

AVX24-4用户手册（英文）

Kiloview AVX24-4

Media Hub

User Manual

Version: V1.0

Kiloview Electronics Co., Ltd.

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About This Manual

This manual introduces the product features, installation methods, Web management interface operations, and front panel usage of the Kiloview AVX24-4 Media Hub (hereinafter referred to as "AVX24-4" or "this device"). It is intended for personnel involved in the installation, configuration, and maintenance of this product.

Document Conventions

This manual uses the following typographic conventions:

- Interface elements (menus, buttons, tabs, field names) are identified with quotation marks or bold text, for example: click the "Save" button, navigate to the "Network > VLAN" menu.
- Command lines, IP addresses, URLs, and file paths are shown in monospace or English font.
- Tips are displayed in a light yellow background box, representing operational instructions, constraints, or best practices.
- Safety warnings are displayed in a light red background box, representing safety or operational requirements that must be followed; violation may result in equipment damage or personal injury.

Applicable Version

The functions described in this manual are based on AVX24-4 firmware version V1.00. After firmware upgrade, some interfaces and functions may differ from the descriptions in this manual. Please refer to the latest released version.

1 Product Introduction

The Kiloview AVX24-4 Media Hub is a media aggregation hub designed for the broadcast, film production, professional live streaming, enterprise AV, and other audio/video fields. Its core positioning is to provide a "plug-and-play" network承载 and media routing platform for IP-based professional AV networks such as NDI.

In terms of hardware, the AVX24-4 is a Layer 2/Layer 3 network switch with 24 Gigabit copper ports and 4 10-Gigabit SFP+ optical ports. However, unlike general-purpose IT network switches, this device has been extensively optimized for professional AV scenarios:

- Simplified network management based on visual topology, shielding the complexity of underlying network protocols;
- Built-in NDI matrix (routing) distribution capability, able to distribute any NDI source in the network to any output node;
- Network fault diagnosis and real-time monitoring oriented towards AV links;
- Support for IEEE 1588v2 / PTP high-precision clock synchronization;
- All ports on the unit come standard with PoE+ power supply, capable of directly powering NDI encoders/decoders, IP microphones, PTZ cameras, and other terminals.

The design goal of the AVX24-4 is to enable AV industry users with little or no IT/IP technical background to easily build, configure, and operate a professional-grade AV-over-IP network.



1.1 Core Product Capabilities

1.1.1 Simplified Visual Network Management

The AVX24-4 provides a browser-based visual Web management interface, presenting the network operation status intuitively through two perspectives: "Device Diagram" and "Topology Map":

- Device Diagram: A 1:1 replica of the front panel physical ports, displaying the connection status, speed, PoE power supply, VLAN assignment, link aggregation, and alarm status of each port in real time — what you see is what you get.
- Topology Map: Automatically identifies the entire network link relationships and presents them in a layered topology view, supporting zoom, drag, and collapse. For Kiloview's own devices and those of Kiloview ecosystem partners, it can directly display device names, models, firmware versions, and other information; for third-party devices, they are marked as "Unknown."

- One-click management of all network devices: Not only can you manage the AVX24-4 itself, but you can also view parameters and perform basic control for all Kiloview encoders, decoders, media gateways, and other series devices (as well as devices from ecosystem partners) connected to the network.

1.1.2 NDI Matrix (Routing) Distribution

The AVX24-4 features a built-in professional NDI matrix distribution engine, capable of routing any NDI source (NDI/NDI HX) on the network to any destination device, realizing a network-based replacement for traditional SDI matrices:

- Supports a maximum NDI HX matrix size of 64×64 (1080p60 and 4K UHD60);
- Supports a maximum NDI full bandwidth (NDI HB) matrix size of 48×48 (1080p60);
- Supports 1 source to multiple outputs (multicast distribution), with an output exclusivity constraint of N : 1 between sources and outputs;
- Supports customizable matrix panels: Multiple independent matrix panels can be created, each with its own source/output list and crosspoint configuration, adapting to different scenarios and different operator workflows;
- Supports external physical control panels for sub-second physical button switching.

1.1.3 Network Fault Diagnosis and Monitoring

The AVX24-4 provides network diagnosis and monitoring capabilities tailored for professional AV applications, helping users quickly locate link issues in large-scale project deployments or live broadcasts:

- One-click global diagnosis: Performs multi-dimensional health checks on all network devices, including link status, speed, PoE, packet loss, etc., and generates a complete diagnostic report;
- End-to-end diagnosis: Performs diagnostics such as link connectivity, speed matching, and packet loss rate for two specified devices (source-destination), quickly identifying abnormal points in the service path;
- Real-time alerts: Supports temperature alerts, CPU/memory usage alerts, device unexpected disconnection alerts, etc., with customizable alert thresholds and judgment windows;
- Traffic monitoring: Displays real-time transmit/receive traffic curves for each port, with a TOP 5 ranking of port bandwidth utilization;
- Operation logs and system logs: Supports online viewing and export.

1.1.4 IEEE 1588v2 / PTP Clock Synchronization

The AVX24-4 supports the IEEE 1588v2 Precision Time Protocol (PTP) and can serve as a Boundary Clock or Transparent Clock node in professional AV networks, providing a sub-

microsecond time reference for synchronized services such as Dante, ST 2110/IPMX, AES67, and NDI (future expansion capability):

- PTP Protocol Version: IEEE 1588-2008 (PTPv2);
- Supported Clock Modes: Boundary Clock (BC) and Transparent Clock (TC);
- Supports both 1-Step and 2-Step timestamping methods;
- Supports Leap Second Correction;
- Provides 3 PTP clock instances by default, each independently configurable with a clock domain and member ports.

1.1.5 Usable Without an IT/IP Professional Background

All user-facing concepts, terminology, and operational procedures of the AVX24-4 are reorganized according to the cognitive habits of AV industry users:

- VLANs are intuitively displayed as color groups in the interface, rather than purely numeric IDs;
- Port modes are described in通俗 terms like "Connect Terminal Device / Connect Switch" instead of the professional terms Access/Trunk;
- Matrix switching is presented as a source-output two-dimensional table, consistent with the traditional matrix controllers familiar to AV engineers;
- The device is configured and ready to use out of the box; it can be accessed for management by default through the OOB (Out-of-Band) management port.

1.1.6 Other Features

- PoE+ on all 24 ports (IEEE 802.3at, up to 30 W per port), with a total PoE budget of 720 W, capable of directly powering NDI encoders, IP microphones, PTZ cameras, and other terminals;
- Dual redundant power supplies: Dual 920 W power supply slots, one included as standard from the factory, a second can be ordered for 1+1 hot standby, modules support hot swapping;
- 4 10 GbE SFP+ optical ports, supporting uplink to backbone or cascading multiple AVX units;
- Supports Link Aggregation (LAG) to increase uplink bandwidth and redundancy;
- Supports static routing, enabling inter-subnet (inter-VLAN) communication in routing mode;
- Supports KiloLink Server (KLS) centralized management: When connected to the KLS platform, it can be incorporated into a cross-regional unified monitoring and alerting system;
- Access security: Supports multi-user and role management (Administrator/Regular User), supports password modification and session locking.

2 Technical Specifications

The following table provides the hardware and protocol specifications of the AVX24-4 unit.

Item	Specification
Basic Information	
Product Model	AVX24-4
Product Name	AVX Media Hub
Chassis Form Factor	1U standard rack-mountable, fits 19-inch standard cabinet
Physical Dimensions (W×D×H)	483 × 388 × 44 mm (unit only)
Net Weight	Approx. 7.64 kg (full unit, including 1 power module)
Package Dimensions (W×D×H)	612 × 460 × 98 mm
Gross Weight	Approx. 8.54 kg
Network Ports	
Gigabit Copper Ports	24 × 10/100/1000BASE-T, RJ45, all ports support PoE+ (IEEE 802.3at, ≤ 30 W/port)
10-Gigabit Optical Ports	4 × 10GBASE-R, SFP+ cages, compatible with 1G/10G optical modules and DAC direct-attach copper cables
Management Port	1 × Out-of-Band (OOB) RJ45 management port, default IP 192.168.0.168/24
Switching Performance	
Backplane Bandwidth	226 Gbps (full duplex)
Packet Forwarding Rate	168.14 Mpps (wire-speed forwarding)
MAC Address Table	32 K entries
VLAN Table Entries	4 K entries

Packet Buffer	32 MB
Clock Synchronization	
Protocol Version	IEEE 1588-2008 (PTPv2)
Clock Modes	BC (Boundary Clock) / TC (Transparent Clock)
Timestamping Modes	1-Step / 2-Step
Clock Instances	3, independently configurable clock domains and member ports
Typical Synchronization Accuracy	Sub-microsecond (actual accuracy depends on PTP implementation and load of all nodes in the network)
Control and Display	
LCD Display	Display area 498×280 (16:9)
Visual Buttons	32 programmable crystal buttons with LCD label display
Function Buttons	6: UP / DOWN / OK / BACK / HOME / LOCK
Audio Output	1 × 3.5 mm stereo headphone output (for audio monitoring during video preview)
USB Interface	1 × USB 3.0 Type-A, 1 × USB 3.0 Type-C
Power and Cooling	
Power Supply Slots	2 hot-swappable power module slots, supporting 1+1 redundancy
Power Module	920 W per module, 1 included as standard from factory, optional 2nd for 1+1 redundancy
AC Input	100–240 V AC, 50/60 Hz
Unit Power Consumption (Idle)	Approx. 55 W
PoE System Power Budget	≤ 720 W (shared by all PoE ports on the unit)

Cooling Method	Metal heatsink + active fan cooling, front-to-back airflow
Operating Environment	
Operating Temperature	-20 °C ~ +45 °C
Storage Temperature	-40 °C ~ +70 °C
Operating Humidity	10% ~ 90% RH (non-condensing)
Management Methods	
Web Management	HTTPS, browser-based graphical management (recommended latest Chrome / Edge)
Front Panel Management	LCD + physical buttons, supports network status viewing, matrix switching, basic system settings
Centralized Management	Supports management via KiloLink Server (KLS) platform for unified cross-device management

3 Device Package Contents and Interface Description

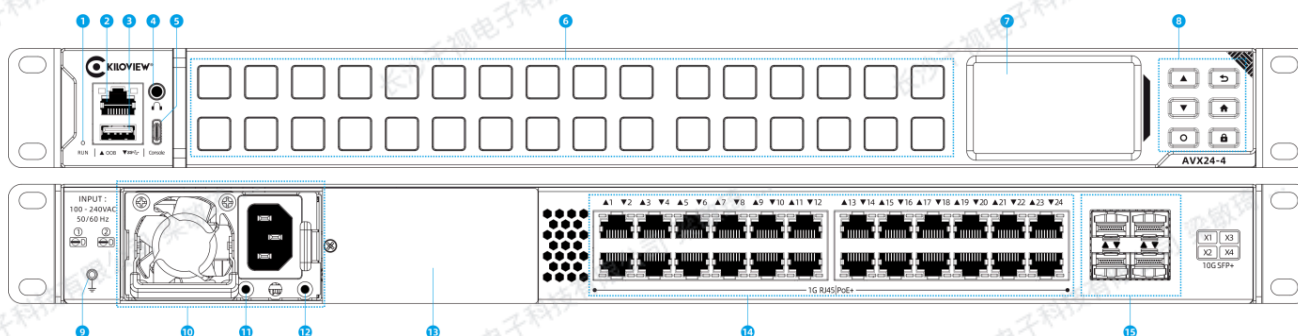
3.1 Package Contents

Upon receiving the device, first check that the packaging is intact, then verify the package contents against the table below. If any items are missing or damaged, contact Kiloview or your reseller immediately.

Name	Unit	Qty	Remarks
AVX24-4 Main Unit	Unit	1	—

920 W Power Module	Piece	1	1 included as standard from factory; a 2nd can be ordered separately for 1+1 redundancy
AC Power Cord	Cable	1	Standard 3-prong / region-appropriate
Certificate of Conformity / Warranty Card	Sheet	1	—
Quick Start Guide	Sheet	1	Printed version

3.2 Interface and Component Description



No.	Name	Description
①	Device Status Indicator	White, indicates the overall operational status of the device
②	OOB Out-of-Band Management Port	RJ45, Gigabit, default IP 192.168.0.168/24, used for Web management login (see Chapter 5)
③	USB 3.0 Type-A Interface	For USB drive firmware upgrade, configuration import/export, etc. (see Chapter 14)

④	Headphone Output (Line Out)	3.5 mm stereo headphone output, for local audio monitoring
⑤	USB 3.0 Type-C Interface	Reserved expansion interface
⑥	Visual Programmable Buttons × 32	Crystal buttons with LCD labels, can be bound to matrix switching sources/outputs
⑦	LCD Display	Displays device status, menus, and other information
⑧	Function Buttons × 6	UP / DOWN / OK / BACK / HOME / LOCK, see Section 3.4
⑨	Ground Terminal	Chassis grounding stud, marked $\perp$, see Section 4.1.3
⑩	Power Module Slot 1 (Primary)	920 W power module included as standard from factory, supports hot swapping
⑪	Power Module DC Status Indicator	Indicates the DC output status of the power module
⑫	Power Module AC Status Indicator	Indicates the AC input status of the power module
⑬	Power Module Slot 2 (Redundant)	Optional 2nd power module for 1+1 redundancy
⑭	Gigabit RJ45 Ports × 24	10/100/1000BASE-T, all ports support PoE+ (IEEE 802.3at, ≤ 30 W/port)

⑮	10-Gigabit SFP+ Optical Ports × 4	10GBASE-R, compatible with 1G/10G optical modules and DAC direct-attach copper cables, can be used for uplink or multi-unit cascading
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3.3 Indicator Light Description

3.3.1 Device Status Indicator

Located on the front panel, see Section 3.2, No. ①.

Indicator Status	Meaning	Action Recommended
White slow flashing	Device operating normally	No action required
White steady on	Device operating abnormally	Log into Web to check alerts and system logs; restart the device if necessary
Off	Device not powered on or faulty	Check power cord, power module, and power supply status

3.3.2 Power Module Indicators

Each power module panel has two indicators: DC Status Indicator (see Section 3.2, No. ⑪) and AC Status Indicator (see Section 3.2, No. ⑫). Both indicate the same status.

Color	Status	Description
White	Steady on	Power module operating normally
—	Off	Power not connected or power module faulty

3.3.3 Gigabit Copper Port Indicators

The 24 Gigabit RJ45 copper ports (see Section 3.2, No. ⑭), each port has two indicators.

Position	Indicator	Status Description
Left	Link/Speed	Green steady on: Port link is up at 1000Mbps (Gigabit) Yellow steady on: Port link is up at 10/100Mbps (100Mbps and below) Off: Link not connected or connection failed
Right	ACT (Data)	Green flashing: Data transmitting/receiving on Gigabit link Yellow flashing: Data transmitting/receiving on 100Mbps and below link Steady on, not flashing: Link is up but no data transmission

3.3.4 10-Gigabit SFP+ Optical Port Indicators

The 4 10-Gigabit SFP+ optical ports (see Section 3.2, No. ⑮), each port's indicator status is as follows.

Indicator Status	Meaning	Description
Green flashing	Link up, data transmitting/receiving	Flashing frequency related to traffic
Green steady on	Link up, idle state	Connection established but no current service traffic
Off	Link not established	No optical module inserted, module fault, or peer not connected

3.4 Function Button Description

The AVX24-4 front panel provides 6 physical function buttons.

Button	Function	Trigger Method
 UP	Cursor up / Previous item	Short press (< 1 second)
 DOWN	Cursor down / Next item	Short press (< 1 second)
 OK	Confirm / Enter selected item	Short press (< 1 second)
 BACK	Return to previous level	Short press (< 1 second)
 HOME	Return to main screen	Short press (< 1 second)
 LOCK	Lock / Unlock front panel buttons	Long press ≥ 3 seconds

4 Device Installation and Power-On

4.1 Racking and Installation

4.1.1 Installing the Power Module

1. Hold the power module with the label side facing up, and push it horizontally into the power slot on the rear panel until you hear a clear "click" locking sound, indicating the module is securely in place.
2. Connect one end of the AC power cord to the IEC socket of the power module, and the other end to an AC power outlet. The device is now ready for power-on.

Note

The device ships standard with one 920 W power module, which must be installed in the primary power slot (③ Slot 1).

For 1+1 redundancy, an optional second 920 W power module can be installed in Slot 2 (⑬).

Both power modules support hot-swap and can be replaced or added while the device is running.

4.1.2 Removing the Power Module

1. Disconnect the AC power cord of the corresponding power module.
2. Press the latch on top of the power module, hold the module handle, and pull it out horizontally.

Warning

It is recommended to perform hot-swap operations under a 1+1 redundant configuration to avoid device power loss.

Before removal, ensure the AC power cord of the corresponding module has been reliably disconnected.

4.1.3 Grounding

Reliable grounding is a prerequisite for ensuring safe device operation and suppressing interference. Complete the grounding connection by following the steps below.

1. Locate the grounding stud marked with "⏏" on the rear panel (see Section 3.2, item ⑨).
2. Slide the ring terminal at the small end of the grounding wire onto the grounding stud, and tighten it firmly using a screwdriver.
3. Connect the other end of the grounding wire to any available stud on the reliable grounding busbar of the cabinet, and tighten it firmly as well.
4. After tightening, gently pull the grounding wire to confirm it is secure; if the screw can still turn, continue tightening approximately 1/4 turn until stable.

Grounding Safety

The grounding wire must use a stranded yellow-green copper conductor with a cross-sectional area $\geq 6 \text{ mm}^2$. Do not use other types of wires as a substitute.

The overall grounding of the cabinet must be reliably connected to the building's protective earthing system (PE).

Do not connect the device grounding terminal to the neutral wire, heating pipes, water pipes, etc.

Grounding operations involve electrical safety; it is recommended to be performed by a professional electrician or a qualified technician.

Improper grounding may cause device damage, lightning strike hazards, or personal injury.

4.2 Device Power-On

1. Confirm that the power module is correctly installed, the grounding connection is reliable, and all service network cables/fiber optic cables are in place.
2. After power is connected, the device immediately enters the startup process; after approximately 30 seconds, the front panel LCD screen lights up and displays the main interface. The device operation indicator changes from "steady on" to "slow flashing", indicating the device has entered normal operation status.



5 Logging into the Web Management Interface

All functions of the AVX24-4 can be configured and monitored via the Web management interface. This device supports the following three login portals:

- **OOB Out-of-Band Management Port:** An independent network port dedicated to device management. It remains accessible even when the service network is down, recommended for initial deployment and daily maintenance.
- **Service VLAN Management IP:** After configuring a management IP on the VLAN of a service port, you can log in from a computer on the same VLAN.
- **NDI Distribution Management IP:** After configuring an NDI distribution IP for a VLAN, you can log in via this IP (the NDI distribution IP also serves as the service address for the matrix function, see Section 8.3 for details).

Note

1. OOB: Stands for Out Of Band, meaning this port has no association with the internal network switch module of the AVX; it is independently existent. Even if the AVX's network switch module is not properly configured or fails, users can still access the device configuration via this OOB port. The AVX24-4 provides one OOB out-of-band management port, located on the front panel, which is an independent RJ-45 network interface.

2. VLAN: Virtual Local Area Network, a professional term and concept for network switching equipment. In simple terms, users can partition a single physical network switch into several isolated virtual network switches and assign some ports to each. Each virtual network switch is called a VLAN. Each VLAN can optionally be configured with a management IP address.

3. NDI Distribution Management IP: This is a unique concept and capability of AVX products. In each VLAN, to implement NDI routing and distribution capabilities, the AVX must be configured with a dedicated IP address.

Regardless of which portal is used, you first need to configure the computer's network card IP to be on the same subnet as the portal IP.

For initial deployment, it is strongly recommended to log in using the OOB port. After setting up the service network, switch to the service VLAN management.

5.1 Configuring the Computer Network Card IP (Using Windows 11 / 10 as an Example)

1. Press Win + R on the keyboard, type `ncpa.cpl` in the Run dialog box, click "OK" to open the "Network Connections" window.
2. Right-click the network card connected to the AVX24-4 and select "Properties".
3. In the properties window that appears, double-click "Internet Protocol Version 4 (TCP/IPv4)".

4. Select "Use the following IP address" and fill in the following parameters:
 - IP address: An available address on the **same subnet** as the target login portal (e.g., for the OOB portal, you can use 192.168.0.100)
 - Subnet mask: 255.255.255.0
 - Default gateway and DNS can be left blank temporarily
5. Click "OK" consecutively to save the configuration.



5.2 Logging in via OOB Out-of-Band Management Port (Recommended)

The factory default IP for the OOB port is 192.168.0.168/24.

1. Use a network cable to connect one end to the OOB port of the AVX24-4 (item ②) and the other end to the computer's network port.
2. Set the computer's network card IP to the 192.168.0.0/24 subnet (e.g., 192.168.0.100, subnet mask 255.255.255.0).
3. Enter <https://192.168.0.168> in the browser address bar and press Enter to access the login page.
4. Enter the default login credentials: username `admin`, password `admin`, and click "Login" to enter the Web management homepage.

Security Note

After the first login, be sure to change the default administrator password as soon as possible (see Section 12.4) and keep it safe.

The factory default OOB IP 192.168.0.168 is the recovery portal for this device. It is recommended not to change it easily; if modification is necessary, please record the new address.

5.3 Logging in via Service VLAN Management IP

Once the service network is set up and a management IP (referred to as "VLAN IP" in the interface) has been configured for a service VLAN, this IP can be used to log in to the device.

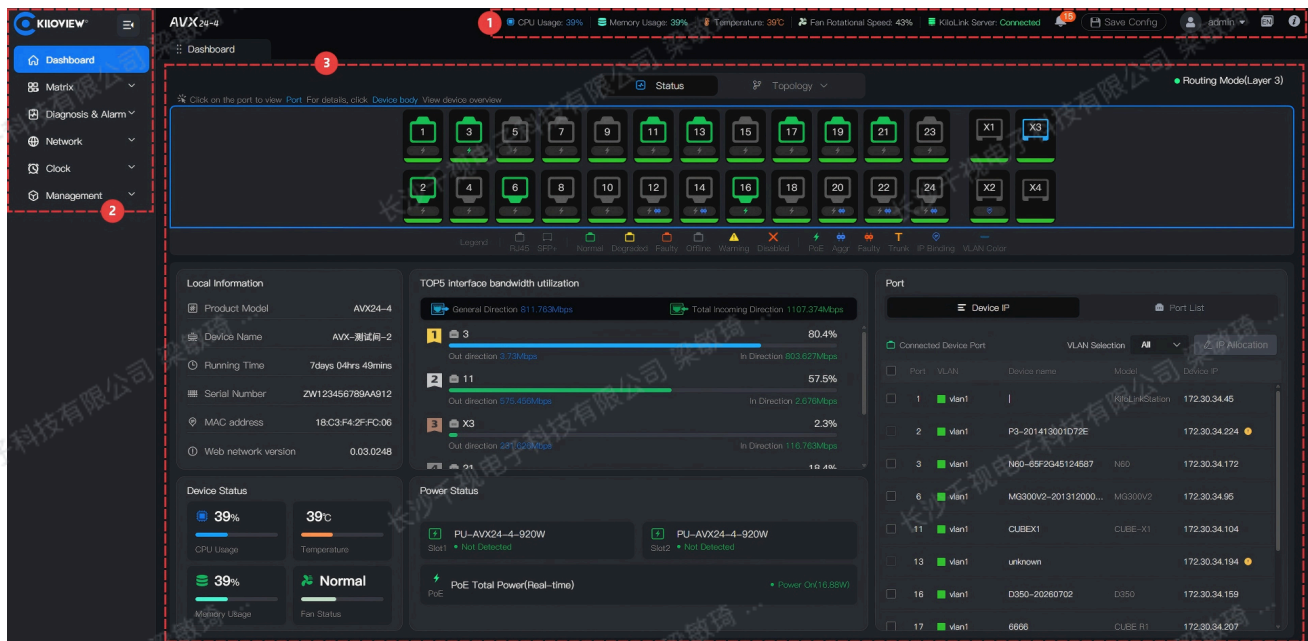
1. Connect the computer to any AVX24-4 port belonging to the target VLAN, and configure the computer's IP to an available address on the same VLAN subnet.
2. Access the VLAN management IP in the browser and log in using the account/password.

5.4 Logging in via NDI Distribution Management IP

If a VLAN has been configured with an NDI distribution IP (see Section 8.3 for details on NDI distribution IPs), you can directly log in to the management interface using this IP. The operation steps are the same as in Section 5.3.

6 Web Management Interface Layout

After successfully logging in, the default page is the "Home" page. The entire Web management interface consists of three parts: the top navigation bar, the left menu bar, and the central workspace.



6.1 Top Navigation Bar

The top navigation bar provides the following information and entries from left to right.

(1) Device Real-Time Status Information

Displays key indicators such as CPU usage, memory usage, internal temperature, and fan status in real-time using icons. Hover the mouse to view detailed values.

(2) KiloLink Server (KLS) Connection Status

Displays the current connection status between the AVX24-4 and the KLS centralized management platform. Hover over the "KiloLink Server" icon to show a popup displaying the binding status of "Platform 1" and "Platform 2":

- Bound: Can be "Unbound" directly within the popup.
- Unbound: Click "Bind", and the system will prompt "Go to settings page to configure the platform IP"; you can also quickly jump to the KLS binding page via the "Go to Settings" option in the popup.

Refer to Section 12.5 for detailed operations on KLS binding.

(3) Notifications

The "Bell" icon displays the number of unread notifications. Hover the mouse to view the latest notifications; click "View More" to access the full alert/notification list.

(4) Save Network Configuration

Modifications to the AVX24-4's network configuration (VLANs, ports, link aggregation, routing, etc.) take effect immediately but are not automatically persisted to the device configuration file.

Important

When network configurations only take effect in memory, if the device is restarted or loses power, all unsaved network configurations will be lost, and the device will revert to the state at the time of the last save.

It is recommended to click the "Save Network Configuration" button in the navigation bar to persist the new configuration after it has been verified and is usable.

(5) Current Logged-in User

The top-right corner of the interface displays the currently logged-in username. Hover over the dropdown arrow to the right of the username to access the "Change Password" or "Logout" options in the popup menu.

(6) System Language

Click the language icon to switch the interface language between Simplified Chinese and English.

6.2 Left Menu Bar

The left menu bar is organized by functional modules, including the following six primary menus.

- Home: Displays the overall device status, port connections, and network topology.
- Matrix: Output management for NDI matrix distribution, matrix switching, and NDI distribution IP configuration.
- Diagnostics & Alerts: Diagnostic records, alert logs, and alert threshold configuration.
- Network: Port, VLAN, DHCP, link aggregation, and static route configuration.
- Clock: PTP clock synchronization and device time zone configuration.
- Management: System settings, QoS policies, logs, users, KLS binding, device panel management, etc.

Click the collapse button at the top of the menu bar to hide/show the menu bar.

6.3 Central Workspace and Page Tabs

When clicking different menu items, corresponding page tabs are automatically generated below the top navigation bar (similar to browser multi-tabs), supporting the following operations:

- Drag tabs to reorder;
- Close a tab: Click the close button on the tab, or right-click to bring up a menu to select "Refresh / Close Current / Close Others / Close Left / Close Right / Close All";

- Tabs that are not closed retain the current page operation state, including filter conditions and search results.

Note

If you re-enter an already opened page directly from the left menu bar (instead of switching tabs), unsaved input or operation parameters may be cleared. It is recommended to switch by clicking on existing tabs.

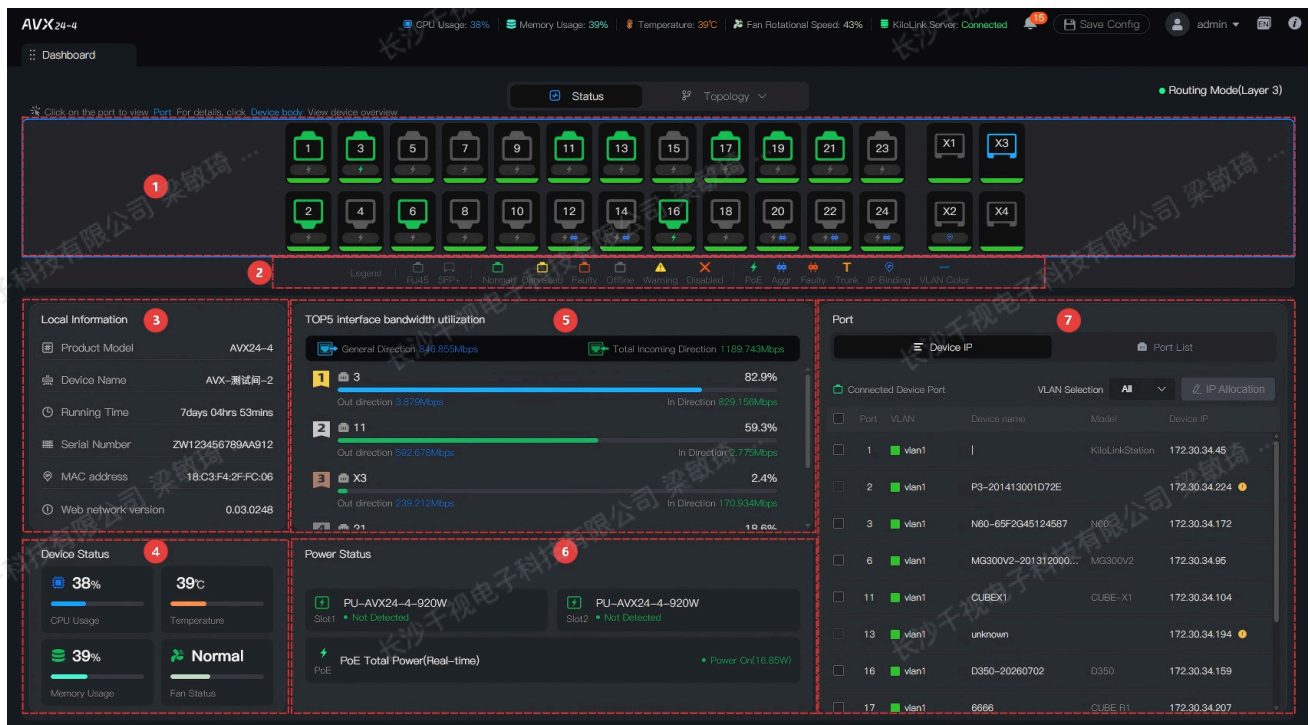
7 Home Page

The home page is a comprehensive page presenting the device's operational status, offering "Status" and "Topology" views, which can be switched via tabs at the top of the page.

7.1 Status View

The "Status" view intuitively presents the current operational status of the AVX24-4, including the following information sections:

- Front panel diagram of the device and real-time status of each port;
- Port status legend;
- AVX24-4 basic device information (model, SN, firmware version, etc.);
- Device operational status (CPU/Memory/Temperature/Fan/Total PoE Power Consumption);
- Port bandwidth utilization TOP 5 ranking;
- Power module status;
- Port-Device IP Address (one-click assignment of IP addresses for devices connected to ports);



7.1.1 Port Status Legend

Each port in the device front panel diagram displays its status using multiple legends.



Legend Category	Description
VLAN Color	The color configured for the VLAN the port belongs to in Section 10.2, for easy visual differentiation by VLAN
Link Speed	Current negotiated link speed (Gigabit / 100 Mbps / 10 Gigabit / Fault / Not Connected)
Link Alert	Displays an alert indicator when a link anomaly occurs (e.g., port not negotiating to Gigabit, etc.)
PoE Status	Indicates whether PoE power is enabled on this port
Enable/Disable	Indicates whether the port is enabled
Link Aggregation	Indicates whether the port has joined a link aggregation group and which group

Port Mode	The current access mode of the port (Access / Trunk, see Section 7.1.2 for details)
IP Binding	Indicates whether the port has a static IP address bound (see Section 7.1.2 for details)

The "Fault" status may be caused by various reasons, including unexpected offline of downstream devices, high CPU usage, high internal temperature, high memory usage, etc. Specific causes can be viewed in the alert log (Section 9.2).

7.1.2 Port Operations

Click on any port in the device diagram on the status view, and the status, network information, and connected device information (when the downstream device is a Kiloview product) for that port will be dynamically displayed at the bottom of the page. The following operations can be performed in the port details area:



Restart Port

Click the "Restart Port" button and click "OK" in the confirmation window that appears to restart the port. During the restart, the port link will disconnect for a few seconds before being re-established.

Edit Port

Click the "Edit Port" button. In the popup window, the following fields can be edited; click "OK" to save after completion.

No.	Field Name	Description
1	Port Name	Custom port alias for easy identification (e.g., "Production Switcher", "Camera 1")

2	Port Enable	Controls whether the port is enabled. When disabled, the port does not communicate
3	Port Speed	Options: "Auto Negotiation / 100 Mbps / 1 Gbps / 10 Gbps". It is recommended to keep "Auto Negotiation" to automatically match the best speed with the peer device
4	PoE Power	Controls whether the port provides PoE+ power externally. Can be disabled to save power when the connected device is not a PoE-powered terminal
5	Energy-Efficient Mode (EEE)	Enables IEEE 802.3az Energy-Efficient Ethernet, reducing power consumption when idle. Recommended to disable for: industrial PLCs, video conferencing, precision instruments, PTP clock transmission; recommended to enable for: ordinary office computers, printers, and other non-latency-sensitive terminals

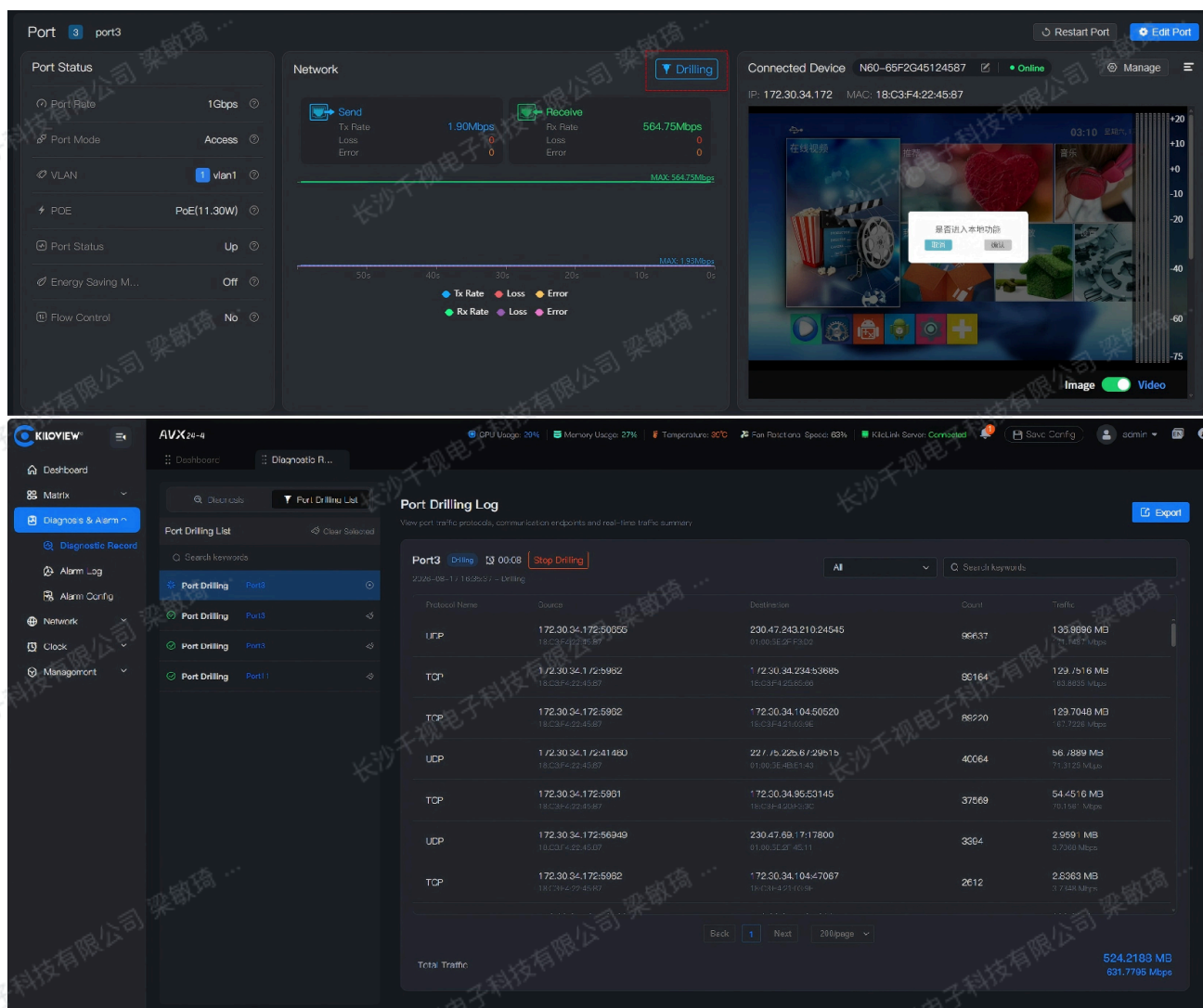
6	Flow Control	Enables IEEE 802.3x flow control. When the network is congested, it uses PAUSE frames to pause transmission and reduce packet loss. Recommended to enable when connecting to servers, critical monitoring, etc.; can be disabled for general office scenarios
7	Multicast Uplink	Dedicated for connecting to an upstream switch. When enabled, IGMP report packets are only forwarded upstream, intelligently managing multicast traffic flow and preventing unnecessary multicast traffic from consuming cascade and uplink bandwidth. Usage note: When the peer switch does not support LLDP, this function must be enabled to prevent multicast flow congestion

8	IP Address Binding	This function is used to bind a static IP to the port. Address rules can be pre-configured to allow only devices with specified IPs to connect. The port can automatically synchronize the IP to the device. Specific synchronization rules are as follows: * If the connected device obtains an address via DHCP, the port automatically synchronizes the preset IP; * For Kiloview devices (not obtaining addresses via DHCP), automatic IP synchronization is supported; * For non-Kiloview devices that do not obtain addresses via DHCP, automatic synchronization is not possible; the address must be modified manually.
9	Port Mode	Options: "Access" (for terminal devices), "Trunk" (for switches). "Access" mode allows only data belonging to the current VLAN to pass through; "Trunk" mode allows data from multiple VLANs to pass through (the peer switch must also support VLAN tagging IEEE 802.1Q)

10	VLAN Membership	The VLAN (network group) the port belongs to. Devices within the same VLAN can communicate at Layer 2; different VLANs require routing mode or a gateway to communicate
11	Port Number	The physical number of the port currently being edited. Read-only, cannot be modified

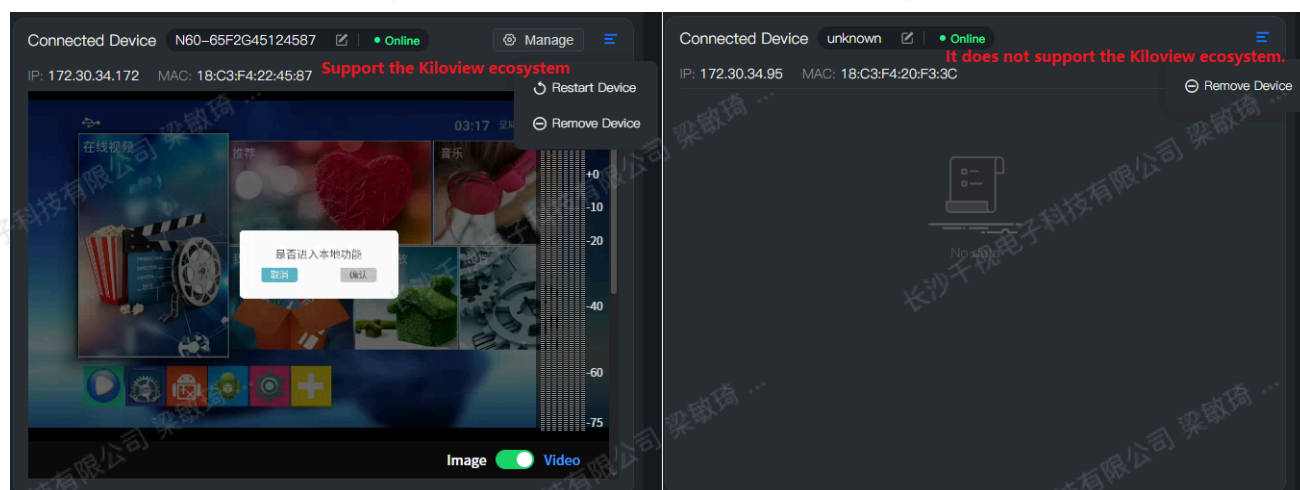
7.1.3 Port drilling

Clicking the "Drilling" button in the network section will initiate real-time network data analysis for the corresponding port. Users can go to "Diagnostics & Alarm → Diagnostic Record → Port Drilling List" to view ongoing drilling analyses and historical drilling records; after the drilling task is completed, the corresponding data can be exported.



7.1.4 Viewing and Managing Downstream Devices

If a Kiloview device (or an ecosystem partner device) is connected downstream of the port, the device diagram will display relevant management information for that device. You can click "Manage Device" to directly access the device management page for viewing and management. If it is a third-party device, it will be identified as "Unknown", and the management platform will not display detailed information.



7.1.5 Port-Device IP Address

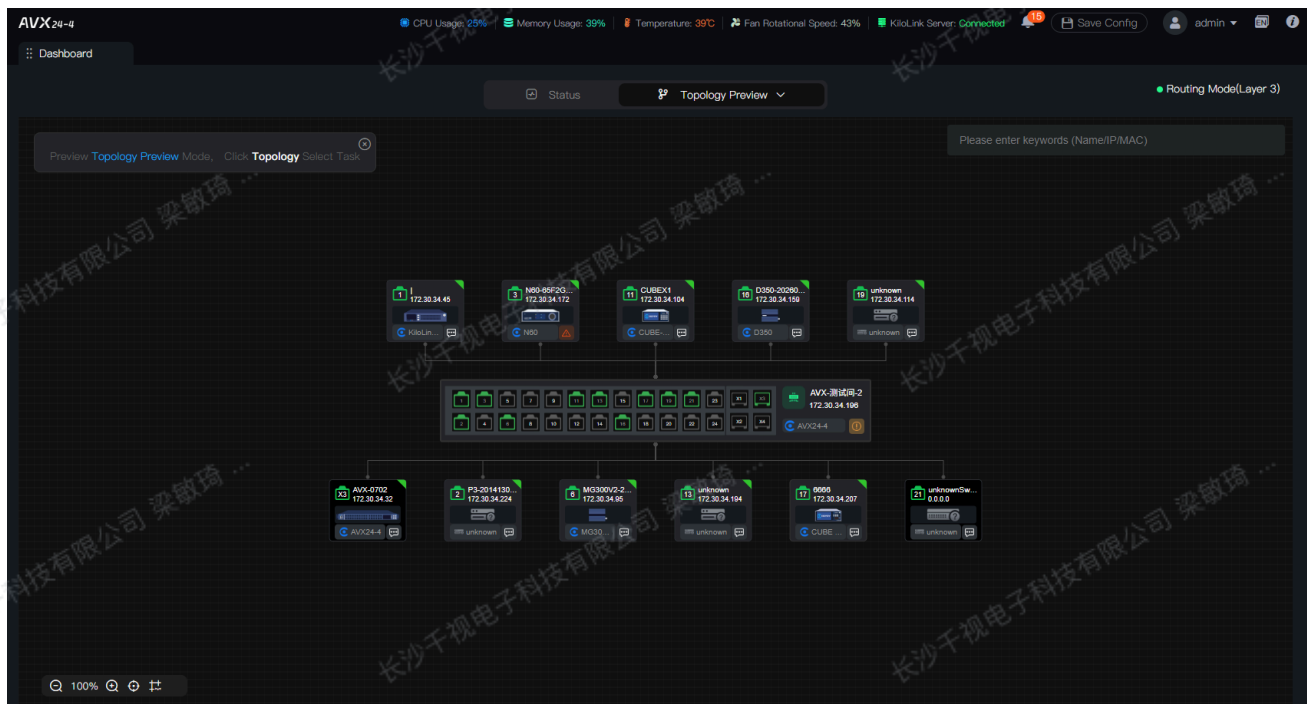
The Port-Device IP Address feature supports one-click IP address assignment for terminal devices connected downstream of the AVX24-4. It supports both DHCP dynamic allocation and manual configuration modes.

Note

Kiloview devices (and ecosystem partner devices) support one-click IP configuration in the "Port-Device IP Address" section; non-Kiloview devices do not support this.

7.2 Topology View

The topology view presents the connection relationships between the AVX24-4 and downstream devices (and devices connected further down) in a layered network topology diagram. It is suitable for intuitively understanding the device composition and connection paths of the entire AV network.



Note

1. In the topology preview, Kiloview devices (and ecosystem partner devices) will directly display device name, model, and other information; non-Kiloview devices are displayed as "Unknown".
2. Click on a port or device in the topology diagram to view relevant information in the details panel on the right; non-Kiloview devices do not have detailed information to display.
3. In the topology diagram, devices with a black background style are switches.

7.2.1 Switching to Topology View

Click the "Topology" tab at the top of the Home page and select "Topology Preview" from the dropdown menu to switch to the topology view.

7.2.2 Topology Display Layers

The topology view of a single AVX24-4 displays up to three layers: the first layer is the AVX24-4 itself, the second layer consists of directly connected downstream devices (including third-party switches), and the third layer consists of terminal devices connected to the downstream switches.

If another AVX device is connected downstream of the AVX24-4 (cascade scenario), to prevent topology loops, the local topology view only displays up to the second-layer AVX. To view the deeper, full network topology, the devices can be managed under the KLS platform for viewing.

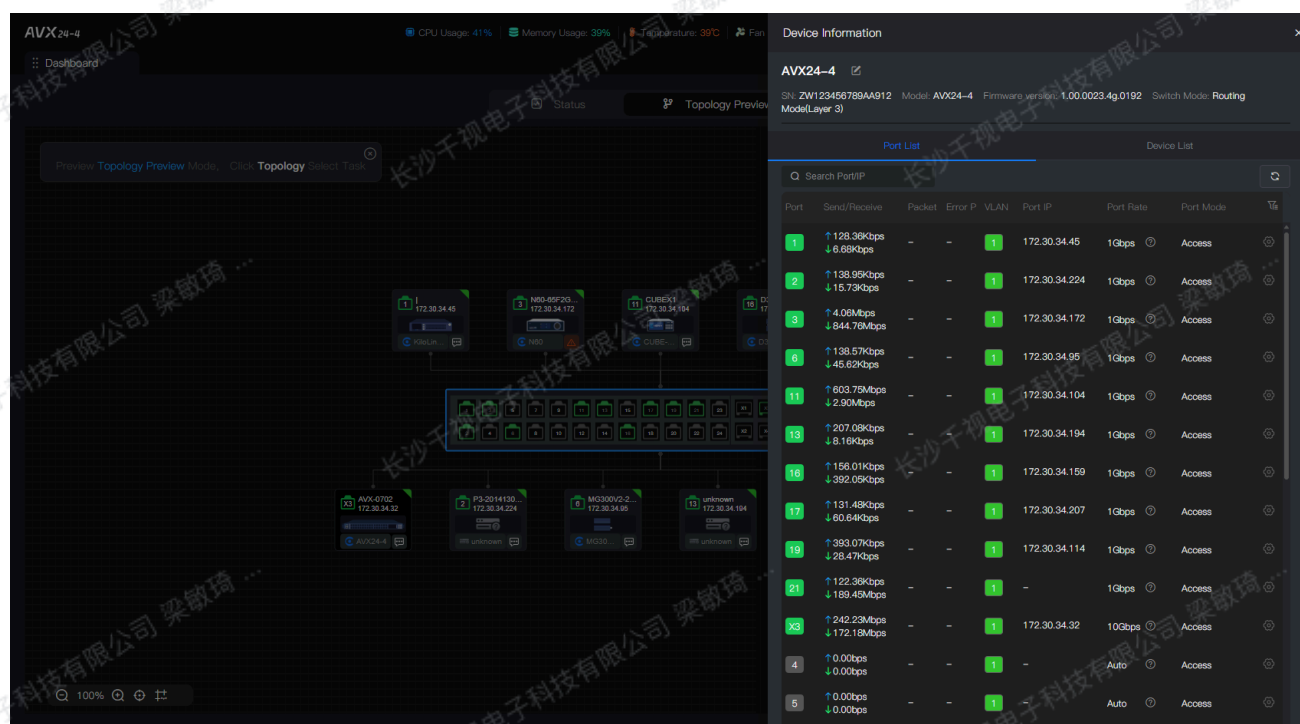
7.2.3 Topology View Operations

Viewing AVX Information

Click the AVX device node in the topology diagram. A device information panel will pop up on the right, displaying the device name, SN, model, firmware version, operating mode, and for all ports: transmitted/received data, belonging VLAN, port IP, negotiated speed, etc.

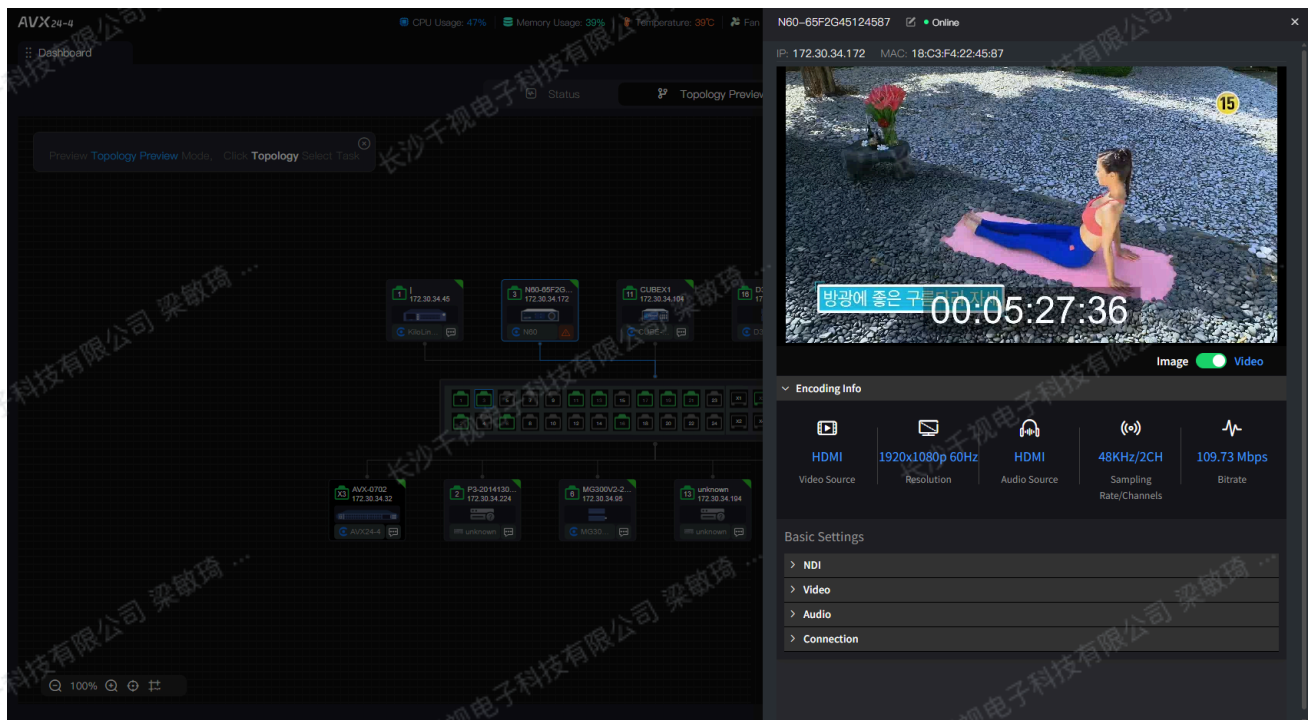
You can use the tabs to switch and display the list of devices connected to the AVX.

The information panel supports searching by port number or IP; click the "Edit" button on the right within the port list to enter the port editing window.



Viewing Downstream Device Information

Click a downstream device node in the topology diagram. A corresponding device information panel will pop up on the right. Kiloview devices (and ecosystem partner devices) will display the relevant device management interface.



Port Editing and Restarting

Click on a port on the AVX node in the topology diagram to perform "Edit Port" or "Restart Port" operations in the panel on the right. The operation method is the same as in Section 7.1.2.

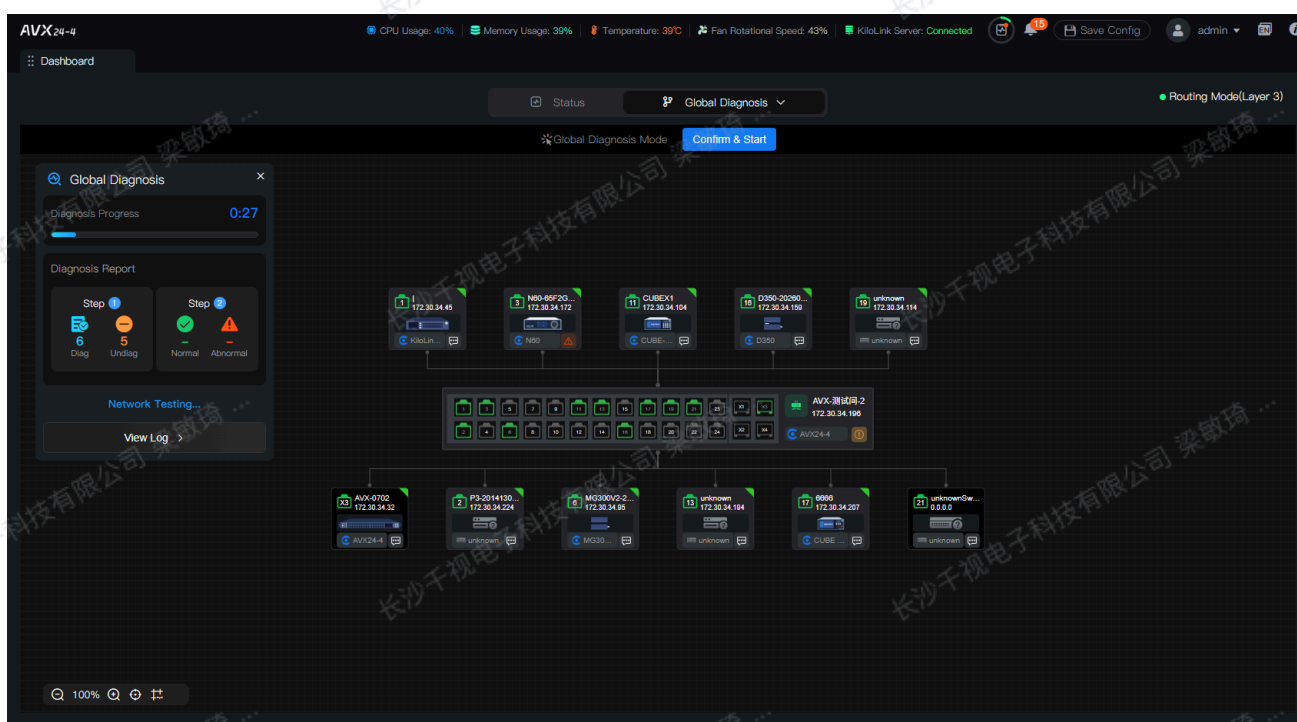
Quickly Finding and Locating Devices

The topology preview supports quick device search and positioning. You can enter information such as device name, IP address, or MAC address in the search bar for fuzzy search. Once the target device is found, the system will automatically center and display it. This feature also supports quick switch locating: when you click the search box without entering search content, the system will automatically list all switch nodes in the topology, making it easy for users to quickly find and jump to a specific switch.



7.2.4 Global Diagnostics

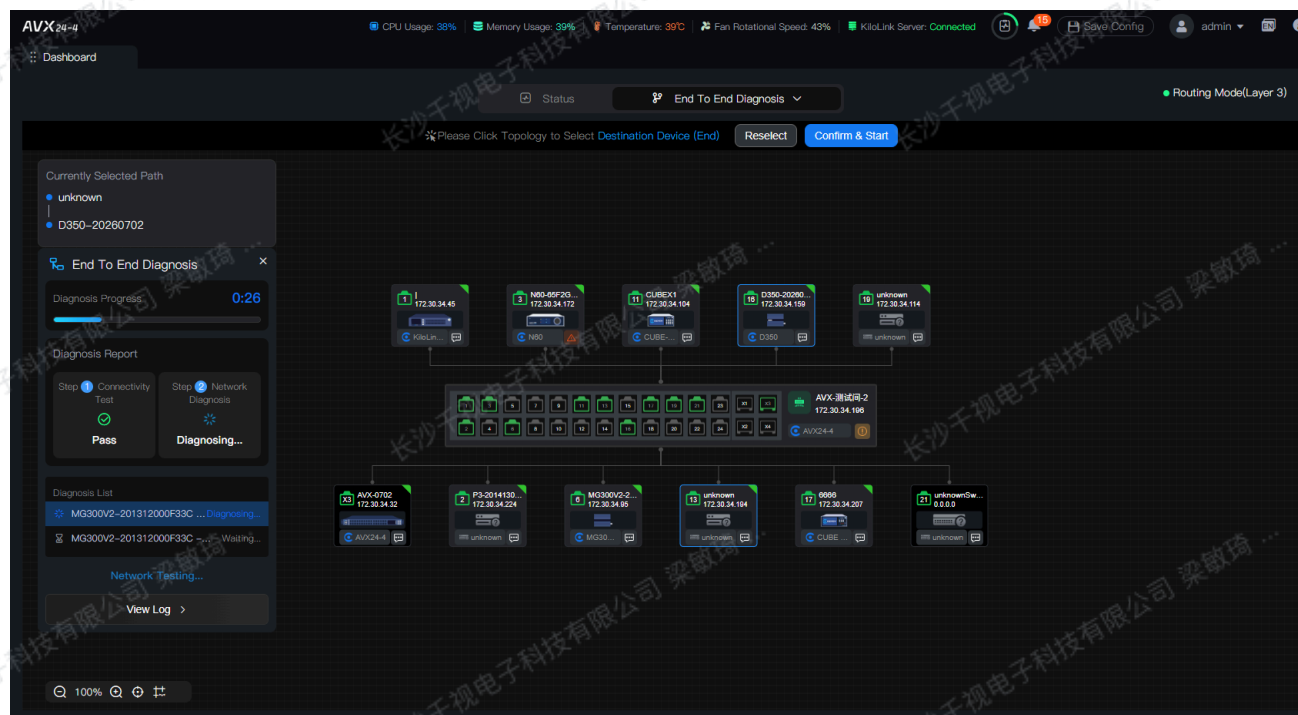
Click the "Topology" tab at the top of the Home page, select "Global Diagnostics" from the dropdown menu to enter the global diagnostics mode. After clicking "Confirm Start", the system will perform multi-dimensional diagnostic analysis on all devices in the network. After the diagnosis is complete, click "View Log" to access the diagnostic list and view the detailed diagnostic report.



7.2.5 End-to-End Diagnostics

Click the "Topology" tab at the top of the Home page, select "End-to-End Diagnostics" from the dropdown menu to enter the end-to-end diagnostics mode. Select the two

devices to diagnose, and click "Confirm Start" to initiate the diagnosis. After the diagnosis is complete, click "View Log" to view the diagnostic details.



Note

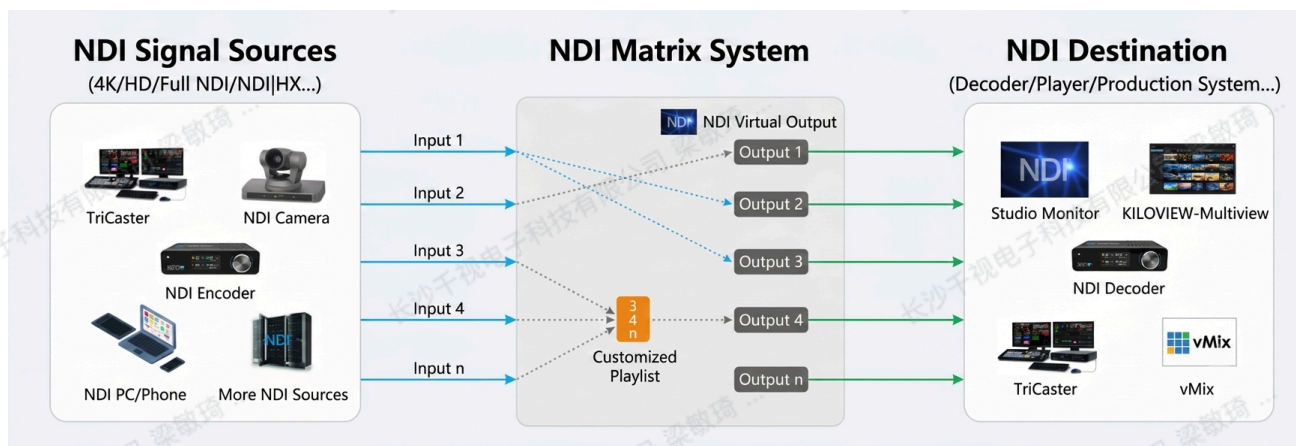
The diagnostics support a task queuing mechanism, allowing multiple diagnostic tasks to be created and executed sequentially.

8 Matrix (NDI Matrix Distribution)

The "Matrix" menu provides NDI matrix distribution functionality, enabling on-demand distribution of NDI/NDI HX video sources connected to the network to any NDI receiving device, realizing a networked replacement for traditional SDI matrices.

NDI (Network Device Interface) is an audio/video transmission protocol based on IP networks. It encapsulates audio/video signals into IP data packets, enabling low-latency, high-quality, flexibly routable signal distribution over a local area network, freeing itself from the physical constraints of traditional SDI/HDMI cables.

NDI matrix distribution is based on the NDI protocol and relies on network equipment and a dedicated scheduling system to build a distributed signal matrix with multiple inputs, centralized scheduling, and multiple outputs. It realizes free routing and concurrent distribution between any signal source and receiving end, replacing traditional SDI hardware matrices with a networked architecture.



The Matrix menu contains three sub-items: Output, Matrix Switching, and NDI Distribution IP. They are introduced below in the order of a typical configuration workflow.

Prerequisites

Matrix distribution relies on VLANs for network isolation. Therefore, before creating an "Output", the corresponding VLAN must first be planned in Section 10.2.

The "NDI Distribution IP" of the matrix is key to whether the matrix can function. For each VLAN carrying matrix streams, an NDI Distribution IP must be configured for it in Section 8.3 before the matrix function becomes ready.

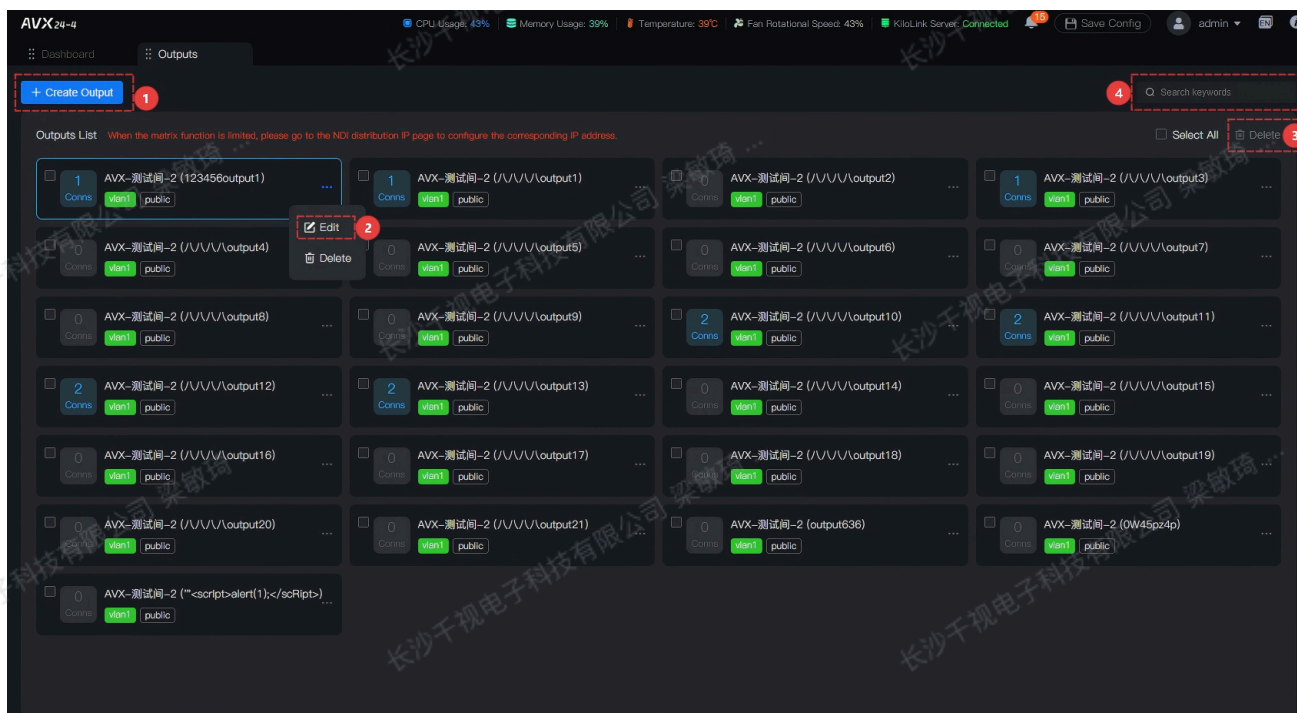
8.1 Matrix Scale

The maximum matrix scale of a single AVX24-4 unit is related to the selected NDI protocol and video resolution/frame rate.

Source Protocol	Source Resolution/Frame Rate	Maximum Matrix Scale (Input × Output)
NDI HX (Efficient Bandwidth)	3840 × 2160 p60 (4K UHD)	64 × 64
	1920 × 1080 p60	64 × 64
NDI (Full Bandwidth, NDI HB)	3840 × 2160 p60 (4K UHD)	24 × 24
	1920 × 1080 p60	48 × 48

8.2 Output Management

The "Output" interface is used to manage all output channels of the matrix, supporting creation, editing, batch deletion, and querying.



8.2.1 Creating an Output

1. Click the "Create Output" button in the upper right corner of the "Output" interface.
2. In the pop-up window, select the number of outputs to create this time (1, 3, or 10).
3. Configure the following information for each output sequentially, then click "OK".
 - Output Name: A custom name for identification on the matrix switching panel.
 - VLAN: The VLAN to which the output belongs (must be a VLAN with an NDI Distribution IP configured).
 - NDI Group: An optional NDI group name, used for NDI discovery filtering.

Newly created outputs will appear in the output list.

8.2.2 Editing an Output

1. In the output list, hover the mouse over the "..." icon on the right side of the target row.
2. Click "Edit" in the pop-up menu, and modify the information in the edit window.
3. Click "OK" to save.

8.2.3 Deleting an Output

1. In the output list, check one or more outputs to be deleted (you can click "Select All" to select all outputs on the current page at once).
2. Click the "Delete" button in the upper right corner of the list, then click "OK" in the confirmation window.

8.2.4 Querying Outputs

Enter a keyword in the search box in the upper right corner of the output list to quickly find target outputs by name or other criteria.

8.2.5 Output Anomaly Description

When the VLAN to which an output belongs has not yet been configured with an NDI Distribution IP, a warning indicator will appear for that output in the list, along with the message "Matrix function restricted". Please configure the NDI Distribution IP for the corresponding VLAN in Section 8.3 first.

8.3 NDI Distribution IP Configuration

The NDI Distribution IP is the service address through which the AVX24-4 provides NDI matrix distribution services on a given VLAN. It is the foundation of the matrix function.

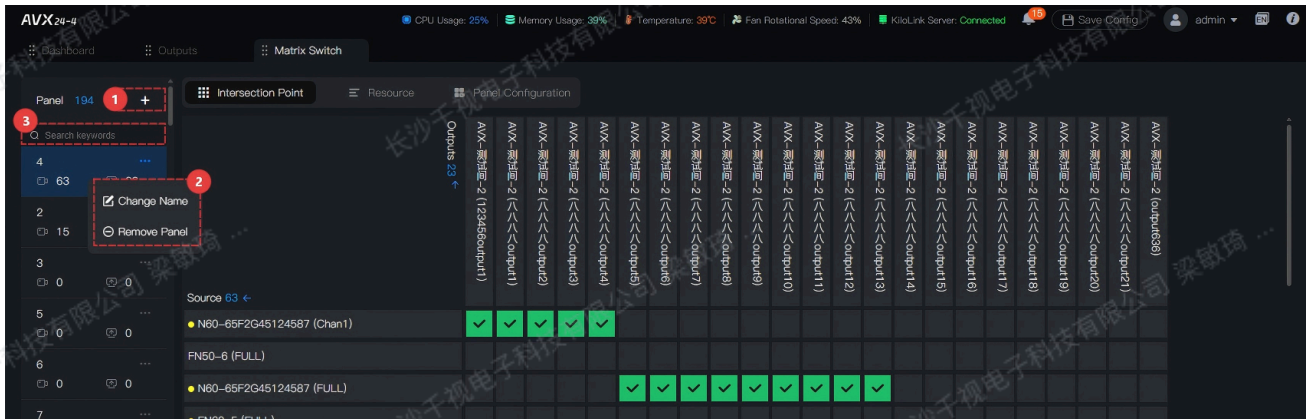
Before using the matrix, an NDI Distribution IP must be configured for each VLAN carrying matrix streams. The NDI Distribution IP must be on the same subnet as the management IP of that VLAN.

8.3.1 Configuration Method

1. Navigate to the "Matrix > NDI Distribution IP" interface.
2. In the "VLAN Domain NDI Distribution Address" list, find the target VLAN and click the configuration button on its right.
3. In the pop-up configuration window, select the acquisition method:
 - Automatic: Assigned automatically by DHCP.
 - Manual Configuration: Manually enter an available IP address on the same subnet as the VLAN.
4. Click "OK" to save.

8.4 Matrix Switching

The "Matrix Switching" interface is used to configure and manage matrix distribution relationships. It supports creating multiple independent matrix panels, each with its own source (input)/output list and crosspoint configuration.



8.4.1 Matrix Panel Management

(1) Creating a New Panel

Click the "+" button above the panel list, enter the panel name in the pop-up window, and click "OK" to complete creation.

(2) Modifying/Deleting a Panel

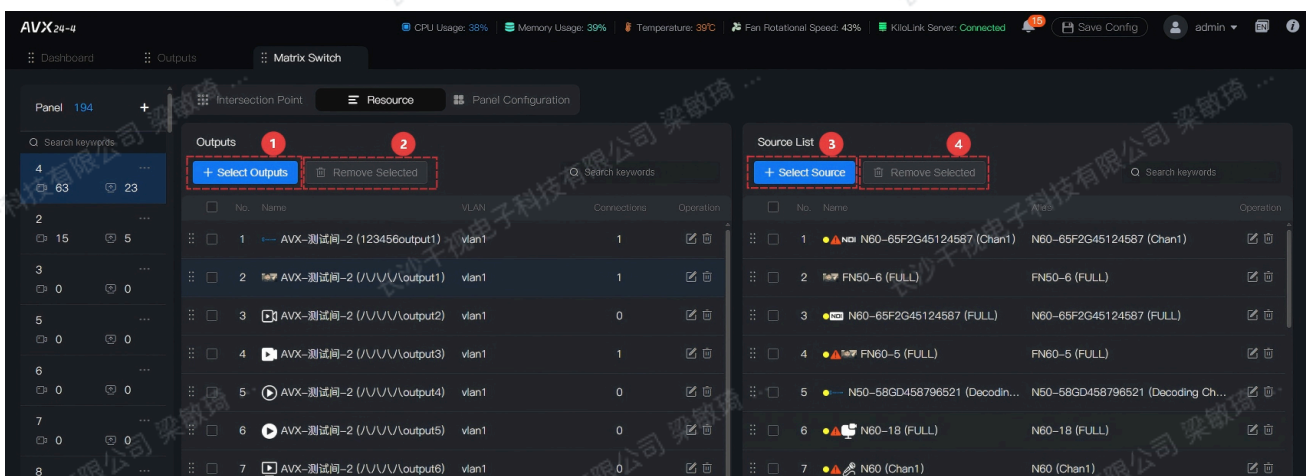
Hover the mouse over the "..." icon on the right side of the target item in the panel list, and select "Rename" or "Remove Panel" from the pop-up menu.

(3) Panel Search

Enter a keyword in the search box above the panel list to quickly filter target panels.

8.4.2 Resource Configuration (Adding Sources and Outputs)

The "Resources" page is used to configure the available source (input) and output lists for the current matrix panel.



(1) Adding an Output

1. Select the target matrix panel.
2. On the "Resources" page, click "+ Select Output".

3. In the pop-up window, check the outputs to be added and click "OK" to complete the addition.

(2) Removing an Output

Supports both batch removal and single removal:

- Batch Removal: Check the items to be removed in the output list, click "Batch Remove", and confirm.
- Single Removal: Click the remove button on the right side of the target output and confirm.

(3) Adding a Source (Input)

1. Select the target matrix panel.
2. On the "Resources" page, click "+ Select Source".
3. In the pop-up window, check the sources to be added and click "OK" to complete the addition.

(4) Removing a Source (Input)

The operation method is the same as removing an output.

(5) Editing Outputs/Sources

On the "Resources" page list, click the edit button on the right side of the target item to bring up the edit box:

- Outputs can have their name, VLAN, and other information edited.
- Sources can have their "Alias" edited, which is used to display a more recognizable name on the matrix crosspoint interface.

Tip

In the source list/crosspoint, a signal source with a yellow dot "●" indicator means the source is operating in unicast mode and multicast is not enabled.

8.4.3 Crosspoint Configuration (Matrix Switching)

The "Crosspoint" page is the core configuration entry point for matrix distribution. On the matrix crosspoint interface, the vertical axis represents sources (inputs) and the horizontal axis represents outputs.

Operation method: Under the selected matrix panel, click the corresponding cell in the crosspoint table to establish a distribution relationship from "this source → this output".

Distribution Rules

A single source can be distributed to multiple outputs simultaneously (1 : N multicast).

A single output can only correspond to one source at any given time (N : 1 output exclusivity).

8.4.4 Physical Panel Configuration

The "Panel Configuration" page is used to set the display format of the current matrix panel on the front panel physical crystal buttons:

- Customize the icon and text of each source/output on the physical buttons, synchronized with the software interface;
- The "Panel Enable" switch controls whether physical panel operation permissions are granted for this matrix panel. When disabled, the front panel cannot be used to select and apply this matrix panel.

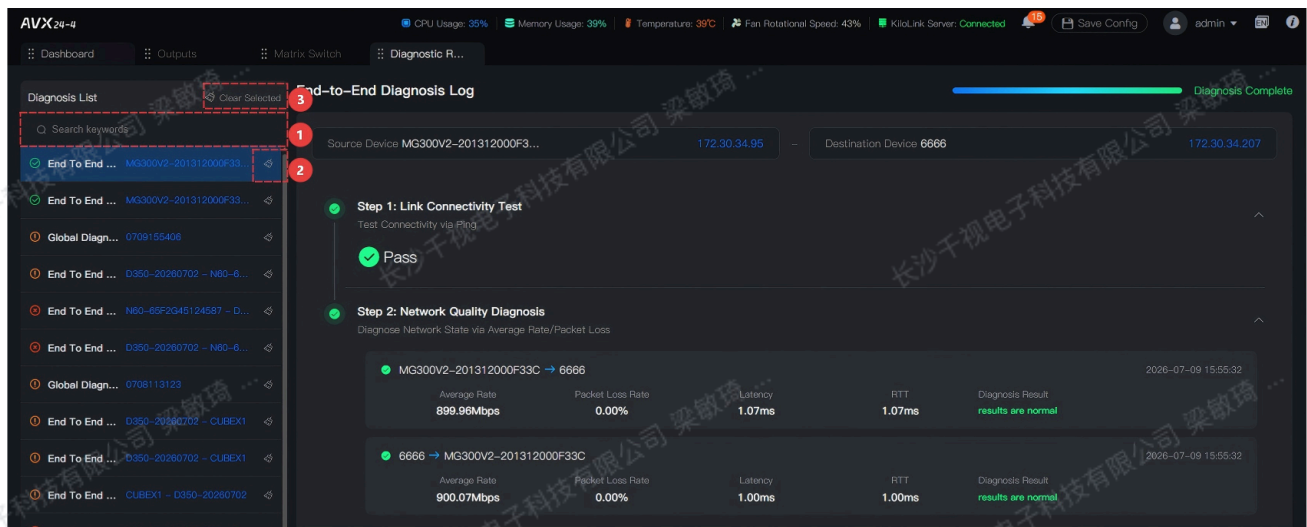
9 Diagnostics and Alarms

The "Diagnostics and Alarms" menu contains three sub-items: Diagnostic Records, Alarm Logs, and Alarm Configuration. Users can view diagnostic history, alarm details, and configure alarm thresholds here.

9.1 Diagnostic Records

The "Diagnostic Records" page is divided into left and right sections.

- Left side: Diagnostic record list, supports filtering by keyword, and supports single and batch clearing.
- Right side: Diagnostic details. After clicking a record on the left, the detailed analysis results of that diagnosis will be displayed on the right.



9.1.1 Keyword Search

Enter a keyword in the search box above the diagnostic record list to quickly filter records.

9.1.2 Single Record Clearing

Find the target record in the diagnostic record list, click the delete button on its right, and confirm to clear that record.

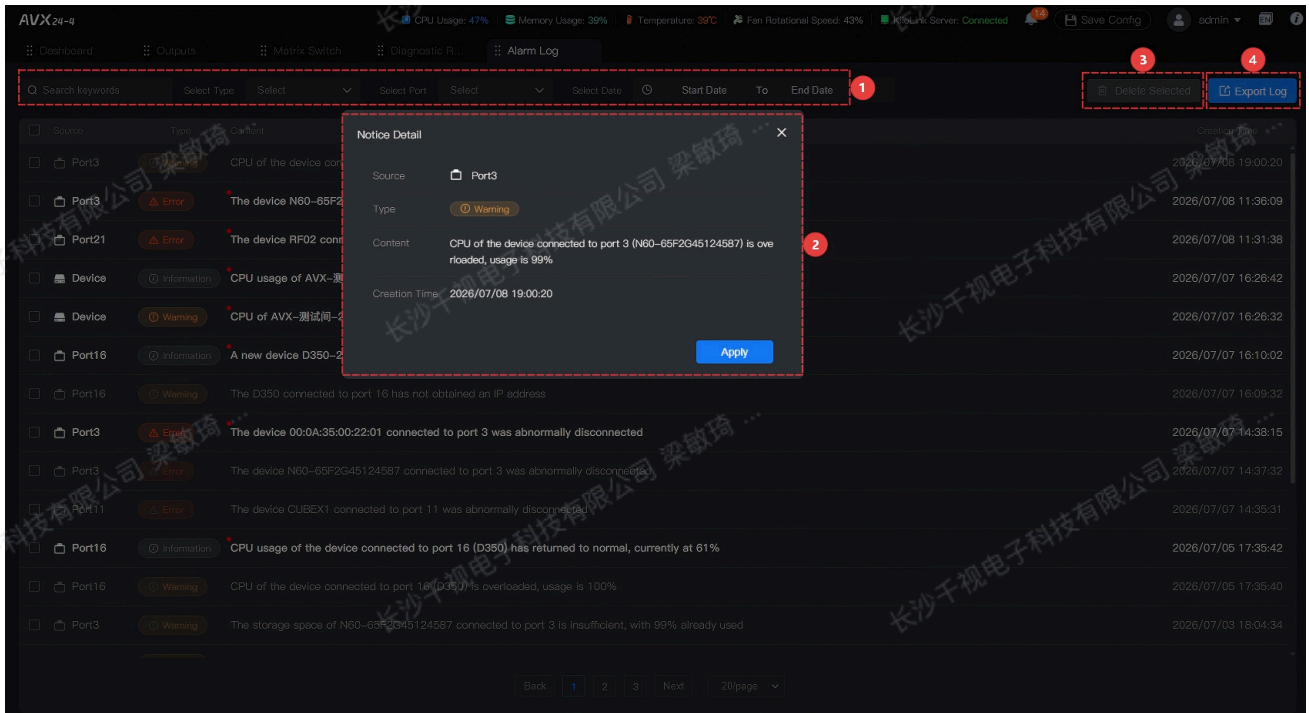
9.1.3 Batch Clearing

1. Click "Batch Delete" in the upper right corner of the diagnostic record list to enter check mode.
2. Check the diagnostic records to be deleted.
3. Click "Batch Clear" and confirm.

9.2 Alarm Logs

The "Alarm Logs" page displays all alarm information in a list format, including the alarm source, type, content, and time. It supports quick search, deletion, and export.

Alarms are categorized into three levels by severity: Error, Warning, and Info.



9.2.1 Search and Filter

Alarm logs support keyword search, as well as filtering by type, port, time period, etc., with support for multi-condition combined search.

9.2.2 Viewing Details

Click on any alarm in the list, and the system will display the complete alarm details (source, type, content, creation time) in a pop-up window.

9.2.3 Deletion

1. In the list, check the alarm logs to be deleted (you can use "Select All").
2. Click "Batch Delete" in the upper right corner of the list and confirm.

9.2.4 Export

Click the "Export Logs" button in the upper right corner of the list to export logs:

- By default, all logs under the current query conditions are exported.
- To export only a specific category, first filter using the filter conditions, then click "Export Logs".

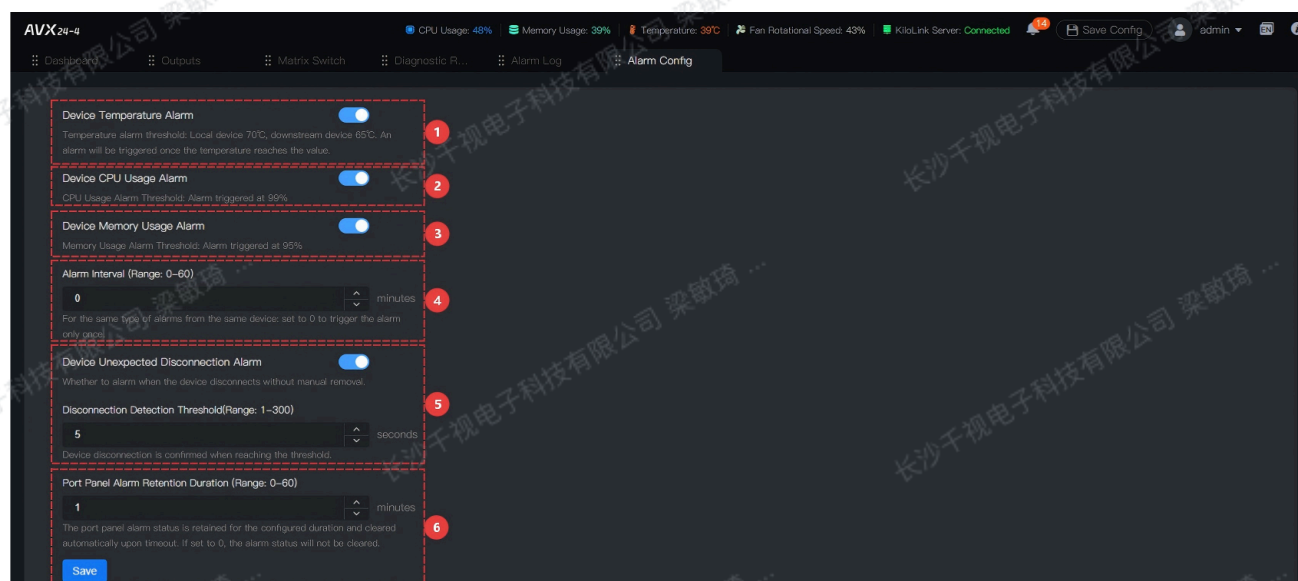
Tip

In the alarm list, entries with a red dot and bold font are unread alarm messages.

9.3 Alarm Configuration

The "Alarm Configuration" page is used to customize the device's alarm strategy. The following alarm types can be independently enabled or disabled, with configurable trigger thresholds and judgment time windows:

- Device temperature alarm;
- CPU usage alarm;
- Memory usage alarm;
- Alarm interval;
- Device unexpected disconnection alarm (connected device offline).
- Status page front panel port alarm status auto-clear delay configuration;



10 Network

The "Network" menu provides access to the device network layer configuration, including ports, VLANs, DHCP, link aggregation, static routing, etc.

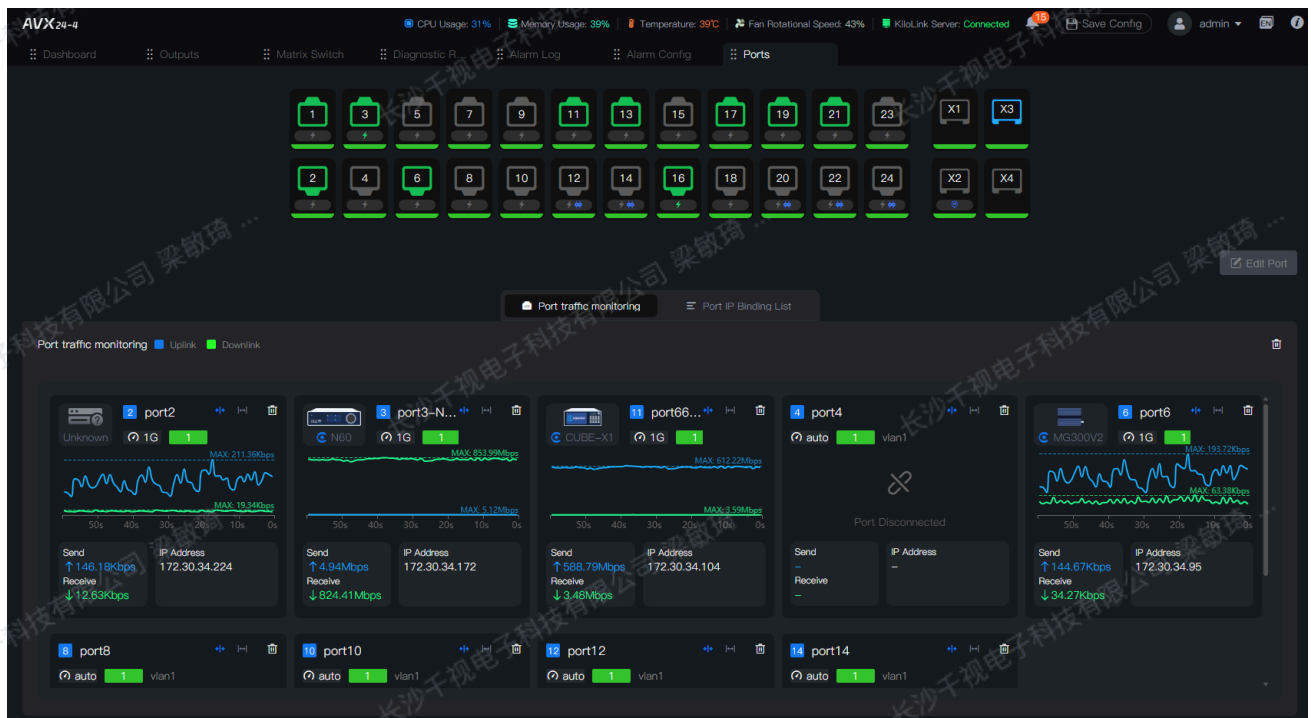
Tip

Network configuration changes take effect immediately but are not persisted by default. It is recommended to verify the configuration is available, then click "Save Network Configuration" in the top navigation bar to write it to the device configuration file to prevent loss after device restart.

DHCP and static routing are only visible and configurable in "Routing Mode". See Section 12.1 for operation mode switching.

10.1 Ports

The "Ports" page provides centralized management of all physical ports, supporting port editing, status viewing, traffic monitoring, and port IP binding list information viewing.



1. Port Editing

The operation method is the same as "Edit Port" on the home page, see Section 7.1.2 for details.

2. Port Status

The status legend is the same as the home page, see Section 7.1.1 for details.

3. Port Traffic Monitoring

Real-time display of transmit/receive traffic curves for used ports, as well as connected downstream devices.

1. Core Uses of Port Traffic Monitoring

- **Network Fault Troubleshooting:** Quickly locate port congestion, packet loss, loops, abnormal broadcast storms, and determine whether it is a line fault, terminal infection, or device issue.
- **Bandwidth Usage and Congestion Analysis:** Real-time view of port ingress/egress traffic and peak usage, promptly identifying issues such as full bandwidth usage, download flooding, and video streams crowding out business bandwidth.
- **Network Resource Optimization and Expansion:** Long-term statistics on traffic trends for each port to determine whether existing bandwidth is sufficient, providing data basis for link upgrades, port aggregation, and subnet division.
- **Security Risk Monitoring:** Identify abnormal traffic, sudden large traffic on ports, port scanning, malicious attacks, abnormal packet sending from internal network terminals, enabling proactive isolation and protection.

- **Business Operations and Compliance Auditing:** Monitor traffic on dedicated lines such as office, surveillance, access control, and business systems, ensure bandwidth priority for critical services, retain traffic logs for operational traceability and compliance verification.
- **Load Balancing and Traffic Scheduling:** View traffic distribution across multiple uplink ports and stacking ports to avoid single link overload, reasonably distribute traffic, and adjust routing paths.
- **Device and Port Health Assessment:** Determine whether optical modules, network cables, and port hardware are aging or faulty through traffic fluctuations, packet errors / CRC errors, and rate negotiation anomalies.

1. How to View Port Traffic Monitoring

Single-click or box-select ports with the mouse, drag them to the "Port Traffic Monitoring" area at the bottom of the page to view port traffic data.

1. Port IP Binding List

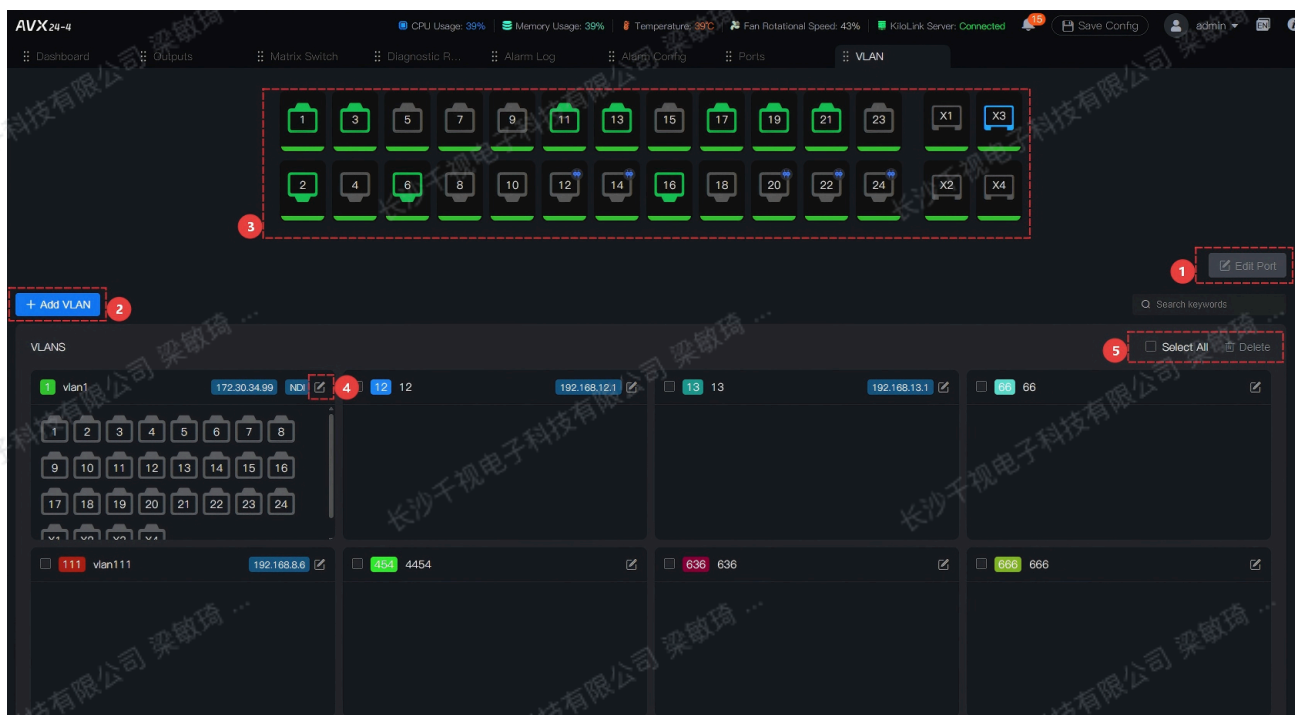
Switch the tab in the "Port Traffic Monitoring" area below to "Port IP Binding List". Ports with bound static IPs are automatically displayed, supporting single or batch unbinding.

10.2 VLAN

VLAN (Virtual LAN) is a technology that divides a physical switch into multiple independent logical networks. Devices within the same VLAN can communicate at Layer 2, while different VLANs are isolated from each other. The AVX24-4 uses VLANs to isolate and manage different service traffic (such as production signal networks and office networks).

The "VLAN" page is divided into two areas:

- **Port List:** Displays all physical ports on the device and their current VLAN membership (distinguished by color blocks).
- **VLAN List:** Displays all VLANs created on the device.



10.2.1 Port Editing

The operation method is the same as "Edit Port" on the home page, see Section 7.1.2 for details.

10.2.2 Create VLAN

1. Click the "Add VLAN" button above the VLAN list.
2. In the popup, fill in the VLAN ID, alias, management IP/mask, display color, and other information as needed.
3. Click "OK" to complete creation.

It is recommended to choose a different color for the new VLAN compared to existing ones, making it easier to visually distinguish their membership in the port list and on the home page.

Note

The VLAN ID is the unique identifier for a virtual LAN. Without an ID, the switch cannot distinguish which port belongs to which virtual LAN, making isolation, forwarding, and cross-device communication impossible. Therefore, a VLAN ID must be specified when creating a VLAN.

10.2.3 Configure Port VLAN Membership

1. In the port list, use the mouse to box-select one or more ports.

2. Drag the selected ports to the target VLAN group in the VLAN list below to complete the VLAN membership configuration.

Tip

In "Access" mode, a port can only belong to one VLAN. If you drag a port already belonging to one VLAN to a new VLAN, the port will be automatically removed from the original VLAN and added to the new one.

If you need a port to carry multiple VLANs simultaneously (typical scenario: connecting to a downstream switch or AV device that supports VLAN tagging), switch the port mode to "Trunk".

10.2.4 Edit VLAN

Click the edit button on the top right of the target VLAN in the VLAN list. In the popup, you can modify VLAN information or remove ports from the VLAN. Click "OK" to save after completion.

10.2.5 Delete VLAN

1. In the VLAN list, check the VLAN(s) to delete (supports single or select all).
2. Click the delete button and confirm.

Note

1. The system default VLAN (VLAN 1) cannot be deleted.

2. After deleting a VLAN, ports that belonged to that VLAN will revert to the default VLAN.

10.3 DHCP

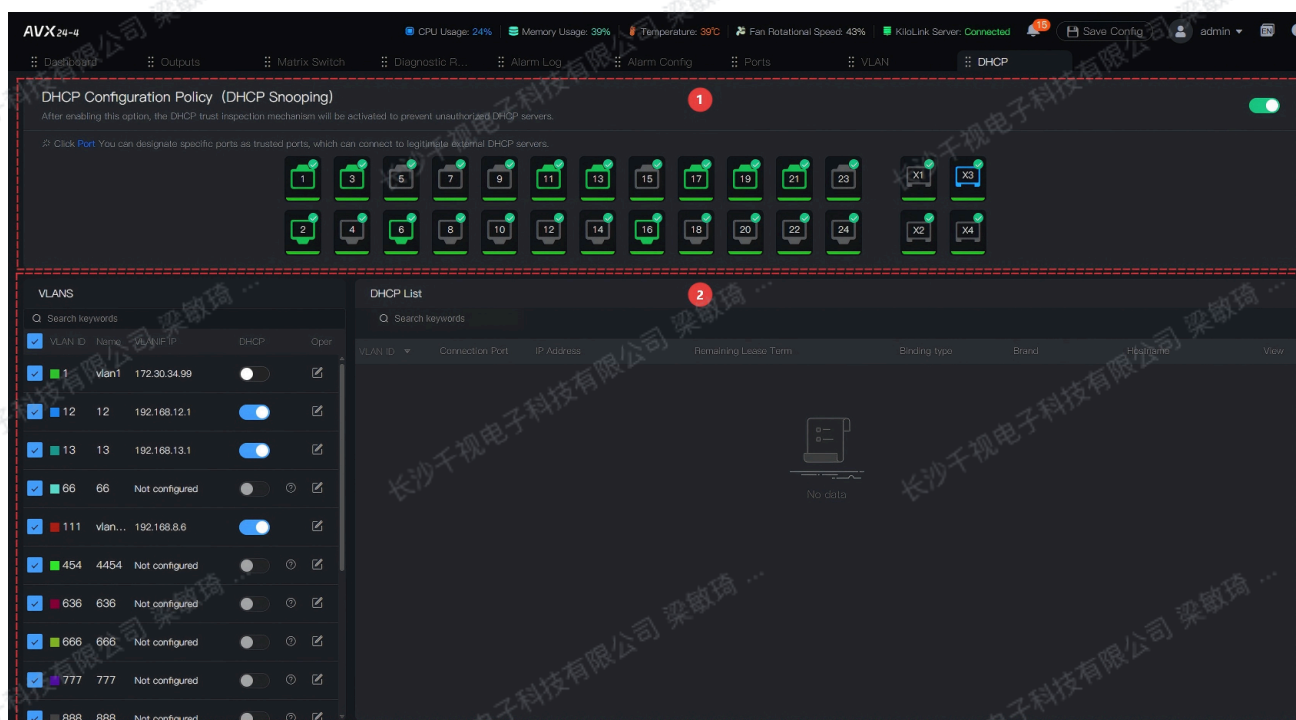
DHCP (Dynamic Host Configuration Protocol) is used to automatically assign IP addresses to connected terminals. The AVX24-4 can act as a DHCP server in routing mode, assigning IP addresses to terminals within specified VLANs.

Tip

If there is already an external DHCP server on the current network, enabling the DHCP service on this device will cause conflicts, potentially resulting in duplicate IP address assignment. Before enabling, please confirm there are no other DHCP servers on the network. The device will provide relevant prompts during configuration.

The DHCP page is divided into two areas:

- Top: Trust Policy (DHCP Snooping)
- Bottom: VLAN List and corresponding "DHCP List".



10.3.1 Trust Policy (DHCP Snooping)

The system supports Trust Policy (DHCP Snooping) settings. DHCP Snooping can be enabled based on actual scenario requirements, with corresponding trusted/untrusted ports configured. By classifying trusted and untrusted ports, it monitors and intercepts DHCP messages, verifies legitimacy, prevents unauthorized routers from impersonating DHCP servers to distribute false addresses, intercepts DHCP attack messages, ensures internal network terminals properly obtain legitimate IPs, and stabilizes address allocation order.

Trust Policy (DHCP Snooping) Different Configuration Descriptions:

Type	Status	Can Pass DHCP Offer/Ack	Function
DHCP Snooping Enabled + Trusted Port	Legitimate Server Channel	Allowed	Only for legitimate servers
DHCP Snooping Enabled + Untrusted Port	Controlled User Port	Denied	Prevents unauthorized DHCP

DHCP Snooping Disabled	No Control	Fully Allowed	No protection, normal forwarding
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Tip

The Trust Policy (DHCP Snooping) is disabled by default at the factory. When first enabled, all ports are trusted by default. Users can configure based on their actual application scenario requirements.

10.3.2 VLAN List

Displays all currently created VLANs, supporting VLAN editing and the DHCP service toggle for each VLAN.



1. DHCP Service Toggle

Provided the VLAN has a management IP configured, the DHCP service for a corresponding VLAN can be directly enabled/disabled using the DHCP toggle on the right side of the VLAN in the VLAN list.

2. VLAN Editing

Click the edit button on the right side of the target VLAN in the VLAN list to modify VLAN information in the edit window. Click "OK" to save after completion.

Editable VLAN information is divided into two sections: VLAN Interface Configuration and DHCP Settings.

VLAN interface configuration: vlan1

* Interface IP 172.30.34.99

* Subnet Mask 255.255.255.0

DHCP Settings

IP Range [] - [] ?

Gateway ☒ Default ☐ Manual Please Enter

DNS Separate multiple DNS with commas (,)

Lease Time 1 Day 0 Hours 0 Minutes

Cancel Apply

Configuration Rules:

- VLAN Interface Configuration: Interface IP and subnet mask are required.
- DHCP Settings:
 - IP Range: Refers to the IP address range assigned by the DHCP service under the current VLAN. The configured subnet must be consistent with the VLAN interface IP subnet. If left blank, the system automatically assigns the entire available address range 1~254 of the same subnet, e.g., 192.168.1.1–192.168.1.254.
 - Gateway: The gateway address for the corresponding VLAN. The default value is the current VLAN interface IP. Custom gateway is supported; the custom address must be on the same subnet as the VLAN interface IP.
 - DNS: Enter the DNS resolver server address. Can be left blank if not needed.
 - Lease Time: The valid usage duration of the IP address assigned by DHCP. After the lease expires, the device will re-initiate an IP request. The system default lease time is 1 day.

1. VLAN Search

Enter a VLAN ID or alias in the search box above the VLAN list to search.

2. DHCP List

The DHCP list displays the current IP allocation status of the DHCP service:

- When no VLAN is selected on the left, it shows the allocation status for all VLANs with DHCP service enabled.
- When a VLAN is selected, it only shows the DHCP allocation status under that VLAN.

Note

1. VLAN editing operation: DHCP for the corresponding VLAN must be enabled first.

2. DHCP enabling: The corresponding VLAN must have an IP address configured.

10.4 Link Aggregation

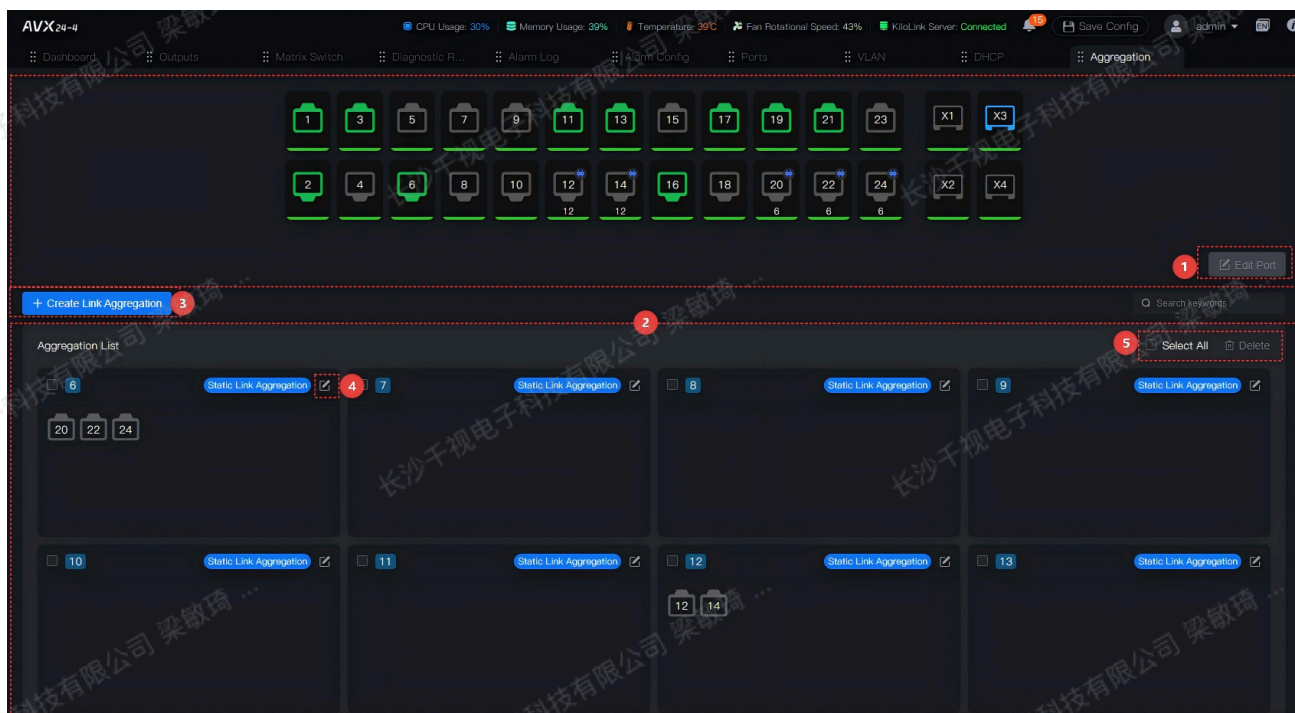
Link Aggregation (LAG, Link Aggregation Group, IEEE 802.3ad / LACP) bundles multiple physical ports into a single logical link, multiplicatively increasing uplink bandwidth and providing link redundancy.

Configuration supports two modes: "Static Link Aggregation" and "LACP Dynamic Aggregation":

- Static Link Aggregation: Manually specifies member ports and aggregation groups. Port status and forwarding rules are entirely manually configured. The negotiation mechanism is disabled, offering strong stability and stable forwarding efficiency, suitable for fixed networking scenarios.
- LACP Dynamic Link Aggregation: Manually specifies member ports and aggregation groups. Port status and forwarding rules are entirely manually configured. The negotiation mechanism is disabled, offering strong stability and stable forwarding efficiency, suitable for fixed networking scenarios.

The page is divided into two areas:

- Top: Port List;
- Bottom: Aggregation Group List.



10.4.1 Port List

Ports added to an aggregation group display a blue aggregation icon in the top right corner. When clicking on one aggregated port, other ports in the same aggregation group are highlighted simultaneously, making the aggregation relationship easy to identify visually.

The port editing operation method is the same as the home page, see Section 7.1.2 for details.

10.4.2 Aggregation Group List

The aggregation group list displays all currently created aggregation groups, including the aggregation group name, aggregation mode, and member ports.

10.4.3 Create Aggregation Group

1. Click the "Add Link Aggregation" button above the aggregation list.
2. In the popup, configure the aggregation group name and aggregation mode (e.g., LACP, Static Aggregation, etc.).
3. Click "OK" to complete creation.

10.4.4 Add Ports to Aggregation Group

In the port list, use the mouse to box-select one or more ports and drag them directly to the target aggregation group to complete the port addition.

Tip

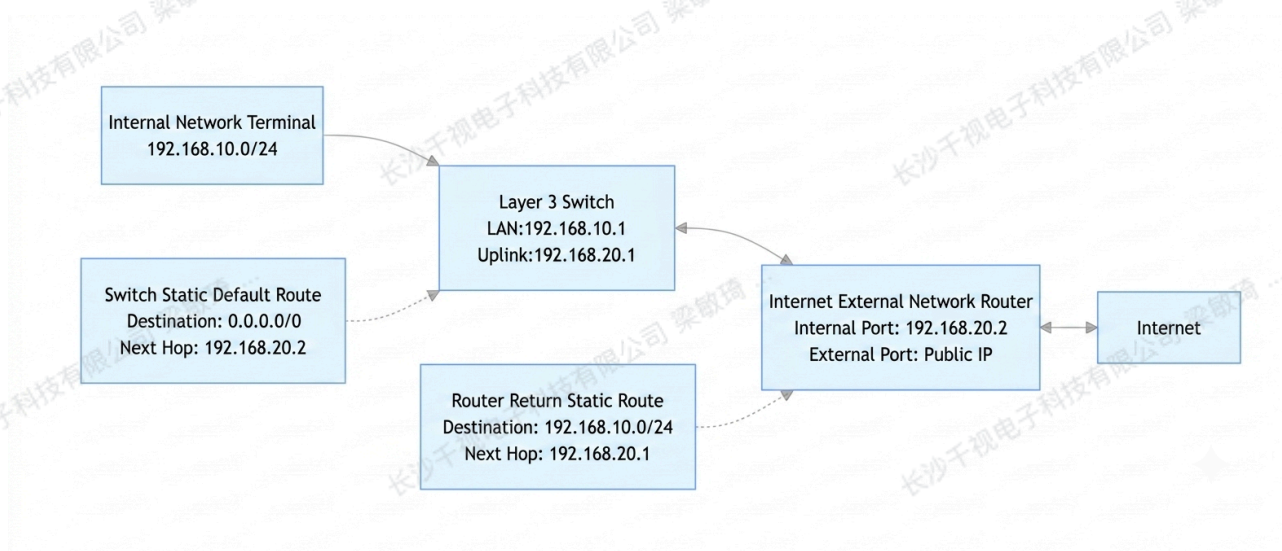
1. A port can only belong to one aggregation group. Dragging a port already in one aggregation group to a new aggregation group will automatically remove it from the original group.
2. Ports within the same aggregation group must have consistent VLAN membership, port mode, and speed, otherwise the aggregation cannot be created successfully.
3. Aggregated ports should be connected to peer devices supporting the same aggregation protocol, otherwise loops or link anomalies may occur.

10.4.5 Modify/Delete Aggregation Group

- Modify: Click the edit button on the top right of the target aggregation group to modify information or adjust port members in the popup. Click "OK" to save after completion.
- Delete: Check the aggregation group(s) to delete (can select all), click the delete button on the right, and confirm.

10.5 Static Routing

Static routing is suitable for small networks with fixed layouts and unchanging subnets. It is mainly used for switch-to-external router connections, cross-subnet communication, and setting internet egress. Manually specifying forwarding paths allows internal network traffic to access the external network normally, and return traffic can be ensured by configuring return routes. The network setup is simple and operationally stable, suitable for conventional fixed networks.

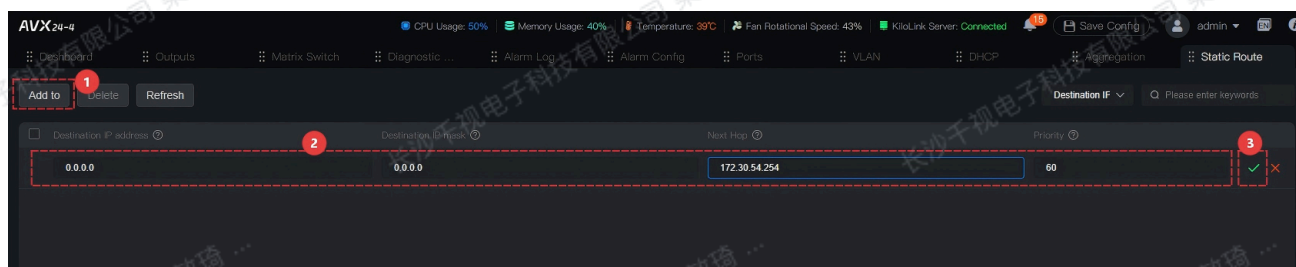


Note

Data communication is a bidirectional interaction process. Configuring only a one-way static route only allows data to be forwarded outward; the receiving end cannot send back response data. Only by synchronously configuring the return route to complete the round-trip transmission path can normal network communication be achieved.

10.5.1 Add Static Route

1. Click the "Add" button at the top left of the static route list.
2. In the new configuration row, fill in: Destination IP Address, Subnet Mask, Next Hop Address.
3. Click "✓" to save.



10.5.2 Delete Static Route

Check the route(s) to delete, click "Delete", and confirm.

11 Clock

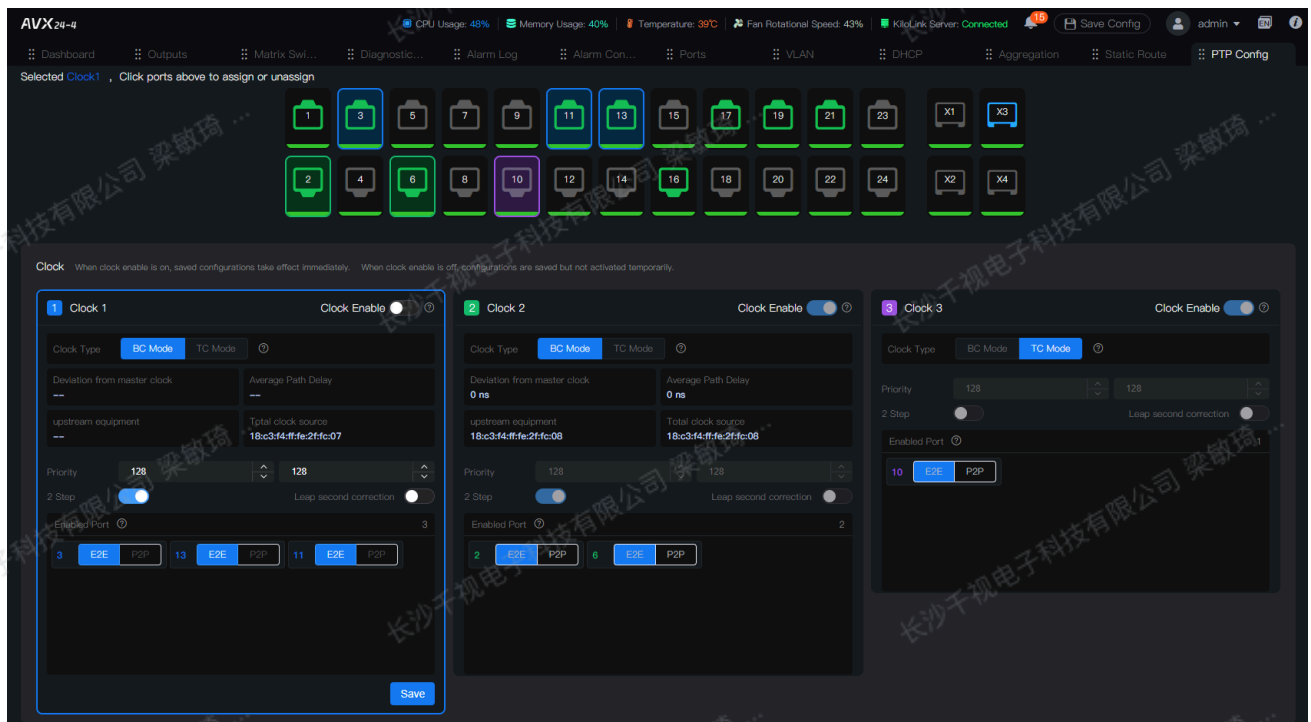
The AVX24-4 supports PTP high-precision time synchronization, as well as device local time configuration (used for logs, UI display).

11.1 PTP Clock Synchronization

The AVX24-4 supports the IEEE 1588v2 Precision Time Protocol (PTP). It can act as a boundary clock or transparent clock node in professional AV networks, providing sub-microsecond time reference for downstream synchronization services such as Dante, ST 2110/IPMX, AES67, NDI (future roadmap), etc.

The "PTP Clock Settings" page is divided into two areas:

- Top: Port List (used to add/remove ports from the PTP clock domain);
- Bottom: Clock Instance List.



11.1.1 Clock Instances

The AVX24-4 provides 3 PTP clock instances by default. Users can configure different clock domains and member ports for each instance. Instances cannot be added or deleted.

Each instance displays the following key information:

- Instance Number;
- Running Status (Enabled / Disabled);
- Clock Domain (PTP Domain Number);
- Clock Mode (BC / TC);
- Ports joined to the instance;
- Offset From Master;
- Mean Path Delay;
- Upstream Master Clock Device;
- Grand Master;
- "2-Step" and "Leap Seconds Correction" toggles.

11.1.2 Enabling and Disabling Clock Instances

Enable/disable an instance using the "Clock Enable" toggle on the top right of the clock instance.

11.1.3 Configuring Clock Instances

1. Select the target instance in the clock instance list.

2. In the configuration, select the clock mode (BC or TC).
3. Configure the clock domain, Sync/Announce message intervals, and other parameters (parameters subject to the actual interface display).
4. Click ports in the port list above to add/remove them from the current clock instance.

After completing parameter configuration, click the [Save] button to save the current clock configuration. The configuration takes effect immediately when the clock is enabled.

Tip

Clock Enable Toggle: Enabled – activates the clock and applies the existing configuration on this page; Disabled – deactivates the clock, saves the current page configuration.

"Save" button: When the clock is enabled, clicking "Save" saves the configuration and it takes effect immediately. When the clock is disabled, clicking "Save" only retains the configuration without applying it immediately.

11.1.4 Clock Mode Description

Mode	Description
BC (Boundary Clock)	Boundary Clock. The device acts as both a slave clock and a master clock: it first synchronizes with the upstream master clock, then provides time to downstream devices. It can divide the network into multiple independent synchronization domains, effectively isolating upstream and downstream clock jitter and network fluctuations, suitable for complex hierarchical scenarios requiring clock isolation.

TC (Transparent Clock)	Transparent Clock. The device itself does not participate in synchronization. It only corrects for its own residence time when forwarding PTP messages, without introducing hop-by-hop cumulative errors. This achieves higher synchronization accuracy, suitable for high-precision synchronization networks pursuing sub-microsecond accuracy with multiple hops.
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11.1.5 1-Step / 2-Step Description

Timestamping Method	Description
1-Step	The master clock embeds the precise transmission timestamp directly into the Sync message when sending it, completing the time information transfer in one step. Requires higher hardware real-time timestamping capability but offers slightly better synchronization accuracy.
2-Step	The master clock first sends a Sync message without a precise timestamp, then sends a Follow_Up message containing the precise transmission time of that Sync, completing synchronization in two steps. Better device compatibility.

The "2-Step" toggle on the interface: Enabled corresponds to 2-Step mode, disabled runs in 1-Step mode.

11.2 Region and Time

The "Region and Time" page is used to set the device local time (used for log timestamps, UI display, etc.).

- Displays the current device time of the AVX24-4.
- Time Synchronization Method: Select from "Sync with Local PC", "Manual Time Setting", "Synchronize via NTP Server", or synchronize with the corresponding PTP clock source on the LAN via "PTP".

- Allows setting the time zone for the AVX24-4's actual location of use.

Tip

Regional time is used for human-readable time (logs, UI) and does not replace PTP. PTP is used for high-precision synchronization of professional AV signals.

Map Data Disclaimer

The world map and country/region names displayed in the time zone setting configuration interface are sourced from public third-party open data and are only used to assist users in time zone selection and system configuration.

Kiloview's business itself does not involve any political issues and holds no political stance. We respect the laws, regulations, territorial claims, and political positions of all countries and regions.

Due to limitations in the presentation of third-party data itself, any discrepancy between the map information or regional descriptions in this interface and the official positions of your country/region is not intentional on our part and does not represent any views of our company or this product.

If you find any inappropriate or inaccurate descriptions, please contact us at support@kiloview.com. We will verify and correct them promptly. Thank you for your understanding and support.

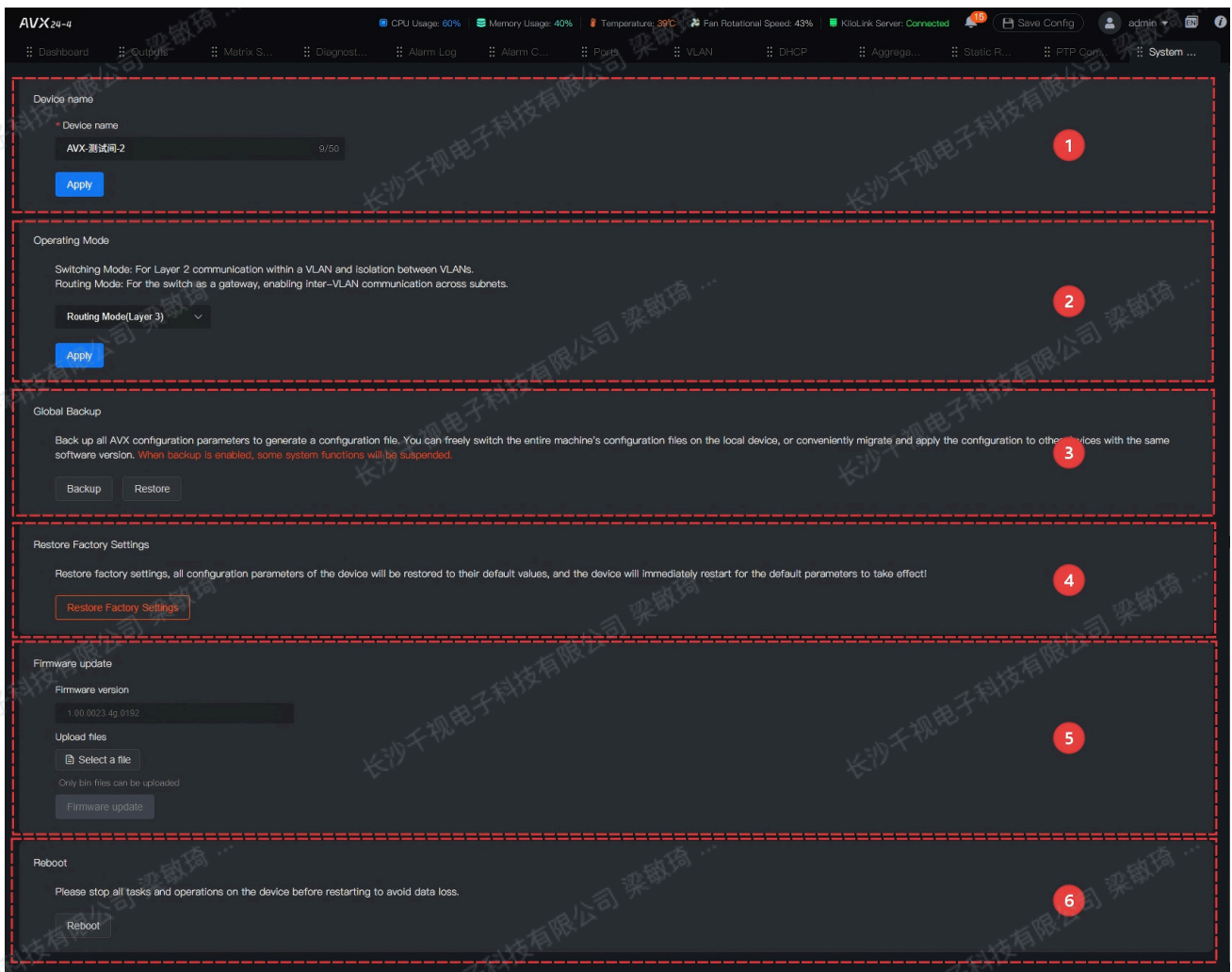
12 Management

The "Management" menu provides device-level operation and maintenance related functions, including system settings, QoS policies, system logs, user management, KLS binding, and device panel management.

12.1 System Settings

The system settings section includes the following functions:

- Device Name;
- Operation Mode (Switch / Route);
- Global Configuration Backup and Restore;
- Factory Reset;
- Firmware Upgrade;
- Device Reboot.



12.1.1 Device Name

Edit the device name in the "Device Name" module. Click "Apply" for it to take effect.

Tip

The device name is the core identifier for NDI matrices to recognize and dispatch signals. Standardized naming can prevent signal confusion, facilitate quick search and control, aid in operational troubleshooting, and ensure stable signal management and control of the cluster.

12.1.2 Operation Mode

In the "Operation Mode" module, select the operation mode from the dropdown menu and click "Apply" for it to take effect.

- Switch Mode: Only forwards frames at Layer 2; cross-subnet communication is not possible. Suitable for scenarios where the entire network is on the same subnet and routing functionality is not required.

- Route Mode: Enables Layer 3 routing functionality, allowing inter-VLAN communication and cross-subnet communication.

Tip

When the device operates in Switch Mode, the "DHCP" and "Static Routing" configuration items in the left menu bar will be automatically hidden.

Switching operation modes involves network re-initialization. It is recommended to perform this during a business idle period.

12.1.3 Global Backup

The "Global Backup" module supports exporting all device configuration parameters into a single configuration file. This file can be used for full configuration switching on the local device or conveniently migrated to other AVX24-4 devices running the same firmware version for configuration restoration.

(1) Backup

1. Click the "Backup" button in the "Global Backup" module.
2. Enter the backup file name in the popup.
3. Click "OK" to export the current device configuration as a backup file.

(2) Restore

1. Click the "Restore" button in the "Global Backup" module.
2. Select the target file in the configuration file list.
3. Click "Apply" and confirm.

The "Global Backup" module also supports importing, exporting, and renaming configuration files.

Note

After executing a configuration restore, the device will automatically reboot. The reboot takes approximately 1 minute.

12.1.4 Factory Reset

1. Click the "Factory Reset" button in the "Factory Reset" module.
2. Click "OK" in the confirmation window.

Note

Factory reset will erase all user configurations. The device will start with default parameters (e.g., OOB IP 192.168.0.168) and requires reconfiguration of business settings.

12.1.5 Firmware Upgrade

Firmware upgrade supports two methods: USB upgrade and Web upgrade. See Chapter 14 for details. On the Web interface, the operation is as follows:

1. Upload the firmware package downloaded from the official website in the "Firmware Upgrade" module.
2. Click "Firmware Upgrade" and confirm. Wait for the upgrade to complete.

Note

The device will reboot during the firmware upgrade process, causing a brief service interruption.

Do not power off during the upgrade, otherwise the device may fail to start.

12.1.6 Reboot Device

1. Click the "Reboot Device" button in the "Reboot Device" module.
2. The system prompts "Save current configuration before reboot?". Choose "Reboot Directly" or "Save and Reboot" as needed.

The device reboot takes approximately 1 minute.

12.2 QoS Policy

"QoS Policy" refers to bandwidth priority settings (QoS policy). It can configure priority transmission rules for protocols used by services. In a multi-service shared network environment, it prioritizes core business bandwidth resources, optimizes transmission link quality, resolves common issues such as network latency and data packet loss, ensuring smooth transmission of audio/video, intercom, and other services.

12.3 System Logs

System logs are divided into two categories: "Operation Logs" and "Running Logs", both of which support online viewing and export.

12.4 User Management

The "User Management" page supports creating multiple administrative users. User types are divided into Administrators and Regular Users.

- Add User: Click "Add User", edit user information in the pop-up window, then click "OK" when finished.
- Edit User: Find the target user in the user list, click "Edit" on the right to modify information.
- Change Password: Find the target user in the user list, click "Change Password" on the right.
- Delete User: Select the target user in the user list, click "Delete" on the right and confirm.
- Search Users: Enter keywords in the search box above the user list to quickly find the target user.

12.5 KLS Binding

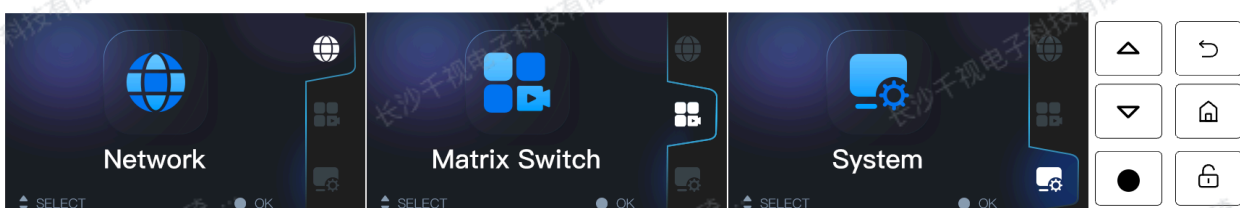
The AVX24-4 can be bound to the KiloLink Server (KLS) centralized management platform for unified management across devices and locations.

1. Enter the KLS platform IP address on the "KLS Binding" page.
2. Enter the VLAN ID used for communication between the AVX24-4 and KLS.
3. Click the "Bind Platform" button.
4. Log in to the KLS platform and review/approve the binding request on the KLS side.
5. After successful binding, the "KiloLink Server" status in the top navigation bar of the AVX24-4 will display as "Bound".

For specific management operations of the AVX24-4 on the KLS platform, please refer to the *KiloLink Server User Manual*.

13 Front Panel Operation

The AVX24-4 front panel provides an LCD display and 6 physical function buttons, allowing users to perform basic status checks, matrix switching, and system configuration without logging in via the Web.



13.1 Main Interface and Navigation

After the device powers on, the LCD screen defaults to the "Network Status" interface. On any interface:

- Press the HOME button: Return to the main interface;
- Press the UP / DOWN buttons: Navigate up or down through the menu;
- Press the OK button: Enter the function page of the selected menu item;
- Press the BACK button: Return to the previous menu;
- Press and hold the LOCK button for ≥ 3 seconds: Lock all button operations on the front panel to prevent accidental touches; press and hold again for ≥ 3 seconds to unlock.

The front panel main menu contains three modules: Network, Matrix, and System.

Tip

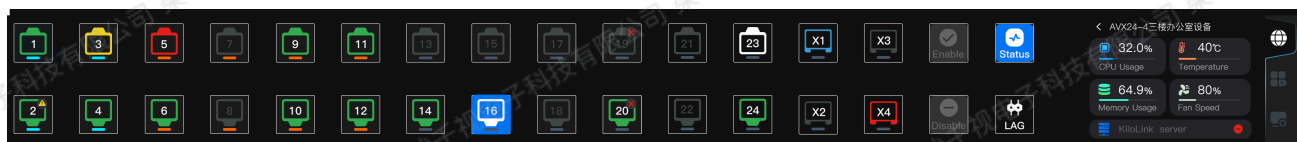
Please refer to Section 3.4 for physical button descriptions.

13.2 Network Status

13.2.1 Overview

On the "Network Status" interface, if no port is selected, the right side of the screen defaults to displaying the AVX24-4's device information and its connection status with KLS.

The button layout on the left side of the screen corresponds one-to-one with the device's physical Ethernet ports, displaying statuses similar to the Web interface: each port icon identifies its assigned VLAN and current online/offline/abnormal status.



13.2.2 Port Details

After selecting a port using the physical buttons, detailed information for that port will be displayed on the right side, including:

- Image of the downstream device (if it is a Kiloview device);
- Downstream device name, the port and VLAN the device is connected to;
- Whether it is an aggregation port, PoE power supply status, port mode (terminal connection / switch connection);

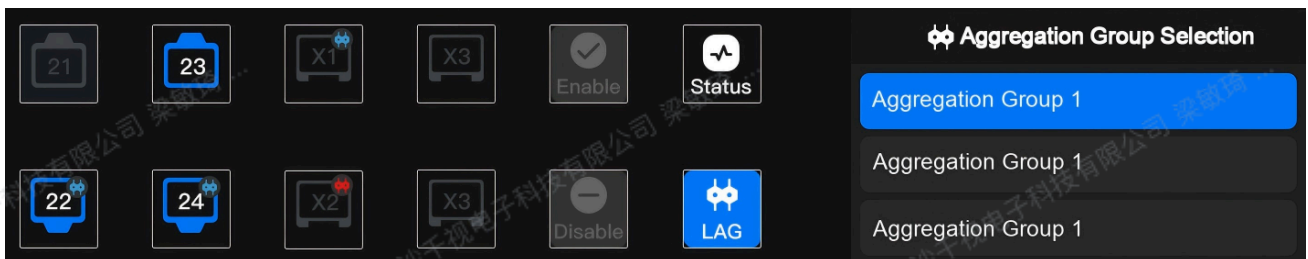
- Real-time port traffic, device IP address.

When a port is selected, you can enable or disable the port using the "Enable Port" / "Disable Port" buttons.



13.2.3 Link Aggregation Status

Press the LAG button in the lower-right corner of the button panel to switch the port status view to the link aggregation view; then press the physical buttons on the right to switch between different aggregation groups, and the corresponding ports belonging to that group on the left will be highlighted.



13.3 Matrix Switching

13.3.1 Selecting a Matrix Panel

1. Press the HOME button to return to the main interface.
2. Use the UP / DOWN buttons to select the "Matrix" menu, then press the OK button to enter.
3. Use the UP / DOWN buttons again to select the target matrix panel, then press the OK button to enter the panel.

13.3.2 Previewing Inputs/Outputs

After entering a panel, press the corresponding preview button to preview the NDI stream of the input or output channels within the panel; after selecting the corresponding input or output, the LCD screen will display the NDI video image of the currently selected channel.

Tip

The front panel can only preview NDI streams directly connected to the AVX24-4 device ports. Remote NDI sources in multi-level cascading scenarios do not support local preview.

13.3.3 Setting Crosspoint Relationships

After pressing the preview button again to exit preview mode, you can set crosspoint relationships within the panel.

Operation method: First select the target output channel, then select the corresponding input source, thereby associating that input source with the selected output channel.

13.4 System Configuration

13.4.1 Default Page

Sets which function page (Network Status / Matrix Switching, etc.) the LCD screen defaults to displaying when the AVX24-4 powers on.

13.4.2 Button Sound

Enables or disables the sound feedback of physical buttons.

13.4.3 System Settings

The following operations can be performed on the device via the front panel:

- Reboot the device;
- Restore factory settings;
- Switch the display language.

13.4.4 Access IP

The "Access IP" page displays the management IP addresses of each VLAN on the current AVX24-4, making it easy for users to quickly find the access point when logging in for management via the Web.

Regardless of how the VLAN management IP is configured, you can always log in for management using the default IP 192.168.0.168 via the OOB port.

14 Firmware Upgrade

Kiloview continuously provides firmware versions with feature updates and bug fixes for the AVX24-4.

14.1 Obtaining the Latest Firmware

1. Visit the Kiloview official website: <https://www.kiloview.com/cn/support/download/>
2. In the filter list, sequentially select "NDI" > "AVX24-4".
3. Find the latest firmware in the "Programs" tab and download it locally.

14.2 Upgrade Methods

The AVX24-4 offers two firmware upgrade methods: USB Drive Upgrade and Web Upgrade.

14.2.1 Method 1: USB Drive Upgrade

1. Copy the downloaded firmware file to the root directory of a USB drive.
2. Insert the USB drive into the device's USB 3.0 Type-A port (Port ③).
3. On the front panel, enter the "System Settings" menu and select "Upgrade".
4. The AVX24-4 will automatically search for the upgrade file on the USB drive and display an upgrade confirmation window.
5. Confirm to start the upgrade and wait for it to complete.

14.2.2 Method 2: Web Browser Upgrade

1. Log in to the AVX24-4 Web management console.
2. Go to "Management > System Settings > Firmware Upgrade".
3. Click the "Choose File" button and upload the firmware file downloaded from the official website.
4. Click the "Firmware Upgrade" button and confirm.
5. After successful upload, the system will prompt a restart. Wait for the device to complete the reboot.

Note

When upgrading via USB drive, the firmware file must be placed in the root directory of the USB drive, and only one firmware upgrade package is allowed on the USB drive.

It is recommended to use the latest version of Google Chrome or Microsoft Edge browser on Windows operating system for Web upgrades.

Do NOT power off the device during the upgrade process, otherwise the device may fail to start.

The upgrade process typically takes 3 to 5 minutes. If the completion prompt does not appear after 5 minutes, try refreshing the page; if it is still inaccessible, please contact Kiloview technical support.

Appendix A Common Troubleshooting

Issue	Troubleshooting and Recommendations
Device cannot power on, running status LED is off	1) Check if the AC power cable is securely connected; 2) Check if the power module is fully inserted; 3) For dual power supply configurations, try replacing with the backup power module; 4) If still abnormal, contact technical support.
Unable to access the Web management page via the OOB port	1) Ensure the computer IP is set to the 192.168.0.0/24 subnet (and does not conflict with 192.168.0.168); 2) Ensure the network cable is connected to the OOB port, not a service port; 3) Disable any firewall or VPN on the computer that may be blocking access; 4) Access https://192.168.0.168 via browser, not http; 5) Try restoring via the front panel "System Settings > Restore Factory Settings" before retrying.
Matrix cannot be created or outputs "Matrix function limited"	The VLAN has no NDI distribution IP configured. Go to "Matrix > NDI Distribution IP" to configure an IP for the corresponding VLAN. See Section 8.3 for details.

PoE powered device cannot power on	1) Ensure the "PoE Power Supply" switch for that port is enabled (see Section 7.1.2); 2) Ensure the powered device complies with the IEEE 802.3at (PoE+) standard; 3) Evaluate if the total PoE power consumption exceeds the 720 W budget; 4) Test with a different network cable.
Configuration lost after reboot	Network configurations only take effect in memory by default. After completing and verifying the configuration, click "Save Network Configuration" in the top navigation bar to persist it.
Cross-VLAN devices cannot communicate	1) Check if the device is in "Routing Mode" (cross-VLAN is not supported in Switching Mode); 2) Check if static routes need to be configured (see Section 10.5); 3) Check if the terminal's gateway is pointed to the AVX24-4's management IP on that VLAN.

Appendix B Glossary

Term	English/Full Name	Description
NDI	Network Device Interface	An IP-based professional video transmission protocol launched by NewTek/Vizrt
NDI HX	NDI High Efficiency	An efficient, low-bandwidth variant of NDI, supporting larger matrix scales
VLAN	Virtual LAN (IEEE 802.1Q)	Virtual Local Area Network, dividing independent logical network groups within the same physical network
DHCP	Dynamic Host Configuration Protocol	A protocol for automatically assigning IP addresses

LAG / LACP	Link Aggregation Group / Link Aggregation Control Protocol (IEEE 802.3ad)	Link Aggregation / Link Aggregation Control Protocol, bundling multiple physical links into one logical link
PoE+	Power over Ethernet Plus (IEEE 802.3at)	Power over Ethernet Plus, providing up to 30 W per port
PTP	Precision Time Protocol (IEEE 1588v2)	Precision Time Protocol for high-precision time synchronization over Ethernet
BC	Boundary Clock	PTP Boundary Clock
TC	Transparent Clock	PTP Transparent Clock
ST 2110	SMPTE ST 2110	A family of standards for professional IP-based media transport
OOB	Out-of-Band Management	An independent management channel physically/logically separated from the service network
KLS	KiloLink Server	Kiloview Centralized Management Platform
EEE	Energy-Efficient Ethernet (IEEE 802.3az)	Energy-Efficient Ethernet, reducing port power consumption during idle periods
Flow Control	IEEE 802.3x	Ethernet flow control, using PAUSE frames to prevent packet loss during congestion