VISIONTRACK

VT5500-G-LTE

VT5500-G-LTE

5-CHANNEL FULL HD 1080P MOBILE DVR

The **VT5500-G-LTE** is a full HD 1080p ruggedised, 5-channel mobile digital video recorder (MDVR) designed for vehicle surveillance and monitoring, with built-in connectivity, advanced video compression and GPS positioning technology for live tracking. The MDVR fully integrates with VisionTrack's Platform and has as a built-in three-axis G-shock sensor as standard, offering full driver behaviour reporting.

1. Forward-Facing Camera

3. Side-View Camera

5. Left Turn Alert and/or Proximity Sensors

2. In-Vehicle Monitor

4. Mobile DVR

6. Reverse and/or Load Camera

t +44 (0) 1246 225 745
e info@visiontrack.com
w visiontrack.com
s support.visiontrack.com

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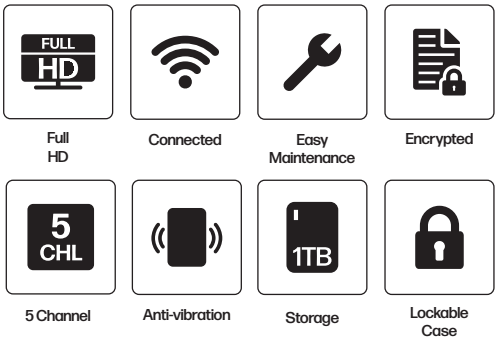
VT5500-G-LTE

Key features:



- Supports 4 channels AHD (1080P) +1 channel IPC (1080P)
- Supports hard disk for main recording
- Built-in three-axis inertial sensor
- Supports GPS and 3G/4G
- Alarm integration for central monitoring
- Vibration-resistant design
- Fully integrates with VisionTrack's IoT Platform

Specifications:

System	OS	Linux 3.18.20
	Control Mode	Easy check, network, VT-CP4, mouse (3G/4G)
Video	Input	4 channels AHD (1080P) + 1 channel IPC LTE (1080P)
	Output	1 channel
	Total Resource	4x720P@30fps+1x1080P@30fps
		4x1080P@15fps+1x1080P@30fps
	Video Signal Standard	Electrical level: 1Vpp; Impedance: 75Ω
		Optional PAL
Audio	Input	5 channels (1 channel IPC audio input)
	Output	1 channel
	Audio Signal Standard	Electrical level: 2Vpp; Input impedance: 4.7kΩ
Display	Display Split	1/4
	OSD	GPS information, alarm, vehicle no., speed, date/time
	Operation Interface	Semi-transparent GUI
Recording	Image Resolution	PAL: 1080P(1920X1080), 720P(1280X720), WD1(928X576),
		WHD1(928X288), WCIF(464X288), D1(704X576),
		HD1(704x288), CIF(352x288)
		1080P(1920X1080), 720P(1280X720), WD1(928X480),
		WHD1(928X240), WCIF(464X240), D1(704x480),
		HD1(704x240),CIF(352x240);
		Digital: 1080P(1920X1080), 720P(1280X720)
	Image Quality	1-8 levels adjustable (1 is the best)
	Recording Mode	Boot up/Schedule/Alarm
	Pre-recording	0-60 minutes
	Post-recording	0-30 minutes
Playback	Playback Channel 1 channel	1 channel for local playback
	Search Mode	Date/time, channel, event

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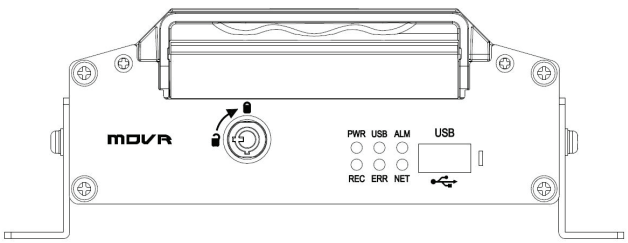
Specifications:

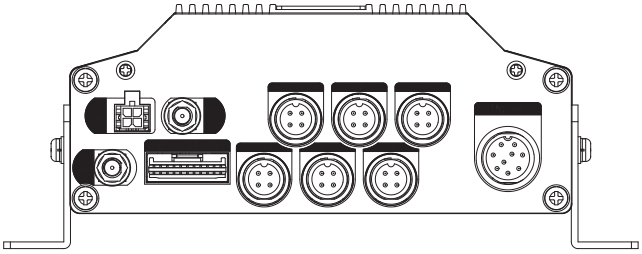
Playback	Playback Channel 1 channel	1 channel for local playback
	Search Mode 3G/4G	Date/time, channel, event
Network		LTE
		1 channel
		E and so on
	IPC Ethernet	6-pin M12 (100M x 1, PON power supply)
Locating	GPS	Location tracking, speed detection and time sync
Sensor	G-Sensor	Built-in three-axis inertial sensor
Storage	Hard Disk	2.5" SATA hard disk x 1
Interface	USB	USB2.0 x 1
	Serial Port	RS232 x 1
	Sensor	8 inputs, 2 outputs
	Speed	1 channel pulse speed detection
	Control Panel	Optional VT-CP4 Monitor
	Intercommunication	1 MIC interface
Power	Input	DC8-36V, ignition signal
	Output	5V@1A
	Max Power Consumption	32W
	Standby Power Consumption	≈0W
Environment	Operating Temperature	-400°C – +700°C (With heater) or -100°C – +700°C
	Operating Relative Humidity	8%-90% (No Condense)

Physical dimensions:

Front panel



Rear panel



Dimensions: 206.0 x 170.0 x 70.5mm (L x W x H)

Weight: 1.24kg (with hard disk)

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s support.visiontrack.com

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FCC Requirement

changes or modifications not expressly approved by the party responsible for compliance could void the user’ s authority to operate the equipment.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

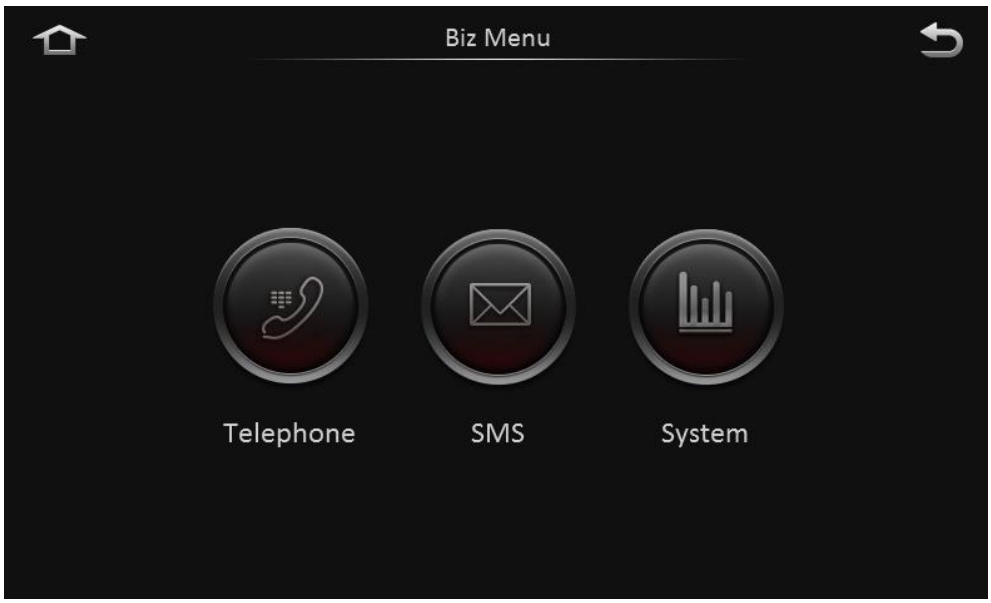
1. Overview

The Manual aims to enable users to have a deeper understanding of the device system and guide us to better use its functions. Please note the operation is for professionals only.

2. Main Menu

2.1 Business Menu

Click “Business Menu” and the following screen is displayed. The user doesn’t need to enter the password to go into Business Menu and common users and drivers all have access to it.



2.1.1 Dial Function

The device supports the user to dial. The Dial screen is shown as follows:

Contacts/Records:

- Records of Contacts can only send telephone numbers via the 808 platform. Saving telephone numbers on the device is not allowed.
- Like the cellphone, Records all call records, including: received calls, missed callas and dialed calls.

2.1.2 Short Message

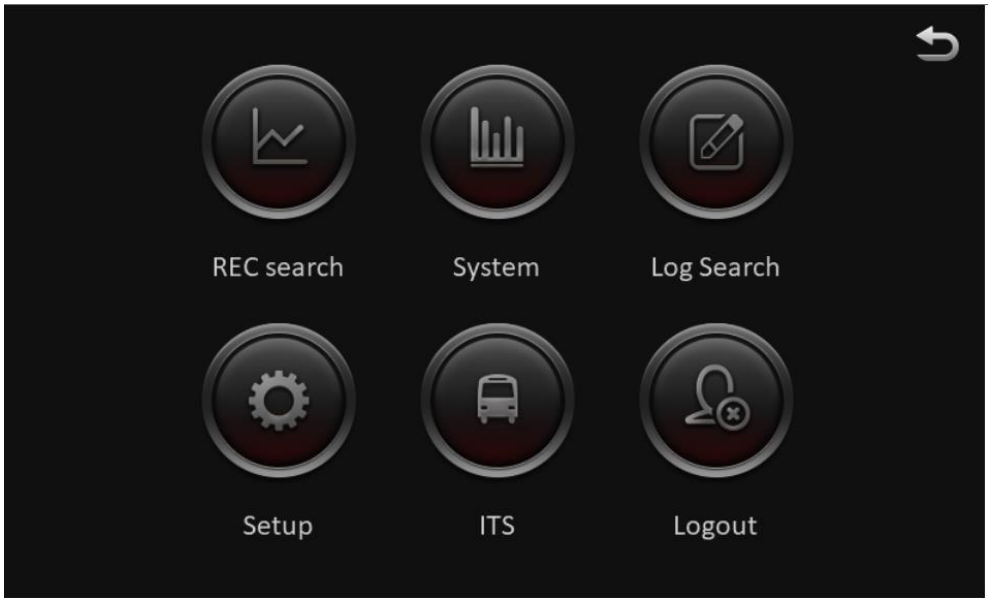
Short message is divided into read mailbox and unread mailbox

- Short message can only be sent by the business platform.

2.2 User Login

Click “Login” on the preview screen and the user needs to select his username and enter the password to log in.

- Username (admin or user) cannot be manually entered. It can only be selected by the drop-down box. User management is conducted in User Settings of Parameter Settings.
- The user can enter the parameter settings menu after the login. If the user directly clicks “Return” to go back to the preview screen, then he doesn’t need to re-enter the username and password the next time he enters the settings screen.
- If the user clicks “Logout”, then he needs to re-enter the username and password the next time he enters the settings screen.



3 Main Functions

3.1 Basic Functions

3.1.1 Recording Search

Click REC search to enter the recording search screen. The user can search primary/sub-stream recording at a certain date according to his needs. Different colors indicate various types of recording

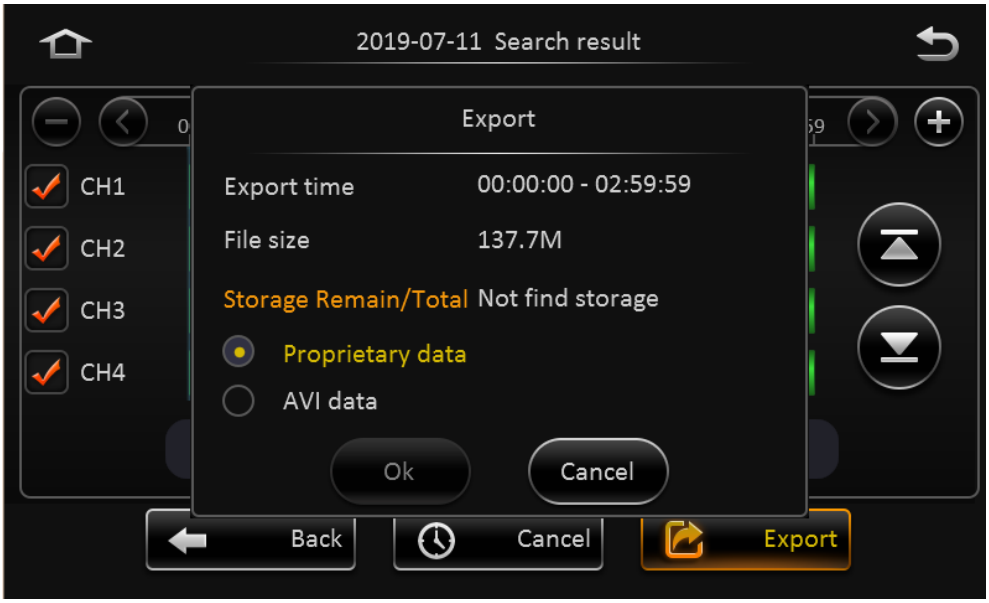
of the day.

- Calender search. Recording types available include main recording, sub-recording and mirror recording.
- Recording search depends on recording types instead of the storage way. Recording is classified as: all, alarm recording and regular recording.
- To select all, search eligible channels; to select alarm recording, only search alarm linkage recording; to select regular recording, search all recording other than alarm recording.

- Click “-” or “+” above the timeline to zoom in and out the time range. The function is especially useful when there are many video segments or the user intends to play back the video from a certain time range.
- Click Up and Down arrow on the right to view the recording of every channel, like whether there is recording and the recording within each time period. Green means regular recording, red indicates unlocked alarm recording and yellow means locked alarm recording.

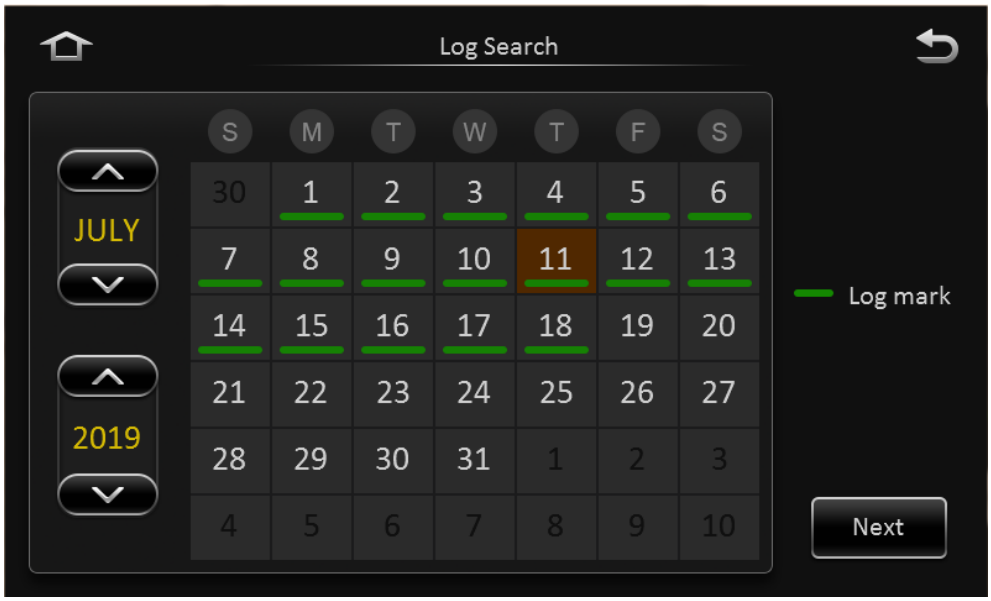
3.1.2 Export Recording

- To export recording, the user can select time period, drag the timeline or directly enter the time. Then, he can click “Start time” to set the start time for export and switch to end time set by the following photo.
- Click “End time” to confirm the time period for export and the size of exported files.
- Click “Export recording” and select the format to export recording.
- Integrated data: package and export original H.264 data stream and black box data. The exported integrated data can only be played by the player (platform) provided by Streamax. Black box data will be linked with video data when playing the video.
- AVI data: namely the standard AVI format. It can be played by any player.



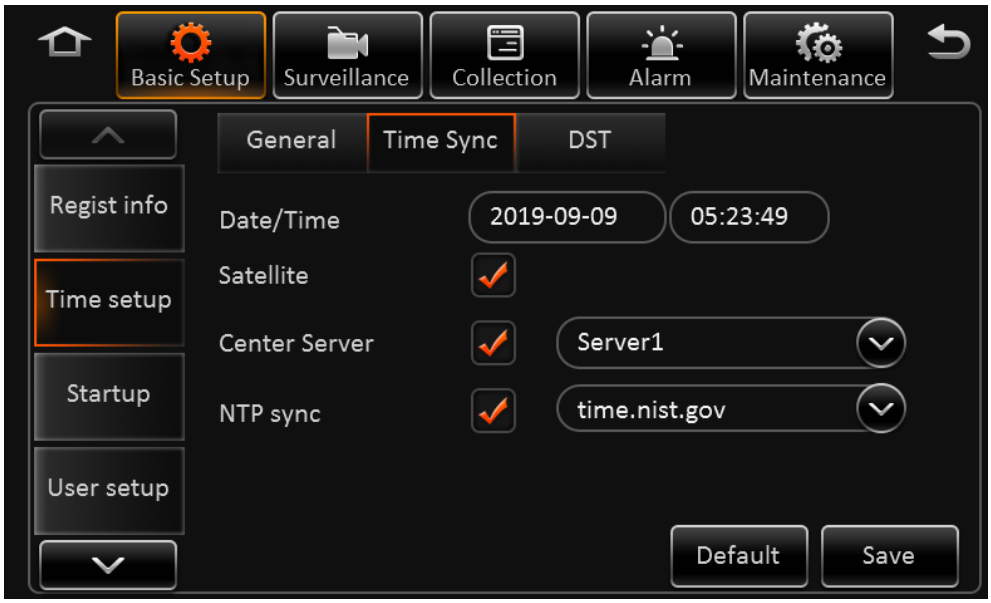
3.1.3 Log Search

Click Log Search to enter the log search screen.



- Click “Next”:
- Log can be searched according to time periods.
- Log is classified as: operation log, alarm log, locked log and P2 operation log.
- When selecting the alarm log, if the log has recording to link with, then the Play button corresponding to the log can be selected. Otherwise, it is not optional.
- The user can directly play back and export the alarm log with video.

3.1.4 Ways of Time Synchronization

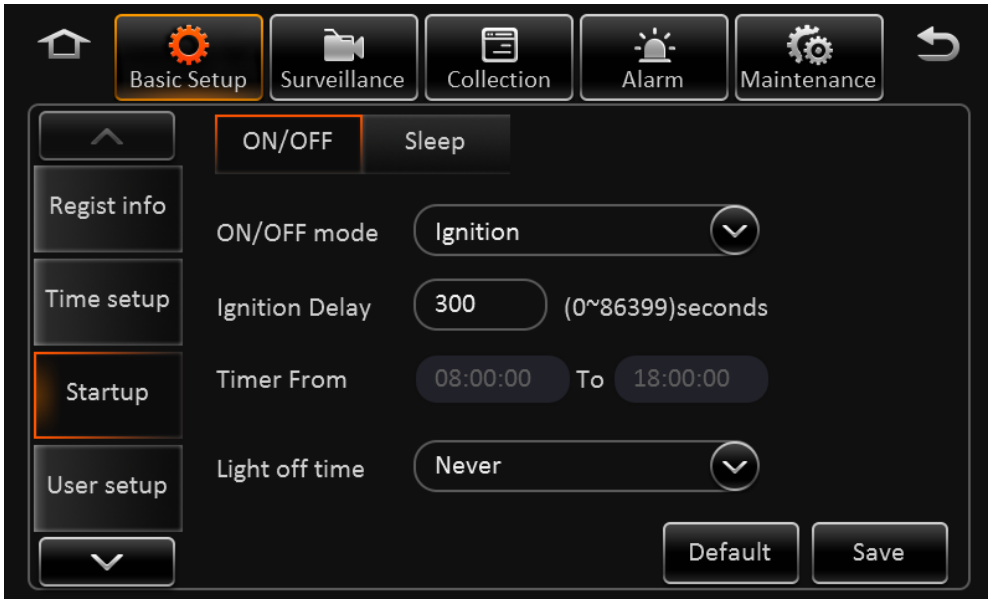


- Ways of time synchronization include: satellite, central server and NTP sync. Single option or multiple choices are available. For multiple choices, the device follows the order of satellite, NTP sync and central server. When time synchronization by satellite fails, resort to NTP. If NTP also fails, turn to central server for time synchronization.
- Time synchronization by central server is performed by the CEIBA2 server.

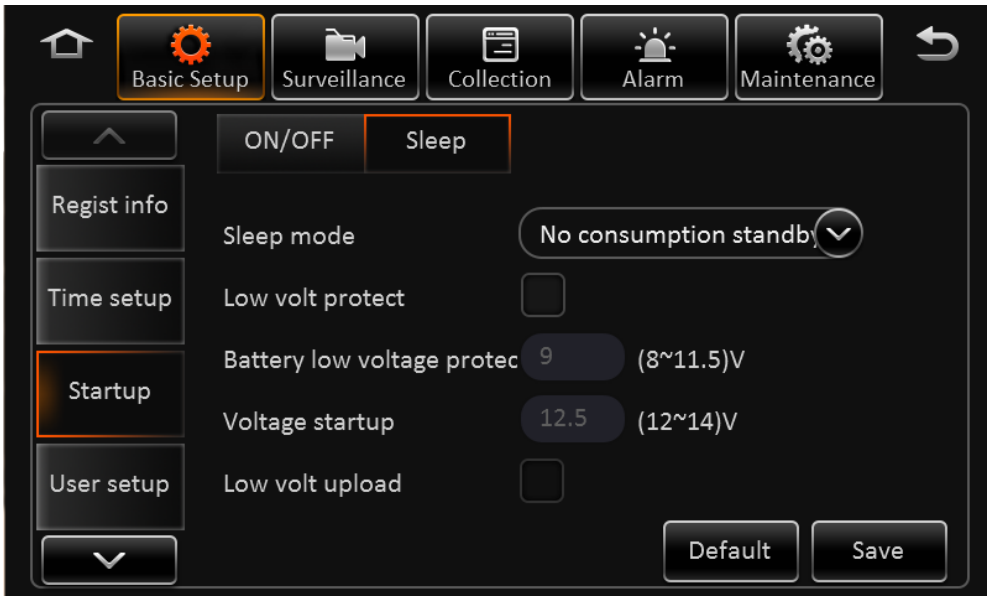
- For the cause of time zones, the user needs to set Daylight Saving Time (DST). He can

also set the start time and choose to delay the time in days or weeks.

3.1.5 Sleep Delay



- Startup & shutdown ways: ignition, timing and ignition/timing.
- Ignition delay: the function can only be enabled when the device is ignited. To be more specific, the ignition delay function is enabled and countdown pops up in the preview screen after the car key is off. If the operation screen is still the settings screen, then countdown is not started. The description mentioned above also applies to timed shutdown. Timed shutdown is impossible in the settings screen. The function won't be available until the user exits the preview screen.
- Light off time: the function is to set the light off function for CP4 and be applied for driving at night. Since CP4 has impact on drivers to some degree, auto light off can be configured and used when there is no operation on the screen.



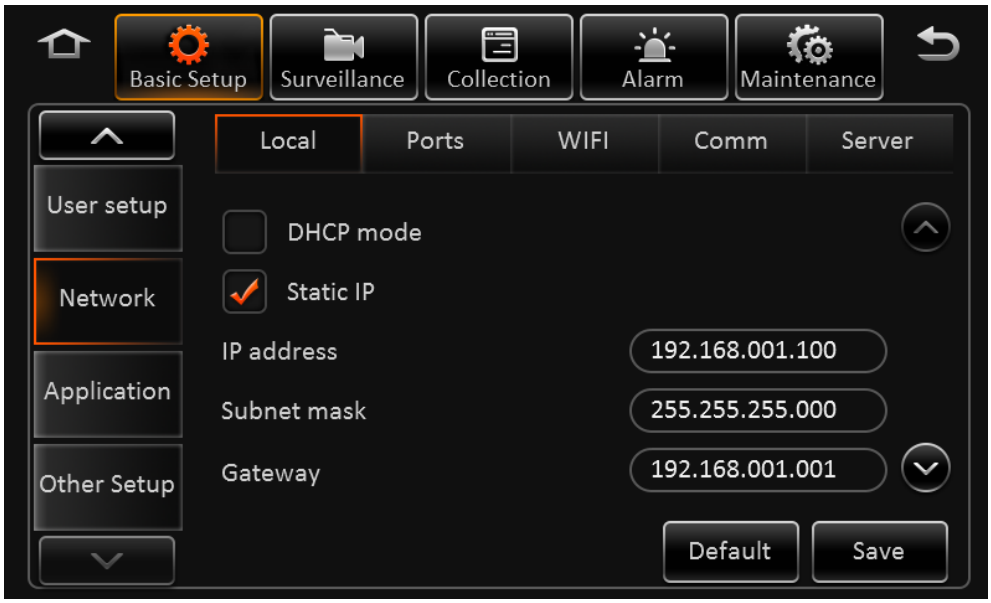
- Sleep is designed to prevent the electrical level of battery from being drained when the voltage of external power supply is below a certain value. Low-voltage protection is added to keep the electrical level of battery from being drained after the car key is off.
- Car key is on: low-voltage protection is enabled. When detecting the current voltage is below the protection voltage, the device enters the standby mode (MCU works while the host doesn't work). The device wakes up after the voltage is restored.
- Car key is off: low-voltage protection is enabled. When detecting the current voltage is below the protection voltage, the device enters the off mode (the device doesn't work). The device won't be awaken after the voltage is restored.
- when the low voltage protection function is not enabled, 7V is taken as the criteria for low voltage protection by default (low voltage protection will be triggered when the voltage is lower than 7V). As for the car key (whether it is on or off), its also fits the description mentioned above.

3.1.6 User Management

- The device has an administrator by default and the administrator cannot be deleted. To edit the administrator, the user can only modify the login password.

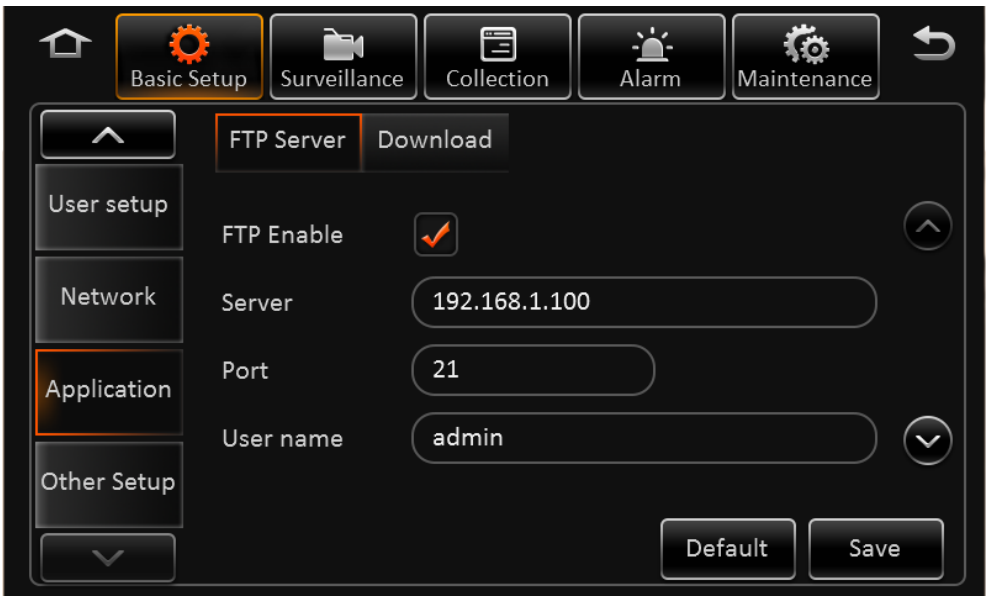
- To add user, only common user can be added while administrator cannot be added. Common user can be edited and deleted.
- Administrator has settings permissions. Common user only have permissions for query rather than parameter settings.
- Exit time of operation timeout: the time users wait to exit to the preview interface after entering the settings screen.

3.1.7 Network

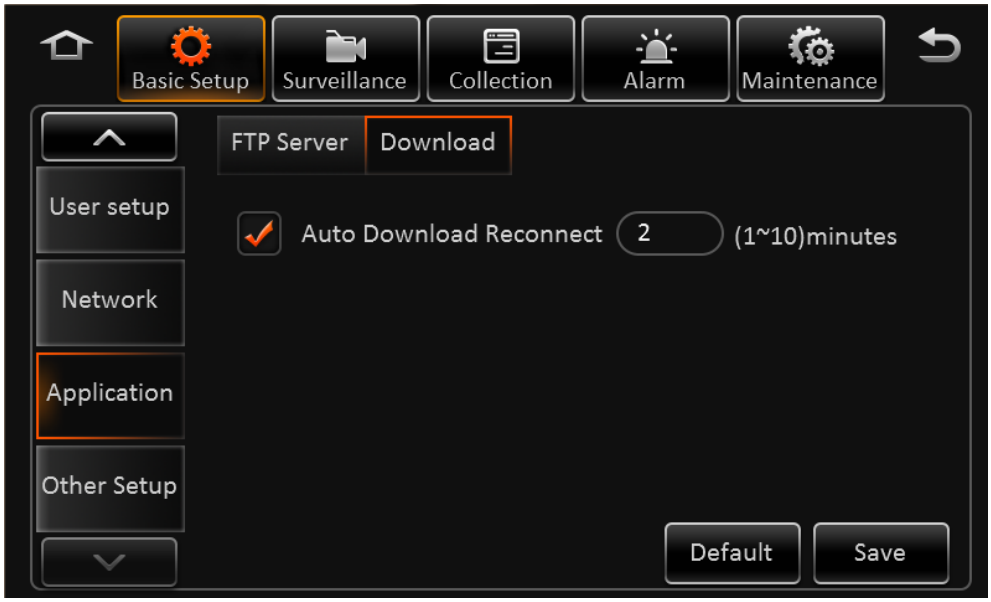


- For vehicles to go online, three network access ways are optional: local connection, WIFI connection and 3G/4G connection.
- Server configuration means the server configured for device report. Up to 6 configurations can be supported by the server. Please note that 3 configurations can be supported by the central server at most.

3.1.8 Application



- FTP server configuration means connecting to the server designated by customers by setting the FTP server parameters. For example, photos captured by MDVR can be configured to upload to the FTP server. The user can upload photos to a corresponding server according to the parameter configuration.



- Firstly, the auto download function should be used in combination with the CEIBA2 platform. The user can create the auto download task via the CEIBA2 platform and the platform

manages the device download, like which vehicles to download, download via which kind of network (4G or WIFI). If the download is completed via WIFI network, the user needs to figure out via which WIFI-AP each vehicle is downloaded and how many vehicles can be connected and simultaneously downloaded for each AP.

- Auto download reconnect means the vehicle enters the sleep mode and waits for the reboot and tries to download again after returning to the depot and failing to connect to the service. When the download tasks are full or the set AP reaches the upper limit, the platform notifies the device to enter the sleep mode and simultaneously informs the device when to reboot (this function helps vehicles avoid resources waste when waiting for the upgrade and in the sleep mode).

3.2 Video Monitoring

3.2.1 Live View

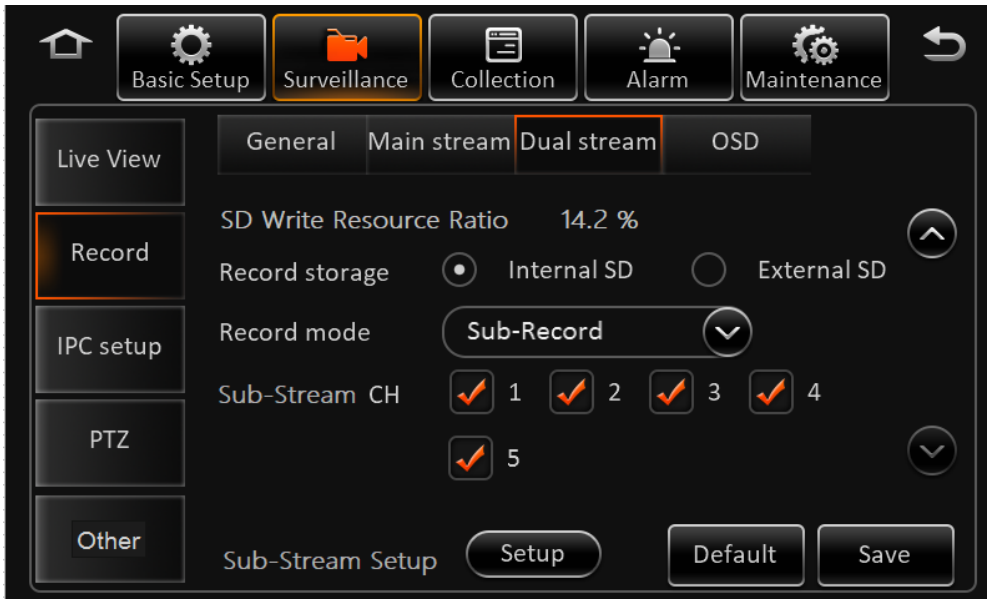
- Boot screen: the screen that appears after the boot. The user can set 1 screen, 4 screens

and 9 screens as well as how many channels to display. For example, the device of customers has 4 analog cameras and 2 IP cameras. However, we only use 2 IP cameras to enable them to view 4 screens.

- Automatically switch the channel of preview screen. For every switch, the user can set to display which channels and show them in which mode.
- The mode includes: 1x1, 2x2 and 3x3. They respectively indicate single screen, 4 screens and 9 screens. For each screen, the user can set which channels to display. Likewise, he/she can set the staying time for each switch.

- Live view OSD. The user needs to distinguish live view OSD and recording OSD (live view OSD means OSD information of the preview screen. However, for OSD information of AHD recording, it needs to select recording OSD). Live view OSD supports adjustment of positions and attention should be paid to that superimposition position of OSD information cannot cross the border.

3.2.2 Record



- Dual-stream recording can choose the storage. However, currently, dual stream only has two storage options: built-in SD card and external SD card.
- Recording mode: sub-stream recording, mirror recording, alarm recording backup and none.

1) Sub-stream recording: MVDR encodes two data streams, namely primary stream and sub-stream.

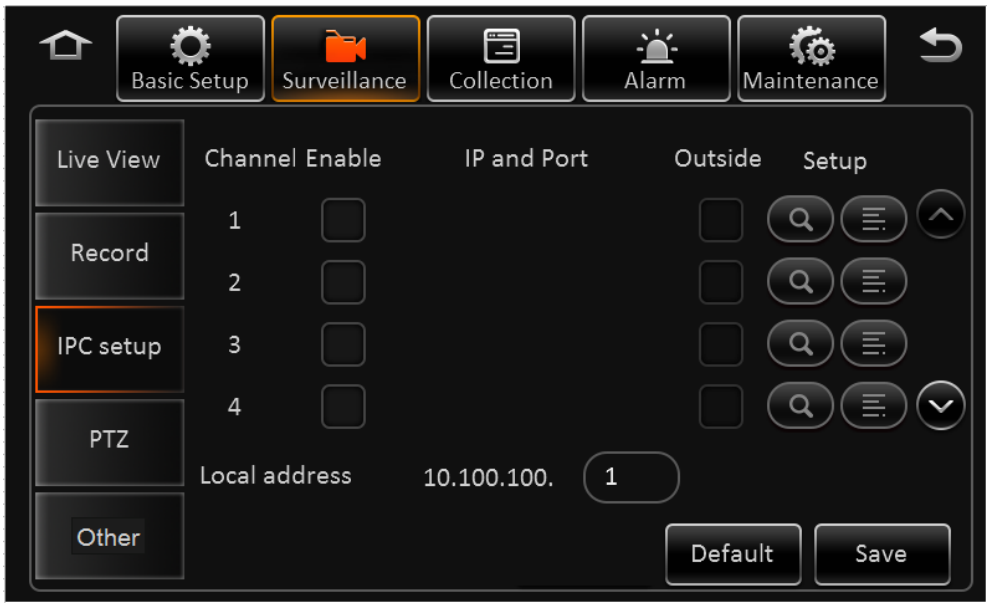
2) Mirror recording: completely back up the HDD data to the SD card.

3) Alarm recording backup: the recording will be stored only when an alarm is generated.

4) None: it is loop recording for the dual SD card.

- Check the channel that requires sub-stream settings. The user can set the sub-stream recording by the click. The use can click to make recording settings of sub-stream.
- Recording OSD. The user can choose the corresponding OSD information, which can be superimposed by video. Besides, he should distinguish recording OSD and live view OSD.

3.2.3 IPC Setup

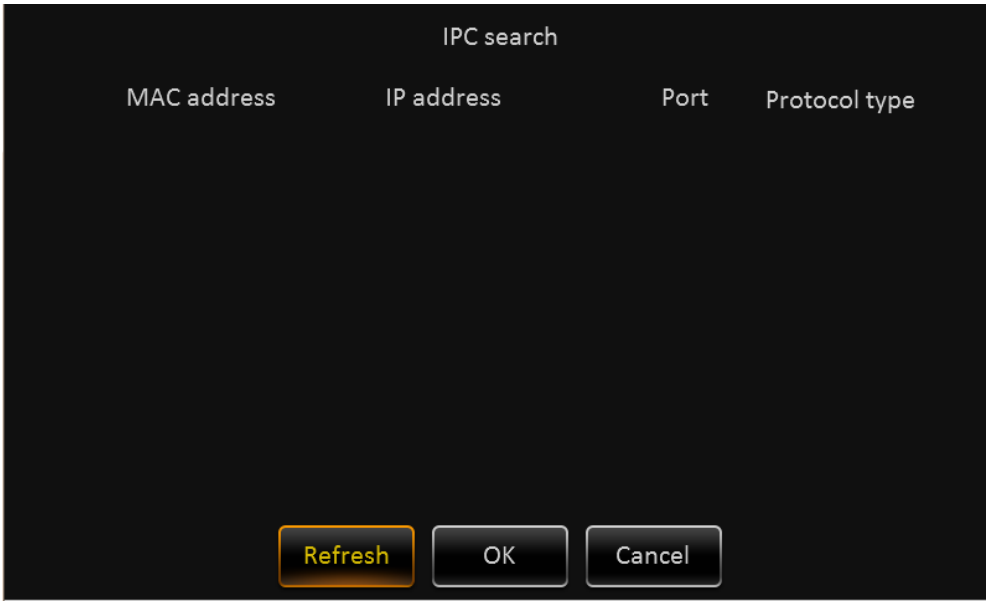


- Support auto IPC plug and play configuration, IPC quick settings and manual IPC channel configuration by IP search.
- Support IPC quick settings.

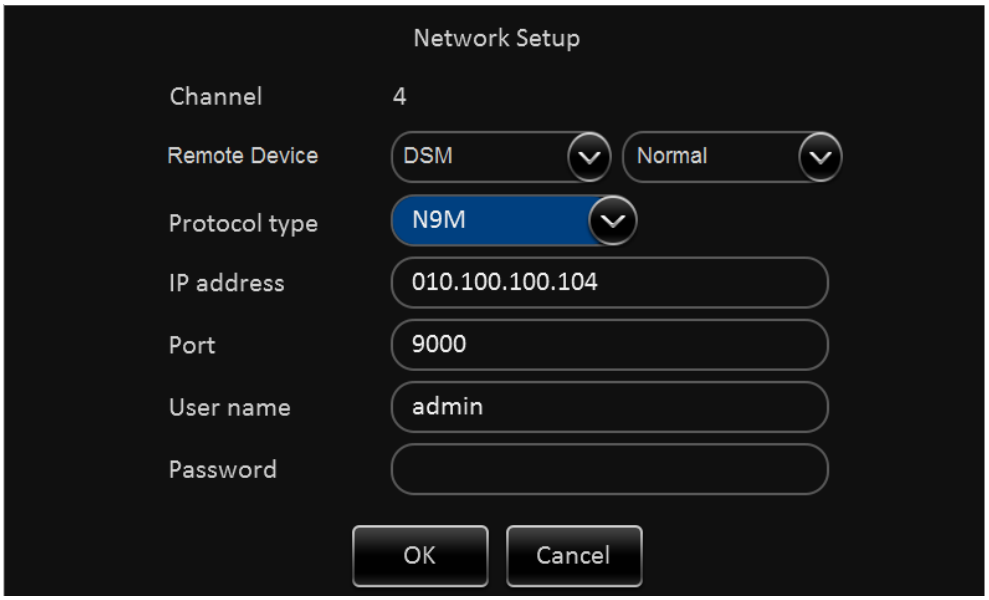
1) MDVR with PON interface: do not support IPC quick settings (X1 and X3 have PON interface). It supports the auto discover function: MDVR will automatically assign one IP to IPC after connecting to IPC. At this time, MDVR won't save the IP address into parameters and IP address will be reassigned after the re-plug.

2) MDVR with POE interface: IP address of IPC requires quick settings since the device needs to connect to the switch. MDVR will automatically search IPC and configure the searched IPC with IP address after connecting to the switch. IP address starts from 10.100.100.100 and skips the IPC network segment address. For IPC searched by quick settings, it is required to be bound with the channel when entering the channel configuration screen.

- The corresponding analog channel automatically becomes invalid after enabling the IPC channel.



- Each channel supports the IPC search function and displays the searched IPC list information. For IPC settings, there are two situations: (1) the user can view IP address of cameras in Search using Streamax cameras, then he directly checks and views IP address; (2) the user adopts ONVIF protocol, then he clicks the IPC setup button and fills in information related to IP address.
- Support to configure the IPC network segment address. If the device IP assigns a certain address, this address will be skipped when the device automatically searches and configures IP.
- IPC search screen. If IPC is searched on this screen, then its IP address can be modified.



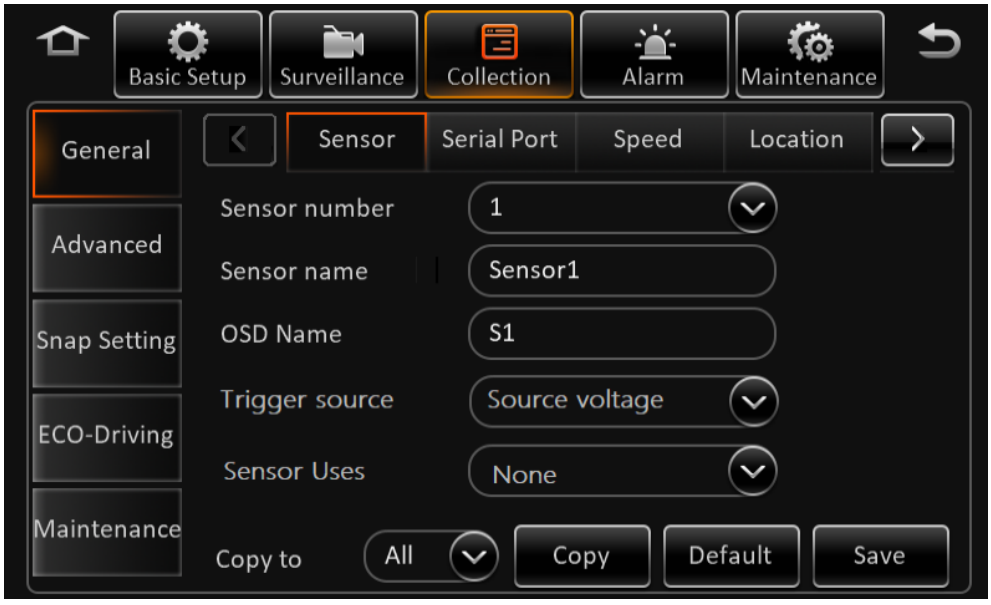
- The user clicks “Edit” and the photo above appears. For cameras of ONVIF protocol, this channels binds the configuration channel awith IPC. Please note that modifying IP address here is not to modify IP address of IPC but rebind other IPC. For intelligent IPC channels, such as DSM, ADAS and BSD channels, calibration mode and normal recording mode are optional.

3.2.4 PTZ

- Operation mode: serial port, ONVIF and N9M. ONVIF and N9M protocols are applied to control IPC using different protocols.

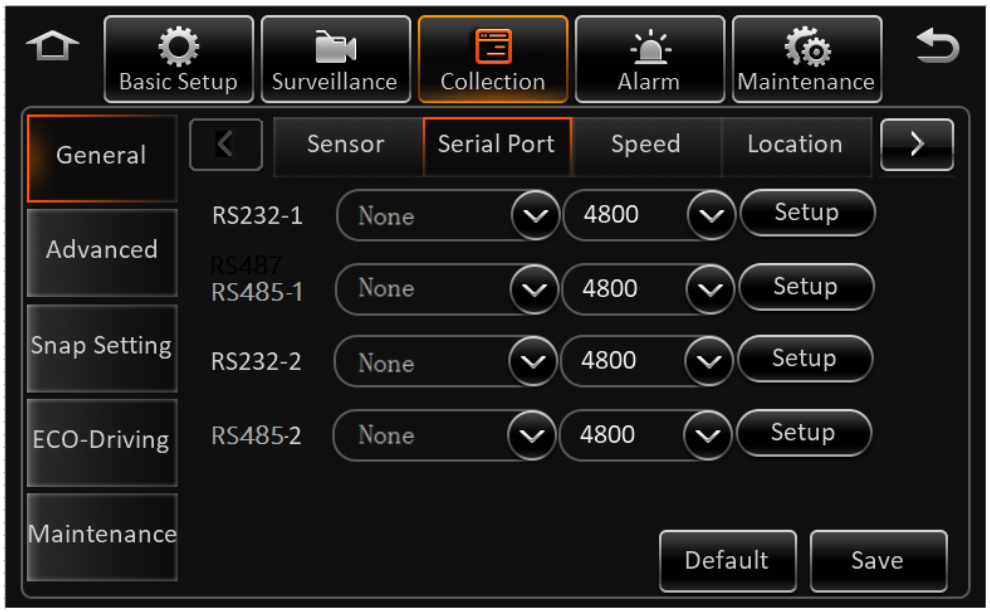
3.3 Data Collection

3.3.1 General



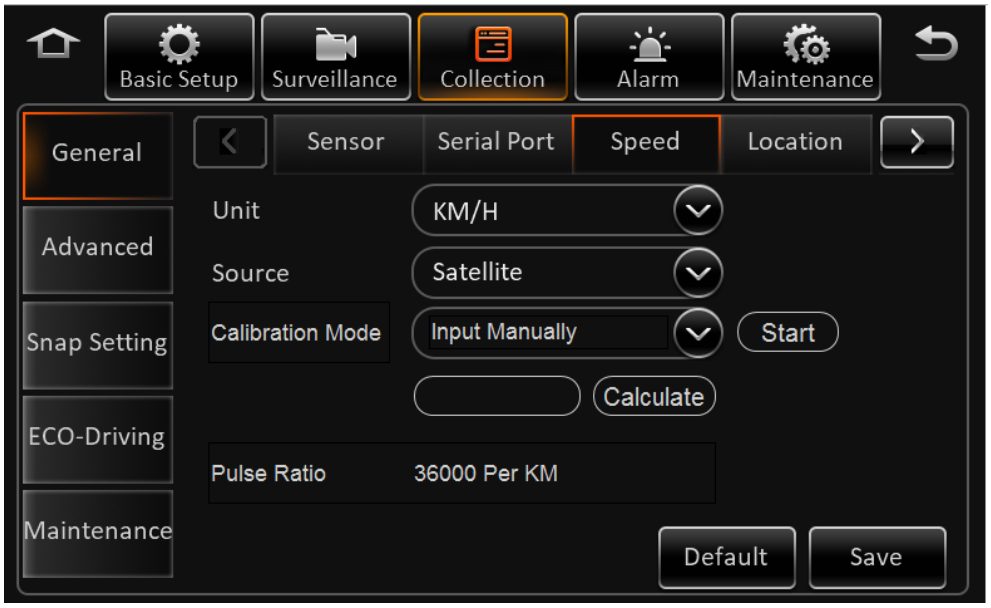
- Device sensor connection cable: For IO cables, IO1~IO8 parameters can be set on this screen. Voltage and pulse are optional for the signal source. IO purpose can be chosen according

to users' requirements.



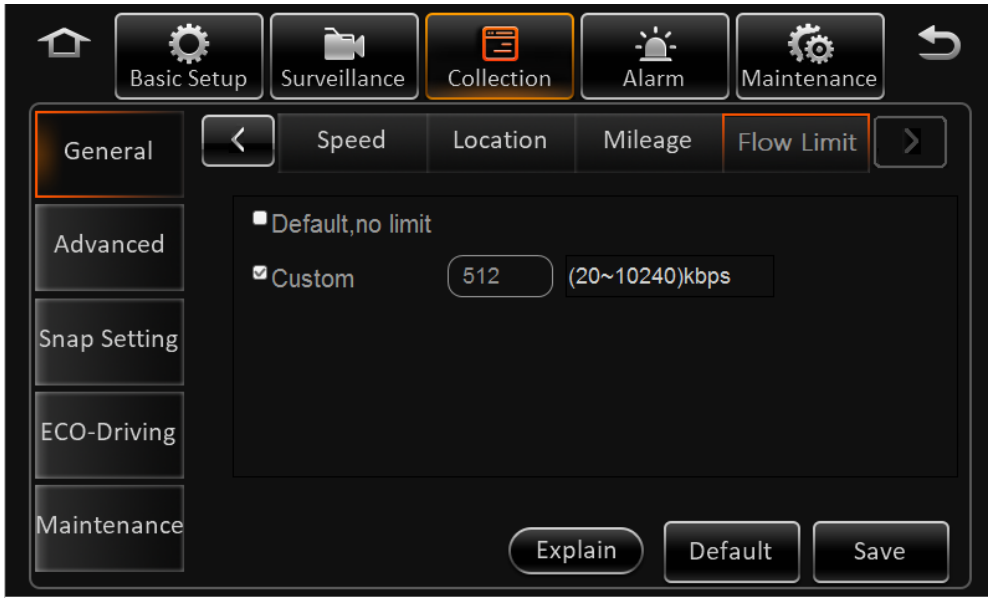
- Serial port. Support two ways of serial port connection-RS485 and RS232. To configure 4 serial ports, 2 485 serial ports can choose 485 bus and 485 bus connects to standard 485 peripherals of Streamax. For each 485 bus, it can mount several 485 peripherals. Each standard peripheral of Streamax has a fixed code.

- When 485 bus connects several peripherals of the same standard, like an extra temperature & humidity sensor, how the user can tell which sensor the temperature comes from. In this case, the user must write an address code for each peripheral by the tool offered by Streamax. For example, to connect to three sensors, these sensors shall be numbered and their address codes are actually the number description.



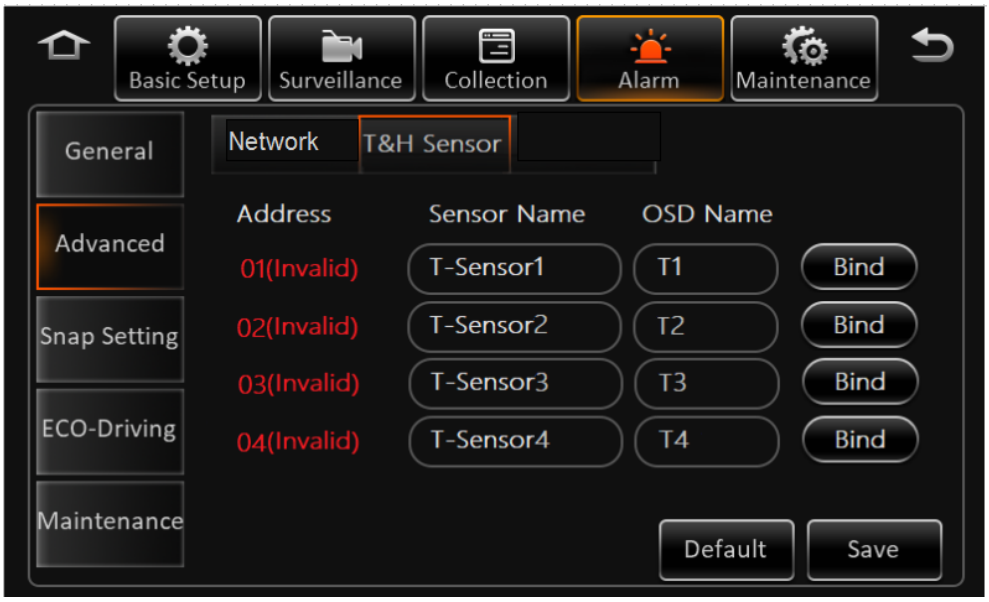
- Four ways are available for the speed signal source: satellite, pulse, OBD and Atrack. Uinits of KM/H and MPH are optional. “Mileage basic value calibration” and “Auto calibration” are supported.

- “Mileage basic value” calibration function. Calibration means the user sets an initial value for the total mileage.



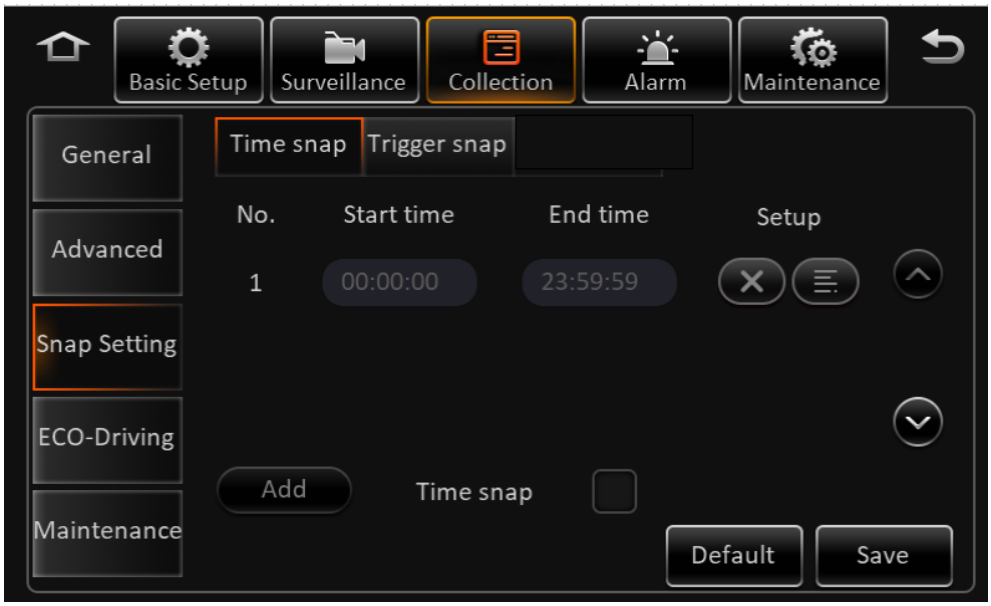
- The flow limit function. The user can limit the transmission speed of uploading data to the platform by this function.

3.3.2 Advanced



- Connected to the passenger counter named P2 and temperature & humidity sensor.

3.3.3 Snapshot Settings



- Snapshot includes: timed snapshot and triggered snapshot (manual trigger and alarm linkage).

- Upload way: that is the type of server to which snapshot photos are uploaded. There are two types of servers: FTP server and central server.

1) FTP server: the user can directly log in the FTP server and view snapshot photos like viewing files in the Windows system.

2) Central server: that is also called the CEIBA2 server. The user can view snapshot photos by photo playback.

3.3.4 ECO-Driving

- There are two ways of calibration: remote calibration and local calibration. Details are shown below:

➢ Remote calibration:

1) The platform sends a piece of vehicle information to MDVR, such as license plate number, engine model and OBD upgrade file (engine model and OBD upgrade file need to be bound in advance).

2) MDVR compares OBD upgrade file version in GDS (6-axis sensor) and the sent version. If two versions are inconsistent, then upgrade the OBD program.

3) MDVR compares the OBD preconfigured engine model and engine model sent by the

platform . If two versions are inconsistent, then configure the sent engine model to OBD. The whole process is called “calibration”.

- Local calibration:

1) Import vehicle information sheet to the device via USB flash disk (the sheet includes license plate number, OBD upgrade file version and CAN bus standard)

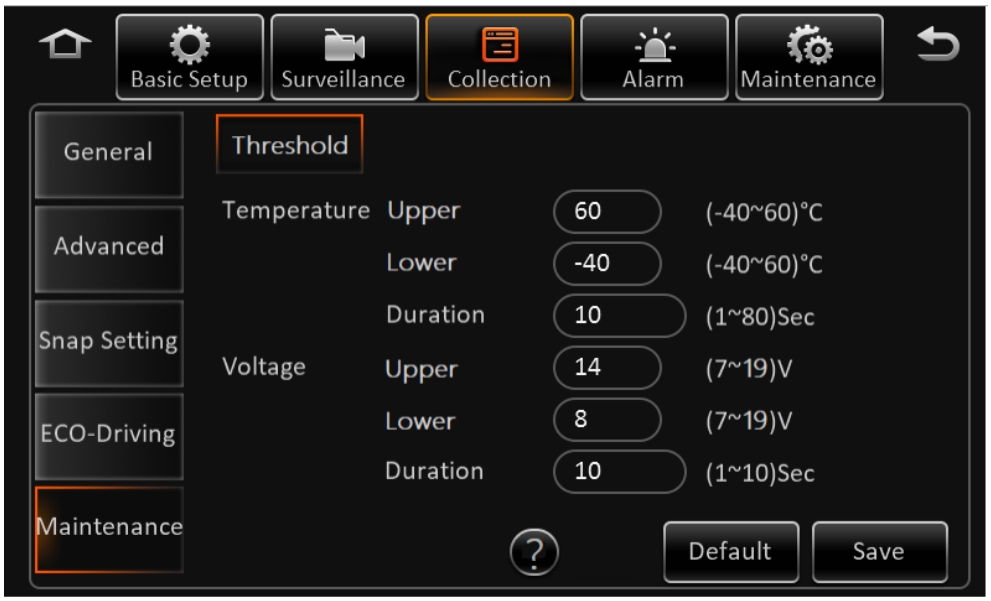
2) Manually configure the engine model on the screen.

3) Click Calibration on the screen.

4) The program automatically compares license plate number of the vehicle and license plate numbers in the vehicle information sheet one by one until finds records of the same license plate number. Likewise, the program acquires the OBD upgrade file version number and compares it with version numbers in OBD. If version numbers are different, then upgrade the OBD version to the required version.

5) Compare the engine model manually configured on the screen and the engine model in OBD. If two models are different, then configure the new engine model into the settings screen.

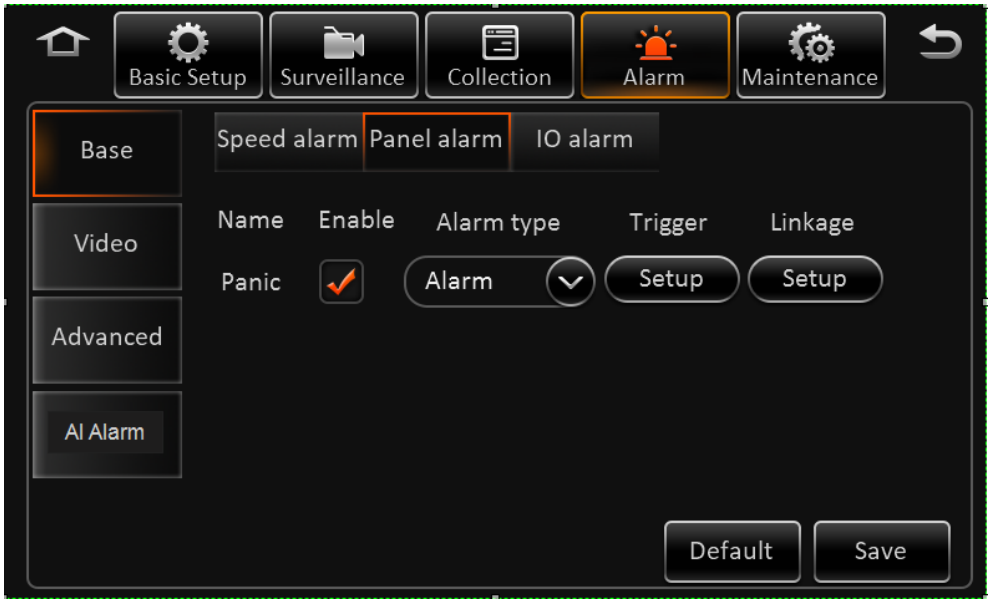
3.3.5 Maintenance



- Operation and maintenance configuration: the user can set a fault range. Once data falls out of the range, an alarm will be given.

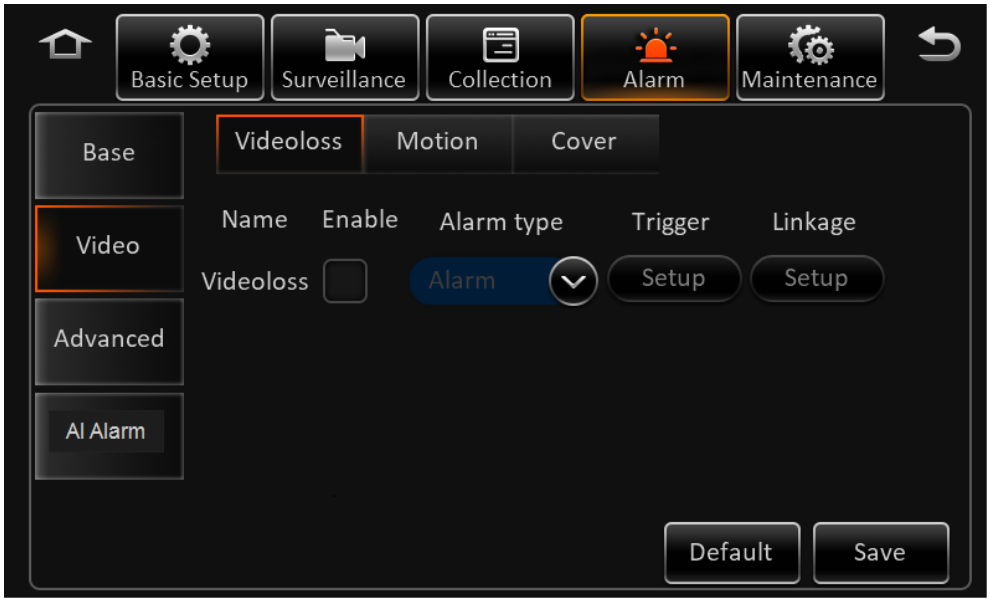
3.4 Intelligent Alarm

3.4.1 Base



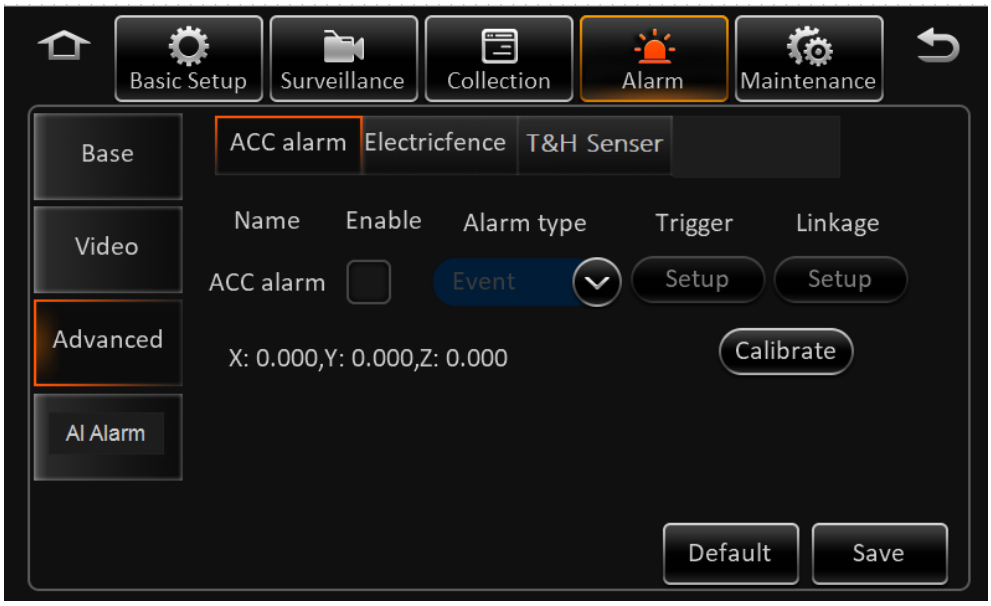
- Panel alarm: the alarm will be taken as an actual alarm after the button has been pressed for a while. Effective alarm time means how long the alarm can last before being off; Alarm duration indicates the alarm is recorded as effective alarm only once after being repeatedly given in a certain period of time.
- IO alarm: Linkage settings are offered to each IO alarm.
- Speed alarm: once the speed is higher than the set speed, real-time alarm log will be generated and uploaded to the platform.

3.4.2 Video



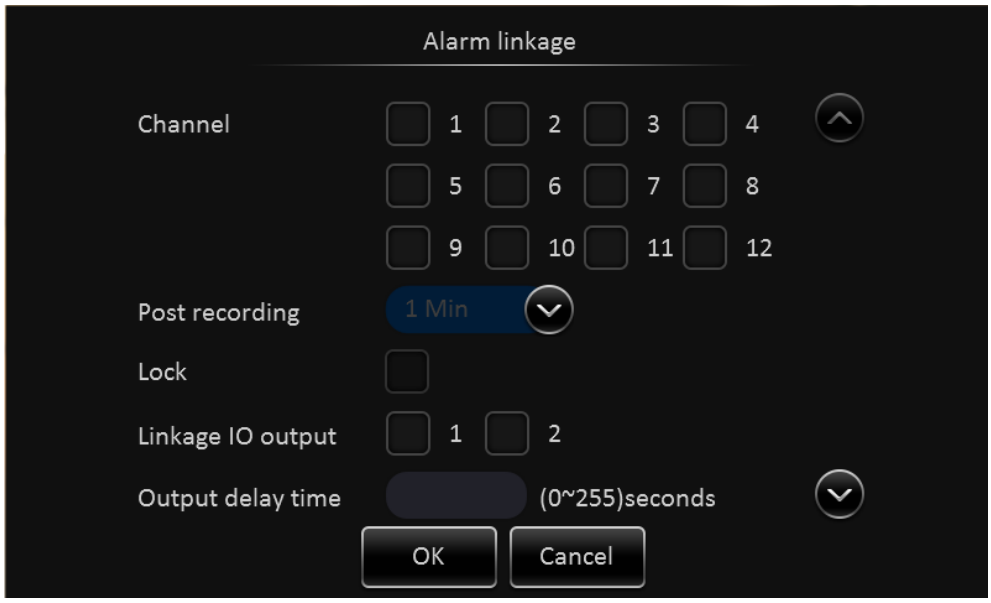
- There are three types of video alarm: video loss, motion detection and covered video. They have one common trigger condition, namely “Effective alarm time”. Effective alarm time means that one alarm is regenerated in the set time after the previous alarm is off. These two alarms are regarded as the same alarm. Therefore, the processing result is one piece of log is recorded and alarm is reported to the platform only once.

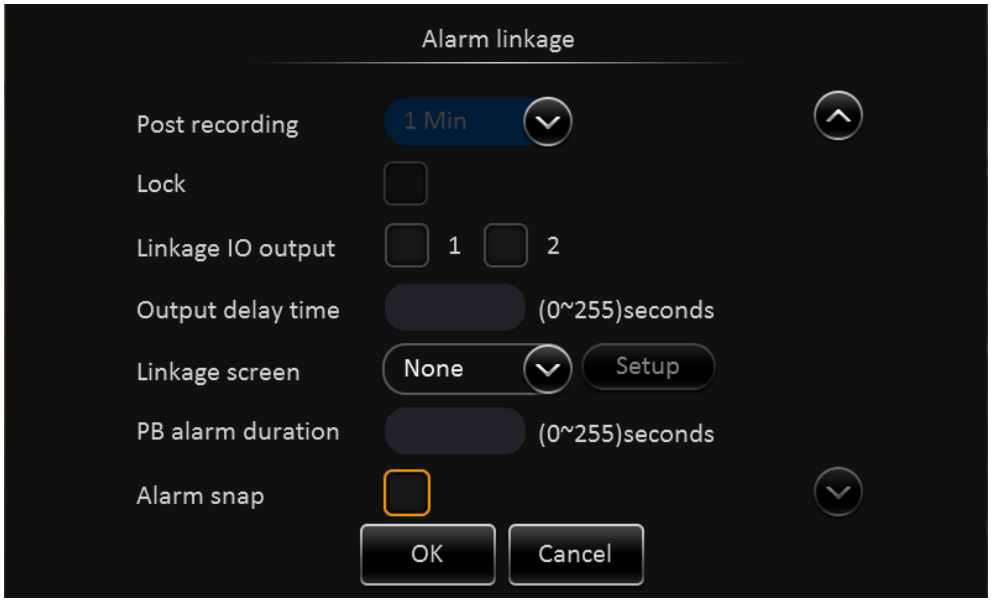
3.4.3 Advanced



- ACC alarm: internal three-axis sensor can set alarm for collision or changes in the position as well as link with the screen for settings.
- Geo-fence: support switch-on and off of the Geo-fence.
- Temperature & humidity alarm settings: the user can set trigger conditions and linkage screen. .

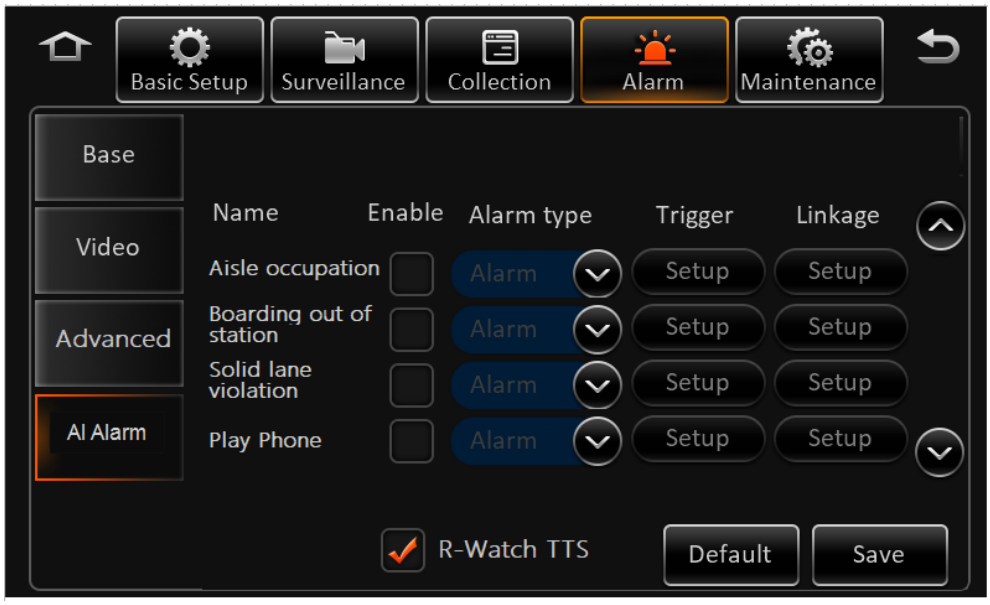
3.4.4 Linkage



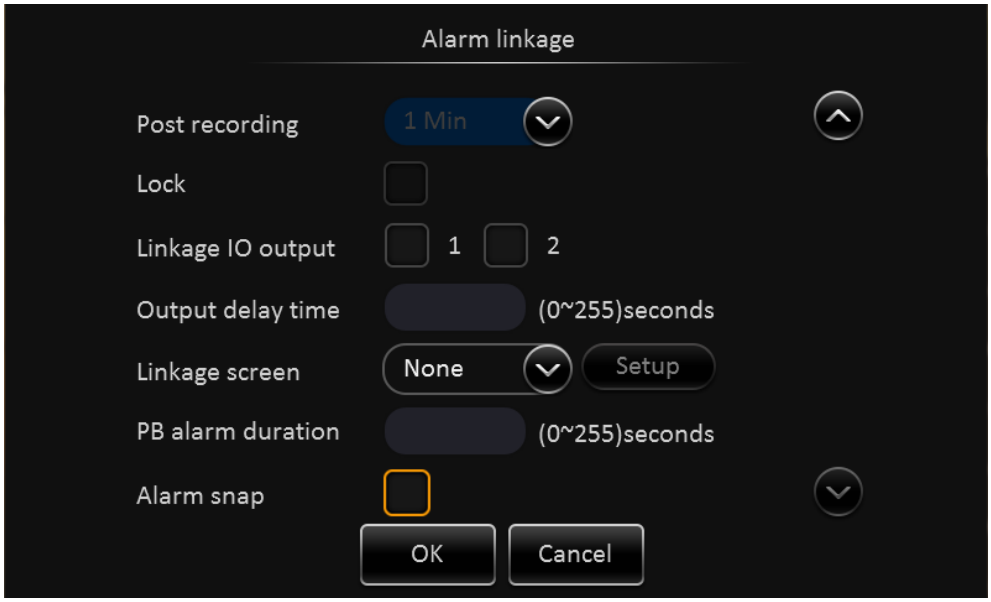


- Channel: the recording channel is required after the alarm. Channel recording will be marked as alarm recording.
- Post recording: the time recording continues after the alarm is off.
- Lock: the user can set whether to lock the alarm recording.
- Linkage screen: the user can set to display the preview screen after the alarm.

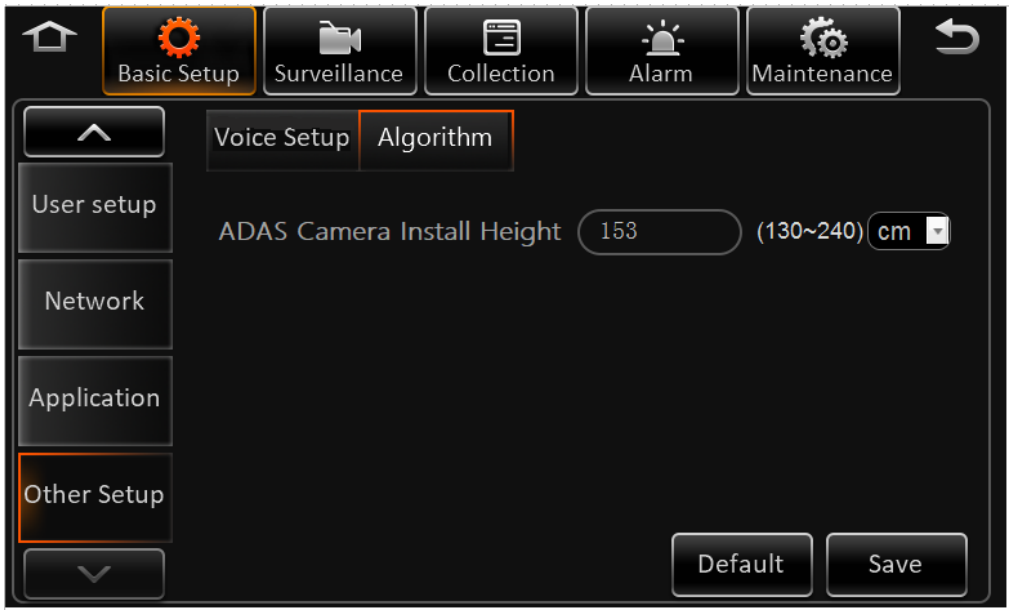
3.4.5 AI Alarm



- AI functions like ADAS, DSM and BSD, trigger conditions and linkage content can be set according requirements of users.



- The user needs to check alarm snapshot in linkage settings to upload evidence photos and then set in Data collection-Snapshot settings.
- After determining the ADAS calibration height, the user can set the ADAS algorithm height (cm and inch are optional).


Basic Setup
Surveillance
Collection
Alarm
Maintenance
Voice Setup
Algorithm
User setup
Network
Application
Other Setup
ADAS Camera Install Height
153
(130~240)
cm
Default
Save