

# AutoEye Xpert Dashcam Range User Guide





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## 1. Overview

Our AutoEye Xpert dash cam range helps drivers to facilitate fleets to improve management efficiency. They transmit real-time and accurate vehicle position information and operation data to the fleet management platform. They provide high-quality remote intercom and video live view playback to make the fleet management easier and more efficient.

### 1.1 Functions and features

- Ultra-wide 143° DFOV road facing lens, supporting up to 1080P HD video recording.
- Extends to one extra AHD channel.
- H.264/H.265 encoding
- 2 x 256GB dual-Micro SD card storage, supporting the simultaneous storage of main streams and sub streams.
- Built-in Wi-Fi, 4G communication module, and positioning module
- AES256 encryption for video/audio data, encryption protocol TLS1.3 for data transmission
- 4-channel IO input, 1-channel CAN, and 1-channel RS232
- Compact design, not affecting the driver's sight regardless of vehicle size.
- OBD power supply, easy installation
- Support echo & noise canceling algorithm to improve the quality of two-way audio communication.
- Sleep mode, remote wakeup.
- Built-in 6-axis gravity sensor, supporting rapid acceleration, rapid deceleration, harsh cornering, and accident detection.

### 1.2 Operating environment

1. Power Supply System: Power supply range of DC 9 V~36 V
2. Operating Temperature: -40°C~+70°C (-40°F~+158°F)
3. Storage Temperature: -40°C~+70°C (-40°F~+158°F)
4. Operating Humidity: 15%~95% (non-condensing)

5. Storage Humidity: 15%~95% (non-condensing)
6. Salt Mist: Compliant with requirements in GB/T 2423.17
7. Light: No requirements
8. Altitude: No requirements
9. Waterproof and Dustproof: IP30 (The MDVR is non-waterproof)
10. Explosion-proof and Anti-smashing: Environment for vehicle use

### 1.3 Influence on environment and energy sources

- In standby mode:13.5V@5.67mA, 27V@3.4mA
- In sleep mode (4G and MCU powered):13.5V@59~118mA, 27V@29~53mA.
- Typical power consumption (with dual SD cards installed and SIM card for dialing): about 4.79W
- Full-load power consumption (with dual SD cards installed, SIM card for dialing, Wi-Fi turned on, IPC and AHD connected, and infrared lamp turned on): about 6.78W



Special notes: The above data is test data obtained in a specific environment in the laboratory, may vary with the individual product differences, service environment, and testing methods etc.

### 1.4 Safety

1. The product needs to be installed by professionals, otherwise, there may be a risk of electric shock, damage to vehicle lines and device falling-off.
2. The surface temperature may exceed 60°C when the product is in use under direct sunlight. Please do not touch the surface exposed to direct sunlight to avoid burns.

## 2. System composition

The system composition introduced in this chapter is a complete composition of the system solution, not a standard shipping package. It aims to enable users to understand the product functions from the system level.

### 2.1 System chart



### 2.2 Function introduction to main single products

Veyes: app professionally used for equipment O&M installation and configuration.

R-watch: alarm reminder

FT Cloud: professional SaaS video service platform

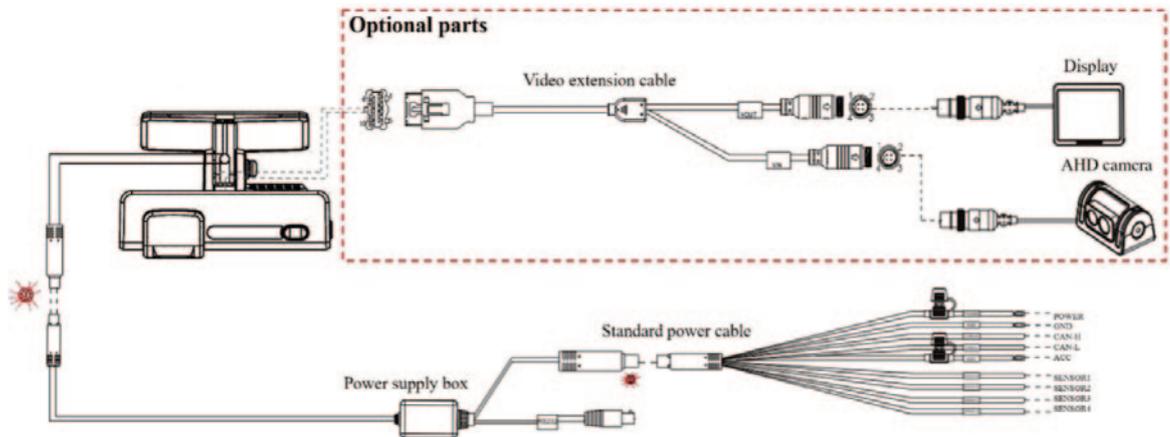
FT API: service API provided by the FT Cloud platform.

FT Vision: mobile app used with FT Cloud

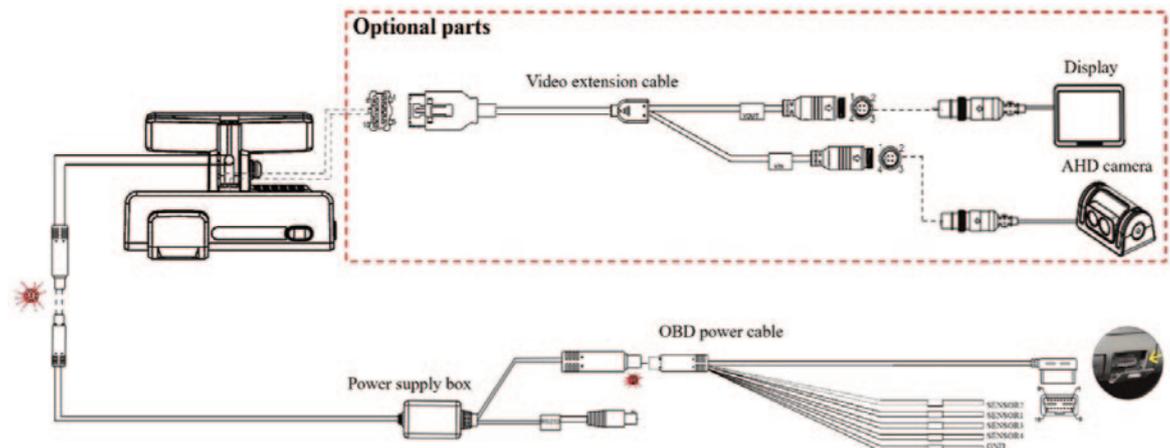
## 2.3 System connection diagram

The standard packing list contains a standard power line that supports IGN power supply and main battery connection. You can select OBD power supply which support OBD power supply and vehicle connection.

### 2.3.1 Connection diagram of ACC power supply system



### 2.3.2 Connection diagram of OBD power supply system



### 3. Installation and commissioning

#### 3.1 Installation of mobile apps

- For Android phone users, please search for “Veyes” in Google Play, then download it and have it installed.
- For iPhone users, please search for “Veyes” in App Store, then download it and have it installed.



Special note: Mobile apps have requirements for the system version, requiring the system versions of Android 5.0 or iOS 11 and above. The following operations take Android as an example, and the installation effect will not be demonstrated separately here.

#### 3.2 Quick-start guide

The quick start guide briefly describes the installation and configuration of the device. For details, refer to the engineering installation and operation of the device.

##### 3.2.1 Installation Preparations

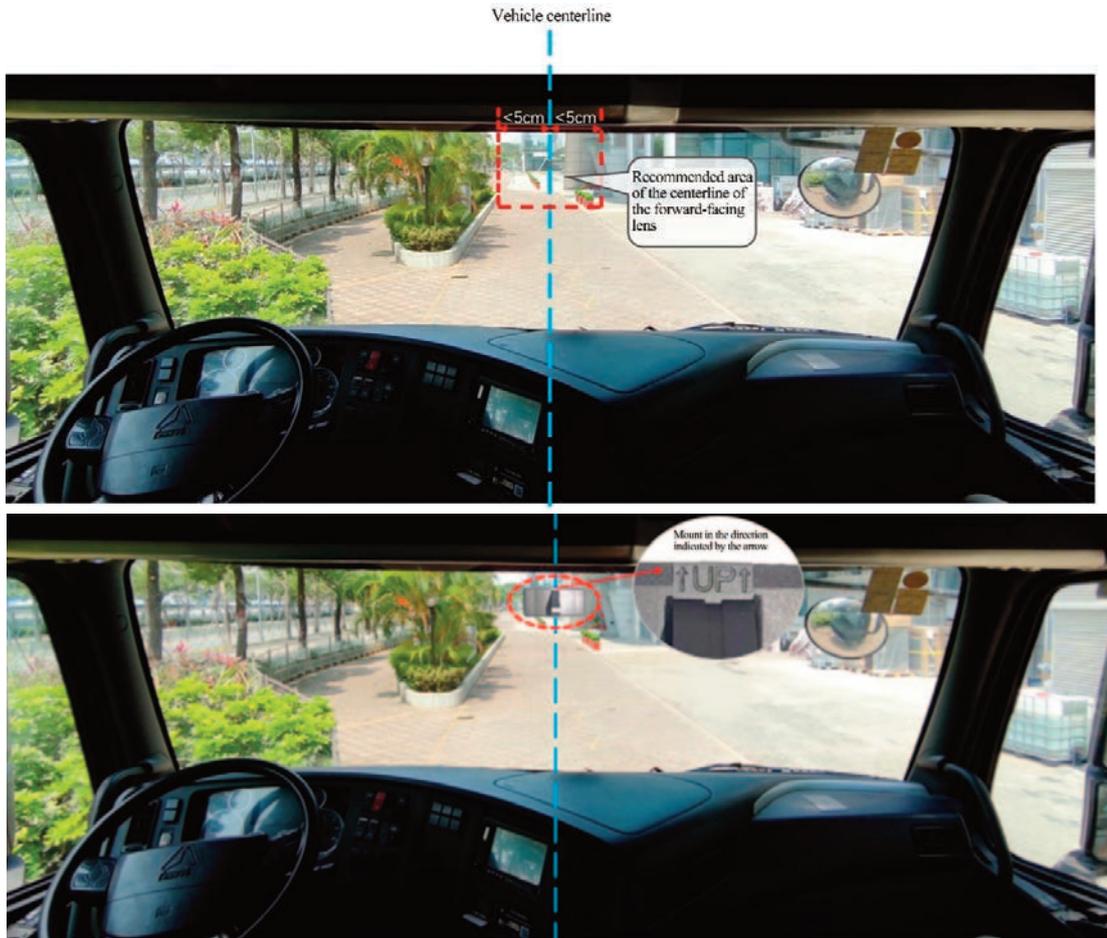
1. Prepare and Check: product kit, Nano SIM card, Micro SD card, screwdriver kit, 5 m measuring tape, smartphone.
2. Park the vehicle on the level ground and shut down the engine.

##### 3.2.2 Step 1: Insert the SIM and Micro SD cards



Warning: The industrial SIM card (MP2) is required, and the ordinary SIM card (MP1) is prohibited. We are not liable for any problem caused using the ordinary SIM card. The minimum read/write rate as required is Class 10, and Class 10 or above is recommended.

### 3.2.3 Step 2: Select a suitable area for bracket installation



### 3.2.4 Step 3: Install the device, adjust the angle, and fix the device.



### 3.2.5 Step 4: Route the cable and supply power



General Positions of OBD Port of Different Vehicle Models



### 3.2.6 Step 5: Connect Veyes

Refer to Section 5.3 Device Login and Logout

### 3.2.7 Step 7: Configure server information

Refer to Section 5.7.5 Server Configuration in Network Settings

### 3.2.8 Step 8: Check the device status

Refer to Section 5.4 View General Information for the server connection status and memory status through the preview screen to view.

For any abnormality, refer to Chapter 7 Fault Analysis and Troubleshooting.

## 4. Operation

### 4.1 Panel Button Description

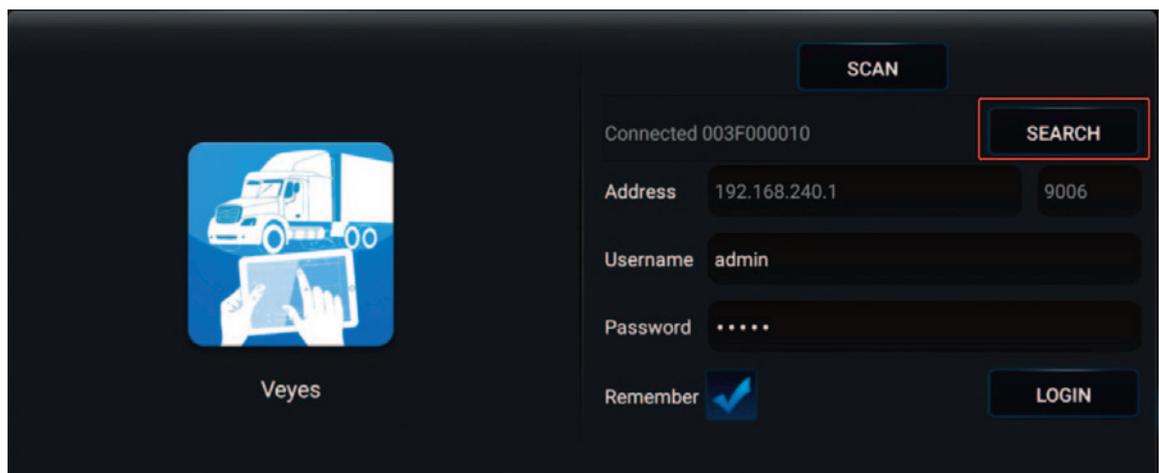
- Single Press: Press and pop up once within 2 seconds to trigger an emergency alarm. The emergency alarm should be enabled with related configurations. Refer to the Panel Alarm in the Base Alarms
- Double Press: Press and pop up twice within 2 seconds to start the AP mode of Wi-Fi.
- Press and hold: Press and hold for more than 2 seconds to turn on or off the privacy mode. Refer to the privacy alarm description in the Video Alarms.

## 4.2 Status indicator lights of the panel

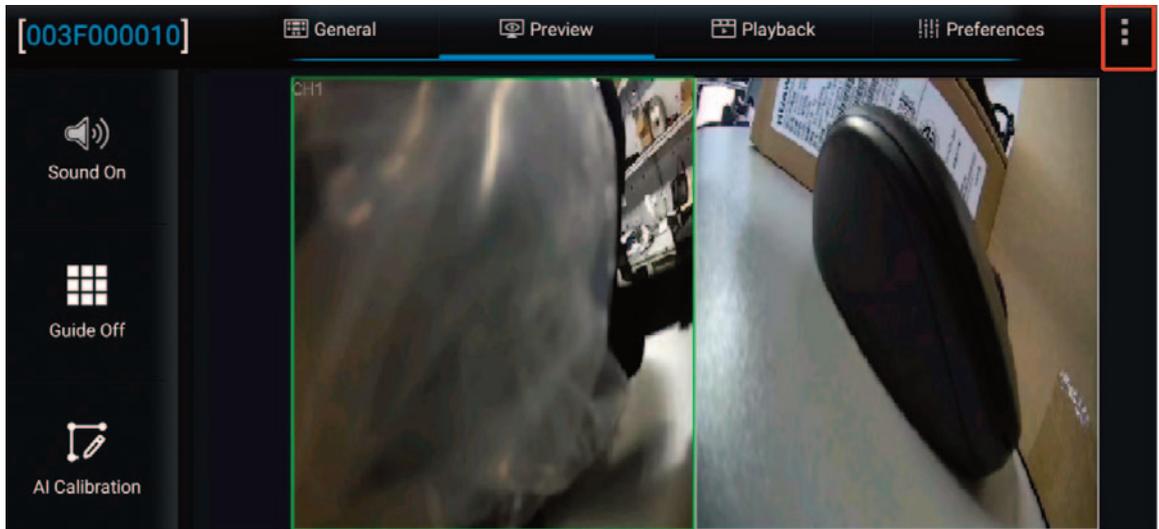
LED Indicator Status	
<b>Power status lights</b>	 <b>Off/Green</b> Off: The device is not powered on Steady green: The device is powered normally
<b>Alarm indicator light</b>	 <b>Off/Red</b> Off: The device does not generate any alarm Red flashes three times: The device generates an alarm
<b>GPS signal indicator</b>	 <b>Off/Red</b> Off: The device positioning runs normally Steady red: The device positioning runs abnormally (not positioned, or module not connected or damaged) Red flash (once per second): The device positioning is poor
<b>Network status indicator</b>	 <b>Off/Red</b> Off: The device is connected to the server normally Steady red: The device is connected to the server abnormally. Red flash (once per second): The device is in flight mode. Flight mode: When the vehicle enters the gas station, turn off the wireless signal of the device to ensure safety
<b>Wi-Fi status indicator</b>	 <b>Off/Red/Green</b> Off: The device is in Disable or Client mode Steady green: The device is in AP mode. Steady red: The device Wi-Fi runs abnormally
<b>Recording status indicator</b>	 <b>Off/Red</b> Off: The built-in or extended camera runs normally Steady red: The built-in or extended camera stops (including privacy mode)/fails. * When the video recording function is enabled (main stream and sub stream), the prompt will be given if no recording is detected. If the video recording function is disabled (main stream and sub stream), it will be regarded as normal recording status.

### 4.3 Device login and logout

1. Turn on the Wi-Fi of the device as AP mode: After powering on the device, the Wi-Fi is in AP mode within 3 minutes, or double press the button to enable the AP mode.
2. Turn on the Wi-Fi of the mobile phone, open Veyes, and tap SEARCH to open the Wi-Fi hotspot search interface to select the corresponding hotspot. For the initial login, the Wi-Fi hotspot is named after the serial number of the device (find SerialNum on the device label). The license plate number, if not empty, is the hotspot name.
3. On the login screen, enter the corresponding username and password. Tap LOGIN to open the operation interface.

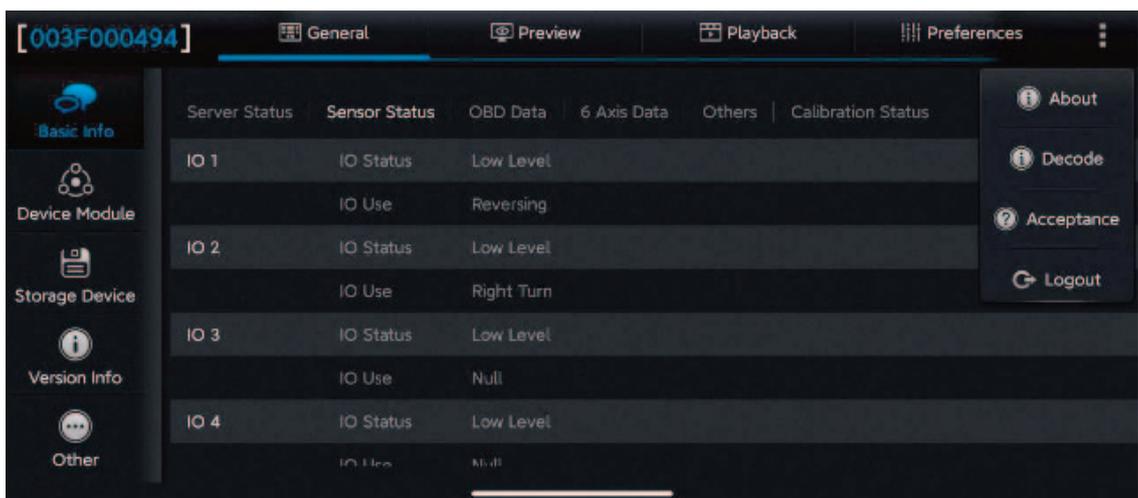


4. Tap LOGIN. The operation screen is displayed, as shown in the figure below.



5. Tap  in the upper right corner for help information, app version, and logout operations. Tap Logout to log out of the connected device. Tap Help to view Veyes help document. Tap About to view the version information of Veyes on the mobile phone.

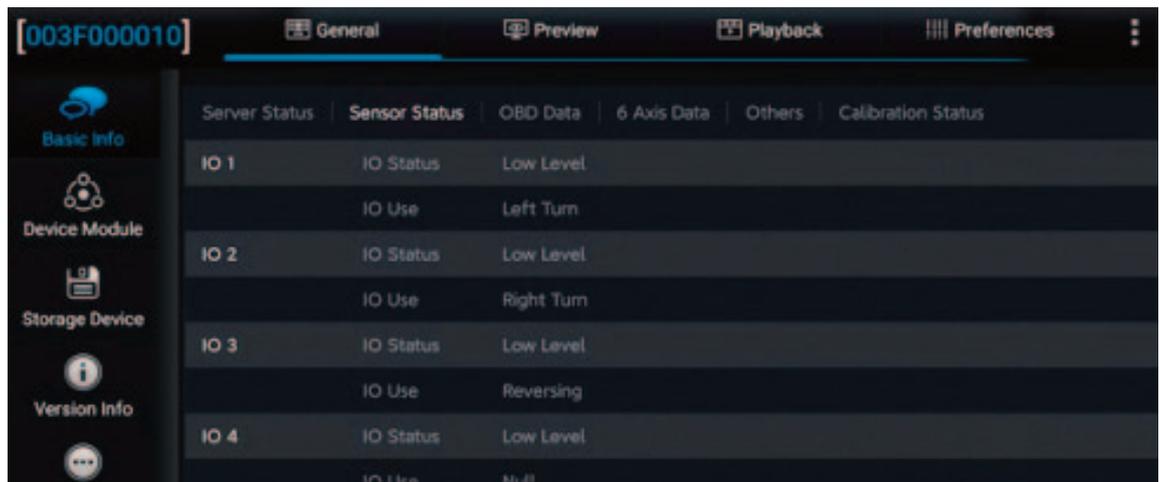
Acceptance: The Acceptance mode can be applied to preset a simulated speed for the device when the device has no speed to trigger the alarm.



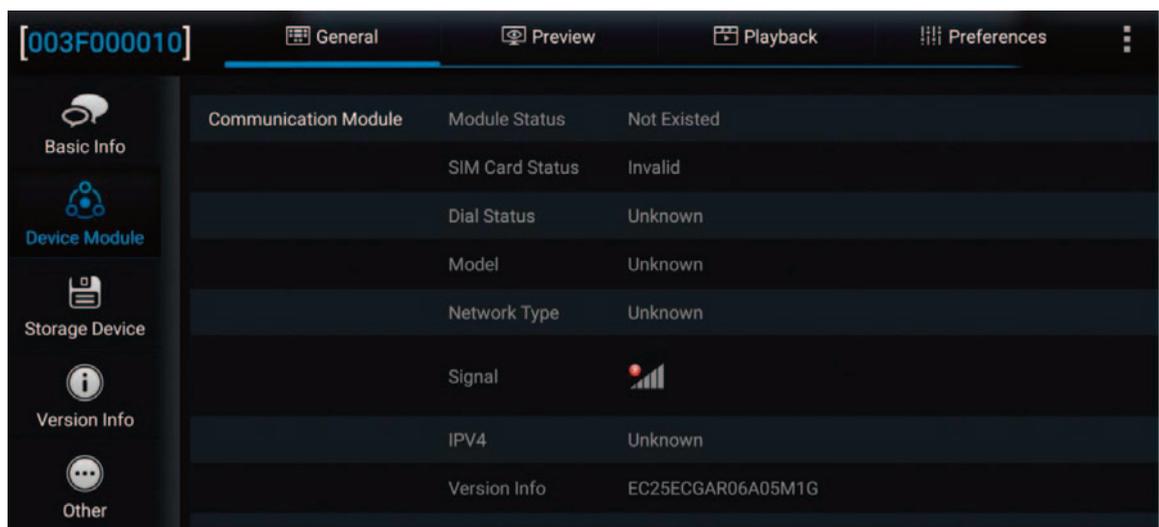
## 4.4 View general Information

On the General screen, view the real-time device status, version information, import/export parameters, logs, and other files, as well as the software upgrade.

- **Basic Info:** It shows the server connection status, IO level status and use, OBD data, G-sensor data, ACC status, pulse status, and device status, as well as the calibration status of the algorithm channel.



- **Device Module:** It shows the status of the Wi-Fi, 3G/4G, and positioning modules of the device.



- **Location Info:** It is used to check the satellite positioning signal quality of the device, and help the installation, operation, and maintenance personnel to evaluate the positioning capability and quality of the device, to perform cor

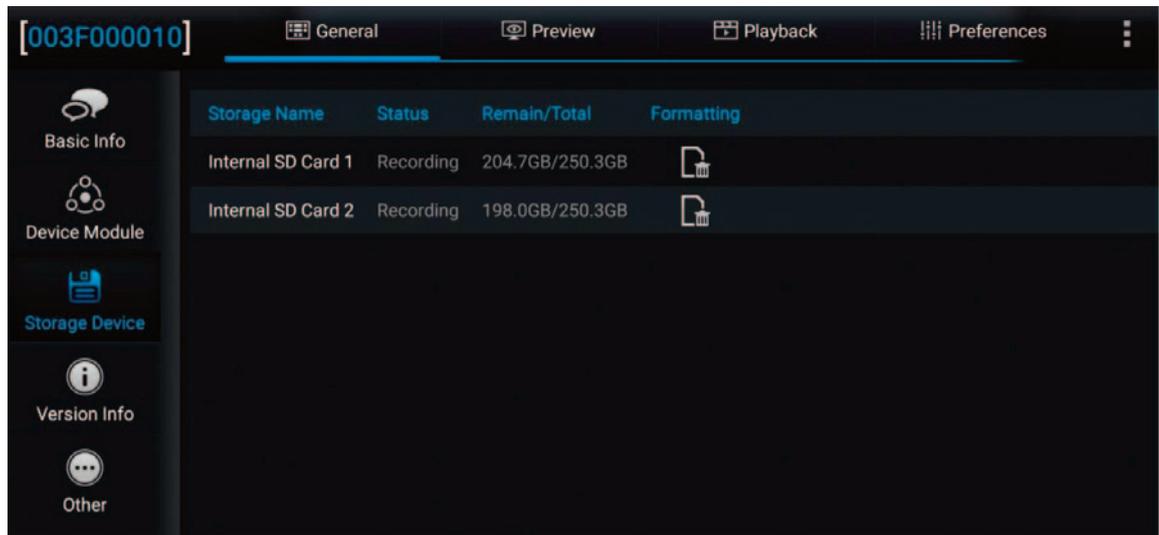
responding maintenance actions. On this screen, the top row indicates the number of active satellites and the total number of satellites. PRN in the list below indicates the serial number of the satellite. GNSS indicates the global satellite navigation system (GPS, GLONASS, or GALILEO) that the satellite belongs to. SNR indicates the signal-to-noise ratio, which is a parameter reflecting the quality of satellite positioning signals. The Direction angle represents the satellite azimuth angle, and the Altitude angle represents the satellite altitude angle.



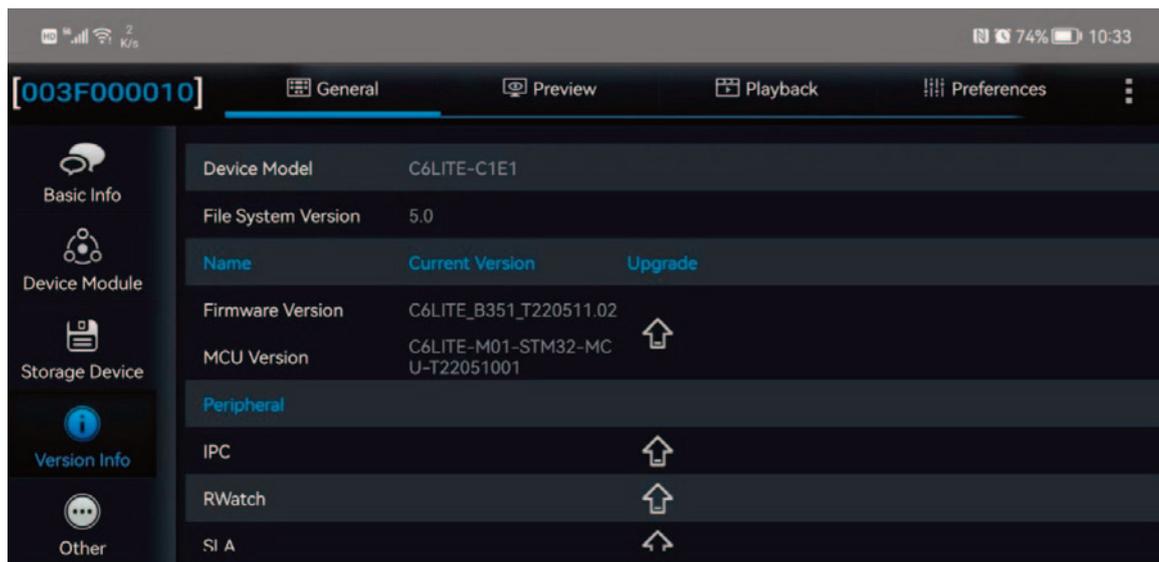
Note: This screen is displayed only when the GPS raw data record command is opened. For specific operations, refer to the description of Preferences > Collection > General > Location.

PRN	GNSS	SNR	Direction angle	Altitude angle
Valid number of satellites/number of satellites: 18/24				
2	GPS	25dB	267°	21°
3	GPS	23dB	41°	22°
4	GPS	24dB	89°	10°
6	GPS	24dB	310°	53°
9	GPS	10dB	122°	17°
11	GPS	43dB	0°	0°
14	GPS	28dB	168°	54°

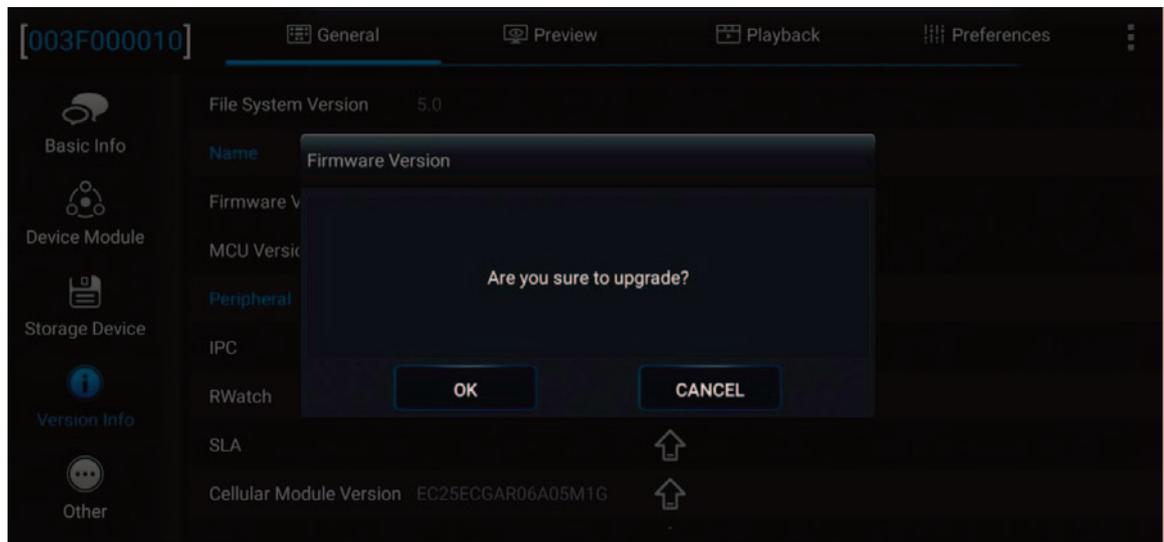
- Storage Device: Check the storage status of the device and support formatting. Tap Formatting and a pop-up appears. Tap to confirm the execution of formatting.



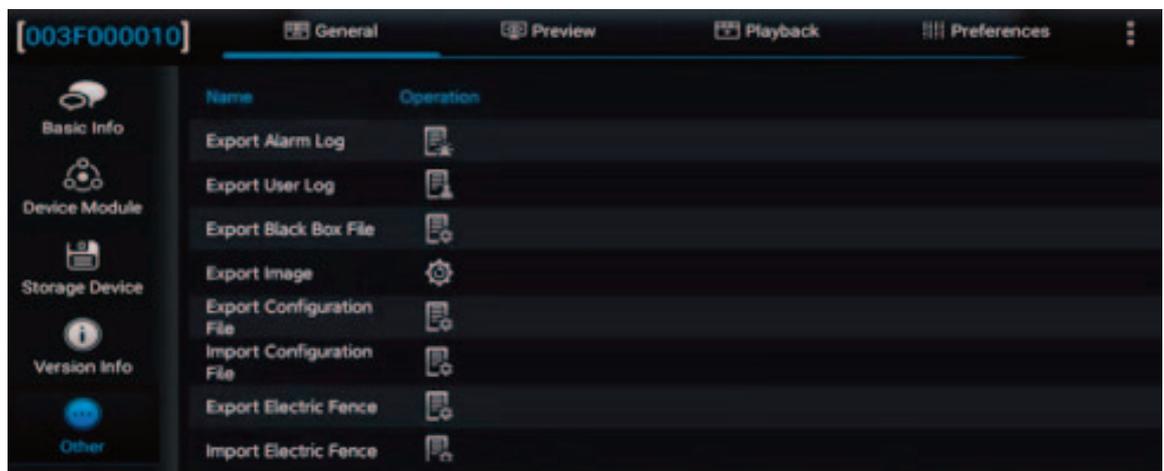
- Version Info: It shows the software version information.



On the Version Info screen, you can locally upgrade the version of the MDVR, IPC, R-Watch, Audible and Visual Alarm, communication module, GPS, or power box. The file to be upgraded should be placed in the U disk root directory Upgrade and connect the U disk to the device. To upgrade the required item, tap . In the displayed confirmation prompt box, tap OK.



- Other: Import and export of data and configuration, factory reset, device rebooting. For operations of data import and export, the connection of the device to an external U disk is required.



1. Export alarm log, user log, and black box file;
2. Export alarm capture images of specified time moments;
3. Import/Export the Geo-fence information;
4. Import/Export the AI configuration file (Function not available on the AEX-ST-DMC-MINI);
5. Import/Export parameter configuration file;
6. Restore default settings;
7. Export print data within a specified time period;
8. Reboot the device;

## 4.5 Real-time Preview

On the Preview screen, you can view the real-time recording, turn on/off the sound or auxiliary line, and perform AI calibration.

### 4.5.1 Real-time Preview

On the Preview screen, you can view the real-time recording of each channel of the device. Double-tap on the preview screen of a channel to zoom in and double-tap again to return to the normal screen. If the camera is damaged or not connected, "VIDEO LOSS" will be displayed.

## 4.6 Video Playback

### 4.6.1 Video Playback

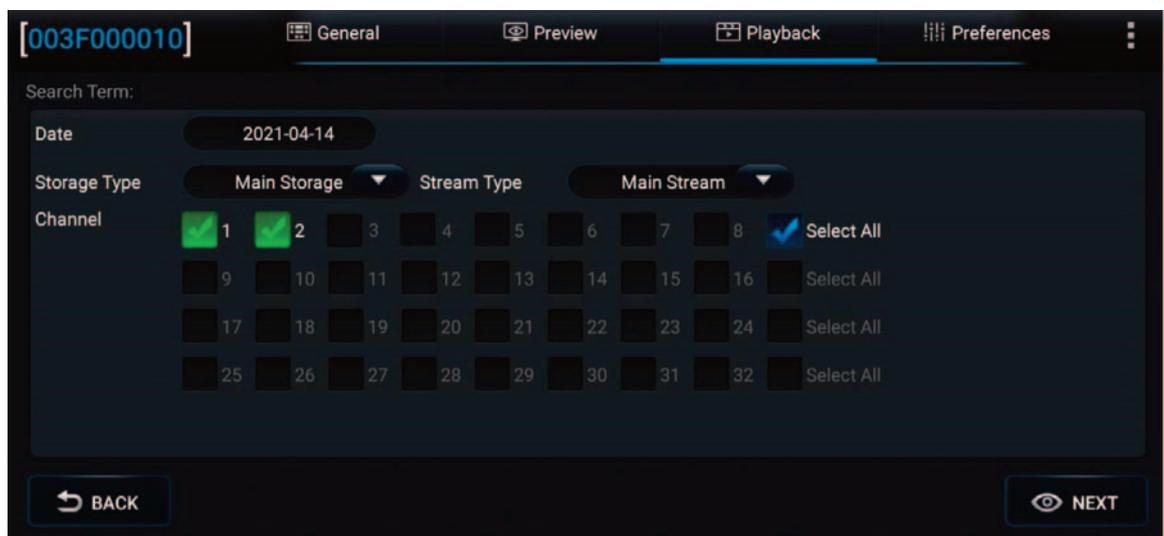
On the Playback screen, you can search for the main and sub stream videos in the main and sub memory on a certain date. When the sub stream video recording is selected and two SD cards are installed, the sub stream will be stored in the sub memory. The sub memory should be selected so that the sub stream video recording can search for the sub stream (For more about the application scenarios of the main and sub streams, please refer to the appendix of terminology).



On the Playback screen, select a date from the calendar for video playback. On the left part of the screen, you can select the year and month. Tap ▲ and ▼ to select different years and months. In the calendar, the color of the strip under a date indicates that videos were recorded on that day. Where:

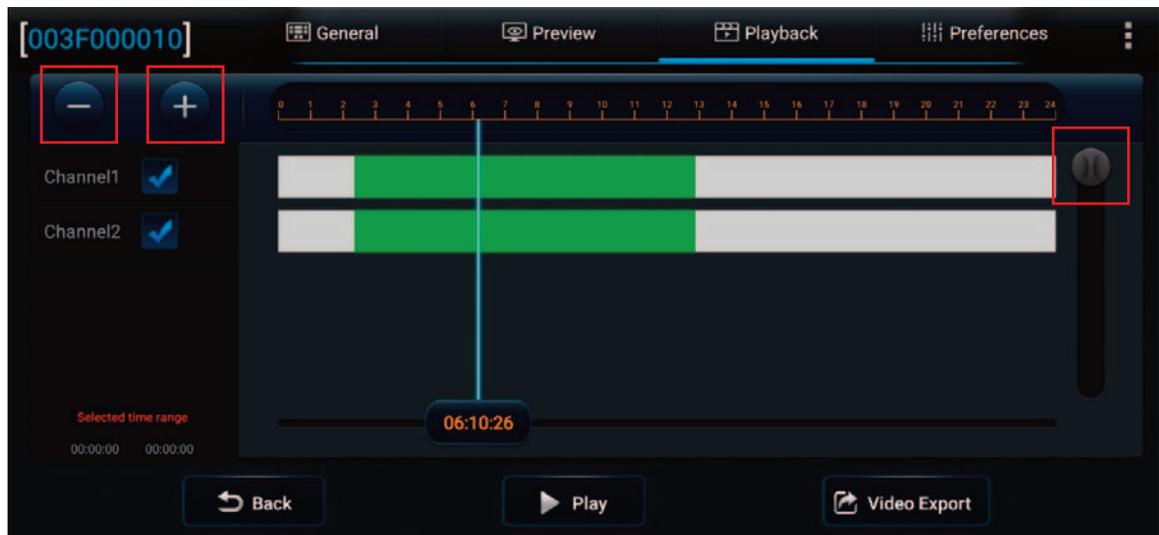
No coloured strip	No video recorded on that day
Green	Normal videos recorded on that day
Red	Alarm videos recorded on that day
Yellow	Alarm videos recorded on that day with files automatically locked (locked video)

Tap the date of the video to be viewed in the calendar. On the displayed screen, select the channel of the video to be viewed. You can re-select the date and type of the video on this screen. Then, tap Next.



After the channel is selected, you can drag the timeline to select the playback time and tap Play. During the playback, you can select the play operation. Double tap on the screen to hide the operation screen and zoom in on the play screen.

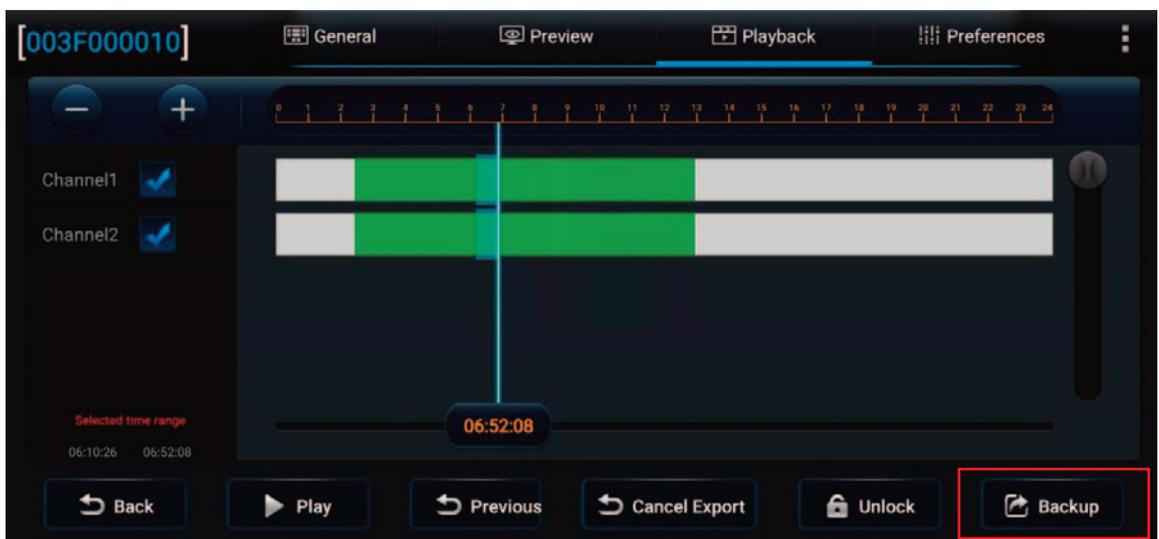
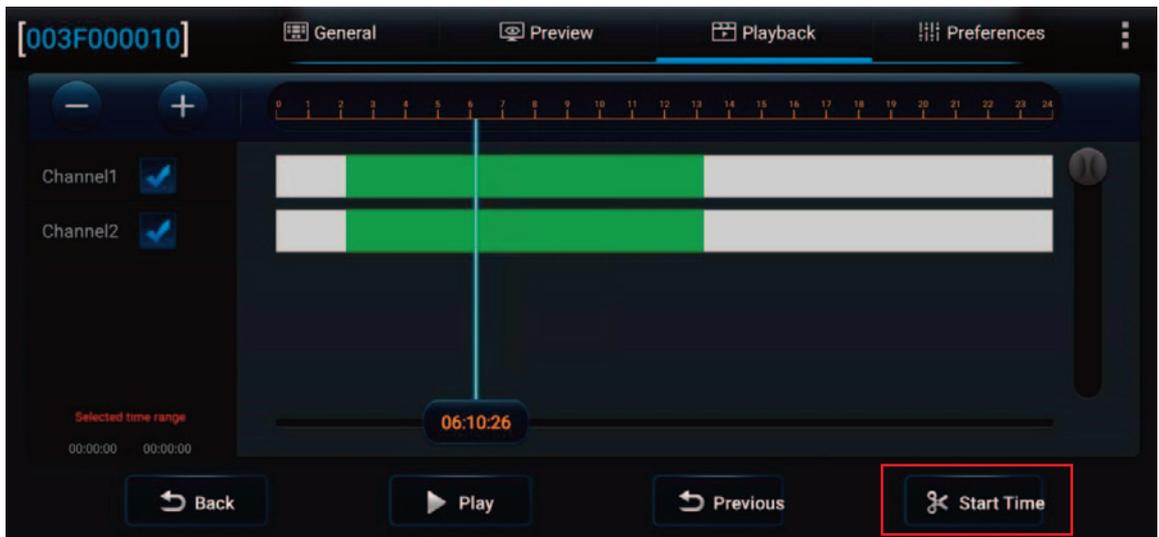
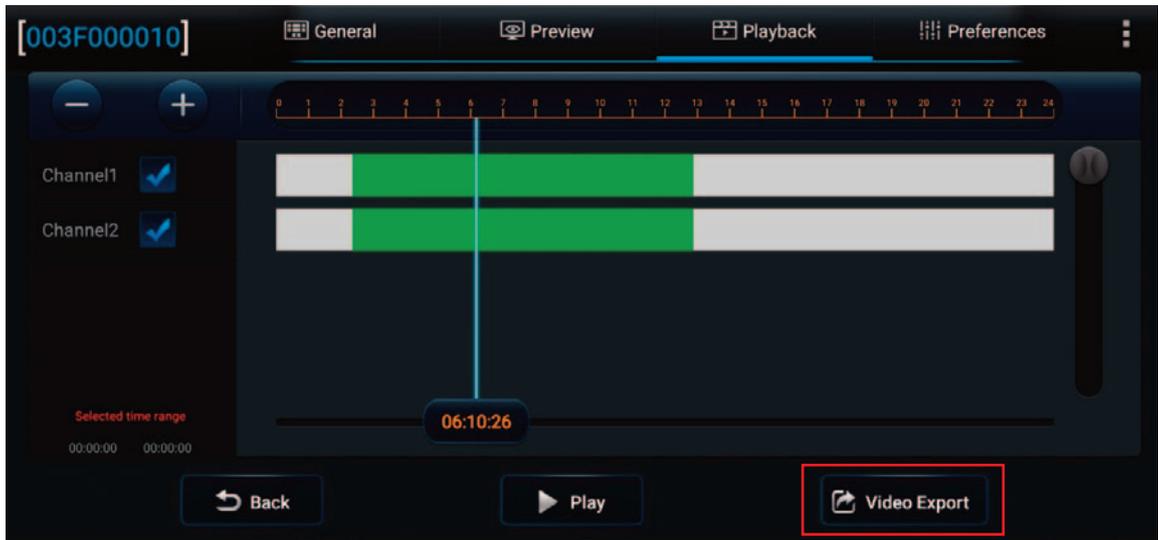
- Timeline:
  - 1) The timeline at the top displays time at an interval of 1 hour.
  - 2) You can drag **06:10:26** to any position in the timeline below.
  - 3) Tap **-** in the upper left corner of the screen to reduce the time interval and tap **+** to enlarge the time interval. This function allows you to quickly locate a certain time for the next playback/export operation when there are many video segments.
- Channel No.:
  - 1) The colored strip for each channel indicates the video types in different time periods.
  - 2) If there are many video channels, drag **⏮** on the right part of the screen upward and downward to view the video of each channel.
  - 3) Check a channel (or more) and select the timeline(s) to play back or export the videos in the channel(s) at the selected time.



#### 4.6.2 Video Export

You can also export the video of the selected time.

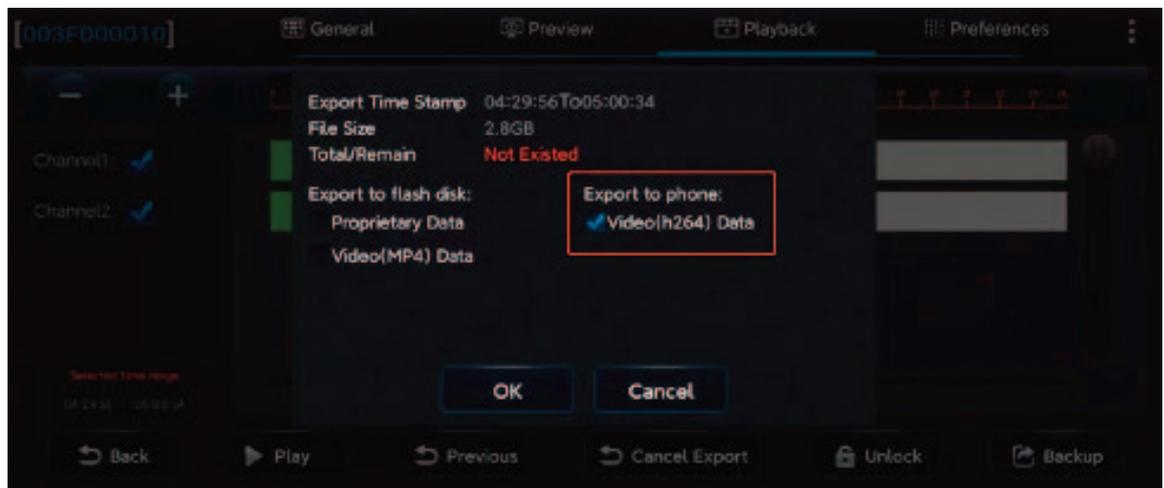
Tap Video Export at the bottom of the Playback screen and select the start time and end time. Tap Backup to export the video. Tap Unlock to lock and unlock the video of the selected time.



In the video export options, you can choose to export the cropped video to an external USB flash drive or mobile phone, so that O&M personnel can quickly obtain and share the video.



Special notes: The exported MP4 format can be played with a common player, while the exported H264 format requires a dedicated player (CEIBA2 client). As the H264 format has more original data, it is convenient for troubleshooting video problems. For problems that need after-sales troubleshooting, please export in H264 format.



## 4.7 Basic Setup



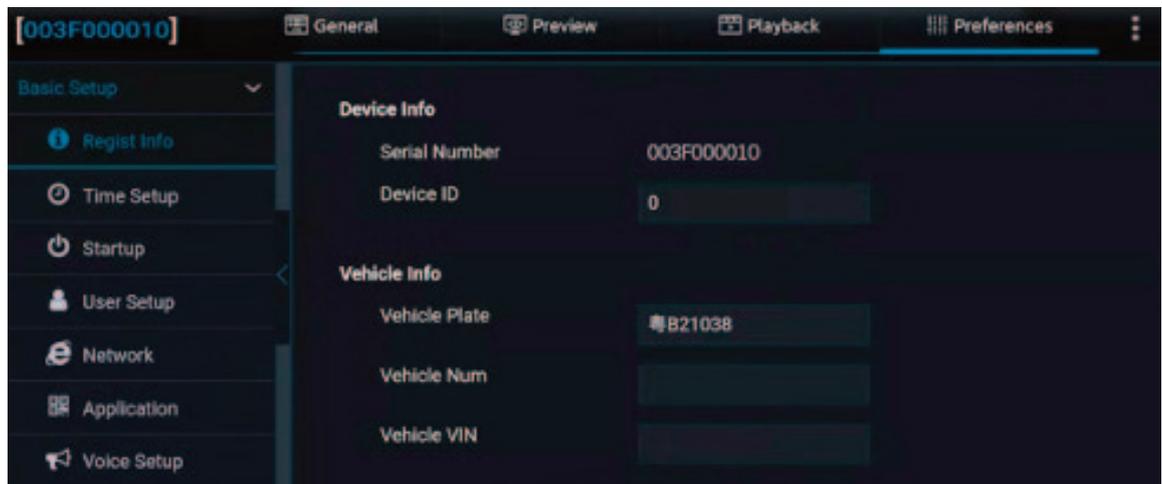
Note: On all parameter configuration screens, tap Save to save the modified parameters and tap Default at the bottom of the screen to restore the default settings of the parameters on the screen.

### 4.7.1 Registration Information

On this screen, you can set Device Info (Device ID), Vehicle Info (Vehicle Plate, License Plate, and Vehicle VIN), and Driver Info (Driver Number and Driver Name). After setting the license plate number here, the Wi-Fi hotspot will be named after the license plate number when you connect the device hotspot using Veyes.



Note: As the name of the Wi-Fi hotspot changes when the license plate number changes, reconnection, and re-login to Veyes are required.

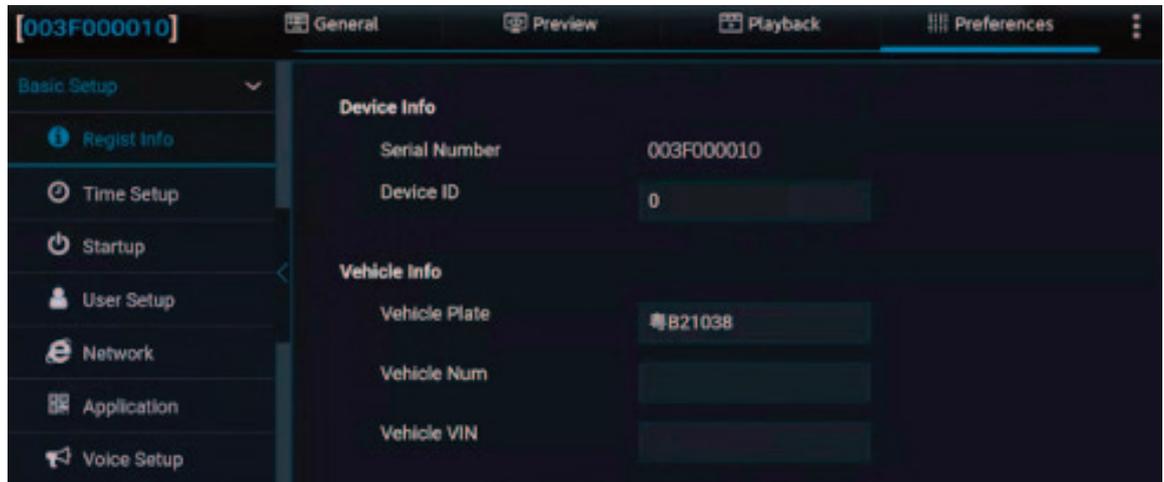


#### 4.7.2 Time Setup

- General: allows you to set the format of the time display and the time zone in which it is located.
  1. Date Format: YEAR-MONTH-DAY/MONTH-DAY-YEAR/DAY-MONTH-YEAR. It is only reflected on the live view screen or in the video recording OSD.
  2. Time Format: 24 Hours or 12 Hours. It is only reflected on the live view screen or in the video recording OSD.
  3. Enable Cross-time Zone: controls whether to use the cross-time zone solution. If your vehicle is not in the time zone where the platform is located, for normal communication between your device and the platform, you need to enable the cross-time zone solution. After the function is enabled, the time zone settings turn gray automatically and are not editable. In this case, you can set the local time zone only. The local time zone indicates the time zone where the vehicle is located. After the function is disabled, you can set the time zone parameter only, which is the time zone where the vehicle is located.



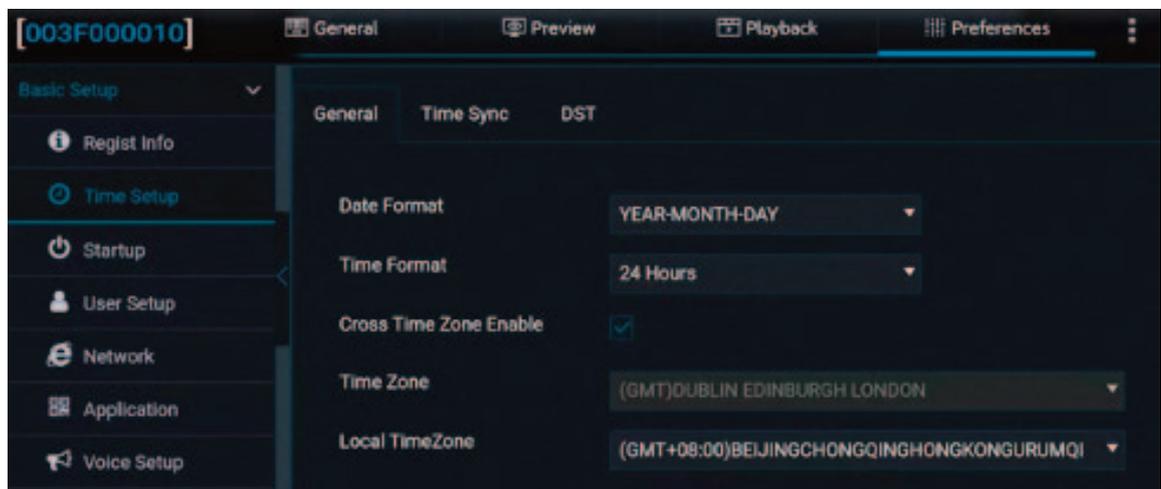
Warning: For devices using the CEIBA2 platform, the cross-time zone function is disabled, and the FT platform users should enable the cross-time zone function as needed.



4. Time Zone: allows you to select the time zone. This parameter can be set only when the cross-time zone function is disabled. Otherwise, the parameter is set to Zero by default and cannot be configured.
5. Local Time Zone: allows you to select the local time zone. This parameter is displayed and can be configured only when the cross-time zone function is enabled.



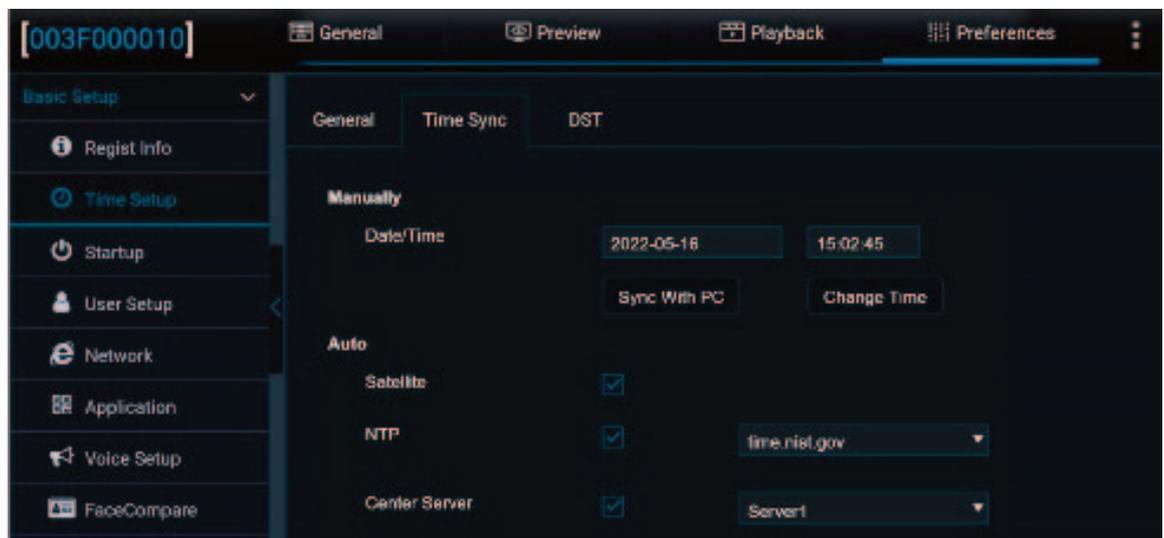
Special notes: When the cross-time zone function is enabled, Time Zone is set to zero and cannot be configured, which means that the data interaction between the device and the platform adopts the zero-time zone. Location Time Zone is used as time zone overlay in recording. When the cross-time zone function is disabled, Time Zone is subject to configuration and used as time zone overlay in recording.



- **Time Sync:**

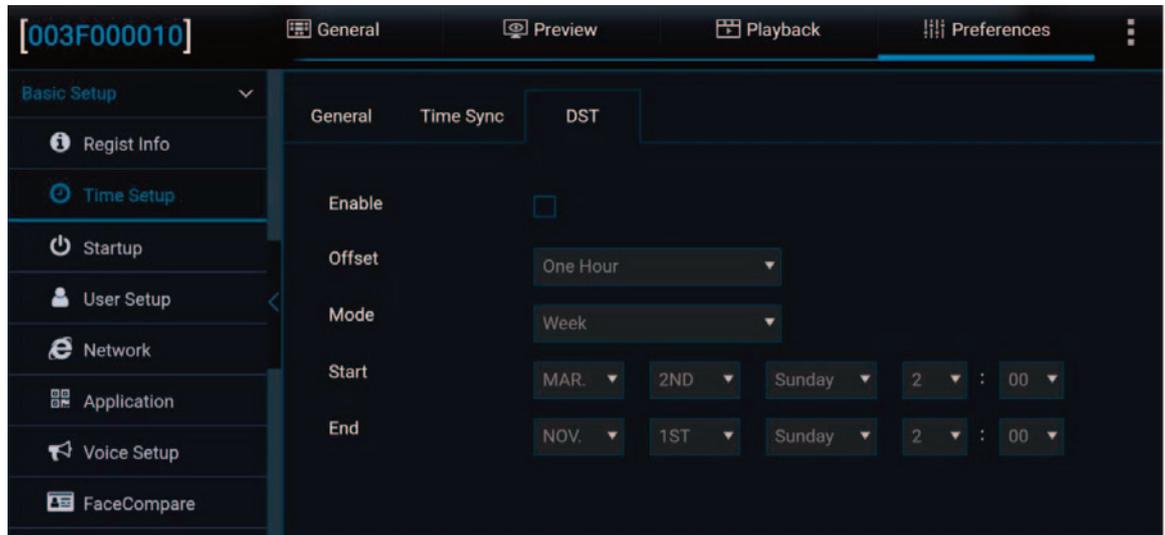
The time will be synchronized automatically when there is a deviation between the system time and the actual time. In the automatic time synchronization settings, you can enter the date and time manually, or set the time synchronization method.

  1. Tap Change Time to change the date and time manually.
  2. Satellite: allows you to synchronize time with the GPS.
  3. NTP: allows the system to use the WAN network time. You can select the time of different WAN servers.
  4. Central Server: allows the system to use the time of the reported platform. If multiple platforms are reported, you can select the time of different platforms.
  5. If multiple time synchronization methods are selected at the same time, the synchronization will be started in order of priority: satellite > NTP > central server. Once the time synchronization is successful, the next method will be stopped.



- **DST:**

Allows you to set the DST, if any, in some regions. When the DST is enabled, the display time is increased by 1 or 2 hours. Tap Preferences > Basic Setup > Time Setup > DST, as shown in the following figure:

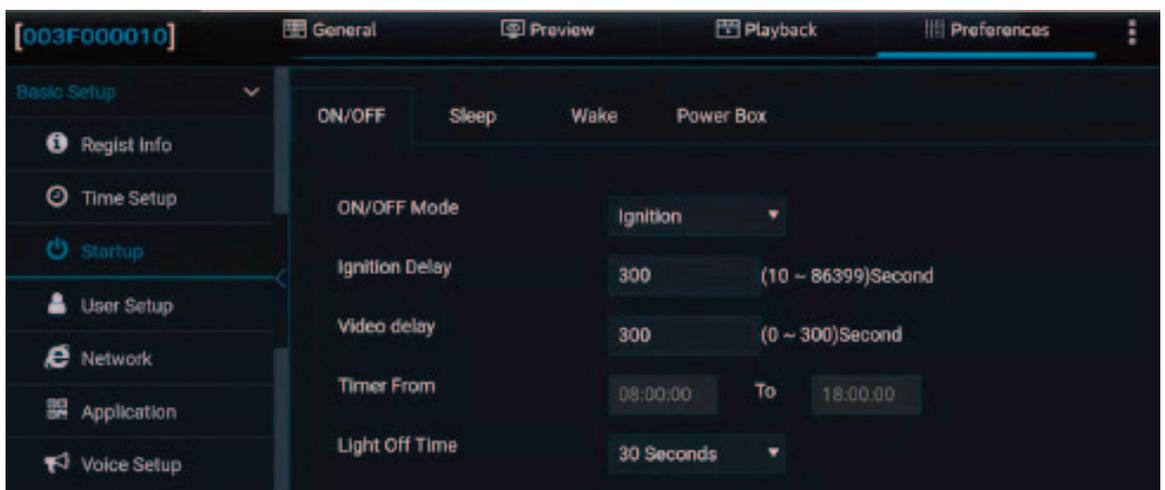


1. Enable: allows you to enable or disable the DST function. It is disabled by default.
2. Offset: allows you to increase the time by 1 or 2 hours.
3. Mode: can be set to Week or Date.
4. Week: allows you to set Start and End of the DST by setting the month, Nth day of the week, and hour/minute/second.
5. Date: allows you to set Start and End of the DST by setting the date and hour/minute/second.

#### 4.7.3 ON/OFF

- ON/OFF

Tap Preferences > Basic Setup > Time Startup > ON/OFF, as shown in the following figure:



1. ON/OFF Mode: You can select Ignition (that is, use the car key to turn on the device).
  2. Ignition Delay: allows you to set the time for the delayed shutdown after the car key is turned off, which can be set from 0 to 86399 seconds, and the default is 300 seconds.
  3. Video Recording Delay: allows you to set the time for the video recording after the car key is turned off. The configurable time range changes with the ignition delay. The maximum time for video recording delay is subject to the ignition delay. Specifically, the video recording delay is equal to or less than the configured ignition delay.
  4. Scheduled Power-on Time: allows you to select the time range for powering on the device. Currently, the scheduled power-on and power-off are not available.
  5. Backlight Turn-off time: when an external display is connected, the screen backlight turn-off time can be configured, including never, 30s, 1 min, 3 mins, 5 mins, and 10 mins.
- Sleep  
Tap Preferences > Basic Setup > Time Startup > Sleep, as shown in the following figure:



Application scenario: Where the platform can also obtain vehicle positioning information after the vehicle needs to be stopped and turned off, and to remotely wake up the device is required for data downloading or video playback, select the low power standby mode (sleep), otherwise select the zero-power standby. For remote wakeup in the trucking industry, the phone or SMS is recommended. If the SIM card used does not support SMS and phone services, the platform remote wakeup function is recommended. The platform remote wakeup should be used together with the platform. For the time being, only CEIBA2 supports platform remote wakeup. It is expected that the remote wakeup function of the FT platform will be launched in Q4, 2022.

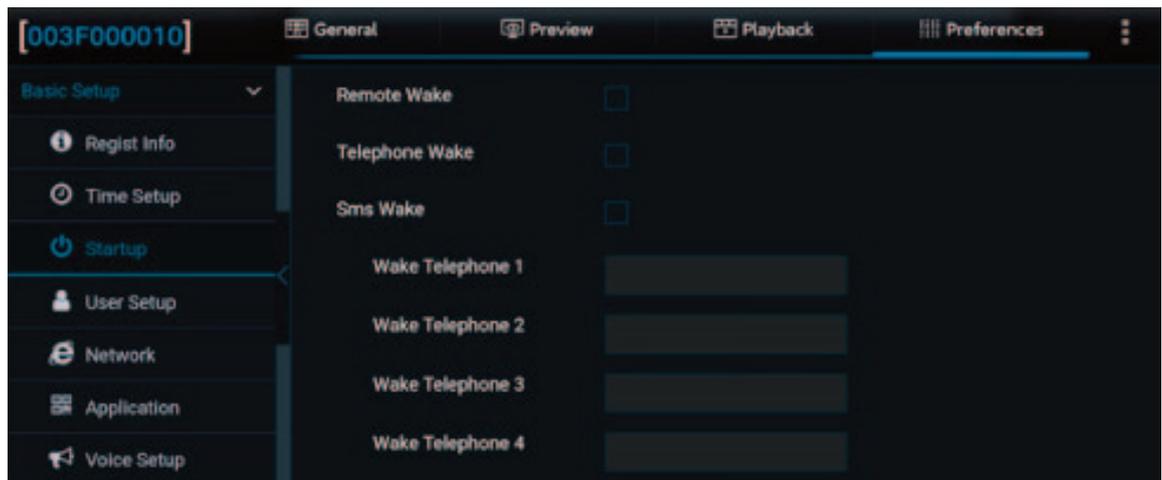
1. Sleep Mode: can be set to Low power standby or Zero power standby.
  - \* Zero Power Standby: In this sleep mode, the system will not be wakened up after the device is turned off in ignition or timing mode.
  - \* Low Power Standby: In this sleep mode, the system can be wakened up by the IO alarm, phone call, or SMS and start the MDVR after the device is turned off in ignition or timing mode.
2. Sleep Time: allows you to set the sleep time to 0~100 hours. The default is 100 hours. Sleep time refers to the duration of the low power standby when the device is not woken up or started, and the device will be in the zero power standby;
3. Low Voltage Protect: enables low voltage protection after being checked.
4. Battery Low Voltage Protect: enables the system to enter the sleep status when the car key is turned on and to enter the power-off status when the car key is turned off, thus protecting the battery power of the vehicle when the battery voltage is lower than the set value.
5. Voltage Startup: restarts the system when the battery voltage is higher than the set value in the sleep status.
6. Low Volt Upload: automatically reports the low voltage to the platform after being checked when the low voltage protection is triggered.



Special Note: When the low voltage protection is not enabled, 7 V is the judgment condition for low voltage protection by default.

- Wake

Tap Preferences > Basic Setup > Time Startup > Wake, as shown in the following figure:



To select a wake method, check the corresponding check box.

1. IO Wake: wakes up the MDVR by triggering the IO alarm.
2. G-Sensor Wake: wakes up the MDVR by shaking the device in the X, Y, or Z direction. The default waking thresholds for the X, Y, and Z axes are all 5.5 g;
3. Remote Wake: remotely wakes up the MDVR by sending commands. When the device is in sleep status, the platform sends commands to wake up the MDVR. Currently, remote wakeup is supported through FT Cloud and CEIBA2, and only the first N9M server is supported for remote wakeup. The FT platform currently does not support remote wakeup.

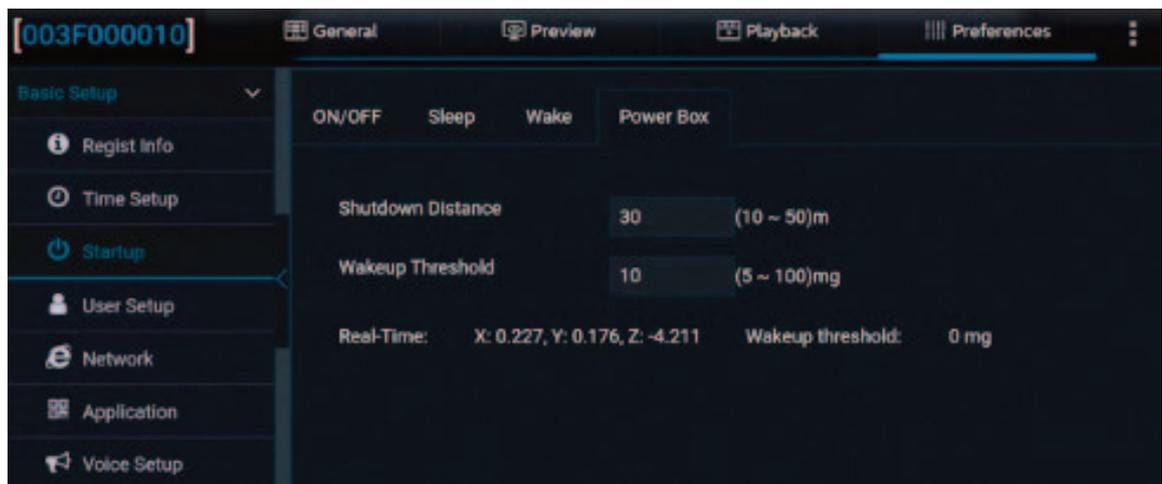
4. SMS Wake: To wake up the MDVR by sending a text message to the device needs to set a mobile phone number that supports wakeup in advance. The message text is "WAKEUP".
5. Telephone Wake: To wake up the MDVR by a phone call needs to set the mobile number to wake up the device in advance.



Special notes: Both the SMS and telephone wakeup requires the SIM card in the device to support the SMS and phone services.

- Power Box

Tap Preferences > Basic Setup > Time Setup > Power Box. The displayed screen is as shown in the following figure:



It contains the following parameters controlled by the power box:

1. Shutdown Distance: allows you to determine whether the vehicle's movement distance within 1 minute collected by the device is less than the configured threshold. If not, it constitutes one of the conditions for device shutdown, that is, after other conditions are met, the distance must be less than the threshold before shutdown. The distance range is 10 to 50 m, and the default value is 30 m;

2. Wakeup Threshold: determines whether to wake up the MDVR according to the acceleration received by the built-in G-Sensor of the power box when the ACC detects that the movement in any axis exceeds the threshold. It can be set to 5~100 mg, 10 mg by default. For different vehicles, where opening and closing the door and starting the engine cannot wake up the device, please try to set a smaller threshold value. If it is easy to trigger the start of the device by mistake, a larger threshold value can be set.

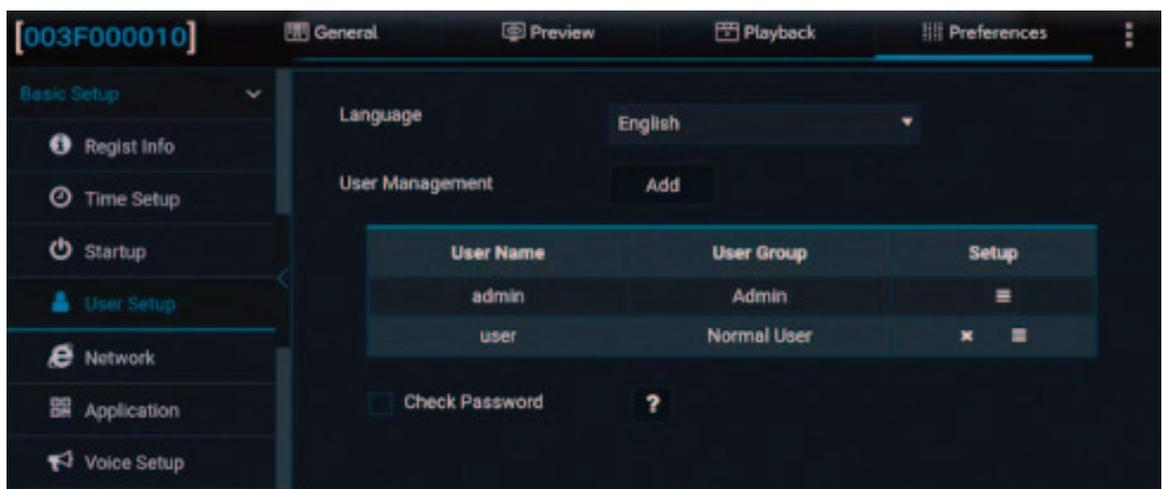


Warning: For the G-sensor wakeup, the device may be started after the start of the vehicle due to the too small vibration of some vehicles, or the device shuts down during the idling stop (The setting of the shutdown delay can solve the problem of idling shutdown at traffic lights).

3. The Real-Time displays the data on 3 axes, and the currently detected wakeup value.

#### 4.7.4 User setup

Tap Preferences > Basic Setup > User Setup, as shown in the following figure:



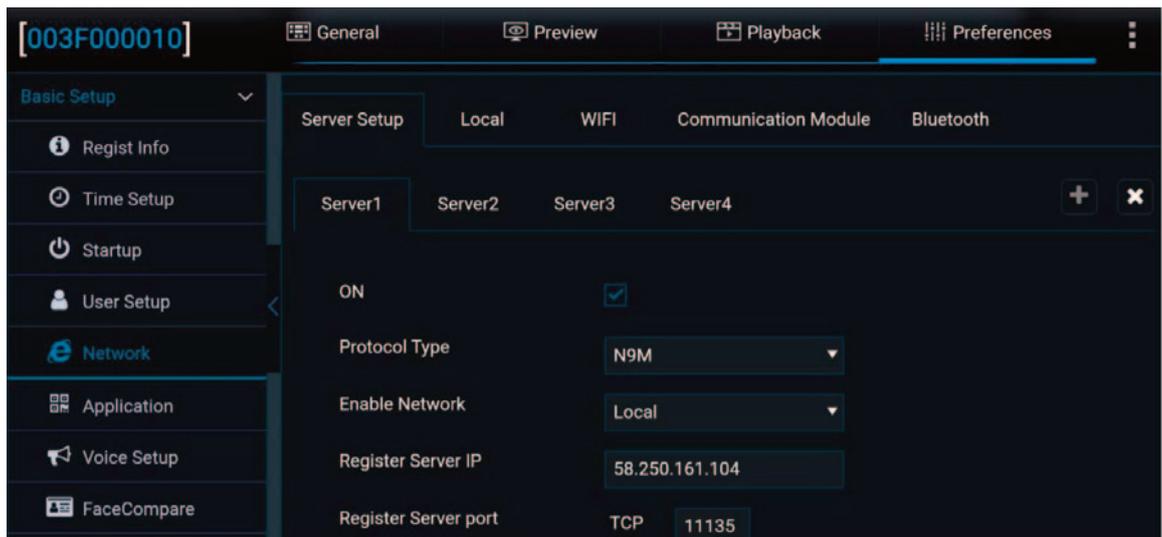
On the User Setup screen, you can set the language, MP3 voice option, and login user account information. You can also select Check Password below if the password complexity is required.

1. The language options and MP3 voice options include Chinese, English, Portuguese in Latin America, Spanish in Latin America, French, Russian, and Japanese, a total of 7 languages. On the Veyes, you can only set the voice. The screen language automatically switches with the operating system of your mobile phone, but the entries remain unchanged. This function takes effect when you set the parameter and tap to save on the Veyes.
2. Tap Add. You can add a user and set the password for the new user.
3. Tap  in the Setup column to set the password for the user login.
4. admin: indicates an administrator account that comes with the system by default. The administrator has permission to add/delete common users and set parameters. It can add a maximum of two common users.
5. user: The system has one user account by default, with permissions to query settings only.

#### 4.7.5 Network Setup

- Server Setup

Tap Preferences > Basic Setup > Network > Server Setup, as shown in the following figure:



1. Tap  on the right part of the screen to add a server; tap  to delete a server on the screen, but Server1 cannot be deleted.

2. ON: selects and enables one or more servers. A maximum of 4 servers can be enabled simultaneously. If it is unchecked, the device will not report the server information yet with server parameters reserved.
3. Protocol Type: can be set to N9M or 808.
  - \* N9M: indicates the protocol type for the device to report information to the video surveillance platform CEIBA2 or FT Cloud.
  - \* 808: indicates the protocol type for the device to report information to the 808 platform (not used for overseas trucks).
4. Enable Network: Local, Wi-Fi, Communication Module, or Adaptive available. Adaptive means that the system automatically selects the available network for platform connection. The adaptive priority is WIFI > Local > Communication Module.
5. Register Server IP: specifies the IP address or domain name of the register server of the platform to which the device reports information.
6. Register Server port: specifies the corresponding device port through which the device reports information to the platform.
7. TLS encrypted port number: During the normal startup and operation of the device, the interactive data between the device and the platform is transmitted through TLS encryption, which can ensure the security of the interactive data between the device and the platform. For the usage, you need to enable TLS and configure the encrypted port number. For the time being, only the FT Cloud platform supports TLS encryption.



Warning: TLS encryption is not supported in sleep status

8. Media Server IP: specifies the IP address of the media server of the platform to which the device reports information.
  9. Media Server port: specifies the corresponding device port through which the device reports information to the platform.
- The register and media servers have the same default IP address and port number.

10. It allows modifying server parameters by sending SMS messages. When the server address changes or is abnormal, the device will be disconnected from the server. All remote services of the vehicle are stopped. To avoid this situation, you can change the IP address and port number of the device server by sending SMS messages.

Command keyword: SMCM

Command parameters: Server Serial Number, Enable, N9M Register Server, N9M Media Server, N9M Register Server Port, N9M Media Server Port, Server Serial Number, Enable, N9M Register Server, N9M Media Server, N9M Register Server Port, N9M Media Server Port, Server Serial Number, Enable, N9M Register Server, N9M Media Server, N9M Register Server Port, and N9M Media Server Port

Remarks: 113.14.232.88 (IP address), 6605 (port number)

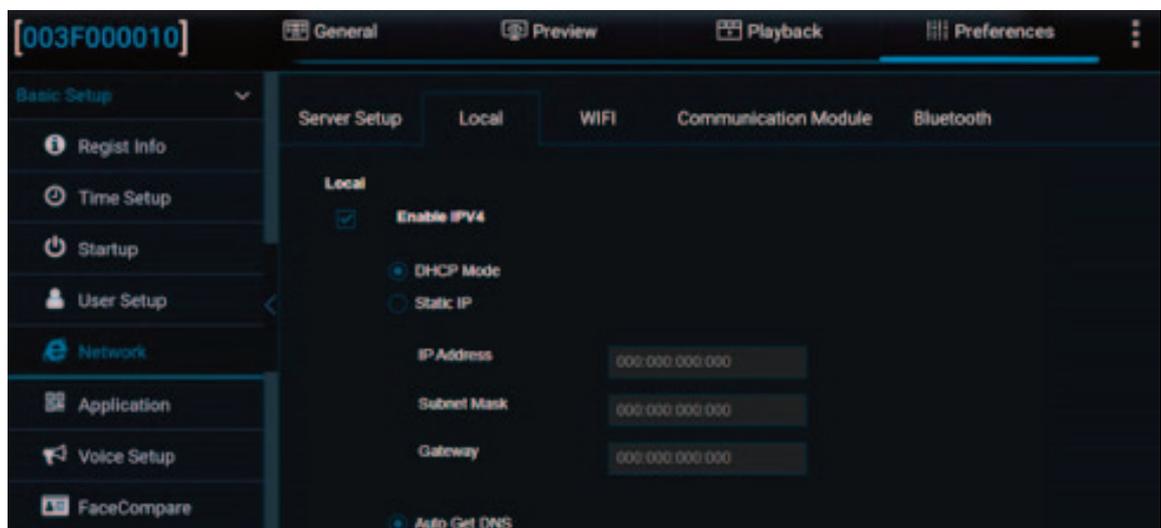
Enable. 0: Disable; 1: Enable

Example:

99admin,120223, SMCM1,1, 113.14.232.88, 113.14.232.88,6605,6606  
(,1,1, 113.14.232.88, 113.14.232.88,6605,6606) (,1,1,113.14.232.88,  
113.14.232.88,6605,6606)

- Local

Tap Preferences > Basic Setup > Network > Local, as shown in the following figure:



Besides IPV4, the IPV6 is added on the Local screen to avoid address conflict and expand the address space. For the IP address, default gateway, preferred DNS server, and standby DNS server, you can enter up to 128 bytes. If the system determines the address, you entered is an IPV6 address, there is no subnet mask. Letters, numbers, and symbols are supported.

1. Enable IPV4: After Enable IPV4 is selected, the corresponding parameter setting screen is displayed.

DHCP Mode: indicates that the device automatically obtains the IP address.

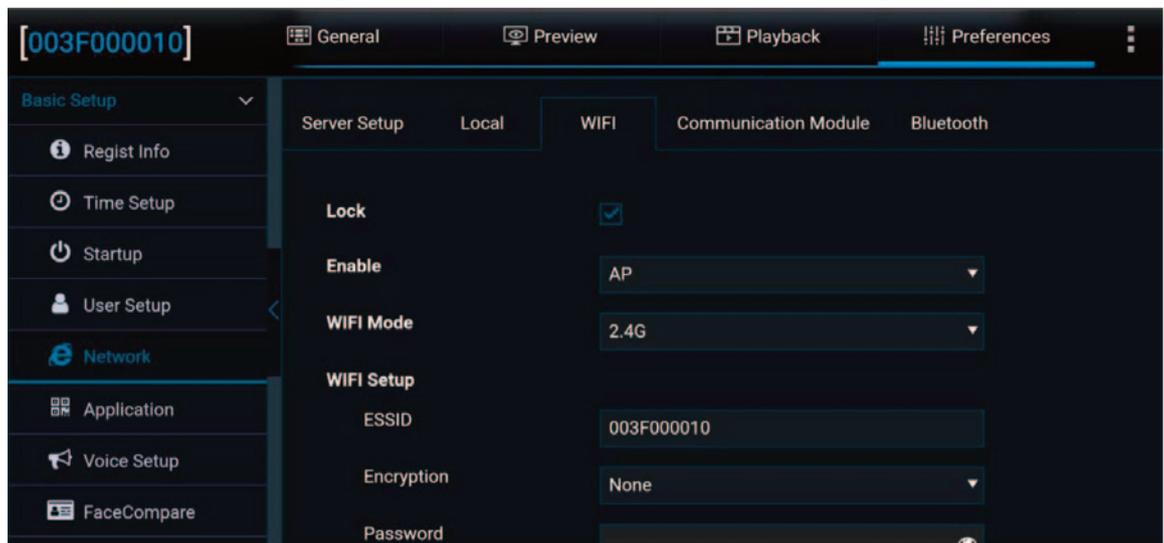
After it is selected, the network automatically allocates a dynamic IP address, and the DNS server address can be specified automatically or manually.

Static IP: indicates that the device uses the static IP address. Use the configured static IP address, subnet mask, and default NMS. In this case, the DNS must be specified statically.

2. Enable IPV6: After Enable IPV6 is selected, the corresponding parameter setting screen is displayed. The parameter description is the same as the IPV4.

- **WIFI:**

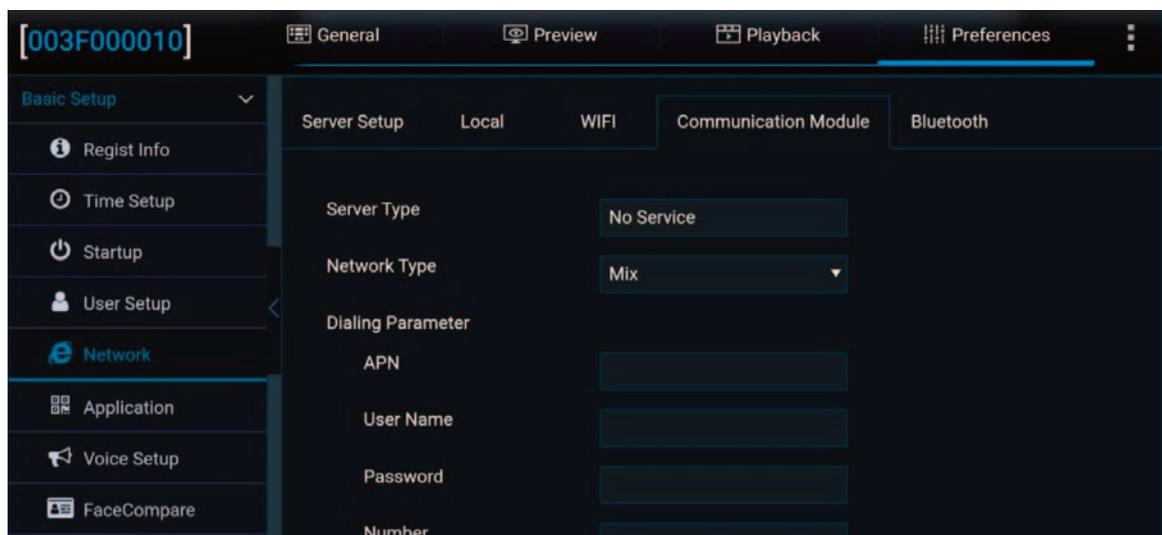
Tap Preferences > Basic Setup > Network > WIFI, as shown in the following figure:



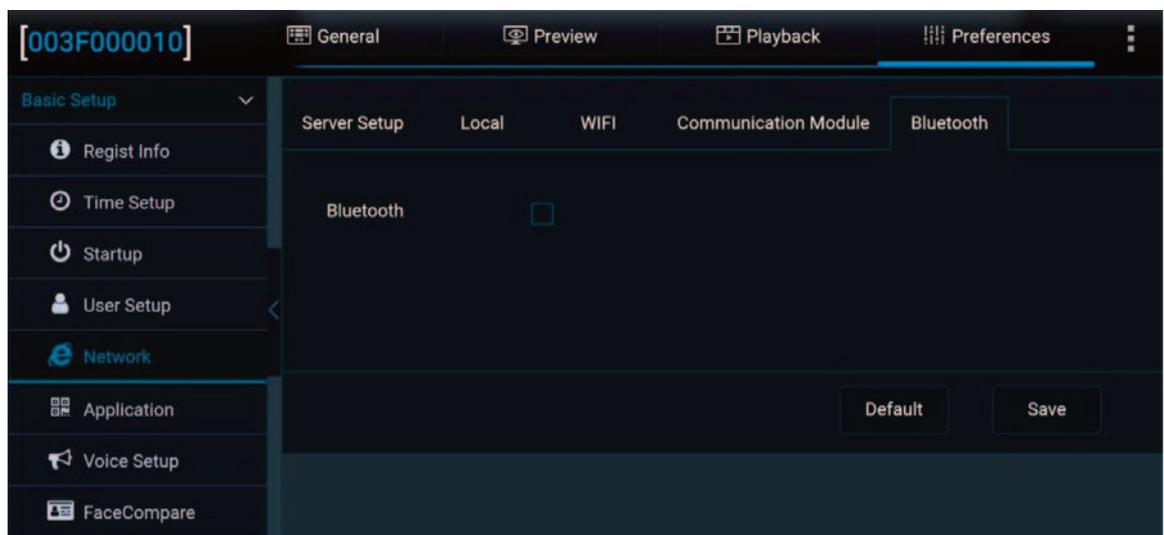
1. Lock: enables/disables the modification of Wi-Fi hotspot parameters. After it is checked, the relevant parameters of the Wi-Fi hotspot will not be modified during parameter import.

2. Enable: specifies the Wi-Fi connection mode. Options: AP, Client, or Disable.  
Default: Disable.
  - \* AP: In this mode, the Wi-Fi name is automatically associated with the vehicle license plate number. You cannot change it or set a password for it on this screen. Moreover, the device maintains the hotspot status during and after the startup.
  - \* Client: When you choose the Client mode and enter ESSID and password with a Wi-Fi network available nearby, the device can automatically research for nearby Wi-Fi hotspots available and report to the platform after a successful connection. When your vehicle enters this area again, it can automatically connect to the Wi-Fi network. In Client mode, when the AP mode is used upon the startup by default, without connection to Veyes, it will automatically switch to the Client mode within 3 minutes (this is a default value and can be configured). In Client mode, the duration of AP mode after startup is configured to make the device report to the platform as fast as possible after startup. You can set an appropriate duration of AP mode as needed. If the duration of AP mode is set to any other value (between 0 and 180 seconds), without connection to Veyes after startup, upon reaching the set duration value, the device will exit the AP mode and automatically switch to the Client mode, with a report to the platform. Please note that the parameter for setting the duration of AP mode is displayed only when the Wi-Fi mode is set to Client and Disable, and this parameter only controls the device entering the AP mode after startup. The display duration of AP mode entered by pressing the button is not restricted by this parameter.  
During the normal use of the device, to switch to the AP mode, press the switching button twice. After the switch, without connection to Veyes within 3 minutes (fixed), the device will automatically switch to the Client mode.
  - \* Disable: In this mode, the Wi-Fi network is not enabled, and the client mode fails. The device uses the AP mode within 3 minutes after the startup by default. (The AP mode switch button is equipped in this device, through which the device can be switched to the AP mode. After the switch, without

- connection to Veyes within 3 minutes, the device will exit the AP mode and the module will enter the sleep mode)
3. **WiFi Mode:** When the Wi-Fi is set to AP mode, you can set the Wi-Fi frequency band. Options: 2.4G, 5G, or self-adaptive.
  4. **ESSID:** In AP mode, the entered value is the hotspot name when the hotspot function of the device is turned on, and the Wi-Fi name when a mobile device connects to the device (no longer a serial number. After the connection, it can access Veyes, but also the Internet as a mobile terminal (the hotspot should be enabled). In Client mode, the entered value is the name of the external Wi-Fi that the device connects.
  5. **Encryption Mode:** In AP mode, the encryption mode can be None/WEB/WPA; In client mode, the encryption mode can be None, WEP, WPA/WPA2-PSK, and WPA2. ENTERPRISE.
  6. **Password:** In AP mode, the password is used for other mobile devices to access Standby MDVR. The correct password is required to connect the Wi-Fi network (No password is required if the name and password are not configured. In this case, tap the serial number or license plate number to connect). In client mode, the password is used for connecting external Wi-Fi networks.
- **Communication Module:**  
Tap Preferences > Basic Setup > Network > Communication Module, as shown in the following figure:



1. Server Type: After the SIM card is inserted into the device, the module type will be automatically monitored and displayed. No service will appear if there is no module.
  2. Network Type: It is Mixed mode by default, meaning that the communication module supports 2G/3G/4G.
  3. Dialing Parameter: includes APN, User Name, Password, Number, and Certification (None, PAP, CHAP, or Mix). Enter the parameters provided by the SMI card manufacturer. The fields are null by default. If so, dialing will be implemented according to the program's parameters.
  4. Active Mode: The network module can be activated by external conditions. The modes include Always, Telephone or SMS.
    - 1) Always: After the device is started, the network module automatically starts to dial and connect to the server.
    - 2) Telephone or SMS: After the device is started, the network module does not work. Only by calling or sending a message to the phone number of the device can the network module be activated to start dialing and connect to the server. Up to 5 dialable phone numbers can be configured.
    - 3) IO: After the device is started, the network module does not work. Only after the IO sensor is triggered, can the network module be activated to start dialing and connect to the server.
- Bluetooth  
Tap Preferences > Basic Setup > Network > Bluetooth, as shown in the following figure: Turn on/off Bluetooth. Currently, the Bluetooth function is unavailable.③



- Ports

WEB Port: Default: 80. This port is used for IE access.

RTSP Port: 554 by default. After entering the correct username and password, configure a fixed IP address for the MDVR, enabling the real-time preview and playback of videos through RTSP.



Warning: Each stream supports only one RTSP request at the same time  
RTSP stream format:

a. Main streaming video: `rtsp://user:pwd@IP:554/mainstreamX`

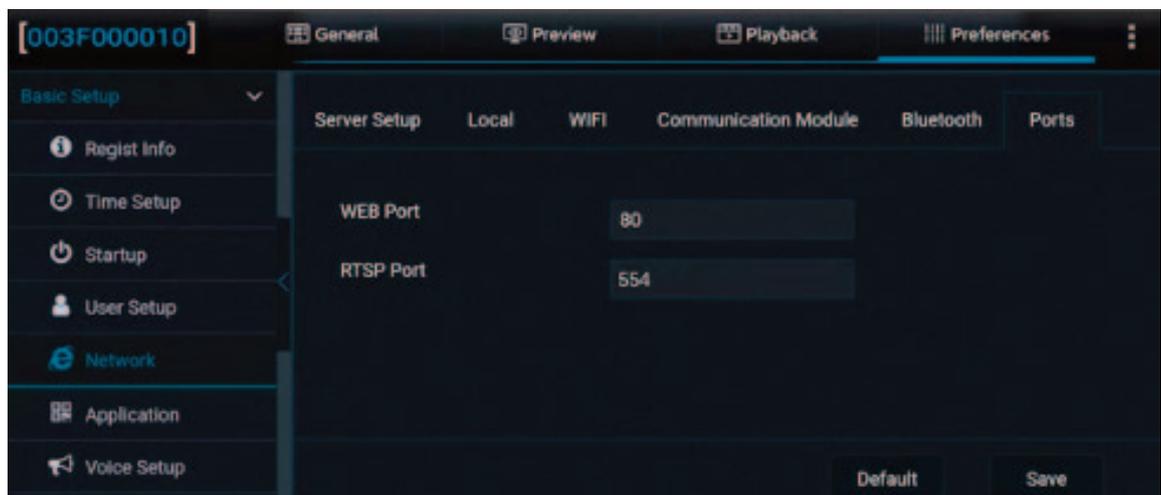
b. Sub streaming video: `rtsp:// user:pwd@IP:554/substreamX`

is Channel number. Start from zero

For example:

`rtsp://admin:admin@10.20.112.17:554/mainstream0`

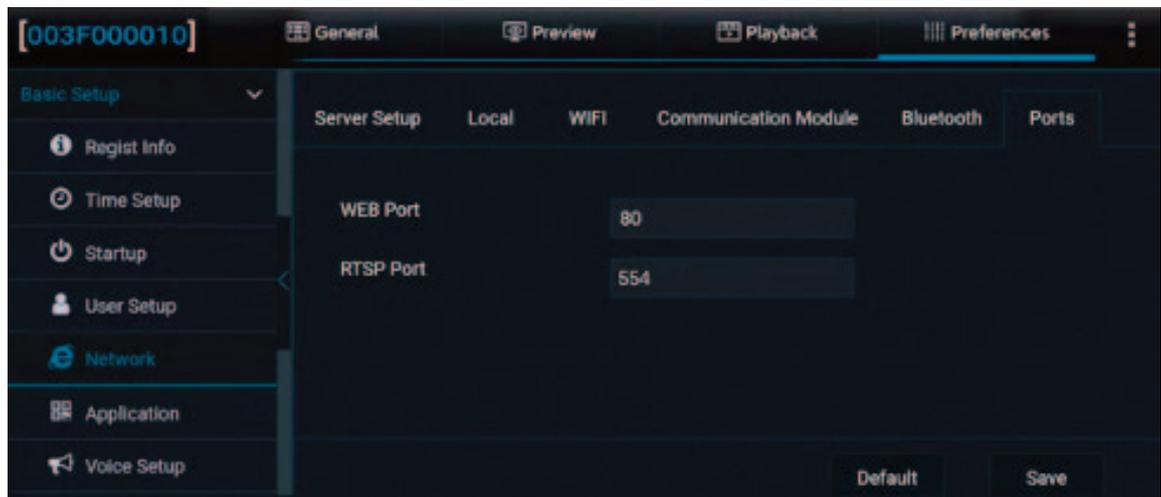
`rtsp://admin:admin@10.20.112.17:554/substream1`



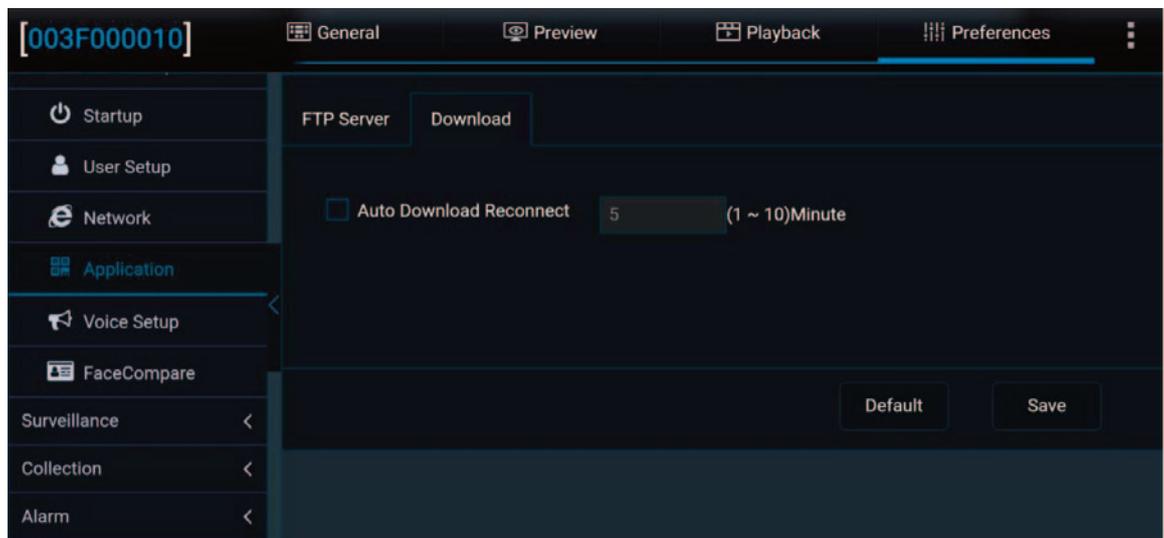
#### 4.7.6 Application

- FTP Server:

The device allows connecting to an FTP server. After the IP address, port number, user name, and password of the established FTP service are configured, the device can connect to the FTP server to upload images or download files. Tap Preferences > Basic Setup > Application > Communication Module > FTP Server, as shown in the following figure:

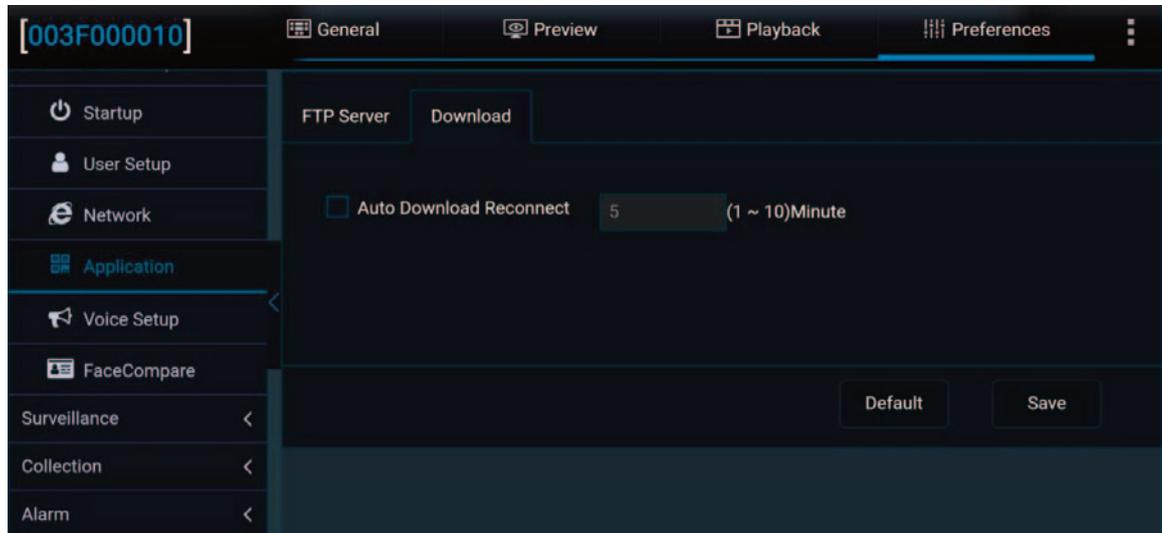


- Auto Download Reconnect: needs to be used with the CEIBA2 platform. The automatic download tasks created through the CEIBA2 are managed by the platform. Specifically, you can view the vehicles with downloads, networks (4G or Wi-Fi) used for the downloads, used Wi-Fi AP by each vehicle if the Wi-Fi network is used, and the maximum number of vehicles connected to each AP for simultaneous downloads on the platform.  
After Auto Download Reconnect is enabled, when the vehicle returns to the station and cannot connect to the service, it will restart and try to download again after entering the sleep mode for a while. When the download tasks are full, or the set AP reaches the upper limit, the platform will instruct the device to enter sleep mode, and at the same time tell the device how long to sleep before restarting. (That is, the sleep mode avoids wasting resources when queuing or waiting for the upgrade.)  
Check to enable Auto Download Reconnect and set the reconnection time between 1 and 10 min, the default is 5 min.



#### 4.7.7 Voice Setup

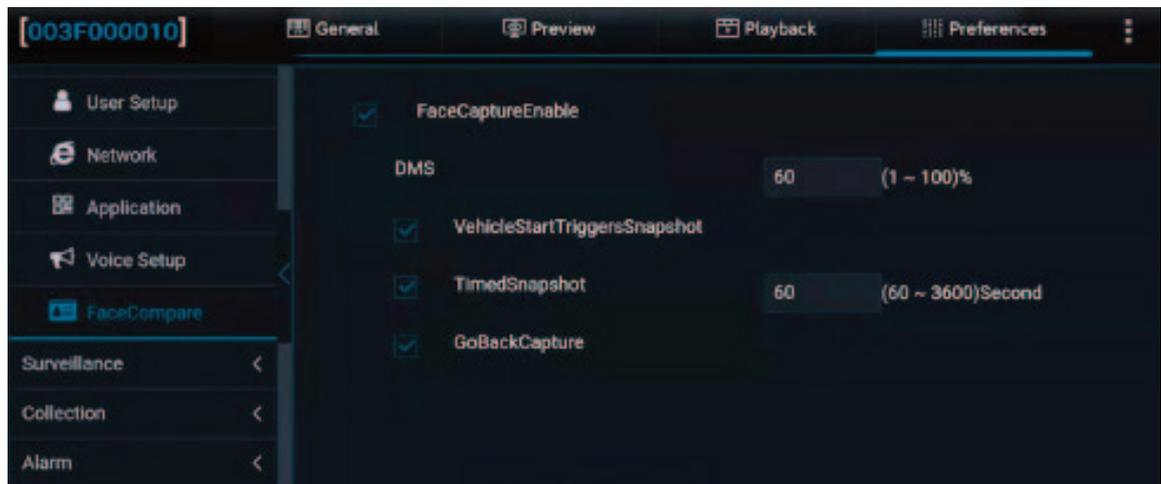
Tap Preferences > Basic Setup > Voice Setup to manually configure the walkie-talkie volume (including MP3 broadcast volume) and TTS voice. The range is 0 to 63, 55 by default. The screen is as follows:



Warning: TTS now only supports Chinese and English.

#### 4.7.8 Face Compare

Tap Preferences > Basic Setup > Face Compare to set the driver face comparison parameters. This function needs to be used with the FT Cloud platform. The screen is as follows:

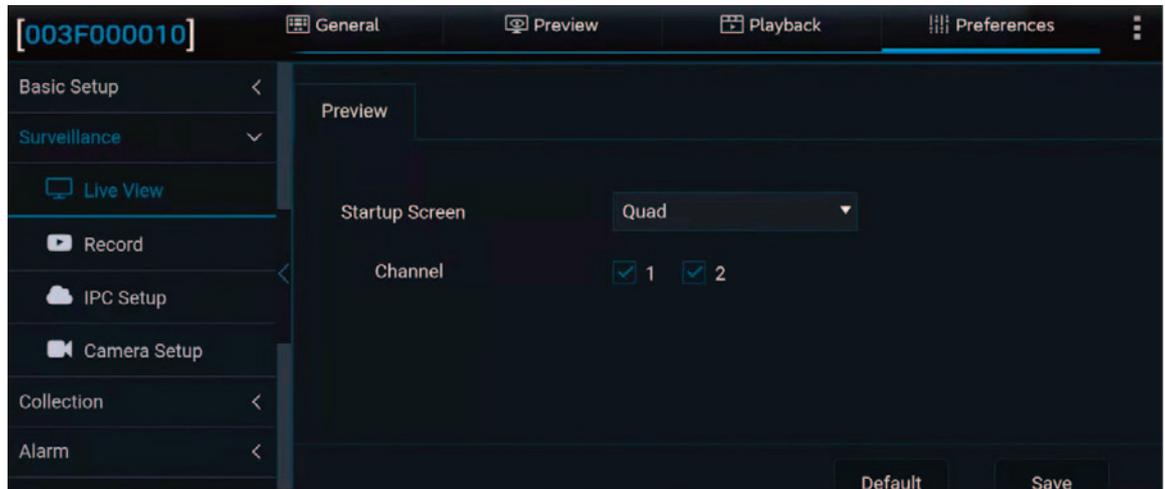


1. Face Capture Enable: enables face comparison after being selected.
2. DMS: allows you to set the threshold of the face comparison similarity. If the similarity is greater than or equal to the set threshold, the driver can be identified.
3. Face capture method:
  - \* Vehicle Start Trigger Snapshot: The device captures a snapshot when the ACC is turned on from the off status, and the vehicle is moving at a certain speed.
  - \* Timed Snapshot: allows you to set the scheduled time to 60~3600 seconds, 300 seconds by default.
  - \* Go Back Capture: The device captures a snapshot when no-driver-alarm is triggered until the alarm is cleared.

## 4.8 Surveillance

### 4.8.1 Preview

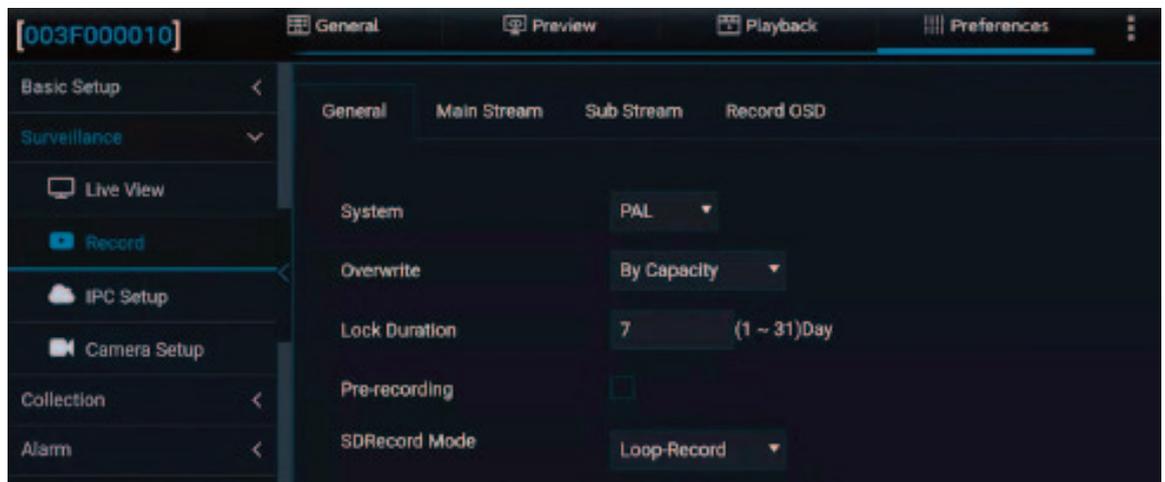
The preview setting screen is used for the display form on the externally connected display, which supports single-screen and four-screen displays. The channel to be displayed can be selected in a single-screen display. Tap Preferences > Surveillance > Live View, as shown in the following figure:



## 4.8.2 Video Recording

### 4.8.2.1 General Settings for Video Recording

This module includes system mode selection, overwrite function, lock duration setting, pre-recording, and SD record mode. Tap Preferences > Surveillance > Record > General, as shown in the following figure:



1. System: can be set to PAL or NTSC.



Warning: The system settings must be consistent with the video source (camera system), otherwise the device cannot identify the camera.

2. Overwrite: can be set to By Capacity, By Day, By Minute, or Never.



Special note: Only after the protection time is passed or manually canceled, can the locked recordings be overwritten and deleted.

- By Capacity (default):
  - 1) When the remaining memory space is insufficient, the historical recordings are overwritten automatically for storing new recordings. It starts when the remaining capacity is less than 1% and is performed based on memory blocks. The block sizes of different memory capacities vary, and users need not focus on the details.
  - 2) For multi-memory, if Loop Recording is selected, overwriting by capacity is performed before the multi-memory. For example, when memory 1 is full, video recording is performed using memory 2, and when memory 2 is full, historical videos in memory 1 are overwritten.
  - 3) When By Capacity is selected, the earliest recordings are overwritten first, and the locked recordings are overwritten when the lock time is up or if unlocked manually.
- By Day:
  - 1) Files are overwritten by the set number of days, which ranges from 1 to 31.
  - 2) If it is set to 1, the recording is saved for 1 day. If it is set to 31, the recording is overwritten after being saved for 31 days.
  - 3) 31-day storage duration is only possible when the disk has sufficient space. If you have set a 31-day duration but the recording is only available for 7 days, earlier recordings will be overwritten immediately after the SD card is full.
- Never: Overwriting is not enabled for main-stream recording, mirrored stream, sub-stream, and alarm stream. Recording stops after the storage is full.

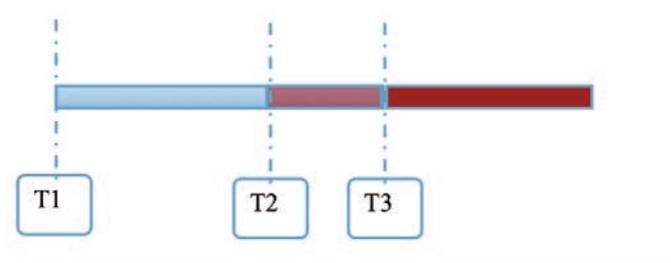
- **By Minute:**

Recordings are overwritten by the set number of minutes, which ranges from 30 (by default) to 1,440. The overwriting accuracy is about 2 min, which means that if it is set to 30 min, the maximum recording duration is not more than 31 min.

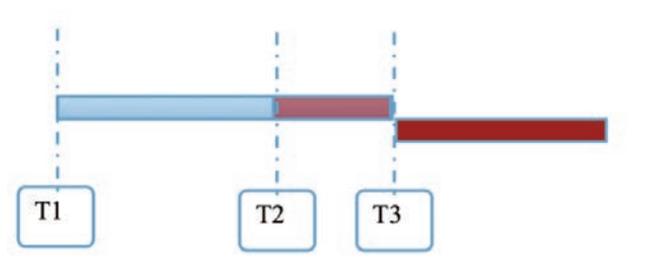
3. Lock Duration: specifies the day(s) that locked recordings are retained. This setting prevents them from being deleted earlier than expected. It is set to 7 days by default. For the operation of locking the recordings, see Preferences > Alarm.

4. Pre-recording: In alarm recording, recording files generated before the linkage alarm are extracted for event analysis. The parameter value ranges from 1 to 60 minutes and is defaulted to 15 minutes.

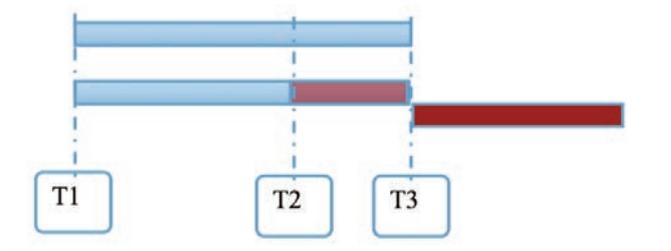
1) In normal video recording, when an alarm is triggered, earlier recording data with a duration indicated by the pre-recording time on alarm linkage is extracted and marked as alarm recording. As shown in the figure below, T1-T3 is a normal recording. After an alarm is generated at T3, T3 and later period, as well as the duration between T2 and T3, are marked as alarm recording.



2) If there is no normal recording ongoing and the pre-recording function is enabled, the device establishes a pre-recording stream segment upon startup. When an alarm is triggered at T3, the recording generated between T2 and T3 in the pre-recording stream segment is marked as alarm recording.



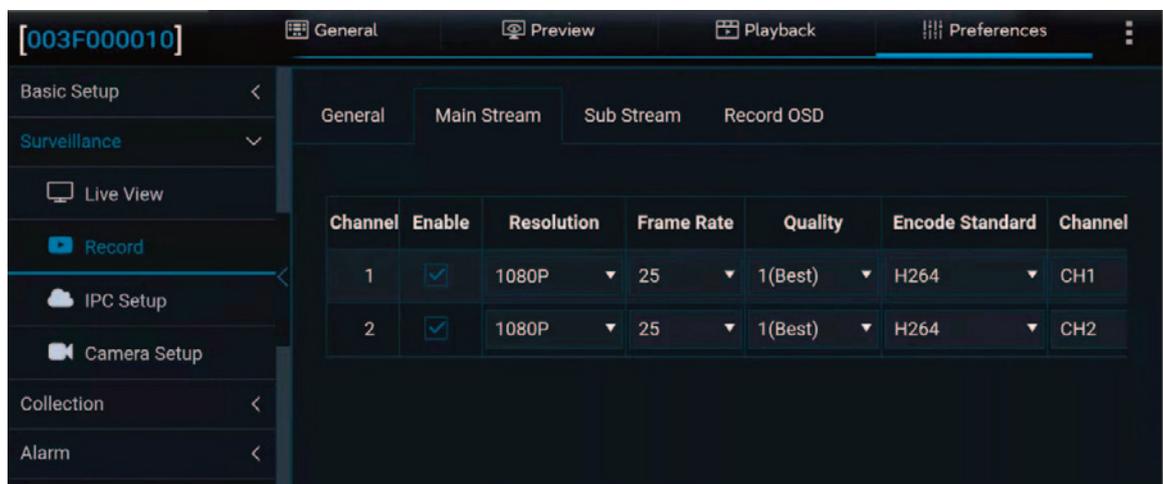
3) When non-alarm recording proves to be I-frame recording: After startup, two stream segments are established, one is I-frame stream segment, and the other is pre-recording stream segment. When an alarm is triggered, the recording between T2 and T3 in the pre-recording stream segment is marked as alarm recording.



5. SD Record Mode: specifies the recording mode of the secondary SD card. It can be set to Sub-Record, Mirror Record, Alarm Record Backup, or Loop Recording.
  - \* Sub Stream Recording: stores sub-stream recordings on the SD card.
  - \* Mirror Recording: uses main stream parameters, and the mirror recording data includes video data, log information, and black box data. If the channel of main stream video is disabled, mirror recording does not apply to this channel.
  - \* Alarm Record Backup: stores recording data only when an alarm is triggered.
  - \* Loop Recording: It is loop recording for dual SD cards.

4.8.2.2 Main Stream

On this screen, you can set the recording mode, recording parameters, and audio parameters for each channel. Tap Preferences > Surveillance > Record > Main Stream, as shown in the following figure:



Note: The recording mode can be configured for channels individually.

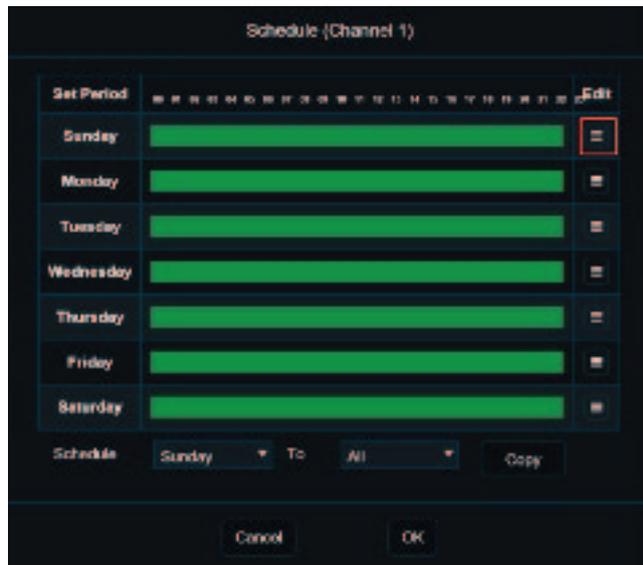
Once a recording mode is selected, it applies to both sub stream and mirrored recording.

1. Enable: enables main stream recording after being checked.
2. Resolution: can be set to 720P or 1080P if a digital camera is connected (the final selection is determined by the support of the digital camera), and CIF/WCIF/HD1/WHD1/D1/WD1/720P/960P/1080P if an analog camera is connected.

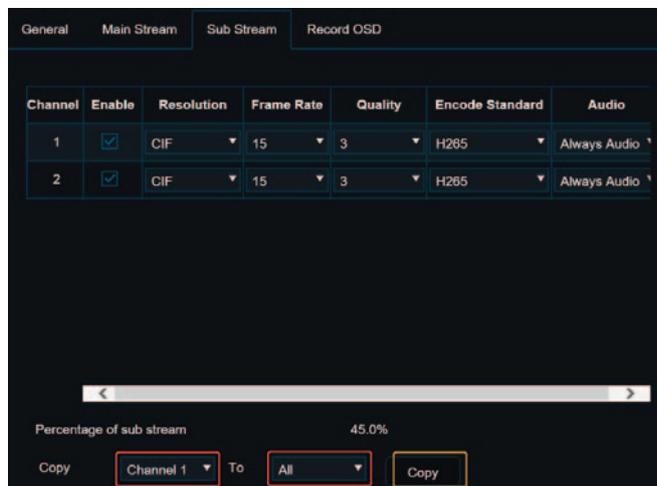


Note: The ADAS channel (Channel 1) of the dashcam measures up to 1920P.

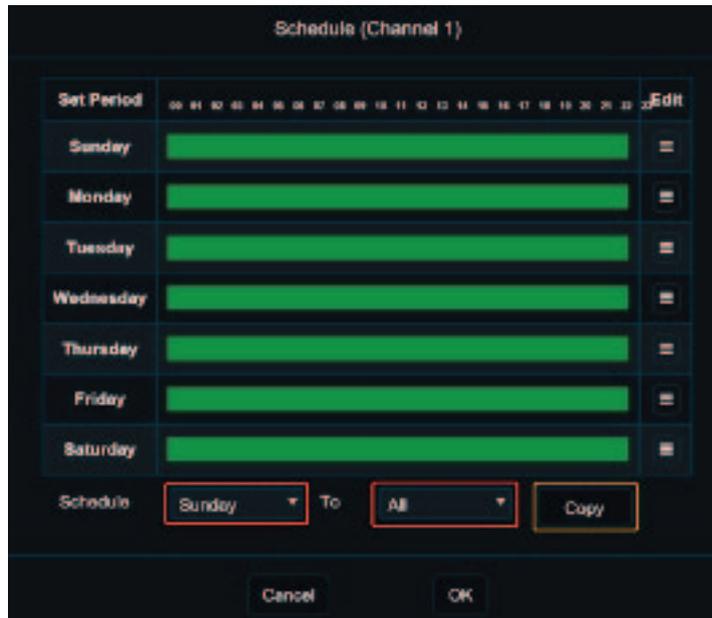
3. Frame Rate: specifies the recording frame rate or the number of frames played per second. It ranges from 1 to 25 for a PAL camera and 1 to 30 for an NTSC camera.
4. Quality: specifies the recording quality. The value ranges from 1 to 8. The smaller the value, the better the quality. 1 indicates the best quality.
5. Encode Standard: can be set to H264 or H265, and the default value is H265.
6. Channel Name: can be customized.
7. Record Mode: can be set to Startup, Schedule, or Alarm.
  - \* Startup: indicates that the device keeps recording when it is started if the SD card is available, and recording is enabled.
  - \* Alarm: starts recording when the device alarms. For Alarm settings, see Preferences > Alarm; you can also pre-record the recording before the alarm.
  - \* Schedule: indicates that the device records as scheduled. Tap  on the right of Schedule to navigate to the screen shown below. Tap  corresponding to a specific day to add a scheduled recording plan. 



To add a scheduled recording plan, tap **+**, as shown in the figure below. To delete this plan, tap **x** on the right of the plan. You can select Normal or Alarm from the Video Type drop-down list to define the recording.



After setting the scheduled recording plan, tap OK to return to the previous step. Apply the defined scheduled plan to other dates by tapping Copy, as shown in the following figure:



## 8. Audio

Note: Separate audio recording is not supported.

- Audio: indicates whether to record audio during video recording. It can be set to Always Audio or No Audio, and it is Always Audio by default.
  - 1) Always Audio: The video is always recorded in audio recording.
  - 2) No Audio: The video is not recorded in audio recording.
- 9. Alarm Quality: specifies the quality of alarm recording. The smaller the value, the better the quality. The default value is 3.
- 10. Encode Mode: You can choose the encoding format of VBR or CBR, and it is VBR by default.
- 11. Audio Coding Format: You can choose G711A, G711U, ADPCM, and G726, and it is ADPCM by default.

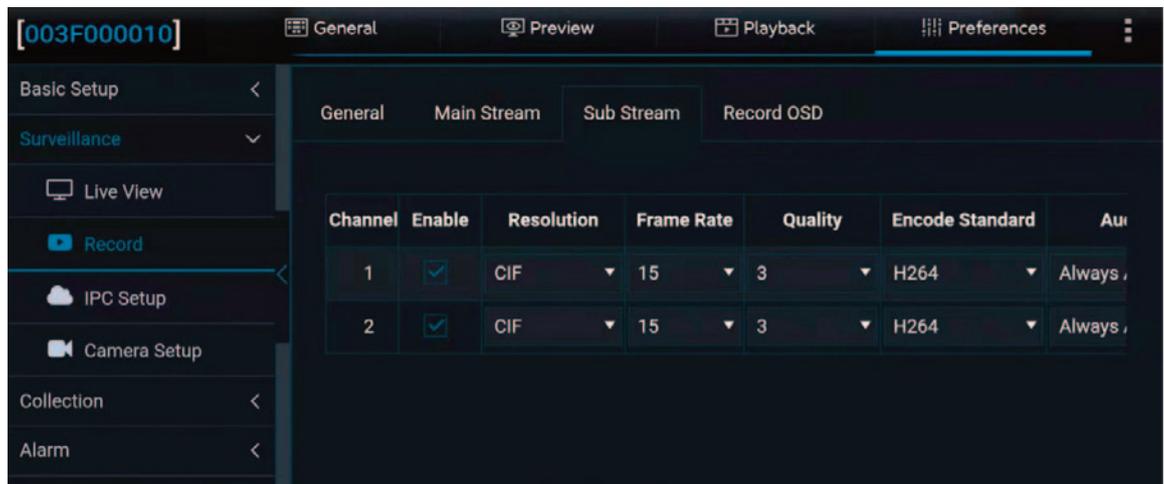
### 4.8.2.3 Sub Stream

On this screen, you can set the sub stream video and audio recording parameters for each channel.



Note: The sub stream video recording can be enabled only when the sub stream video recording is selected in the recording mode, and a SD card is installed in the second slot.

Tap Preferences > Surveillance > Record > Sub Stream, as shown in the following figure:



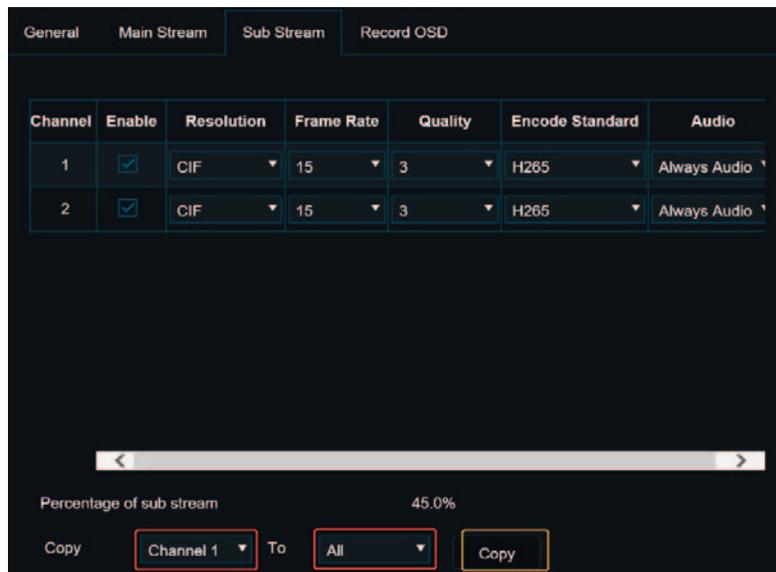
1. Enable: enables Sub Stream Recording for a specific channel after being checked.



Special note: When Main Stream is disabled, the entire video input is disabled. Currently, the sub-stream video recording does not start when the Sub-Stream is enabled.

2. Resolution: Options: CIF, HD1, or D1 for an analog camera, and QVGA or 640×360 for a digital camera.
3. Frame Rate: specifies the recording frame rate or the number of frames played per second. It ranges from 1 to 25 for a PAL camera and 1 to 30 for an NTSC camera. It is 15 for sub stream by default.
4. Quality: specifies the recording quality. The value ranges from 1 to 8. The smaller the value, the better the quality. 1 indicates the best quality.
5. Encode Standard: can be set to H264 or H265, and the default value is H264.
6. Audio: indicates whether to record audio during video recording. It can be set to Always Audio or No Audio.

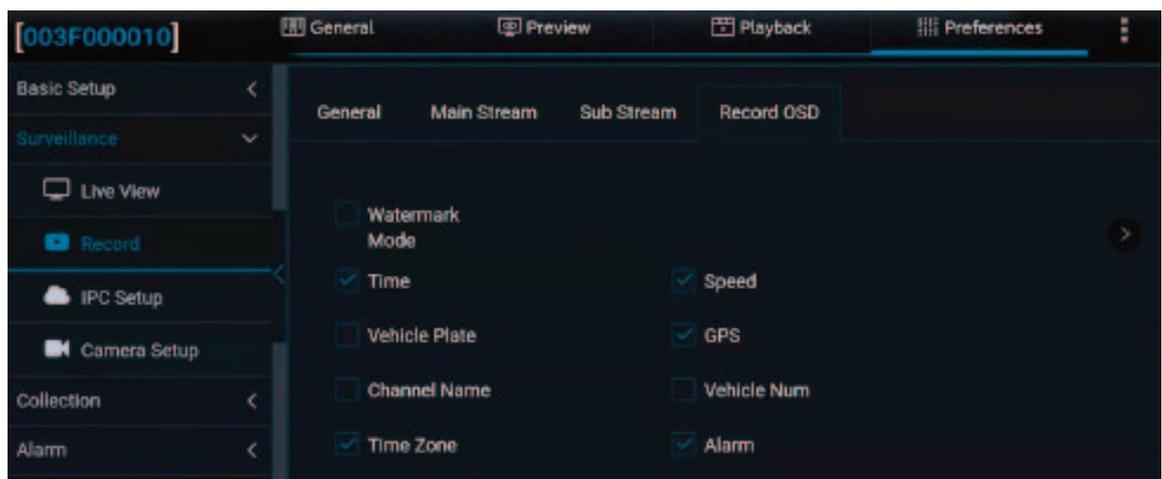
Tap Copy to apply the sub stream setting parameters of a channel to other channels, as shown in the following figure:



Special note: Using the stream calculation tool in the instruction package allows you to calculate the required disk size according to the required recording specifications. The calculated capacity size by this tool is a theoretical value for reference only.

#### 4.8.2.4 Record OSD

Tap Preferences > Surveillance > Record > Record OSD. The screen for setting recording superimposition is displayed, as shown in the following figure:



OSD superimposition here allows you to superimpose the selected information on the recording, which is different from OSD superimposition on the live view preview screen. Record OSD supports the selection of 8 areas for enabling and location setting. In addition, in order to provide better OSD overlay capability and effect of the video on the platform, especially to overlay the processing information of AI, this screen is added with the video watermark mode function, and when the function is checked, it can overlay the watermarking information onto videos of the analog channel.

#### 4.8.3 Camera Setup

On the Camera Setup screen, you can flip, mirror, and rotate the cameras in all channels. Tap Preferences > Surveillance > Camera Setup, as shown in the following figure:



In the lower left corner of the screen, select the target channel to set the rotating angle of the camera in this channel, and enable or disable mirroring and flipping for the camera.

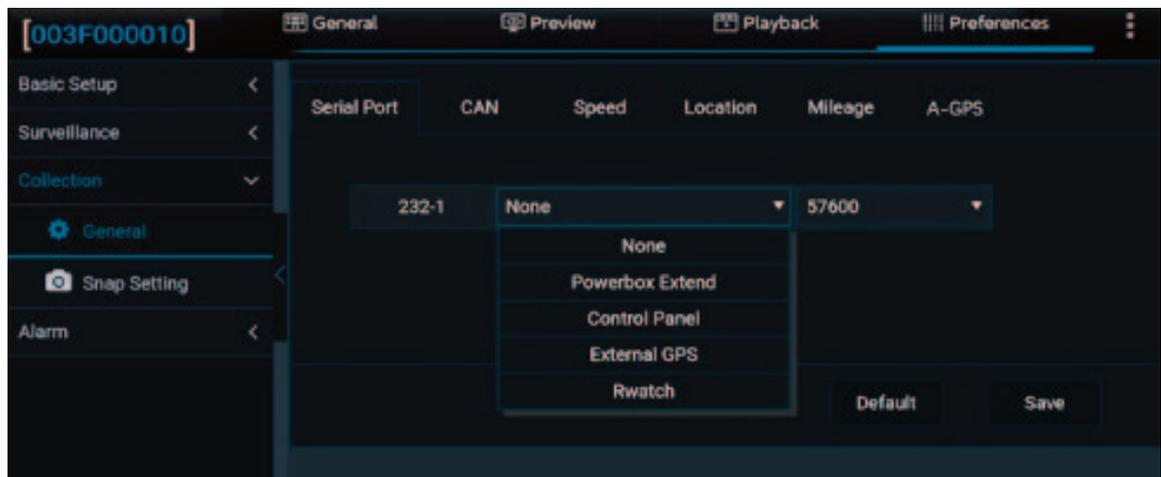
## 4.9 Data acquisition

On the Collection screen, you can set parameters related to the serial port, CAN, speed, location, mileage, and snap.

### 4.9.1 General

On the General screen, you can set parameters related to the serial port, CAN, speed, location, mileage, and A-GPS.

- 1) Tap Preferences > Collection > General > Serial Port. The screen for setting the serial port is displayed, as shown in the following figure:

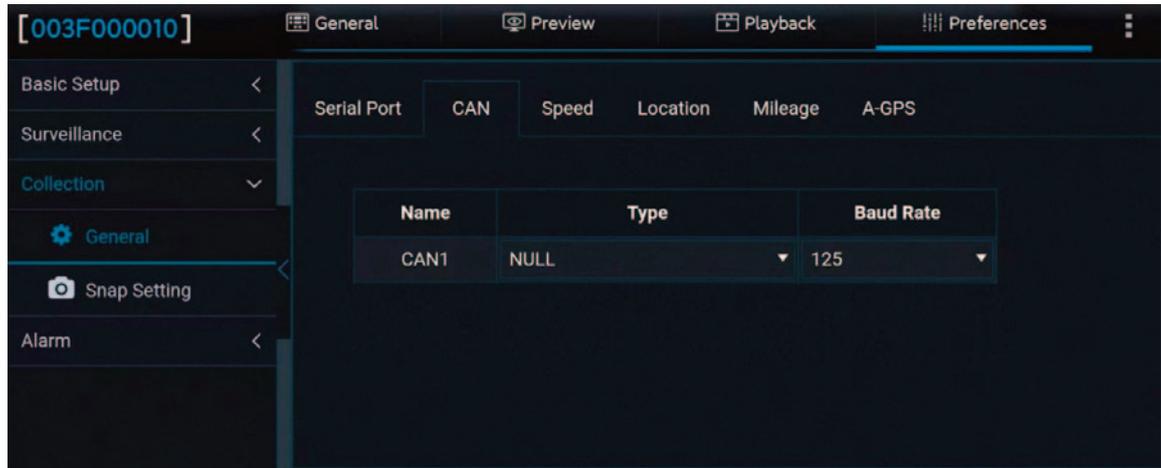


Serial Port: allows selecting the peripheral you want to connect. The corresponding baud rate will be displayed automatically. If the baud rate is incorrect, change it manually.



Note: If it is connected to an R-Watch, the usage of 232-1 serial port must be set to R-watch on this screen.

- 2) Tap Preferences > Collection > General > CAN. The CAN setting screen is displayed as follows:

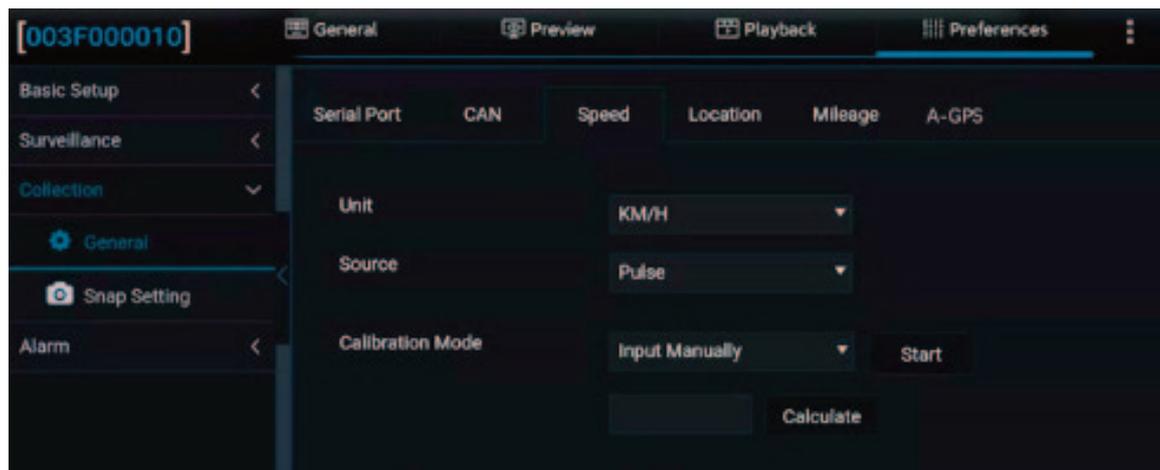


On this screen, you can configure the function type and Baud rate of the CAN to be accessed.



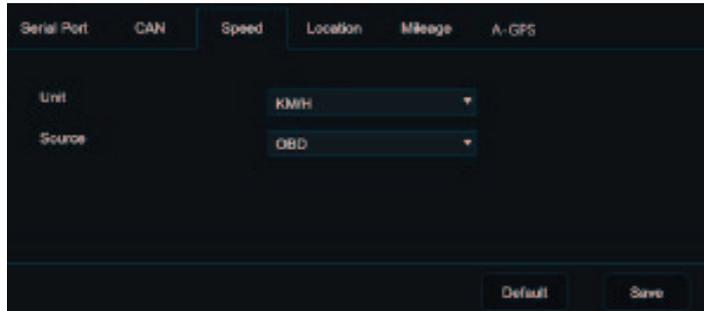
Warning: It supports the SAE J1939 standard. As some data fields may be customized by automobile manufacturers, the final measured data shall prevail. If any required data is not supported, the integrated development is acceptable based on a specific protocol.

3) Tap Preferences > Collection > General > Speed. The Speed setting screen is displayed as follows:



1. Unit: sets the speed unit to KM/H or MPH.
2. Source: can be set to Satellite, Pulse, OBD, or Mix.

\* When Satellite or OBD is selected, the screen is displayed, as shown in the following figure:



\* When Pulse is selected, the screen is displayed, as shown in the following figure:

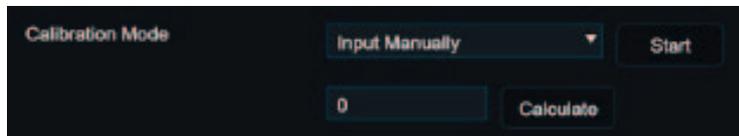


Calibration Mode: can be set to Input Manually or Automatic Correct.

\* If Automatic Correct is selected, tap Correct to calibrate the pulse ratio directly.



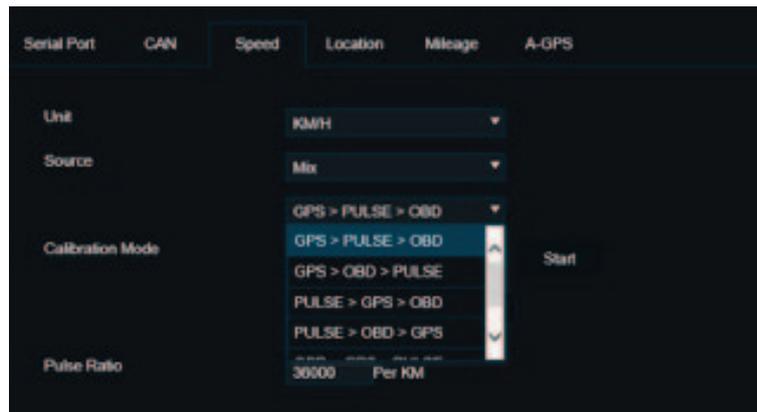
\* If Input Manually is selected:



- 1) You need to manually enter the initial mileage of the odometer, and the system will calculate the initial mileage of the odometer.
- 2) Tap Start. The MCU will automatically record the number of pulses.
- 3) At any time, you can tap End, record the mileage of the odometer again, and calculate the mileage difference.

- 4) Enter the mileage difference, and tap Calculate. The calculation result will be automatically displayed in Pulse Ratio. (The calculation result unit is consistent with the speed unit.)

When Mix is selected in Source, you can set the priority of the speed source, which comes in 6 choices. The screen is as follows:

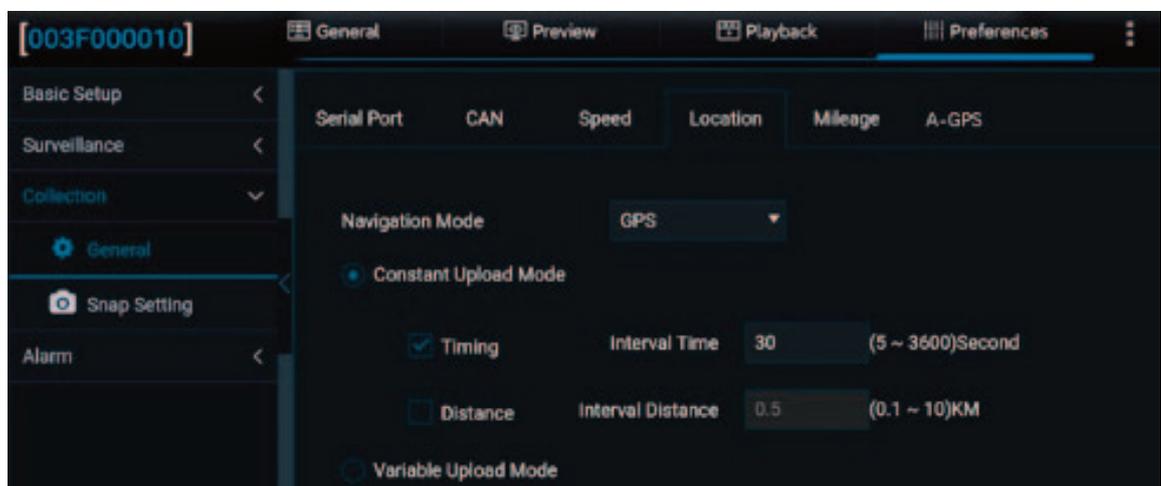


Special note: Different power boxes support different pulse speeds. The default standard power box does not support pulse function.

- 4) Tap Preferences > Collection > General > Location. The screen for setting GPS reporting strategies is displayed. You can select different ways of uploading GPS signals as required by the market.



Warning: You can see this interface and set the parameters only when the device detects the GPS module.



Based on ACC status, the GPS upload mode includes constant upload, variable upload, and sleep upload.

ACC Status	Constant Upload Mode	Variable Upload Mode
ACC ON	<p>1. Timing: can be checked to set Interval Time that can be modified manually. Value range: 3~3600 s. Default value: 10 s.</p> <p>2. Distance: can be checked to set Interval Distance that can be manually modified. Value range: 0.1~10 km.</p> <p>3. Timing and Distance can be checked at the same time.</p>	<p>For more information, see the detailed description. Note that you can select either Constant Upload Mode or Variable Upload Mode. Constant Upload Mode is selected by default.</p>
ACC OFF	Sleep upload	

#### 1. Descriptions of variable upload mode:

First: variable uploads are defined by two parameters, Moving Start and Moving Stop.

Second:

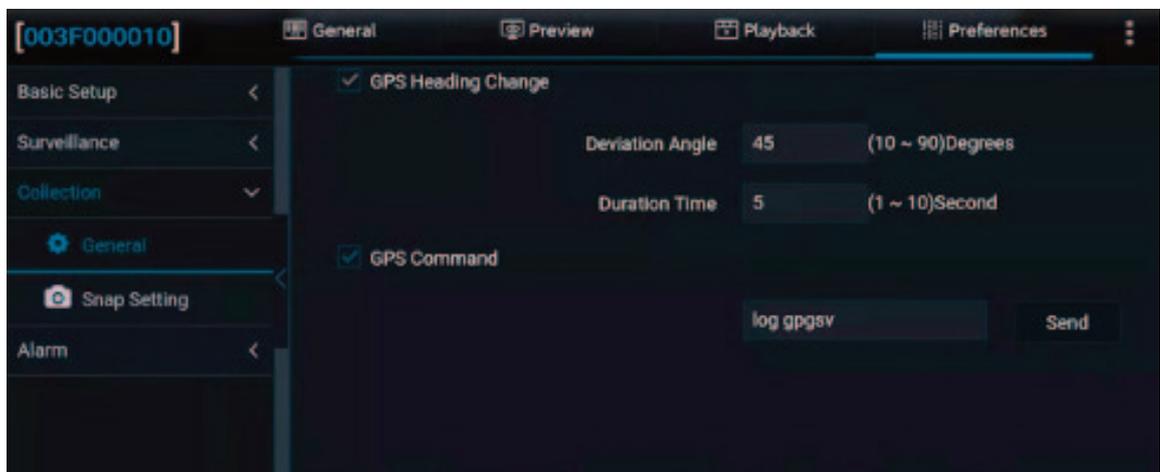
- Moving Start: When the vehicle speed is higher than a value for a specified time, the vehicle is considered as having started. The default speed is 30 km/h, and the default time is 60s.
- Moving Stop: When the vehicle speed is lower than a value for a specified time, the vehicle is considered as having stopped. The default speed is 20 km/h, and the default time is 5 minutes.

Upload mode:

- When the vehicle status changes from Moving Stop to Moving Start:  
Timing: can be modified manually and the default value is 60s.  
Distance: can be modified manually and the default value is 0.1 km.
- When the vehicle status changes from Moving Start to Moving Stop:  
Timing: can be modified manually and the default value is 60s.

2. GPS data is uploaded repeatedly if the vehicle running angle changes significantly. The angle can be defined by the user. By default, a piece of GPS data is uploaded when the vehicle angle is 45°.
3. ACC status is reported alongside GPS data.
4. For details of the sleep upload function, see ON/OFF settings in Preferences > Basic Setup > Time Setup.

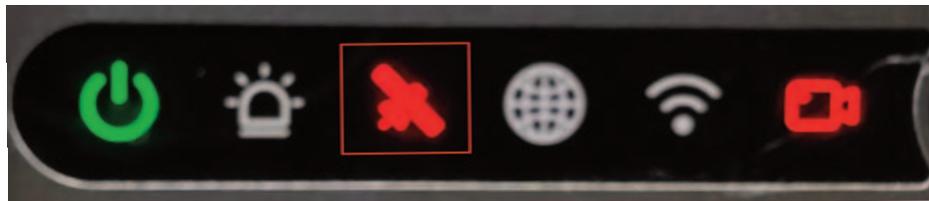
GPS Command: to ensure that the original GPS data can be obtained for analysis when the inertial navigation GPS goes wrong, the GPS original data acquisition command is added. Tap Positioning > GPS Command and enter "log gpgsv" in the command input box; then, tap Send and save to enable the GPS raw data recording. At this time, the data is recorded in the black box of the device, which can be obtained locally on the device or remotely on the platform, and you can obtain GPS data for analysis after analyzing the recorded data. The GPS original data recorded in the black box includes RMC, GGA, GSA, GSV, and GPATT. The screen is as follows:



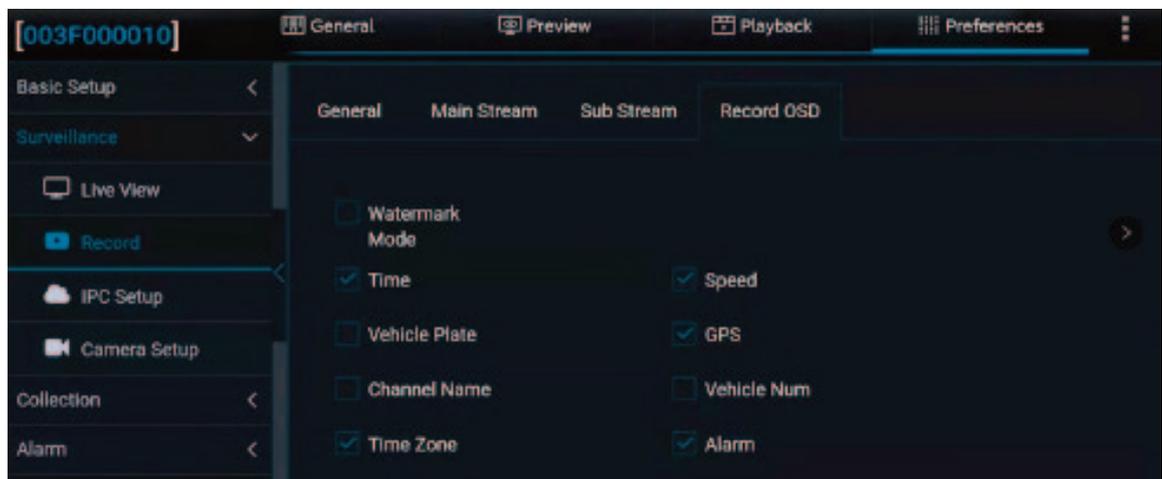
After the "log gpgsv" command is sent at the same time, the general information display interface of "Veyes" displays the satellite positioning signals received by the device. By tapping General > Positioning Information, you can view the number of satellites and the corresponding satellite signal quality.

If you want to manually turn off the GPS original data recording, you can choose to turn off the GPS command enabling or enter "unlog gpgsv" in the command box; then, tap Send and save to stop recording the GPS original data into the black box.

In addition, when the device detects that the GPS signal quality is poor, it makes prompts via the LED light on the front panel of the device. Currently, the LED light indicating GPS on the front panel flashes repeatedly (at intervals of 1 s), and it stops flashing when the positioning signal is recovered.



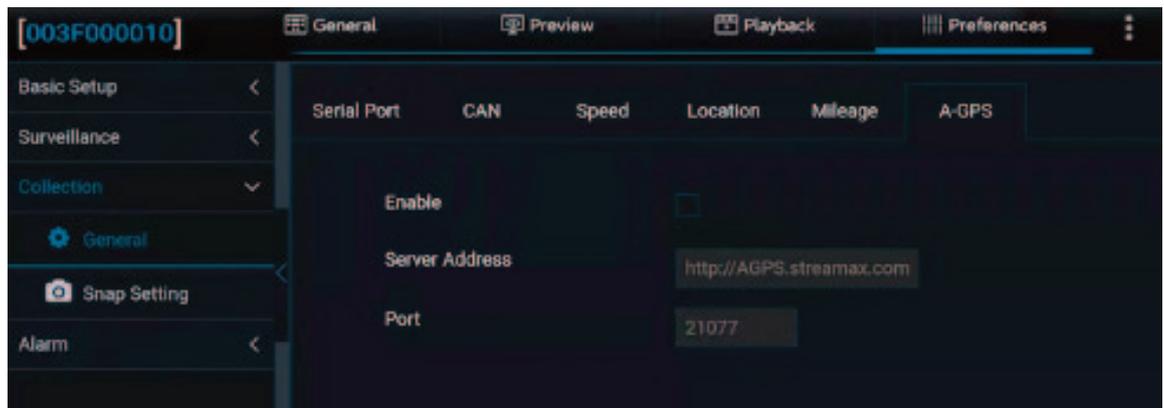
5) Tap Preferences > Collection > General > Mileage. The screen for setting the Mileage is displayed. On this screen, you can specify the Base Value, and correct or clear the mileage data, as shown in the following figure:



In a strong signal environment, the autonomous GNSS receiver can cold start positioning in about 30 seconds; but in a weak signal environment (such as under an elevated road, a tree-lined path, between urban high-rise buildings, just out of a tunnel, just out of an underground garage, etc.), Receivers without external assistance are slow to acquire satellites, have difficulty acquiring a text from satellites, and therefore take a long time to locate, or even impossible to locate.

The AGNSS (AGPS) service can provide the receiver with auxiliary information necessary for positioning, such as text, rough position, and time. Whether in a strong signal or weak signal environment, the information can significantly shorten the time of first positioning time to achieve fast startup and fast positioning.

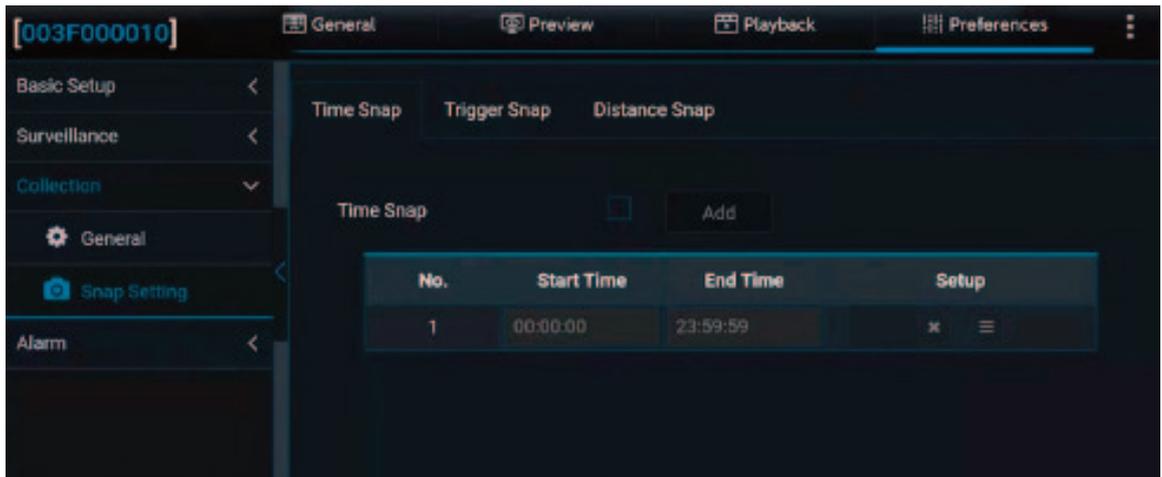
When in use, the AGPS proxy server regularly obtains all ephemeris data from various chip manufacturers and stores the data on the server. The device connects to the proxy server through the default IP/domain name and port of the proxy server (parameters can be modified manually). After the device is started, check whether the AGPS auxiliary information file expires (different chip files have different due time). If it expires, request the AGPS proxy server to obtain the latest ephemeris data, and download it to the local by overwriting. If the data cannot be obtained, keep trying.



## 4.9.2 Capture settings

### 4.9.2.1 Time Snap

You can set the time during which the device will automatically take snaps at regular intervals. Tap Preferences > Collection > Snap Setting > Time Snap. The Time Snap screen is displayed, as shown in the following figure:



- Check the Time Snap check box to enable time snap. Tap Add to add a period for this function.
- Start Time/End Time:
  - 1) Set a time and enable the snap function during this time.
  - 2) The time of snap is within one day.
  - 3) It supports up to 8 time periods of time snap every day.
  - 4) You can add, delete, and edit time periods.
- Independent snap parameters can be set for each time. Specifically, tap the operate icon . The Snap Link Set screen is displayed, as shown in the following figure:



Snap Link Set (Time Snap 1)

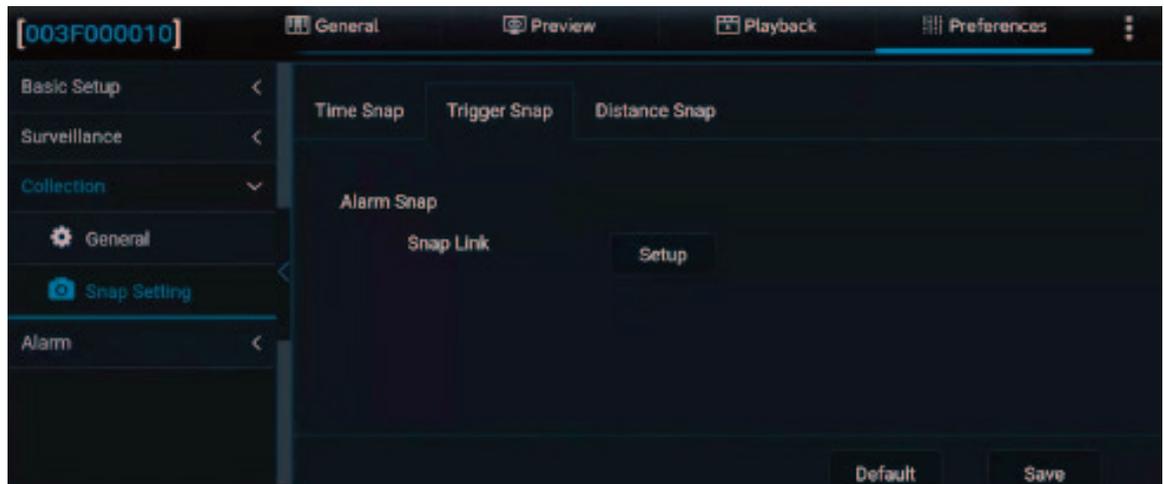
Channel	Snap Enable	Resolution	Quality	Upload Type	Snap Numbers (1-3)Pcs	Interval (5-7200) Second
1	<input checked="" type="checkbox"/>	D1	1(Best)	Setup	1	5
2	<input type="checkbox"/>	D1	1(Best)	Setup	1	5

Copy  To

- 1) Channel: selects the camera channel to snap.
- 2) Snap Enable: enables the time snap function of this channel after being checked.
- 3) Resolution: selects the snap resolution.
- 4) Quality: ranges from 1 to 8. 1 indicates the best image quality.
- 5) Upload Type: supporting FTP upload and HTTP upload. Snaps can be automatically uploaded through FTP. For FTP settings, see Preferences > Basic Setup > Application > Communication Module > FTP Server. When HTTP is selected, the snaps are uploaded to the specified platform in HTTP mode. The HTTP parameter is empty by default, and the HTTP address is issued through the platform.
- 6) Snap Number: ranges from 1 to 3.
- 7) Interval: specifies the interval between each snap in this time, in seconds.
- 8) Copy: copies the settings to other video channels.

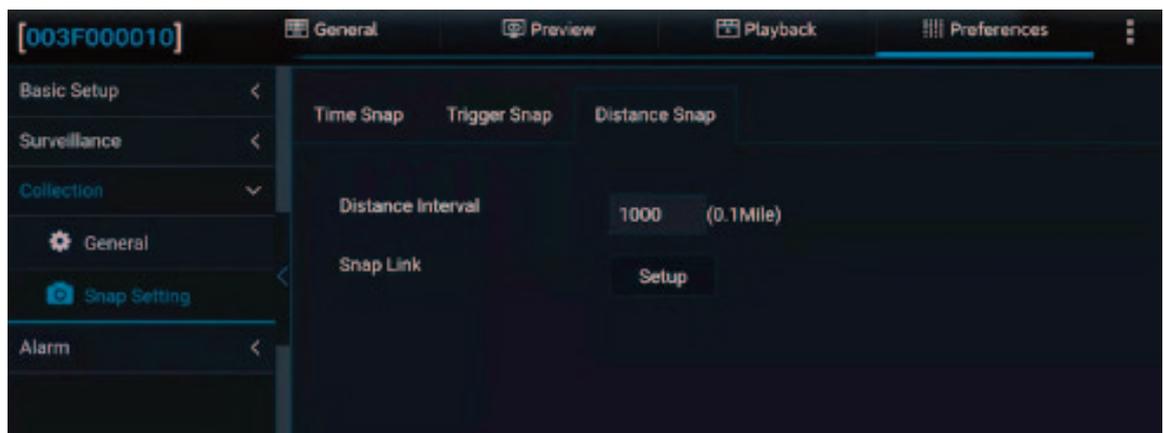
#### 4.9.2.2 Trigger Snap

The device supports the alarm linkage snap, that is, the device starts to take snaps once an alarm is triggered. Tap Preferences > Collection > Snap Setting > Trigger Snap. The setting method is the same as that for time snap. Therefore, no more descriptions are provided here.



#### 4.9.2.3 Fixed-range Capture

The fixed-distance capture is supported, that is, capturing pictures at a fixed distance and uploading them to the platform. Tap Preferences > Collection > Snap Setting > Distance Snap. The fixed-distance capture is disabled by default, and the distance unit follows the system unit. The difference between the capture linkage setting method and the timed capturing is that the fixed-distance capture setting does not contain capturing time interval setting.



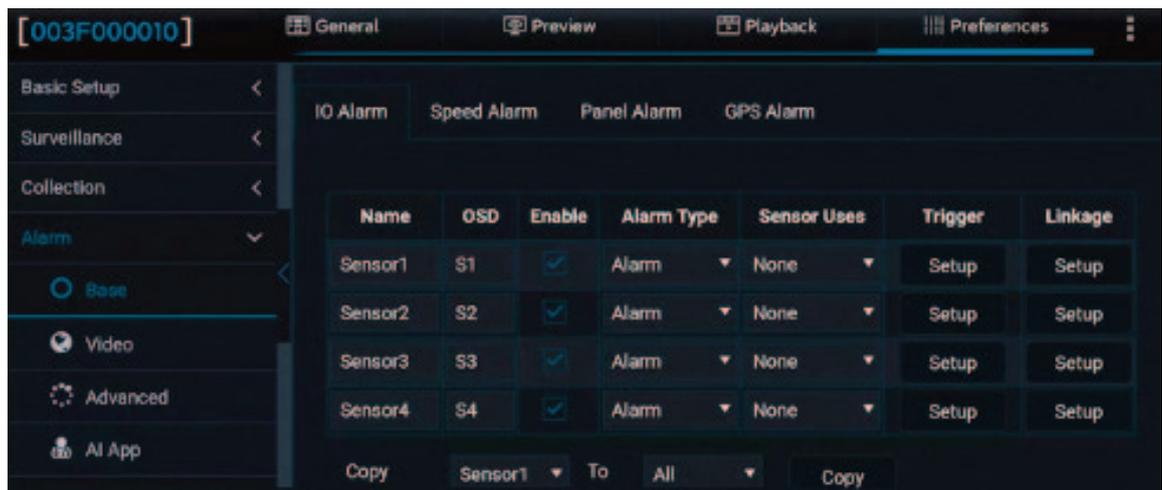
Warning: The snap function consumes certain system resources, and various snap settings cannot allow the average frequency of snapping in all channels to exceed 3 snaps in 5 seconds.

## 4.10 Alarm Settings

### 4.10.1 Basic alarms

On the Base screen, you can set IO Alarm, Speed Alarm, Panel Alarm, and GPS Alarm.

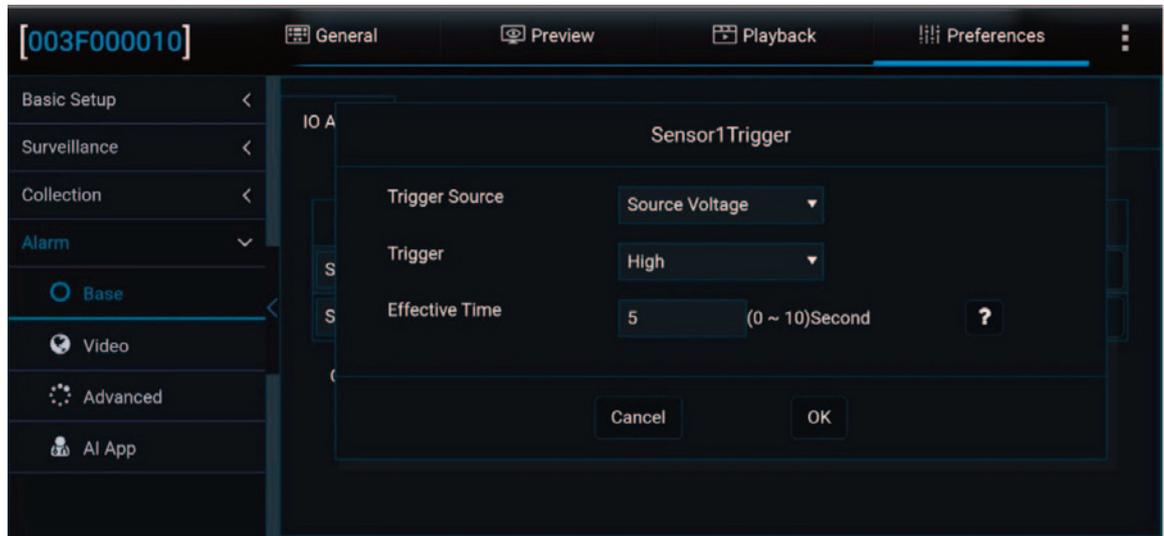
Tap Preferences > Alarm > Base. The screen is displayed, as shown in the following figure:



The device uses a conventional power box and supports 4 IO inputs.

- IO Alarm screen:
  1. Serial Number: Options: Sensor1, Sensor2, Sensor3, and Sensor4 (eight IO inputs supported only when the UPS power box is used).
  2. Name: You can customize or modify sensor names.
  3. OSD: indicates the sensor name abbreviation that can be customized in OSD superimposition.
  4. Alarm Type: Alarm and Event.
    - \* When Alarm Type is Alarm:
      - 1) The alarm can be superimposed on the preview screen and in the recording.
      - 2) The alarm will be uploaded to the platform.
      - 3) Alarm logs are written.
    - \* When Alarm Type is Event:
      - 1) OSD superimposition.
      - 2) The alarm will not be reported to the platform.
      - 3) Alarm logs are written.

5. Sensor Uses: sets the purpose of the sensor, which can be Left Steering, Right Steering, Brake, or Privacy.
6. Trigger: Tap Setup to enter the following screen:



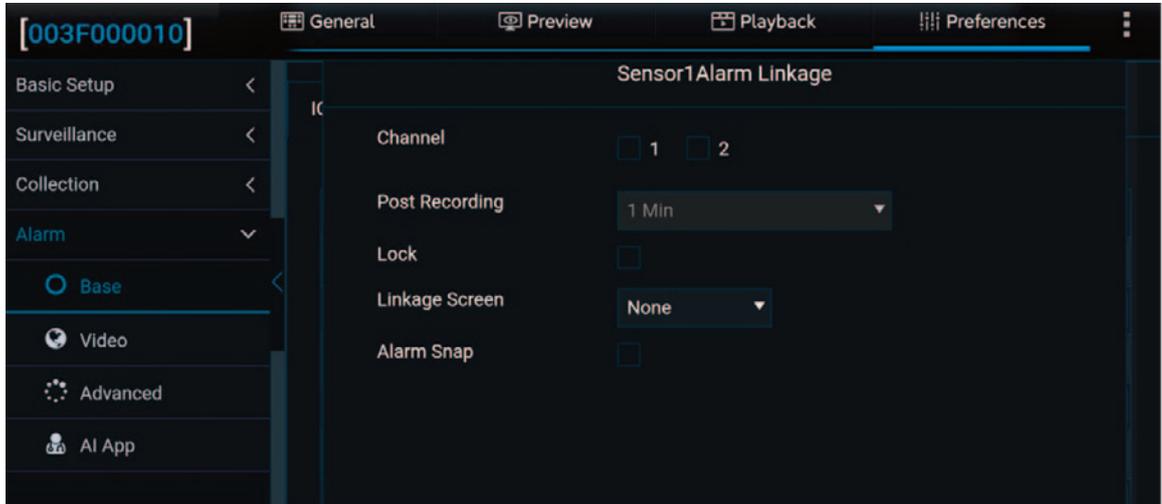
- 1) Trigger: can be set to High, Low, or Pulse, and it is High by default.  
High: Normal state is Low, and it is High when triggered.  
Low: Normal state is High, and it is Low when triggered.  
Pulse: Normal state is Low, and it is level fluctuation when triggered.



Warning: Voltage can be detected by IO port ranges from 0-36V. Below 3.5V is low, and above 3.5V is high. Please use in accordance with the visible range. Standby is not responsible for device damage due to exceeding the detectable range.

- 2) Effective Alarm Time: indicates a time during which an alarm is repeatedly triggered after being cleared. These repeated alarms within the period are considered a single alarm. Value range: 0~10s. Default value: 5 s  
For example, a motion detection alarm is triggered at 13:23:30 and cleared at 13:23:50. If the effective time is set to 10 seconds, and a motion detection alarm is triggered within 10 seconds, the two motion detection alarms are considered to be the same alarm and are recorded in the alarm log as one. The alarm linkage will not stop until the subsequent motion detection is canceled.

7. Alarm Linkage: includes service functions that can be linked when an alarm occurs. Tap Setup to enter the following screen:

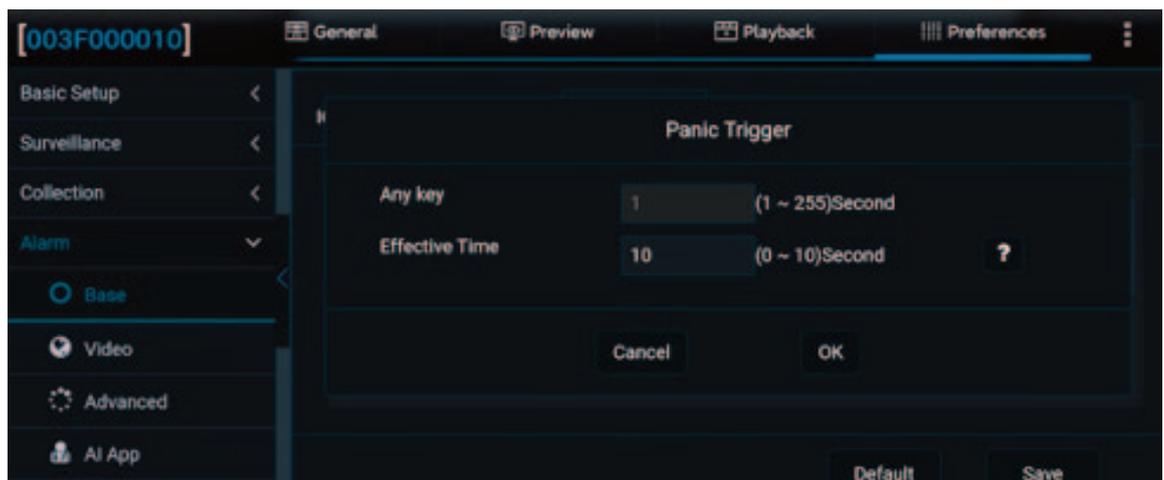


- 1) Channel: indicates the channel that needs to be recorded after an alarm is triggered. The recording of these channels will be marked as alarm recording.
- 2) Post Recording: indicates the time for the recording to continue when the alarm is cleared. Value range: 1-30 min. Default value: 1 min.
- 3) Lock: specifies whether to lock the alarm recording. If this option is selected, alarm recording will be locked once the IO alarm is triggered. The recording is unlocked after the alarm is cleared.
- 4) Linkage IO Output: The IO output volume can be configured after the IO alarm is triggered. The IO output can be configured and used only when the UPS power box is used (conventional power supply boxes do not provide IO outputs). The duration for IP output can be configured, and the value range is 0 to 255 seconds.
- 5) Linkage Screen: indicates the required live view screen after an alarm is triggered. It can be set to Single or Quad, and it is not displayed by default.
- 6) Alarm Snap: specifies whether to take a snap after the alarm is triggered. In the case of setting the FTP address, after the IO alarm is triggered, the channel snap will be enabled, and the snaps will be exported via FTP. If the platform is configured with the alarm evidence upload parameters, snaps can also be uploaded to the platform.

- **Speed Alarm:** allows you to enable the overspeed alarm function and set Alarm Type to Alarm or Event. On the Overspeed Trigger screen, specify Preload Speed Difference. A warning is generated if the difference between the vehicle speed and limited speed is smaller than the value of this parameter. An overspeed alarm is generated if the vehicle speed is greater than the limited speed. The voices are different for the two alarms. Other parameters can be set in the same way as for IO Alarm.



- **Panel Alarm:** allows you to check the Panic Button to enable the panel alarm and set alarm linkage parameters. On the Panic Trigger screen, you can set the trigger time for pressing the button to trigger the panel alarm to 1~255s. Default value: 1s (now it cannot be modified). Other parameters can be set in the same way as for IO Alarm.

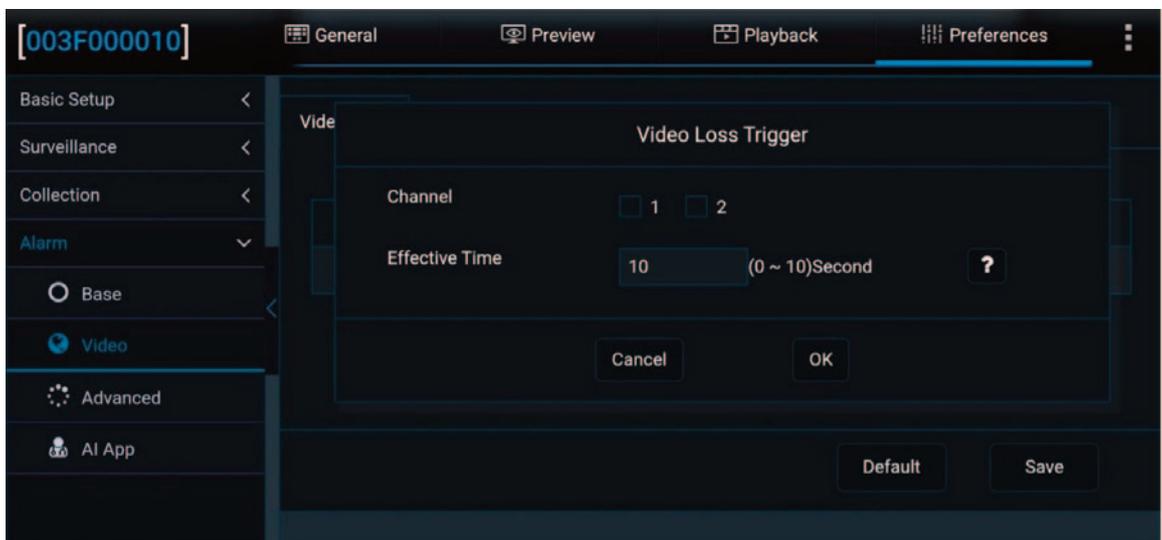


- **GPS Alarm:** specifies alarms generated when GPS signals are lost. Parameters can be set in the same way as for IO Alarm.

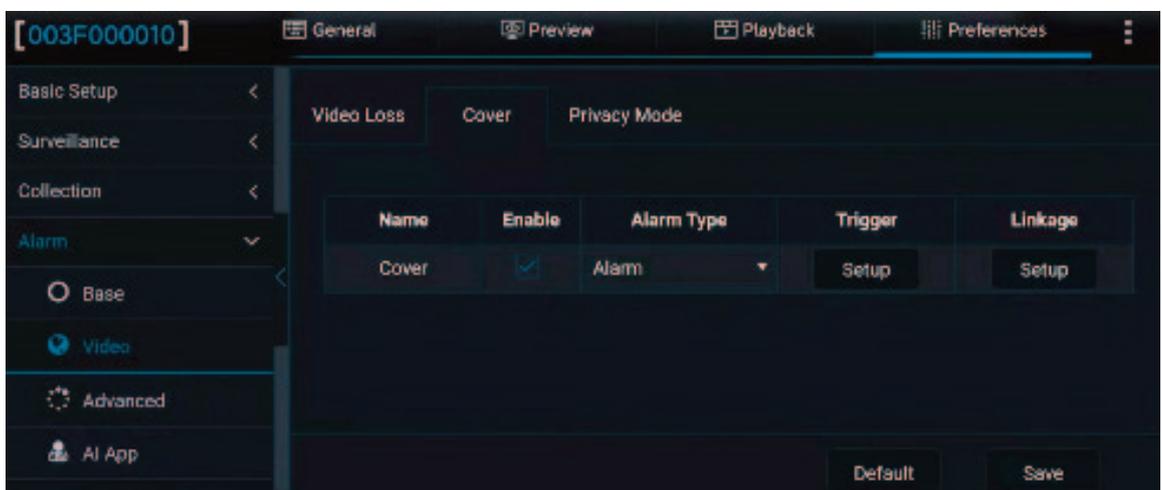
### 4.10.2 Video Alarms

- Video loss

On the Video Loss screen, you can set parameters for video loss alarms. Tap Preferences > Alarm > Video > Video Loss and tap Setup in the Trigger column. The Video Loss Trigger screen is displayed, as shown in the following figure: You can specify the channel for which video loss alarms are generated. Alarm linkage parameters can be set in the same way as for IO Alarm.

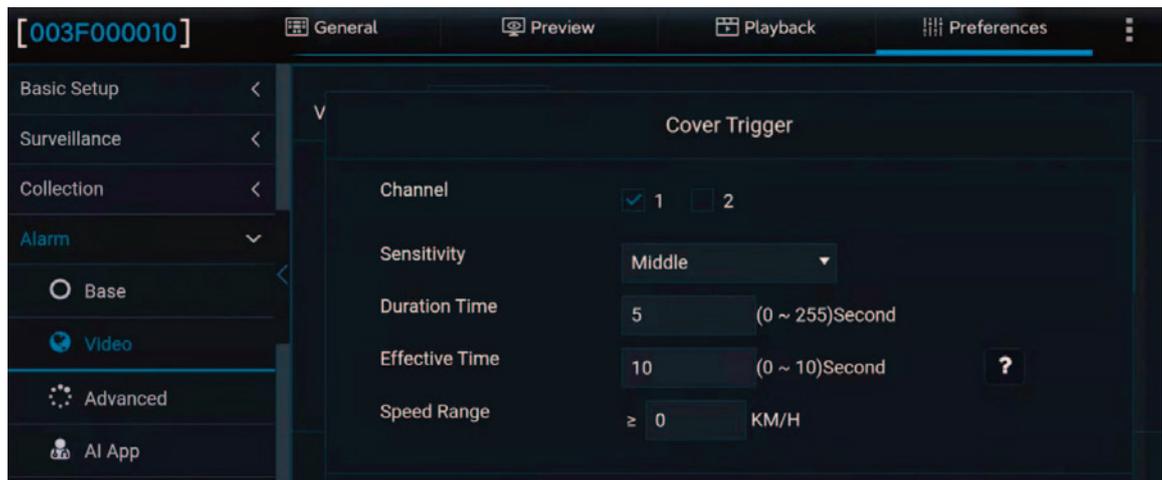


You can configure parameters for the camera cover alarm in the Cover screen. Tap Preferences > Alarm > Video > Cover. The Cover screen is displayed, as shown in the following figure:



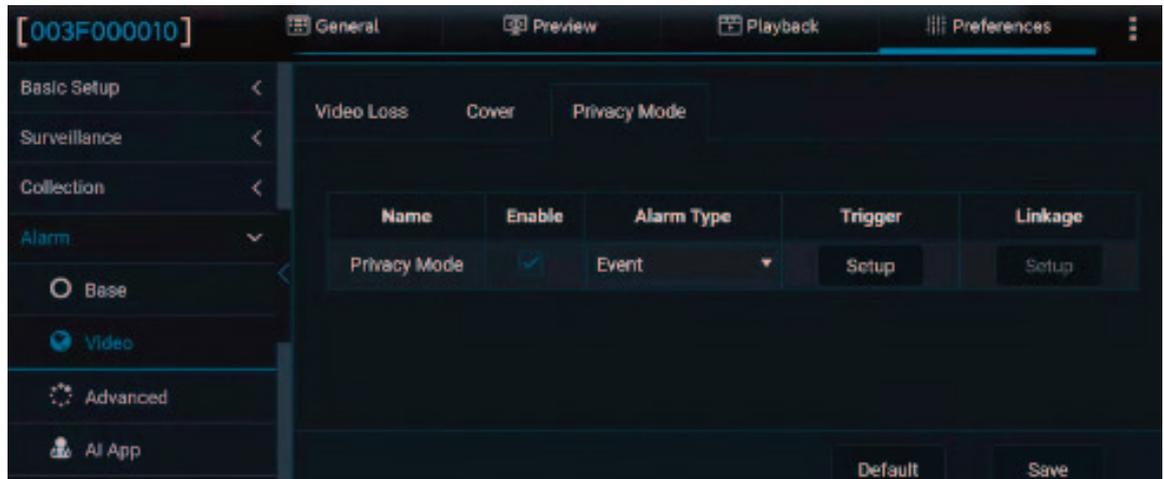
Tap Setup under Trigger to open the following screen. You can configure the channel, sensitivity, duration time, valid time, and speed threshold for the camera cover alarm. In the AI channel, the algorithms are used for detection. In the non-AI channel, the MDVR is used for judgment. Alarm linkage parameters can be set in the same way as for IO Alarm.

The camera cover alarm of the ADAS channel is triggered when the vehicle speed exceeds 10 km/h and the duration of covering lasts for 15s. The cover alarm of the DMS channel is triggered when the duration of covering lasts for 5s, and the speed exceeds the set speed value on the cover alarm screen. The cover alarm of the DSC channel is triggered when the duration of covering lasts for 6s, and the speed exceeds the set speed value on the cover alarm screen.



- Privacy mode

The privacy mode trigger and release mode can be set on the privacy mode setting screen. Tap Preferences > Alarm > Video > Privacy Mode. The screen is displayed, as shown in the following figure:



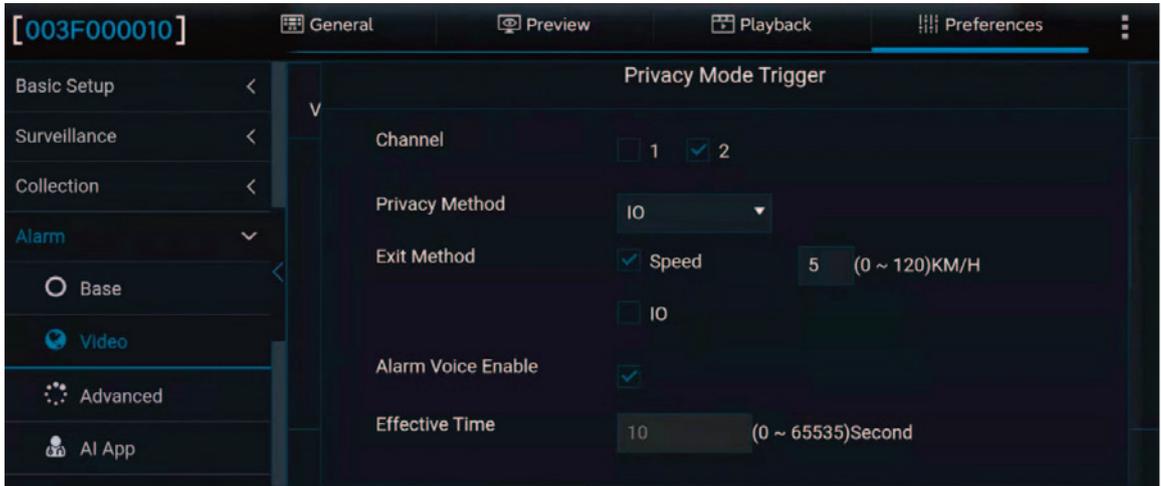
Tap the Settings button to enter the following screen, where you can set the privacy channel, privacy mode trigger mode, privacy mode release mode, and privacy mode voice enabling.

**Privacy channel:** when the privacy mode of a channel is turned on, it means that the audio and video recording of this channel is turned off, and it is enabled after turned on.

**Privacy mode trigger mode:** by IO or ACC, which are optional. After the IO usage is configured, the IO can be triggered to realize privacy mode on/off. For the specific setting method of IO, see Preference > Alarm > Base. The ACC trigger mode means that the privacy mode (stopping audio and video recording) is turned on after the ACC is turned off for 10s.

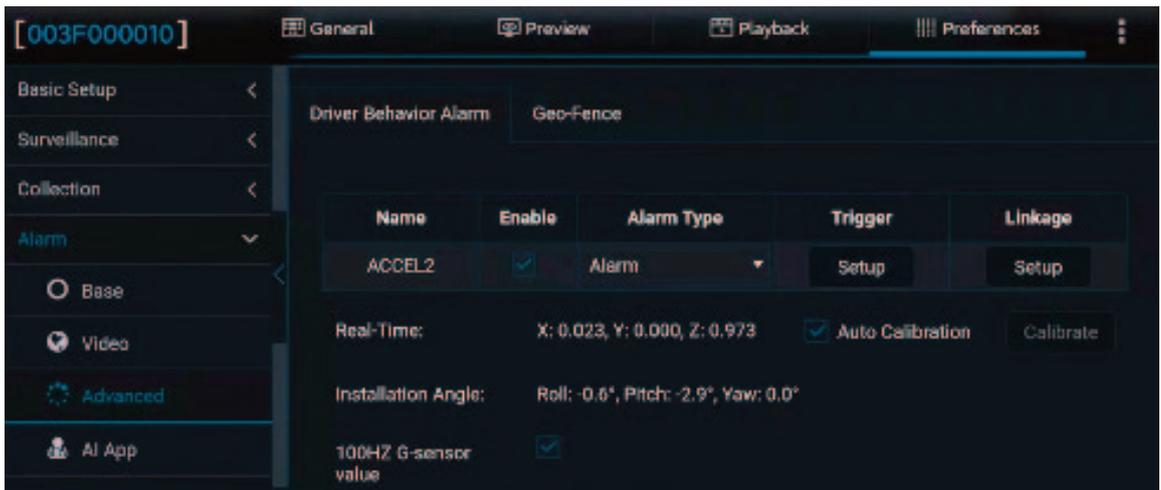
**Privacy mode release method:** there are two methods--by speed or by IO, and either of which must be selected. The setting and usage of IO are consistent with the trigger mode. If the IO is set, it can be used for triggering and releasing. Speed mode means that, when the privacy mode is enabled, the privacy mode can be released if the vehicle speed is greater than a certain value.

**Privacy mode voice-enable:** it refers to whether the broadcast voice is enabled when the privacy mode is triggered or disabled. This function simultaneously controls the voices with the privacy mode on/off, which cannot be controlled separately.



**4.10.3 Advanced Alarms**

On this screen, you can set G-Sensor alarm and Geo-fence alarm parameters. Tap Preferences > Alarm > Advanced, as shown in the following figure:



- On the Driver Behavior Alarm screen:
  1. ACCEL2 is the name of the driver behavior alarm algorithm. If enable is selected for it, this algorithm is effective.
  2. Alarm Type indicates the type of event triggered by intense driving behavior.
  3. Trigger indicates the condition for triggering driving behavior alarms: Harsh Braking, Hard Acceleration, Harsh Left Turn, and Harsh Right Turn can trigger the alarm. Other parameters including Offset and Speed can be configured, as shown in the following figure:

### ACCEL2 Trigger

Alarm Name	Enable	Offset	Speed
Harsh Braking	<input checked="" type="checkbox"/>	0.5 (0.001 ~ 1)	20 ~ 50 (0~200)KM/H
Hard Acceleration	<input checked="" type="checkbox"/>	0.5 (0.001 ~ 1)	20 ~ 50 (0~200)KM/H
Harsh Left Turn	<input checked="" type="checkbox"/>	0.5 (0.001 ~ 1)	20 ~ 50 (0~200)KM/H
Harsh Right Turn	<input checked="" type="checkbox"/>	0.5 (0.001 ~ 1)	20 ~ 50 (0~200)KM/H
Shock	<input type="checkbox"/>	X: 1 (0.1 ~ 8) Y: 1 (0.1 ~ 8) Z: 2 (0.1 ~ 8)	
Effective Time	10 (0 ~ 10)Seconds		
Recommended Setting	Light Duty ≤ 6 tons	Medium Duty ≤ 14 tons	Heavy Duty > 14 tons

Cancel
OK

Shock: refers to collision detection. The G-Sensor is used to determine whether the collision occurs. The collision thresholds can be configured in this parameter.

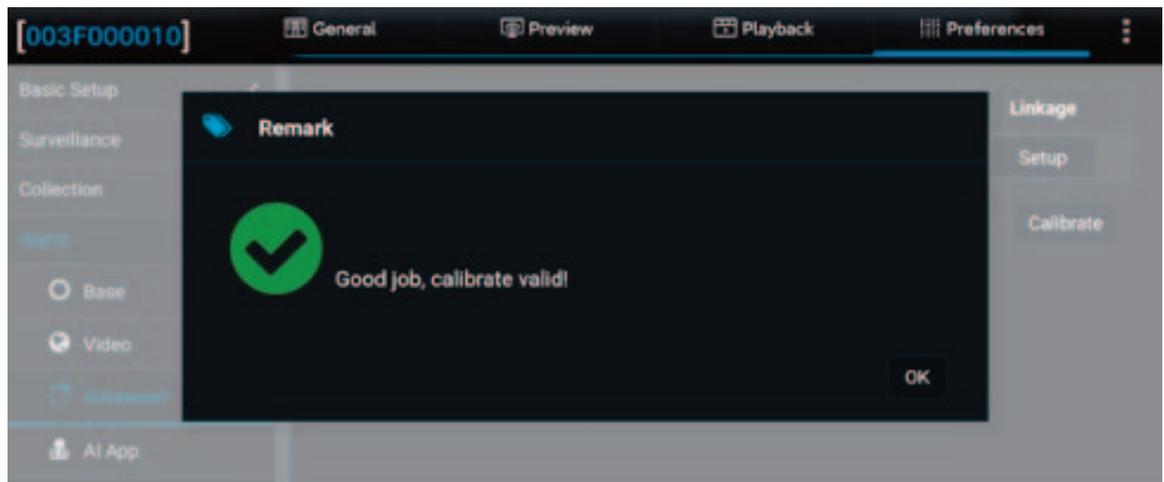


Note: In the ACCEL2 Trigger screen, the offset values of the four types of alarm, Harsh Braking, Hard Acceleration, Harsh Left Turn, and Harsh Right Turn, are determined by complex formulas. The general setting logic is that the recommended offset value is based on the vehicle tonnage below. The offset value can be increased if the alarm is too easy to trigger and reduced if the alarm is difficult to trigger. The offset values of the four types of alarms are not completely linear. The higher the offset value, the more obvious the driver will feel. Shock's XYZ value is in units of gravitational acceleration G. The parameter setting presents the threshold of acceleration in the XYZ direction during collision.

4. Linkage: specifies the service functions linked with the alarm that is triggered. The setting is the same as that for IO Alarm.
5. The G-sensor can be calibrated either automatically or manually.

\* Manual calibration:

After the manual calibration is saved, the calibration is considered successful when the XYZ value at (0,0,1) is detected, and the successful calibration is recorded in the operation log. The calibration success log contains the following information: G-sensor calibration success status, time, and real-time values on the X, Y, and Z axes. The following screen will be displayed after the manual calibration is successful:



\* Automatic calibration:

The original logic is used. After the fifth calibration is completed, the deviation is less than  $\pm 0.1$  from the original values on the X, Y, and Z axes (0, 0, 1). The calibration success log contains the following information: G-Sensor calibration success status, time, and real-time values on the X, Y, and Z axes.

When the device enters the calibration process again and completes the calibration, the data is recorded again.

\* Calibration failure status judgment:

Manual calibration: After the manual calibration is saved, the detected values on the X, Y, and Z axes are not (0, 0, 1). As manual calibration forcibly sets the values to (0, 0, 1), there are almost no manual calibration failures.

Automatic calibration: Automatic calibration is a continuous process.

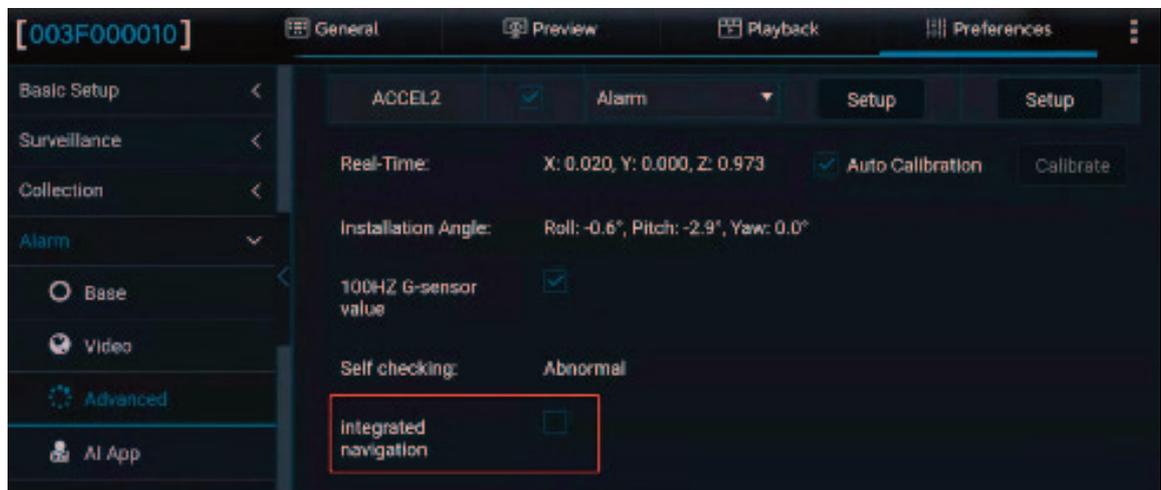
Therefore, the calibration status abnormality, time, and real-time values

on the X, Y, and Z axes are recorded when the deviation of values on the X, Y, and Z axes are detected to be within  $\pm 0.1$  from (0, 0, 1) for 5 consecutive times of calibration.

6. Installation Angle specifies the angles of the installed device.

7. Pass-through of 100 Hz G-sensor data is supported. Select or deselect to enable or disable this function.

8. Integrated Navigation: When the device is connected to the inertial navigation module that supports vehicle attitude detection, this enabling is displayed on the screen. Since the vehicle attitude output by the inertial navigation module is more accurate than the attitude events calculated by pure three-axis/six-axis, this function is used to determine sudden acceleration, sudden deceleration, sharp left/right turning, acceleration, deceleration, turning, and vibration events. When the function is enabled, the device can detect these events through inertial navigation.



- On the Geo-Fence screen, you can set the processing strategies for fence entry/exit and paths. This function must co-work with the CEIBA2 or FT Cloud platform.

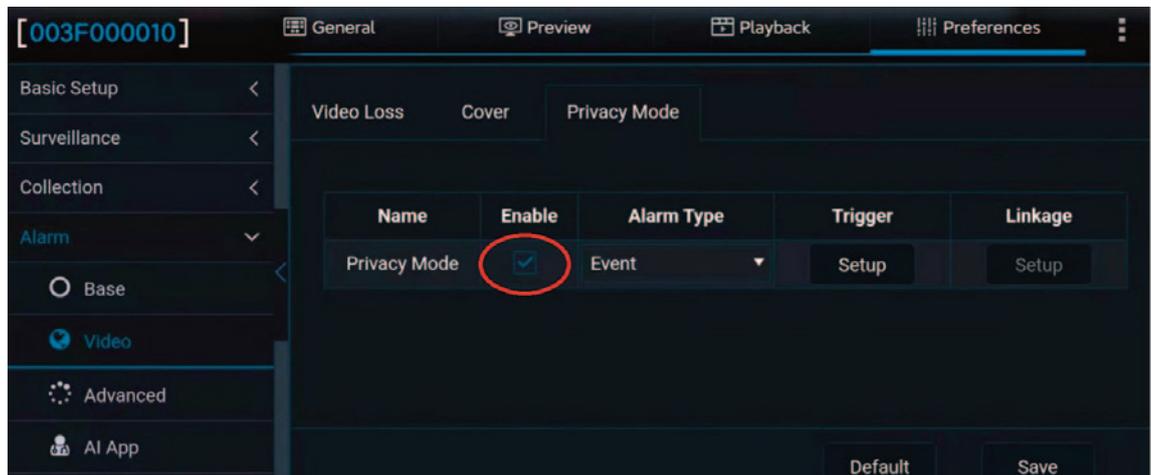
## 5. Instructions of special function operation

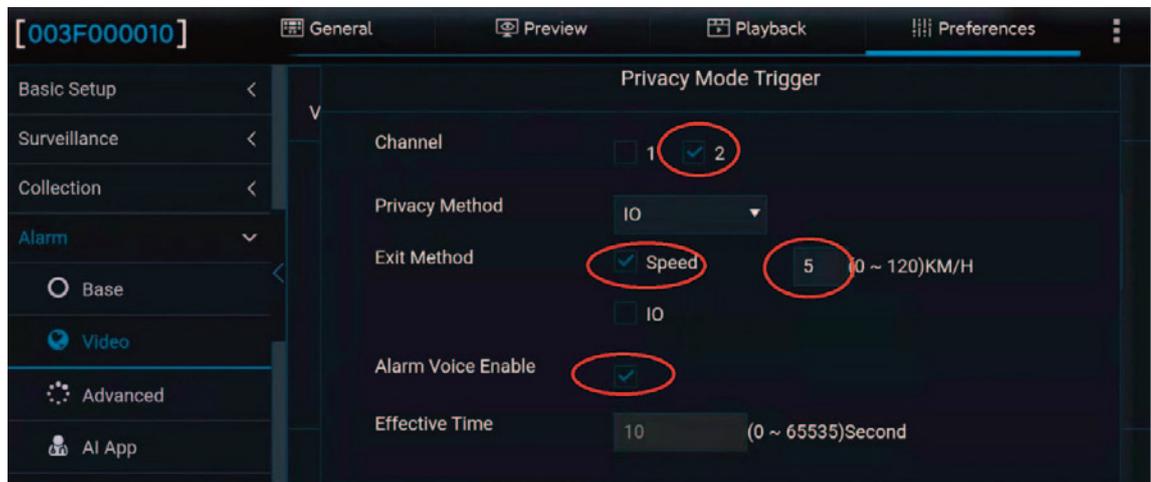
### 5.1 Privacy protection function

5.1.1 We attach significant importance to the privacy protection of the driver, so the privacy mode function is specially designed for the device to ensure that the remote preview and recording are disabled when the driver is in the parking scene. Privacy mode function: When the driver parks, the device can be manually triggered to disable the recording of the corresponding channel. The device supports various trigger modes, automatic exit, and flexible configuration of the recording channel to be disabled, and a separate panel button for the privacy mode is designed to facilitate the driver's operation. The following describes how to quickly configure and use the privacy mode function.

#### 5.1.2 Related Configuration

Refer to the privacy mode in Video Alarms, as shown in the following figure:





1. Tap Enable in the Privacy Mode screen.
2. Select the channel to be closed when the privacy mode is triggered.
3. Tap Speed as the Exit Method, and set the speed to 5 KM/H
4. Tap Alarm Voice Enable
5. Save setting parameters.

### 5.1.3 How to Use

1. Park
2. Press and hold the panel button for 2s, release the button, and the voice "privacy mode enable" is announced.
3. Currently, the privacy channel is closed to protect the driver's privacy.
4. If the vehicle starting speed exceeds the threshold, the privacy mode automatically exits, and the voice "privacy mode disable" is announced.
5. Manually exit the privacy mode: press and hold the panel button for 2s, release the button, and the voice "privacy mode disable" is announced. Refer to the privacy mode of Video Alarms for other methods.

## 6. Fault Analysis and Troubleshooting

### 6.1 Device startup failure

- Check whether the power cable is well connected and whether the fuse is intact and fully inserted.
- According to the power supply logic designed for the system, when the device is powered by OBD, it is powered when the vehicle is moving (G-

sensor acceleration value > 10 g). If the OBD is installed under normal power supply, shake the power box slightly.

## 6.2 Device Networking Failure After Startup

- Make sure that the SIM card is inserted before device startup. If it is inserted after device startup, please power off and restart the device.
- Check whether the SIM card is installed correctly.
- Check whether the network signal at the current position is good.
- Check the traffic condition of the SIM card.

### 6.3 Device Recording Failure After Startup

- Make sure that the SD card is inserted before device startup. If it is inserted after device startup, please power off and restart the device.
- Check whether the SD card is installed correctly.
- After the SD card is inserted into the device, format it before use.

### 6.4 No Image After Insertion of Device Analog Channel to Camera

- Check whether the camera system matches the current system mode. If not, modify the system mode.
- Check whether the camera wire connection is correct.

## 7. Appendix

### 7.1 Interpretation of Proper Nouns

Main stream: HD stream, which is used to store the recordings for post-event evidence analysis.

Sub-stream: SD stream, which is used for remote preview and recording storage. When the memory capacity is limited and cannot meet the marketing demand, dual memory can be considered to save the main stream for general recording storage and evidence analysis and the sub-stream for extended storage.

CEIBA2: The client software of the previous generation of video service platform based on CS architecture, which supports playing H264 (original data, including black box data) exported by the device.