

**Streamax**

# M1N 2.0



Product User Manual



## Preface

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The data provided in the user manual are theoretical values obtained from Streamax Technology's internal laboratory under specific test conditions (please refer to the specific instructions for each item). In actual use, there may be slight variations due to differences in product individuality, software versions, usage conditions, and environmental factors. Please refer to the actual usage scenario for accurate information.

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Please read this manual carefully to ensure the correct usage and proper functioning of the required features.

	Warning: This manual may contain information that pertains to user safety or potential hazards to the device user.
	Special Note: There may be situations that could potentially compromise data integrity, damage device firmware and hardware.
	Note: Additional explanations, definitions of terms, etc.

Dates	Version	Modify Description	Author
2023/04/01	V1.0	Initial Release	Ma Peng

# 目录

<b>1. PRODUCT OVERVIEW .....</b>	<b>1</b>
1. 1 PRODUCT HIGHLIGHTS .....	1
1. 2 MAIN USES AND SCOPE OF APPLICATION .....	2
1. 3 MODEL COMPOSITION.....	2
1. 4 WORKING ENVIRONMENT .....	2
1. 5 ENVIRONMENTAL AND ENERGY IMPACTS.....	3
1. 6 SAFETY.....	3
<b>2. SYSTEM COMPONENTS .....</b>	<b>3</b>
2. 1 SYSTEM BLOCK DIAGRAM.....	3
2. 2 INTRODUCTION TO MAIN PRODUCT FUNCTIONS .....	4
2. 3 SYSTEM CONNECTION DIAGRAM .....	4
2. 3. 1 <i>ACC Power Supply System Connection Diagram</i> .....	5
<b>3. TECHNICAL CHARACTERISTICS .....</b>	<b>5</b>
<b>4. INSTALLATION AND DEBUGGING .....</b>	<b>5</b>
4. 1 INSTALLATION OF MOBILE APPS.....	5
4. 2 QUICK START GUIDE .....	6
4. 2. 1 <i>Pre-installation</i> .....	6
4. 2. 2 <i>Installation of SIM Card and Memory Card</i> .....	6
4. 2. 3 <i>Installation Step 2: Select a Suitable Area for Installing the M1N 2.0</i> .....	8
4. 2. 4 <i>Installation Step 3: Power Supply Connection and Connection of Signal Cables</i> .....	9
4. 2. 5 <i>Installation Step 4: Connection of Signal Cables (Pulse or CAN/Left/Right Steering Signal/Reversing)</i> 10	10
4. 2. 6 <i>Installation Step 5: Connect Veyes</i> .....	13
4. 2. 7 <i>Installation Step 6: Calibration of ADAS, DMS, BSD</i> .....	13
4. 2. 8 <i>Installation Step 7: Configure Server Information and AI Alarms</i> .....	13
4. 2. 9 <i>Installation Step 8: Check Device Status</i> .....	13
4. 3 ENGINEERING INSTALLATION OF EQUIPMENT .....	13

5. OPERATION INSTRUCTIONS.....	13
5. 1 INTRODUCTION TO PANEL STATUS LIGHTS.....	13
5. 2 DEVICE LOGIN/LOGOUT.....	14
5. 3 GENERAL INFORMATION VIEWING.....	16
5. 4 PREVIEW.....	20
5. 4. 1 <i>Preview</i> .....	20
5. 4. 2 <i>AI calibration</i> .....	21
5. 4. 2. 3. 1 <i>Look-Down BSD Installation Calibration</i> .....	30
5. 5 PLAYBACK.....	34
5. 5. 1 <i>Playback</i> .....	35
5. 5. 2 <i>Video Export</i> .....	37
5. 6 BASIC SETUP.....	38
5. 6. 1 <i>Regist Information</i> .....	39
5. 6. 2 <i>Time Setup</i> .....	39
5. 6. 3 <i>Startup</i> .....	42
5. 6. 4 <i>User Setup</i> .....	46
5. 6. 5 <i>Network</i> .....	47
5. 6. 6 <i>Application</i> .....	55
5. 6. 7 <i>Voice Setup</i> .....	57
5. 6. 8 <i>Telephone Setup</i> .....	57
5. 6. 9 <i>FaceCompare</i> .....	58
5. 7 SURVEILLANCE.....	60
5. 7. 1 <i>Live View</i> .....	60
5. 7. 2 <i>Record</i> .....	61
5. 7. 3 <i>IPC Setup</i> .....	71
5. 7. 4 <i>Camera Setup</i> .....	71
5. 8 COLLECTION .....	72
5. 8. 1 <i>General</i> .....	72
5. 8. 2 <i>Snap Setting</i> .....	80
5. 9 ALARM.....	83

5.9.1 <i>Base</i> .....	83
5.9.2 <i>Video Alarm</i> .....	87
5.9.3 <i>Advanced</i> .....	91
5.9.4 <i>AI App</i> .....	94
<b>6. SPECIAL FUNCTION OPERATION INSTRUCTIONS .....</b>	<b>106</b>
6.1 PRIVACY PROTECTION FUNCTION EXPLANATION .....	106
6.1.1 <i>Function Overview</i> .....	106
6.1.2 <i>Related Configurations</i> .....	106
6.1.3 <i>Instructions for Use</i> .....	107
<b>7. Q/A .....</b>	<b>107</b>
7.1 DEVICE CANNOT POWER ON .....	107
7.2 DEVICE UNABLE TO CONNECT TO THE INTERNET AFTER POWERING ON .....	108
7.3 DEVICE UNABLE TO RECORD AFTER POWERING ON .....	108
7.4 NO IMAGE DISPLAYED AFTER CONNECTING CAMERA TO DEVICE'S ANALOG CHANNELS .....	108
<b>8. APPENDIX .....</b>	<b>108</b>
8.1 GLOSSARY OF TERMS .....	108

## List of Abbreviations:

Abbreviations	English explanation	Chinese Explanation
1080P	resolution ratio 1920×1080	分辨率 1920×1080
ADAS	Advanced Driving Assistance System	高级驾驶辅助系统
BSD	Blind Spot Detection	盲点探测系统
DMS	Driver Monitoring System	驾驶员检测系统
VBR	Variable Bit Rate	动态比特率
CBR	Constants Bit Rate	固定比特率

## 1. Product Overview

M1N2.0 is a multifunctional in-vehicle intelligent terminal composed of storage module, encoding module, communication and power module, etc., with the integration of in-vehicle video monitoring, platform remote video monitoring, and driver driving behavior analysis.

It has a powerful video access and encoding capabilities, maximum support for 4Ch AHD and 2Ch IPC . Can simultaneously support 6Ch 1080P@30fps full HD real-time full frame encoding and recording capabilities, to ensure that the video quality frame rate is not lost.

The product has built-in rich wireless communication capability, supporting 4G/3G high-speed network, WIFI wireless network, and GPS/BDS/GALILEO/GLONASS multi-band quad-constellation global GNSS positioning system at the same time.

Products built-in powerful NPU processing capabilities, based on AI algorithms, can support 2Ch built-in AI, which can fully cover ADAS, DMS, BSD. effectively improve driver safety driving and reduce pedestrian-vehicle traffic accidents

At the same time, M1N2.0 has a strong anti-interference ability of the vehicle environment, the product meets the ISO16750, ISO7637 vehicle test standards, to meet the use of different vehicle types installed.

### 1.1 Product Highlights

- Supports 4Ch AHD and 2Ch IPC;
- Full HD 6Ch 1080P@30fps real-time full-frame encoding in video-only case;
- Supports AHD HD video output;
- Optional support for digital SIM card technology (eSIM), more resistant to temperature and vibration; extended support for 4G main and hierarchical antennas.
- Supports GPS/BDS/GALILEO/GLONASS for more accurate positioning; external waterproof antenna with IP67 rating.
- External interface automotive-grade, high-precision quick-release connectors support quick disengagement for easy installation and maintenance;

- High-speed processor and powerful neural network inference engine with built-in AI;
- Supports 2Ch Micro SD , up to 2\*512G; additional support for 1\*M.2 SATA SSD storage, up to 1\*2TB
- The whole system adopts mechanical vibration reduction, electronic vibration prevention and software vibration prevention, a combination of three comprehensive vibration reduction technology;
- Rich peripheral interfaces;

## 1.2 Main Uses and Scope of Application

The M1N 2.0 series is primarily used in the field of automotive safety to assist drivers in reducing traffic accidents and helping fleet operators improve management efficiency.

## 1.3 Model Composition

M1N 2.0-H0402:Full-function version, 4CH AHD, 2CH IPC interfaces.

## 1.4 Working Environment

- Power Input: DC9V~36V
- Operating Temperature: -30°C~+70°C (-22°F~+158°F)
- Storage Temperature: -40°C~+70°C (-40°F~+158°F))
- Operating Humidity: 15% - 95% (non-condensing)
- Storage Humidity: 15% - 95% (non-condensing)
- Salt Spray: Compliant with GB/T 2423.17 standard
- Illumination: Not specified
- Altitude: Not specified
- Waterproof and Dustproof: IP30 (the main unit is not waterproof)
- Explosion-proof and Anti-smash: Suitable for vehicle use environment



Warning: Streamax is not responsible for any damage or malfunctions of the device caused by using it in environments that do not meet the specified working conditions.

## 1.5 Environmental and Energy Impacts

- ACC OFF: 13.5V@0.91mA、27V@1.21mA
- Sleep Mode (Only 4G and MCU are powered) : 13.5V@115mA、27V@80mA
- Typical r consumption (with 2 \* 64G Micro SD, 1 \* 1T M.2 SSD, SIM card dialing, 4\*AHD cameras each 3W consumption, 2\*IPC each 4W consumption, 12V@0.5A output):  $\approx 50\text{W}$ .
- Max consumption (with 2 \* 64G Micro SD, 1 \* 1T M.2 SSD, SIM card dialing, 4\*AHD cameras each 4W consumption, 2\*IPC each 4W consumption, 12V@1A output):  $\approx 60\text{W}$ .



Special Note: The above data are test results obtained in specific laboratory conditions.

There may be variations due to differences in product individuality, usage environment, peripheral camera power, and testing methods.

## 1.6 Safety

This product requires professional installation. Otherwise, there is a risk of electric shock, damage to vehicle wiring, impairment of AI experience, and the risk of device detachment.

When this product is in use, the surface temperature may exceed 60°C when exposed to direct sunlight. Do not touch the surface directly exposed to the sun to avoid burns.

## 2. System Components

This chapter introduces the system components of a complete system solution, which may not be the standard shipping package. The aim is to help users understand the product functionality from a system perspective.

### 2.1 System Block Diagram

MDVR+2\* Built-in AI ( ADAS+DMS or DMS+BSD、2\*BSD)。



## 2.2 Introduction to Main Product Functions

**M1N 2.0:** To help drivers reduce traffic accidents and assist fleets in improving management efficiency

**Veyes:** App specialized for device O&M installation and configuration

**R-watch:** Alarm Reminder

**C29N:** Professional DMS (Driver Monitoring System) cameras.

**CA20S:** Professional forward-facing ADAS (Advanced Driver Assistance Systems) detection cameras.

**CA46:** Professional exterior BSD ( blind spot detection ) cameras.

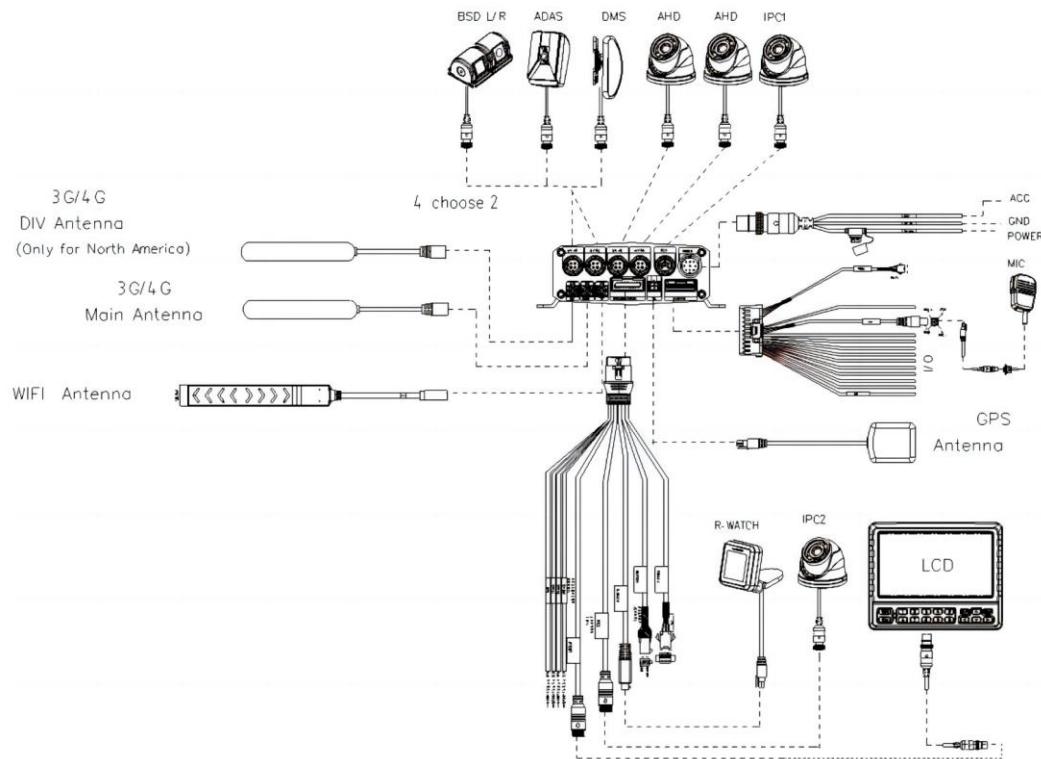
**FTCloud:** a professional SaaS video service platform

**FTAPI:** The business API interface provided by FTCloud platform to the outside world.

**FT Vision:** Mobile App for use with FTCloud

## 2.3 System Connection Diagram

### 2.3.1 ACC Power Supply System Connection Diagram



## 3. Technical Characteristics

For detailed technical specifications, please refer to the "M1N 2.0 Product Specification Manual".

## 4. Installation and Debugging

### 4.1 Installation of Mobile Apps

- For Android phone users, please search for "Veyes" on the Google Play Store and download and install it.
- For iOS phone users, please search for "Veyes" within the App Store and download and install it.



Special Note: The Mobile Apps have system version restrictions and require Android

5.0 or iOS 11 and above. Subsequent usage operations will be demonstrated using Android as an example; therefore, installation effects will not be separately demonstrated here.

## 4.2 Quick Start Guide

The Quick Start Guide briefly describes the installation and configuration of the device, with detailed references to the engineered installation and use of the device.

### 4.2.1 Pre-installation

Prepare and check: Product kit, Nano SIM card, Micro SD card, screwdriver set, 5m measuring tape, smartphone.

Park the vehicle on a level surface and turn off the engine.

### 4.2.2 Installation of SIM Card and Memory Card

Take out the main unit (without powering on), unlock the front panel of the main unit with the key in the package, and then insert SIM card 、Micro SD card、 M.2 SSD Box.

- Install SIM card and Micro SD card as shown in the figure below (pay attention to the insertion direction of the cards).



①Unlock with the key;

② Open the front panel;

③Pull out the SIM card tray



④Place the SIM card into the card tray in the direction of the silkscreen logo.

⑤ Push the card tray with card (**metal side up**) into the card slot

⑥SIM card tray pushed in to the bottom



⑦ Insert the card into the Micro SD card slot in the direction shown in the illustration

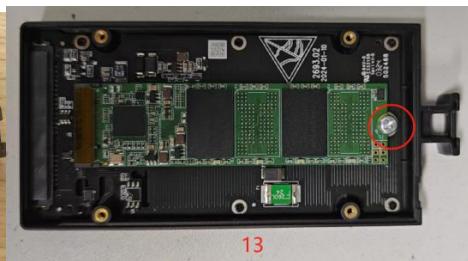
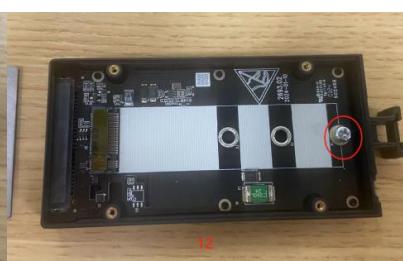
⑧ Be sure to let the Micro SD card push in to the bottom

- M.2 SSD BOX installation method:



⑨Use of M.2 SSD BOX pick-up auxiliary wrench (optional)

⑩With the tool tabs facing down on the M.2 SSD BOX wrench, pull the BOX out with force.



⑪ Open the 4 screws on the bottom cover of the hard disk enclosure.

⑫ Loosen the M.2 SSD retaining screws

⑬ Insert the hard disk and secure the screws



Warning:

◆ Industrial-grade SIM card (MP2) is required. The use of consumer-grade SIM cards (MP1) is

prohibited. Streamax shall not be held responsible for any issues arising from the use of consumer-grade SIM cards. The minimum requirement for TF card read/write speed is Class 10. It is recommended to use Class 10 or higher.

- ◆ Load SIM card needs to be loaded together with the SIM card tray in the direction of Figure 5 and pushed to the bottom, **it is strictly prohibited to insert SIM card without the card tray.**
- ◆ M.2 SSD drives only support SATA protocol, not Nvme protocol SSDs.
- ◆ If you feel smooth and flexible during installation of SIM card and SD card, and hear a clear sound of "Da" when pushing in the cards completely, it indicates that the cards are installed in the correct direction; if there is obvious friction resistance during installation, it indicates that the installation direction is wrong. Take out the cards in time to avoid any damage to the cards and the card holder.
- ◆ Do not touch the surface of the metal contact of the SIM card with hands when taking and installing the card, for fear of contaminating the SIM card by dust and sweat stain.
- ◆ Before installing SIM card, please check the surface of the metal contact of the SIM card for any dirt (such as dust, fingerprints and water stains). If any, clean the surface with a piece of non-woven fabric or rubber.
- ◆ Close the front panel and lock it with the key after the SIM card 、 Micro SD card and M.2 SSD BOX are installed.

#### 4. 2. 3 Installation Step 2: Select a Suitable Area for Installing the M1N 2.0

The installation position and method of the main unit shall be determined according to relevant electrical equipment construction specifications and on-site vehicle installation conditions.

##### (I) Mounting position

The installation position shall be determined with careful consideration given to safety, vibration resistance, heat dissipation, waterproofing, damp-proofing, dust-proofing, protection against damage and easy maintenance, and shall meet the following requirements:

1. Vibration resistance: The terminal shall be installed at the position with weak vibration in the

vehicle, and should be kept away from the engine.

2. Heat dissipation: The terminal shall be kept away from on-board heat sources and be installed at a ventilated position for heat dissipation.

3. Waterproofing: During installation of the terminal, attention shall be paid to high temperature prevention and waterproofing.

4. Damp-proofing: The terminal shall be installed at a dry and ventilated place.

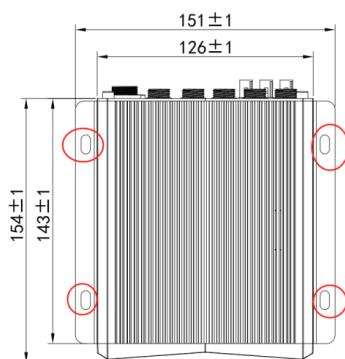
5. Dust-proofing: The terminal shall be installed at a place with less dust.

6. Electrical: The terminal shall be kept away from complex electromagnetic environment and strong interference environment as far as possible.

7. The installation position of the main unit shall be flat. Keeping the main unit sidelong and on a slant shall be avoided as far as possible.

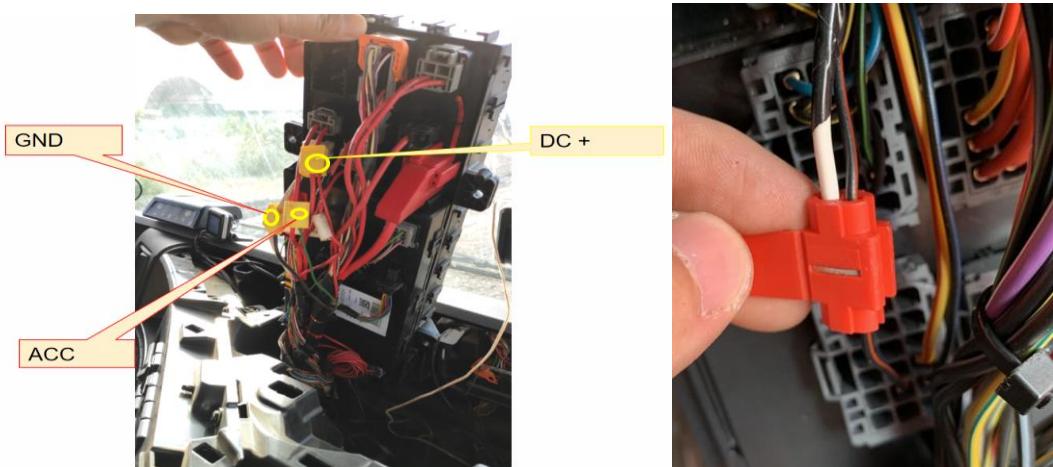
8. There shall be enough space to open and close the front panel (without affecting the removal and replacement of SIM card、Micro SD card and M.2 SSD BOX).

9. There shall have enough distance at the tail of the main unit to plug and unplug the aviation connector (without affecting the connection), and the tail harness must be wrapped firmly and neatly. If the above conditions are met, tighten the screws to fix the main unit, as shown in the figure below.



#### 4.2.4 Installation Step 3: Power Supply Connection and Connection of Signal Cables

Power cable: Connect DC+ to the vehicle constant power supply, ACC to the vehicle power cable, and GND to the vehicle ground wire.



#### Special Note:

The power line shall be connected using "special stripping-free connection terminal" where possible (no stripping is required, so as to avoid the risk of electric leakage), and the connection shall be wrapped with insulated rubber tape to avoid electric leakage/short circuit.

If there is no special stripping-free connection terminal, stripped wires can also be used for connection. In this case, the connection process must conform to the standard specifications. After the connection is completed, the connection shall be wrapped with insulated rubber tape to avoid electric leakage/short circuit.

#### 4.2.5 Installation Step 4: Connection of Signal Cables (Pulse or CAN/Left/Right Steering Signal/Reversing)

##### 1. Vehicle speed pulse or CAN (one out of two)

- (1) Consult the maintenance engineer of the vehicle discipline to locate the vehicle speed pulse cable. In the discrete-wire alarm serial connecting cable: Connect "SPEED IN" to the vehicle speed pulse cable; After the connection is completed, log in to the EasyCheck App to connect the M1N main unit. Enter the configuration interface, and set the speed source of the equipment as "Pulse". At the same time, drive the vehicle for a short distance at the installation site to test the accuracy of

vehicle speed pulse data.

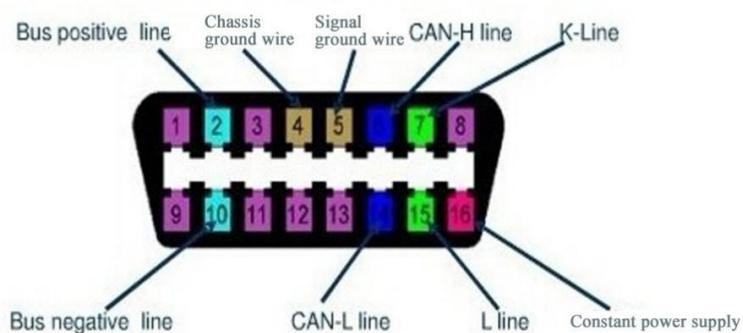
(2) Consult the maintenance engineer of the vehicle discipline to locate the OBD interface of the vehicle. Generally, the position of the OBD interface of the vehicle is as shown in the figure below. Locate CAN-H and CAN-L cables of the vehicle behind the OBD interface. Take the standard 16PIN inverted trapezoidal OBD interface as an example, CAN-H and CAN-L cables generally correspond to pins 6 and 14, respectively. (The cable sequence varies with the shape of OBD interface. The example here is only for illustration.)

(3) After the connection is completed, log in to the EasyCheck App to connect the M1N main unit. Enter the configuration interface, set the CAN model and baud rate of the equipment, and set the speed source as "OBD". At the same time, drive the vehicle for a short distance at the installation site to test the accuracy of vehicle speed pulse data.

General Position of OBD Interface of Each Vehicle Model



Pin Definition of OBD Interface of Vehicle



## 2. Left steering/right steering/reversing signal

After locating the fuse board below the steering wheel or the front passenger dashboard, measure

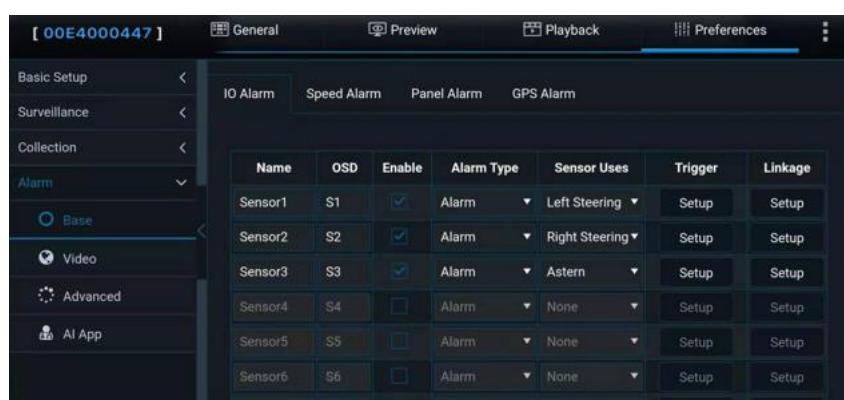
the cable corresponding to left steering/right steering/reversing signal according to the tips on the cover back of the fuse board or using a multimeter.

There are eight IO signal cables in the discrete wire, and the signal cables such as left steering, right steering and reversing all need to be connected. Moreover, it is necessary to connect the M1N 2.0 main unit through the EasyCheck App, so as to enter the configuration interface and set the use of corresponding signal cable.

Example:

- ① Connect SENSOR IN1 to the left steering signal cable of the vehicle. In this case, click [Preferences] > [Collection] > [General] > [Sensor] in sequence to set the "**Sensor Uses**" as "**Left Steering**", and then click "**Save**".
- ② Connect SENSOR IN2 to the right steering signal cable of the vehicle. In this case, click [Preferences]> [Collection] > [General] > [Sensor] in sequence to set the "**Sensor Uses**" as "**Right Steering**", and then click "**Save**".
- ③ Connect SENSOR IN3 to the reversing signal cable of the vehicle. In this case, click [Preferences] > [Collection] > [General] >[Sensor] in sequence to set the "**Sensor Uses**" as "**Reversing**", and then click "**Save**".

.....



#### Special Note:

If the measured signal is a pulse signal, the source of left steering/right steering/break signal shall be set as pulse on the setting interface of the main unit; if the measured signal is a continuous high or low level signal, the source of left steering/right steering/break signal shall be set as level on

the setting interface of the main unit.

#### 4.2.6 Installation Step 5: Connect Veyes

Refer to Chapter 5.2: Device Login and Logout.

#### 4.2.7 Installation Step 6: Calibration of ADAS, DMS, BSD

Refer to Chapter 5.4.2: AI Calibration

#### 4.2.8 Installation Step 7: Configure Server Information and AI Alarms

Refer to Chapter 5.6.5: The server configuration content in the network settings.

Refer to Chapter 5.9.4: AI Alarms

#### 4.2.9 Installation Step 8: Check Device Status

Refer to Chapter 5.3: General Information Viewing: View server connection status, storage status, and access preview screens to view images.

If any abnormalities are found, refer to Chapter 7, Fault Analysis and Troubleshooting.

### 4.3 Engineering Installation of Equipment

For detailed installation instructions, please refer to the "M1N 2.0 Installation Guide".

## 5. Operation Instructions

### 5.1 Introduction to Panel Status Lights



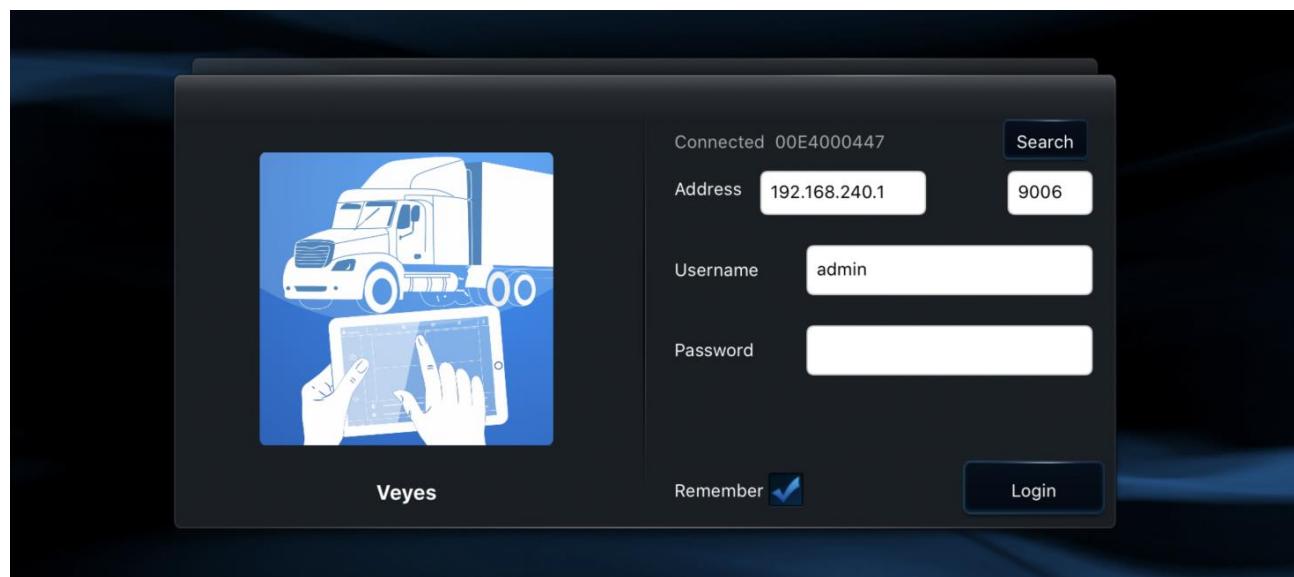
LED Status	
Power Status Light	<b>PWR</b> OFF/Blue Light ON OFF: Indicates the device is on standby, powered off, or in sleep mode ON: Indicates normal power supply to the device
Alarm Status Light	<b>ALM</b> OFF/Red Light ON OFF: Indicates that the device has not triggered any alarms ON: Indicates that the device has triggered an alarm
USB Status Light	<b>USB</b> OFF/Blink/Green Light ON OFF: No USB drive inserted in the device ON: Device detects a USB drive Blink(Frequency 1Hz): Indicates device is performing read/write operations on the USB drive".
NET Status Light	<b>NET</b> OFF/Blink/Green Light ON OFF: there is no communication module ON: Communication module present, but no data communication Blink(Frequency 1Hz): Communication module present, data communication in progress
ERR Status Light	<b>ERR</b> OFF/Red Light ON OFF: Turn off in other states ON: When the hard drive, encryption chip is not detected
REC Status Light	<b>REC</b> OFF/Green Light ON OFF: Indicates that the device is not recording ON: Indicates that the device is recording

## 5.2 Device Login/Logout

1. To enable the device's WIFI in AP mode: Within 3 minutes of device startup, the WIFI will be in AP mode.

2. Open the WIFI settings on your phone, launch Veyes, and tap on the "Search" button to enter the WIFI hotspot search interface. Select the corresponding hotspot. For the initial login, the WIFI hotspot name is based on the device's Serial Number (you can find the Serial Number on the device label). If the license plate number is not empty, then the hotspot name will be the license plate number.

3. On the login interface, enter the corresponding username and password, then tap "Login" to access the operational interface. The default username/password is: admin/admin.

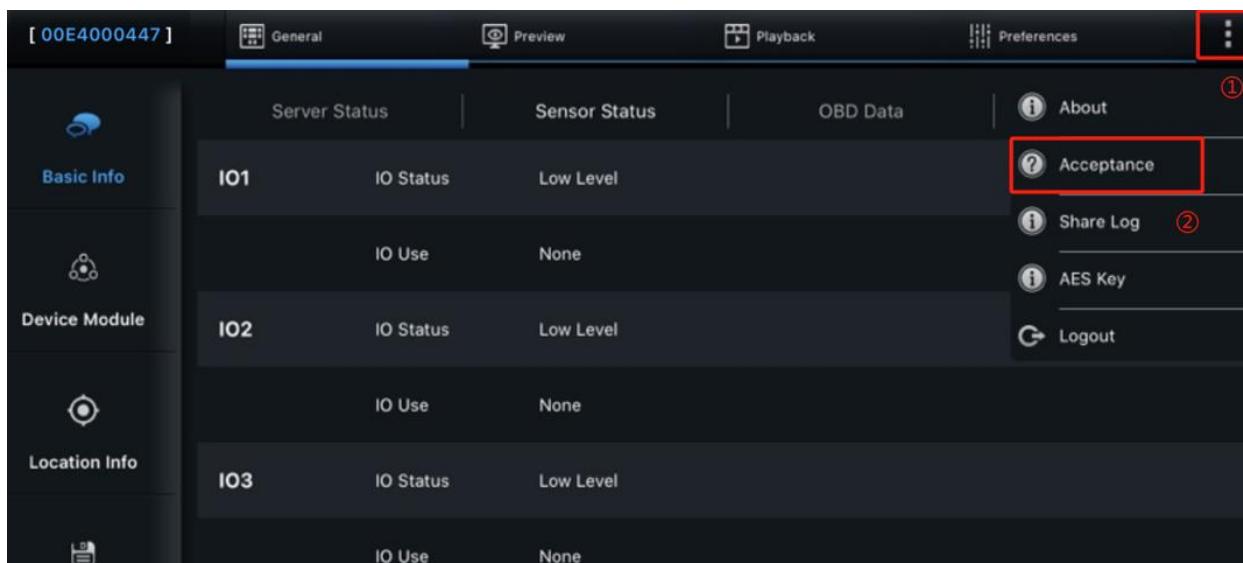


1. After clicking the 'Login' button, you will enter the operational interface, as shown in the following image



After clicking the button in the top right corner , you can choose to view help information, the app version, or perform logout operations. Clicking on 【Logout】 will disconnect the device connection. and clicking on 【About】 allows you to view the version information of the Veyes app on your phone.

**Acceptance Mode:** When the device lacks speed and cannot trigger an alarm, you can choose to enter acceptance mode and preset a speed for the device.



### 5.3 General Information Viewing

The general interface is mainly used to view the real-time status of the device, version

information, import and export parameters and logs, as well as software upgrades, etc.

- Basic Information: Mainly used to view the device's server connection status, IO high and low level status and usage, OBD data, G-sensor data, ACC status, pulse status, device status, and algorithm channel calibration status.

[ 00E4000447 ]		General	Preview	Playback	Preferences	⋮
Basic Info	Server Status	Sensor Status	OBD Data	6 Axis Data		
	IO1	IO Status	Low Level			
		IO Use	None			
	IO2	IO Status	Low Level			
		IO Use	None			
Device Module	IO3	IO Status	Low Level			
		IO Use	None			
Location Info						
File						

- Device Modules: Used to view the status of the device's WIFI, 3/4G, and satellite modules

[ 00E4000447 ]		General	Preview	Playback	Preferences	⋮
Basic Info	Communication Module	Module Status	Existed			
		SIM Card Status	Not Existed			
		Dial Status	Unknown			
		Model	EC25			
		Network Type	Unknown			
		Signal				
		Protocol Stack	IPV4			
		IPV4	Unknown			
		Version Info	EC25ECGAR06A14M1G			
		Version Identification	20.200.20.200			
Device Module						
Location Info						
File						

- Location Information: Used to view the satellite positioning signal quality of the device, helping installation and maintenance personnel evaluate the device's positioning capability and positioning quality, and take appropriate maintenance actions. In this interface, the top row represents the number of effective satellites and the total number of satellites. The PRN in the list below indicates the satellite number, GNSS indicates which global satellite navigation

system the satellite belongs to (GPS, GLONASS, GALILEO), SNR indicates the signal-to-noise ratio, which reflects the quality of the satellite positioning signal, Direction angle indicates the azimuth of the satellite, and Altitude angle indicates the elevation angle of the satellite.



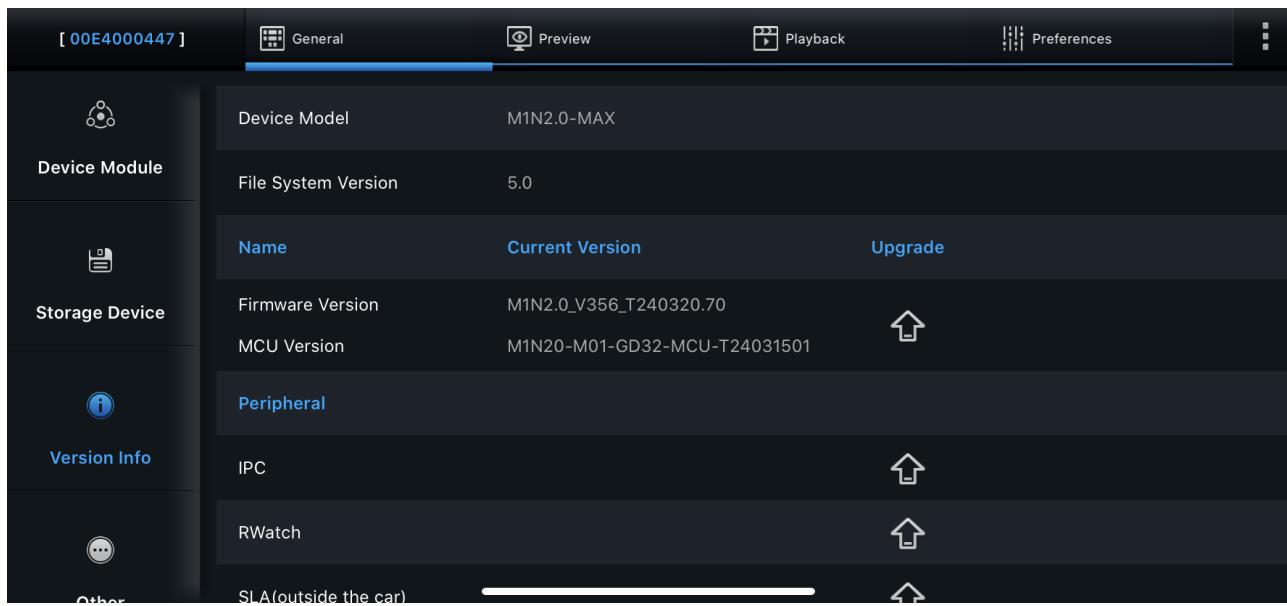
Note: This interface will only be displayed when the command to record GPS raw data is enabled. For specific operating instructions, please refer to the [Preferences] > [Collection] > [General] > [Location] section usage instructions.

Valid number of satellites/number of satellites: 11/12					
	PRN	GNSS	SNR	Direction angle	Altitude angle
	22	GPS	44dB	187°	64°
	19	GPS	45dB	9°	54°
	17	GPS	45dB	59°	53°
	6	GPS	46dB	328°	52°
	14	GPS	41dB	168°	40°
	11	GPS	42dB	278°	35°

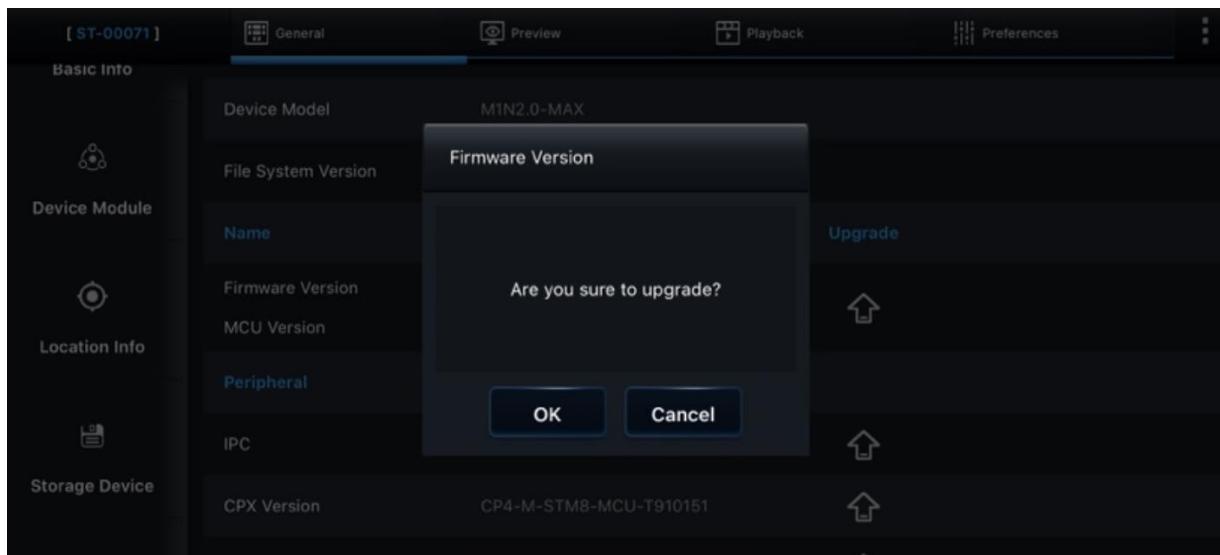
- Storage Device: View the status of the device's storage and format it if necessary. After clicking the format button, a prompt will appear. Click [Confirm] to proceed with formatting.

	Storage Name	Status	Remain/Total	Formatting
Device Module	Hard Disk	Recording	90.2 GB/511.9 GB	
Location Info	Internal SD Card	Full	0.0 MB/126.4 GB	
Storage Device	Internal SD Card2	Recording	6.0 GB/126.4 GB	
Version Info				

- Version Information: View software version information.



In the version information interface, you can locally upgrade the host version, IPC version, R-Watch version, sound and light alarm version, communication module, and GPS version. Place the upgrade file in the root directory "upgrade" of the USB flash drive and connect the USB flash drive to the device. During the upgrade, click the button, a confirmation prompt will appear, click [OK] to start the upgrade.



Note: In the version information interface, there are related methods available to locally replace the AI alarm voice content. If necessary, please contact your local dealer or technical

support for guidance on the relevant operations to avoid importing audio files that do not meet the requirements, which may cause abnormal alarm reminder functions.

- Other: Data and configuration import/export, factory reset, restart device. When performing data import/export operations, an external USB flash drive needs to be connected to the device.



1. Alarm logs, user logs, and black box files can be exported.
2. Snapshots of alarms from selected time periods can be exported.
3. Electronic fence information can be imported/exported.
4. AI configuration files can be imported/exported.
5. Parameter configuration files can be imported/exported.
6. Factory reset operation can be performed.
7. Print data from optional time periods can be exported.
8. Device reboot operation can be performed.

## 5.4 Preview

In the preview interface, you can view the real-time screen and perform operations such as enabling/disabling sound, enabling/disabling grids, and performing AI calibration.

### 5.4.1 Preview

In the preview interface, you can view the real-time recording status of each channel of the

device. Double-clicking on a channel's preview screen will zoom in for a closer view of that channel's preview, and double-clicking again will return to the previous view. If a camera is not connected or the camera channel is damaged, it will display "VIDEO LOSS".

#### 5.4.2 AI calibration

ADAS calibration requires on-site measurement of the installation height of the ADAS lens, left margin, as well as the width and length of the vehicle's front end. The settings interface can be found under [Preferences] > [Alarm] > [AI App] > [Calibration Parameter]. This chapter introduces the conventional guided calibration method, including the ADAS algorithm calibration method from the preview interface and the calibration method for external DMS lenses and BSD cameras.

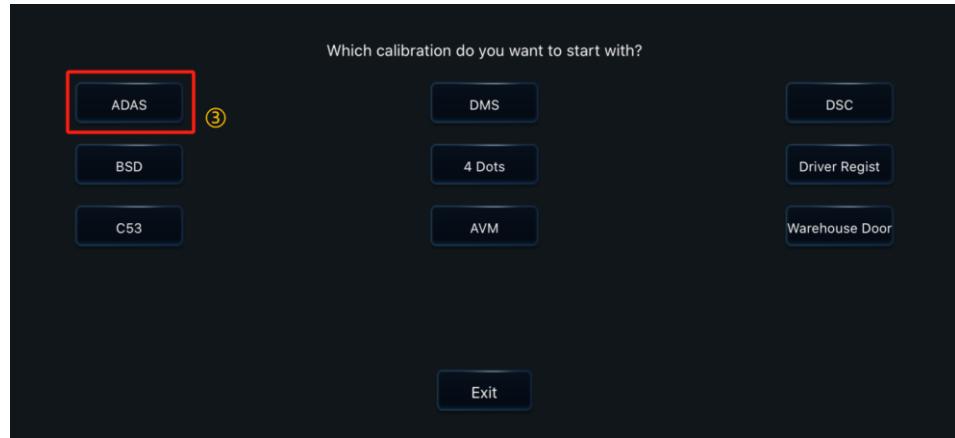
##### 5.4.2.1 ADAS calibration

①Click on 【Preview】

②Click on 【AI Calibration】

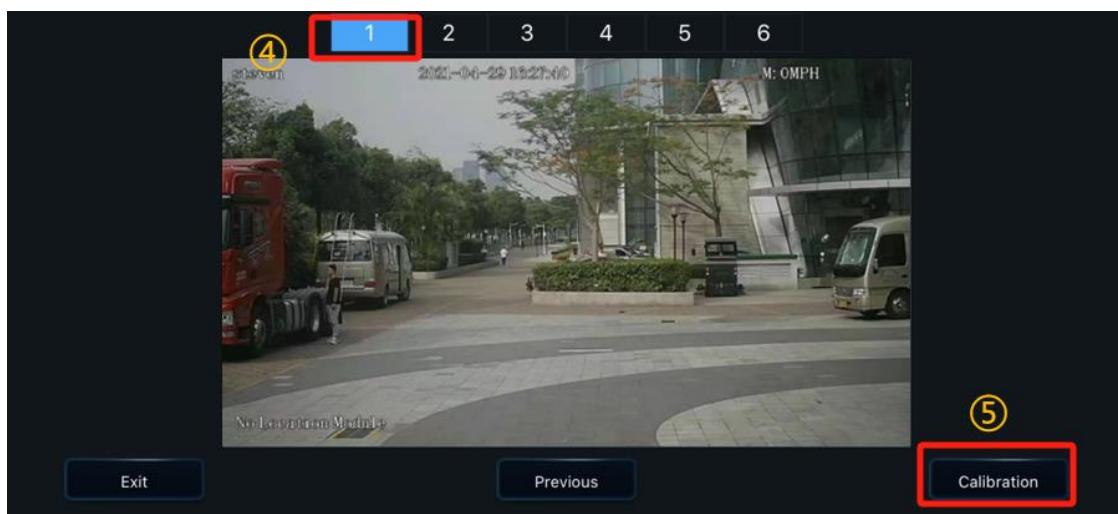


③Click on 【ADAS】 calibration



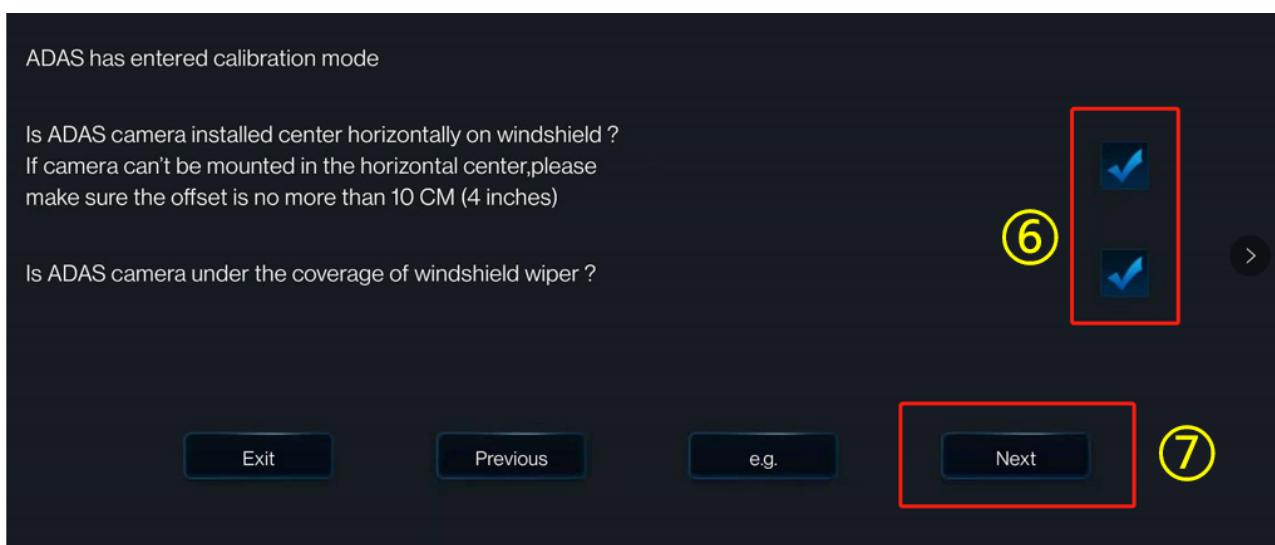
④Select channel 1

⑤Click on 【Calibration】



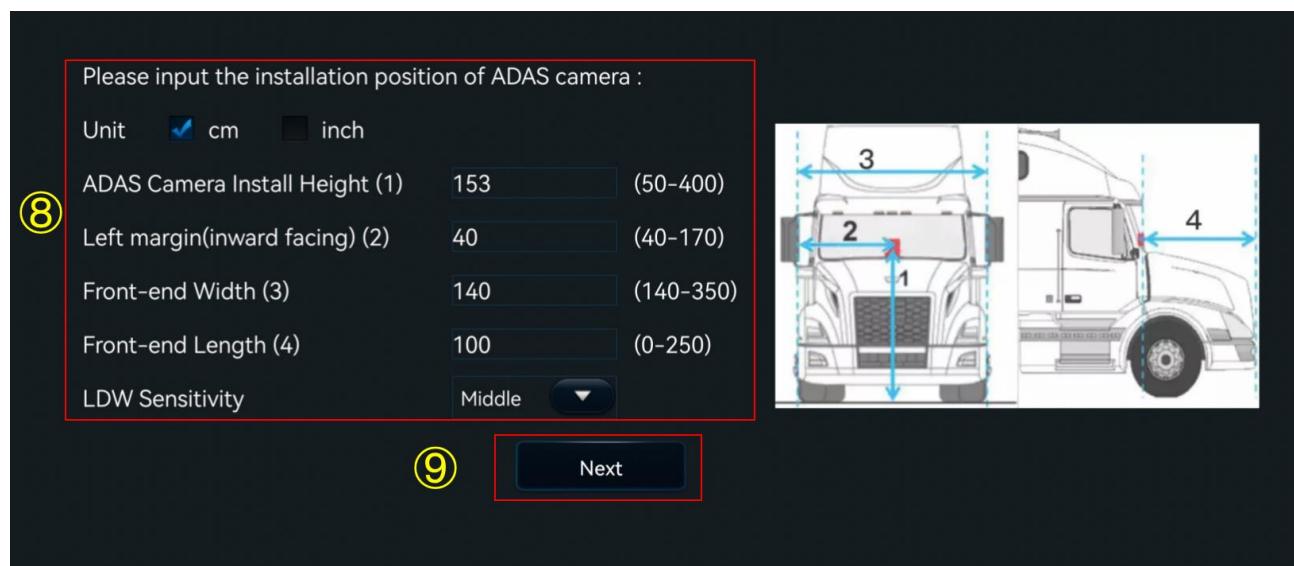
⑥Prompt for confirmation—Check.

⑦Click on 【Next】



⑧ Enter the vertical distance from the ground to the front lens, the horizontal distance from the front lens to the outer edge of the left tire of the vehicle (facing the front of the vehicle from outside), the width and length of the front of the vehicle (unit can be selected in centimeters or inches, reference the example on the right for size measurement, the parameter number corresponds to the illustration number). Additionally, in this step, you can adjust the sensitivity of the lane departure warning. Installers can choose the appropriate sensitivity according to the vehicle model to make the warning more accurate. The lane departure sensitivity options include Cross Line Warning (Low), Lane Crossing Warning (Medium), and Lane Crossing Pre-warning (High), with the default sensitivity set to Medium.

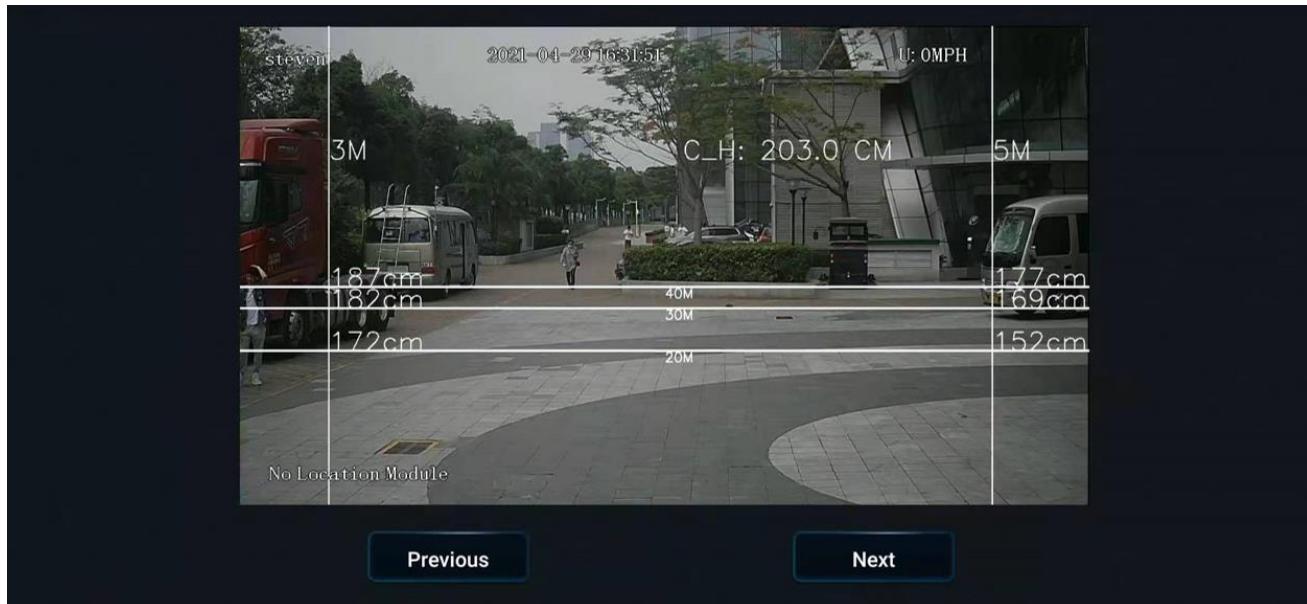
⑨ Click on 【Next】



⑩ Click on [Next] to proceed to the next step. ([Learn more] for calibration guidance)



⑪ Click on 【Next】



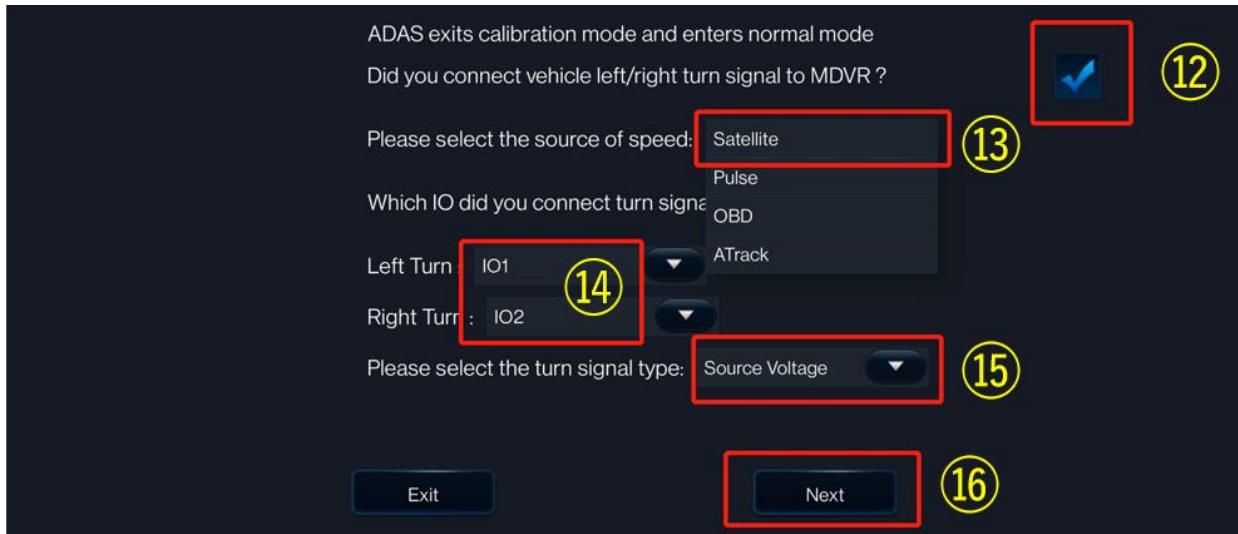
⑫ Confirmation prompt—Check.

⑬ Select the corresponding speed source (from top to bottom: GPS - Pulse - OBD/CAN - ATtrack peripheral).

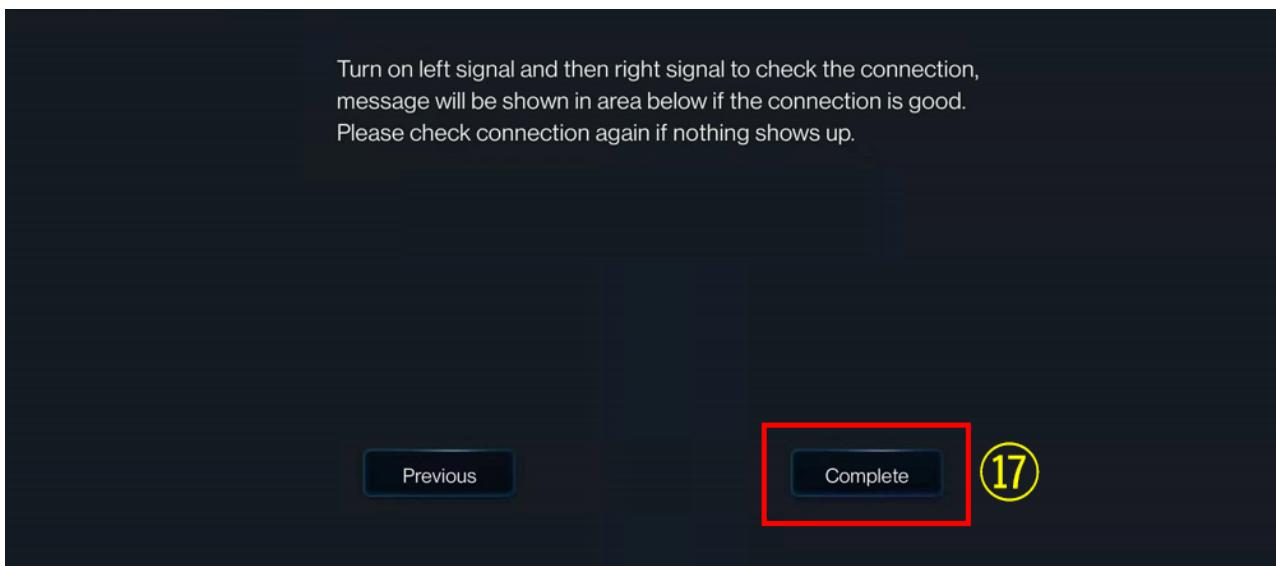
⑭ 【Left Turn】 :Select the wiring corresponding to the left turn signal、【Right Turn】 :Select the wiring corresponding to the right turn signal

⑮ Select the type of signal source: [Source Voltage]、[Source Pulse]

⑯ Click on 【Next】



(17) After confirming that the left and right turn signals are working properly, click on [Complete] to finish the ADAS camera calibration.



Warning: ADAS camera calibration must strictly adhere to the requirements of the "M1N 2.0 Series Installation Guide". All parameters required for installation and calibration need to be carefully measured, and verification of the left and right turn signals must be performed meticulously. Otherwise, the ADAS system may not effectively detect road information for judgment, leading to decreased accuracy of alarms or non-functionality. Any abnormalities resulting from installation and calibration will not be the responsibility

#### 5. 4. 2. 2 DMS calibration

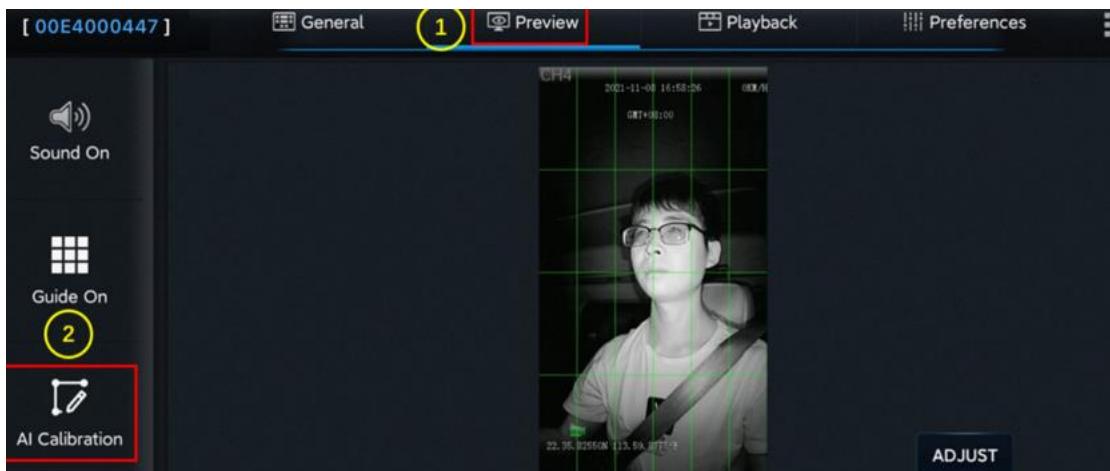
By default, CA29M camera is used. If you need a more professional DMS camera, we

recommend the professional-grade DMS camera model C29N. The C29N is equipped with 0.7T intelligent computing power and can provide professional DSM functionality. Its built-in face central area exposure function can handle various complex lighting scenarios (such as oblique sunlight, reflective clothing, black absorbing clothing, etc.). It also comes with a G-Sensor, supports installation on both left and right A-pillars and tabletops, and can automatically adjust the image to adapt to different installation conditions. It can cover scenes where the camera is 50~100cm away from the face, meeting the installation requirements of multiple vehicle models.

Regardless of the actual situation, the user can choose between different cameras. The calibration process for both cameras is the same. The specific calibration method for DMS is as follows.

①Click on [Preview] on the homepage to enter the preview interface.

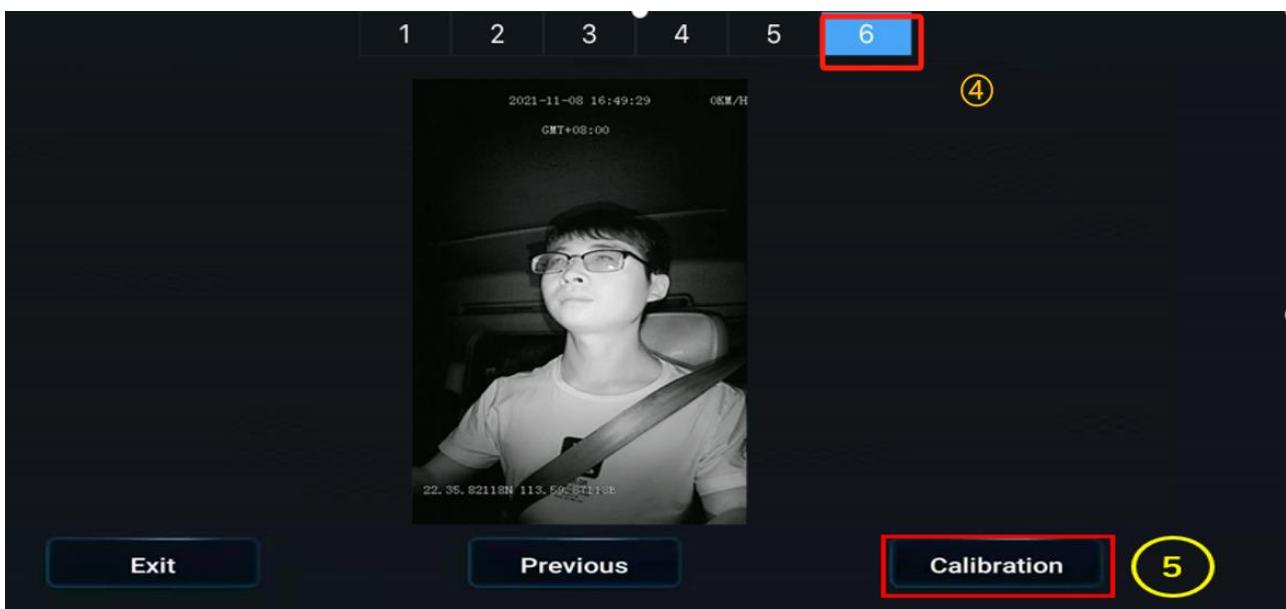
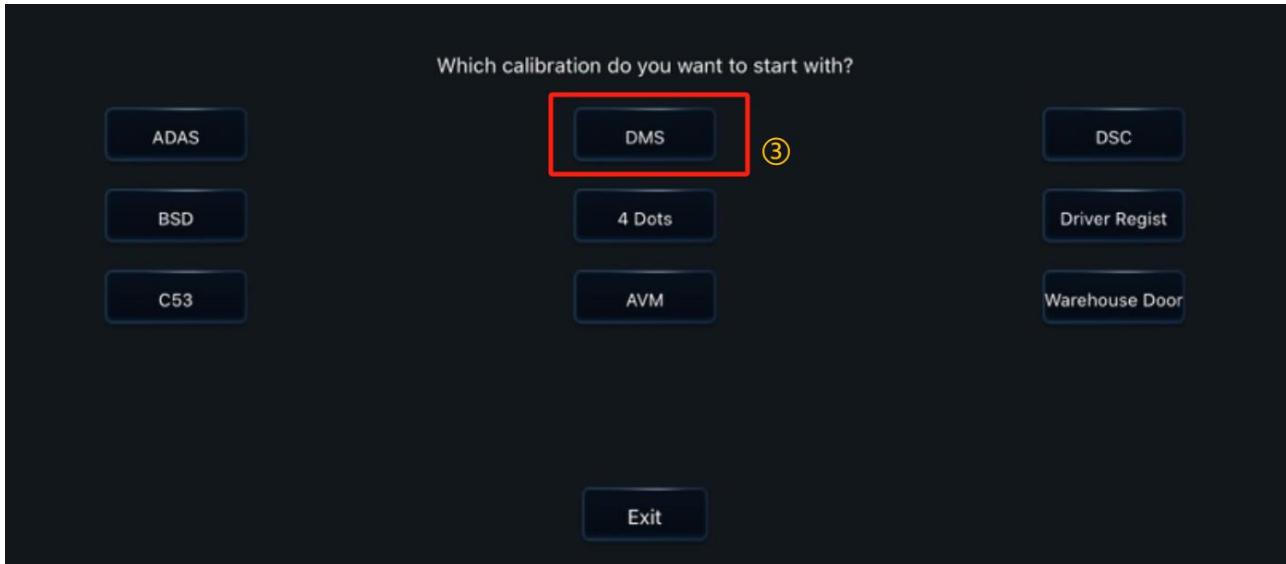
②Click on [AI Calibration] to enter the calibration selection.



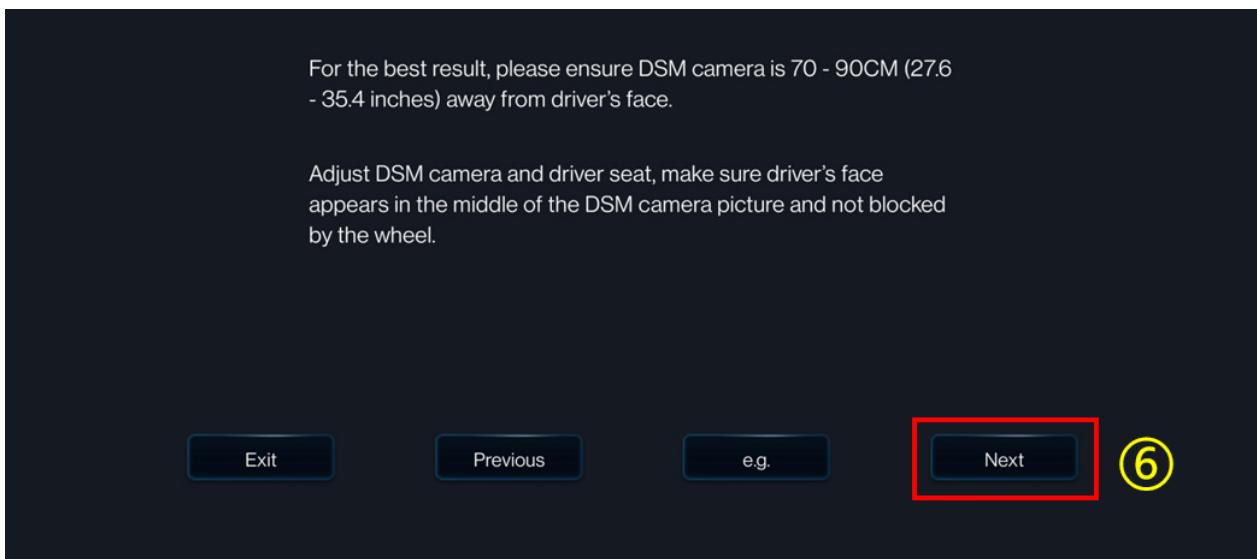
③Select [DMS] for calibration.

④Choose the corresponding channel for the DMS camera.

⑤Click on [Calibration] to proceed to the next step.



⑥ Confirmation prompt—Click [Next] to proceed to the next step.

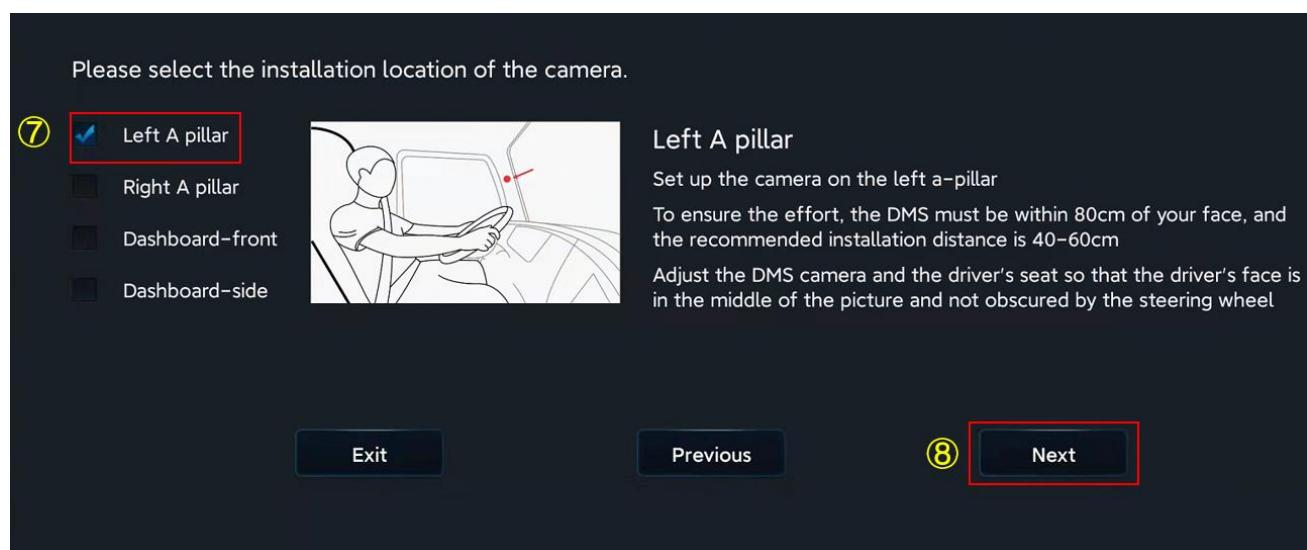


⑦ Select the installation position of the DMS camera. Options include left A-pillar installation, right A-pillar installation, tabletop front installation, and tabletop side installation. If you have any questions, please click on each option in turn and refer to the illustration and description on the right.

Once you have selected the corresponding installation method, the software will automatically associate the calibration method with the installation method. There is no need to manually select the calibration method. (Left A-pillar installation (attached to the glass), right A-pillar installation (attached to the glass), and tabletop side installation are all side calibration methods, while tabletop front installation is a front calibration method).



**Special Note:** This step is crucial; ensure that the selected installation method matches the actual installation method.



**Special Note:** Before proceeding to the formal calibration by clicking [Next], the driver should sit in the normal driving posture and look straight ahead, following regular driving habits.

⑧ Click on [Next] to proceed to the next step for automatic face calibration.

During the calibration process, it is essential to maintain normal driving habits and posture and keep your gaze fixed on the road ahead without moving.

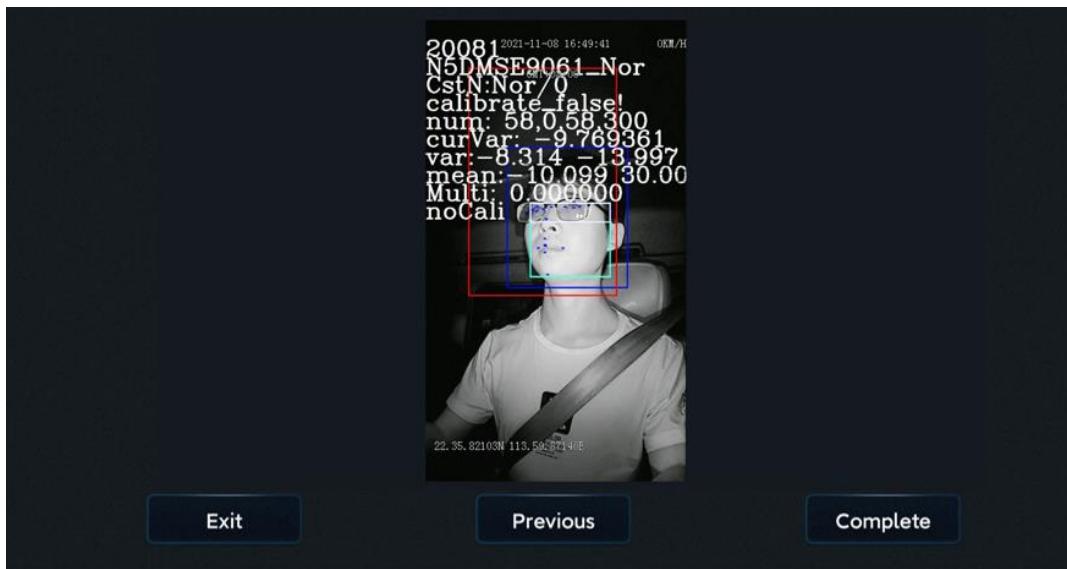
The intelligent algorithm will automatically learn the driver's facial deviation angle and the position of various facial features during the side calibration process. If the face moves during calibration, the process will automatically restart.



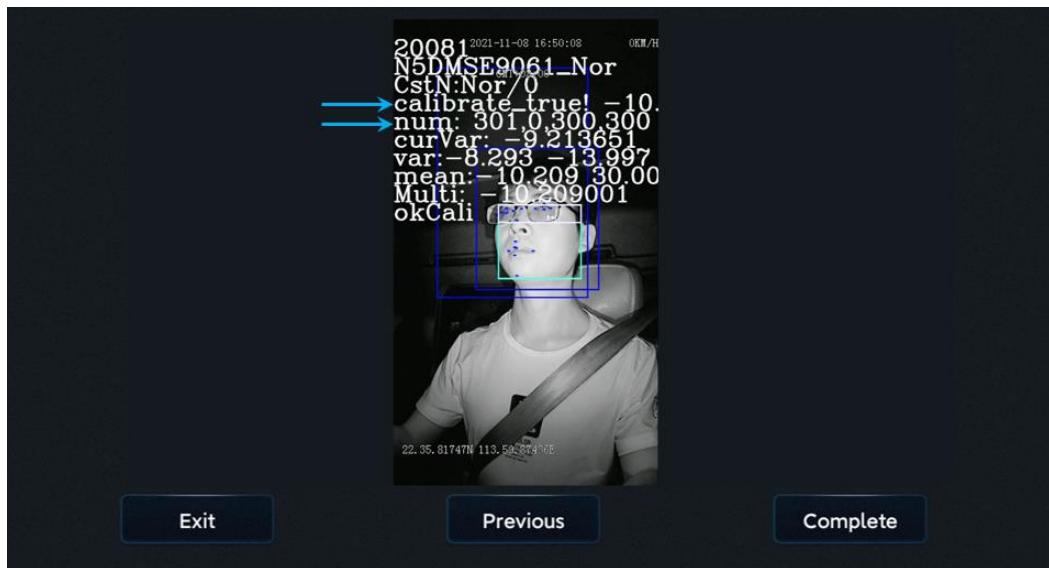
**Special Note:** For left A-pillar installation, right A-pillar installation, and tabletop side installation, there must be an angle between the face and the camera to complete the calibration. For tabletop front installation, the face must be directly in front of the camera to complete the calibration.

Sit quietly and wait for the device to perform automatic calibration. During side installation side calibration, wait until the NUM value reaches 301 (for front installation front calibration, this value reaches 51). When the calibration box changes from red to blue, the automatic calibration is complete.

During the calibration process:



Calibration completed:



Click the [Complete] button to complete the calibration and exit calibration mode.

#### 5.4.2.3 BSD calibration

##### 5.4.2.3.1 Look-Down BSD Installation Calibration

Look-Down installation: including forward Look-Down, right Look-Down, and left Look-Down installations, follows the same principles and steps for calibration. The camera used is the miniC24-MA (**Mini C24 is only supported for POC software. For formal software, use CA46. Installation and calibration instructions for CA46 are pending translation updates.**) , and the installation effect of the camera is shown in the following figure.



[Installation Position]

The camera should be installed at the upper part of the front of the vehicle, with the installation height required to be between **240-320cm**, ideally between 270-300cm. When selecting the installation position, care should be taken to avoid the camera being too close to the blind spot mirror, which may result in excessive obstruction of the imaging by the blind spot mirror.

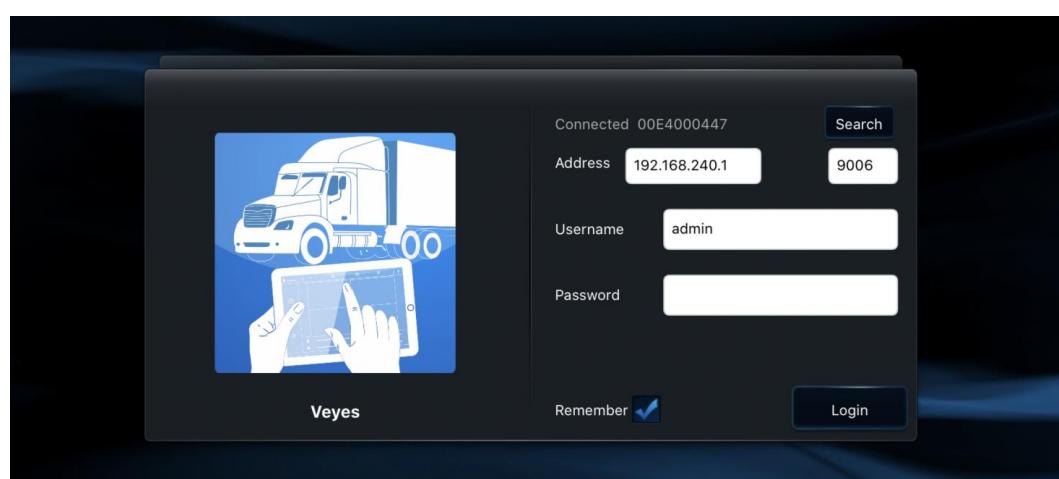
### [Imaging Adjustment]

Rotate the ball head of the camera to ensure that the imaging image after installation covers the area of pedestrian detection, and that the area of pedestrian detection is preferably positioned at the center of the image.



### 【Calibration and Debugging】

Step 1: Connect to the device's hotspot on your phone, open the Veyes app, enter your username and password, then click 'Login"

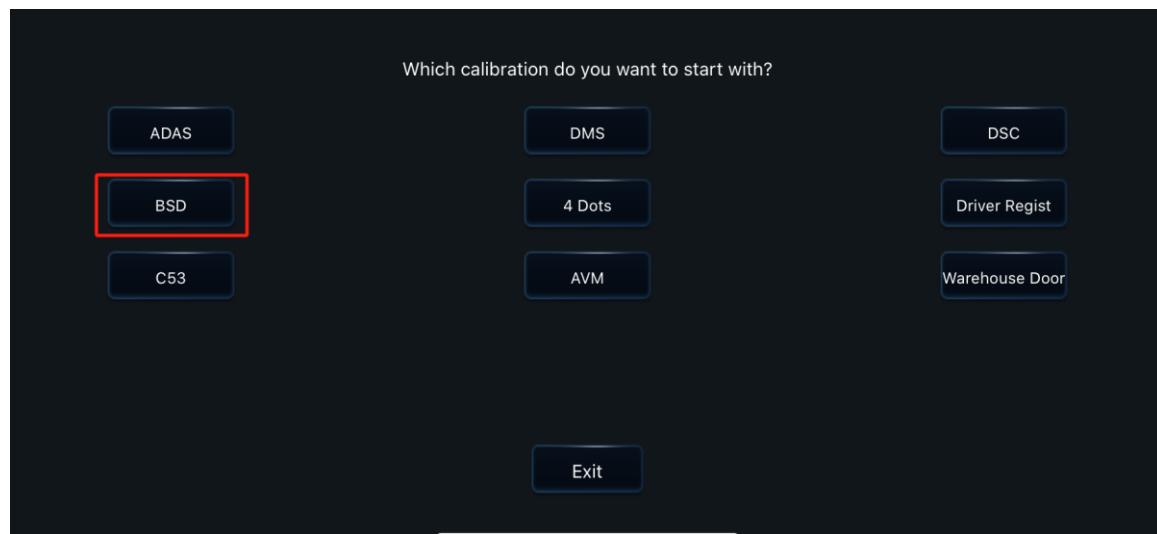


Step 2: After logging into the Veyes app, click on "Preview ". This will display the channel

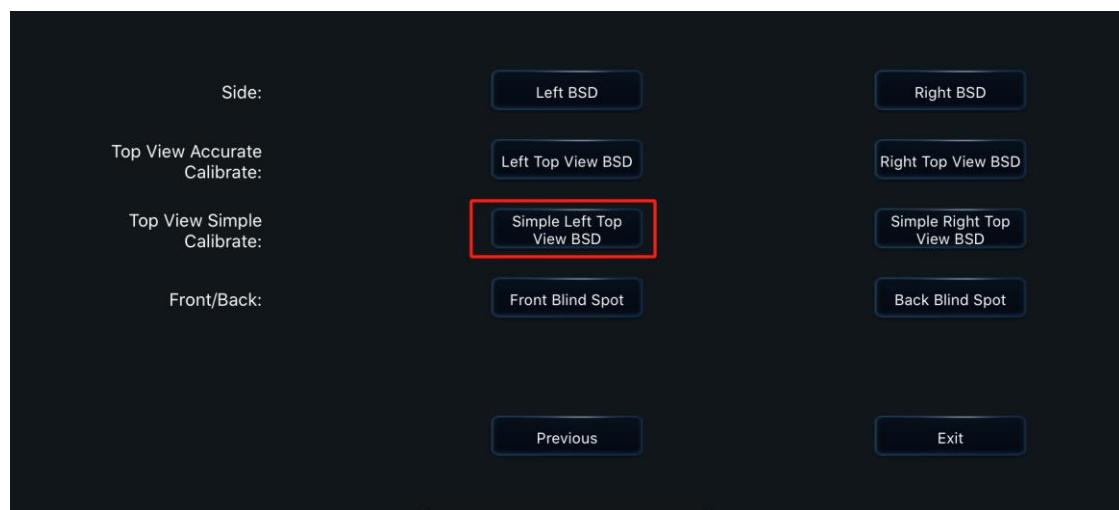
screen. Then, click on "AI Calibration".



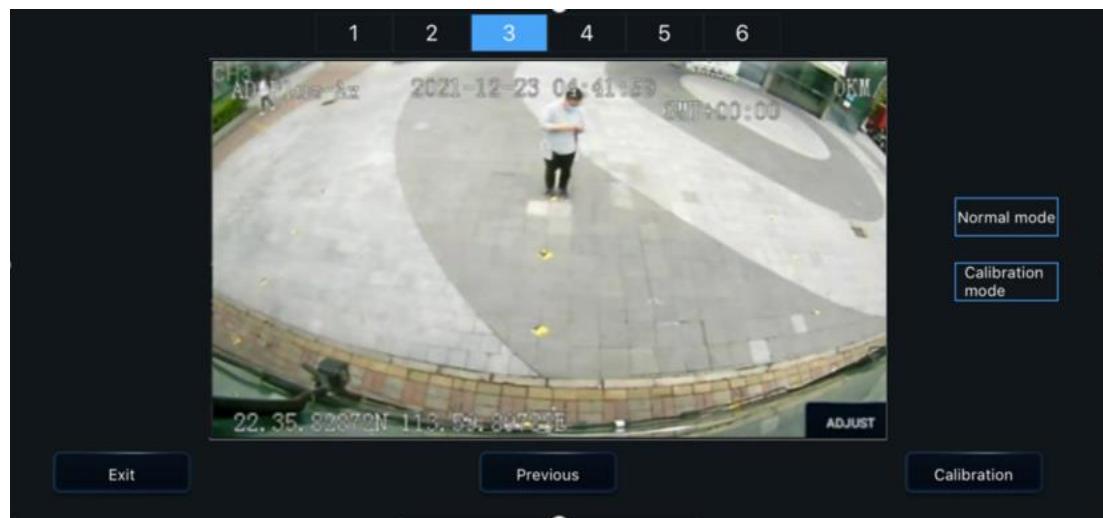
Step 3: Click on [BSD]



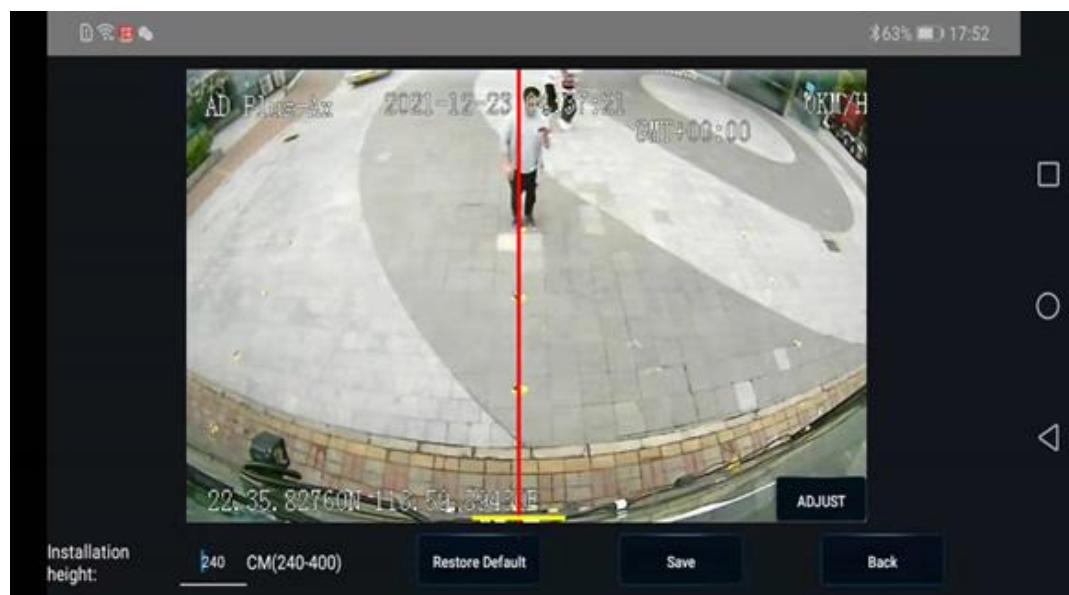
Step 4: Click on "Simple Left Top View BSD".



Step 5: Select the channel to which the camera is connected.



Step 6: Place the yellow line close to the side edge of the vehicle body, then input the installation height.



#### Special Note:

When rotating the camera's ball head, ensure that the bottom edge of the imaging image is aligned tightly with the lower right edge of the vehicle. Do not allow the vehicle body to be absent from the picture, as this installation method cannot monitor the right blind spot. Avoid having too much of the vehicle body appear at the bottom of the imaging picture, as this installation method may reflect infrared light at night and cause overexposure in night imaging, resulting in recognition

failure.

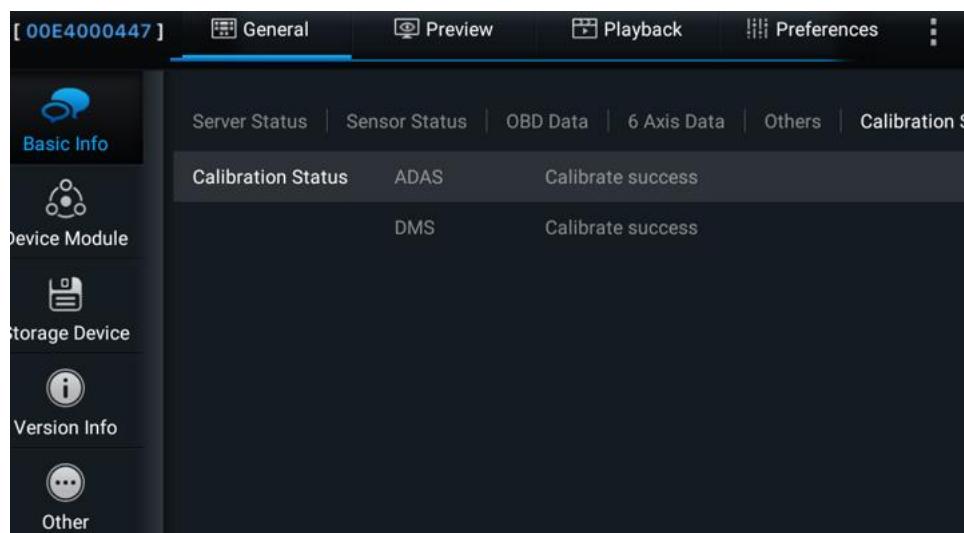
#### 5.4.2.4 A1 Confirmation

After the calibration of each algorithm channel is completed, you can check whether the calibration was successful using Veyes. Click on [General] > [Basic info] > [Calibration Status] on the Veyes interface to see if each channel has been calibrated successfully.



#### Special Note:

- Only channels with enabled AI will display calibration status, which can be either "Not calibrated" or "Calibrated successfully".
- Since both ADAS and DMS require automatic calibration, which necessitates the vehicle to be driven for some time to complete, even if parameters are configured, you may not immediately see the status indicating successful calibration for ADAS and DMS.

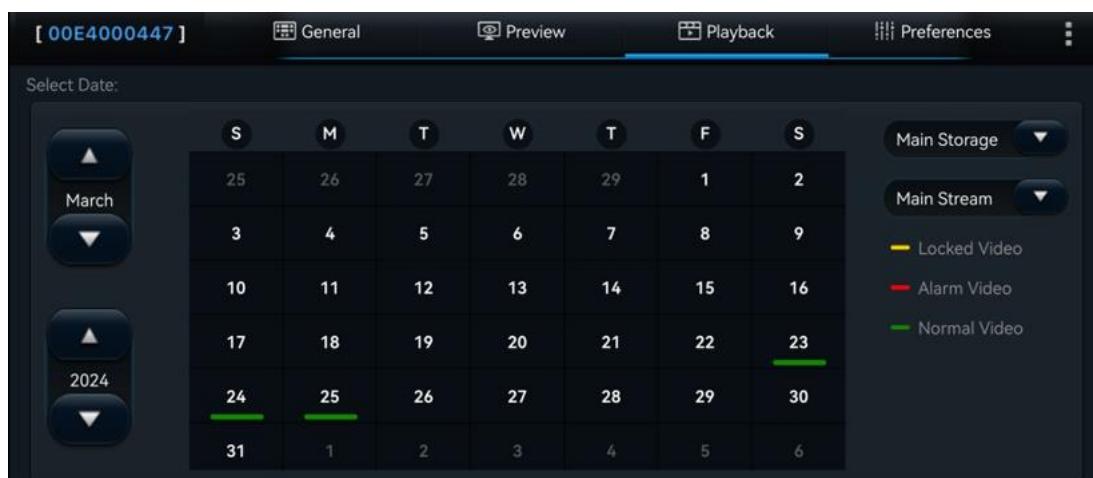


Warning: Installation and calibration must strictly adhere to the requirements outlined in the "M1N 2.0 Series Installation Guide." Any false alarms resulting from improper installation will not be the responsibility of the company.

## 5.5 Playback

### 5.5.1 Playback

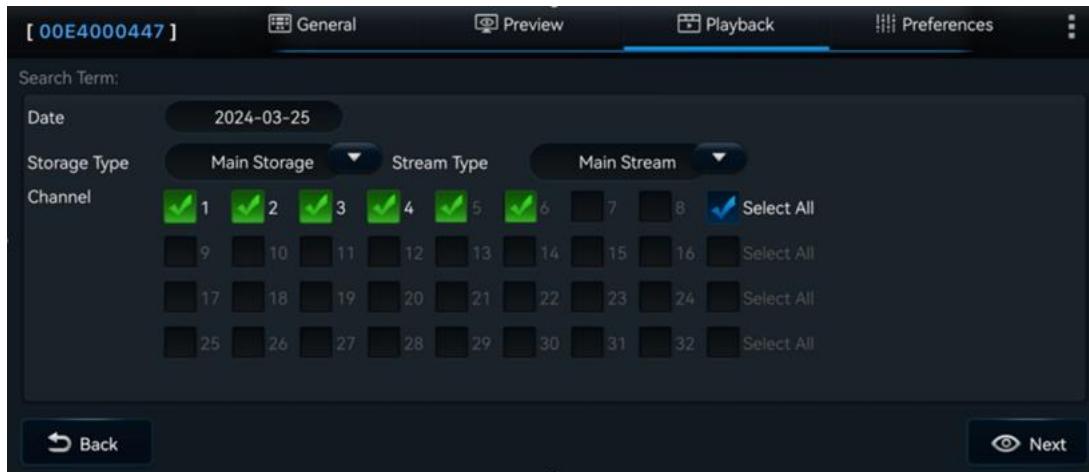
The playback interface can be used to search for main/substream recordings in the main/sub storage within a certain date range. When selecting substream recording and a Micro SD card is installed, the substream will be stored in the sub storage. You need to select the sub storage substream recording in order to search for the substream (for details on main and substream usage scenarios, refer to the glossary in the appendix).



In the playback interface, use the calendar to select the playback time. On the left side of the interface, you can select the year and month. Click on "▲" and "▼" to choose different years and months. In the calendar, the colored bar at the bottom of each date indicates the presence of recording records on that day. Specifically:

No colored bars	Indicates no recordings for that day.
Green	Indicates regular recordings for that day.
Red	Indicates alarm recordings for that day.
Yellow	Indicates there are alarm recordings for that day and some files have been automatically locked (locked recordings).

Click on the date in the calendar to enter the following interface, where you can select the channel for viewing recordings. You can also reselect the date and type of recording to be viewed on this interface, then click Next to proceed.



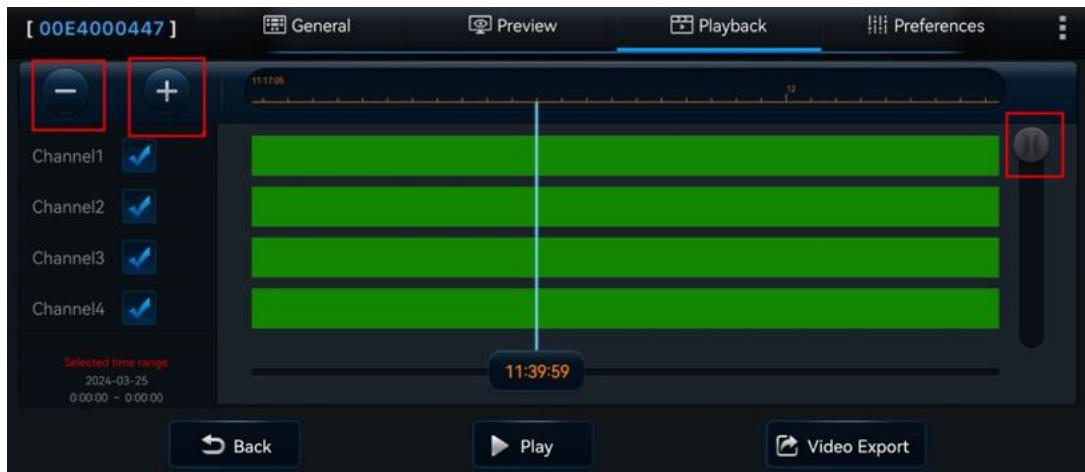
After selecting the channel, you can drag the timeline to choose the playback time. Click "Play" to start playback of the recording. During playback, you can select playback controls, double-clicking on the screen to hide the control interface and enlarge the playback screen.

- Timeline:

- ✧ The timeline at the top displays time in intervals of 1 hour
- ✧ The bottom timeline can be dragged to any position by dragging
- ✧ Clicking on in the top left corner of the interface can decrease the time interval unit; clicking on can increase the time interval unit. This feature is designed to facilitate quickly locating a specific time segment for the next playback/export operation when there are many segments in the recording.

- Channel Number::

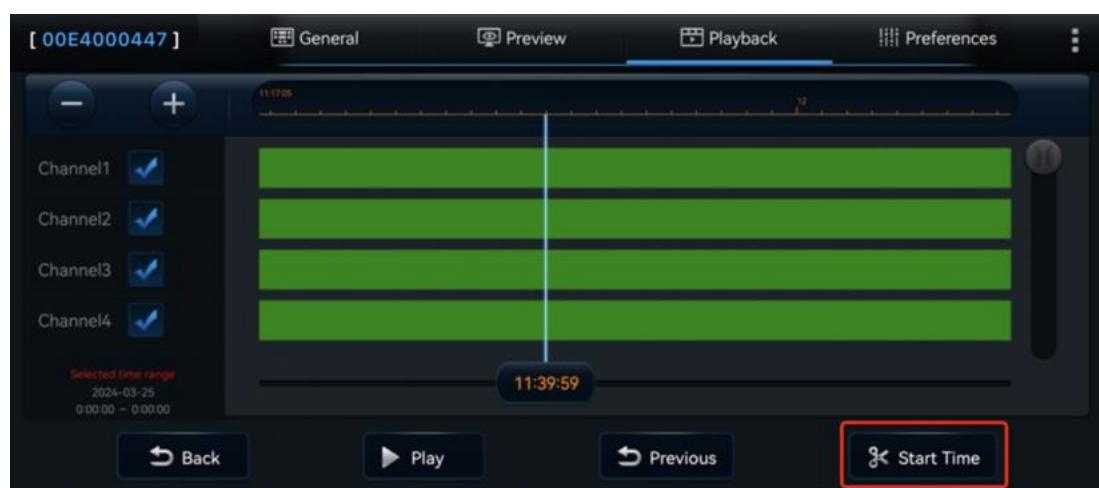
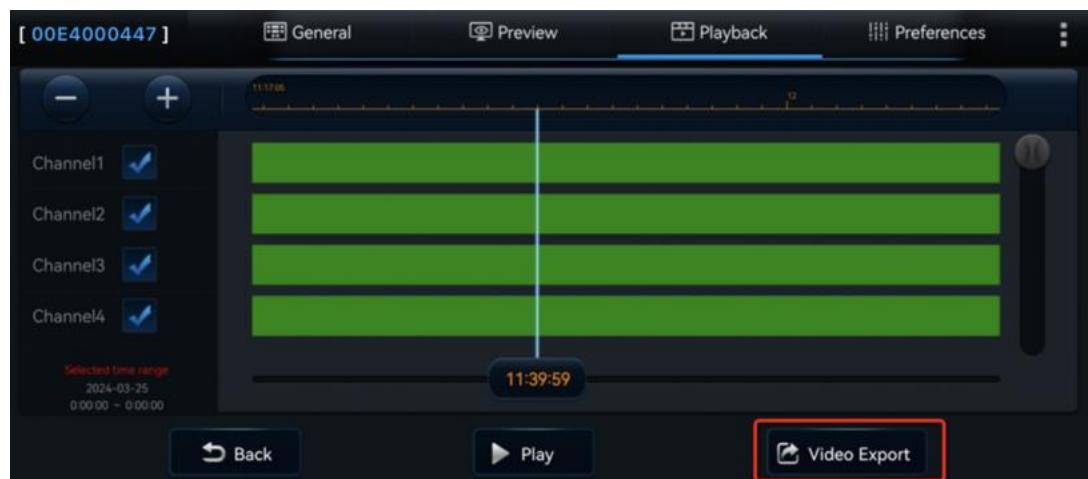
- ✧ Each channel's color bar indicates the time periods and types of recorded files.
- ✧ When there are many recording channels, you can scroll up and down on the right side of the interface to view the recording status of each channel.
- ✧ Check one or more channels, select the timeline, and you can playback/export the recorded files for the selected channels within the chosen time period.

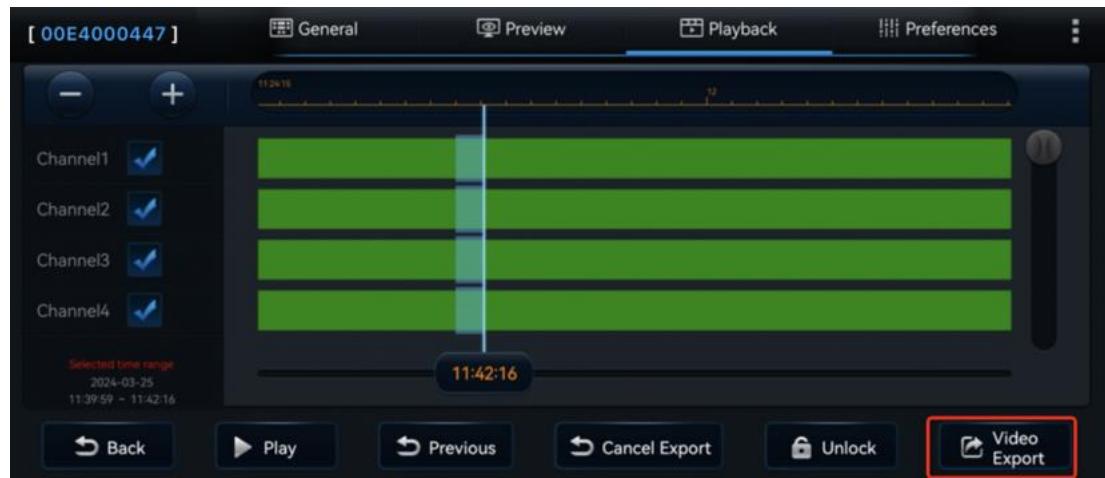


### 5.5.2 Video Export

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

Click on [Video Export], select the start time and end time, then click [Video Export] again to export the video. Click [Unlock] to lock or unlock the selected time period of the video.

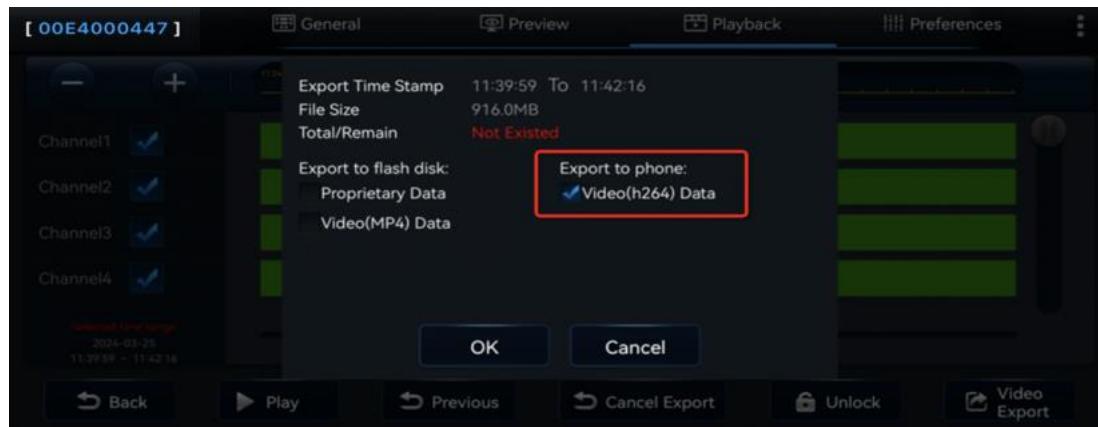




In the video export options, you can choose to export the trimmed video to an external USB flash drive or mobile phone, making it convenient for maintenance personnel to quickly access and share the video.



**Special Note:** Exporting in MP4 format allows playback using standard media players, while exporting in H264 format requires a proprietary player (CEIBA2 client) for playback. H264 format contains more original data, facilitating troubleshooting of video playback issues. If there are any problems requiring after-sales support, please choose to export in H264 format.



## 5.6 Basic Setup



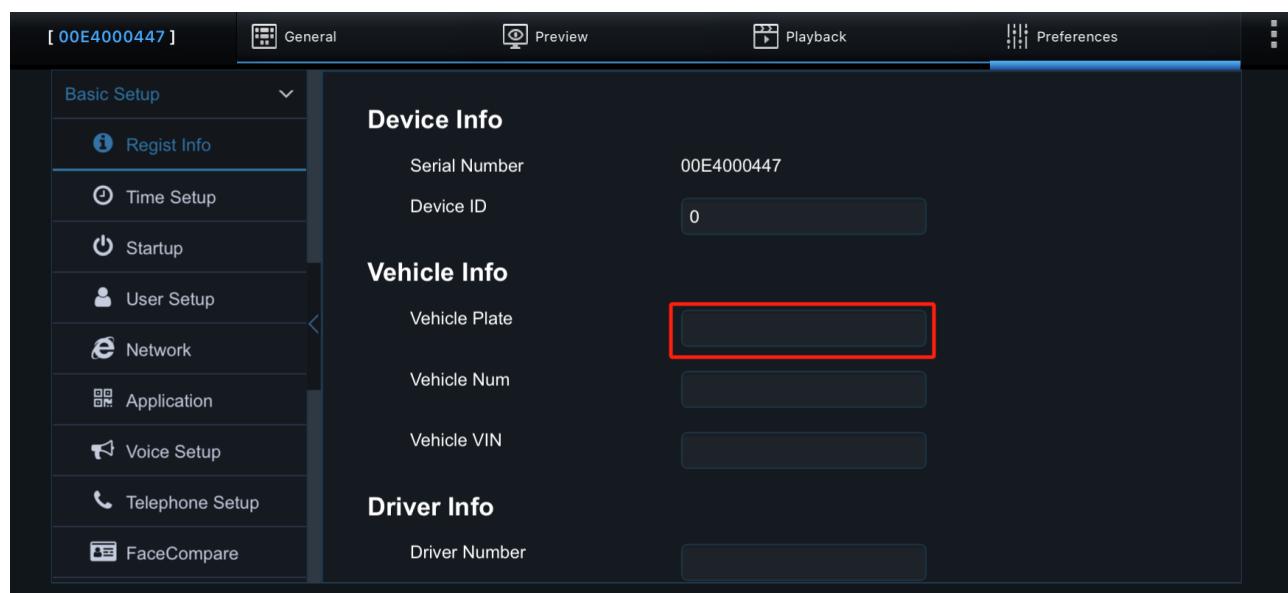
Note: In all the setting interfaces, after modifying the setting, click the [Save] button to save the setting. If you want to restore the default value of a parameter, click [Default] at the bottom of the interface to restore the default parameters on that interface.

### 5.6.1 Regist Information

On this interface, you can set up device information (Device ID), vehicle information (Vehicle Plate , Vehicle Number, Vehicle VIN ), driver information (Driver Number, Driver Name), and more. After setting up the vehicle plate here, when connecting to the device hotspot using Veyes, the WIFI hotspot ESSID will be named after the vehicle plate number.



Note: After entering the vehicle plate , the WIFI hotspot ESSID name will be changed to the vehicle plate number. At this time, you need to reconnect and log in to Veyes again.



### 5.6.2 Time Setup

- Date and Time Format: In the Time Settings section, you can adjust the format of time display and the time zone.

1、 Date Format: Options include Year/Month/Day, Month/Day/Year, and Day/Month/Year. This format is only reflected in the direct passage and video OSD.

2、 Time Format: Choose between 24-hour and 12-hour formats. This format is only reflected in the direct passage and video OSD.

3、 Cross Time Zone Enable: Control whether to use the cross-time zone scheme. If your vehicle

and the platform are not in the same time zone, enabling the cross-time zone scheme is necessary to maintain normal communication between the device and the platform. Once this feature is enabled, the time zone parameter will be automatically greyed out and cannot be adjusted. You can only set the local time zone, which refers to the time zone where the vehicle is located. When the cross-time zone feature is disabled, only the time zone parameter can be set, and it should be consistent with the time zone of the vehicle's location.



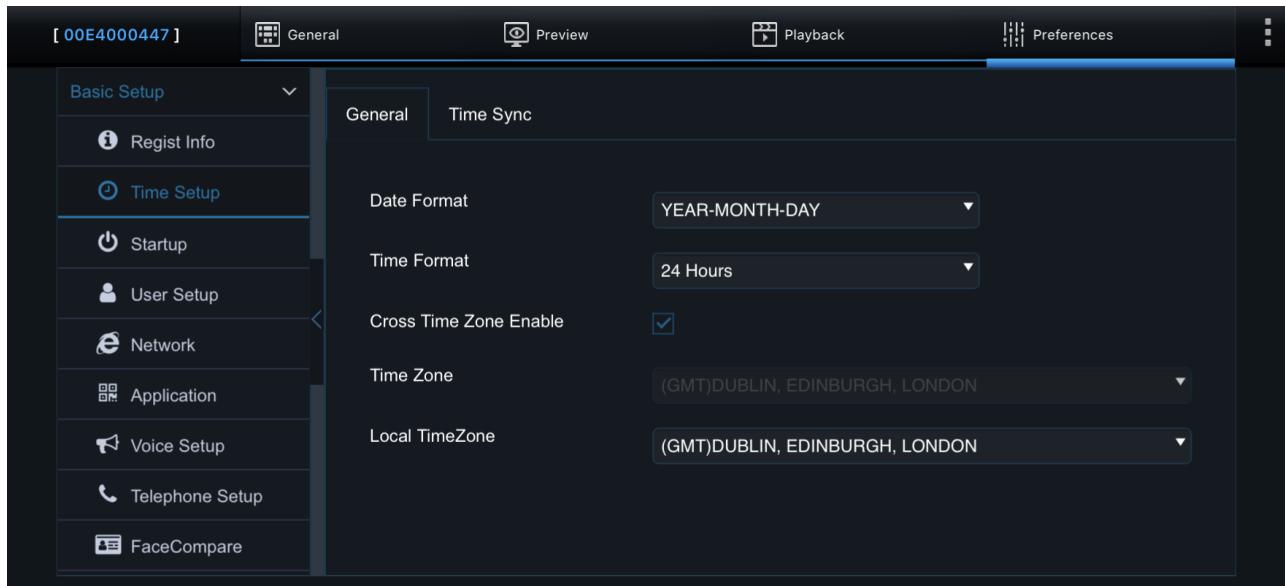
Warning: For devices using the CEIBA2 platform, the Cross Time Zone feature must be disabled. Users of the FT platform should enable the Cross Time Zone feature as needed.

1、Time Zone: Supports selection of time zones. This parameter can only be set when the Cross Time Zone feature is disabled; otherwise, it defaults to the zero time zone and cannot be adjusted.

2、Local Time Zone: Supports selection of the local time zone. This parameter will only be displayed for setting when the Cross Time Zone feature is enabled.



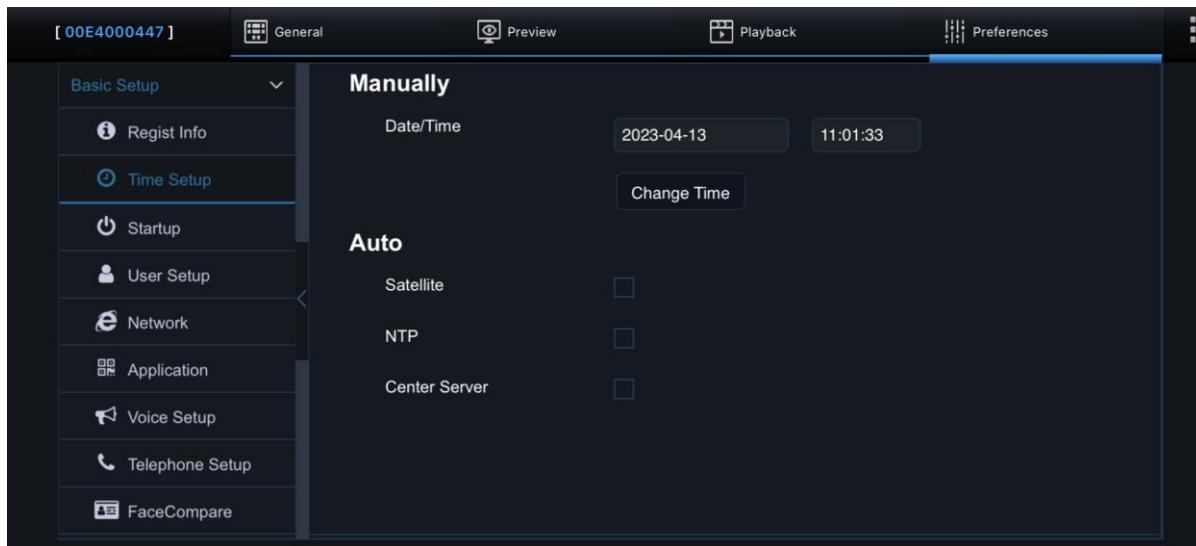
Special Note: When the Cross Time Zone feature is enabled, TimeZone is fixed at the zero time zone and cannot be adjusted. This indicates that data interaction between the device and the platform is conducted in the zero time zone. LocationTimeZone is used for video overlay time zone settings. When the Cross Time Zone feature is disabled, TimeZone can be set and is used for video overlay time zone settings.



- Time Sync:

When there is a deviation between the system time and the actual time, automatic time calibration will be initiated. Automatic time calibration settings allow for manual input of date and time or setting the calibration method.

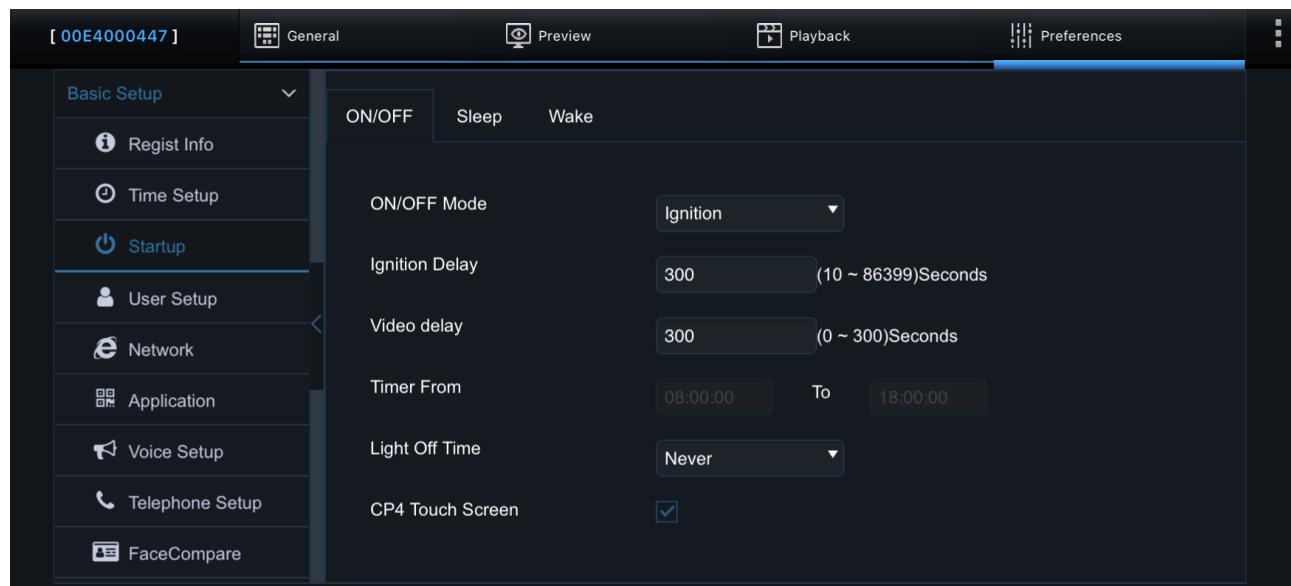
- 1、Manual Modification: Date and time can be manually adjusted by clicking "Change Time."
- 2、Satellite Time Calibration: Utilizes GPS to adjust the time.
- 3、NTP Time Calibration: Utilizes network time from the wide-area network, with the option to select different wide-area network server times.
- 4、Central Server Time Calibration: Utilizes the time reported by the platform. When reporting to multiple platforms, different platforms can be selected.
- 5、If multiple calibration methods are selected simultaneously, calibration will begin in the order of priority: satellite, NTP, and central server. Once calibration is successful using one method, the next method will not be used.



### 5. 6. 3 Startup

- Startup

Click on 【Preferences】 > 【Basic Setup】 > 【Time Setup】 > 【ON/OFF】 , the interface is as shown in the following image:



1. On/Off Mode: There are multiple options available, including 【Ignition】 , 【Timer】 , and 【Ignition or Timer】 . The default selection is 【Ignition】 , which means the device powers on/off when the vehicle ignition is turned on
2. Ignition Delay: Sets the time delay for shutting down after the vehicle ignition is turned off. It can be set from 0 to 86399 seconds, with a default of 300 seconds.

3. Video Delay:: Sets the delay time for recording after the ignition is turned off. The range of recording delay time settings will vary based on the ignition delay time setting. The maximum recording delay time is determined by the ignition delay time setting, meaning the recording delay time  $\leq$  the set ignition delay time.

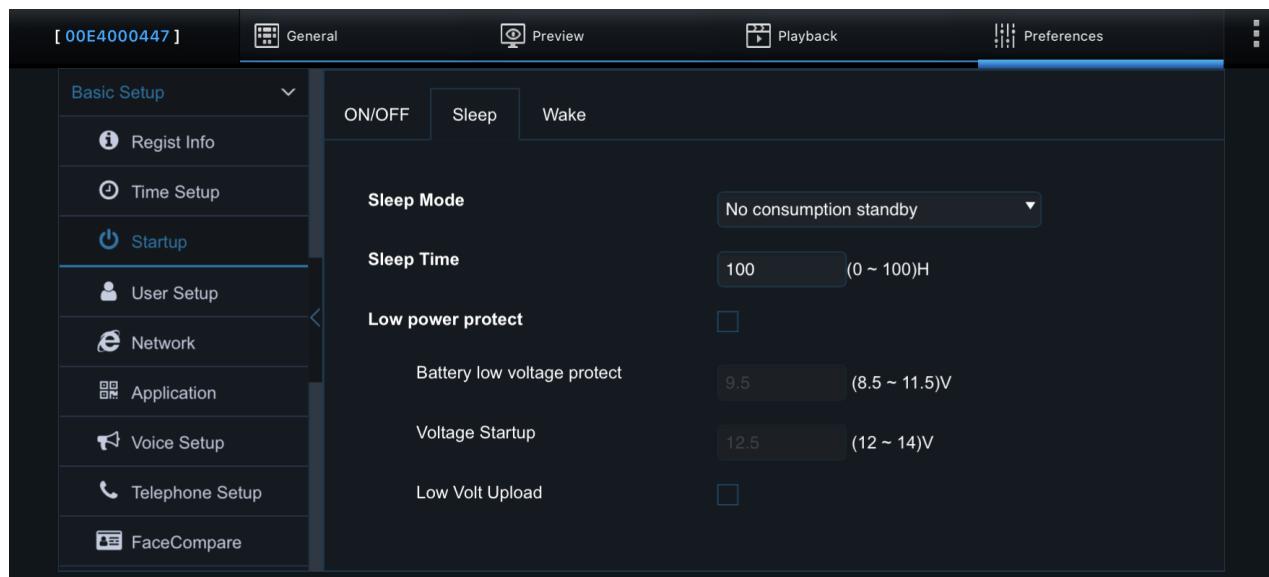
4. Timer From: Select a scheduled power-on time period.

5. Light Off Time: When an external display screen is connected, you can configure the time for the screen backlight to turn off. Options include "Never" and "Custom". Selecting "Custom" allows you to choose a duration from 1 to 3600 seconds.

6. CP4 Touch Screen : By default, this option is checked, indicating that touchscreen control is enabled. When checked, touchscreen control is active, allowing the use of the CP4 touchscreen. If unchecked, touchscreen functionality is disabled, rendering the CP4 touchscreen unusable.

## ● Sleep

Click on 【Preferences】 > 【Basic Setup】 > 【Time Setup】 > 【Sleep】 , the interface is as shown in the following image:



Usage Scenario: When it's necessary to park the vehicle and turn off the ignition while still allowing the platform to retrieve vehicle location information, and if remote waking up of the device for data download or video playback is required, select the low-power standby mode (sleep). Otherwise, choose zero-power standby mode. For the freight transportation industry, remote waking

up is recommended to be done via phone calls or text messages. If the SIM card used doesn't support text messages and phone calls, it's recommended to utilize the platform's remote waking up feature, which requires integration with the platform. At present, both CEIBA2 and FTCloud support platform remote waking up.

1. Sleep Mode: You can set it to either Low Power Standby or No Consumption Standby.

- [No Consumption Standby]: After the device is turned off due to ignition shutdown or scheduled shutdown, in this sleep mode, the device will not consume any power and cannot be awakened.
- [Low Power Standby]: After the device is turned off due to ignition shutdown or scheduled shutdown, in this sleep mode, the system can be awakened by IO alerts, phone calls, or text messages to initiate the main host.

2. Sleep Time: Set the sleep time from 0 to 100 hours, with a default of 100 hours. The sleep time refers to the duration during which the device remains in low-power standby without being awakened or started. After this duration, the device will enter a state of no power consumption standby;

3. Low Voltage Protect: Check to enable low voltage protection.

4. Battery Low Voltage Protect: In order to preserve the charge of the vehicle's battery, when the battery voltage falls below the set value, the device will enter sleep mode if the vehicle ignition is on, and it will shut down if the vehicle ignition is off.

5. Voltage Startup: While in sleep mode, the device will return to normal boot-up status when the battery voltage exceeds the set value.

6. Low Volt Upload: When enabled, low voltage protection will automatically report to the platform.

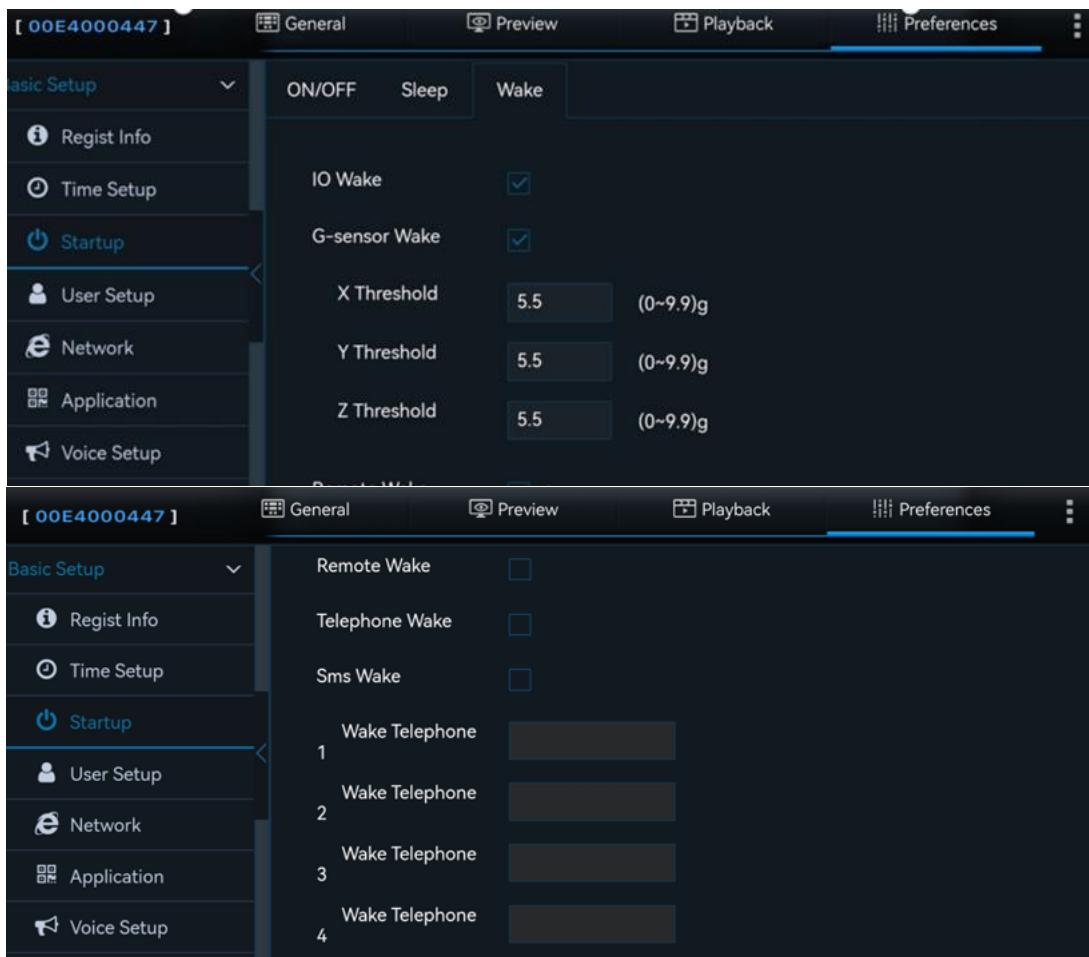
7. Active Mode: When enabled, the device will enter sleep mode, and GPS data will be uploaded to the platform according to the time interval set below.



Special Note: When the low voltage protection feature is not enabled, 7 volts is used as the default threshold for determining low voltage protection.

- Wake

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



You can enable the wake mode by checking the enable switch and setting it as follows:

1、IO Wake: Wake up the host by triggering an IO alarm.

2、G-Sensor Wake: The device wakes up the host after shaking in any direction (X/Y/Z) reaches the set threshold value. The default wake-up threshold values for the X/Y/Z axes are all 5.5g.

3、Remote Wake: Wake up the device remotely by sending commands from the platform.

While the device is in sleep mode, the host can be awakened by commands sent from the platform. Currently, CEIBA2 and FT Cloud are supported for remote wake-up, and only the remote wake-up of the first N9M server is supported.

4、SMS Wake: Wake up the host by sending an SMS to the device. You need to pre-set the mobile phone numbers that support wake-up, and the content of the wake-up SMS is "WAKEUP".

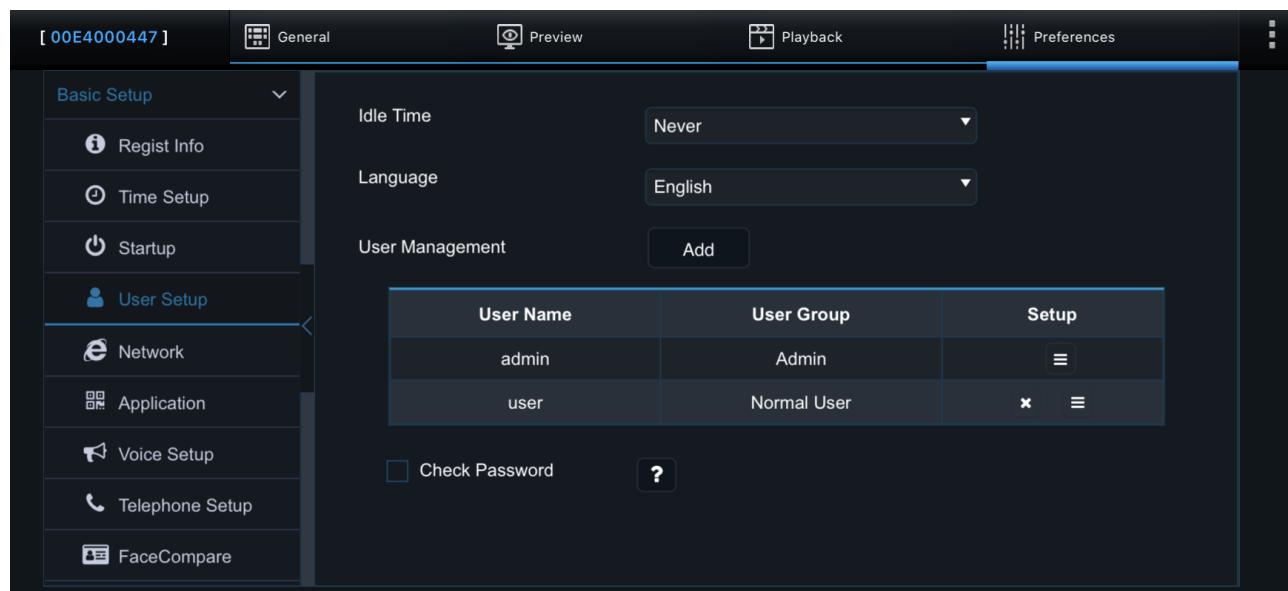
5、Telephone Wake: Wake up the host by making a telephone call. You need to pre-set the mobile phone number of the device to be awakened.



Special Note: Both SMS Wake and Telephone Wake functions require the SIM card in the device itself to support SMS and call services.

#### 5.6.4 User Setup

Click on 【Preferences】 > 【Basic Setup】 > 【User Setup】 , the interface is as shown in the following image:



In the user setup interface, you can set the system language and login user account information. If you require a login password complexity, you can check the password complexity requirement below.

1. Idle Time: You can set the timeout logout duration, with options including 30 seconds, 1 minute, 3 minutes, 5 minutes, 10 minutes, and never, for a total of 6 types.
2. The system language environment includes language and MP3 voice configuration, with options including Chinese, English, Portuguese, Spanish, French, Russian, and Japanese, totaling 7 languages and voices. On Veyes, users can only set the voice for announcements; the interface language will automatically switch according to the language of the mobile phone system, and the interface terms are not affected by this setting. After setting and clicking save

on Veyes, this function will take effect.

3. Click the "Add" button to add a regular user. You can set the account and password for the new regular user;

4. Click on the button labeled "≡" in the user settings section to set the login account and password;

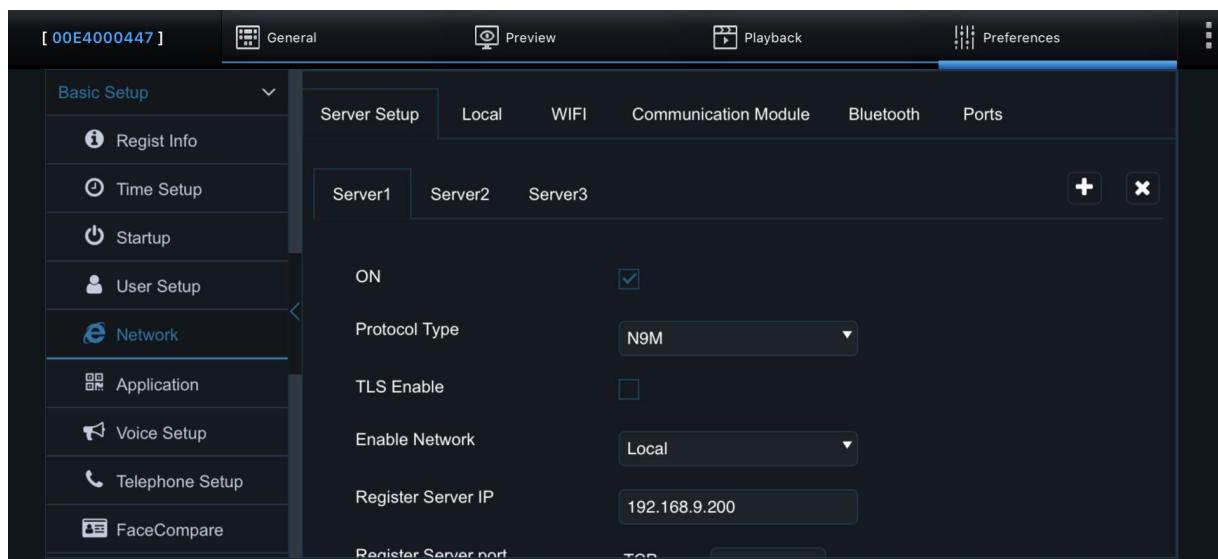
5. Admin: A default administrator account is included, granting permissions to add/delete regular users and set parameters. It allows for a maximum of two regular users to be added.

6. User: A default regular user account is included, which only has permission to query settings.

## 5. 6. 5 Network

### ● Server Setup:

Click on 【Preferences】 > 【Basic Setup】 > 【Network】 > 【Server Setup】 , the interface is as shown in the following image:



1. Clicking on the option labeled "+" on the right side of the interface allows you to add a server. Clicking on "x" allows you to delete the server on the current interface, but Server 1 cannot be deleted;

2. ON: Checking the "ON" option allows support for up to 4 servers to be

simultaneously enabled. When unchecked, the device will not report to that server, but the server parameters will be saved.

3. Protocol Type: Options include N9M and 808

- 【N9M】: The device reports to the video surveillance platform CEIBA2 or FT Cloud using the selected protocol type;
- 【808】: The device reports to the 808 platform using the selected protocol type. (**Not applicable for Overseas Trucking.**);

4. TLS Enable: During the normal boot-up and operation of the device, the interaction data between the device and the platform is transmitted via TLS encryption, ensuring the security of the interaction data between the device and the platform. When using, TLS needs to be enabled, and then the encrypted port number needs to be configured. Currently, only the FT Cloud platform supports TLS encryption.



Warning: TLS encryption is not supported in the sleep mode.

5. Enable Network: The options available are Local, WiFi, Module 1, and Auto Adaptation. Auto Adaptation refers to the system automatically selecting an available network for platform connection. The adaptive priority is WiFi > Local > module1.

6. Register Server IP: Enter the IP address or domain name of the registration server where the device will report to the platform.

7. Register Server Port: Enter the port number of the registration server where the device will report to the platform..

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

9. Media Server Port: Enter the port number of the media server where the device will report to the platform.



Special Note: The default address and port for both the registration server and the media server are the same.

10. Support for modifying server parameters via SMS: In the event of a change or anomaly in the server address, the device may lose connection with the server, causing all remote services for the vehicle to stop. To avoid this situation, server parameters can be modified via SMS by changing the device's IP address and port number.

The SMS content consists of the following 8 types, each separated by “,” and ending with “!”. Users should send SMS to modify according to the actual parameters. An example is as follows:

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

① 99+Username  
② Password  
③ SMCM+Server Number  
④ Enable  
⑤ Register Server IP  
⑥ Media Server IP  
⑦ Register Server Port  
⑧ Media Server Port

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

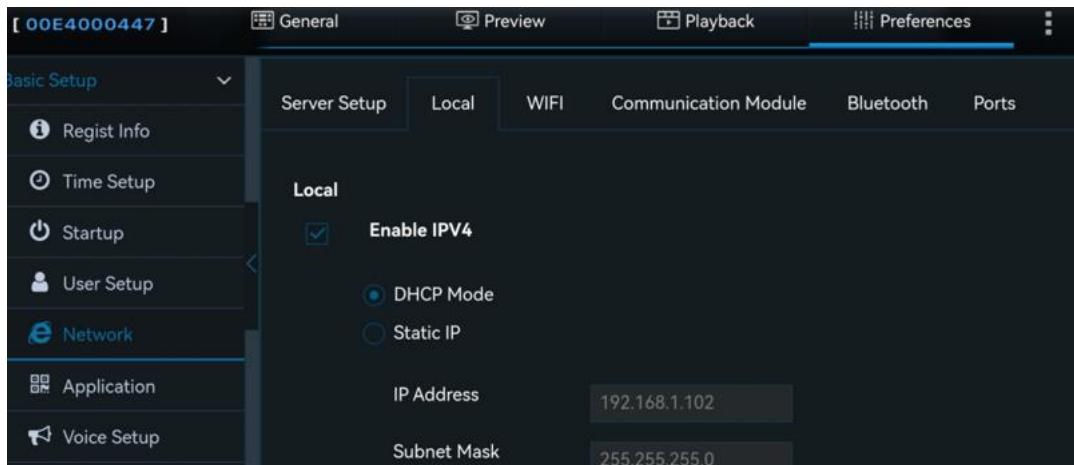
*This indicates that the parameters for Server 1 need to be modified for the device with the username and password both set as "admin". The register server/media server IP is changed to 183.66.242.6, and the register server/media server port is changed to 9346.*



Special Note: After sending the SMS command to modify the server parameters, you will receive a confirmation result from the server. The result content "99SMCM:Setup Succeed!" indicates that the parameter modification was successful.

● Local:

Click on 【Preferences】 > 【Basic Setup】 > 【Network】 > 【Local】 , the interface is as shown in the following image:



In the local network settings interface, to avoid IP address conflicts and expand the address space, in addition to IPv4, the IPv6 network protocol has been added. The IP address, default gateway, preferred DNS server, and alternate DNS server support input of up to 128 bytes, identified as an IPv6 address without subnet masks, and support input of letters, numbers, and symbols.

1. **【Enable IPV4】** : After checking the "Enable IPv4" option, the corresponding parameter settings interface will be displayed;

**【DHCP Mode】** : Obtain IP address automatically." When checked, the network automatically assigns a dynamic IP address, and DNS can be dynamically or statically specified.

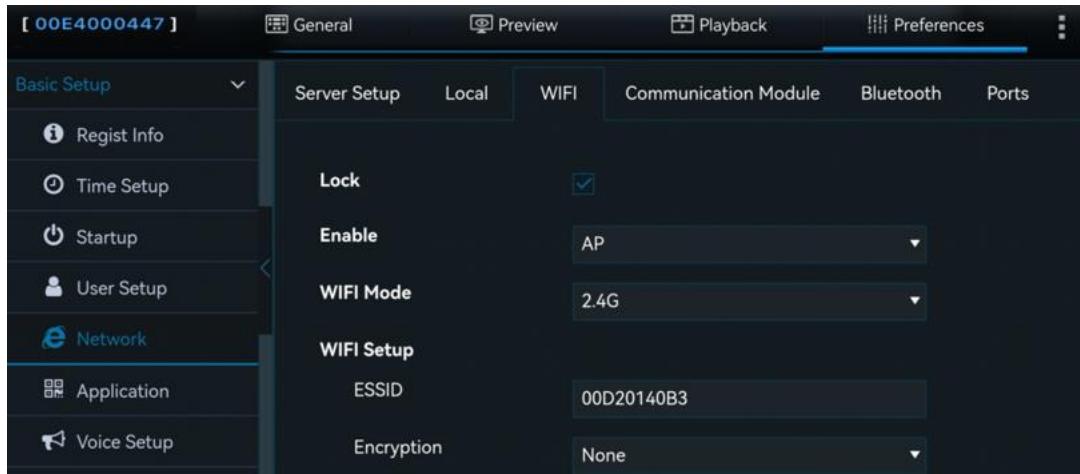
**【Static IP】** : Static IP address. It uses the set static IP address, subnet mask, and default gateway. At this time, DNS must be statically specified.

2. **【Enable IPV6】** : After checking the "Enable IPv6" option, the corresponding parameter settings interface will be displayed. The parameter descriptions are the same as for IPv4.

3. **【Mac】** : Display MAC address, with the default address shown.

#### ● WIFI:

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



1. 【Lock】： WiFi hotspot parameter modification enable switch. When enabled, the parameters related to the WiFi hotspot will not be modified when importing parameters.

2. 【Enable】： WiFi connection mode, with options including AP mode, Client mode, and Disable mode. The default mode is Disable.

- AP: When configured in AP mode, the WiFi name automatically associates with the vehicle's plate information. In this interface, it is displayed but cannot be modified, and there is no password setting. Additionally, the device always maintains the hotspot status both during boot-up and afterwards.
- Client: When configured in Client mode and the ESSID and password of nearby valid WiFi are set, the device can automatically search for nearby valid WiFi hotspots to connect to. Once connected successfully, you can configure the use of WiFi to report to the platform. When the vehicle re-enters this area, it can automatically reconnect successfully. When configured in Client mode, the default mode at boot-up is still AP mode. If there is no Veyes connection, the device will automatically switch back to Client mode after 3 minutes (default value, configurable). When using Client mode to report to the platform, to ensure that the device reports to the platform as soon as possible after boot-up, the duration of AP mode after boot-up has been set. You can set an appropriate duration for the display of AP mode after boot-up based on actual usage. If the duration of AP mode after boot-up is set to a different value (0~180 seconds optional), the device will exit AP mode and automatically switch to Client mode and report to the platform after reaching the set duration if there is no Veyes connection after boot-up.



Special Note: The AP mode duration setting parameter is only displayed

when the WiFi mode is set to Client mode or Disable mode, and this parameter only controls the AP mode entered after boot-up. If you want to switch to AP mode during normal device usage, you can change the relevant configuration through an external screen to switch. After switching to AP mode, if there is no Veyes connection, the device will automatically switch back to Client mode after 3 minutes (fixed value).

- **Disable:** When configured as "Disable," the WiFi network is not enabled, and Client mode is disabled. For the first 3 minutes after boot-up, it defaults to AP mode. After switching to AP mode, if there is no Veyes connection, it will exit AP mode and enter sleep mode after 3 minutes.

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

4. **【ESSID】 :** When selecting AP mode, you input the hotspot name which the device will use as its own hotspot. This name is also the WiFi name used by mobile terminals to connect to the device. It is no longer the serial number or license plate number. Once connected, users can access Veyes and use the internet on mobile terminals (hotspot enablement required).When selecting Client mode, you input the WiFi name used by the device when connecting to external WiFi networks.

5. **【Encryption】 :** When selecting AP mode, the encryption options include none, WEP, and WPA/WPA2-PSK. When selecting Client mode, the encryption options include none, WEP, WPA/WPA2-PSK, and WPA2.ENTERPRISE.

6. **【Password】 :** In AP mode, the password refers to the password required to connect to the device's hotspot. Users need to input the correct password to connect to the WiFi. If the hotspot name and password are not set, no password is required; users can connect directly by clicking on the serial number or license plate number.In Client mode, the password refers to the password used by the device to connect to external WiFi networks.

7. **【Hotspot】 :** When enabled, users can access the internet through the device's AP hotspot. When disabled, internet access is not supported, but Veyes can still be used for maintenance and operations.

8. **【whitelist】 :** When WiFi whitelist enablement is not checked, users can access all networks normally when connected to the device's AP hotspot. When enabled, access to the

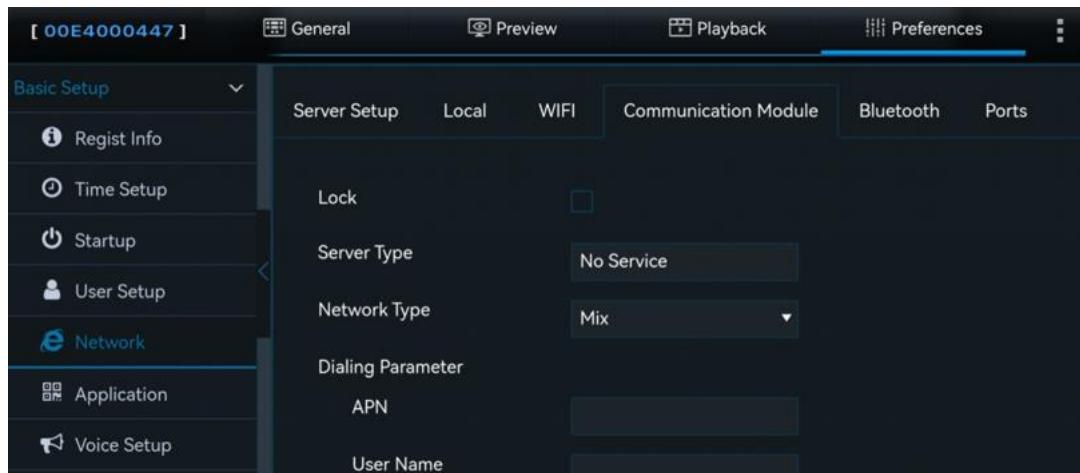
network is restricted by the IP whitelist. When enabled, users need to fill in the relevant IP addresses in the IP list, with support for up to 5 IP addresses. By filling in IP addresses in the IP list, access is only allowed to the networks of the IP addresses listed. If the IP list is empty, access to any network will be restricted.



Note: Currently, the whitelist only supports restricting network access by IP addresses and does not support restrictions based on URLs, domain names, etc.

- Communication Module:

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



1. 【Lock】 : When this option is checked, all parameters on the communication module interface cannot be imported, and factory settings cannot be restored.
2. 【Server Type】 : After inserting the SIM card, the device will automatically detect and display the communication module type. If there is no module, it will display "No service".
3. 【Network Type】 : By default, the communication module is set to mix mode, which supports 2G/3G/4G.
4. 【Dialing Parameters】 : including access point, username, password, data service number, authentication method (none, PAP, CHAP, or mixed). Input the parameters provided by the SIM card manufacturer. The default is empty, and when empty, dial-up is performed according to the default parameters of the program.
5. 【Active mode】 : The network module can be activated by external conditions. The dial-

up activation modes include: constant Always mode and Phone / SMS mode .

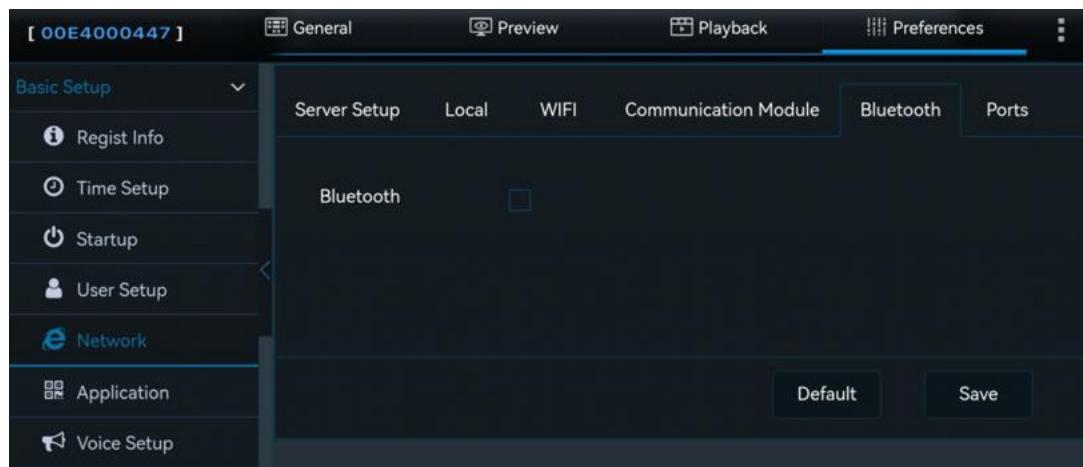
- 1) 【Always】 : After the device starts up, the network module automatically initiates dialing and connects to the server.
- 2) 【Phone / SMS】 : After the device starts up, the network module remains inactive. It only becomes active and starts dialing to connect to the server when a phone call or SMS is sent to the device's phone number. Up to 3 phone numbers can be configured for dialing.
- 3) 【Sensor】 : After the device starts up, the network module remains inactive. It only becomes active and starts dialing to connect to the server when triggered by an IO sensor--  
**--This feature is not currently supported.**
- 4) 【MTU Value of SIM Card】 : The interface supports setting the MTU value of the SIM card, with a default of 1500.

## 6. M1N 2.0 supports eSIM functionality. eSIM-related settings will be updated soon.

- Bluetooth:

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

Enable\Disable Bluetooth switch. **Currently, Bluetooth function is temporarily unavailable.**



- Ports

WEB Port: The default is 80, which is used for IE access

RTSP Port: The default is 554. After logging in with the correct username and password, the host end adopts a fixed IP address, and real-time video preview and playback are carried out through RTSP.



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

RTSP stream pulling format

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

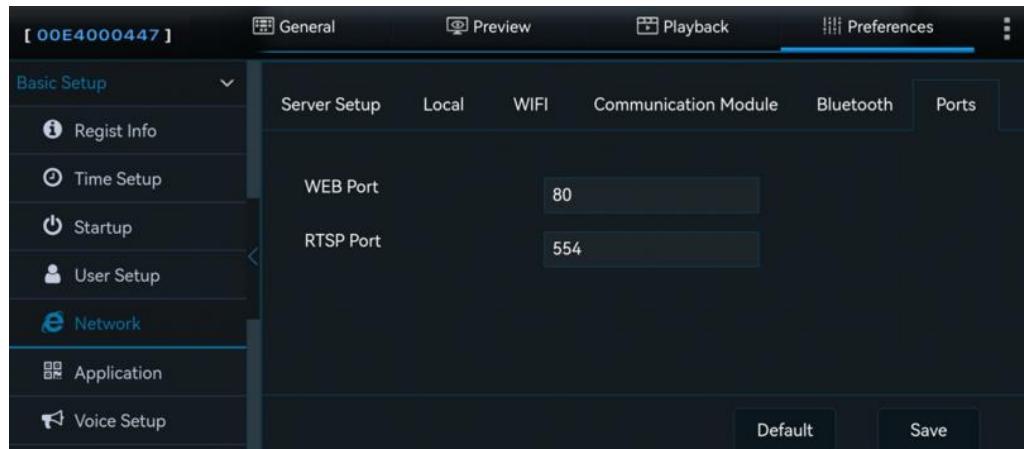
b. Sub streaming video: rtsp:// user:pwd@IP:554/substreamX

X is Channel number, Start from zero

For Example:

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

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

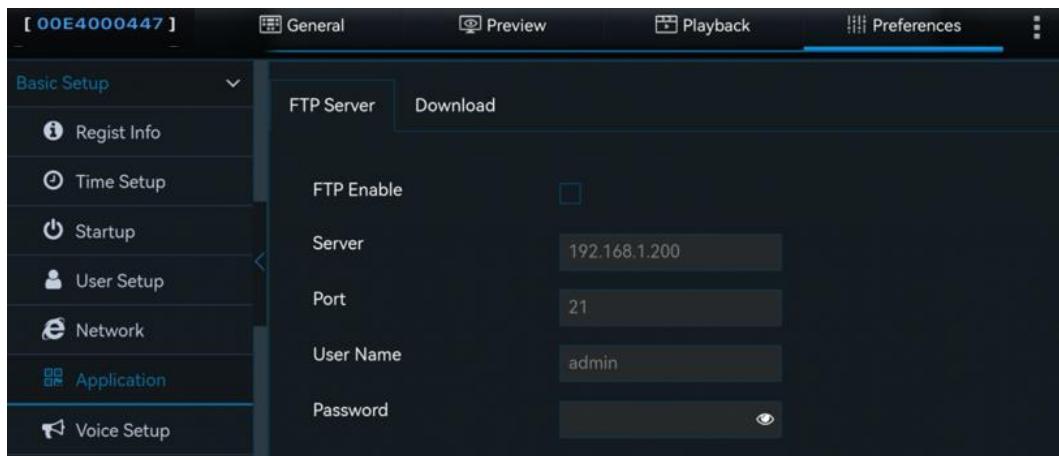


### 5.6.6 Application

- FTP Server:

The device supports connecting to an FTP server. Once the IP address, port, username, and password of the established FTP service are configured, the device can connect to the FTP server to upload images or download files.

Click on 【Preferences】 > 【Basic Setup】 > 【Application】 > 【FTP Server】 , the interface is as shown in the following image:



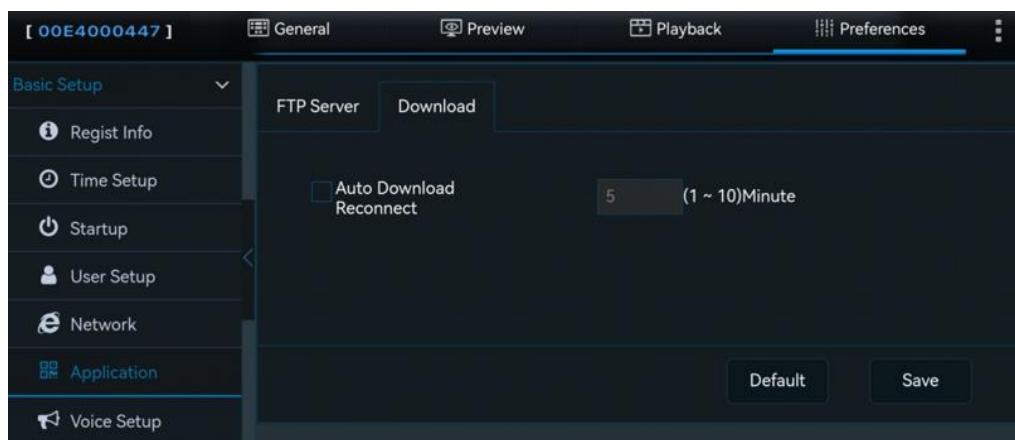
### ● Auto Download Reconnect

The auto download feature is designed to be used in conjunction with the CEIBA2 platform.

Through CEIBA2, automatic download tasks can be created, and the platform manages the device downloads, specifying which vehicles to download, under what network conditions (4G, WIFI), and if under WIFI, which WIFI-AP each vehicle should use for downloading, as well as the maximum number of vehicles each AP can connect to simultaneously.

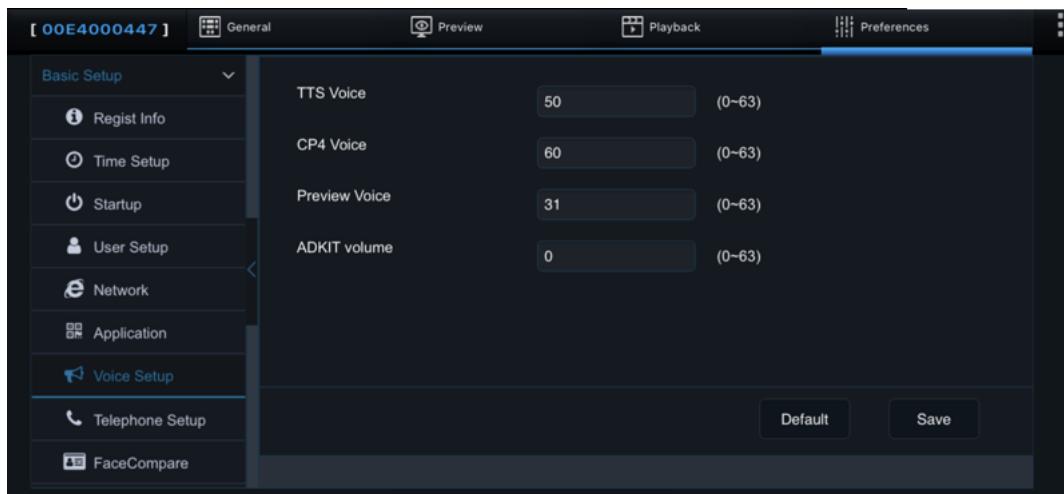
Automatic download reconnection refers to the device's behavior when it returns to the station but fails to connect to the service. In this case, it goes into sleep mode and waits for a certain period before restarting and attempting to download again. When the download task queue is full or the designated APs reach their limits, the platform notifies the device to enter sleep mode. It also informs the device how long it should remain asleep before restarting (this helps conserve resources, especially during queued upgrades).

You can enable automatic download reconnection and set the reconnect time between 1 to 10 minutes, with a default of 5 minutes.



### 5.6.7 Voice Setup

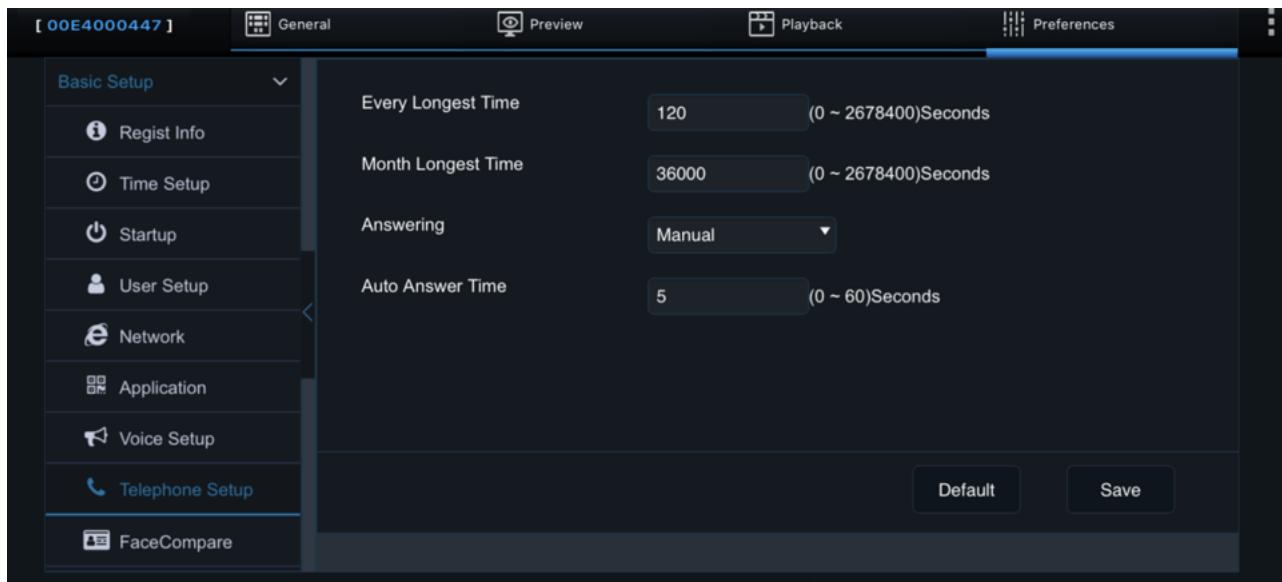
Click on 【Preferences】 > 【Basic Setup】 > 【Voice Setup】 , Can allow manual adjustment of the intercom volume (including MP3 broadcast volume) and TTS voice volume, with a selectable range from 0 to 63. The default setting for TTS voice is 50, CP4 voice is 60, preview sound is 31, and ADKIT voice is 0. The interface is as shown in the following image.



Warning: TTS currently only supports Chinese and English voices."

### 5.6.8 Telephone Setup

Click on 【Preferences】 > 【Basic Setup】 > 【Telephone Setup】 , can configure parameters related to managing incoming call answering.



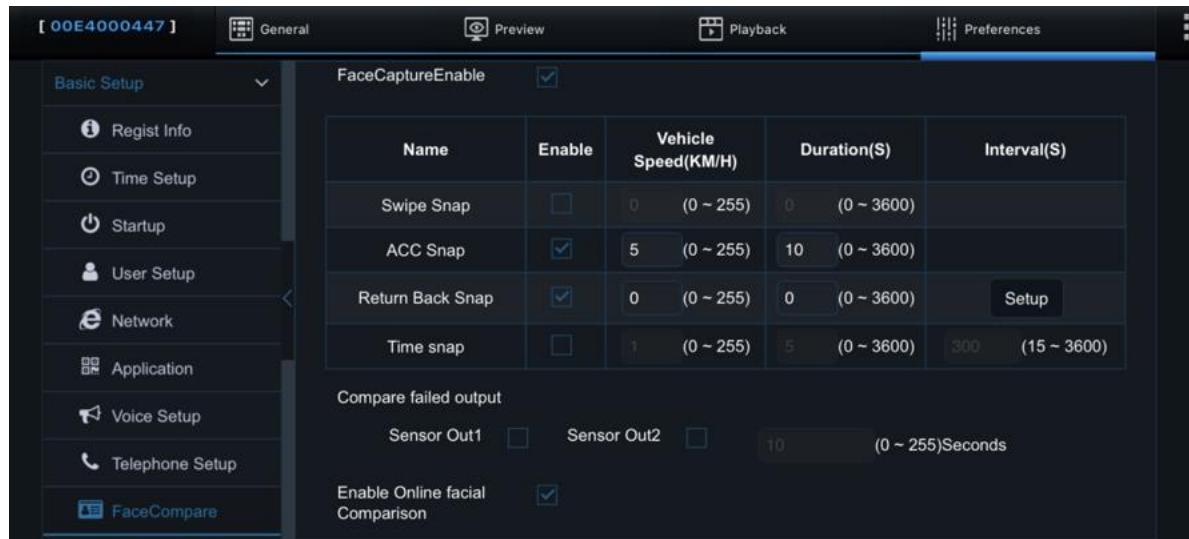
- 1、【Every Longest Time】：Select range from 0 to 2678400 seconds, editable manually, default is 120 seconds.
- 2、【Month Longest Time】：Select range from 0 to 2678400 seconds, editable manually, default is 36000 seconds.
- 3、【Answering】：Not editable. Options available: automatic answering, ACC answering, manual answering.
- 4、【Auto Answer Time】：Select range from 0 to 60 seconds, editable manually, default is 5 seconds.



Note: To use the calling and IP intercom functions, it's necessary to connect relevant peripherals such as microphones or speakers to achieve audio input and output.

### 5. 6. 9 FaceCompare

Click on 【Preferences】 > 【Basic Setup】 > 【FaceCompare】 ,Can configure parameters for driver facial recognition. This feature requires the use of the FT Cloud platform. The interface is as shown in the following image:



1. 【FaceCaptureEnable】 : Enable switch. Check to enable Face capture and perform facial comparison.
2. 【Enable Online facial Comparison】 : Online facial recognition switch. When checked, facial comparison is performed through the platform. Unchecking enables offline facial comparison (**currently only supports online facial comparison**).

#### 3. Facial capture mode:

- Swipe Snap: Online facial recognition currently does not support this feature, so no further explanation is provided here.
- ACC Snap: When ACC switches from off to on, and speed is provided, the device will start capturing.
- Return Back Snap: When transitioning from no driver to having a driver, meeting the trigger conditions for leaving and returning, the device captures images.
- Time Snap: You can set a timed interval, selectable between 60 to 3600 seconds, with a default of 300 seconds.

#### 4. Compare failed output

You can configure linkage with Sensor Out1 or Sensor Out2 when facial comparison fails. The trigger time is editable, select between 0 to 255 seconds, with a default of 10 seconds.



Special Note: The online facial comparison feature requires the use of the FT Cloud platform. If you need to use it, please contact your local agent or technical support to discuss

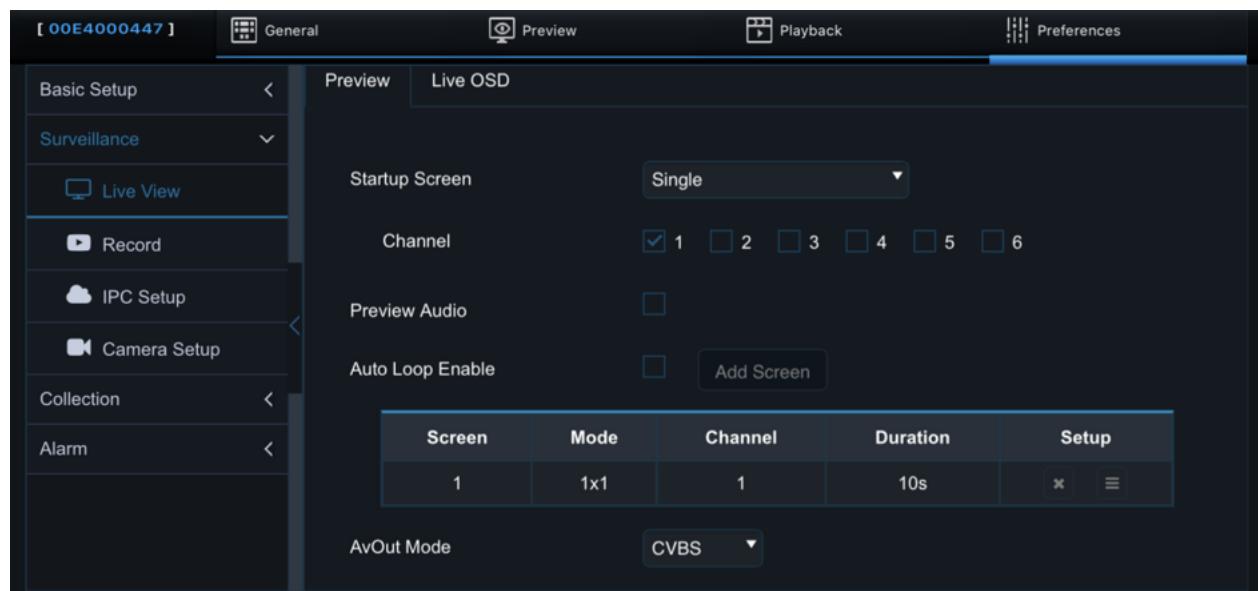
opening the relevant platform business functions.

## 5.7 Surveillance

### 5.7.1 Live View

#### ● Preview

Click on 【Preferences】 > 【Surveillance】 > 【Live View】 > 【Preview】 , The interface is as shown in the following image:



【Startup Screen】 : The setting interface is mainly used to adjust the display mode of the startup screen when using an external monitor. It supports single-screen, dual-screen, quad-screen, six-screen, and nine-screen display modes. When displaying multiple screens, you can choose which channels to display。

【Preview Audio】 : By default, it remains closed. Once checked, the sound of the preview interface will be enabled.

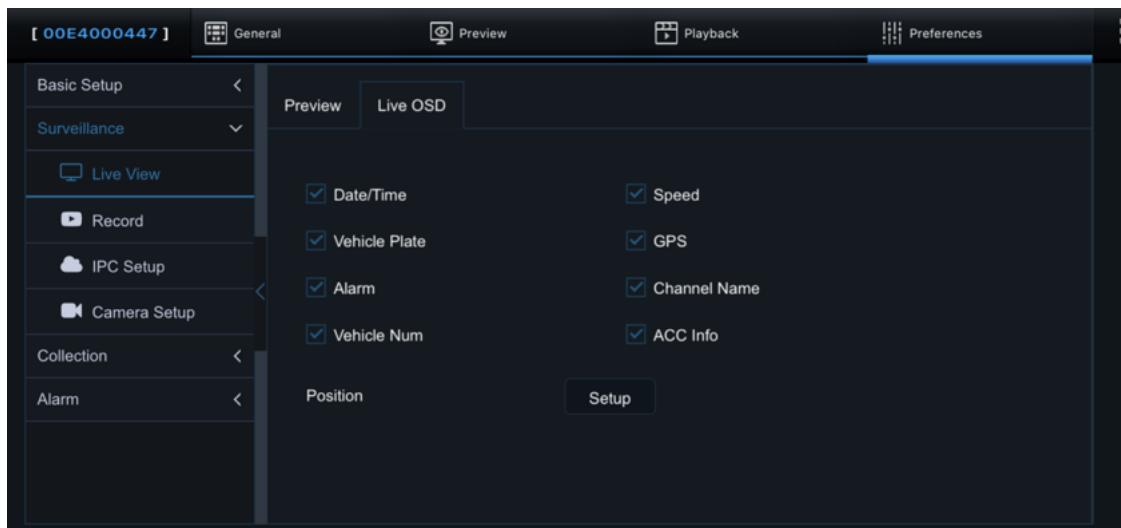
【Auto Loop Enable】 : By default, it's not activated. Checking it will initiate the automatic screen rotation function. You can click on 【Add Screen】 to select the channels, modes, and duration for rotation. Additionally, you can manage the rotation settings for the configured screens through the  interface.

【AvOut Mode】 : Video output mode selection includes two options: CVBS and AHD. **AHD is**

the default output mode.

- Live OSD

Click on 【Preferences】 > 【Surveillance】 > 【Live View】 > 【Live OSD】 , The interface is as shown in the following image:



The default OSD type displayed is 【Date /Time】 , Users can choose from various OSD types including 【Speed】、【Vehicle Plate】、【GPS】、【Alarm】、【Channel Name】、【Vehicle Num】 and 【ACC Info】

Users can freely edit the OSD position. By clicking 【Setup】 they can adjust the position of the OSD types.

## 5.7.2 Record

### 5.7.2.1 General

This functionality includes selecting system standards, automatic overwrite function, recording lock days, pre-recording, SD card recording mode, and dual-stream recording mode for the hard drive.

Click on 【Preferences】 > 【Surveillance】 > 【Record】 > 【General】 , The interface is as shown in the following image:



- 【System】 : System standards include PAL and NTSC.



Warning: The system standard setting must match the video source (camera standard) to ensure device compatibility. Otherwise, the device may fail to recognize the camera.

- 【Overwrite】 : Optional coverage by capacity, by days, by minutes, or never .



Special Note: Locked recordings can only be covered and deleted after the protection time is lifted or manually unlocked.

- Default coverage mode is by capacity:
- ◊ Coverage by capacity means that when the remaining storage space is insufficient, historical recordings will be automatically overwritten to store new recordings. Generally, automatic overwriting is activated when the remaining capacity is less than 1%. Coverage by capacity is based on storage block segmentation, and the block size may vary for different capacity storages. Users do not need to pay attention to detailed specifics.
- ◊ For multiple storage devices, if loop recording is selected, capacity coverage will occur across multiple devices. For example, when storage device 1 is full, recording will switch to storage device 2, and when storage device 2 is full, historical recordings will be overwritten on storage device 1.
- ◊ Coverage by capacity always prioritizes overwriting the earliest recordings. Locked recordings will be overwritten once the locking duration expires or when manually unlocked.

- Coverage mode is by days:
  - ✧ Coverage by day means overwriting based on the number of days set for storage. The configurable range for days is 1-31.
  - ✧ If the configured number of days is 1, recordings are retained for only 1 day. If the configured number of days is 31, recordings are retained for 31 days before overwriting begins.
  - ✧ Recording retention for 31 days occurs when there is sufficient space on the storage disk. For instance, if the set duration is 31 days but the actual recording can only be stored for 7 days due to limited space, the SD card will start overwriting once it's full.
    - Never coverage: The main stream recording, mirrored stream, sub-stream, and alarm stream do not activate the coverage function. Recording stops when the storage is full.
    - Coverage mode is by minutes:

Coverage by minute can be set between 30 to 1440 minutes, with a default of 30 minutes. This means that when the recording duration reaches the set length, it will trigger recording coverage. The coverage accuracy is approximately 1 minute, implying that if set to 30 minutes, the maximum recording duration will not exceed 31 minutes.

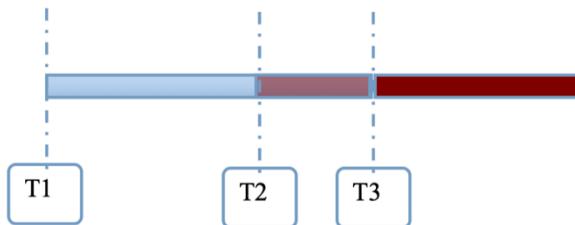
### 3. 【Lock Duration】 :

Recording Lock Duration: This is a time protection feature designed for locked recordings to prevent premature deletion. The default retention period is 7 days. To set recordings as locked, please refer to [Preferences] > [Alarm].

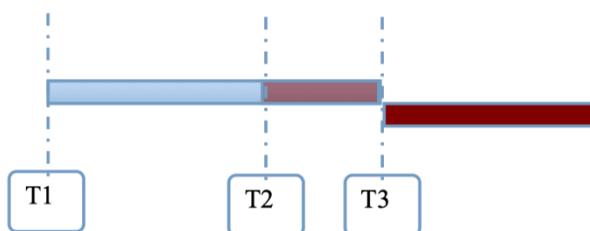
### 4. Pre-recording

When in alarm recording mode, it will extract recordings from a period preceding the triggered alarm event, facilitating event analysis. The default duration is 15 minutes, with options ranging from 1 to 60 minutes.

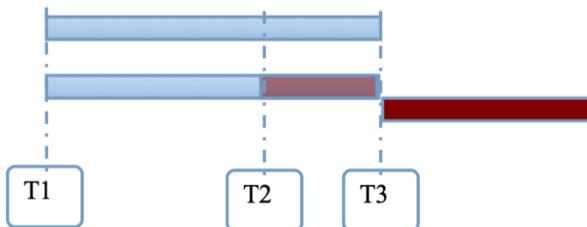
- ✧ For regular recording, when an alarm occurs, a segment of the preceding regular recording is captured and marked as alarm recording based on the pre-alarm duration set in the alarm linkage. Let's denote T1 to T3 as regular recordings. When an alarm occurs at T3, the regular recording segment from T2 to T3 is marked as alarm recording, and subsequent segments are marked according to the alarm recording label.



- ✧ In the absence of regular recordings and with the pre-recording switch turned on, the device will establish a pre-recording stream segment upon booting. When an alarm occurs at T3, the segment from T2 to T3 in the pre-recording stream is marked as alarm recording.



- ✧ When there are non-alarm recordings that consist of I-frame recordings: Upon startup, two stream segments are established: one for I-frame recordings and one for pre-recording. When an alarm occurs, the segment from T2 to T3 in the pre-recording stream is marked as alarm recording.



5. 【SD Record Mode】 : Optional SD card recording modes include sub-stream recording, mirrored recording, alarm recording backup, loop recording(**applicable only when no hard disk box is connected and only two Micro SD cards are present**) or None mode(**applicable only when a hard disk box is connected**). Recording modes can be selected if there is a built-in Micro SD card or an external SD card.,

- 【Sub-Record】 : Store sub-stream recordings on the SD card.
- 【Mirror Record】 : Parameters for mirrored recordings are all based on the main stream parameters. Mirrored recordings include video data, log information, and black box data. If the main stream video channel is closed, mirrored recordings

cannot record on that channel either.

- 【Alarm Backup】: Only store recordings when an alarm occurs.
- 【Loop-Record】: Loop recording: When one card is filled, recording continues on the other card.
- 【None】 When the MDVR is connected to a hard disk box, selecting 【None】 means that no recordings are written to the SD card..



#### Special Note:

Due to M1N 2.0 supporting M.2 SSD and two Micro SD cards for storage, the related logic is as follows:

- When the user connects an M.2 hard disk box (regardless of whether an M.2 SSD is connected), the host software recognizes it as a hard disk box. In this case, the M.2 SSD is defaulted as the main storage, and Micro SD1 and Micro SD2 are defaulted as the sub-storage (both Micro SD cards are used in a loop as sub-storage).
- When the user does not connect an M.2 hard disk box, the host software recognizes it as an SD card DVR. In this case, Micro SD1 is defaulted as the main storage, and Micro SD2 is defaulted as the sub-storage.

#### 6. 【HDD Double Recording】

Enable dual recording on the hard disk by checking the box.



#### Special Note:

The dual recording feature on the hard disk is only supported by the M1N 2.0 DVR when connected to an M.2 hard disk box.

##### 2.7.2.2 Main Stream

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

Channel	Enable	Resolution	Frame Rate	Quality	Encode Standard	Channel Name
1	<input checked="" type="checkbox"/>	1080P	25	1(Best)	H264	CH1
2	<input checked="" type="checkbox"/>	1080P	20	1(Best)	H264	CH2
3	<input checked="" type="checkbox"/>	D1	25	3	H264	CH3
4	<input checked="" type="checkbox"/>	D1	25	3	H264	CH4
5	<input checked="" type="checkbox"/>	720P	25	3	H264	CH5
6	<input checked="" type="checkbox"/>	720P	25	5	H264	CH6

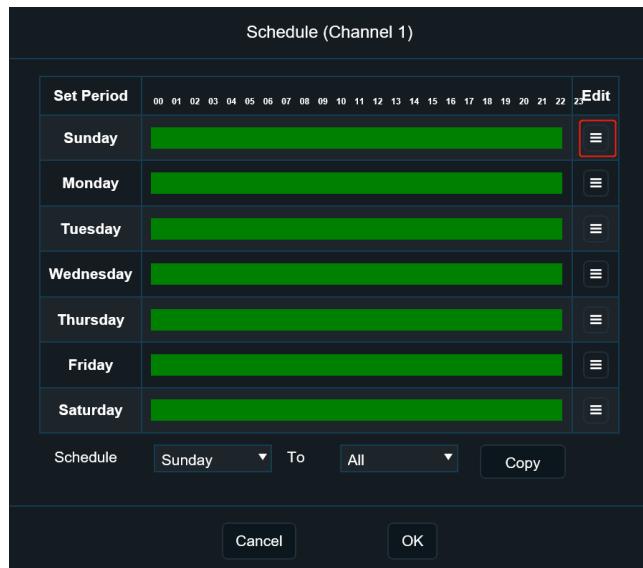


**Note:** Each channel can be individually configured for recording mode. Once a recording mode is selected, it will be applied to both the sub-stream and mirrored recording modes simultaneously.

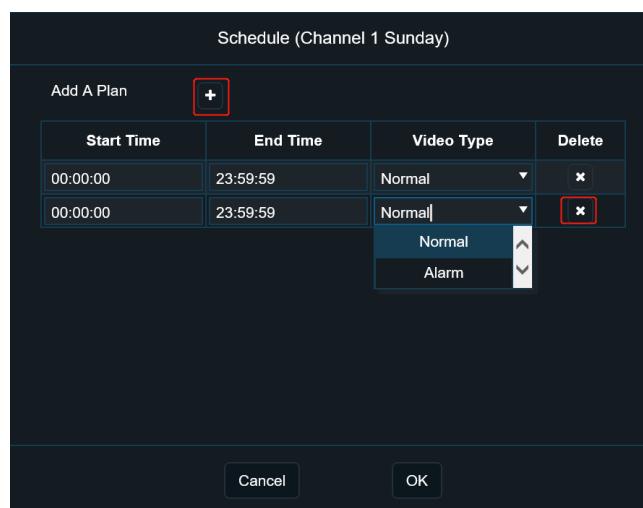
1. **【Enable】** : Checking this option will enable main stream recording functionality.
  2. **【Resolution】** : If a digital camera is connected, the available options are typically 720P and 1080P (the selectable resolution is determined by the supported resolutions of the digital camera). If an analog camera is connected, the available options include CIF/WCIF/HD1/WHD1/D1/WD1/720P/960P/1080P.
  3. **【Frame Rate】** : Recording frame rate refers to the number of frames displayed per second. For PAL cameras (P system), the options range from 1 to 25 frames per second, while for NTSC cameras (N system), the options range from 1 to 30 frames per second.
  4. **【Quality】** : Recording quality can be selected from 1 to 8, with smaller numbers indicating better quality. Quality 1 represents the highest quality.
  5. **【Encode standard】** : H.264 and H.265 are available options, with H.265 being the default choice.
  6. **【Channel Name】** : Custom channel names are available.
  7. **【Record Mode】** : Options include Power UP、Timer and Alarm.
- **Power UP:** When storage is available and recording is enabled, Power UP means the device will continuously record during the startup process.
  - **Alarm:** When the device triggers an alarm, recording begins. Alarm recording settings can be

found in [Preferences] > [Alarm]. It's also possible to pre-record footage before the alarm triggers.

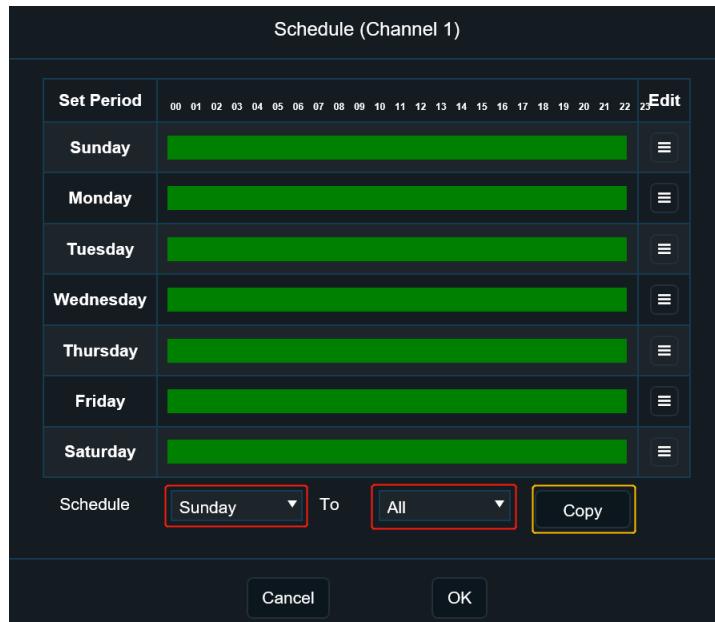
- **Timer:** To schedule recordings based on set times, click on the  button next to scheduled recording. This will take you to the following interface. Then, click on the  button next to the corresponding day on this interface to add a scheduled recording plan.



On the following interface, click on  to add a scheduled recording time plan. Once added, clicking on the  button next to the respective schedule allows you to delete it. Within this interface, you can specify whether the recording is regular or triggered by an alarm.



After setting the scheduled recording plan for a particular day, you can click the **【OK】** button to return to the previous step. By using the **【Copy】** button, you can replicate the scheduled recording plan from one day to another, as shown in the image.



## 8. 【Audio】

Note: Standalone audio recording function is not supported.

- Recording: Indicates whether audio recording is enabled during video recording. Options include "Always Audio" and "No Audio", with "Always Audio" being the default choice.

Always Audio: Audio recording is enabled throughout the video recording.

No Audio: Audio recording is disabled throughout the video recording.

## 9. 【Alarm Quality】 : Configure the video quality for device alarm recording, where smaller numbers indicate better quality. The default quality is set to 3.

## 10. 【Encode Mode】 : Selectable video encoding formats include VBR (Variable Bit Rate) and CBR (Constant Bit Rate), with VBR being the default option.

## 11. 【Audio Coding Format】 : Available audio encoding formats include G.711A, G.711U, ADPCM, and G.726, with ADPCM being the default option.

### 5. 7. 2. 3 Sub Stream

This interface allows you to configure the sub-stream recording parameters and audio recording parameters for each individual channel. Click on 【Preferences】 > 【Surveillance】 > 【Record】 > 【Sub Stream】 :

Channel	Enable	Resolution	Frame Rate	Quality	Encode Standard	Audio
1	<input checked="" type="checkbox"/>	CIF	15	3	H264	Always Audio
2	<input checked="" type="checkbox"/>	CIF	15	3	H264	Always Audio
3	<input checked="" type="checkbox"/>	CIF	15	3	H264	Always Audio
4	<input checked="" type="checkbox"/>	CIF	15	3	H264	Always Audio
5	<input checked="" type="checkbox"/>	CIF	15	3	H264	Always Audio
6	<input checked="" type="checkbox"/>	VGA	15	6	H264	Always Audio

- 【Enable】: Checking this option will enable sub-stream recording functionality for the corresponding channel.

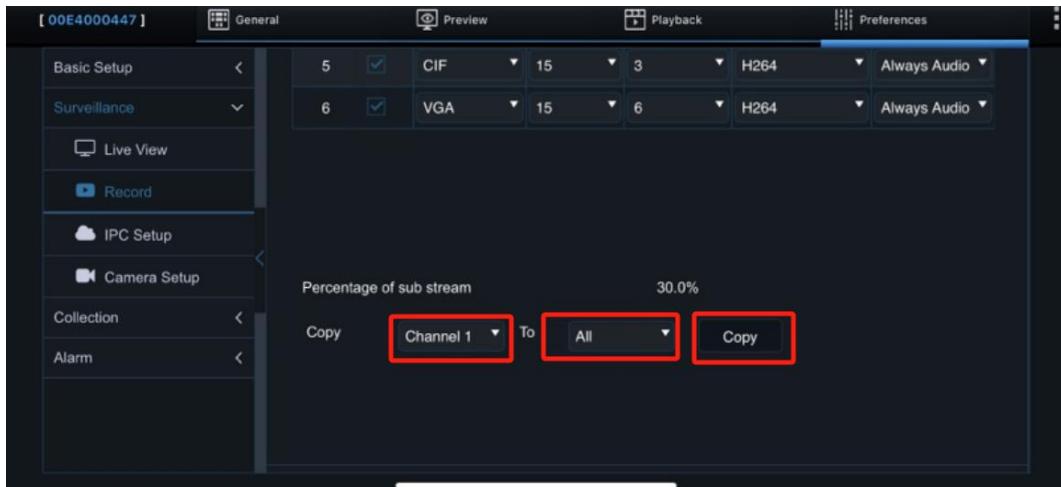


Special Note:

When the main stream is disabled, the entire video input will be turned off. In this case, even if the sub-stream is enabled, sub-stream recording will not occur.

- 【Resolution】: If an analog camera is connected, options include CIF/HD1/D1; if a digital camera is connected, options include QVGA/640\*360.
- 【Frame Rate】: Recording frame rate refers to the number of frames displayed per second. For PAL cameras (P system), options range from 1 to 25 frames per second, while for NTSC cameras (N system), options range from 1 to 30 frames per second. The default frame rate for the sub-stream is set to 15 frames per second.
- 【Quality】: Recording quality can be selected from 1 to 8, with smaller numbers indicating better quality. Quality 1 represents the highest quality.
- 【Encode Standard】: H.264 and H.265 are available options, with H.264 being the default.
- 【Audio】: Indicates whether audio recording is enabled during video recording. Options include "Always Audio" and "No Audio".

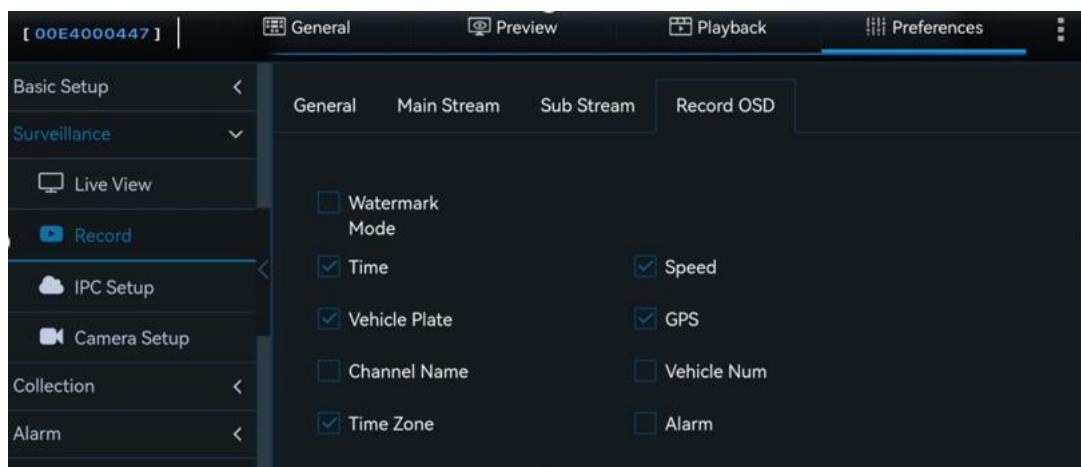
Clicking the "Copy" button below allows you to copy the sub-stream settings parameters of a particular channel to other channels. As shown in the image below:



**Special Note:** The documentation package includes a bitrate calculation tool, which can help calculate the required disk size based on the desired recording specifications. The capacity calculated by this tool is theoretical and is provided for reference purposes only.

#### 5.7.2.4 Record OSD

Click on 【Preferences】 > 【Surveillance】 > 【Record】 > 【Record OSD】 , to enter the recording overlay settings interface. The interface looks like the following:

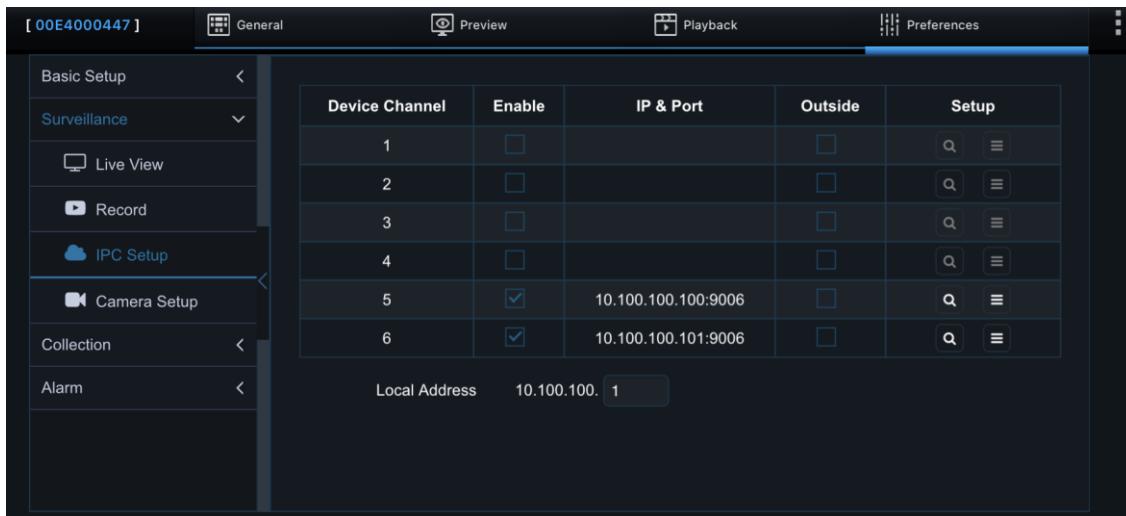


The OSD overlay function here is for recording, which can overlay selected information onto the recording display, distinguishing it from the OSD overlay information for direct preview. The recording OSD supports the enabling selection of 8 regions and also supports position setting. Additionally, to better provide OSD overlay capability and effect on the platform side, especially to overlay AI processing information, the recording watermark mode function has been added in this interface. After enabling this function, watermark information can be overlaid on the video of

analog channels.

### 5.7.3 IPC Setup

Click on 【Preferences】 > 【Surveillance】 > 【IPC Setup】 , You can configure the connected IPC as shown in the following image:



- Search:
  - ✧ Onvif: You can enable external IPC for certain channels, search and assign channels to IPC, and modify the IP addresses of IPC.
  - ✧ N9M: It supports plug-and-play with STREAMAX IPC cameras, requiring no configuration.

### 5.7.4 Camera Setup

In the camera settings interface, you can perform operations such as flipping, mirroring, and rotating on each channel camera. Click on 【Preferences】 > 【Surveillance】 > 【Camera Setup】 , The interface is as shown in the following image:



In the bottom left corner of the interface, select the channel whose image you want to adjust. In the top right corner of the interface, you can set the rotation angle, whether to mirror, and whether to flip vertically for the camera of that channel.



Warning: After the AI camera calibration is complete, please do not arbitrarily change the picture angle and mirror flip, as it may affect the accuracy of AI. Any changes require recalibration of AI.

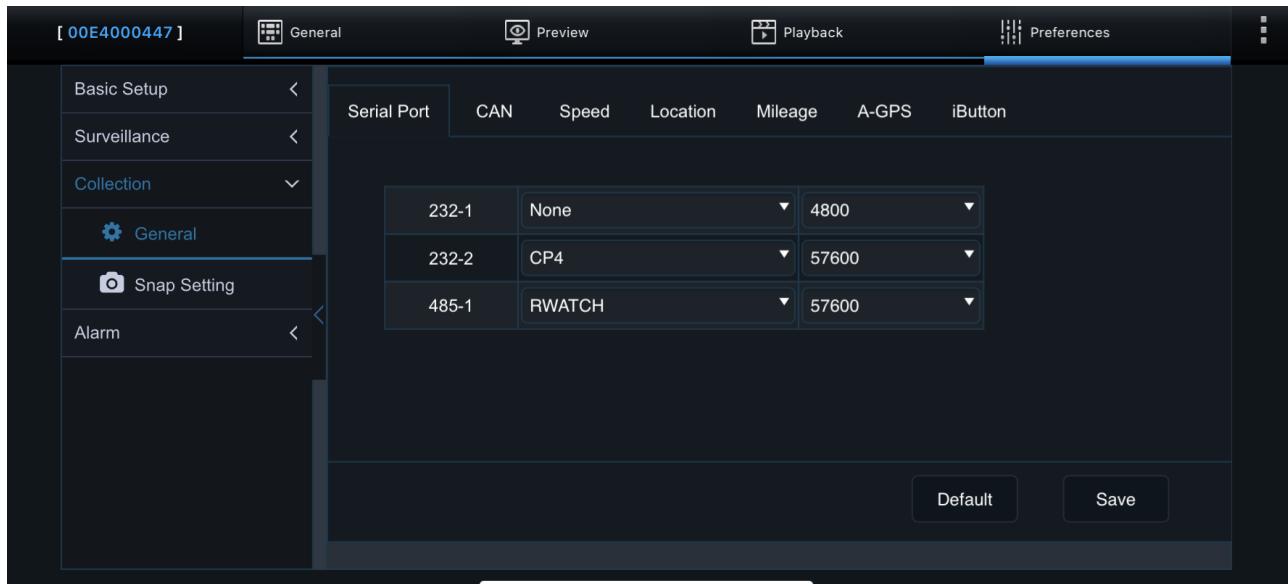
## 5.8 Collection

The data collection interface allows you to set parameters such as serial port, CAN , speed, location, mileage, A-GPS , iButton and Snap.

### 5.8.1 General

The general settings interface is primarily used to set parameters such as serial port, CAN (Controller Area Network), speed, positioning, mileage, A-GPS, and iButton.

- 1) Click on 【Preferences】 > 【Collection】 > 【General】 > 【Serial Port】 , Enter the serial port settings interface:

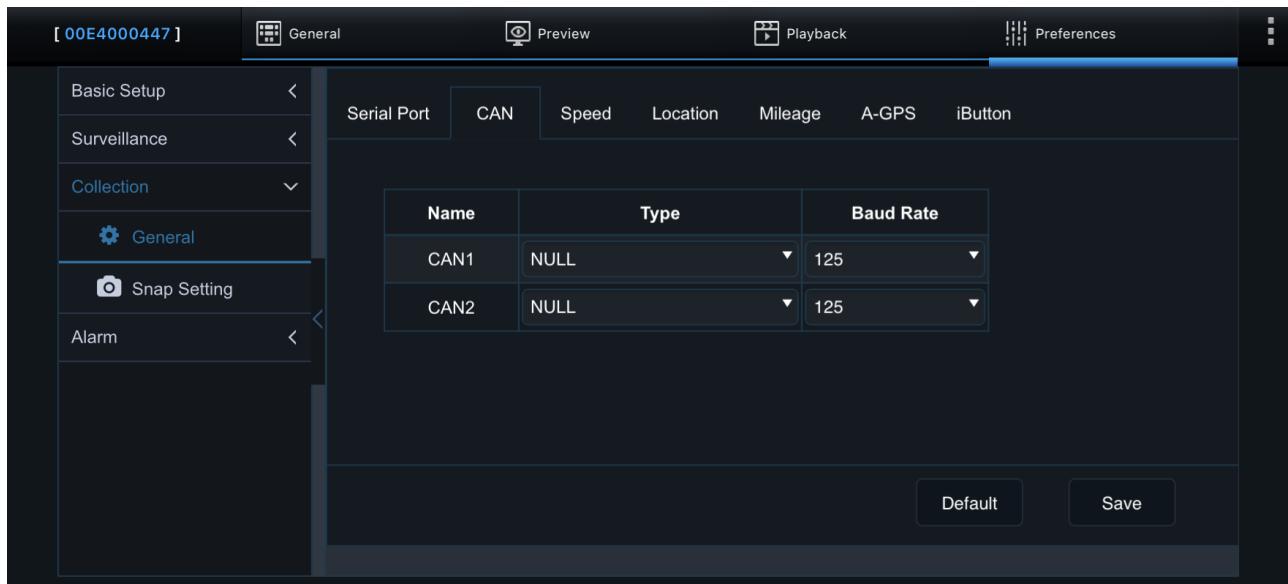


**Serial Port:** You can select the external device to be connected. The baud rate will automatically adjust to the corresponding value. If incorrect, it can also be adjusted manually.



Note: If CP4 is connected externally, its corresponding touch control RS232 defaults to RS232-2.

2) Click on 【Preferences】>【Collection】>【General】>【CAN】 , Enter the CAN settings interface:

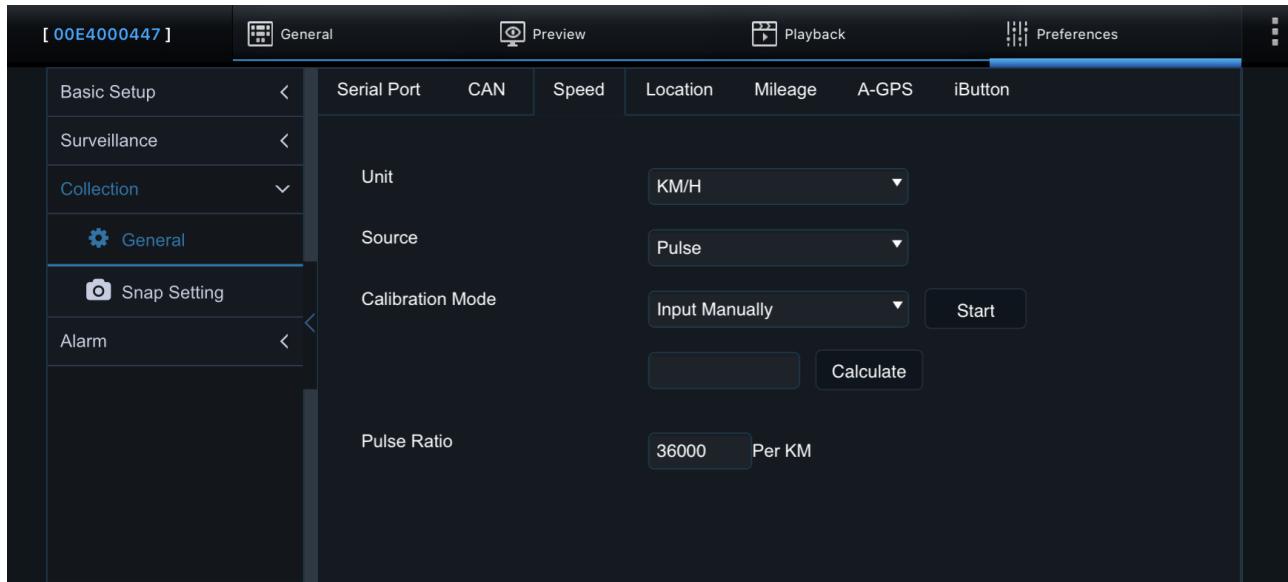


In this interface, you can configure the function type and baud rate of the connected CAN.

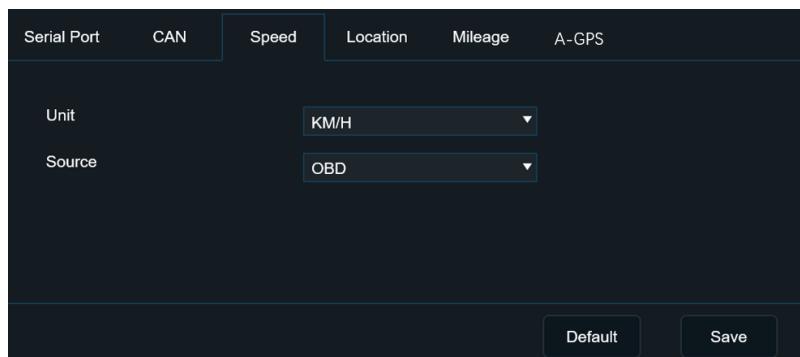


Warning: Supports standard CAN-BUS and J1939 protocols.

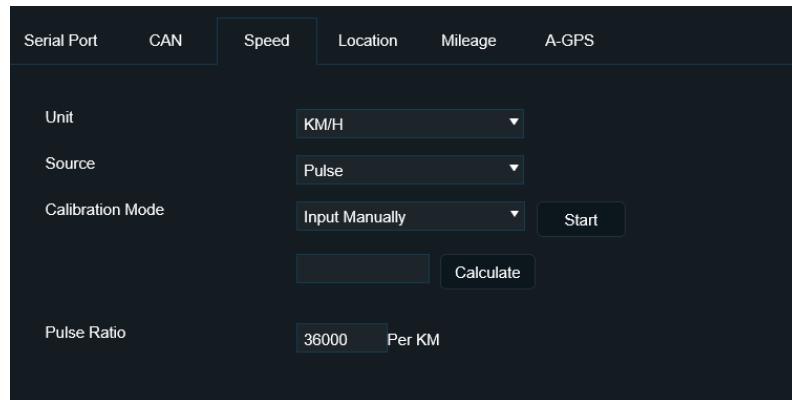
- 3) Click on 【Preferences】 > 【Collection】 > 【General】 > 【Speed】 , Enter the Speed settings interface:



1. 【Unit】 : Set the unit for vehicle speed: KM/H and MPH;
  2. 【Source】 : You can select Satellite、Pulse、Mix、OBD、CAN;
- When the speed source is selected as Satellite, OBD, or CAN, the interface is as shown in the figure below:

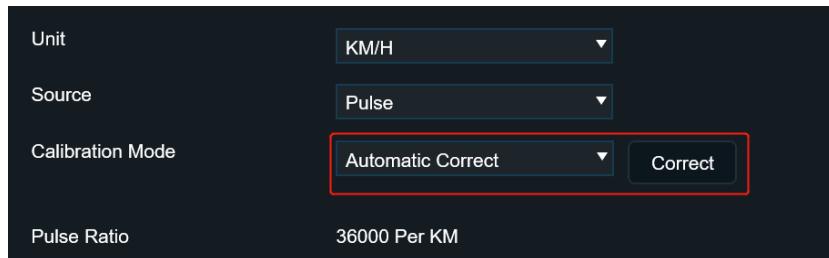


- When the speed source is selected as Pulse, the interface is as shown in the figure below:

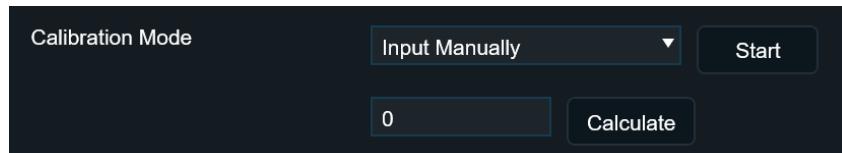


**【Calibration Mode】 :** You can choose between manual calibration or automatic calibration.

- When selecting automatic calibration, click [Correct] to directly calibrate the pulse coefficient.

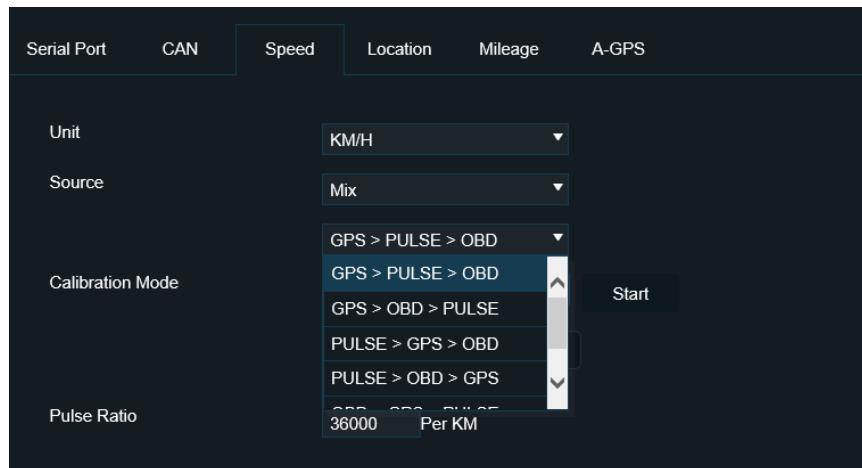


- When selecting Input manually calibration:



- ✧ Manually enter the initial mileage of the odometer, and the system will calculate the initial mileage of the odometer.
- ✧ Click "Start Learning"; (The microcontroller will automatically record the pulse count).
- ✧ At any time, click "End Learning" to record the driving mileage of the odometer again and calculate the mileage difference.
- ✧ Then enter the difference in mileage and click "Calculate". The pulse coefficient will automatically display the calculated result. (The unit of the calculation result is consistent with the speed unit)

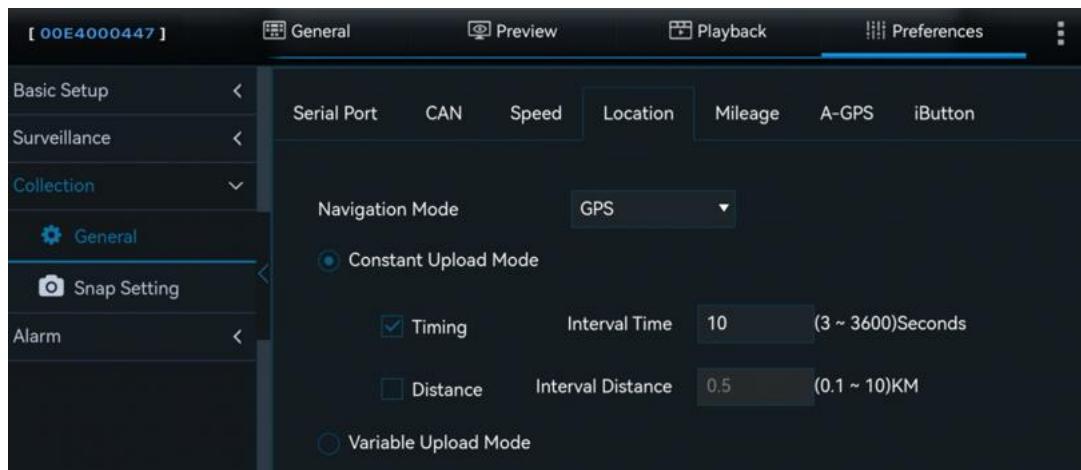
When the speed source is selected as Mix, you can set the priority of the speed source. There are 6 priority sorting methods available. The interface is as shown in the figure below:



- 4) Click on 【Preferences】>【Collection】>【General】>【Location】to enter the GPS reporting strategy setting interface. You can choose different ways to upload GPS signals according to market needs.



Warning: The interface for setting parameters will only be displayed when the device detects the GPS module.



GPS reporting can be categorized into three states based on the ACC status:

ACC status	Constant Upload	Variable Upload
ACC ON	1、Timing Upload: The time can be manually adjusted, with options ranging from 3 to 3600 seconds, defaulting to 10 seconds. 2、Distance Upload: The interval can be manually adjusted, with options ranging from 0.1 to 10 km; 3、Timing Upload and Distance Upload can be	As per the detailed description, please note that "Constant Upload" and "Variable Upload" can only be chosen separately, meaning once "Constant Upload" is selected, "Variable Upload" cannot be selected, with "Constant Upload" being the default option.

	selected simultaneously.	
ACC OFF	Sleep Reporting	

### 1、Detailed Description of Variable Upload:

Firstly, define two states: "moving start" and "moving stop". Variable upload means reporting based on the change of these two states.

Next:

- Definition of "moving start": When the vehicle's speed exceeds a certain value and remains at that level for a certain duration, it is considered as the vehicle starting. Default speed is 30 km/h and default time is 60 seconds.
- Definition of "moving stop": When the vehicle's speed drops below a certain value and remains at that level for a certain duration, it is considered as the vehicle stopping. Default speed is 20 km/h and default time is 5 minutes.

Upload Method:

- When the state changes from "moving stop" to "moving start":

Timing Upload: The time can be manually adjusted, defaulting to 60 seconds.

Distance Upload: The interval can be manually adjusted, defaulting to 0.1 km.

- When the state changes from "moving start" to "moving stop":

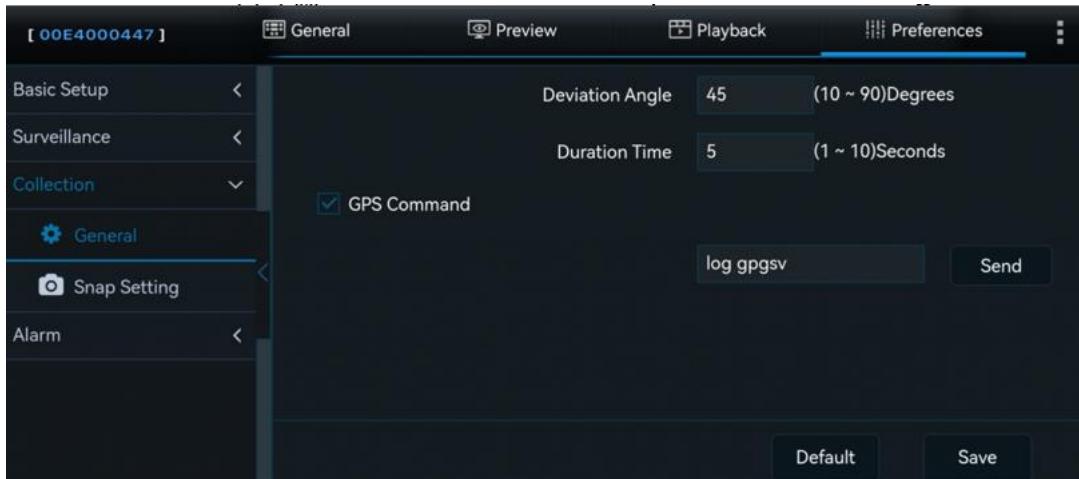
Timing Upload: The time can be manually adjusted, defaulting to 60 seconds.

2、Multiple reporting when there is significant change in vehicle's driving angle: Users can set the angle themselves, with the default being reporting a GPS data point when the angle reaches  $45^{\circ}$ .

3、When uploading GPS information, simultaneously report ACC status information.

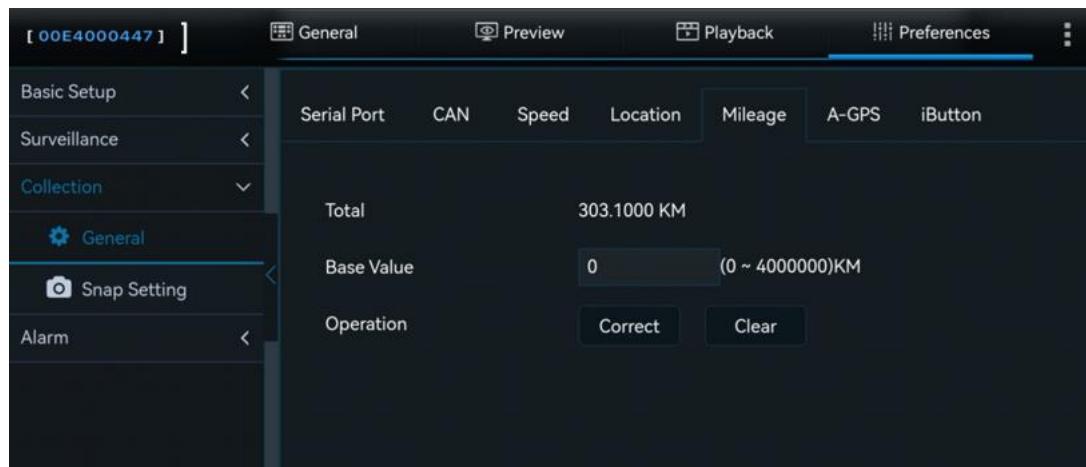
4、For detailed information about the sleep reporting function, please refer to the "Power On/Off Setup" explanation under [Preferences] > [Basic Setup] > [Time Setup].

**GPS Command:** To ensure that raw GPS data can be obtained for analysis when there are issues with inertial navigation GPS, a command for obtaining raw GPS data has been added. In the [Location] > [GPS Command] command input box, enter "log gpgsv", then click send to save. This action will enable the logging of raw GPS data. These data will be recorded in the device's black box, accessible either locally on the device or remotely through the platform. After parsing, usable GPS data can be obtained for analysis. The GPS raw data recorded in the black box includes RMC, GGA, GSA, GSV, and GPATT. The interface is as shown in the figure below:



After sending the "log gpgsv" command, the general information display interface of Veyes will show the satellite positioning signals received by the device. In [General] > [Location Information], you can view the number of satellites and their corresponding signal qualities. If you want to manually disable the recording of raw GPS data, you can choose to disable the GPS command enable or enter "unlog gpgsv" in the command box, then click send and save. This will stop recording raw GPS data to the black box.

- 5) Click on 【Preferences】 > 【Collection】 > 【General】 > 【Mileage】 , to enter the mileage setting interface. You can set the mileage base value and perform calibration and reset operations on the mileage value.:



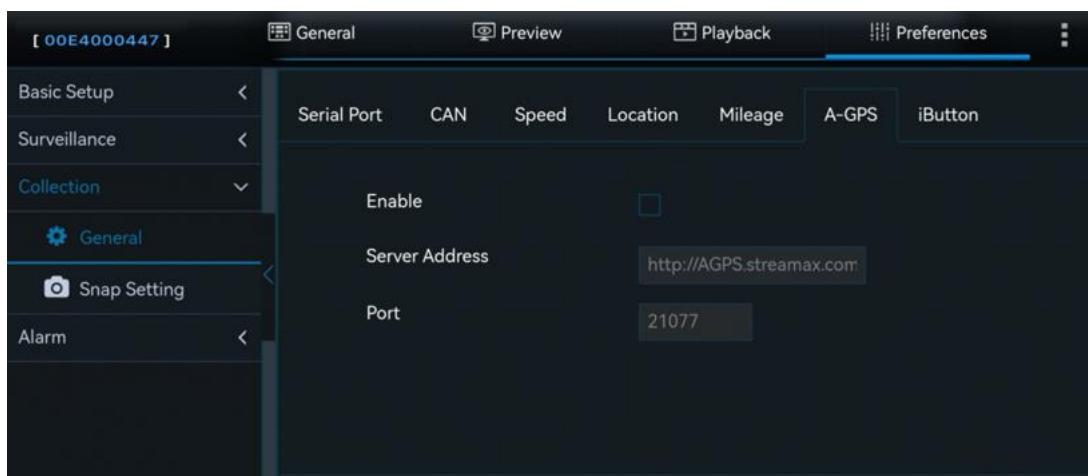
- 6) Click on 【Preferences】 > 【Collection】 > 【General】 > 【A-GPS】 to enter the A-GPS setting interface.---**This feature is not currently supported and will be developed later.**

In strong signal environments, standalone GNSS receivers can achieve cold start positioning in about 30 seconds. However, in weak signal environments (such as under overpasses, in wooded areas, between tall buildings, just out of tunnels, or just out of underground parking lots),

standalone receivers without external assistance capture satellites slowly, making it difficult to obtain satellite messages, resulting in long positioning times or even failure to position.

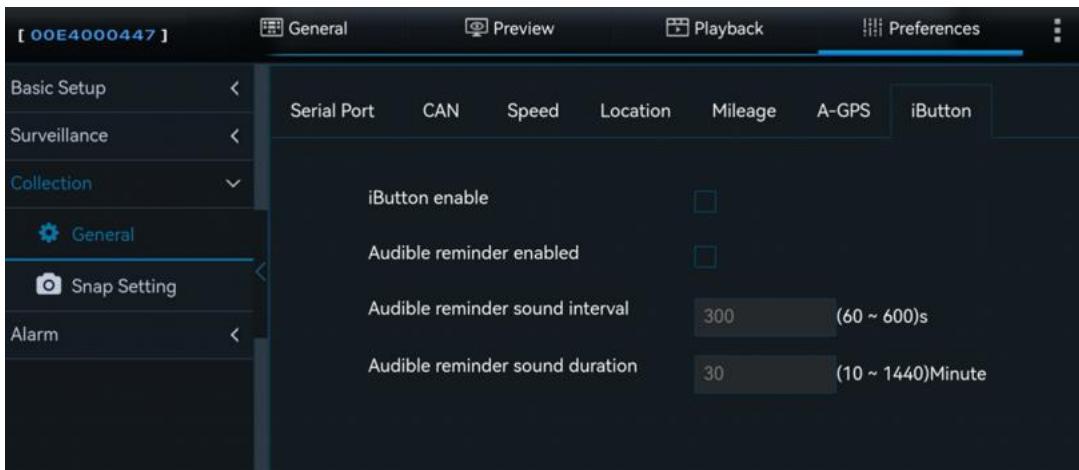
AGNSS (A-GPS) services can provide receivers with essential auxiliary information, such as messages, approximate position, and time. Whether in strong signal or weak signal environments, this information can significantly shorten the initial positioning time, achieving rapid startup and rapid positioning effects.

When in use, the AGPS proxy server periodically retrieves all ephemeris data from various chip manufacturers and stores it on the server. The device connects to the proxy server through the default proxy server's IP/domain and port (parameters can be manually modified). After the device boots up, it checks whether the AGPS auxiliary information file has expired (the expiration time varies for different chips). If it has expired, the device requests the latest ephemeris data from the AGPS proxy server and downloads it to the local device in overwrite mode. If it cannot be obtained, it continues to attempt retrieval.



**Warning: This feature is not currently supported.**

- 7) Click on 【Preferences】 > 【Collection】 > 【General】 > 【iButton】 , to enter the iButton setting interface.



If the "Audible reminder enable" option is checked, after the vehicle starts, it will play the voice prompt "Please sign in". If the driver does not use the iButton to sign in for a long time, the reminder voice will be played according to the set interval. When the driver signs in using the iButton (magnetically attached to the base), and the device detects a normal iButton signal, it will play the voice prompt "Sign in successfully" and upload the ID number to the FT platform.



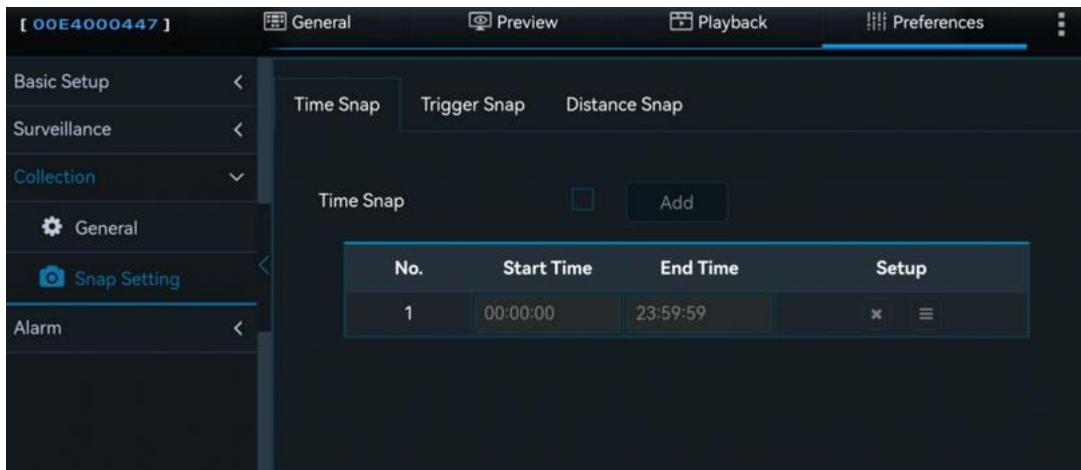
Note: Using the iButton functionality requires purchasing the iButton peripheral.

Uploading the iButton's ID number to the FT platform requires using it in conjunction with the FT platform. .

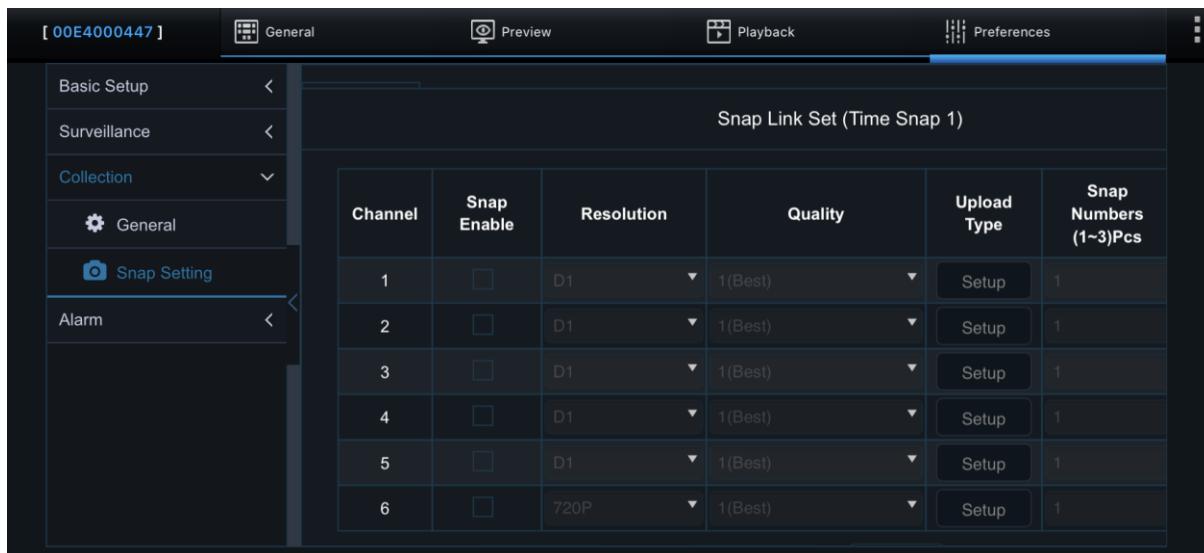
## 5.8.2 Snap Setting

### 5.8.2.1 Time Snap

You can set time periods for automatic snapshots at regular intervals. Click on 【Preferences】 > 【Collection】 > 【Snap Setting】 > 【Time Snap】。The interface for setting timed snapshots is shown in the figure below:



- Check the enable switch to activate scheduled snapshots. Click the [Add] button to add time periods for scheduled snapshots.
- Start/End Time:
  - ✧ Set a time period to enable the snapshot function within that period.
  - ✧ The time period for scheduled snapshots is within a day.
  - ✧ Up to 8 time periods for scheduled snapshots are supported per day.
  - ✧ You can add, delete, or edit time periods.
- Each time period can be set with independent snapshot parameters. Click on [Setup] to enter the snapshot linkage interface, as shown below:

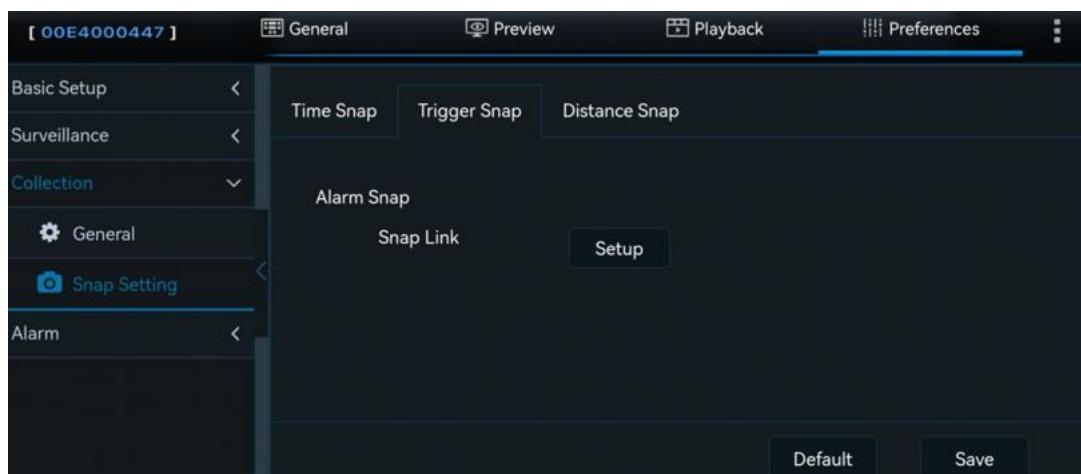


- ✧ Channel: Select the camera channel for snapshot.
- ✧ Snap Enable : Check to enable scheduled snapshots for this channel.
- ✧ Resolution: Select the snapshot resolution.

- ✧ Quality: Choose from 1 to 8, with 1 being the best image quality.
- ✧ Upload Type: Supports FTP upload and HTTP upload. You can automatically upload snapshots via FTP. For FTP settings, refer to [Preferences] > [Basic Setup] > [Application] > [Communication Module] > [FTP Server]. When selecting HTTP snapshot, the images will be uploaded to the specified platform via HTTP. HTTP parameters are empty by default, and the HTTP address is sent from the platform.
- ✧ Number of Snapshots per Time: Set from 1 to 3.
- ✧ Snapshot Interval: The interval between snapshots during this time period, in seconds.
- ✧ Copy Style: Copy the settings to other video channels.

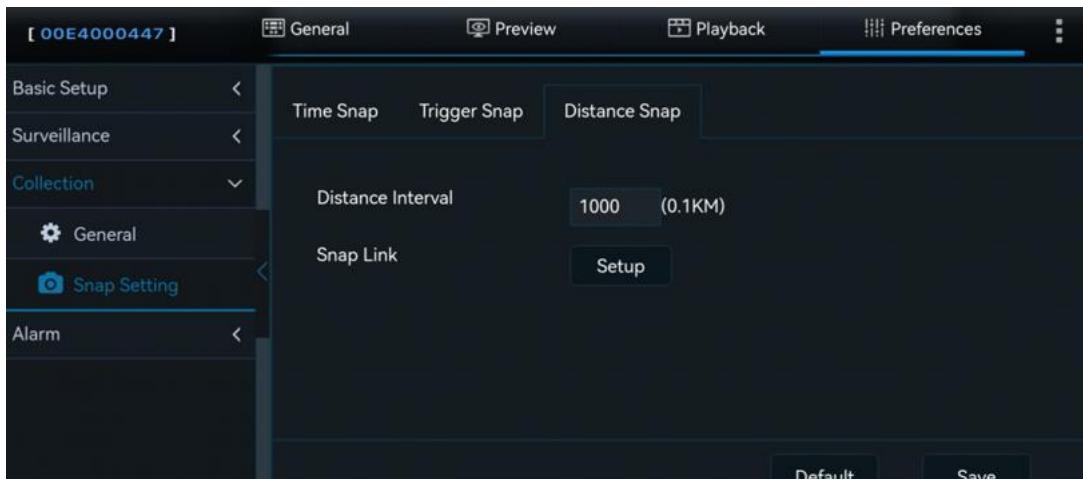
### 5.8.2.2 Trigger Snap

Supports alarm-triggered snapshot linkage, meaning snapshots are taken when an alarm occurs. Click on 【Preferences】 > 【Collection】 > 【Snap Setting】 > 【Trigger Snap】 , The setting method for alarm-triggered snapshots is the same as for timed snapshots. Further details are not provided here.



### 5.8.2.3 Distance Snap

Supports distance snapshot, meaning images are captured at fixed intervals and uploaded to the platform. Click on [Preferences] > [Collection] > [Snap Setting] > [Distance Snap]. Distance snap is disabled by default, and the distance unit follows the system unit. The setting method for snapshot linkage is the same as for timed snapshots, except that there is no setting for snapshot time interval in distance snap setting.



**Warning:** The snapshot function consumes certain system resources. The overall limit for various snapshot settings is as follows: the total average snapshot frequency for all channels should not exceed 3 snapshots in 5 seconds. STREAMAX is not responsible for system resource issues caused by frequent snapshots due to snapshot settings.

## 5.9 Alarm

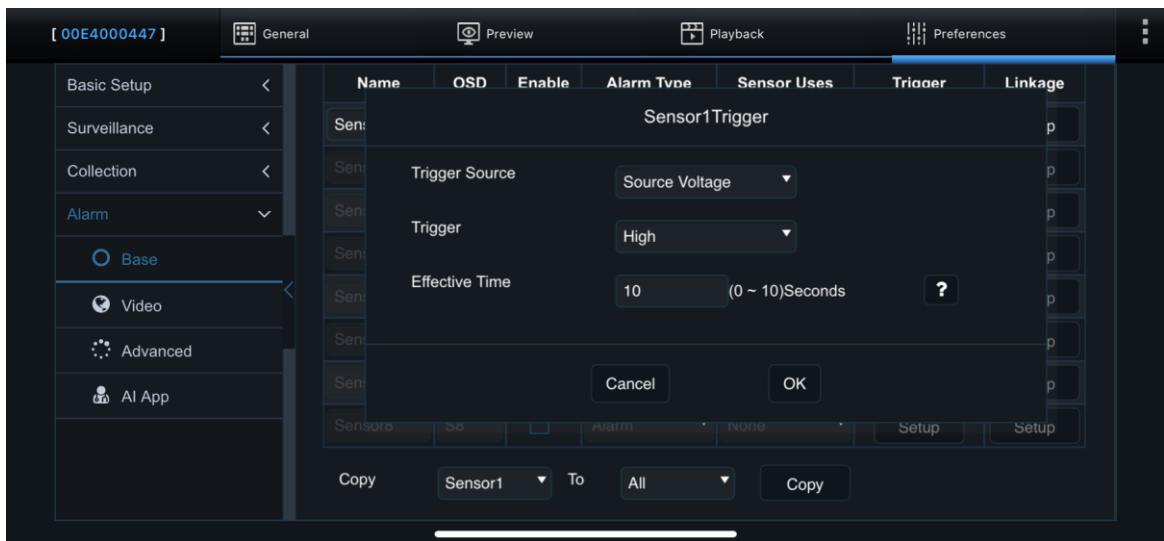
### 5.9.1 Base

In the basic alarm settings interface, you can configure IO alarms, speed alarms, panel alarms, and GPS alarms. Click on [Preferences] > [Alarm] > [Base] to enter the following interface:

Name	OSD	Enable	Alarm Type	Sensor Uses	Trigger	Linkage
Sensor1	S1	<input type="checkbox"/>	Alarm ▾	None ▾	Setup	Setup
Sensor2	S2	<input type="checkbox"/>	Alarm ▾	None ▾	Setup	Setup
Sensor3	S3	<input type="checkbox"/>	Alarm ▾	None ▾	Setup	Setup
Sensor4	S4	<input type="checkbox"/>	Alarm ▾	None ▾	Setup	Setup
Sensor5	S5	<input type="checkbox"/>	Alarm ▾	None ▾	Setup	Setup
Sensor6	S6	<input type="checkbox"/>	Alarm ▾	None ▾	Setup	Setup
Sensor7	S7	<input type="checkbox"/>	Alarm ▾	None ▾	Setup	Setup

- IO Alarm:

1. Name: You can select Sensor1-Sensor8. And can customize the name of the switch, click to modify.
2. OSD: You can customize the abbreviation of IO in the OSD overlay information.
3. Enable:IO Enable Switch
4. Alarm Type :Includes Alarm and Event.
  - Alarm:
    - ✧ Alarms can be overlaid on both the preview interface and recordings via OSD.
    - ✧ Alarms will be uploaded to the platform.
    - ✧ Write alarm logs.
  - Event:
    - ✧ Overlay OSD.
    - ✧ Will not be reported to the platform.
    - ✧ Write alarm logs.
5. Sensor Uses: You can set the purpose of the sensor, such as Left Steering, Right Steering, Passing light, braking, door opening function etc.
6. Sensor Trigger: Click to set, enter the following interface:



- 1) Trigger Conditions: You can choose between high-level, low-level, or pulse triggering. By default, left and right turns trigger on pulse, while other functions trigger on high level.
  - ✧ High Level: Normally low, becomes high when triggered.
  - ✧ Low Level: Normally high, becomes low when triggered.

◇ Pulse Signal: Normally low, changes between high and low when triggered.

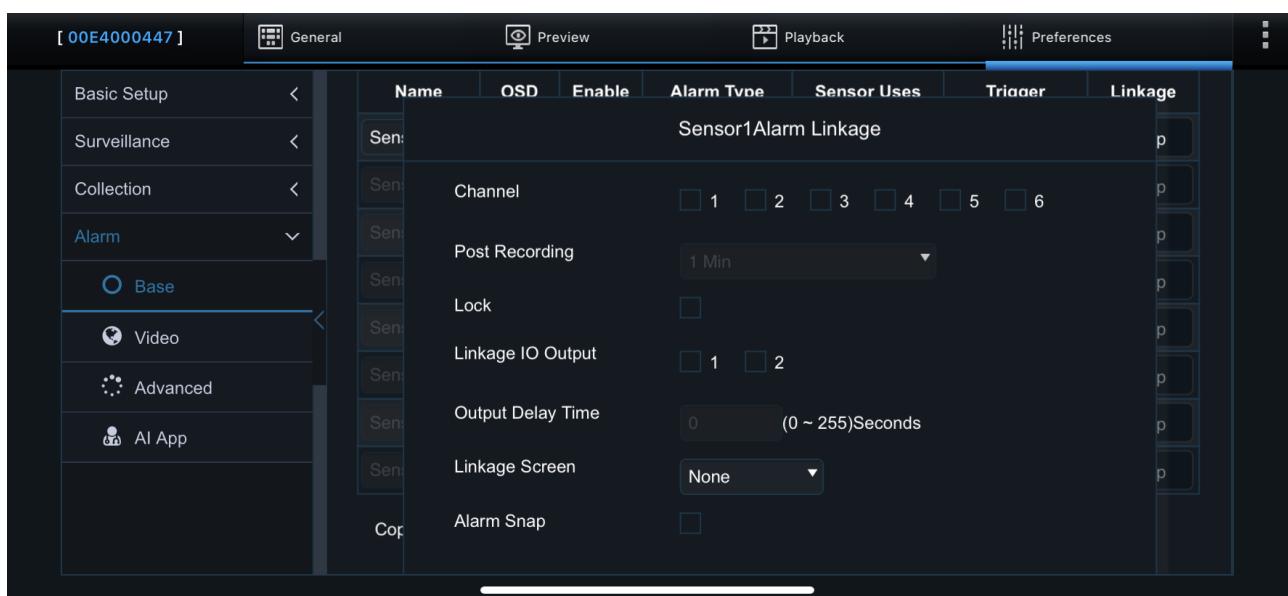


Warning: The voltage range that IO ports can detect is 0-36V, with levels below 3.9V considered low and levels above 3.9V considered high. Please use within the visible range. STREAMAX is not responsible for any damage caused by exceeding the detectable range.

2)[Effective Time]: The effective time refers to a period during which a subsequent alarm of the same type, occurring within a specified time after the resolution of the initial alarm, is considered to be the same alarm. Options range from 0 to 10 seconds, with a default of 5 seconds.

For example: If a motion detection alarm occurs at 13:23:30 and is canceled at 13:23:50, and if the effective time is set to 10 seconds, and another motion detection alarm occurs within 10 seconds, it will be considered as the same alarm. Only one entry will be recorded in the alarm log, and the alarm linkage will stop when the subsequent motion detection alarm is canceled.

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



- 1) 【Channel】 : After triggering an alarm, the channels requiring recording will be marked for alarm video recording.
- 2) 【Post Recording】 : After the alarm is cancelled, recording will continue for a specified duration of time, ranging from 1 to 30 minutes, with 1 minute as the

default option.

- 3) 【Lock】: The option to enable locking of alarm recordings can be configured. When selected, alarm recordings triggered by IO alarms will be locked upon activation. Once the alarm is resolved, the locking of the recordings will cease.
- 4) 【Linkage IO Output】: After triggering an IO alarm, the output IO quantity can be configured. The duration of the output IO can be set between 0 to 255 seconds.
- 5) 【Linkage Screen】: Upon triggering an alarm, the required display mode can be set to either default (no display), single-screen display, or quad-screen display etc.
- 6) 【Alarm Snap】: After an alarm is triggered, an option to capture images can be enabled. When configured with an FTP address, channel snapshot capture will be activated upon triggering a switch alarm. The captured images will then be exported via FTP. Additionally, when configuring alarm evidence reporting parameters on the platform, reporting to the platform can also be enabled.

#### ● Speed Alarm:

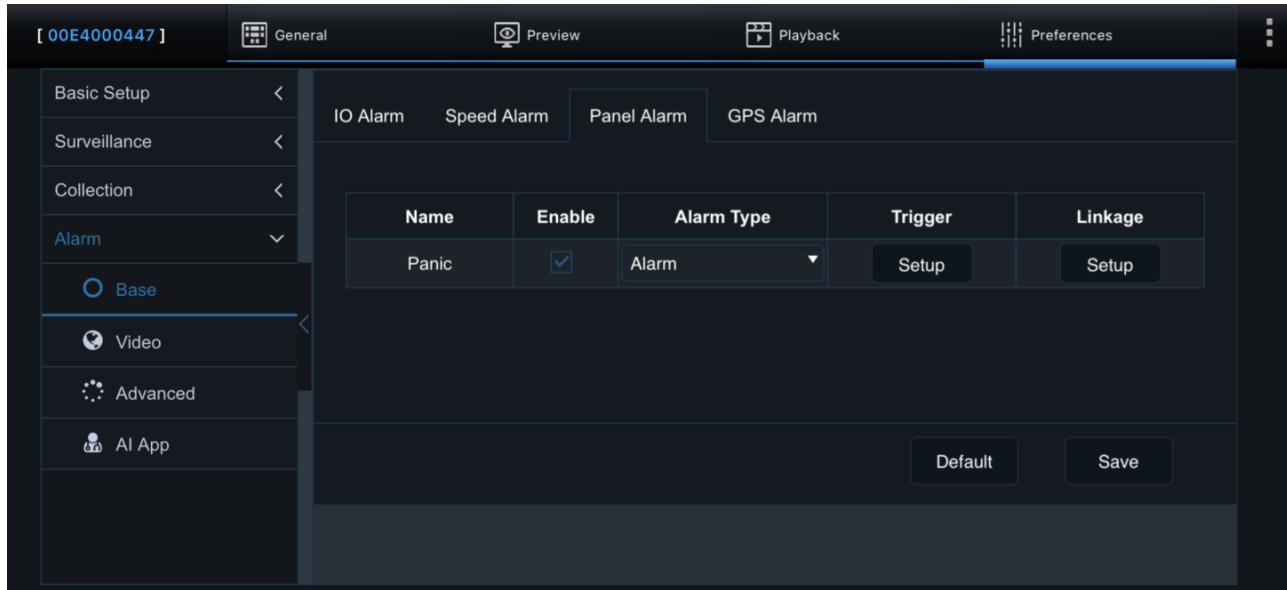
The option to enable overspeed alarm can be activated, with the alarm type set as either alarm or event. Within the overspeed alarm settings interface, parameters for overspeed warning can be configured. This entails generating a warning when the current vehicle speed is slightly below the speed limit, followed by an overspeed alarm once the vehicle speed exceeds the limit. Different alarm voices are assigned to each. Other configuration methods are consistent with those of IO alarms.



#### ● Panel Alarm:

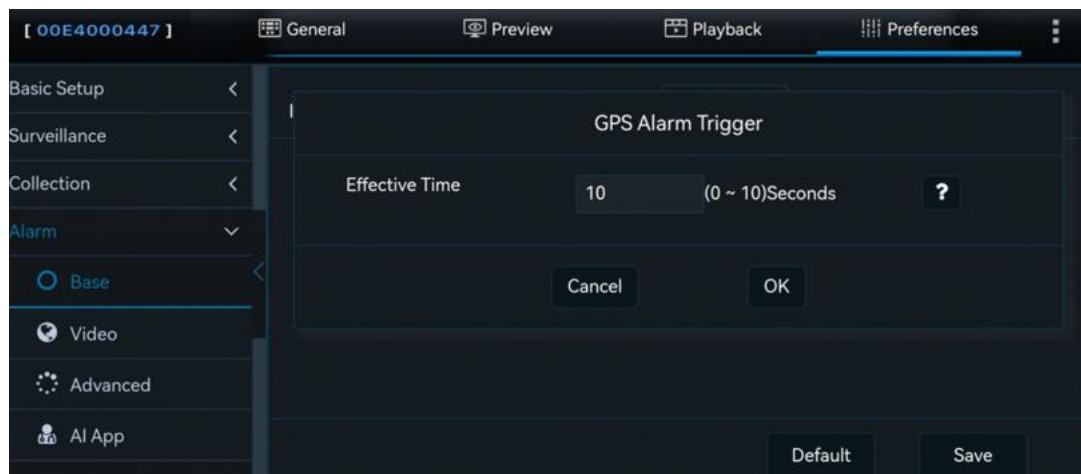
The Panic Button alarm enablement and linkage parameters can be configured. Within the

alarm trigger settings interface, the activation time for pressing the panel alarm button can be set, with options ranging from 1 to 255 seconds, defaulting to 1 second (unchangeable). Other settings align with those of IO alarms.



- GPS Alarm:

An alarm will be generated when GPS signal is lost. The configuration method is the same as that of switch alarms.

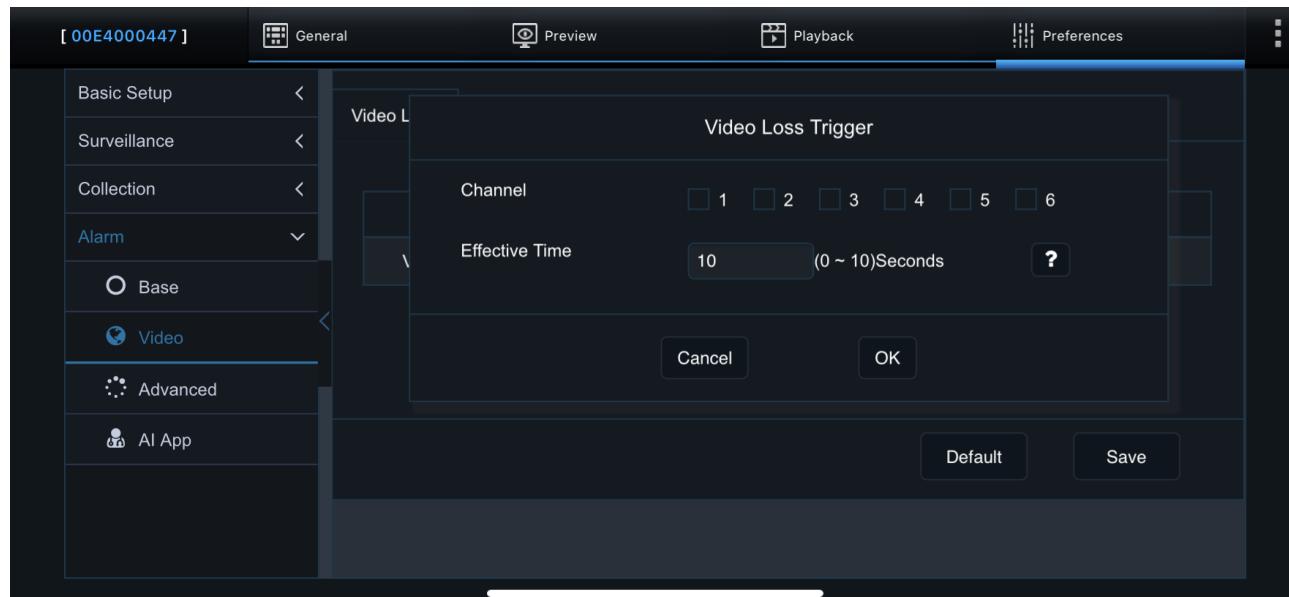


## 5.9.2 Video Alarm

- Video Loss

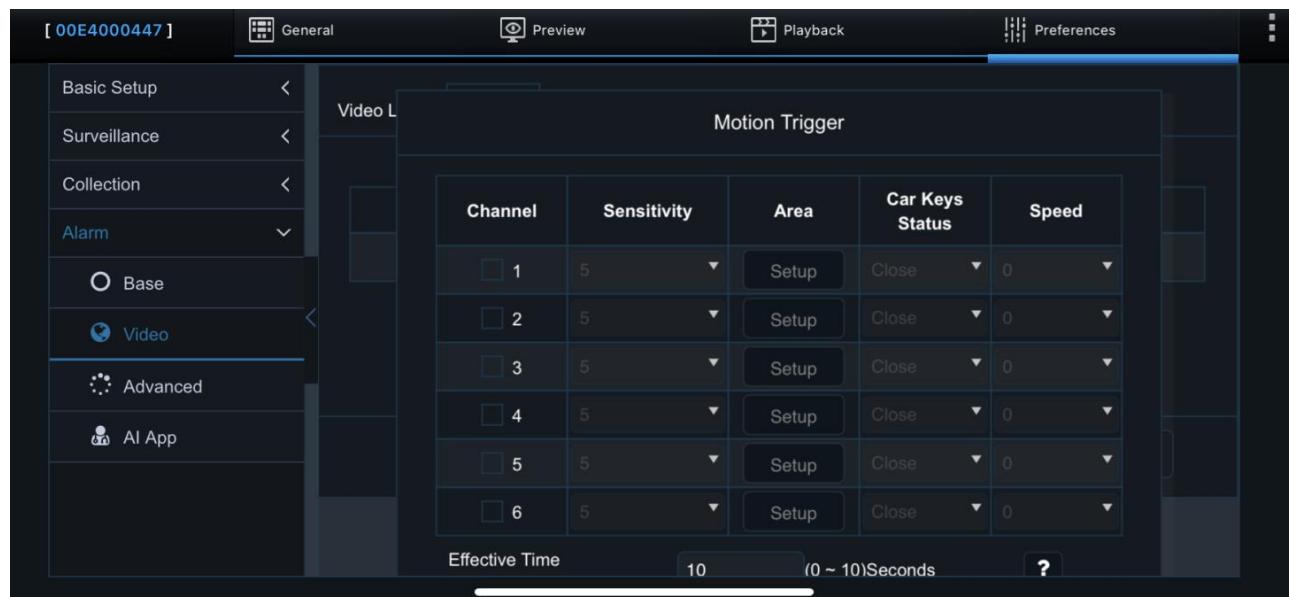
The video loss interface allows for the configuration of video loss alarm parameters. By clicking on [Preferences] > [Alarm] > [Video] > [Video Loss], you can access the alarm trigger

settings interface as shown below. Here, you can set the channels for video loss alarm. Linkage settings are the same as those for IO alarms.



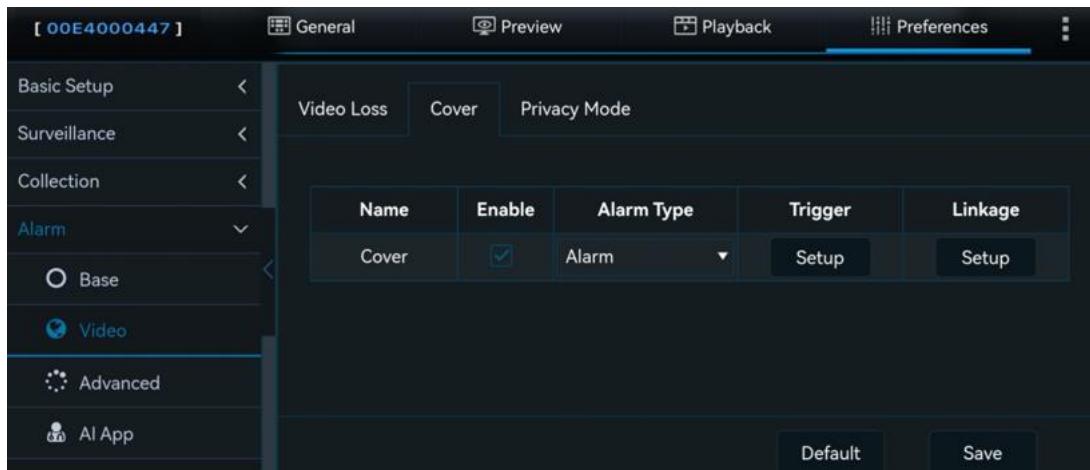
### ● Motion

The motion detection interface allows for the configuration of motion detection alarm parameters. By clicking on [Preferences] > [Alarm] > [Video] > [Motion], you can access the alarm trigger settings interface as shown below. Here, you can set the channels for motion detection alarm. Linkage settings are the same as those for switch alarms. Switch alarms are used for IO alarms.



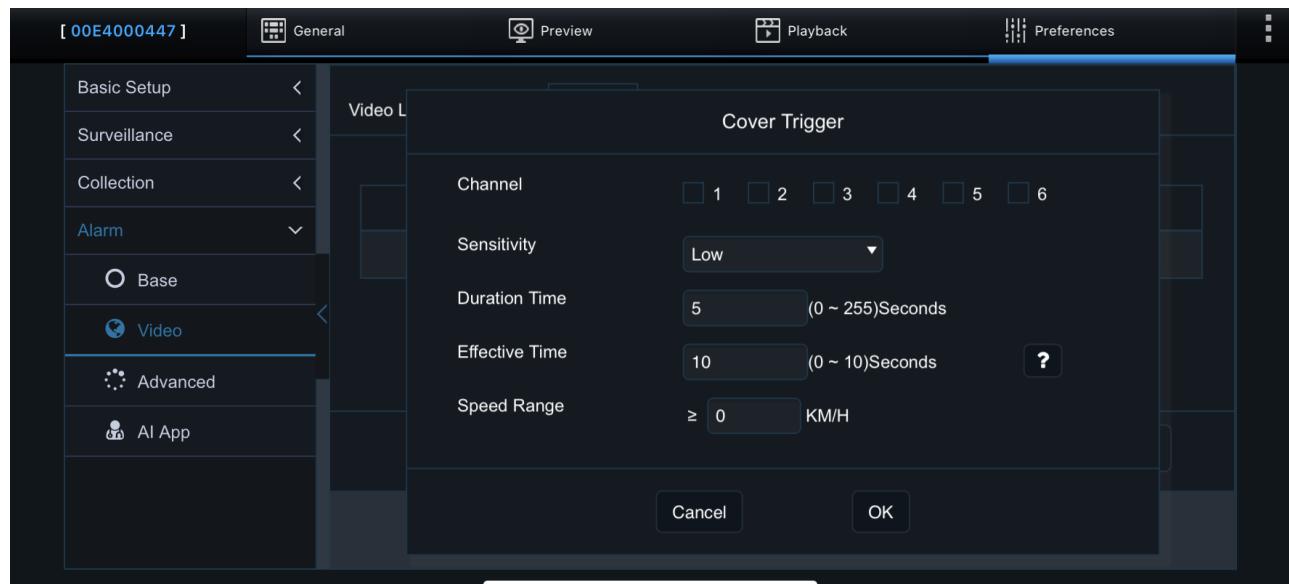
### ● Cover

The camera obstruction interface allows for the configuration of camera obstruction alarm parameters. Click on [Preferences] > [Alarm] > [Video] > [Cover] to access the following interface:



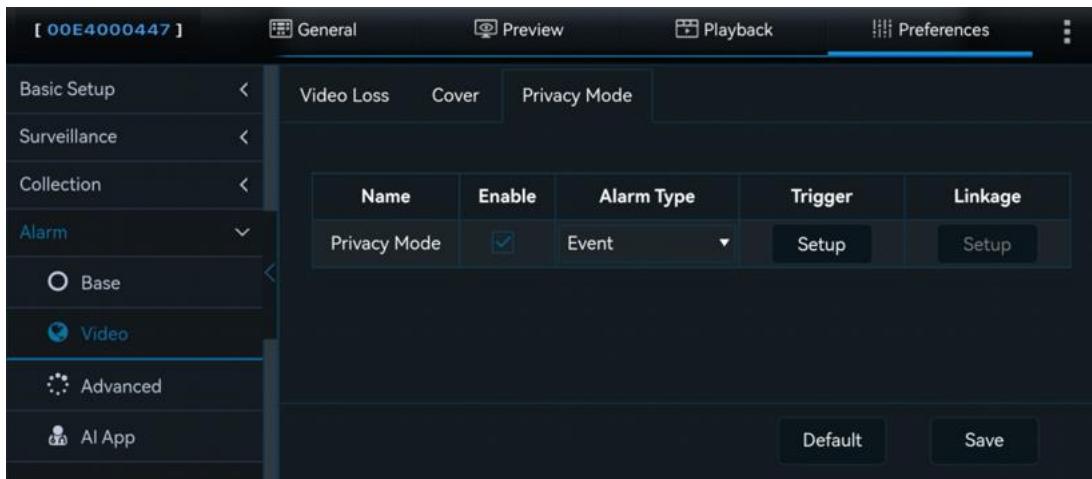
The following interface allows for the configuration of camera obstruction alarm parameters. You can set the channels for camera obstruction alarm, as well as the alarm sensitivity, duration, effective time, and speed threshold. For AI channels, algorithm detection is utilized, while non-AI channels rely on host judgment. Linkage settings are the same as those for switch alarms.

For ADAS channels, camera obstruction alarm requires a vehicle speed exceeding 10 km/h and continuous obstruction for 90 seconds to trigger. For DMS channels, the obstruction alarm duration and speed value utilize the duration and speed values set in the camera obstruction interface.



### ● Privacy Mode

The privacy mode settings interface allows for the configuration of privacy mode activation and deactivation methods. Click on [Preferences] > [Alarm] > [Video] > [Privacy Mode] to access the following interface:



Clicking on the settings button will take you to the following interface, where you can configure the privacy channels, privacy mode activation method, privacy mode deactivation method, and privacy mode voice enablement.

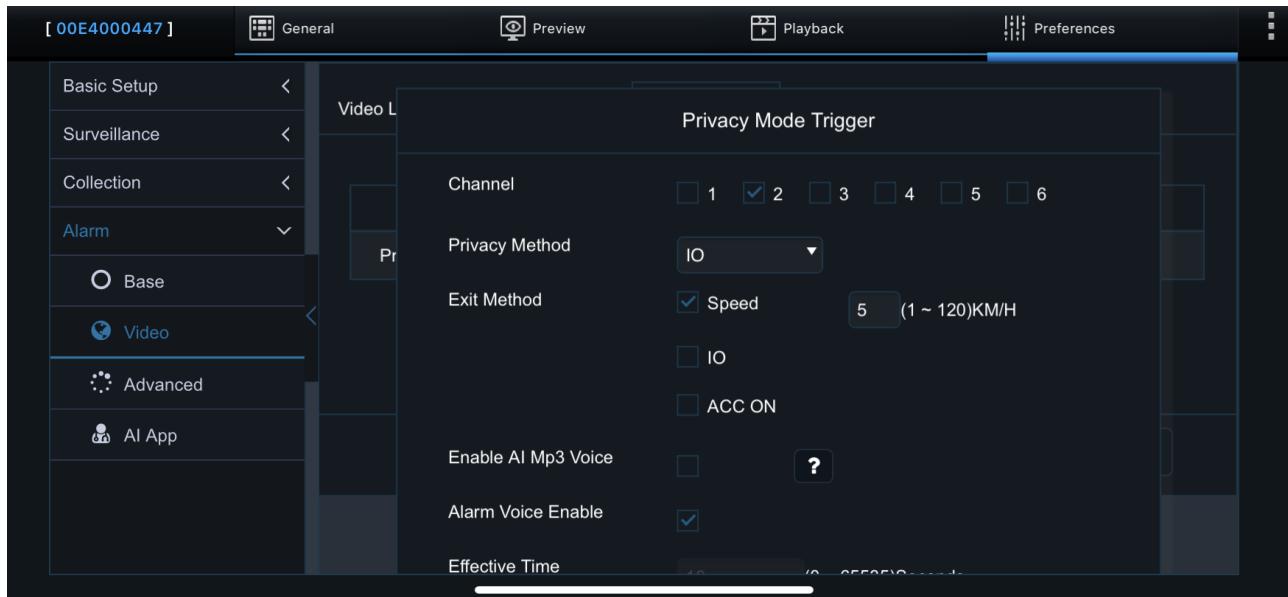
**Channel:** Enabling privacy mode for a specific channel indicates that recording and audio for that channel will be disabled. Enabling this setting activates the privacy mode for the channel.

**Privacy Method:** There are two options: IO and ACC. After configuring the purpose of the IO, triggering the IO can activate or deactivate the privacy mode. For specific settings of the IO, please refer to [Preferences] > [Alarm] > [Base]. The ACC triggering method refers to activating privacy mode (stop recording and audio) 10 seconds after ACC is turned off.

**Exit Method:** There are three mandatory options for deactivating privacy mode: Speed, IO, and ACC On. The setting and usage of IO are consistent with the triggering method. Once the IO is configured, it can be used for both triggering and deactivation. The speed method involves deactivating privacy mode when the vehicle speed exceeds a certain value while the ACC On method automatically deactivates privacy mode after ignition.

**AI MP3 Voice:** If AI detection is necessary to function normally during privacy mode, this option must be enabled.

**Voice Enable:** This option determines whether a voice prompt should be played when privacy mode is triggered or deactivated. Enabling this feature controls both the voice prompt for activating and deactivating privacy mode, and cannot be controlled separately.



### 5.9.3 Advanced

You can configure Driver Behavior Alarm and Geo-Fence alarms on this interface. Click on [Preferences] > [Alarm] > [Advanced]. See the screenshot below:



- Driver Behavior Alarm :

- ❖ “ACCEL2” represents the name of the driver behavior alarm algorithm. Checking the box indicates the effectiveness of this algorithm.
- ❖ “Alarm Type” indicates the type of event triggered after aggressive driving behavior.
- ❖ “Trigger” represents the conditions for triggering driver behavior alarms: you can set the detection switches and alarm conditions for harsh braking, rapid acceleration, and sharp turn

alarms, as shown below:

ACCEL2 Trigger						
Alarm Name	Enable	Offset	Speed			
Harsh Braking	<input checked="" type="checkbox"/>	0.5 (0.001 ~ 1)	20	~	50	(0~200)KM/H
Hard Acceleration	<input checked="" type="checkbox"/>	0.5 (0.001 ~ 1)	20	~	50	(0~200)KM/H
Harsh Left Turn	<input checked="" type="checkbox"/>	0.5 (0.001 ~ 1)	20	~	50	(0~200)KM/H
Harsh Right Turn	<input checked="" type="checkbox"/>	0.5 (0.001 ~ 1)	20	~	50	(0~200)KM/H
Shock	<input type="checkbox"/>	X: 1 (0.1 ~ 8)	Y: 1 (0.1 ~ 8)	Z: 2 (0.1 ~ 8)		
Effective Time	10 (0 ~ 10)Seconds					
Recommended Setting	<input type="radio"/> Light Duty ≤ 6 tons		<input type="radio"/> Medium Duty ≤ 14 tons		<input type="radio"/> Heavy Duty > 14 tons	
	<input type="button" value="Cancel"/>			<input type="button" value="OK"/>		

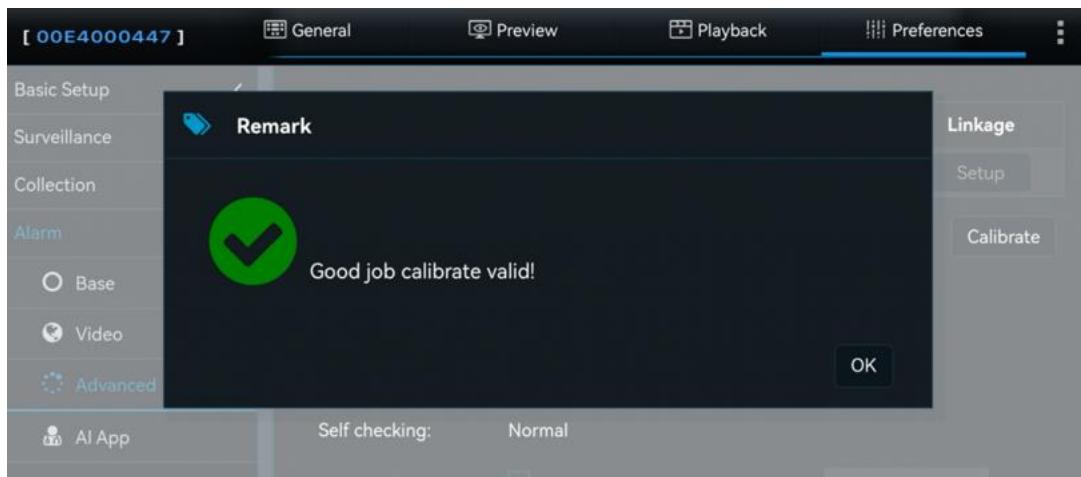
【Shock】： This refers to collision detection, which uses the G-Sensor to determine whether a vehicle has experienced a collision. Here, you can set the collision detection threshold.



Note: In the ACCEL2 Trigger section, the offset values for Harsh Braking, Hard Acceleration, Harsh Left Turn, and Harsh Right Turn alarms are determined by complex formulas. The general setting logic is to select the recommended offset value based on the vehicle's tonnage. If alarms are too easily triggered, increase the offset value; if they are difficult to trigger, decrease the offset value. The offset values for these four types of alarms are not entirely linear; a larger offset value means the driver will feel the effect more strongly. The Shock XYZ values are in units of gravitational acceleration (G), and this parameter setting directly represents the threshold of acceleration in the XYZ directions during a collision.

- ✧ Linkage indicates that after an alarm is triggered, it can be linked to other alarm operations, with the setting method being the same as that for switch alarms.
- ✧ Automatic and manual calibration of the G-sensor is supported.
- Manual Calibration:

After saving the manual calibration, if the XYZ values are detected as (0,0,1), it is considered a successful calibration. The successful calibration is then recorded in the operation log, including the G-sensor calibration status, time, and real-time XYZ value data. Upon successful manual calibration, the page prompts as shown in the following image:



#### ➤ Auto Calibration:

Continuing with the existing calibration logic, after the fifth calibration is completed, if the deviation values of XYZ from the range (0,0,1) are all within  $\pm 0.1$ , it is considered a successful calibration. The successful calibration is then recorded in the operation log, including the G-sensor calibration status, time, and real-time XYZ value data. When the device enters the calibration process and completes the calibration state again, it is recorded once more.

#### Calibration Failure Status Determination:

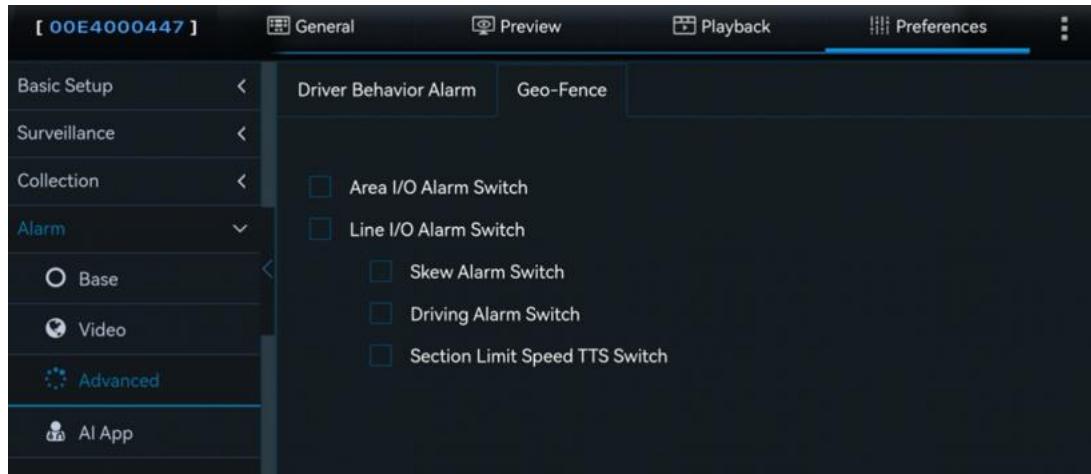
Manual Calibration: After saving manual calibration, if XYZ values are not within (0,0,1), it's nearly 0 for failure since manual calibration forcibly sets the calibration value to (0,0,1).

Automatic Calibration: Since automatic calibration is a continuous process, after continuously calibrating 5 times and detecting XYZ values not within (0,0,1)  $\pm 0.1$  range, the log records abnormal automatic calibration status, time, and real-time XYZ value data.

- ❖ Device installation angle can be displayed.
- ❖ Supports 100Hz G-sensor data pass-through, which can be enabled or disabled.

#### ● Geo- fence :

The Geo- fence interface allows selection of entry and exit fence/line handling strategies, which must be used in conjunction with the CEIBA2 platform or FT Cloud platform.



#### 5.9.4 AI App

The parameters for AI alarm settings through Veyes are supported. Click on [Preferences] > [Alarm] > [AI App] to access the AI alarm settings interface, which includes the following AI alarms:

ADAS	LDW、FCW、HMW、PCW
DMS	<b>Driver Fatigue、No driver、Handheld Devices、Smoking、Distraction、Yawn、Seatbelt</b> 、No Mask、Infrared Block Alarm (Red bold font indicates currently supported standard alarm types)
ADAS	Right blind spot detection、Left blind spot detection、Front Blind Area

The parameter settings logic for each AI alarm is essentially the same. Depending on different scenarios, trigger conditions can be set for each alarm. The basic trigger conditions for each alarm include: speed range, sensitivity settings, effective time (only record one alarm within this time range for multiple triggers), and duration (how long the triggered alarm lasts). However, there are also subtle differences in the parameters that can be set for different alarms, as shown in the table below:

AI	TYPE	Adjustable Parameters					
		Setting	Sensitivity	Duration	Effective	Linkage	

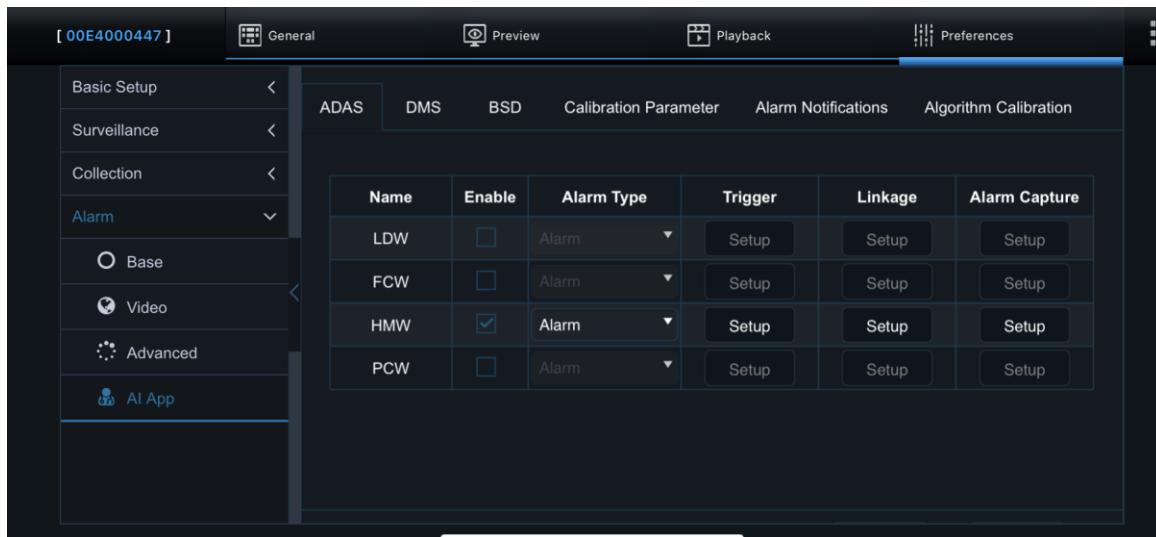
		Differentiation for First and Second Level Speeds			Time		Snap
ADAS	LDW	✓	✓	✗	✓	Identical	Identical
	FCW	✓	✗	✗	✓	Identical	Identical
	HMW	✓	✓	✓	✓	Identical	Identical
	PCW	✓	✗	✗	✓	Identical	Identical
DMS	Driver Fatigue	✓	Not ADJ.	✗	✓	Identical	Identical
	No driver	✗	✓	✗	✓	Identical	Identical
	Handheld Devices	✓	✓	✗	✓	Identical	Identical
	Smoking	✓	✓	✗	✓	Identical	Identical
	Distraction	✓	✓	✗	✓	Identical	Identical
	Yawn	✓	✓	✗	✓	Identical	Identical
	Seatbelt	✓	✓	✗	✓	Identical	Identical
	No Mask	✓	✓	✗	✓	Identical	Identical
BSD	Infrared Block Alarm	✓	✓	✗	✓	Identical	Identical
	Right blind spot detection	✗	✗	✓	✓	Identical	Identical
	Left blind spot detection	✗	✗	✓	✓	Identical	Identical
	Front blind area	✗	✗	✗	✓	Identical	Identical

Due to the similar parameter setting logic for each AI alarm, let's use the HMW alarm as a general example to explain the parameter setting method. Then, we'll compare it with LDW alarm in ADAS alarms and No Driver alarm and Distraction alarm in DMS alarms to illustrate the

differences in parameter settings between these alarms and other general alarms.

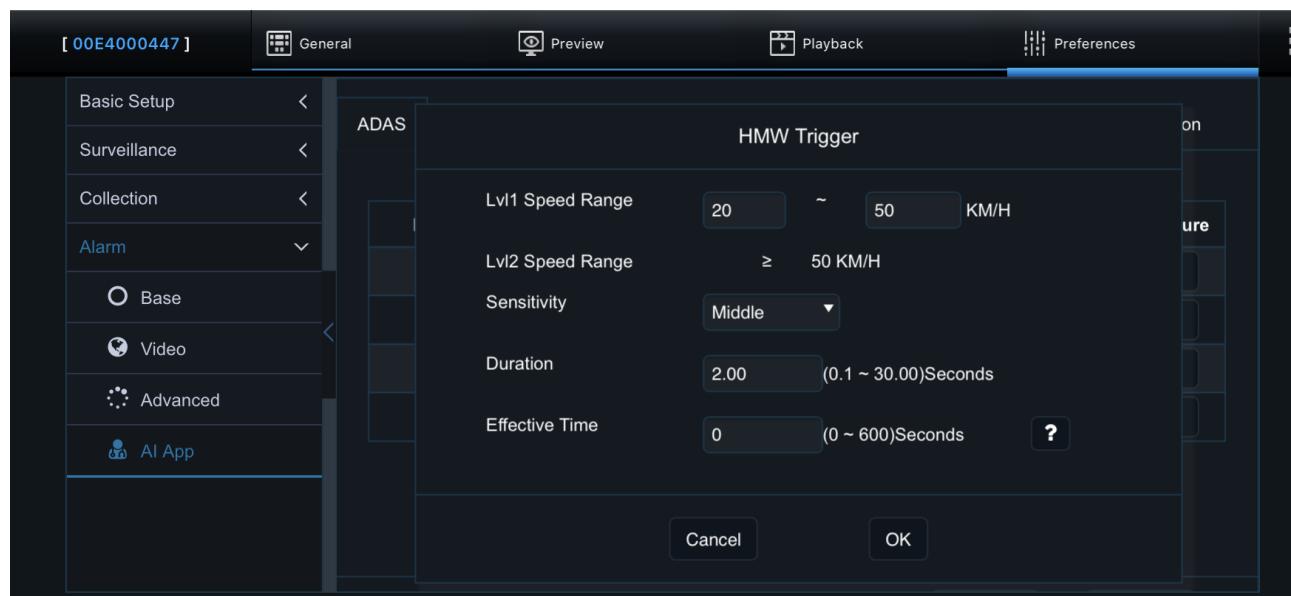
- HMW

Click on 【Preferences】 > 【Alarm】 > 【AI App】 > 【ADAS】 , check the HMW alarm enable switch, as shown in the image:



【Alarm Type】 : Optional alarm or event. When event is selected, the generated alarm will not be reported to the platform. For detailed differences, refer to section 5.9.1 Basic Alarms.

【Trigger】 : Click the 【Setup】 button for trigger conditions, and set the alarm trigger conditions as shown in the image below.



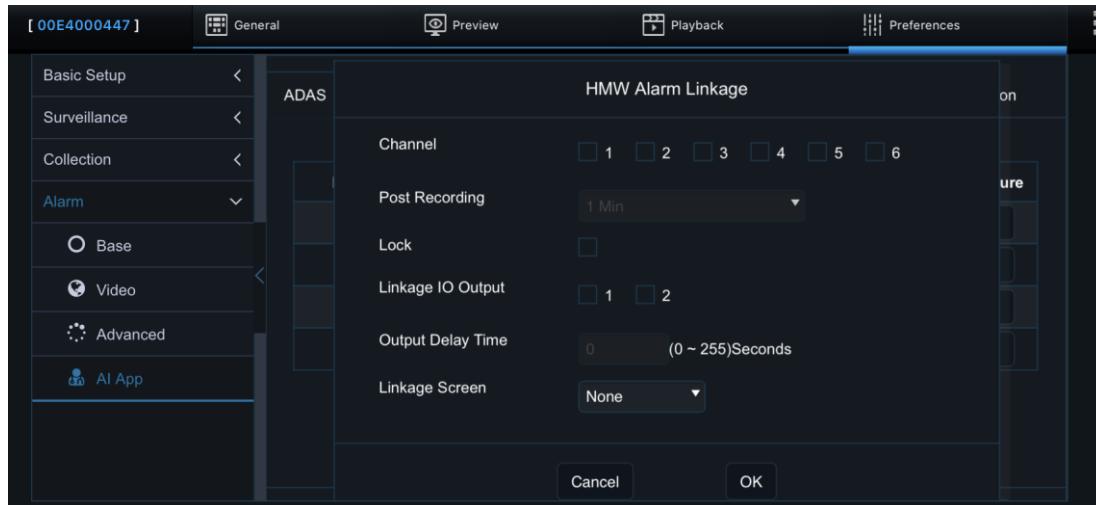
- Lvl1 Speed Range: First level alarm speed range setting, default 20~50 km/h. When a first level alarm occurs, the host will have an MP3 voice prompt.

- Lvl2 Speed Range: Second level alarm speed range setting. The lower limit of the second level alarm depends on the upper limit of the first level alarm. After modifying the upper limit of the first level alarm, the lower limit of the second level alarm changes accordingly. When a second level alarm occurs, only the host will provide an audible beep prompt.
- Sensitivity: Allows for setting the sensitivity when triggering an alarm, with four options: 'Low', 'Medium', 'High', and 'Use-Defined'. The default sensitivity is 'Medium'. When 'Use-Defined' is selected, a custom value can be manually entered. Among the open alarms in ADAS, only HMW has the option to customize sensitivity. The custom value range is selectable from 0.6 to 4 (this time is the ratio of relative distance to the vehicle speed, not natural time), as shown below."



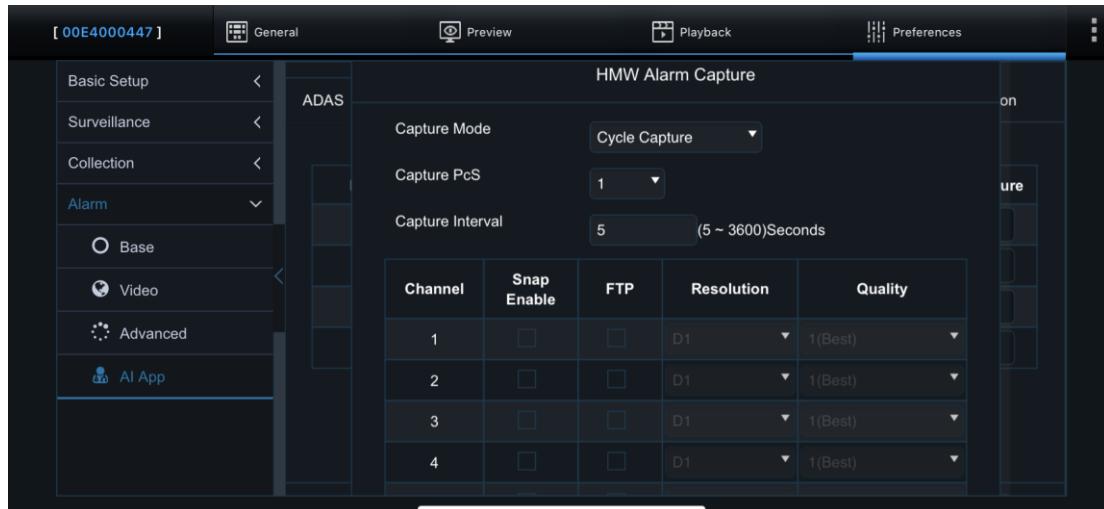
- Duration: The duration of the following distance alarm (HMW) refers to the time during which the vehicle remains in a state of close following after meeting the conditions for the following distance alarm. The alarm is triggered only after this set duration is reached. The duration setting for the following distance alarm ranges from 0.10 to 30.00 and can accept floating-point input. The default value is 2 seconds.
- Effective Time: The effective time refers to the period during which if the same alarm occurs again after being cancelled, it is considered the same alarm. The range for effective time is from 0 to 600 seconds.

【Linkage】: Click the 【Setup】 button in the linkage settings to enter the following interface:



- **Channel:** After an alarm is triggered, the channels requiring recording will have their recordings marked as alarm recordings.
- **Post Recording:** The duration for which alarm recordings continue after the alarm is cancelled. It can be set between 1 to 30 minutes, with a default of 1 minute. At least one channel needs to be selected for alarm recording.
- **Lock:** Option to lock alarm recordings. When selected, alarm recordings triggered by LDW alarms will be locked; the locking of recordings ends after the alarm is cancelled.
- **Linkage IO Output:** After triggering an IO alarm, the output IO quantity can be configured, along with the duration of the output IO, selectable from 0 to 255 seconds.
- **Linked Screen:** Upon alarm activation, the desired display mode can be set. Default is no display, but options include single-screen or quad-screen etc.

**【Alarm Capture】 :** Click the **【Setup】** button under alarm capture to enter the following interface:



In the past, setting up alarm captures required enabling alarm captures in the AI alarm settings and also configuring parameters such as capture image resolution and quantity in the Data Collection > Alarm Capture interface. To simplify this process, the alarm capture parameters have been consolidated into the settings interface of each AI alarm.

- Capture Mode: Options include Single Capture and Cycle Capture. Single Capture means only one image is captured each time, with a specified interval between captures determined by the parameter below, "Capture Interval." For example: if the single capture quantity is set to 3 images and the capture interval is 1 second, then one image is captured every second after the alarm is triggered. Cycle Capture refers to capturing multiple images simultaneously each time, with a specified interval between captures. The number of captures and the interval are determined by the parameters "Capture Pcs" and "Capture Interval" respectively. For example, if the capture Pcs is set to 3 images and the interval is set to 5 seconds, then 3 images are captured simultaneously at the start of the alarm, and every 5 seconds thereafter until the end of the alarm's effective time.
- Capture Pcs: Specifies the number of images to be captured, selectable from 1 to 3, with 1 as the default.
- Capture Interval: Specifies the time interval between captured images, selectable from 5 to 3600 seconds, with 5 seconds as the default. For single capture, if the capture quantity is set to 3 and the interval is set to 5 seconds, one image should be captured at the start of the alarm, followed by a second capture 5 seconds later, and a third capture 5 seconds after

that.

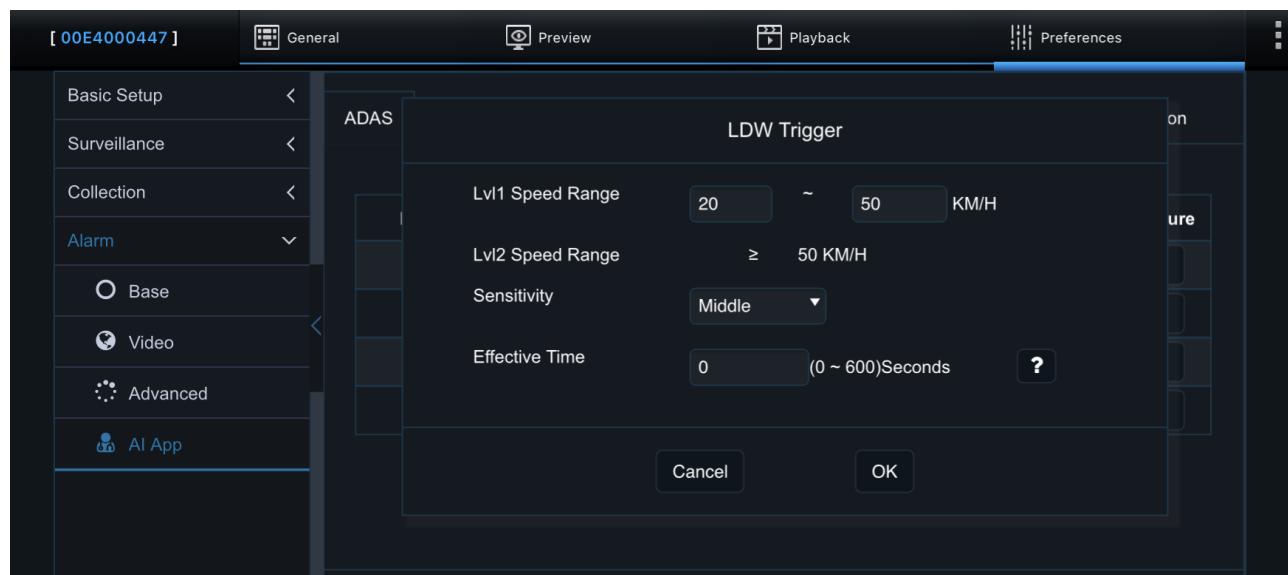
- Capture Channel Settings: Selects the channels for capturing images when an alarm occurs.

Channels need to be enabled, and parameters for upload method and image resolution for capture images need to be configured.

#### ● LDW

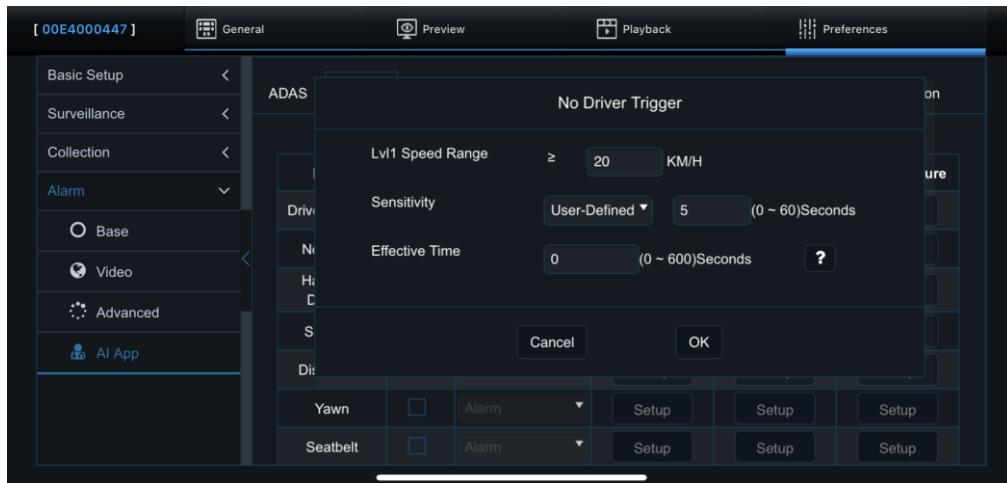
Click on 【Preferences】 > 【Alarm】 > 【AI App】 > 【ADAS】 , check the LDW alarm enable switch. In the alarm trigger settings interface, click the [Setup] button to configure the alarm parameters, entering the following interface.

The LDW alarm has fewer settings than the HMW alarm, lacking the duration setting interface. The FCW alarm has fewer settings than the HMW alarm, lacking sensitivity and duration settings interfaces. Other settings parameters are the same as HMW. Further details are not reiterated here.



#### ● No Driver

Click on 【Preferences】 > 【Alarm】 > 【AI App】 > 【DMS】 , check the No Driver alarm enable switch. In the alarm trigger settings interface, click the [Setup] button to enter the following interface:

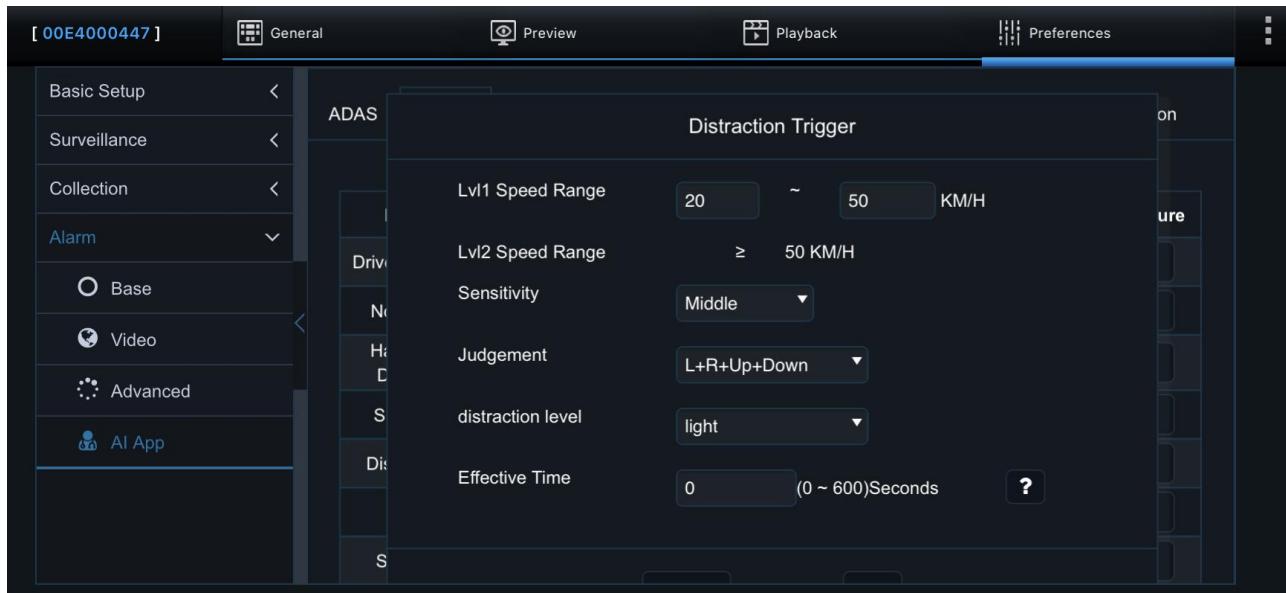


For the No Driver alarm, it only has a Lvl1 1 alarm and no Lvl2 alarm. Therefore, whenever the No Driver alarm is triggered, there will be an audio prompt. The speed value for triggering the alarm can be customized, with a default setting of 20 km/h. Other settings interfaces are the same as HMW, and further details are not reiterated here.

#### ● Distraction

The triggering conditions for the Distraction alarm are similar to other alarms, but with specific options for distraction judgment method and distraction angle settings. These settings allow for more precise control over Distraction alarm scenarios.

- Judgment : Specifies whether the driver's distraction is from looking left or right or from looking downward. Different distraction judgment criteria also have their own sensitivity threshold settings (which need to be set to custom sensitivity).
- Distraction Level: Checking the rearview mirror by tilting the head sideways is a normal driving operation. To avoid false distraction alarms when the driver tilts their head to check the rearview mirror, the distraction angle parameter allows the driver to tilt their head to a certain degree without triggering a distraction alarm. The distraction Level parameter has three levels: Light, Medium, and High. Light indicates that even a slight tilt of the head will trigger a distraction alarm, while High indicates that a larger tilt angle of the head is required to trigger a distraction alarm.



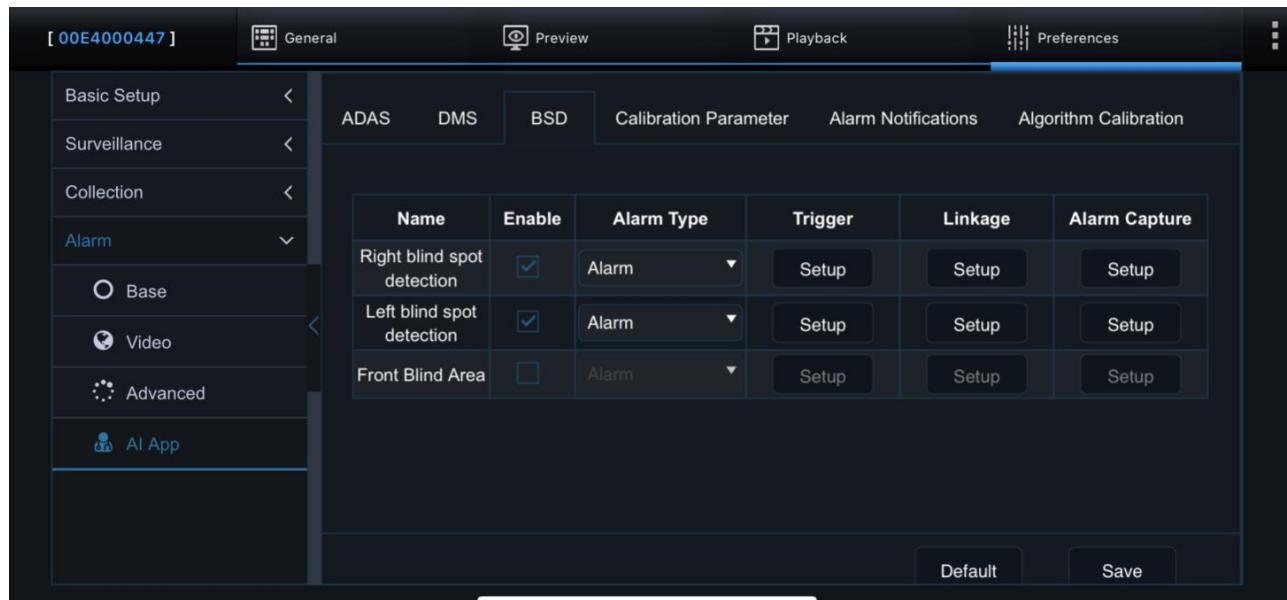
In the AI function, support for BSD (Blind Spot Detection) alarms is available. Click [Preferences] > [Alarm] > [AI App] > [BSD] to enter the following interface, where you can set parameters related to BSD alarms. BSD alarms do not differentiate between first and second-level alarms based on speed range, but rather based on the distance between pedestrians and vehicles, as follows:

#### Vehicle Blind Spot Warning:

- First-level alarm: Distance from the vehicle is 2-3 meters.
- Second-level alarm: Distance from the vehicle is 1-2 meters.
- Third-level alarm: Distance from the vehicle is 0-1 meter.

#### Front Vehicle Blind Spot Warning:

- Collision Warning: Within 2 meters in front of the vehicle.



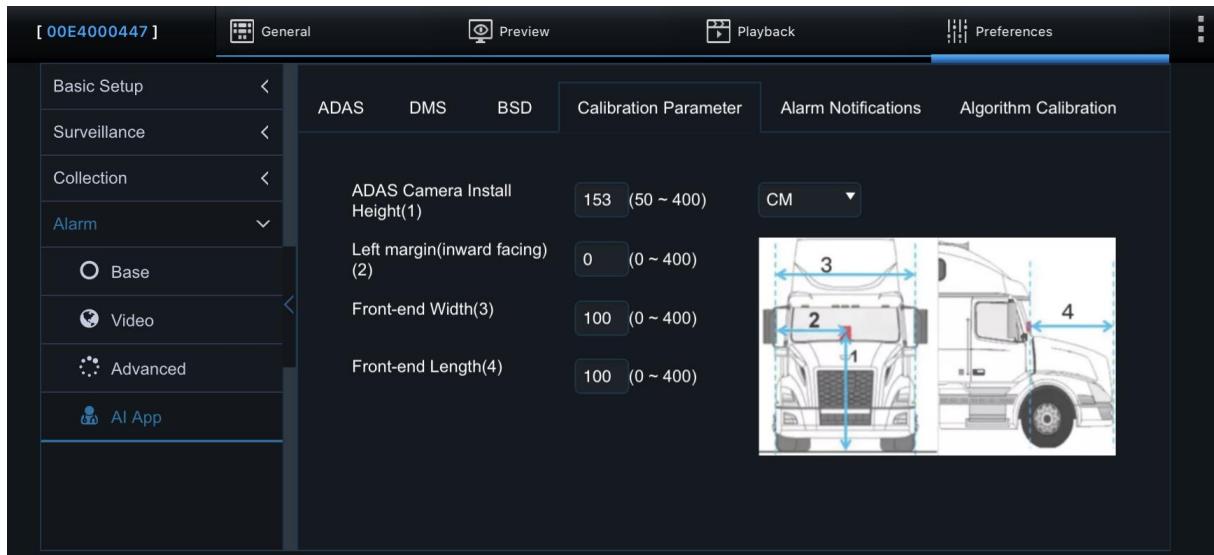
Warning: The accuracy of AI alarms depends on standard installation. Additionally, alarms such as lane departure warnings may occur frequently due to drivers frequently crossing lane lines. Seatbelt alarms may trigger frequently due to factors like clothing color or intentional seatbelt obstruction. In the context of alarm applications, it is recommended to disable local alerts and video uploads for lane departure warnings, as the number of alarms serves primarily as a metric for driver behavior evaluation. For seatbelt detection, local alerts can be disabled while enabling image uploads, which can be used for inspection purposes to identify cases of non-compliance with seatbelt usage for training purposes.

#### 5.9.4.1 Calibration Parameter

In the Calibration Parameter settings interface, you can modify the ADAS installation height, left margin, Front-end width, and Front-end length.

Click [Preferences] > [Alarm] > [AI App] > [Calibration Parameter], as shown below:

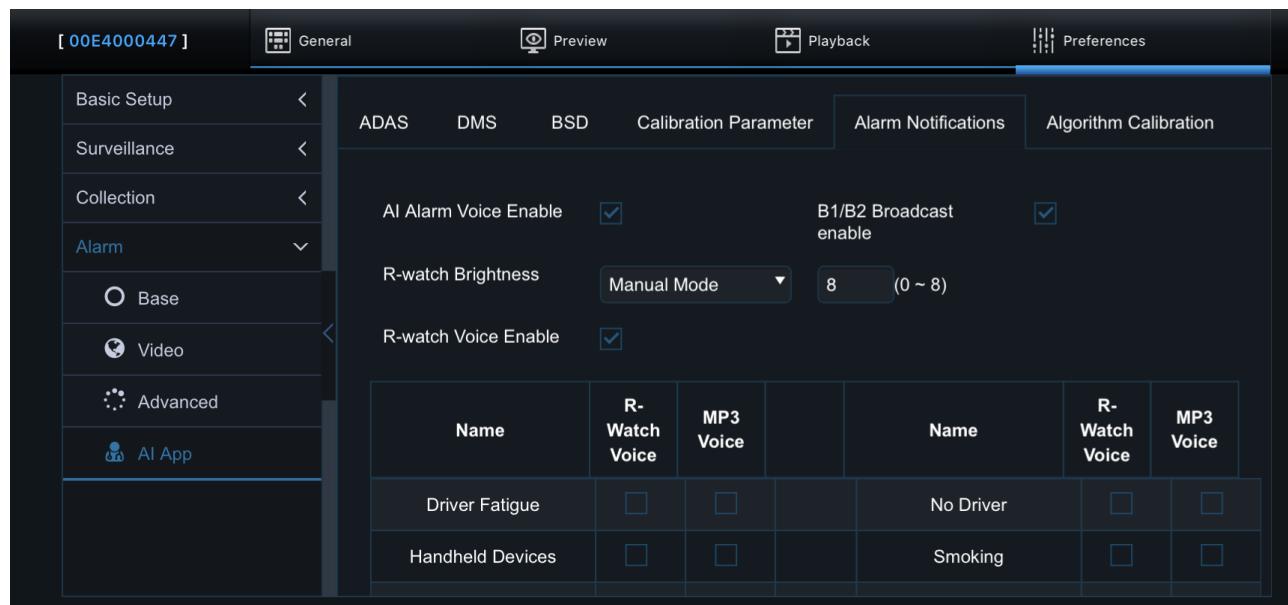
ADAS calibration values can be set in centimeters or inches, and once a unit is selected, the value range will automatically adjust accordingly.



#### 5.9.4.2 Alarm Notifications

In the Alarm Notifications interface, you can centrally control the switches for AI alarm voice prompts, R-Watch voice prompts, and the voice prompts for sound and light alarms B1/B2. After enabling the sound control master switch, each individual alarm switch needs to be turned on as well to play the audio prompts. If the sound control master switch is turned off, even if each individual alarm switch is turned on, there will be no audio prompts.

Click [Preferences] > [Alarm] > [AI App] > [Alarm Notifications], as shown below



- 【AI Alarm Voice Enable】 : MP3 alarm voice enable switch. When enabled, the host will play MP3 alarm voice prompts when an alarm is triggered. For first-level alarms, the

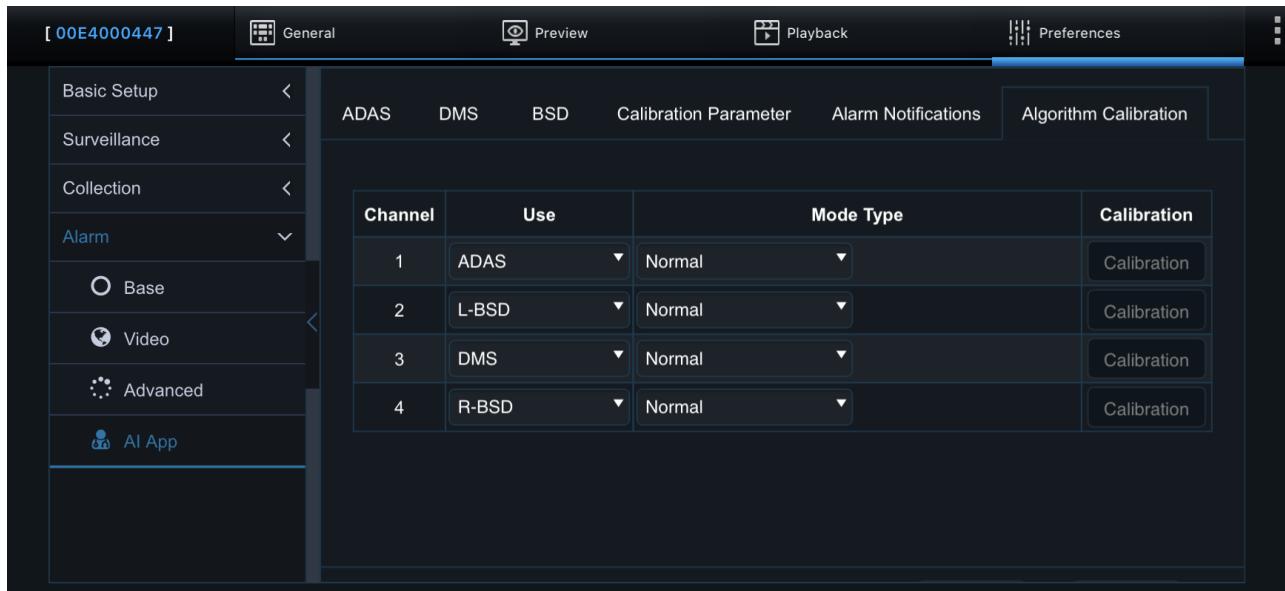
voice prompt will be an alarm statement, while for second-level alarms, it will be a 'beep' sound.

- 【B1/B2 Mode Set】 : B1/B2 Sound and Light Alarm Controller Settings. When the BSD camera is connected and the sound and light alarm is installed, the sound and light alarm will have different linkage behaviors depending on the reminder settings when the BSD alarm is triggered.
- 【R-Watch Brightness】 : Allows manual adjustment of the brightness of the R-Watch. In manual mode, there are 8 levels of brightness available for adjustment.
- 【R-Watch Voice Enable】 : Enables the sound switch of the R-Watch. When enabled, in the case of connecting the R-Watch peripheral, the R-Watch will play an alarm beep sound and display an icon when an alarm is triggered."
- The MP3 Voice and R-Watch Voice sound control enable options below can individually control the voice prompts for each alarm."

Name	R-Watch Voice	MP3 Voice		Name	R-Watch Voice	MP3 Voice
Distraction	<input type="checkbox"/>	<input type="checkbox"/>		LDW	<input type="checkbox"/>	<input type="checkbox"/>
FCW	<input type="checkbox"/>	<input type="checkbox"/>		HMW	<input type="checkbox"/>	<input type="checkbox"/>
Yawn	<input type="checkbox"/>	<input type="checkbox"/>		PCW	<input type="checkbox"/>	<input type="checkbox"/>
Seatbelt	<input type="checkbox"/>	<input type="checkbox"/>		No Mask	<input type="checkbox"/>	<input type="checkbox"/>
Right blind spot detection	<input type="checkbox"/>	<input type="checkbox"/>		Infrared block alarm	<input type="checkbox"/>	<input type="checkbox"/>
Left blind spot detection	<input type="checkbox"/>	<input type="checkbox"/>		Front Blind Area	<input type="checkbox"/>	<input type="checkbox"/>
Cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

#### 5. 9. 4. 3 Algorithm Calibration

In the AI alarm algorithm calibration settings interface, you can set the intelligent algorithms used for each camera channel. Click on [Preferences] > [Alarm] > [AI App] > [Algorithm Calibration], as shown in the figure below:



Please note: Currently, only two built-in AI intelligent algorithms can run simultaneously.

That means you can choose two out of ADAS, DMS, and BSD. Three built-in algorithms cannot be enabled simultaneously at the moment. Please take special note of this.

## 6. Special Function Operation Instructions

### 6.1 Privacy Protection Function Explanation

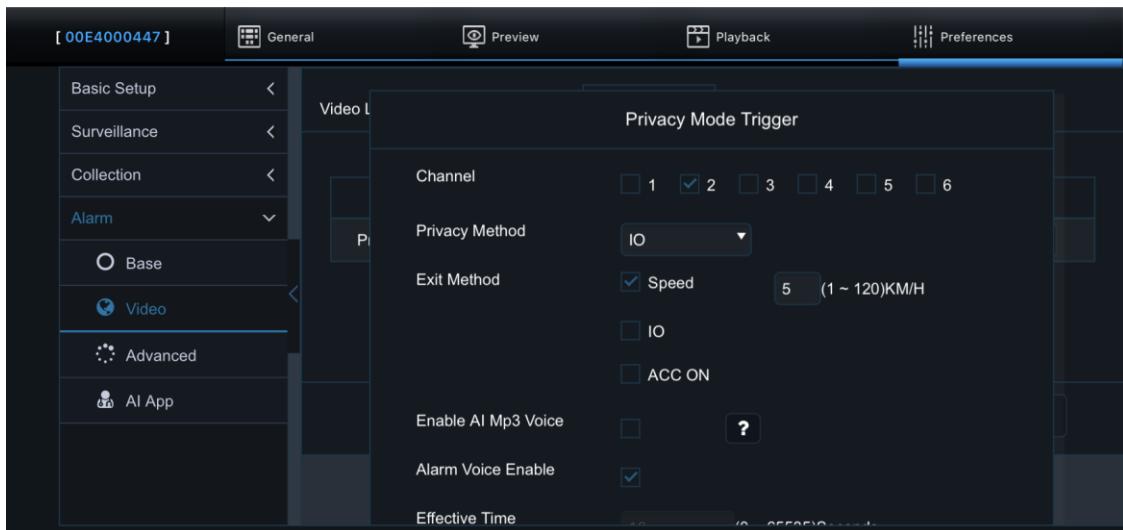
#### 6.1.1 Function Overview

This device places great emphasis on driver privacy protection and is specially designed with a Privacy Mode feature to ensure that the driver is not remotely previewed or recorded in parking scenarios. The Privacy Mode feature allows the driver to manually trigger the device to deactivate the corresponding video channels after parking. This device supports multiple trigger methods, automatic deactivation of privacy, and flexible configuration of video channels to be deactivated.

Below is a guide on how to quickly configure and use the Privacy Mode feature.

#### 6.1.2 Related Configurations

Refer to the Privacy Mode in the video alarm settings, as shown in the following figure:



- ✧ Enable Privacy Mode.
- ✧ Select the channels to be closed when Privacy Mode is triggered.
- ✧ Choose the release method by speed, set to 5 km/h.
- ✧ Enable voice prompts.
- ✧ Save the settings.

### 6. 1. 3 Instructions for Use

- ✧ Park the vehicle.
- ✧ Trigger through IO configuration, and the system will voice prompt "Privacy Mode Enabled."
- ✧ At this point, the privacy channels will be closed, protecting the driver's privacy.
- ✧ When the vehicle's startup speed exceeds the threshold, Privacy Mode will automatically exit, and the system will voice prompt "Privacy Mode Disabled."
- ✧ Manually exit Privacy Mode: Trigger by removing the IO connection, and the system will voice prompt "Privacy Mode Disabled."
- ✧ Refer to other methods similar to the Privacy Mode in the video alarm settings.

## 7. Q/A

### 7. 1 Device Cannot Power On

- Check the device's input power supply, ensure the power cable connections are correct, verify if the ground wire is connected to the battery, and inspect the condition of the fuse on the power line.
- Check if there is voltage (greater than 7.5V) on the ACC signal line input to the device.
- Ensure that the vehicle's ignition key is in the off position.

## 7. 2 Device Unable to Connect to the Internet After Powering On

- Please ensure that the SIM card is inserted before powering on the device. If inserted after powering on, please power off and restart the device.
- Check if the SIM card is correctly installed.
- Verify if there is a good network signal in the current location.
- Confirm whether the SIM card has sufficient data/credit.

## 7. 3 Device Unable to Record After Powering On

- Please ensure that the Micro SD card or M.2 SSD is inserted before powering on the device. If inserted after powering on, please power off and restart the device.
- Check if the Micro SD card or M.2 SSD is installed correctly.
- After inserting the Micro SD card or M.2 SSD into the device, please format it before using.

## 7. 4 No Image Displayed After Connecting Camera to Device's Analog Channels

- Check if the camera's format matches the system format. If not, adjust the system format accordingly.
- Ensure the camera cables are properly connected.

## 8. Appendix

### 8. 1 Glossary of Terms

**Main Stream:** The high-definition video stream primarily used for recording storage, serving as evidence for post-event analysis.

**Sub Stream:** The standard-definition video stream typically used for remote previewing, though it can also be used for recording storage. When the storage capacity is limited and cannot meet market demands, consider using dual storage to save both main and sub streams. The main stream satisfies general recording storage and evidence analysis needs, while the sub stream is used for extended period storage.

**CEIBA2:** The previous generation video service platform based on the CS architecture. The CEIBA2 client is the client software of this platform, supporting playback of H.264 (original data, including black box data, etc.) exported from devices. If you require this platform software, please contact the technical support in your region for assistance in obtaining it.

