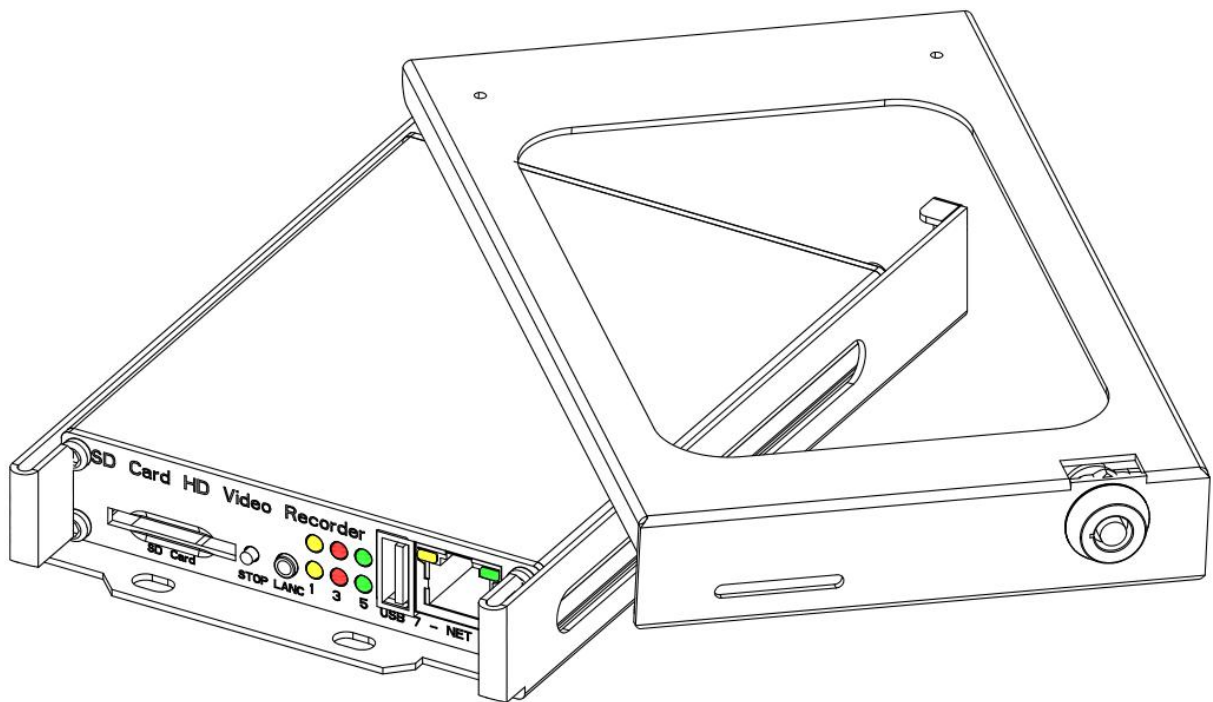


# SD4mX Gen2

## User's Manual Installation Manual

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Thank you for using our SD Video Recorder. This manual is applicable for SD Video Recorder, Please read this User's Manual carefully to ensure that you can use the device correctly and safely. The contents of this manual are subject to be changed without notice.

## Warning

**This device is NOT of waterproof; to prevent it from any accident of fire or electric shock, please do NOT put any container with water on the device or nearby. Do not expose the device to moisture, or extreme temperatures.**



This lightning flash with arrow symbol within an equilateral triangle is intended to alert users that there might be uninsulated dangerous voltage which may cause electric shock to person when the cover of device is opened.

### CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN

To prevent from the risk of electric shock, do NOT remove top cover or back cover. There is NO user-serviceable part inside. Ask for service from qualified maintenance man.



The exclamation point within an equilateral triangle is intended to alert users the important operating and maintenance(servicing) instructions in this manual.



Important notice:

1. Please read over all cautions.
2. Please keep this manual for reference in the future.
3. Please notice all warning information.
4. Please strictly follow the instructions in this manual while operating.
5. Please NEVER put this device under the place which is easily poured by water.
6. Please do NOT use abrasive chemicals, cleaning solvents or strong detergents to clean the device. Wipe the device with a soft and dry cloth.
7. Please do NOT get the gate of airiness heat exchange closed.
8. Please leave the device far away from hot and high temperature environment.
9. Install the device with the accessories coming with it.
10. Please take care when moving the device, make sure of security, and avoid being damaged by dropping from high place.
11. Call for qualified maintenance man to repair when needed.
12. The device can only be installed horizontally. Installed vertically or out of the horizontal could hurt person or damage the device or/and its parts.

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## 1. General Introduction

The Mobile SD video recorder is a compact, full-featured recording system that uses a SD card as a storage device. The recorder unit and associated accessories are specifically designed for operation in a mobile environment.

The Mobile SD video record system, used in conjunction with the cameras, records up to four channels of full-motion video and audio data to a removable SD card. The firmware-driven menu system provides a simple method for configuring the unit's operation as well as searching for and viewing previously recorded AV records.

### **Regulatory Compliance**

The Mobile Video Recorder complies with CE and Part 15 of the FCC interference limits for Class B digital devices FOR HOME OR OFFICE USE. These limits are designed to provide reasonable protection against harmful interference. Operation of this device is subject to the following 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.

### **Product Description**

#### **Product Main Features**

- Embedded operating system, assuring reliability and system integrity.
- Records up to four channels of full-motion color video with corresponding audio tracks.
- H.264 and H.265 High Profile video compression.
- Total Record resource up to 30 frame/second for each channel.
- Lockable security enclosure.
- Front panel USB2.0 port for recording to a flash card as an optional storage device.
- Ignition sense that provides DVR power-on in recording mode when the bus is started.
- Power-off delay record when the bus is shut-down with operator-selected delay times.
- Support SAMBA function to share files.

#### **Video And Audio**

- H.264 and H.265 High Profile video compression, real time recording 30 fps for each channel. Frame rate adjustable for each channel.
- Audio compression: G.711 codec. This codec offers high compression with high quality audio.
- 4 channels 720x576/720x480 resolution for PAL/NTSC camera.
- Local video and audio real time playback.

#### **GPS Time Synchronization & Time Zone**

- Synchronize the DVR system time with GPS automatically
- Support All Time Zones Worldwide
- Support DST (Daylight Saving Time)

#### **Power Management**

- Reliable power management, wide voltage: +8VDC~+32VDC; The power input is protected against short positive transient (1500 watts peak pulse power capability with a 10x1000 us waveform); The power input is protected against negative voltage. Applicable for vehicles with

- +12V or +24V battery.
- The recorder provides each camera with stable +12V DC power. DVR can protect the internal components from damage of short circuit.
- Can use ignition to control the power.
- DVR can monitor battery voltage after Ignition off, and auto into sleep mode when voltage is bellow specified level.

### **Recording mode**

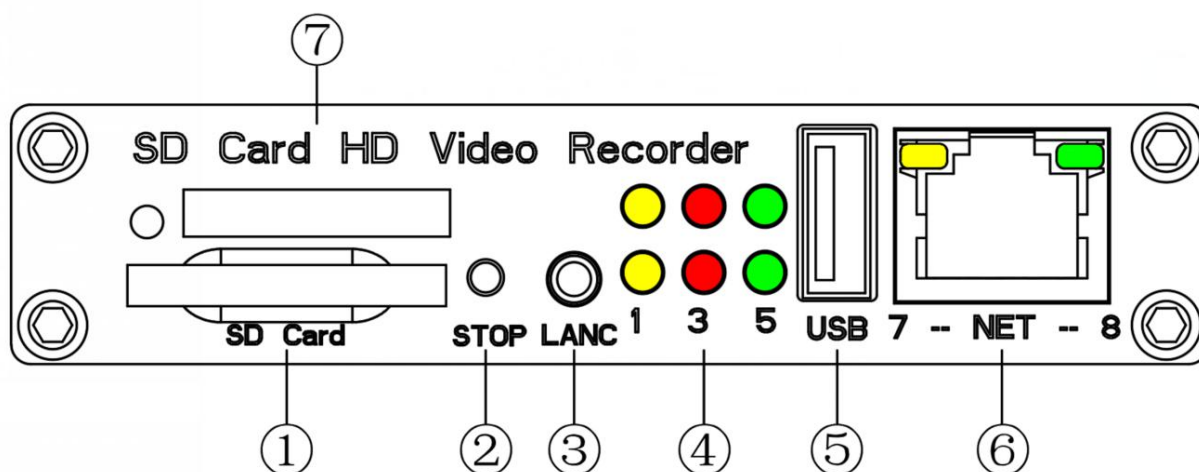
- Continuous record.
- Schedule recording.
- Alarm recording.
- Motion detection recording.

### **Speed and Vehicle status recording**

- Record vehicle speed and car id with audio and video.
- Support 3 sensors, can be connected to reverse, right turn, left turn light etc.
- Over-speed alarm.
- Specified camera can be displayed in full screen mode when reverse, left turn or right turn sensor is triggered.

## 2. Product Description

### 2.1 Front Panel



- 1: SD Card Slot
- 2: Stop Button
- 3: Event button Connector
- 4: Light Indicator (1:SYS 2:4G; 3:SD 4:ALARM; 5:PWR; 6:RUN)
- 5: USB Connector (Can connect with mouse)
- 6: Network Connector(RJ45)
- 7: SIM card slot

#### Get to know the status of DVR system by the indication of LED lights:

5. PWR	6. RUN	Description
Always on	Blinking	DVR is on & running
Blinking with RUN by turns	Blinking with PWR by turns	Ignition is not enabled and DVR is OFF.
Blinking together with RUN	Blinking together with PWR	Ignition signal is not enabled & DVR is running. Unit will turn OFF when "Delay Time" setting is reached.

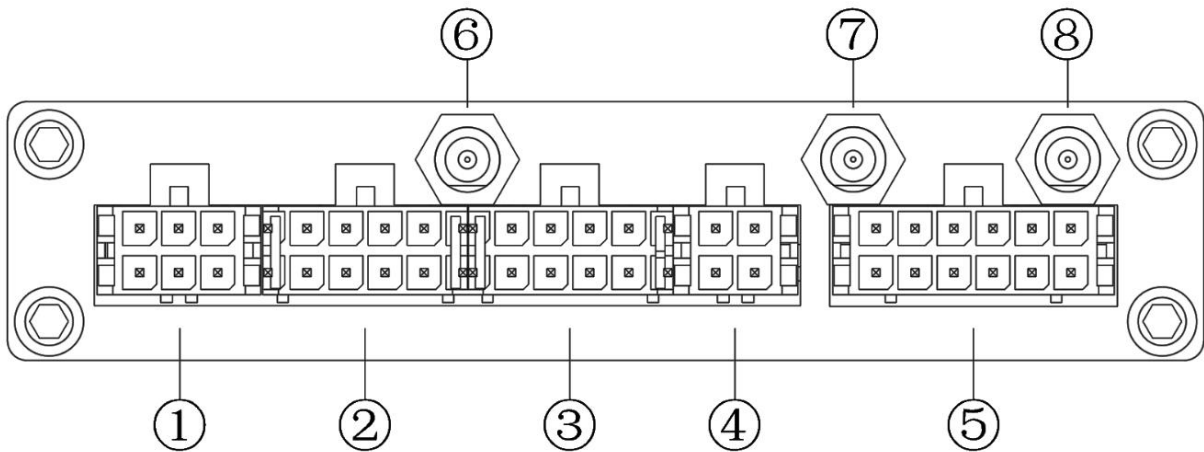
1. SYSTEM	Description
Always On	4 cameras recording together
Blinking	Blinking every 2 seconds. The number of blinks is the number of camera not connected. For example, if it blinks 3 times, it means there are 3 cameras not connected.
Off	Not recording and no cameras connected.

2. 4G	Description
On	Depends on the 4G module
Off	Depends on the 4G module

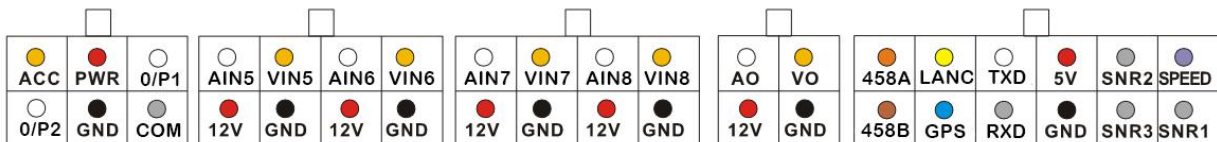
3. SD	Description
Always On	Disk in use, Recording or Playing.
Off	Disk not in use

4. Alarm	Description
Always On	DVR has alarm report(Over speed, e.g.)
Off	No alarm

## 2.2 Rear Panel



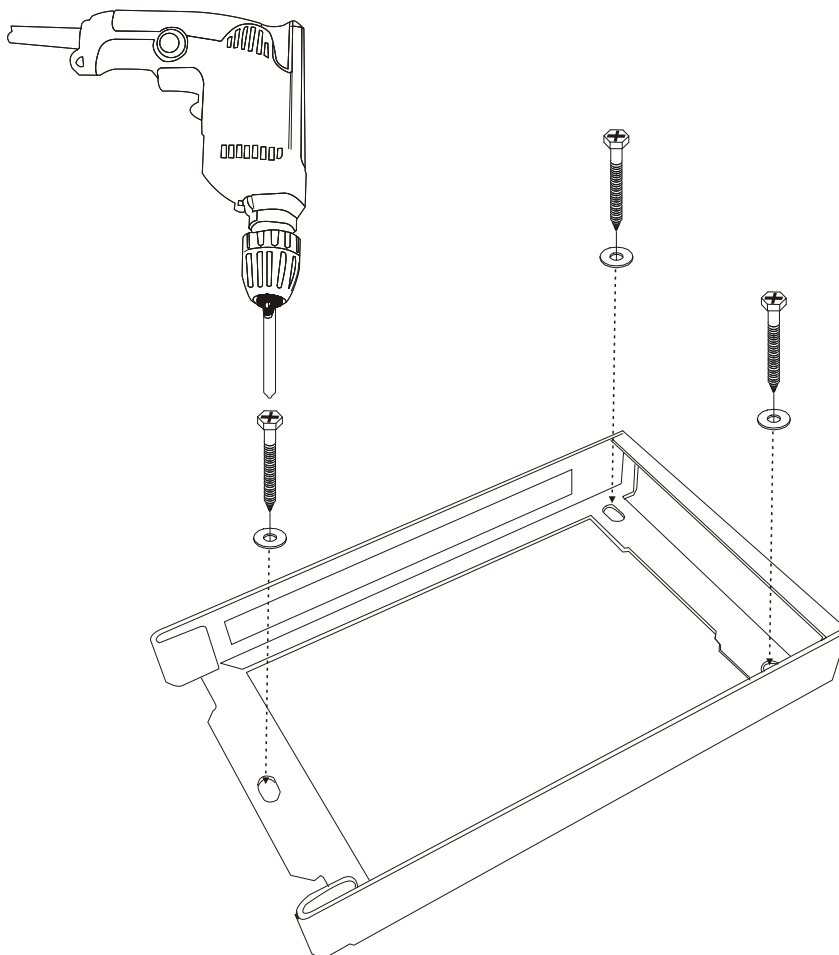
- ①: Power (including Power, Ground, Ignition).
- ②: Camera 1 and 2(including power for camera)
- ③: Camera 3 and 4(including power for camera)
- ④: CVBS Video and Audio Out (including power for monitor)
- ⑤: 3 sensors, 1 RS232 (For GPS), 5V DC output, 1 LANC input
- ⑥: 4G/3G antenna
- ⑦/⑧: WIFI antenna



### 3. Start to use mobile DVR

#### 3.1 Install and fix the cradle

Use a power drill and screws supplied to fix cradle in the right place inside the vehicle.



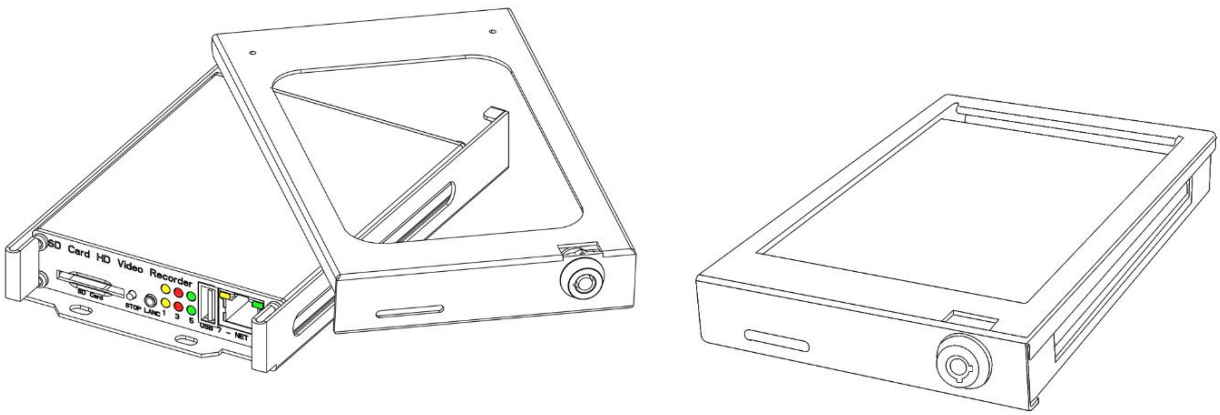
#### 3.2 Insert a SD card

Put a SD card in to the card slot.

#### 3.3 Install the top cover of the cradle

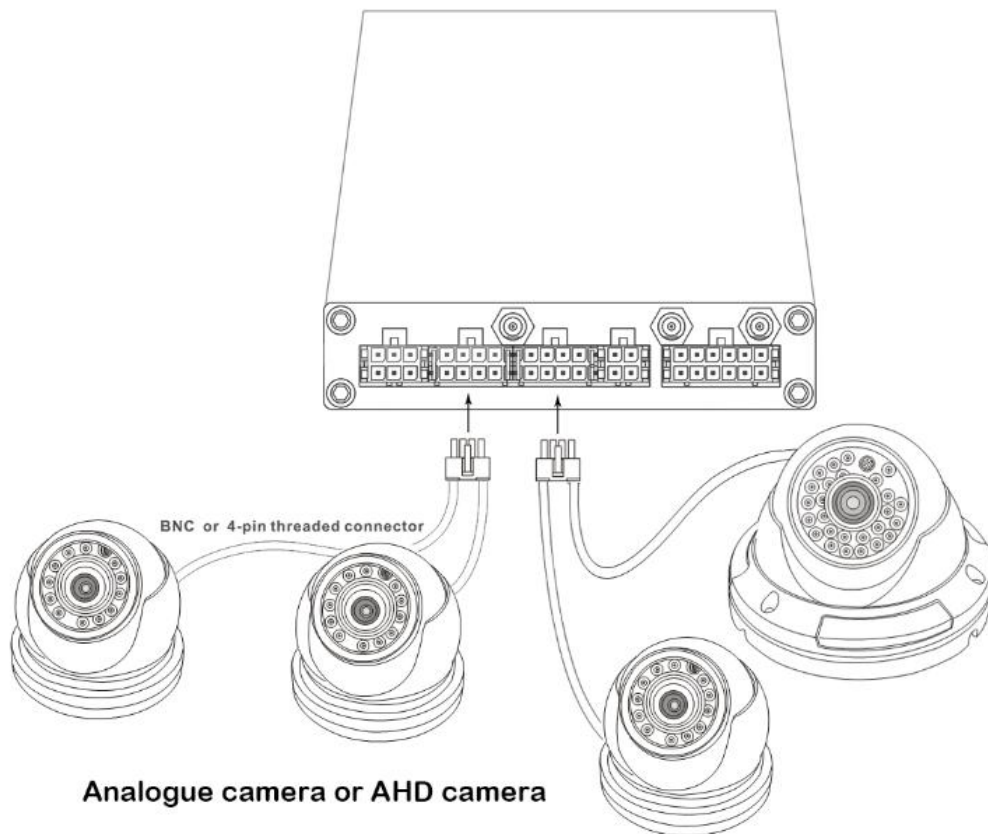
Put the top cover into the cradle and use the lock to secure it.





### 3.4 Connect with cameras

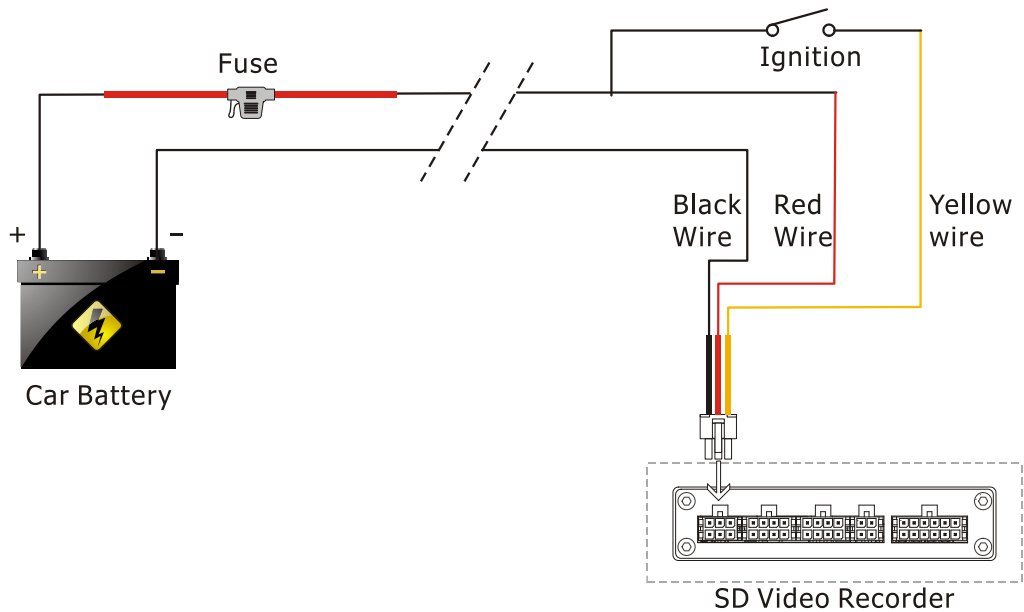
Connect the SD DVR with up to 4 analog cameras. The analog cameras can be connected using the BNC connector or 4-pin threaded connector cable.



If you use the 4-pin threaded connector cable, the camera should have 4-pin female connector to match this cable. The DVR unit will provide stable 12V DC power to each camera, and record video and audio (if the camera is with microphone built-in). This type of connection cable is highly recommended. It saves both installation time and cost.

### 3.5 Connect with power

Connect the red wire to the positive pole of the battery and connect the black wire to the negative pole of the battery. Connect the yellow wire to the ignition signal of the vehicle. The fuse should be connected to the positive pole and red wire. Please note: the fuse is used for protecting the battery, so the fuse should be placed near to the battery positive pole.

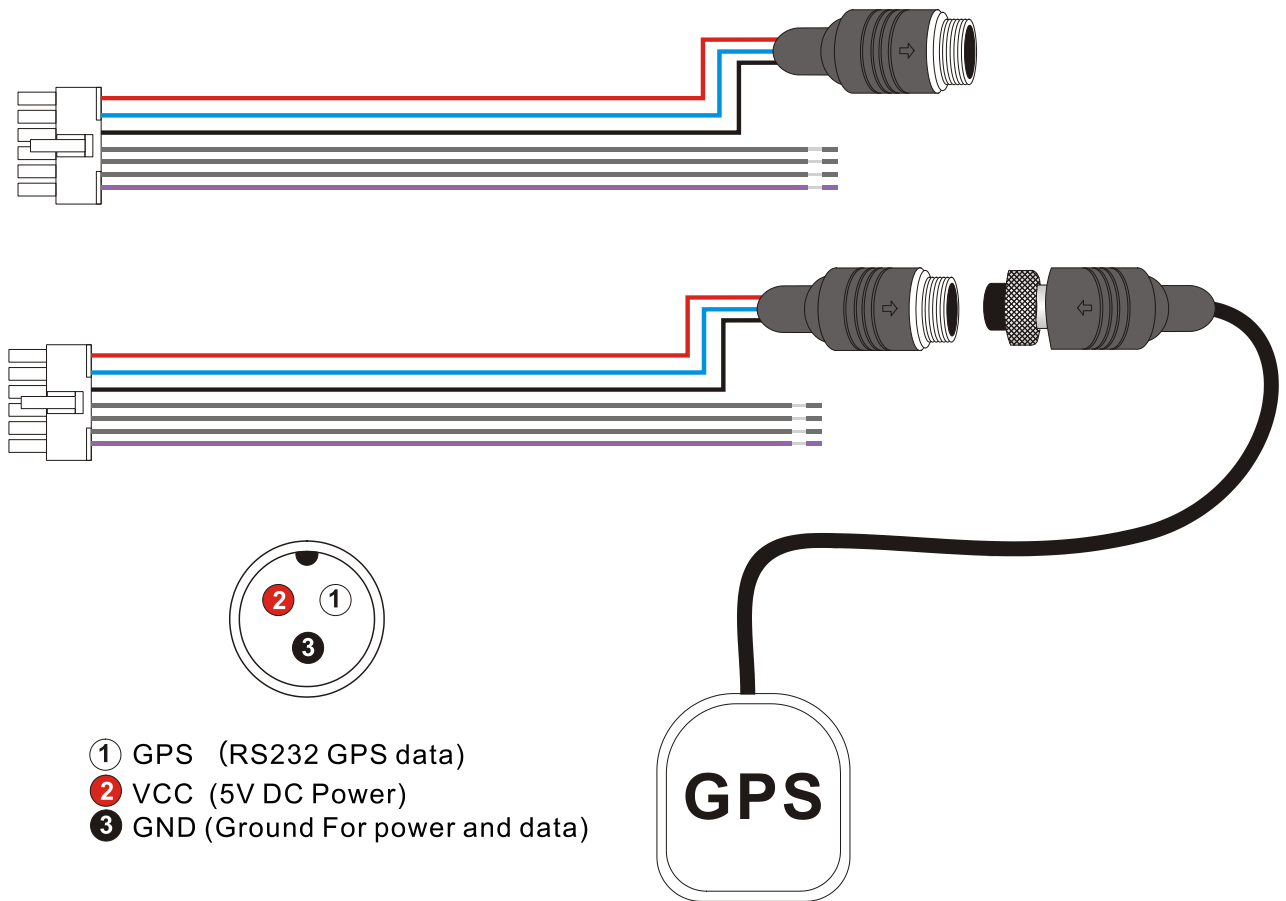


#### NOTE

1. The DVR uses DC power input, please be very careful when connecting to the "+" and "-" of the power supply.
2. Wide voltage range of 8V-32V for the DVR. The DVR may be damaged if the voltage comes too high. And the DVR may not work if the voltage comes too low.
3. Power of the DVR should be supplied by the car battery.
4. Power consumption of the DVR can be 60W when the engine starts. All the cables for connecting from power to the DVR should be thick enough for current over 5 Amperes.
5. To protect the battery from being damaged of short circuit, the fuse should be placed very closed to the "+" pole of car battery.

### 3.6 GPS connection (Optional)

Connect the GPS Module to the GPS connector on the sensor cable harness.



### 3.7 Connect with event button (event button is optional)

The event button can be used as panic button, or used for toggle screen display among different cameras. The control can also show the status of the DVR, including error status. When the DVR is installed in a place which is hard to reach, the event button can be installed in a place which is easy for use to check the DVR.

The event button have one button and three LED light (yellow, red and green light).

The button can work as either one of the following three functions:

Panic button: The button can be used as panic button. When this button is pressed, the recording will be marked as alarm recording and this record file will not be overwritten. If the DVR support 4G function, it can send alarm message to control center.

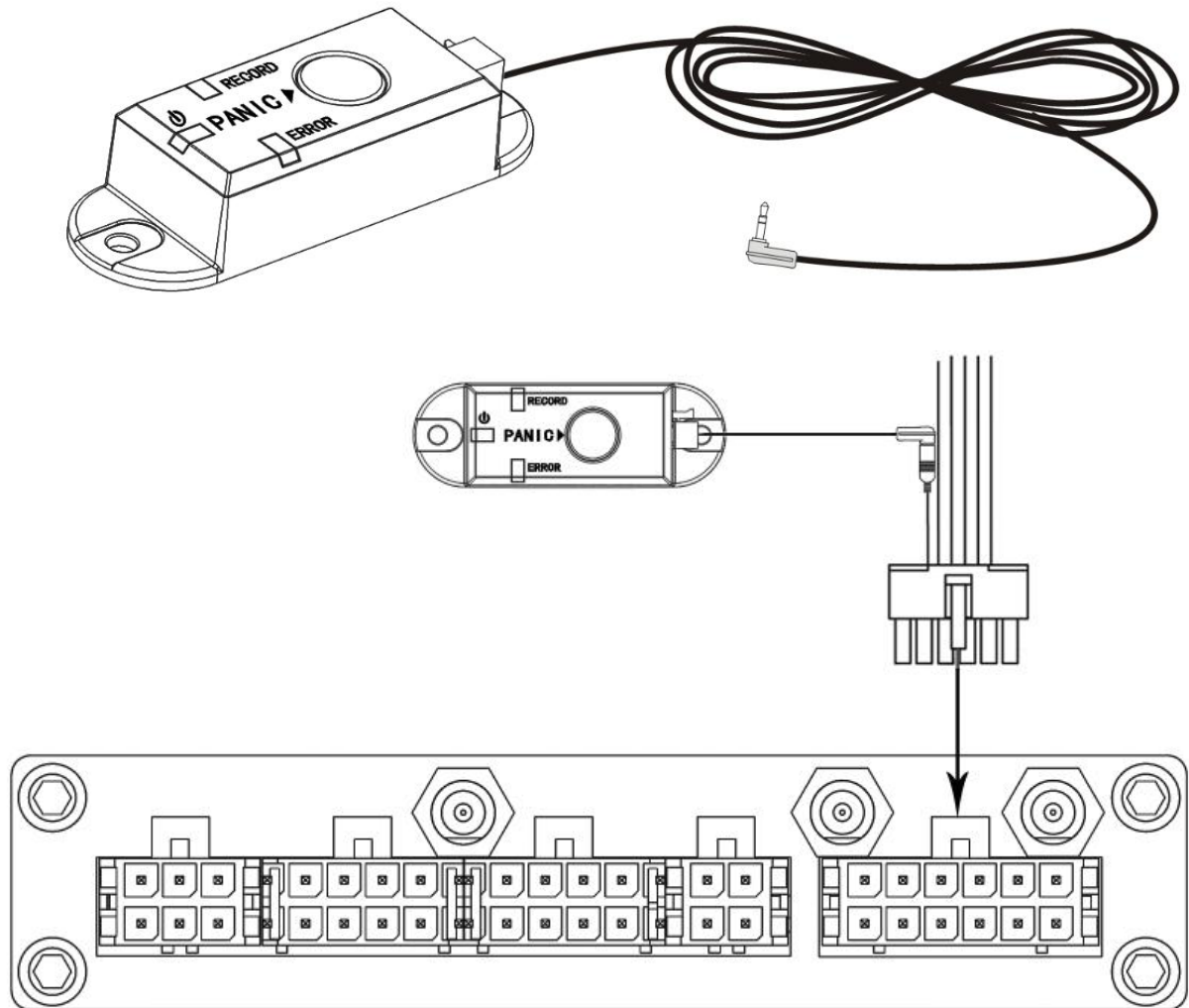
Start/Stop record: The button can be used as Start/Stop record button. The record status can be seen on the LED light indicator.

Toggle cameras: The button can be used for toggling among cameras.

The status indicator will show the status of the DVR, as following table:

TYPE	STATUS	DESCRIPTION
RECORD	Green Light Always On	Recording
	Green Light Blinking	No recording

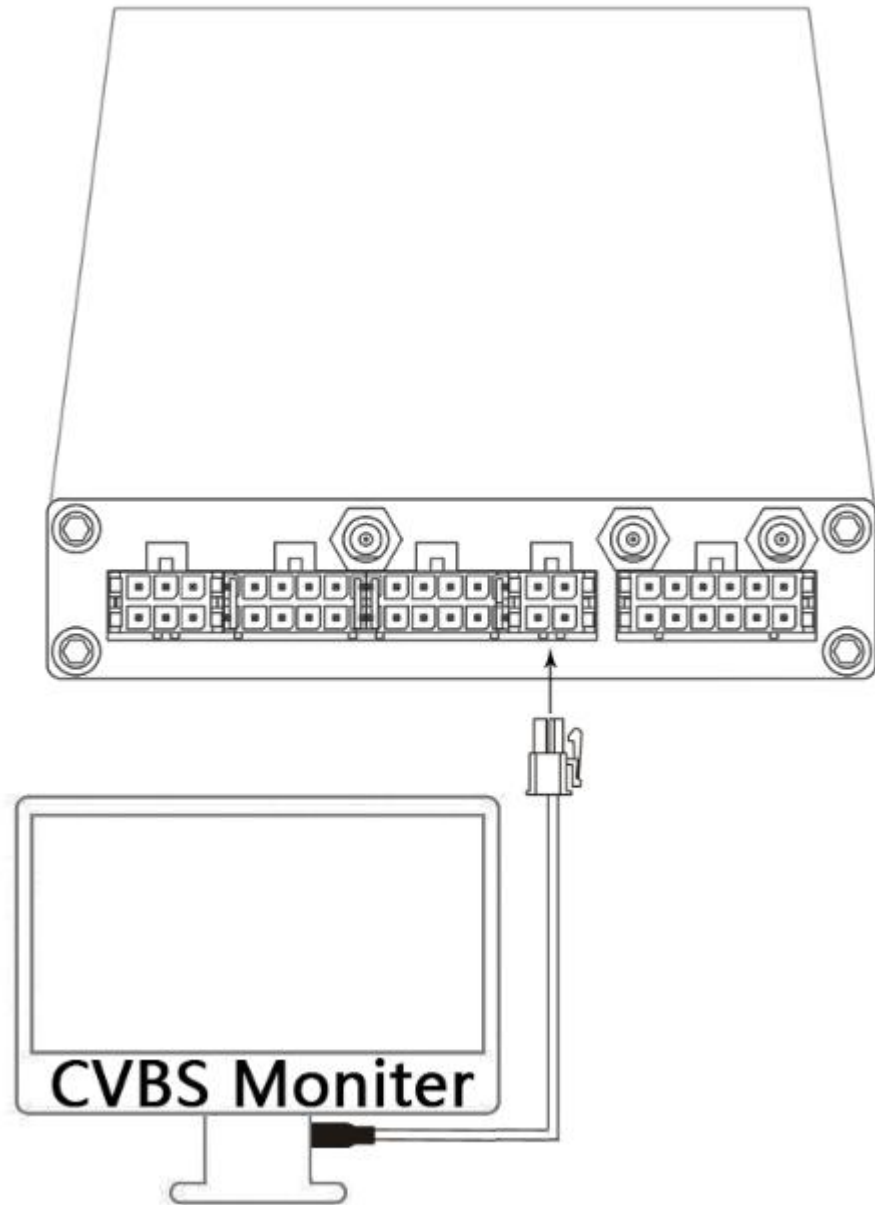
POWER	Yellow Light Always On	DVR is on
ERROR	Red Light Blinking Fast	Panic button is pressed
	Red Light Blinking Slowly	No disk found



### 3.8 Connect with monitor

#### 3.8.1 Connect the DVR with monitor

DVR can be connected with CVBS monitor.



Connect with CVBS monitor (composite video) or HDMI monitor (if the miniHDMI is available). Use the composite video cable to connect the monitor with DVR. When the DVR is turned on, it will show the DVR output.

### 3.8.2 Preview Cameras



1) Use mouse to toggle among cameras

When the DVR is turned on, the DVR will display preview screen automatically. User can connect a mouse to the USB port on front panel, right click the mouse and choose the screen mode in the prompted menu. You can also choose one camera as full screen mode by double clicking the camera.

**\*Note: Right click the mouse is equal to click "Return" button when you operate DVR's Menu.**




2) Use the event button to toggle the screen or channel



Connect the event button with DVR, right click the mouse to select "main menu", choose the "Switch mode" or "Switch Channel" in the alarm setting menu. After the "Switch mode" or "Switch Channel" is set, you can toggle the camera by pressing the button on the event button.



### 3.8.3 Audio output

DVR support audio real-time output along with miniHDMI or CVBS display. User can click on the small audio icon  to open or close the audio output. Icon  means that real-time audio output is ON,  means the real-time audio output is OFF. Audio output device can be set by "Output Device" setting.

## 3.9 Format the disk



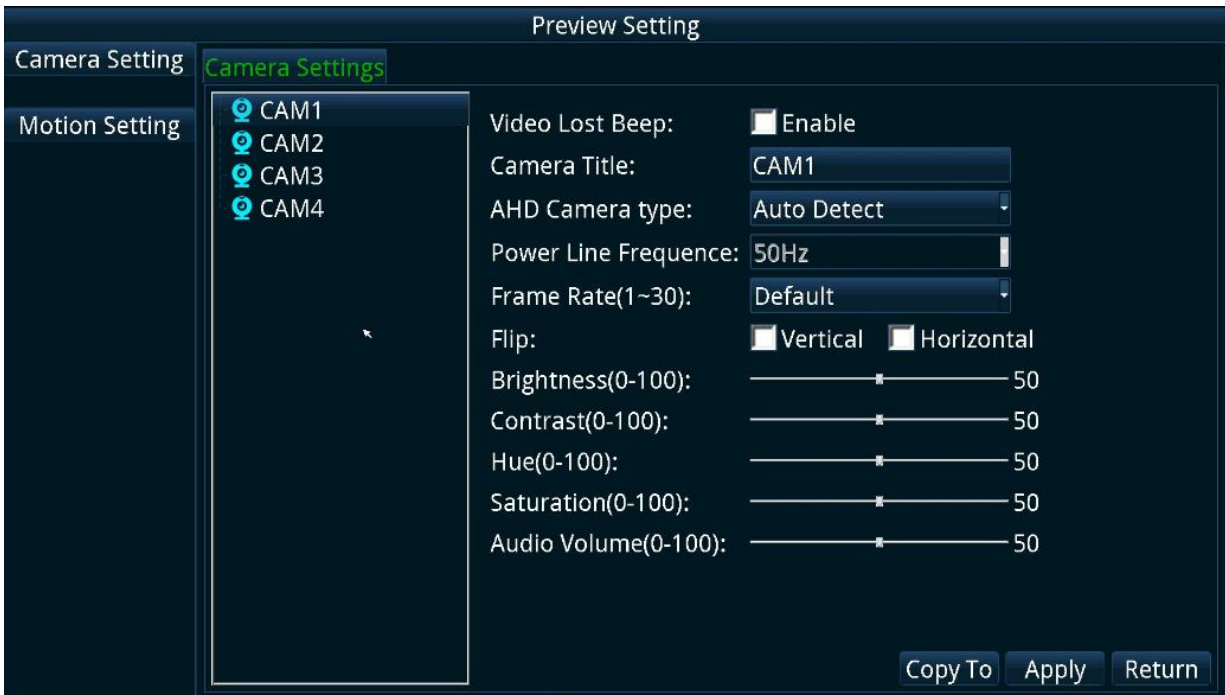
1. When the disk is used with the DVR for the first time, it should be formatted before using.
2. Right click the mouse, choose "main menu", then go to "storage". Choose the disk you need to format, and click "format" button to format the disk.
3. If no disk is found, the DVR will show "no disk" error message. If there is some error with the disk, such as write error, the error message will also be prompted on the screen.
4. When the disk is full, the DVR can be configured to overwrite the earliest files.

**Note: The format operation will lose all data on the disk. Please backup the data needed before formatting the disk.**

## 3.10 Setting up the cameras

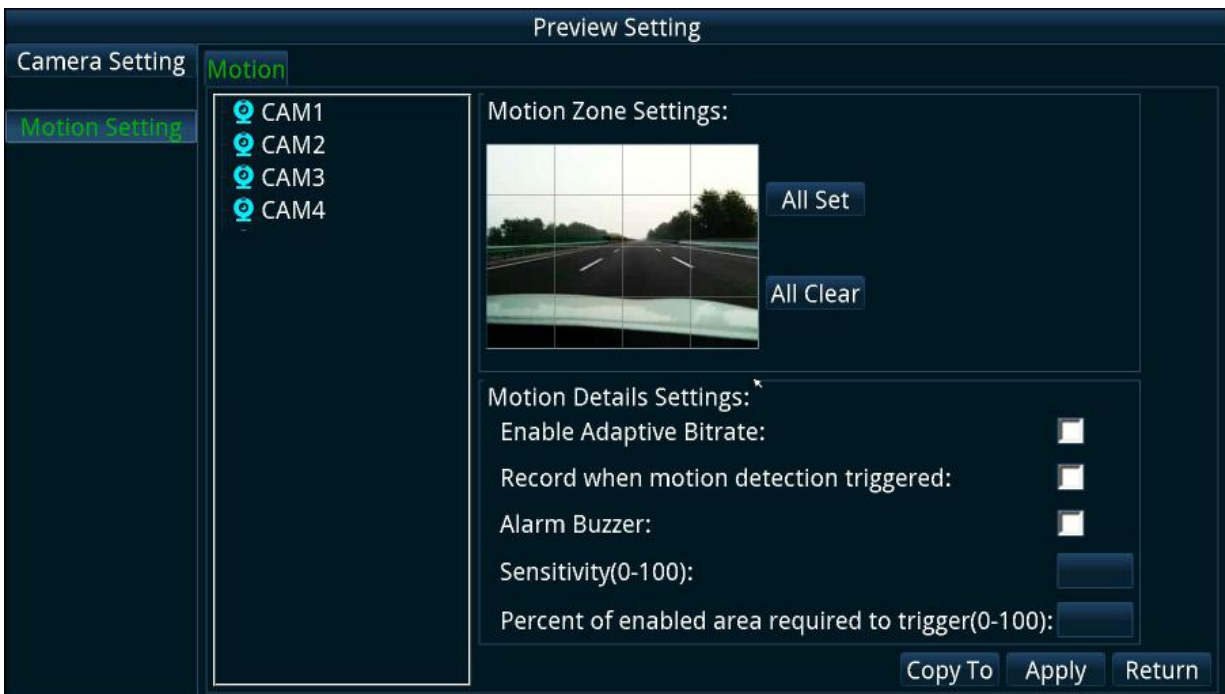
With the "preview" setting, you can set the camera parameters and motion detection.

### 3.10.1 Camera Setting



- The DVR can be configured to beep when the camera gets lost.
- User can set the parameters of each camera, including Camera Title, Frequency, Flip Mode, Brightness, Contrast, Hue, Saturation, Audio Volume, etc.
- The Camera Title should be less than 16 characters.
- The flip mode can be Vertical or Horizontal.

### 3.10.2 Motion Detection



- User can set motion detection area.
- DVR can be set to use Adaptive Bitrate to get better video quality, can be set to start recording when motion detected, or can be set to trigger beeper when motion detected.
- User can set the sensitivity of the motion detection. The higher the value is, the more sensitive



the DVR will be.

## 3.11 Record Setting

### 3.11.1 Setting Record Details



- Each camera can support PAL/25fps or NTSC/30fps recording, the bitrate range from 100Kbps to 3000Kbps. The recording support adaptive bitrate control to save recording space. The bitrate can be down to only 50% of the setting value if there is not too much motion in the video. For example, if the setting is PAL/25p, 1200Kbps, the actual bitrate can be down to 600Kbps if there is few motion in the video.
- If you use high bitrate for recording on the SD card, please choose fast speed SD card, like Class 10 SD card .
- The file length can be set from one minute to four hours. Due to the limit on FAT32 file system, each file size cannot be over 2GB. When the file length is too long and bitrate is too high, the file size could be over 2GB. In this case, the DVR will close the file and create a new file automatically to avoid this error.
- There are H.264 and H.265 video modes to be set. Theoretically, H265 consumes 50% less storage space than H.264 under the same picture quality.
- The file size for one hour recording displayed in the menu is for reference only. The actual file size could be a little different.
- There are 3 types of recording mode: manual, auto and off. The default mode is auto. In this mode, the DVR will start recording automatically when the DVR is turned on. If it is set to manual mode, the DVR will not start to record unless user configures it manually. User can use the mouse to start recording manually. If any camera is set to off, the DVR will not start to record on this camera.
- You can click the "start" or "stop" button to start/stop recording on any specific camera.
- You can click the "apply" button to save the setting.

- The record file can be encrypted if you check “using encryption”. If the file is encrypted, the record file can’t be played on any third party playback software. You can only use the playback software provided by our company. You would also need to enter the password.

### 3.11.2 Record Schedule



- The record schedule support three different schedules for recording.
- All cameras can apply the same schedule, or use can set different schedule for each camera.

## 3.12 Power Setting



- Ignition Level: "Ignition Level" is the voltage level when the ignition is turned on. By default, it is "High". For some special vehicle, this value should be set to "Low".
- ACC Power OFF Delay: The DVR can be set to keep on for some time after the ignition is turned off, and turned off automatically by the set time. This value is in seconds, the default value is 30 seconds. In this case, the DVR will go to standby. In standby mode, the DVR will not be powered on unless the ignition is turned on again. And even if the ignition is turned on again, the DVR will still need about one minute to boot up completely and start recording. If the "ACC Power OFF Delay" is set to 0, the DVR will be always on and not be turned off even if the ignition is turned off.
- Sleep Delay-ACC Off: This parameter is used to set the timeout when DVR is going to sleep mode after the ignition is off. In sleep mode, the camera will be turned off, but the DVR is still working. This is different from the case when using the "ACC Power Off Delay" to let DVR go into standby mode. In sleep mode, as the DVR is always working, the DVR will power up the camera and start recording immediately when there is any alarm is triggered. The "Sleep delay-ACC Off" value usually should be set to a value larger than "ACC Power OFF Delay", otherwise the DVR will go to standby mode before going to sleep mode. If "Sleep Delay-ACC Off" value is set to 0, the DVR will not go to sleep mode.
- Sleep Delay-No Alarm: This parameter is to set the timeout when DVR is going to sleep mode after last alarm (event) occurred. If this value is set to 0, the DVR will not going to sleep mode even if there is no alarm.
- Timer Power On/Off: This is to set the DVR to turn on/off at specified time. If both value is set to "00:00", this feature is disabled.
- Power On/Off Threshold Voltage: When the voltage connected to the DVR is higher/lower than the Power On/Off Threshold Voltage, the DVR will turn ON/OFF. When it is set to "0", the setting is OFF.

The reason that we have two power-saving modes (the standby mode and the sleep mode) for DVR is that in some cases the DVR should resume recording immediately from power save mode. In standby mode, the DVR is turned off and the cameras are also turned off, the power consumption will be very small. But the DVR needs about 20 seconds to boot up before it can resume recording. In sleep mode, the DVR is still on but the cameras are turned off. The sleep mode will have more power consumption than standby mode, but it will have less power consumption than working mode. A typical use for sleep mode and standby mode is for taxi application. The DVR can set "ACC Power Off Delay" to 21600 seconds (6 hours), "Sleep Delay-ACC off" to 10800 seconds(3 hours), and "Sleep Delay-No Alarm" to 10800 seconds(3 hours). We will also connect the taxi meter signal to the "Sensor 1" (Alarm 1) and the door open signal to "Sensor 2" (Alarm 2). These two sensors will trigger recording. With this configuration, if the taxi is parking (no ignition) for 3 hours, and there is no passenger (no meter on or no door open) for 6 hours, the DVR will go to sleep mode. But during this time, if the taxi is turned on or there is a passenger, the DVR will start recording immediately. If the taxi is parking (no ignition) for 6 hours and there is no passenger (no meter on or no door open) for 6 hours, we will think the taxi is not running, the DVR will go to standby mode.

### 3.13 Motor Setting

Mobile

Power

Motor Settings

Motor

License ID: 2222222

Obtain Speed : From GPS(If Any)

GPS

Speed Unit: KMH

G-Sensor

Speed Limit(KMH/MPH): 80

Overspeed Record: Set

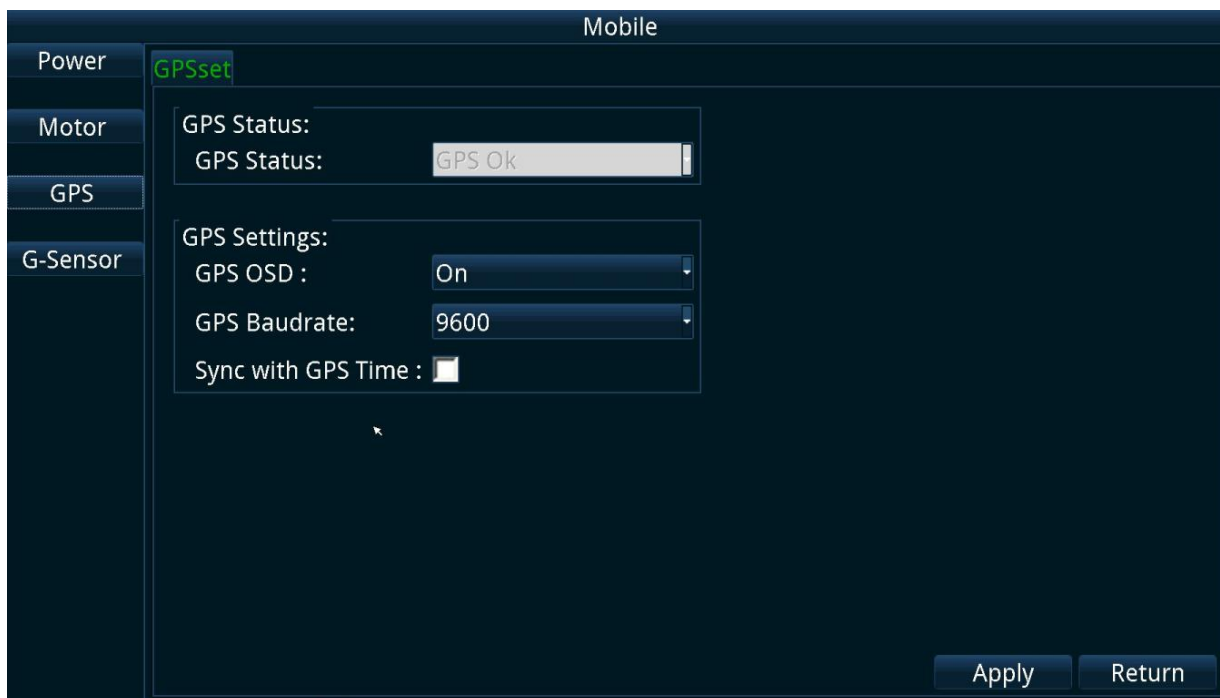
Overspeed OSD:

Overspeed Buzzer: Off

Apply Return

- License ID: Set the plate number, support characters (case sensitive) and numbers.
- Support to get speed from speedometer, the speed unit can be km/h or mile/h;
- The over-speed value is configurable. The over speed alarm can be used to trigger recording. If the over speed value is set to 0, the over speed alarm will be disabled.
- "Overspeed OSD": Set the tile displayed when over speed.
- "Overspeed Buzzer": Turn on/off buzzer when over speed.

### 3.14 GPS Setting



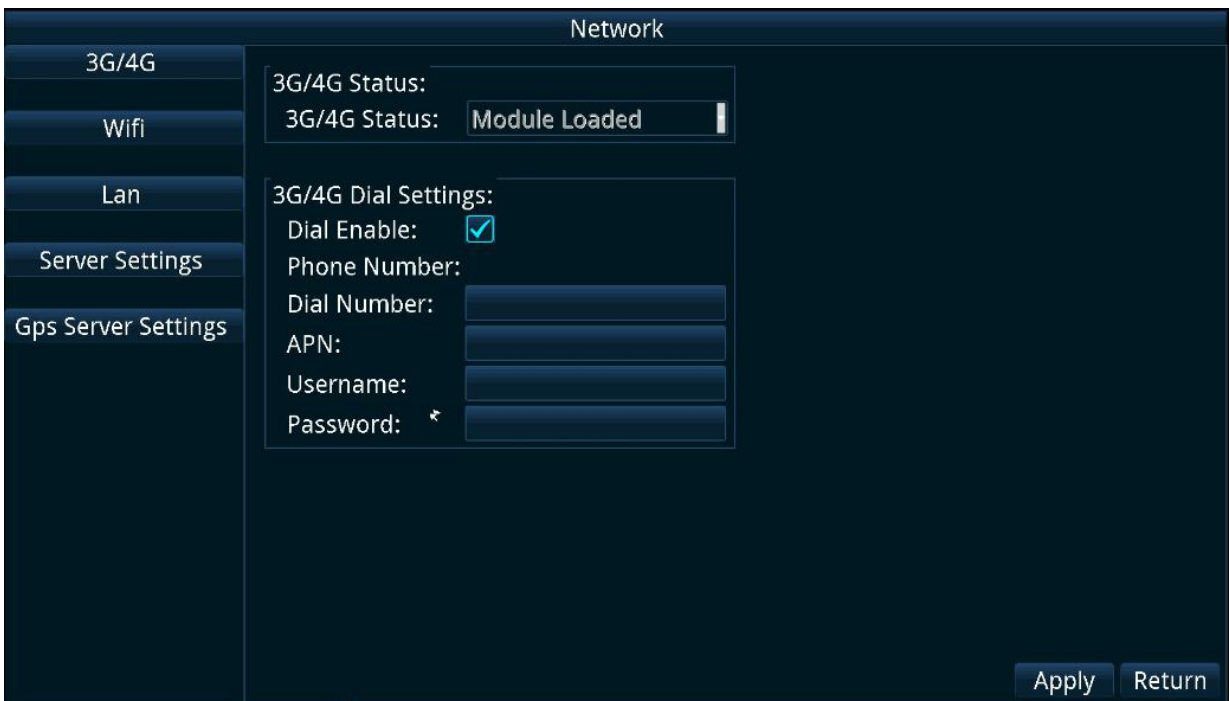
- GPS Status:  
GPS Not Found: No GPS found by the DVR.  
GPS GPRMC: DVR has got "GPRMC" data from GPS, but GPS signal is not good.  
GPS OK: GPS is working correctly.
- GPS OSD: If this option is set to "On", the GPS data (latitude and longitude) will be displayed on screen, and recorded with video.
- Sync with GPS Time: When this option is turned on, the DVR will synchronize with GPS time.
- GPS Baud rate: The communication baud rate between GPS and DVR. The default value is 9600.

### 3.15 G-Sensor

- Instant Value: It shows the current value from G-Sensor in axis X, Y and Z. Due to the gravity, if the DVR is installed horizontally, the initial value of axis Z will have about 1.0G and the value will be about -1024.
- Initial Offset: The "Initial Offset" is to have a base value for alarm threshold. As DVR will be installed in different place, the "Initial Offset" can be set to the initial value displayed in "Instant Value". In this way, if there is any change between current G-Sensor data and the initial Offset, we think something might have happened.
- Alarm Threshold: The "Alarm Threshold" is used to set the threshold to trigger an alarm. If the difference between "Instant Value" and "Initial Offset" is larger than "Alarm Threshold", the DVR will trigger a G-Sensor alarm.
- Alarm OSD: Set the title displayed on screen and recorded with video when there is a G-Sensor alarm.
- Alarm Record: Set up the G-Sensor alarm recording.



### 3.16 3G/4G Setting

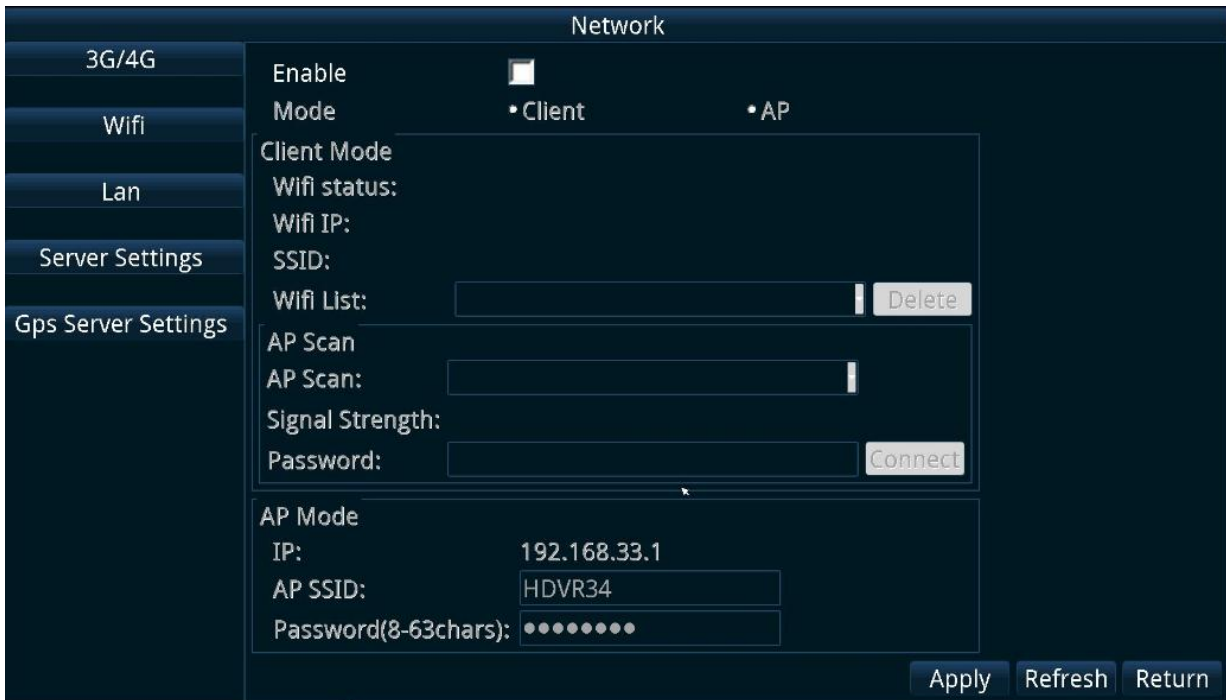


- **3G/4G Status:**  
 Module Not found: The build-in 4G/3G module is not found by the DVR.  
 Module Loaded: The DVR has found the built-in module, but fails connecting to mobile network. It could be possible that a SIM card is not loaded, or 4G/3G signal is not good.  
 Mobile Connected: 4G/3G is working correctly.
- **3G/4G Dial Settings:** User should set these parameters according to that provided by the mobile service provider.

- DVR can connect to an APN network, user needs to enter APN parameters to access the APN network.
- SIM card hot swap is not supported. If the SIM card needs to be changed, please restart the DVR to make it take effect.

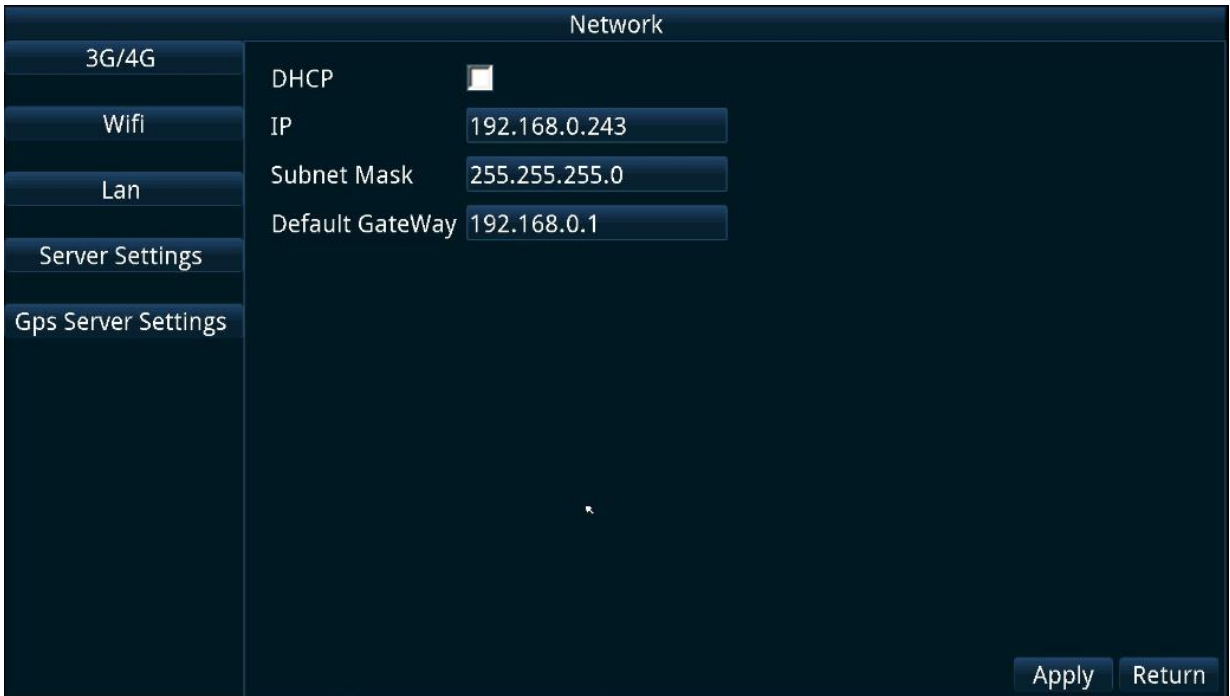
### 3.17 WIFI Setting

- WiFi Status:  
 Connected: DVR has connected to WiFi network and accessed to internet successfully.  
 Module Not Found: The built in WiFi module is not found by the DVR.  
 Module Loaded: DVR has detected the WiFi module but not found any WiFi signal.  
 Disconnected: WiFi is not connected.  
 Not Connect Internet: DVR has connected WiFi but failed accessing to internet.
- Any WiFi connected can be saved into the WiFi list. DVR can save up to 50 WiFi SSID. The saved WiFi SSID can also be deleted.
- DVR supports Access Point, the default password is 12345678.



### 3.18 Network Setting

- DVR supports dynamic IP and static IP.
- If there is necessary, please change DVR IP Address to match the Network Segment of PC.



### 3.19 Server Setting



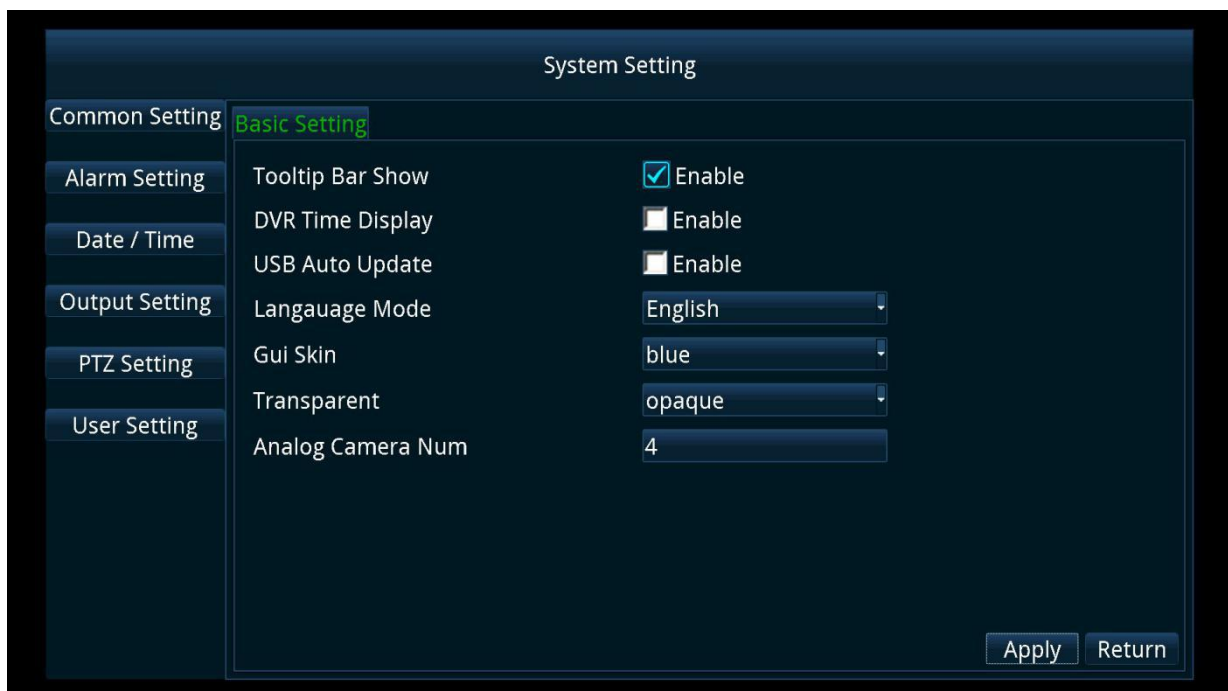
- Server Status:  
"Connected" means DVR is connected with server properly. "Disconnected" means DVR is not connected with the server.
- DVR ID is the ID for server, user should not change this value.
- Server IP is the IP address of server, generally it is detected by the DVR automatically, and users do not need to set it.
- Server port is the port for communication. The default port number is 6608. In most of the cases



users do not need to change this value.

- The video type can be set to H.264 or H.265. Theoretically, under the same picture quality, H.265 takes only 50% bandwidth comparing with H264.
- Network Stream Setting: These parameters are for live streaming via 4G/3G. The default resolution is 640x360, bitrate is configurable from 10Kbps to 1500Kbps. Frame rate is configurable from 1fps to 30fps.
- Intercom to communicate with platform.
- GPS Server settings: Sending GPS data to user's own server.

### 3.20 System Setting



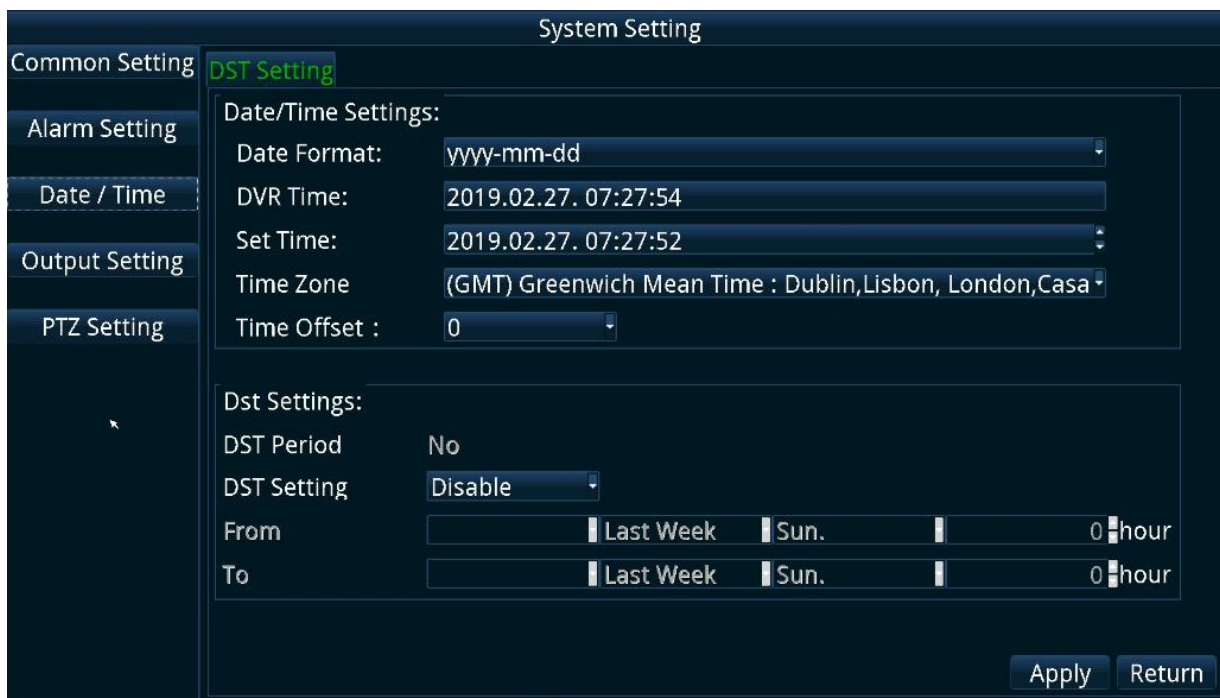
- Enable the "Tooltip Bar Show", the bottom of preview interface will show the storage and network information.
- DVR supports multiple language.
- Can set the number of cameras.

## 3.21 Alarm Setting



- DVR supports 3 alarm sensors.
- Trigger Level: If the trigger level is set to high, high level voltage on the sensor will trigger an alarm. You can check the "Trouble Shooting" on P33 for the definition of high level and low level.
- User can set up the alarm recording triggered by these sensors.
- Alarm OSD: The title that user would like to display on the screen and be recorded with video.
- Alarm Buzzer: Enable/Disable buzzer when an alarm is triggered.
- Switch View: Choose one camera to be in full screen mode when there is an alarm triggered. This can be used for rear view full screen or side view full screen. For example, user can connect sensor 1 to reverse signal, if camera 1 is the rear view camera, we can set the "switch view" for sensor 1 to camera 1. When the vehicle is reversing, camera 1 will be displayed full screen on the monitor.
- Switch View Delay: The DVR will keep switching the camera until the alarm is not triggered for specified delay time. This is useful for side view camera. For example, if the left side camera is camera 2, user connects sensor 2 to the left light signal. When the driver is switching to left light, the sensor 2 alarm will be triggered. Note: Usually the left light will not be always on, it will be blinking like on, off, on, off...Same as the sensor 2 alarm, it will also be on, off, on, off... In this case, we can set "Switch View Delay" for 5 seconds (for an example) for sensor 2, set "Switch view" for sensor 2 to camera 2, then the DVR will keep camera 2 in full screen mode until the sensor 2 alarm is off for over 5 seconds.
- Pre-Record Time: The time that DVR will keep for recording before an alarm is triggered.
- Post-Record Time: The time that DVR will keep for recording after an alarm is triggered.
- All of the alarm record files will be kept in a separate alarm folder. The files in the folder will not be overwritten.

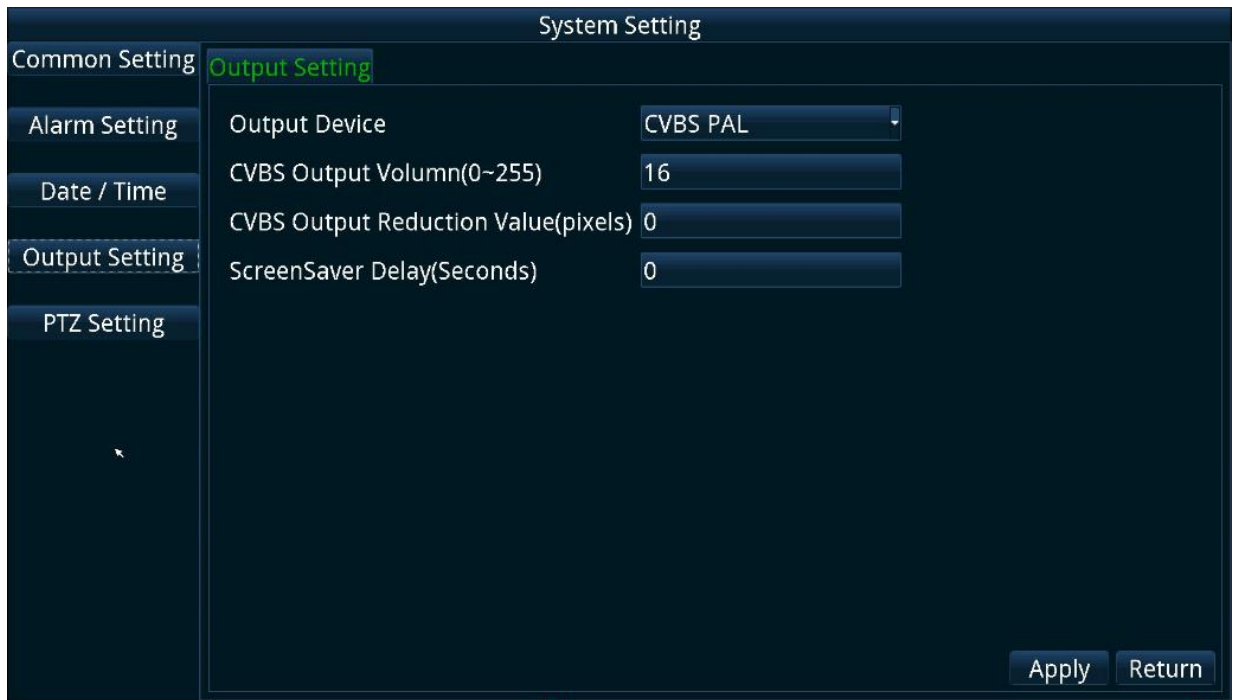
## 3.22 Set Date and Time



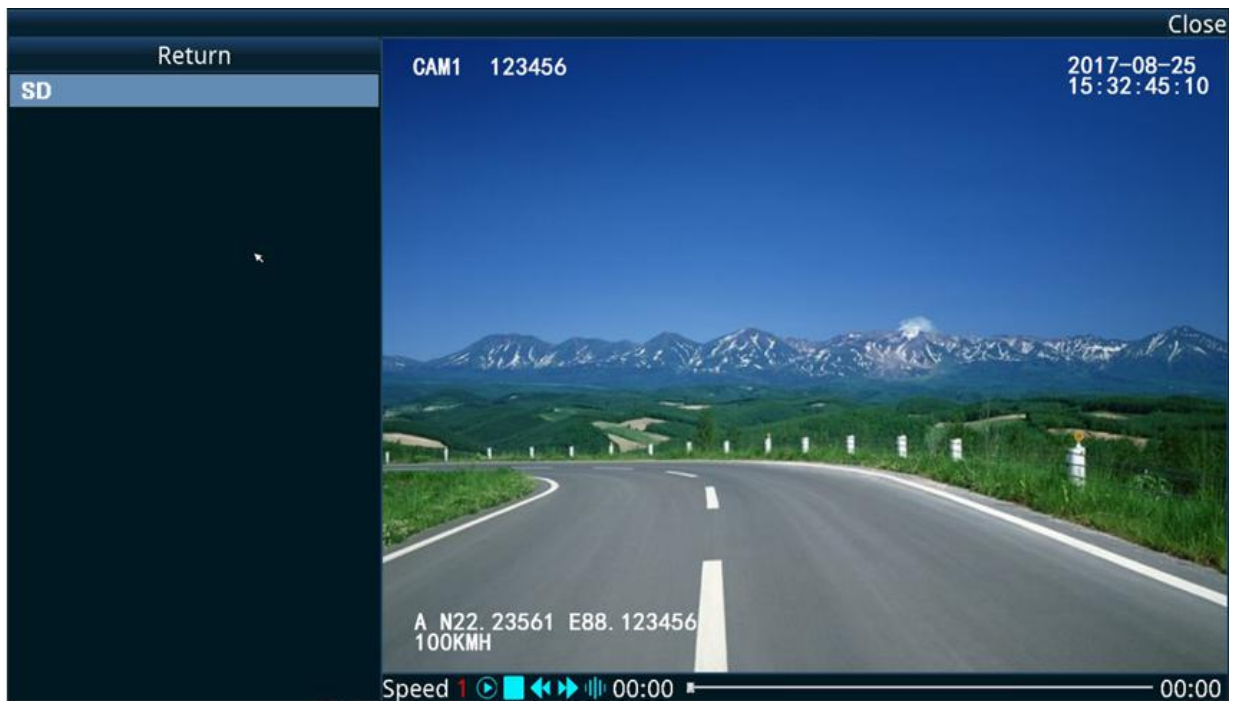
- User can choose different date format.
- DVR time is to display the current time. User is not able to edit it.
- You can set the DVR time in "Set Time". If you find the DVR time is not changed as per what you have set, please check to see if you have enabled the "Sync With GPS Time".
- User can choose different time zone.
- Time Offset is usually used in some countries those are using special time zone, like India.
- So for DST only supports USA/Australia/New Zealand/UK.
- Users can set up the rules for their countries DST if it is not listed above.

## 3.23 Output Setting

- DVR can be connected with HDMI and CVBS monitor at the same time. The audio output is based on the setting of "output device".
- DVR supports volume adjustment for CVBS monitor. The time for DVR to enter Screen Saver mode can be set. When it is set to "0", DVR would NOT enter Screen Saver mode.
- CVBS Output Reduction Value allows the user to adjust the output display pixel according to the current CVBS screen.

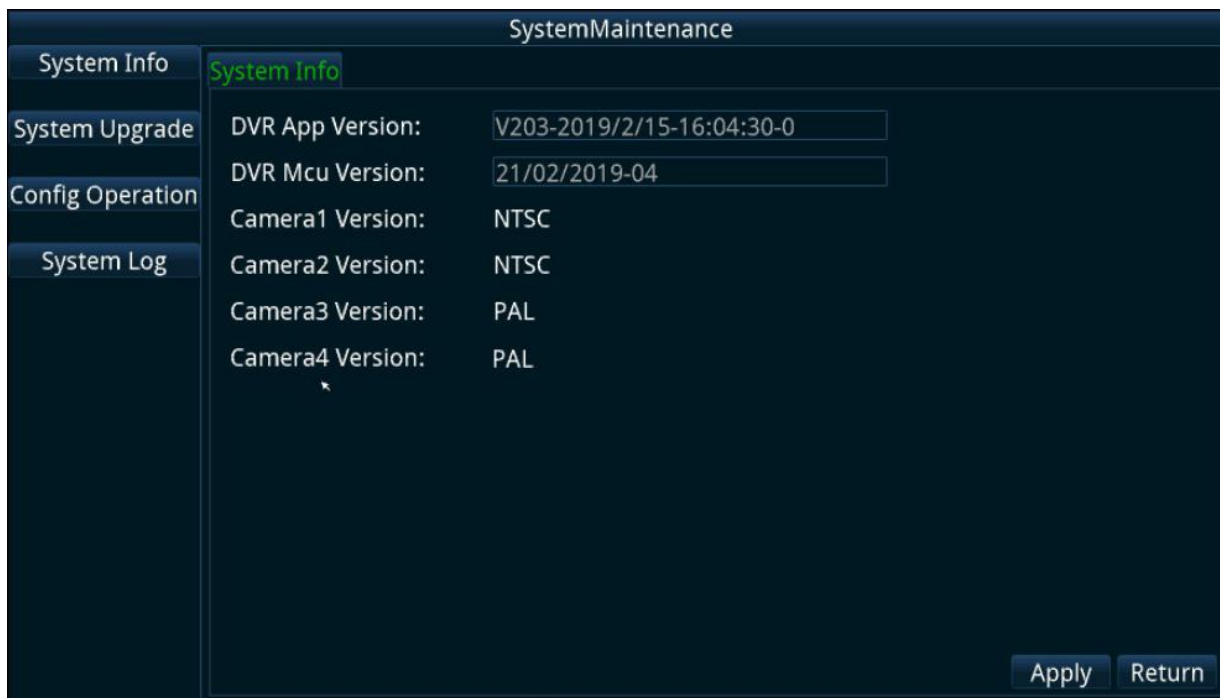


### 3.24 Record Play back



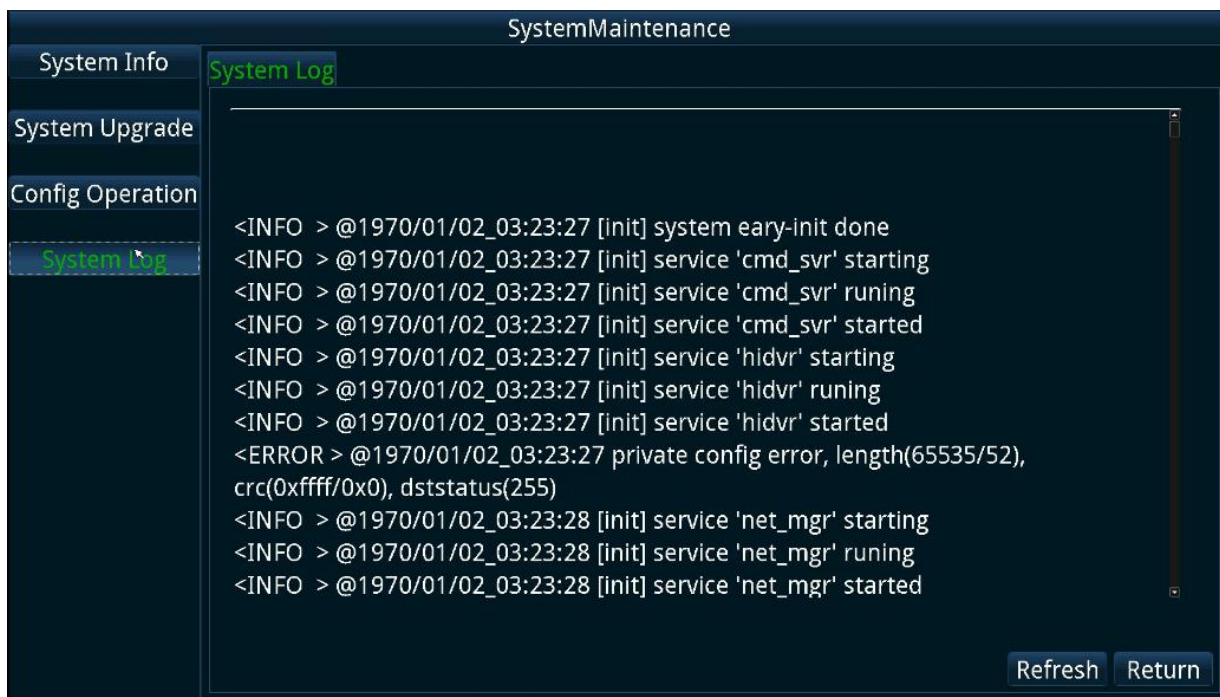
- User can play back the files on SD.
- The record files are listed by time and cameras.
- When playing back, user can choose to fast forward, back forward, pause, step, etc.

### 3.25 System Information



- In system information, it will give firmware version, MCU firmware version, camera type.

### 3.26 System Upgrade and Log



- The firmware upgrade file is a file with "tar" as file extension. Other files can't be used for upgrade.
- When upgrade is completed, DVR needs to be restarted before new firmware takes effect.

- The DVR can be reset to default setting. Note: All settings will be lost if DVR is reset to default setting. The DVR will need to be restarted to make the default setting take effect.
- The DVR setting can be exported to a file. This file can be used to import to other DVRs to have the same setting. DVR will need to be restarted to make the settings take effect.
- For DVR support 4G/3G, user can import the setting to DVR via 4G/3G.
- User can connect a SD card or USB pen drive to get the log file.

## 4. Specification

Model		SDVR104
SYSTEM	OS	Linux 3.18.20
	Booting Time	<20 s (From Powered on to start recording)
	Language	Chinese/English/Russian
	UI	GUI (QT based)
	Power	Power In: 8V ~ 32V DC, Power out for analog camera: 12V/1.5A (4 cameras)
Video	Video Input	Maximum for 4x D1 cameras
	Video Output	CVBS or miniHDMI output
	Preview	Support FullScreen/Dual View/Quad View
	Record Mode	Auto Record, Schedule Record, Alarm Record
	Record File	Record video and audio at same time
	Compression	H.264 /H.265
	Frame Rate	120fps
Audio	Audio Input	4 audio input (audio is built in the camera)
	Audio Compression	G711
Video Process	Record Resolution	720x576/720x480
	Bitrate	100~3000 kbps for each camera
	Storage	SD card up to 256GB, the video file format is AVI
Alarm	Alarm Input	3 alarm sensors input, 1 speed input, 1 ignition input, 1 panic button alarm, 1 G-Sensor alarm
	Alarm Output	1 beeper, Alarm OSD
	Event	Video Loss Event, Over Speed Event, G-Sensor Event, Storage Event, Motion Detection Event, Panic button Event
Communication	RS485	One RS485 port
	RS232	One RS232 port (For GPS)
	RJ45	One RJ45 port, 100M network
	USB	One USB, can be used for mouse, USB stick
Network	Protocol	TCP / IP
	3G/4G	Optional, build in 3G/4G(HSUPA/HSDPA/WCDMA/EVDO/TD-SCDMA/FDD-LTE/TDD-LTE)
	WIFI	Optional, support WIFI connection and AP
Location	Location	Location feature is optional, Support GPS/GLONASS/BEIDOU, recording location, speed, live tracking
Firmware	Frame Rate	Recording frame rate: 1~30fps selectable for each camera
	License ID	Support
	Camera Name	Support
	OSD	Display and record time, license ID, camera name, location, speed

	Firmware Upgrade	Can use USB disk/SD card/remote upgrade via 4G
	G-Sensor	Support
	Play back	Support play back, file listed by time, alarm
	Play Speed	Support from 1/32 to 32
Software	hPlayer	Player software, play multiple cameras together, can also play the encrypted file
	CMSV6	Used for 4G/3G model only, support live view/live tracking/historical track/remote upgrade
Power Input	Power Input	8VDC~32VDC
Power Output	Power Output	Power output for cameras: 10.5V/1.5A (4 cameras)
ACC	<4.5V	Ignition Off
	>6.2V	Ignition ON
Power Control	Ignition	Turn on the DVR when ignition is on, can set DVR to turn off after a specified time when ignition is off
	Power Consumption	Less than 4.0W (No camera power consumption included)
Other	Size	118x92x20 mm
	Weight	About 0.2kgs
	Time	Internal clock, can synchronize with GPS
	Dual bit stream	Two different bit stream for recording and live streaming via 4G/3G
	Power Protection	Protect power from short cut, over load or error connection
	Default	Can set to default setting
	Light Indicator	Light Indicator for power, run, alarm network, 4G/3G
	Over Write	Support
Working Condition	Working Temperature	-25 ~ 55°C
	Working Humidity	5%~93%



## 5. Trouble Shooting

### **1. Q : After connecting the DVR power, no video output, the first and second indicator lights on panel flashing alternately.**

A: The No.5 indicator light is "Power", and No.6 is "Run". If the 2 indicator lights are flashing alternatively, the DVR has lost the ignition signal. Please check and see if the yellow wire of power cable has been connected with the power positive level, or if it's the same as the setting of the effective electrical level in menu settings. Note: The factory default sets the high level effective. That is, it is only effective when the yellow ignition signal wire is connected with the power positive level.

### **2. Q: SD card's capacity is limited, how to extend the recording time to meet customer requirements?**

A: Choose h.265 recording, reduce the video frame rate, video resolution and bitrate.

### **3. Q: When using the SD card, ScreenTip appears "read only error ".**

A: Please check to see whether the SD card is written protected. If so, please move the pick to non-written protected mode.

### **4. Q: What is "high level"? And what about "low level"?**

A: Generally, a vehicle has two electrical levels, the power and the ground. Automotive power voltage has 12V and 24V, both are generally called high level. Ground of vehicle is the reference level, the accurate level is battery negative electrode, which is called low level. For vehicles with negative switch control (the main switch cuts off the connection between the battery cathode and car chassis ground), the chassis ground connects to the battery anode through a certain resistance, the chassis ground is not a reference ground anymore. Please refer to the Appendix at the end of this manual, including the potential analysis diagram against cars with negative switch control.

### **5. Q: Respectively, what's the voltage reference range of the high and low level in the DVR?**

A: The voltage range of low level is DC 0V~4.5V, and the high level is DC6.5V~32V.

### **6. Q: How to configure the system?**

A: Connect a mouse with the DVR through the USB port on front panel, enter the menu settings, left or right click the mouse to do the configuration.

### **7. Q: SD card or hard disc is OK, but the video recording doesn't work, what should I do?**

A: Please check to see whether the Record Mode has been changed from "Automatic" to "Off ", or whether the DVR has been set to scheduled record mode, but the current time is not within the time period you have set.

**8. Q: Do your Mobile DVRs support 64GB/128GB/256GB of SDXC card?**

A: Yes, the DVRs support up to 256GB SD card.

**9. Q: When the disk is installed in the DVR for recording, live images or played-back video will come to a frequent stop.**

A: Please make sure the SD card's writing speed is sufficient. Class 10 SD Card is recommended.

**10. Q: Does the internal real time clock maintained by battery? If so, how long will it last?**

A: One rechargeable battery is used for the internal real time clock. If the battery is fully charged and DVR is completely disconnected from the power supply, internal real time clock will last for about 1 month.

**11. Q: What do the 6 indicator lights on the panel of the DVR tell?**

A: Please check "2.1 front panel" on this manual.

**12. Q: What kind of player (playback software) should be used to play the videos on PC? Why sometimes the videos are not played normally?**

A: The video files is in standard AVI format. The video stream compression standard is senior H. 264/H.265.

1. We have our own playback software named hPlayer. It's with some additional functions, such as playing continuously, GPS map, fast forward, quick file search, etc.
2. If a file is not encrypted, it can also be played back on third party player, such as VLC (version 1.0.0 or above. It's free open source software, and can be downloaded from the internet), Media Player Classic (version 2009 Build: 3.9. or above).
3. For a file is encrypted, it would have to be played on hPlayer provided by us.

**13. Q: How to upgrade the firmware?**

A: 1.Copy the update package (Suffix ".tar" file) to the root directory of SD card (or USB disk). Important note: Do NOT try to unzip the ".tar" file.

2. Insert a SD card (or USB disk) into DVR, after the DVR finds the disk, go to the menu system and choose "system upgrade" to implement the firmware upgrade.

**14. Q: Does your DVR have RS485 control PTZ functions?**

A: Since there is not so much vehicle application required for PTZ control, factory default is without RS485. If you do need PTZ control function, please contact sales when placing an order.

**15. Q: I bought the mobile DVR with PTZ control function, but it has no response after PTZ connecting.**

A: If the DVR is confirmed to have PTZ control function, you may test as per the instructions given below:

- 1, Exchange the two lines of 485A and 485B, to see if they were connected in the

wrong way.

2, Make sure the PTZ Protocol is correct.

3, Make sure the PTZ address is correct. The default is 1, please adjust to 0 or 2 to test. In most of the cases the PTZ address code is 1. The address code needs to be changed when multiple PTZ devices are connected. In addition, the address of each PTZ device should not be duplicated. For an example, if you have 4 PTZ devices, you can set them to address 1, address 2, address 3 and address 4 respectively.

**16. Q: How long will my 256GB SD card record?**

A: After you set the record details, the DVR will give estimated disk usage for each camera, you may calculate the recording time according to the given data.

**17. Q: What is "Power OFF Delay"?**

A: In some cases, the users may need the DVR to continue the recording for a specific time after the driver turns off the engine. This is called "Power OFF Delay". The time can be configurable.

To use "Power OFF Delay", the positive level of DVR and the ground should be connected directly (through the fuse) to the cathode and anode of the vehicle battery. Meanwhile, connect the ignition signal wire to the ACC.

Note: Time of "Power OFF Delay" should not be set for a long time, as the engine is off, the DVR may drain out the vehicle battery and the vehicle may not be able to start.

**18. Q: Click the audio icon on screen trying to open the audio real-time output, but the monitor has no sound output.**

A: First of all, make sure the monitor itself supports audio output, then check the settings through menu: System Setting → Common Settings → Output Device.

## 6. Packing List

Standard accessories:

<b>Item</b>	<b>Description</b>	<b>Quantity</b>
1	DVR	1 pc
2	DVR enclosure	1 pc
3	DVR enclosure key	2 pcs
4	AV input cable	2 pcs (can choose BNC connectors or 4-pin connectors)
5	Power cable	1 pc
6	AV output cable	1 pc
7	Fuse holder	1 pc
8	3A fuse	2 pcs
9	Sensor Cable	1 pc
10	Manual	1 pc
11	WiFi/3G/4G antenna	1 pc (only available for WiFi/4G/3G model)

Optional accessories (charged with extra costs):

<b>Item</b>	<b>Description</b>
1	GPS Module
2	Event button
3	Camera extension cable (3 meter, 5 meter, 10 meter)
4	SD card

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