Z5

Product User Manual

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1，Overview

This **Z5 Product User Manual** is designed to help users better understand the features of the device system, guiding them to fully comprehend and apply these functions.

Please note that this user manual is written specifically for the operation and maintenance of Veyes app,device configuration operations are limited to professional maintenance personnel only.

Our company has the final right of interpretation of this document and reserves the right to correct and modify any information and instruction in this document. Any changes will not be separately notified.

1.1，System Overview

Z5 is a highly integrated AI device designed for cargo management and video surveillance. It is equipped with a high-speed processor and a built-in operating system, combined with advanced H.265 compression and decompression technology and GPS positioning, supports 2Ch video recording with maximum resolutions of 4k and 1080p respectively, and is compatible with external Micro SD card. In addition, the Z5 features built-in Bluetooth function, which supports connecting external door sensor to obtain the open/close status of cargo door. It also supports 4G network connection and remote connection platform to transmit alarm information in time.

The device intelligently switches between different working modes based on its operational state. This enables the collection of fundamental cargo volume data while detecting and reporting abnormal alarms to the platform. At the same time, it optimizes power consumption to extend standby time when operating on battery power.

Z5 with a minimalist design tailored for cargo management. It is highly shock-resistant, exceptionally stable, and easy to use.

This product suite is suitable for scenarios involving cargo transportation monitoring and is applicable to various types of cargo box.

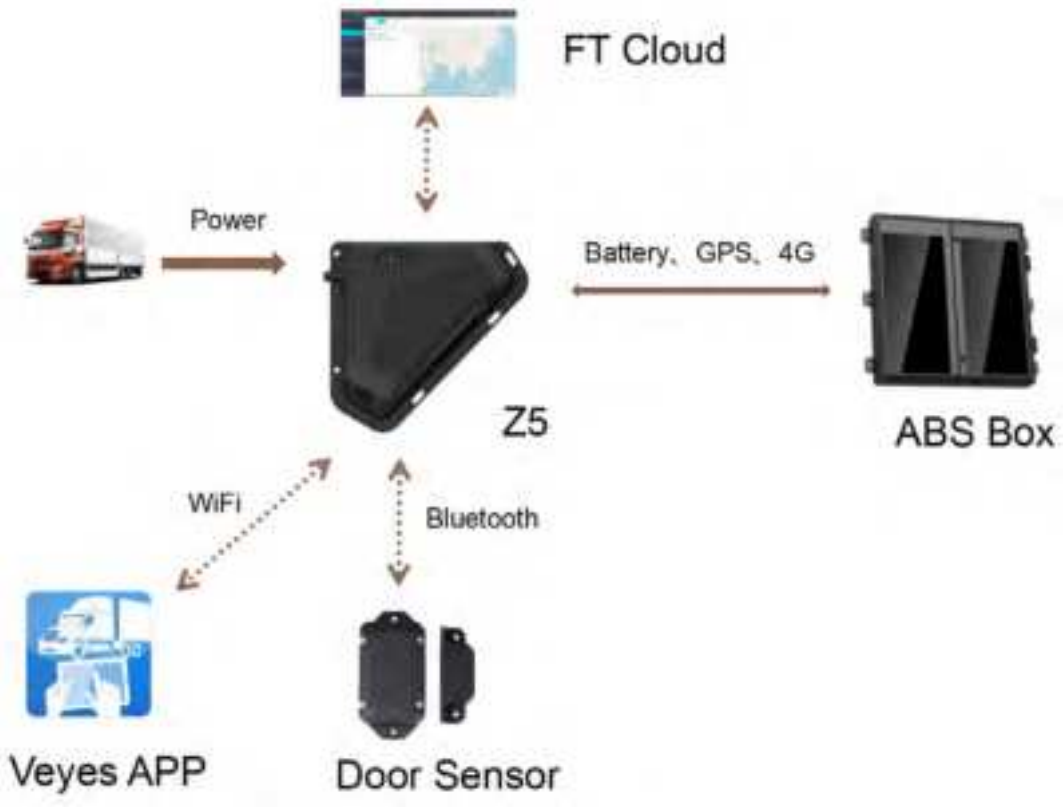
1.2，Function features

- Supports cargo management algorithms
- Supports 1Ch 4K + 1Ch 1080P video recording
- Supports local recording with 1 external Micro SD card
- Supports H.265 compression technology
- Supports Wi-Fi
- Supports Bluetooth 5.0/5.1
- Supports 3G/4G connectivity with an external Nano SIM card
- Supports GPS
- Supports remote wake-up mode
- Supports low-power sleep mode
- Automatically switches between different working modes

· Supports various abnormal alarm detections
· Supports FT platform data visualization

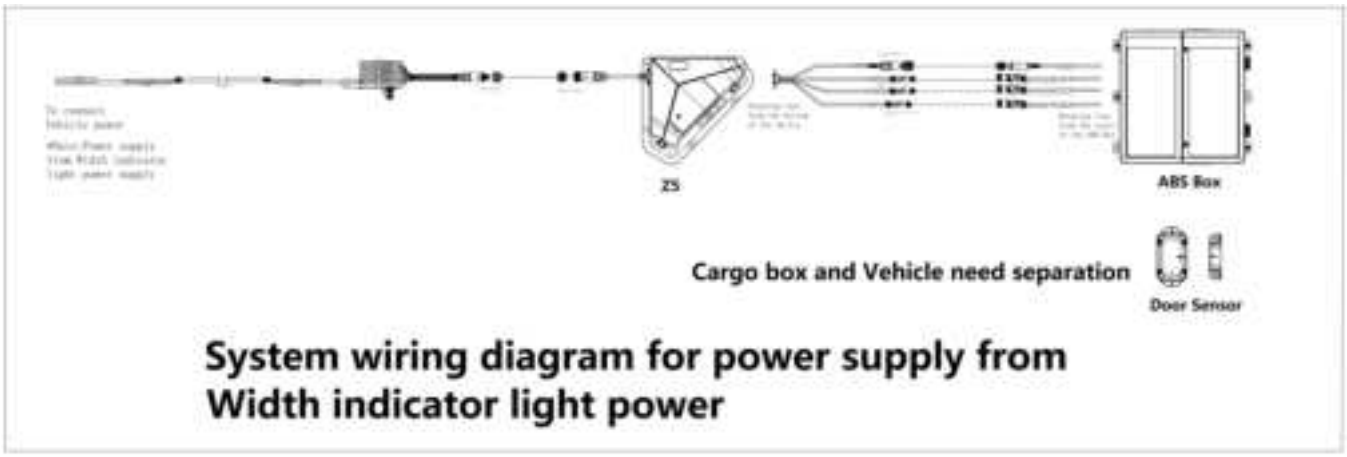
2，Introduction to System Composition

2.1 System Composition Diagram

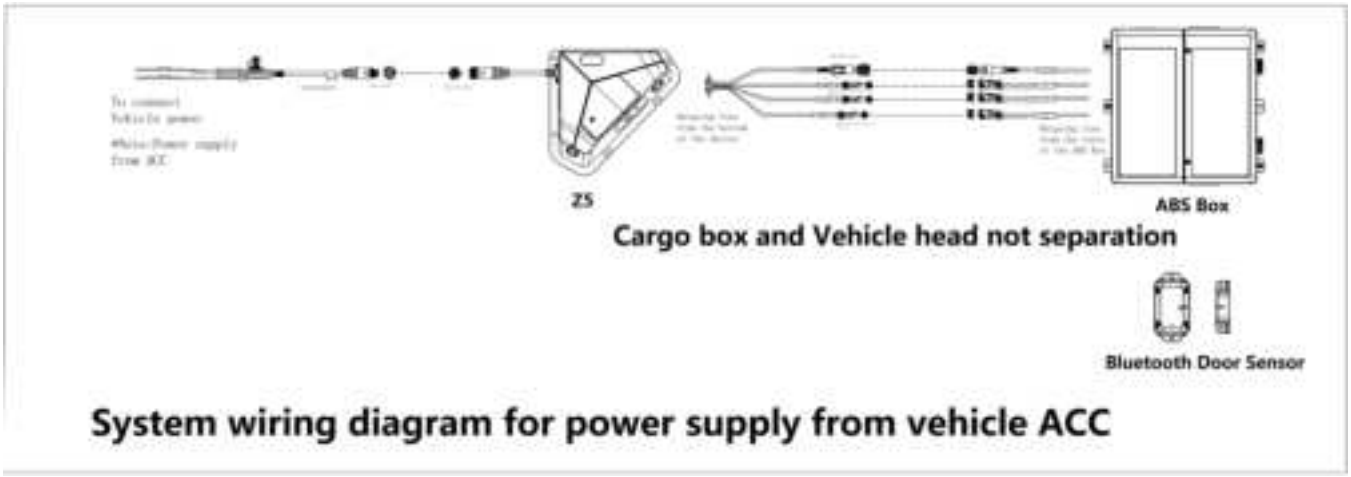


System Composition Diagram

2.2 System Connection Diagram



System connection diagram（Powered from the width indicator light power）



System connection diagram（Powered from ACC）

● 2.3 Main Components and Functions

· **Z5**: Built-in occupancy measurement algorithm for determining the cargo occupancy rate and volume inside the cargo box.
· **ABS Box**: Contains a rechargeable battery, GPS antenna, 4G antenna, and solar charging panel.
· **Door Sensor**: Used to detect the open/close status of the cargo box door.
· **FT Cloud**: A professional SaaS video service platform.
· **Veyes App**:Used for configuring parameters, calibration, and other maintenance work.

3 Device and Debugging Environment Installation

3.1 Device Installation

For device installation, please refer to the latest Z5 Installation Guide document.

3.2 Mobile App Installation

· **For Android users**, please search for "Veyes" in the Google Play Store, then download and install the app.
· **For iOS users**, please search for "Veyes" in the App Store, then download and install the app.

 Special note：The mobile apps have system version requirements: Android 5.0 or iOS 11 and above. The following operations will be demonstrated using Android as an example, and the installation process will not be separately shown for other systems.

4，Operating Instructions

4.1 Device Panel Description

4.1.1 Switch Description

- ON：When the switch is in the ON position, the device is powered on and connected.
- OFF：When the switch is in the OFF position, the device is powered off and disconnected.

4.1.2 Button Description

- Single Press：When the device is in sleep mode, pressing the button once will wake the device up from sleep.
- Double Press：When the device in loading/unloading mode,pressing the button twice within 2 seconds will activate the zhuan WIFI AP mode.
- Long Press：Pressing and holding the button for more than 5 seconds will reset and reboot the device.

4.1.3 LED Status Description

LED	
Power Status Light	Off/Red/Green Off：Indicates the device is in sleep or low power mode Green(steady)：Indicates the vehicle power supply is normal, and the device is in loading/unloading or transportation mode. Red(steady)：Indicates the vehicle power is disconnected, and the battery level is above 10%. Red (rapidly flashing)：The battery level is below 10%.

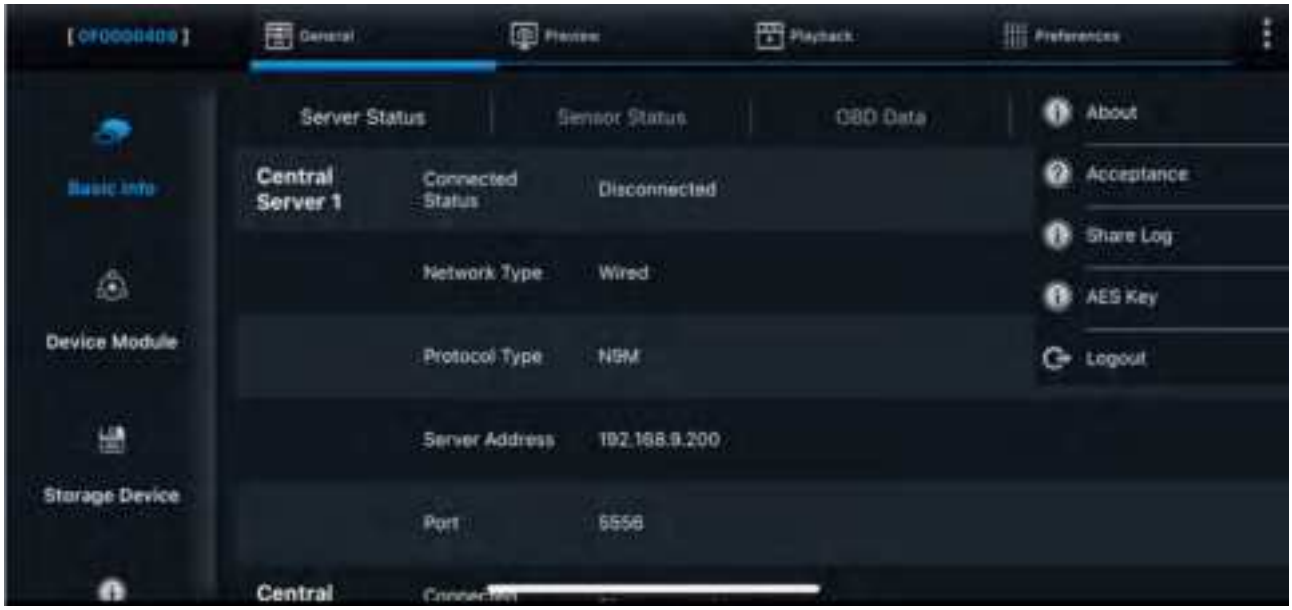
GPS Signal Light	 Off/Red/Green Off：The device is in sleep or low-power mode Green(steady)：Indicates positioning is normal Red(steady)：the positioning is abnormal (not positioned, module not connected, or module damaged).
Network Status Light	 Off/Red/Green Off：The device is in sleep or low-power mode Green(steady)：Indicates that the device is connected to the server normally Red(steady)：Indicates that the device is connected to the server abnormally
WIFI Status Light	 Off/Red/Green Off: Indicates that the device on Disable or Client mode Green(steady)：Indicates that the device on AP mode Red(steady)：Indicates that the device WIFI is abnormal

4.2 Device Login and Logout

1. Turn on the device in AP mode：The device starts in AP mode within 3 minutes, or double-click the front panel button to start AP mode after the device starts.
2. Turn on the device WIFI，then open the Veyes app and click the Search button to enter the WiFi hotspot search interface and select corresponding hotspot. The first time you log in, the WiFi hotspot name will be based on the device's Serial Number (which can be found on the device label, for example: “00F0******”). If the cargo box number is set, the hotspot name will be the cargo box number.
   In the login interface, input the corresponding username and password, then click Login to enter the operation interface.
   The default username/password is admin/admin.

3. After clicking the Login button, you will enter the operation interface, as shown below:

4. Click upper right corner to view help information, app version and logout and other operations. Click Logout to disconnect the device, click About to view version information of the Vesyes app.
   Acceptance: When the device has no speed and cannot trigger an alarm, you can choose to enter the acceptance mode and preset a speed for the device.



4.3 General Information

The general interface is mainly used to check the real-time status of the device, version information, import and export parameters and log files, as well as perform software upgrades and so on.

- Basic information: This section is used to view the device's server connection status, the high and low voltage levels of IO, and OBD data (currently not available for Z5), as well as G-sensor data.

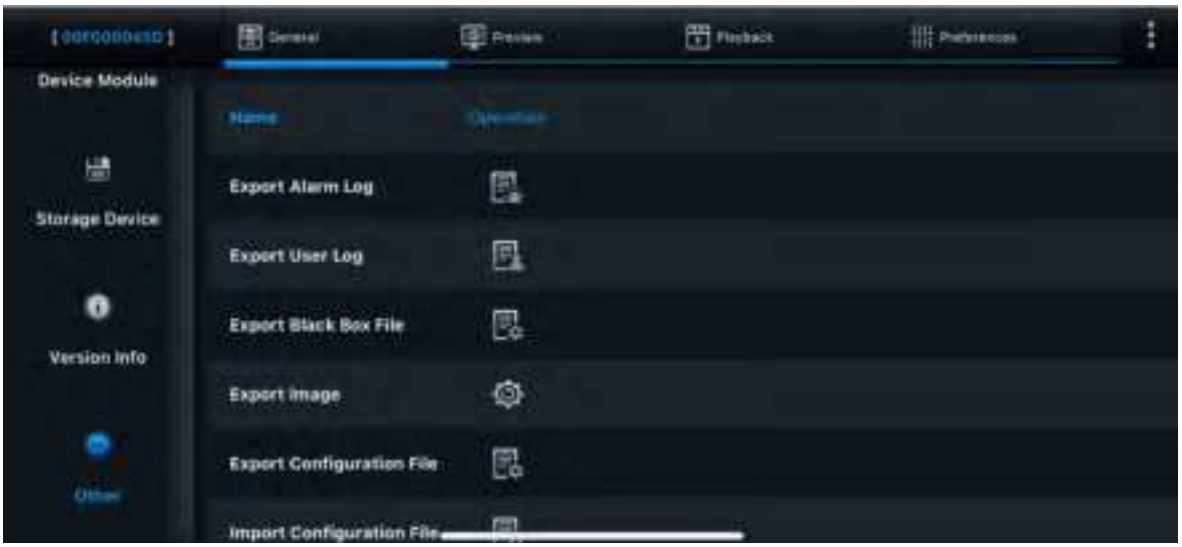
- Device modules: Used to view the status of the device's WiFi, 3G/4G, and positioning modules.

- Storage device: View the device's storage status and format it if necessary. After clicking the "Format" button, a prompt will appear. Click "Confirm" to perform the formatting.

- Version information: View the software version information.

In the version information interface, you can perform local upgrades for the host version, communication module, GPS module, or Bluetooth module. The upgrade file should be placed in the "upgrade" folder at the root directory of the USB drive, and the USB drive should be connected to the device. During the upgrade，click，and a confirmation prompt will appear. Click OK to begin the upgrade.

- Others: Import and export data and configurations, restore to factory settings, and reboot the device. When performing data import or export operations, an external USB flash drive is required.



1. Able to export alarm logs, user logs, and black box files.
2. Able to export alarm snapshots for a selected time period.
3. Able to import and export geofence information.
4. Able to import and export AI configuration file
5. Able to import and export parameter configuration files.
6. Able to perform a restore to default operation
7. Able to export print data for a selected time period.
8. Able to perform a reboot operation to restart the device.

4.4 Real-time Preview

The preview interface allows for real-time viewing of the footage, turn on/off the sound (Z5 does not have a voice function), turn on/off the grid, and perform AI calibration operations.

4.4.1 Real-time Preview

In the preview interface, you can view the real-time footage from each channel. Double-click a channel preview screen to zoom in and view the preview of the channel. Double-click again to return. If the camera is not connected or the camera is damaged, the message "VIDEO LOSS" will be displayed.

4.4.2 AI Calibration

Before performing occupancy measurement calibration on the Z5, ensure that the device is properly installed and that the cargo box is empty (no goods inside). The steps are as follows：

Step 1：In the “Preview” page, click on "AI Calibration."

Step 2：Click on the "Container"（Later it will be changed to Cargo Box） entry to enter the calibration settings interface.

Step 3：Click the calibration menu in the lower-right corner to enter the calibration settings interface.

Step 4：Click the "Settings" menu below to enter the "Calibration Parameters Settings" interface.

Step 5：In the “Calibration Parameter Settings” interface, based on the measured length, width, height of the vehicle’s cargo box, and the installation position of the device, set the calibration parameters in the figure below and save it.

Parameter Explanations：

a，Cargo box length La；Range 300~1800 cm，default value 1200；

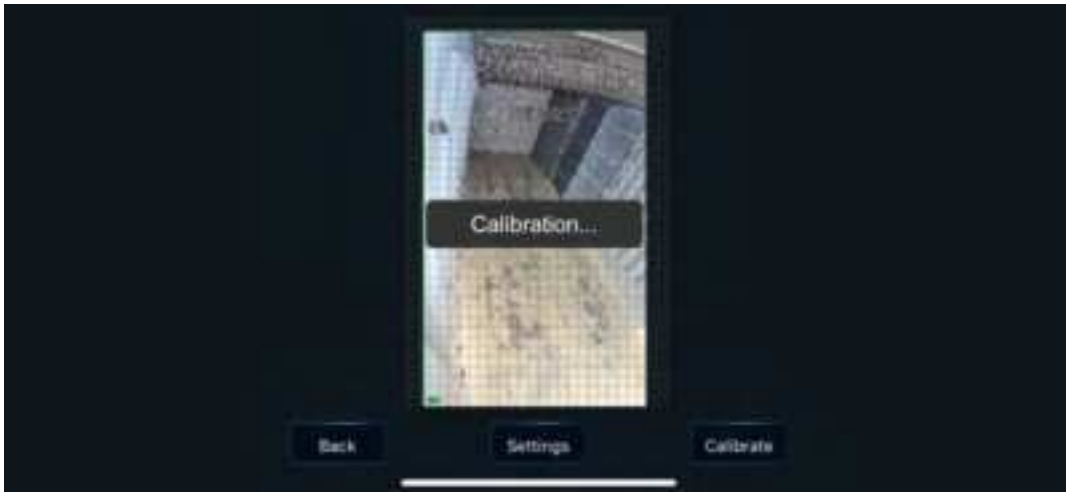
b，Cargo box width Lb；Range 150~400 cm，default value 300；

c，Cargo box height Lc；Range 150~400 cm，default value 300；

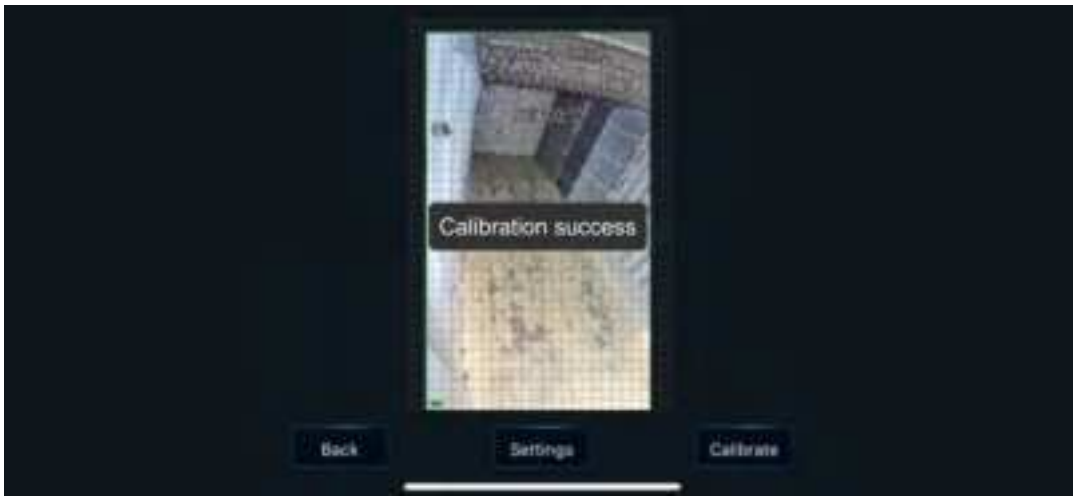
d，Vertical distance from the device to the bottom of the cargo box Db；Range 150~400 cm，default value 260；

e，Horizontal maximum distance from the device to the front of the cargo box Da；Range 300~1800 cm，default value 1100；

Step 6: After completing the 'Calibration Parameter Settings', return to the previous interface and click the 'Calibrate' button at the bottom right to perform the occupancy measurement algorithm calibration.



Step 7：After the message "Calibration completed" appears, the calibration process is complete.



4.5 Video Playback

4.5.1 Video Playback

The playback interface can be used to search for primary or secondary recordings in the main storage for a certain date. A Micro SD card must be installed on the device to record.

In the playback interface, select the time to view the playback through the calendar. On the left side of interface，you can select the year and month。Click  to select different years and months。In the calendar， color bars below the dates indicate the existence of recorded videos for that day:

No color bar	Indicates no recordings for the day
Green	Indicates regular recordings for the day
Red	Indicates alarm recordings for the day
Yellow	Indicates alarm recordings for the day and a file is automatically locked (locked recording)

Click the date in the calendar where you want to view the video, and enter the following interface. You can select the channel to view the video, or reselect the date and video type to view the video on this interface. Click Next when completed.

After selecting a channel, you can drag the timeline to choose the playback time and click [Play] to start playback. During playback, you can set the double-click function, double-click the screen to hide the operation interface or zoom in the playback view.

- Timeline：
    1) The time on the top time axis is displayed in 1-hour intervals;

2) The timeline below can be dragged to any position.

- Clicking the icon, can shrink the time interval unit. Click the icon, can enlarge the time interval unit。This feature is designed to quickly locate a specific time period for the playback or export operation when there are many video segments.Channel Number：
    1) The color bar for each channel indicates the time periods and types of video files recorded.
    2) When there are many recording channels, Drag the iconon the right side of the interface up or down to view the recording status of each channel.
    3) Select one or more channels, choose a time period on the timeline, and you can playback or export the recordings from the selected channels within the chosen time range.

4.5.2 Video Export

You can also choose to export the recordings for the selected time period.

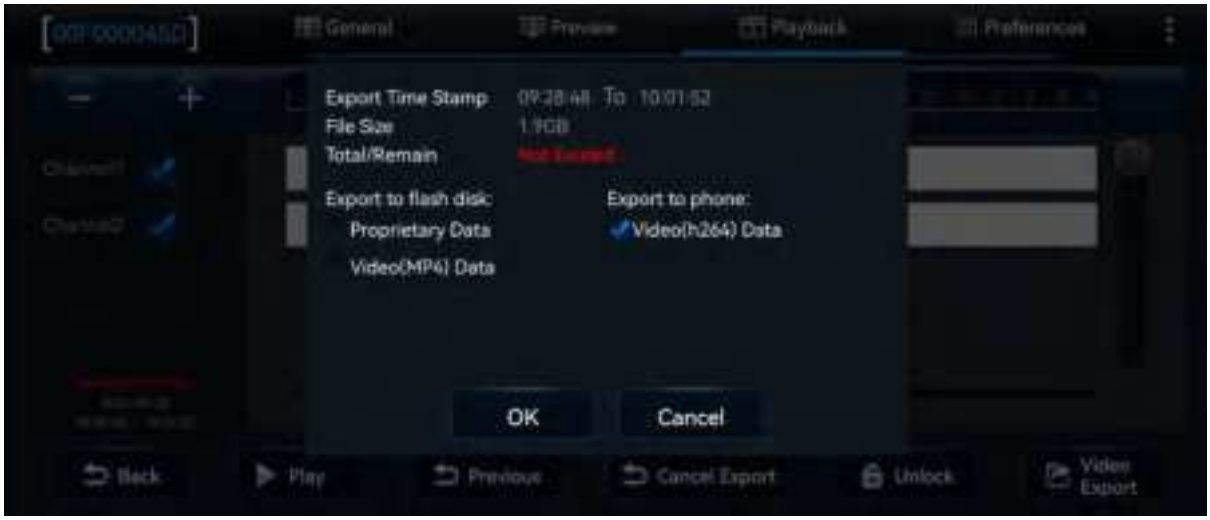
"Click the [Video Export] button at the bottom of the playback interface, select the start and end times, then click [Video Export] to export the recordings. Click [Unlock] to lock or unlock the recordings for the selected time period.


General
Preview
Playback
Preferences
Channel1
Channel2
2024-9-27
Back
Play
Previous
Start Time


General
Preview
Playback
Preferences
Channel1
Channel2
2024-9-27
Back
Play
Previous
End Time

In the video export options, you can choose to export the cropped video to an external USB drive or mobile phone, making it easier for maintenance personnel to quickly access and share the video.

Important Note：Exporting in MP4 format allows playback with standard media players，while exporting in H264 format requires a specialized player (CEIBA2 client) for playback. H264 format retains more original data, which is useful for troubleshooting video issues. If issues arise that require after-sales support, please select H264 format for export.



4.6 Basic Configuration

Note：In all configuration parameter interface，lick the [Save] button to save the parameters

after modifying the parameters. To restore a parameter to its default value, click [Default] at the bottom of the interface to restore the default parameters on the interface.

4.6.1 Registration Information

On this interface, you can set the device information (device ID), vehicle information (cargo box number, cargo box ID), and more. After setting the cargo box number here, when connecting to the device hotspot using Veyes, the Wi-Fi hotspot name will be named after the cargo box number.

Note：When the cargo box number changes, the Wi-Fi hotspot name will also change. You will need to reconnect to the hotspot and log in to Veyes again.

4.6.2 Time Settings

- Date and time format：The time setting column can set the time display format and the time zone.
  1. Date format：Options include Year/Month/Day, Month/Day/Year, and Day/Month/Year. This is reflected only in the pass-through and recording OSD.
  2. Time format：Options include 24-hour format and 12-hour format. This is reflected only in the pass-through and recording OSD.

  Cross-timezone enablement：Control whether to use the cross-time zone solution. If your vehicle and platform are not in the same time zone, in order to maintain normal communication between the device and the platform, you need to enable the cross-time zone solution. Once enabled, the timezone parameter is automatically disabled, and only the local timezone (i.e., the timezone where the vehicle is located) can be set. If cross-timezone enablement is disabled, only the timezone

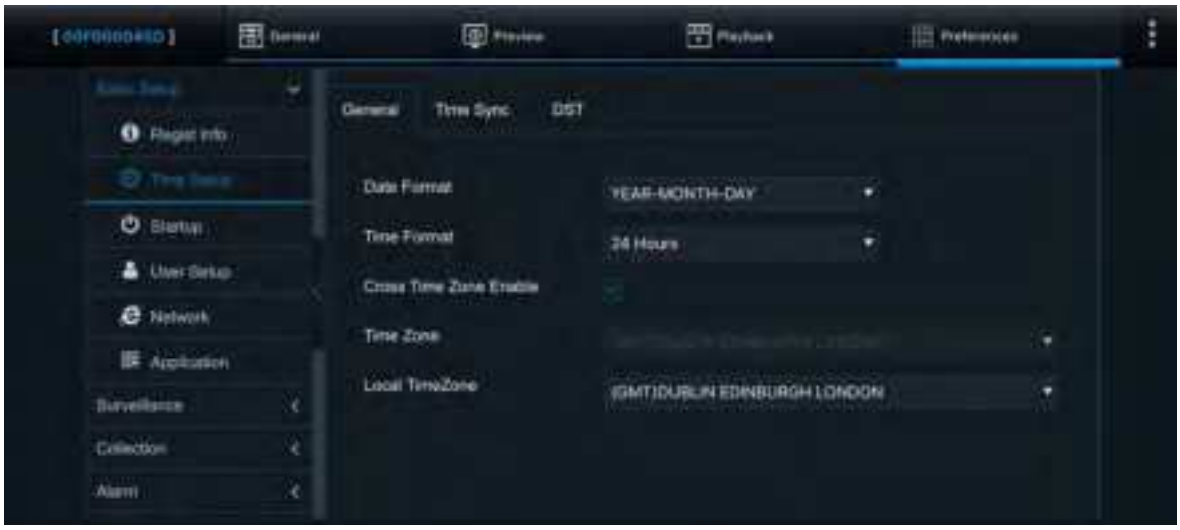
parameter can be set, and it should match the vehicle’s local region.

Warning：For devices using the CEIBA2 platform, cross-timezone enablement must be turned off. FT platform users can enable the cross-timezone function as needed. Currently, Z5 devices only support the FT platform.

1. Time ：Supports timezone selection. This parameter can only be set when the cross-timezone enablement is turned off. Otherwise, the parameter defaults to the zero timezone and cannot be modified.
2. Local timezone：Supports selection of the local timezone. This parameter will only be displayed for setting when the cross-timezone enablement is turned on.

.

Important Note：When the cross-time zone function is turned on, TimeZone is the zero time zone that cannot be set，indicating that data communication between the device and the platform uses the zero timezone. The LocationTimeZone is used for overlaying the timezone in the video recording. When the cross-timezone feature is disabled, the TimeZone can be set and is used for overlaying the timezone in the video recording.



- Time synchronization methods：

When there is a deviation between the system time and the actual time, the time will be automatically adjusted. The automatic time synchronization settings allow manual entry of the date and time or the selection of a synchronization method.

1. Manual modification: You can manually change the date and time by clicking [Change Time].
2. Satellite time synchronization: Uses GPS to correct the time.
3. Uses the wide-area network (WAN) time, with the option to select different WAN servers for synchronization.
4. Central server synchronization: Uses the time reported by the platform. When reporting to multiple platforms, different platforms can be selected.
5. Multiple synchronization methods: If multiple synchronization methods are selected, they

will be applied in the order of Satellite, NTP, and Central Server synchronization. Once synchronization is successful, the next method will no longer be used.

- Support for Daylight Saving Time (DST):

Due to timezone differences in some regions, Daylight Saving Time (DST) needs to be configured. When DST is enabled, the device's displayed time will be advanced by 1 or 2 hours. Click [Preferences] > [Basic Setup] > [Time Setup] > [DST] ， as shown in the following interface:

1. [Enable]：The Daylight Saving Time (DST) feature can be enabled or disabled by the user, with the default setting being disabled.
2. [Offset]：The time can be advanced by 1 or 2 hours.
3. [Mode]：Support week mode or date mode

Week mode：The start and end of DST are set based on the month, the specific weekday, and time (hours, minutes, seconds).

Date mode：The start and end of DST are set based on a specific date and time (hours, minutes, seconds).

Note：To display the DST function interface, set the language to a non-[Simplified Chinese] language first. The path is: [Preferences] > [Basic Setup] > [User Setup] > [Language].

4.6.3 Power On/Off Settings

- Power on/off settings

Click[Preferences]>[Basic Setup]>[Time Setup]>[ON/OFF], as shown in the following interface:

1. Power on/off method：You can choose the ignition mode for power on and off(i.e., the device is powered on when the vehicle key is turned on).
2. Ignition power off delay：Set the time delay for the device to power off after the vehicle key is turned off. The delay can be set from 0 to 86,399 seconds, with a default of 300 seconds.
3. Recording delay：Set the time delay for recording after the ignition power off. 3. The setting range of the video delay time will change according to the ignition off delay time. The maximum video delay time depends on the set ignition off delay time, that is, the video delay time ≤ the set ignition off delay time.

- Sleep

Click [Preferences]>[Basic Setup]>[Time Setup]>[Sleep]，as shown in the following interface:

Usage scenario：When the vehicle needs to be parked and turned off, the platform can still obtain

the vehicle's location information. If remote wake-up to download data or playback video is required, the low-power standby mode (sleep mode) should be selected. Otherwise, select the zero-power standby mode. For the freight industry, it is recommended to use phone or SMS wake-up for remote wake-up. If the SIM card in use does not support SMS or phone services, it is recommended to use the platform's remote wake-up function. The platform's remote wake-up requires collaboration with the platform, and at present, FTCloud supports platform remote wake-up.

1. Sleep Mode：You can set low voltage standby or zero-power standby.

- [Zero-Power Standby]：After the device is turned off or scheduled to shut down, it will not be woken up in this sleep mode.

2. [Low-Power Standby]：After the device is turned off or scheduled to shut down，the system can be awakened by IO alarms, phone calls, or SMS to start the main unit in this sleep mode

3. Sleep time：Set the sleep time, range from 0~ to 100 hour，, with a default of 100 hours.The sleep time refers to the period during which the device remains in low-power standby mode without being woken up or activated. After this period, the device will enter zero-power standby mode.

4. Low voltage protection：Enable low voltage protection by checking the box.

5. Battery low voltage protection：To protect the vehicle's battery, when the battery voltage falls below the set value, the device will enter sleep mode when the ignition is on and shutdown mode when the ignition is off.

6. Recovery power-on voltage:When in sleep mode, the device will return to normal power-on status when the battery voltage is higher than the set value.

7. Low voltage reporting:：If enabled, the device will automatically report to the platform when the low voltage protection is triggered.

Active mode：If enabled，when the device enters sleep mode, GPS data will be uploaded to the platform at the set time interval.

Important Note：the default low voltage threshold for protection is set to 7V.

- Wake up from sleep mode

Click【Preferences】>【Basic Setup】>【Time Setup】>【Wake】，as shown in the following interface：

The wake-up methods can be set by enabling the corresponding enable switches:

1. Bluetooth wake-up：Wake up the Z5 via Bluetooth signal.
2. G-Sensor wake-up：The device wakes up the host when a shake in any of the X/Y/Z directions reaches the set threshold. The default wake-up threshold for the X/Y/Z axes is 5.5g.
3. Remote wake-up：The device can be remotely woken up by receiving a command issued by the platform. While in sleep mode, the device can be woken up by a command from the platform. Currently, remote wake-up is supported using CEIBA2 and FTCloud, and it only supports remote wake-up from the first N9M server.
4. SMS wake-up：To wake up the Z5 by sending a text message to the device,The phone number that supports wake-up must be configured in advance, and the content of the wake-up message should be "WAKEUP."
5. Phone call wake-up：The device can be woken up by receiving a phone call. The phone number for waking up the device must be configured in advance.

Important Note：Both SMS wake-up and phone call wake-up functions require the SIM card in the device to support SMS and phone services.

4.6.4 User settings

Click [Preferences] > [Basic Setup] > [User Setup] ， as shown in the following interface：

In the User Settings interface, you can configure language, MP3 voice options, and user account login information. If there is a password complexity requirement, you can check the box below to enable password complexity rules.

1. The language options include Simplified Chinese, Traditional Chinese, English, Portuguese, Latin American Spanish, European Spanish, French, Russian, and Japanese, a total of 9 languages. After setting and clicking Save in Veyes, this feature will take effect.
2. Click the 【Add】 button to add a regular user. You can set the account and password for the new user. A maximum of two regular users can be added.
3. Click the button in the User Settings column，to set the password for the user.
4. Admin：The default system includes one administrator account, which has the permission to add or delete regular users and set parameters.User (Regular User): The default system includes one regular user account, which has query and setting permissions only.

4.6.5 Network settings

- Server Settings：
  Click【Preferences】>【Basic Setup】>【Network】>【Server Setup】As shown in the following interface：

1. Click on the right side of the interface  to add a server. Click  to delete the server on the current page, but Server 1 cannot be deleted.

2. Enable：Check the box to enable the server, with a maximum of 4 servers enabled simultaneously. If unchecked, the device will no longer report to the server, but the server parameters will be saved.

3. Protocol Type: Select N9M or 808

- 【N9M】：The protocol type used for reporting to the video monitoring platform FT Cloud.
- 【808】: The protocol type used for reporting to the 808 platform (supported by Z5 devices).

4. Network usage：Optional wired network, WIFI, communication module, adaptive. Adaptive means that the system will automatically select the available network for platform connection. The adaptive priority is WIFI>wired network>communication module.

5. Registration serve address：Enter the IP address or domain name of the registration server that the device will report data to.

6. Registration serve port：Enter the corresponding device port number on the server that the device will report data to.

7. TLS encryption port number：During normal operation of the device, the interaction data between the device and the platform is transmitted via TLS encryption to ensure the security of the data. To use this feature, TLS must be enabled, and the encryption port number needs to be configured. Currently, only the FTCloud platform supports TLS encryption.

 **Warning**：TLS encryption is not supported in sleep mode

8. Media server address: Enter the IP address of the media server for the platform that the device will report to.

9. Media server port: Enter the corresponding device port for the platform that the device will report to.

The default address and port of the registration server and media server are the same

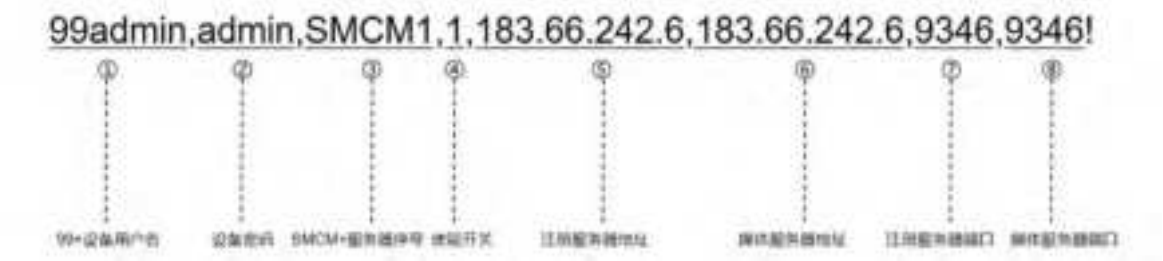
10.Supports modifying server parameters via SMS:When the server address changes or encounters an exception, the device will lose connection with the server, causing all remote services for the vehicle to stop. To avoid this situation, the device's IP address and port number can be modified via SMS.

The SMS content consists of the following 8 types,Each type is separated by "," and ends with "!". Please modify the SMS according to the actual parameters.

Example：99admin,admin,SMCM1,1,183.66.242.6,183.66.242.6,9346,9346!

Indicates that the server 1 parameters need to be modified for the device whose username and password are both admin. The registration server/media server IP is changed to 183.66.242.6 and the registration server/media server port is changed to 9346.

Important note：After sending the SMS command to modify the server parameters, a confirmation result will be returned from the server. The result content "99SMCM: Setup Succeed!" indicates that the parameter modification was successful.



- Wired Network:
  Click [Preferences] >【Basic Setup】>【Network】>【Local】，as shown in the following interface：

In the local network settings interface, in order to avoid IP address conflicts and expand the address space, in addition to IPV4, the IPV6 network protocol has been added. The IP address, default gateway, preferred DNS server, and alternate DNS server support the input of 128 bytes.No subnet mask after identifying as an IPV6 address，and letters, numbers, and symbols are supported.

1. 【Enable IPV4】：When the IPV4 enable box is checked, the corresponding parameter settings interface will be displayed.

【DHCP Mode】：Automatically obtain an IP address. After checking this option, the network

automatically assigns a dynamic IP address. DNS can be dynamic or static

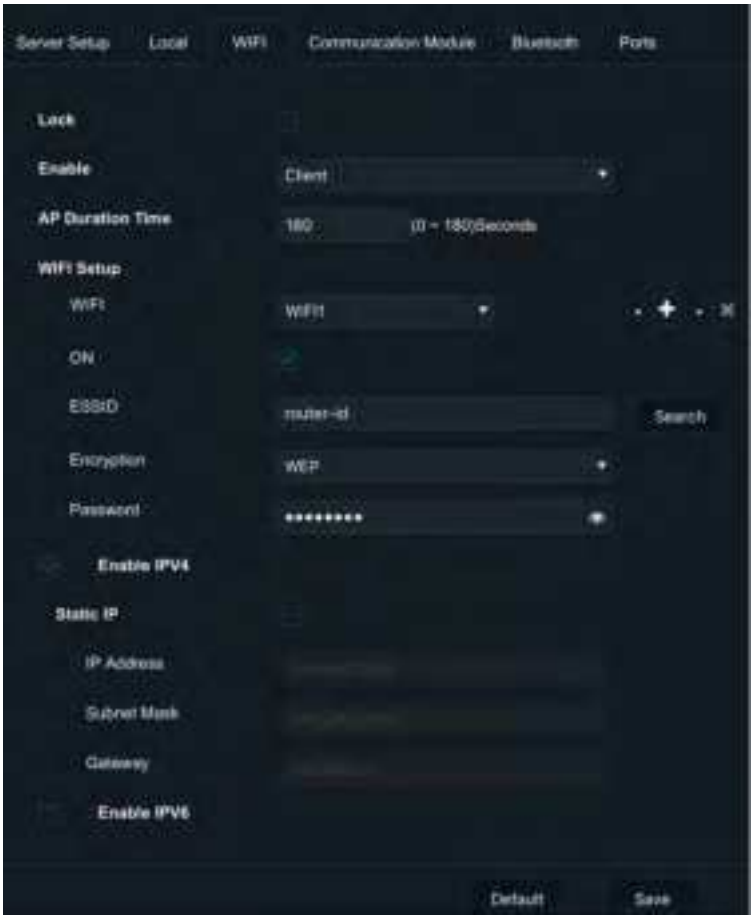
【Static IP】： Static IP address. Use the static IP address, subnet mask and default network management. In this case, the DNS must be static

2. 【Enable IPV6】： After checking the IPV6 enable, the corresponding parameter setting interface is displayed. The parameter description is the same as IPV4.

3. 【MAC】： The MAC address is displayed, showing the default address.

- WIFI Settings：

Click【Preferences】>【Basic Setup】>【Network】>【WIFI】，as shown in the following interface：



1. 【Lock】： WIFI hotspot parameter modification enable switch. After turning it on, the relevant parameters of the WIFI hotspot will not be modified when importing parameters.

2. 【Enable】: WIFI connection mode, you can choose AP mode, Client mode, Disable mode, the default is Disable mode.

- AP：When configured as AP mode, the WIFI name is automatically associated with the container number information, which is only displayed in this interface and cannot be modified, and there is no password setting. And the device always remains in hotspot status after powering on.
- Client：When configured in Client mode and the ESSID and password of a nearby valid WIFI are set, the device can automatically search for nearby valid WIFI hotspots for connection. After the connection is successful, the WIFI reporting platform can be configured and used. When the vehicle re-enters this area, it can automatically connect successfully. When configured as Client mode, the default mode is AP mode when powered on and if there is no Veyes connection, it will automatically switch back to Client mode after 3 minutes (default value, configurable).When using Client mode to report to the platform, in order to make the device report to the platform as soon as possible after

powering on, the duration of AP mode after powering on is set. You can set the appropriate duration of AP mode display after powering on according to actual usage. If the AP mode duration is set to other value (ranging from 0 to 180 seconds), the device will automatically exit AP mode and switch to Client mode after the set duration if no Veyes-connected device is detected. Upon switching to Client mode, the device will also report to the platform. Please note that the AP mode duration setting parameter is only displayed when the WIFI mode is set to Client mode and Disable mode, and this parameter only controls the AP mode entered after power on. The AP mode display duration when switched via the button is not restricted by this parameter.If you need to switch to AP mode during the normal operation of the device, you can press the button twice to switch to AP mode. After switching to AP mode, if there is no Veyes connection, the device will automatically switch back to Client mode after 3 minutes (fixed value).

- Disable：When configured as Disable, the WIFI network is not enabled, and the Client mode becomes ineffective. The default mode is AP mode within 3 minutes after power-on.(This device has an AP mode switching button, which can be used to switch to AP mode; after switching to AP mode, if there is no Veyes connection, it will exit AP mode after 3 minutes and the module will go into sleep mode)

3. 【WIFI Mode】：When the WIFI mode is set to AP mode, you can set the WIFI frequency band, with options for 2.4G, 5G, or Adaptive.

4. 【WIFI Setup】：In Client mode, you can set up 8 WIFI accounts, each with its own "enable" function and ESSID, Encryption, and Password.The WIFI will be enabled only after checking ‘Enable’. After setting the ESSID, Encyption, and Password corresponding to the wifi, you can connect to the WIFI. Click the "＋" sign to add a new WiFi account, and click the "×" to delete the current WiFi account. The device will automatically connect to the WiFi with the stronger signal. When entering different locations, it will automatically switch to the WiFi of that location. WiFi information supports parameter import, manual setting, and searching for adding networks.

5. 【ESSID】: When selecting AP mode, the input is the hotspot name that the device uses as a hotspot, which is also the WiFi name used by mobile devices to connect to the device (it is no longer the serial number). Once connected, users can access Veyes and use the mobile device for internet browsing (hotspot enabling is required). When selecting Client mode, the input is the WiFi name that the device uses to connect to external WiFi.

6. 【Encryption Method】：When AP mode is selected, the encryption method can be None, WEP, WPA/WPA2-PSK; when Client mode is selected, the encryption method can be None, WEP, WPA/WPA2-PSK, WPA2.ENTERPRISE.

7. 【Password】：In AP mode, the password refers to the password for connecting to the device's hotspot. You need to enter the correct password to connect to WIFI (if the hotspot name and password are not set, you do not need to enter the password, just click the serial number or license plate number to connect). In Client mode, the password refers to the password for the device to connect to an external Wi-Fi network.

8. 【Hotspot】: When enabled, it supports accessing the network via the device's AP hotspot. When disabled, it does not support network access but allows Veyes for maintenance operations.

9. 【WIFI whitelist】：If the WIFI whitelist is not enabled, all networks can be accessed normally when connected to the AP hotspot of the device; if it is enabled, access to the network will be restricted by the IP list.

When enabled, you need to fill in the relevant IP addresses in the IP list, with a maximum of 5 IP addresses that can be configured. If IP addresses are entered in the list, only networks corresponding to the listed IP addresses will be accessible. If the IP list is empty, no network access will be allowed.

Note：Currently, the whitelist only supports access to the network by restricting IP addresses,It does not support restrictions based on URLs, domain names, or other types of addresses.

- Communication Module：

Click【Preferences】>【Basic Setup】>【Network】>【Communication Module】，as shown in the following interface：

1. 【Import Lock】：Check this option, the parameters on the communication module interface cannot be imported, and the factory settings cannot be restored.
2. 【Service Type】：After inserting the SIM card, the device will automatically detect and display the communication module type. If there is no module, it will display "No service."
3. 【Network Type】：The default is hybrid mode, which means the communication module supports 2G, 3G, and 4G.
4. Dial-up parameters：These include the access point, username, password, data service number, and authentication method (None, PAP, CHAP, or Hybrid). Enter the parameters provided by the SIM card manufacturer. The default is empty，and when empty, the device will dial using the default parameters.。
5. 【Dial-up Activation Mode】：The network module can be activated through external conditions. The dial-up activation modes are: Always-on mode, and Phone or SMS activation mode.
    1) 【Always-on Mode】：After the device is powered on, the network module automatically starts dialing and connecting to the server.
    2) 【Phone or SMS Activation Mode】：After the device is started, the network module does not work. The network module will only be activated and start dialing to connect to the server when a phone call or SMS to the device's phone number.Up to 3 dialable phone numbers can be configured.
    3) 【Switch Activation】：After the device is started, the network module does not work. Only after the IO sensor is triggered, the network module is activated to start dialing and connecting to the server.
    4) 【SIM Card MTU Value】：The interface supports the MTU value setting of the SIM card,

the default value is 1500.

- Bluetooth：
  Click【Preferences】>【Basic Setup】>【Network】>【Bluetooth】, as shown in the following interface：

Add Bluetooth door sensor: The device relies on door sensor signals to perform various mode switches. After installation, the corresponding door sensor must be added. Each door sensor is labeled with its MAC address. When adding a door sensor search option, be sure to select the door sensor MAC installed on the same cargo box as the Z5 host.

【Bluetooth type】：【Main door sensor】or【Auxiliary door sensor】. The door sensor type can be set as [Main door sensor] or [Secondary door sensor]. The [Main door sensor] is associated with the device mode and abnormal door opening alarm. You can only add one at most, and the device must have one [Main Door Sensor] for normal operation. The [Auxiliary door sensor] is only associated with the abnormal door opening alarm and is not associated with the device mode switch.

- Port

WEB port：The default is 80, which is used when IE accesses;
RTSP port：The default is 554. After logging in with the correct username and password, the host uses a fixed IP address to preview and playback the video in real time via RTSP.

Warning：Each stream supports only one RTSP request at a time.

The format for pulling RTSP streams is as follows:
a. Main streaming video : rtsp://user:pwd@IP:554/mainstreamX
b. Sub streaming video: rtsp:// user:pwd@IP:554/substreamX
X is Channel number，Start from zero
Example：
rtsp://admin:admin@10.20.112.17:554/mainstream0
rtsp://admin:admin@10.20.112.17:554/substream1

4.6.6 Network Application

- FTP Server：

The device supports connecting to an FTP server. After configuring the IP, port, user name, and password of the established FTP service, the device can connect to the FTP server to upload images or download files. Click【Preferences】>【Basic Setup】>【Application】>【FTP Server】, as shown in the following interface ：

4.7 Recording

4.7.1 General recording settings

This function includes selecting system format、automatic overwrite function, the recording lock duration、alarm video pre-recording and SDSD card recording mode. Click【Preferences】>【Surveillance】>【Record】>【General】，as shown in the following interface：

1. 【System format】: The system standard includes PAL and NTSC

Warning：The system format setting must be consistent with the video source (camera format), otherwise, the device will not recognize the camera. The Z5 has no external camera, so this feature is not supported, and the setting has no effect on the device.

2. 【Auto Overwrite】：You can choose to overwrite by capacity, overwrite by day, overwrite by minute, or never overwrite.

Important Note：The locked video can be overwritten and deleted only after the protection time is released or it is manually unlocked.

- The default is to overwrite by capacity. When overwriting by capacity:
  1) Overwriting by capacity means that when the remaining space of the memory is insufficient, the historical recordings will be automatically overwritten to store new recordings.Generally, automatic overwriting will be started when the remaining capacity is less than 1%. Overwriting by capacity is based on the memory blocks. The block sizes of different capacity memories are different, and users do not need to pay attention to the details.
  2) For multiple memories, if loop recording is selected, the capacity will be overwritten before the multiple memories. For example, when memory 1 is full, memory 2 will be used for recording. When memory 2 is full, the historical recording of memory 1 will be overwritten.
  3) Overwriting by capacity will give priority to overwriting the earliest recordings. Locked recordings will be overwritten after the lock time expires or they are manually unlocked.
  1) Overwrite by day means overwriting based on the configured storage days. The configurable range for days is 1 to 31.
  2) If the configured number of days is 1, the recordings will be saved for only 1 day. If the configured number of days is 31, the recordings will be saved for 31 days before starting to overwrite.
  3) If the recordings are set to be saved for 31 days, this is under the assumption that there is enough storage space. However, if the SD card can only store recordings for 7 days, it will begin to overwrite once the card is full, even if the 31-day setting is in place.
- No overwrite： The overwrite function is disabled for main stream recording, mirror stream, sub stream, and alarm stream. Recording stops when the storage is full.
- Overwrite by minute：Overwrite by minute can be set from 1 to 1440 minutes, with a default of 30 minutes. This means that when the recording time reaches the set length, the recording will be overwritten, with an accuracy of approximately 1 minute, which means that if the setting is 30 minutes, the maximum recording time will not exceed 31 minutes.

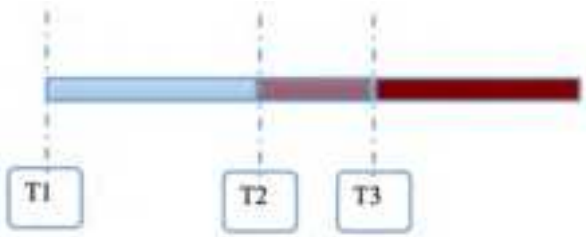
3. 【Recording Lock】：

Recording lock day：Recording Lock Days: This setting provides time protection for locked recordings to prevent them from being deleted prematurely. The default is 7 days. To set a recording to be locked. see [Preferences] > [Alarm] for details.

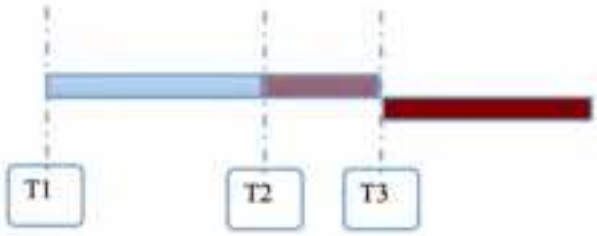
4. Alarm video pre-recording

When in alarm recording, the video files of a period of time before the linkage alarm moment will be extracted to facilitate event analysis. The default is 60 minutes, and 1-60 minutes can be selected.

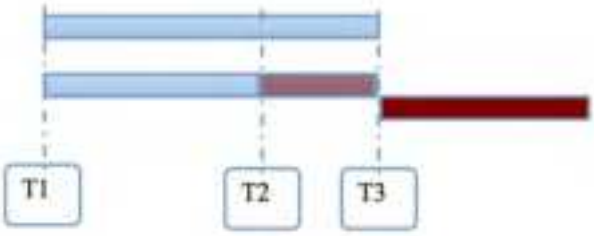
1）If it is a regular video, when an alarm occurs, a segment of the regular video will be cut according to the pre-recording time in the alarm linkage and marked as an alarm video.T1 to T3 are regular videos. When an alarm occurs at T3, T2~T3 in the regular video will be marked as an alarm video, and T3 onwards will be marked as an alarm video.



2） When there is no regular recording and the pre-recording switch is enabled, the device will create a pre-recording stream segment upon startup. When alarm T3 occurs, the segment from T2 to T3 in the pre-recorded stream will be marked as alarm recording.



3） In this case, when there is non-alarm recording in I-frame format, two stream segments will be created : one for I-frame and one for pre-recording. When an alarm occurs, the segment from T2 to T3 in the pre-recording stream will be marked as alarm recording.



5. 【SD Card Recording Mode】： The SD card recording mode can be selected from the following options: sub-stream recording, mirror recording, alarm recording backup, and loop recording.
   - 【Sub-stream Recording】： Stores sub-stream video on the SD card.
   - 【Mirror Recording】: The parameters of mirror recording all adopt the parameters of main stream; and the data of mirror recording includes: video data, log information, black box data. If the main stream video channel is closed, mirror recording cannot record for that channel.
   - 【Alarm Recording Backup】： Stores video only when an alarm is triggered.
   - 【Loop Recording】： Once the SD card is full, it will overwrite the oldest recordings.

4.7.2 Main Stream Settings

This interface allows you to set the recording method, recording parameters, and audio recording parameters for each channel. Click 【Preferences】>【Surveillance】>【Record】>【Main Stream】, as shown in the following interface：

Note：Each channel can set the recording mode separately

Once the recording mode is selected, it will be applied to both the sub-stream and mirror recording modes simultaneously.

1. 【Enable Recording】：Check to enable the main stream recording function.
2. 【Resolution Setting】：The default resolution for Channel 1 and Channel 2 is 1080P. For Channel 1, the available options are: CIF, WCIF, HD1, WHD1, D1, WD1, 720P, 960P, 1080P, 5M, 2160P. For Channel 2, the available options are: CIF/WCIF/HD1/WHD1/D1/WD1/720P/960P/1080P.

Note：Z5 Channel 1 supports a maximum resolution of 2160P

3. 【Frame Rate】：Recording frame rate, that is, the number of frames played in one second. Channel 1 supports 1~10fps, and channel 2 supports 1~25fps.
4. 【Image Quality】：Recording quality, 1-8 can be selected, the smaller the number, the better the image quality, and 1 is the best;
5. 【Encoding Standard】：H264 and H265 can be selected, H264 is the default;
6. 【Channel Name】：The channel name can be customized；
7. 【Recording Mode】：Optional power-on recording, timed recording and alarm recording；

- Power on recording： When there is an SD card and the recording function is turned on, power on recording means that the device will always record when it is started.
- Alarm recording：Start recording when the device alarms. For detailed alarm recording settings, see [Preferences] > [Alarm]. You can also pre-record the video before the alarm.
- Scheduled recording： Record according to the set time plan. Click on the right of scheduled recording to enter the following interface. Then click the setting button corresponding to a certain day in the following interface to add a scheduled recording plan.

In the following interface, add a scheduled recording time plan. Click + to add a time plan. Click on the right side of the plan ✖ to delete the time plan. In this interface, you can specify whether the recording is a regular recording or an alarm recording.

After setting up a scheduled recording plan for a certain day, you can click the [OK] button to return to the previous step, and click the [Copy] button to copy the scheduled recording plan set for a certain day to other dates, as shown below:

8. 【Audio Recording】

Note：Z5 does not support audio recording function.

- Audio recording：Indicates whether audio is recorded simultaneously during video recording. Audio recording and without audio recording are optional, audio recording is the default.
  1) Audio recording：Always record audio during video recording；
  2) Without audio recording：Always disable audio during video recording

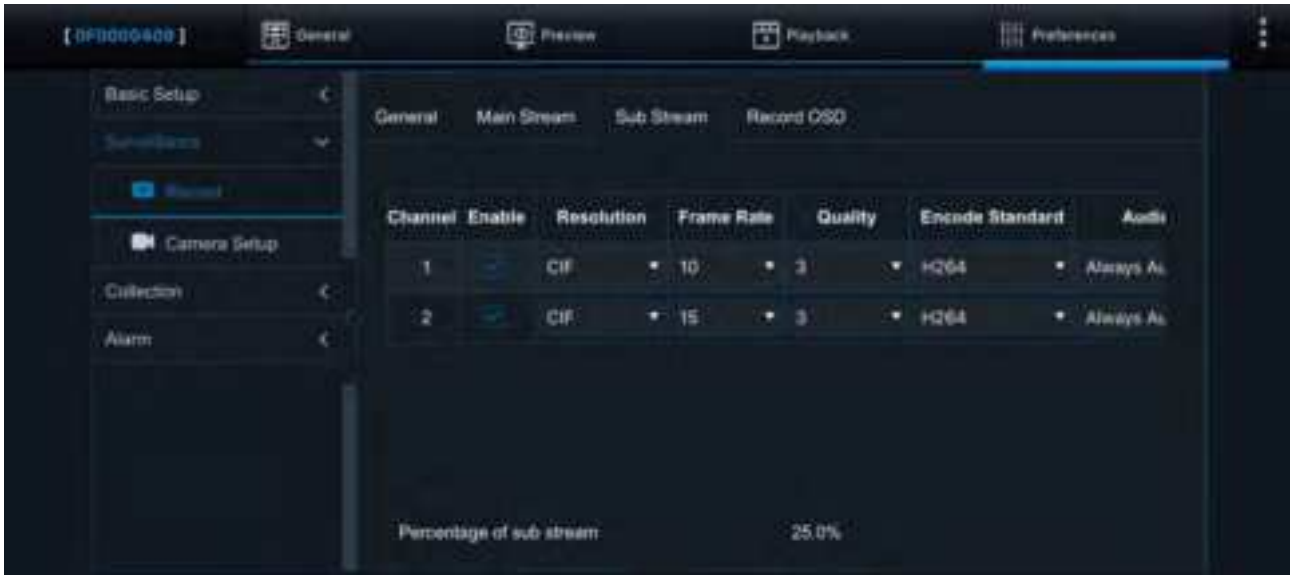
9. 【Video quality during alarm recording】：Configure the quality of the device's alarm video. The smaller the number, the better the quality. The default quality is 3.
10. 【Encoding Mode】：VBR and CBR video encoding formats are optional, the default is VBR;
11. 【Audio encoding format]】： G711A, G711U, ADPCM and G726 are optional, and ADPCM is the default.

4.7.3 Sub stream Settings

This interface can set the sub-stream recording parameters and recording parameters of each channel.

Note：Sub-stream recording is available only when the recording mode is set to sub-stream recording and a Micro SD card is inserted in the slot.

Click【Preferences】>【Surveillance】>【Record】>【Sub Stream】， as shown in the :

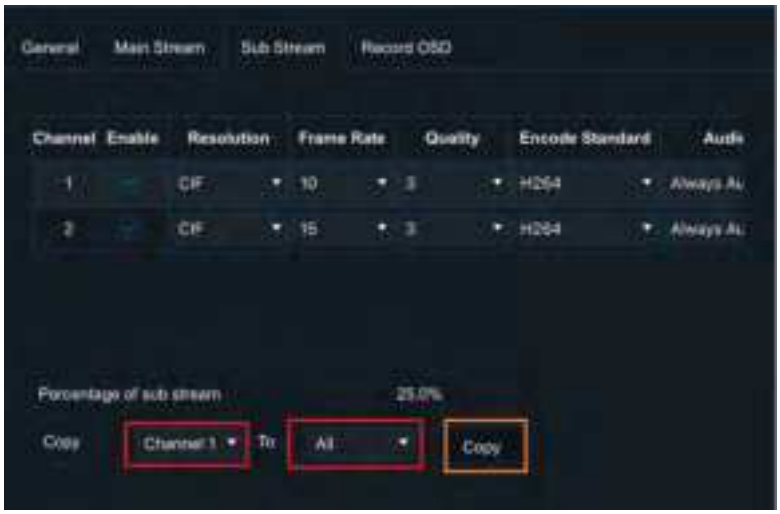


1. 【Enable Recording】： After checking, the sub-stream recording function of the corresponding channel will be enabled

Important Note：When the main stream is turned off, the entire video input will be turned off. At this time, even if the sub-stream is turned on, the sub-stream will not be recorded.

2. 【Resolution Setting】: **The** default resolutions of channel 1 and channel 2 are 1080P and 1080P. Channel 1 can choose: CIF/WCIF/HD1/WHD1/D1/WD1/720P/960P/1080P / 5M/2160P . Channel 2 can choose: CIF/WCIF/HD1/WHD1/D1/WD1/720P/960P/1080P .
3. 【Frame Rate】： Recording frame rate, that is, the number of frames played per second. Channel 1 supports 1~10fps, and channel 2 supports 1~25fps .
4. **【Quality】**：Video quality, can be selected from 1 to 8, the smaller the number, the better the quality, and quality 1 is the best;
5. **【Encoding Standard】**： H264 and H265 are optional, H264 is the default;
6. **【Audio Recording】**： Indicates whether to record audio while recording video; can be selected to record or not. Z5 does not have a recording function.

Click the [Copy] button below to copy the sub-stream setting parameters of a channel to other channels. As shown below:

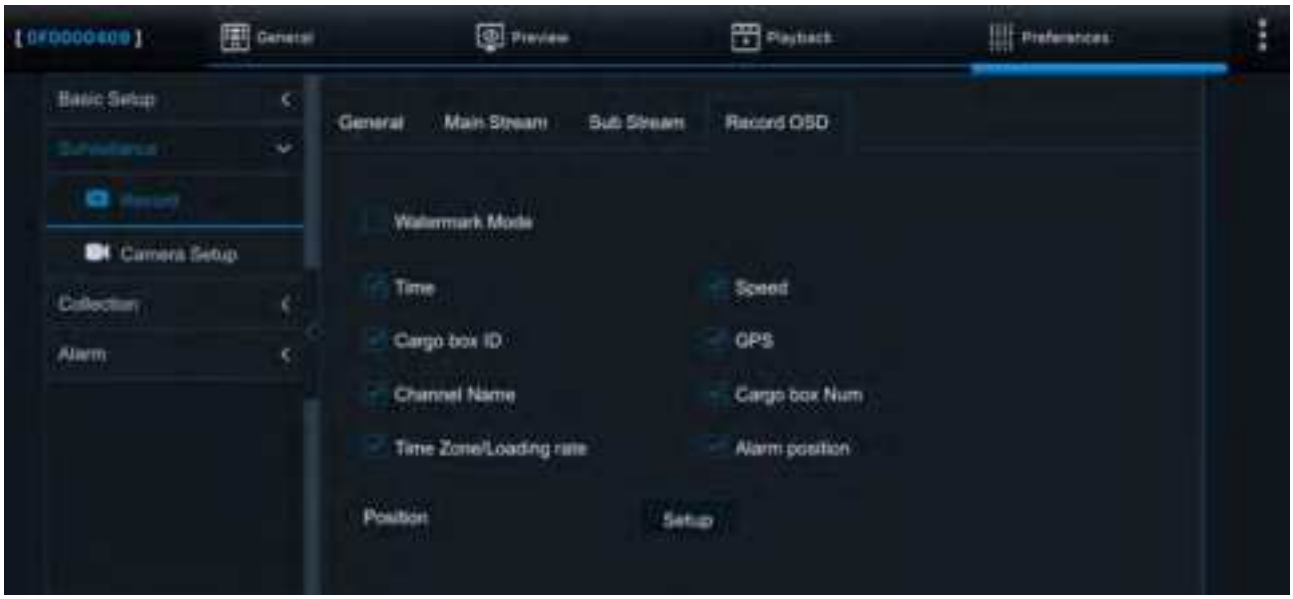


Important Note：The maximum frame rates of the two cameras of Z5 are different, CH1 has a

maximum of 10fps, and CH2 has a maximum of 25fps . If the setting value exceeds the maximum value of the channel, it will not take effect.

4.7.4 Recording OSD Overlay

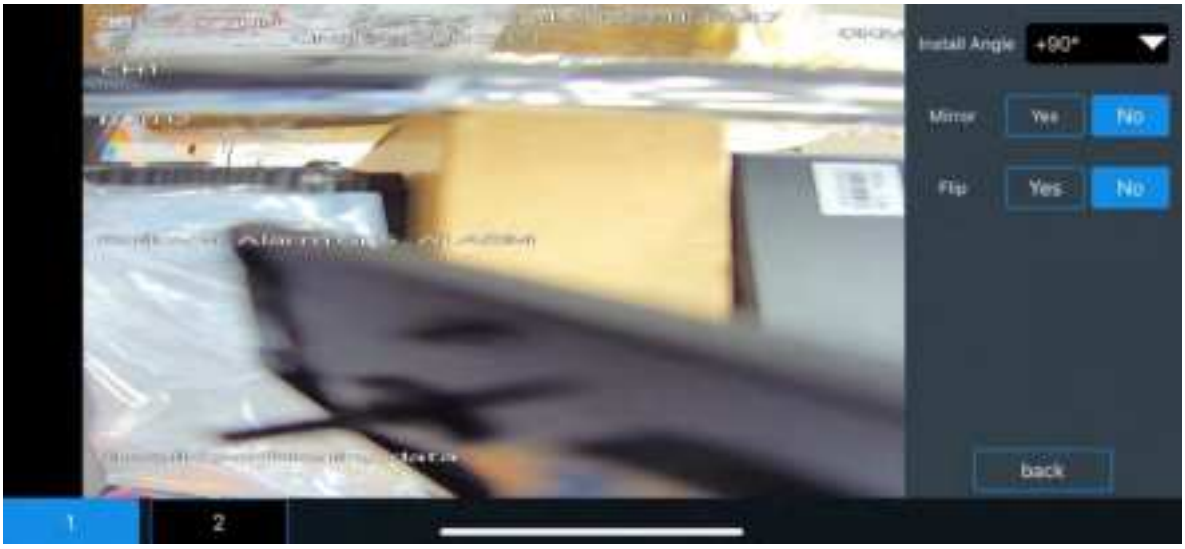
Click【Preferences】>【Surveillance】>【Record】>【Record OSD】, to enter the video overlay settings interface. The interface is as follows：



The OSD overlay here is a recording function, which can overlay the selected information on the recording display, which is different from the direct preview OSD overlay information. The recording OSD supports the enable selection of 8 areas and also supports position setting. In addition, in order to better provide the OSD overlay capability and effect of the video on the platform side, especially to overlay AI processing information, the recording watermark mode function is added to this interface. After checking the function, the watermark information can be overlaid on the video of the channel.

4.7.5 Camera Settings

In the camera setup interface, you can flip, mirror, rotate, and perform other operations on the cameras of each channel. Click【Preferences】>【Surveillance】>【Camera Setup】， and the interface is as follows:



In the lower-left corner of the interface, select the channel whose image you want to adjust. In the upper-right corner of the interface, you can set the camera's rotation angle, enable or disable mirroring, and flip the image vertically for the selected channel.

Warning：In general, the Z5 factory default is the normal screen angle. Please do not modify the screen angle and mirror flip at will, otherwise the abnormal screen will be caused and our company will not be responsible.

4.8 Data Collection

The data collection interface can set parameters such as serial port, speed, A-GPS, and snapshot.

4.8.1 General Settings

The general setting interface is mainly used to set the serial port, speed, and A-GPS.

1） Click【Preferences】>【Collection】>【General】>【Serial Port】， to enter the serial port settings interface:

Serial port：You can select the external device to be connected, and the baud rate will automatically jump to the corresponding value. If it is incorrect, you can also adjust it manually.

Note：Z5 currently only reserves Serial port interfaces and does not support Serial port peripherals。

2） Click【Preferences】>【Collection】>【General】>【Speed】to enter the following interface:

1. 【**Speed Unit**】：Set the speed unit: KM/H and MPH.
2. 【**Speed Source**】：Satellite、Pulse、Mix、OBD are optional.

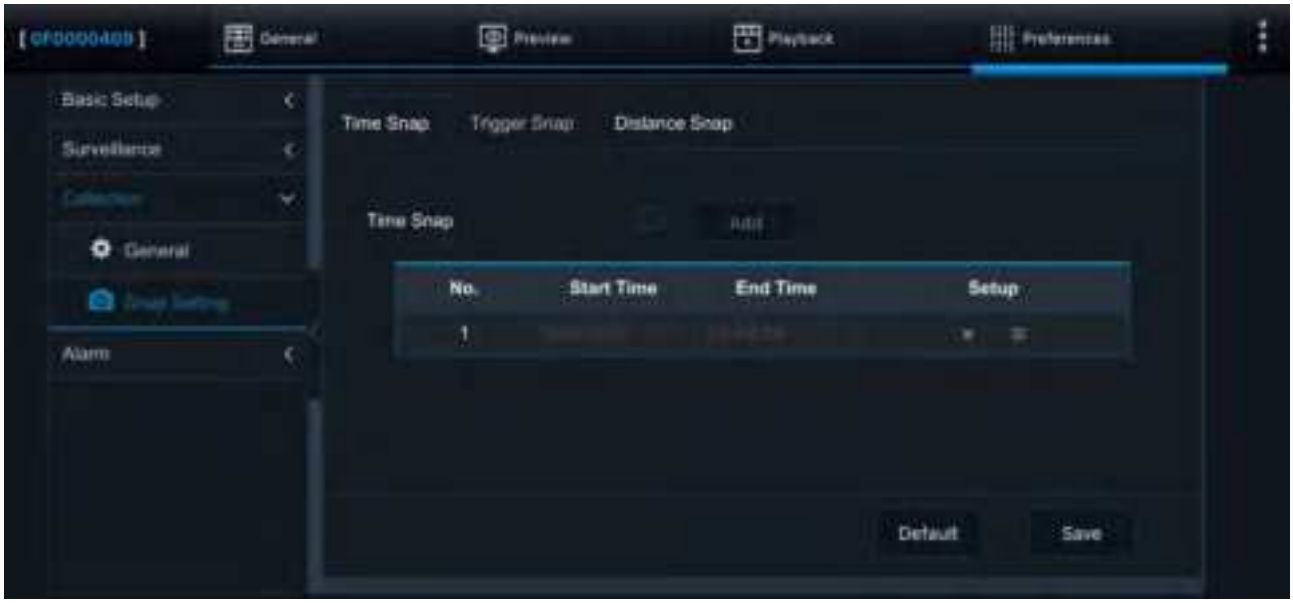
➢ When the speed source is selected as Satellite, the interface is as follows:

- Other speed sources: Currently Z5 does not support other speed sources.

4.8.2 Snapshot Settings

4.8.2.1 Scheduled snapshot

Supports setting time periods, and automatically taking snapshots at regular intervals within the time period. Click【Preferences】>【Collection】>【Snap Setting】>【Time Snap】。The timed snapshot setting interface is shown below:



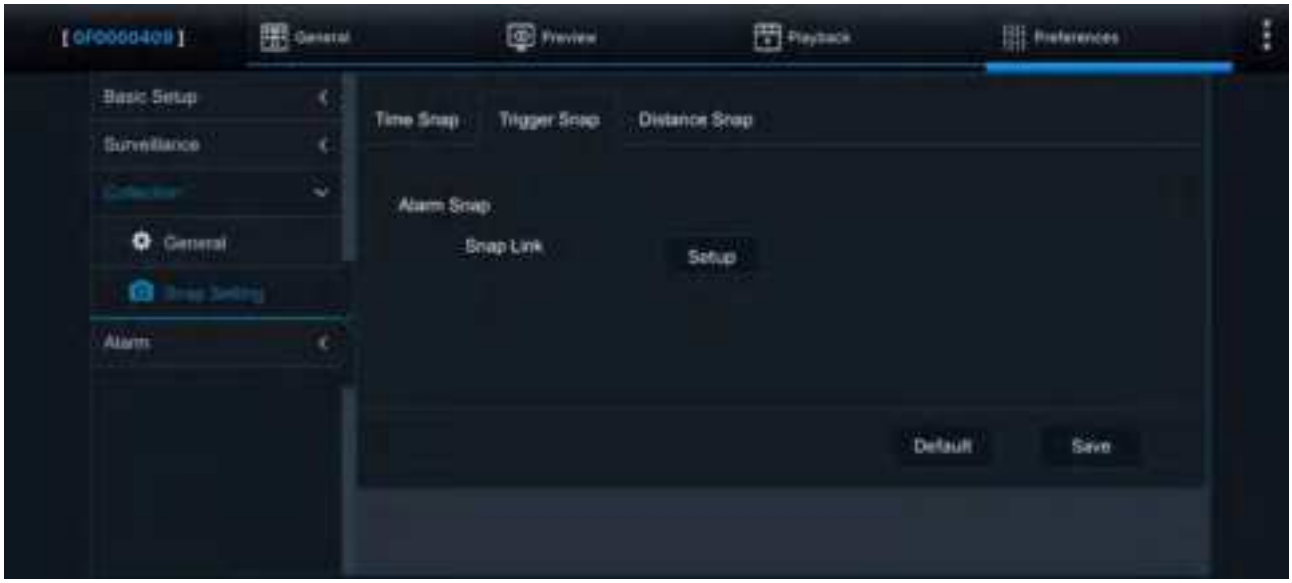
- Check the enable switch to turn on the scheduled snapshot, and click the [Add] button to add a time period for the scheduled snapshot.
- Start/End Time:
    1) Set a time period during which the snapshot function will be enabled.
    2) The time period for scheduled snapshot is within one day.
    3) It can support scheduled snapshots in up to 8 time periods per day.
    4) Can add, delete, and edit time periods.
- Independent capture parameters can be set for each time period. Click [Operation]  to enter the capture linkage interface as follows:

1) Channel： Select the camera channel to be captured;
2) Enable snapshot: ： Check to enable the scheduled snapshot function of this channel.
3) Resolution: Select the capture resolution.
4) Quality：Select image quality from 1 to 8, 1 is the best quality;
5) Upload method supports FTP upload and HTTP upload. You can automatically upload the captured pictures via FTP. For FTP settings【Preferences】>【Basic Setup】>【Application】>【Communication Module】>【FTP Server】, The HTTP parameters are empty by default, and the HTTP address is issued by the platform.
6) Number of snapshots per shot: can be set to 1-3.
7) Snapshot interval：the number of seconds between snapshots within the set time period.
8) Copy settings：Allows you to copy the settings to other video channels.

Important Note：When the Z5 is in low power mode or sleep mode, the camera will not capture images because the device is in a special working state

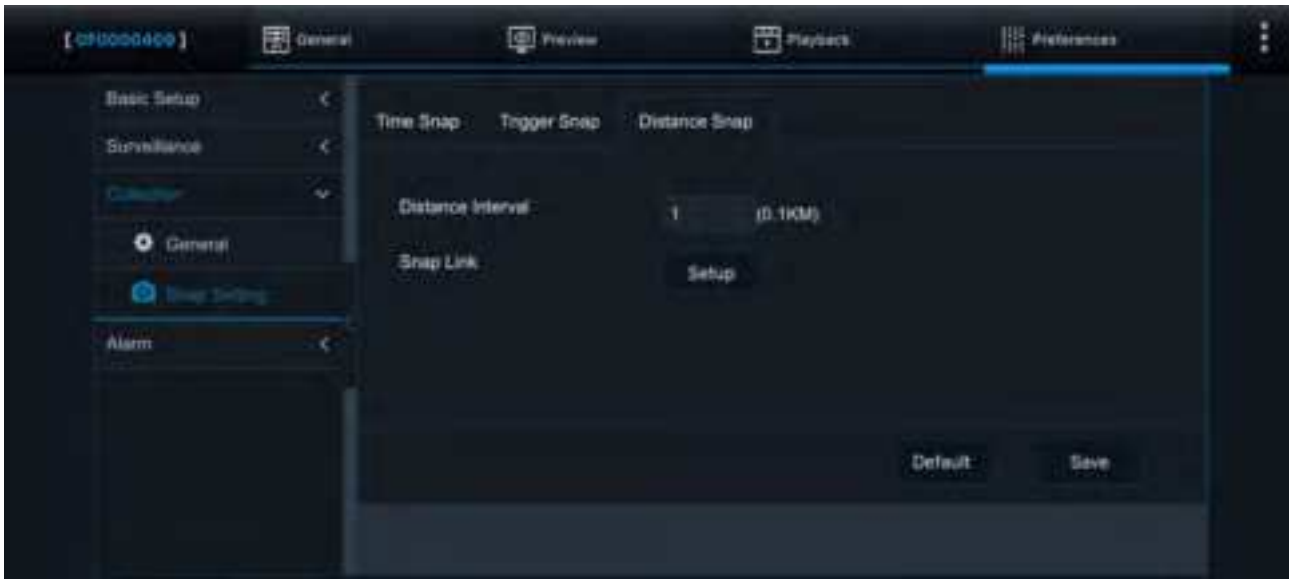
4.8.2.2 Alarm Capture

Supports alarm-linked snapshot, that is, snapshot starts after an alarm is generated. Click【Preferences】>【Collection】>【Snap Setting】>【Trigger Snap】, and the alarm snapshot setting method is the same as the scheduled snapshot.



4.8.2.3 Distance-based snapshot

Supports distance-based snapshots, where images are captured and uploaded to the platform after a fixed distance. Click【Preferences】>【Collection】>【Snap Setting】>【Distance Snap】, distance-based snapshot is disabled by default, and the distance unit follows the system's unit settings. The snap linkage settings are the same as those for timed snapshots, the difference is that there is no snapshot time interval setting in the distance-based snapshot setting.



Warning: The snapshot function will consume certain system resources, the overall upper limit of various snapshot settings is: the average snapshot frequency of all channels does not exceed 3 frames per 5 seconds. The company is not responsible for system resource problems caused by frequent snapshots due to snapshot settings.

4.9 Alarm Settings

4.9.1 Basic Alarm

In the basic alarm setting interface, you can set IO alarm, speed alarm, GPS alarm , and cargo box alarm configuration .

Click [Preferences] > [Alarm] > [Base] to enter the following interface:

This device supports 2 IO inputs.

- IO interface：

1. IO number：Sensor1 and Sensor2 are optional.
2. IO name：Customizable switch name, click to modify.
3. Name abbreviation: ：The abbreviation for the IO interface can be customized in the OSD (On-Screen Display) overlay information.
4. Alarm type: divided into alarm and event.

➢ The type is alarm：

1) Alarms can overlay OSD on the preview interface and recordings.
2) The alarm will be uploaded to the platform;
3) Write alarm log.

➢ The type is event：

1) Overlay OSD；
2) The alarm will not be reported to the platform;
3) Write alarm log.

5. 开关量 usage：You can set the usage of the IO, such as left turn, right turn, brake, reverse , etc.
6. Trigger condition：Click Settings to enter the following interface:

1) 【Trigger Condition】：You can choose high or low level or pulse trigger. The default is pulse alarm for left and right turns, and the default is high level alarm for other uses.
   High level：Normally low level, high level when triggered
   Low level：Normally high level, low level when triggered
   Pulse signal：Normally low level, high and low level changes when triggered

   Warning：The detectable voltage range of the IO port is 0-36v. Below 3.9v is a low level, and above 3.9v is a high level. Please use it within the detectable range. If the equipment is damaged beyond the detectable range, our company will not be responsible.
2) 【Alarm Valid Time】：The valid time means that after an alarm is released, if the same alarm occurs again within a certain period of time, it is considered to be the same alarm. 0~10 seconds are optional, and the default is 5 seconds.

For example, if a motion detection alarm occurs at 13:23:30 and is canceled at 13:23:50, and the valid time is set to 10 seconds, if another motion detection alarm occurs within those 10 seconds, the two motion detection alarms will be considered as the same alarm. Only one alarm will be recorded in the alarm log, the alarm linkage will only stop after the subsequent motion detection alarm is cleared.

3) 【Alarm Timer without Refresh】： When Enable is not checked, if the same alarm is triggered multiple times within the alarm validity period, the alarm validity period will be extended. Alarms triggered multiple times are considered to be the same alarm and will only be triggered once. Enable is checked, if the same alarm is triggered multiple times within the alarm validity period, the alarm validity period will not be extended, but the number of alarm prompts will increase.

For example: ①When the enable function is not enabled, a motion detection alarm is generated at 13:23:30 and the alarm is canceled at 13:23:50.If the valid time is set to 10 seconds, and a motion detection alarm is generated and canceled within 10 seconds, the two motion detection alarms are considered to be the same alarm, and an alarm log record is made. The alarm linkage will not stop until the subsequent motion detection is canceled. ②When the enable function is enabled, a motion detection alarm is generated at 13:23:30 and the alarm is canceled at 13:23:50. If the valid time is set to 10 seconds, and a motion detection alarm is generated within

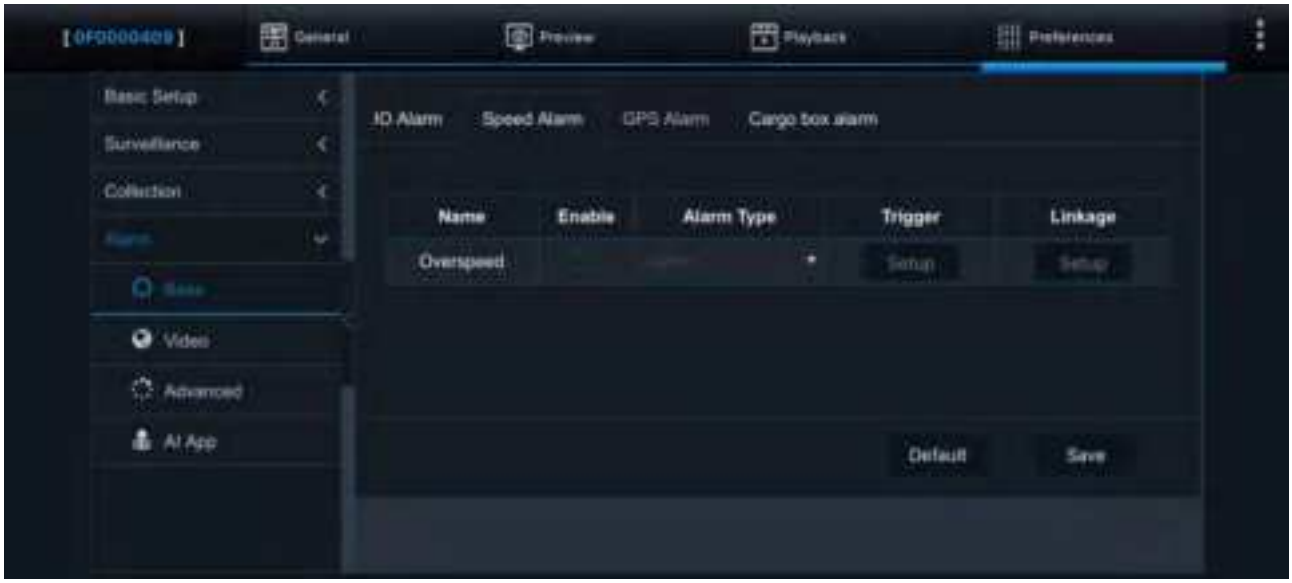
10 seconds and the alarm is canceled until 13:24:02, the ended motion detection alarm and the motion detection alarm triggered within the effective time will be considered to be the same alarm, and an alarm log record is made. The alarm linkage will not stop until the subsequent motion detection is canceled. A new alarm will be generated starting at 13:24:00, and an additional alarm log record will be made. The alarm linkage will not stop until the subsequent motion detection is canceled.

7. Linkage content：When an alarm occurs, the business functions that can be linked. Click Settings to enter the following interface:

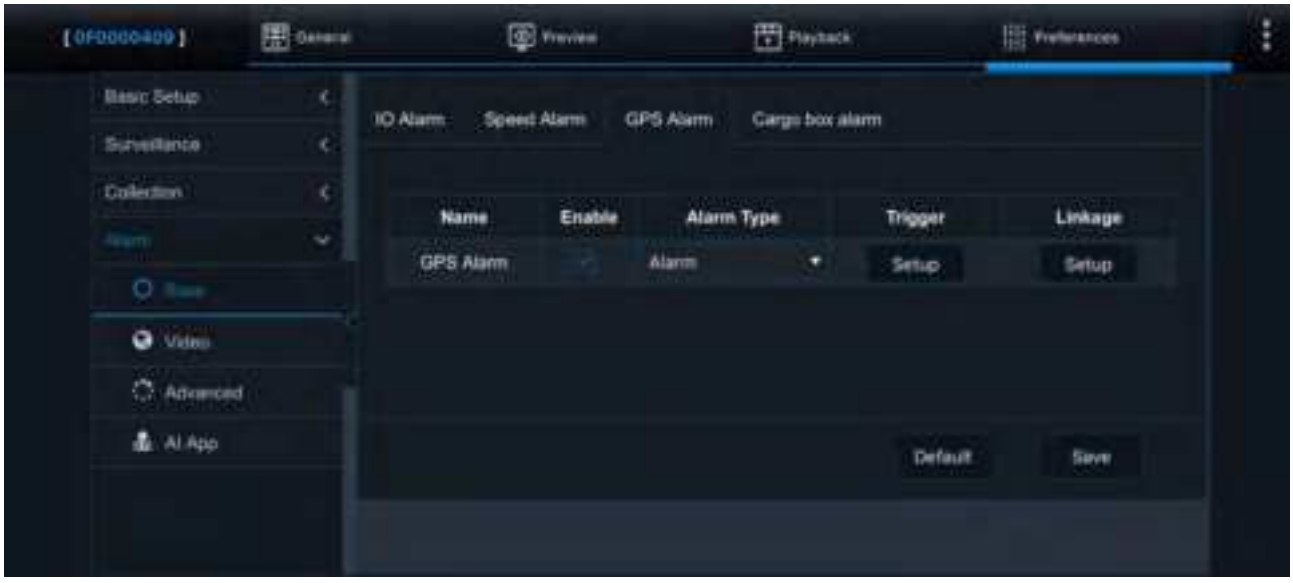
1) 【Channel】：This refers to the channels that need to record video after an alarm is triggered. The recordings from these channels will be marked as alarm recordings.
2) 【Recording Delay】：The duration of recording after the alarm is canceled. 1~30min optional, 1min by default.
3) 【Video Lock】：You can set whether to lock the alarm recording. If checked, the recording will be locked after the IO alarm is triggered. The lock will be released when the alarm is cleared.
4) 【linked IO output】: After triggering an IO alarm, the IO output value can be set, and the output duration can also be configured, ranging from 0 to 255 seconds.
5) 【Linked Screen】：After an alarm is generated, the screen that needs to be displayed directly. It is not displayed by default, and can also be set to single screen or four screens. Z5 has no AV output and does not support this function.
6) 【Alarm Snapshot】: After an alarm is generated, whether to capture a picture. When the FTP address is set, after the IO alarm is triggered, the channel capture will be turned on, and the captured pictures will be exported via FTP. When the platform configures the alarm evidence reporting parameters, it can also be reported to the platform.

- Overspeed alarm interface：The overspeed alarm enable feature can be activated, and the alarm type can be set to "alarm" or "event." In the overspeed alarm settings interface, you can configure the overspeed warning parameters. This means that a warning will be triggered if the vehicle's current speed is below the speed limit by a certain threshold, and an overspeed alarm will be triggered once the vehicle exceeds the speed limit. The warning and alarm have different voice notifications. Other configuration methods are the same as those for digital input alarms.Currently,

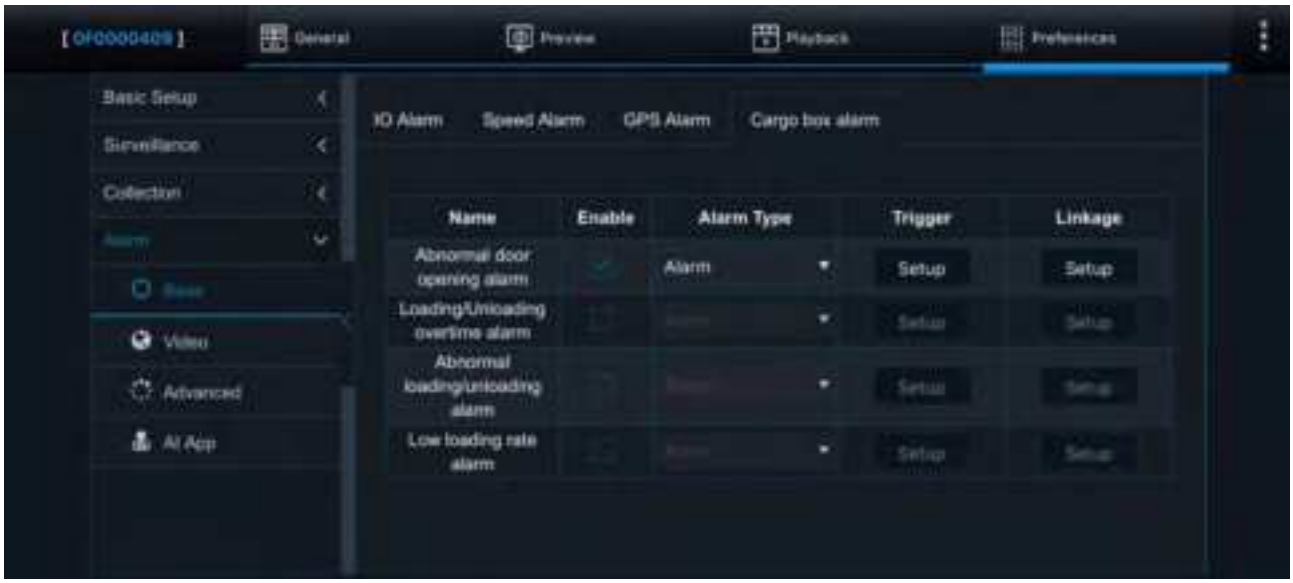
the Z5 model does not support voice or external voice devices.



- GPS alarm: This alarm is generated when the GPS signal is lost . The setting method is the same as the IO alarm.



- Cargo box alarm：Cargo box alarm settings，including Abnormal door opening alarm、Loading/Unloading overtime alarm、Abnormal loading/unloading alarm、Low loading rate alarm。



1. 【Abnormal door opening alarm】：

The abnormal door opening alarm, when enabled, triggers a corresponding alarm if the door is opened while the vehicle is in motion or if the vehicle starts moving while the door is open.

【Enable】：Enable abnormal door opening alarms by checking this option.

The trigger condition settings are as follows:

【Duration Time】：The threshold for detecting the duration of the abnormal door opening alarm. Setting it to 0 means that the alarm will trigger as soon as the door is detected as open, without considering the duration of the door being open.

【Effective Time】：The duration of the alarm.

2. 【Loading/Unloading overtime alarm】：

The loading and unloading timeout alarm. When enabled, if the loading duration exceeds the set loading timeout threshold, a loading timeout alarm will be triggered. Similarly, if the unloading duration exceeds the set unloading timeout threshold, an unloading timeout alarm will be triggered.

【Enable】：After selecting, activate the abnormal door opening alarm。

The trigger condition settings are as follows:

【Loading overtime】：The threshold duration for the loading timeout alarm.

【Unloading overtime】：The threshold duration for the unloading timeout alarm.

【Effective Time】：The duration of the alarm.

3. 【Abnormal loading/unloading alarm】：

Abnormal loading and unloading alarm. When enabled, If the loading rate value does not change for a period of time exceeding the set threshold during a single loading or unloading, an abnormal loading or unloading alarm will be triggered.

【Enable】：After selecting, activate the abnormal door opening alarm。

The trigger condition settings are as follows:

【Loading rate remains unchanged】：The threshold duration for the abnormal loading or unloading alarm.

【Effective Time】：The duration of the alarm.

4. 【Low loading rate alarm】：

Low loading rate alarm. When enabled, if the loading rate of the cargo box is less than the set loading rate threshold after a single loading is completed, a low loading rate alarm will be generated.

The trigger condition settings are as follows:

【Loading rate】： Low loading rate alarm threshold.

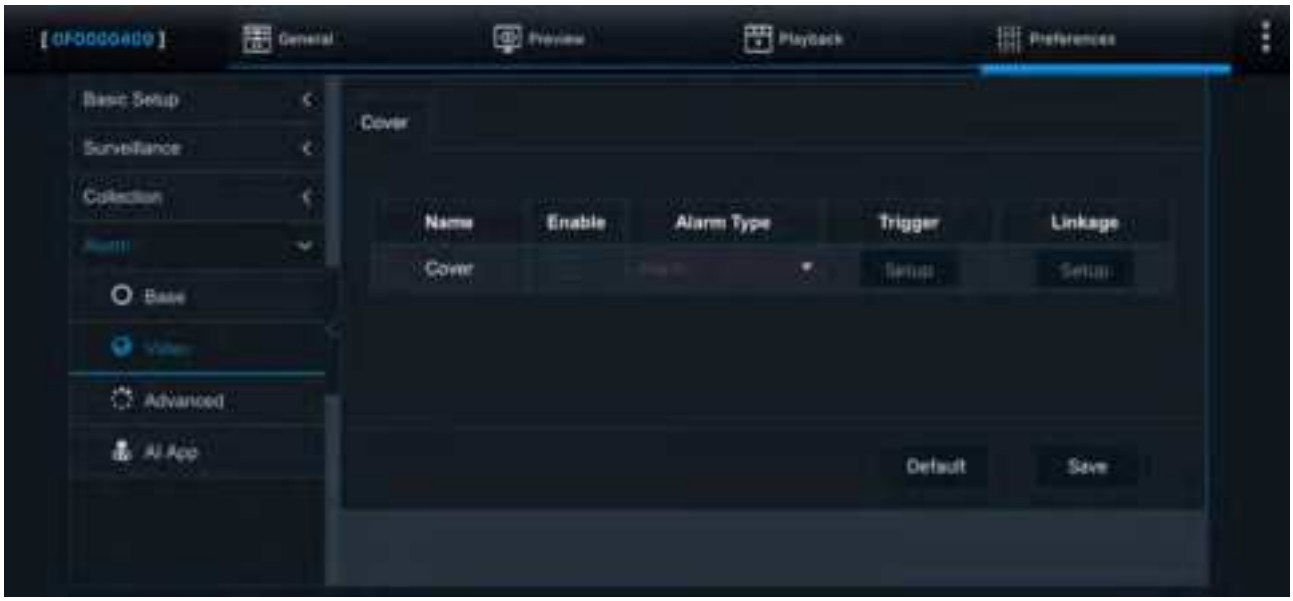
【Effective Time】：The duration of the alarm.

4.9.2 Video Alarm

- Camera obstruction

In the camera obstruction settings interface, you can configure the camera obstruction alarm parameters.

Click [Preferences] > [Alarm] > [Video] > [Cover] to enter the following interface:



Click the alarm trigger setting interface, as shown below. You can set the camera obstruction alarm channel as well as the alarm sensitivity, duration, valid time, and speed threshold. AI channels use algorithm detection. Non-AI channels use host judgment.Non-AI channels use host judgment. The linkage settings are the same as IO alarms.

4.9.3 Advanced Alarm

In this interface, you can set the G-Sensor alarm and the geofencing alarm. Click [Preferences] > [Alarm] > [Advanced]. As shown in the following interface:

- Driving behavior alarm interface: Among them,

1. ACCEL2 indicates the name of the driving behavior alarm algorithm.Checking it indicated that this algorithm is enabled.
2. Alarm Type indicates the type of event triggered by aggressive driving behavior.
3. Trigger indicates the driving behavior alarm triggering condition:harsh braking, rapid acceleration, and sharp turns, as shown in the image below:

【Shock】： Refers to collision detection, using G-Sensor to determine whether the vehicle has collided. The collision detection threshold can be set here.

Note：In ACCEL2 Trigger, the offset values for Harsh Braking, Hard Acceleration, Harsh Left Turn,

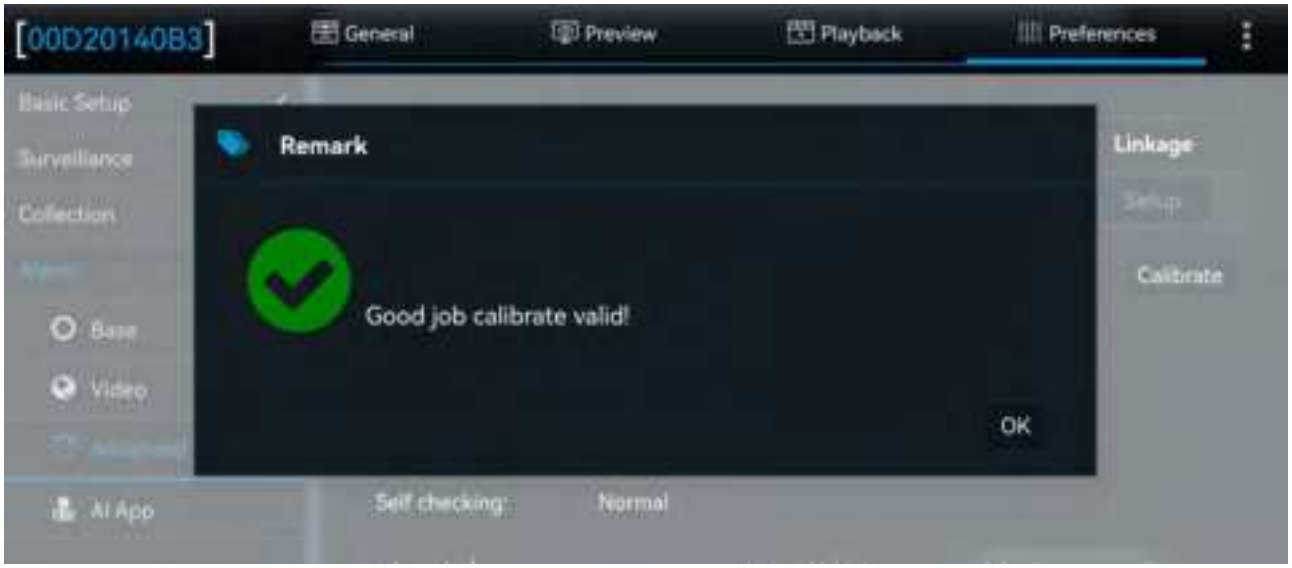
and Harsh Right Turn are determined by complex formulas. The overall setting logic is based on the vehicle's tonnage recommendation. If the alarm is triggered too easily, the offset value should be increased; if it's difficult to trigger, the offset value should be decreased. The offset values for these four types of alarms are not completely linear, and a larger offset value means the driver will feel the event more significantly.

The Shock XYZ values are measured in gravitational acceleration (G). This parameter directly represents the threshold for acceleration in the XYZ directions during a collision.

4. Linkage means that when an alarm is triggered, some alarm services can be linked. The setting method is the same as that of a IO alarm:
5. Supports automatic calibration and manual calibration of G-sensor.

- Manual calibration:

After manual calibration and saving, if the XYZ values are detected as (0, 0, 1), it is considered a successful calibration, and the success will be recorded in the operation log. The log will include the following information: Gsensor calibration success status, time, and real-time XYZ value data. After manual calibration is successful, the page prompt is as follows:



- Automatic calibration:

Using the original calibration logic, after the fifth calibration is completed, the deviation values of XYZ values within the non-deviation range (0,0,1) are all less than ±0.1. The successful calibration log records the following information: Gsensor calibration success status, time, and real-time XYZ value data.

When the device enters the calibration process again and completes the calibration state, it will record again.

- Calibration failure status judgment:

Manual calibration: After manual calibration is saved, it is detected that the XYZ value is not at (0, 0, 1). Since manual calibration itself forces the calibration value to be set to (0, 0, 1), the manual calibration failure status is almost 0.

Automatic calibration: Since automatic calibration is a continuous process, if the XYZ value is not within the range of (0, 0, 1) < ±0.1 after 5 consecutive calibrations, the log will record the abnormal automatic calibration status, time, and real-time XYZ value data.

6. Can display the installation angle of the device;

7. Supports 100Hz G-sensor data transparent transmission, which can be enabled or disabled.

8. Integrated Navigation: When the device is connected to the inertial navigation module and the module supports vehicle posture detection, the interface will display this enable. Since the vehicle attitude data from the inertial navigation module is more accurate than the attitude calculated by pure 3-axis/6-axis methods, this feature is used to detect events like harsh acceleration, harsh braking, sharp turns (left/right), acceleration, deceleration, turning, and vibration events. Once enabled, the device will use inertial navigation to detect these events.

- The geofencing interface allows you to select the processing strategy for entering and exiting the fence/line, which must be used with the FT Cloud platform.

4.9.4 AI alarm

Supports AI alarm parameter settings through Veyes. Click [Preferences] > [Alarm] > [AI App] to enter the AI alarm setting interface and display AI alarm related settings.

4.9.4.1 Algorithm parameters

After the device is correctly installed, go to the "Algorithm Parameters" interface. Based on the

measured length, width, and height of the vehicle's cargo box, as well as the device's installation position, set the calibration parameter values shown in the image below to the correct values and save.

Parameter Description:

a, La: cargo box length. Range 300~1800 cm, default value 1200;

b, Lb: cargo box width. Range 150~400 cm, default value 300;

c, Lc: cargo box height. Range 150~400 cm, default value 300;

d，Db: The vertical height from the device to the bottom of the cargo box. Range: 150–400 cm, default value: 260 cm.

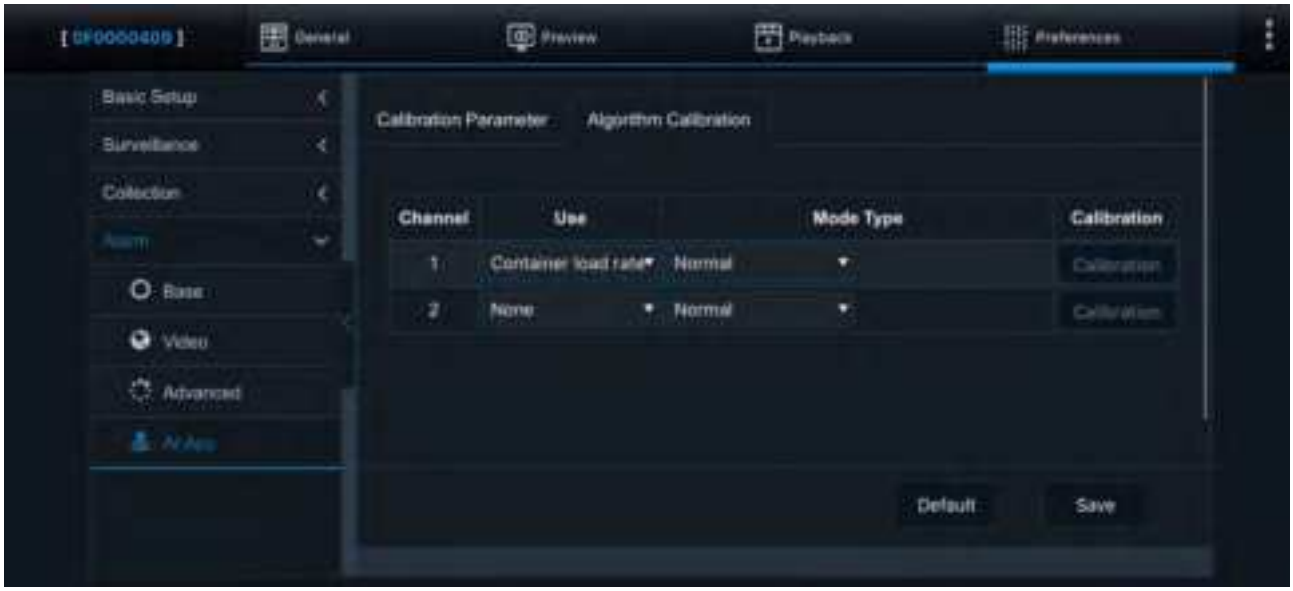
e，The horizontal distance from the device to the front of the cargo box. Range: 300–1800 cm, default value: 1100 cm.

Note：The Algorithm Parameters interface is displayed on the device's web portal, and the calibration settings can also be configured through the Veyes APP, which supports setting the algorithm parameters. Refer to Step 5 in "4.4.2 AI Calibration" for detailed instructions. Both settings are functional and effective.

4.9.4.2 Algorithm calibration

Channel 1 supports the cargo management algorithm, while Channel 2 does not support the cargo management algorithm.

Channel 1 can be set through [Mode Type] to switch between [Normal Mode] and [Calibration Mode] . After setting to [Calibration Mode] , the [Calibration] menu on the right will light up and you can click to enter. However, this is the web terminal, so normal calibration cannot be performed. You need to calibrate the algorithm through the [Preview] > [AI Calibration] entry. Refer to "4.4.2 AI Calibration " content.



FCC Warning Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the

instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

RF Exposure Statement

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance of 20cm the radiator your body. This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.