

# AHD MOBILE DVR

## User Manual



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## Chapter 1

## Overview

MR9704C is a DVR designed for Analog HD vehicle monitoring. With built-in high performance image processor and advanced H.264 video compression technology, it provides AHD video recording, storage and playback solution. It has built-in 3G/4G/WiFi module (optional) for remote monitoring, analysis and management. It comes with smart power management system which can recognize the power type automatically. When detected the battery's voltage is lower than the given value, the device will shutdown automatically and keep ultralow standby consumption.

## Chapter 2

## Quick setup

### 1. Device Installation

Please refer to "AHD MOBILE DVR Hardware User Manual (MR9704)" for the hard disk installation and cables connection.

### 2. User Login

Right click the mouse, you will call out the login interface, please input your UserName, Password, and select your language, click "OK" to login the menu. (The default UserName is admin, without Password), see as following:

A screenshot of a 'Login' dialog box with a black background and a cyan title bar. The dialog contains three input fields: 'UserName' with 'admin' selected in a dropdown, 'Password' with masked characters '\*\*\*\*\*', and 'Language' with 'English' selected in a dropdown. At the bottom are 'OK' and 'Cancel' buttons.

Login	
UserName	admin ▼
Password	*****
Language	English ▼
OK Cancel	

User Login Interface

Right click the mouse, select "Menu" to start setup in the menu, see as following:

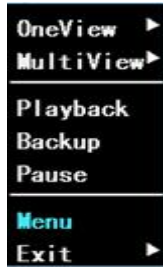


Figure 1. System Menu

“Menu” is the primary menu of the system setup and control, see as following:



Figure 2. Primary Menu

### 3. Set up the System time

Path: Basic->DateTime, see as following:



Figure 3. System date and time

TimeSYNC: Date and Time can be synchronized with GPS/BD

### 4. Set up cameras

Path: Menu->Record->Mode. Please set up your cameras' SignalType, Valid/Invalid. The DVR works with both AHD and general cameras. If you use AHD cameras, please select the first Type, if you use general cameras, please select the third Type, if you use both of

general and AHD cameras, please select the second Type. See as following:



Figure 4. Recording setting

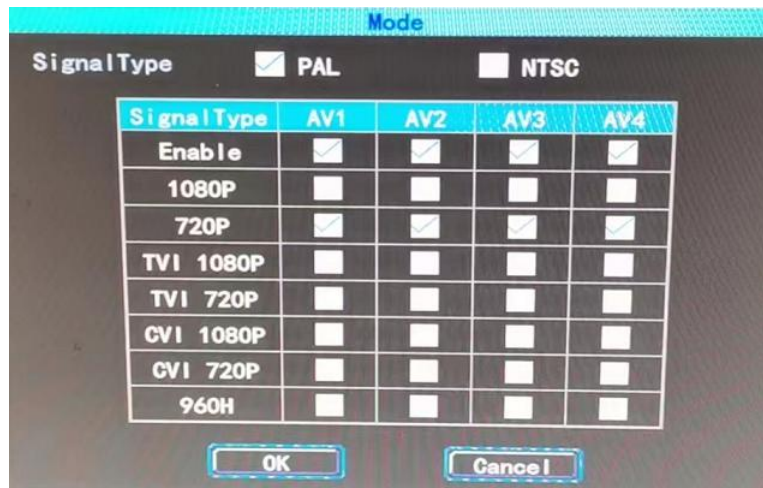


Figure 5. SignalType setup

PS: If your cameras don't display image on the monitor, please check this setup.

## 5. Wizard

Path: Menu->Wizard. This Wizard will help you to quick set up the device connect with the server.

### 5.1 Vehicle Information setup



Figure 6. Vehicle information setup

The DVR is using “Device ID” to connect with the server, so please input the correct DeviceID which was registered on the server for your device. The user can modify the VehicleName and PlateNumber according to their requirement. The PlateNumber is the vehicle’s plate number, and it will be displayed in the video.

## 5.2 DiskManagement

Disk need to be formatted in the device when using it for the first time. If the disk was not detected by the device, please check the disk lock and make sure it is well locked



Figure 7. Wizard-DiskManagement

## 5.3 3G/4G Setup

The device will detect the 3G/4G ModuleType automatically. Please insert the right SIM card which corresponding with the ModuleType detected. Please consult your SIM card carrier or search on internet to make sure you put the correct parameters (DialNumber, APN, UserName, Password). If you use VPN, please consult your telecom carrier to get the correct parameters.



Figure 8. 3G/4G setting

## 5.4 WIFI Setting

The device can save maximum 6 WiFi ESSID (Access Points). It will search, match, connect, and switch automatically. Click the corresponding blank to start WiFi setup. Then click “Search” you will see the available WiFi around your area, select the one you want to connect and input the password and save it.



Figure 9. WIFI setting list

### 5.5 Server setting

IP (or Domain) is your server's IP (or Domain), the Port should be same with your server setup.



Figure 10. Wizard-Server setting

### 5.6 NetState

Path: Menu->Network->NetState. You can check the state of the network connection of your device here.

Server: Online, it means the device connected with the server.



Figure 11. NetState



## Chapter 3

## System Menu

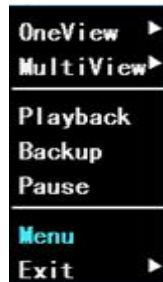


Figure 12. System menu

### 1.1 Video Playback

The device supports one channel video playback, Select “Playback” in the System menu, then you will get the video searching interface, please search the video according to your requirement.

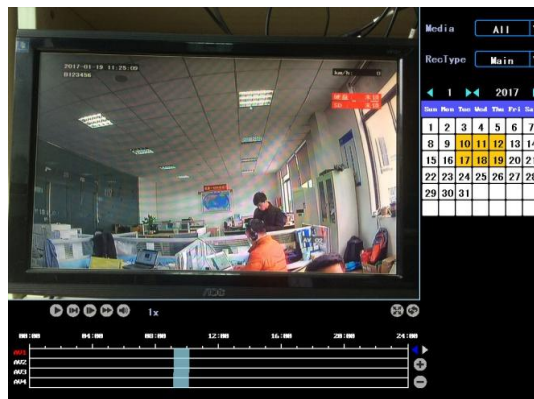


Figure 13. Video searching

The days in yellow are with recorded video. The blue parts in the time line bar are with recorded video. Please move the cursor of your mouse at the corresponding channel and time, and then left click it to replay the video.

### 1.2 Video Backup

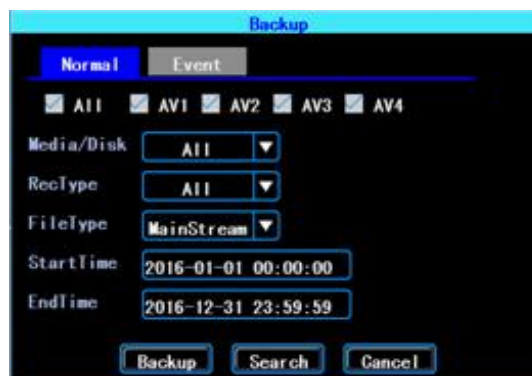


Figure 14. Video Backup

You can backup the video with an USB drive. There are two backup modes: “Normal backup” and “Event backup”

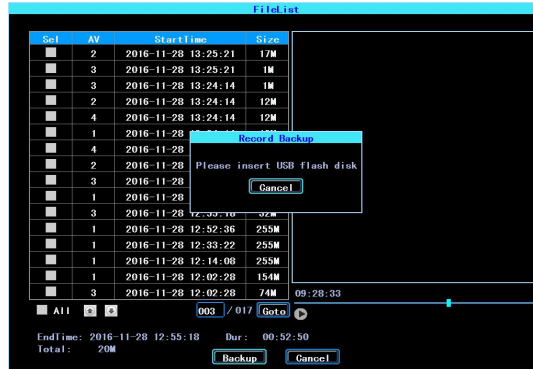


Figure 15. Video file list

Select the video file which you want to backup and then click “Backup”, remove your mouse and insert your USB drive, then the backup will start.

## 2. Basic Setting

The basic setup includes the very basic setup items such as DateTime, Vehicle Information, and Preview etc., See as following:



Figure 16. Basic setting

### 2.1 Date Time setting



Figure 17. Date Time setting

Time synchronization: The system's date and time can be synchronized with GPS/BD.

## 2.2 Vehicle Information



Figure 18. Vehicle Information

Device ID: It is the ID used to connect your device with the server. It should be the same ID which you registered your device on the server.

## 2.3 Preview setting



Figure 19. Preview setting

OSD: On Screen Display. You can select some information to display on the preview screen (the displayed information is for preview, not for recording)

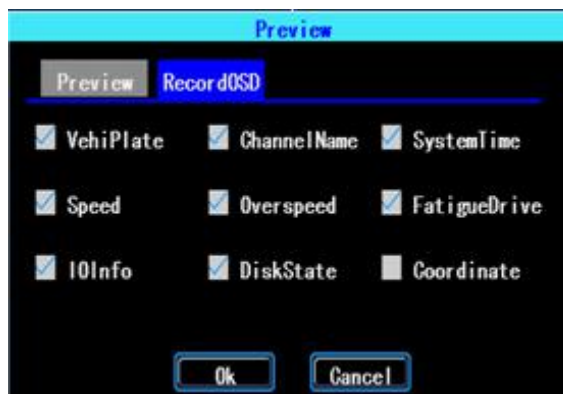


Figure 20. Preview OSD

## 2.4 Video Output



Figure 21. Video Output

## 2.5 On/Off setting

On/Off “Ctrl” setting is for starting on and shutting down the device automatically WHEN THE DEVICE IS ON STANDBY AFTER ACC IGNITION OFF. You can set up three time segments.

ACC Delay: You can set up the device to keep working for a given time period after the vehicle ACC ignition off.



Figure 22. On/Off Control setting

The On/Off “Volt” setting is for setting the voltage to shut down and start on the device, this feature can avoid the device drained the vehicle’s battery.

The device will detect the current voltage automatically, when the vehicle’s battery voltage is lower than the Shut.Volt, the device will shut down automatically to avoid drained the battery. When the voltage is higher than the PowerVolt, the device can be started on.



Figure 23. On/Off Voltage setting

## 2.6 System setup



Figure 24. System Setup

## 2.7 System Information

System information includes: Device Model, Serial Number, Hardware & Firmware version etc.

## 3. Network setup

Network setup: This interface is used to set up the necessary parameters to connect the device with the server



Figure 25. Network Setup

### 3.1 Server setup

IP/Domain is the WAN static ip or domain of your device's server.



Figure 26. Server setup

### 3.2 3G/4G Setup

The device will detect the 3G/4G ModuleType automatically. Please insert the right SIM card which corresponding with the ModuleType detected. Please consult your SIM card carrier or search on internet to make sure you put the correct parameters (DialNumber, APN, UserName, Password). If you use VPN, please consult your telecom carrier to get the correct parameters.



Figure 27. 3G/4G setup

### 3.3 WIFI setting

The device can save maximum 6 WiFi ESSID (Access Points). It will search, match, connect, and switch automatically. Click the corresponding blank to start WiFi setup. Then click "Search" you will see the available WiFi around your area, select the one you want to connect and input the password and save it.

You can input the ESSID of the WiFi AP but you can also click "Search" to search the available WiFi ESSIDs around your area.

Input the password and select the IP type and then click "OK"

### 3.4 Network State

You can check the state of the network connection of your device here. Server "Online" means the device connected with the server successfully.



Figure 28. Network State

## 4. Recording Setup

Recording setup includes Mode, Main Stream, Sub Stream, Recording OSD, Image, Mirror recording setting.



Figure 29. Recording setting

## 4.1 Recording Mode setting

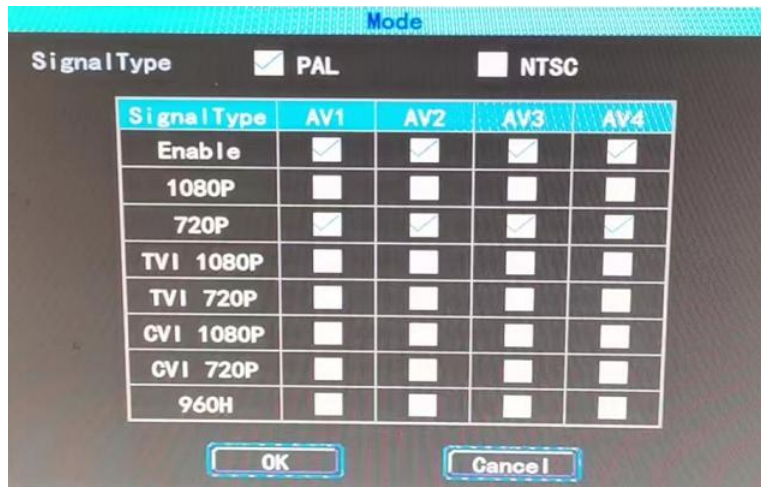


Figure 30. Recording Mode setting

Please set up your cameras' SignalType, Valid/Invalid. The DVR works with both AHD and general cameras. If you use AHD cameras, please select the first Type, if you use general cameras, please select the third Type, if you use both of general and AHD cameras, please select the second Type.

## 4.2 Main Stream

Main Stream will be stored in local disk. This interface shows the current Main Stream setting and the corresponding storage size, you can click any line to set up the corresponding parameters.

The screenshot shows the 'MainStream' configuration screen. It displays a table with columns: 'AV', 'Audio', 'Resolution', 'Frame', 'fps', 'Bit', 'Kbps', and 'Size GB/h'. The data is as follows:

AV	Audio	Resolution	Frame	fps	Bit	Kbps	Size GB/h
AV1	<input checked="" type="checkbox"/>	720P	25		2560		1.099
AV2	<input checked="" type="checkbox"/>	720P	25		2560		1.099
AV3	<input checked="" type="checkbox"/>	720P	25		2560		1.099
AV4	<input checked="" type="checkbox"/>	720P	25		2560		1.099
Total							4.395

Figure 31. Main Stream List



Figure 32. Main Stream AV setting



Bit is adjustable between 1024Kbps-4096Kbps (6 classes image quality).

### 4.3 Sub Stream

SubStream is used for network transmission and backup in local disk

AV	Audio	Res	Frame	fps	Bit Kbps	Size GB/h	Bit Kbps
AV1	<input type="radio"/>	CIF	8		325	0.092	224.64
AV2	<input type="radio"/>	CIF	8		325	0.092	224.64
AV3	<input type="radio"/>	CIF	8		325	0.092	224.64
AV4	<input type="radio"/>	CIF	8		325	0.092	224.64
Total						0.367	898.56

Figure 33. Sub Stream setting

Channel: 1  Audio

Resolution: CIF Frame (fps): 8

BitRate: Variable Bit (Kbps): 325

Quality: VeryGood

Note: Size of record 0.092 GB/h

CopyTo AV 2 Ok Cancel

Figure 34. SubStream AV setting

If you use 4G network, you can set up the resolution to be D1, so you can get better effect when you viewing the live video remotely on PC or cell phone.

### 4.4 Recording storage

Type	HDD	SD	OverWrite
Main	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sub	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Ok Cancel

Figure 35. Recording storage

The device supports dual storage (or you can say “Mirror storage), means you can store the same recording in both HDD and SD at same time. For example, you can store the main stream in HDD and sub stream in SD card, when the HDD has error and doesn’t work, you can still get backup video from the SD card (sub stream).

### 4.5 Recording OSD (On Screen Display)

You can set up the information you want to be recorded in the video.



Figure 36. Recording OSD

### 4.6 Image setting

Image setup is used to adjust to camera's image effect, please set up it carefully.

The screenshot shows a menu titled "Image" with a table of settings for four channels (AV1, AV2, AV3, AV4). The table has columns for AV, Brightness, Contrast, Hue, and Saturation. All values are set to 50.

AV	Brightness	Contrast	Hue	Saturation
AV1	50	50	50	50
AV2	50	50	50	50
AV3	50	50	50	50
AV4	50	50	50	50

Figure 37. Image setup

### 4.7 Mirror setting

This feature can turn over the camera's image horizontally or vertically (for both preview and recording)

The screenshot shows a menu titled "MirrorSet" with a table of mirror settings for four channels (AV1, AV2, AV3, AV4). The table has columns for Type, AV1, AV2, AV3, and AV4. The "Hor i." row has all checkboxes checked, and the "Vert i." row has all checkboxes unchecked.

Type	AV1	AV2	AV3	AV4
Hor i.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Vert i.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 38. Mirror setting

## 5. Advanced setting

This interface is used for UserManagement, Driving Habits monitoring, UART port setting, Temperature Sensor, Reverse Lines setting, displaying the text received from the server.



Figure 39. Advanced setting

### 5.1 User Management

You can add, modify, delete users, and modify the login username and privileges.

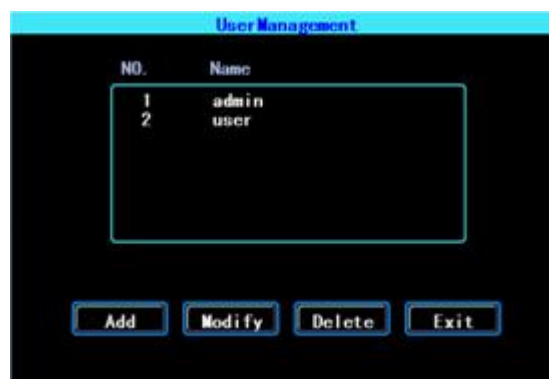


Figure 40. User Management

### 5.2 Driving Habits monitoring

(this feature is under developing)



Figure 41. Driving Habits monitoring

### 5.3 UART setting

This device has 1 UART port (TTL). You can connect some peripheral devices such as TTS (Text To Speech), Network Pass Through etc with the DVR via our UART converter.



Figure 42. UART setting list

#### 5.3.1 UART-TTS

Select UART to get into UART setting interface.

Select "TTS" in the drop-down box of "Function". Config the parameters as per the picture followed:



Figure 43. UART setting

#### 5.3.2 UART-Serial Net (Pass Through)

Select UART to get into UART setting interface.

Select “SerialNet” ( PassThrough ) in the drop-down box of “Function”. Config the parameters as per the picture followed:



Figure 44. UART setting

### 5.4 Reverse Camera

The DVR comes with Reverse camera function. Any channel can be used as reverse camera, click “Zone” to set up the reverse assistance lines.



Figure 45. Reverse camera setting

PS: Normally we will select “On” at “AV OUT”. If you select “Off”, the screen will sleep when there is no operation for a while.

The assistance lines are adjustable (dragging the blue points)

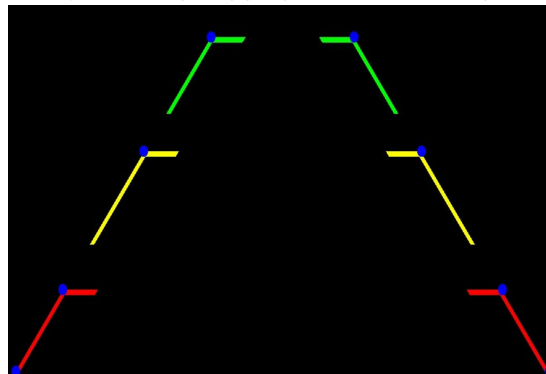


Figure 46. Assistance lines setting

## 5.5 NetTextShow

The device can display and broadcast the text received from the server. (If you want broadcast the text, you need to connect TTS device with the DVR.)



Figure 47. NetTextShow

You can set up the display time duration of the text.



Figure 48. TTS broadcasting

If you want to broadcast the text received by TTS device, please click “Uart Set” to set up it first.

## 6. Device Maintenance

设“Device Maintenance” includes the basic maintenance of the device such as Log searching, Disk Management, Config parameter import/export, System Upgrading.

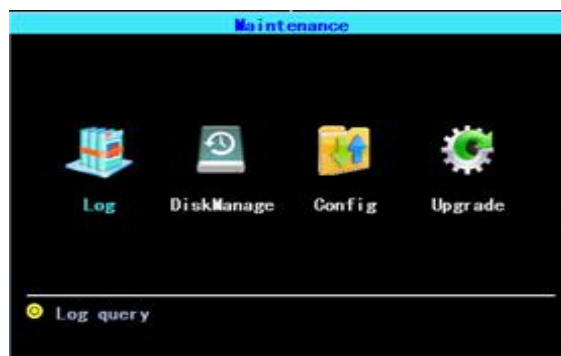


Figure 49. Device Maintenance.

## 6.1 Log Inquiry

Inquiry the system's running log according to the required Log Type and Time Range.



Figure 50. Log inquiry

The log will record the device's exception, local operation, system on/off, alarm information etc.

## 6.2 Disk Management

You can check the status of the disk here.



Figure 51. Disk Management

The disk need to be formatted in the device when you use it for the first time.

## 6.3 Related with the Parameter

Import/Export is used to import/export the setup and config information for setup in batch. After setted up one device, export the setup parameters with your USB disk, then insert the USB disk into other device's USB port and re-power on the device, it will get the setup parameters utomatically. (If you don't want to re-power on the device, you can import the setup paramaters in menu, see as followed)



Figure 52. Import/Export

PLEASE USE THE RESTORE FUNCTION CAREFULLY TO AVOID THE LOST OF YOUR IMPORTANT DATA

## 6.4 System upgrading

Please format your USB disk as FAT32 type and copy the upgrading file to the root directory of the USB disk. Then re-power on the device, it will upgrade automatically. If you don't want to re-power on the device, you can upgrade it in the menu "Import/Export". Select the upgrading type, click OK, then insert the USB disk. The system will detect the USB disk and the file and then upgrade automatically.



Figure 53. System upgrading



Upgrading progress

PS: You can insert the USB disk which with the upgrading file, and then re-power on the device, it will upgrade automatically. You can also upgrade the device remotely from PC CMS software if your device has 3G/4G or WiFi function.



## 7. Alarm setting

Alarm setup interface includes the setting related to all alarm types, such as I/O alarm, Video Loss, Fatigue Driving, Over Speed, Disk error.



Figure 54. Alarm setting

### 7.1 Input Alarm

The device has 4 alarm inputs, 2, 4 are positive trigger, 1, 3 are positive/negative trigger (optional)

In	Type	PIN NO.	Enable	Buzzer	Out	State
1	Negative	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Positive	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Negative	6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Positive	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PIN NO. is the index of IOPIN

Figure 55. Input Alarm list

Click the corresponding lines to setup

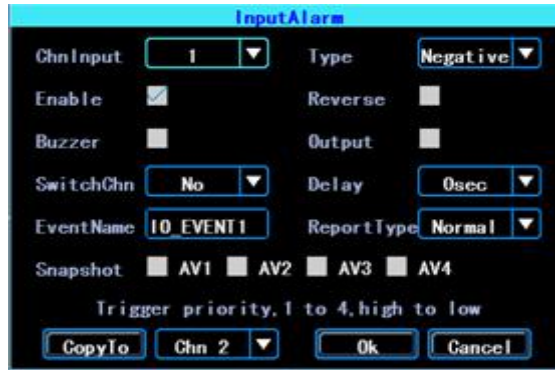


Figure 56. Input Alarm setting

There are three input modes: high level, low level and open. For positive trigger, the normal trigger level is high, but if the reversed logic is enabled, the trigger level is changed to low level and open. It is same for negative trigger.

Alarm Input Trigger status list

Alarm Trigger		Positive trigger	Negative trigger
Reversed Logic	No	High level	Low level
Reversed Logic	Yes	Low level/Open	High level/Open

## 7.2 AlarmOut setting

You can set up the type of alarm output (interact, remote, manual), Manual is used to debug the device.



Figure 57. AlarmOut Setting

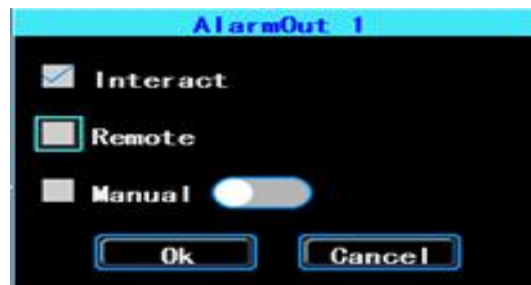


Figure 58. Alarm Out Types

### 7.3 Video Loss

Video Loss alarm will be triggered if there is no camera or wrong type camera were connected with a valid channel.



Figure 59. Video Loss alarm setting

### 7.4 Fatigue Driving Alarm

The Fatigue Driving time is calculated since the device was started. In this interface you can set up the fatigue driving time, to remind the driver to avoid fatigue driving.



Figure 60. Fatigue Driving setting

### 7.5 OverSpeedAlarm



Figure 61. OverSpeedAlarm Setting

## 7.6 DiskError

You can set up alarm when there is Disk Error detected by the device



Figure 62. Disk Error setting

## Chapter 4 Installation Warnings

For safely using and long service life, please respect these Warnings when insalling and using the device:

1. When you received the product, please open the box and check the device and accessories. If there is anything damaged or missing, please contact your seller.
2. When installing and operating the device, please respect the standard of all electronics and the connecting requests of the vehicle and other devices
3. Please double check the input power voltage, it should be 8-36V DC, to avoid the damage caused by wrong voltage.
4. The device should work in the permitted temperature and humidity.
5. There should be enough space and fire resistant pipes on the external cables of the device to avoid electric leakage caused by abrasion and aging.
6. The installation and construction should be compliant with the standard of the government.