

MDC-240 User Manual



Revision History

Revision Date	Version	Revision Description	Author
2021-04-08	V1.0	First issue	Wang Xiaoyong
2021-06-17	V1.1	Modify the main device image	Wang Xiaoyong
2021-7-19	V1.2	Change the description of TF card to Micro SD card	Paul zheng
2022-3-31	V1.3	Changed some descriptions according to the new functions of MDC 240 V1.2 and V1.3.	Zhouhao/Wangxiaoyong

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1. Overview

The *MDC-240 User Manual* is intended to help users to better understand and apply the powerful functions available in the device system. Please note that only professional personnel can set the device.

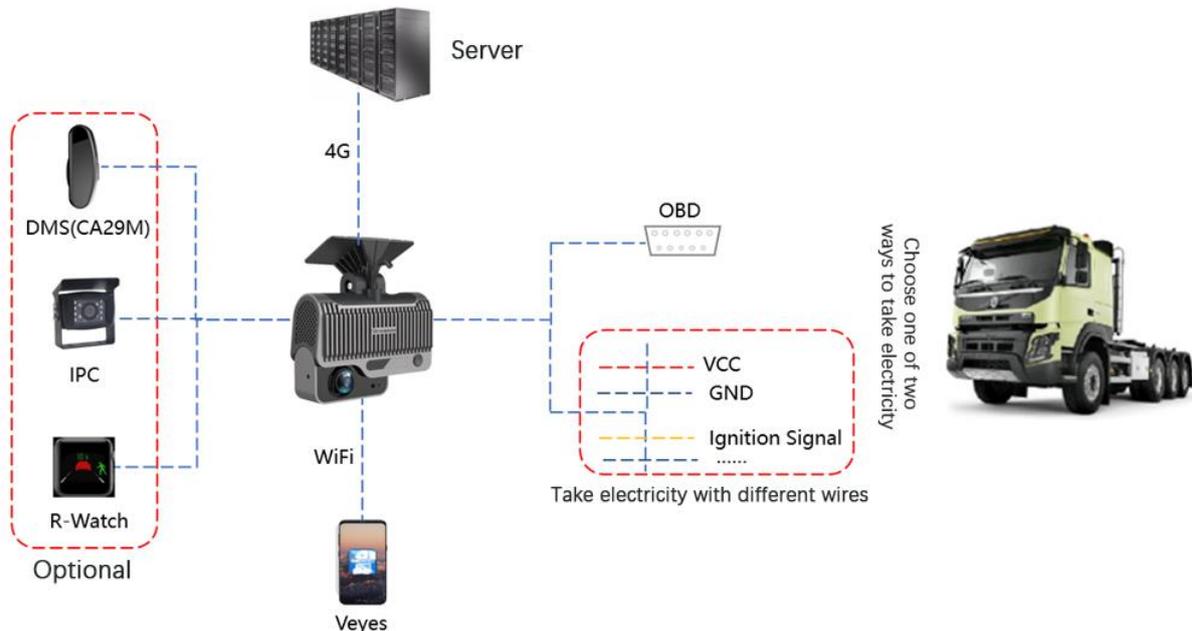
Please note that only professional O&M personnel can set the device.

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1.1. System Introduction

The MDC-240 is an intelligent device that integrates the functions of the active collision avoidance alarm system, the driver abnormal behavior alarm system, the alarm prompter and the event data recorder (EDR), and can perform intelligent algorithm analysis and processing. Employing the deep learning technology, it can effectively identify hazards such as forward collision and too short following distance, and provide alarms for the driver's abnormal behaviors, thus reducing the traffic accidents due to the driver's personal reasons.

The truck EasyCheck App or IE settings can increase its efficiency. The EasyCheck App is recommended for easy carrying and quick settings.



1.2. Function Overview

The Meriva Technology by Streamax MDC-240 is a cost-effective intelligent device specially developed for remote video surveillance and driving safety surveillance of trucks. It has the following functions and features:

1. 4-channel video, 2-channel by default (ADAS and DSC), and extended 2-channel Integrating the ADAS camera, DSC camera and MDVR
2. Uploading the alarm event and relevant video evidence to the cloud platform via a wireless network, providing real-time alarms, and preserving the onsite video evidence to facilitate evidence collection and truth restoration

3. Front 5MP ADAS camera, with an ultra-wide viewing angle, to provide 110° surveillance and 70 m vehicle detection
4. 1080p cockpit lens to provide HD surveillance of the whole cockpit
5. Integrating 3G/4G, Wi-Fi, Bluetooth, G-Sensor, and other modules to provide various functions
6. Adopting the GPS positioning technology to record the vehicle track in real time for background analysis
7. 2 × Micro SD card for video storage, with the maximum capacity of a single card up to 256 GB
8. Remote monitoring and IP voice intercom

2. Instructions for Use of Functions

2.1. Software Download and Installation

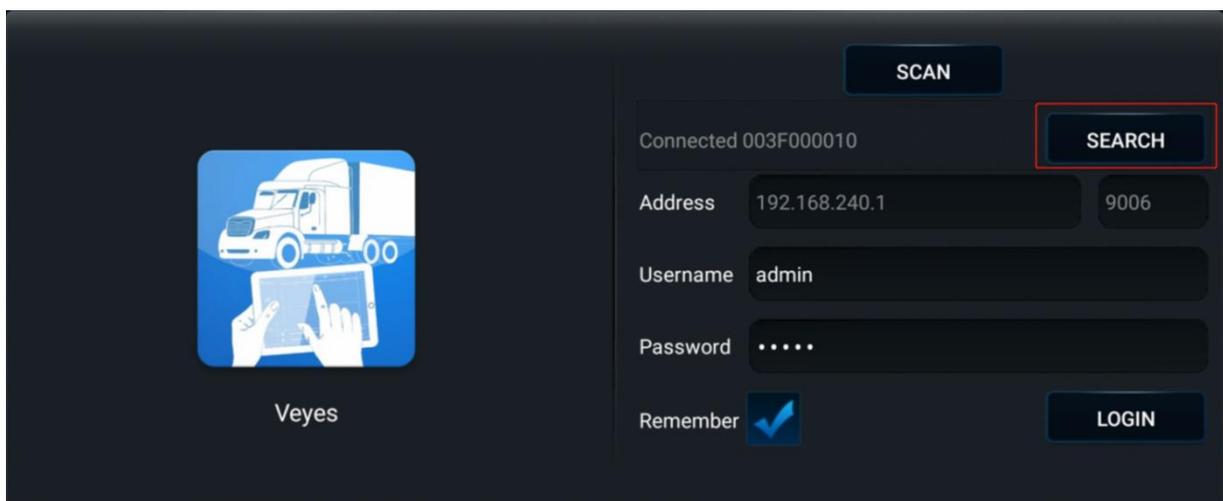
For Android phone users, please search for "Veyes" in Google Play, and for iPhone users, please search for "Veyes" in Apple Store. Install the downloaded software.

2.2. Login/Logout

Turn on Wi-Fi and GPS on your mobile phone before connecting the device with the truck EasyCheck app.

After the MDC-240 device is powered on, it will remain in AP mode within 2 minutes. Then, run the truck EasyCheck app on your mobile phone and tap **SEARCH**. The screen listing the Wi-Fi hotspots found is displayed. During the first login, the Wi-Fi hotspot is named after the encrypted chip number of the MDC 240. If the license plate number is changed, the hotspot name is the new license plate number. Search for a Wi-Fi hotspot named after the encrypted MDC 240 chip number or the license plate number you have entered. The login screen is displayed.

On the login screen, enter the corresponding username and password. Default username/password: **admin/admin**.

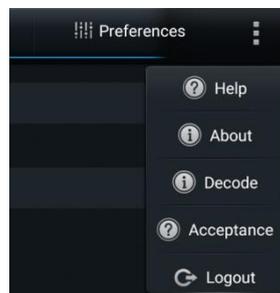




Tap **LOGIN**. The operation screen is displayed, as shown in the figure below.

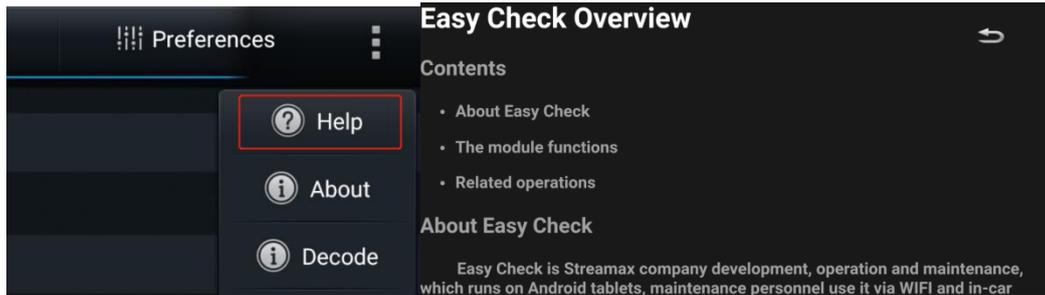


Tap  on the upper right corner. The menu including Help, About, and Logout is displayed.

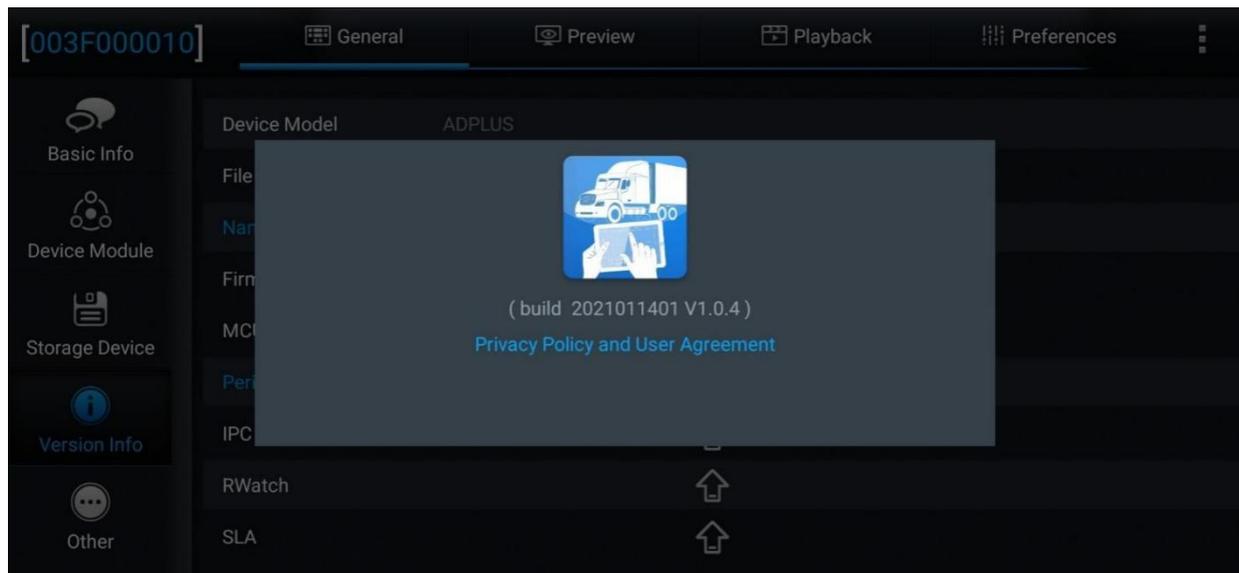


Tap **Logout** to log out of the connected device.

Tap **Help** to view the help document of the truck EasyCheck app, as shown in the figure below.



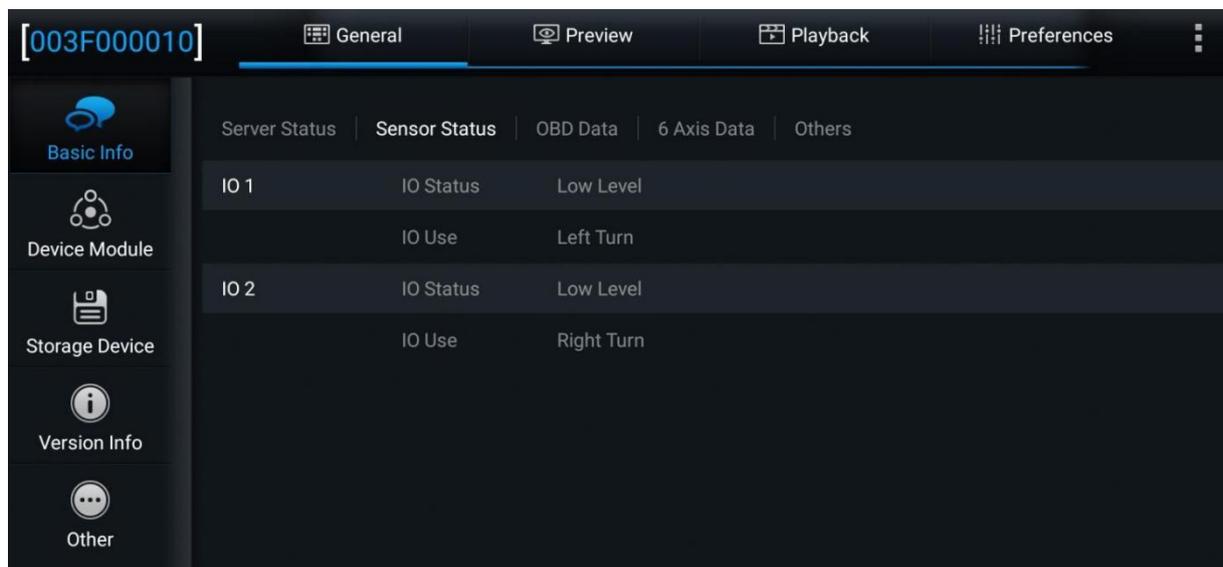
Tap **About** to view the version information of the truck EasyCheck app on your mobile phone.



2.3. General

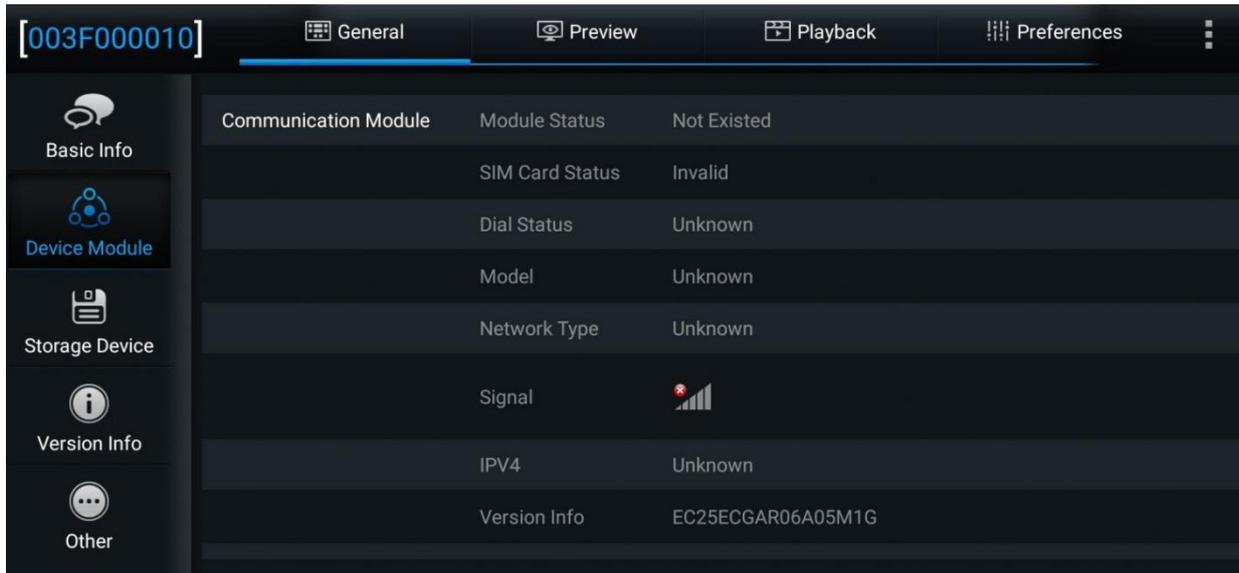
On the **General** screen, you can view the real-time status of the device, import/export parameters, logs, and other files, and upgrade the software.

- **Basic Info:** shows the server connection status, IO level status and use, OBD data, G-Sensor data, ACC status, pulse status, and device status.



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

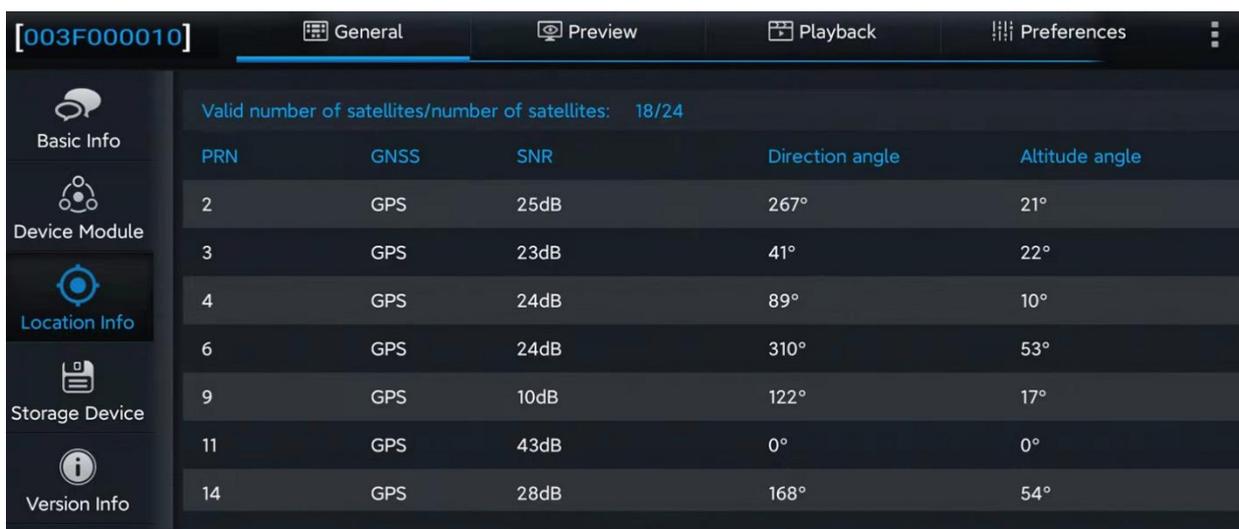
modules of the device.



[003F000010]				
	General	Preview	Playback	Preferences
Basic Info	Communication Module	Module Status	Not Existed	
		SIM Card Status	Invalid	
		Dial Status	Unknown	
		Model	Unknown	
		Network Type	Unknown	
		Signal		
		IPV4	Unknown	
		Version Info	EC25ECGAR06A05M1G	

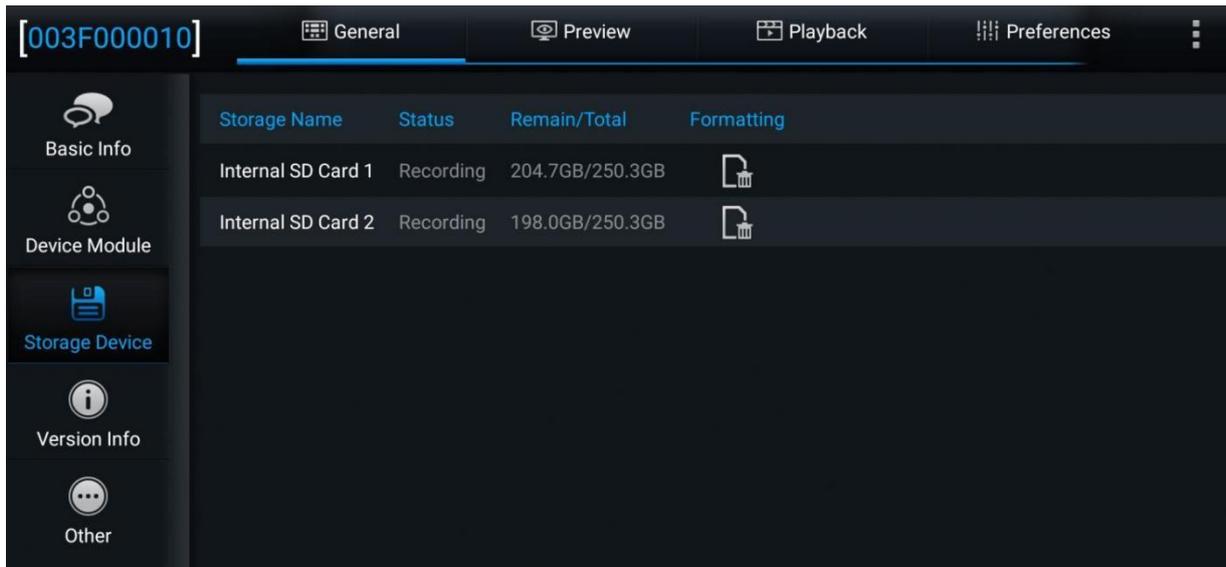
- Positioning information: it is used to check the satellite positioning signal quality of the device, and help the installation, operation and maintenance personnel to evaluate the positioning capability and quality of the device, so as to perform corresponding maintenance actions. On this screen, the 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. Direction angle represents the satellite azimuth angle, and Altitude angle represents the satellite altitude angle.

This screen is displayed only when the GPS raw data record command is opened. For the specific operation method, please see Section 2.8.1 "Location".

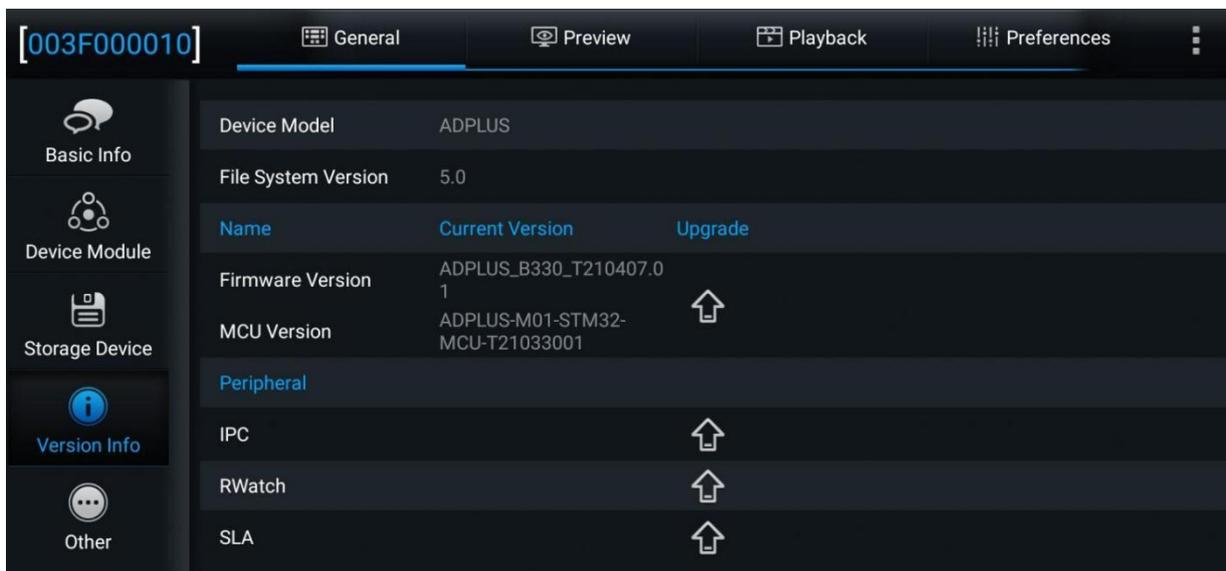


[003F000010]						
	General	Preview	Playback	Preferences		
Basic Info	Valid number of satellites/number of satellites: 18/24					
		PRN	GNSS	SNR	Direction angle	Altitude angle
		2	GPS	25dB	267°	21°
		3	GPS	23dB	41°	22°
		4	GPS	24dB	89°	10°
		6	GPS	24dB	310°	53°
		9	GPS	10dB	122°	17°
		11	GPS	43dB	0°	0°
		14	GPS	28dB	168°	54°

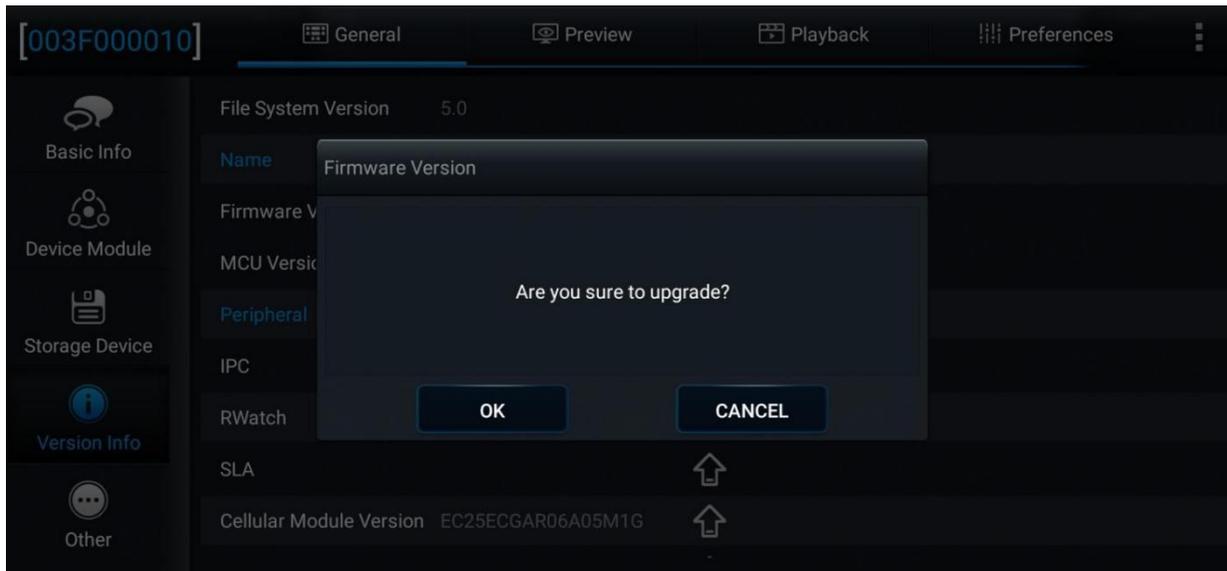
Storage Device: shows the information of the built-in and external storage devices of the device and allows formatting them. For the built-in memory, a prompt will be displayed after you tap the icon in the **Formatting** column, for you to confirm the formatting operation.



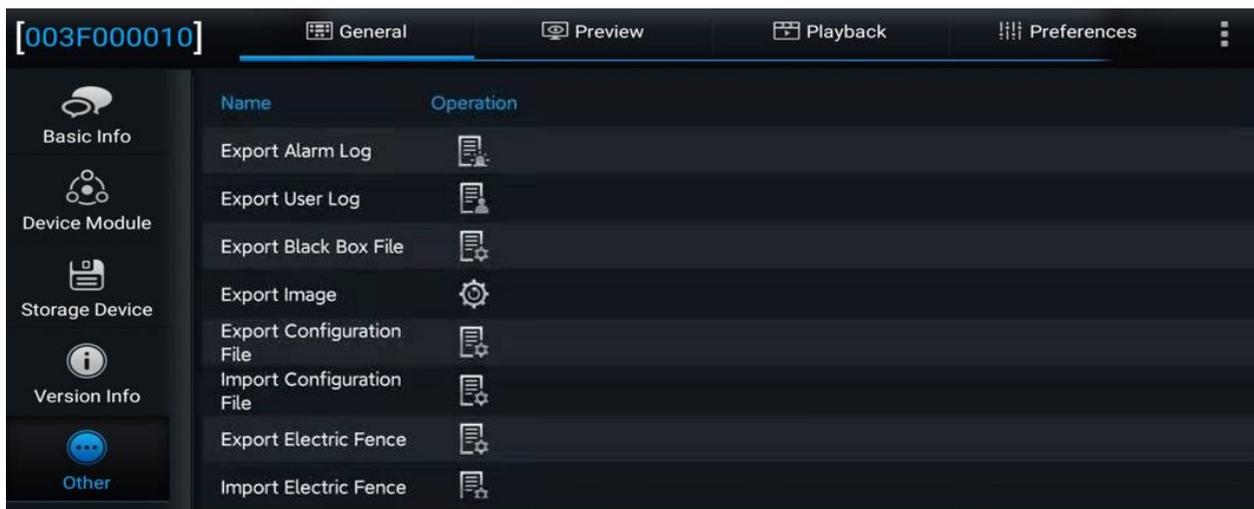
- **Version Info:** shows the software version information.



- On the **Version Info** screen, you can locally upgrade the version of the MDVR, IPC, R-Watch, communication module, GPS, or power box. A USB adapter cable is required to connect to a USB flash drive or the EasyCheck App with the SD card for the upgrade. To upgrade the required item, tap . In the displayed confirmation prompt box, tap **OK**.



- **Other:** allows importing/exporting O&M logs, restoring default settings, and rebooting the device. A USB adapter cable is required to connect to a USB flash drive or the EasyCheck app with the SD card for data import/export operations.



- ✧ **It allows logging in to the device via the EasyCheck app to perform the following operations:**
 1. Export alarm logs, user logs and black box files
 2. Export alarm capture images of the selected time period
 3. Import/Export the Geo-fence information
 4. Import/Export the AI configuration file
 5. Restore default settings
 6. Export print data within a specified time period
 7. Reboot the device
 8. Import and clear the encryption key
- ✧ **It allows logging in to the device via the IE browser to perform the preceding operations.**

2.4. Preview

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

2.4.1 Viewing Real-Time Recording

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.

2.4.2 AI Calibration

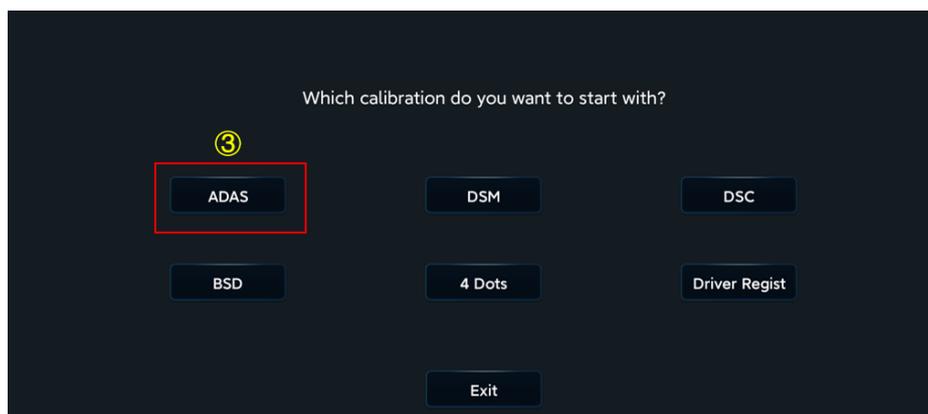
ADAS automatic calibration is supported by MDC 240. After the **ADAS lens installation height, left margin, front end width, and front end length are entered, the equipment will be calibrated automatically.** For detailed setting screen, refer to **Section 2.9.5.** Here, the traditional method of ADAS algorithm calibration **from the preview interface** and the calibration method of the external DMS camera lens (optional) are introduced.

2.4.2.1 ADAS Calibration

- ① On the home screen, tap **Preview**. The **Preview** screen is displayed.
- ② Tap **AI Calibration** on the lower left corner.



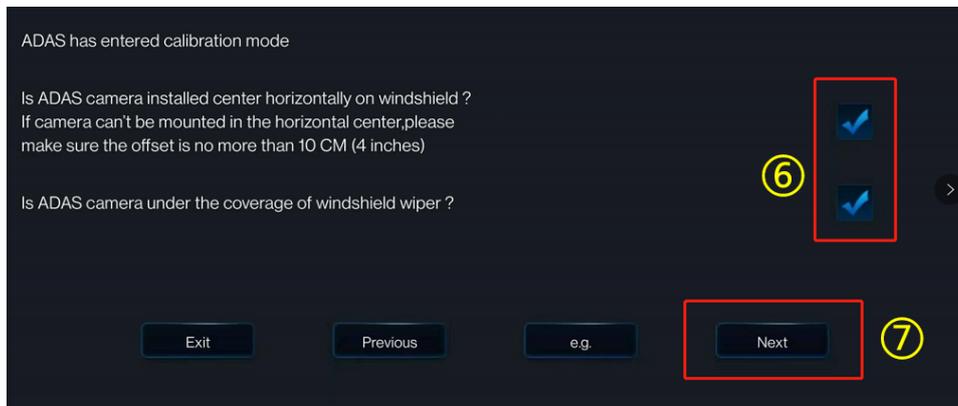
- ③ Tap **ADAS** for calibration.
- ④ Tap channel **1**.
- ⑤ Tap **Calibration**.





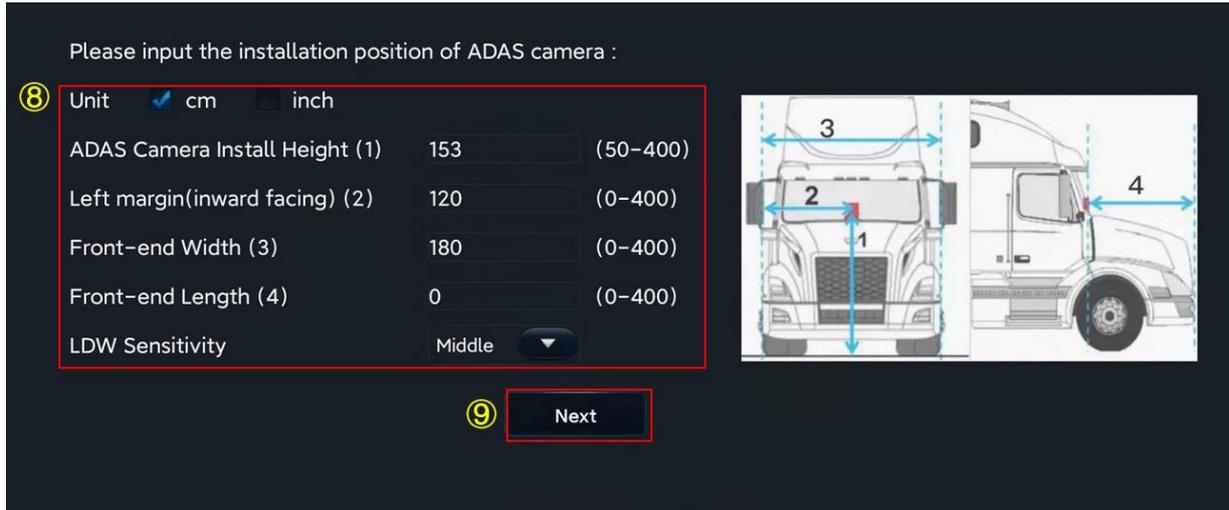
⑥ Select the two check boxes.

⑦ Tap **Next**.

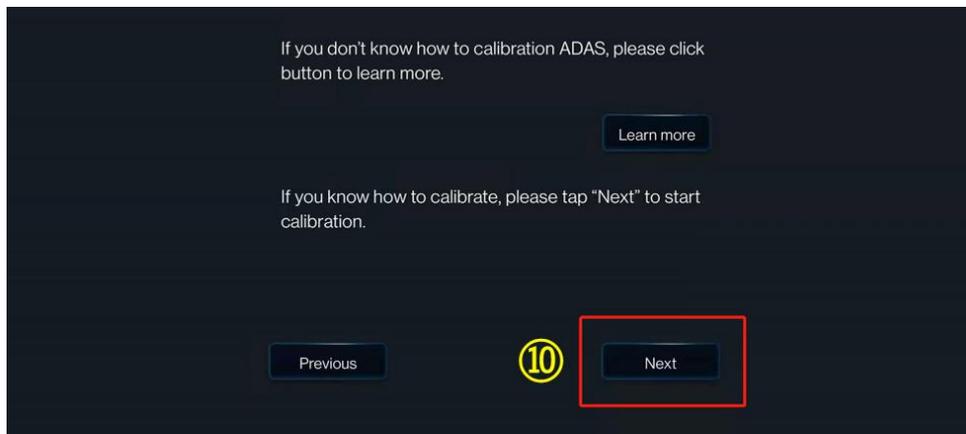


⑧ Enter the vertical height of the front-facing camera from the ground, the horizontal distance between the front-facing camera and the outer edge of the leftmost tire of the vehicle (on the left side of someone standing on the outside of the vehicle and facing the front end), and the width and length of the front end (in centimeter or inch; referring to the example on the right for the size measurement, with each parameter serial number corresponding to each legend serial number). In addition, this step is added with the setting of the lane departure alarm sensitivity, and the installation personnel can select the appropriate sensitivity according to the vehicle model during installation, so as to realize more accurate alarms. The lane departure sensitivity is optional for low, medium, and high. And the default sensitivity is medium.

⑨ Tap **Next**.



⑩ Tap **Next** (tap **Learn more** to learn how to calibrate the ADAS camera).

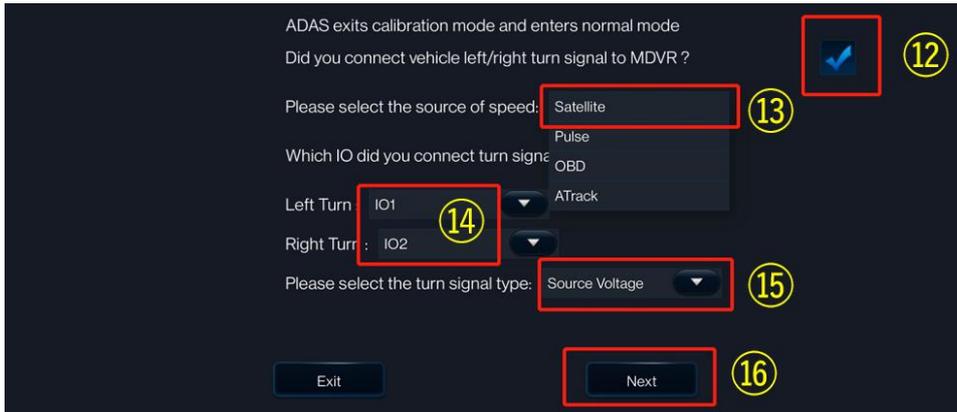


⑪ Tap **Next**.

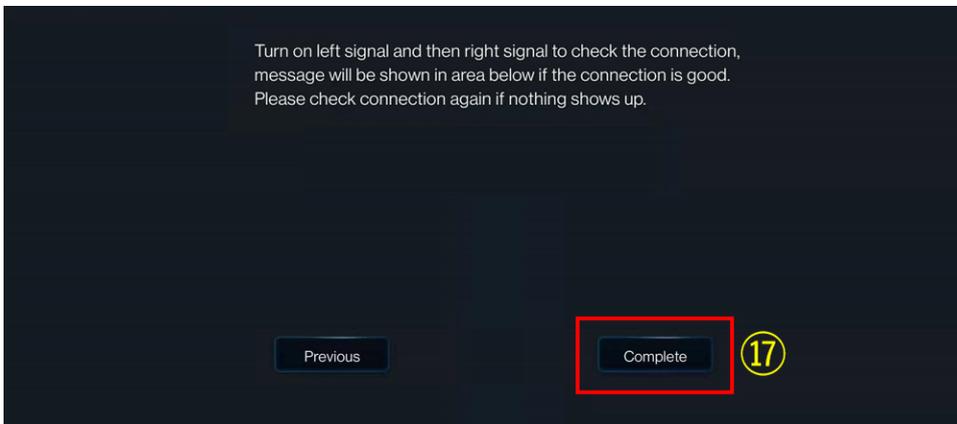


- ⑫ Select the check box.
- ⑬ Tap the required source of speed from **Satellite, Pulse, OBD, and ATrack**.
- ⑭ Select the required IO for the left/right turn signal in **Left Turn/Right Turn** respectively.
- ⑮ Tap the required signal source type from **Source Voltage** and **Source Pulse**. Usually, **Source Pulse** is selected.

⑩ Tap **Next**.



⑪ After checking that the left and right signal cables are properly connected, tap **Complete**. The calibration of the ADAS camera is completed.

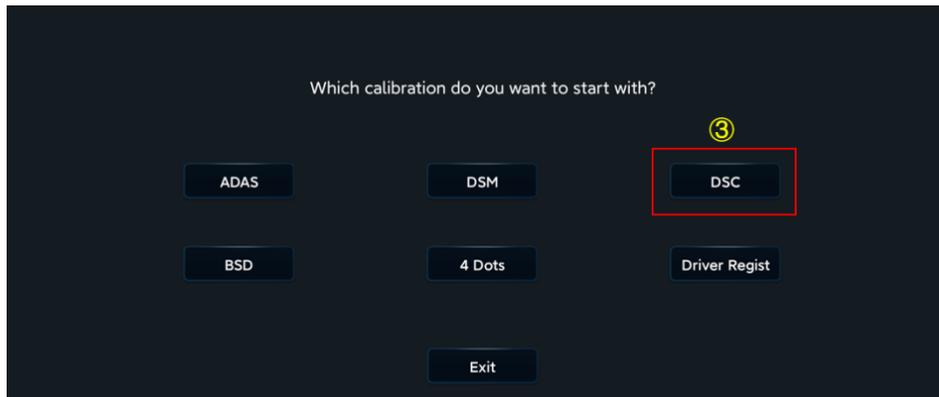


2.4.2.2 DSC Calibration

- ① On the home screen, tap **Preview**. The **Preview** screen is displayed
- ② Tap **AI Calibration** on the lower-left corner



- ③ Tap **DSC** for calibration
- ④ Tap channel 2
- ⑤ Tap **Calibration**

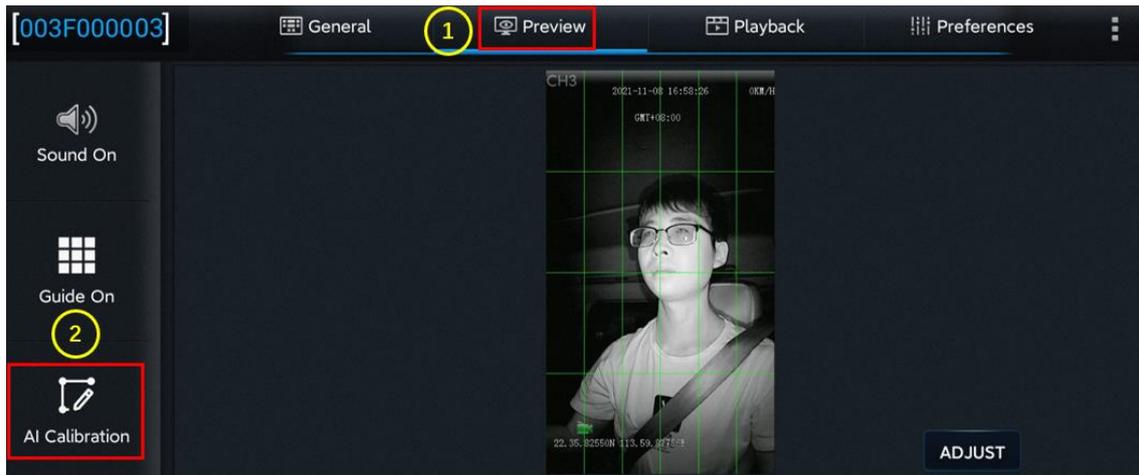


- ⑥ Select left-hand drive or right-hand drive for the steering wheel (left-hand drive indicates that the steering wheel is on the left of the cockpit when the driver is seated in the cockpit and facing toward the front direction; right-hand drive indicates that the steering wheel is on the right of the cockpit when the driver is seated in the cockpit and facing toward the front direction)
- ⑦ Tap **Save** to save the operation. The DSC calibration is complete
- ⑧ Tap **Exit** to exit the DSC calibration.

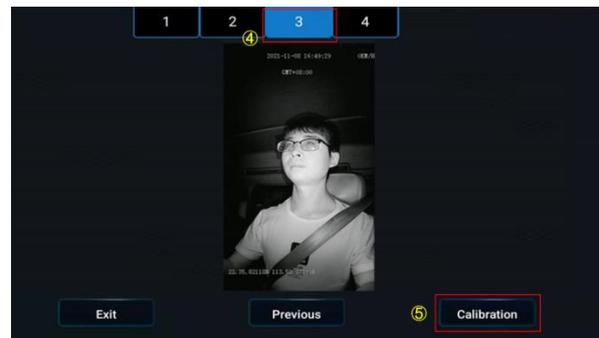
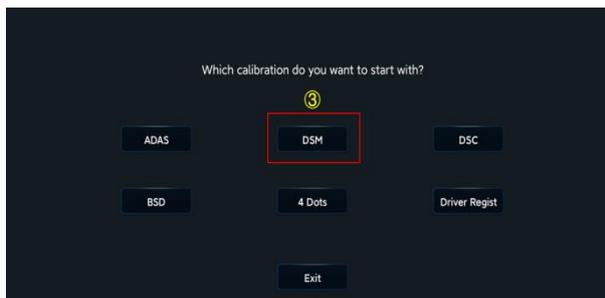


2.4.2.3 DMS Calibration (Optional)

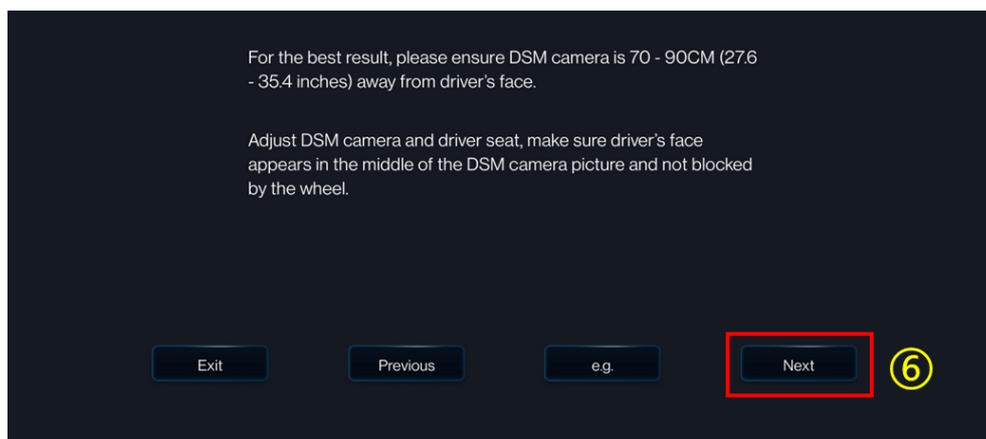
1. Click **Preview** on the homepage to enter the Preview screen
2. Click **AI Calibration** for calibration



3. Click **DMS** for calibration
4. Choose the channel corresponding to the DMS camera
5. Click **Calibration** for the next step



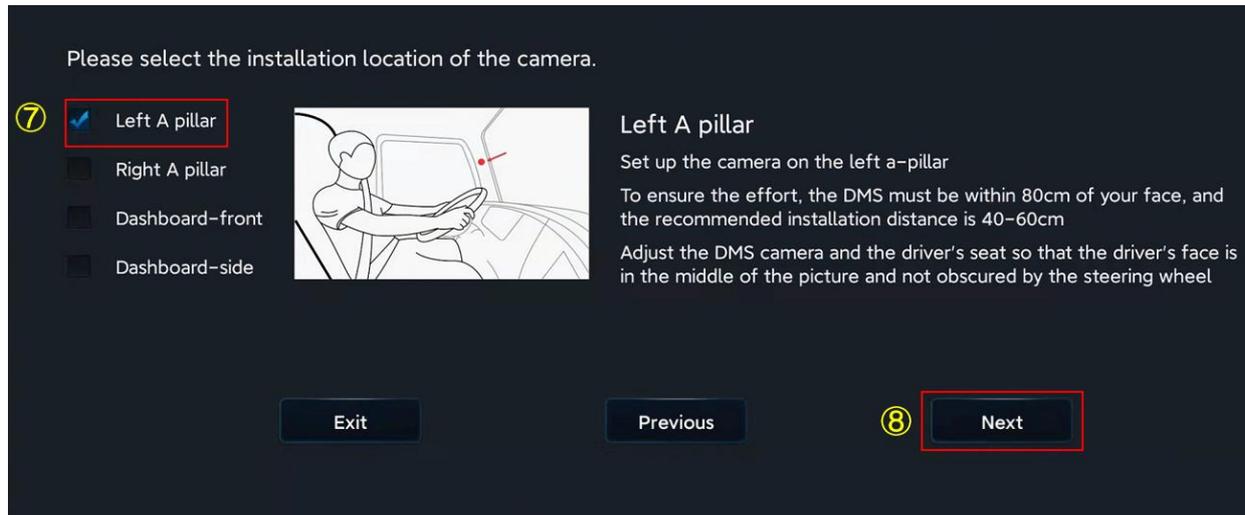
6. Confirm the prompt--Click **Next** for the next step



7. For the installation location of the DMS camera, the left A-pillar, the right A-pillar, the front side of the countertop, and the lateral side of the countertop are available. If you have any questions, please click each option in turn, and refer to the legend and description on the right.

After selecting the corresponding installation method, the software automatically associates the calibration method with the installation method, not requiring any manual operation (for installation on the left A-pillar, the right A-pillar, and the lateral side of the countertop, the lateral side calibration is applied, and for the installation on the front side of the countertop, the front side calibration is applied).

(This step is very important, and the selected installation method must be consistent with the actual installation method)



***Note:**

Before clicking **Next** to start formal calibration, the driver shall sit in the normal driving posture and look straight ahead.

8. Click **Next** to move on to the next step for automatic face calibration.

During calibration, make sure that the driver sits still according to normal driving habits and posture and looks straight ahead.

In the process of side calibration, the intelligent algorithm will automatically learn the driver's head deflection angle and the positions of feature data of the driver's face. If the driver moves his head during the calibration, the calibration will restart automatically.

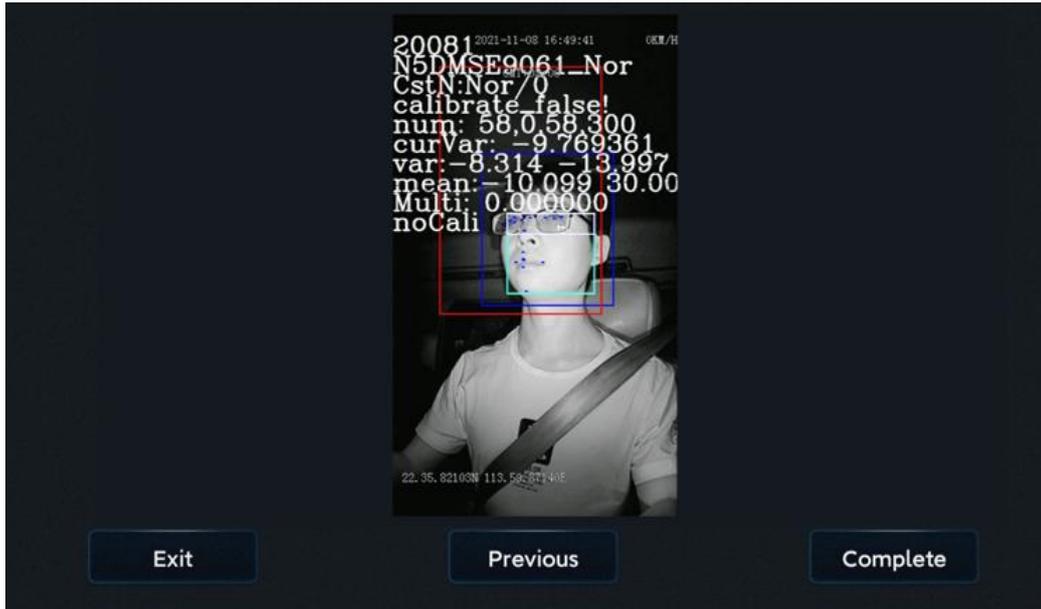
***Note:**

For installation on the left A-pillar, the right A-pillar, and the lateral side of the countertop, the human face and the camera must form a certain angle to complete the calibration.

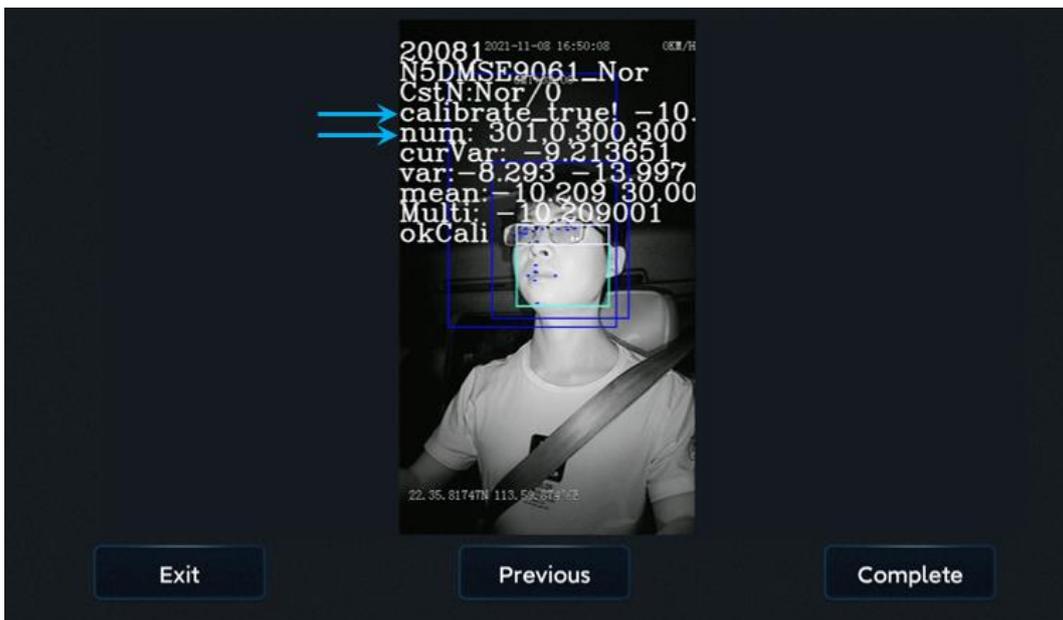
For installation on the front side of the countertop, the human face must be in front of the camera to complete the calibration.

The driver sits still and waits for the equipment to be calibrated automatically. When the value of NUM reaches 301 in the mode of side installation and side calibration (51 in the mode of front installation and front calibration), the calibration frame turns from red to blue, and then the automatic calibration ends.

Calibration is ongoing:



Calibration completed

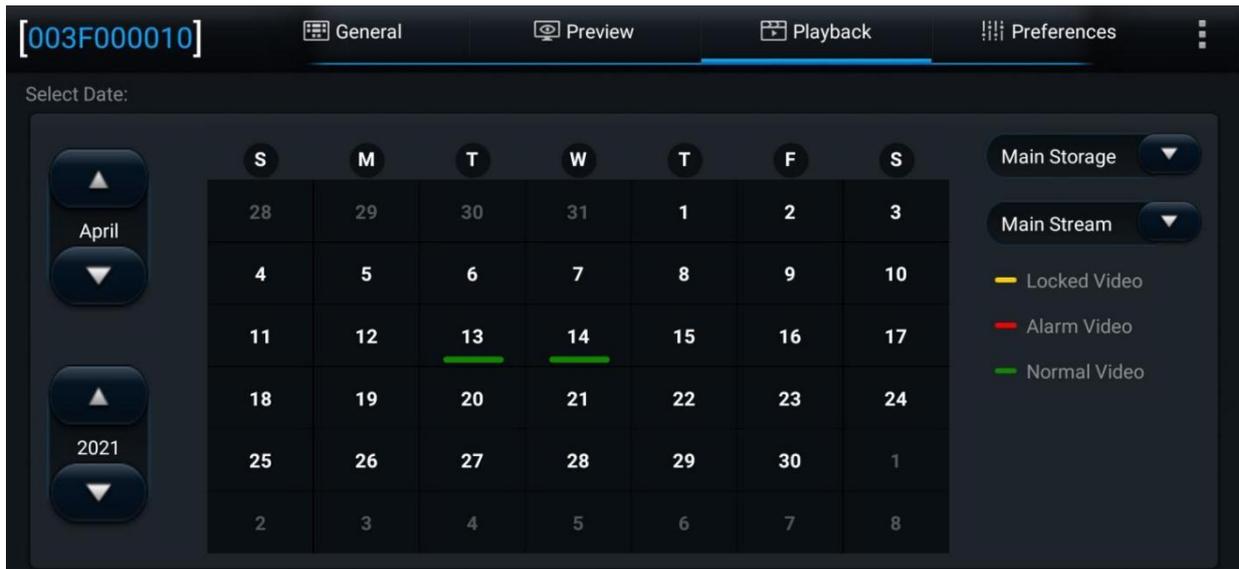


Click **OK** to complete the calibration and exit the calibration mode.

2.5. Playback

2.5.1. Video Playback

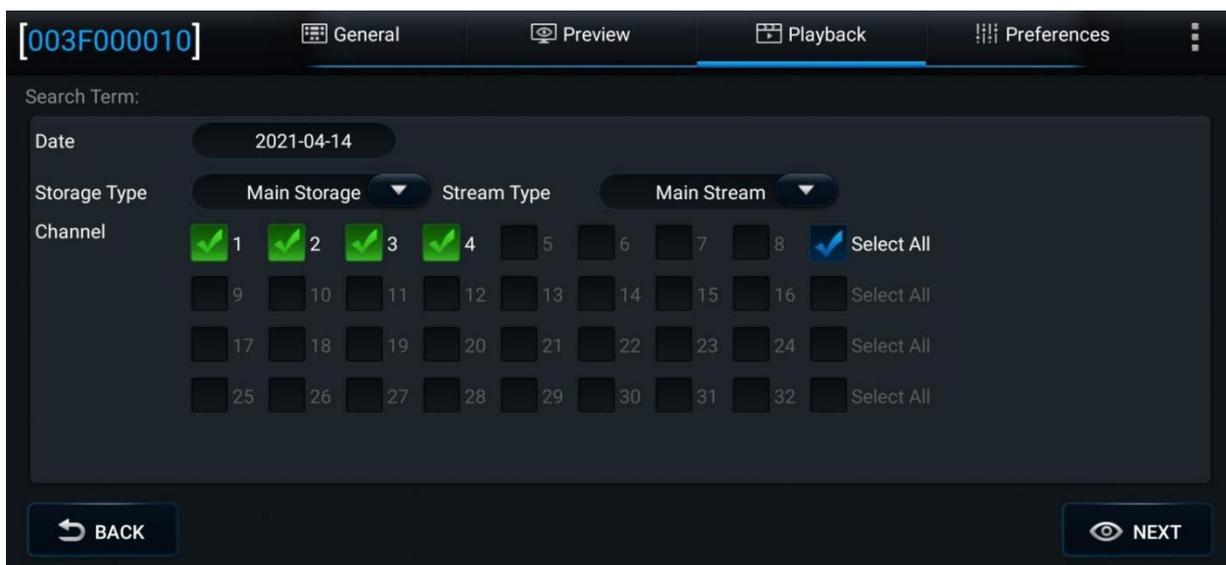
On the **Playback** screen, you can search for the main-stream video/sub-stream video in the main storage/sub-storage on a certain date.



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 colored 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 and file automatically locked (videos locked)

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:

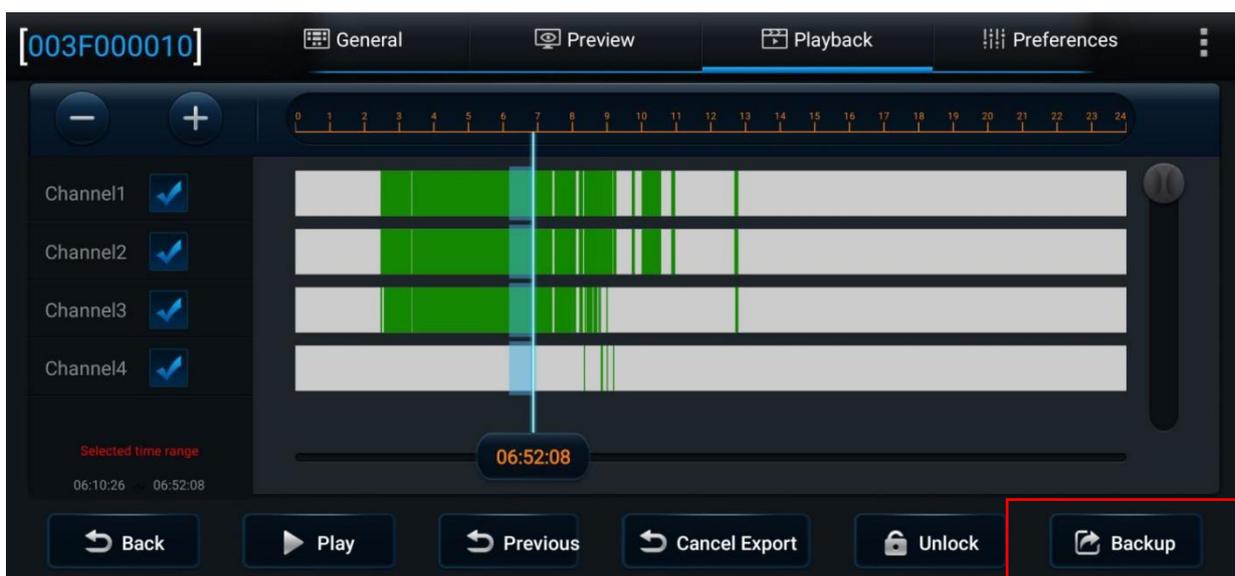
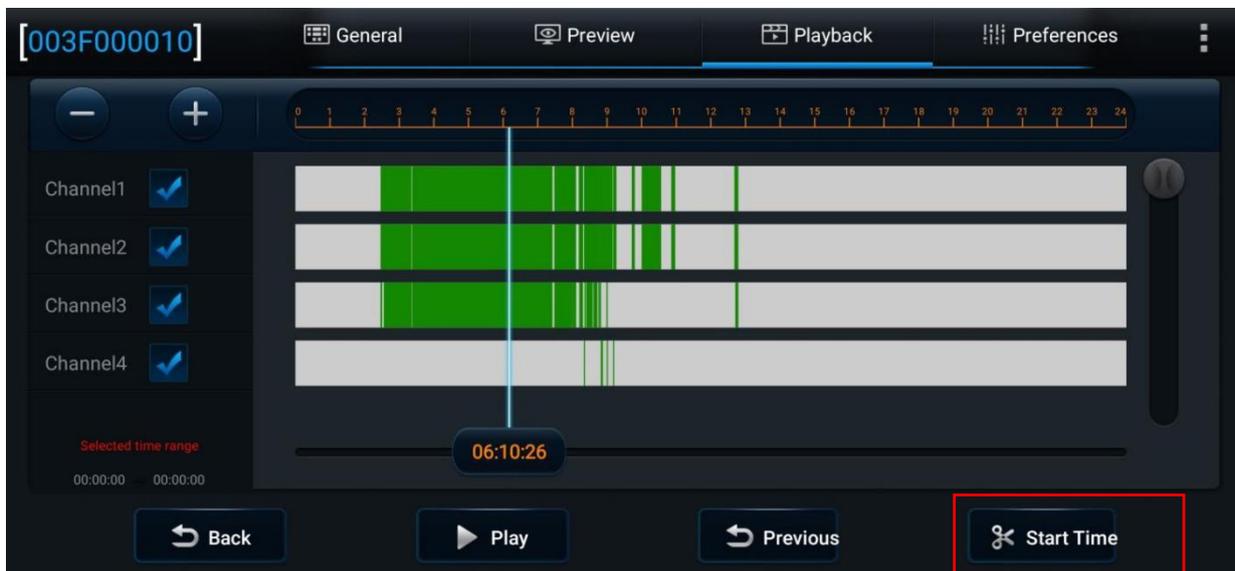
- 1) The timeline at the top displays time at an interval of 1 hour.
- 2) You can drag the  to any position in the timeline below.
- 3) Tap  on the upper left corner of the screen to reduce the time interval and tap  to enlarge the time interval. This function allows you to quickly locate a certain time period 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 playback or export the videos in the channel(s) at the selected time.



2.5.2. Video Export

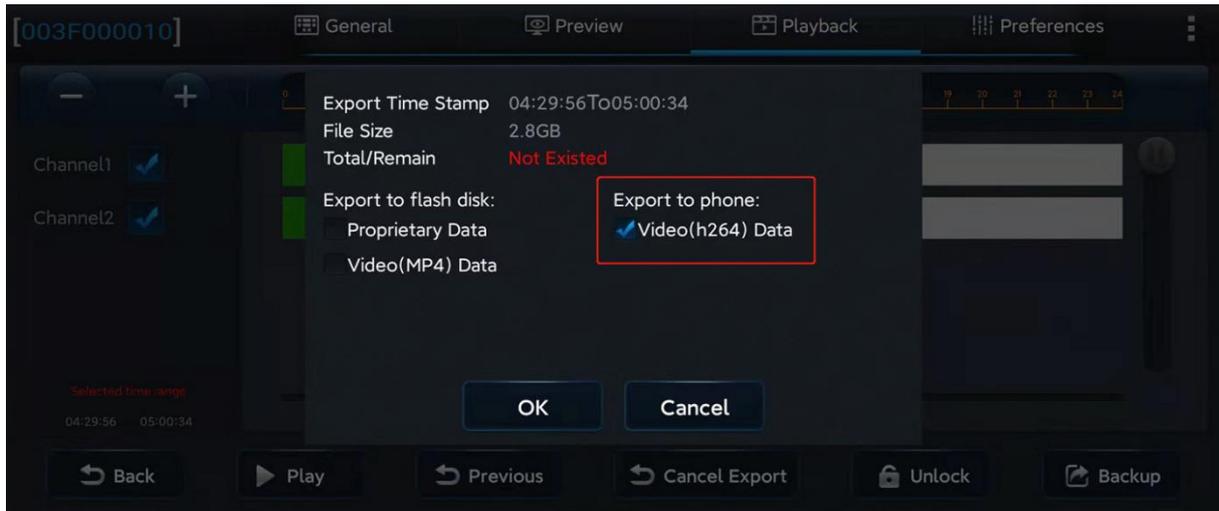
You can also export the video of the selected time period.

Tap **Video Export** at the bottom of the **Playback** screen and select the start time and end time. To export the video, tap **Backup**; to lock the video of the selected time period, tap **Unlock**.



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

share the video.

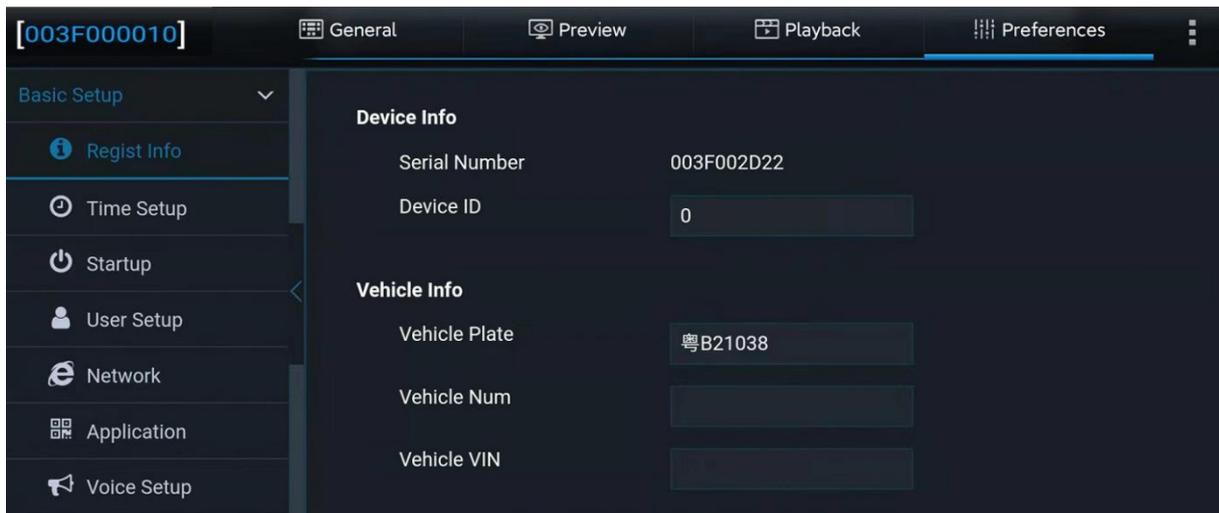


2.6. Basic Setup

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

2.6.1. 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.

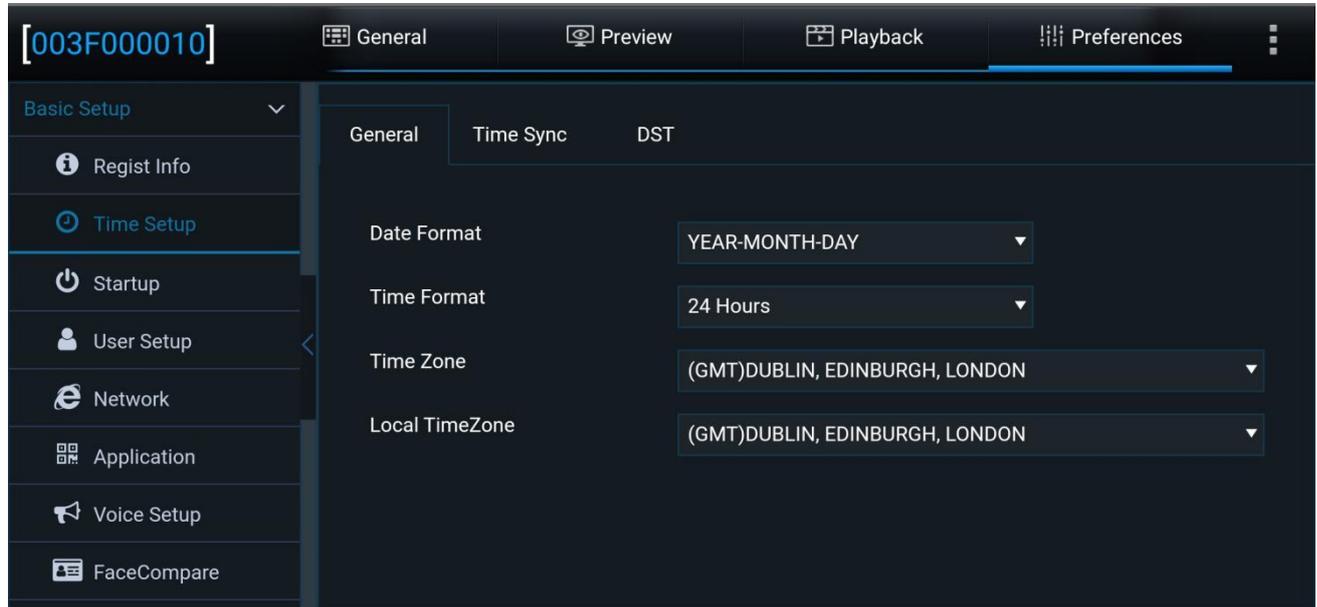


2.6.2. Time Setup

General: allows you to set the format of the time display and the time zone in which it is located.

1. **Date Format:** can be set to **YEAR-MONTH-DAY**, **MONTH-DAY-YEAR**, or **DAY-MONTH-YEAR**. It is reflected only in the live view and recording OSD.
2. **Time Format:** can be set to **24 Hours** or **12 Hours**. It is reflected only on the live view screen and in recording OSD.

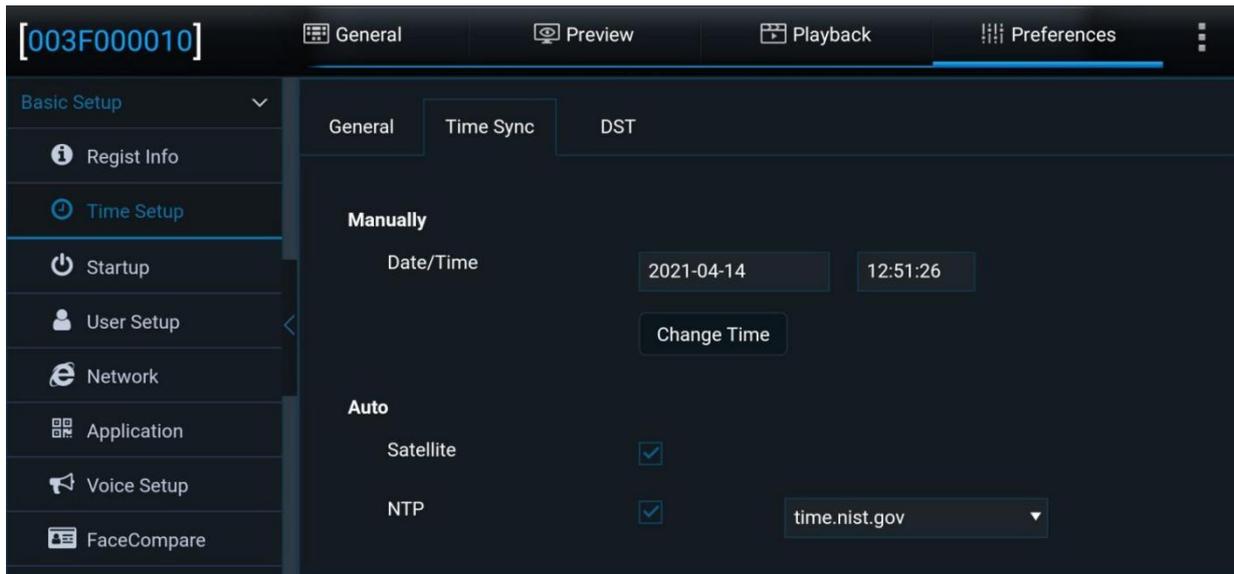
3. **Time Zone:** allows you to select the required time zone.
4. **Local TimeZone:** allows you to choose the local time zone (Local TimeZone is available only when Time Zone is set to UTC+0)



- **Time Sync:**

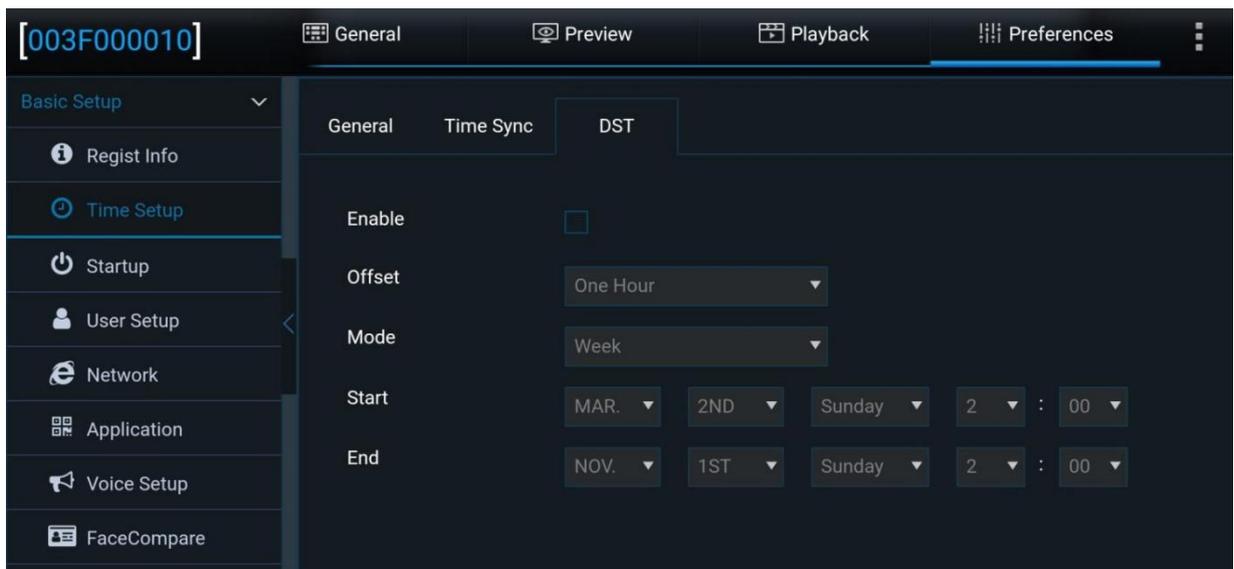
The time will be synchronized automatically when there is a deviation between the system time and the actual time. In the automatic time synchronization settings, you can enter the date and time manually, or set the time synchronization method.

1. Tap **Change Time** to modify 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:**

For some regions, you need to set the DST due to the time zone reason. Specifically, you can set the start & end time, and offset in weeks or days. Tap **Preferences > Basic Setup > Time Setup > DST**, as shown in the following figure:

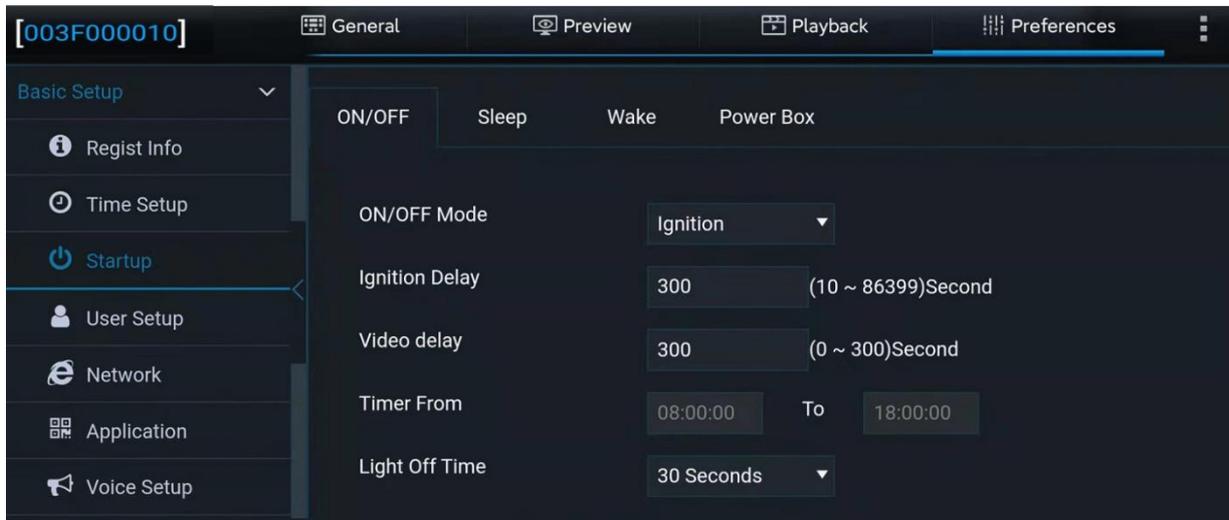


1. **Enable:** allows you to enable or disable the DST function. It is disabled by default.
2. **Offset:** can be set to **One Hour** or **Two Hours**.
3. **Mode:** can be set to **Week** or **Date**.
4. **Week:** allows you to set **Start** and **End** of the DST by setting the month, Nth day of the 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.

2.6.3. ON/OFF

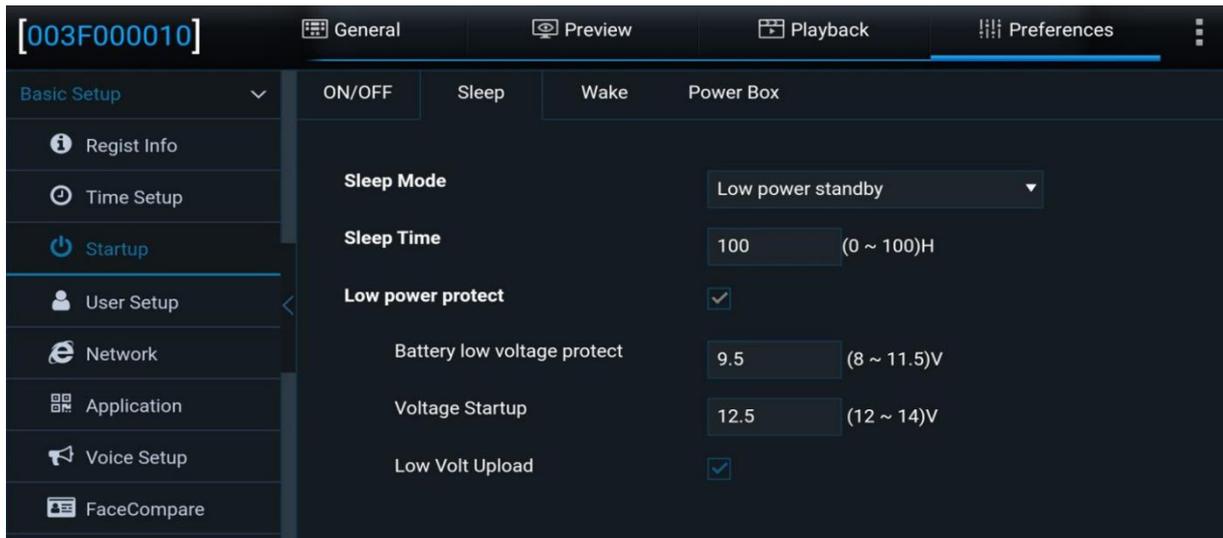
- **ON/OFF**

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



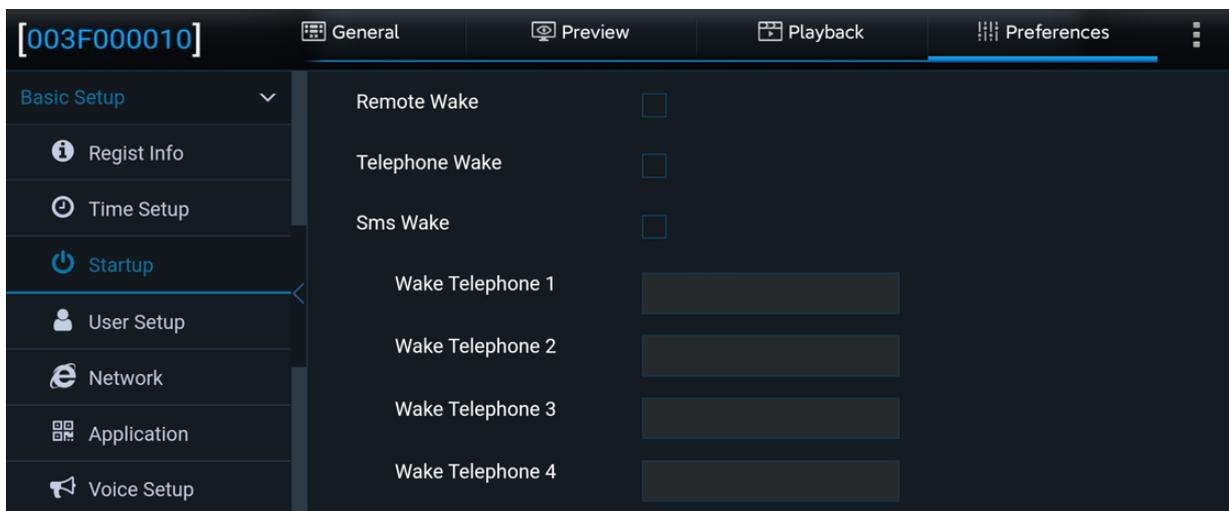
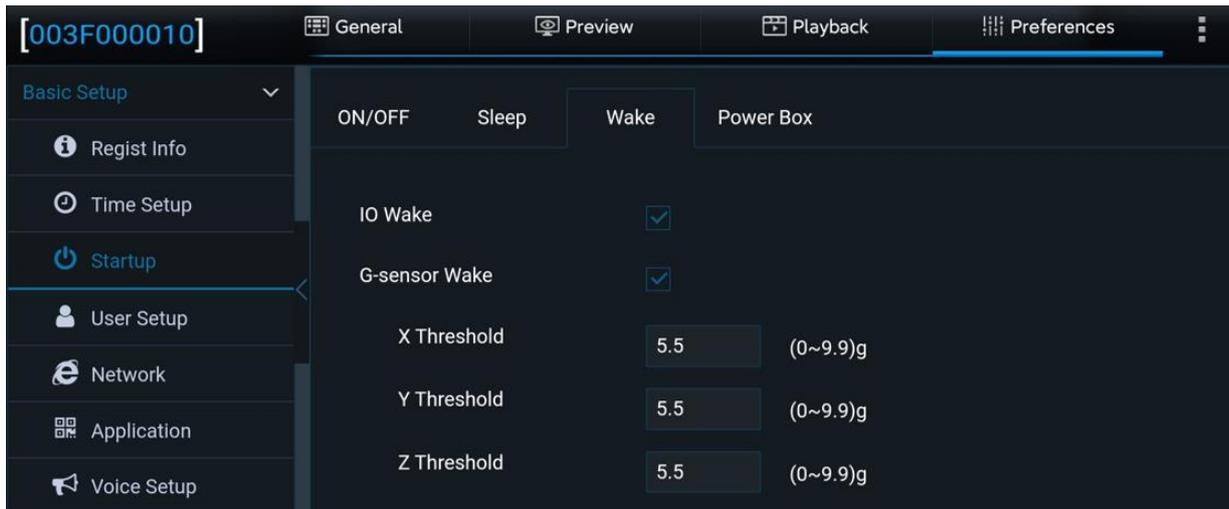
1. **ON/OFF Mode:** You can select **Ignition** (that is, use the car key to turn on the device).
2. **Ignition Delay:** allows you to set the time for the delayed shutdown after the car key is turned off, which can be set from 0 to 86399 seconds, and the default is 300 seconds.
3. **Video Recording 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. Currentl, 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 Setup** > **Sleep**, as shown in the following figure:



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 waken up after the device is turned off in ignition or timing mode.
 - **Low power standby:** In this sleep mode, the system can be waken 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.
3. **Low power protect:** enables low voltage protection after being selected.
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 selected when the low voltage protection is triggered.
7. **Note:** When the low voltage protection is not enabled, 7 V is the judgment condition for low voltage protection by default.
8. **Sleep Upload:** reports the GPS information so that you can view the vehicle location information when the device restarts at regular intervals after the vehicle is turned off and goes online properly. The time interval cannot be modified for the time being, and the default is 5 minutes.
 - Wake

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

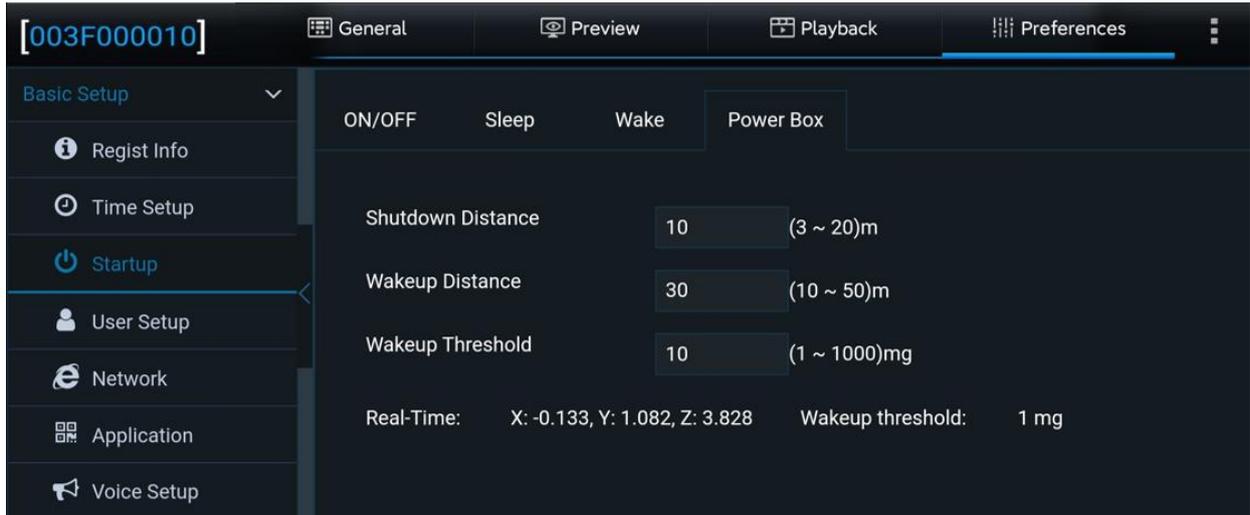


To select a wake method, select the corresponding check box.

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 wake is supported only through FT API, and only the first N9M server is supported for remote wakeup;
4. **Telephone Wake/SMS Wake:** wakes up the MDVR by calling or sending SMS messages to the device. You need to set the mobile number to wake up the device in advance.

- Power Box

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



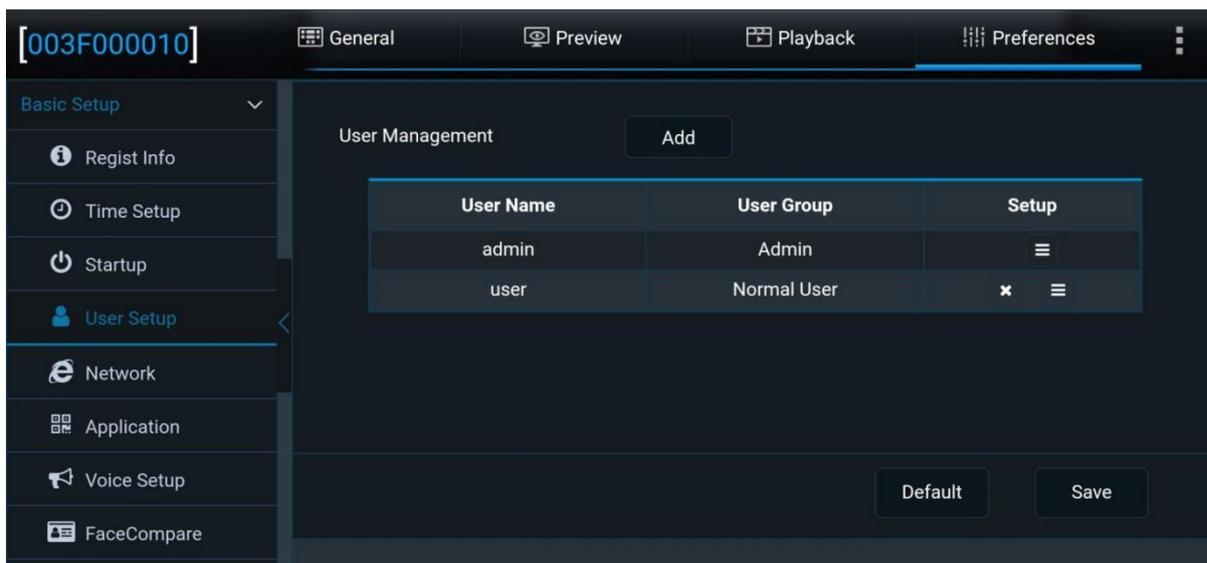
Set the shutdown and wake-up thresholds controlled by the power box

1. **Shutdown Distance:** When ACC is disabled and the vehicle movement distance is less than the configured threshold, the device is shut down. The threshold range is 3 to 20 m, and the default value is 10 m;
2. **Wakeup Distance:** This parameter is currently not used;
3. **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 1–1000 mg, 10 mg by default.

The following displays the data on the 3 axes, and the currently detected wakeup value.

2.6.4. User Setup

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



1. Tap **Add** to add a user.
2. Tap **☰** in the **Setup** column to set the password for the user login.
3. **admin (Admin):** The system has an administrator account by default. The

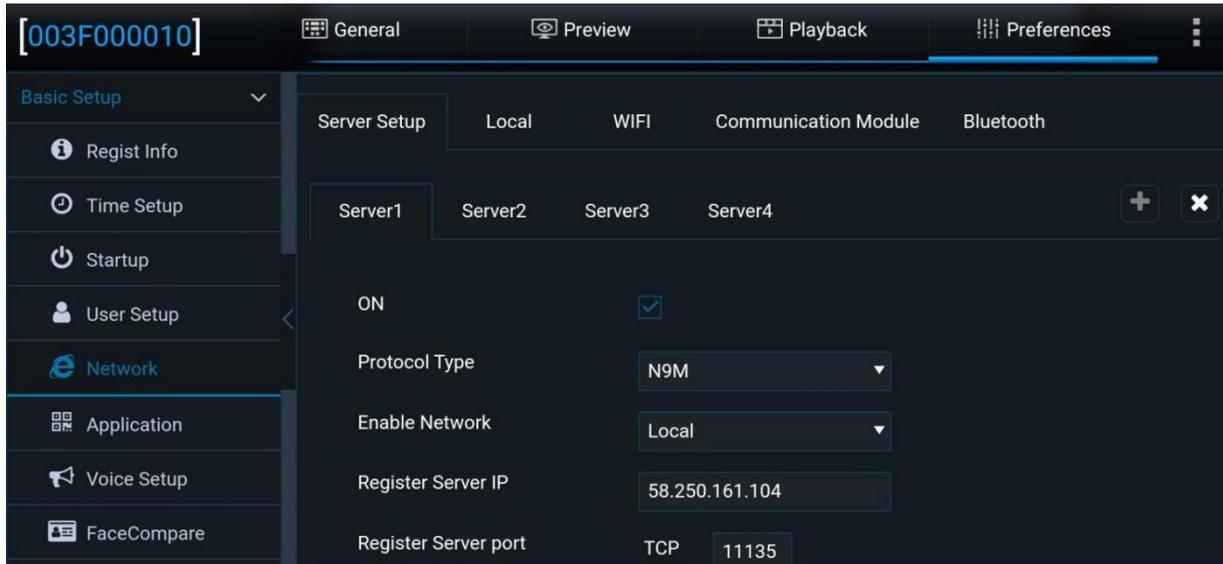
administrator has the permission to add/delete common users and set parameters. It can add a maximum of two common users.

4. **user (Normal User)**: only has the permission to query settings.

2.6.5. Network

- 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**: enables a server after being selected. A maximum of three servers can be enabled simultaneously. If it is deselected, 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.
 - **808**: indicates the protocol type for the device to report information to the 808 platform (not used for overseas trucks).
4. **Enable Network**: can be set to Local, WIFI, or Communication Module.
5. **Register Server IP**: specifies the IP address 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. Data interaction in dormant state is not encrypted. For the usage, you need to enable TLS and configure the encrypted port number. Currently, only TLS encryption for the CEIBA3 platform is

supported.

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 registrar and media server have the same default IP address and port number.

10. It supports 4G SIM cards, which can provide mobile hotspots for mobile terminals such as mobile phones and pads for Wi-Fi network transmission.

In order to prevent end users from using traffic beyond the control or forgetting the password, the dealer needs to control the account and password. However, it is impossible to set the device on site due to the site environment. In this case, you can send SMS messages to enable/disable hotspots or change the account password in the AP mode.

The Wi-Fi module allows modifying parameter formats and contents by sending SMS messages, as shown in the following:

Command keyword: WIFI

Enable. **1**: Enable; **0**: Disable

99admin,120223,WIFI0 -- None

99admin,120223,WIFI1 -- Client

99admin,120223,WIFI2 -- AP

The command parameters have different formats and contents due to different parameters in different modes:

- 1) AP mode:

Command parameters: **Mode, Encryption Type, ESSID, Password, and Hotspot Enable!**

Example:

99admin,120223,WIFI2,WPA,streamax,streamax,1!

99admin,120223,WIFI2,WEP,streamax,streamax,1!

99admin,120223,WIFI2,NONE,streamax,1!

Client mode:

Command parameters: **Mode, Encryption Type, ESSID, Account, Password, Static Enable, Static IP Address, Subnet Mask, and Gateway!**

0 indicates that the static IP address is enabled and **1** indicates that the dynamic IP address is enabled.

Example:

99admin,120223,WIFI1,WEP,streamax,streamax,1!

99admin,120223,WIFI1,WPA/WPA2-PSK,streamax,streamax,1!

99admin,120223,WIFI1,WPA2.ENTERPRISE,streamax,streamax,streamax,1!

2) None mode:

Command parameter: **Mode!**

Example: 99admin, 120223, WIFI0!

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**

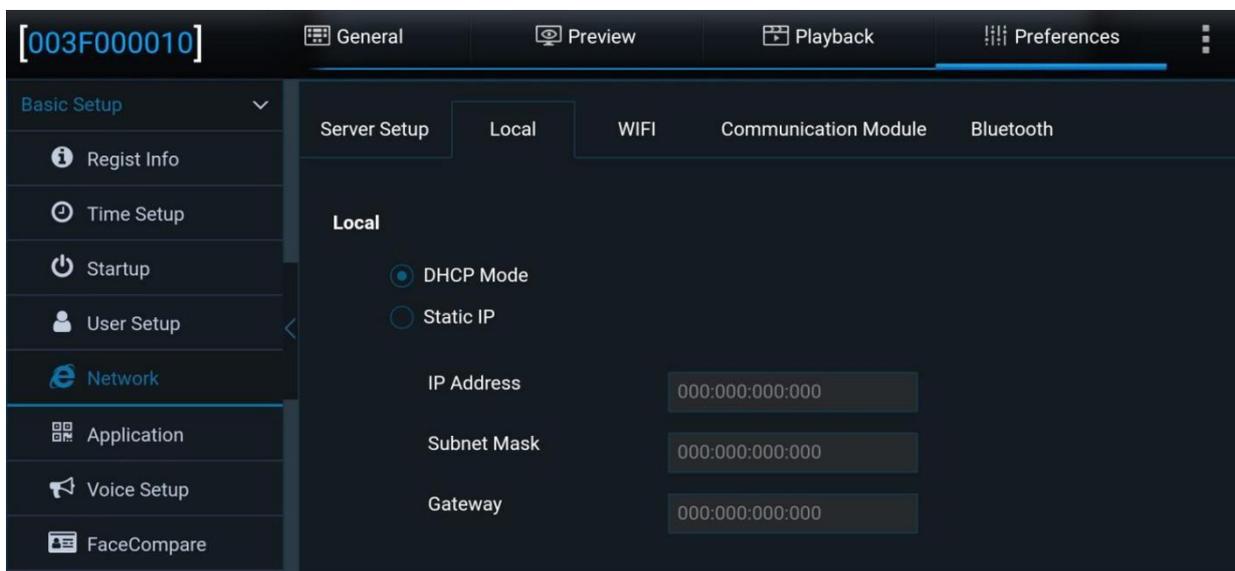
Remarks: 113.14.232.88 (IP address), 6605 (port number)
 Enable. 0: Disable; 1: Enable

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

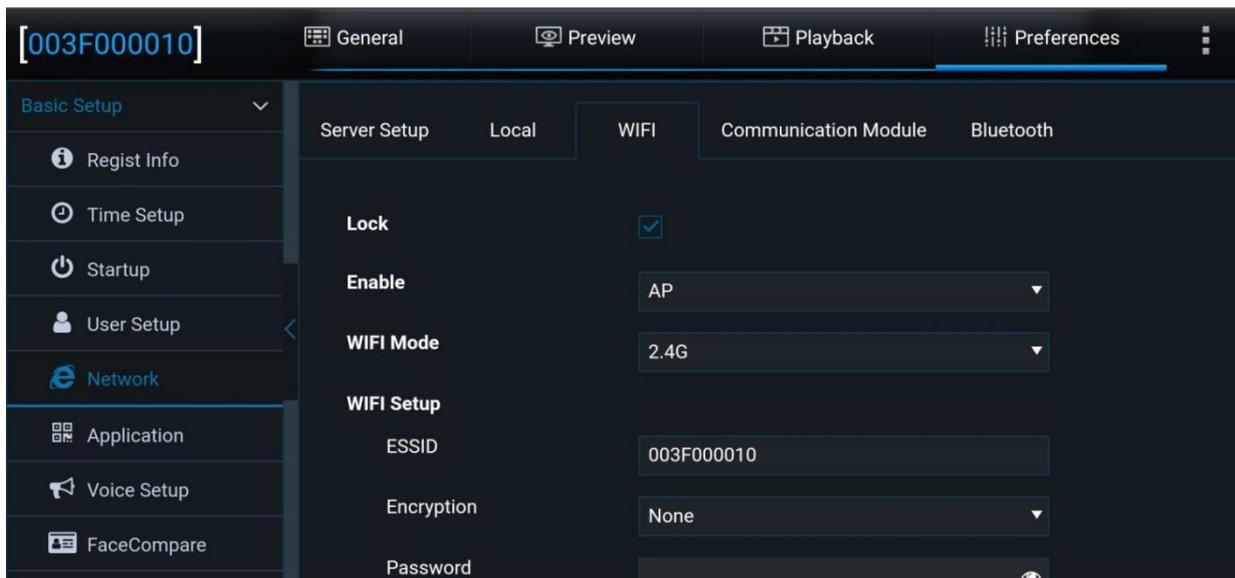
Tap **Preferences > Basic Setup > Network > Local**, as shown in the following figure:



1. **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 address can be dynamically or statically customized.
2. **Static IP:** indicates that the device uses the static IP address. If the preset static IP address is used, the DNS address must be specified statically.
3. **Direct Port:** Set to 80 by default. This port will be used for IE access.

WIFI

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



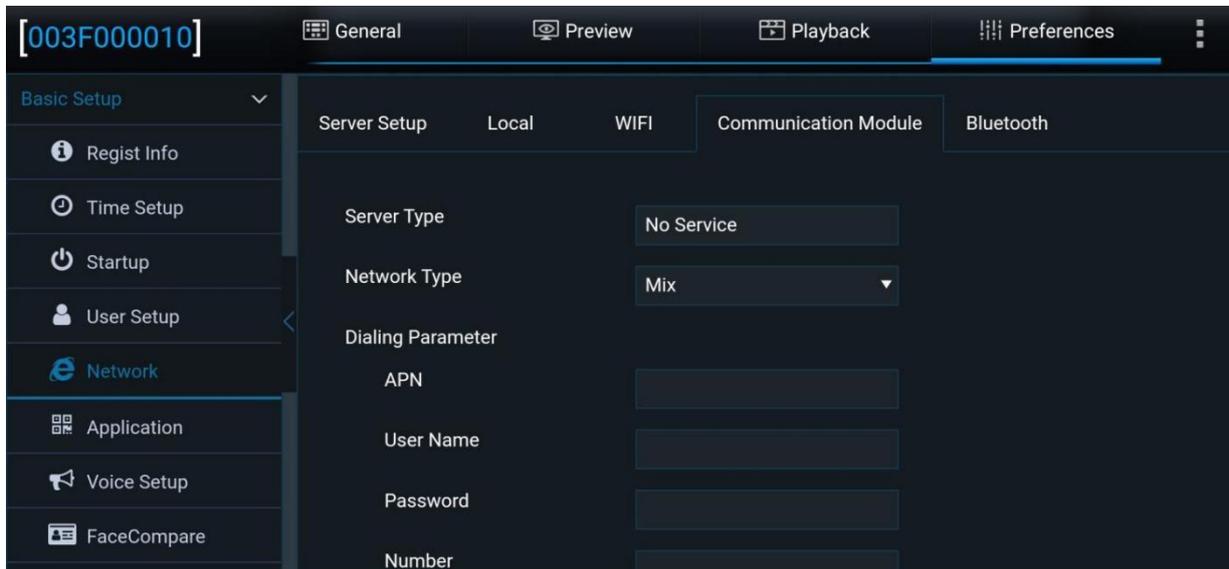
1. **Lock:** enables/disables the modification of Wi-Fi hotspot parameters. After it is selected, the relevant parameters of the Wi-Fi hotspot will not be modified.
2. **Enable:** specifies the Wi-Fi connection mode and can be set to **AP**, **Client** or **Disable**.
 - **AP:** In this mode, the Wi-Fi 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. (If the MDC 240 has the AP mode switch button, the button is disabled.)
 - **Client:** In this mode, the device can automatically search for a valid Wi-Fi hotspot nearby for connection. After the successful connection, the device can automatically connect to this hotspot after rebooting or re-entering this area. By default, the AP mode is used upon the startup. If the device is not connected with the EasyCheck app within 3 minutes, it will automatically switch to the client mode. The device can be switched to the AP mode when you push the button twice. After the switch, if the device fails to connect to the EasyCheck App within 3 minutes, 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. (If the MDC 240 is equipped with the AP mode switch

button, you can switch the device to the AP mode with the button. After the switch, if the device fails to connect to the EasyCheck app within 3 minutes, the device will exit from the AP mode and the module will enter the sleep mode.)

3. **WIFI Mode:** specifies Wi-Fi frequency bands and can be set to 2.4G, 5G or 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 the device (no longer a serial number. After the connection, the EasyCheck App can be accessed, and it can access the Internet as a mobile terminal when the hotspot is enabled); In client mode, the entered value is the Wi-Fi name when the device connects an external Wi-Fi.
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 Streamax 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:

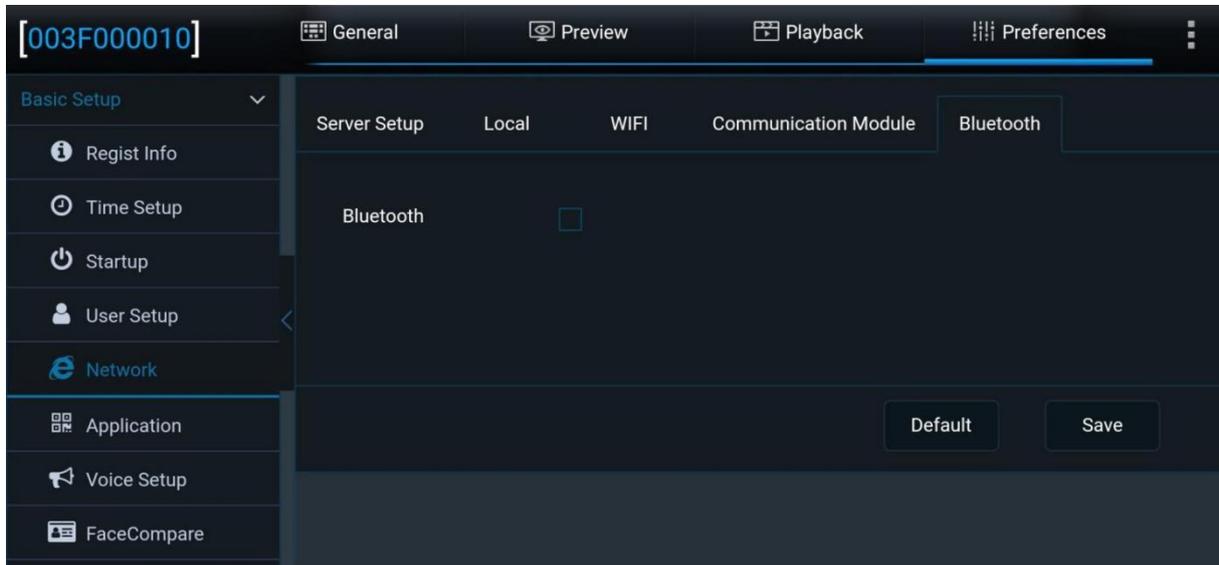


1. Server Type: is set to Communication Module.
2. Network Type: is set to Mix.
3. Dialing Parameter: allows setting the APN, which can be configured as VPN network parameters.
4. You can also configure information of the communication module, such as the authentication or activation mode.

- Bluetooth

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

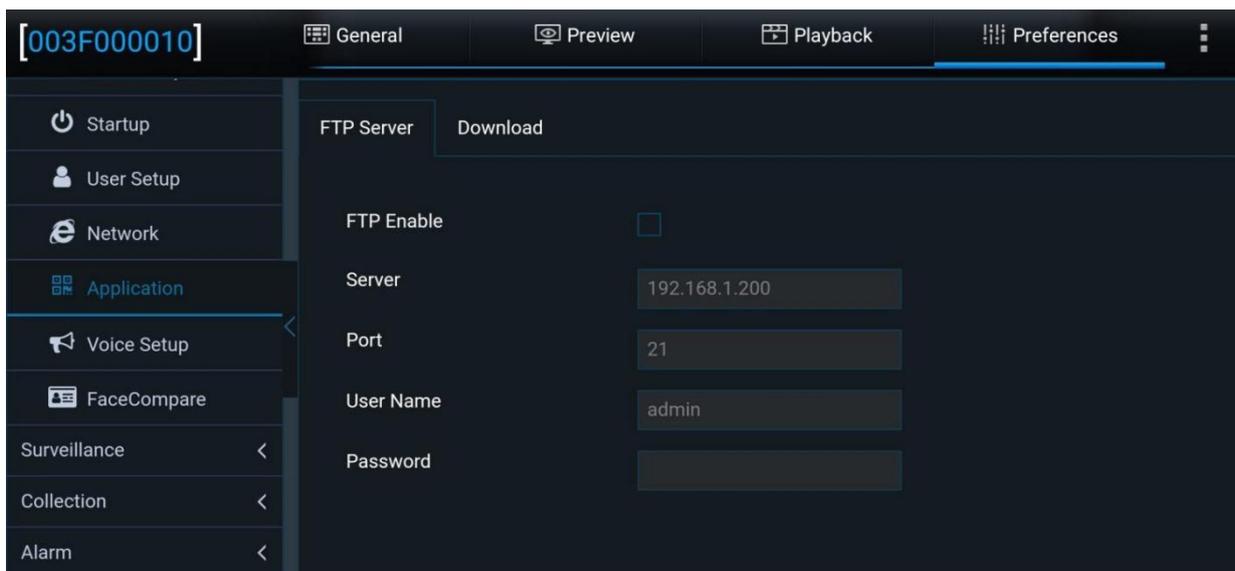
Turn on/off Bluetooth. Currently, the Bluetooth function is unavailable.



2.6.6. 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 pictures or download files. Tap **Preferences** > **Basic Setup** > **Application** > **FTP Server**, as shown in the following figure:

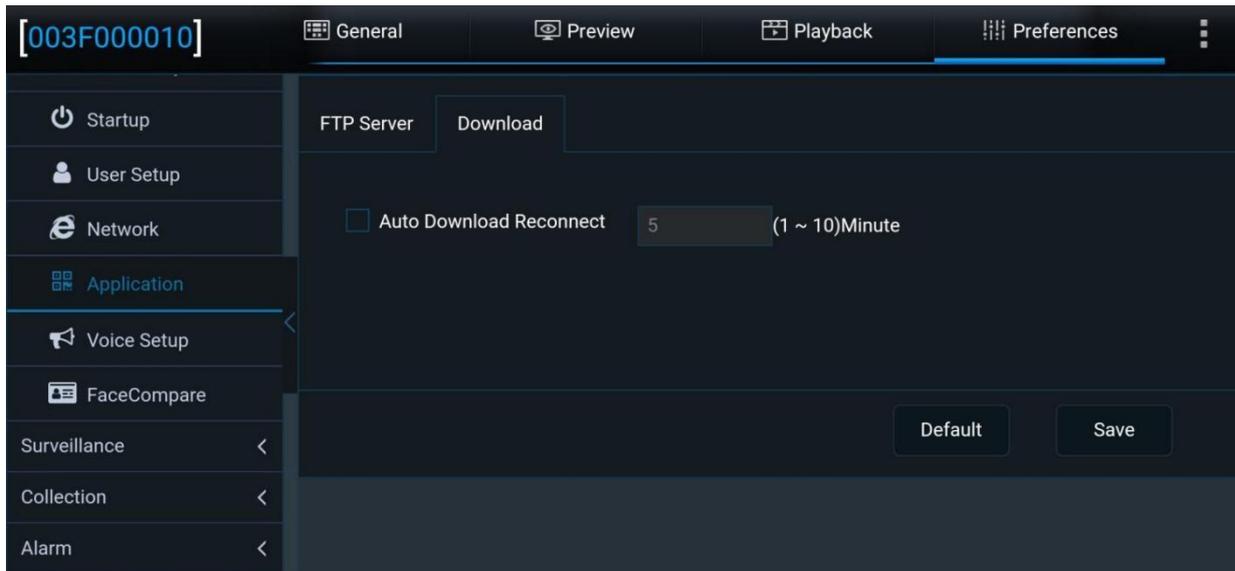


- **Auto Download Reconnect:** needs to be used with the CEIBA2 platform. The automatic download tasks created through the CEIBA2 are managed by the platform. Specifically, you can view the vehicles with downloads, networks (4G or Wi-Fi) used for the downloads, used Wi-Fi AP by each vehicle if the Wi-Fi network is used, and the maximum number of vehicles connected to

each AP for simultaneous downloads on the platform.

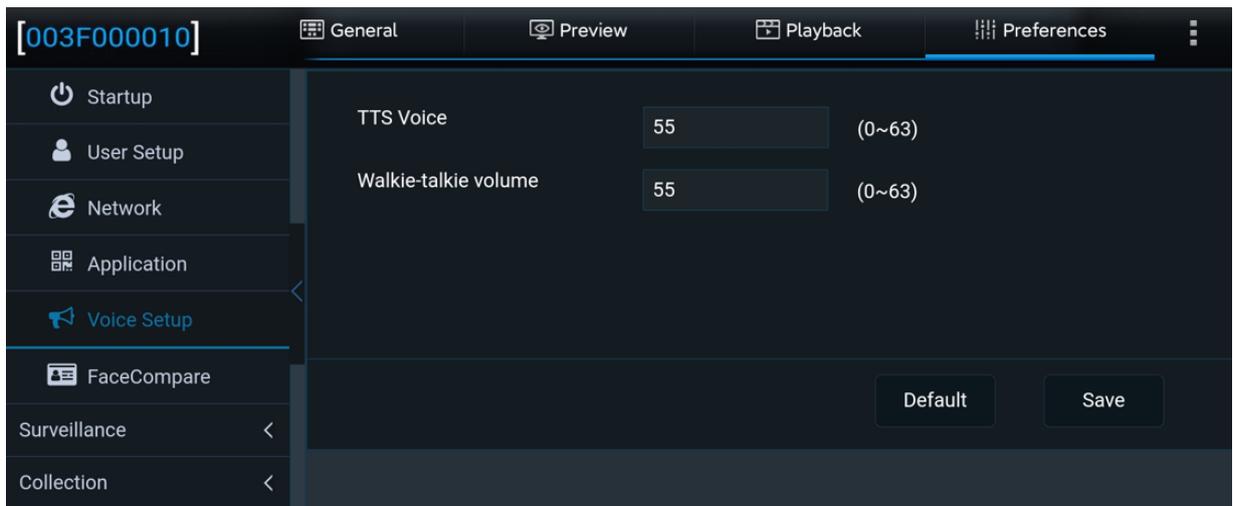
Auto Download Reconnect, that is, when the vehicle returns to the station and cannot connect to the service, it will restart and try to download again after entering the sleep mode for a while. When the download tasks are full, or the set AP reaches the upper limit, the platform will notify the device 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).

Tick to enable **Auto Download Reconnect** and set the re-connection time between 1 and 10 min, the default is 5 min.



2.6.7. Voice Setup

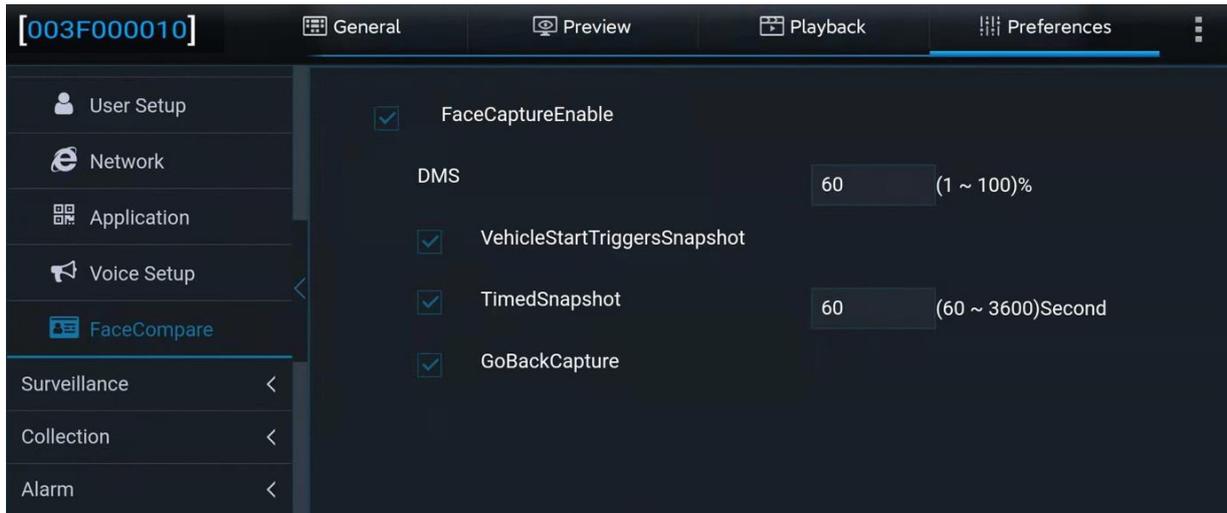
Choose **Preferences > Basic Setup > Voice Setup** to manually configure the walkie-talkie volume and TTS voice. The range is 0 to 63, 55 by default. The screen is as follows:



2.6.8. 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:

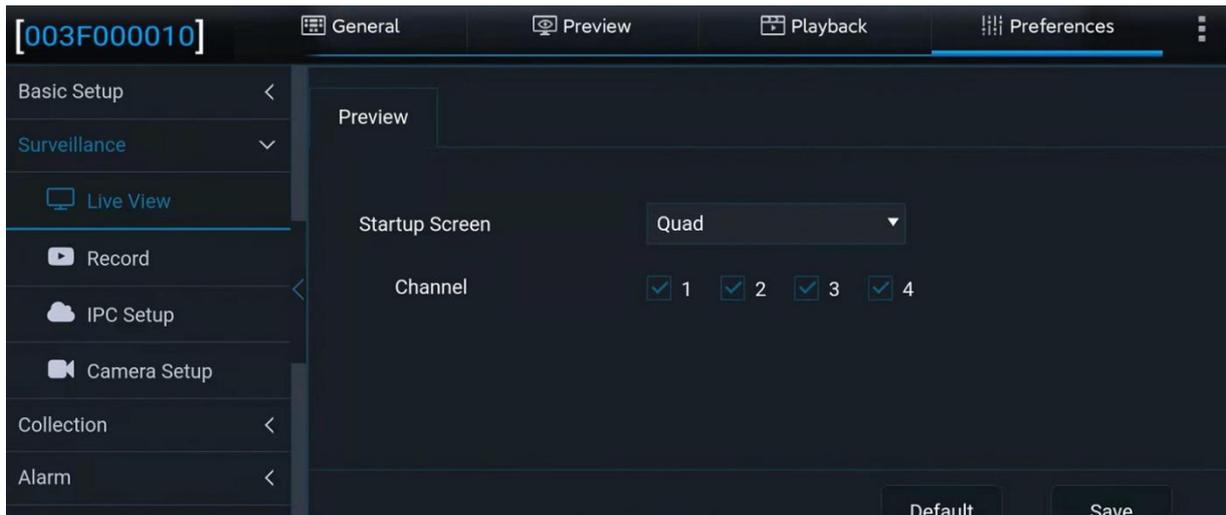


1. **FaceCaptureEnable:** enables face comparison after being selected.
2. **DSM:** allows you to set the threshold of the face comparison similarity. If the similarity is greater than or equal to the set threshold, the two faces are considered to be owned by the same driver.
3. Face capture method:
 - **VehicleStartTriggerSnapshot:** The device captures a snapshot when the ACC is turned on from the off status, and the vehicle is moving at a certain speed
 - **TimedSnapshot:** allows you to set the scheduled time to 60–3600 seconds, 300 seconds by default
 - **GoBackCapture:** The device captures a snapshot when the no driver alarm is triggered until the alarm is cleared

2.7. Surveillance

2.7.1 Preview

The preview setting screen is mainly 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. Click **Preferences > Surveillance > Live View**, as shown in the following figure:

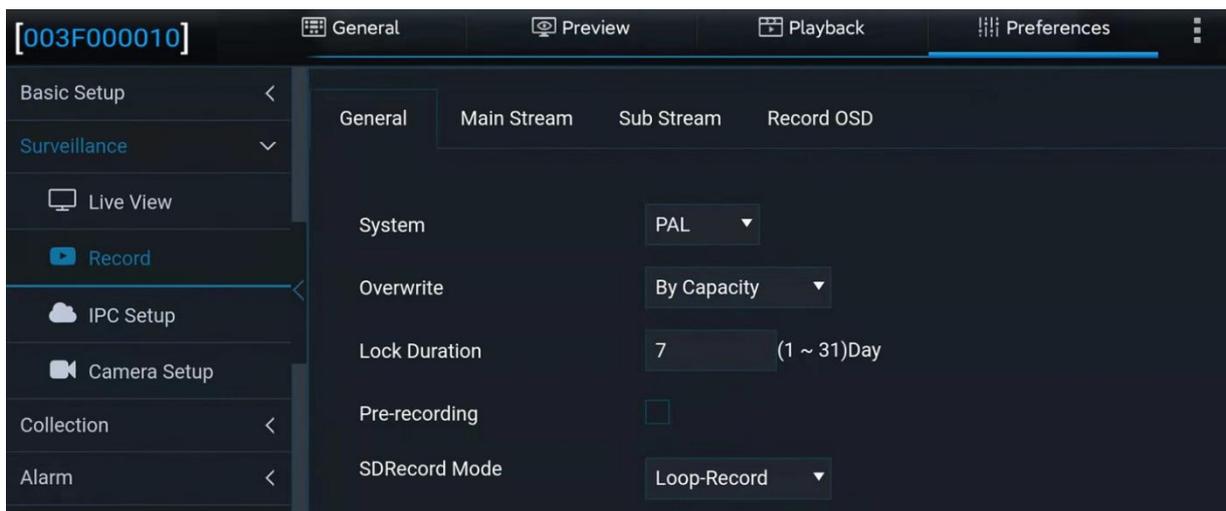


2.7.2. Recording

2.7.2.1 General Settings

In this module, you can specify the system mode, overwrite function, lock duration, pre-recording, SD record mode, and privacy channel configuration.

Tap **Preferences** > **Surveillance** > **Record** > **General**, as shown in the following figure:



1. **System:** PAL and NTSC are available.

Note: This setting must be consistent with the video source system.

2. **Overwrite:** You can select By Capacity, By Day, or Never.

Note: Locked recording is overwritten only after its locking duration expires.

By Capacity is selected by default. In this case:

- 1) The SD card is overwritten by capacity. When the SD card storage space is less than 2 GB, overwriting starts, with files of 128 MB deleted each time.
- 2) The deletion proceeds by channel number and deletes 250 MB files from each channel in one deletion. If one channel has a section less than 100 MB, the system moves to the next channel with longer duration.

By Day:

- 1) Files are overwritten by configured days, which range from 1 day to 31 days.
- 2) If 1 day is configured, the recording is saved for 1 day. If 31 days are configured, the recording is overwritten after having 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, mirror stream, sub-stream, and alarm stream. Recording stops after the memory is full.

3. Lock Duration:

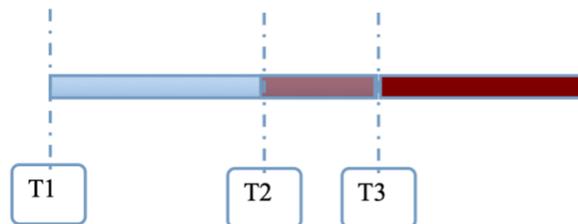
Specifies the day(s) that locked recordings are retained. This setting prevents them from being deleted earlier than expected. It is set to 7 days by default.

For details about how to lock recording, see Section 2.9.

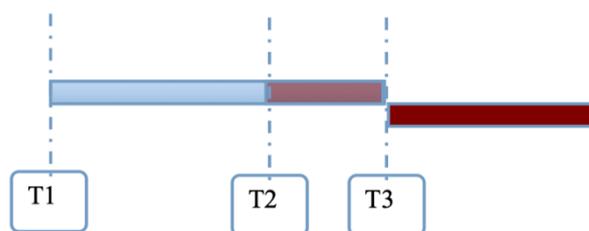
4. Pre-recording

In alarm recording, recording files generated before alarm triggering 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 this parameter is extracted and marked as alarm recording as well. 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.

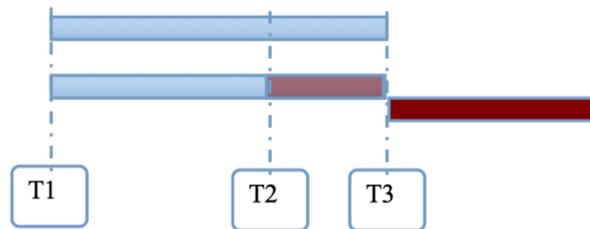


- 2) If there is no recording ongoing and the pre-recording function is enabled, the device establishes a pre-recording stream segment upon startup. When an alarm is triggered at T3, the recording generated between T2 and T3 in the pre-recording stream segment is marked as alarm recording.



- 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

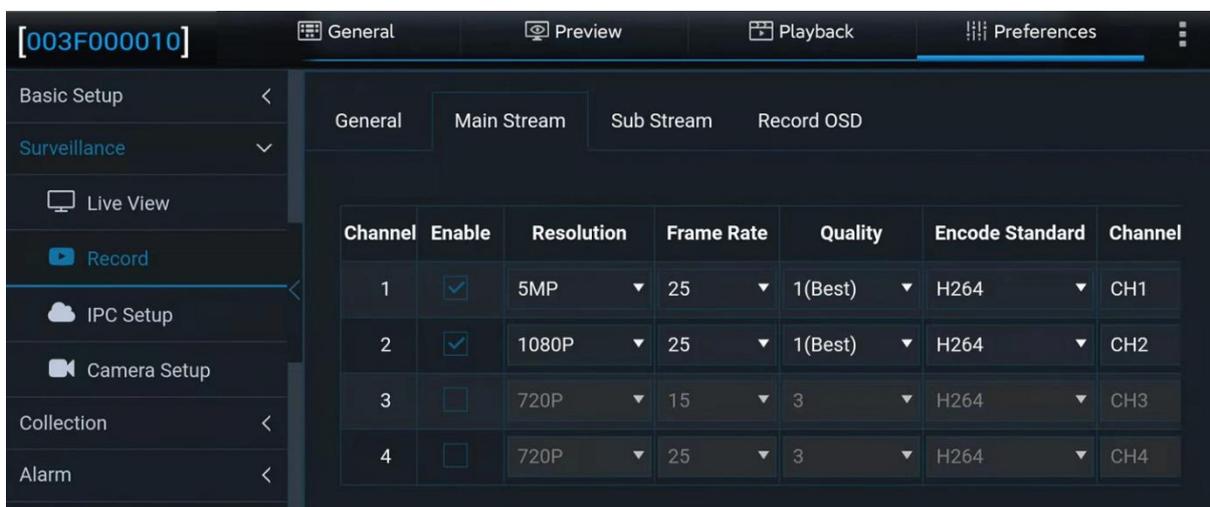
recording.



5. **TF Record Mode:** specifies the recording mode of the secondary TF card. It can be set to Sub-Record, Mirror Record, Alarm Record Backup, or Loop Recording.
 - **Sub-Record:** stores sub stream recordings in the SD card.
 - **Mirror Record:** uses main stream parameters, and its 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 Record:** is the loop recording for dual TF card.

2.7.2.2 Main Stream Setting

On this screen, you can set the recording mode, video 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 recording mode is selected, it applies to both sub-stream and mirror recording.

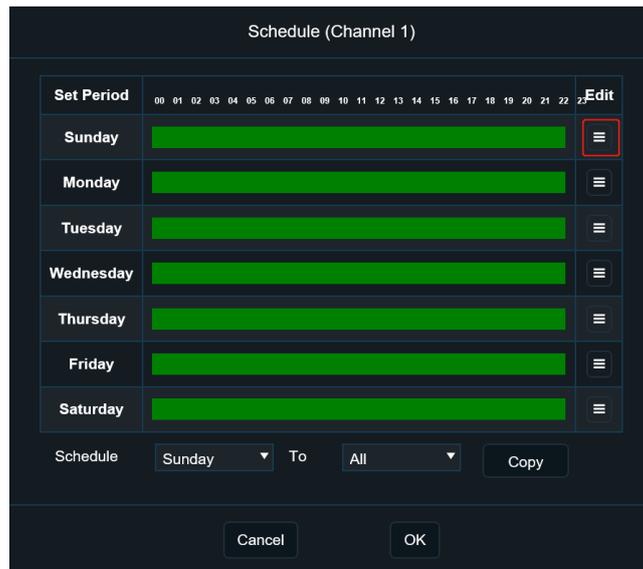
1. **Enable:** Main stream recording is enabled after this option is selected.
2. **Resolution:** The value is CIF, WCIF, HD1, WHD1, D1, WD1, 720P, 960P, or 1080P for an analog camera and is 720P or 1080P for a digital camera.

Note: Resolution of the ADAS channel (channel 1) of MDC 240 can be up to 5MP

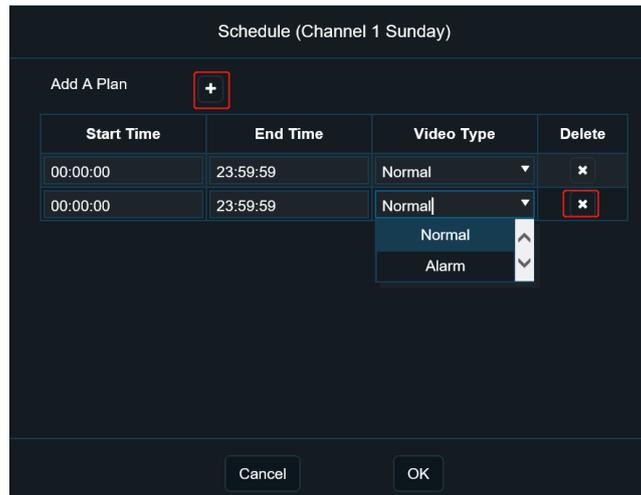
3. **Frame Rate:** specifies the recording frame rate, or the number of frames

played per second. It ranges from 1 to 25 for a PAL camera and 1 to 30 for an NTSC camera.

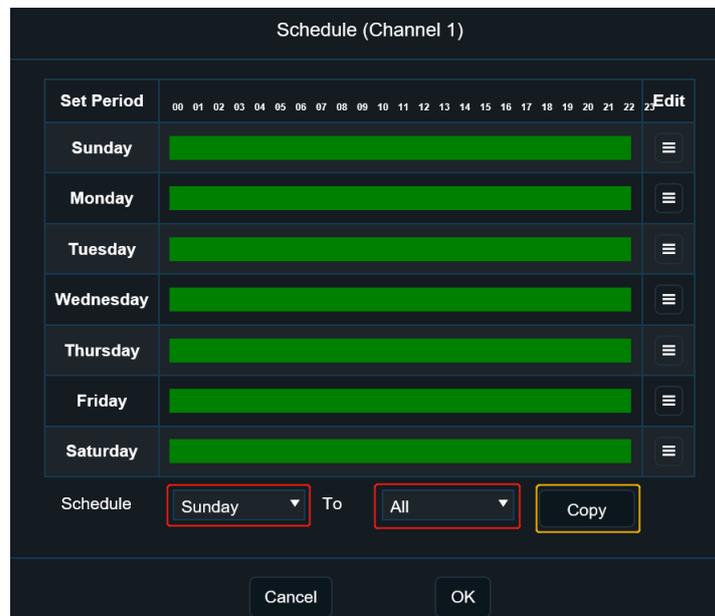
4. **Quality:** specifies the recording quality. The value ranges from 1 to 8. The smaller the value, the better the quality. 1 indicates the best quality.
5. **Encode Standard:** can be set to H264 or H265, and the default value is H264.
6. **Channel Name:** Customizable
7. **Record Mode:** Available values are **Startup**, **Schedule**, and **Alarm**.
 - **Startup:** If a Micro SD card is present and recording is enabled, the device keeps recording upon startup.
 - **Alarm:** Recording is triggered by device alarms. For details about how to set alarm recording, see Section 2.9. Alternatively, you can enable pre-recording before alarm triggering.
 - **Schedule:** Recording is performed as scheduled. Tap  on the right of **Schedule** to navigate to the screen shown below. Tap  corresponding to a specific day to add a recording plan.



To add a scheduled recording plan, tap  on the screen shown below. To delete this plan, tap  on the right of the plan. Select **Normal** or **Alarm** under the **Video Type** area to define the recording.



After setting the scheduled recording plan, tap **OK** to return to the previous step. Apply the well-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: Whether to record audio during video recording. You can select **Always Audio** or **No Audio**.

- 1) **Always Audio:** The video is always accompanied by audio.
- 2) **No Audio:** The video is not accompanied by audio.

9. **Alarm Quality:** specifies the quality of alarm recording. The smaller the value, the better the quality.

10. **Encode Mode:** VBR or CBR optional

11. **Audio Coding Format:** You can choose G711A, G711U, ADPCM, and G726, and it's ADPCM by default.

2.7.2.3 Sub-Stream Setting

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

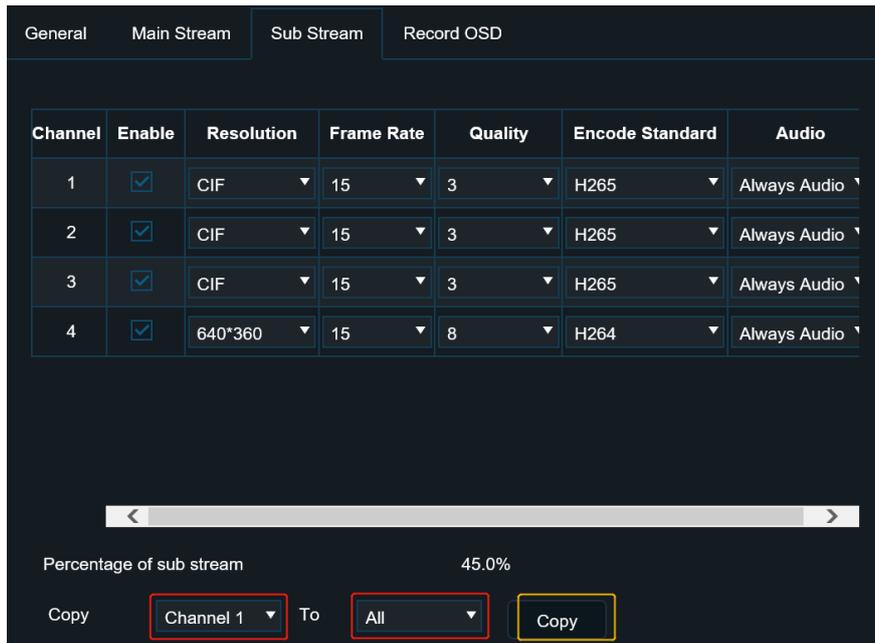
Note: The sub stream video recording can be enabled only when the sub stream video recording is selected in the recording mode, and a TF card is installed in the second slot.

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



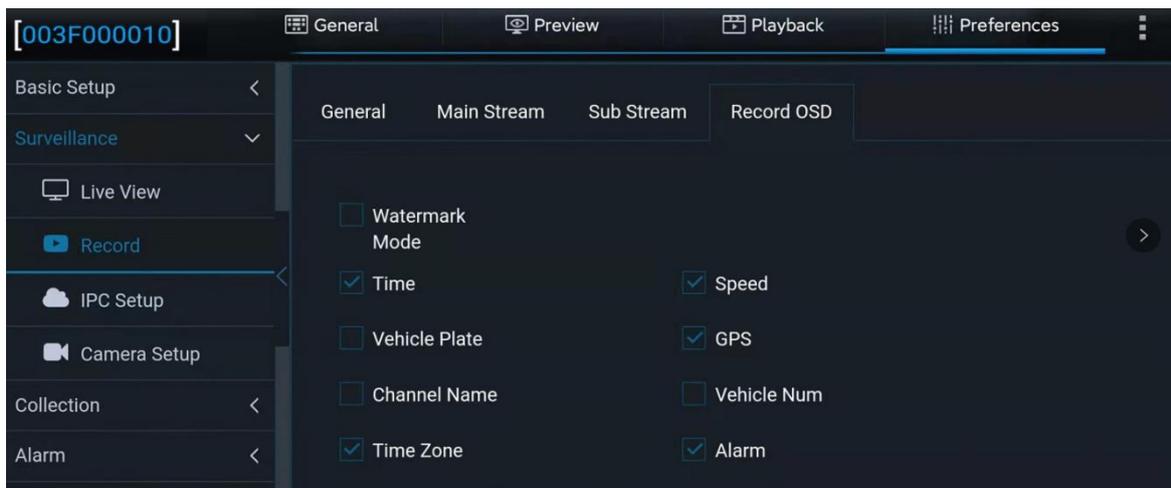
1. **Enable:** Sub-stream recording is enabled for a specific channel after this option is selected.
2. **Resolution:** The value is CIF, HD1, or D1 for an analog camera and is QCGA/640*360 for a digital camera.
3. **Frame Rate:** specifies the recording frame rate, or the number of frames played per 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:** Whether to record audio during video recording. You can select **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:



2.7.2.4 Video Recording OSD Superimposition

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



Video OSD superimposition allows you to superimpose selected information on the recording and is different from OSD superimposition in live view preview.

Other settings are the same as those for live view preview and are not described here.

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.

2.7.3. IPC Setting

Tap **Preferences > Surveillance > IPC Setup** to configure settings of a connected IPC, as shown in the following figure:



Search:

1. Onvif: You can enable IPCs external to the channels and search and allocate channels for them. In addition, the IP address of the IPCs can be modified.
2. N9M: Streamax IPCs are plug-and-play and need no configuration.

Setup:

1. Configure AI-capable cameras:
 - 1) Normal: normal recording, algorithm recognition
 - 2) Calibration: The camera is calibrated during installation. Algorithm recognition-based alarming is not supported in this mode.

2.7.4. Camera Setting

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



On 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.

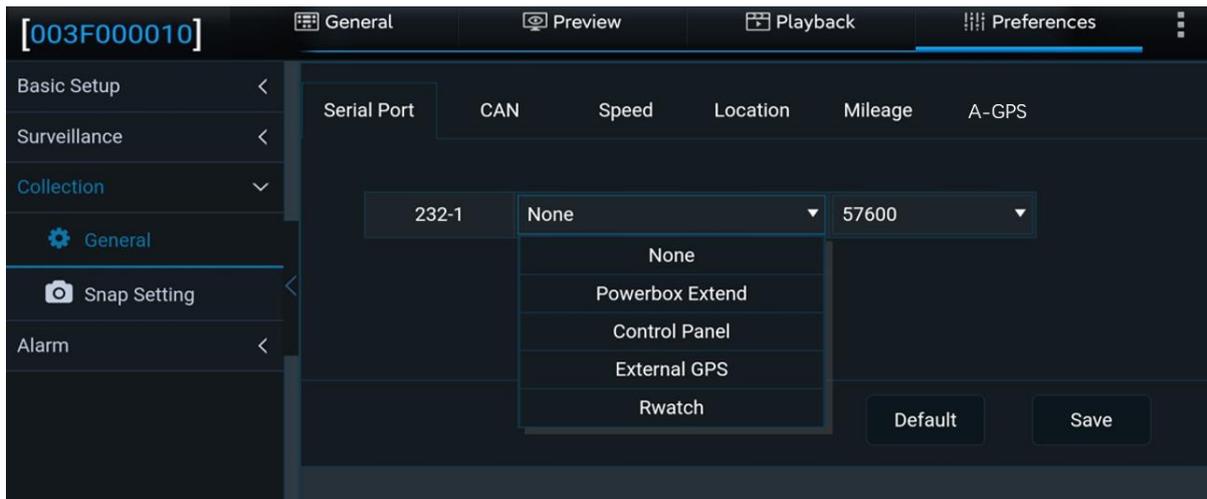
2.8. Data Collection

In this module, you can set serial port, CAN, speed, location, and milestone parameters.

2.8.1. General Setting

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

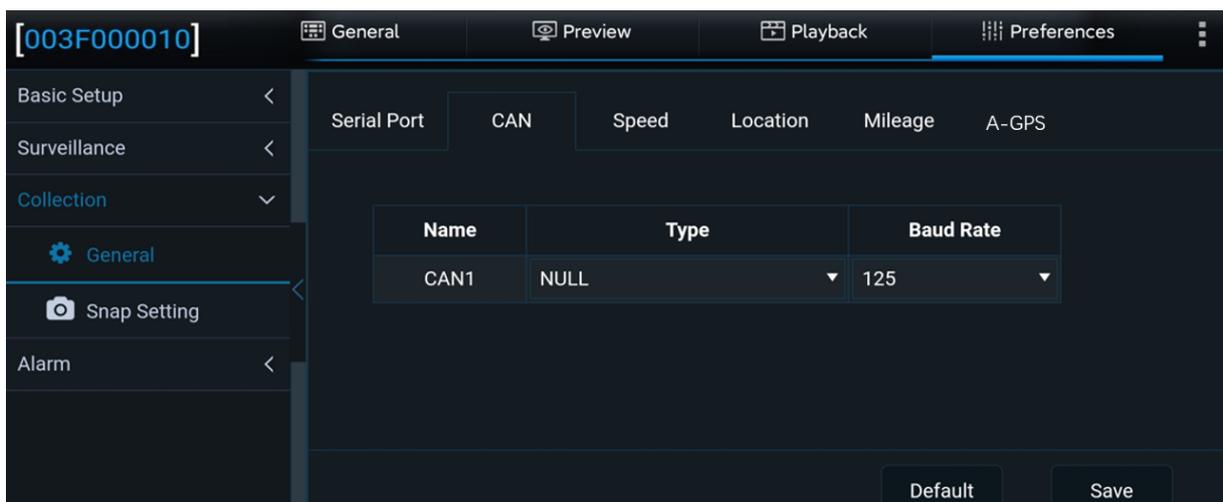
Tap **Preferences > Collection > General > Serial Port**. The **Serial Port** setting screen is displayed.



Serial Port: Select the peripheral you want to connect. The baud rate is filled by the corresponding value automatically. If the baud rate is incorrect, modify it manually.

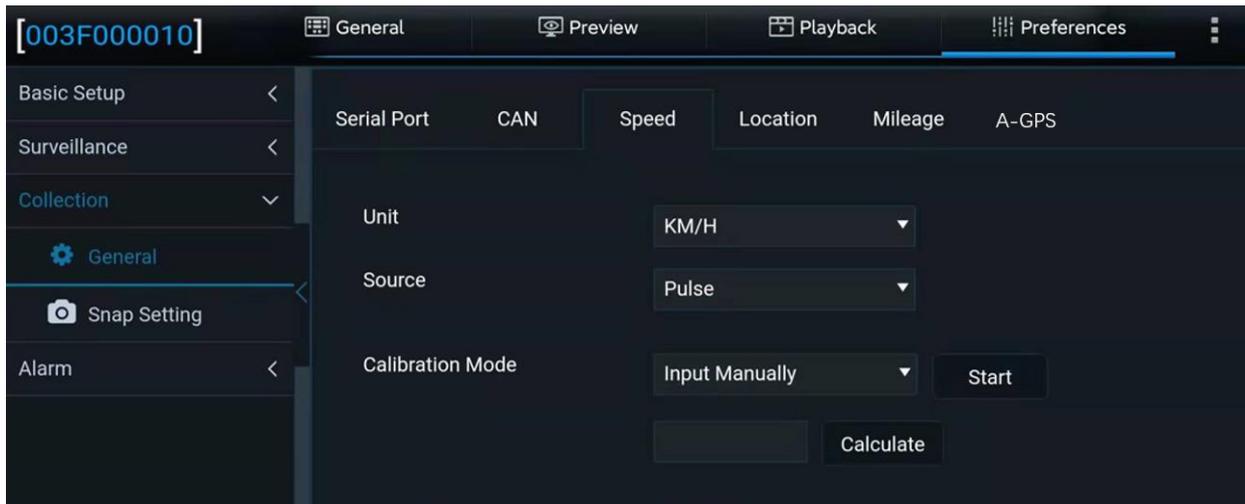
Note: If the MDC 240 is connected to an R-Watch, the usage of 232-1 serial port must be set to Rwatch on this screen.

Tap **Preferences > Collection > General > CAN**. The **CAN** setting screen is displayed as follows:

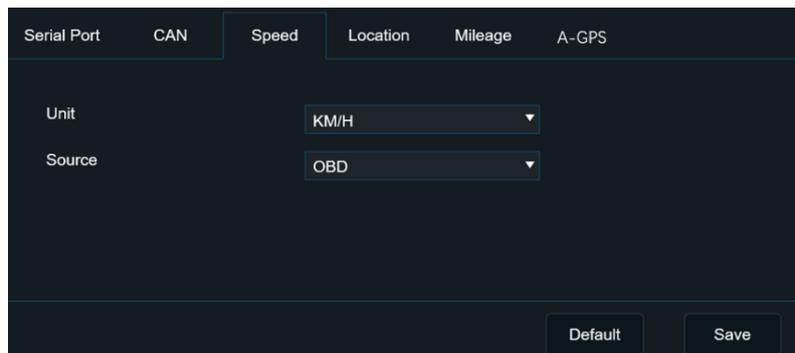


On this screen, you can configure the function type and Baud rate of the CAN to be accessed.

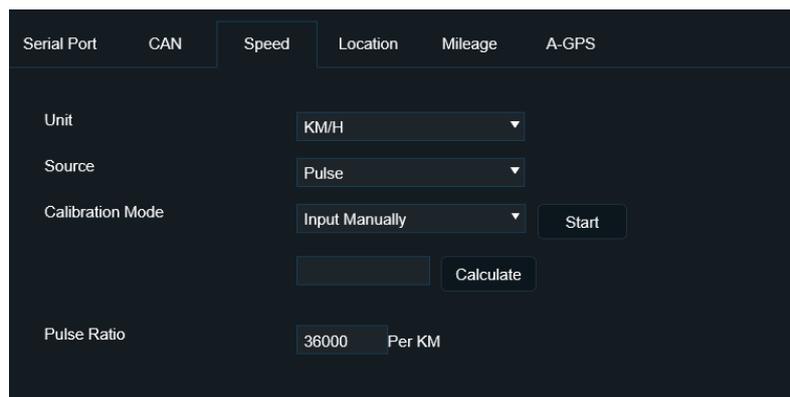
Tap **Preferences > Collection > General > Speed**. The **Speed** setting screen is displayed as follows:



1. **Unit:** Set the unit of vehicle speed, unit: km/h or MPH.
2. **Source:** Select Satellite, Pulse, OBD, or Mix.
 - When **Satellite** or **OBD** is selected, the screen is shown as below:



- When **Pulse** is selected, the screen is shown as below:

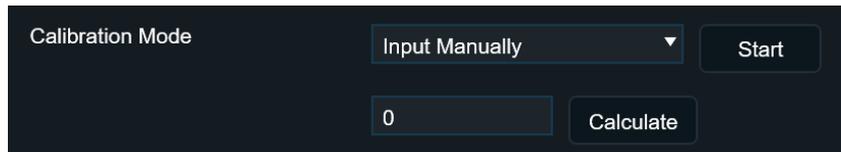


Where

3. **Calibration Mode:** Select Input Manually or Input Automatically.
 - When **Input Automatically** is selected, tap **Correct** to proceed with the calibration.

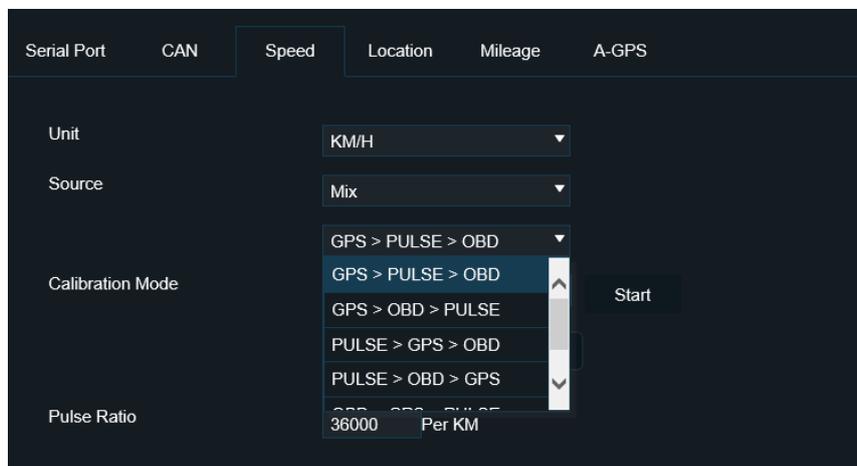


➤ **Select Input Manually:**

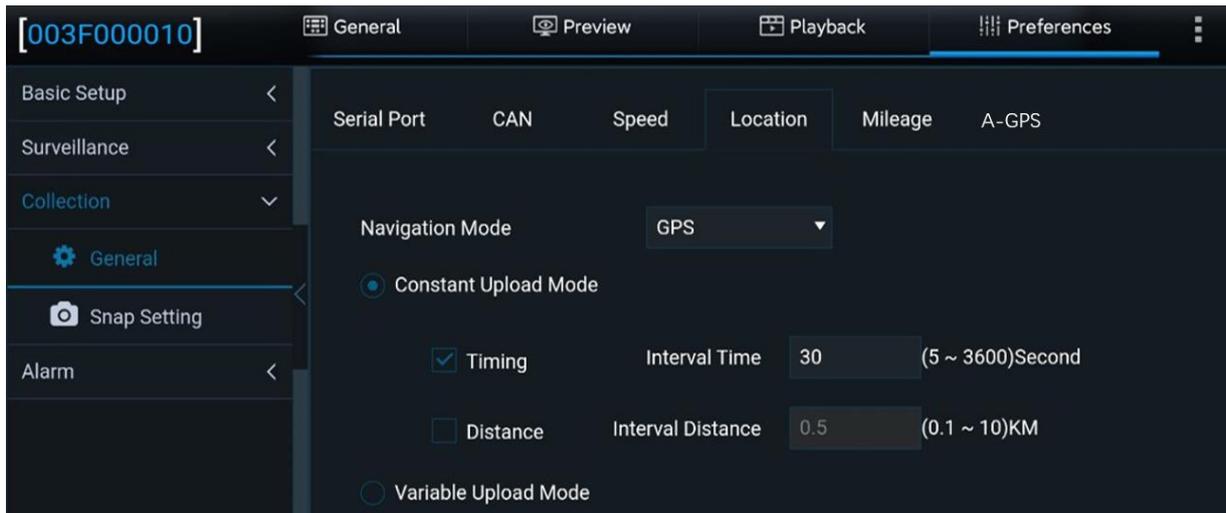


- 1) You need to input manually the initial mileage of the odometer and the system will calculate it accordingly;
- 2) Click Start; (MCU will automatically record the number of pulses)
- 3) When you click to end learning, you record the driving mileage of the odometer again to calculate the mileage difference;
- 4) Then you input the mileage difference and click Calculate, and the pulse coefficient will automatically display the calculation result; (the calculation result unit is consistent with the speed unit)

When you select Mix for speed source, you can set its priority. There are 6 priorities in total. The figure is shown as follows:



- 4) Click **Preferences > Collection > General > Location** to enter the GPS Report Strategy setting screen. You can select different modes to upload GPS signals according to market demands.



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

ACC status	Constant upload	Variable upload
ACC ON	1. Timing : The constant upload time can be modified. Value range: 5-3600s. Default value: 10s 2. Distance : The interval for constant upload can be modified. Value range: 0.1-10 km 3. Timing and Distance can be selected at the same time.	See the detailed description. Note that you can only choose constant upload or variable upload.
ACC OFF	Sleep upload	

1. Description to variable uploads:

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

Second,

The definition of moving start: When the vehicle speed is higher than a value for a specified time period, the vehicle is considered as having started. The default speed is 30 km/h and the default time is 60s.

The definition of moving stop: When the vehicle speed is lower than a value for a specified time period, the vehicle is considered as having stopped. The default speed is 20 km/h and the default time is 5 minutes.

Upload mode:

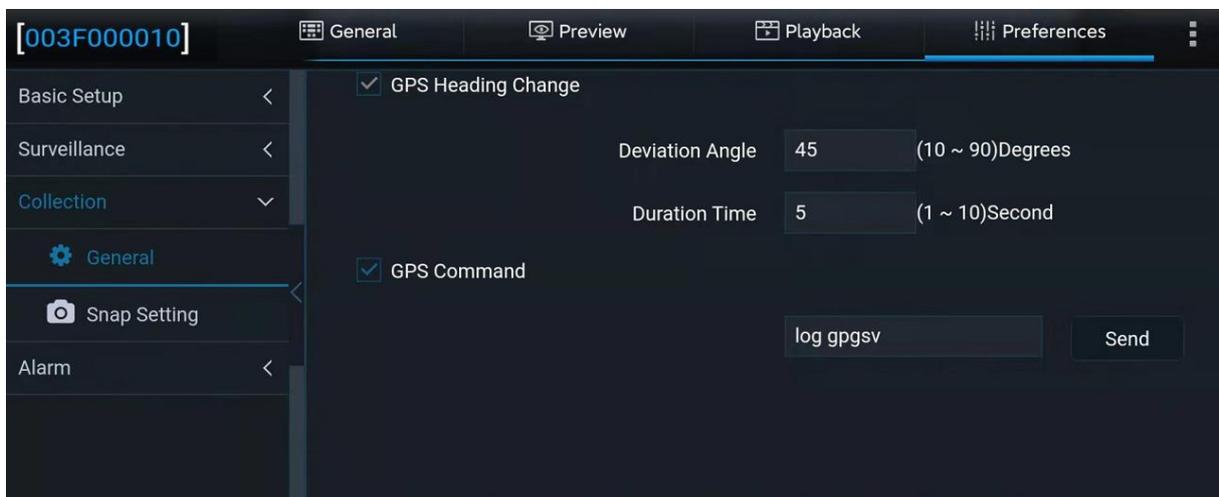
- When the vehicle status changes from **Moving Stop** to **Moving Start**:
Timing: The time can be modified and the default value is 60s.
Distance: The interval can be modified and the default value is 0.1 km.
- When the vehicle status changes from **Moving Start** to **Moving Stop**:
Timing: The time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

There will be multiple uploads if the vehicle running angle changes significantly: The angle can be set by the user. By default, a piece of GPS data is reported when

the vehicle angle is 45°.

3. ACC status is uploaded alongside with GPS data.
4. For details about the sleep upload function, see description in Section 2.6.3 On/Off.

GPS command: in order 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. Choose **Positioning > GPS Command**, and Enter "log gpgsv" in the command input box; then, click **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:



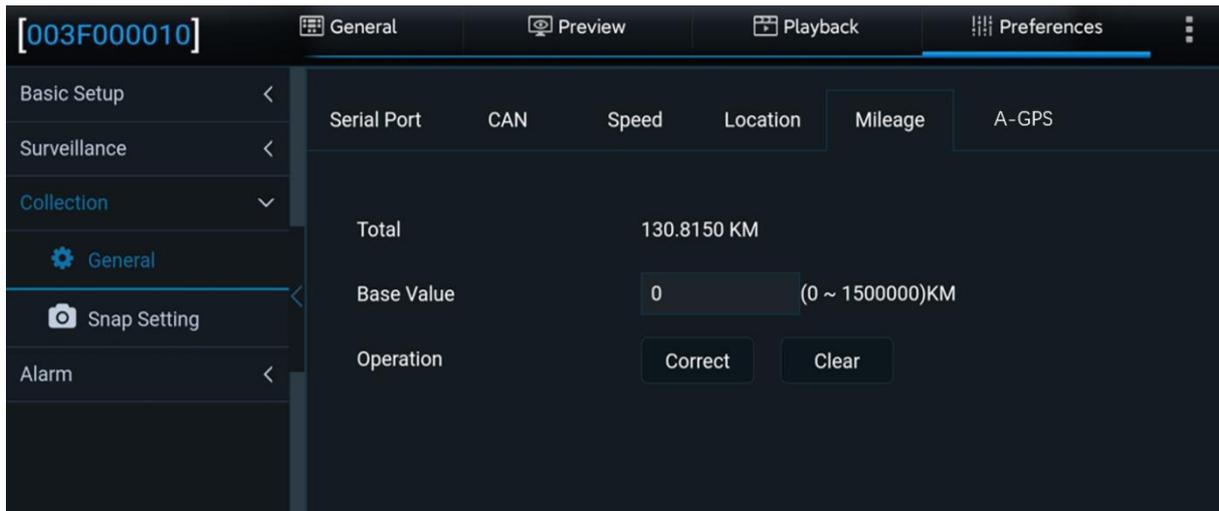
After the "log gpgsv" command is sent at the same time, the general information display interface of "Veyes" displays the satellite positioning signals received by the device. By choosing **General > Positioning Information**, you can view the number of satellites and the corresponding satellite signal 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, click **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. At this time, the LED light indicating GPS on the front panel flashes repeatedly (at intervals of 1s), and it stops flashing when the positioning signal is recovered.



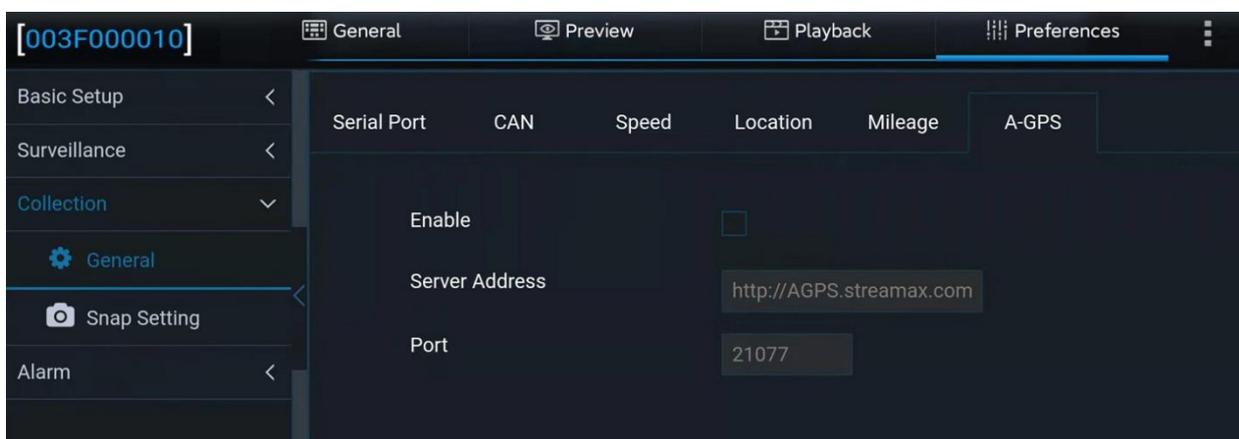
- 1) **Choose Preferences > Collection > General > Mileage**. The screen for setting the **Mileage** is displayed. On this screen, you can specify the Base Value, and correct or clear the mileage data, as shown in the following figure:



- 2) **Choose Preferences > Collection > General > A-GPS.** The screen for setting the **A-GPS** is displayed.

In a strong signal environment, the autonomous GNSS receiver can cold start positioning in about 30 seconds; however, in a weak signal environment (such as under an elevated road, on 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, and they have difficulty in acquiring a text from satellites; therefore, it will 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.

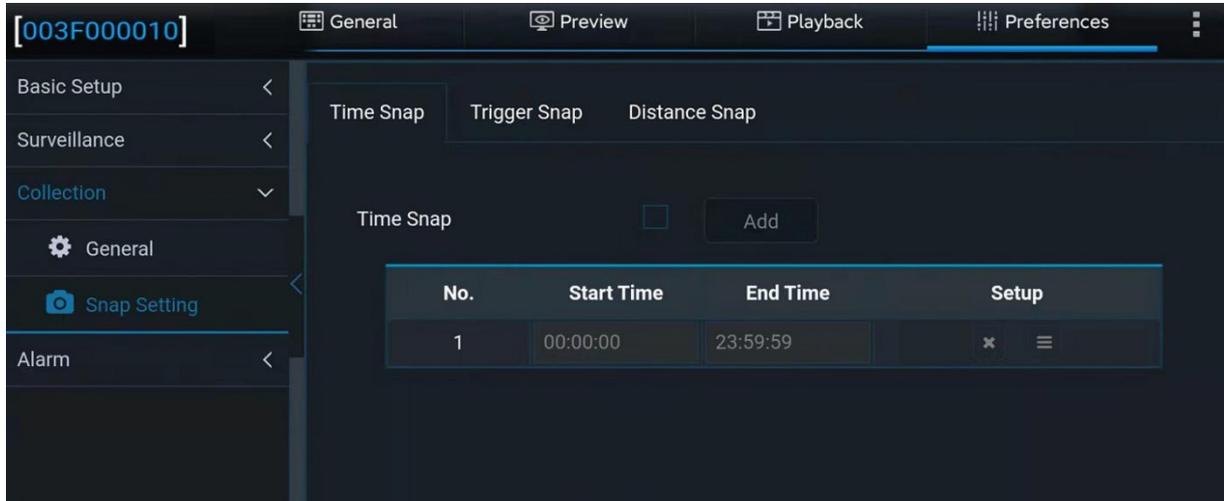
When in use, the AGPS proxy server regularly obtains all ephemeris data from various chip manufacturers and stores the data on the server. The device connects to the proxy server through the default IP/domain name and port of the proxy server (parameters can be modified manually). After the device is 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 can not be obtained, keep trying.



2.8.2. Capture Setting

2.8.2.1 Timed Capture

A time period can be specified to enable the device to capture images automatically. Tap **Preferences > Collection > Snap Setting > Time Snap**. The **Time Snap** screen is displayed, as shown in the following figure:

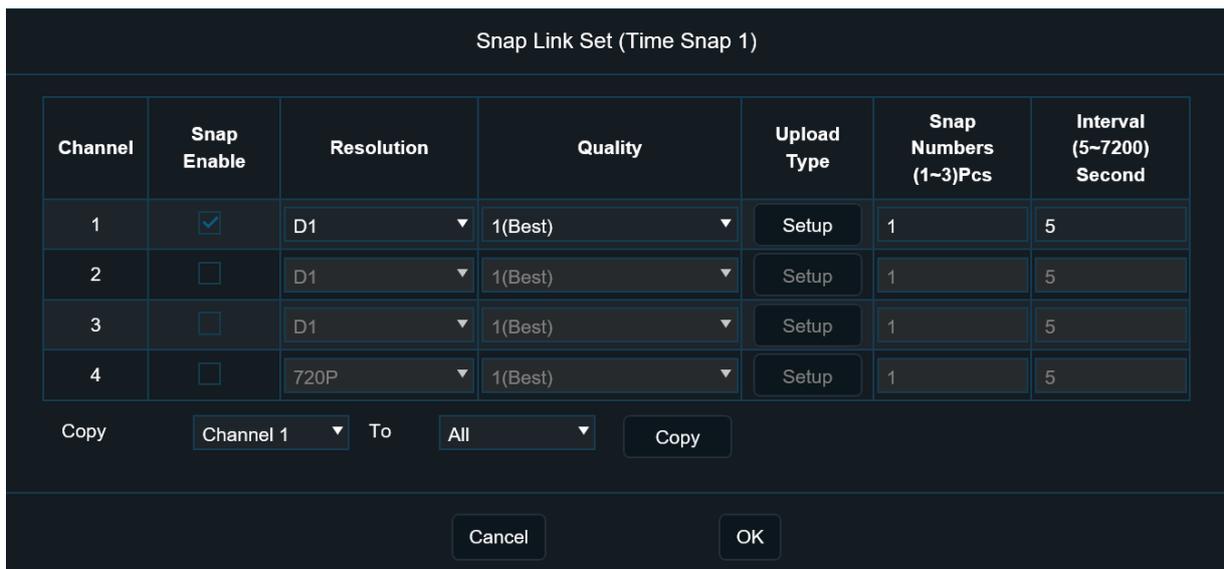


Select **Enable** to enable timed capture and tap **Add** to add a period for this function.

Start Time/End Time:

- 1) Set a time period, during which timed capture is enabled.
- 2) The period must be within a day.
- 3) A maximum of 8-time segments can be specified for timed capture.
- 4) You can add, edit, or modify the time periods.

Capture parameters can be specified for each time period independently. Tap the icon to enter the **Snap Link Set** screen, as shown in the following figure:

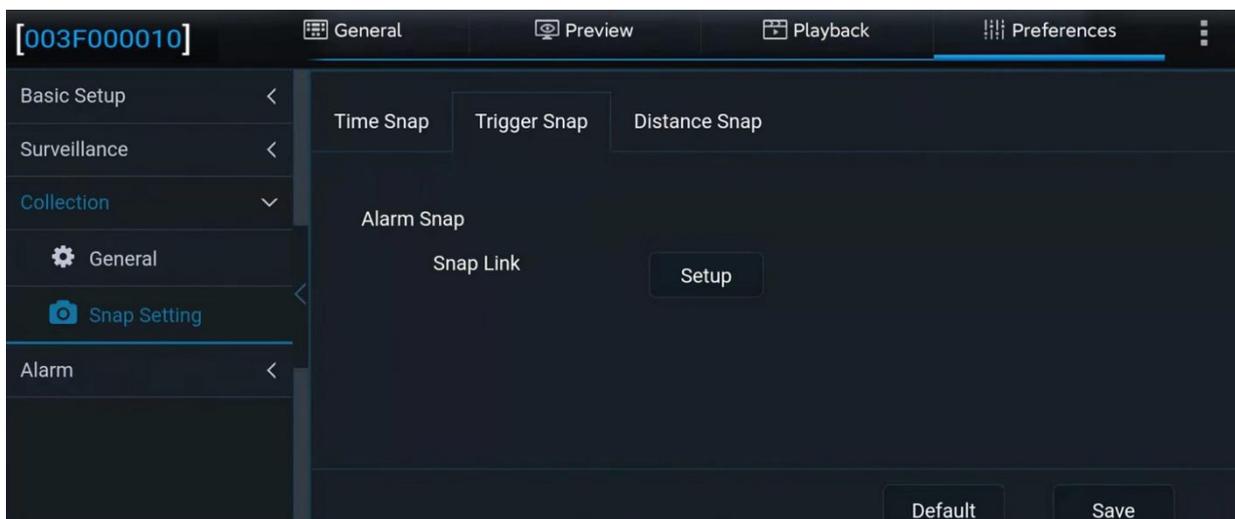


- 1) **Channel:** Select the camera channel for capture.
- 2) **Snap Enable:** Select to enable timed capture for this channel.
- 3) **Resolution:** Select the capture resolution.

- 4) **Quality:** Select from 1 to 8. Value **1 (Best)** indicates the best image quality.
- 5) **Upload method:** supporting FTP upload and HTTP upload. Captured pictures can be automatically uploaded through FTP. See Section 2.6.6 for details on FTP settings. When HTTP capture is selected, the captured pictures 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 Numbers:** Set it to **1, 2, or 3**.
- 7) **Interval:** specifies the interval between each capture, unit: s
- 8) **Copy:** Well-defined parameters can be applied to other channels by this button.

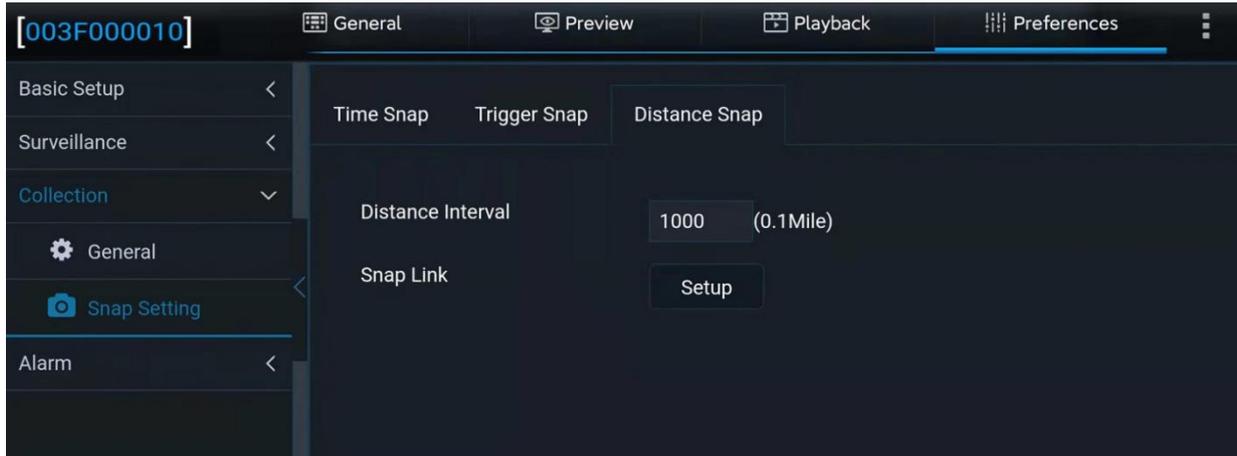
2.8.2.2 Capture at Alarm

Alarm-linked capture is supported, that is, capture starts once an alarm is triggered. **Tap Preferences > Collection > Snap Setting > Trigger Snap**. The setting method is the same as that for timed capture and is not described here.



2.8.2.3 Fixed-range Capture

The fixed-distance capture is supported, that is, capturing pictures at a fixed distance and uploading them to the platform. **Click 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.

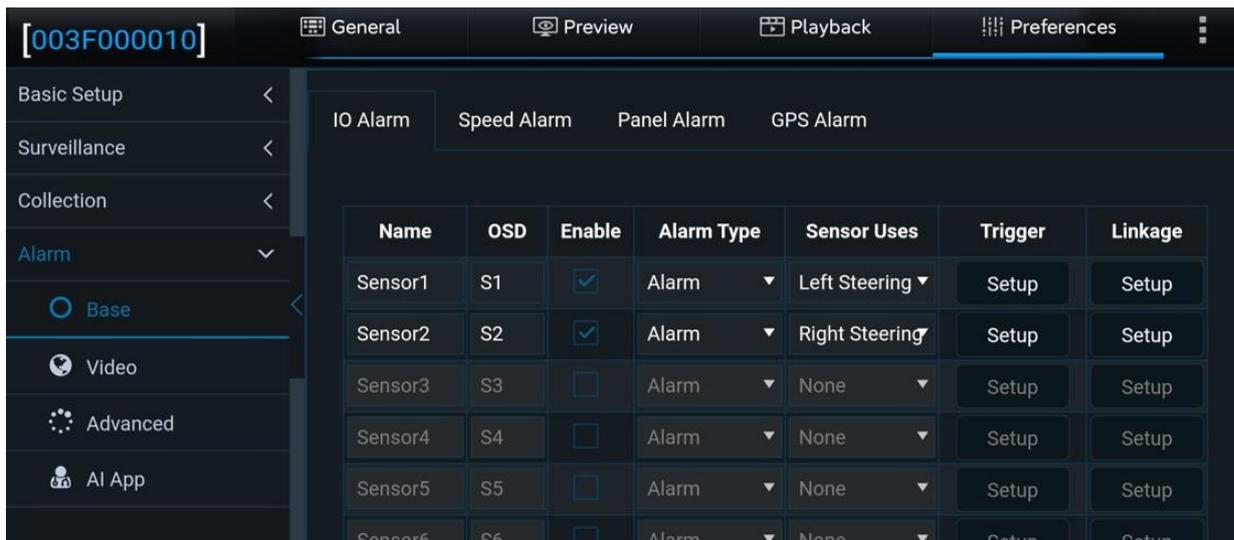


2.9. Alarm Setting

2.9.1. Base Alarm

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

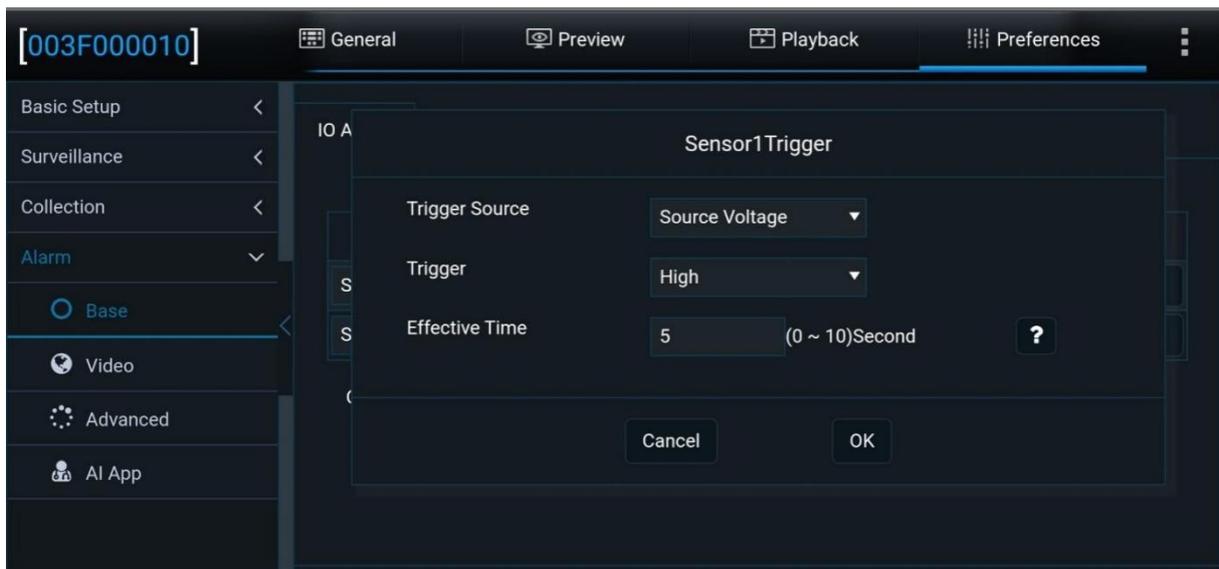
Tap **Preferences > Alarm > Base** to enter the screen shown below.



The MDC 240 supports conventional power boxes. If the power is supplied using loose wires, 2 IO inputs are supported.

- IO Alarm screen:
 1. **No.:** can be set to Sensor1, Sensor2,..., Sensor8 (there will be 8 IO inputs only when the UPS power box is used);
 2. **OSD:** Customizable, tap to modify
 3. **Abbreviation:** can be set to the IO abbreviation configured in OSD superimposition.
 4. Alarm Type: Alarm or Event
- When Alarm Type is Alarm:
 - 1) Alarms are superimposed on the preview and recording screen.
 - 2) Alarms are uploaded to the platform.

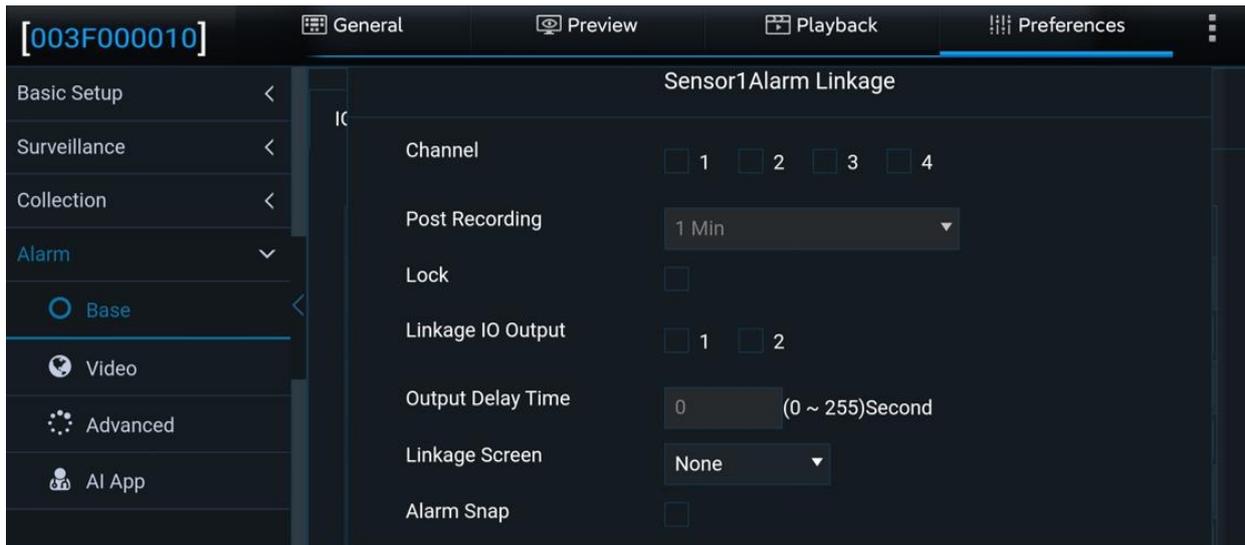
- 3) Alarm logs are write-accessible.
- When Alarm Type is Event:
 - 1) OSD superimposition does not apply.
 - 2) Alarms are not uploaded to the platform.
 - 3) Write an alarm log.
5. **Sensor Uses:** Set the purpose of the IO, which can be **Left Steering, Right Steering, Brake, and Privacy**.
6. **Trigger:** Tap **Setup** to enter the screen shown below:



- 1) **Trigger Source:** High/Low level or Pulse. High level by default.
- 2) **Effective Time:** a time period during which a cleared alarm is reported again. Alarms generated in this period are considered the same. Value range: 0-10s. Default value: 5s

Assume that a motion detection alarm is generated at 13:23:30 and is cleared at 13:23:50. If **Effective Time** is set to 10 seconds and the motion detection alarm is generated within 10 seconds, the two motion detection alarms are considered to be the same one. The alarm log records one alarm and alarm linkage stops only after subsequent motion detection is canceled.

7. **Linkage:** Set service functions to be linked with the alarm. Tap to enter the screen shown below.



- 1) **Channel:** specifies the recording channel after an alarm is generated. The recordings of selected channels will be marked as alarm recordings.
 - 2) **Post Recording:** specifies the duration, during which recording continues after an alarm is cleared. Value range: 1-30 minutes. Default value: **1 Min.**
 - 3) **Lock:** specifies whether to lock alarm recordings. If this option is selected, alarm recording will be locked once 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 boxes do not provide IO outputs). The duration for IO output can be configured, and the value range is 0 to 255 seconds.
 - 5) **Linkage Screen:** specifies the screen to be displayed in live view after an alarm is generated. By default, this parameter is set to None. You can also set it to Single or Quad screen display.
 - 6) **Alarm Snap:** specifies whether to capture images after an alarm is generated. If an FTP address has been configured, channel capture will be enabled after an IO alarm is generated, and captured images will be output via FTP. If alarm evidence uploads parameters have been configured on the platform, captured images 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**.

Overspeed Trigger

Preload Speed Difference	<input style="width: 90%;" type="text" value="10"/>	(0 ~ 200)KM/H
Speed	<input style="width: 90%;" type="text" value="100"/>	(1 ~ 200)KM/H
Duration Time	<input style="width: 90%;" type="text" value="10"/>	(0 ~ 255)Second

Cancel
OK

- 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.

[003F000010]
General
Preview
Playback
Preferences

- Basic Setup <
- Surveillance <
- Collection <
- Alarm >
- Base
- Video
- Advanced
- AI App

Panic Trigger

Any key	<input style="width: 90%;" type="text" value="1"/>	(1 ~ 255)Second
Effective Time	<input style="width: 90%;" type="text" value="10"/>	(0 ~ 10)Second ?

Cancel
OK

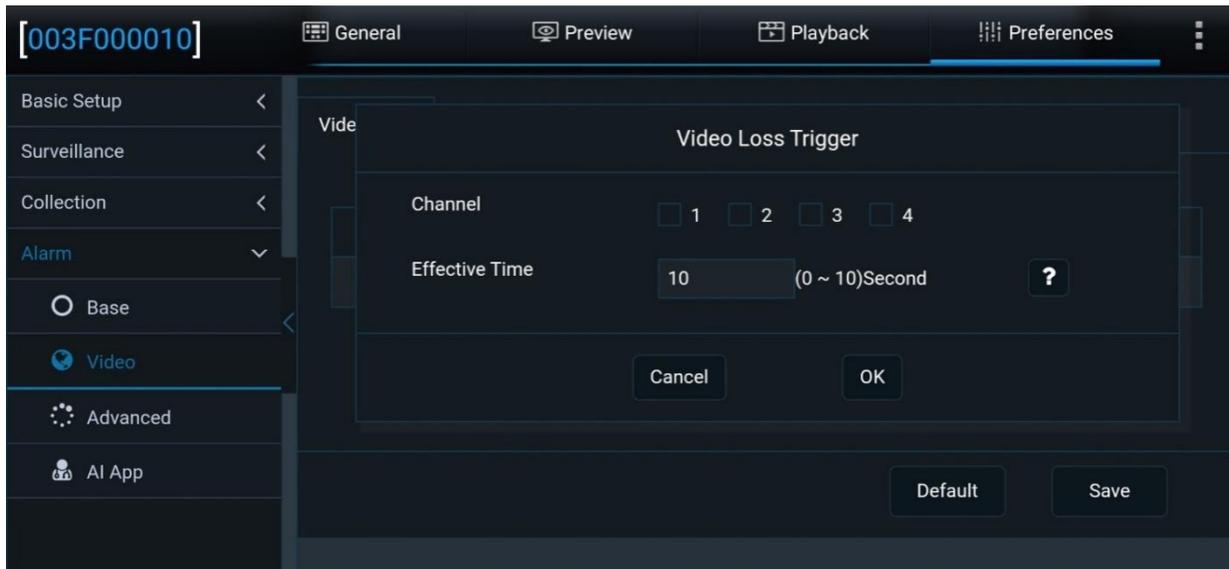
Default
Save

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

2.9.2. Video

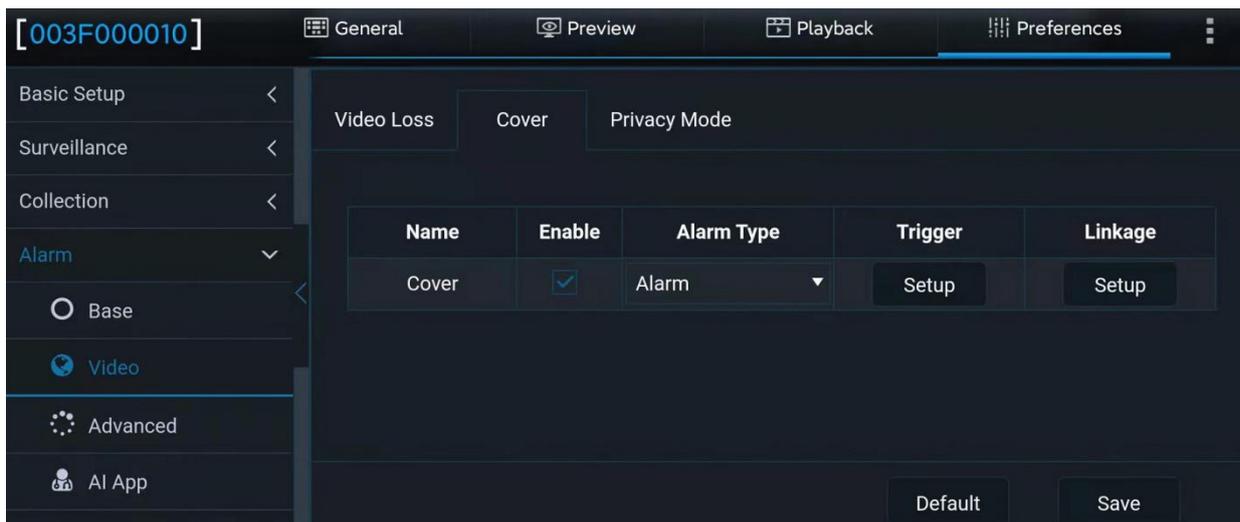
- Video Loss

On the **Video Loss** screen, you can set parameters for video loss alarms. **Choose 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.



- Camera cover

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



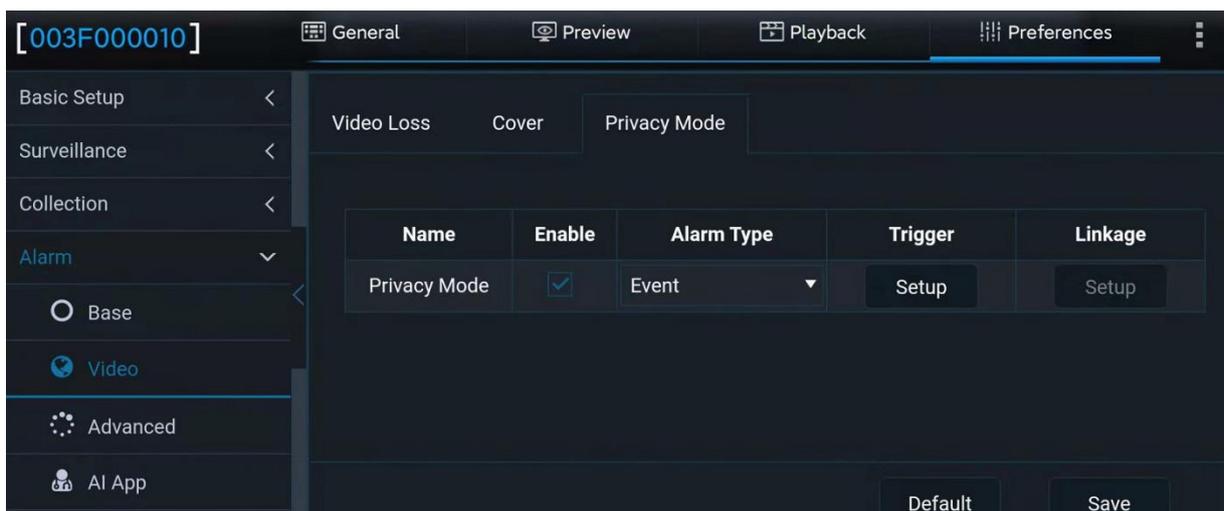
Tap Setup under Trigger to open the following screen. You can configure the channel, sensitivity, duration time, valid time, and speed threshold for the camera cover alarm. In the AI channel, the algorithms are used for detection. In the non-AI channel, the MDVR is used for judgment. Alarm linkage parameters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

The camera cover alarm of the MDC 240 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. The cover alarm of the BSD algorithm is triggered when the duration of covering lasts for 8 min and the speed exceeds 0. At present, the front top view BSD does not support the cover alarm.



- Privacy Mode

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



Click 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.

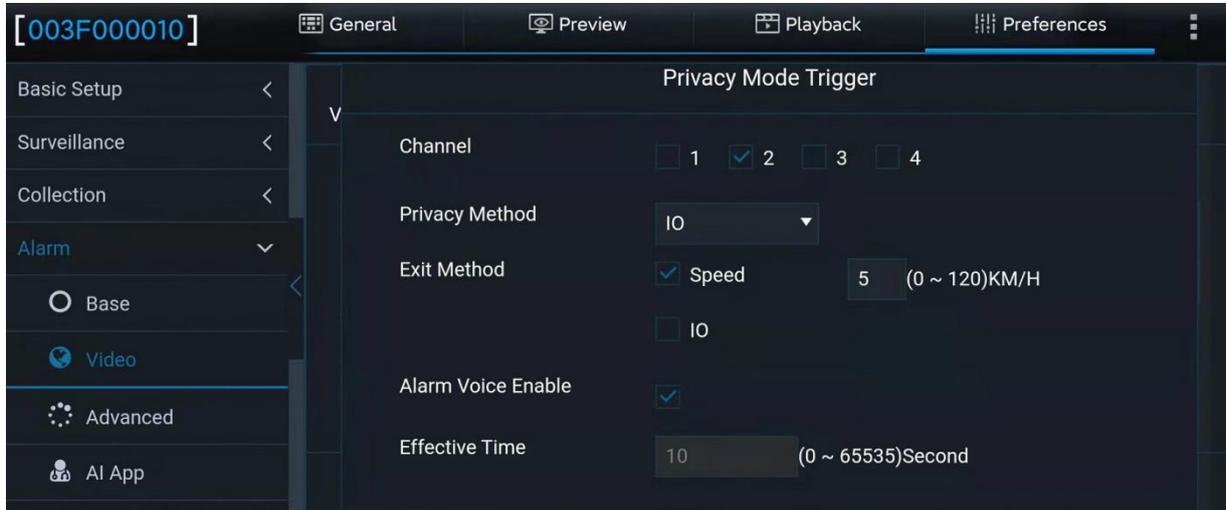
Privacy channel: when the privacy mode of a channel is turned on, it means that the audio and video recording of this channel is turned off, and it is enabled after turned on;

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. Refer to Section 2.9.1 for the specific setting method of IO. 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. As long as 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

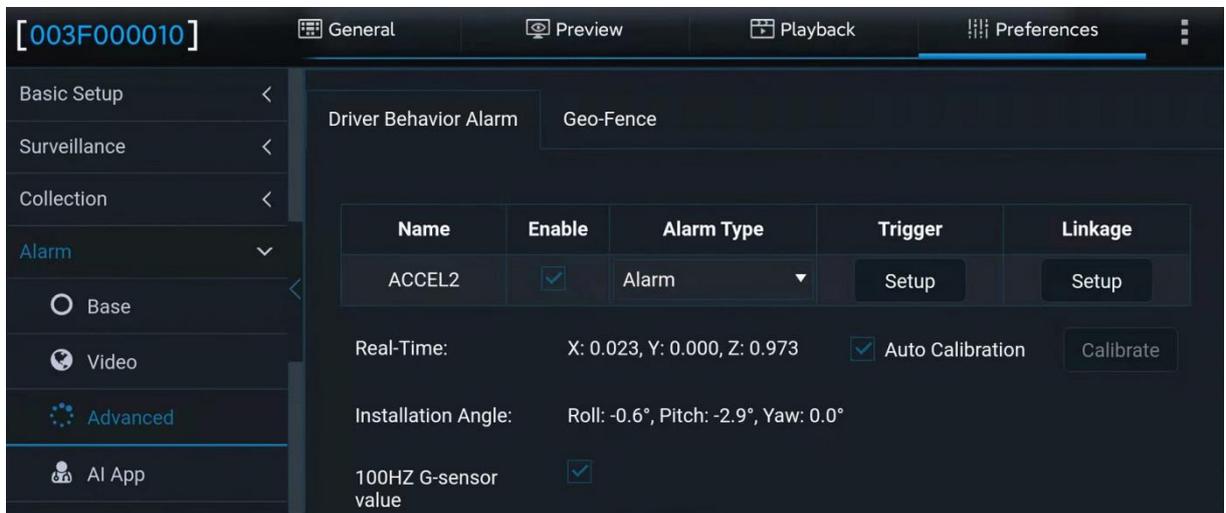
be released if the vehicle speed is greater than a certain value.

Privacy mode voice-enable: it refers to whether the broadcast voice is enabled when the privacy mode is triggered or touched. This enabling simultaneously controls the voice of privacy mode on/off, which can not be controlled separately.



2.9.3. Advanced

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: The alarm can be triggered by **Harsh Braking**, **Hard Acceleration**, **Harsh Left Turn**, and **Harsh Right Turn**. Other parameters including **Offset** and **Speed** can be configured, as shown in the following figure:

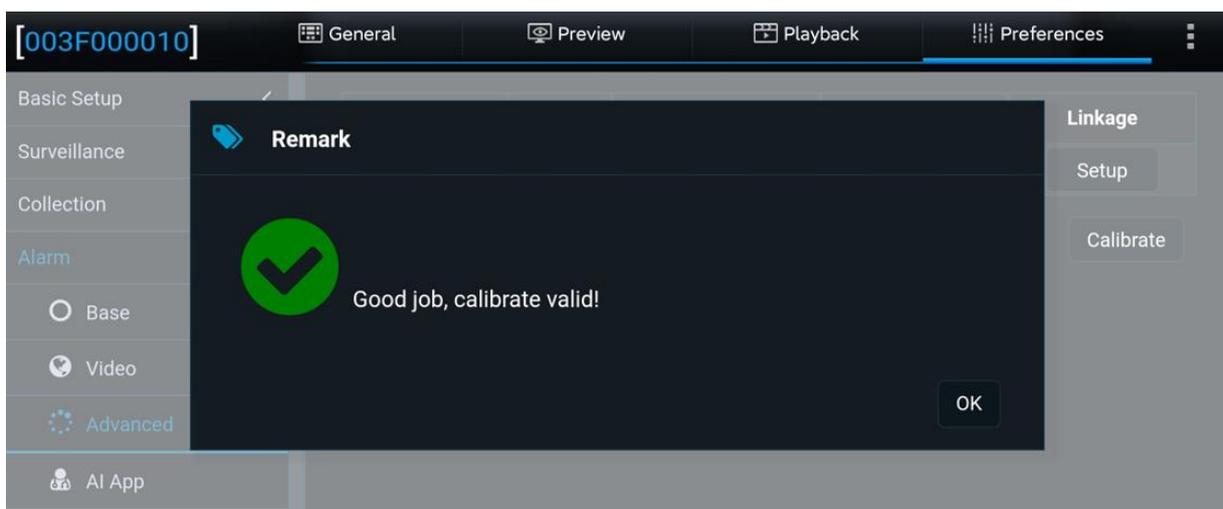
ACCEL2 Trigger						
Alarm Name	Enable	Offset		Speed		
Harsh Braking	<input checked="" type="checkbox"/>	0.5	(0.001 ~ 1)	20	~	50 (0~200)KM/H
Hard Acceleration	<input checked="" type="checkbox"/>	0.5	(0.001 ~ 1)	20	~	50 (0~200)KM/H
Harsh Left Turn	<input checked="" type="checkbox"/>	0.5	(0.001 ~ 1)	20	~	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 checked="" type="checkbox"/>	X: 1	(0.1 ~ 8)	Y: 1	(0.1 ~ 8)	Z: 2 (0.1 ~ 8)
Effective Time		10	(0 ~ 10)Second			

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.

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: Gsensor 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 ± 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,

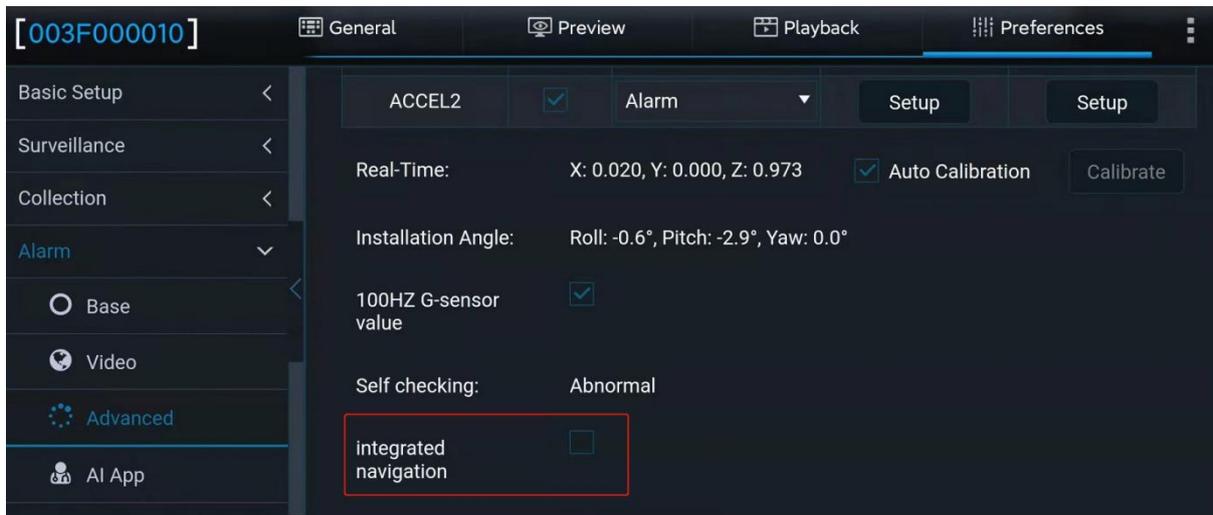
the data is recorded again.

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 ± 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. However, the accuracy cannot be guaranteed for now.



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.

2.9.4. AI Alarm

You can set AI alarm parameters by using the EasyCheck App. Tap **Preferences** > **Alarm** > **AI App** to enter the AI alarm setting screen. Supported AI alarms are shown below.

ADAS Alarm	LDW, FCW, HMW, and PCW
DMS/DSC Alarm	Driver Fatigue, No driver, Handheld Devices, Smoking, Distraction, Yawn, Seatbelt, No Mask , and Infrared Block Alarm (the red bold letters indicate the currently supported alarm types) DSC functions supported in V1.3 include Handheld Devices and Seatbelt ; DMS functions supported in V1.3 include Driver Fatigue, No driver, Handheld

Devices, Smoking, Distraction, Yawn, Seatbelt, and No Mask.
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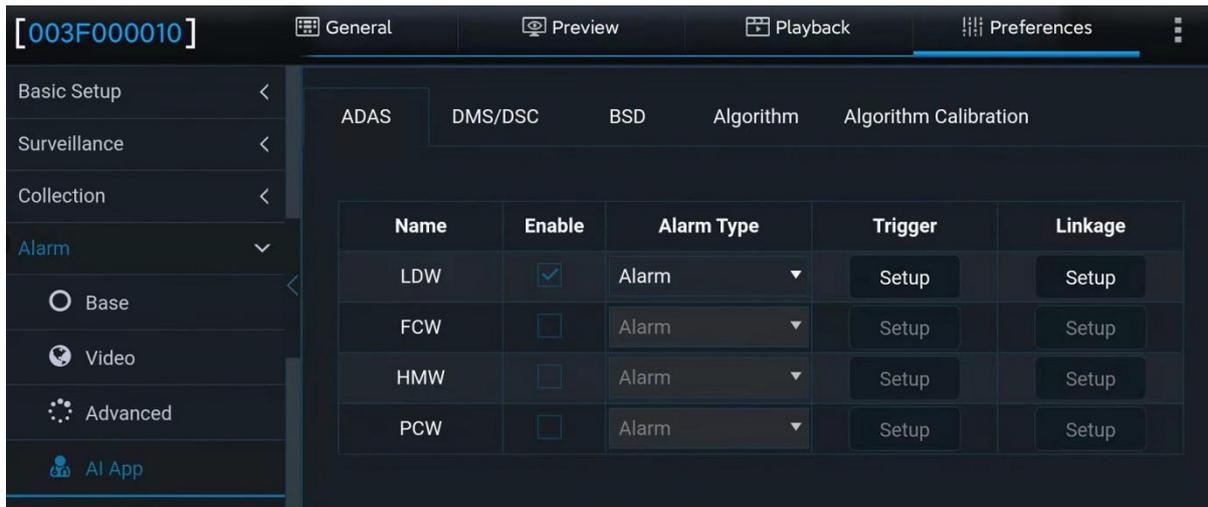
The parameter settings of all AI alarms share the same logic. The trigger conditions of each alarm include the following and can be set as required. Speed range, sensitivity, effective time (only one alarm is recorded when multiple alarms are triggered within this time range), and duration (duration the alarm persists). However, there are slight differences in the settable parameters of different alarms, as shown in the following table:

Alarm Main Type	Alarm Type	Settable Parameters				
		First-level and Second-level Speed Distinction	Sensitivity	Duration	Effective Time	Linkage
ADAS	LDW	Yes	Yes	None	Yes	Identical
	FCW	Yes	None	None	Yes	Identical
	HMW	Yes	Yes	Yes	Yes	Identical
	PCW	Yes	None	None	Yes	Identical
DMS/DSC	Driver Fatigue	Yes	Not adjustable	None	Yes	Identical
	No driver	None	Yes	None	Yes	Identical
	Handheld Devices	Yes	Yes	None	Yes	Identical
	Smoking	Yes	Yes	None	Yes	Identical
	Distraction	Yes	Yes	None	Yes	Identical
	Yawn	Yes	Yes	None	Yes	Identical
	Seatbelt	Yes	Yes	None	Yes	Identical
	No Mask	Yes	Yes	None	Yes	Identical
	Infrared Block Alarm	Yes	Yes	None	Yes	Identical
BSD	Right blind spot detection	None	None	Yes	Yes	Identical
	Left blind spot detection	None	None	Yes	Yes	Identical
	Front blind area	None	None	None	Yes	Identical

Since the parameter settings for all AI alarms are basically the same, the following exemplifies how to set HMW alarm parameters. In addition, the No Driver alarm in LDW/DMS alarms under the ADAS alarm is used as an example to show the parameter setting differences between the LDW/DMS alarms and other alarms.

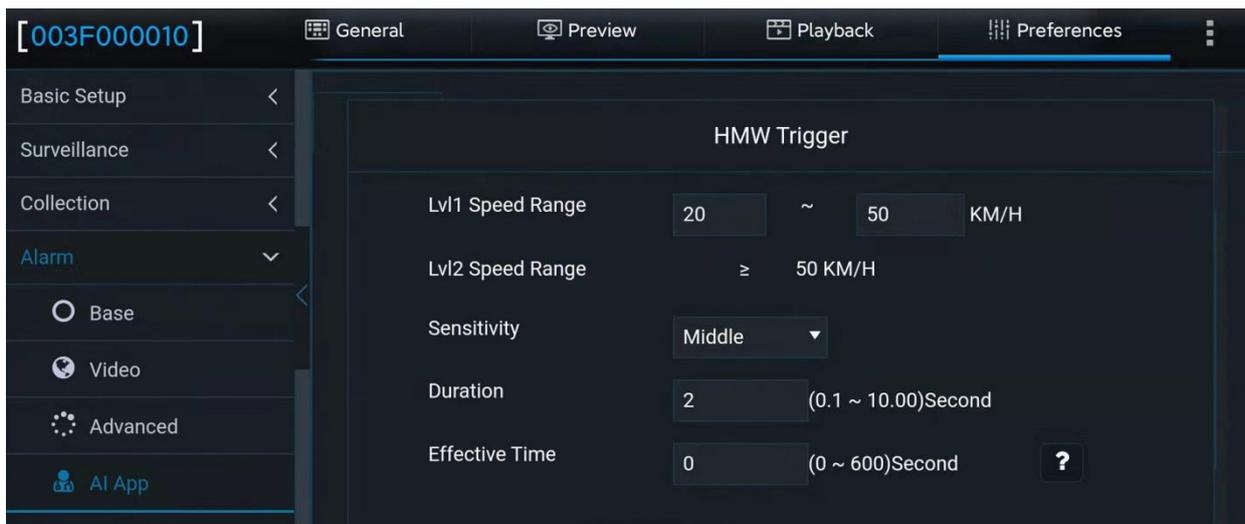
- HMW

Tap **Preferences > Alarm > AI App > ADAS**. Select Enable for HMW, as shown in the following figure:



Alarm Type: Select **Alarm** or **Event**. When **Event** is selected, generated alarms are not reported to the platform. For details about the difference, see Section 2.9.1 "Base Alarm."

Trigger: Tap **Setup** to set alarm triggering conditions, as shown in the following figure:



- **Lvl1 Speed Range:** specifies the speed range of level-1 alarms. The default value ranges from 20 to 50 km/h. When a level-1 alarm is triggered, MP3 voice is announced from the MDVR;
- **Lvl2 Speed Range:** specifies the speed range of level-2 alarms. The lower threshold of this parameter depends on the upper threshold of level-1 alarms. When the upper threshold of level-1 alarms is changed, the lower threshold of level-2 alarms changes accordingly. When a level-2 alarm is generated, the MDVR gives out a "beep" sound only.
- **Sensitivity:** specifies the sensitivity that an alarm is triggered. Optional values are Low, Middle, High, and Custom. Middle is selected by default. When Custom is selected, enter the target value. In the ADAS open alarm, sensitivity is configurable only for the HMW. The value range is 0.6 to 4 seconds (the time is the relative distance divided by the vehicle speed, and is not natural time). See the following figure.



HMW Trigger

Lvl1 Speed Range 20 ~ 50 KM/H

Lvl2 Speed Range ≥ 50 KM/H

Sensitivity User-Defined ▾ 1 (0.6 ~ 4)Second

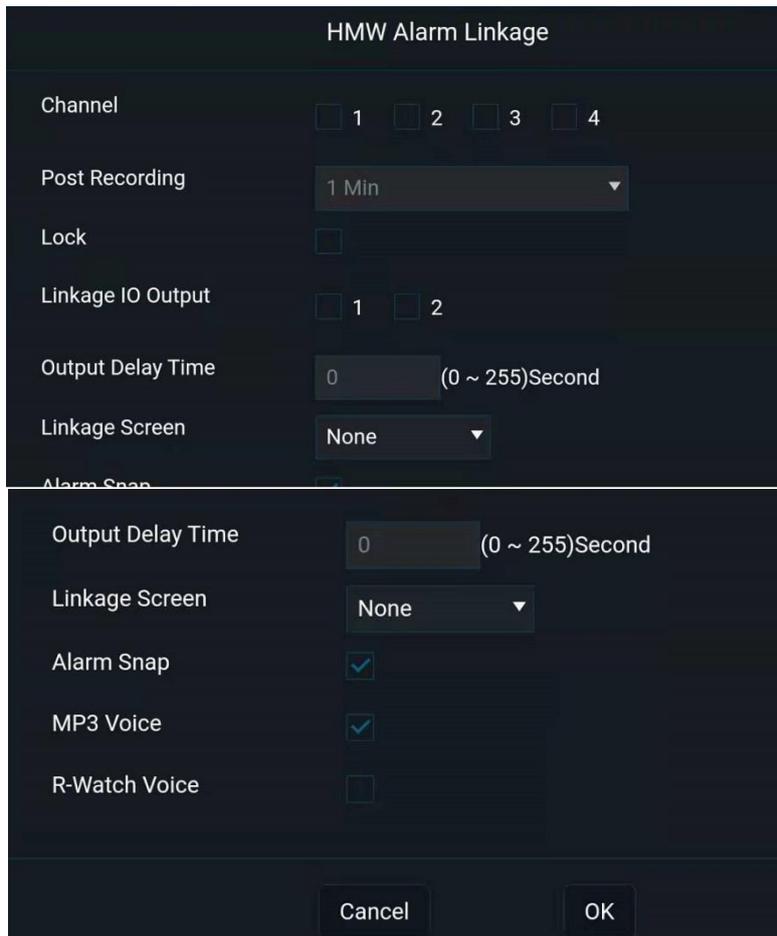
Duration 2 (0.1 ~ 10.00)Second

Effective Time 0 (0 ~ 600)Second ?

Cancel OK

- **Duration:** the duration of the headway monitoring warning (HMW) refers to a certain period of time that the conditions for HMW last for, and the alarm will not be generated until the certain period of time is reached. The setting range of the HMW duration is 0.10 ~ 10.00, and 2 can be a floating-point input. The default value is 2s.
- **Effective Time:** a time period during which a cleared alarm is reported again. Alarms generated in this period are considered the same. 0 ~ 600s is optional.

Linkage: Tap **Setup** to enter the screen shown below.



HMW Alarm Linkage

Channel 1 2 3 4

Post Recording 1 Min ▾

Lock

Linkage IO Output 1 2

Output Delay Time 0 (0 ~ 255)Second

Linkage Screen None ▾

Alarm Snap

Output Delay Time 0 (0 ~ 255)Second

Linkage Screen None ▾

Alarm Snap

MP3 Voice

R-Watch Voice

Cancel OK

- 1) **Channel:** specifies the recording channel after an alarm is generated. The recordings of selected channels will be marked as alarm recordings.

- 2) **Post Recording:** specifies the duration that recording continues after an alarm is cleared. Value range: 1-30 minutes. Default value: 1 Min.
 - 3) **Lock:** specifies whether to lock alarm recordings. If this option is selected, alarm recording will be locked once LDW 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 boxes do not provide IO outputs). The duration for IP output can be configured, and the value range is 0 to 255 seconds. Note: MDC 240 V1.1.0 does not support UPS power boxes.
 - 5) **Linkage Screen:** specifies the screen to be displayed in live view after an alarm is generated. By default, this parameter is set to None. You can also set it to Single or Quad screen display.
 - 6) **Alarm Snap:** specifies whether to capture images after an alarm is generated. If an FTP address has been configured, channel capture will be enabled after an IO alarm is generated, and captured images will be output via FTP. If alarm evidence uploads parameters have been configured on the platform, captured images can also be uploaded to the platform.
 - 7) **R-Watch Voice:** Select or deselect this option to enable or disable the R-Watch function. If this option is selected, R-Watch will play the beep alarm sound and display the icon when the MDC 240 connects to an R-Watch peripheral and an alarm is triggered.
 - 8) **MP3 Voice:** Select or deselect this option to enable or disable the MP3 voice function. If this option is selected, the MDVR will play the MP3 alarm voice when an alarm is triggered.
- LDW

Tap **Preferences > Alarm > AI App > ADAS**. Enable LDW alarm. On the alarm triggering setting screen, tap **Setup** to configure alarm parameters, as shown in the following figure:

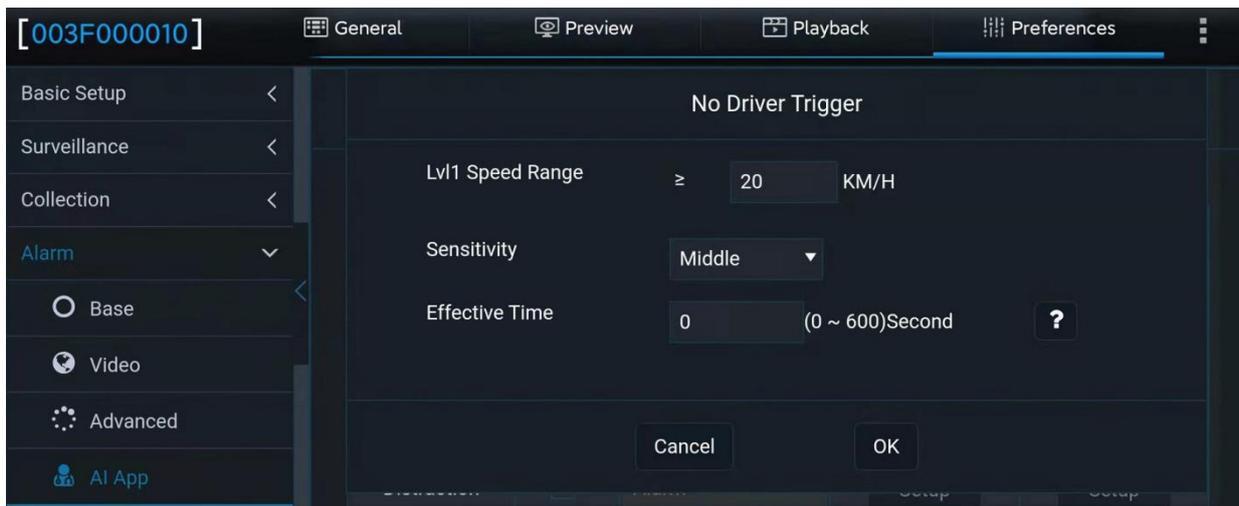
Comparing LDW alarm with HMW alarm, the setting screen has no duration and comparing FCW alarm with HMW alarm, the setting screen has no sensitivity and duration, with other setting parameters the same. Therefore, no more descriptions are provided here.

It should be noted that, in the version V1.3, the sensitivity of LDW can only be displayed and viewed but not set. For the requirement of setting, you need to send commands remotely through the platform to modify it.



- No Driver

Tap **Preferences** > **Alarm** > **AI App** > **DMS/DSC**. Enable No Driver alarm. On the alarm triggering setting screen, tap **Setup**, as shown in the following figure:



No Driver alarms have only one level. When a **No Driver** alarm is triggered, there is a voice prompt. The alarmed speed can be customized and is defaulted to 20 km/h. Other parameters are the same as those of HWM and are not described here.

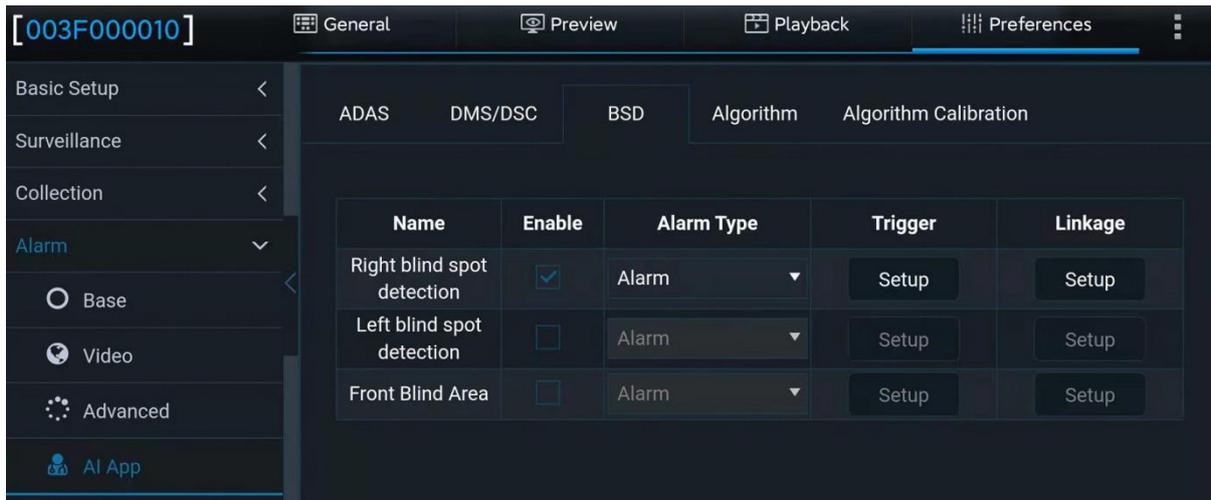
In the AI function, BSD alarm is supported. Choose **Preferences** > **Alarm** > **AI App** > **BSD**. The following screen is displayed, where you can set the relevant parameters of the BSD alarm. The BSD alarm does not distinguish Level I and Level II alarms by the speed range, but according to the distance between the pedestrian and the vehicle, as follows:

Level I alarm: 2 - 3 m distance from the vehicle body

Level II alarm: 1 - 2 m distance from the vehicle body

Level III alarm: 0 - 1 m distance from the vehicle body

Collision warning: 2 m in front of the vehicle body



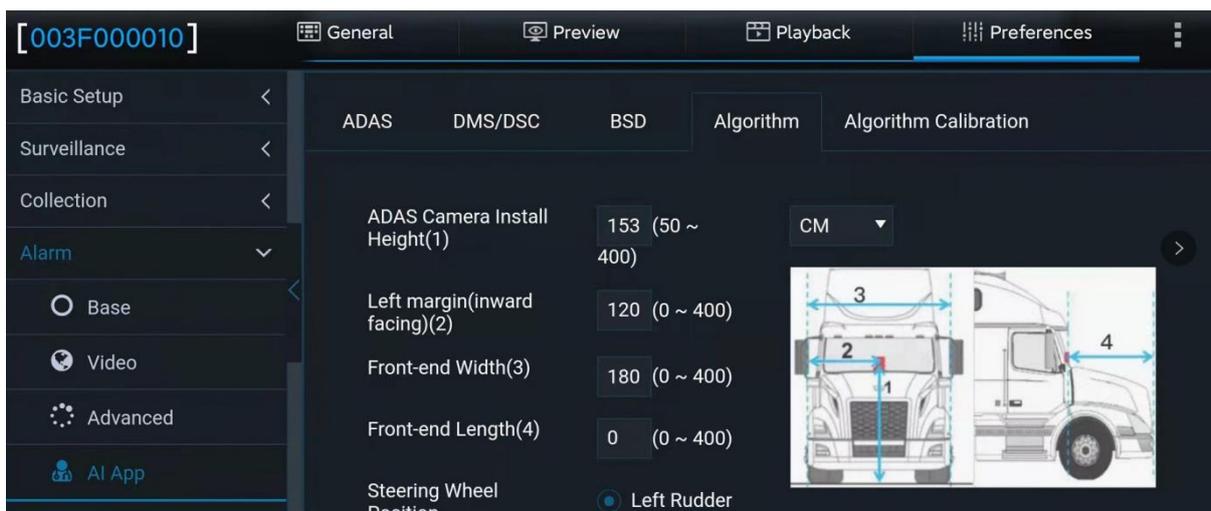
2.9.5. Algorithm Parameters

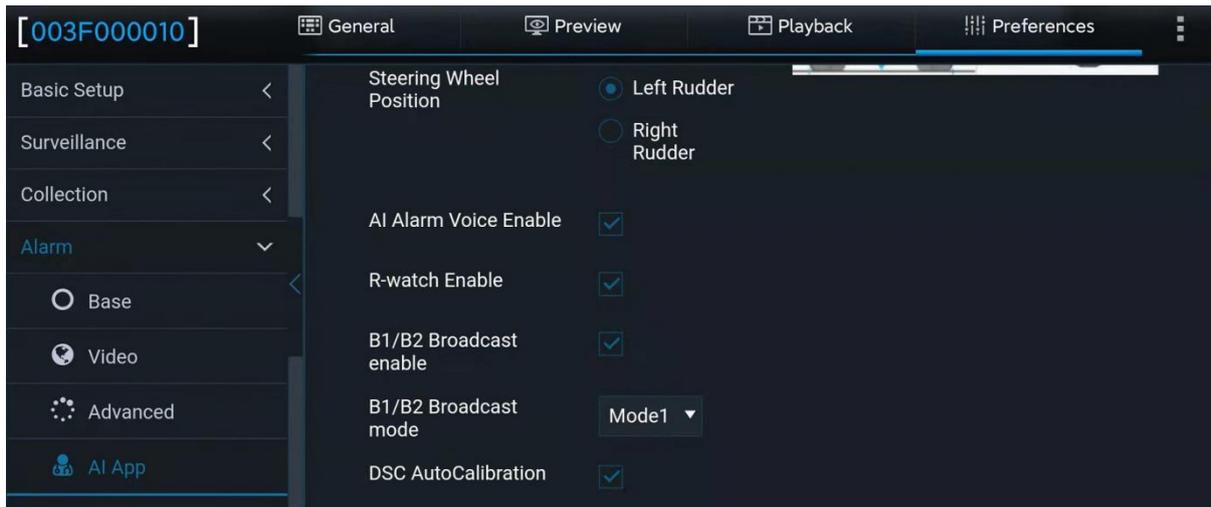
On the algorithm parameter setting screen of AI alarms, you can modify the ADAS calibration height, and enable or disable AI alarm voice prompt and the R-Watch function (if R-Watch is present).

Tap **Preferences > Alarm > AI App > Algorithm**, as shown in the following figure.

The unit of **ADAS Camera Install Height** can either be cm or inch. If cm is selected, the value range is 50 to 400 cm and the default value is 153 cm. If inch is selected, the value range is 20 to 157 inches and the default value is 59 inches.

In addition, the screen is added with DMS and DSC auto-calibration options, with the enabling enabled by default. After checking Enable, even if manual calibration is not performed, the device will automatically complete the calibration process during normal use.

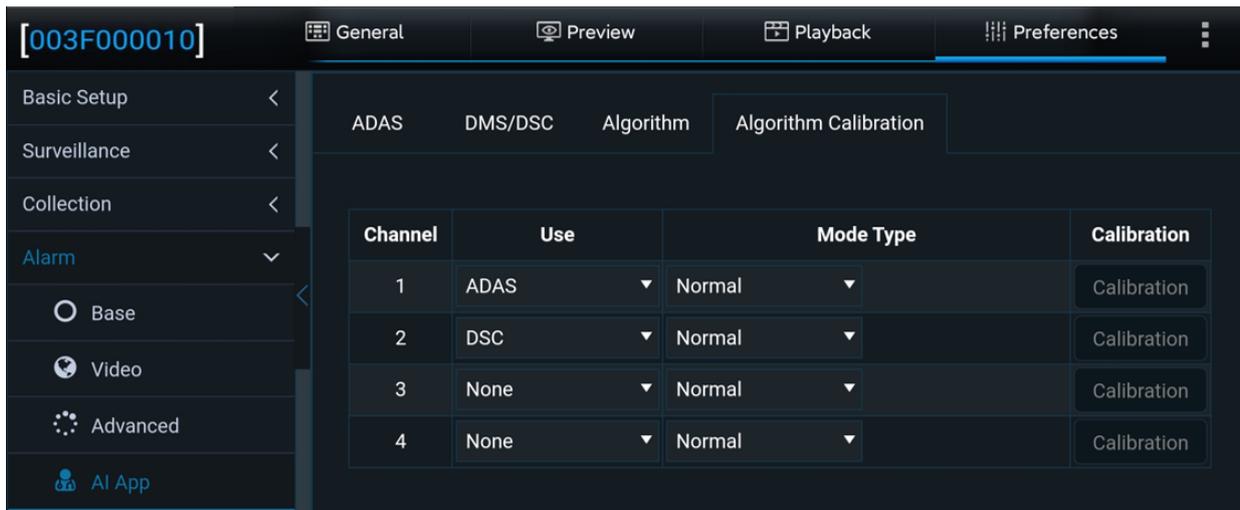




2.9.6. Algorithm Calibration

On the algorithm calibration screen of AI alarms, set the algorithms used by the camera channels.

Tap **Preferences > Alarm > AI App > Algorithm Calibration**, as shown in the following figure.



When the Road Facing Camera is used for advanced assistant driving, the usage of the 1-channel algorithm needs to be set to ADAS, and the mode type needs to be set to normal mode

When the Cabin Facing Camera is used for the intelligent cockpit, the 2-channel algorithm needs to be set to DSC, and the mode type needs to be set to normal mode

When the AHD port is connected to a 1-channel DMS camera and used for driving status detection, the 3-channel algorithm needs to be set to DMS, and the mode type needs to be set to normal mode

Note: In the current status, the MDC 240 only supports simultaneous operations of two AI algorithms, that is, ADAS+DSC, ADAS+DMS (either DSC or DMS), or ADAS+BSD. Please be noted that currently, simultaneous operations of three algorithms are not supported.