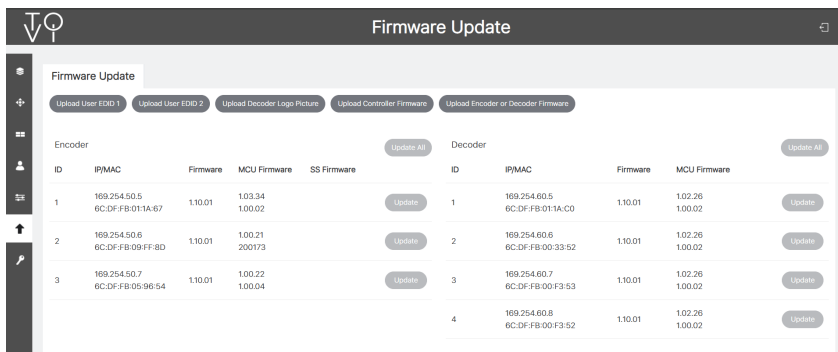
Video Network: The network port configuration of the Controller connected to the network where the Encoders and Decoders stay. When DHCP is set to "Off", you can manually set the IP Address, Subnet Mask and Gateway as required, then click "Apply" to take effect. When DHCP is set to "On", the system will search and fill the IP Address with the one assigned by the router automatically.

Note: When DHCP is set to "Off" which is in Static IP mode, the network settings of Video LAN and Encoders/Decoders should stay in same network segment. Otherwise, Encoders/Decoders would be showed as offline. In this case, you should change Video LAN or Encoders/Decoders IP settings to be in same network segment to bring Encoders/Decoders back online. If the Encoders/Decoders are actually alive in the system but with incorrect network segment settings, even though Encoders/Decoders are showing offline, their network settings including IP address can be changed and set.

Web GUI Operation Guide

Controller Reset: Click “Settings Reset” to reset controller all settings except network settings; Click “Network Reset” to reset controller network settings; Click “Reset All” to reset controller all settings including network settings.

Firmware Update



Upload User EDID 1/2: Click the button to open an EDID binary file and upload it to User EDID 1/2.

Upload Decoder Logo Picture: Click the button to upload the Decoder Logo Picture. Then click “Update All” to apply the picture for all Decoders or click “Update” to apply the picture for a single Decoder.

Note: The jpg picture must be greater than 4kB, less than or equal to 512kB, and the resolution of the picture must be less than or equal to 1920x1080.

Upload Controller Firmware: Click the button to upload the Controller update firmware.

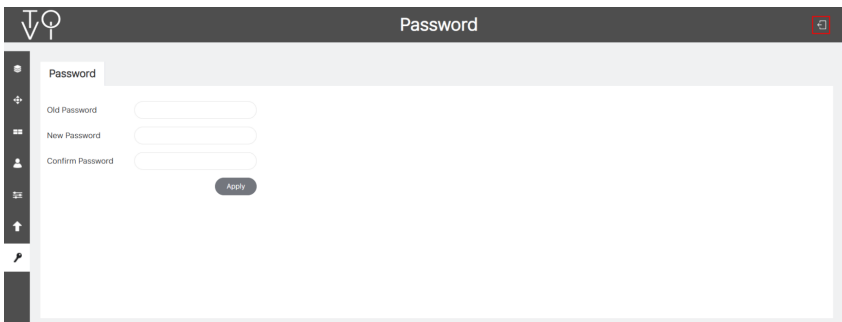
Upload Encoder or Decoder Firmware: Click the button to upload the Encoder/Decoder update firmware. After loading, you need to click “Update All” to update firmware for all Encoders/Decoders, or click “Update” to update firmware for a single Encoder/Decoder.

Web GUI

Operation Guide

Password

On this page, you can change the password by inputting the New Password and Confirm Password, and then clicking “Apply” to take effect.



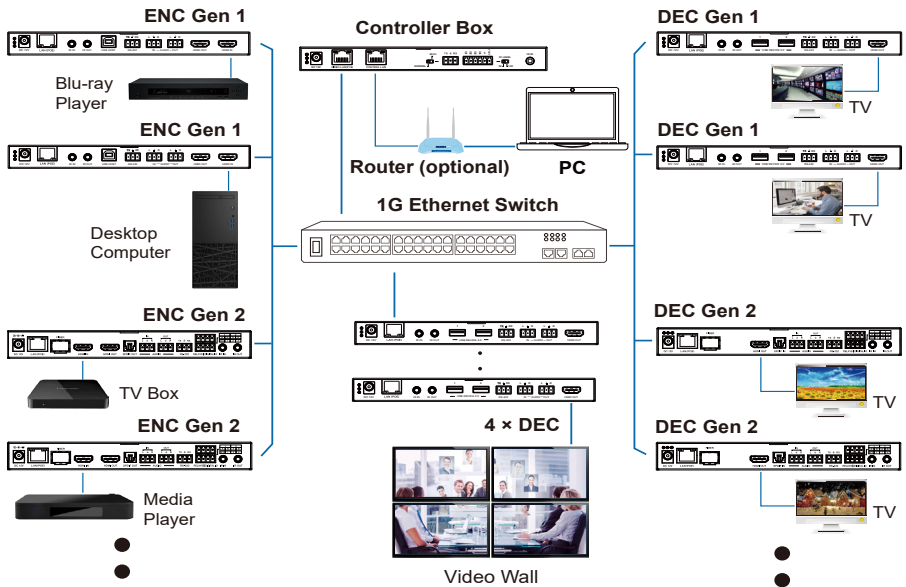
The screenshot shows a web browser window with the title "Password". The browser's address bar shows a URL starting with "http://". The page has a dark sidebar on the left with several icons. The main content area is titled "Password" and contains three input fields: "Old Password", "New Password", and "Confirm Password". Below these fields is a blue "Apply" button. The "New Password" and "Confirm Password" fields are highlighted with a light blue border.

Notes:

- (1) The password requires a minimum length of 6 characters and a maximum of 8 characters. Special characters are not supported.
- (2) The New Password and Confirm Password must be the same.
- (3) After changing password, the system will skip to the Web GUI login interface automatically. You need to log in the Web GUI again with the new password.

In addition, there is a logout icon in the upper right corner of each page of the Web GUI. Clicking the icon will exit the Web GUI and automatically skip to the login interface.

Application Example



Application Example

Notes:

(1) The Controller has two LAN ports, one is Video LAN and the other one is Control LAN. The purpose of designing Controller with two LAN ports is to isolate audio/video (AV) network from control network. So to make AV network as an independent network which can not be accessed from control network directly, it's for bringing network security and avoiding AV network traffic flowing into the network in which the controls and managements are for the IP system.

The strongly recommended system setup is connecting Video LAN and Encoders/Decoders in a network Switch, connecting Control LAN and PC in another network Switch. The controls from Control LAN can be achieved by Web GUI/Telnet or SSH login/API commands, all these controls can be bridged by the Controller and applied onto Video LAN. The two LANs are isolated.

For simple usage, you can only connect all Encoders/Decoders and Video LAN and PC RJ-45 port into a single network, and let the Control LAN port not-connected (floating), as Video LAN also supports Web GUI/Telnet or SSH login/API commands controls, this seems "convenient" for general use scenarios, but this is only suggested for system in which there is no network isolation requirement or network traffic non-sensitive.

Only Control LAN connected while Video LAN floating, this is not allowed.

(2) For the default IP mode of Control LAN port of the Controller Box is DHCP, the PC also needs to be set to "Obtain an IP address automatically" mode, and an optional DHCP server (e.g. network router) is recommended in the system.

(3) If there is no DHCP server in the system, 192.168.6.100 will be used as the IP address of Control LAN port. You need to set the IP address of the PC to be in the same network segment. For example, set PC's IP address as 192.168.6.88.

(4) You can access the Web GUI by inputting URL "http://controller.local" or the Control LAN port IP address 192.168.6.100 (in case of no optional router) on your computer's browser.

(5) No need to care about settings of Video LAN port of the Controller Box, as they are managed by Controller automatically (Default).

(6) When the Network Switch does not support PoE, the Encoder, Decoder and Controller Box should be powered by DC power adapter.

FAQs & Troubleshooting

1. How many Encoders and Decoders can be connected to a single network?

Up to 762 encoders, 762 decoders.

2. Can I uplink another 48 port switch to connect more Transceivers as both Encoders and Decoders?

Switches cascading with 10G is supported.

The bandwidth of each encoder is almost 800Mbps, and you need to offer sufficient bandwidth when cascading.

3. What is the limit of video wall creation? How many displays can I connect to create a video wall?

Up to 9x9.

4. What are some popular network switches from the market that I can use with your products?

Common two-layer switches such as LUXUL, NETGEAR, CISCO, HUAWEI, H3C.

Still have some questions?

Please feel free to contact us at: info@orei.com. OR Fill out the form on the 'Contact Us' page on the website.

Our team will be more than happy to help you.

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US team (US/Canada/Mexico): Monday-Friday, 9 a.m. - 5 p.m. Central Time

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