

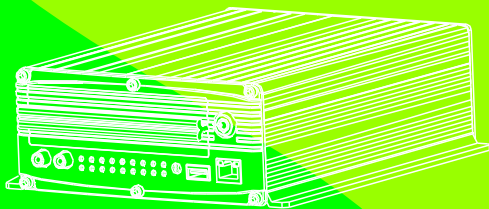
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HDD Series MDVR

USER'S MANUAL



V1.09E

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CHAPTER 1: PRODUCT APPLICATIONS AND PARAMETERS

1.1: MDVR is a cost-effective, function extensible equipment which is designed for on-board video monitoring and remote monitoring. It uses the rapid handling device and embedded Linux platform, combined with the most advanced H.264 video compression / decompression technology, network technology and GPS technology. Take the HDD as the main memory, and SD card as auxiliary storage. MDVR can realize many functions such as audio-video recording, vehicle's driving information recording, remote management and GPS signal upload. With central control software, it can realize the central control of alarm linkage, remote management and playback analysis. With simple and modern appearances, MDVR is vibration-proof, installation-friendly, has powerful functions and stable performances, etc.

FORM 1 : MDVR PRODUCT'S SPECIFICATION PARAMETERS

Items	Parameters	Specifications	
System	Language	Chinese/English	
	OSD	Graphical User interface (OSD menu)	
	Password	Users Password/Administrator Password	
Video	Video input	4CH VIDEO INPUT 1.0Vp-p, 75Ω	
	Video output	1CH VIDEO OUTPUT 1.0Vp-p, 75Ω	
	Preview	1 CH/ 4 CH Preview.	
	Recording Ratio	PAL 25 Frame/s NTSC 30 Frame/s	
	Image Compression	H.264 Main profile, 100fps/s	
Audio	Audio input	4-CH	
	Audio output	2-CH	
	Recording mode	Audio & Videosync.	
Image processing & storage	Video format	D1/HD1/CIF	
	Video stream	ISO14496-10	
	Video Rate (kbps)		D1: 2048Kbps ~400Kbps
			HD1: 2048Kbps ~380Kbps CIF: 1536Kbps ~128Kbps 8 levels optional. Highest:1 level
	Audio Bitrate	8KB/s	
Storage		Support a 2.5-inch 1TB SATA HDD, support a SD card maximum 32GB for each.	
Alarm	Alarm input	6 alarm input,	
	Alarm output	2 alarm output, high level 12V output	
Communication Port	RS485 Interface	Support 2-RS485 interface	
	RS232 Interface	Support 1-RS232 interface	
	WIFI Interface	802.11b/g	
Extended interface	control panel	Connect to station reporter or control panel	
	Audio power amplifier	Support 2-ch audio power amplifier output	
WILESS	3G(HSDPA/WCDMA)	Optional 3G(HSPA/WCDMA) module	
GPS	Built-in GPS module, Geographic co-ordinates, speed can be read in coding flow, and can be wireless uploaded. (optional)		
G-SENSOR	Built-in G-Sensor		
Software	PC playback	Video playback on Pc, and analyse the vehicle info in the file	
	CMS	Video preview via WIFI, GPS upload, alarm upload, central command and parameters configuration, etc.	
Upgrade	Support SD cards/USB/HDD upgrade.		

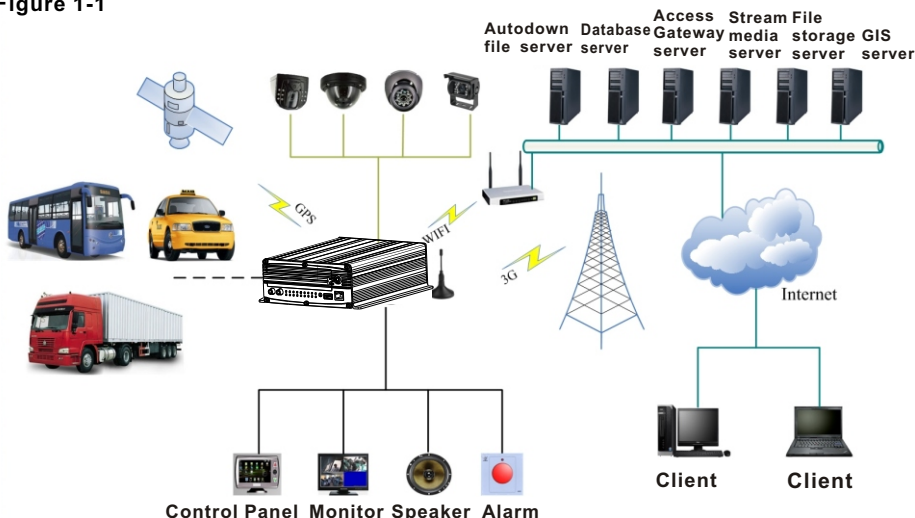
FORM 2 : MDVR BASIC ELECTRICAL PARAMETERS LIST

Items	Parameters	Specifications
Power input	DC8-36V	+8V~+36V, When long-term under 8V, or long-term over 36V, auto power off, and enter protection mode.
Power output	12V	12V (+/-0.2V) , Max:2A.
Vehicle key signal	≤4V	OFF
	≥5V	On
Impedance	75 Ω	75Ω for each video input impedance
Video output Volt	2Vp-p	Input 2Vp-p CVBS analog signal, reveal device input need 75Ω impedance to fit
I/O interface		<4V Low level alarm ≥4V High level alarm
Operating Temp	-40℃-80℃	Under well-ventilated enviroment.

1.2 MDVR PRODUCT APPLICATION CONNECTION SCHEMATIC DIAGRAM

Figure1-1, MDVR can be used both in common and special vehicles video monitoring or remote monitoring such as bus, logistics car, freight car, long-distance travel bus, taxi, tanker, school bus, police car, patrol car etc. Front end acquires signal by on-board special camera, through special video line transfer it to MDVR mainframe to process video compression, local store in HDD. Model with 3G module can realize remote monitoring, recording, upload etc. Model with GPS function can realize real time vehicle positioning; Schematic diagram is a common application mode, the actual use of various functions will be changed as the existence of the modules change.

Figure 1-1



1.3: MDVR NOTICE:

To make sure MDVR safety use, acquire satisfactory performance, and extend the service life of the equipments, please fully consider the following factors when install the equipment :

1. When install and operate the equipment, please obey all the electronic products guide, vehicles' and other connection equipments' requirements

2. Power supply and equipment grounded : Direct input range of the machine power supply is from DC 8V-36V, please don't get inverse, and input can't be short circuit. Please note the power supply capacity of the power line. Even the equipment is shut down, it may be charged. please avoid short circuit. Before connect with other external devices, please cut the connection between this equipment and the power supply. The input mode of equipment sensor is level mode, with external voltage below 4V is considered as low level, above 4V and below 30V is considered as high level. Beyond 30V will damage the equipment. Correctly connect the earth wires of the device and the vehicle and form a loop;

3. Humidity requirements : Install equipment in dry environment, avoid damp, water-drop, water spray and other places. Don't take the equipment installed in places where water will sag or wet places liquid will drip down; Do not use wet hand to touch the equipment, Do not stand in the water or touch with other water places while contact the equipment, it may get electric shock

4. Installation position:

To extend the life of the equipment, please try to install it in place with weak vibration, such as behind the driver's seat. The equipment should be installed on the vehicle's ventilation installation part. Equipment installed on the plane should remain a distance of 6 inches (15 centimeters) away from other objects to assure the air flow and heat dissipation; Don't install it on the enclosed area, such as car trunk. This machine can be right side installed or side loading. The equipment's external wiring must have the enough intervals and external flame retardant protection, to ensure the wire not to be bent or leakage of electricity due to wear and vibration; Ensure that equipment away from heat source of the vehicle, the equipment can't have sundry pile up around, prohibit placing anything on the equipment.

5. Equipment safety:

Ensure passengers or the driver can't intervene and damage the equipment unit, camera, wire and other accessories. Don't install the equipment near other components of vehicle; When install equipment components, camera, accessories and wire, launch vehicles may cause damage to the equipment, Keep the vehicles static during the installation process, to prevent equipment falling from vehicles.

Installation notes:

1. Equipment contains the electronic devices, please handle gently during transport.
2. All installation and maintenance must be executed by the professional qualified person.
3. This product can't be installed in part of the vehicle where there was erosion by rain or other liquid for a long time.
4. Without professional guide, please do not open or unload the equipment.
5. Keep fuselage away from the heat source, dust and strong magnetic fields.
6. Do not put heavy objects on the equipments.
7. Don't change any modules when the mainframe is charged.
8. The equipment output power shall not connect to devices that are not recommended.

CHAPTER 2 : INTERFACE AND DESCRIPTION OF THE FUNCTIONS

2.1 MDVR OUT-DESIGN AND DIMENSION

Unit: mm

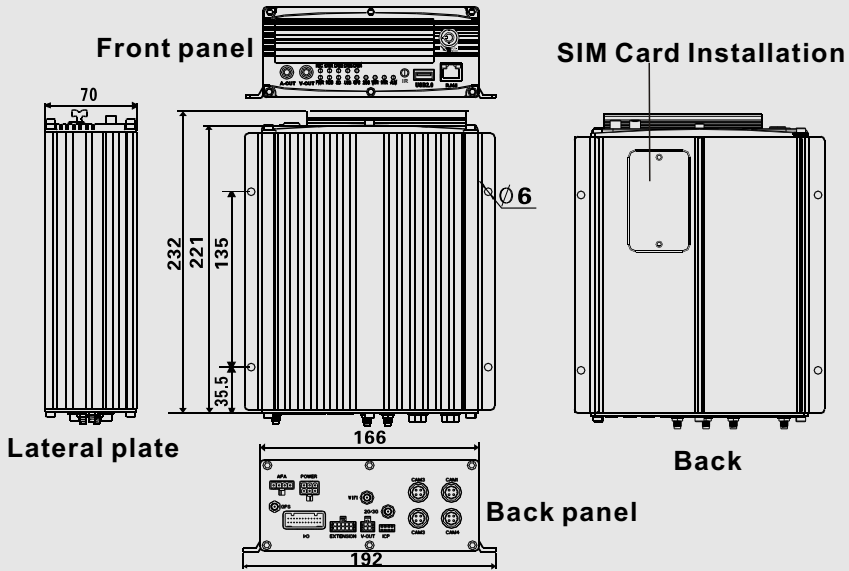


Figure 2-1 MDVR structure size schemes

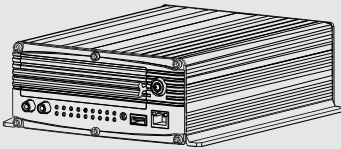


Figure 2-2 MDVR appearance schemes

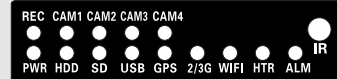


Figure 2-4 Indicator diagram

Panel Indicator Light Description

A-OUT: Audio OUT

V-OUT: Video OUT

REC: Light will be on when recording

POWER: Light will be on when the power supply can work normally

HDD: Light will be on when the HDD exist

SD: Light will be on when the SD card exists.

USB: Light will be on when the U-disk installation

GPS: Light will be on when the GPS module exists

2G/3G: Light will be on when 3G module exists

WIFI: Light will be on when the WIFI is exists and ON.

HTR: Hard disk heating indicator

ALM: alarm led.

CAM1/CAM2/CAM3/CAM4: video input 1/2/3/4. Have each input signal indicator, otherwise the lamp.

IR: Infrared sensor receiving remote control signal

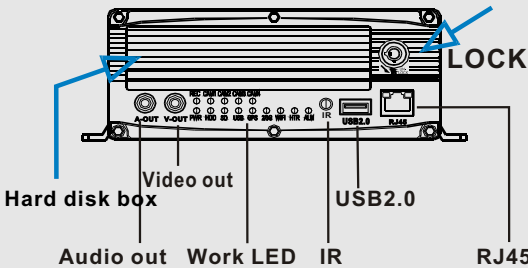


Figure 2-3 MDVR front panel schemes

2.2: DEFINITION OF MDVR BACK PANEL INTERFACE

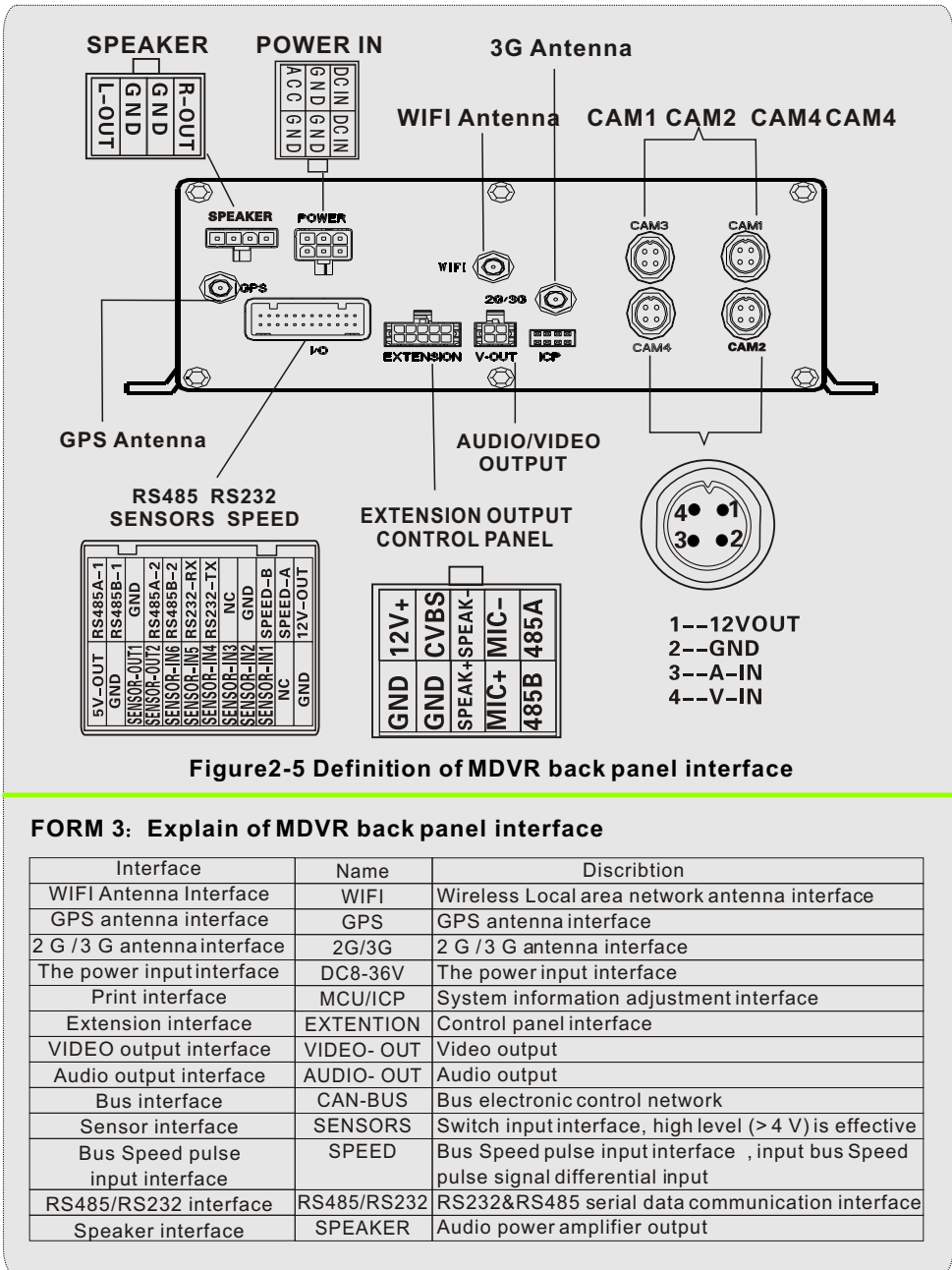


Figure2-5 Definition of MDVR back panel interface

FORM 3: Explain of MDVR back panel interface

Interface	Name	Discription
WIFI Antenna Interface	WIFI	Wireless Local area network antenna interface
GPS antenna interface	GPS	GPS antenna interface
2 G / 3 G antenna interface	2G/3G	2 G / 3 G antenna interface
The power input interface	DC8-36V	The power input interface
Print interface	MCU/ICP	System information adjustment interface
Extension interface	EXTENTION	Control panel interface
VIDEO output interface	VIDEO- OUT	Video output
Audio output interface	AUDIO- OUT	Audio output
Bus interface	CAN-BUS	Bus electronic control network
Sensor interface	SENSORS	Switch input interface, high level (> 4 V) is effective
Bus Speed pulse input interface	SPEED	Bus Speed pulse input interface , input bus Speed pulse signal differential input
RS485/RS232 interface	RS485/RS232	RS232&RS485 serial data communication interface
Speaker interface	SPEAKER	Audio power amplifier output

2.3: BRIEF INSTRUCTION OF COMMONLY USED INTERFACE CABLE

■ Power cable:

As the following map shows, one end is a white plug with 6 pin, connect to the white of the equipment's back pannel. Red and black cable to connect to the car's battery directly. The red cable is connected to the positive electrode, the black cable is connected with the negative pole. The yellow cable is connected to the ignition line. Mainframe equipment opens automatically after opening the car with the car key. Autodelay closes after closing the car. The yellow cable connects to the gear where the car key open all the dashboard light. (the gear before start the motor).



Figure 2-6 Functional MDVR interface roughly matched wiring

■ Audio/video cable

MDVR approximately has above kinds of accessories, the aviation head A/V test cable is just used during the test, please do not use it on the installation. When installed, recommend to use the aviation head AV extended cable. MDVR need to use the 4pin-AV output cable when connect to the A/V output. or use the AV interface in the front panel. External interface of MDVR can choose from WIFI/3G/GPS, so the relative module antenna is needed. As figure 2-6 and figure 2-7.



Figure 2-7 MDVR uses corresponding cables according to functions



1. Ensure the battery voltage is between 8V-36V before connection. Otherwise, it will burn out the equipments.
2. After the cable is connected, please note the insulation between the power line. Prevent burn out the battery because of the short circuit.
3. The yellow cable must be installed on the ignition line, or the equipment will not support the delay shut down, and the last video recording will be missed.
4. The installation of MDVR must get positive electrode directly from the battery. Please don't use iron wire as the ground line, or it will produce negative pulse and jamming the normal operation of the mainframe. The diameter of power supply that the positive electrode and negative pole must above 1.5 mm.

■ Alarm input and output

This equipment has six alarm input interface and two alarm output interface. Alarm input detection are all level detection. It can connect to various vehicles' driving status such as brakes, turns, door switches, buttons of emergent alarm. When press the brake vane, MDVR can detect the high level, or detect the low level. As figure 2-8.

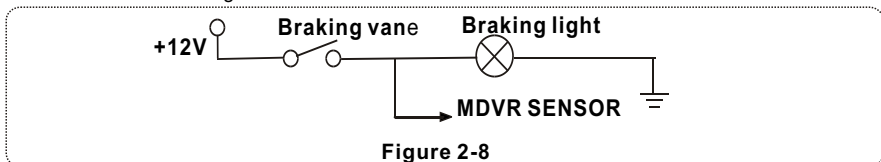


Figure 2-8

Alarm output are all level output , The drive ability is 200 MA, if you want larger power devices, you must connect it to external relays. This is the optoelectronic alarm wiring diagram of Alarm output As figure 2-9.

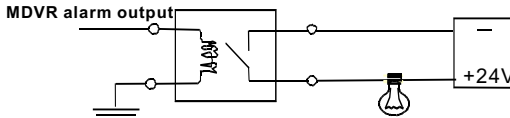


Figure 2-9

2.4: USIM CARD INSTALLATION

For functional MDVR card, if support the wireless network communication, it need to install the USIM card which is suit for WCDMA/EVDO. USIM card is on the communication board of the mainframe , use a screwdriver to take down the flap cover from the bottom of the mainframe. Then you can see the USIM card interface, press it to USIM interface. Please notice the right side and the opposite side. Use the screw fix the flap cover after installation.

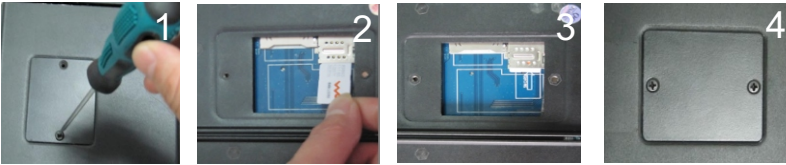
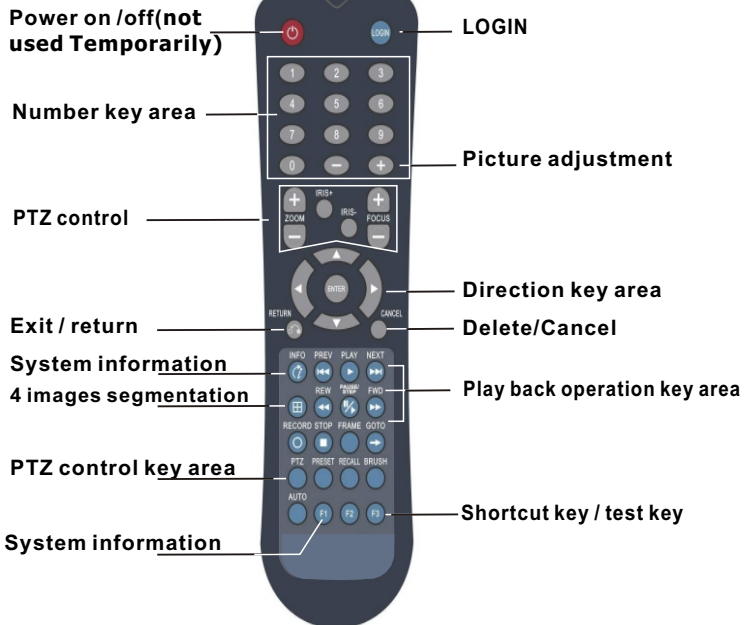



Figure 2-10

2.5: INSTRUCTIONS OF FUNCTION KEYS ON REMOTE CONTROLLER



Power on/power off	NOTE: this function is not used temporarily
LOGIN	If the video has set the password, press LOGIN key to input the password. As the system does not have recovery and reset function, please remember the password.
INFO	Information
 Figure keys 1, 2, 3, 4	Under the surveillance images, it can be used to switch between single and four images; Press the image segmentation key to show the 4 images; Under the surveillance image, press this key, it will show switch sequence as follows: CH1-CH2-CH3-CH4.
RETURN	Exit to the last sub menu. Finally return to the menu setting and the surveillance images;
PAUSE/STEP	Suspend key and single step key when playback video material. Press the key once can play one step. Then press the play key to return to the normal playing speed
GOTO	Playing back, it can jump to point time to start playing
FRAME	Press this key to frame
PLAY	Button to play
Forward	The forward button when playback video material. There are four gears: 2X, 4X, 8X, 16X.
REW	The rewind button when playback video material. There are four gears: 2X, 4X, 8X, 16X
Stop REC	Stop manual video button
Recording	Launch manual video button
NEXT	In Playing process turn down to the next page/next file;
PREV	In Playing process turn up to the last page/last file;
PTZ	Automatic, preset, adjustment, variable times +, variable times -, focus +, focus -, aperture +, aperture - PTZ, PRESET, RECALL, BRUSH
F1、F2、F3	F1 is shortcut key, F2, F3 is spare key



SYSTEM MENU

CHAPTER 3: SYSTEM MENU SETTING INSTRUCTIONS

3.1: DEMO WORKING AND USERLOGIN.

Trun on the device after power supply and other connecting successfully and according to installation guidance. Interface refer to Figure 3-1 and there are four-image monitoring interface after the device start working. Press "LOGIN" button on the remote control, then direct into login interface, as Figure 3-3 for reference

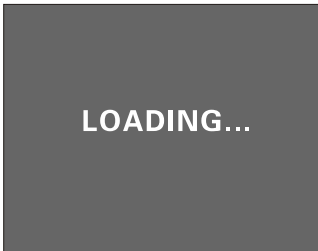


Figure 3-1



Figure 3-2

INSTRUCTIONS:

DEVICE NUM: User set number for every different device and it will show in the right of the number input box. User enter the number as showing, one number only for one device .

USER NAME: Including admin and normal user, regular user permission only could enter into video searching , playback , information and other menu, but can not set the menu and data. Admin gets the permission to modify the system parameters.

PASSWORD: Enter password according to the selected user name. When password is correct , select down button move to "LOGIN", and press "ENTER" to log in., When password is incorrect, press "CANCEL" and delete , then reenter the correct password. Admin password is 111111, the main interface after entering password is as showing as figure 3-4.

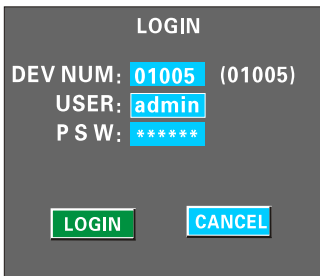


Figure 3-3

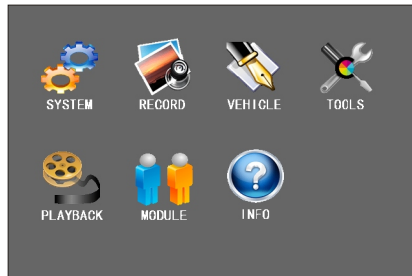


Figure 3-4

System menu includes seven main menus: SYSTEM, RECORD, VEHICLE, TOOL , PLAYBACK , MODULE , INFO. Main menus is as Figure 3-4 shows:



CAUTION

- 1、 All submenu settings must [save], then effect, otherwise invalid.
2. Check box if filled means function selected , not filled means function not selected.
- 3、 Number inputs can use number button on the remote control enter directly or use soft keyboard. Letter only can complete via soft keyboard, press "RETURN" button to get back .

3.2: SYSTEM MENUS CONSTRUCTION CHART

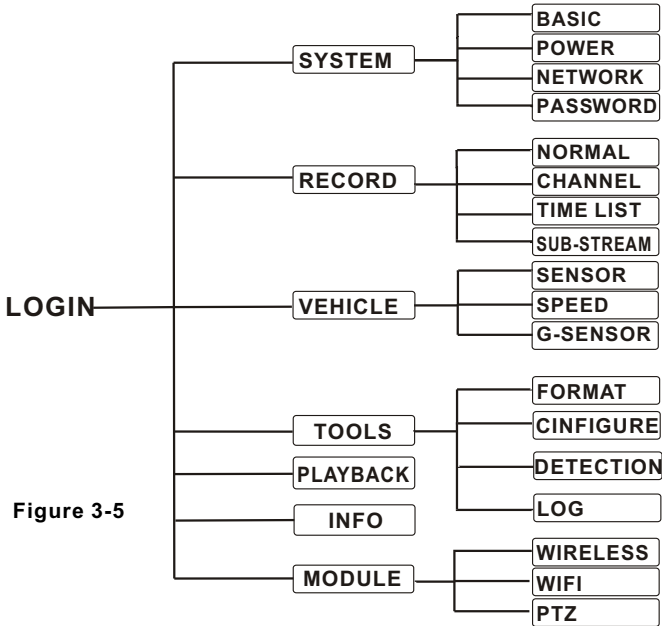


Figure 3-5

3.3: SYSTEM SETUP

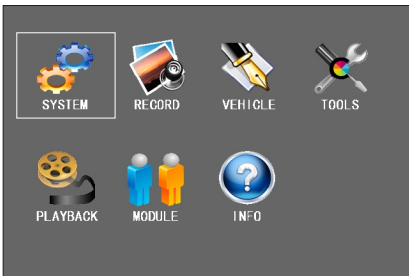


Figure 3-6



Figure 3-7

It is the first menu in the main menu and it includes "BASIC SETUP ;POWER SETUP ;NETWORK SETUP and PASSWORD SETUP".

3.3-1: BASIC SETUP

Basic setting: It is used for device system time and some basic function setting .

- 1.**DATE FORMAT:** Press"ENTER"to type Y-M-D/ D-M-N.
- 2.**DATE and TIME Setup:** Press"ENTER",and then press "-" or"+"to set the data,press enter to confirm .
- 3.During operation timeout (can set from 30-3600 seconds) and device number modification, press "CANCEL"to delete, and then press the number button .

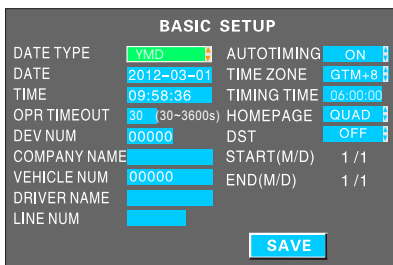


Figure 3-8

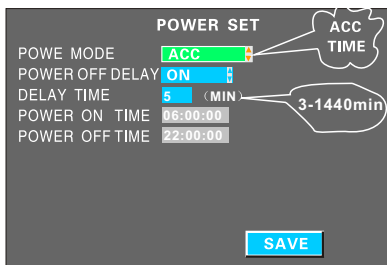


Figure 3-9

4. "COMPANY NAME", "VEHICLE NUM", "DRIVER NAME" "LINE NUM" Setting: Press "Enter" key to pop up keyboard window, then use left/right/up/down/enter key to setup.

5. When turn on automatic adjustment function, in the default time, the system will adjust the time via GPS automatically when it comes to the time for adjustment.

6. HOME PAGE : There are "DEV STA" and "QUAD" two options, "QUAD" is the normal monitoring screen when we turn on the device. If select "DEV STA" system information will appear in the four channels normal screens. It is equal the function when we press the button "INFO".

3.3-2: POWER OFF/ON SETUP

1. Power on/off mode : Select from "TIME /ACC" mode, and press "ENTER" to switch.

ACC mode means when the vehicle powers on, the device will start working. Recommend to select it as the default mode. Timing mode means the device will turn on or power off during the fixed time.

2. Delaying off setting : when select ACC mode or TIME mode, can set delay off and the time is 3-1440mins, after setting, demo will continue the delaying time.

3.3-3: NETWORK SETUP

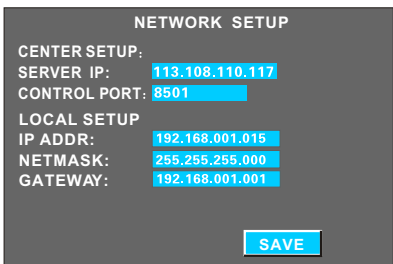


Figure 3-10

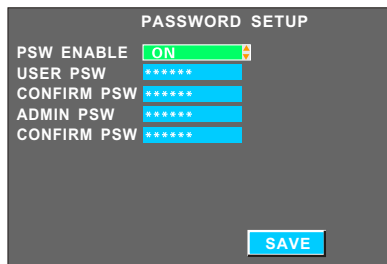


Figure 3-11

1. CENTER SETUP :

The server IP is the same as the CMS server IP. Control Port is the same with Gateway Server Port Number "8501".

2. Server IP is the IP that MDVR uses to connect to the CMS platform via 3G/WIFI/RJ45. Normally it is the fixed WAN IP. Our devices can support 3G / WIFI/RJ45 functions. If the devices do not have these functions, this menu can be passed.

3. Local IP Settings: general according to local area network to set, set up a local LAN IP address and then set the netmask and gateway, set up, with the cable network router and Rj45 interface connected, and keep it from LAN connected to the wan, then connect to CMS platform, Flow chart as figure 4-10.

3.3-4: PASSWORD SETUP

1: Press "ENTER" to switch ON/OFF.

2: Admin can modify the user password and admin password. The default password for admin password is "111111", after password modification completed, exit the menu and use the new password to enter the interface.

3.4: RECORD SETUP



Figure 3-12



Figure 3-13

It includes: **Normal setting, Channel setting, timing setting and sub-stream setting.** It can reach the highest quality recording after settings. With default settings, the device will start recording after powering on. But in order to reach better recording function, you can modify the related parameters. Record menu is shown as figure 3-13.

3.4-1: NORMAL SETUP

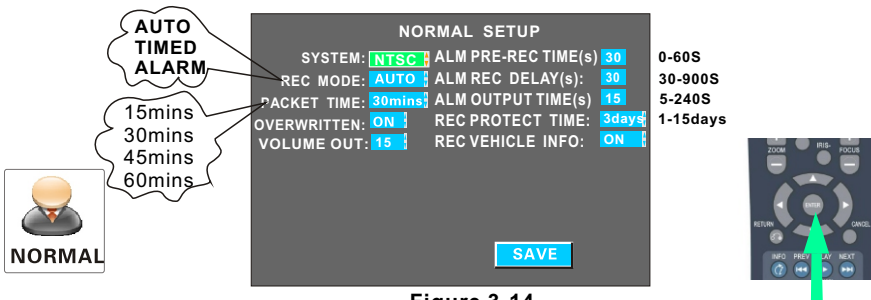


Figure 3-14

During settings modification, select menu to become green, then press "Enter" to switch. Press "Cancel" and before input numbers.

- 1.TV SYSTEM:** Press "Enter" to select PAL/NTSC system.
- 2.REC MODE:** Press "Enter" to select AUTO/ ALARM/TIMED mode
- 3.PACKET TIME:** It is the time range when the recording video will be packed into one file. Select from 15/30/45/60 mins, and 15 and 30mins are the better options .
- Automatic recording overwrite can be selected on /off, if the SD card is full, the following recording video will overwrite the first recording videos automatically.
- 5.ALARM PRE-REC TIME(S):** When the alarm occurs, it will pre-record a period of time and pack to the Alarm recording. (0-60s range)
- 6.ALARM REC DELAY(S):** After the alarm stops, it will keep recording a period of time and pack into the alarm recording(30-900s).
- 7.ALARM OUTPUT TIME(S):** It means the alarm output time range when alarm occurs and connects to the output device.(5-240s)
- 8.REC PROTECH TIME:** It means the time that recordings are stored in the SDcards, during the protection time, even if the SD card is full with alarm recordings, it will not be overwritten, press "Enter" to select from 1/3/5/7/10/15 days.
- 9.REC VEHICLE INFO:** Select ON/OFF. When enables this function, recordings will contain all the alarm info, GPS info and other information which can be viewed via playback software.
- 10.VOLUME OUT:** volume of the playback, 1-15 Optional.

3.4-2: CHANNEL SETUP

CHANNEL SETUP							
CH	ENABLE	RES.	FPS	QUAL	MIC	PREVIEW	VOLUME
CH1	ON	D1	25	3	ON	ON	15
CH2	ON	D1	25	3	ON	ON	15
CH3	ON	CIF	25	3	ON	ON	10
CH4	ON	CIF	25	3	ON	ON	10

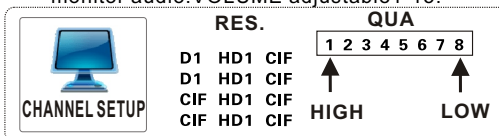
SAVE

Figure 3-15

1. Set some properties of each channel, such as RES, QUAI MIC AUDIO, VOLUME etc .

FR: 1-25 optional, when reach 25 FR it is real-time recording. 1-8 grade QUA optional, 3 grades is defaulted and 1 is the best, 8 is the lowest. If some channels do not need video or audio recording, turn it off to save the HDD storage .

MIC: Must be set "ON" in order to record and monitor audio. **VOLUME** adjustable 1-15.



3.4-3: TIME LIST SETUP

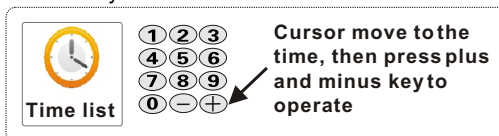
TIME LIST		
DATE	TIME 1	TIME 2
EVERYDAY	00:00-23:59	00:00-00:00
MONDAY	00:00-00:00	00:00-00:00
TUESDAY	00:00-00:00	00:00-00:00
WEDNESDAY	00:00-00:00	00:00-00:00
THURSDAY	00:00-00:00	00:00-00:00
FRIDAY	00:00-00:00	00:00-00:00
SATURDAY	00:00-00:00	00:00-00:00
SUNDAY	00:00-00:00	00:00-00:00

SAVE

Figure 3-16

INSTRUCTIONS:

1. See Figure 3-14 in REC MODE select "TIME LIST" mode, then set the time for recording. Move option to the time needs. Press plus or minus key (number 8 or 9) and move to the numbers that need setup. Setup each time according to the number key.



3.4-4: SUB-STREAM SETUP

SUB-STREAM	
RESOLUTION:	CIF
BITS RATE:	96
FRAME RATE:	10

SAVE

Figure 3-17

1. **SUB-STREAM SETUP:** Parameter settings during the video transmission to the internet via 3G/wifi/rj45 will affect whether it is clear or not when we see the video on CMS. Also, the transmitting speed mainly depends on the local network speed. Video RES can set to CIF or QCIF .

2. **FRAME RATE SETUP:** Appropriate frame rate changes with the bit rate changings, one - one relationship. The default bit rate is 96 and frame rate 10. Users should setup according to their network situation. If network bandwidth is good enough, they can set bits rate at 384 and frame at 25, or set in auto mode.

SUB-STREAM	
BITS RATE:	16-24-32-40-48-56-64-72-80-96-128-160-200-256-384-Auto
FRAME RATE:	01--- --02-- --03-04-05-07-10-13-15-20-23-25-25

3.5: VEHICLE INFORMATION



Figure 3-18

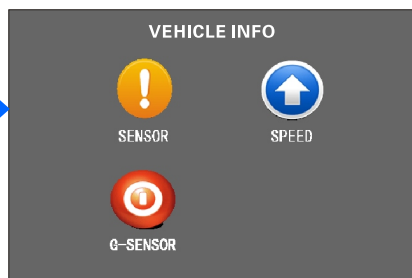


Figure 3-19

It includes SENSOR, SPEED, G-SENSOR SETUP.

SENSOR SETUP

SENSOR SETUP				
NAME	ENABLE	PW LEVEL	RECORD	ALARM
Input	OFF	HIGH	ON	ON
input	OFF	HIGH	ON	ON
input	OFF	HIGH	ON	ON
input	OFF	HIGH	ON	ON
input	OFF	HIGH	ON	ON
input	OFF	HIGH	ON	ON

SAVE

Figure 3-20

3.5-1: SENSOR SETUP- (ALARM INPUT)

1. When users install MDVRs, define the sensors according to different port settings, see the figures 3-20. Like change name "INPUT" to "Front door", "Brakes", and etc.
2. "ENABLE" on means switching on the sensor, user can select alarm mode as the recording mode, and then select record and alarm on/off on this menu. Actually, sensor input is also alarm input, with high/low level effective. Users normally use above 5V high level to form the loop.

G-SENSOR SETUP

G-SENSOR SETUP			
NAME	ENABLE	THRESHOLD	RECORD
X	OFF	2.00	OFF
Y	OFF	2.00	OFF
Z	OFF	2.00	OFF

X:-0.02G Y:-0.14G Z:-0.70G

ADJUST

SAVE

Figure 3-21

3.5-2: G-SENSOR SETUP

Before setup acceleration, users must clear X/Y/Z parameters. Acceleration can be analysed as a three-dimensional X/Y/Z coordinate axis, which can express three status: up-down, right-left, front-back. Uniform speed will not affect on it. Acceleration setup mainly setup thresholds that are defined via testing. Please see Chapter 4.3 for more detailed information.

3.5-3: SPEED SETUP

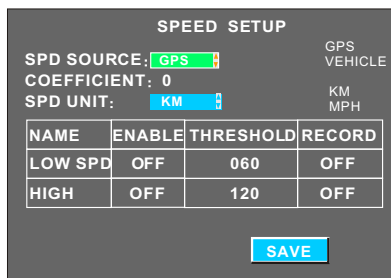


Figure 3-22

1. When setting **GPS /VECHILE** to get the speed , please press"ENTER"to switch , if select GPS, so should require demo have GPS module and with signal, that can pass the speed to vehicle and the vehicle can get the speed from GPS.
2. If select"Vehicle"to get the speed ,need to take the pulse sensor to calculate the speed ratio, (coefficient=pulse /speed) , pulse sensor connects to demo ports two line : SPEED-A and SPEED-B. this speed ratios requires during vehicle working in accordance with the seted speed and received pulse .
3. Unit of speed is switchable,high-speed alarm setting is turn valid. Threshold means limit the vehicle speed. Speed units is as the same as above .if video is turn on ,when is overspeed, demo will occurs\ alarming ,besides ,also need to set the recording mode as alarm recording in"record setup"--"Normal setup".

3.6: TOOLS Manage tool including 4 menus: FORMAT ,CONFIGURE, LOG AND DETECTION.

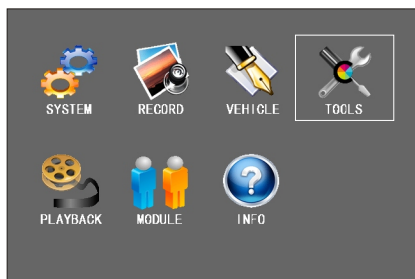


Figure 3-23

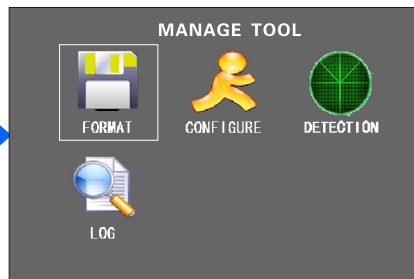


Figure 3-24

3.6-1: FORMAT DISK MANAGEMENT

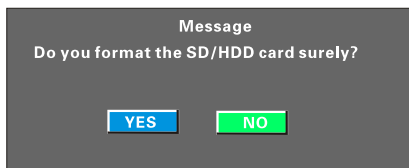


Figure 3-26

SD1
SD2

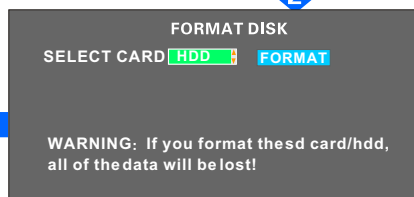


Figure 3-25

Refer figure 2-2 or 2-5, Before turn on device should insert HDD, please format the HDD and the set then video under normal circumstances. please refer above pictures for the Format procedures . Press"Enter"and select HDD/SD1, then format , according to prompts to select whether format or not .

NOTE : All the storage database be deleted when runs format ,please confirm whether there is storage file or other important files information.

3.6-2: CONFIGURE MANAGE AND LOG SEARCH

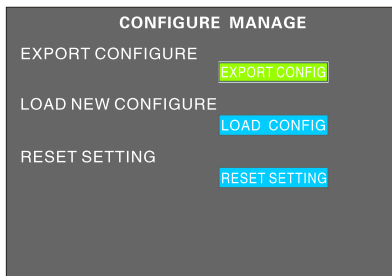


Figure 3-27

Configure manage mainly including import and outport system current configuration and restore factory configuration. If operates outporting current configuration, system will store the information into HDD and if others MDVRS' configuration are the same as this models, so we can insert the HDD into others MDVRS, then operate input current configuration. Restore factory configuration: IF can not find out the reasons when problems get during system setting or the demo running out of problem. We can restore factory configuration and then reset the demo.

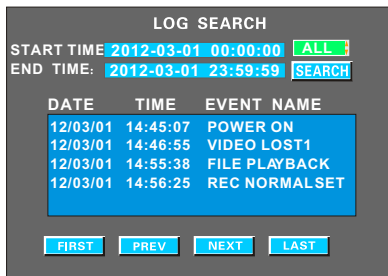


Figure 3-28



Select starting and ending time and issues type (ALL/ALARM /USER), then start to research, the system will record such related information: system turn on, user setting, networking setting, video lost, playback file, motion detection alarm, system setting etc.

3.6-3: MOTION DETECTION



MOTION DETECTION				
CHL	ENABLE	SENSITIVITY	DETECTION	SAVE
CH1	OFF	LOW	CONFIGURE	YES
CH2	OFF	LOW	CONFIGURE	YES
CH3	OFF	LOW	CONFIGURE	YES
CH4	OFF	LOW	CONFIGURE	YES

Figure 3-29

Select "MOTION DETECTION" in manage tool module and enter into motion detection setting. In user selected area, when there are moving objects, information will be written in the log file which named MD ALARM events after the system detected. If its continuous alarm or several alarms in 30S, then the system write the log every 30S. Users can view the information under manage tool-Log query. If user set the Alarm recording as the recording mode, when occurs motion detection, the video during this period will be packet alarm recording. User can view and playback this video via searching alarm recording query.



- Step1. Enter main menu, Select recording setting -manage setting-set alarm recording as the recording way.
- Step2. Set per-recording and delayed time, In order to confirm the alarm events continuity, 2mins will be better.
- Step3. Enter main men-manage tool-motion detection-enable function turns, set detection sensitivity and detection area, then save

PROCEDURES OF SETTING DETECTION AREAS:

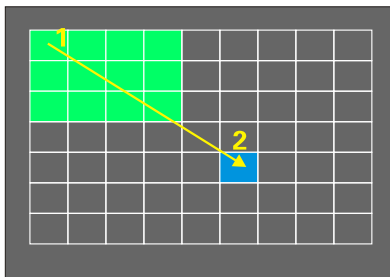


Figure 3-30

Select "Configure" and press "ENTER", enter into motion detection configuration interface. (Figure 3-30).

Step1: Select the first Box , press "Enter" gets yellow , after move the arrow keys , gets dark green)

Step2 : The select second box, the diagonals of the rectangle between these two boxes is the selected area, (after selected "ENTER" the diagonal region gets into a dark green .)

Step3:, press "Return" to last interface and then save. Sensitivity divided into Low , medium and high grade, under high-sensitivity mode, it is capable of sensing changes in light and under low - sensitivity status , only can detecting the moving objects .



CAUTION

"Enter" and "Cancel" can delete the selected areas , all the parameters set must confirm save after configuration, if is successful modified there will prompted save success.

3.6-4: SYSTEM UPGRADE

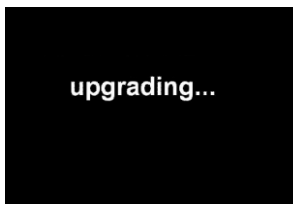


Figure 3-31

The procedures are as bellowing :

Step1: Please copy "dvr-xxxxxxx.crc" upgrade file to U-disk of the root directory. (But also can use the SD card to upgrade).

Step2: Insert U-disk into USB slot , turn on Demo and then enter into "Upgrading".

Step3: Enter into the system after upgrading successfully , Press enter Key F1 on the remote control to view the system version information.



CAUTION

Do not shut power or pull out USB during the device is upgrading , otherwise it will break the system device.

3.7: MODULE MANAGE

3.7-1: 3G SETUP

INSTRUCTIONS: When device need connect the network , must have setting in this menu .

1) Insert USIM card , which can support two options : WCDMA and EVDO , USIM card slot is in the communications board , Remove the small plate which under the demo , then can see the USIM slot , detail installation information please refer to 2.4 section .

2) After installing the USIM card and plug in the 3G antenna , ensure that the system can receive excellent 3G signal .

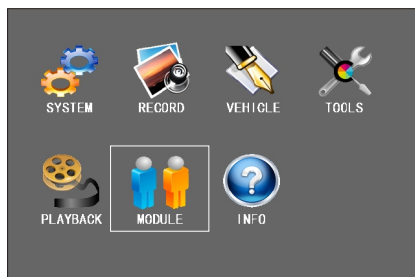


Figure 3-32

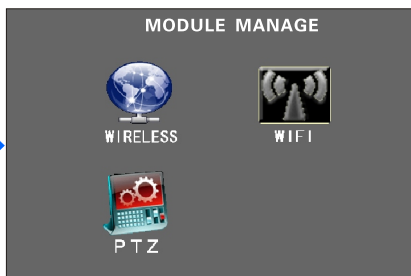


Figure 3-33

3. Edit the following information in the "WIRELESS " .

1) Wireless dial status "ON" .

2) In communications type , if the demo support WCDMA , then select WCDMA , Otherwise , if it is EVDO , then select EVDO , Press the remote control key "ENTER" to switch . (Support WCDMA or EVDO , it is depends on the model type , every demo only can support one mode) .

3) APN and Central number of 3G , need to enter APN and central number according to local network operator offers . Some place need enter user name and password , then can get the signal well , when your demo can not get signal normally , please confirm whether the 3G setting is correct or not .

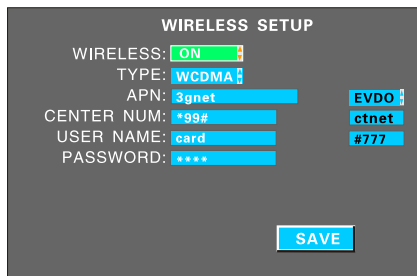


Figure 3-34

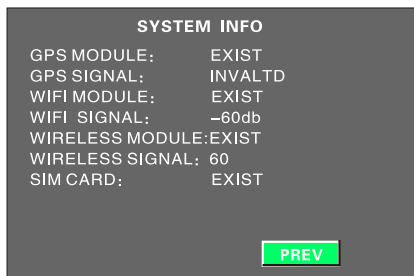


Figure 3-35

4) Press the remote control key INFO can view related 3G communication information , if shows dial successfully and with excellent signal , then can runs communication via 3G , (Confirm the IP address correct , control port , Network setting , and USIM card data flow whether enough or not) .

5) If want connect the demo into CMS server , then enter sever IP address and control port number in the Picture showing (figure 3-10) .

3.7-2: WIFI SETUP

ENCRYPT TYPE:WEP



WIFI SETUP

ENABLE: ON IP ADDR: 192.168.001.012

ENCRYPT: ON NETMASK: 255.255.255.000

AUTH MODE: OPEN GATEWAY: 192.168.001.001

ENCRYPT TYPE: WEP

SSID:

PASSWORD:

Figure 3-36

INSTRUCTIONS:

Insert WIFI antenna into the backside mount of the demo , Edith the following information at the interface as pictures (Figure 3-36)

1. Make "**ENABLE**" and "**ENCRYPT**" status "**ON**", authentication mode including WPA ,WPA-PSK, OPEN and share. authentication mode is not effective currently ,so only choose the "**OPEN**" state (Open-certifications is not required). then WIFI can communicate properly ,Select "**WEP**" encryption, refer figure 3-36 ,Press"ENTER"key to set above information and different options' switching.
2. Enter the SSID and password (The wireless network name and password), IP ,MASK and gateway , all the set must be match with your local wireless LAN , IP address, netmask and gateway press "**CANCEL**" and the number keys to setup.
3. Check system information, refer figure 3-35, if the WIFI signal is over -60db, it indicates WIFI signal is excellent.
4. If want connect into CMS server ,refer the center of the IP field in figure 3-10, enter the CMS center IP and port number.

3.7-3: PTZ SETUP



PTZ SETUP

	Protocol	Baudrate	Dbit	Sbit	Verify	Num
CH1	PELCO-D	2400	8	1	None	1
CH2	PELCO-D	9600	8	1	Even	12
Ch3	PELCO-D	9600	8	1	Even	12
CH4	PELCO-D	9600	8	1	Even	12

Figure 3-37

INSTRUCTIONS :

1. Protocol: PELCO-D and PELCO-P optional.
2. Baudrate: There are 1200/2400/4800/9600 four options, user can modify different bits rates according to different PTZ .
3. D-bits: Normally is 8, now here is defaulted to select 1-8.
4. S-bit: Normally is 1 , no need modify when has been defaulted.
5. Verify: Decide to select which checking way, usually choose "NONE".
6. Address num: Enter address num and must be as the same as the PTZ's address code, Normally PTZ's address code is default at "1", PTZ address code is adjustable and need set different address code to identify different PTZ.
7. Cable connecting: PTZ anode connect RS485-A and Negative connect RS485-B. .

8. Remote control operation: Setting "▲▼◀▶" on the menu. They are used for controlled up down ,left and right, "ZOOM "+" , "-" enlarge and narrowfunction. "Focus" "+" , "-" Transfer large focal length and transfer small focal length."IRIS+" , "IRIS-" Adjust infrared ights,"PRESET" used for setting preset position,"RECALL"Used for selecto to use preset position,"BRUSH" is wiper. These function only can achieved once PTZ available.



User connected PTZ successfully and set the parameters, need select channel which used for connecting PTZ , For example, when PTZ is on channel 2, in order to control it we need transfer into Channel 2 and enlarge on the monitor interface .please refer chapter 4 , chart 4.3 for more detail information.

3.8: SYSTEM INFORMATION

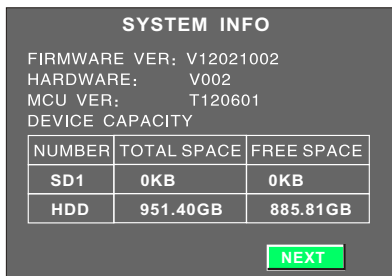


Figure 3-38

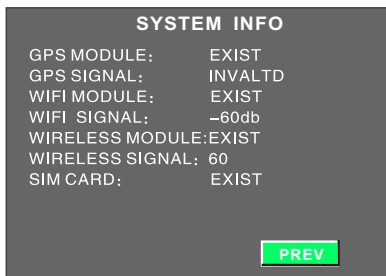


Figure 3-39

INSTRUCTIONS:

Enter into main menu, the last menu is the "INFO" besides enter into main menu select "INFO" to check related information, but also have the following brief ways :

Press "F1" on the remote control under four pictures at the scene to monitor the status, will show the system information, (Figure 3-38), the system information contains firmware, software version number and device capacity informations.

3.9: PLAYBACK

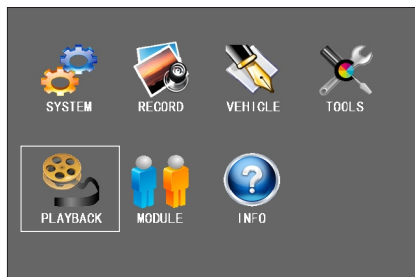


Figure 3-40

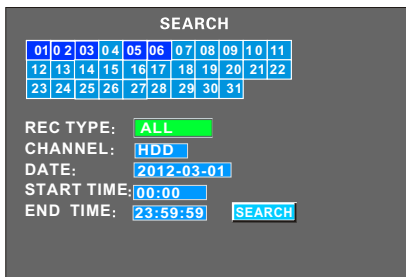


Figure 3-41

A:SEARCH INSTRUCTIONS

Enter into recording searching manu, Select different recording type and different storage device to playback files and also can search the detail files according to date and time. When there is recording file available, the date will turn green. Refer figure 3-42 for more detail information.

B:SEARCH RESULTS INTERFACE

Enter into search result interface, shows recording file information :

Type including "Normal" and "Alarm" recording , Normal recording files usually comes from turning on AUTO or TIMED recording and alarm recording is from "RECORD-

Normal - Record mode. Others manussuch as sensor setting , speedalarm setting, shock acceleration,motion detection set related parameters and also connectperipherals, when alarm signal occurs,systemwill record the video automatically.when playback the recording, resolution contains D1/HD1/CIF, Video's starting and ending timeis thefile package timeand it will show file's storage

SEARCH RESULT						
DATE: 2012-03-01						
TYPE	RES.	START	END	CHL	SIZE	
Normal	HD1	14:43	14:55	1	29M	
Normal	HD1	14:43	14:55	2	31M	
Normal	HD1	14:43	14:55	3	26M	
Normal	HD1	14:43	14:55	4	35M	
Normal	HD1	14:55	15:15	1	63M	
Normal	HD1	14:55	15:15	2	60M	
Normal	HD1	14:55	15:15	3	58M	
Normal	HD1	14:55	15:15	4	70M	

FIRST PREV NEXT LAST

Figure 3-42

C: Playback interface

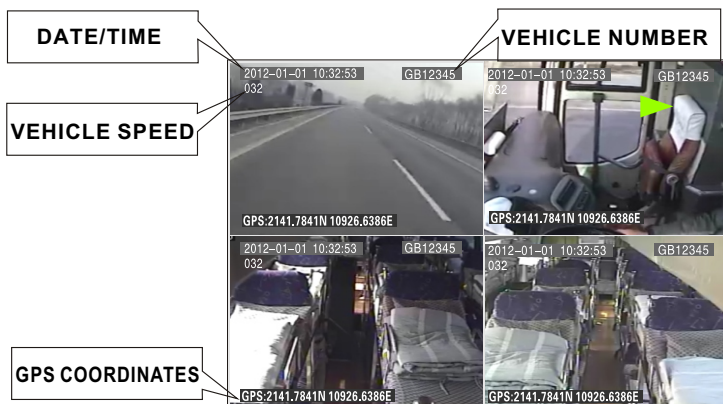







Figure 3-43

After selected fixed recording file, yellow lights shows selected ,Press "ENTER", as figure 3-43, play procedure can indicate the time, speed , GPS information and etc. the buttons  used for playback are PLAY,  back REW,  FWD,  PAUSE /STEP,  STOP. ; Fast forward and rewind can press : X2, X4, X 8, X16 times the speed of play
If voice exist, please enlarge the channel and then press direction button , left and right to adjust the voice .Besides ,Playback recording HDD file on PC ,please see the details in chapters 4.4 for reference .

CHAPTER 4: COMMON SHORTCUT SETUP

4.1: CABLES TESTING AND POWER ON

The host power cable has three wires—red, black and yellow. Red and black wires connect to the car battery directly, red wire to positive pole and black to negative pole. The yellow wire directly connects to the ignition wire (namely the gear before the start-up motor). However, during test in other places without vehicle environments, the wiring connections are as follows: twist the red and yellow wires into one thread and connect to positive pole, while black wire alone to negative pole, then provide DC12V-5A or above switching power supply to the host.

- 1: Properly connect the power cable and power it. As long as the power supply is provided, the blue lamp of the panel—"PWR" is on, and the device stays at stand-by mode.
- 2: Connect the monitor and other relevant equipments to the host via the AV-OUT cable. Make sure all cables are correctly connected.
- 3: The device can be switched on only when being locked with the electronic key, and all other corresponding indicator lamps flash yellow after booting.

The below Figure 4-1 shows the testing cable, and vehicles' actual power cable connection:

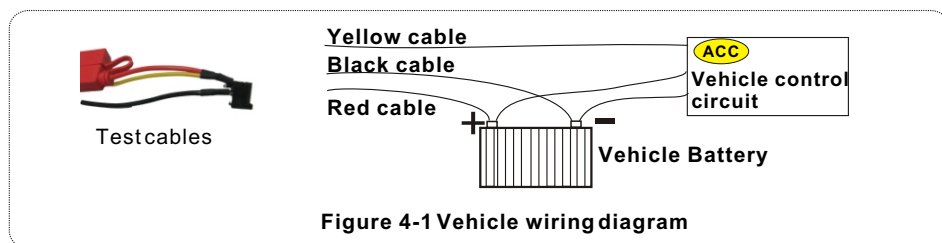


Figure 4-1 Vehicle wiring diagram



CAUTION

1. The voltage range of power supply is DC8-36V. When only the blue lamp of the front panel flashes on, the device stays at stand-by mode. And more than just one lamp will be on after normal booting.
2. If power supply is provided via the testing cable, the host can't realize power-off delay.

4.2: RECORDING SETUP

1: AUTO RECORDING

During the first use after booting into the system, formatting the installed HDD is recommended, so that the system can be more compatible to its format. After the restart host format, and then into the auto recording

2: TIMED RECORDING

MENU -RECORD SETUP-NORMAL SETUP--REC MODE, and change into Timed Record, then back to the upper menu "TIMED SETUP" and setup the recording time range, then save. For more detailed menu operations, please refer to Section 3.4-3.

NOTE: Use the key "+" or "-" (under the number "8" and "9") during the recording time range setup.

3: ALARM RECORDING

MENU -RECORD SETUP-NORMAL SETUP--REC Mode, then change into Alarm record. Setup the

alarm preparation record time (range 0-60s) and the alarm record delay time (range 30-900s); the alarm output time (range 5-240s), the alarm output setting can be dependent on the actual external alarm equipment.

Second, the installation of corresponding external alarm input devices is needed, like emergency switch button or other sensors. The alarm settings of this device include several types as follows:

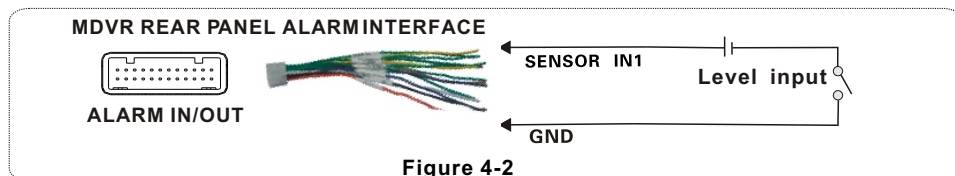


Figure 4-2

A: SENSORS INPUT ALARMS. SYSTEM MENU-VEHICLE INFO-SENSOR SETUP

In the menu shown in figure 3-20, choose high or low trigger level, and switch on recording; This menu corresponds to the host's six external alarm input "SENSOR IN", and the external should connect to the corresponding sensing switch equipments, like magnetic door, emergency switch button, turning lamp switch, tail light brake (shown in Figure 2-8) and etc. The rough connection is as shown in figure 4-2.

B: OVERSPEED ALARM SETUP. SYSTEM MENU-VEHICLE INFO-SPEED SETUP

If a vehicle adopts GPS to acquire speed, as shown in figure 3-22, the GPS signal should be good, then the threshold of overspeed alarm should be set, like 60MP/H, namely the maximum speed limit. Then switch on enabling and recording, when vehicle's speed exceeds 60MP/H, the vehicle will output an alarm and record simultaneously.

If a vehicle chooses to acquire speed from itself, the connection to the speed pulse sensors is necessary, which is used to calculate the speed ratio (the coefficient = pulse/speed). Connect the pulse sensor to the two lines of the vehicle ports SPEED-A and SPEED-B. The speed ratio is determined according to the set speed and the obtained pulse during the course of vehicle's running, so the operations are more complex. A simplified connection is shown as figure 4-3.

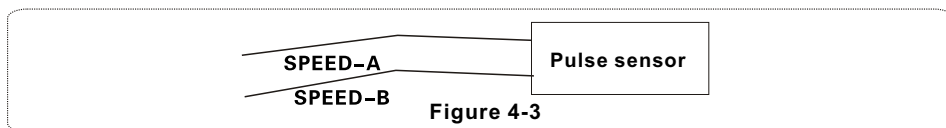


Figure 4-3

C: G-SENSOR ALARM RECORDING. SYSTEM MENU-VEHICLE INFO-- G-SENSOR

As shown in Figure 3-21, G-SENSOR can be understood as a three-dimensional X, Y, Z coordinate axis, which demonstrates vehicle's three status sets respectively, up and down, left and right, back and forth. Also up-and-down bumps, speed-up, sudden braking, side tumbling, sharp turns, and so on during the course of vehicle's running can be shown from X, Y, Z axis.

A related value of the threshold needs setup. After installation to vehicles, firstly a calibration is required, namely to reset X/Y/Z parameters; then during the operation measure sudden braking accelerate, range value of up-and-down bumps, variation value of left-and-right sharp turn, etc., so as to determine which axis has big changes, and these operational status will display and change real time. With threshold set and "record" on, the device will start recording when vehicles run over the threshold limit.

D: MOTION DETECTION ALARM RECORD. SYSTEM MENU-TOOLS-MOTION DETECTION

As shown in Figure 3-29, turn on enabling switch, set detection sensitivity from "high, medium and low" according to requirements, generally set to "medium". Next the most important step is to set motion detection area by diagonal setup, please kindly refer to Figure 3-30, there is no record on and off menu here, and the default setting is to turn on with enabling, so as long as you set motion detection area and set record mode for alarm record, the host will trigger recording and generate alarm record files when move occurs in the image. (Note: all settings can only take effect by press the saving).

4.3: PTZ CONNECTION AND SETUP

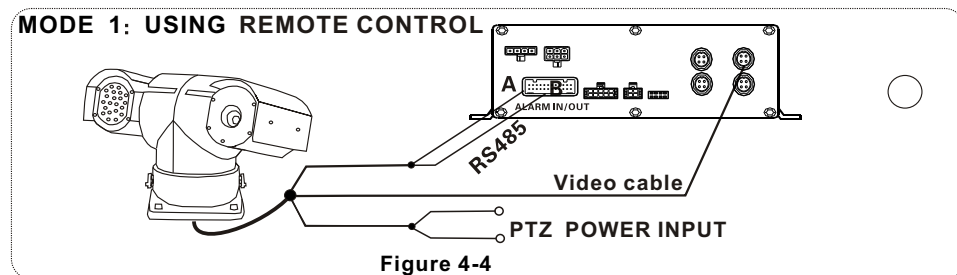
Setup steps:

Step 1, Choose PTZ protocol, includes PELCO-D and PELCO-P, mostly choose PELCO-D.

Step 2, Setup baudrate from 1200/2400/4800/9600, which has to correspond to that on PTZ.

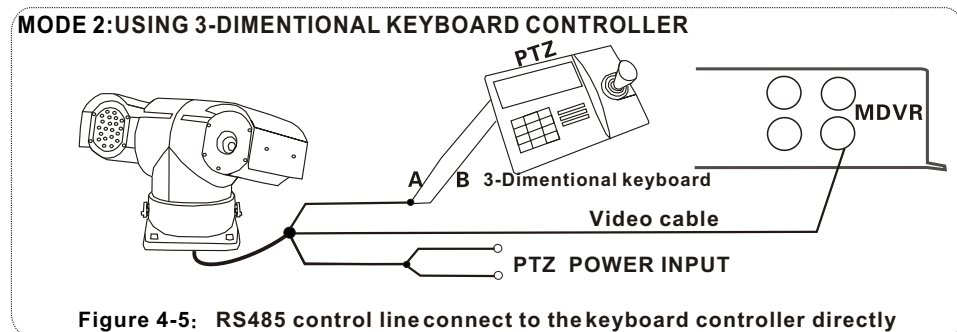
Step 3, Setup PTZ address, which should match the set address on PTZ, Normally the default PTZ address is 1. The dialed address of PTZ is adjustable, and can set differently to identify if more PTZ are used.

Step 4, Cable connection: the RS-485 control line on PTZ connects to the host's RS-485 port, namely RS485-A and RS485-B respectively.



CAUTION

User connected PTZ successfully and set the parameters, need select channel which used for connecting PTZ, For example, when PTZ is on channel 2, in order to control it we need transfer into Channel 2 and enlarge on the monitor interface



Step 5, Three ways Cables connections

Type 1: Connect the RS-485 control line on PTZ to the host's RS485-A and RS485-B port respectively, and video cable to the host video input port, then provide power supply to the PTZ; such wiring requires to set related data of the MDVR host corresponding to those on the PTZ, and then use an IR remote controller to control the PTZ.

Type 2: PTZ RS-485 control cable connect to 3-Dimensional keyboard controller directly, No need to connect to host MDVR. video cable connect to host the video input port, and provide power supply to the PTZ and 3-Dimensional keyboard controller respectively, then setup keyboard controller parameters to match the PTZ. Because of the 3-dimensional keyboard controller, make the operation fast, convenient and more practical, So it is better to take this method

Type 3: Connect PTZ RS-485 control line to both 3-Dimensional keyboard controller and host MDVR, so that the PTZ can be controlled by remote controller, keyboard controller and CMS platform.

4.4: PLAYBACK RECORDED FILES ON PC

Recorded files can not only playback on the device itself, but also can transfer to the PC player to play. Install the player:

Double-click the CD-ROM installation files "MDVR Player V1.0.exe", and select the installation

language, then click OK and click 'Next'. After the installation

is completed, the shortcut of player icon is on the desktop; the installation steps are shown in figure 4 -6.

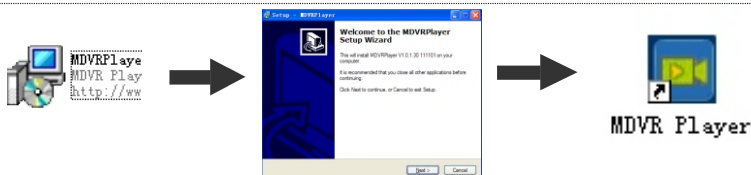


Figure 4-6

Take out the HDD box from the deme, then insert it into PC's USB port with USB extend cable, and PC will recognize the new hardware installation automatically. After HDD reading, open the folder, where recorded files are stored in folders named by date. Open these folders, and the suffix of recorded files is ".264" as shown in figure 4-7, while playback screen shown in figure 4-8.

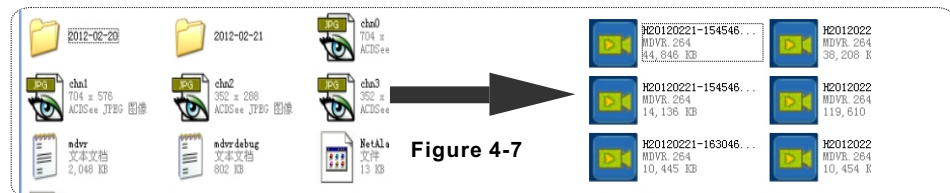


Figure 4-7



Figure 4-8

4.5: VEHICLE FAST CONNECTING TO CMS

NOTE: For the Simply MDVR which without WIFI /3G/RJ45 modules, the below instructions is not compatible to them.

Step 1: Install USIM card which support WCDMA/EVDO. Please refer to Section 2.4 for detailed installation steps reference, as shown in figure 2-10.

Step 2: Enter into system menu after booting, modify the host's device number from 00000 to 99999 firstly, SYSTEM MENU - SETUP-BASIC- SETUP VEHICLE NUM. Each server identifies different hosts by their device number, which is crucial to be modified. If the host still can not connect to CMS after modification, please check whether the device number is workable or not.

Step 3: Modify the vehicle's number, by which vehicle's information is displayed in CMS platform. If the default number 00000 is not changed, vehicles searching will be quite inconvenient because of different vehicle's numbers.

Step 4: Enter into important network setup, SYSTEM MENU - SYSTEM SETUP-NETWORK SETUP, and set the server IP and port. The server can be built by the user, take the server IP: 113.108.110.117 as an example, input the server IP, then input the control port number 8501, and save, as shown in figure 3-10.

THE MAIN FLOW OF RAPID REPORT TO CMS IS SHOWN IN THE BELOW FIGURE 4-9.

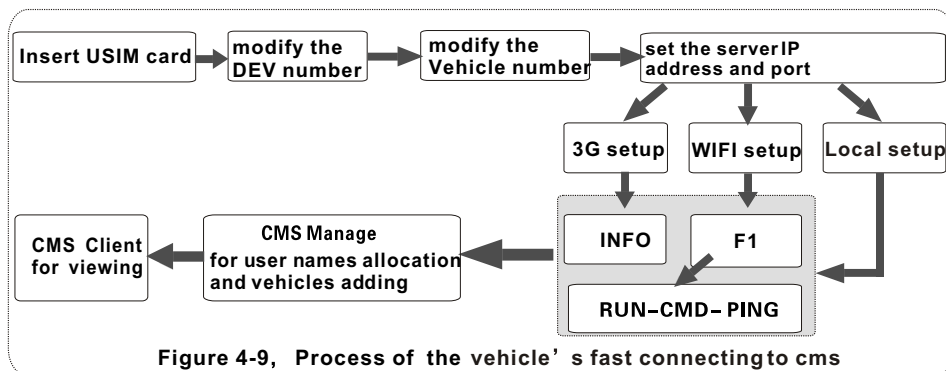


Figure 4-9, Process of the vehicle's fast connecting to cms

Step 5: Enter into "SYSTEM MANU- MODULE", which includes 3G and WIFI setup. There are two steps as following:

A. Wireless setup

For wireless 3G setup, including WCDMA and EVDO network type. Also need to notice APN and center number. Some overseas network operator need to enter user name and password, the APN and the center number also need to be modified, based on the local network data then input relevant information. After setup is complete you can press the INFO button to check whether dial query is success or not.

A

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

WIRELESS:	ON
TYPE:	EVDO
APN:	ctnet
CENTER NUM:	#777
USER NAME:	
PASSWORD:	

B. WIFI SETUP

Regarding to WIFI setup, please note the following several points, mainly are the authentication mode and encrypt type. Authentication mode is not in effect currently, only choice is "OPEN"

Mode is workable without authentication, For encrypt type, need to choose **WEP**, then insert SSID and password (wireless network's name and password). Also need to set the host IP address, mask, gateway and etc. With settings finished, press the "F1" button on the remote control, Check the WIFI signal and check whether the current host is in the current local area network via PC ping.

B

ENABLE:	ON	IP ADDR:	192.168.001.125
ENCRYPT:	ON	NETMASK:	255.255.255.000
AUTH MODE:	OPEN	GATEWAY:	192.168.001.001
ENCRYPT TYPE:	WEP		
SSID:			
PASSWORD:	*****		

C

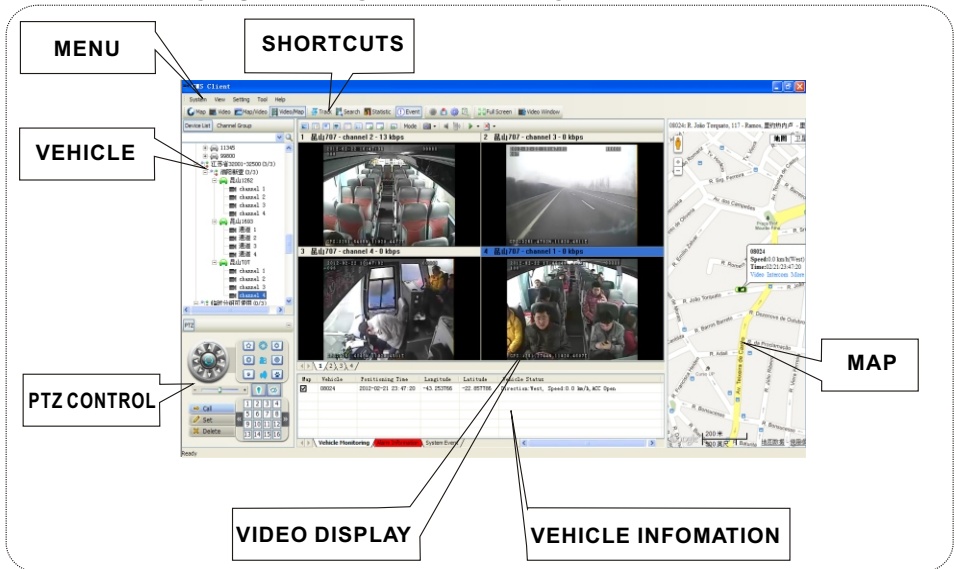
NETWORK SETUP	
CENTER SETUP:	
SERVER IP:	113.108.110.117
CONTROL PORT:	8501
LOCAL SETUP	
IP ADDR:	192.168.001.015
NETMASK:	255.255.255.000
GATEWAY:	192.168.001.001

C: LOCAL IP SETUP

Hardware connection: Equipment with RJ45 connected to the Internet, As shown in figure 3-10, Set up local IP address (IP+netmask+gateway) and center server IP, control port. it can from LAN connected to the WAN, so the vehicle connecting to CMS.

Step 6: Above are two ways networking mode, 3G / WIFI/RJ45,. After network connection, the next step is CMS management software operation on the PC, there are two steps. One is CMS user names and add vehicles allocation, if in self-built server, you can add yourself, if it is connect to manufacturer's server, then can ask the technical staff to assist on adding. The other one is login CMS Client view by user name and finally realize the CMS Connecting. For the detailed operation of the Client platform, please refer to the relevant files from the CD.

APPENDIX 1: CMS PLATFORM INTERFACE



APPENDIX 2: FAQ

Q: What should I do if problems occur when I can not solve myself?

A: Please write down the units number, software version number and describe the problems in details, then submit to our technical support for analysis. Please kindly note that the more detailed descriptions that you offer will make our analysis more convenient.

Q: There's no video output from the Mobile DVR?

A: 1. Check whether the host is on, if only one blue lamp is on, the host is at standby mode, still not booted. Also check whether the red and yellow lines of the host power cable are all powered on.

If only one line is powered, the device still can not boot.

2. Check if the monitor is powered on and its video switched to AV status.

3. Check if the AV-OUT cable connects well to the monitor or not.

4. Check whether the host is locked well or not, otherwise it cannot boot normally.

Q: What if the MDVR video input port does not match the camera AV-OUT port?

A: Our MDVR uses Aviation port and cameras use BNC port. If they does not match, please connect them with the converter or connect cables one-to-one according to linear definition standard of the units.

Q: HDD inserted but the device can not record after booting?

A: 1. If it's a new HDD used at the first time, suggest to enter into the system, enter MENU- TOOL-FORMAT to have a format operation.

2. Check whether the recording channel is switched off, if timing record is set, the device will not record as it is not in the recording time.

3. Whether hard disk bad.

Q: Record files are missing or there're no record files during a certain time?

A: 1. Please find out the last record file and after the missing files for analysis.

2. Check if the MDVR is not switched on during that period, for example, the host does not set delay record when the driver stops the vehicle half-way or loads and uploads cargo.

Q: The PTZ out of control and can not pan & tilt?

A: Check whether the protocol, baudrate and address are set correctly or not. Check if the channel is selected to maximum screen when controlling the PTZ, for example, when controlling the second channel, its image should be maximized to full screen so as to be controlled.

FAQ ABOUT GPS

Q: GPS module exists but without coordinate information?

A: 1. Check whether the GPS module exist or not and please check whether hardware is installed and connected well or not.

2. Check whether the GPS antenna is connected well or broken. Please place it at strong signal areas. Note that GPS signal may be blocked by car glasses.

3. Please place the GPS antenna outdoor. If tested indoor, GPS signal may also be blocked.

Q: The GPS location shows deviations on the map?

A: Signals are valid if GPS module has positioned. The deviation can be caused by many reasons, like government restrictions, allowable error, GPS signal interruption, etc. The actual satellite map has deviations for safety reasons, and they can be corrected by GPS calibration.

FAQ ABOUT 3G

Q: What need I pay attention on using 3G wireless module today?

A: 1. Built-in wireless module is different between WCDMA and EVDO, also different devices support different modules. Please make sure that your module matches with the USIM card inserted. Never use EVDO USIM cards insert WCDMA device.

2. Check whether IP Server and control port set correctly, 3G signal is strong enough or not, then check whether 3G dialed successfully or not.

3. If dialing fails, please check whether 3G antenna is connected well or not, as weak signals also may cause unsuccessful dialing. Besides, check whether the USIM has enough flow or not, if there is not enough flow with the USIM card, Dialing also will fail.

Q: What need to do firstly when there is no video and can not dial about 3G?

A: Press the INFO button to enter system information interface, check whether USIM card exists or not, signal strength and dial-up status, whether the antenna contacts well or not, also check whether the SIM card with flow or not. Using a new SIM card to check. All these are basic judgments. If there are signals but dialing fails, so we need to check whether center number and APN set correctly or not. Also check whether the device number has been occupied or not.

FAQ ABOUT CMS

Q: Device turning on, there's no vehicles and video on the CMS Client platform?

A: Make sure the center server is working and on network. And then check whether the device number has been occupied and has caused conflicts, then check whether center number and APN set correctly or not. Check the device reports to CMS center via 3G module or WIFI, if it is 3G module, please check the module network type is correct or not, like WCDMA and EVDO need appropriate USIM card to support. Also check if antenna is in good contact status. If the device is still unable to report to the center after all above operation. Enter into system information interface, check whether dialing is successful or not, if not, check whether the data access point and center number set correctly or not. In case that the device still fails, please submit as much information as possible to our technical for analysis, and please note the more data the more convenient.

Q: The Device is in the network, but without any video images?

A: Please set a lower sub-stream flow for image transmission. When the frame rate of sub-stream set too high, transmissions will be jammed or slowed by network upload restrictions. Also bad network signal will affect the video transmissions seriously.

Q: After normal report to the CMS, the device loses video after a period of time?

A: Firstly, check the device information to see whether it is dialing or not, if it's always on status, there may be the SIM card is out of flow, then replace a new card to have a try. Secondly, check whether the Device number has been changed by the driver or not. For the modified devices need to report and adding the device information into CMS platform again.

APPENDIX 3: CORRESPONDING TABLE OF STORAGE SPACE

Corresponding table between image quality and recording space

	Quality Resolution	1	2	3	4	5	6	7	8
Storage Space	D1	900	670	540	450	390	350	315	280
	HD1	560	420	335	280	245	220	195	175
M/h	CIF	350	260	210	175	150	135	120	110

The storage space for one channel per hour is as showing as the above table for reference. The actual recording file size is depending on the current channel, illumination variant, object movement and many other factors. If the image is always stillness, the recording file will be much smaller; In order to save space, can set up turn off audio or turn off the channel which without video.