

# Mobile Mule™ RVS-5520 Installation and Setup Guide



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# Introduction and Overview

The RVS-5520 HD MDVR is a mobile HD DVR that supports 4 channels analog audio and video recording and playback simultaneously.

The device supports up to 4 analog cameras and one 1080P IPC recorder at the same time.

Equipped with an ARM DSP fast dual-core processor running on the Linux embedded OS, the RVS-5520 also integrates:

- H.264 video encoding/decoding
- 3G/4G network
- GPS
- Wi-Fi
- Failsafe protection
- HDD shock absorption
- HDD heating and wide voltage features.

## KEY FEATURES

Supports up to 4 cameras	Connect and record up to 4 cameras (in addition to an IP camera), recording all cameras simultaneously.
Monitor connectivity	Connects to monitor, allowing the driver to view all cameras connected and to record them. Allows all trigger functions of a backup camera system.
GPS tracking	Records speed, location, and exact driving route together with footage.
Geo Fencing	Allows you to set a route and receive alert on playback of vehicle deviation from route.
Loop recording	Records camera feed continuously, looping over oldest recordings when storage capacity exceeded.
Events	Can trigger certain recorded footage as events to be overwrite-protected
G-sensor	Recognizes sudden movements and can set alerts to save these recordings as events.
Flash storage	Records onto a hard drive (2TB) and is mirrored onto an SD card (128GB).
H.264 video compression	High quality compression provides best quality video in smallest storage space.
Delay power off	Up to 24 hrs. power-off delay, to record footage even after vehicle is shut off.
Mobile App	Remote access via Android mobile devices; view the cameras feeds and vehicle location directly from a smartphone.

# Front Panel

CLOSED  
(normal operation)



OPEN  
(HDD, SIM, and SD access)



# Front Panel

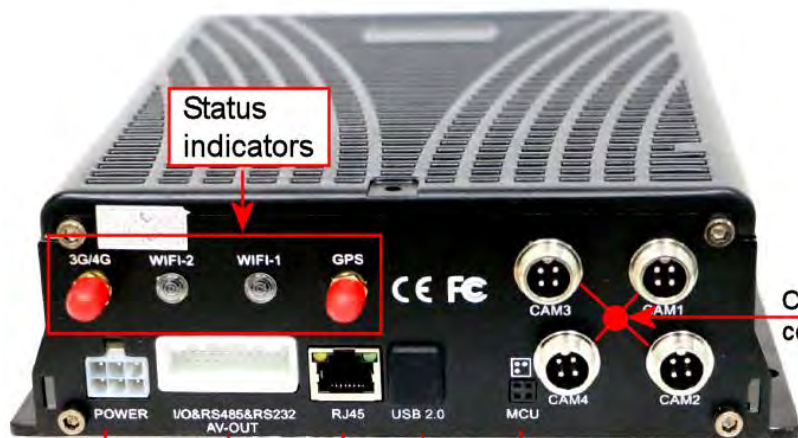




# Rear Panel



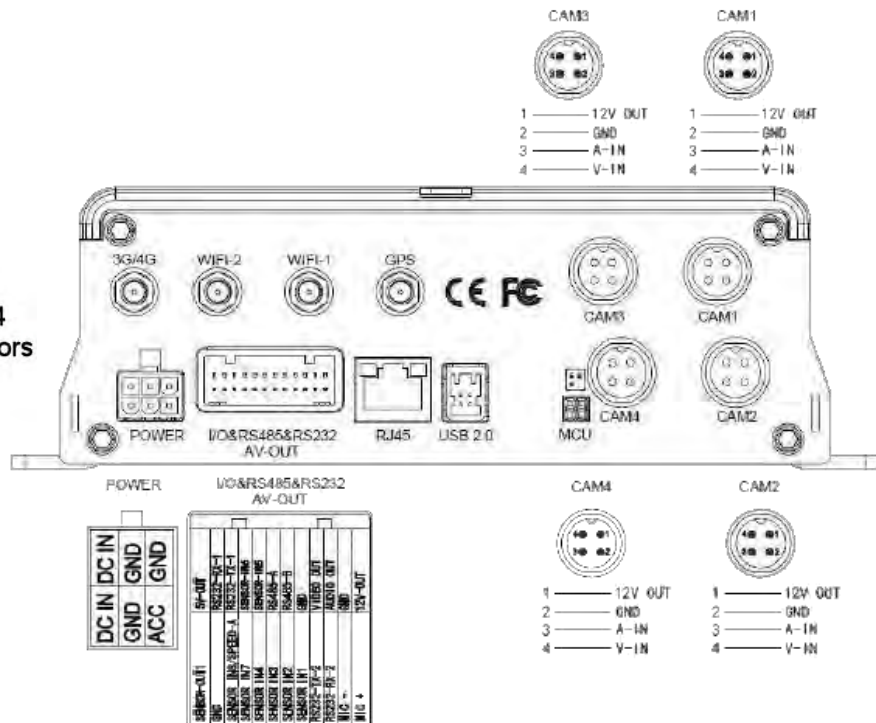
# Rear Panel



Status indicators


Power in  
I/O connector  
Network  
Rear USB

Cam 1-4 connectors



# Remote Control

## REMOTE KEYS

LOGIN	Press to input your password and access setup screens
INFO	View system information
Quad View (1,2,3,4) 	Used to switch between quad view and single view; press the Quad View key to display 4 screens. Press number 1/2/3/4 to display channel 1, 2, 3, 4, respectively.
RETURN	Return to previous menu; exit from setup menu.
PAUSE/STEP	Pause playing or play images at a single step. Press again to restore normal play speed.
FRAME	Press to select a frame rate.
PLAY	Press to start playing a video file.
FWD	Forward key with four speeds: 2X,4X,8X,16X
REW	Rewind key with four speeds: 2X,4X,8X,16X
NEXT	Page down; go to next title.
PREV	Page up; go to previous title.
PTZ	Pan/Tilt/Zoom control
F1, F2, F3	Functional test keys.





# Kit Contents

## COMPONENTS

1	MDVR
2	Remote control
3	4G antenna
4	Camera cable(s)
5	GPS antenna
6	Display output cable
7	Power cable
8	I/O cable
9	Keys for HDD/SD/SIM door
10	Allan key
11	Hardware



## Installation Environment and Safety Precautions



To extend service life, attempt to install the device in a place where vibration is weak.



Do not install the device in a poorly-ventilated area (such as trunk).



The device must be installed horizontally in a location protected against water, humidity, and lightning.



8V-36V DC power supply is used for this device. Note the positive and negative terminals during connection to prevent short circuit.



Always power the device off before connecting any peripheral.



Do not touch the power supply and the device with wet hands.



Do not spray liquid on the device to prevent internal short circuit or fire.



Do not place any other device directly on top of the camera.



To avoid damage or electric shock, do not disassemble the housing.

# Disclaimer



Subject to equipment availability, your system may vary slightly from the components described in this document, and may require the use of adapters in order effect the connection of devices.

The connection instructions provided in this document are based on an in-house installation by FleetMind technical personnel and involve the following components:

- RVS-5520 MDVR mobile HD DVR
- RVS-6139-RCA display with RCA connectors



# HDD, SIM Card, SD Card

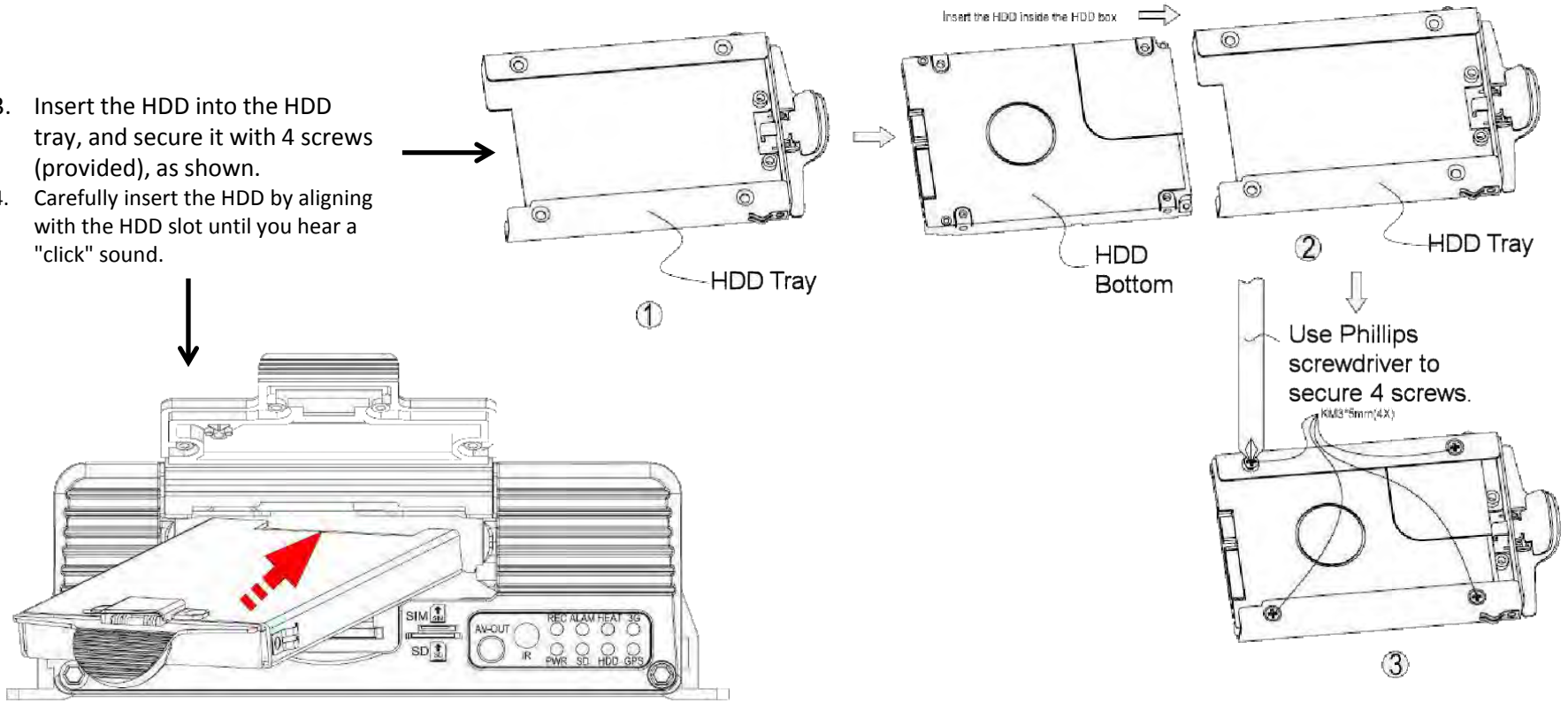
To install the hard disk drive, SIM card, and SD card, you must open the protective cover on the front panel of the unit.

1. Turn the lock located on the front panel counterclockwise to unlock it, and lift up the protective cover.
2. Remove the HDD tray from its slot by squeezing the tabs together and sliding the tray out.



# HDD, SIM Card, SD Card

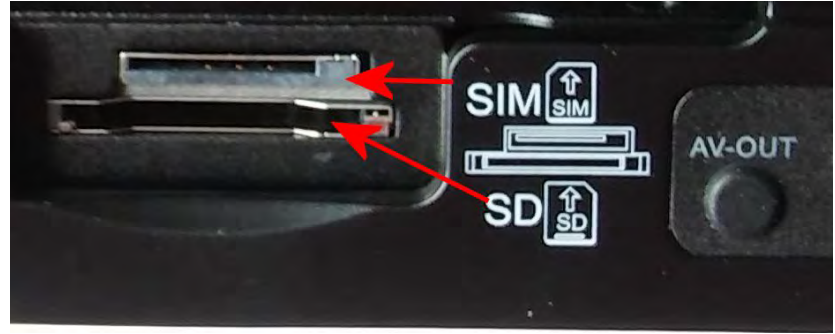
3. Insert the HDD into the HDD tray, and secure it with 4 screws (provided), as shown.
4. Carefully insert the HDD by aligning with the HDD slot until you hear a "click" sound.





# HDD, SIM Card, SD Card

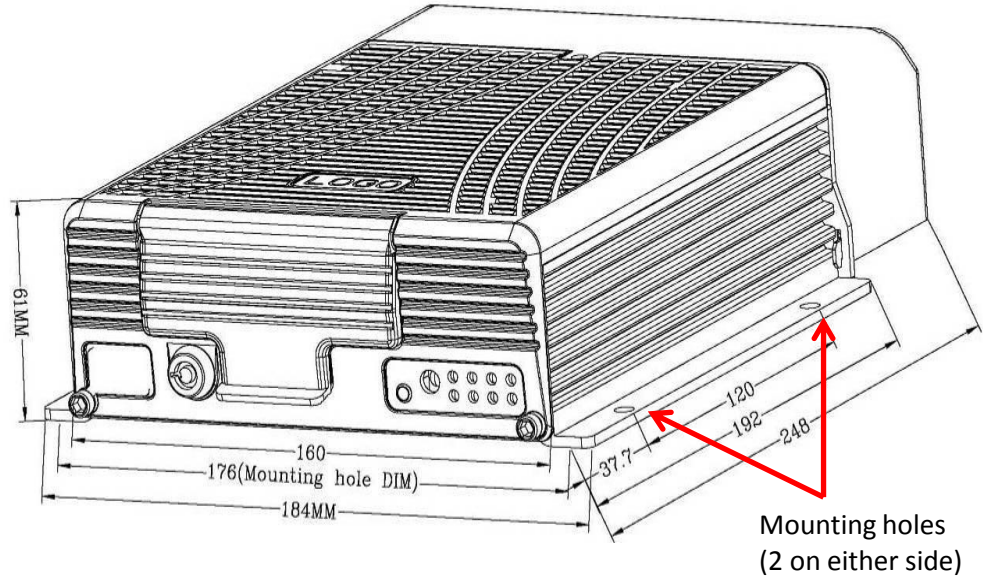
5. Insert the SIM card and the SD card into their respective slots, as indicated on the front panel. screws (provided), as shown.
6. Close the protective cover, and then turn the lock clockwise to lock it, otherwise, the device cannot be powered on.



**WARNING! do not open the lock during normal operation, otherwise the unit will shut down within 8 seconds.**

# Mounting the Unit in the Vehicle

1. Decide on a suitable location for mounting the MDVR in the vehicle, keeping in mind the [Installation Environment](#) guidelines.  
**NOTE:** Ensure that you leave sufficient clearance for easy access to the rear panel connectors.
2. Using the base plate of the unit as a template, mark off the positions for the mounting holes (4) and drill pilot holes accordingly.
3. Fasten the MDVR to the surface with 4 screws.



# Making Connections

## Antennae

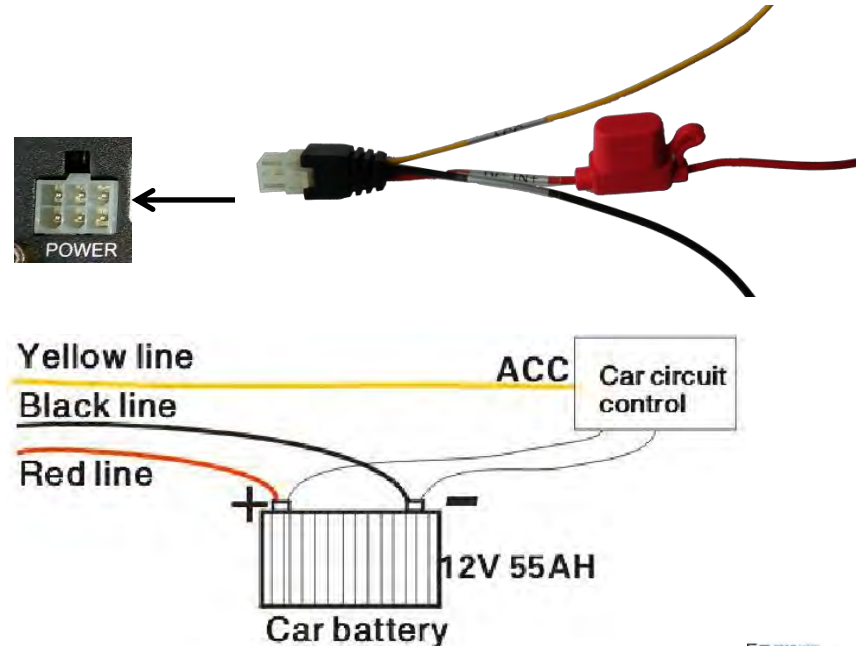
- Connect GPS, 3G/4G and Wi-Fi antennae to their respective connectors on the rear panel of the MDVR.



## Power

- Connect the power cable to the 6-pin power input interface on the rear panel of the MDVR.
- Connect the red and black wires to 12VDC and ground, respectively.
- Connect the yellow wire to ACC, the vehicle control circuit switch (used to start the vehicle motor).

The unit will be enabled automatically when the car key is ON and disabled when the key is OFF.



# Making Connections

## Display

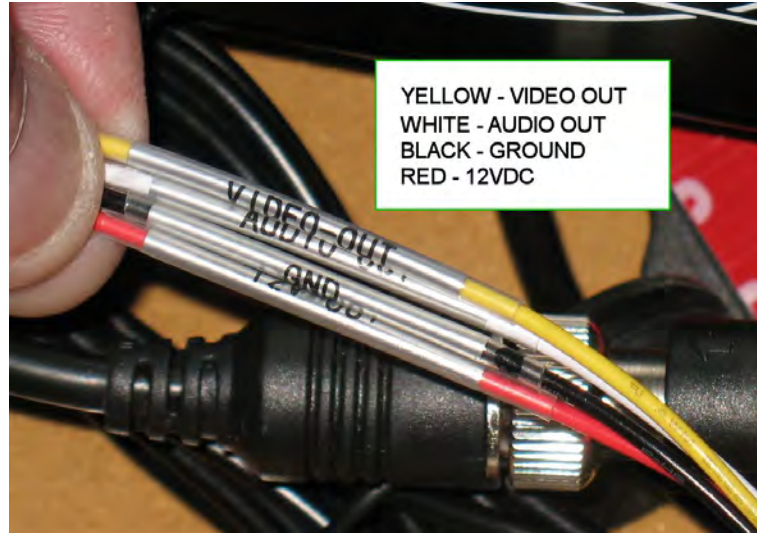
The MDVR supports two CVBS video outputs:

- the 3.5mm Phone Jack on the front panel
- the 24-PIN connector on the rear panel.

Use the pin-out diagram when connecting the display to the rear panel.

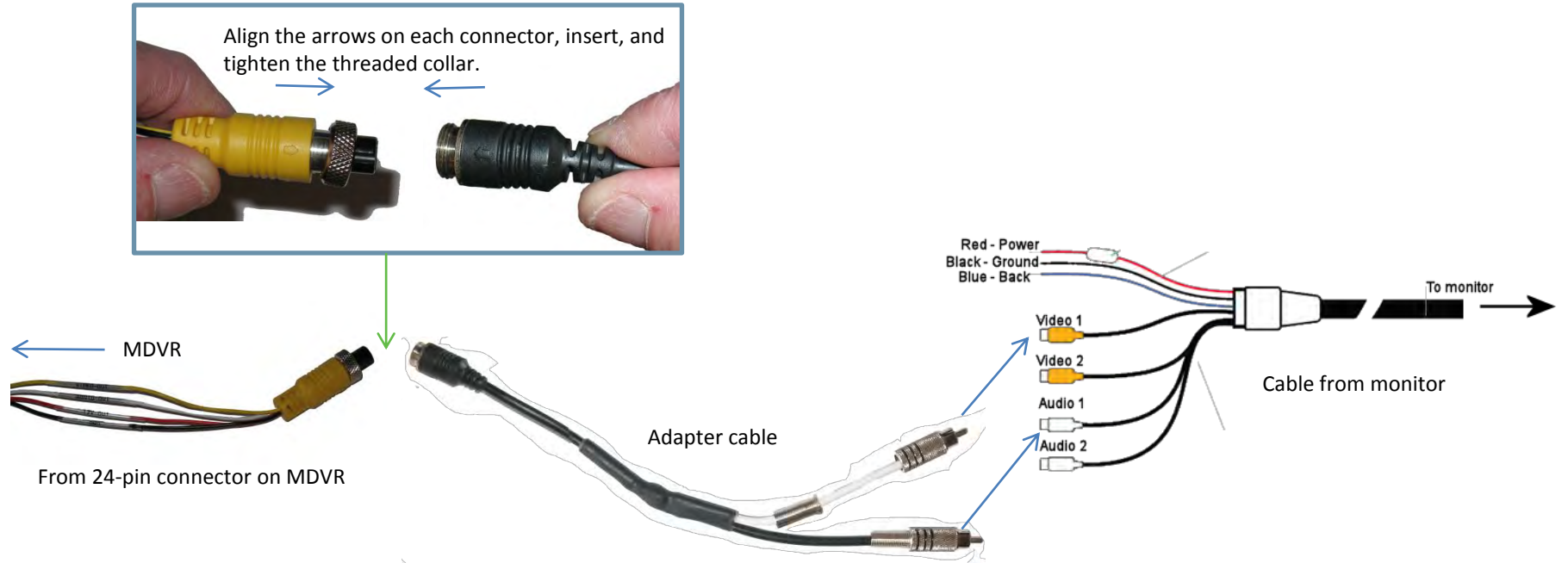
I/O&RS485&RS232  
AV-OUT

SENSOR-OUT1	5V-OUT
GND	RS232-RX-1
SENSOR IN8/SPEED-A	RS232-TX-1
SENSOR IN7	SENSOR-IN6
SENSOR IN4	SENSOR-IN5
SENSOR IN3	RS485-A
SENSOR IN2	RS485-B
SENSOR IN1	GND
RS232-TX-2	VIDEO OUT
RS232-RX-2	AUDIO OUT
MIC -	GND
MIC +	12V-OUT



# Display - Rear Panel Connection

For rear panel connection, connect components as illustrated in the figures below.





# Display - Front Panel Connection

## For Front Panel connection:

1. Connect the 3-in-1 terminal of the supplied 4pin-AV output cable to the 3.5mm phone jack on the front panel of the MDVR
2. Connect the Audio (red) and Video (yellow) connectors to the display unit.

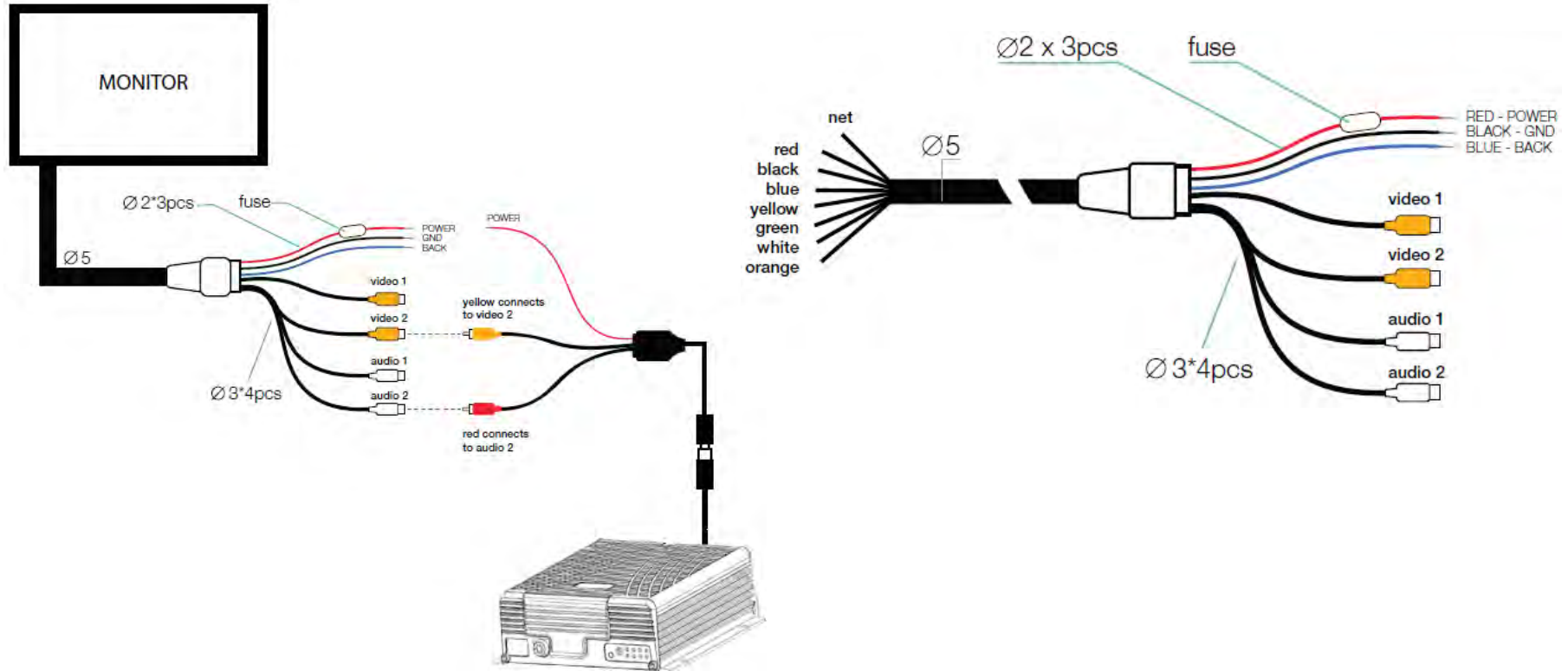


MDVR

3-in-1 cable

Display

# Sample Monitor Connection



# I/O Connections

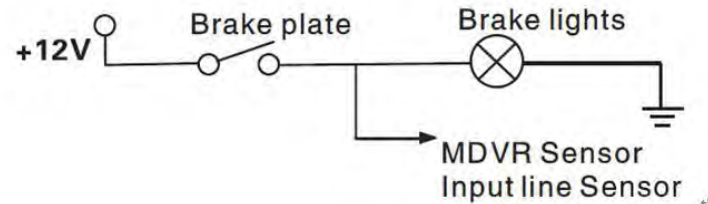
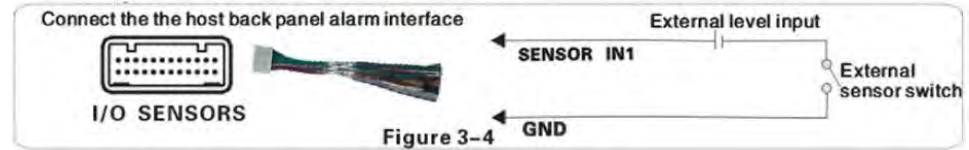
## Alarm Input and Output

### Sensor Inputs

The 24-pin I/O connector on the rear panel provides 8 external alarm inputs .

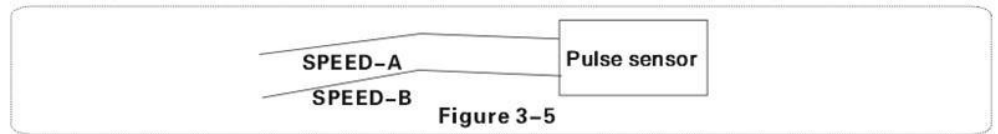
1. Connect the I/O cable to the rear panel connector,
2. Connect the alarm inputs to related sensor switching units, such as door magnet power, emergency switch, turn signal switch and brake light, as shown in the figure (right).

For example: the diagram (right) shows that high level is detected when the brake pad is depressed; otherwise, low level will be detected. Thus, braking may trigger a device alarm.



### Overspeed Alarm

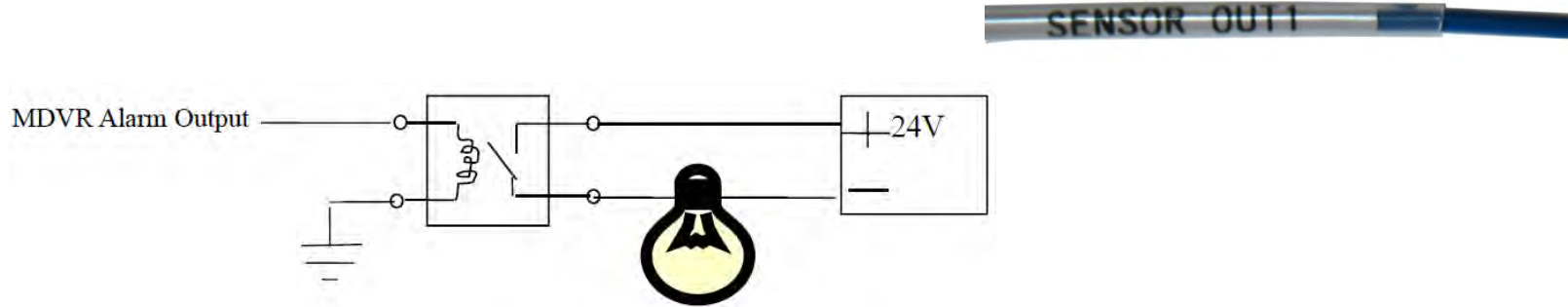
- If a speed is acquired from GPS, the alarm feature can be enabled by simply configuring settings via **Setup menu -> Alarm -> Speed**.
- If speed is acquired from the vehicle, the over-speed alarm feature can be enabled by connecting it to the speed pulse sensor. The pulse sensor is connected to SPEED-A and SPEED-B cables of the device, as shown in the figure (right).



# I/O Connections

## Alarm Output

One alarm output using 200MA is provided to drive external alarm units. If you expect to drive a device with higher power, connect an external electrical appliance, as shown in the following figure.



## RS232/RS485 Device Connection

The 24-pin connector on the MDVR provides two RS232 serial ports, to which a user can connect the desired sensor, OBD and two-way radio supporting RS232 according to actual requirements.

1. Connect the power cord and communication cable of the external device to the supplied 24pin I/O port, and then to 24PIN I/O port on the rear panel of the vehicle MDVR.
2. Install the probe for the external device.



# I/O Connections

## PTZ (Pan/Tilt/Zoom)

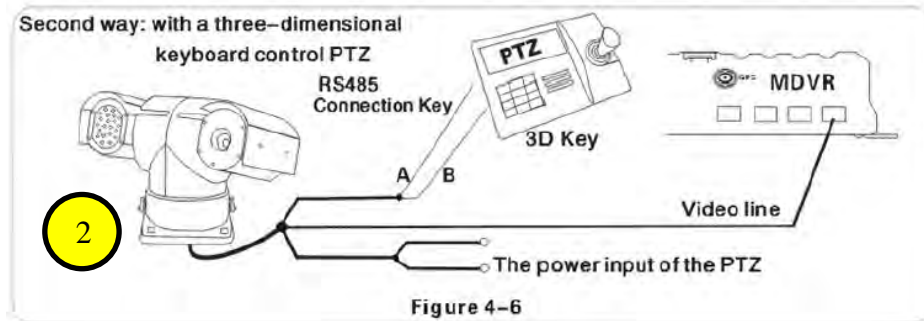
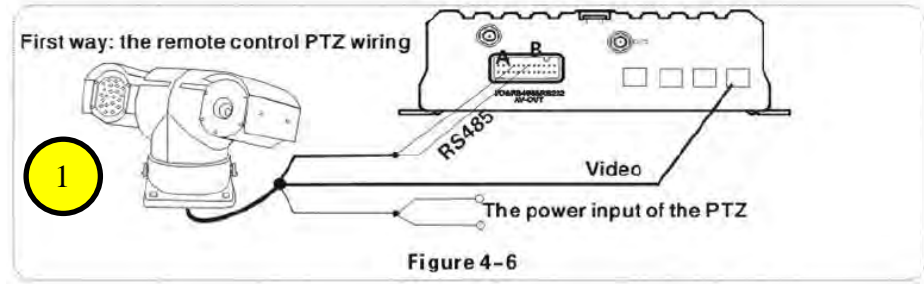
There are three methods for setting up PTZ functionality:

1. Method 1 (Remote Control)
  - a) Connect the RS485 control cable of the PTZ to the RS485A and RS485B of the MDVR, connect the video cable to the MDVR video input, and then power the PTZ.
  - b) Configure the PTZ setting corresponding to PTZ data under the peripheral setup option to use the remote control to control the PTZ.



After the PTZ is connected and parameters are set, select the channel connected to the PTZ before using the remote control to control the PTZ. For example, if the PTZ is connected to Channel 2, then you can control it only after switching the monitoring interface to Channel 2 and maximizing it.

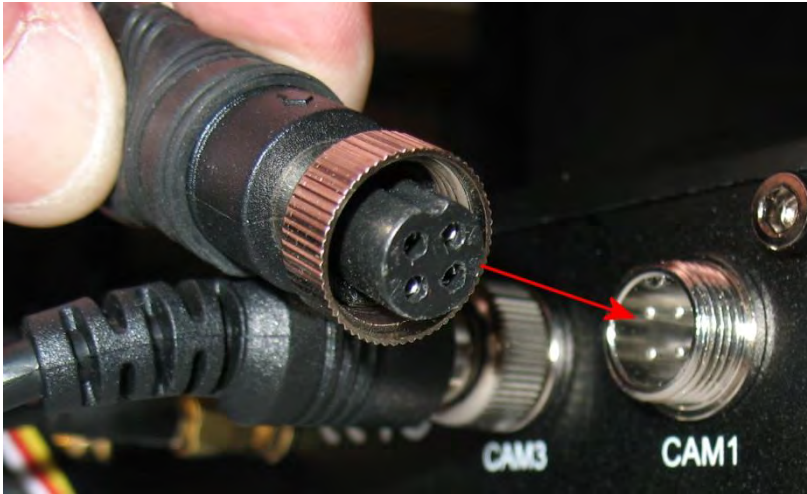
2. Method 2 (dedicated control unit)
  - a) Connect the RS485 control cable of the PTZ to 3D control keypad.
  - b) Connect the video cable to the MDVR video input to power the PTZ and 3D keypad.
  - c) Set keypad parameters corresponding to the PTZ. Using a dedicated PTZ control unit may yield higher speed and efficiency than the remote control.
3. Method 3 (both the above)
  - Make the connections described for methods 1 and 2 to enable PTZ functionality using both the remote control and a dedicated control unit.





# Cameras

Connect your camera(s) as shown in the following figure.



The MDVR is equipped with DIN-4 connectors. Cameras with different types of connectors (for example, BNC) will require the use of adapters.

Camera connections are keyed with tabs and slots to prevent improper connection.

1. Ensure that the slot of the camera cable is aligned with the tab on the camera port CAM1 – CAM4.
2. Push connectors together, and then tighten the threaded collar on the cable.

# Setup Menus

After you have connected power to the vehicle start circuit, ensure that the device will start automatically when the vehicle is started, and that the system enters the *Quad View*.

To access the setup menus:

- Press the **Login** key on your remote control and enter the Admin password.

The Setup menu options display:

- General,
- Channel Mode,
- Record,
- Alarm,
- Tools,
- Peripherals,
- Search,
- System Info .

Quad View



Login Window



Setup menu



# Setup Menus

## Basic Setup

From Setup menu, press the "ENTER" key to enter the General interface, where you can set desired date and time, vehicle information, user management, network and display.



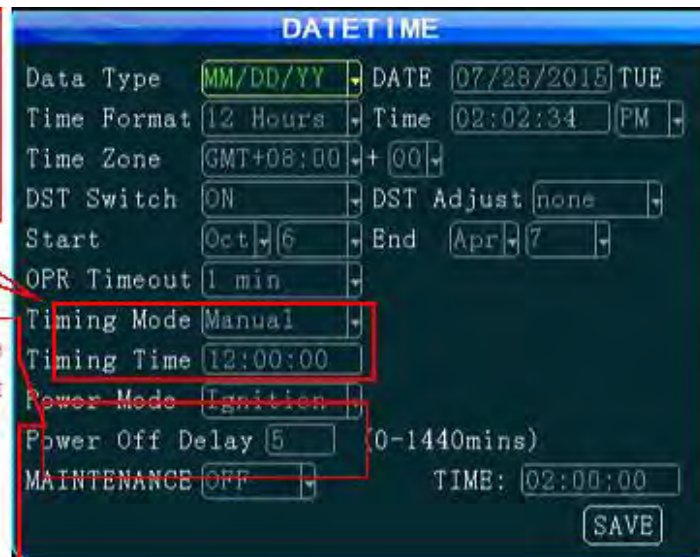
## Set Date and Time

- From the Basic Setup menu, select **Date & Time**.



If GPS timing mode is selected, the time will be updated at the timing point.

According to connection method of the installed power supply, select the default ignition mode, where you can set the recording delay time after shutdown



- It is advised to enable the auto-maintenance feature when the device is operating for a prolonged time, so that the device automatically restarts within the set maintenance time.
- OPR Timeout is the "quit automatically" time if the device is idle.

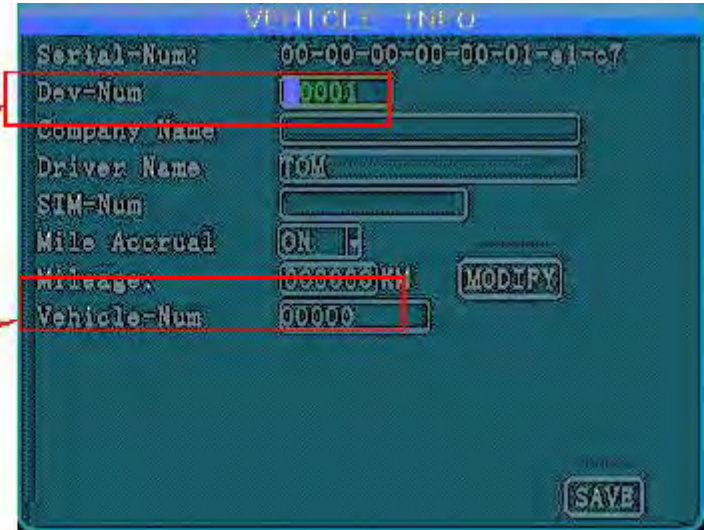
## Set Vehicle Info

1. From the Basic Setup menu, select **Vehicle Info**.
2. Enter all information and select **Save** when done.



The server monitors and manages vehicles through their device numbers. When vehicles are managed via 3G/4G network, ensure that the device number is unique.

Ensure that the vehicle number is correct -- it is superimposed on the video.





## User Setup

The User Setup menu enables you to manage security, add and delete users, and modify their access privileges.

1. From the Basic Setup menu, select **User Setup**.  
The Security Setup menus displays.



2. Switch **Password Enable** on.  
It is recommended that you change the password from the default to a new one. Once the password is changed, you will use the new password to enter the system setup menu.
3. Once you make all modifications, select **Save**.



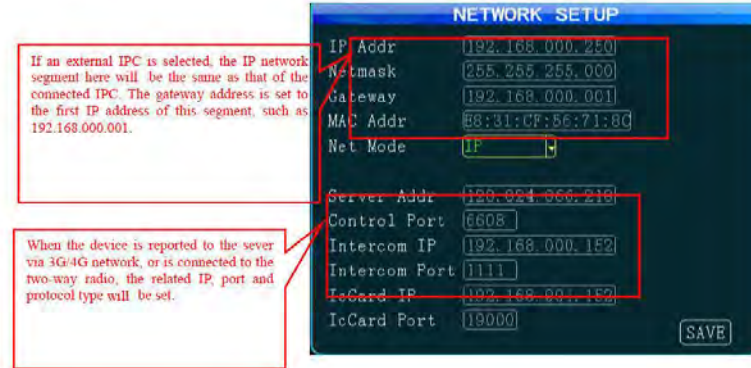
## Network Setup

1. From the Basic Setup menu, select **Network Setup**.



The Security Setup menus displays.

2. Switch **Password Enable** on.  
It is recommended that you change the password from the default to a new one. Once the password is changed, you will use the new password to enter the system setup menu.
3. Once you make all modifications, select **Save**.



### NOTES:

- The two-way radio has port number 9988; this parameter is unavailable for an analog two-way radio.
- A dynamic IP is assigned to the server, rather than a fixed IP, "Domain Name" is selected as the connection mode. In this case, a fixed IP is more stable; thus, it is not advised to use domain name mode.
- You can establish your own server or use a server provided by the manufacturer. If a server (including intercom server) provided by the manufacturer is required, please contact our technical support, which will provide the assigned device number, server IP, related user account and password.

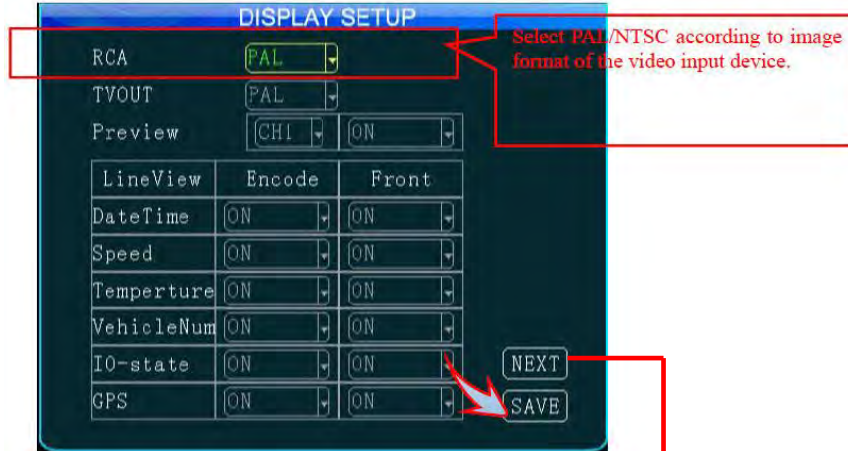
## Display Setup

1. From the General menu, select **Display**.



The Display Setup menu displays.

2. Set all parameters, and then select Save when done.



## Channel Mode

- From the Setup (root level) menu, select **Channel Mode**.



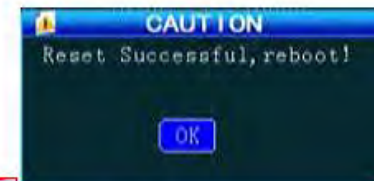
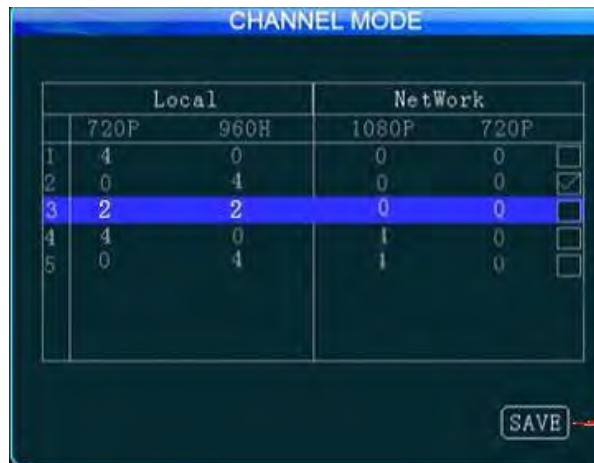
The Channel Mode menus displays.


This menu enables you to select different channel modes depending on the model you use.

The device will restart when a mode is switched.

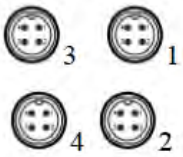
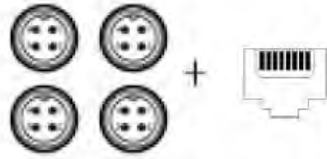
Several types of camera connections are supported. The interfaces for the analog camera are defined as follows and the standard interface is for the IP camera.

You can select the proper camera type and configure software according to hardware connection mode.



Connection Diagram	Pin Number	Interface Definition
	1	12V OUT
	2	GND
	3	A-IN
	4	V-IN

## Channel Mode

Connection Mode	Connection Diagram	Model RVS-5520
Connection of analog camera		4 ways of D1/960H/720P AHD video inputs available; 2 ways of 720p AHD(1&2 CH)+2*960H 3&4 CH)analog mixed video inputs available
Mixed connection of analog and network cameras		1 ways of 1080P IPC + 4 ways of 720P AHD/960H/D1 HD mixed video inputs available



## Record Setup

From the Record menu you can configure record settings, including general settings, main code, sub-stream, recording schedule, mirror recording, SD recording, alarm recording, and IPC settings.

- From the Setup (root level) menu, select **Record**.



The Record menu displays.



The IPC setting interface is not present when only air analog camera input mode is selected.

## Record Basic Setup

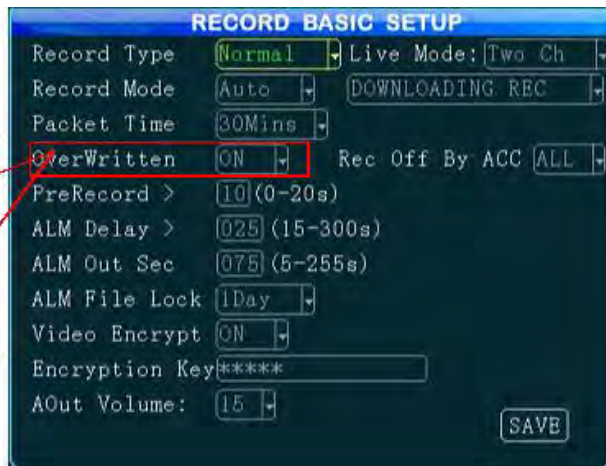
From the Record Basic setup menu, you can select the desired recording mode as required. The record packet time can be set to 15 min, 30 min, 45 min or 60 min.

- To display the Record Basic setup menu, select **Normal** from the Record menu.





## Record Basic Setup



The screenshot shows the 'RECORD BASIC SETUP' menu with the following settings:

Record Type	Normal	Live Mode:	Two Ch
Record Mode	Auto	DOWNLOADING REC	
Packet Time	30Mins		
OverWritten	ON	Rec Off By ACC	ALL
PreRecord >	10 (0-20s)		
ALM Delay >	025 (15-300s)		
ALM Out Sec	075 (5-255s)		
ALM File Lock	1Day		
Video Encrypt	ON		
Encryption Key	*****		
AOut Volume:	15		

A red box highlights the 'OverWritten' option, which is currently set to 'ON'. A red arrow points from this box to the explanatory text on the left.

When this option is enabled, when the HDD space is lower than 2G; When the space of mirror record HDD and SD card is less than 300M, the early videos will be automatically overwritten.

When the alarm record option is selected, you can set the pre-record time, alarm record delay time, alarm output time and alarm lock time. When timing record is selected, you can set the record schedule. After setting, select **Save**.

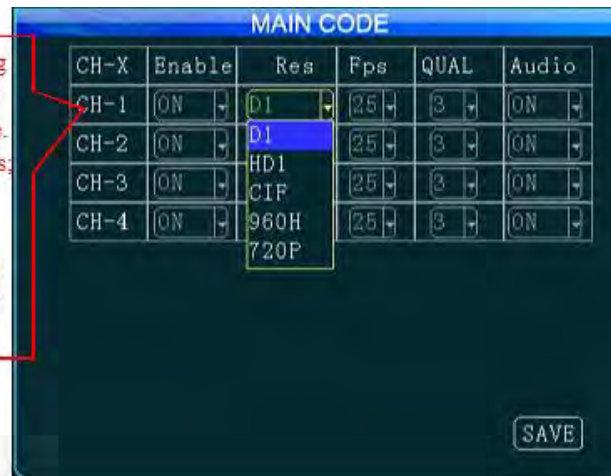
## Main Code

From the Main code menu you can set the main code of the external analog camera. Resolution D1/HD1/CIF/960H/720P are available

- From the Record menu, select **Main Code**.



- 1) The frame rate is adjusted according to image format. The higher the frame rate is, the better the timeliness will be. PAL is adjustable between 1-25 frames; NTSC is adjustable between 1-30 frames.
- 2) Level 8 indicates the lowest picture quality. The higher the picture quality is, the better video definition will be.

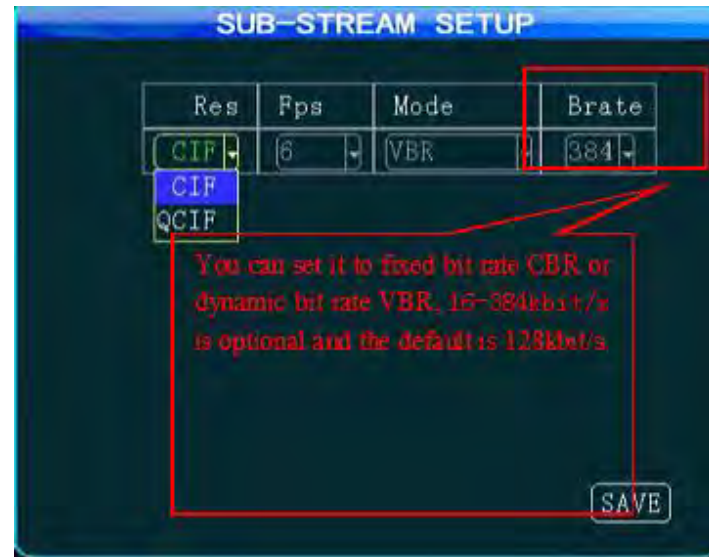


- Enabling of the record feature requires an external pickup or the camera is provide with a pickup.
- If only IP camera input is selected, only IPC setting is required;
- After setting, select **Save**.

## Sub-Stream

Sub-stream settings are directly related to definition and fluency of video on the IVMS platform. The higher the resolution, the frame rate and bit rate are, the higher the definition of the video will be. However, this requires more memory and broadband consumption.

- From the Record menu, select **Sub-Stream**.



- Either CIF or QCIF is optional for sub-stream resolution. Currently, the maximum CIF real-time transmission can be realized for 3G network;
- After setting, select **Save**.

## Recording Schedule

- From the Record menu, select **Record Plan**.



If "Timing Record" mode (not commonly used) is selected under record mode in the General option, you can set the record time frame here (two time frames can be selected).

- The Recording Schedule is set only when the "Timing Record" mode is selected under record mode in the General option
- After setting, select **Save**.

## Mirror Record

Mirror recording provides backup recording for the MDVR in order to prevent loss of records due to HDD error.

- From the Record menu, select **Mirror**.



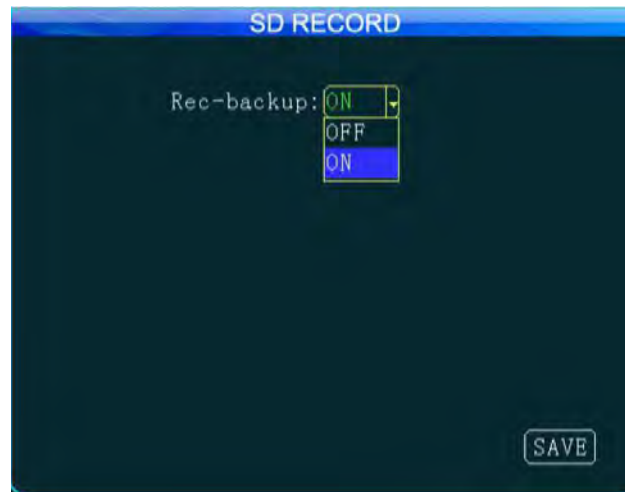
- After changing settings, select **Save**.



## SD Record

SD recording enables you to record to the SD card instead of the HDD, in the event that of HDD error.

- From the Record menu, select **SD Rec.**



- After changing settings, select **Save**.



## IPC

The IPC menu enables you to set parameters for IP camera recording.

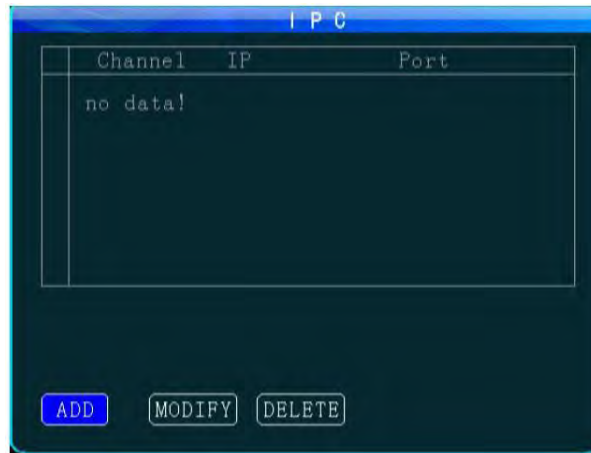
- From the Record menu, select **IPC**.



When adding a camera, select the related channel, and you can manually input the IP address and port number of the network camera, or click "Search" to select the desired network camera in the search result.

The user name and password are set for the network camera. For a network camera with security features, be the same as that for the network camera itself; or this setting can be ignored. Use your remote controller to move to the latter you want, press "Enter" to confirm your selection and press "Return" to return and complete your input.

- After changing settings, select **Save**.



## IPC

**ADD IPC**

Channel: 6

IP Addr: 192.168.000.126    Port:

User Name: admin

Password: \*\*\*\*\*

Type	IP	Port
no data!		

**SEARCH**    **SAVE**



- IP address and port number are those for the network camera itself. Be sure to keep them consistent when setting manually;
- Clicking on "Search" will list all IP cameras connected to the MDVR;
- Select **Save** when done.

## Alarm

The Alarm menu enables you to set sensor, speed, acceleration, temperature, motion detection, ALARM OUT setting and other alarm modes.

- From the root-level setup menu, select **Alarm**.



The alarm feature can be used only when an external sensor is connected.

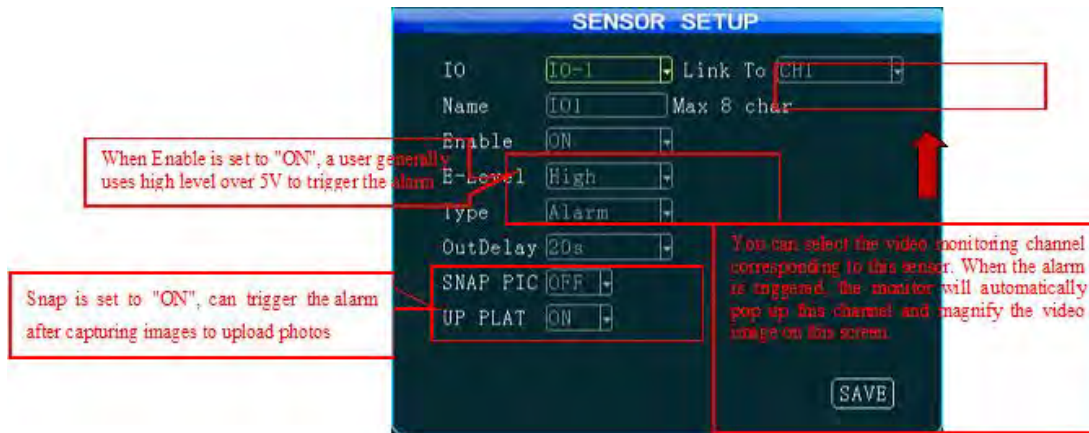
The alarm feature is enabled when the following settings are enabled.

- If "Event" is selected for alarm type. normal recording is conducted.
- If "Alarm" is selected, alarm recording is conducted; the threshold indicates the speed limit when the alarm is triggered.

## Sensor

The MDVR supports 8 sensor-in channels. You can set the desired sensor names, as required from the Sensor menu.

- From the Alarm setup menu, select **Sensor**.



- Output delay indicates that alarm output is set in the alarm ALARM OUT, i.e. when the alarm is off, the alarm outputs within the set delay time.
- After setting, select **Save**.

## Speed

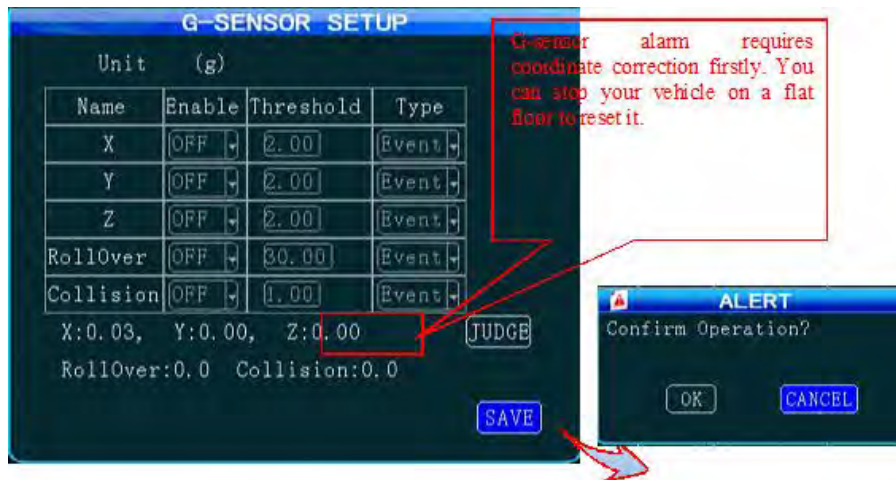
- From the Alarm setup menu, select **Speed**.



- Keep the signal stable when selecting GPS; connect the pulse sensor to the SPEED-A and SPEED-B. The speed can be in KMH or MPH.
- After setting, select **Save**.

## G-Sensor

- From the Alarm setup menu, select **G-Sensor**.

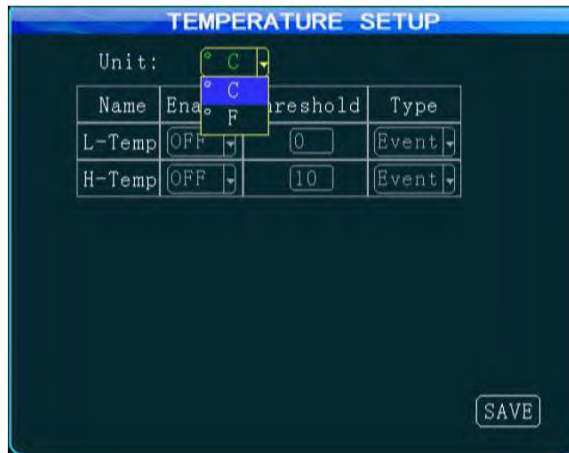


- After setting, select **Save**.



## Temperature

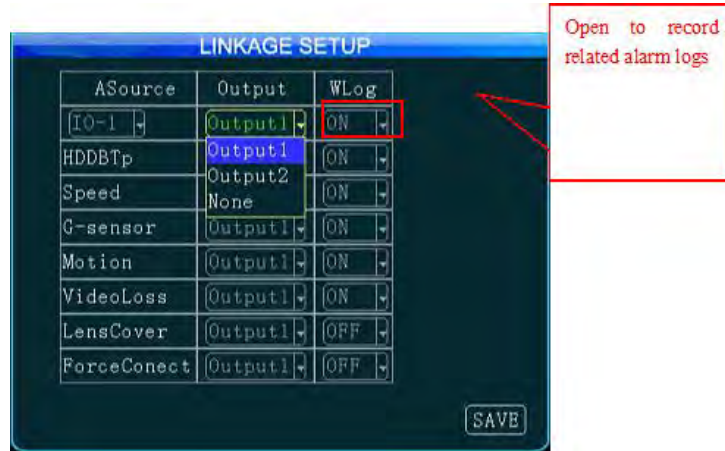
- From the Alarm setup menu, select **Temperature**.



- After setting, select **Save**.

## Alarm Out

- From the Alarm setup menu, select **Temperature**.



You can select none/output 1/output2 from the ALARM OUT setup menu. 12V of high level is generated to drive other opto-electronic devices when the related alarm is triggered. (For detailed connection method, refer to alarm input/output cable connection.)

- After setting, select **Save**.

## Motion Detection

From the Motion Detection menu, you can select two points as diagonals to define a detection area. Within the user defined area, when there is an object moving, the system will issue an alarm.

You can search motion detection alarm events under "Configuration -> Log Search", naming "CHL MD alarm".

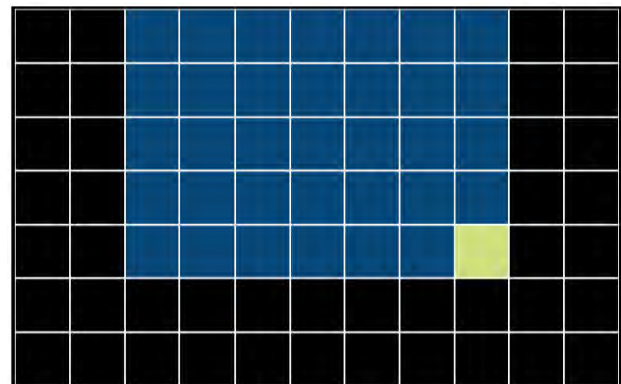
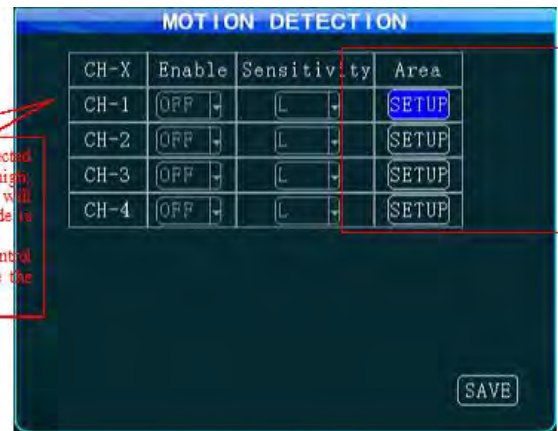
- From the Alarm setup menu, select **Motion**.



To set the detection area:

- Select the first block (yellow), and the motion block changes to blue after pressing the **"Enter"** key.
- Select the second block and press the **"Enter"** key. The rectangular area formed by the diagonal of these two blocks is defined.
- Select **Return** to return to the previous menu and press the **Save** key.

The environmental change may be detected more easily when the sensitivity is high, however, change of brightness and color will also trigger an alarm; thus, this alarm mode is not recommended.  
Detection area, you can use your remote control to select two points as diagonal to define the detection area.



## Other Alarm

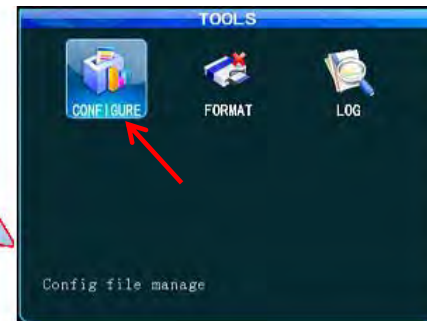
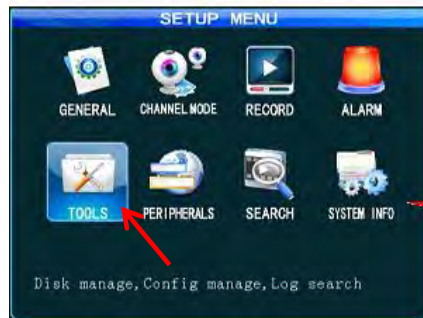
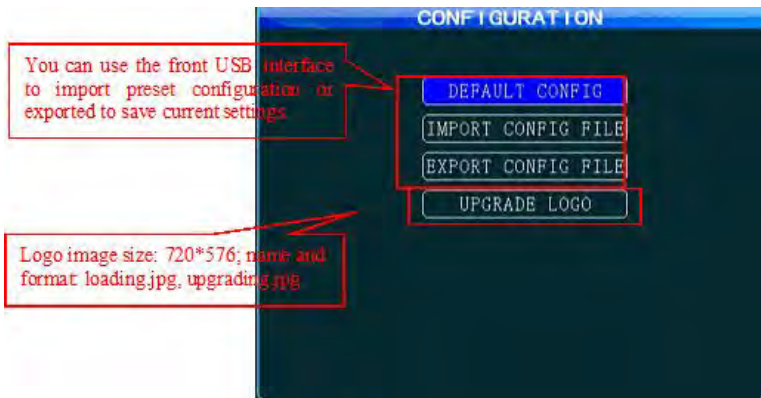
1. From the Alarm setup menu, select **Other Alarm**.




2. Set the timeout parking time and fatigue driving time
3. Select **Save** when done.

## Configuration

1. From the basic (root-level) setup menu, select **Tools**.
2. From the Tools menu, select **Configure**.

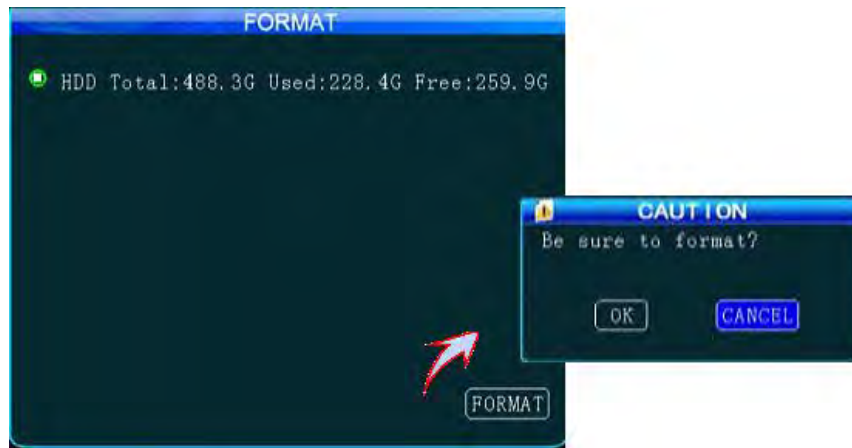
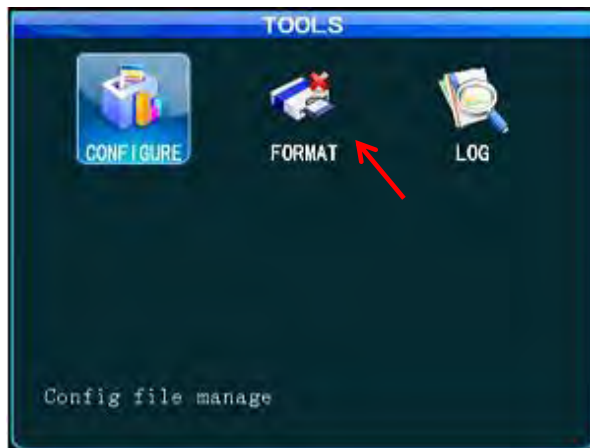



From the Configuration menu, you can import/export configuration through USB or recover default configuration

 **NOTE:** You must disable 3G and Wi-Fi before exporting, importing, and upgrading logo.

## Format

1. From the Tools menu, select **Format**.

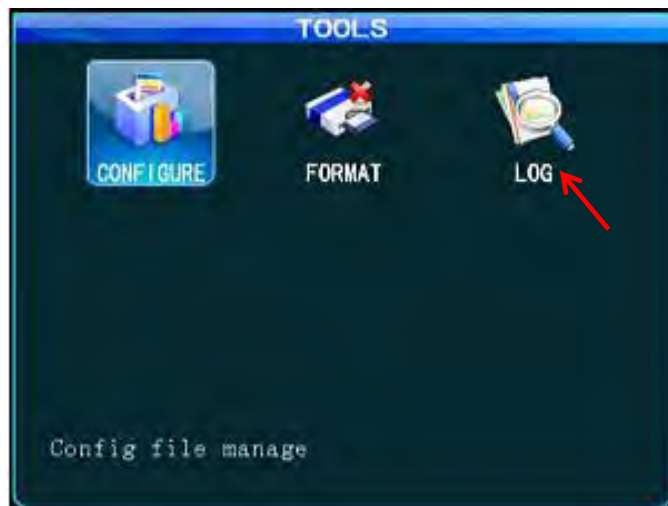


 **WARNING:** FORMATTING WILL CLEAR ALL DATA STORED IN MEMORY.  
EXERCISE CAUTION WHEN USING THIS FEATURE

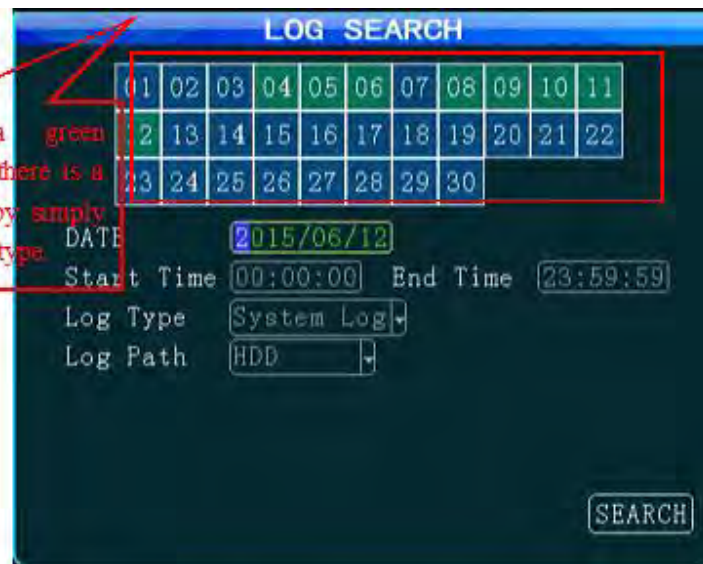


## Log Search

1. From the Tools menu, select **Log**.



The calendar with a green background indicates that there is a log that can be searched by simply selecting date, time and log type.



## Peripherals

1. From the root-level setup menu, select **Peripherals**.



From the Peripheral Setup menu, you can set PTZ, wireless broadband, Wi-Fi, Oil, and serial port parameters.

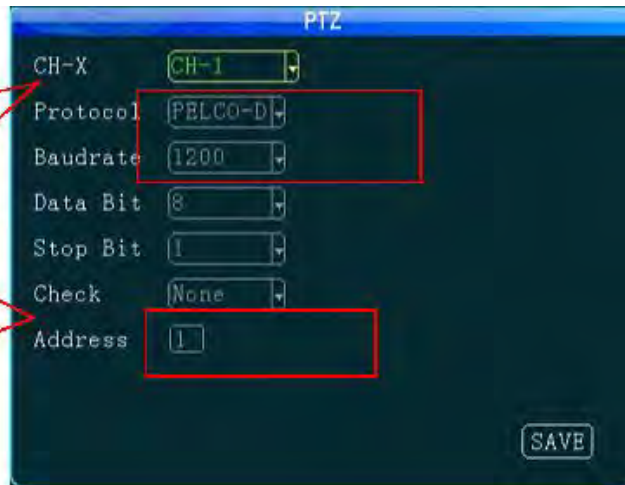
## PTZ

1. From the Peripherals setup menu, select **PTZ Setup**.



Use different protocols and baud rates depending on PTZ settings.

When there are many PTZs, set different addresses for easy identification. You can directly input the address value corresponding to the PTZ.



Use the default data bit, stop bit, and check code.

After setting the PTZ parameters, choose PTZ corresponding channels in order to switch using the remote control.

## Wireless

1. From the Peripherals setup menu, select **Wireless Setup**.



When a 3G/4G SIM card is used in the MDVR (1.e., information is reported to the platform via 3G/4G), wireless dial-up must be enabled, and a proper communication type must be selected according to operator's network format.

There are some differences between 3G/4G software versions, as shown in the above figures.

Use the default settings for domestic subscribers. (The figures show default settings for China Unicom and China Telecom. For other subscribers, fill these fields with information provided by your local mobile network operator. )

ENABLE	ON
TYPE	WCDMA
APN	3gnet
CENTER NUM	*99#
USER NAME	card
PASSWORD	****

3G Software

3G SETUP	
Wireless	ON
Type	WCDMA
APN	3gnet
Center-Num	*99#
User Name	card
Password	****
SAVE	

ENABLE	ON
TYPE	EVDO
APN	Ctnet
CENTER NUM	#777
USER NAME	card
PASSWORD	****

4G Software

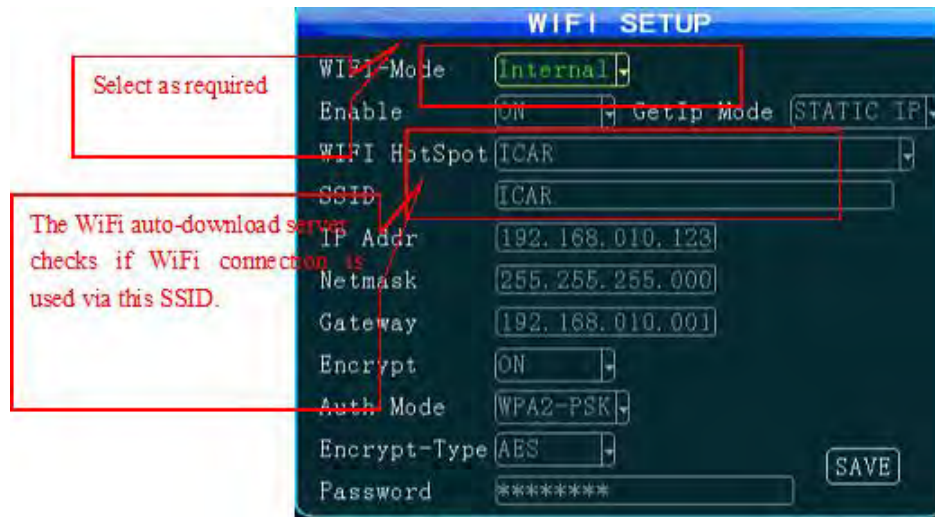
3G SETUP	
Wireless	ON
Type	FDD-LTE
APN	
Center-Num	EVDO/LTE
User Name	card
Password	****
NetMode Sel	AUTO
Auth Mode	None
SAVE	



After exiting from all menus, pressing the INFO button on the remote control will show all 3G/4G-specific information. If the signal is normal, the dial-up operation is successful

## Wi-Fi

1. From the Peripherals setup menu, select **Wi-Fi Setup**.



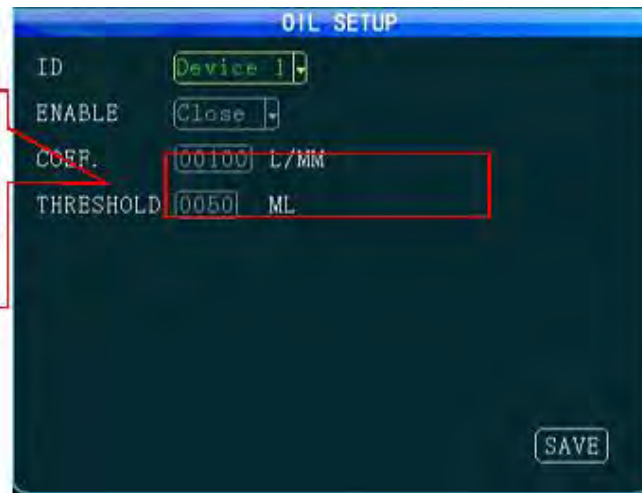
The Wi-Fi menu enables you to specify IP, SSID, and submask of your Wi-Fi. The device will verify that the RJ45 is successfully connected to the external module.

## Oil

1. From the Peripherals setup menu, select **Oil**.



This coefficient shall be set according to the size of your oil tank to indicate how much of oil capacity corresponding to 1L of oil.



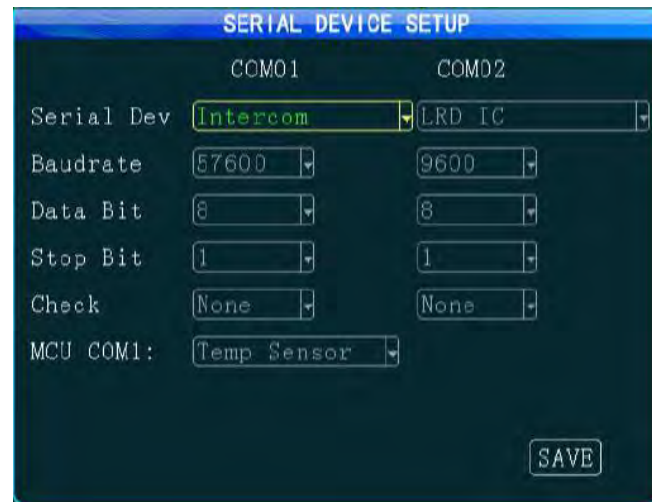
This feature can be enabled only when an external oil level sensor is connected and the enable feature is on. Coefficient = total capacity of the oil tank (X)

Coefficient = total capacity of the oil tank (X)/height (mm) \*100%.



## Serial Device Setup

1. From the Peripherals setup menu, select **Serial**.



This setting requires connection to the associated serial device. You can set parameters according to the related serial device settings. In general, default settings are used.

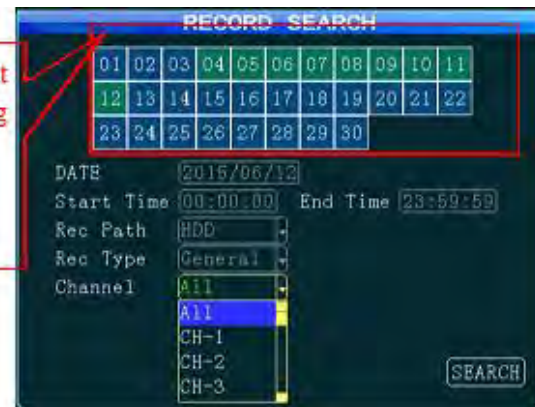
After an external RS232 device is connected, related sensor features can be used only when serial port 1 or serial port 2 is set to the serial device name.

## Record Search

1. From the main (root-level) setup menu, select **Search**.

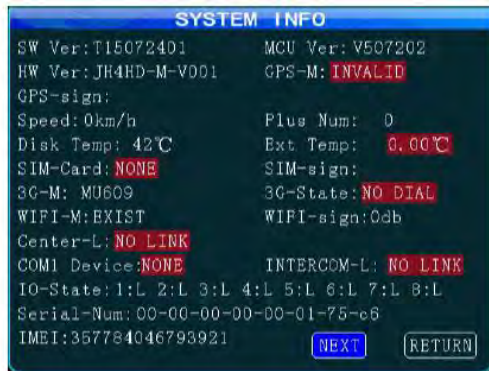


The calendar with a green background indicates that there is a log that can be searched by simply selecting date, time, record type and related channel.



## System Info

In Quad View mode, you can either press the INFO key on your remote control or enter the setup menu to display the system information.

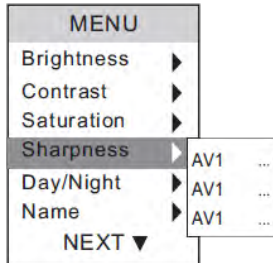
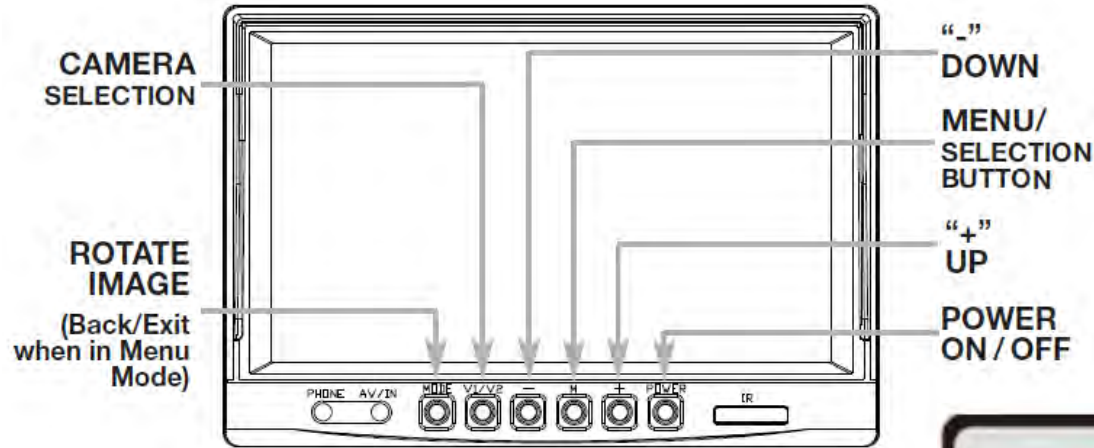


# Monitor

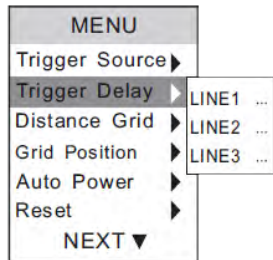


RVS-6139-RCA

# Controls



- Use "BRIGHTNESS" "CONSTRAST" "SATURATION" "SHARPNESS" to adjust the image properties.
- Day/Night Mode: Mode 1 will turn on the Back-lit buttons. Mode 2 will turn on the auto-dim feature on the monitor.

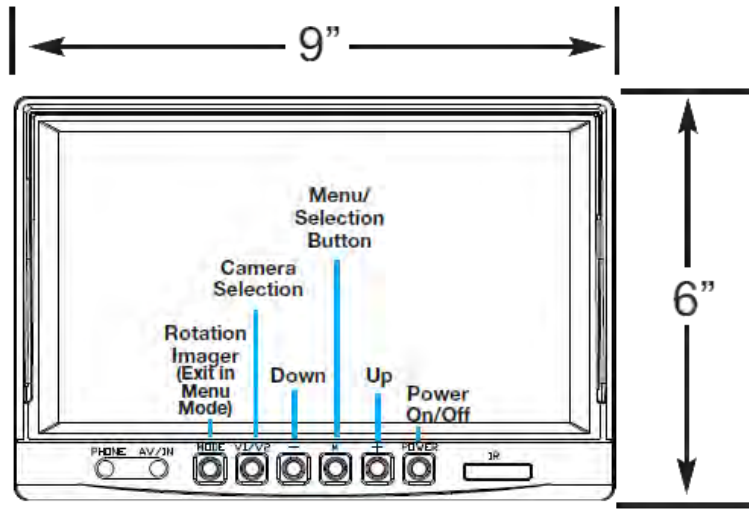


- Name: Change the name of each individual channel.
- Trigger source: Change the channel destination for each trigger.
- Trigger delay: Adjust the delay time on each trigger.
- Distance Grid: Choose what channel the distance grid will display on.
- Grid Position: Move the grid-lines.
- Reset: Reset all settings to factory default.

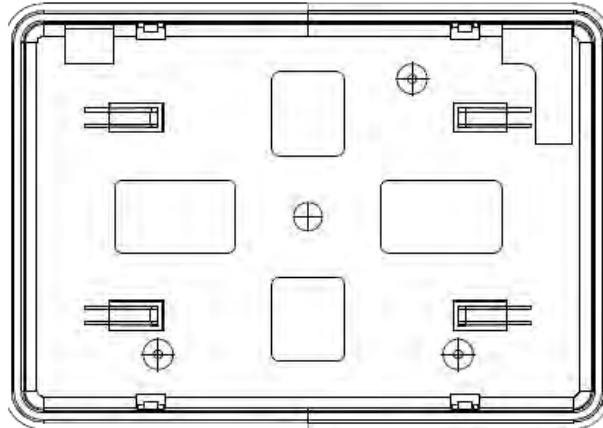


# Dimensions

Front Panel



Rear Panel





# Specifications

TFT LCD Digital Monitor	
Screen Size	9"
Dot Resolution	800H x 3 (RGB) x 480v
Display Format	16:9 / 500:1
Display Brightness	400cd/m <sup>2</sup>
Viewing Angle	U:50° / D:60° / R:70°
Video Input	2 Channel
Video Source	1Vp-p, 75Ω
Power Supply	DC 12V-24V (+/- 10%)
Power Consumption	5W
Operating Temperature	-30°C ~ +80° C
Video System	Auto NTSC/PAL
Overall Dimensions	9"L x 6"H x 1"D
Weight	400G
Impact Rating	5G
Dot Pitch	0.192H x 0.1805v
Sync System	Internal

# Before Beginning Installation

Before drilling check that no cable or wiring is on the other side of the wall. Please clamp all wires securely to reduce the possibility of them being damaged while vehicle is in use. Keep all cables away from hot or moving parts and electrical noisy components.

We recommend doing a benchmark test before installation to insure that all components are working properly.

Step 1: Choose the monitor and camera locations.

Step 2: Install all cables in vehicle, when necessary a 0.8 (20mm) hole should be drilled for passing camera cable through vehicles walls. Install split grommets where applicable.

Step 3: Once all cables and wiring have been properly routed, perform a system function test by temporarily connecting the system.

# Installation

## Cable

1. Be sure to position the cable properly. The camera cable uses aircraft grade connectors which means the camera cable can be exposed to all weather elements. Do not run the cable over sharp edges, do not kink the cable and keep away from HOT and rotating parts.
2. Fasten all cables and secure all excess cable.

## Monitor

1. To Attach the Pedestal mount to the dashboard or to the headliner use self-tapping screws and/or the adhesive pad.
2. Attach monitor to mount, and adjust mounting angle to allow optimum driver viewing comfort.

Note: The camera and monitor can always be activated by manually pushing the power button on monitor. This is in addition to utilizing the positive triggers.

# Installation

- To power the system connect the power (RED) 12V+ wire to ignition power and the ground (BLACK) wire to chassis ground.
- These are the only wires needed to power the entire system and all the cameras. Each camera can be seen at any time by simply pressing the power button and using the V1/2 button to toggle.
- The trigger wire represents channel 2 and will turn on when the trigger wire is energized with 12V.
- To automatically have camera and monitor turn ON when vehicle is turned on, plug camera in channel 2 and twist BLUE positive trigger 12V+ to RED power line 12V+ and wire to ignition power.
- Audio: There is continuous audio on both channel 1 and channel 2.
- Grid-lines: The grid-lines are carried through the blue wire. To use the grid-lines for reversing, connect the blue wire to a reverse power.
- There is a built-in voltage regulator for our systems which can handle 12-24 volts. Real consumption is 10 to 30 Volts.

Note: If connecting power directly to battery, the camera is always ON and therefore can drain battery. Therefore it is recommended to connect power to an ignition switched accessory power source.