KILOVIEW

P3 Mini Wireless Bonding Encoder

USER MANUAL

Changsha KILOVIEW Electronics Co.,Ltd

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1 Product Introduction

The P3 Mini bonding video encoder is a new generation of wireless bonding encoder developed by Kiloview, based on KiloLink transmission technology. The P3 Mini supports simultaneous multiple bonding connections, including 3 channels of 4G cellular networks, Wi-Fi (2.4G/5G dual-band), and Ethernet. It has a built-in battery with a capacity of 35.28W, which can last for 4 hours on a full charge. The P3 Mini supports PD charging, and with an external power bank, it can achieve all-day operation

The P3 Mini is equipped with dual video input interfaces, 3G-SDI and HDMI. Both the HDMI and 3G-SDI interfaces support 1080p60 video input and are compatible with H.264 (AVC) and H.265 (HEVC) video encoding. Paired with the free KiloLink Server Pro software, the P3 Mini provides various media access protocols, including RTSP/RTMP/SRT/HLS and NDI HX, for streaming services.

1.1 Product Features

- Supports simultaneous multiple bonding connections: 3 channels of 4G cellular networks, Wi-Fi (2.4G/5G dual-band), and Ethernet.
- Built-in battery capacity is 4900mAh@7.2V 35.28W, with up to 4 hours of operation without battery replacement.
- Supports PD charging and can be powered by a mobile power bank.
- 3-inch touch display screen.
- Supports 3G-SDI and HDMI 1.4b video input interfaces.
- The HDMI video interface supports up to 1080p60 H.264 (AVC) and H.265 (HEVC) video encoding.
- The 3G-SDI video interface supports up to 1080p60 H.264 (AVC) and H.265 (HEVC) video encoding.
- Audio supports analog input (3.5mm), HDMI (up to 4 channels), and SDI (up to 4 channels).
- Supports KiloLink Server Pro streaming media forwarding services and network streaming applications.
- The main unit weighs only 600g, making it flexible and lightweight for use.

2 Product Parameters

Function and Performance	
Video Resolution Support	HDMI ： input support 1920×1080p23.98/24/25/29.97/30/50/59.94/60fps 1920×1080i50/59.94/60fps 1280×720p29.97/30/50/59.94/60fps 720×576i50fps(PALSD)720×480i59.94fps(NTSCSD) SDI ： input support 1920×1080p23.98/24/25/29.97/30/50/59.94/60fps 1920×1080i50/59.94/60fps 1280×720p25/29.97/30/50/59.94/60fps 720×576i50fps(PALSD)720×480i59.94fps(NTSCSD)
Encoding Format	H.264(AVC): Baseline/Main/High profile, Level 5.1 H.265(HEVC): Main profile, Level 5.0
Streaming Protocol Support	NDI HX/RTMP/SRT/RTSP/HLS/TS over UDP and other media protocols (with Kiloview KiloLink Server Pro bonding platform)
Bonding Performance	3 channels of 4G cellular networks, WIFI (2.4G/5G dual-band), wired Ethernet port
Recording Function	USB Storage local recording
Text and Image Overlay Function	Supports customized text and image overlay function, allowing being overlaid at any position on the screen
Voice Intercom	Supports integration with Kiloview Intercom Server (KIS)
General Parameters	
Video Input Interfaces	1*HDMI1.4b
	1*3G-SDI
Audio Input	4-channel embedded audio input via SDI
	4-channel embedded audio input via HDMI
	interface of 1*3.5mm audio Line-in
USB	1 * USB 2.0 Type-A
Wireless Network	3 * 4G communication modules 1 * Wi-Fi 5 communication module
Storage	Expandable USB Storage
Display and Indication	3-inch LCD touch screen display
Network Interface	1×10M/100M/1000M RJ45 Ethernet port
Management Method	LCD operation/Web operation/KiloLink Server Pro remote management
Battery Capacity	built-in battery capacity: 4900mAh @ 7.2V 35.28W
Battery runtime	Battery runtime of ≥4hours without changing the battery
Operating temperature	-15℃~45℃
Charging temperature	0℃~45℃

Power Supply	DC 9-20V PD charging supported
Size	138.0*85.0*33.0mm
Weight	600g(host)

3 Packing List and Device Interface

3.1 Packing List

(1) P3 Mini Encoder ×1

(2) Wi-Fi antenna ×1

(3) 4G antenna ×3

(4) Power bank **Bracket x1**

(5) Cold boot screw x1

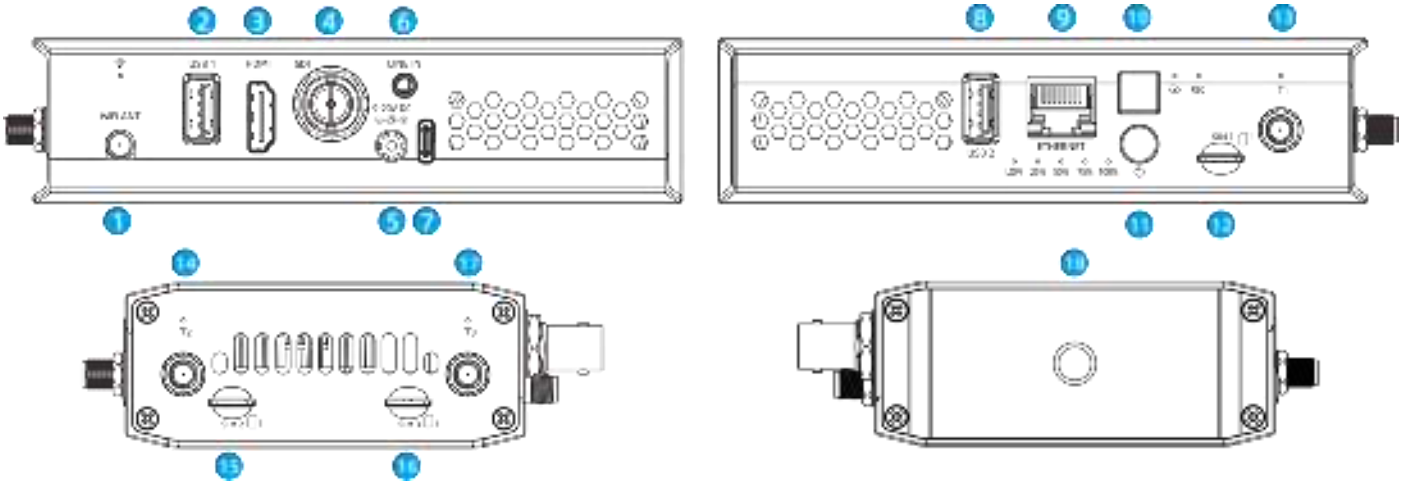
(6) Power Adapter x1

(7) Bracket screw mount x1

(8) Warranty Card ×1

(9) Quick Start Guide ×1

3.2 Device Interface

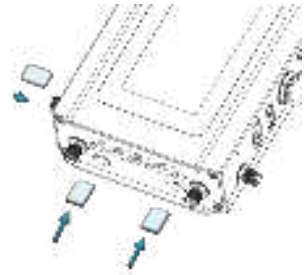


(1) Wi-Fi SMA Connector
(2) USB 2.0 TYPE-A
(3) HDMI Input
(4) SDI Input
(5) Power Port
(6) 3.5mm LINE IN
(7) PD charging supported
(8) USB 2.0 TYPE-A
(9) 1000M Ethernet
(10) Streaming button
(11) Power Switch
(12) SIM card slot 1
(13) 4G SMA Connector 1
(14) 4G SMA Connector 2
(15) SIM card slot 2
(16) SIM card slot 3
(17) 4G SMA Connector 3
(18) 1/4 inch screw mount

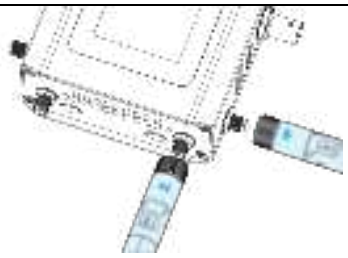
4 Equipment Installation

Before using the multi-channel aggregation function, the P3 Mini device needs to correctly install the Nano-SIM card, antenna and other accessories. The specific installation method is as follows:

4.1 Installing the SIM card

	The three Nano-SIM card slots shown in the left picture can be used to install SIM cards. The installation steps are as follows: 1. As shown in the left picture, align the notched corner of the SIM card with the slot to be inserted. 2. Push the SIM card to the bottom and make sure the card is firmly fixed in the slot. After the installation is complete, insert the SIM card and wait for about 1 minute. The device will automatically detect the connected card slot signal. If the signal is normal, it means that the SIM card is installed successfully.
	To remove the SIM card, follow these steps: 1. As shown in the left figure, use a push pin to gently push the SIM card inward until it pops out. 2. Once the SIM card pops out, you can remove it.

4.2 Installing the Antenna

	There are two types of external antennas for P3 Mini, namely Wi-Fi antenna and 4G antenna. The installation method is as follows: 1. As shown in the left figure, align the SMA interface of the antenna with the corresponding antenna interface of the device. 2. Tighten the antenna screw to ensure that the antenna is firmly connected. Note: Wi-Fi antenna and 4G antenna cannot be mixed. Mixing antennas will cause abnormal antenna signals. Please carefully identify the silk-screen logo on the antenna when plugging in the antenna to ensure correct installation. [There is a specific plan for distinguishing antennas, but it has not been confirmed by Mr. Zuo yet. Please confirm and write it into the manual as soon as possible]

Note:

- Please use the device's standard power adapter, standard PD charger or power bank to power the device. Other unqualified power sources may damage the device.
- Please install the Wi-Fi antenna and 4G antenna correctly. Incorrect antenna installation will significantly affect the signal quality and performance of the device

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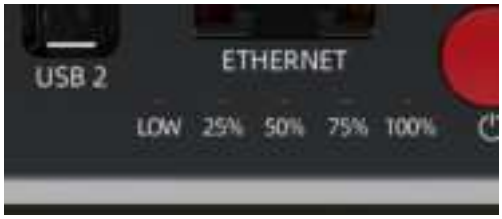
4.3 Battery indicator light

After the battery is installed, the P3 Mini battery indicator light can help users understand the current device's power usage. The colors of the indicator light correspond to different states as follows:

Indicator light	Explanation
	1. On the external battery there are 5 different indicators reflecting the remaining battery level from low, 25%, 50%, 75%, 100%.Each light correspond to indicate the remaining battery charge. 2. When the external battery power is less than 25%, the red indicator light will turn on, indicating a low battery level. 3. When the external battery power is in the range of 25% to 100%, the corresponding battery level indicator lights will remain solid.

5 First Boot Guide

When the new device is powered on for the first time, the P3 Mini display screen will show the system startup process and guide users through the device initialization. Device initialization consists of three steps: language selection, confirmation of user license agreement, and network configuration, guiding users to complete the initial device setup.

5.1 Select Default Language

P3 Mini supports either Chinese or English interfaces. During the initial setup, users are prompted to choose the default language of the device(refer to Figure 1). If users wish to change the default language later, they can do so in the system settings. After selecting the language, users can click **"->"** to proceed to the user license agreement confirmation.

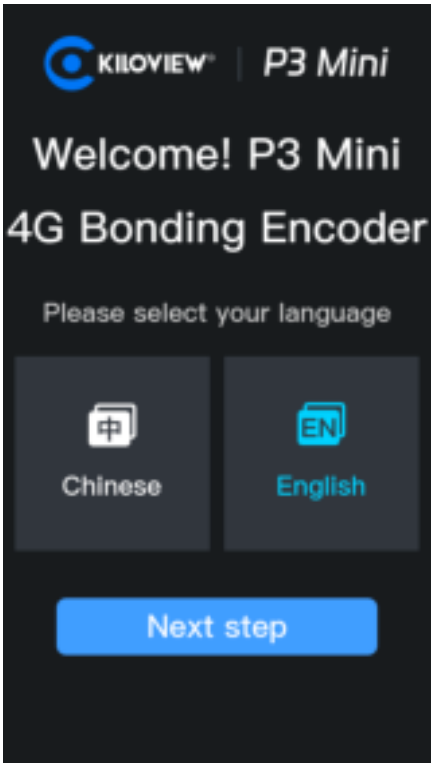


Figure 1: Initial Boot Language Selection Guide Page

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5.2 User License Agreement

According to relevant legal requirements, users must read and agree to the user license agreement before using the device. Therefore, after selecting the language, users need to read and click the **"I have read and agree"** option to officially use the device.

Figure 2: User License Agreement Guide Page

5.3 Network Configuration

The P3 Mini device needs to be used in a network connected environment, so during the initial setup process, users need to configure the network. For detailed instructions on network configuration, please refer to section 6.6.3. If you prefer not to configure the network at this step, you can skip the relevant options and later configure the network connection through the device's LCD screen.

Figure 3: Initial Boot Network Configuration Guide Page

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5.4 Boot Guide Completion

After the initial startup guide of the P3 Mini is completed, the system will prompt the device's WEB management address and a QR code for quick login. Users can use a computer to log in or scan the QR code with a mobile phone to perform more detailed settings on the device, or click **'Configuration Completed'** to start using the device.

Figure 4: Initial Boot Configuration Completion Guide Page

5.5 Default Username and Password

Note:

The default username for the initial login to the device is **admin**, and the password is **admin**. It is recommended to change the default password during your first login.

6 LCD Screen Operation Instructions

6.1 LCD Screen Main Interface

After the startup guide is completed, the P3 Mini's LCD display will show the main interface. This interface is divided into the top navigation bar (1), video preview area (2), bottom information bar (3), and operation menu (4) (refer to Figure 5).

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Figure 5: LCD Screen Main Interface

The main interface includes a top navigation bar, video preview area, operation menu, and bottom information bar. The top navigation bar displays the network signal status, current network upload data transmission rate, battery usage, and other information. The video preview area allows users to view the current video feed, and clicking on the previewed video enables full-screen viewing. The operation menu provides access to various device functions and configurations. The bottom information bar displays the video status of the P3 Mini device.

6.2 Video Sources

By clicking the **"Source"** button on the main interface operation menu, you can enter the video source selection and video source encoding settings interface(refer to figure 6). In the video source interface, you can quickly set encoding parameters such as video source, encoding protocol, output resolution, frame rate, bitrate, and audio source.
Corresponding parameter explanations:

- Video Source: HDMI/SDI optional.
- Encoding: H.264/H.265 optional.
- Scaling:The default is AUTO, which maintains the video resolution of the encoded output consistent with the actual HDMI/SDI input resolution. You can also specify scaling to a specific resolution (choose from the list).
  Note: Currently, P3 Mini does not support video magnification, so scaling will not work if the selected scaling resolution is larger than the actual input resolution.
- Frame Rate: The default is AUTO, which automatically matches the frame rate based on the input source. You can also choose half frame rate (when frame rate >= 50, it halves the original frame rate). Alternatively, you can specify other frame rates (choose from the list).
  Note: Currently, P3 Mini does not support frame interpolation, so selecting a frame rate higher than the actual input frame rate will not work.
- Bitrate: Supports selectable rates from 512K to 40M, defaulting to 6M bitrate.
- Audio Source: Defaults to using the same audio source as the video source, or Line IN can be selected as the audio source.

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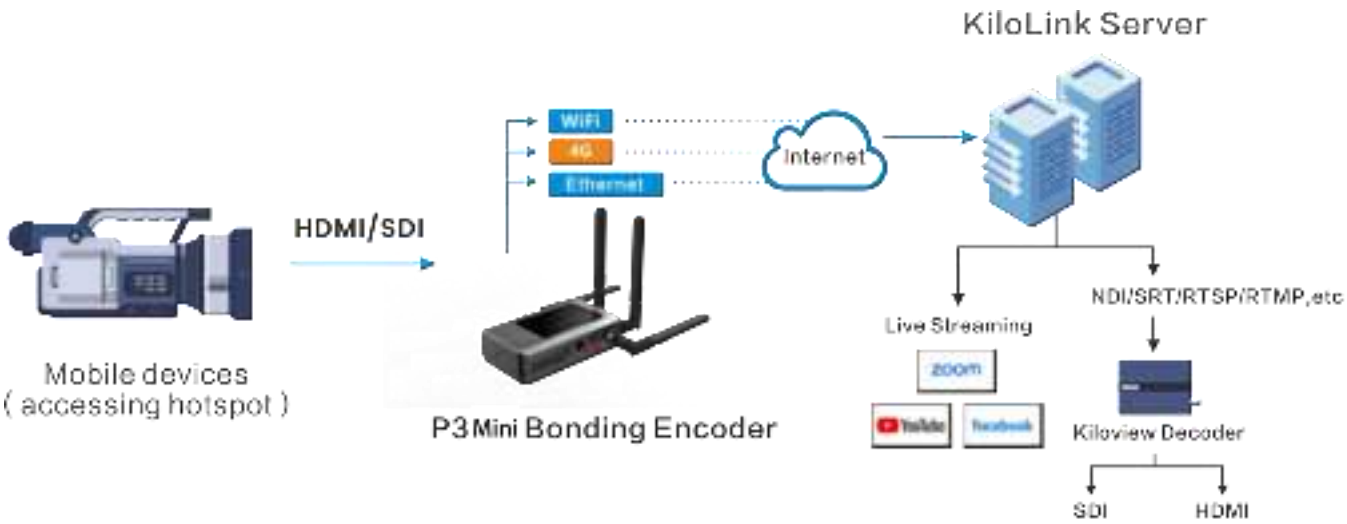
Figure 6 LCD screen 'Source' configuration interface

6.3 Bonding

Bonding (or Link Bonding), refers to the technology of combining multiple physical network links into a single logical link. The principle behind this is bundling several physical links together to increase bandwidth, enhance reliability, and achieve load balancing. Leveraging the proprietary KiloLink bonding algorithm developed by Kiloview Company, it achieves highly stable multi-link bonding transmission capabilities.It can flexibly combine various network links such as 4G/5G, Wi-Fi, and Ethernet, using encryption algorithms to achieve bandwidth aggregation, adaptive load balancing, and dynamic bitrate adjustment for automatic calibration. This ensures stable data transmission even in complex and fluctuating weak network environments. Additionally, users can customize buffer times in the KiloLink Server Pro backend to further reduce the likelihood of buffering during live broadcasts.



To achieve P3 Mini bonding transmission, you need a KiloLink Server Pro server and configure the registration information of the P3 Mini device on the server side (please refer to the KiloLink Server Pro operation manual for the configuration and detailed use of the KiloLink Server Pro server); before performing bonding transmission on the P3 Mini device side, you also need to configure the corresponding parameters for the connection between the P3 Mini device and KiloLink Server Pro on the device side.

Click the **"Bonding"** button in the main interface operation menu to navigate to the bonding setup page (refer to Figure

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7).To configure the connection with KiloLink Server Pro, follow these steps:

1.Navigate to the bonding setup page by clicking the "Bonding" button in the main interface operation menu.

2.Enter the server address, server port, authorization code, and select the network communication links to participate in the bonding communication.

3.Click the **"Apply"** button to configure and establish the connection parameters.

After completing these steps, the device will be capable of simultaneously transmitting audiovisual information through multiple communication links bonded together.

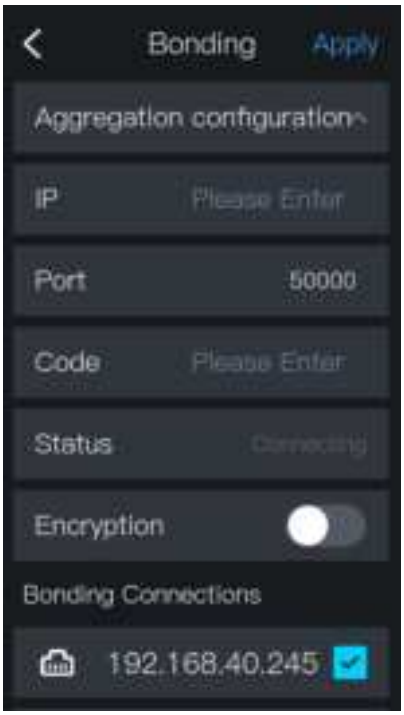

Figure 7 LCD screen bonding connection configuration

Bonding Parameters:

- Server Address: Enter the IP address or domain name to connect to KiloLink Server Pro.
- Server Port: Enter the corresponding open port number on KiloLink Server Pro for connection.
- Authorization Code: Enter the authorization code specific to this device for connecting to KiloLink Server Pro.
- Encryption: Enable or disable data encryption for P3 Mini aggregation transmission.
- Bonding Connections: Select the network links participating in the aggregation transmission.

6.4 Record and Stream

After configuring the bonding service, the device can start streaming operations. Clicking on the top right corner of the main interface will take you to the shortcut operations interface (as shown in Figure 8).

In the shortcut streaming interface, you can perform recording or aggregate streaming operations. During aggregate streaming, it's convenient to set the encoding bitrate and support dynamic bitrate adjustment. When users enable dynamic bitrate adjustment, the device's bitrate will adjust dynamically based on the network environment (the upper limit of bitrate fluctuation will not exceed the set bitrate value).

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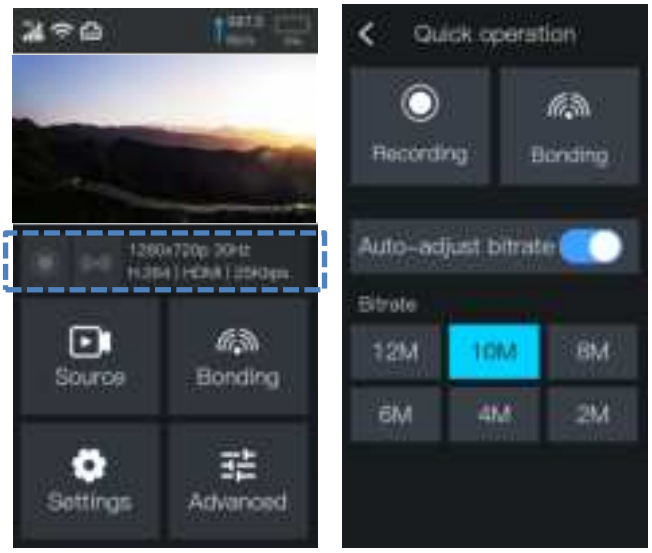

Figure 8 Main Interface and Shortcut Recording/Streaming Operation Interface

6.5 Advanced

Clicking the **'Advanced'** button on the main interface will take you to the operation screen, where you can find functions such as intercom, screen rotation, screen brightness adjustment, restart, and shutdown.

Explanation of Options:

- Intercom: Click **"Intercom"** to connect to the KIS voice intercom server for two-way voice communication.
- Rotation: When enabled, the screen rotates 90 degrees to match scenarios where the device needs to be flipped.
- Brightness: Adjust the screen brightness dynamically.
- Restart: Restart the P3 Mini device.
- Shutdown: Power off the device.

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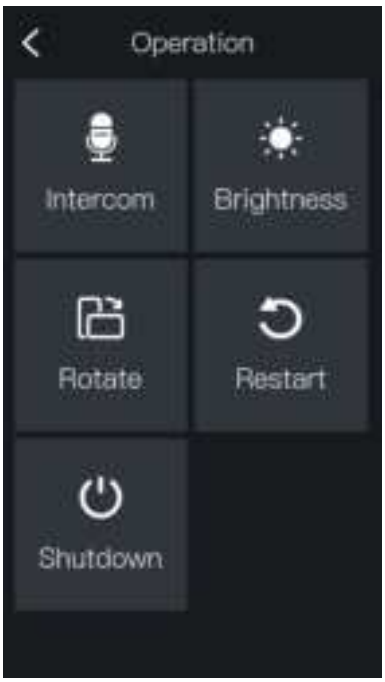

Figure 9 Shortcut Recording/Streaming Operation Interface

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6.6 Settings

Clicking the **"Settings"** button in the main interface operation menu allows access to the P3 Mini settings interface. The settings interface includes four options: Status, System Settings, Network, and Recording. These options respectively allow viewing the device's operational status and configuring several system parameters.

6.6.1 Status

The **“Status”** tab displays the current operating data of the device, such as temperature, CPU usage, device working time, device name, communication data, etc.

Figure 10 LCD Settings - Operation status interface

6.6.2 System Settings

The system settings tab allows configuration of the device's default language, screen saver (constant/2/5/10 minutes), device time (automatically obtain NTP time/manual setting), firmware upgrade, and factory reset.

6.6.2.1 System Settings Parameters Description

- **Language:** P3 Mini supports switching between "**中文/English**".
- **Screensaver:** Supports **"On/2 minutes/5 minutes/10 minutes"** options, indicating when the screen will turn off after a period of inactivity. Note: Extended display of static content on the screen may cause image retention or even permanent damage. Proper screen saver settings can protect the screen and save power.
- **Date and Time**: Supports "Auto/Manual" time setting. Automatic refers to obtaining time via NTP servers, where NTP stands for Network Time Protocol. When using NTP synchronization, P3 Mini obtains and periodically synchronizes time from specified NTP servers to maintain consistency with global standard time. See section 10.4 for configuring NTP servers. Manual time setting allows users to input date/time manually. Note: After the manual time setting, the time will be maintained by P3 Mini's internal battery and RTC clock system. Due to RTC system accuracy errors, significant time discrepancies may occur over time.

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Figure 11 LCD Settings - System settings interface

6.6.2.2 Firmware Upgrade and Factory Reset

Firmware Upgrade: Clicking "**Upgrade**" updates the firmware (software) of the P3 Mini device. New firmware releases provide enhancements in functionality, performance optimization, and bug fixes.

Insert a USB flash drive containing the P3 Mini firmware update (firmware must be placed in the root directory of the USB flash drive), click **"Firmware Upgrade"**, and the system will automatically search for the latest valid firmware version in the root directory of the USB flash drive and proceed with the upgrade automatically.

Note: To prevent upgrade failures, insert the USB flash drive into a computer before upgrading, delete unnecessary upgrade packages, keep only the latest complete and correctly named upgrade package, and ensure it meets the device upgrade version requirements.

After the firmware update, the system will prompt for restart. Click OK to restart the device for the upgrade. Please wait patiently for the device to restart.

Restore factory settings: Factory reset restores the device to its initial state when it leaves the factory. Factory reset clears all device configuration information, but successfully upgraded firmware will remain. To change firmware versions, use the firmware upgrade function to update earlier versions of firmware.

Simply click "**Restore factory settings**" on the system settings tab page to perform the factory reset operation on the device.

For more information on firmware upgrade and factory reset, refer to section 10.7.

Note:

- During the upgrade process, do not power off the device to avoid startup issues.
- When using a USB flash drive for firmware upgrade, ensure the file system format is FAT/FAT32/exFAT.
- The upgrade process takes approximately 3-5 minutes. If the upgrade prompt does not appear after 5 minutes, try restarting the device. If the device fails to start normally, contact technical support.

6.6.3 Network

The P3 Mini main unit supports Ethernet, Wi-Fi, 4G/5G, and allows bonding communication via Wi-Fi and 4G/5G modules. Navigate to **'System -> Network'** in the main menu to configure Ethernet, Wi-Fi, and 4G/5G network interface parameters.

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Figure 12 Settings - Network settings interface

6.6.3.1 Ethernet Settings

In network settings, select Ethernet to choose automatic or manual network configuration. **"Auto"** uses DHCP to configure the Ethernet interface; for manual configuration, set the IP address, Subnet Mask, Gateway, DNS, etc. Click **"Apply"** to activate settings.

Figure 13 Network settings Ethernet settings interface

6.6.3.2 Wireless LAN Settings

To configure P3 Mini to connect to a Wi-Fi hotspot, click **'Wi-Fi'** in the network interface to enter Wi-Fi settings (see Figure 14).

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Figure 14 Wi-Fi settings interface

Select the desired Wi-Fi hotspot, input the Wi-Fi connection password in the popup window, and click "Apply" to connect. For more network configuration needs, settings such as automatic connection and IP address acquisition can be adjusted on this page (as shown in Figure 15).

Wi-Fi Settings Parameters:

- Auto Connect: Enables automatic connection to the Wi-Fi hotspot when detected.
- BSSID (Basic Service Set Identifier): The unique identifier of the connected hotspot, BSSID is a physical address composed of 6 bytes. This parameter cannot be configured and is used solely to distinguish different AP.
- Encryption Methods: The P3 Mini supports connecting to Wi-Fi hotspots using encryption methods such as WPA, WPA-PSK, WPA2, and WPA2-PSK. Currently, most routers use WPA2 encryption. Explanation: WPA (Wi-Fi Protected Access) provides data encryption and authentication through TKIP (Temporal Key Integrity Protocol). WPA2 offers enhanced security with the more robust AES (Advanced Encryption Standard) encryption algorithm. WPA-PSK/WPA2-PSK are pre-shared key versions of these standards, commonly used in home or small office network environments.

  Note: Please select the appropriate encryption method to ensure effective Wi-Fi connectivity.
- Password: Wi-Fi hotspot password.
- IP Configuration: Supports automatic or manual IP settings.

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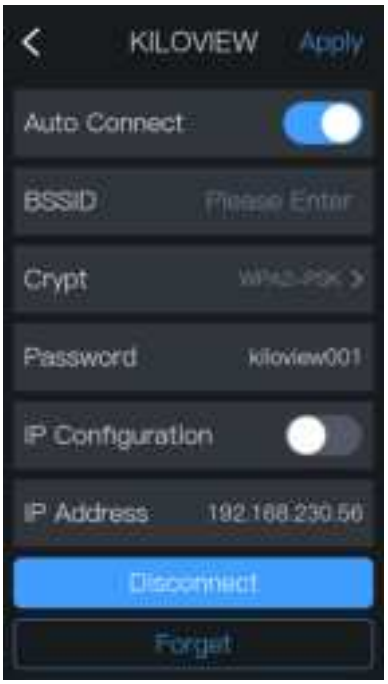

Figure 15 Wi-Fi connection settings interface

6.6.3.3 Wireless Hotspot Settings

P3 Mini supports being set up as a Wi-Fi hotspot, allowing other devices to connect to the P3 Mini's Wi-Fi hotspot for management and control, or to access the internet.If you need P3 Mini to serve as a Wi-Fi hotspot to provide internet access to other devices, select Wi-Fi hotspot in the main network configuration interface for configuration (as shown in Figure 16). Wi-Fi hotspot settings can specify the shared Wi-Fi hotspot name, password, default IP network segment, and Wi-Fi channel. In wireless networks, select Wi-Fi channels to optimize performance and reduce interference. Ensure compliance with local regulations regarding channel usage.

Note: P3 Mini's Wi-Fi hotspot defaults to supporting only a 24-bit subnet mask, so the IP address network segment needs to be set with the first three IP address segments.Once connected, the device's DHCP service will allocate an IP address from the range (XXX.XXX.XXX.10-XXX.XXX.XXX.250) to the connecting terminal. Due to performance limitations of the P3 Mini device, it is recommended not to connect more than three terminals to the hotspot simultaneously.

Figure 16 Wi-Fi shared hotspot configuration

6.6.3.4 4G Settings

When the P3 Mini inserts the SIM card, corresponding network connection options will automatically appear in the

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"**Network Settings**" interface. Once the module connects to the network, it will obtain IP address and other parameters from the carrier network and display as **"Connected**" On the "**Network Settings**" page, you can view the connection status and up/downlink speeds.

Clicking on the respective option in the network settings interface allows for connection configuration. Configuration options include enabling mobile network for the module,APN information, and SIM card identification/authentication information (see Figure 17).

Key settings for the 4G module include:

- Mobile Network: Controls the switch for mobile network; disabling it will deactivate the module.
- Operator: Displays the current network service provider.
- IP Address: Shows the IP address obtained after SIM card connection. If the SIM card fails to connect, the IP address cannot be obtained; clicking "**Refresh**" updates IP address information to check SIM card connectivity.
- APN (Access Point Name): Automatically selects an appropriate APN based on the connected carrier network, but also supports manual configuration.

  To access networks from different operators, you need to provide the correct APN (Access Point Name). These APNs are defined and provided by the carriers. Entering an incorrect APN may result in inability to connect to the network or restricted bandwidth for network data transmission. Therefore, before configuring, please confirm the correct APN values with your operators.

  If you need to manually set the APN, please input the APN provided by the operators directly or select from the device's preset APN list.
- Auth : Supports PAP/CHAP/MsChapV2 for network connection authentication. Used to verify user identity for mobile network access. PAP is suitable for scenarios with low security requirements, such as prepaid SIM card internet access; CHAP is for environments needing higher security, like enterprise networks or long-term connections; MsChapV2 is for Windows-based systems or networks relying on Microsoft technologies, offering complex and robust authentication protection. Confirm the carrier's authentication method for practical usage. **Note:** Regardless of the authentication method chosen, corresponding account and password information must be provided for the authentication method to take effect.
- PIN : Input for the SIM card's PIN code, defaulting to unset. The PIN code is a security measure to protect the SIM card from unauthorized use; users must set the PIN for authentication when required.
- User name: Used to enter the account required for authentication.
- Password: Used to enter the password required for authentication.

Figure 17 5G module configuration interface

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Note:

If you enter the wrong PIN three times in a row,the SIM card will be locked. In this case, you will need to use the PUK code (PIN Unlock Key) to unlock it. If the PUK code is entered incorrectly more than 10 times, the SIM card will be permanently locked, requiring a replacement SIM card.

6.6.4 Record

The P3 Mini supports local recording, allowing users to simply insert a SD card or USB storage drive for recording. For additional recording settings, users can configure them in the recording interface under system settings (refer to Figure 18).

Record Parameters:

- Video File Format: Supports two recording file formats, MP4 and MOV, with MP4 being the default option.

File Split: Supports three recording file splitting methods: no splitting, splitting by duration, and splitting by size.

- No Splitting: The recorded content is saved in a single file without any splitting.
- by Duration: The recorded content is divided into multiple files based on user-selected time intervals(1 minute to 1 day).
- by Size: Automatically divides the recorded content into multiple files based on user-defined file size limits (512MB to 4GB).

- Recording Strategies: Supports two recording strategies, Stop When Full and Automatically Overwrite Previously recorded Files.
  - Stop When Full : Automatically stops recording when the storage space of the recording device reaches its maximum allowable capacity. This strategy focuses on maintaining the integrity of stored data. It is recommended to reserve sufficient storage space when using this strategy.
  - Overwrite : When the storage space of the recording device is about to reach the preset limit, the system deletes the oldest recording files to make room for new recordings. This strategy emphasizes continuous recording. Users can choose flexibly according to their application scenarios.

Figure 18: Settings - Recording Configuration Interface

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7 WEB Management System

7.1 Accessing the Device Web Management System via Network

In addition to utilizing the LCD display screen for quick device settings and operations, this device also supports operation and management through the WEB management system. To access the device management page, simply open a Web browser and enter the following in the address bar: **http://device_IP_address/** to access the device management system. If HTTPS service is enabled, you can also enter: **https://device_IP_address/** to access the system management backend (for details on enabling HTTPS service, refer to section 7.3.5).

1）After normal login, on the encoder's Web management page, you can set encoding parameters and function parameters, etc. The encoder page is shown in Figure 19:

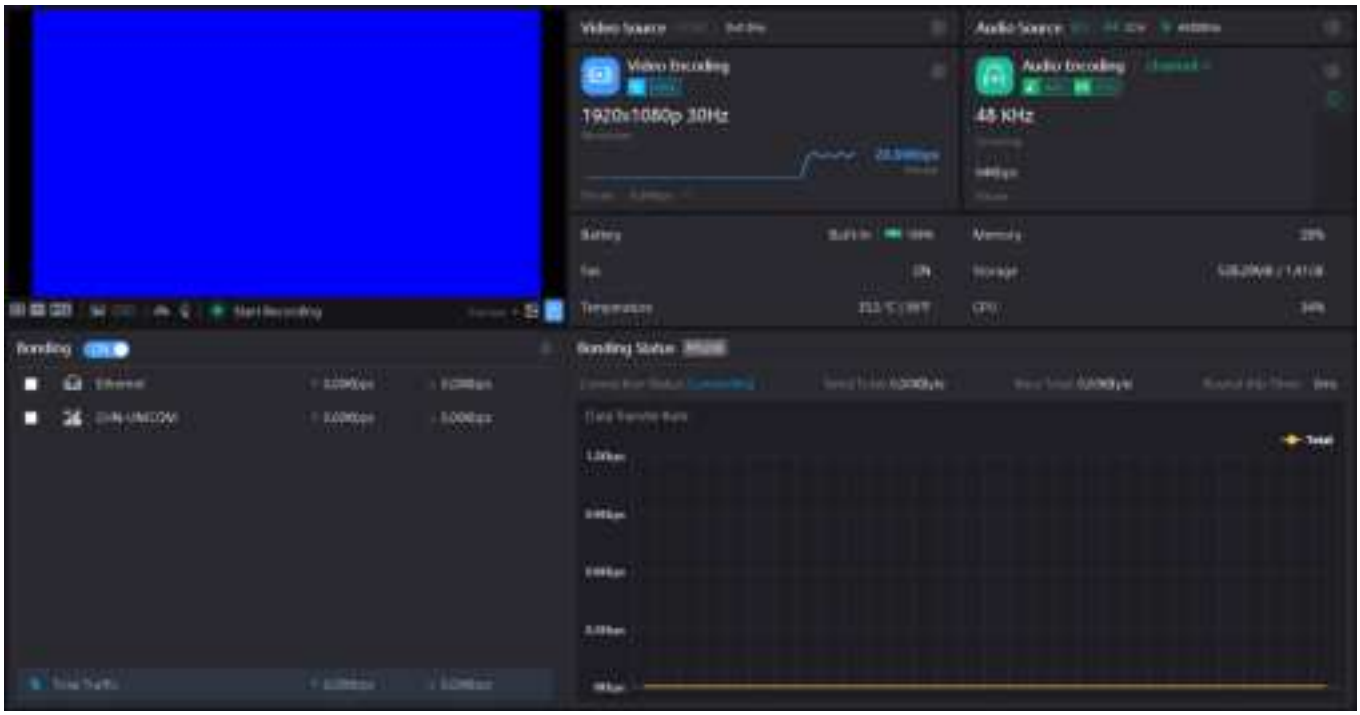

Figure 19: Main interface after logging into the Web UI

Note

- The default username for logging into the device is **admin**, and the password is **admin**.
- For information security, it is recommended to change the password immediately after the initial login!
- Considering browser compatibility issues, it is recommended to use Chrome or Edge.
- This device requires KiloLink Server Pro to provide bonding service support for P3 Mini.

7.2 Accessing the Device via Wi-Fi Hotspot

For user convenience in management, users can also connect to the device via a Wi-Fi terminal for initial setup. After enabling the Wi-Fi hotspot on the device and setting the Wi-Fi hotspot name and password, you can use a smartphone or laptop as a Wi-Fi terminal to connect to and manage the encoder device. Once connected to the P3 Mini hotspot, you can enter the device's IP address in the browser on your smartphone or laptop to access the encoder's WEB management interface. (Configuration of P3 Mini hotspot can be done through the device's small screen or WEB UI configuration, refer to sections 6.6.3 or 7.3.3 respectively.)

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Note:

P3 Mini has only one Wi-Fi module, and when it acts as a hotspot while connecting to other Wi-Fi networks, it can affect both the Wi-Fi signal and device performance. Therefore, it is recommended to enable the Wi-Fi hotspot function only during device configuration. In scenarios where Wi-Fi is needed for bonding streaming, it is advised to disable the Wi-Fi hotspot to avoid impacting streaming performance.

7.3 Network Setting

This device supports Ethernet, Wi-Fi, and 4G/5G networks. You can configure the parameters for the Ethernet, Wi-Fi, and 4G/5G network interfaces by navigating to "**Settings**" -> "**Network Settings**" in the main interface menu. Below is a detailed explanation of the network configuration.

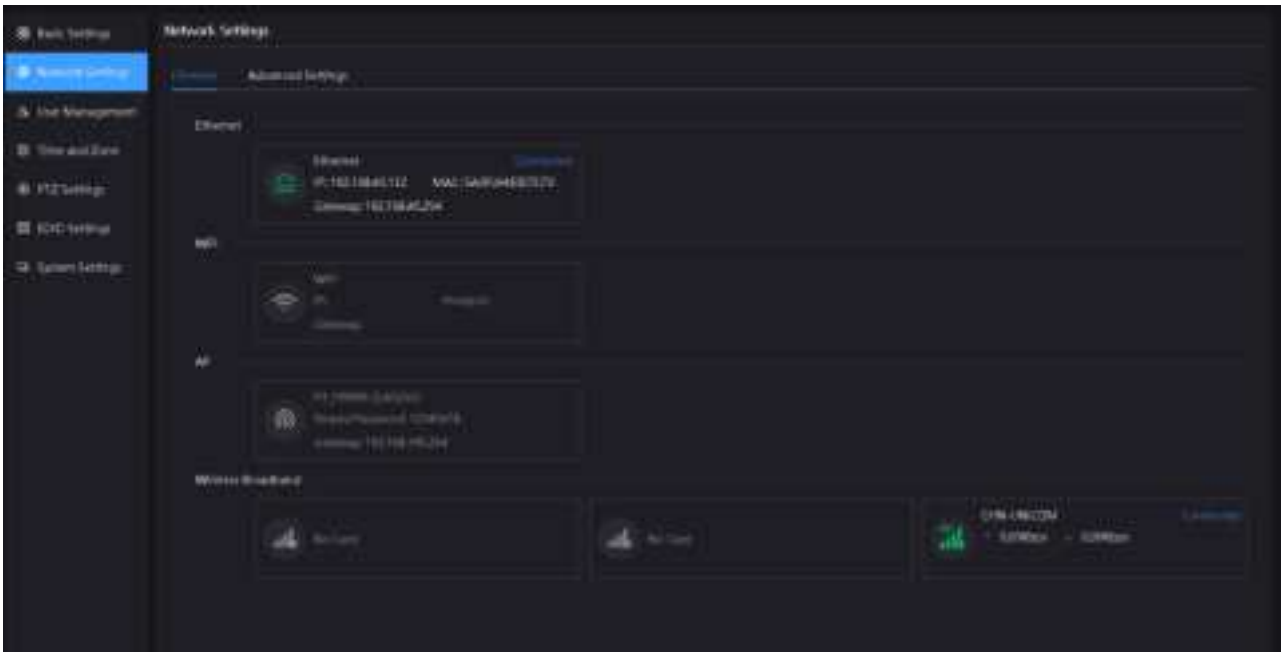

Figure 20 WEB UI Network Settings Interface

7.3.1 Ethernet

In the network settings, click on the **"Ethernet" -> "Configure"** button to set up automatic or manual network configuration. Selecting **"Automatic"** will allow P3 Mini's Ethernet interface to obtain and configure information using the DHCP protocol. If manual configuration is preferred, you can set parameters such as IP address, Net Mask, Gateway, DNS, etc. Once configured, click **"Apply"** to activate the settings.

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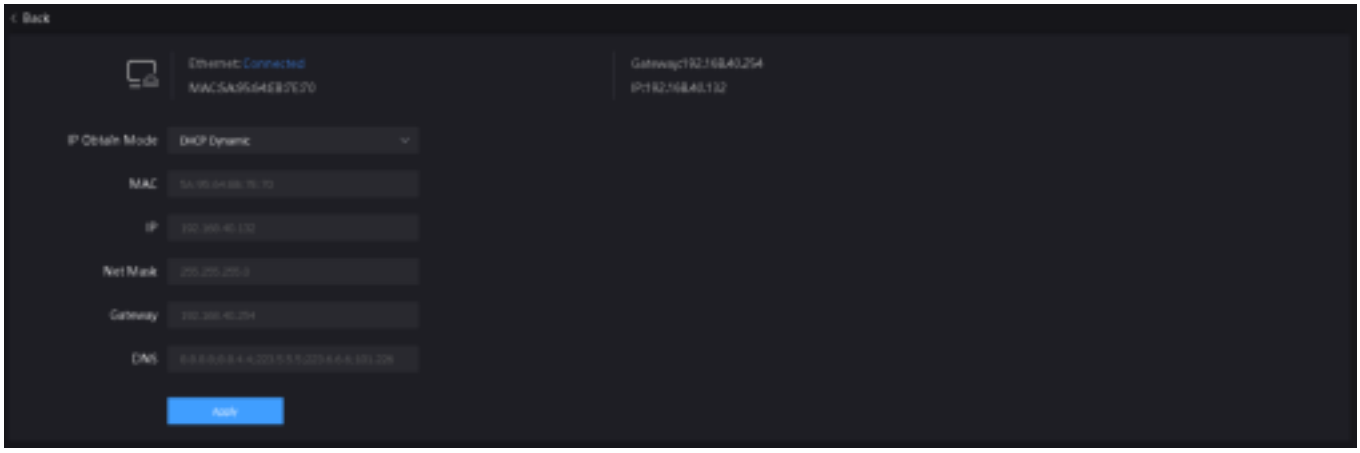

Figure 21 Ethernet Configuration in Network Settings

7.3.2 Wi-Fi Network

To connect to Wi-Fi, simply click on "**Wi-Fi**" -> "**Configure**" button to enter the Wi-Fi connection interface. Click on the Wi-Fi hotspot listed under "**List of Currently Scanned Hotspots**" and then "**Connect**" to establish a connection. For Wi-Fi networks with hidden SSIDs, use "**Manually Add a Hidden Hotspot**" to connect. Once successfully connected, the encoder will store the connection details for future use. To forget a saved Wi-Fi connection, select the saved Wi-Fi hotspot and click "**Forget**."

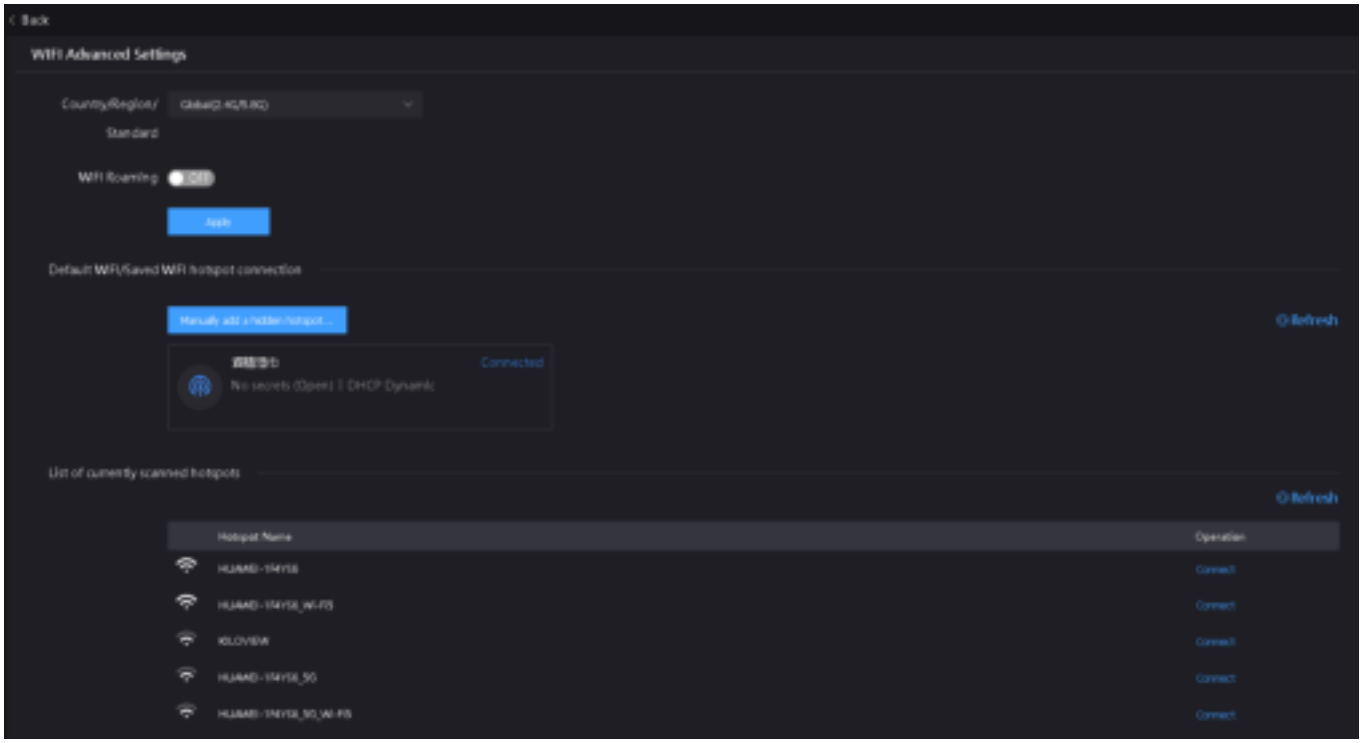

Figure 22 Wi-Fi Configuration Interface

Note:

To ensure reliable and efficient wireless transmission, maintain an optimal distance between the Wi-Fi router (AP) and the P3 Mini, avoiding obstacles and interference. Using the 5GHz frequency band (channels 36-165) can provide faster connection speeds and reduce wireless channel interference.

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7.3.3 AP Settings

To configure an Access Point (AP), click on "AP" -> "Settings" button, and fill out the AP settings in the popup window (refer to Figure 23). Configure shared settings such as Wi-Fi hotspot name, password, default IP subnet to use, and Wi-Fi channel.

Regarding Wi-Fi channel selection:

1.To minimize interference and optimize network performance, choose less crowded channels when configuring wireless hotspots.

2.Different countries and regions have regulations and restrictions on spectrum usage. Ensure to select channels within permissible ranges when operating in restricted areas.

Note: P3 Mini's Wi-Fi shared hotspot defaults to supporting a 24-bit subnet mask, so the IP address subnet needs the first three IP address segments. Upon connection, the device's DHCP service will allocate an IP address from this subnet to the connected terminal. Due to P3 Mini's performance limitations, it is recommended not to connect more than three terminals simultaneously to the hotspot.

Figure 23 AP Settings Pop-up Interface

7.3.4 4G Network

When the encoder is equipped with a module with a SIM card inserted, corresponding 4G connection options will be added under "Wireless Broadband" in "Network Settings." If the network is active, the connection status will display as "Connected" with corresponding uplink and downlink speeds. Click "Configure" to adjust the network settings of the 4G module, including enabling mobile network, configuring APN information, and SIM card authentication.

Refer to section 6.6.3 of this manual for detailed explanations of each parameter.

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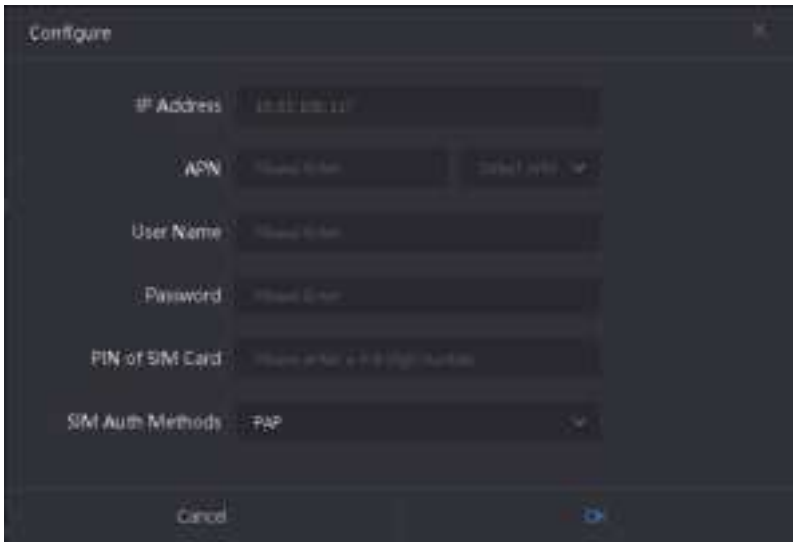

Figure 24 4G Module Parameters Configuration

Note:
Before use, ensure the 4G Network is correctly connected and the SIM card has sufficient balance to prevent network unavailability.

7.3.5 Advanced Settings

Advanced network settings can be used to set HTTP/HTTPS and routing configuration.

- **HTTP/HTTPS Settings**

The standard web service port defaults to 80 (HTTPS port is 443) and supports modification within the range of 1-65535. After changing the web service port, to access the device configuration page, append the modified port to the access link. For example, if the IP address before modification was 192.168.1.168 and the web service port was changed from 80 to 90, and HTTPS port from 443 to 450, you would enter: http://192.168.1.168:90 or https://192.168.1.168:450 to access the Web management system. When accessing the device's web page via HTTPS and encountering certificate errors in the browser due to security validation, add the access link to the security exceptions.

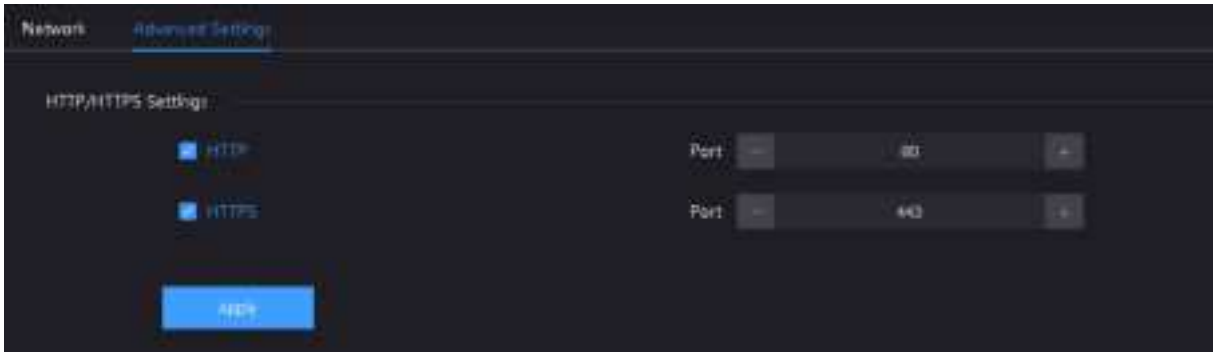

Figure 25 HTTP/HTTPS Configuration Interface

- **Routing Strategy**

Routing strategies define how network data is sent/received between different network interfaces when the device has multiple interfaces. When a device has multiple network interfaces, you can set a routing policy to send/receive network

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data under specified conditions through a specified network interface.

Configure routing policies with parameters including:

- Interface: Specifies which network interface processes the data packets for this routing policy.
- Target: Specifies the target network address to which the datagram will be sent.
- Subnet Mask: Used in conjunction with the destination address to define the range of the target network.
- Gateway: (When the target network address is not in the same subnet as the current device's address) Specifies the gateway through which packets destined for the target address are forwarded.
- Metric: Sets the priority of the routing policy; lower values indicate higher priority.
- MTU: Maximum Transmission Unit, sets the maximum length of data packets sent. Packets longer than the MTU will be fragmented.

Note:
Incorrect configurations may lead to device issues. It is recommended that routing policies be configured by professional network administrators.

8 Web-Based Information Viewing and Encoding Settings

8.1 Dashboard

The "Dashboard" is the management homepage that provides an overview of the audio/video equipment's current operational status, audio/video stream status, and network status. The main information is shown in the red box area in Figure 26.

Below is a brief introduction to the relevant coding parameters and interfaces:

- Video Encoding: Displays the video encoding format.
- Video Source: Shows the interface of the input signal source.
- Encoding Format: Indicates the encoding method of the signal source.
- Resolution: Displays the encoding resolution of the signal source.
- Bitrate: Shows the encoding framerate of the signal source; this option allows quick switching of video encoding bitrate.
- Audio Source: Displays the interface, channels, and sampling rate of the input audio source.
- Audio Format: Shows the encoding audio format of the signal source.
- Audio Sampling Rate: Displays the audio sampling rate of the signal source.
- Number of Channels: Shows the encoding channels of the signal source.
- Network Traffic: Displays real-time upstream and downstream network speeds for each channel and total device traffic.
- Aggregation Status: Indicates whether current streaming is in progress.
- Total Traffic: Displays traffic fluctuations for each channel over a period.
- Memory Usage: Shows device memory status.
- CPU : Displays device CPU load status.
- Temperature: Current device temperature.

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- Battery: Usage status of batteries of the device.

Figure 26: Web Management Backend Homepage Dashboard

8.2 Top Navigation Bar

In the top navigation bar menu, the left functional area consists of menu items for configuring various functions of the encoder; the right functional area allows operations such as voice intercom, password setting, Logout, rebooting, language switching, device information and other functions.

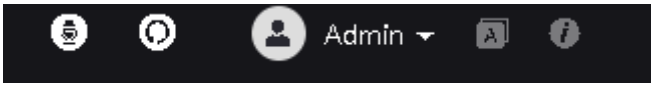

Figure 27: Right Functional Area in the Top Navigation Bar

8.2.1 Modify WEB Login Password

Clicking on the **"Modify Password"** in the dropdown menu under the username will pop up a password modification option box, allowing modification of the username and password for the WEB management terminal. The default username and password are both "**admin**". Usernames support Chinese, English, and numbers, while passwords must include uppercase and lowercase letters and numbers, with a length of 6-32 characters.

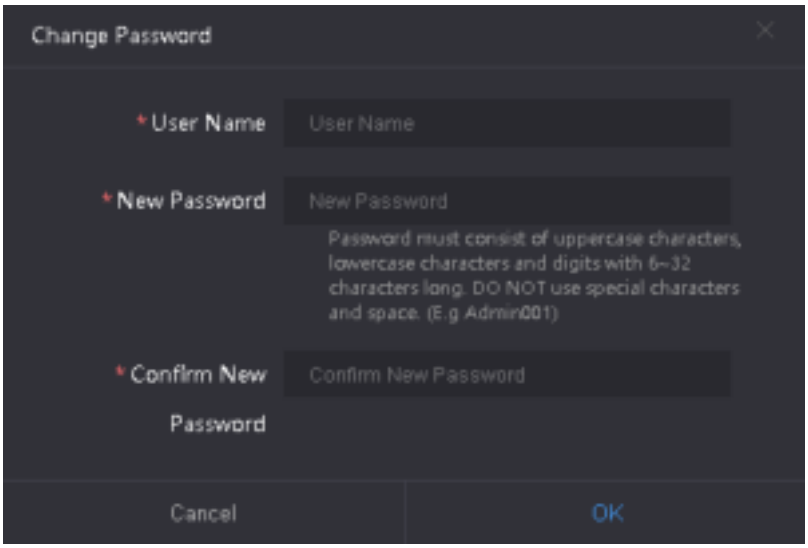

Figure 28: Dialog Box for Modifying WEB Login User Password

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8.2.2 Reboot Device

On the device management page, click the " " icon in the upper right corner. After confirming in the popup window, the device will automatically shut down and then reboot, which takes approximately 1 minute.

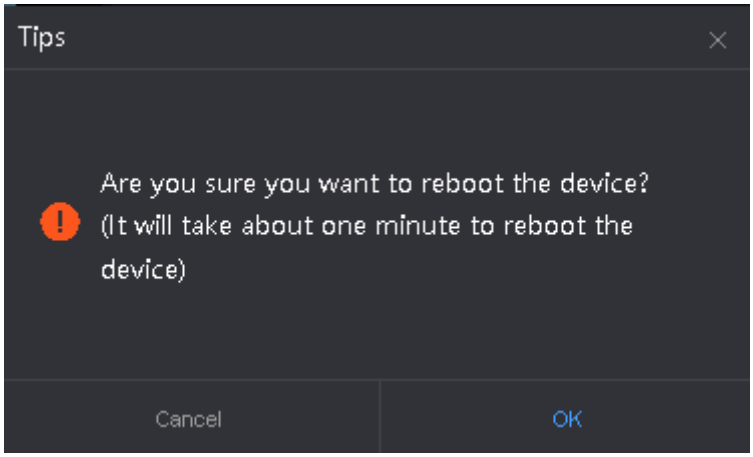

Figure 29: Confirmation Popup for Device Restart

8.2.3 Language Settings

Clicking " " will pop up a drop-down menu, where you can select the corresponding language for switching.

8.2.4 Voice Intercom

KIS (Kiloview Intercom Server) is a straightforward and practical multi-party voice communication platform that supports login via various methods (Kiloview codec, Kiloview voice panel, mobile/PAD, web client, handheld terminal). It enables multi-party voice calls across the internet, allowing participation from multiple devices regardless of location. To obtain and install the KIS multi-party voice call system, please visit http://www.kiloview.com or contact your dealer.
Before P3Mini connects to the KIS intercom server, you need to install and deploy the KIS multi-party voice call system on the server and set the corresponding permissions. For detailed settings and operations of the KIS multi-party voice call system, please refer to the "Kiloview Intercom Server Operation Manual".

P3 Mini can support voice intercom functionality by connecting to KIS. The voice intercom feature on P3 Mini operates over HTTPS protocol. Therefore, before enabling voice intercom, the network must be switched to HTTPS protocol (for instructions on switching to HTTPS protocol, refer to section 7.3.5).
The voice intercom function of P3 Mini allows users to log in to the webpage via HTTPS mode using web browsers (Chrome, Edge, Safari), or directly connect a headset to the device for voice intercom.

In HTTPS mode on the web browser, click " " after the webpage loads. Enter the IP address and authorization code to configure the connection to the KIS intercom server. It supports:

1. Intercom between the management interface and the device.
2. The device Joins KIS (Kiloview Intercom Server) for intercom (For more detailed configuration on joining KIS intercom server, please refer to the "Kiloview Intercom Server Operation Manual").

After setup, use a web browser (Chrome, Edge, Safari) in HTTPS mode to log in to the webpage. Click the " " button in the upper right corner of the page to select a KIS server for voice intercom operations (see Figure 30). Alternatively, connect a headset directly to the device and activate the voice intercom function on the device side.

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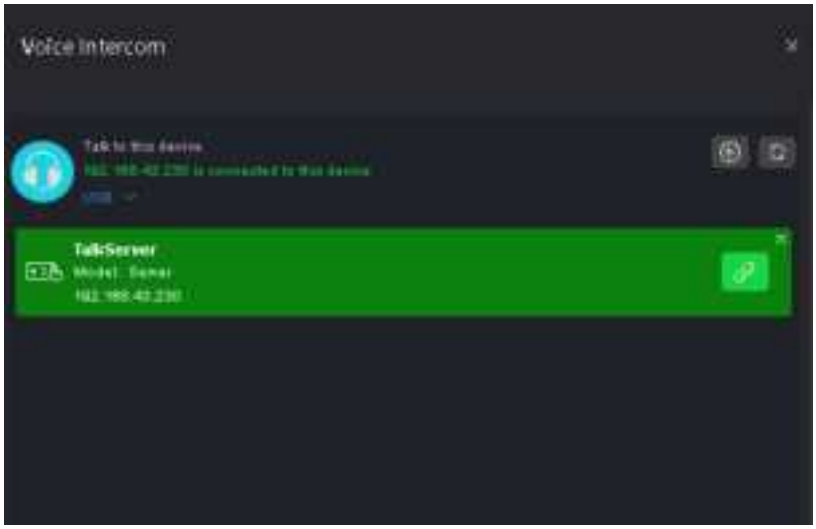

Figure 30: Voice Intercom Interface

8.2.5 Device Information

Clicking " " to check device information such as: device name, serial number, hardware version, software version, etc.

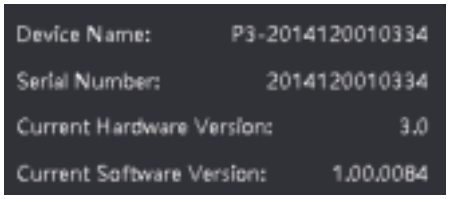

Figure 31: Device Information

8.3 Encoding Settings

8.3.1 Video Source

In the information bar interface, click on the "**gear**" icon in the "**Video Source**" area (as shown in Figure 32) to enter the video source settings interface. Here, you can select the video source:

Figure 32 Example of Video Source Signal Selection

Switch between HDMI/SDI video sources.

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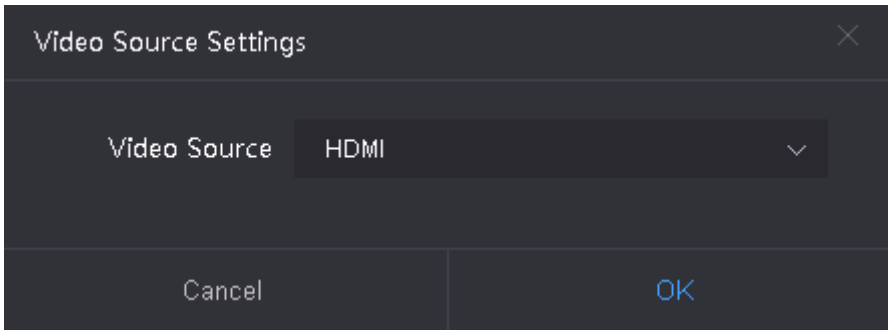

Figure 33: Pop-up window for selecting HDMI/SDI video source signals.

8.3.2 Video Encoding Parameters

The video encoding parameters are mainly used to configure the device's encoding format (CODEC), video scaling, encoding frame rate, bitrate control mode, encoding bitrate, GOP value, color, and other settings. Click on the "**gear**" icon in the "**Video Encoding**" section of the interface (refer to Figure 34, marked in red), dialog box as shown in Figure 35 will pop up.

Figure 34: Entry for configuring video encoding parameters

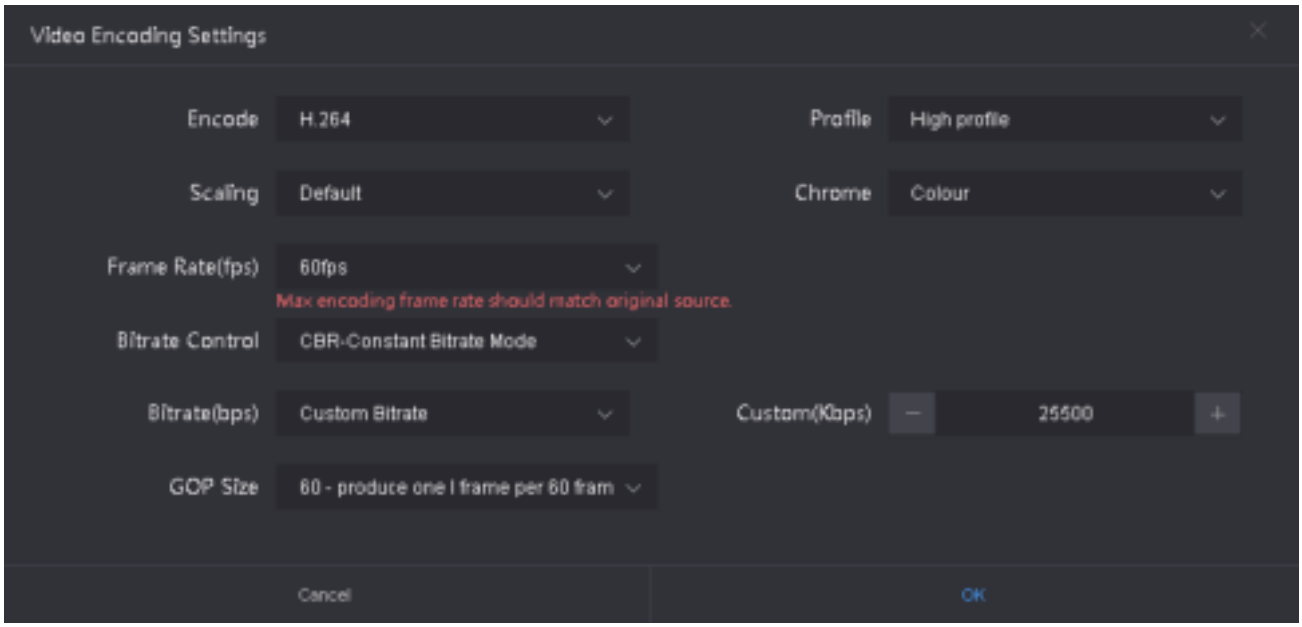

Figure 35: Pop-up window for configuring video encoding parameters.

You can set various parameters in this window:

- Encoding: H264/H265 optional.
- Profiles: Supports Baseline, Main profile and High profile for both H.264 and H.265. Choose the corresponding profile based on the encoding characteristics of H.264/H.265. When using H.264, options include Baseline, Main

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and High; for H.265, select Main. Higher profiles offer better video compression and advanced encoding features, potentially improving image quality at the same bitrate. Ensure your receiving/decoding system supports the chosen profile.

- Scaling: Default is AUTO, maintaining video resolution consistent with actual HDMI/SDI input resolution. Specific scaling to predefined resolutions is also available (select from list). Note: P3 Mini currently does not support video upscaling; therefore, scaling above input resolution won't take effect.
- Color: Two options available: grayscale and color.
- Frame Rate: Default is "Full Frame Rate," matching the input source frame rate automatically. Alternatively, select "Automatically halve when original video frame rate >= 50," or specify another frame rate (choose from list). Note: P3 Mini does not currently support frame interpolation, so the selected frame rate higher than actual input frame rate will automatically match the actual frame rate.
- Bitrate Control Mode: Choose between CBR (Constant Bitrate) and VBR (Variable Bitrate). CBR is a fixed bit rate. After selecting fixed encoding, the video encoder "tries to control" the bit rate output of the video encoding to be constant. For example, if the video encoding bit rate is set to 4Mbps, then no matter how the complexity of the image content changes, the encoder tries to keep the output bit rate uniformly around 4Mbps. VBR is a variable bit rate. The encoder will change the encoding bit rate of each frame significantly based on the complexity of the actual video content and the set target bit rate, with the premise of ensuring that image quality is the first goal and the average bit rate does not exceed the set target bit rate, so its instantaneous bit rate has a large fluctuation. CBR encoding settings are more suitable for wireless network transmission scenarios, because the constant bit rate in a wireless network environment can ensure that the network delay and jitter are more stable.
- Encoding Bitrate: Options range from 512Kbps to 40Mbps, defaulting to 6Mbps.
- GOP Size: GOP (Group of Pictures) represents a series of consecutive frames including one I-frame (keyframe), several P-frames (predictive frames), and B-frames (bi-directional predictive frames, which are not produced under P3 Mini's default settings). Shorter GOPs enhance video quality by more frequent I-frame insertion, aiding in error recovery, but increasing bitrate. Longer GOPs compress video more efficiently but may sacrifice quality in motion or complex scenes. The default GOP value is 60 (frames), adjustable based on video performance.

8.3.3 Audio Source

Click on the "**gear**" icon in the "**Audio Source**" area of the information bar interface (see Figure 36, highlighted in red) to enter the audio source settings interface, where you can switch between audio sources:

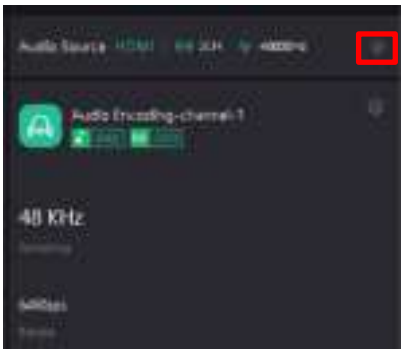

Figure 36: Entry for selecting audio sources.

The available audio sources for switching include: HDMI/SDI/Line-IN. If using Line IN for audio input, connect the audio source to the device's 3.5mm audio input port.

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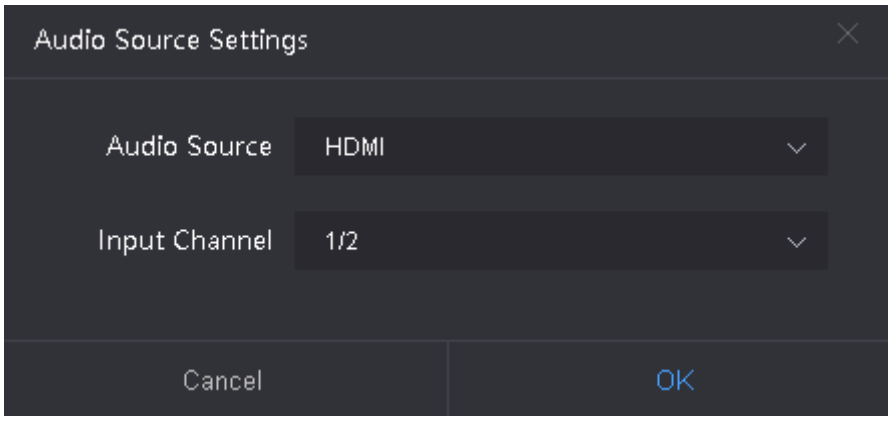

Figure 37: Audio Source Selection Popup

Note:
Unless the audio signal source is set to Line IN, switching the video source will automatically synchronize the audio source with the video source. Therefore, if you want to customize the combination of video and audio sources, set the video source first before switching the audio source.

8.3.4 Audio Encoding Settings

Click on the "**gear**" icon in the "**Audio Encoding**" area of the information bar interface (see Figure 38, highlighted in red) to enter the audio and video encoding settings interface, where you can configure audio source and audio encoding parameters:

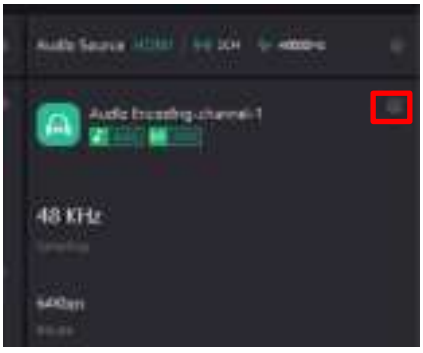

Figure 38: Audio Encoding Parameter Configuration Entry

Audio encoding supports two formats: AAC and G.711. The audio sampling rate can be selected according to actual needs, with stereo and mono audio channel options available. The encoding bitrate can be adjusted within the range of 16 Kbps to 512 Kbps, with a default setting of 64 Kbps.

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Figure 39: Audio Encoding Parameter Configuration Options

8.4 Video Preview and Video Processing

In the video preview and processing panel (refer to Figure 40), the left side is dedicated to video preview settings. Control is available via buttons at the bottom right corner of the preview window: "" for image preview and "" for video preview. After selecting a preview mode, click on the adjacent video status to refresh the preview. The preview window will then switch to the selected preview mode.

If the preview window displays a black screen, it indicates that the device has not detected a video input source; please check if the input cable is properly connected.

Description of Corresponding Buttons:

: Enable the safety frame for the video.

: Enable centerline for preview

: Flip the video horizontally (Mirror).

: Flip the video vertically (Flip).

: Switching soundbar effects

: overlay function for video (supporting text, date, time, date/time, and image)

: PTZ control function (requires video source to support NDI standard PTZ control protocol)

: Start/Pause video recording function

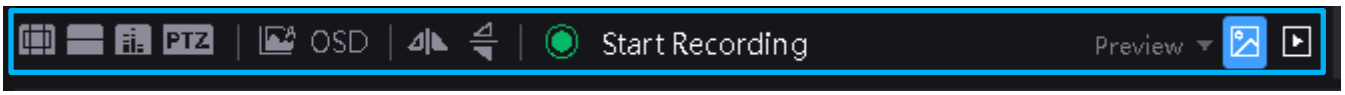

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Figure 40 Video Processing Toolbar

8.5 Local Recording

P3 Mini supports local recording by inserting an SD card or a USB flash drive into the encoder's USB port. Here are the specific recording operations:

1) Ensure that the P3 Mini is equipped with a USB flash drive or SD card. In the WEB interface, navigate to "**Record**" -> "**Devices**" in the top navigation bar to verify that the storage device is recognized. Refer to the following figure:

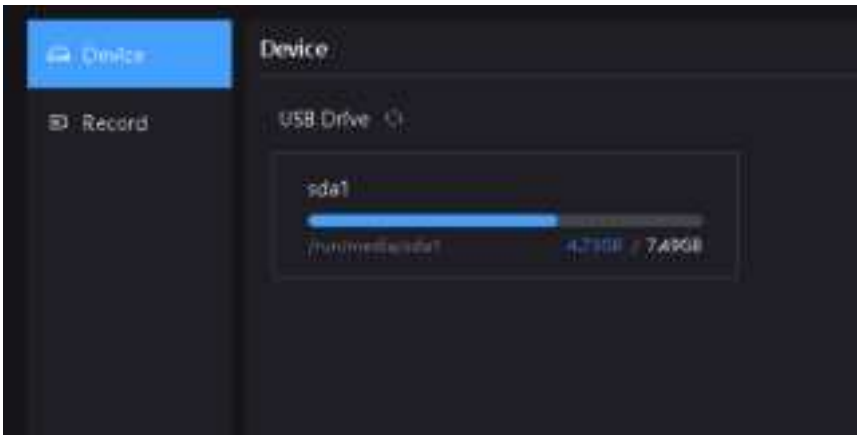

Figure 41 Storage Device Management

2) Recording settings allow you to configure recording formats such as MP4/MOV, file splitting methods (no splitting, by duration, by size), and recording strategies (stop recording when full or automatically overwrite old files). (For detailed parameter explanations, refer to Section 6.6.4.).

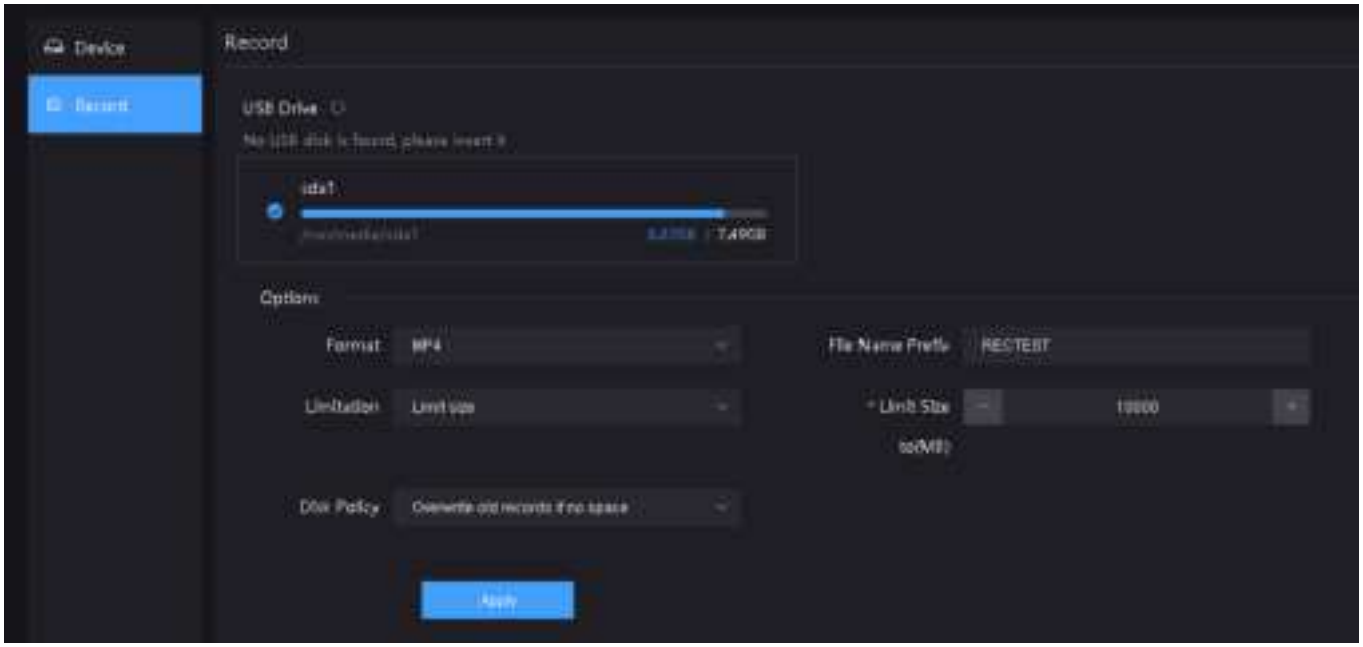

Figure 42 Recording Settings Parameters

3) Click “ ” to start recording. When recording starts successfully, the recording button turns red. To stop recording, click the recording button again.

Figure 43 Start/Stop Recording

8.6 View and Download Record

To view recorded video files, navigate to **"Record" -> "Devices"** in the top navigation bar. On the storage management page, click the disk containing the recordings you wish to view/download, and use the popup menu to download or delete recording files (see Figure 44):

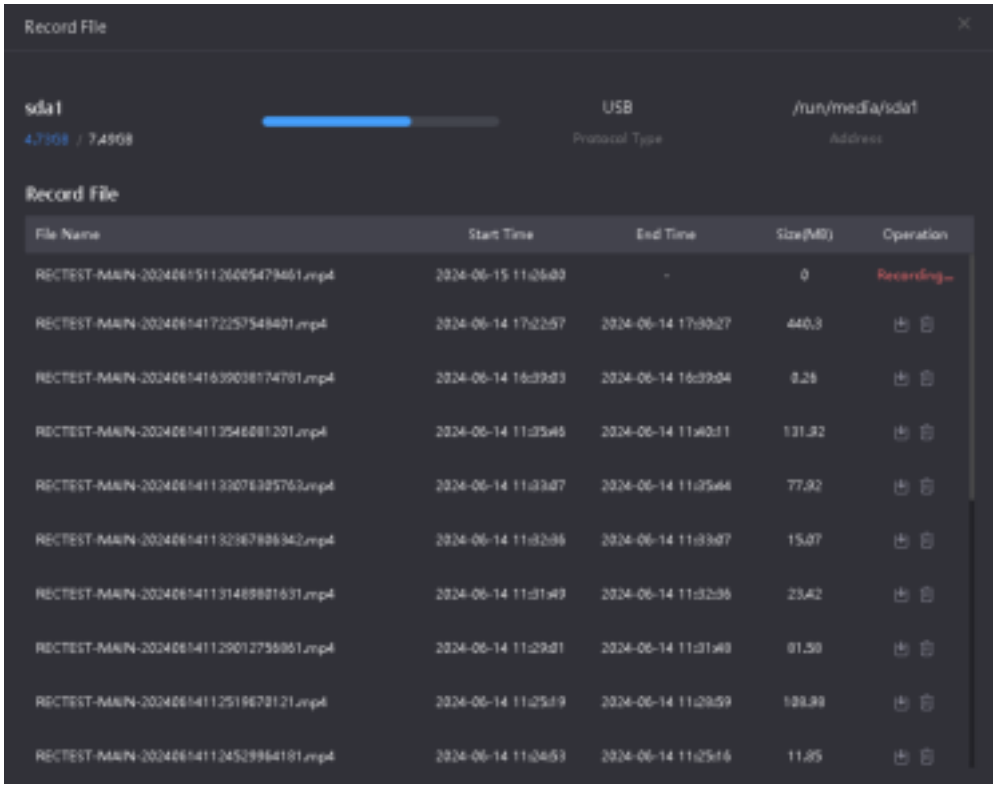

Figure 44 Recording File Management Popup Menu

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Note

Removing the storage device while recording may permanently damage the recorded files, making them unplayable.

After recording is complete, ensure to stop recording before removing the storage device to ensure proper playback of the recordings.

9 Uses Bonding Function

To achieve bonding transmission with P3 Mini, you need a KiloLink Server Pro server. Here's how to configure it:

Install a KiloLink Server Pro server and configure the registration information for P3 Mini devices on the server side (For detailed configuration and usage instructions, refer to the KiloLink Server Pro operation manual).

Before enabling bonding transmission on the P3 Mini device side, configure the corresponding parameters to connect the P3 Mini device with KiloLink Server Pro.

Steps to use the aggregation feature on the P3 Mini device:

1.Click on the "**gear**" icon in the aggregation area of the main interface to enter the aggregation configuration page. Fill in the following information: server address, server port, authorization code, and choose whether to enable encryption. Select the network communication links that will participate in the aggregation communication.

2.Check the communication links that need to participate in the aggregation.

3.Turn on the "**Bonding**" switch to start aggregated streaming.

By following these steps, the device can aggregate transmit audio and video information simultaneously through multiple communication links.

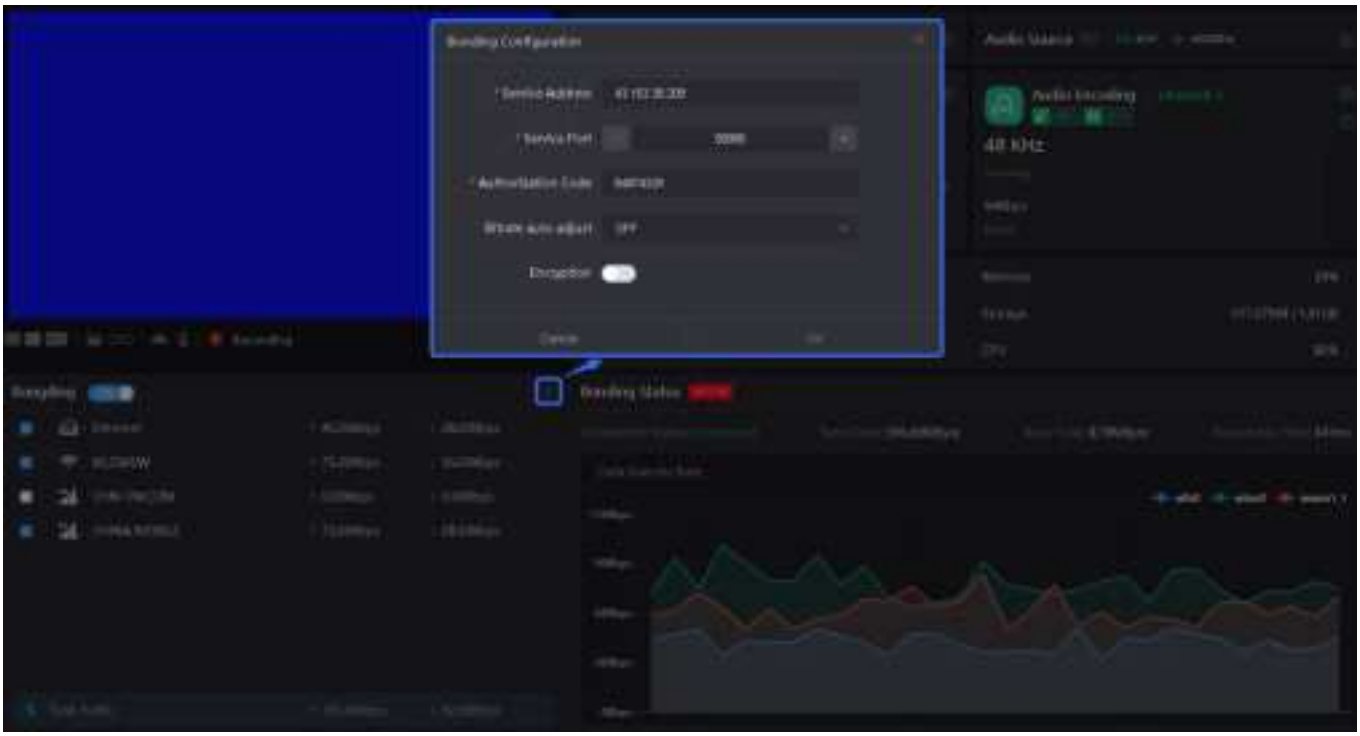

Figure 45 Bonding Service Configuration

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9.1 Bonding Status Explanation

You can view the real-time status of devices in the bonding network through the management system, such as real-time rates of each channel, packet loss rates, data transmission and reception statistics, and latency, as shown below:

Figure 46 Bonding Status Information

9.2 Bonding Configuration Explanation

To use the bonding feature, you need to enable the bonding service switch and configure the IP address, port number, and authorization code for connecting to the bonding server. Depending on your requirements, you can also enable or disable dynamic bitrate adjustment and select the communication links for aggregation transmission. Finally, click the "**OK**" button to apply the configuration settings.

Parameter Description:

- Server Address: Enter the IP address or domain name for connecting to KiloLink Server Pro.
- Server Port: Enter the corresponding service port number open on KiloLink Server Pro.
- Authorization Code: Enter the authorization code specific to this device for connecting to KiloLink Server Pro.
- Bitrate auto Adjust: Enable or disable dynamic bitrate adjustment.
- Encryption: Enable or disable data encryption for P3 Mini aggregation transmission.

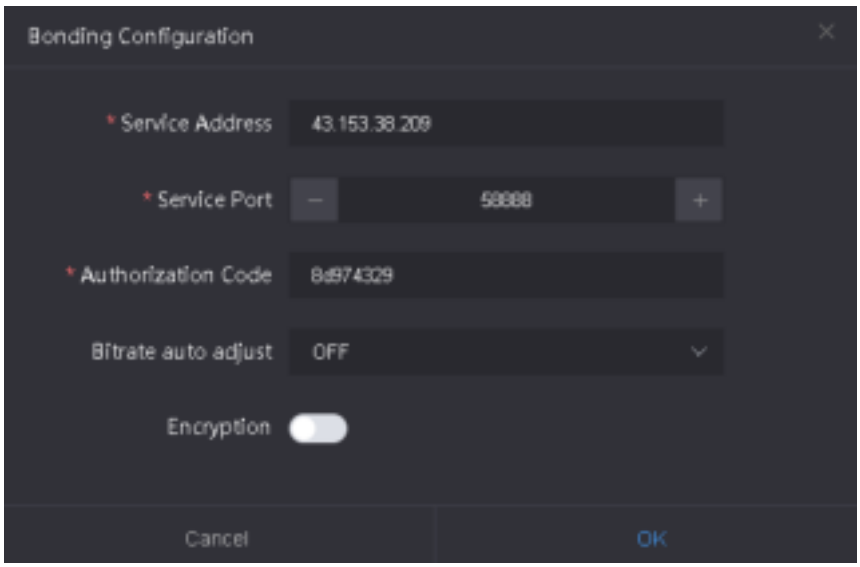

Figure 47 Bonding Status Configuration

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Note

Configuring the parameters of the bonding connection does not mean that the bonding function is enabled immediately; to use the bonding function, you need to click the bongding switch on the web homepage.

In a stable network environment, there is no need to enable dynamic bitrate adjustment, and a stable bitrate can ensure the quality of audio and video; in an unstable and weak network environment, it is recommended to enable the dynamic bitrate adjustment option to prioritize the smoothness of audio and video transmission.

10 Web Settings Menu

The settings menu of the WEB management system includes network settings, user management, recording management, region and time settings, PTZ, EDID, factory reset, and system upgrade functions.

10.1 General setings

Click on the top navigation bar **"Settings" -> "Basic Setting"** page, where you can set the device's name and language：

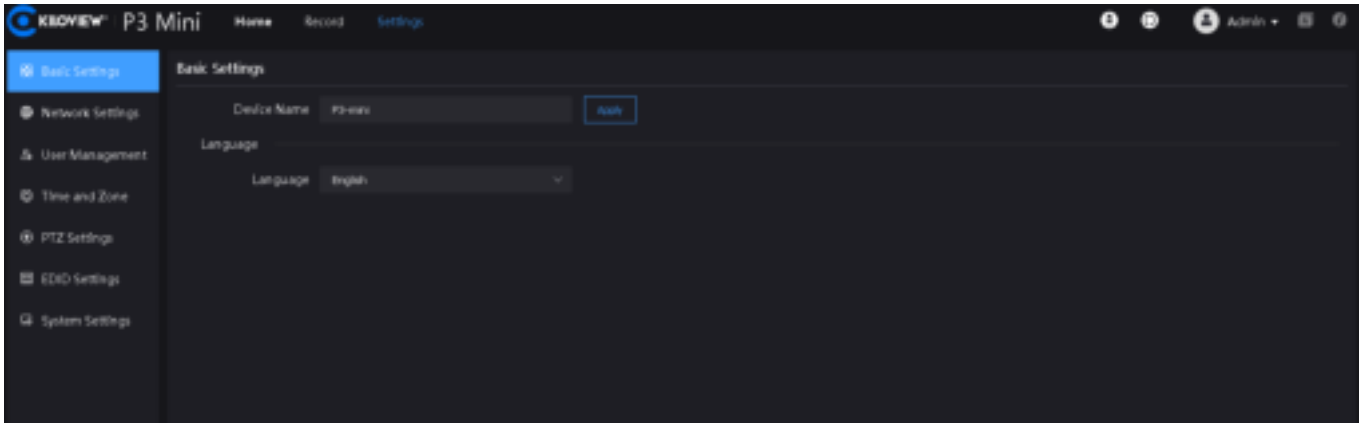

Figure 48 Settings - Basic Settings Section

10.2 Network Settings

Click on the top navigation bar **"Settings" -> "Network Settings"** page. For detailed network settings, refer to section 7.3.

10.3 User Management

To manage your account, click on the top navigation bar **"Settings"** -> **"User Management"** page for user management tasks such as adding and deleting users, and modifying user passwords etc.

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Figure 49 Settings - User Management Section

10.4 Time and Zone Settings

Navigate to the top navigation bar, click on "**Settings**" -> "**Time and Zone**" page to modify the system time and region of the encoder.

- "Follow current PC": Synchronize the time by fetching the current time from the PC configuring this device.
- "Manual": Manually set a specific time.
- "Synchronize with NTP server": Configure time synchronization with an NTP server.

After configuring, click "Settings" to finalize.

The "Location and Region" setting determines the current operating region of the device. You can directly click on the corresponding region on the map or select from the dropdown menu under "Location Region". Click "Change My Location" to apply the location and region settings..

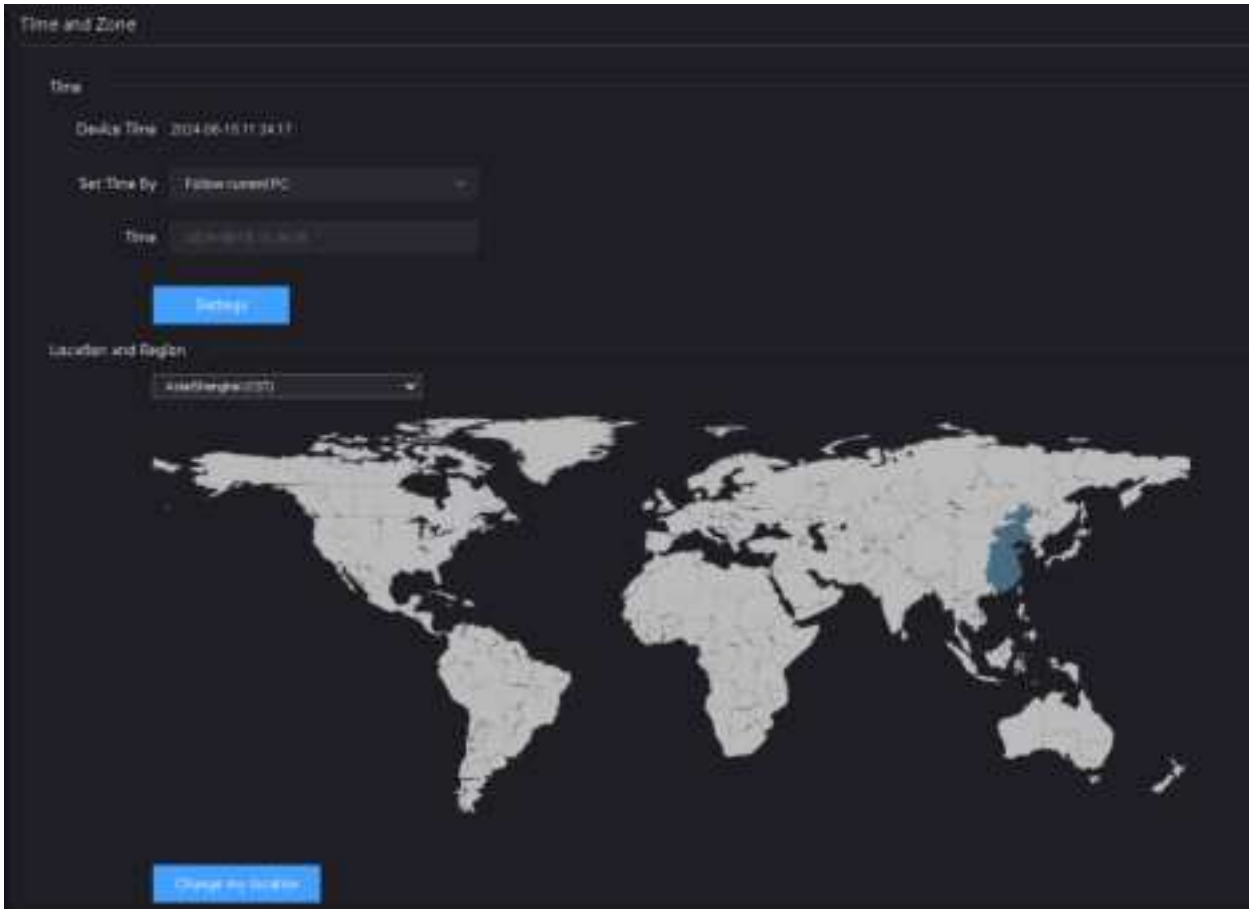

Figure 50 Settings - Time and Zone Section

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Note

The selection of location and region is solely for time zone configuration convenience and does not imply any political stance.

10.5 PTZ Settings

10.5.1 Enable PTZ Control Function

Equipment supports PTZ camera control via serial port or IP network.
Before using PTZ control, you need to enable the PTZ control switch in "**Settings**" -> "**PTZ Settings** ".

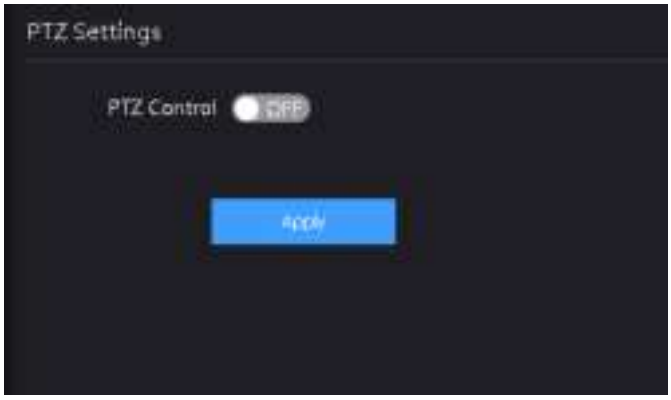

Figure 51 Settings - PTZ Settings Section

10.5.2 PTZ Function Settings

The device supports control of PTZ cameras using Sony Visca, Pelco-D, and Pelco-P protocols.
For serial-based PTZ control, connect the USB to RS232/RS422/RS485 converter (cable) to the encoder's USB port. After the device recognizes the serial port correctly, select "**Serial**" in PTZ type, and corresponding options for "Serial Device" will be added. After configuring the correct serial connection parameters and PTZ control protocol, operation is possible.

Figure 52 Settings - PTZ Serial Control Parameter Settings

For network protocol-based PTZ control, select "**Network PTZ**" in PTZ settings and configure the correct network connection parameters and PTZ control protocol.

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Figure 53 Settings - PTZ Network PTZ Control Parameter Settings

10.5.3 PTZ Testing and Usage

On the PTZ settings page, click the PTZ test button to test the PTZ function.

Figure 54 Settings - PTZ PTZ Control Test

After successful testing, you can use the PTZ function in real-time on the device's management system homepage.

10.6 EDID Settings

The encoder supports importing EDID (Extended Display Identification Data) configuration information to meet compatibility requirements between different display devices.You can click "Settings" -> "EDID Settings" in the management system to import, export, or reset device EDID information.

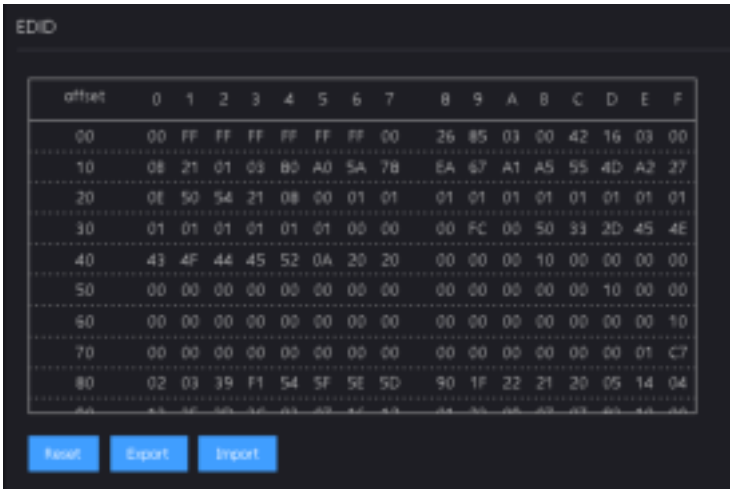

Figure 55 Settings - EDID Settings

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Note

The imported EDID protocol document is a 256-byte data bin file.If you are not sure whether your EDID file format is correct, you can first export the EDID file of this device for reference and editing.

10.7 System Settings

The system settings menu mainly includes two functions: factory reset and firmware upgrade.

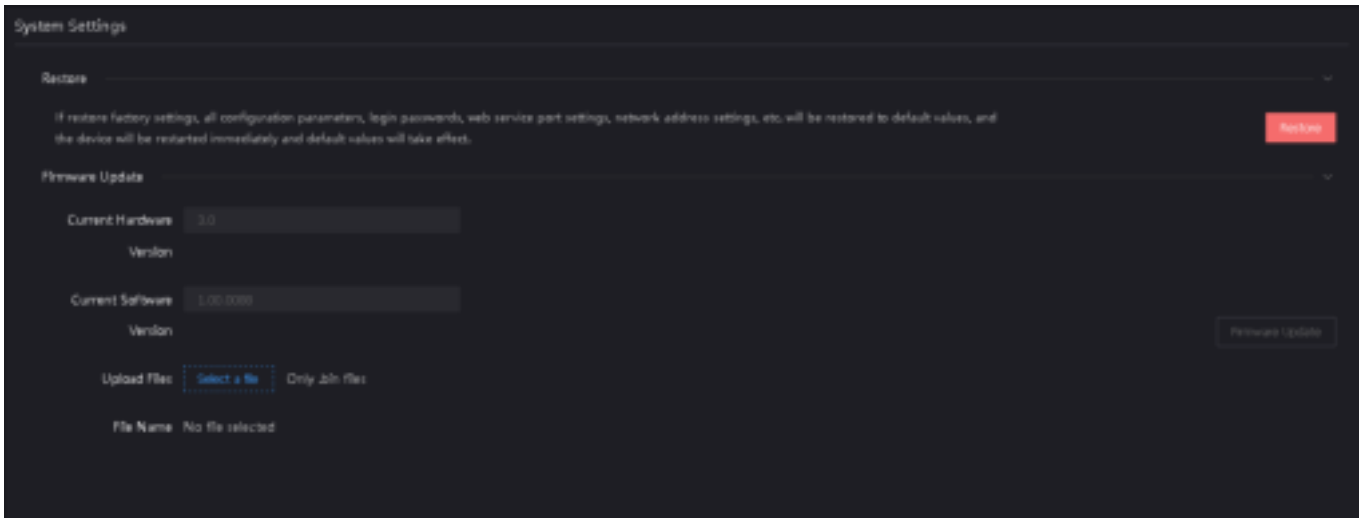

Figure 56 System Settings - Factory Reset and Firmware Upgrade

10.7.1 Factory Restoration

Click the "**Restore**" button and confirm to reset the device to its initial state settings.

10.7.2 Firmware Upgrade

When there are new features, performance optimizations, or bug fixes for P3 Mini, new firmware will be released for updates. Before upgrading, please visit the company's official website download page to obtain the upgrade package.

Kiloview will continue to provide firmware updates for P3 Mini devices. Visit:
https://www.kiloview.com/en/support/download/
Select "Video Encoder" > "P3 Mini" in the filter list, and find the latest firmware download in the "Firmware" tab

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WEB Page Upgrade:

Click "System Settings" > "Firmware Upgrade," upload the downloaded upgrade package from the official website, and then click "Firmware Upgrade."

After successfully uploading the firmware, the system will prompt for a restart. Please wait patiently during the restart process. After the device restarts, the upgrade is successful.

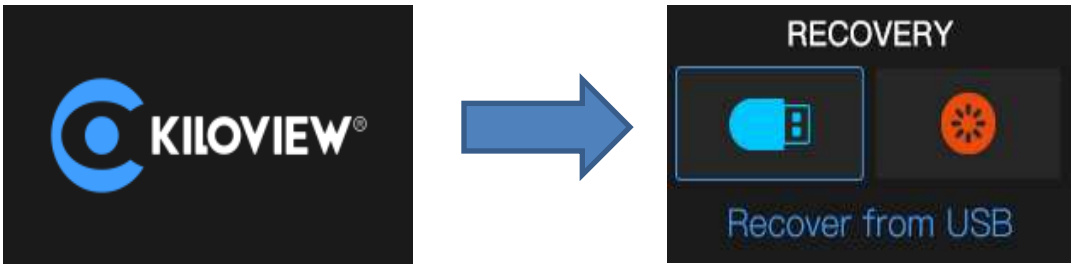
Figure 57 Firmware Upgrade

Recovery Mode Upgrade:

If the device fails to start normally or access the Web management system, you can use Recovery Mode to upgrade or update the system. During device startup, when the LCD screen displays "KILOVIEW," press and hold the P3 Mini LCD screen continuously for 5 seconds or more to enter Recovery Mode.

Step 1: Prepare a USB drive and copy the downloaded firmware file from the official website to the USB drive.

Step 2: Insert the USB drive into P3 Mini. After the device boots (approximately 2 seconds), hold the screen until the Kiloview logo appears, then hold it for another 5 seconds until the device enters Recovery Mode.



Step 3: Select "Recover from USB" (install firmware from USB) by clicking the touch button. After selection, the upgrade can begin.

Step 4: During the firmware upgrade, it will prompt "Updating! Please keep the power on."

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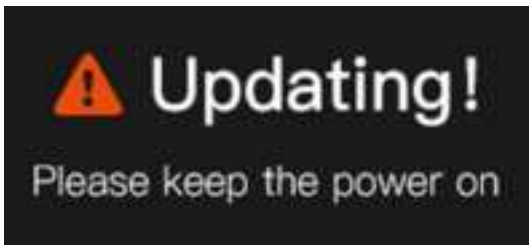
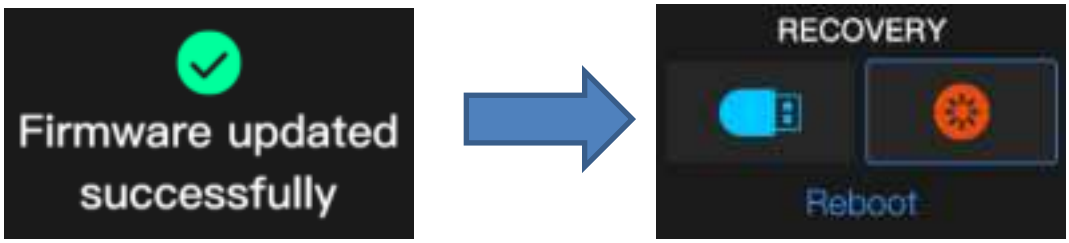


Step 5: When the screen displays "Firmware updated successfully", it means the firmware upgrade is completed. At this time, any operation of the touch button will help you return to the Recovery menu. Please select Reboot to restart the device.



Note

- During the upgrade process, do not power off the device, as it may prevent it from starting up.
- The upgrade process takes approximately 3-5 minutes. If the upgrade is not completed within 5 minutes, try refreshing the webpage. If access is still not restored, use Recovery upgrade or contact technical support.
- To use a USB drive for firmware upgrades, the file system format must be FAT/FAT32/exFAT.
- Factory reset and Recovery upgrade will erase all user data on the device, so use them cautiously.

11 Others

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference
(2) this device must accept any interference received, including interference that may cause undesired operation.

To prolong the device life, please unplug the power and keep it properly if you do not use it for a long time.

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Thanks for your reading !

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