LipEncoder

User Manual

REV 1.1

Nanjing Nagasoft Corporation

Contents

1. Hardware specifications

1.1 Packing List

Name/Model	Package	Specifications	Quantity	Issed qty	Remark
Main Device	Inner carton	LipEncoder	1	1	
Power cable	Inner carton	Standard	1	1	
Power adapter	Inner carton	Standard	1	1	
Warranty Card	Inner carton	Customized	1	1	
User Manual	Inner carton	Customized	1	1	Digital

1.2 Device parameters

Chips	HiSilicon 3521D
RAM	2G
Storage	512MB SPI nano flash, 1 TFcard port , support external TF card
Bonding	7-channel network bonding, support 3-channel 4G + 2-channel USB + 1-channel Gigabit wired port + 1-channel WIFI bonding
Extension function	- Kernel level bonding algorithm, efficient multi-channel bandwidth stacking, transparent to the application layer - Efficient bandwidth detection and congestion control algorithms, fully tapping into each channel's bandwidth - Supporting port forwarding and providing public IP - Dynamic data splitting, encrypted transmission, and improved security of private data - One click factory restore - Online firmware upgrade
Bonding bandwidth	Up to 300Mbps
Network type	4G
RJ45	Ethernet Gigabit Interface
WiFi frequency	2.4G/5.8G
Antenna	WIFI/4G hidden Antenna
Power supply	External power supply with 10-20V wide voltage DC input, providing 19V DC adapter. Built in 6000mAh capacity lithium battery, up to 2-3 hours of battery life

| Screen	5-inch MIPI LCD screen with 1920x1080 resolution and support touch operation
USB	2 USB3.0
Dimension	184.4x125x41.9mm
Working temperature	0°C - +60°C
Weight	Net Weight 650g

1.3 Interface diagram
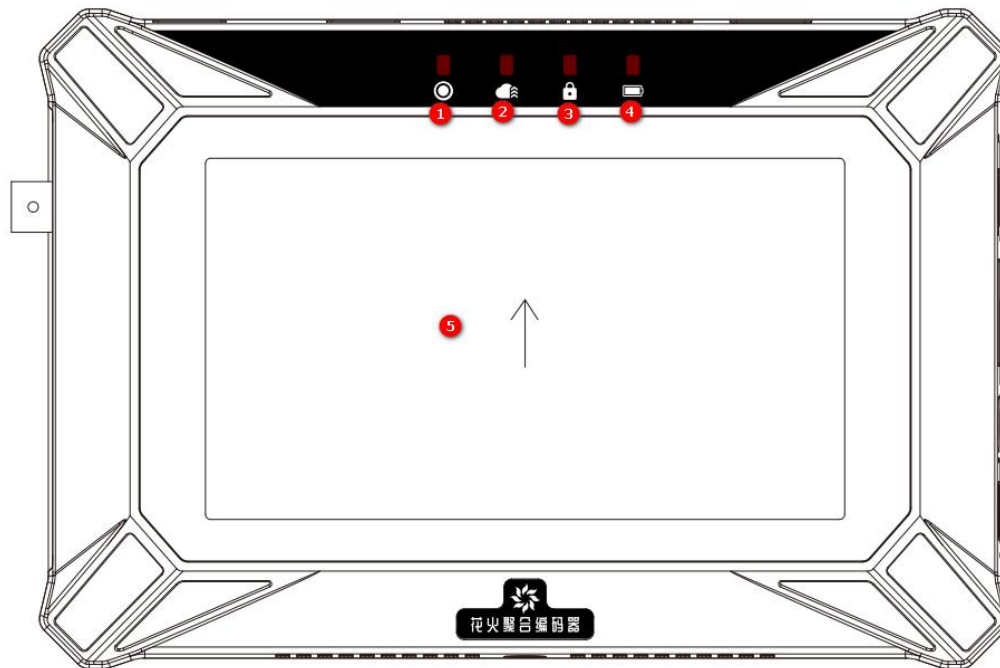

①   Recording prompt light
②   Streaming prompt light
③   Lock screen prompt light
④   Power prompt light
⑤   Touch screen display
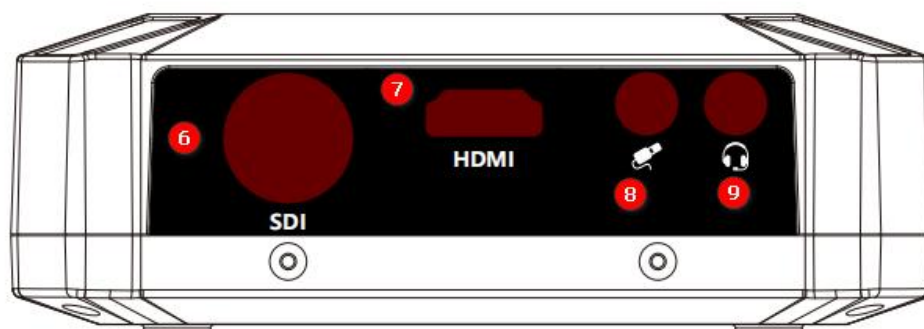
⑥   SDI signal input
⑦   HDMI signal input
⑧   3.5MM line input
⑨   Earphone port

GND-GREEN-RED-GND-RX-TX-+5V

⑩ PWR ⑪ DC 19V ⑫ ⑬ TF ⑭ RESET

⑮ 4G-1 ⑯ 4G-2 ⑰ 4G-3
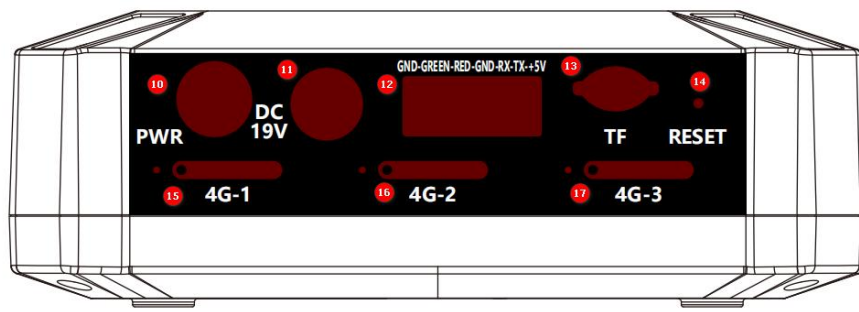
⑩   Power Switch

⑪   DC 19V power port

⑫   7-PIN Phoenix interface, can be used for camera pan tilt and TALLY light control.

⑬   TF card interface, supporting FAT32, exFat, and NTFS formats

⑭   RESET restore factory button

⑮   4G SIM 1

⑯   4G SIM 2

⑰   4G SIM 3

⑱ WAN/LAN ⑲ USB 2 ⑳ USB 1
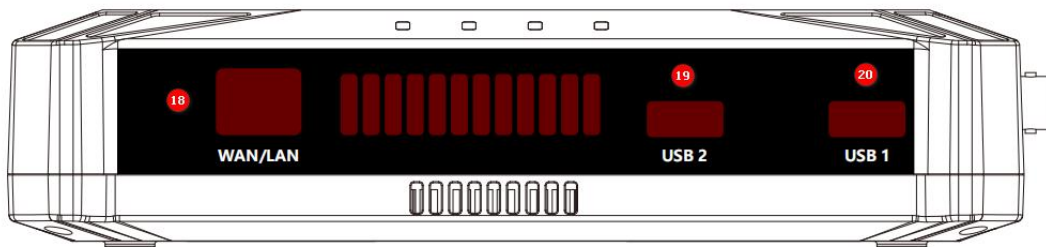
⑱   RJ45 network port, software supports WAN/LAN mode switching

⑲   USB3.0

⑳   USB3.0

2. Installation and debugging

1. Take LipEncoder from the packaging and place it on a stable desktop
2. Take the power adapter and connect it to the DC 19V power interface of LipEncoder, or directly use the built-in battery for power supply.
3. Insert the 4G SIM card into the corresponding SIM card slot.
4. Connect the USB 4G card to any USB interface of LipEncoder.
5. Connect the external network cable to the RJ45 network port of LipEncoder
6. Press the power switch of LipEncoder to start the device.
7. After entering the main interface, please click the "Settings" icon button on the upper right corner to enter the settings interface.
8. In the settings interface, click the "Bonding Account" button, enter the account/password or scan the QR code to log in, and you can use the bonding Internet function, as shown in the following figure:
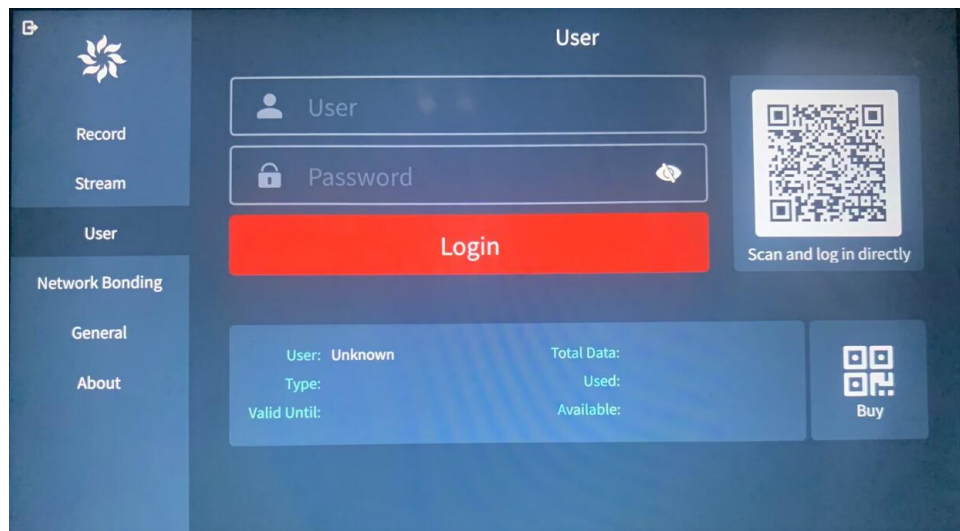

9. In the settings interface, enter "Bonding Network - Wired Network" and switch the RJ45 network port to WAN or LAN mode. In WAN mode, external IP addresses can be automatically or manually assigned.
10. In the settings interface, enter "Bonding Network - WIFI", enable WIFI to scan 2.4G/5.8G WIFI networks, and enter the correct password to connect.
11. When the RJ45 network port is in LAN mode, in the settings interface, enter "Bonding Network - LAN" and manually set the IP address of the local area network.
12. After the device is used, turn off the power supply of LipEncoder, disconnect the DC 19V power supply, and store the connected network cable, USB 4G network card, 4G SIM card, main device, and power adapter
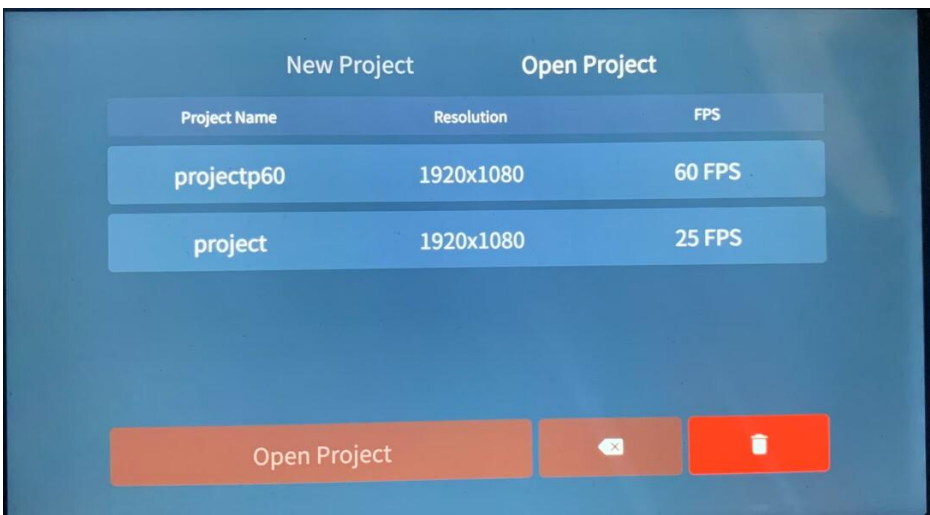
3.Software Function

3.1 Start-up interface

The interface for creating a new project is shown in the following figure:
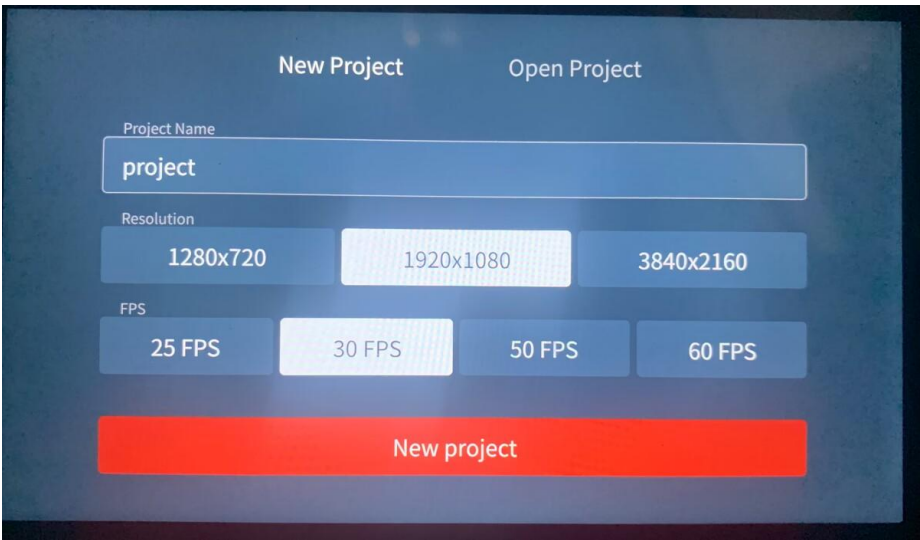
In this interface, you can select resolutions/frame rates of 720p25, p30, p50, p60,1080p25, p30, p50, p60, 2160p25, and p30 to create a new project.

Open the project interface, as shown in the following figure:

In this interface, you can choose to open the recently created or saved projects in history.

Click the " ⌫ " button to remove the selected individual projects, and click the " 🗑 " button to clear all projects.

3.2 Main interface

1、Bonding network	9、HDMI channel
2、Wired network	10、Mix Output Gain Control
3、WiFi network	11、Streaming button
4、4G network	12、Recording button
5、TF card	13、Lock screen button
6、Device battery display	14、Menu selection
7、PGM	15、System settings
8、SDI channel	

3.2.1 Bonding Network

As shown in the following figure: In the "System Settings- Bonding Account" function, you can log in to the bonding account by entering the account and password, or by scanning the QR code.
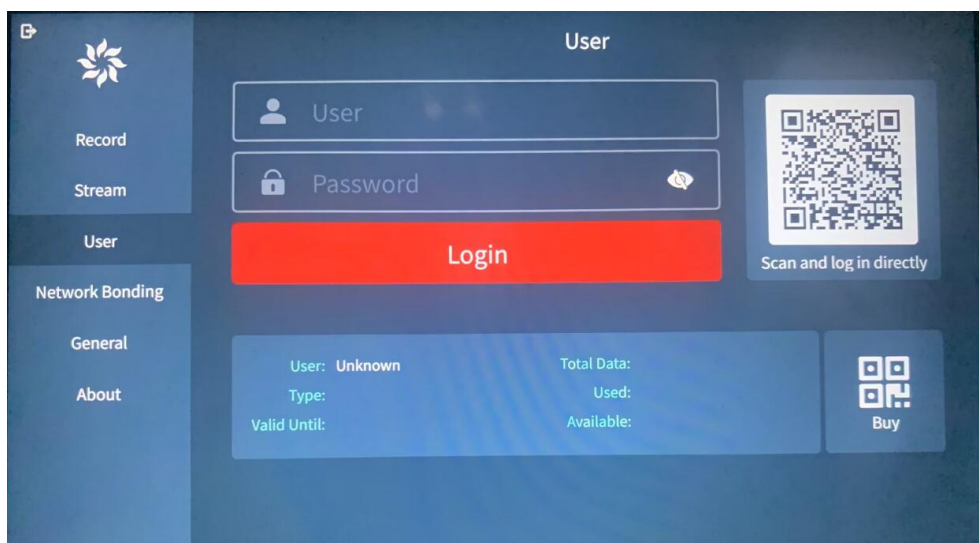
Data plan purchase: Click on the 'data plan purchase' button to purchase data package for the bonding account through mobile scanning.
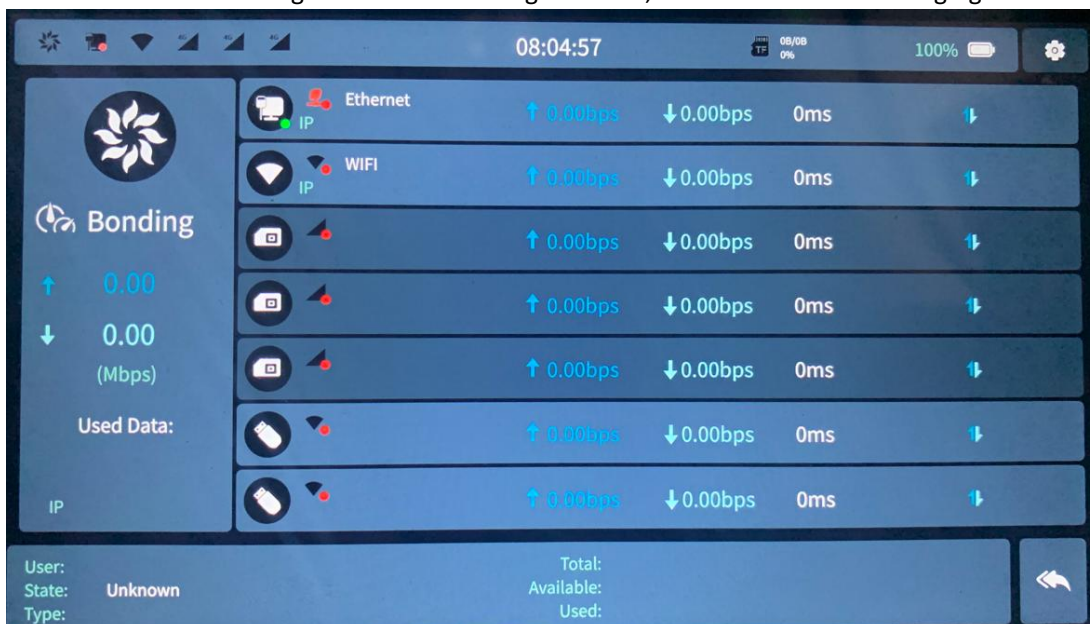
After logged in, you can obtain bonding account types and data usage information. Click the

" " button in the top left corner to return to the main interface

Click on the " " icon in the top left corner of the main interface, as shown in the following figure:
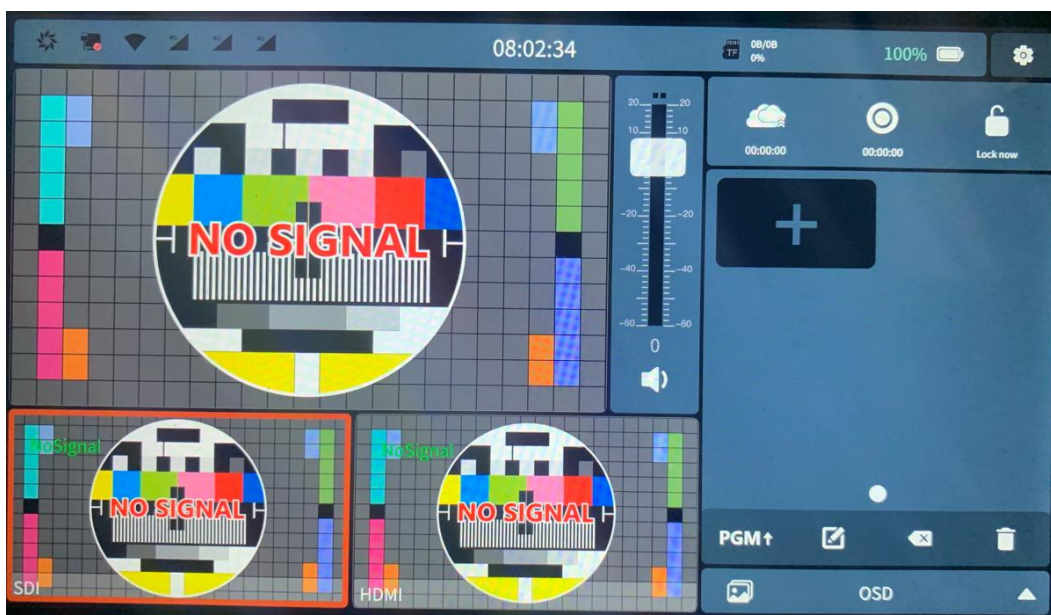
You can enter the bonding network monitoring interface, as shown in the following figure:

1、 Bonding network: Real time monitoring of bonding network speed, with the function of real-time monitoring of bonding data usage.

2、Bonding status: bonding account status, account data flow information monitoring.

3、WAN：Real time monitoring of wired network speed.

4、WIFI：Real time monitoring of WiFi network speed.

5、4G network: real-time monitoring of three 4G network speed and data, supporting bonding of total 4G network speed and data flow information monitoring.

6、Dongle: Two USB 4G network card for real-time monitoring of network speed and data, supporting bonding of 4G network total speed and data flow information monitoring.

3.2.2 Wired Network

As shown in the following figure: In the "System Settings - Bonding Network - Wired Network" function, you can switch the RJ45 network port to WAN or LAN mode. In WAN mode, external IP addresses can be automatically or manually assigned.
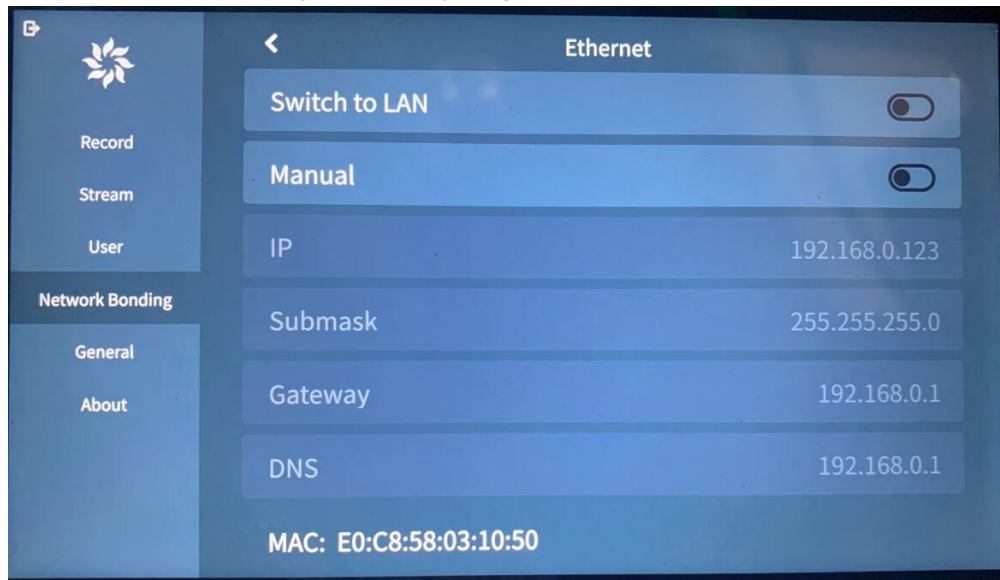

When the RJ45 network port is in LAN mode, in the settings interface, enter "Bonding Network - LAN" and can manually set the IP address of the local area network, as shown in the following figure:
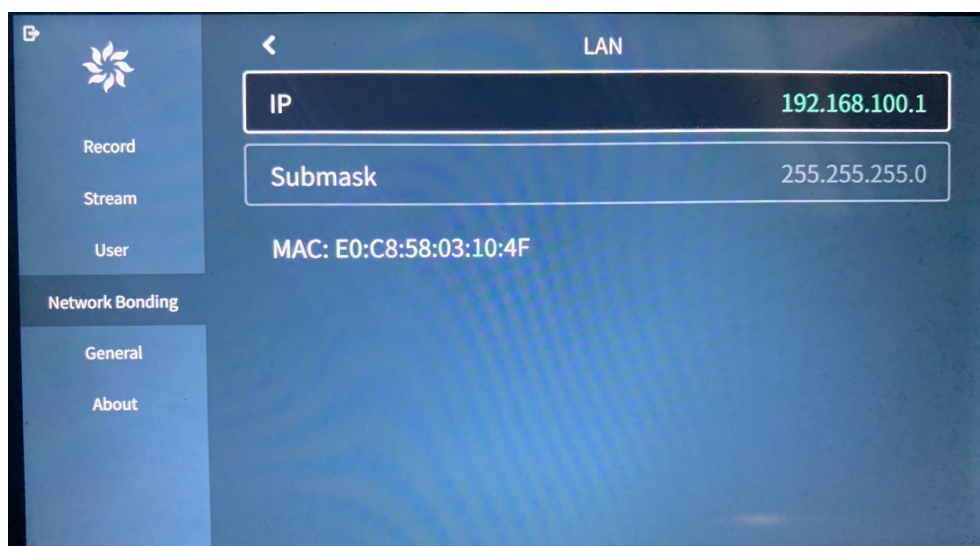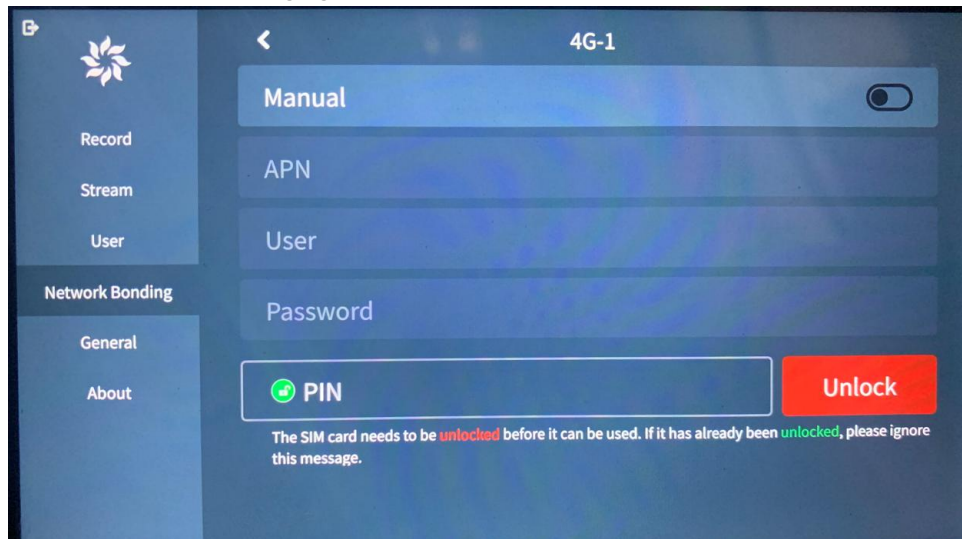
3.2.3 WIFI Network

In the settings interface, enter "Bonding Network - WIFI", enable WiFi to obtain 2.4G/5.8G WiFi networks, and enter the correct password to connect. As shown in the following figure:
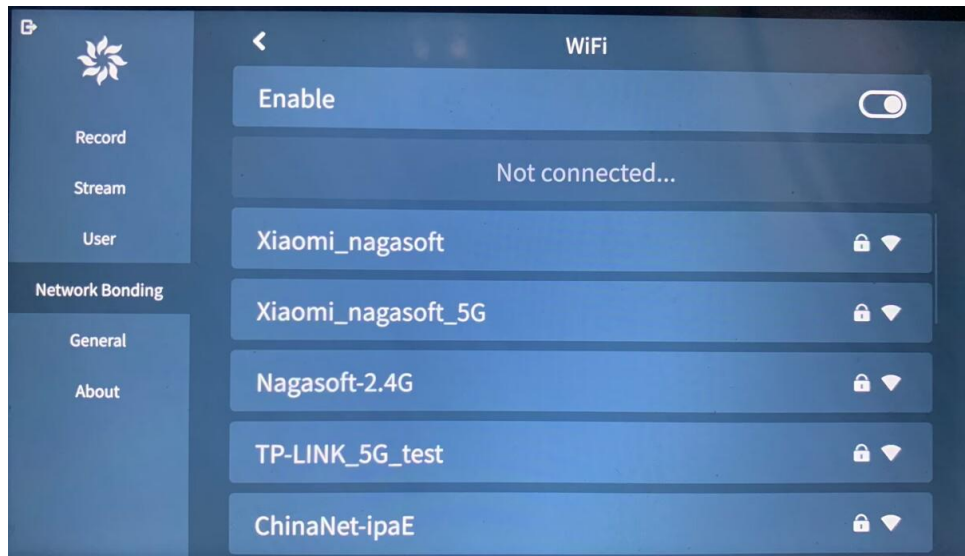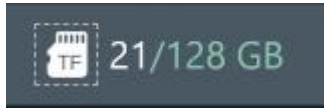

3.2.4 4G Network

In the settings interface, enter "Bonding Network -4G-SIM" to enable the SIM card APN function, as shown in the following figure:

3.2.5 TF card capacity display

As shown in the figure below, it can display the TF used capacity/total TF card capacity information.

3.2.6 Battery level display

As shown in the following figure: Display the current battery remaining power in percentage.

➢ When the battery level is below 10%, the power prompt light will turn into a flashing state.

➢ 接入 DC 19V 电源适配器充电至 10%以上，电源提示灯进入长亮状态。 Connect the DC 19V power adapter and charge it to over 10%, and the power prompt light will turn back to stable light state.

➢ The power prompt light will only display the corresponding status when entering the software project. For example, when the device is turned off and connected to a DC 19V power adapter for charging, the prompt light will not light up.

3.2.7 PGM

Monitor the currently playing screen and click on the SDI or HDMI channel to switch the channel to PGM output. As shown in the following figure:
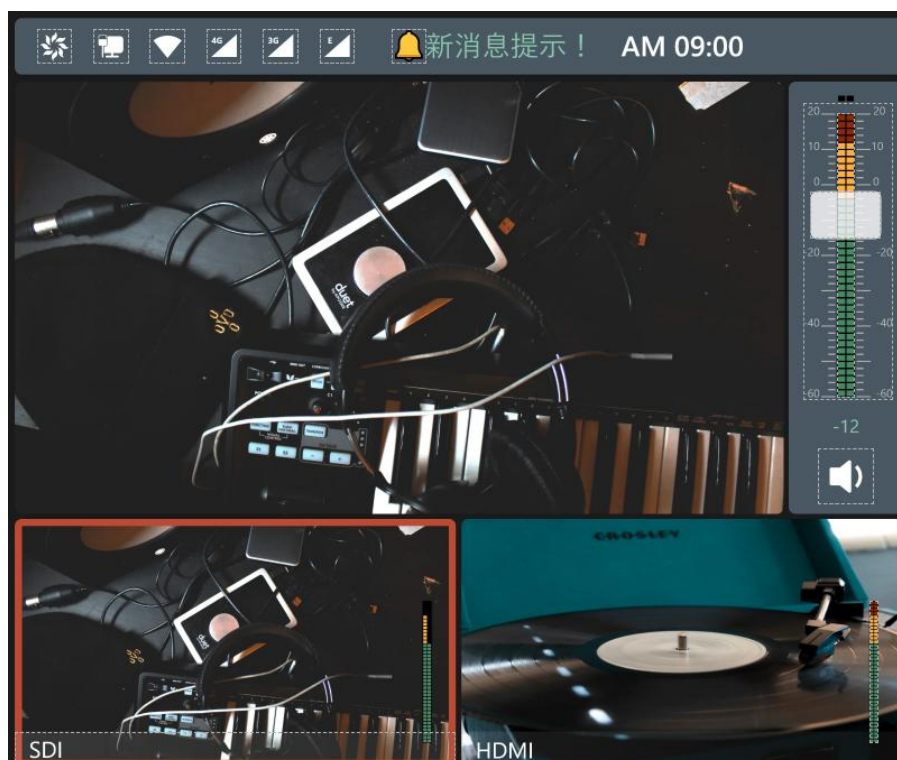
3.2.8 SDI channel

Devices   can be connected to SDI cameras or other SDI interfaces for signal acquisition and display on the corresponding channels.

3.2.9 HDMI channel

Devices   can be connected to HDMI cameras or other SDI interfaces for signal acquisition and display on the corresponding channels.

## 3.2.10 Mix Output Gain Control

As shown in the figure below:

1)   The button operation is shown as follows:
2)   Button：mix output。
3)   Button：mute
4)   Button: volume adjustment pusher。

3.2.11 PGM streaming

PGM streaming uses the RTMP protocol to push streams to VJLive3, FMS, WOWZA, etc. for

network live streaming. Click the button on the main interface to start live streaming, and

click again to stop streaming. The parameters such as resolution, video bitrate, bitrate mode, video frame rate, GOP, and audio bitrate can be customized and set. As shown in the following figure:
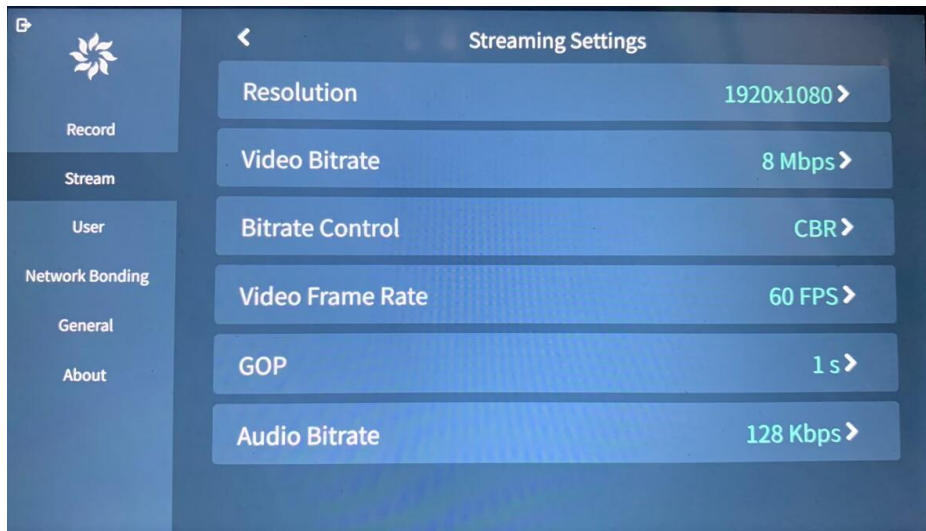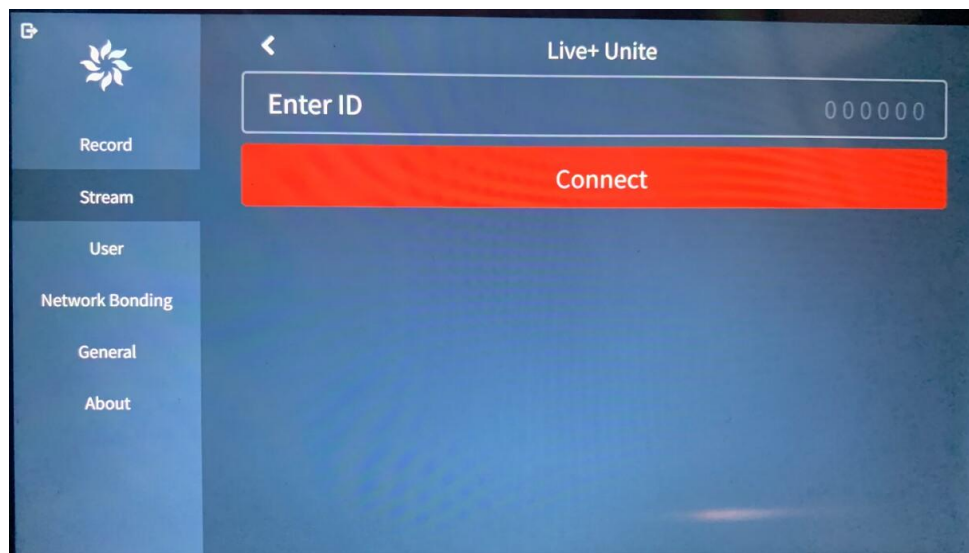
1) Select the streaming platform as "RTMP" to push the stream to the streaming server. If channel   protection is set, a username and password must be entered. If there is no setting, there is no need to fill it in. The input format for "rtmp://" is: ip: port/live, and "stream name" is the name of the channel. Enter the complete rtmp streaming address in the rtmp address. As shown in the following figure:
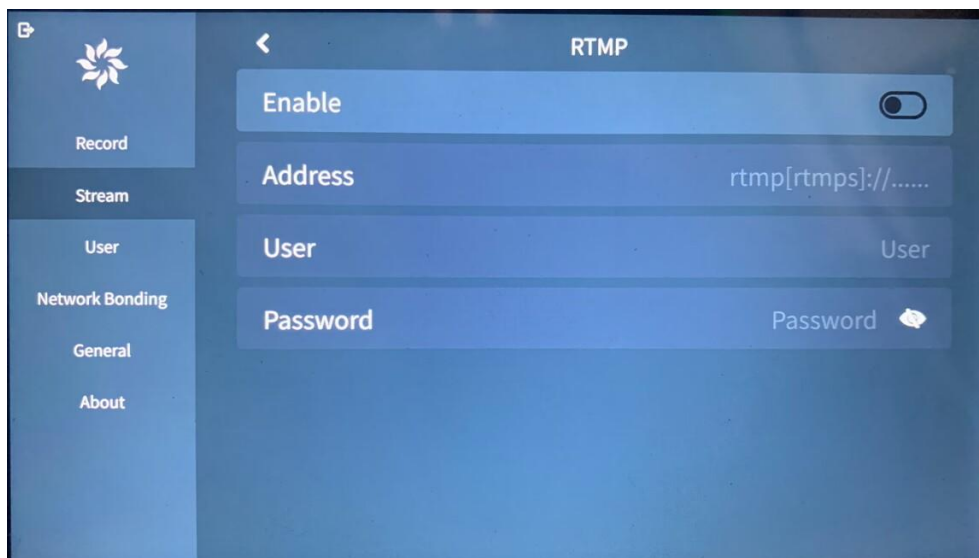
2) Select the streaming platform as "SRT" to output the data stream of the SRT protocol. Fill in the corresponding IP address, port number, stream ID, and password to set the delay of the output data stream, and select the SRT mode. The setting interface is shown in the following figure:
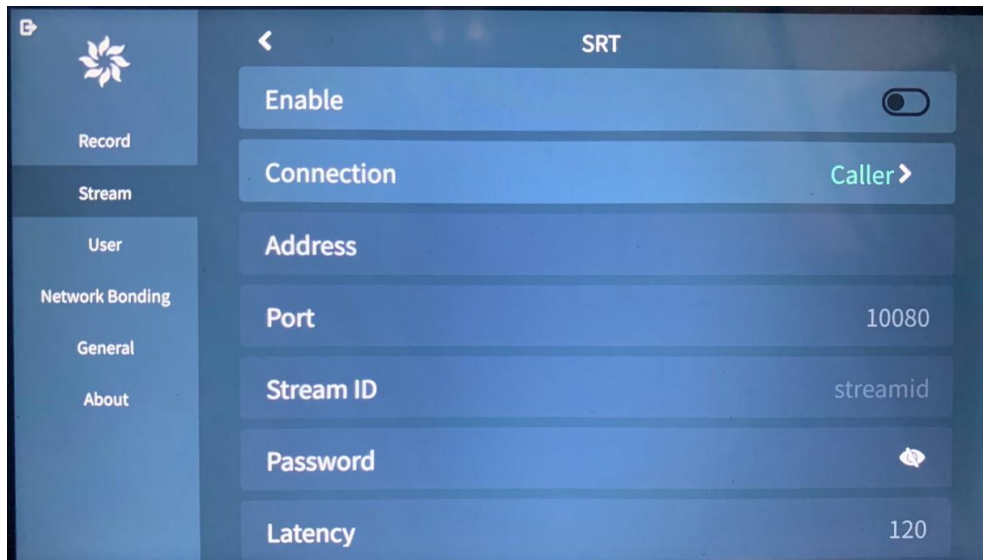
3) Choose the streaming platform as' Live+Connect ', and use the live+Connect function to achieve interaction between Live+devices. The operation interface is as follows:

Enter another director ID that supports Live+access devices to join the interaction with the main venue.

4) Select the streaming platform as "GB 28181", fill in the corresponding SIP server ID, SIP server domain, SIP server address, SIP server port, SIP user authentication ID, and password to push the stream to a platform that supports GB 28181. The operation interface is as follows:
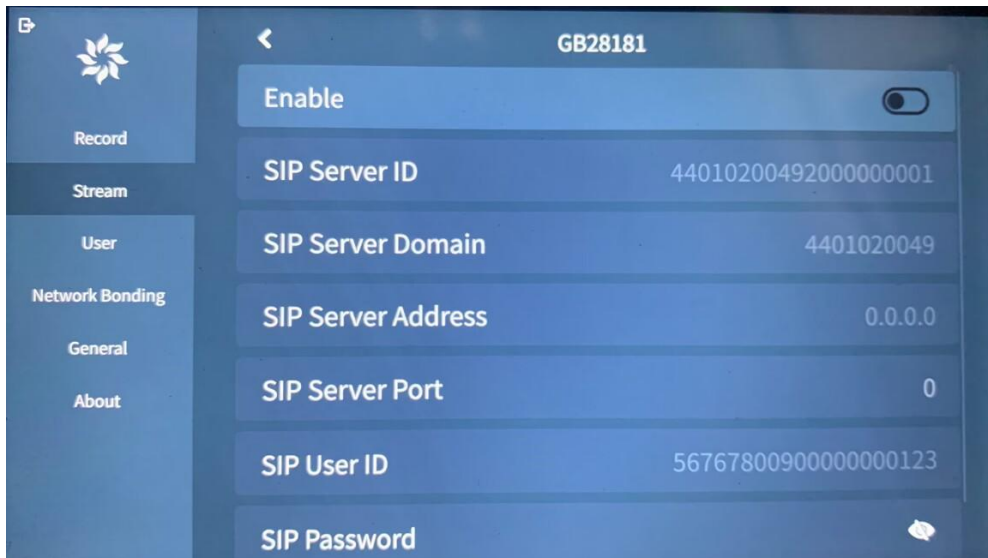
> ➢ If any streaming platform is enabled, the streaming prompt light will keep long light. If streaming is turned off, the streaming prompt light will follow and go out.

3.2.12 PGM Recording

Record the content of PGM, click the [⊙] button on the main interface to start recording, and click again to stop recording. The recording parameters are shown in the following figure:
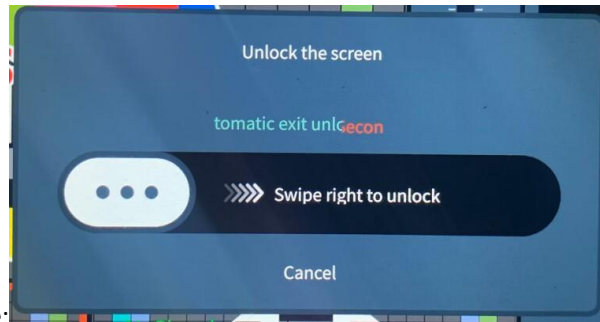

Parameter settings include: resolution, video bitrate, bitrate mode, GOP, audio bitrate, file segmentation, and file format.

> ➢ Enable recording: The recording prompt light will keep long light
> ➢ Turn off recording: The recording prompt light will be off.

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3.2.13 Lock Screen button

Click the " " button to lock the screen, and the pop-up screen unlocking method is shown in
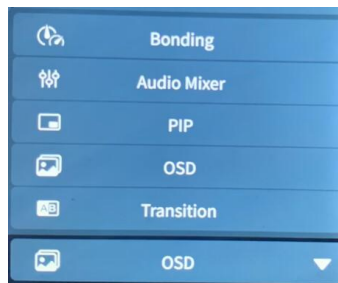

the following figure:

The default 'auto exit unlocking' time is 5 seconds, and the pop-up box will automatically

disappear without any action within 5 seconds. Clicking the " " button again will show a "Screen Unlock" pop-up.

➢ Lock screen: The lock screen prompt light will keep long light.
➢ Unlock screen: The lock screen prompt light will be off.

3.2.14 Menu Selection

Click on the menu bar to see   the following menu options, as shown in the following figure:

1) Select the "Bonding Network" menu bar, as shown in the following figure:
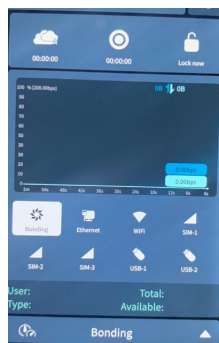
In this interface, you can view the network data usage of bonding networks, wired networks, WIFI, SIM cards, Dongle, and other network ports in real-time, as well as display bonding account types and data plan usage information.
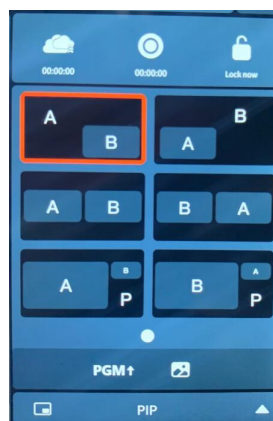
2) Select the "Audio Mixer" menu bar, as shown in the following figure:

The mixer is used to control the gain and mixing of all input audio, and the operation is as follows:

➢ 🔊：Mix output
➢ 🔇：Mute
➢ ▯▯：Volume adjustment pusher。
➢ 📞：earphone mix
➢ 🎧：earphone monitor

3) Select the "PIP" menu bar, as shown in the following figure:

PIP can display multiple channels of images in PGM. Click **PGM↑** to display the selected PIP mode in PGM, where A represents the image of SDI channel/B represents the image of HDMI channel, and P represents the background image that can be added. Click " 🖼 " to select the background image.

4) Select the "OSD" menu bar, as shown in the following figure:

The OSD panel can publish selected images to PGM, supporting png image format. The operation is explained as follows:

➢ Click the " + " button to enter the image preview interface.

➢ Click the " PGM↑ " button to send the selected image to PGM, and click again to not display it.

➢ Click the " ✎ " button to enter the image editing interface.

➢ The " ⌫ "/" 🗑 " buttons are used to delete a single selected image or clear all images.

5) Select the "Transition" menu bar, as shown in the following figure:
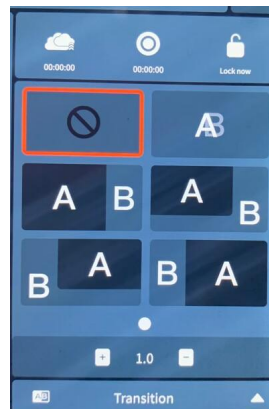
Select the special effects required for channel switching, set the duration of the special effects and transition time, and then click on the channel that needs to be transferred by PGM to achieve a transition effect between the two channels.

3.2.15 System settings

Click the " ⚙ " button in the top right corner of the software main interface to enter the system

settings, which includes modules such as "PGM recording, PGM streaming, bonding account, bonding network, time zone and language, and device information.

1) Time zone and language
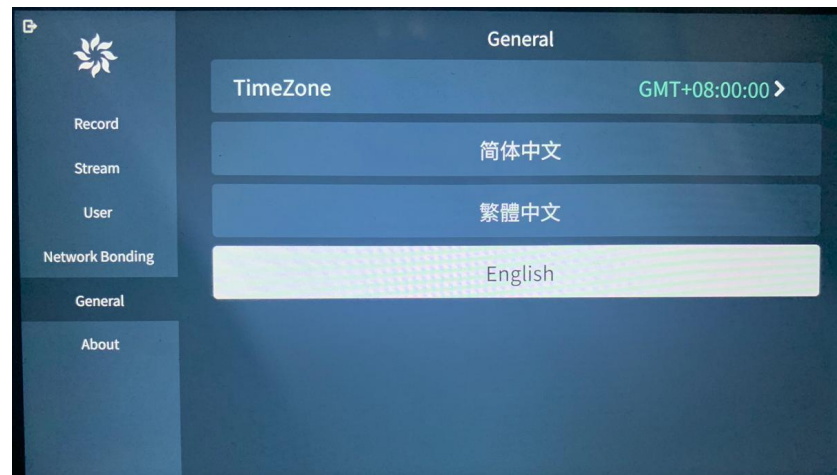
➤ Time zone: most time zones are supported, and corresponding time zones can be selected based on the region.
➤ Language: You can choose to switch between Simplified Chinese/Traditional Chinese/English languages, and selecting the language will take effect.

2) About
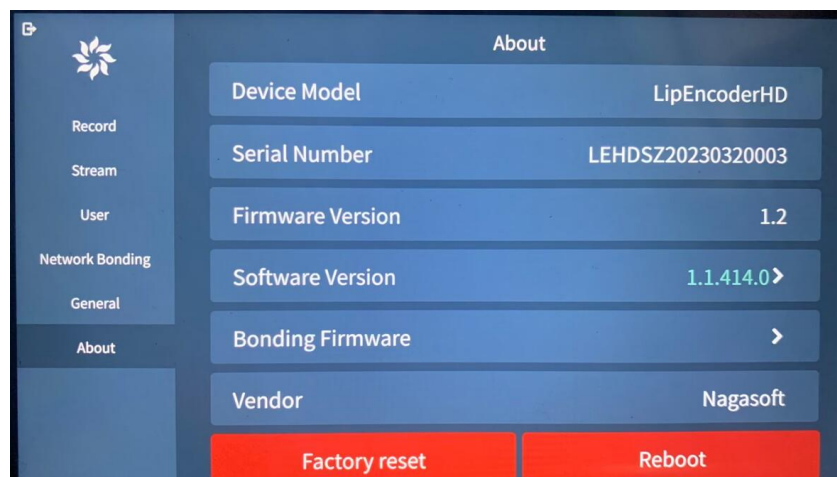
The interface displays information such as the current device model, serial number, firmware version number, software version number, and bonding firmware version.
➤ Factory reset: Restore equipment parameters to their original factory state.
➤ Reboot: restart the device by software.