MEITRACK® AI Dashcam

MD101 User Guide

Change History

File Name	MEITRACK MD101 User Guide		
Project	MD101	Creation Date Update date	2023-07-14 2024-04-03
Subproject	User Guide	Total Pages	47
Version	V3.0	Confidential	External Documentation

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Document Update Record

Version	Date	Modifications
1.0	2023-07-14	Initial draft
1.1	2023-10-23	1. Modify the appearance diagram 2. Modify the supported frequency band 3. Add the platform end Settings 4. modify the size of the equipment
1.2	2023-10-31	1. Added steering wheel direction Settings
2.0	2023-12-06	1.Change the platform IP address 2. Definition of new wires 3. Modifying input voltage range 4. Adding new connections for left and right turn signals 5. Adding description of AI sensitivity parameters 6. Adding operating instructions for platform function 7. AI alarm increase: Camera Covered and Driver Absence Detected.
3.0	2024-04-03	1. Add Operating power data 2. Add APP settings - modify time zone, indoor simulation test 3. Add platform AI alarm parameters modification 4. Add platform report viewing 5. Add platform tracker talk function settings 6. Add general alarm settings 7. Add FAQ 8. Update AI alarm pictures

		9. Add identification of MIC and SPK

Precautions for use

Warning

1. The dangerous driving prompts issued by the equipment cannot replace the driver's driving decisions and operations;

2. The dangerous driving prompts issued by the device are developed based on computer vision and deep learning technology, and cannot guarantee 100% recognition accuracy. For example, the accuracy of algorithm recognition varies under different road and weather conditions.

3. The preparation aims to enhance users' understanding of driving conditions under correct usage. If used improperly, users may be distracted, leading to accidents, property damage or personal injury. During driving, do not attempt to view information stored on the device or change device settings. Only operate the device when your vehicle is stationary and parked in a safe place in accordance with local laws. Please always maintain awareness of the surrounding environment and avoid being distracted by the display screen or phone. Focusing on equipment may lead to driving hazards. The risk of using this device will be borne by the user.

4. When installing the device on a vehicle, please do not place it in a place that hinders the driver's ability to see the road or interferes with vehicle operation and control, such as the steering wheel, pedals, or transmission lever. Do not place it loosely on the vehicle dashboard. Do not place the device in front of or on top of any airbags.

5. Drivers are prohibited or restricted from playing videos on their devices in certain regions. Please comply with relevant laws in each region.

Maintenance precautions

1. Please keep the equipment dry. Do not let the equipment and cables stay in a damp environment, and do not operate the equipment with wet hands to avoid faults caused by short circuits, corrosion, or electric shock to personnel.

2. Equipment should be subjected to strong impacts or vibrations to avoid equipment failure.

3. Place the equipment and power supply at high or low temperatures, otherwise, it may cause equipment malfunction.

4. Please do not hit, throw, or puncture the equipment, and avoid dropping or squeezing the equipment.

5. Please do not use unofficially approved or provided power and data cables.

6. Please do not dismantle the equipment and accessories without authorization, otherwise the equipment and accessories will not be covered by the warranty.

Contents

1 Product Introduction

MD101 is a comprehensive automotive active safety product that integrates functions such as satellite positioning, video surveillance, and active safety. This product meets the needs of fleet monitoring, management, driving safety, and standardized driving behavior. Based on advanced deep learning technology, intelligent algorithms such as Advanced driver-assistance system (ADAS), Driver Monitoring System (DMS), Lane Change Assistance (LCA) and active safety functions can be applied to complex driving scenarios, improve the safety and efficiency of traffic driving, and enhance the overall user experience. The integration of artificial intelligence technology into the driving process of vehicles can further standardize the safe driving behavior of drivers.

2 Product Specifications

Main Device	
CPU	Dual cores，1.2GHz
RAM	Capacity: 2Gb 16-bit DDR3(L)

System Structure	
System operation	Linux
Built-in AI algorithm	ADAS & DMS algorithms

Audio and Video	
Compression standard	H264
Audio compression	PCM、WAV
Built-in speaker	Mono support
Built-in MIC	Mono support

ADAS front camera	
Sensor	1/2.9'', 2MP CMOS sensor
FOV	D:125° H:105° V:58°
Resolution	720P；
Frame rate	720p15fps

DMS Rear Camera	
Sensor	1/3'', 2MP CMOS sensor
FOV	D:120°H:100° V:45°
Resolution	1080P
Frame rate	1080p@15fps

Frequency band	
MD101	WCDMA: B1/B8 LTE-FDD: B1/B3/B7/B8/B20/B28 LTE-TDD: B38/B40

MD101-E	WCDMA: B1/B5/B8 LTE-FDD: B1/B3/B7/B8/B20/B28 LTE-TDD：B38/B40/B41
MD101-A	WCDMA: B2/B4/B5 LTE-FDD: B2/B4/B12
MD101-AU	GSM: B2/B3/B5/B8 WCDMA: B1/B2/B5/B8 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE-TDD: B40
MD101-J	WCDMA: B1/B6/B8/B19 LTE-FDD: B1/B3/B8/B18/B19/B26 LTE-TDD: B41

Others	
Power supply	9-36V
Operating power	400~430 mA
Sensors	3-axis acceleration sensor
Storage media	Support Micro SD card only, up to 256GB (It is recommended that you should use a Class 10 or above, FAT32 format.)
Working temperature	Without battery: -20℃to 70℃
Storage temperature	-30℃ to 80℃
Relative humidity	10% to 90%， non-condensing
Atmospheric pressure	860Mbar to 1060Mbar
GPS sensitivity	-165 dB
WiFi	Supports APP connection only (Cannot transfer data)
Weight	198g
Demensions	116mmx66mmx38mm

MD101 Host

SOS Alarm Button

SIM Card Pin Ejector

GPS Antenna

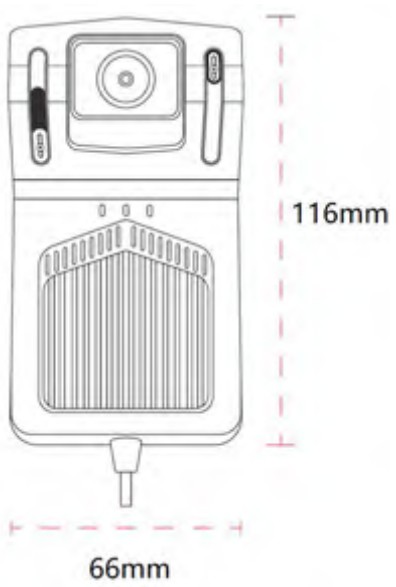
2m Power Cord

Standard	Quantity
MD101 host	1
SOS alarm button	1

GPS antenna	1
2m power cord	1
SIM card pin ejector	1
Total	5

3 Product Appearance and LED Status

3.1 Appearance



No.	Icon	Name	Description
1		Recording indicator light	Red, blue, and purple colors indicate the recording status
2		Network indicator light	The yellow color indicates the 4G network status
3		GPS indicator light	The green color indicates the GPS positioning status
4	NA	DMS camera	1080P DMS camera
5	NA	Heat sink	Metal heat sinks
6	NA	Tail line outlet	Default 6PIN tail cable
7	NA	Fixed lock for DMS camera	Locking the position of the DMS camera
8	NA	Fixed lock for DMS camera	Locking the position of the ADAS camera

No.	Icon	Name	Description
1	NA	Heat Sinks	
2	NA	Communication Module	4G Communication Module
3	R	Reset button	Single-click reset by using the probe
4		WiFi key	Short Trigger: Turn on/off the WiFi function. Voice broadcasting: WiFi is ON/OFF.
5	SIM	SIM card slot	Support Nano-SIM card
6	NA	Micro card slot	Support up to 256GB, Class10 and above
7	NA	ADAS camera	720P ADAS camera
8	NA	Labeling	Product model label

No.	Icon	Name	Description
1		Microphone(MIC)	Collect sound
2		Speaker(SPK)	Play sound

3.2 Definitions of Ports

No.	Wire Color		Definition	Description	Port
1	Red		BBAT+	Power input positive, input voltage: 9~36V; Connect to car and battery positive.	Bare wire
2	Black		GND	Ground wire is connected to the negative terminal of the vehicle battery;	Bare wire
3	Yellow		ACC	It is used to connect the vehicle ACC and check the vehicle ignition status;	Bare wire
4	White		SOS	SOS Emergency Alarm Button；	SM-A Pair Connector
	Blue				
5	Orange		RIGHT-IN	Connect the right turn signal wire；	Bare Wire
6	Green		LEFT-IN	Connect the left turn signal wire；	Bare Wire
7	Black		GPS	4PIN BMW header harness for docking GPS antenna;	4PIN BMW Header

3.3 Power On and LED Status

The device will automatically turn on when the red wire is connected to the power cord, and the blue/red light is always on.

Meaning	**Icon**	**Color**	**Status**	**Description**
Video Light		Red/Blue	Steady on	Power off.
			Blue light steady on	The system is running normally, but not recording.
			Red light steady on	Recording.
4G Signal Light		Yellow	Steady off	No signal is received.
			Blink	4G signal available, not yet on the platform
			Steady on	4G signal is available and the platform is online.
GPS Light		Green	Steady off	No GPS signal is received.
			Blink	GPS signal available, not located
			Steady on	GPS signal available and successfully located

4 First Installation

4.1 SIM Card and Micro SD Card Installation

Micro SD card installation

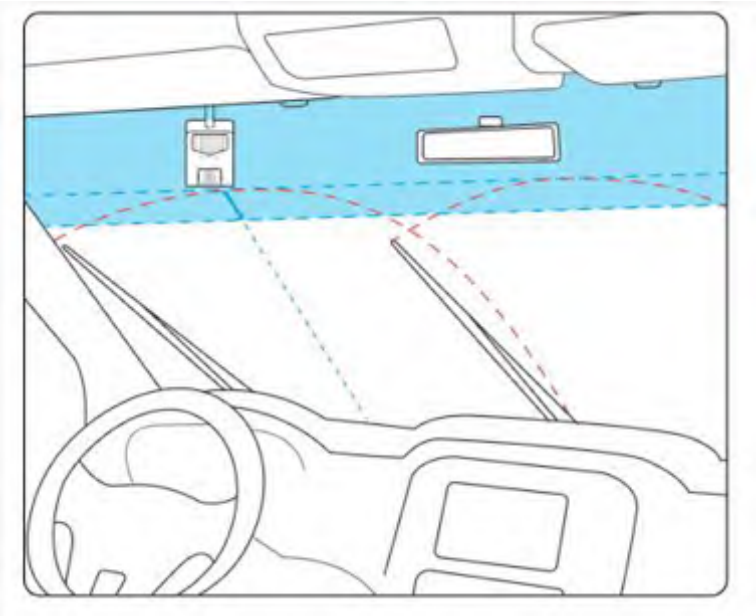
SIM card installation

4.2 Suggest of Main Device Location Installation

It is recommended to install the MD101 on the upper edge of the windshield directly above the steering wheel, as shown in the figure.

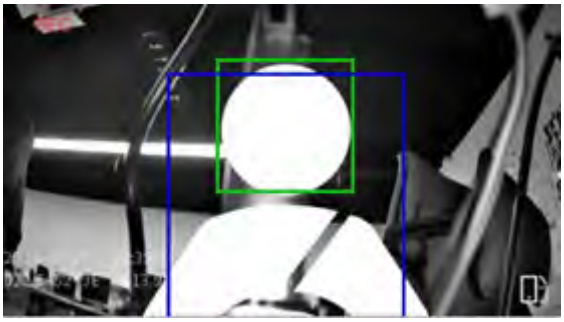
To ensure safe driving and maximize the accuracy of AI algorithms, the choice of device installation location should be based on th e following principles:

- Do not block the driver's view.
- Do not interfere with the driver's driving.
- The device should be kept level and not tilted.
- The driver's face should preferably be displayed in the center of the inward-facing camera’s image(see preview in the "Viidure" APP).
- The center of the front camera frame should preferably coincide with the horizon (see preview in the "Viidure" APP).



4.3 DMS and ADAS Camera Adjustment

DMS Camera adjustment	ADAS Camera adjustment



Adjust the camera angle to capture facial features and the entire upper body clearly, otherwise there may be more seatbelt false alarms.

Tighten the DMS fixing screws after fixing.

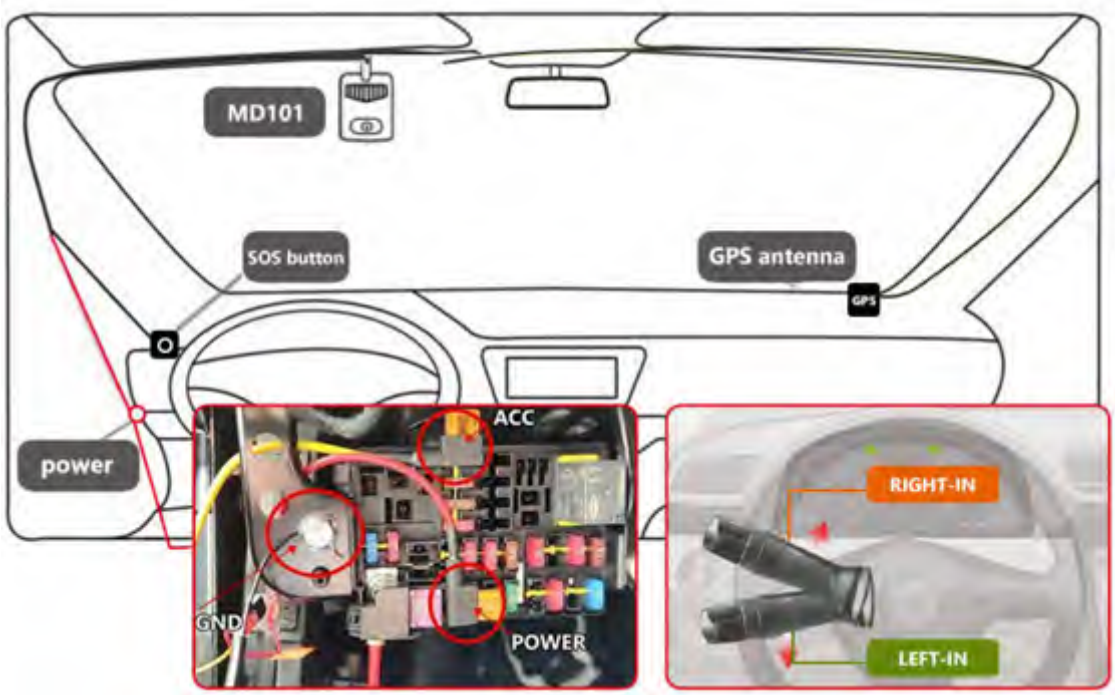
Adjust the angle of the front camera so that the Vanishing point of the road is in the middle of the picture.

After confirming the position of the ADAS camera, tighten the screws.

Note: APP can view AI video rendering effect, please see 6.3 ADAS/DMS APP video rendering.

4.4 Host Wiring

Please connect the ACC cable and power cord to the corresponding original vehicle fuse socket



Note: 1. If you do not know whether the fused interface corresponds to ACC or constant current, please use a multimeter or test pen to measure, as follows:

a. When the vehicle is turned off and powered off, the test pen light illuminates to prove that this port is a constant power interface;

b. Start the vehicle and use a test pen to measure it. The previously off light is now on, and this port is ACC.

2. If you are unsure about which fuse interface corresponds to the turn signal, please use a multimeter or a test pen for the following steps:

a. Start the vehicle and turn on/off the left or right turn signal. Use a test pen to detect the fuse interface. If the interface lit up or turned off in sync with the turn signal, then that interface the left/right turn signal switch check port.

b. If you are not connecting the left/right turn signal detection wire, please disable the lane departure warning function. Otherwise, it will trigger the lane departure warning event by default.

5 APP Configuration

5.1 Downloading APP

Search for the "Viidure" app in the mobile Google app market or Appstore, download and install it.

Note:

If Google Market is unable to download or install, please download it through the following link.

https://www.meitrack.com/cd-download/Aided_Software/viidure.apk

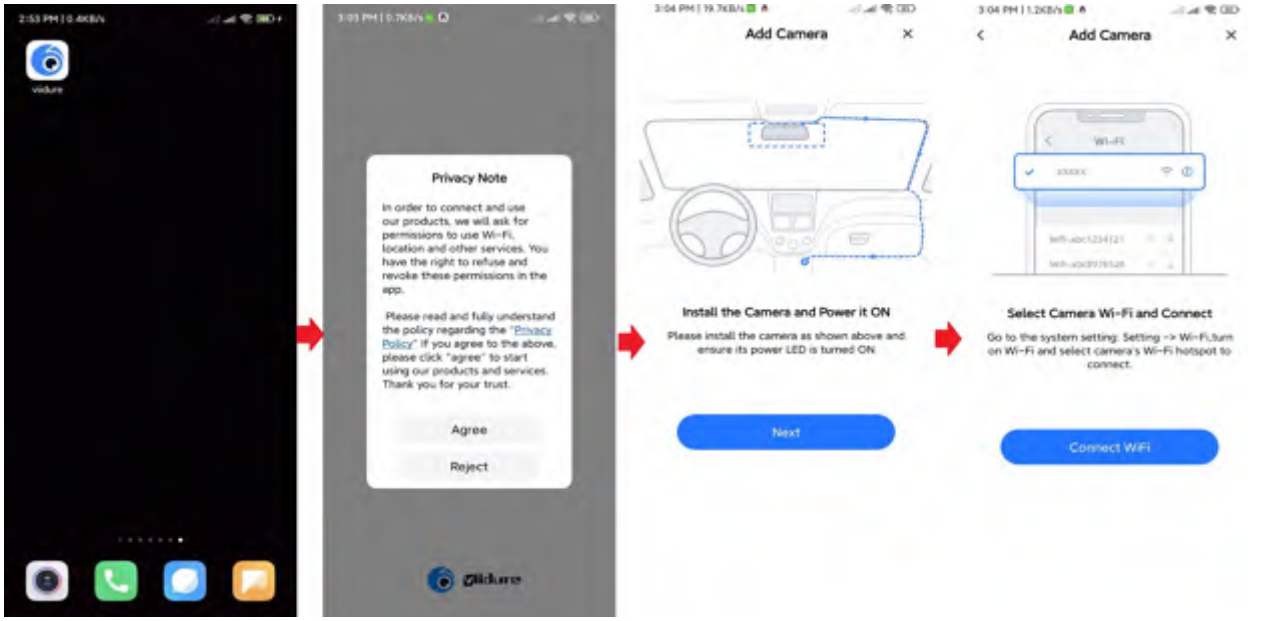
5.2 APP Connect to MD101

MD101 is connected to an external power source and turned on. Ensure that the recording blue light is always on. Press the WiFi button on the device and you will hear a voice reminder saying "WiFi is on" to turn on the WiFi function.

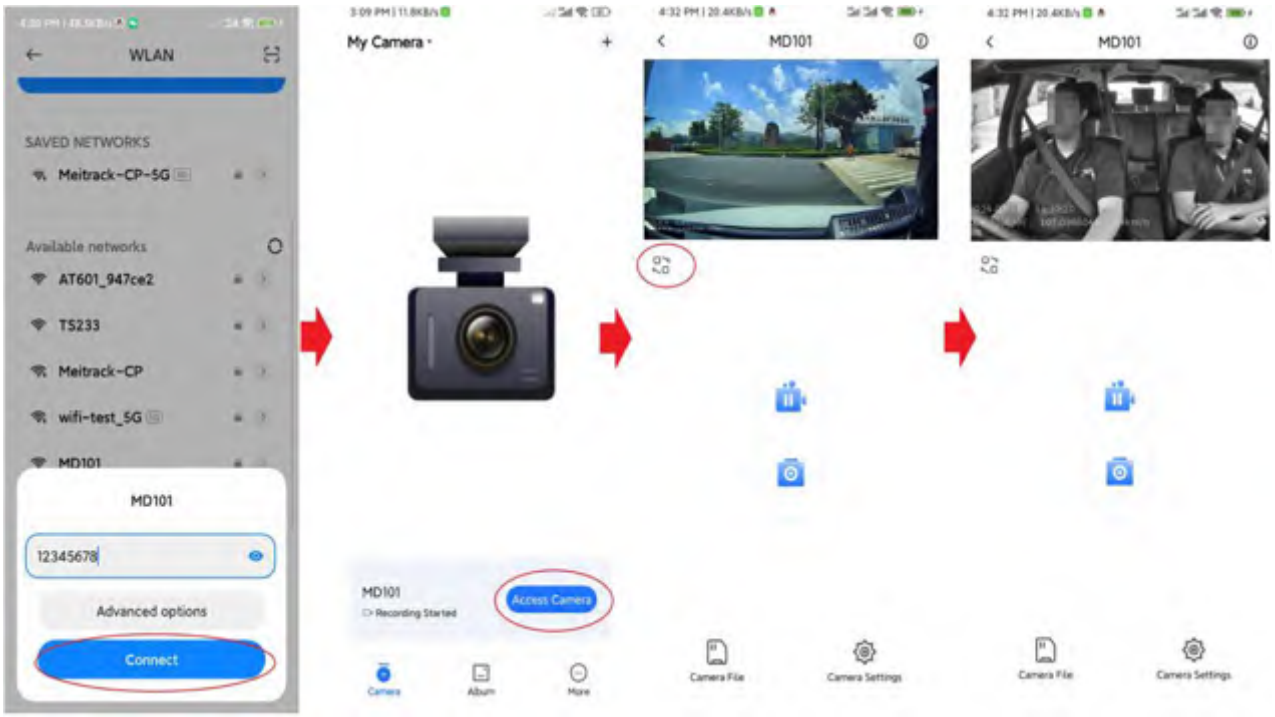
Please open the app and follow the steps shown below:

Note: The WIFI search name is: **MD101_IMEI** Default Password：**12345678**

The name and password can be modified through the app.



After connecting to the WiFI of MD101, you can connect to the device through the APP and set the parameters of MD101.

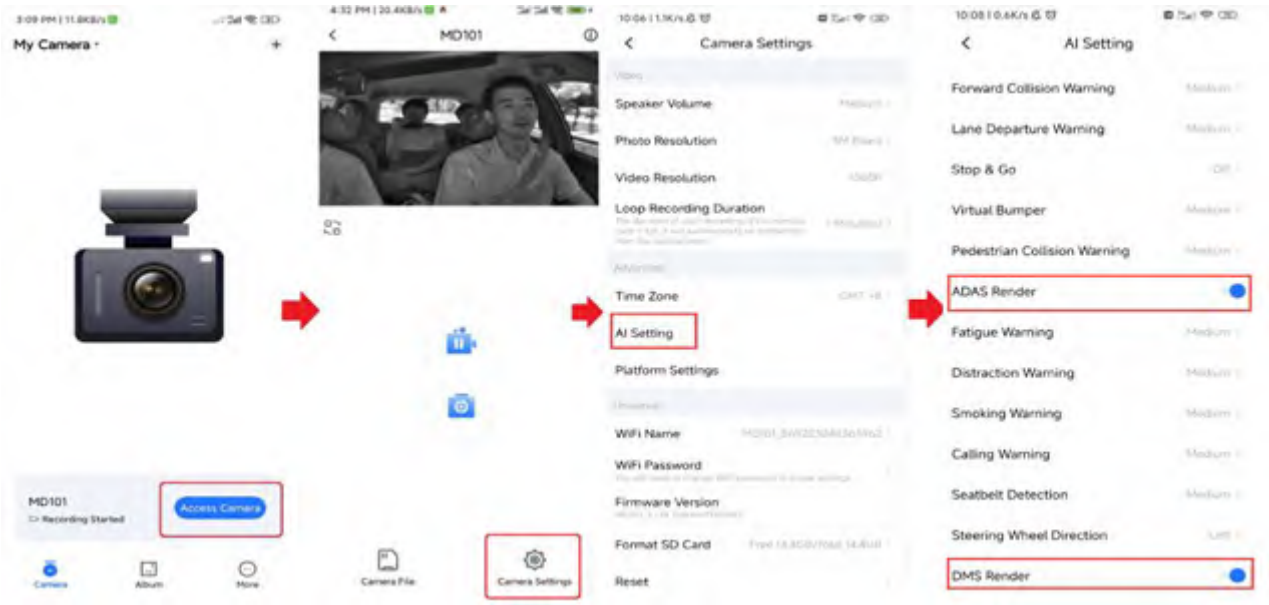


Note: 1. An MD101 device can only be connected to one phone at a time, otherwise errors may occur.

2. If WIFI cannot be found, please check if the ACC line is active.

5.3 ADAS/DMS APP Video Render

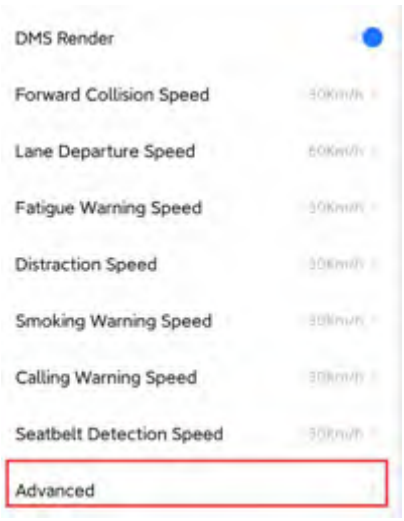
After connecting to MD101, click Recorder Settings - Algorithm Settings (as shown below). Open video rendering for ADAS/DMS.

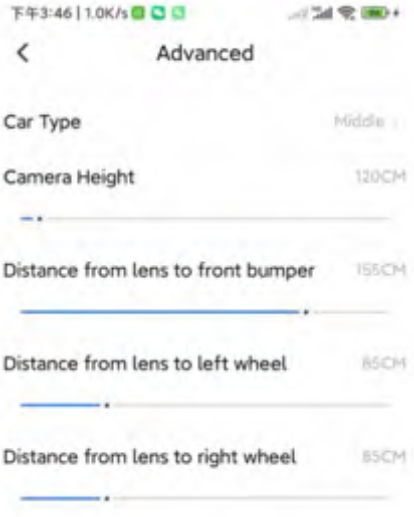


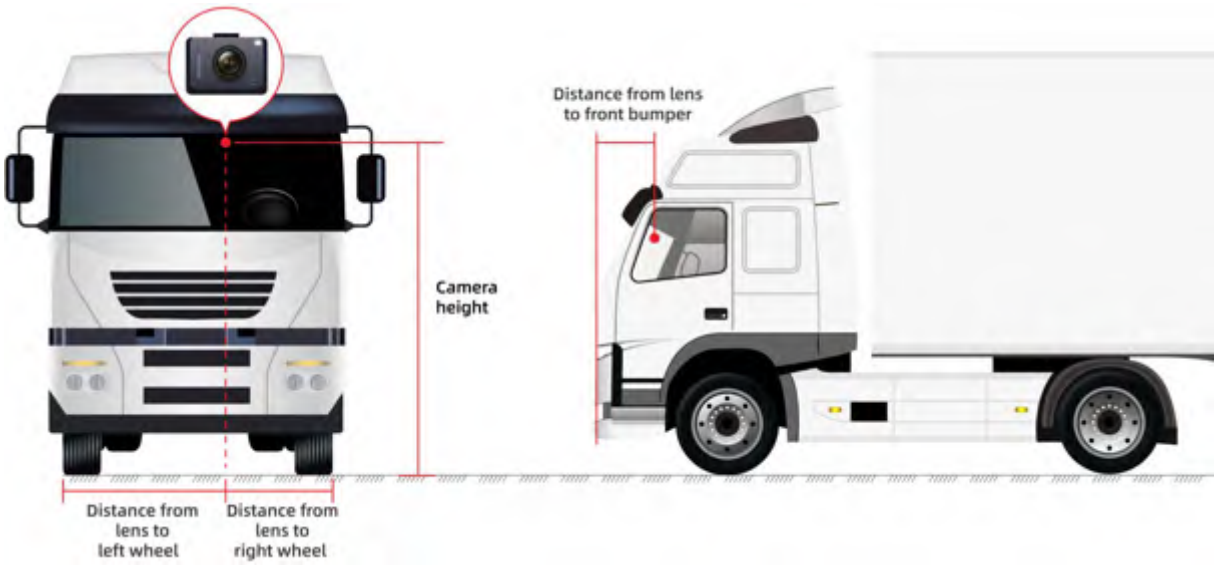
Note: The video rendering of ADAS/DMS is only displayed in the APP. When customers install it for the first time, they need to check the installation position before enabling the APP video rendering function.

5.4 Setting MD101 and Vehicle Parameters

Filling in the parameters for device location in advanced settings can make the algorithm more accurate (not mandatory).

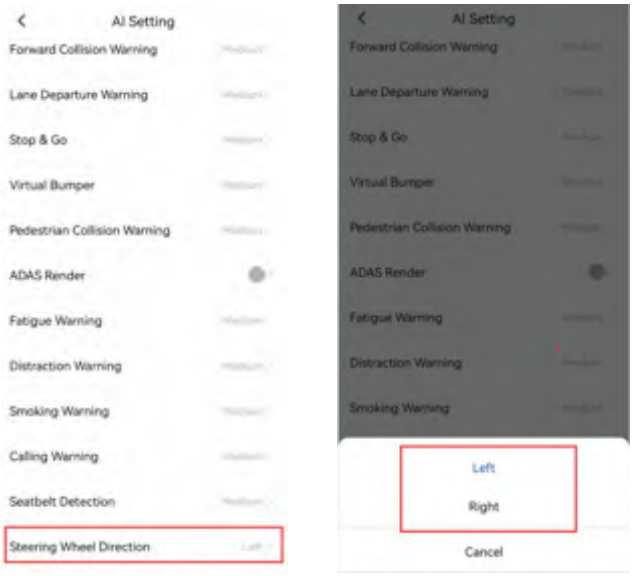






5.5 ADAS & DMS Calibration

1、Select "AI Setting" - "Steering Wheel Direction" to select the direction of the steering wheel, which is left by default.



2、MD101 adopts automatic calibration. Before the first calibration, the device does not output any alerts. When the driving speed is detected to be consistently greater than 20 km/h, it will automatically enter the calibration.

3、The AI sensitivity parameters are described as follows：

Alarm Type	Sensitivity Setting		
	High	Medium	Low
Forward Collision Warning	ttc <= 3.5s	ttc <=2.7s	ttc <= 1.8s
Lane Departure Warning	Distance from the wheel to the lane line：<=0.15m Lane correction cooldown time: 0.7s	Distance from the wheel to the lane line: <=0m Lane correction cooldown time: 1s	Distance from the wheel to the lane line: <=-0.15m Lane correction cooldown time: 1.5s Suppress alarm when there is significant lateral acceleration.

			Suppress alarm for short lane changes
Front Vehicle Start-up Warning (Stop & Go)	ttc <= 3.5s	ttc <=2.7s	ttc <= 1.8s Suppress alarm when the vehicle GPS speed decelerates significantly
Virtual Bumper (Distance Detection)	Distance to the front vehicle: <=(3-5)m And the two vehicles are close to each other.	Distance to front vehicle:<=(2-4)m And the two vehicles are close to each other	Distance to front vehicle: <=(1-3)m And the two vehicles are close to each other
Pedestrian Collision Warning	absttc<=1.6 s Warning range, 0.1m outside the vehicle	absttc <= 1.3 s Warning range, 0m outside the vehicle	absttc <= 1 s Warning range, 0.1m inside the vehicle
Fatigue Driving Warning	Eyes closed or mouth open time >= 1s Lip height-width ratio >= 0.4	Eyes closed or mouth open time >= 2s Lip height-width ratio >= 0.5	yes closed or mouth open time >= 3s Lip height-width ratio >= 0.6
Distraction Warning	Face posture above the threshold time >= 1s pitch >= 30 degrees or yaw >= 30 degrees	Face posture above the threshold time >= 2s pitch >= 35 degrees or yaw >= 35 degrees	Face posture above the threshold time >= 3s pitch >= 40 degrees or yaw >= 40 degrees
Smoking Warning	Smoking time >= 1s	Smoking time >= 2s	Smoking time >= 3s Cigarette needs to be lit
Calling Warning	Phone call time >= 1s	Phone call time >= 2s Phone position needs to be above the chin	Phone call time >= 3s Phone position needs to be above the chin; Mouth needs to open to speak
Seatbelt Detection	No seatbelt detected >= 5s	No seatbelt detected >= 10s	No seatbelt detected >= 15s
Steering Wheel Direction	Defaults to the left rudder and does not enable this calibration when there is only one face. For multiple faces, select the face based on the left/right drive calibration. The user can set it to the left or right rudder.		

4、AI alarm settable speed range

Alarm Type	Minimum warning speed value	
	Default value	Adjustable range
Forward Collision Speed	＞30	30-120
Lane Departure Speed	＞60	30-120
Virtual Bumper (Distance Detection)	1-30	1-30
Fatigue Warning Speed	＞30	0-120
Distraction Warning Speed	＞30	0-120
Smoking Warning Speed	＞30	0-120
Calling Warning Speed	＞30	0-120
Seatbelt Detection Speed	＞30	0-120
The following alarms are not adjustable by default		
Front Vehicle Start-up	0	Non-adjustable

Pedestrian Collision	10-60	Non-adjustable
Face Pose Angle Calibration	＞20	Non-adjustable

Note:

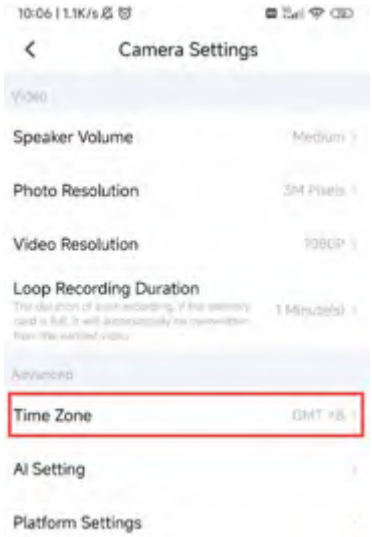
1. The device is calibrated every time it is turned on. After the calibration is completed, the results will be used for the next start-up. Recalibration means correcting and confirming the last result. This process does not affect use.

2. During calibration, the speed must be greater than 20km/h, and the calibration time is about 1 minute. Otherwise, the calibration progress (0-100%) will be paused.

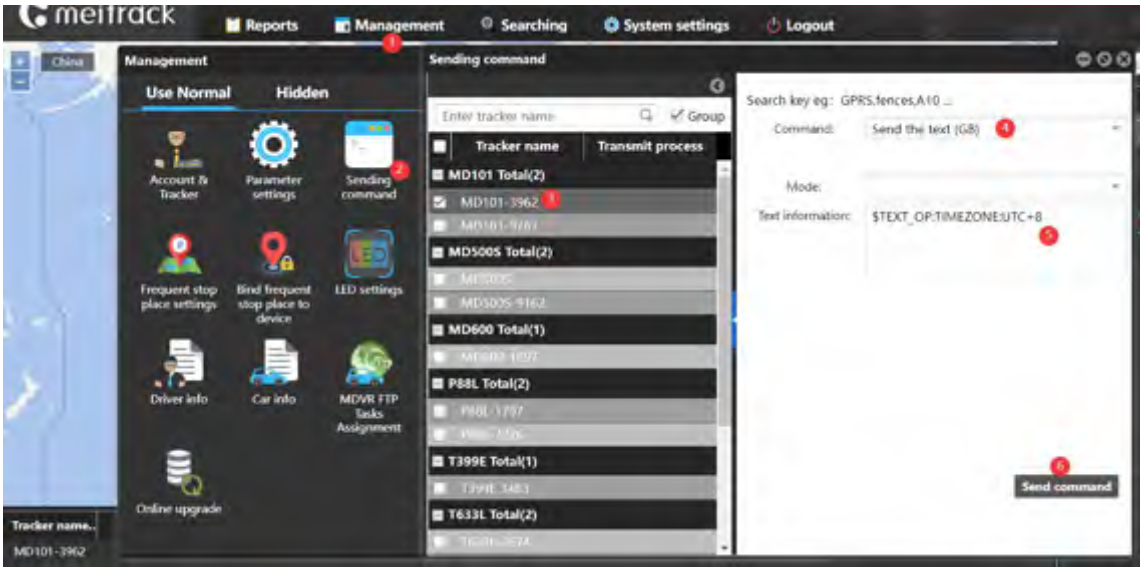
3. No distraction warning before calibration (other alarms are not affected). After each power-on, calibration starts when the speed exceeds 20km/h and continues until completion. The distraction warning will be triggered after calibration, and the next power-on will require calibration again, using the previous calibration for the distraction warning until the new calibration is completed.

5.6 Modifying Time Zone

(1) The device displays **GMT+8** by default, and the user needs to change it to the local time zone on the "Camera Settings-Time Zone" page of the APP.



(2) Send the command **$TEXT_OP:TIMEZONE:UTC+8** (customized time zone) on the platform to set it remotely. Please follow the steps ①②③④⑤⑥ below.



5.7 Indoor Simulation Test

To enhance product experience, basic functionality tests can be conducted indoors or outdoors in a stationary state. However, it should be noted that indoor testing accuracy may not match that of actual driving tests. The testing steps are as follows:

(1) Insert SIM card and Micro SD card.

(2) Connect the red and yellow wires to the positive power supply and the black wire to the negative power supply.

(3) Press the WIFI button and listen for "WIFI is on", then connect the device in the app.

(4) Configure platform parameters. Fill in the platform's IP, port, and protocol (refer to 7.1).

(5) Click on the firmware version in the app, and upon hearing "Simulated speed is on", you can begin simulated testing with the default speed of 60 km/h.

Note: Indoor testing can assess all DMS functions, but ADAS function testing requires simulated road videos, which can be

provided upon request.

6 Platform Configuration

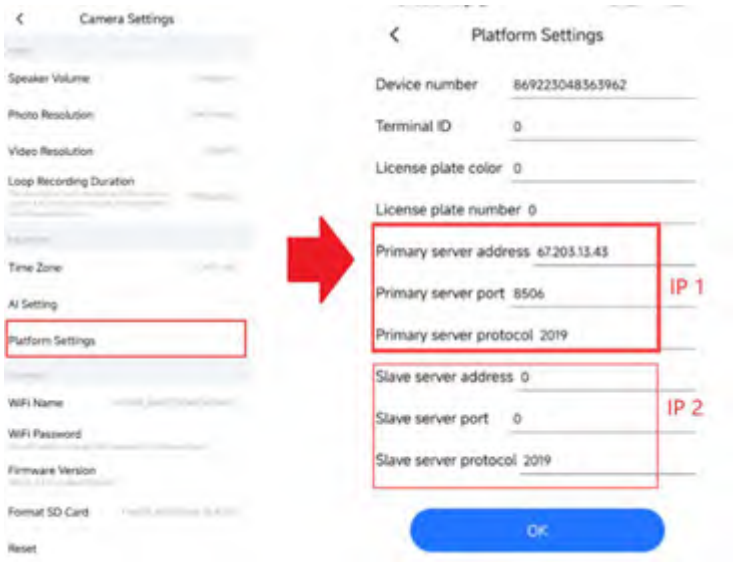
6.1 Platform Parameter Settings

After MD101 is connected, enter the APP setting interface - Platform setting - enter platform parameters (as shown below) - click "OK".

IP : mdvr.trackingmate.com OR 67.203.13.43

Port: 8506

Server protocol: 2019



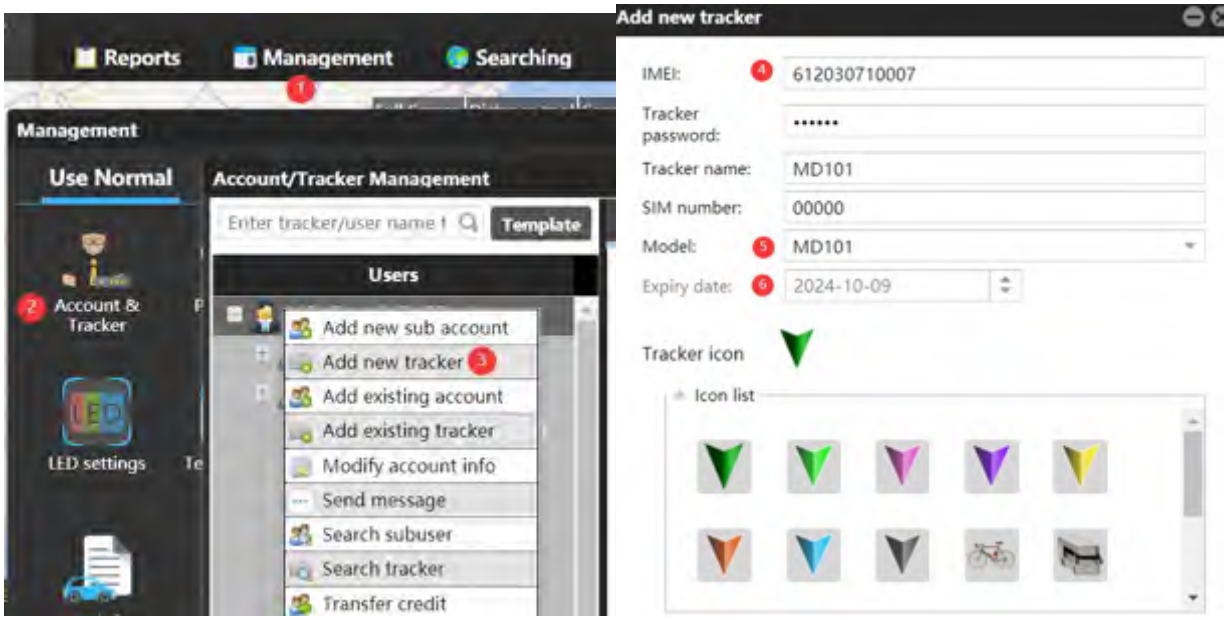
Note:

(1) MD101 supports dual IP login, just enter the corresponding IP and port. The agreement always fills in "2019".

(2) The MD101 uses APN automatic recognition. If automatic configuration fails or you need to set a special APN for a special SIM card, please contact us.

6.2 Adding Devices to the Platform

Login Meitrack MDVR platform https://mdvr.trackingmate.com/ , according to the following screenshots ①②③④⑤⑥ steps to add equipment.



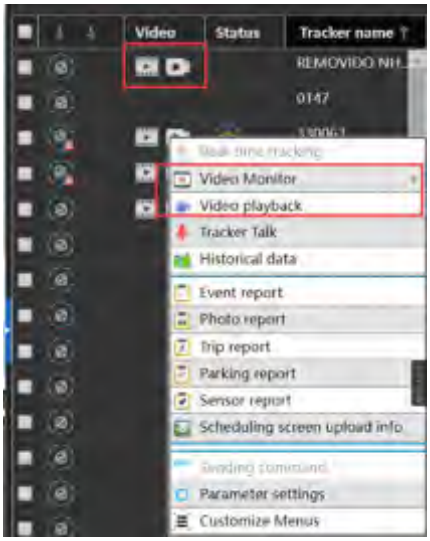
Note:

1.Login account \ password please contact us.

2. The IMEI of the device can be viewed through the APP or device label.

6.3 Platform Video Monitor and Video Playback

Right-click the device or click the icon to view the Video Monitor of the device and play back the Video Playback.

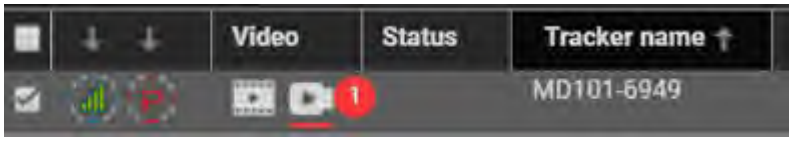


6.3.1 Video Monitor

When the device is online, click the icon below to enter the real-time preview of the platform.

6.3.2 Video Playback

In addition to the AI alarm video, the device's general recording video can also be played on the platform. Click the following icon to enter the platform playback preview.



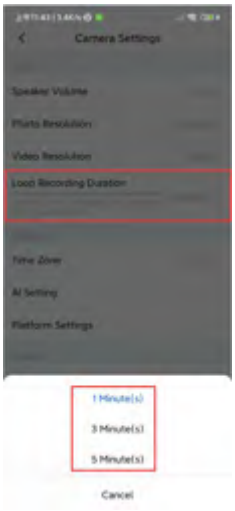
1. Get the playback video (general recording video) from the device's Micro SD card. Please follow the steps below: ①②③④⑤

Note:

(1) General recording videos can be viewed in the "Normal" folder of the Micro SD card. They exist though disable FTP function.

(2) The device must be online to play back the video on the platform.

(3) By default, one video is stored 1 minute. You can set the playback time through the APP. The maximum storage time is 5 minutes.

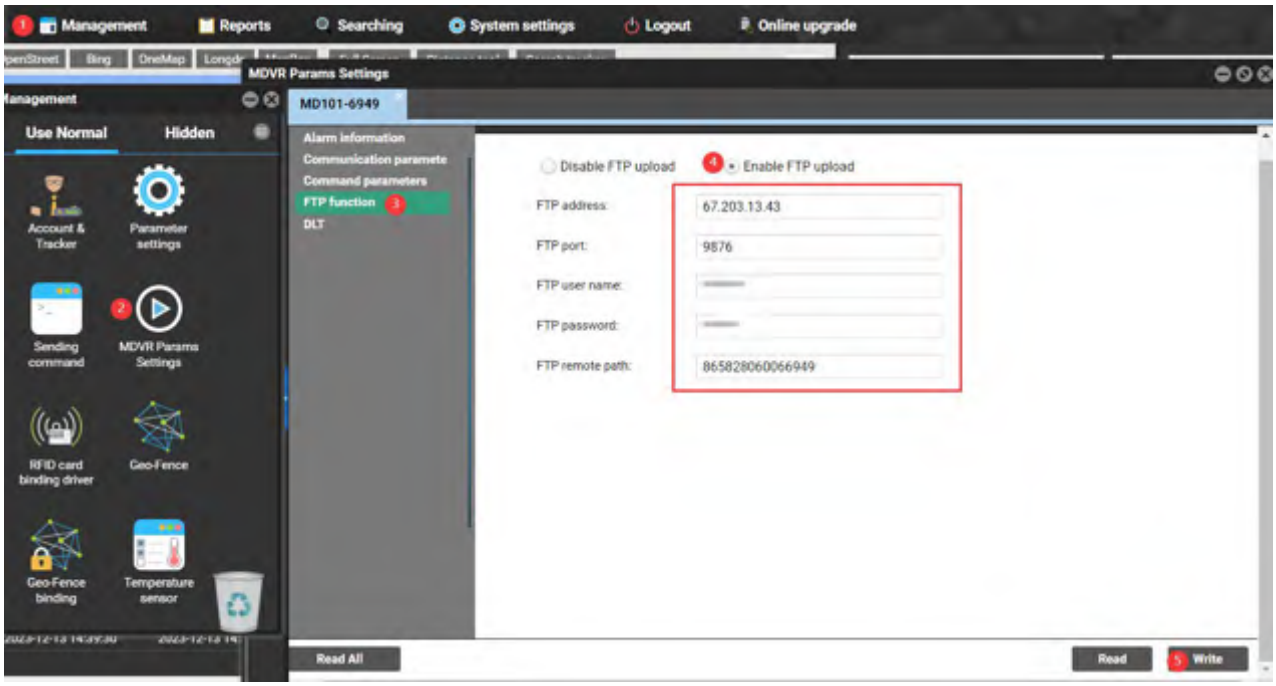


2. Set the video automatic upload FTP server, the general recording videos will be automatically uploaded to the FTP server. At this time, the playback videos can be viewed even if the device is offline.

Note:

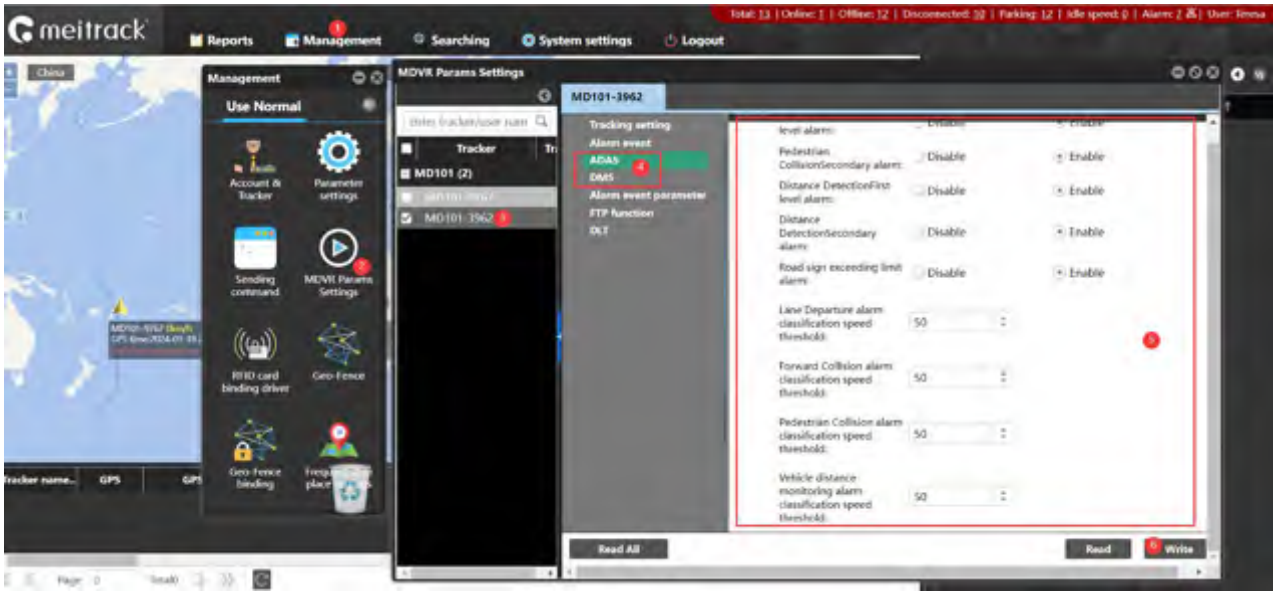
(1) Follow the steps ①②③④⑤ to configure the FTP server. The default FTP address is 67.203.13.43. Default FTP port: 9876. Default FTP path: IMEI of the device. The FTP account and password are the login account and password of the platform.

(2) After the Settings are successful, all videos will be automatically uploaded to FTP. The uploaded video resolution is D1. Please note SIM card data consumption.



6.4 Modifying AI Alarm Parameters on the Platform

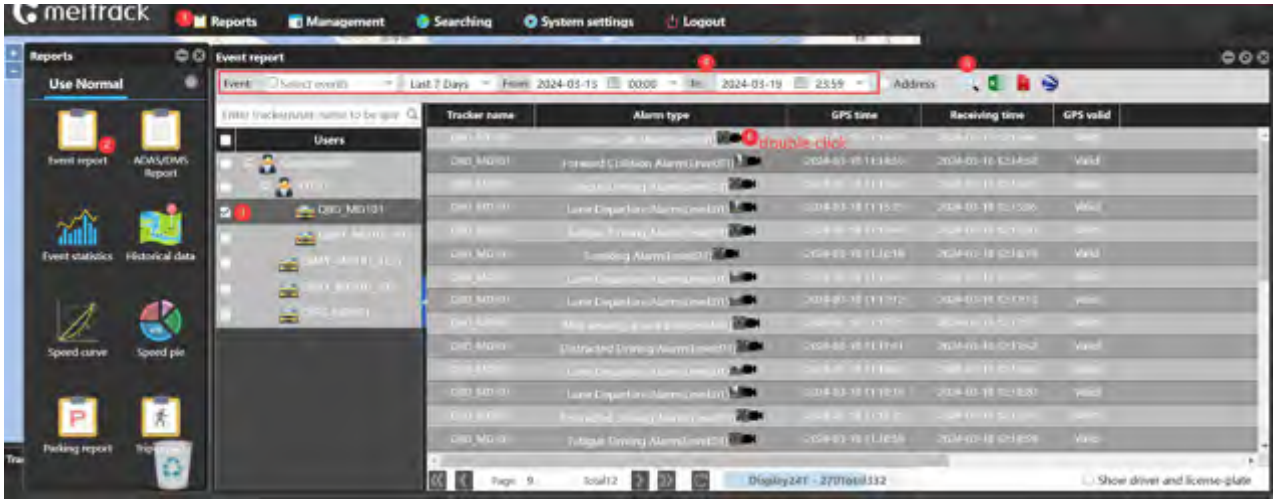
Modifying ADAS/DMS alarm parameters requires the device to remain online. By default, all alarm functions are turned on, and the speed is 50km/h. You can turn off any alarm or adjust the speed value as needed. Please follow the ①②③④⑤⑥ steps to set up.



Note: If you do not see this function on the platform, you need to update the firmware version.

6.5 Platform Reports

All alarm events can be viewed on the platform. Please follow the following ①②③④⑤⑥ steps to set up.



Note:

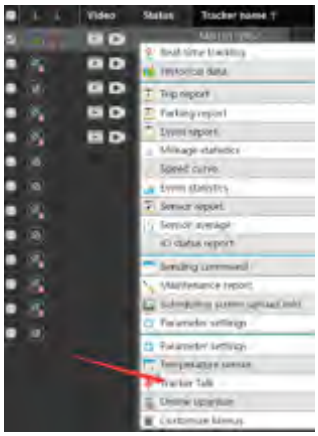
(1) AI alarm videos and images display specific dates, times, longitudes, latitudes, and driving speeds when the alarm is triggered.

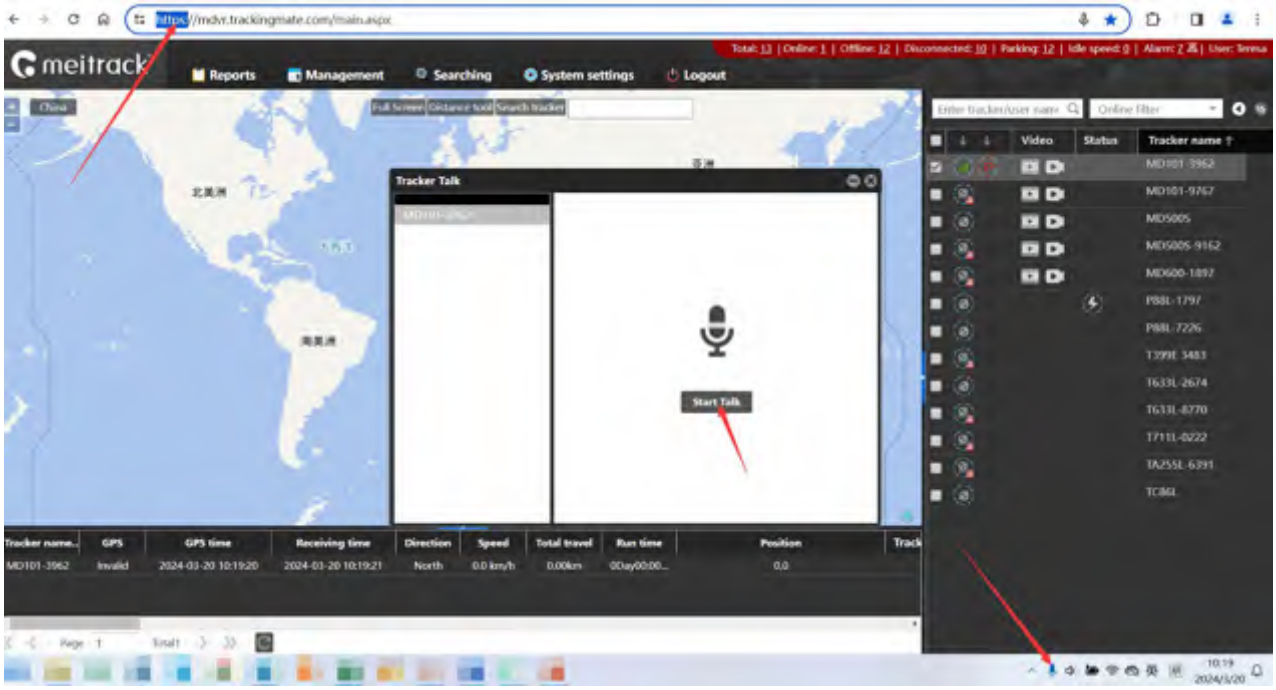
(2) Placing the mouse over AI alarm images enables viewing the full image. Right-clicking allows downloading the image.

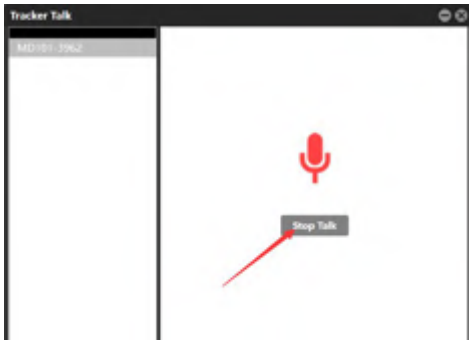
(3) Clicking on the video icon  permits downloading AI alarm videos one by one, but batch downloading is not supported. For quick downloading of multiple videos, they can be downloaded from the "Event" folder on the Micro SD card.

6.6 Platform Tracker Talk Settings

Select the device, right-click and select the "Tracker Talk" function (Note: if this function is not displayed, it can be called up in "Customize Menus").







Note:

(1) The URL must contain https, otherwise the platform tracker talk function may not work.

(2) The microphone of the computer browser must be turned on, otherwise the sound will not be received. You will see this icon if you open the microphone.

7 Introduction to General Alarm

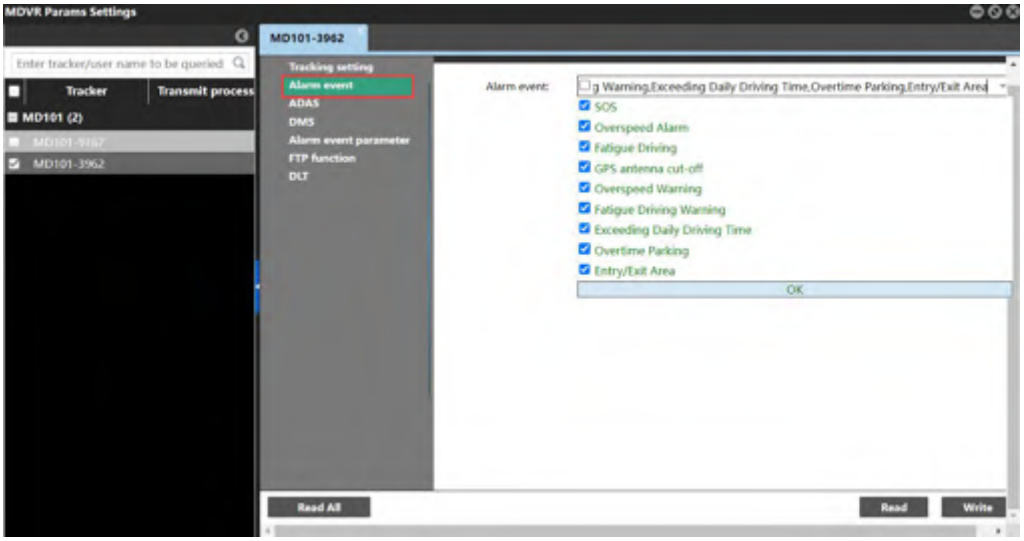
7.1 General Alarm Functions

The MD101 supports the following general alarm events. All general alarm events only upload event reports to the platform, and do not support voice, video, SMS, phone reminders, etc.

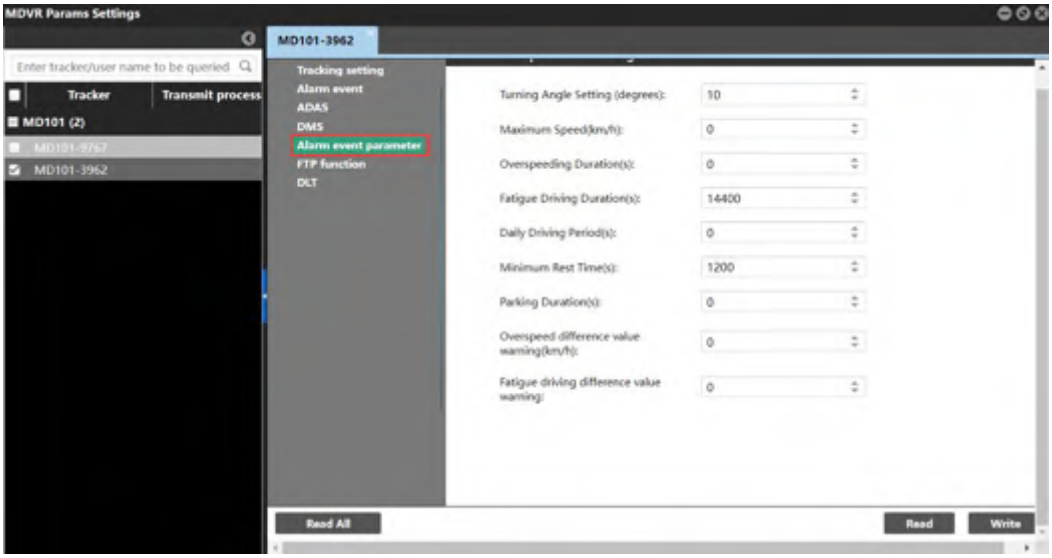
Ordinary Alarm Event	Remark
Overspeed Warning	Pre-warning for speeding.
Overspeed Alarm	Used for GPS speed detection to determine if the driver is speeding.
Fatigue Driving Warning	Warning for detecting continuous driving in ACC ON state.
Fatigue Driving Alarm	Triggers an alarm generated by excessive continuous driving time.
Exceeding Daily Driving Time	ACC ON time exceeds the preset time on the same day.
Overtime Parking	ACC ON status is detected, but the vehicle has not been driven for a long time.
SOS	Long press the emergency button for 2 seconds to report alarm information to the platform.
GPS Antenna cut	GPS antenna not detected.
Micro SD card Exception	Micro SD card not detected.
Enter Geo-Fence	Set the entry fence range, alarms will be triggered when entering the fence.
Exit Geo-Fence	Set the exit fence range, alarms will be triggered when exiting the fence.
Sharp acceleration and sharp deceleration alarm	Detect sharp acceleration and sharp deceleration to determine whether the driver's driving behavior is standardized.

7.2 General Alarm Parameter Settings

General alarm events can be enabled/disabled in "Alarm Event" settings. By default, they are enabled. To block a specific alarm, manually uncheck it and then click "Write".

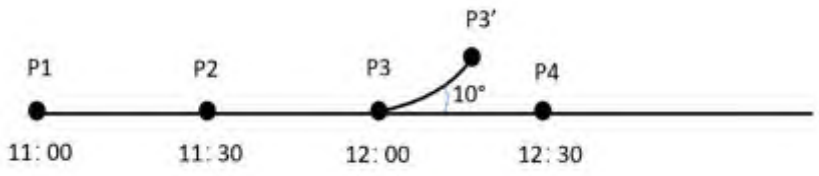


The default general alarm parameters are as shown in the picture below. Parameters can be modified according to your own needs.



Note:

(1) "Turning Angle Setting (degree)" refers to GPS location setting. Typically, the device uploads its position every 30 seconds. For instance, if this value is set to 0, during normal straight-line driving, at 11:00, 11:30, 12:00, and 12:30, GPS will upload position points P1, P2, P3, P4. However, if the value is set to 10, when turning at an angle of 10° or greater, GPS will upload position P3'.



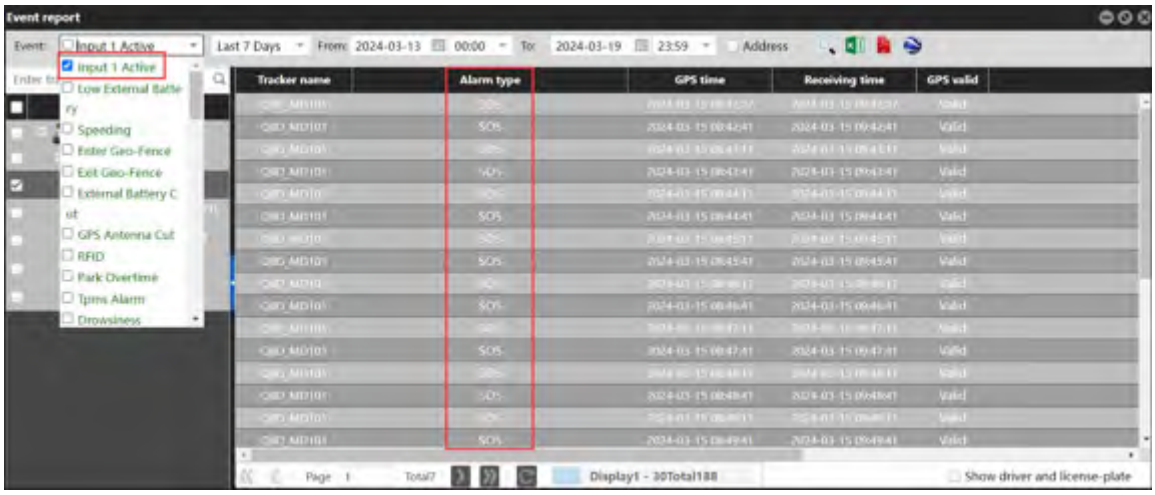
(2) "Overspeed difference value warning (km/h)" is a warning value related to "Maximum Speed" above. For example: if "Maximum Speed" is set to 50 and "Overspeed difference value warning (km/h)" is set to 10, when the speed reaches 40, it triggers an Overspeed pre-warning.

(3) "Fatigue driving difference value warning" operates on the same principle as "Overspeed difference value warning (km/h)".

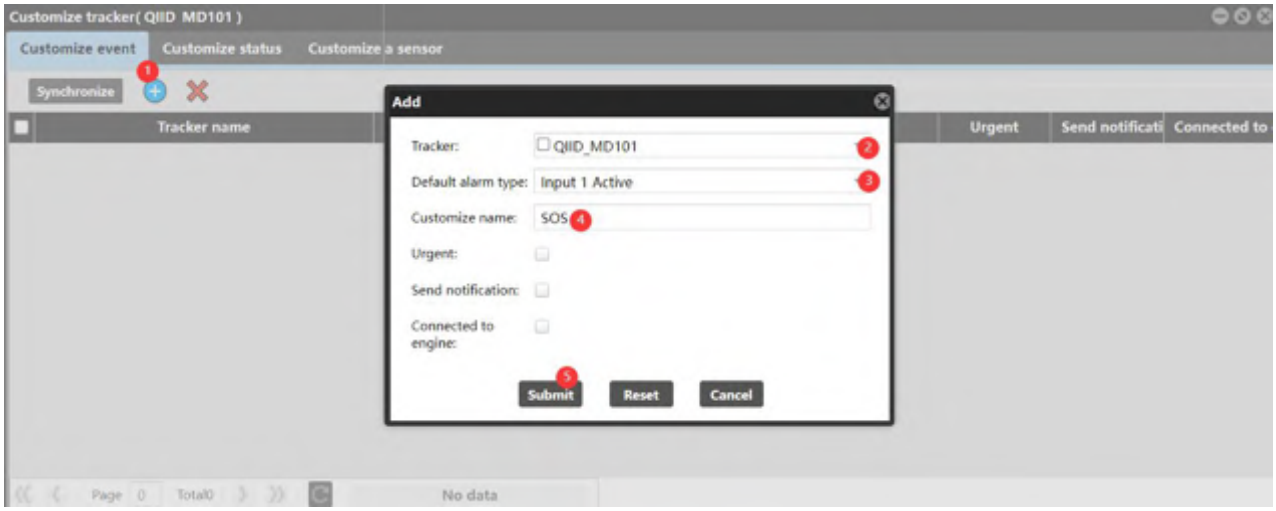
(4) Pre-warnings are primarily for facilitating analysis of driver behavior from reports and promoting safe driving practices.

7.3 SOS Alarm Event Settings

The default event name displayed on the platform report for SOS alarm is "Input 1 Active", as shown in the picture:

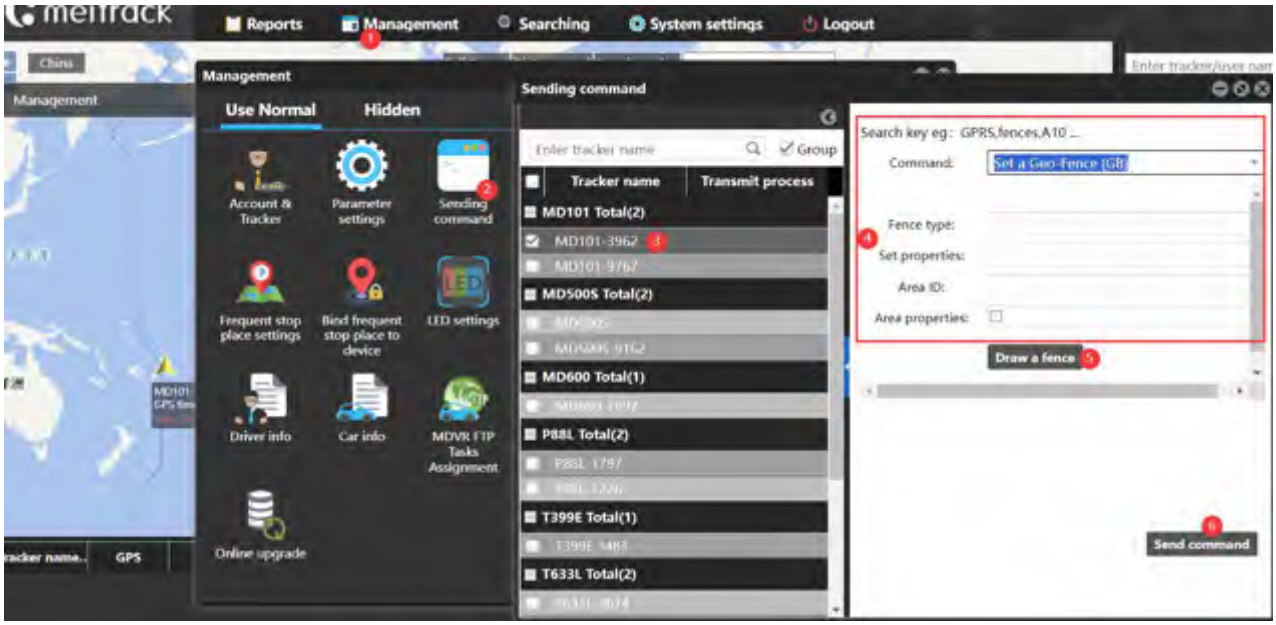


If you want to display it as SOS, you can manually modify the "Input 1 Active" custom event name. Please follow the following ①②③④⑤ steps to set up.

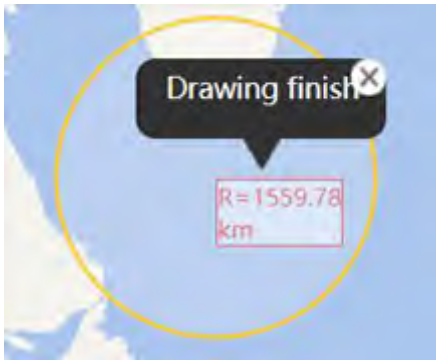


7.4 Geo-fence Settings

MD101 supports the geo-fence function, which needs to be set in "Sending command", not "Geo-Fence" in "Management" page (this module is the setting entrance of other product series). Please follow the steps ①②③④⑤⑥ below to set up.

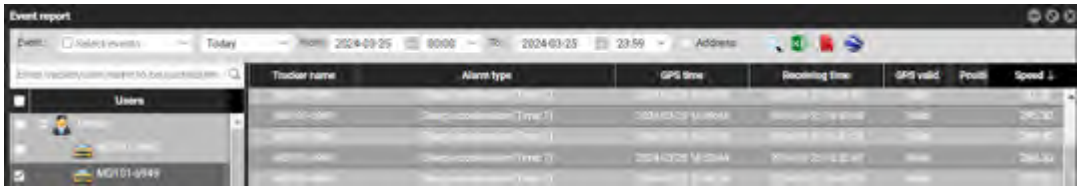


Note: Click "Draw a fence" in step ⑤ to jump to the map page. Just click on the map and start to draw the geo-fence, then click "Drawing finish" to jump back to the setting page automatically. At this time, the latitude and longitude of the geo-fence has been automatically generated in the setup page.



7.5 Sharp Acceleration and Deceleration Settings

When the driver's rapid brake and stop are detected, the sharp acceleration and deceleration alarm will be triggered. The report is displayed as follows:



8 Introduction to AI Functions

The device uses machine vision technology based on video analytics to automatically identify road risks and unsafe driving behaviors of drivers. Any detected event will trigger an audible alarm to alert the driver in real time, and these events are also synchronized to the platform.

Note: AI functions must be calibrated and configured according to the instructions. Otherwise, the accuracy of AI functions may

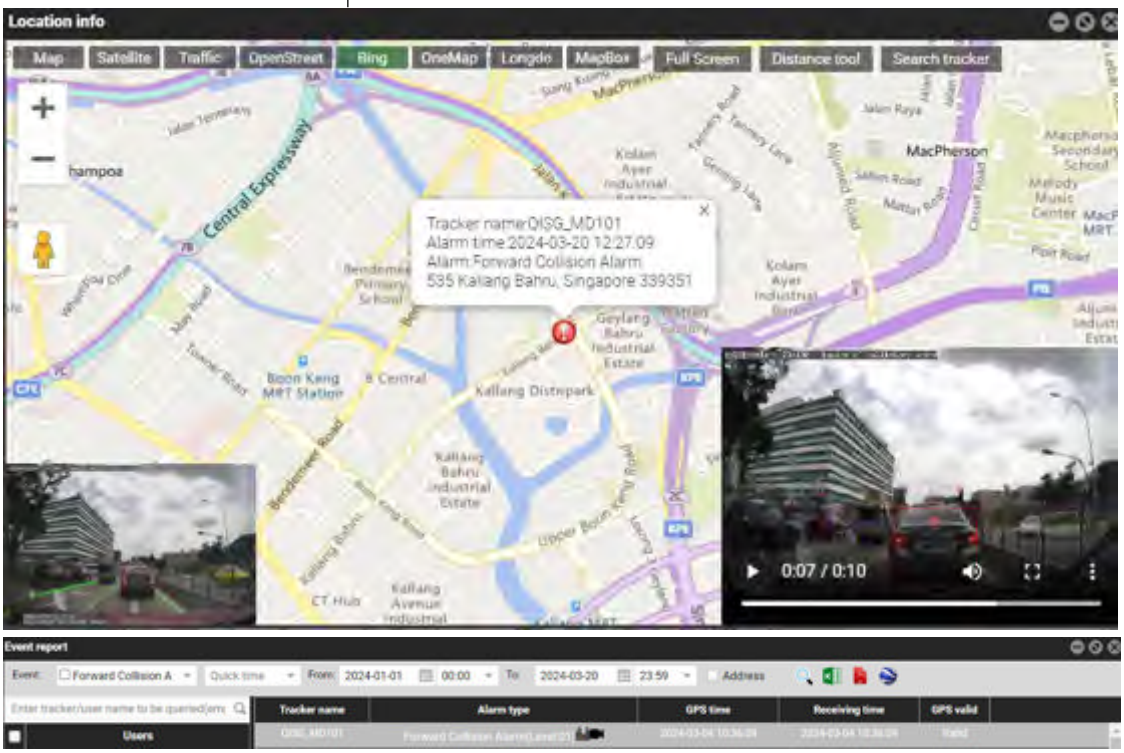
be affected.

8.1 ADAS Functions

8.1.1 Forward Collision Warning

Real-time recognition of the relative speeds between the vehicle and the preceding vehicle while driving, reminding the driver in case of potential collisions to ensure sufficient emergency braking time.

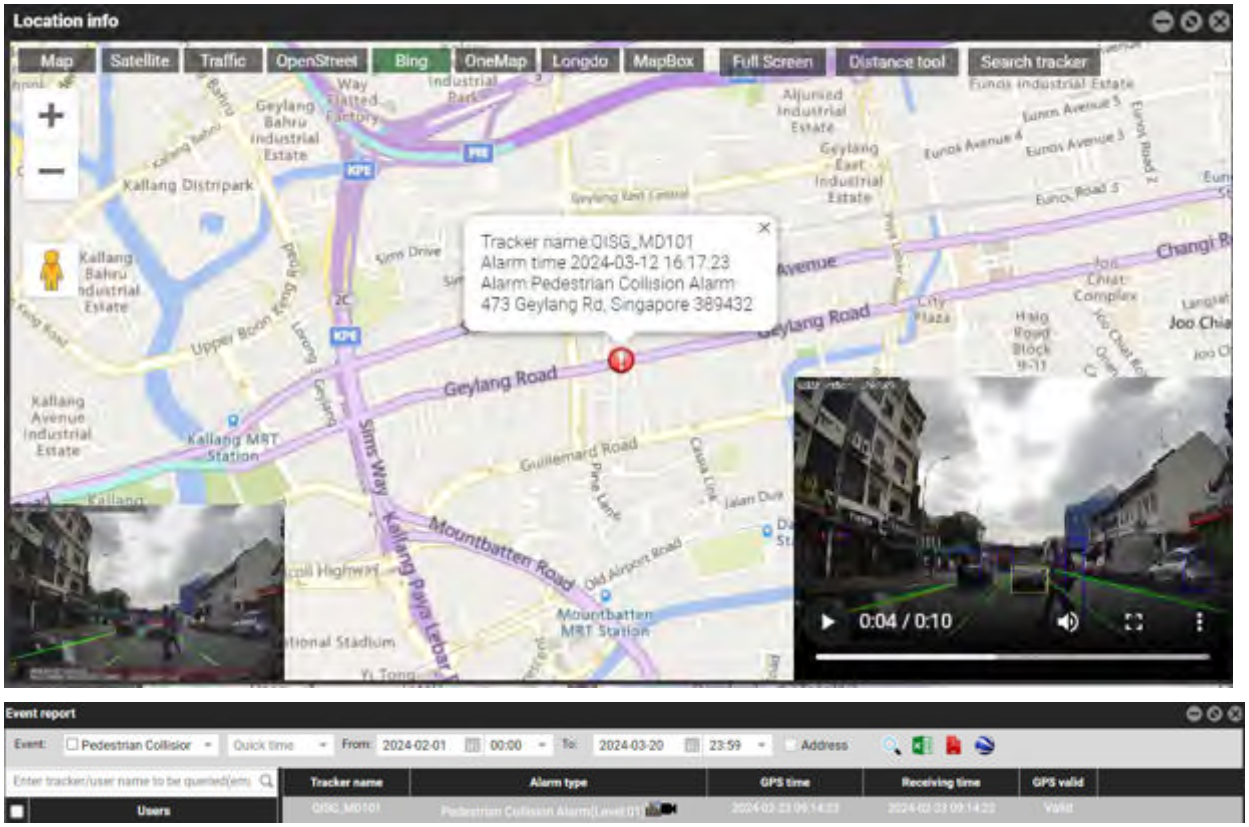
Voice: Watch out for the car ahead



8.1.2 Pedestrian Collision Warning

During driving, it recognizes pedestrians, bicycles, and motorcycles in front of the vehicle, and alerts the driver if there is potential collision danger, ensuring sufficient emergency braking time.

Voice: Watch out for the pedestrian

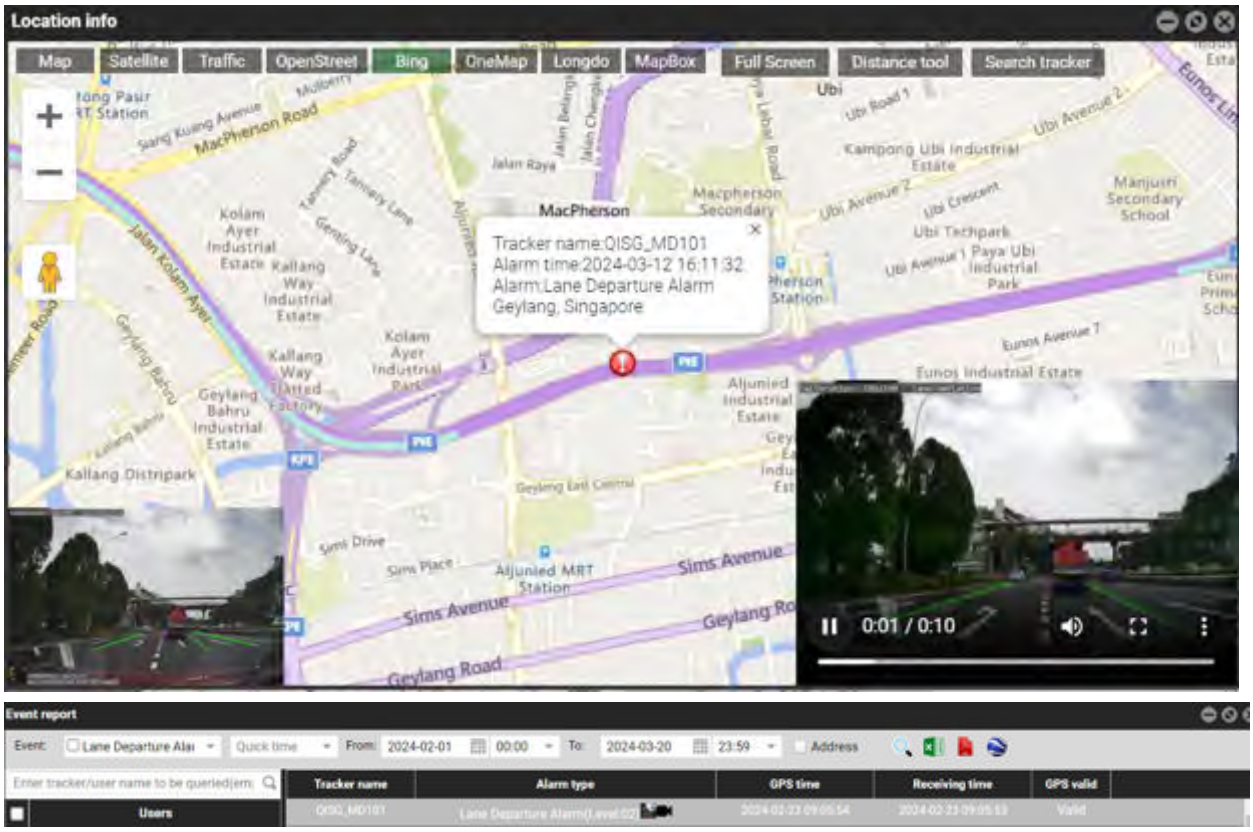


8.1.3 Lane Departure Warning

Identify lane departure behavior in real time during driving and alert the driver if there is unconscious lane departure behavior to ensure driving safety.

Note: The vehicle should be connected to the left-in and right-in wires, and the signal lights should be turned on before making a turn, otherwise the turn will trigger a lane departure false alarm.

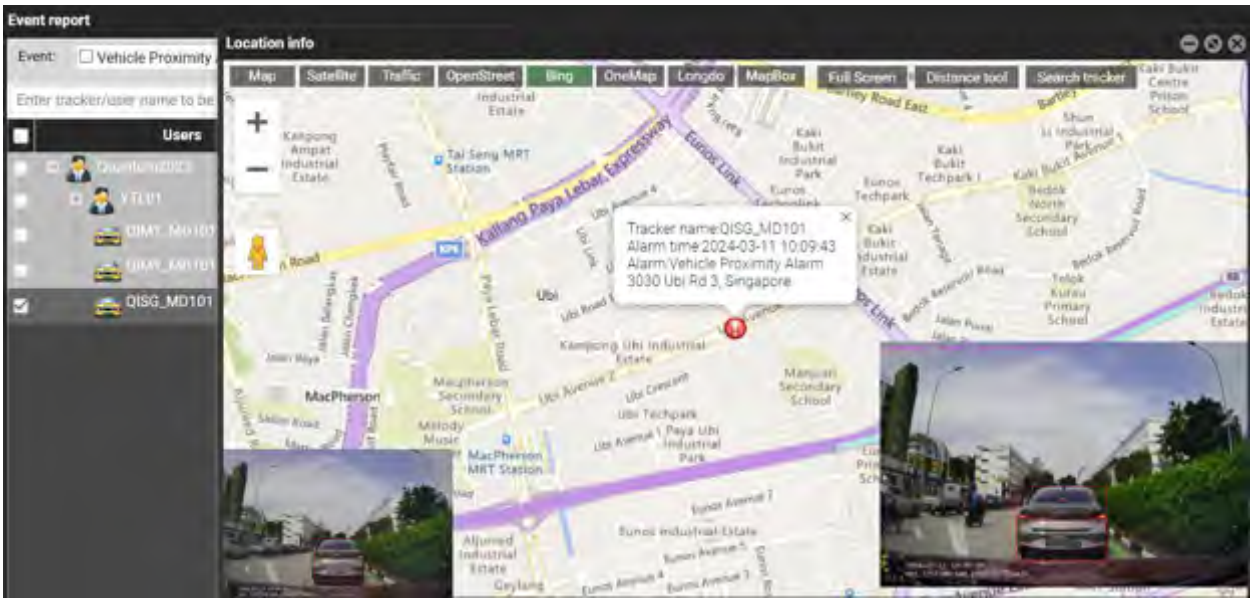
Voice: Lane departure



8.1.4 Virtual Bumper (Distance Detection)

Recognize the relative speeds of the vehicle and the preceding vehicle when the vehicle is traveling at low speeds. Alert the driver to maintain a safe distance when there is a potential collision hazard.

Voice: Please keep distance



8.1.5 Front Vehicle Start-up Warning (Stop & Go)

When the vehicle is stationary and the vehicle in front begins to move, the driver is reminded that it is time to start.

Voice: Please star

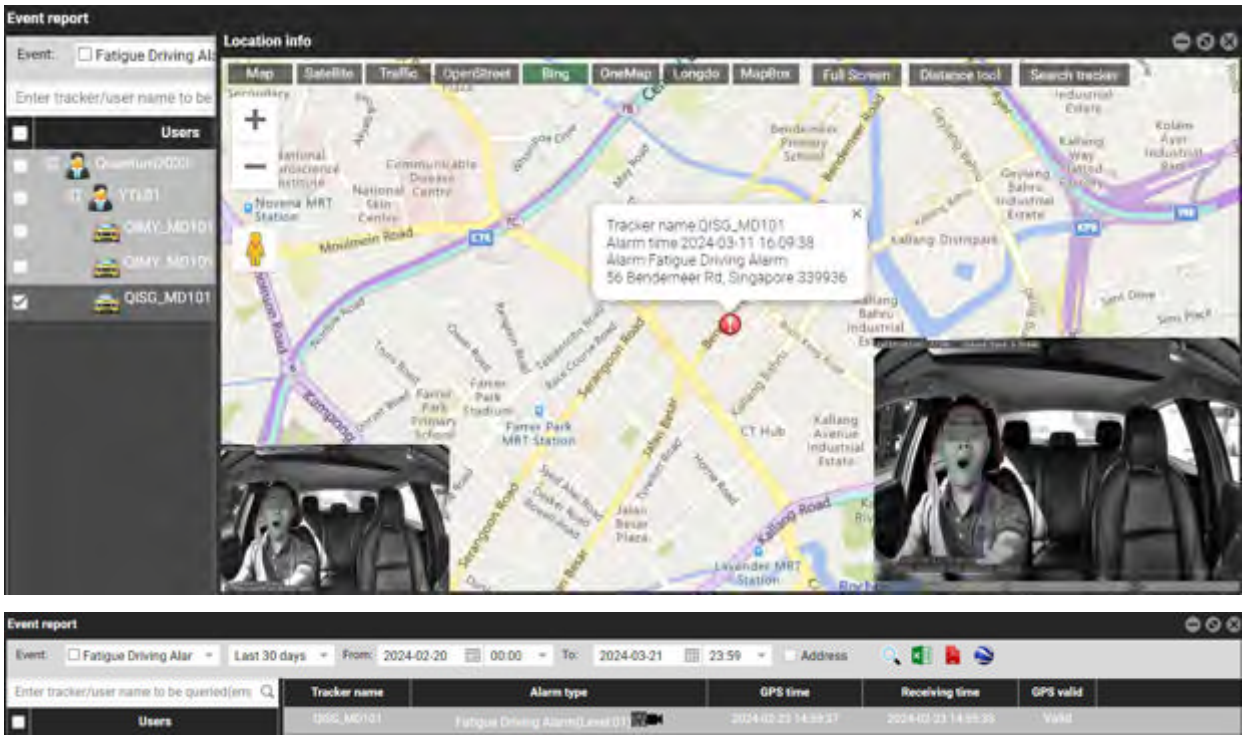
Note: Parking start only voice, no event and video recording.

8.2 DMS Functions

8.2.1 Fatigue Driving Warning

Identify the driver's fatigue state (closed eyes, yawning) and issue a warning to ensure driving safety.

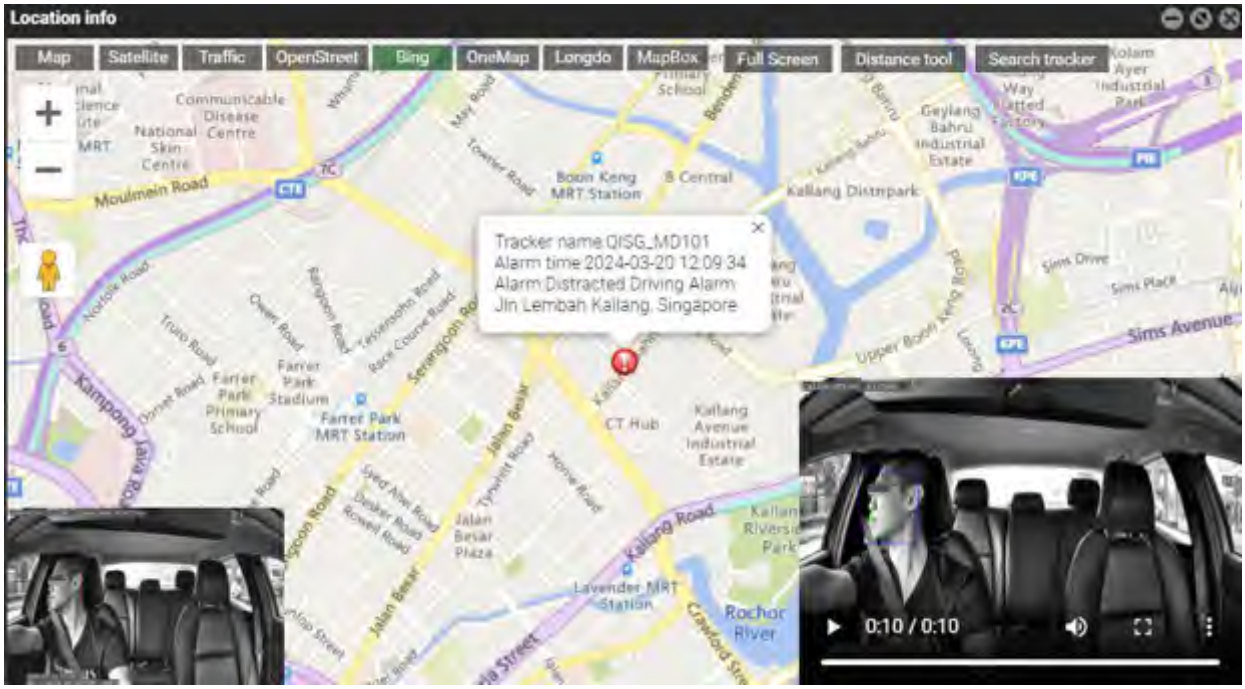
Voice: Please take a break

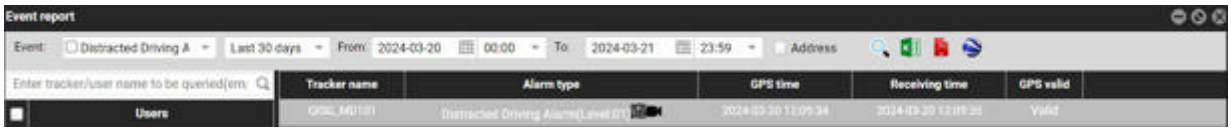


8.2.2 Distraction Warning

Recognize the driver's behavior of not looking at the road ahead during driving (looking left and right, looking down for something, etc.) and alert the police to ensure driving safety.

Voice: Please keep attention



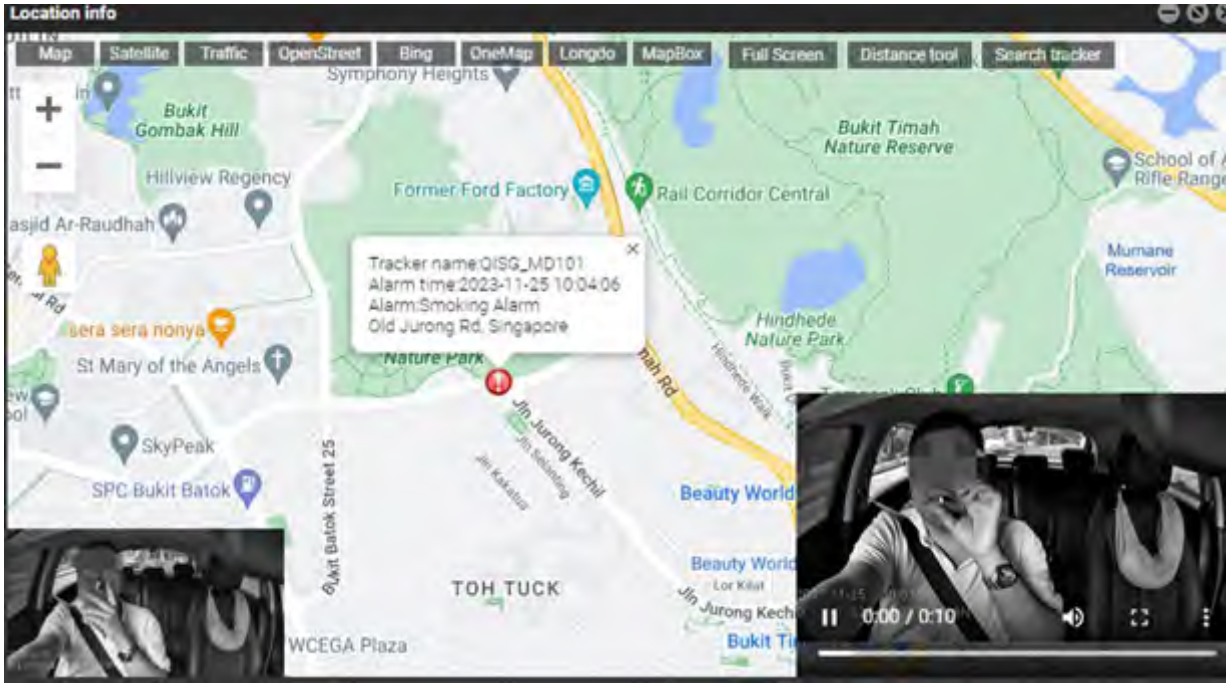


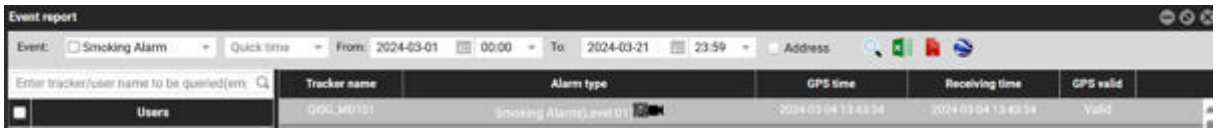
8.2.3 Smoking Warning

Recognize the driver's smoking behavior during driving and issue warnings to ensure driving safety.

Note: This AI function is easy to trigger false. It may occur when detect the driver is doing some smoking-like behaviors, such as resting his hand on his cheek, eating or drinking. You can collect the false alarm videos and provide them to us to optimize the AI algorithm.

Voice: No smoking

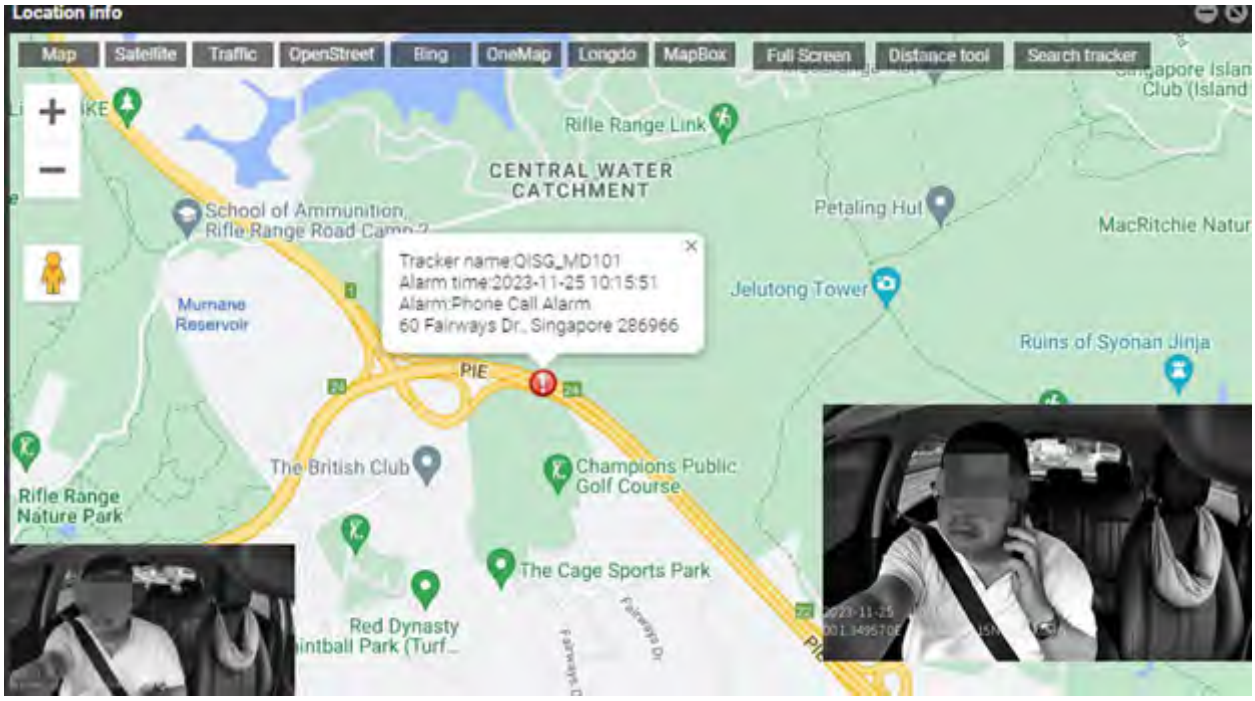


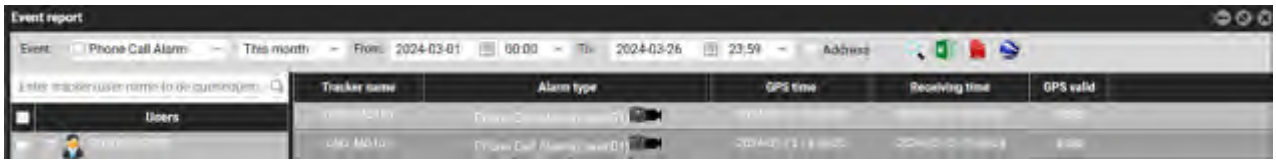


8.2.4 Calling Warning

Recognize the driver's behavior of making phone calls while driving and issue warnings to ensure driving safety.

Voice: No cellphone using

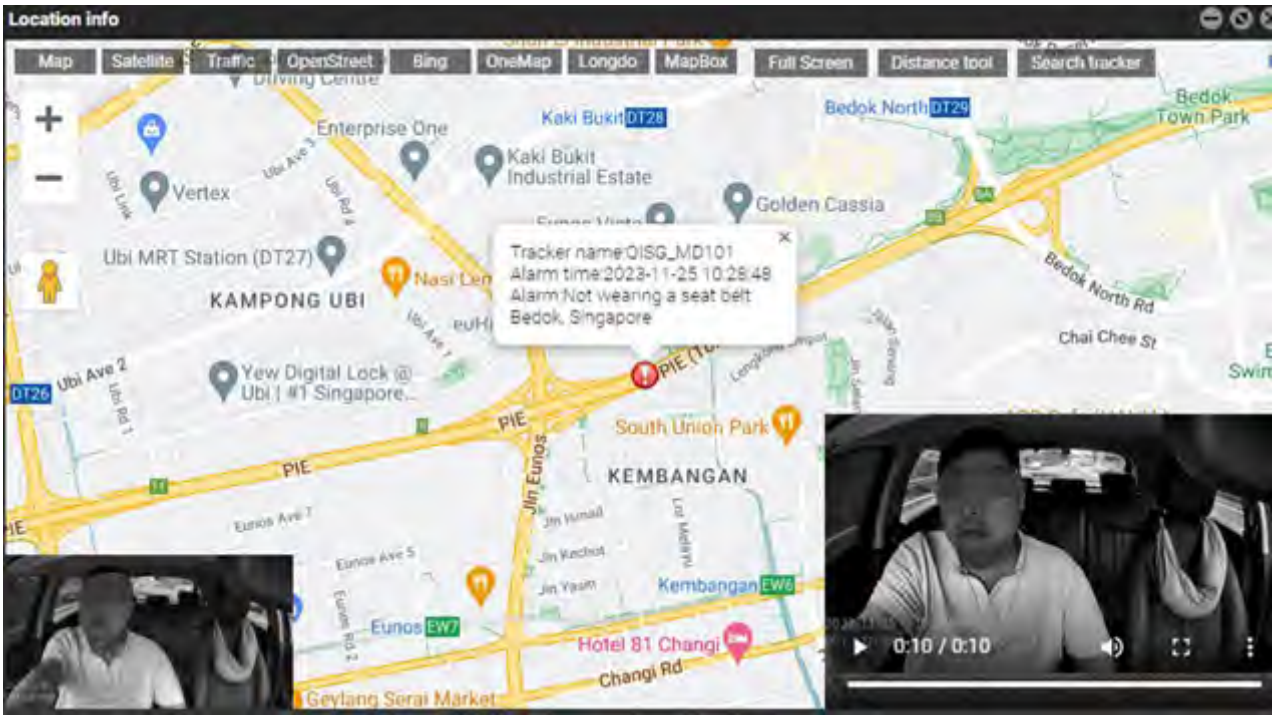


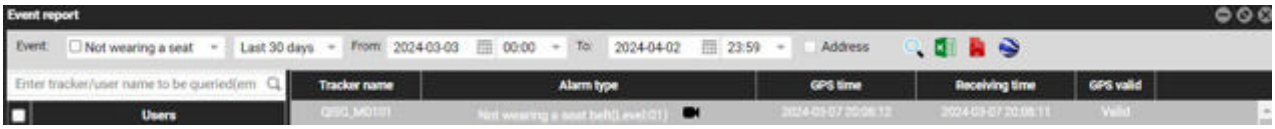


8.2.5 Seatbelt Detection

The device recognizes seatbelt status and warns the driver when driving without a seatbelt to ensure safe driving.

Voice: Please fasten your seatbelt





Note:

(1) Actual seat belt detection may take 3-4 seconds longer than described in the sensitivity parameter table, and ongoing optimization efforts are in progress.

(2) Adjusting the DMS angle requires capturing the driver's head and upper body to effectively avoid many false alarms.

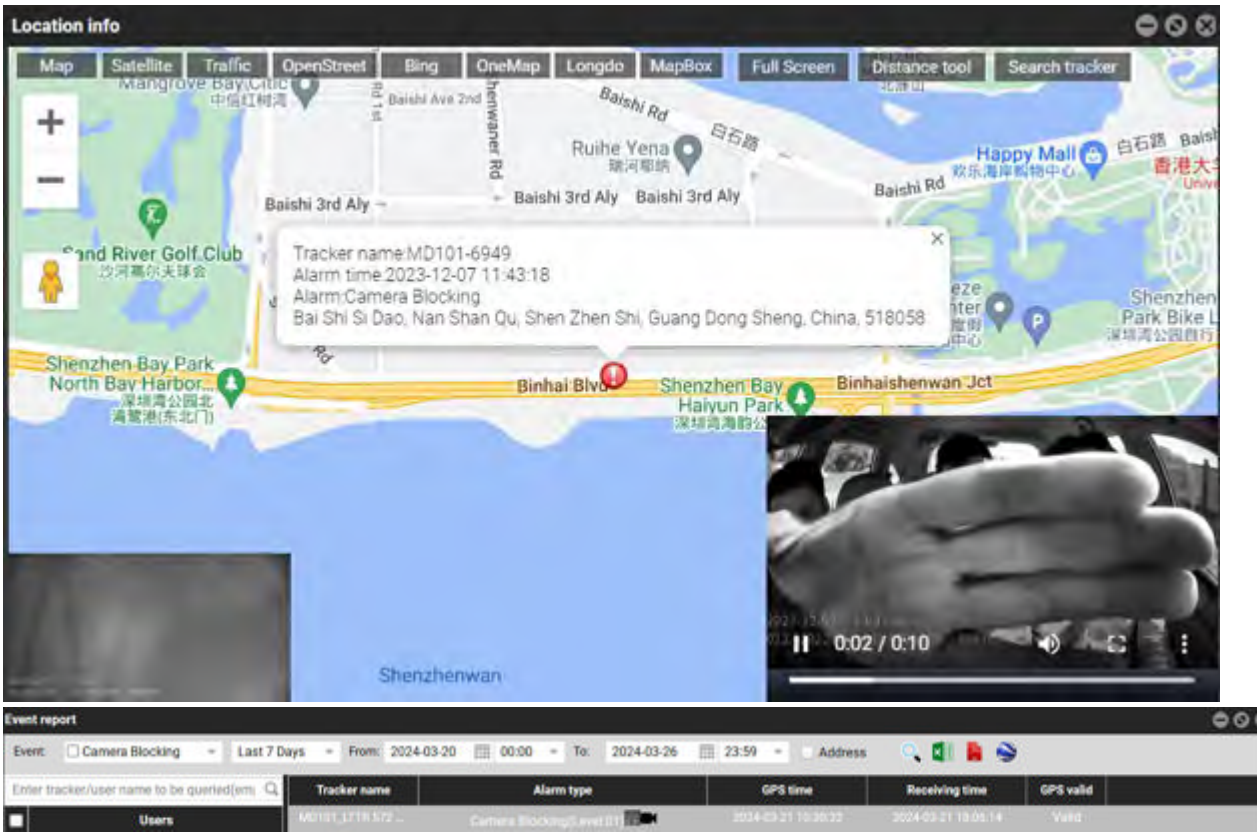
(3) Avoid wearing clothes that closely match the color of the seat belt, as this similarity may lead to easily triggered false alarms. Currently, AI algorithms across the industry operate in this manner and cannot be further optimized.

(4) False alarms may occur in dimly lit environments such as driving at night, or when lights are not turned on in the vehicle.

8.2.6 Camera Blocking

The DMS will send a voice alert when it detects occlusion.

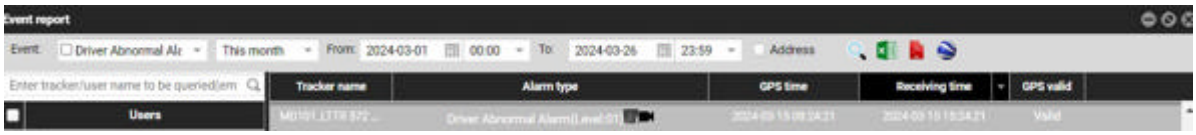
Voice: Lens occlusion



8.2.7 Driver Absence Detected.

Voice alerts to recognize that the driver may be leaving.

Voice： Driver abnormally



9 FAQ

9.1 Simple troubleshooting

problem	answer
Invalid recording	Please use a FAT32 memory card with a read and write speed of ≥ C10 level.
Invalid loop recording	Please check if the storage card has enough space for recording. If there is not enough space, please format the storage card.
The video is blurry	Please remove the protective film from the camera lens and clean the lens and windshield.
There is no audio in the recording	Please confirm that you have opened recording in the app.
Equipment temperature too high	The AI function of the device requires a lot of computation during operation, so it is normal to cause the body to heat up, especially in the area of the heat sink. Please do not touch the heat sink to avoid burns.
The files on the storage card cannot be displayed on the computer	Please switch to a different video player to play. If it still doesn't work, the storage card may be damaged. Please try formatting or replacing it with a new one.
Other	If the above fault cannot be resolved, please restore all settings to the factory settings or contact local technical support for further assistance.

9.2 Simple FAQ

Q1: Are there any requirements for the format and capacity of the Micro SD card?

A1: The Micro SD card must be Class 10 or higher and formatted in FAT32. The capacity theoretically has no requirements, with a maximum supported capacity of 256G. It is recommended to use a capacity of no less than 16G, depending on the user's needs. When the storage is full, new videos will automatically overwrite old ones (starting with the oldest videos based on date).

Note: Micro SD cards used for forced firmware updates must be smaller than or equal to 32G.

Q2: What should I do if the device fails to connect to the platform successfully?

A2: (1) Check the wiring and ensure that WIFI is enabled.

(2) Check the status of the GSM indicator light.

Blinking: Signal is available, check the APP configuration;

Constantly off: There may be an issue with the SIM card. Try replacing the card or retrying with another device. It could also be that the APN configuration did not succeed automatically (though this possibility is minimal). Inserting the SIM card into the device will automatically configure the APN, with a maximum configuration time of 2-3 minutes. If abnormal, record a video and capture logs for further troubleshooting. If the configuration is unsuccessful, we will assist in manual configuration.

(3) Check if the platform parameters in the APP are correctly configured (IP, port, protocol).

(4) Check the firmware version and whether an upgrade is required. If the issue persists after following the above steps, logs need to be captured for analysis by technical personnel.

Q3: Does MD101 support dual IPs, such as logging into both MS03 and CMSV6 platforms simultaneously?

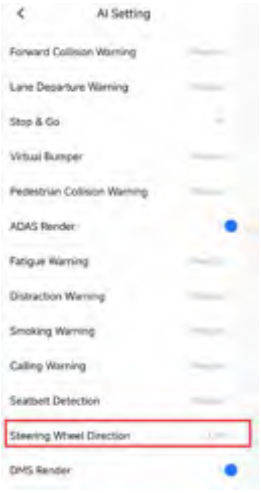
A3: Yes, it does. In the APP, set the IP and port for both platforms, then log in and add the MD101 device.

Protocols supported by MD101: Standard Active Safety (Su Biao) protocol. Audio encoding format: G711A-EX.

Taking CMSV6 as an example, if a user wants to use MD101 with CMSV6, their account must support this protocol, and the CMSV6 backend must not restrict the account in order to use it normally and play videos. If there are any abnormalities with the account, contact technicians from TongTianxing to obtain authorization for this protocol or update the server to use MD101 normally.

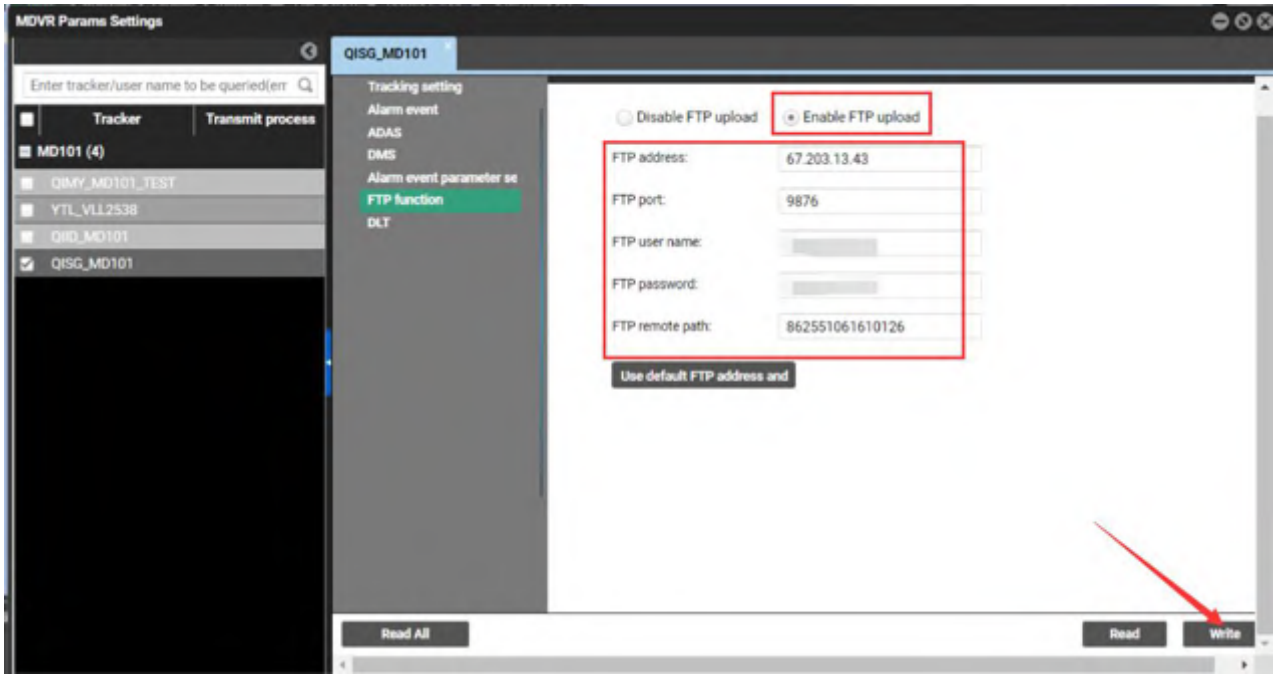
Q4: During calibration, if there are many occupants in the vehicle, will it affect the calibration results? After calibration, if there are numerous passengers in the footage, will it affect the driver's DMS calibration?

A4: The application allows setting the driver's seat, so calibration is based on capturing the driver's facial features. Passengers occupying the front passenger seat and rear seats do not affect DMS calibration.



Q5: Can ordinary video recordings be uploaded to the FTP server?

A5: Yes, but the FTP upload function must be enabled (only available when the device is online). Videos recorded under FTP can be viewed at any time, whereas videos recorded under Device can only be viewed when the device is online.



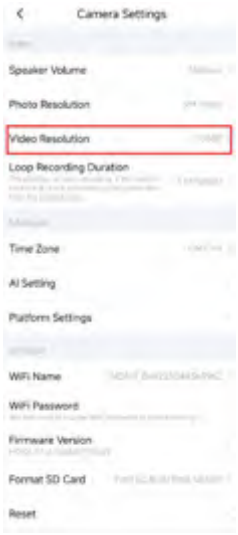
Q6: What to do if FTP records cannot be found?

A6: (1) Network issues: Videos uploaded to FTP use SIM card data, so delays may occur due to SIM card network conditions, with 4G being superior to 3G and 2G.

(2) Server issues: Heavy user activity during the same time frame may cause delays in FTP uploads. Trying at a different time may resolve this.

Q7: Can the resolution of ADAS and DMS be adjusted?

A7: By default, the device comes with ADAS (720P) and DMS (1080P) resolutions. The application allows simultaneous adjustment of both cameras to resolutions of 1080P/720P/480P. It's recommended to use 1080P if there is sufficient memory in the Micro SD card (as 1080P provides clearer video playback).



Q8: How many electronic fences can MD101 support?

A8: 64.

Q9: How to save data usage?

A9: (1) Reduce FTP video uploads. No uploads mean no data consumption. (2) Limit the time spent watching real-time videos on the platform. (3) Turn off AI alerts.

Q10: Can MD101's WIFI be used for video uploads, or is a SIM card necessary?

A10: No, the device's WIFI is only for connecting the device and the application, without data transmission capability. Video uploads to the platform can only be done using SIM card data. Sufficient SIM card data is required for video uploads.

Q11: How much data is consumed for each video uploaded to FTP? Does platform playback consume data?

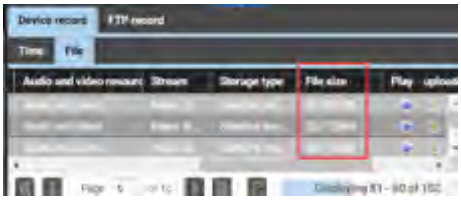
A11: (1) The data consumption per video varies depending on changes in the video frames. Higher frame variations result in more data consumption.

(2) It's difficult to determine the exact data consumption due to AI alerts triggered by the driver. It can be estimated based on the amount of memory occupied by the video on the Micro SD card, or the file size displayed in the "Device record" of the video played back by the platform.

(3) Different recording durations (1/3/5 minutes) result in varying data consumption. Also, data is only consumed for the initial FTP upload; platform playback uses computer networks and doesn't consume SIM card data.

Below are the estimated memory and FTP data consumption for a 1-minute regular video recording. For estimating data consumption for 3 minutes, 5 minutes, and 1 hour, you can refer to the following values.

① Device record:



	1min 1080P	1min 720P	1min 480P
CH1	26.5M	20M	7.5M
CH2	14.5M	7.5M	4~7M

② FTP record:

	1min 1080P	1min 720P	1min 480P
CH1	7.5M		
CH2			

③ The 10s AI alarm small video consumes about 1.3M data.

Q12: Is the data consumption the same for live streaming and playback videos?

A12: No, it's not the same. The Micro SD card displays the memory size occupied by recorded videos, which doesn't consume data during playback. We can categorize them into mainstream (CH1) and sub-stream (CH2). The mainstream defaults to ADAS (720P) and DMS (1080P), which solely exist within the Micro SD card, occupying its memory. Approximately, 1080P 1-minute CH1 (ADAS, color) occupies around 26.5 MB, and CH2 (DMS, black and white) occupies about 14.5 MB. However, for videos uploaded to the platform, such as alarm clips (10s) and regular recordings (1/3/5 mins), they utilize the sub-stream with a resolution of D1. Uploading D1 consumes considerably less data compared to 360P, albeit slightly more than 360P.

Q13: What's the difference between regular video recordings and AI alarm videos?

A13: Regular video recordings need FTP functionality enabled for uploading to the platform, utilizing D1 resolution (unchangeable), and consuming SIM card data during the process. Additionally, regular video recordings are stored in the Micro SD card's "Normal" folder, occupying only memory without data consumption during playback. Hence, it's recommended for customers to choose higher resolutions (e.g., 1080P). AI alarm videos, on the other hand, automatically upload to the platform without requiring FTP functionality. They use D1 resolution for uploading to the FTP server (unchangeable) and are stored in the Micro SD card's "Event" folder.

Q14: If the car engine is turned off but the device needs to remain online, what should be done?

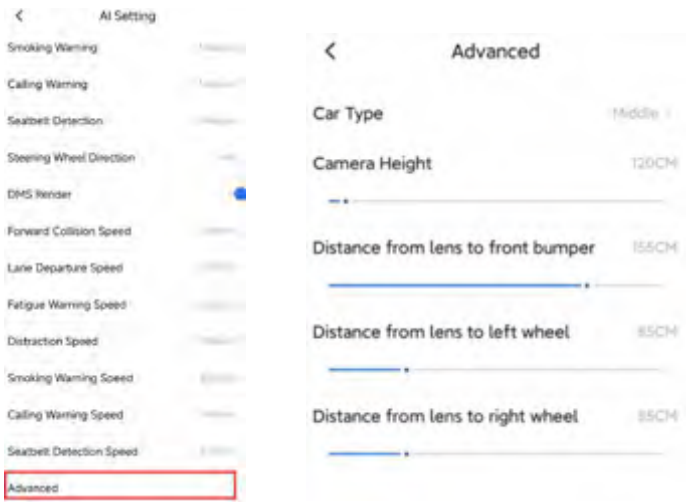
A14: Connecting the ACC line to the car's power supply will continuously power the device, keeping it online.

Q15: Will there be any alerts when the Micro SD card is completely non-functional, or if it's temporarily not working (for 10 minutes)?

A15: Regular alerts will be triggered, and the device indicator lights will function normally. However, without a Micro SD card, there won't be any AI alarm types.

Q16: Can MD101 be used for large trucks?

A16: Yes, it can. In the app's advanced settings, switch the vehicle type to "large" and adjust the device installation parameters accordingly.



Q17: Can MD101 successfully calibrate and function properly on roads without lane markings?

A17: Currently, MD101 performs automatic calibration and cannot be manually adjusted. Drivers need to complete calibration on roads with lane markings first. While the DMS function can function normally on roads without lane markings, the ADAS function may be affected (e.g., lane departure alerts).

If you have any other questions, please send an email to our email address info@meitrack.com We will wholeheartedly serve you.