MDVR7104 User Manual

- V 1.0 English

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Statement

This manual content will not be updated regularly, due to the product version upgrade and other reasons. Unless otherwise agreed, this manual works only as guide, all statements, information, and recommendations in this manual do not constitute an express or implied warranty.

Catalogue

Introduction

Imprint

This manual applies to M720 multi-function on-board video model.

About the manual

This manual describes the integration of a "4-channel surveillance video," characteristic "wireless data transmission (optional)" in one of the in-vehicle electronic devices M720 detailed specifications, a detailed description of the function of each module and the device Caution a detailed description of the definition signal device connectors, and a detailed description of the device interface definition and user actions.

The book is divided into four chapters.

1. Product description. Briefly describes the product features, the main characteristics and typical applications.

2. Equipment specifications. A detailed description of an overview of the various functional modules, features, detailed specifications and precautions, including surveillance video modules and other functional modules.

3. Host Operating Guide. Details of the use of remote control, function and use of each display menus.

4. Equipment installation instructions. Detail of the M720 appearance; front and rear panel connectors and signal arrangement definitions; definitions of the external signal cable; and finally the product installation instructions.

Important Attentions & Tips

! Note:

Please read this manual carefully prior to initial installation.
Keep this manual safe for future reference.

Before installing and using this product, be sure to read the following warning:

1. During transport please gently.
2. All installation and maintenance must be performed by professionally trained and qualified persons.
3. This product is not installed on the vehicle by the long-term erosion of the rain or other liquids.
4. Installation and all materials must be able to withstand the weight of the fuselage.
5. Keeping the body away from heat, dust and strong magnetic field.
6. Keeping the body away from heat, dust and strong magnetic field.
7. Vehicle equipment shall not be directly flushed clean.
8. Device output power must not overlap any non-recommended devices.
9. Equipment operation and do not attempt to insert fingers or foreign objects from the device gap.
10. In the absence of professional guidance, do not open or disassemble the device.
11. Not replace any module in the host charged case.

1 Product Description

1.1 Product Overview

M720 is designed for in-car video surveillance and remote monitoring of the development of a cost-effective, functional scalability good equipment. It uses a high-speed processor and embedded operating system, combined with IT field the most advanced H.264 video compression / decompression technology, network technology, GPS positioning technology. M720 supports 4-channel video recording. M720 can achieve 4-way full frame video format 1080P car traveling information recording and wireless data upload, with center software can realize linkage alarm central monitoring, remote management and playback analysis based on a central database. Product appearance of simplicity, with superior anti-vibration, flexible installation, powerful, high reliability.

Features as below:

- Support CVI, TVI, AHD camera.
- adopts the international mainstream H.264 encoding format, compression ratio, image clarity, accounting for a small disk space.
- Use SD card and hard disk as the storage medium, reading data easy and fast.
- Recording using a common FAT32 file format support mainstream H264 player to play.
- + 10V ~ + 36V wide voltage design, suitable for a variety of models.
- 4-way 12V / 0.5A power output, power supply for peripherals.
- Supports 6 channel alarm input.
- Professional playback software, GPS tracks, cars with the state, depending on the speed of sound and image synchronization playback.
- Centralized management software, support vehicle and alarm information in real time image transmission.
- Compact: size 162 (W) w 65 (H) x 218 (L) mm, weight 2.2KG.

M720 basic operating parameter list

Project	Operating parameters	Description
power input	10V—36V	The input voltage is + 10V ~ + 36V, the voltage is lower than the long-term 8V, or long-term higher than 36V, the device automatically shut down, into protected mode.
Power output	12V	Output voltage 12V (+/- 0.2V), the maximum current of 2.5A.
Car keys signal	≤6V	Car keys off.
	≥7.5V	Car keys on.
Video input impedance	75Ω	Each video input impedance are 75Ω.
Video Output	1Vp-p	Output a 1Vp-p CVBS analog signal obtained.
Alarm Input	I / O Interface	0-2V is low.
		5V or more is high.
	AD Interface	0-36V.
Storage media	SD	Support an SD card, SD card maximum support 128G.
	Hard disk	Support 2T hard disk, compatible with the common market brand. Hard disk lock control switch while the hard disk and SD card can be locked, preventing plug.
USB Interface		1．Compatible with a variety of commercial U disk. 2．Electric plug. When the device is in the file transfer process, unplug the U disk data might break U disk.
Operating temperature	-25----60℃	It refers to the ambient temperature ventilated conditions.

1.2 The main function of the product

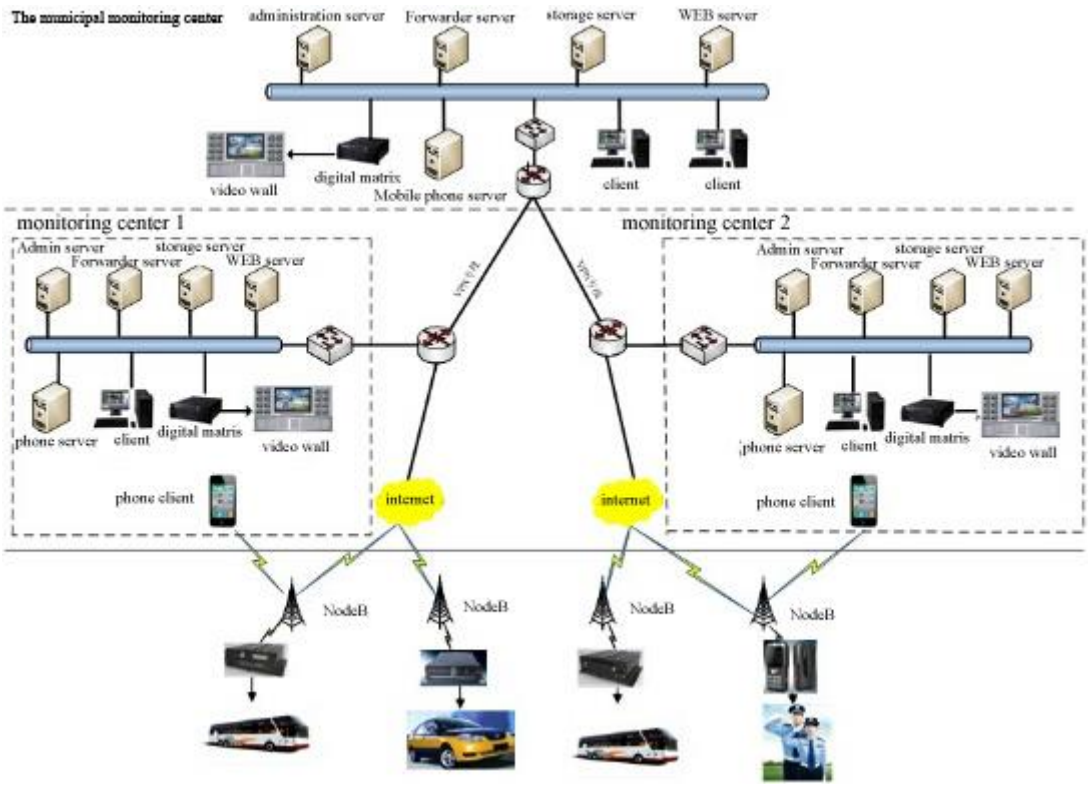
M720 Main feature list

System	Features	Explanation
Video Subsystem	Video Channel	1-4 channels optional
	Resolution	Support CIF, HD1,D1, 720P and 1080P resolution video.
	Quality	Divided into 0-7 grade optional, 0 is the highest quality.
	OSD	Can be superimposed on a variety of characters, such as date, time, GPS latitude and longitude, channel ID, etc.
	Loop Recording	Dual SD card recording cycle or mirror, and delete loop.
	Video mode	Support the boot recording, timer recording, alarm recording, and manual recording mode.
	Preview	Support single-screen and quad-screen preview.
	Disk cover	Support disk automatically covered.
Playback Subsystem	Recording Search	Support any date within a month, time search.
		Support alarm search and time search.
	Playback	Support Single contrast to four playback.
		Support fast forward, rewind, fast forward, rewind speed support 2,4,8,16 speed.
Alarm	Input	6 channel alarm input options, whether to trigger the alarm recording options.
		Support alarm recording before alarm and post-alarm recording time can be equipped with a dynamic length.
expansion interface	RS232	2 RS232.For receiving external devices such as sensors, oil control system and others
	RS485	1 RS485.The main means for PTZ
Parameter	Switch	Delay switch supports.

Settings		Support key switch and timer switch.
Network (optional)	Network	1. Vehicle information is automatically reported. 2. Device information reporting 3. Direct access to video through 3G / 4G / WIFI network to the server. 4. Clients connect to the server via Remote playback.

1.3 Applications

M720 suitable for all motor vehicles of the video surveillance and remote monitoring. M720 general application process is as follows:



M720 Application Network

2 Equipment Specifications

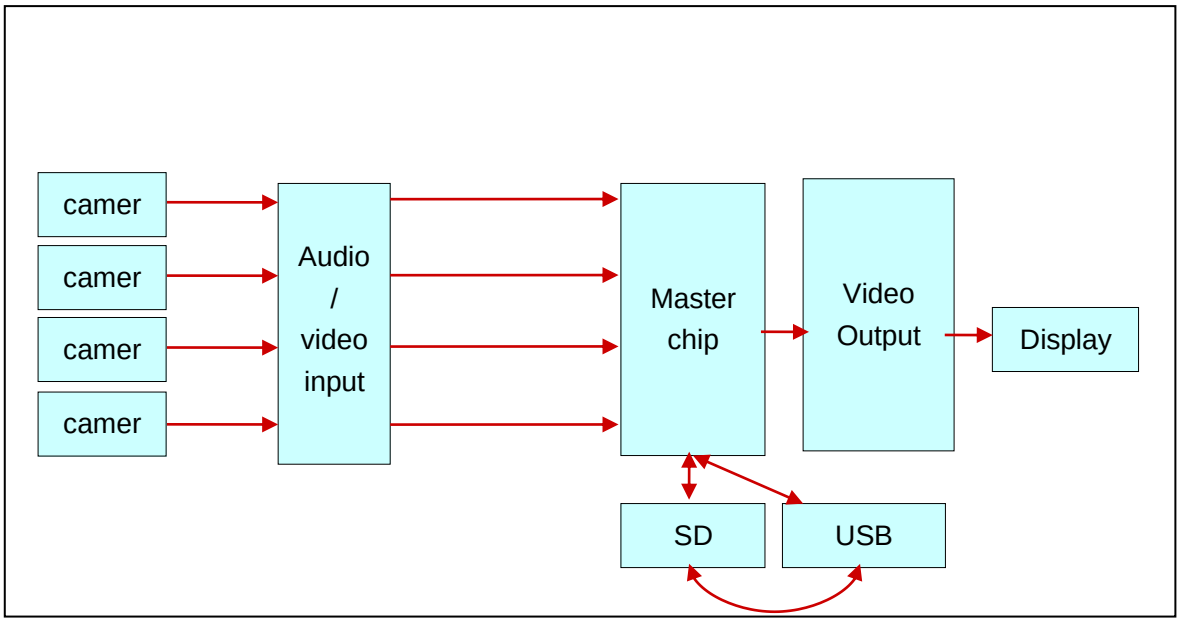
This chapter describes the function of the device system overview, features, specifications and

detailed considerations.

2.1 Device Internal Structure

2.1.1 Overview

M720 integrates a set of hardware video encoder chip, video process consumes very little system resources. Video systems constructed as follows:



Monitoring system block diagram

Work process:

- Video, sound recording:
  - Input audio and video through the camera, and then in the main memory chip compression and preview the output;
- Local and remote playback:

  1.Local playback
  - Master chip to obtain image files from a storage device;
  - Decoding playback, audio and video analog signal is generated;

  2. Remote playback
  - Remote playback via the client server connection;

2.2 Front Panel Definitions

The front panel shown below:

2.2.1 LED indicators and status description

- 【**PWR**】Power input status indicator. Light indicates the system power supply is working properly.
- 【**SD**】SD card work indicator. If the LED light, SD card exist .Flicker,SD is working properly. OFF means no SD card or SD card exception.
- 【**HDD**】Hard disk work lights. Steady light indicates the hard disk exist.Flicker, hard disk is working properly. OFF means no hard drive or abnormal.
- 【**ERR**】System fault indicator. system failure, the indicator will light.
- 【**NET**】Network indicator lights when the network successfully registered, unregistered or registered failure lights out.Flicker,means 3G or WIFI module exists,but unregistered or registered failure.
- 【**VLOSS**】Video loss alarm indicator lights when video loss, no alarm lights out.
- 【**GPS**】When locating the GPS signal lights, locate or not locate failure lights out.
- 【**REC**】Recording work light. LED lights indicate the current recording.

2.2.2 Other Interfaces

- 【**Panel Lock**】Switch control device, while the boot is locked SD card, proof plug.
- 【**SD1、SD2**】SD card slot for recording video data, profile updates and upgrades.
- 【**SIM**】SIM card slot.
- 【**AV OUT**】Front audio and video output.

- 【**IR**】Remote control input for receiving remote control signals.
- 【**USB 口**】Import and export data for the U disk or upgrade.
- 【**RJ45**】Cable interface.

2.3 The rear panel is defined

As shown below:

- 【**PWR**】Power connector, connect the red wire to the vehicle positive power supply; the black wire to the vehicle power supply negative, connect the yellow wire for the ACC. When you need to set the ignition timing recording.
- 【**VGA**】VGA.
- 【**I/O**】Alarm input and output interfaces.
- 【**EXTEND**】Expansion interface can be accessed PTZ.
- 【**CAM 1~4**】Four audio and video input interfaces.
- 【**V-OUT**】Video output interface.
- 【**3G/4G**】3G / 4G antenna interface.
- 【**WIFI**】WIFI antenna interface.
- 【**GPS**】GPS antenna interface.

2.3.1 Power Cable

Power line picture as follow,

One end is 6PIN white plug, connected the power (6PIN white plug) to the white 6PIN port on DVR rear panel. Connect the red and black wire to the car battery directly. Connect the Red wire to positive

voltage, the black wire to negative voltage.

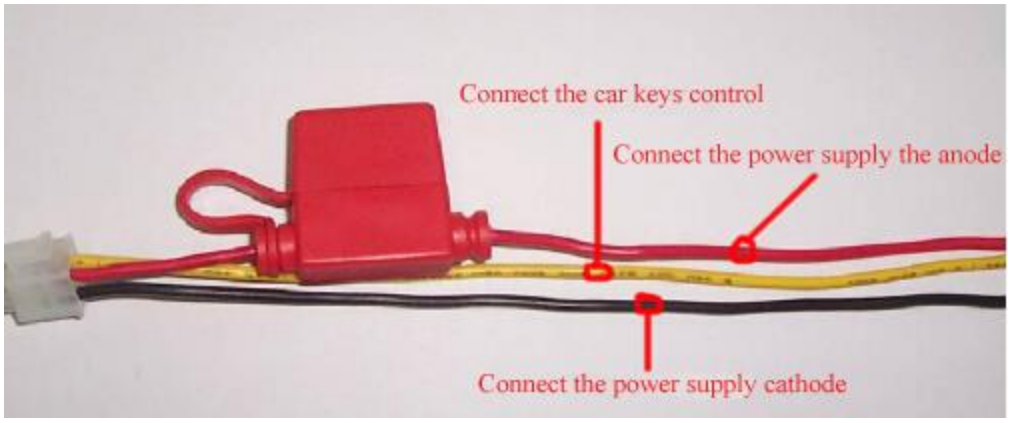
To connect the yellow wire with vehicle Fire Wire, the equipment turns on when the open the car keys, turns off automatically after closing the car keys. But if connect the Yellow line to the car keys position (that is, before the automobile starter motor gear) all the dashboard lights.

Note：

1）Make sure the battery voltage between 12V-36V before connecting, otherwise it will damage the equipment.

2）After connecting the cable, pay attention to insulation of the line between the power supply or preventing short circuit burned out the battery.

3）The Yellow wire must be connected to the vehicle fire wire, otherwise the device won't support delay shutdown, and the last recorded file will be lost.



Power cable pictures

2.3.2 GPS and 3G antenna

GPS antenna

3G antenna

2.4 Detailed specifications

recording function

Project		Description
Operating System		Linux
Graphical user interface		Via an external display, remote control system set various parameters
Supported languages		Chinese, English (Optional)
Security Management		User password, administrator password, two-level management
Video and Preview	Video input and output	4 channel video input, two channel video output; 1.0Vp-p, 75Ω
	OSD	OSD function, date and time, the vehicle ID information such as image overlays
	Video compression formats	H.264 compression. Hisilicon using high-performance processors.
	Dual-stream	Supported
	Preview	Single, 4-screen splicing preview, support event triggered full screen and splicing switching display function.
	Frame rate	PAL: 100 frames / sec, the largest single 25 / s; NTSC: 120 frames / sec, the largest single 30 / s
	Resolution	Support CIF, HD1, D1, 720P and 1080P encoding format
	quality	0-7 can be equipped with video, best 0, the lowest 7
Audio	Audio input and output	4 inputs, 2 outputs
	Compression format	G.726
Record	Storage media	Support SD card and hard disk, SD card maximum support 128G;

		support USB interface for exporting data
	File Format / System	H.264/FAT32
	Recording policy	The default boot record, supports timer recording, alarm and event triggered recording, and manual recording.
	Video search	Search according to recording time, recording type, video storage devices and other conditions.
	Video playback	Supports native playback, maximum support four simultaneous playback, while the vehicle information in the file for analysis.
		Support fast forward, rewind, play, pause controls, support 2, 4, 8, 16 times speed fast forward or rewind, playback control support option.
Alarm	Alarm Input	6 alarm inputs
	Alarm recording	Pre-recorded, pre-recorded before the alarm, after a long police record can be equipped with dynamic.
	Storage alarm	Support for disk space alarm.
	Alarm function	Video loss alarm
Locate		Scalable GPS support
Mobile network (optional)		Support 3G / 4G, WIFI,RJ45
System Upgrade		SD card / U disk upgrade / Remote upgrade
Power and consumption	Power Management	1、ACC switch 2、Delayed shutdown 3、Timer switch 4、With overload protection, undervoltage protection, short circuit protection, reverse polarity protection.
	Input voltage	DC:+10V ~ +36V
	Output voltage	+12V@5*0.5A；
	Power	Normal operation <10W; standby 0W
Working environment	Temperature	Conventional: -25 ℃ ~ + 60 ℃
	Humidity	10% to 95%
Size		161 (W) x 65 (H) x 218 (L) mm
Weight		2.2KG

Note：

- Reduce the number of recording channels / the frame rate, choose lower image quality / resolution can decrease the amount of memory occupied, the user may adjust video parameters according to different needs..

2.5 Other functions

Except above main functions, there're a number of other features designed for user convenience

Detailed specifications

Category	Detailed specifications
Device self-test (optional)	1. The screen will show the current state of the system during start the device (if the module exists), such like: a) GPS module status & signal; b) 3G / WIFI module status, SIM card status, signal strength, dial-up & connection status; 2. Some key status LEDs on Device front panel. By judging device status indicator: Power, Hard Disk Reading Fault, video recording, network Error;

3 Host Guide

3.1 Remote Control Function Keys

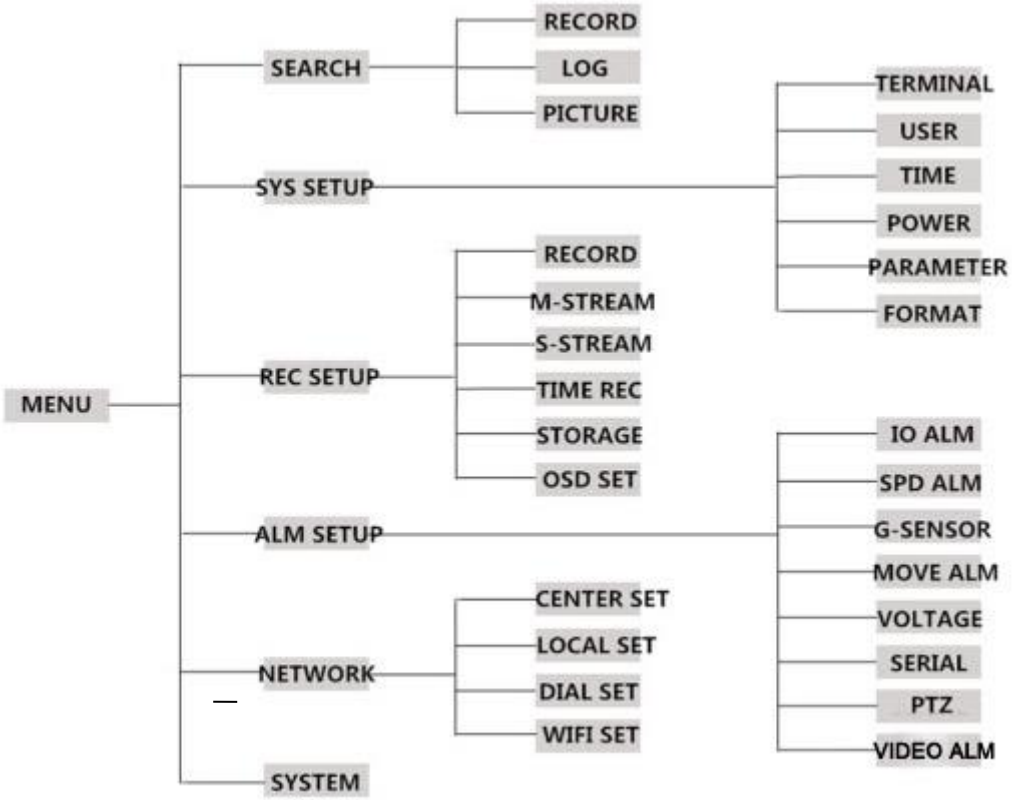
Button	Features	Image
	Remote power button.	
【LOGIN】	Landing system parameter setting keys.	
【0－9】	[0-9] key: In setting state, the digital input keys for selecting numbers. During playback, 1,2,3,4 keys to switch to single-screen channel 1-4.	
【－】【＋】	Setting certain menu parameters for the rolling reduction and processing.	
【DEL】	Backspace button. Backspace for inputting numbers.	
【EXIT】	Exit to the preview or return to the previous menu.	
【ENTER】	Verify that the system set parameters for selection and settings, playback operation.	

▲, ▼, ◀, ▶	Arrow key. Up, down, left and right cursor direction keys. Under the supervision of the left and right keys are used to subtract the volume and playback screen.	
【GOTO】	video playback, when the play button is selected.	
【INFO】	In monitoring state, and display system information key.	
	Rapid withdrawal playback picture, there are four kinds of 2/4/8/16 speed, every time you press sequentially switch between four kinds of speed, press [Play] to resume normal playback speed.	
	When video playback, video playback key.	
	Fast playback picture, there are four kinds of 2/4/8/16 speed, every time you press sequentially switch between four kinds of speed, press [Play] to resume normal playback speed.	
	Start recording button.	
	Stop recording button,when manual recording.	
	stop playing the record button,when video playback.	
	Pause button to play video.	
【F1】	Reserved	
【F2】	Displays single display PTZ information.	
【F3】	Analog adjustment	

3.2 **Menu Structure**

User can control M720 through a series operation. The figure below is a brief description of the

menu structure:



3.3 System Operation

3.3.1 User Login

Reminder: If the password setting is not available, press [LOGIN] on the remote control to enter the menu interface.

After the DVR turned on, press the [LOGIN] button on the remote control to enter the login page, just like below:

Username: ordinary users and administrators.

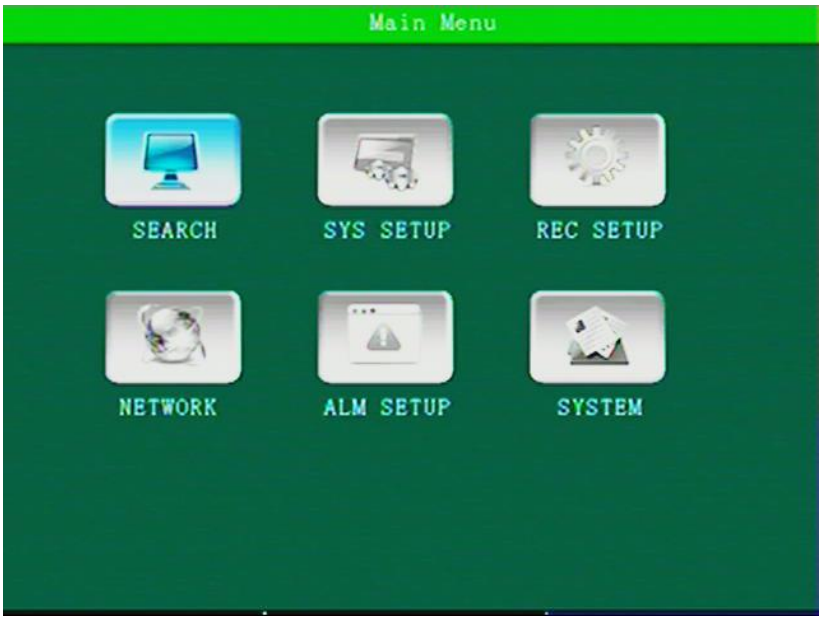
PASS-WD: user and administrator passwords, ordinary users can only access the

Find and Browse pages, can't enter the menu parameters Setup page.

Administrator is allowed to set the parameters.

Note: The initial password is "666666" for ordinary users, the initial password for administrator is "111111".

Switch the password to "ON": Press [ENTER] key After the DVR starts, enter the correct user name and password, move the cursor to the "Login" field, press the [ENTER] key to enter the system menu:



Menu Operation

The main menu includes queries, system management, video settings, network settings, alarms and peripherals, system information.

Note: 1, all of the following settings submenu, have to be confirmed after the entry into force of [Save], otherwise it is set invalid.

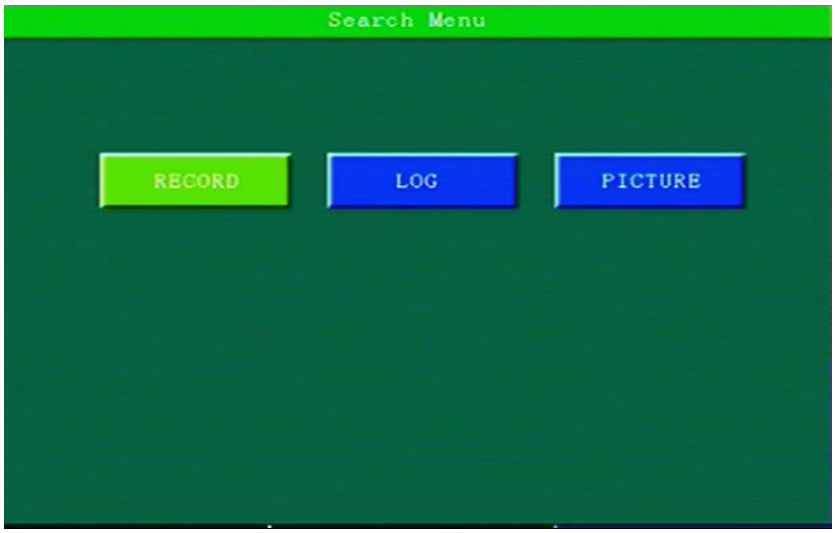
2,box(□) is filled to indicates that you've selected the function if filled, did not select the function if unfilled

3. Enter the menu interface (including video query), the device stops recording.

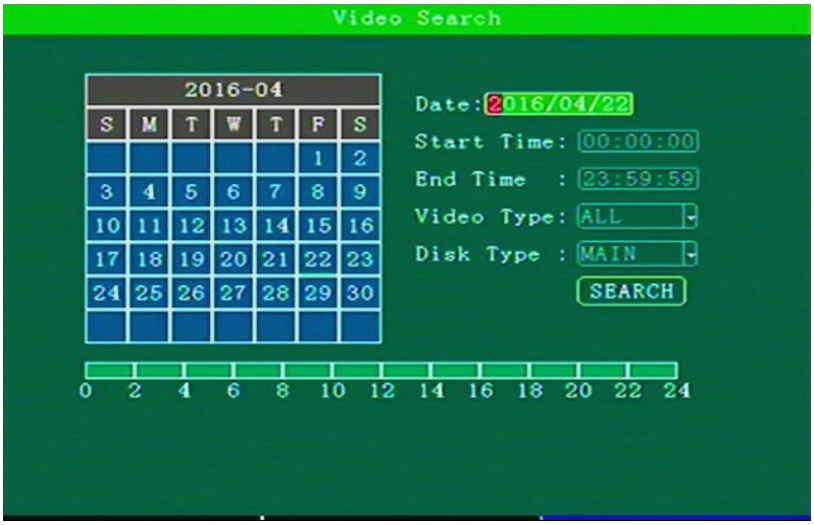
4, Press the number keys on the remote control directly to enter numbers.

3.3.2 Search

Three sub-menus, video search, log search, image search.

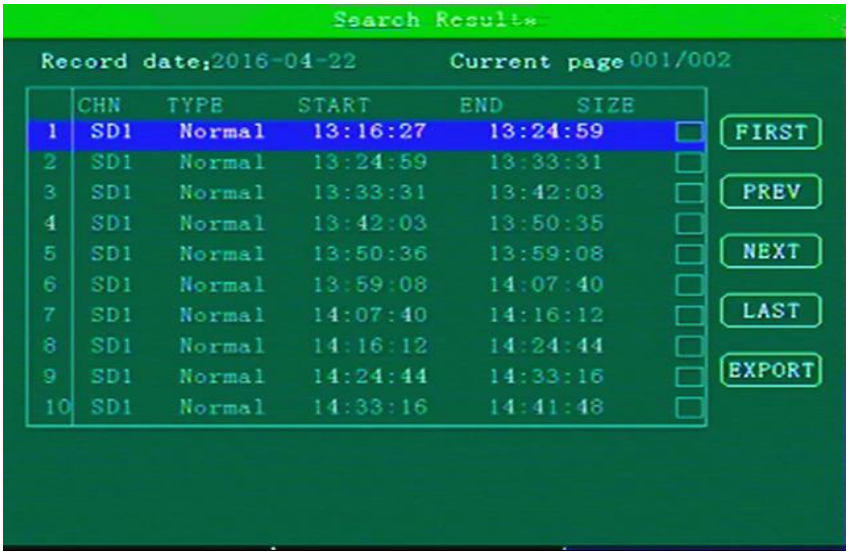


3.3.2.1 Video Search



- **Video Type:** Press [ENTER] key to select the query type: All videos \ alarm recording. Default all recordings.
- **Disk Type:** press the [ENTER] key to select: main dish \ disk mirroring \ spare. The default master disk.
- **Date:** Press numeric keys to enter the date, defaults to today.
- **Start Time:** Press the number keys to enter the time, the default is 00:00.
- **End time:** Press the number keys to enter the time, the default is 23:59.

- **SEARCH:** Move the cursor to the "Search" button, press the [ENTER] key to enter the search results interface.



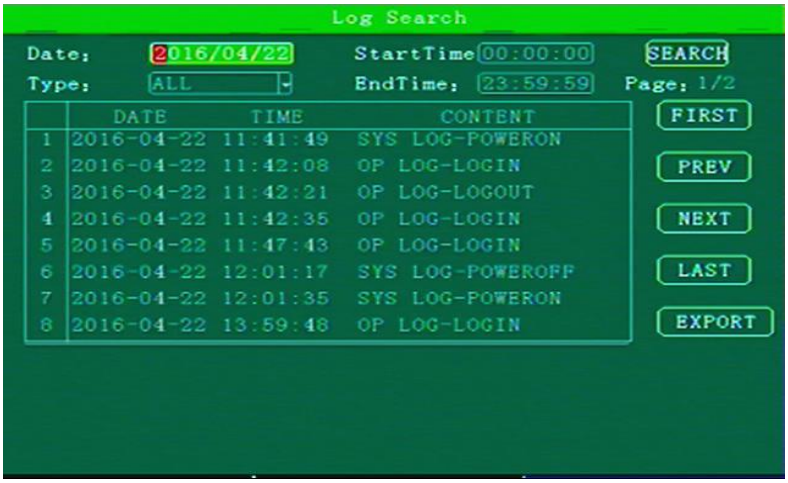
Press the arrow keys to select the video information you want to view, press [▶] key to start playing the video data, press [EXIT] key to return to the previous menu.

Press the arrow keys to select "Home", "Previous", "Next", "Last", press [ENTER] key to display the information page.

EXPORT: Click this button, you can export the selected video file to the extrapolation of U disk inside.

3.3.2.2 Log Search

It records device's switch, GPS timing, alarm event information (including date, time, event name).



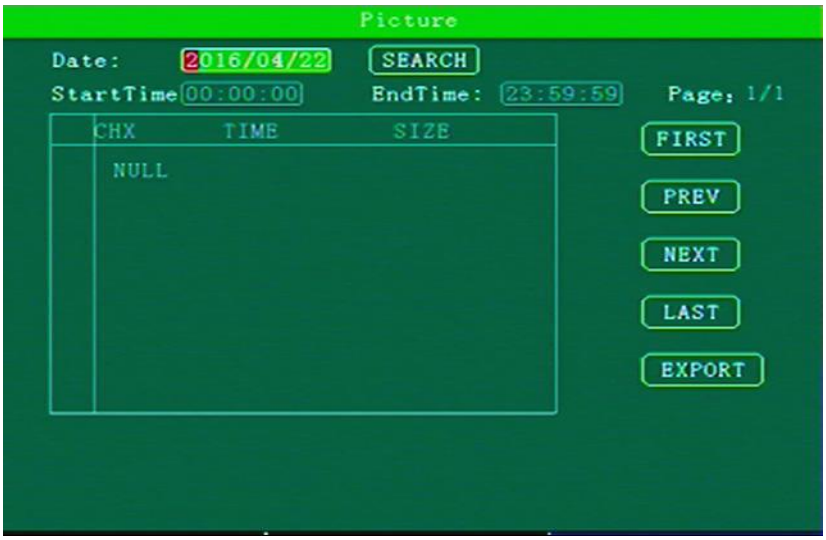
Use the keys to enter the start and end time, choose the Search button, press the [ENTER] key to start search. After searching, the log list will be displayed. If there's more than one search result, you can flip through the buttons below to turn the page.

- **Date:** The date the event occurred.
- **Time:** Specific time of the event.
- **Content:** Events.
- **Type:** Search by category, all / alarm, operation logs, default all.
- **EXPORT：** Logs can be exported via USB.

Press the arrow keys to select First, Previous, Next, Last, press [ENTER] key to display the information page.

3.3.2.3 Search Picture

"Image Search " records the snapshot picture.



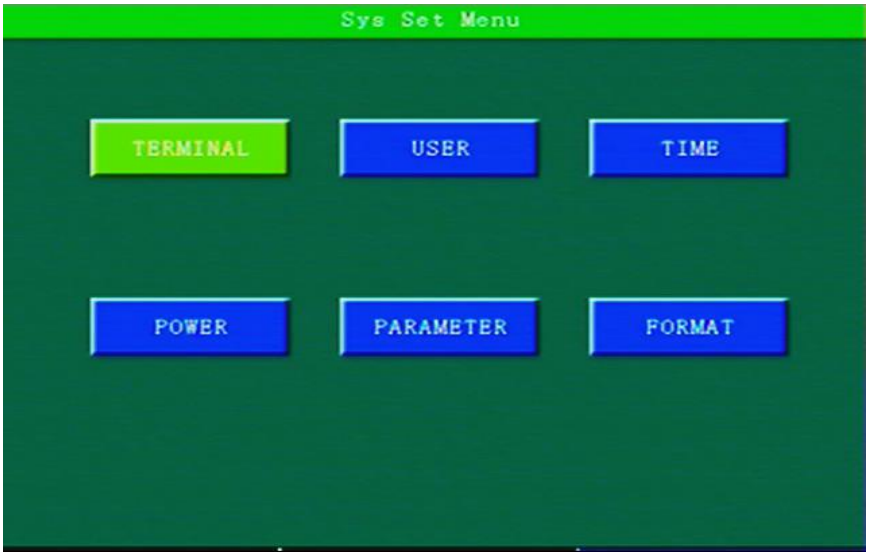
Use the numeric keys to enter the start and end time, choose the Search button, press the [ENTER] key to start searching. After searching sucefully, the picture list will appear.

- **CHX：** For distinguishing capture images belong to which channel.
- **TIME：** The specific time of snapshot.
- **SIZE：** The picture size.
- **EXPORT：** Pictures can be exported via USB.

Press the arrow keys to select First, Previous, Next, Last, press [ENTER] key to display the information page.

3.3.3 System Management

It contains terminal settings, user management, system clock, power management, parameter setting, format.



3.3.3.1 Terminal Setting

The basic information of the device to be set.

- **Phone NO：** Press the DEL key to clear the existing number, press a number key input must be 5 digits. Different devices are identified by the " Phone NO."
- Terminal type, equipment, vendor ID, license plate number, terminal ID, provincial ID, the City ID, GPS Report Gap. Press [ENTER] to enter the keypad interface, press the up and down arrow keys to move the cursor, press the [ENTER] key to select the corresponding letters, numbers, and other inputs.

3.3.3.2 User Management

Password：Login password setting, press the [ENTER] key to enter.

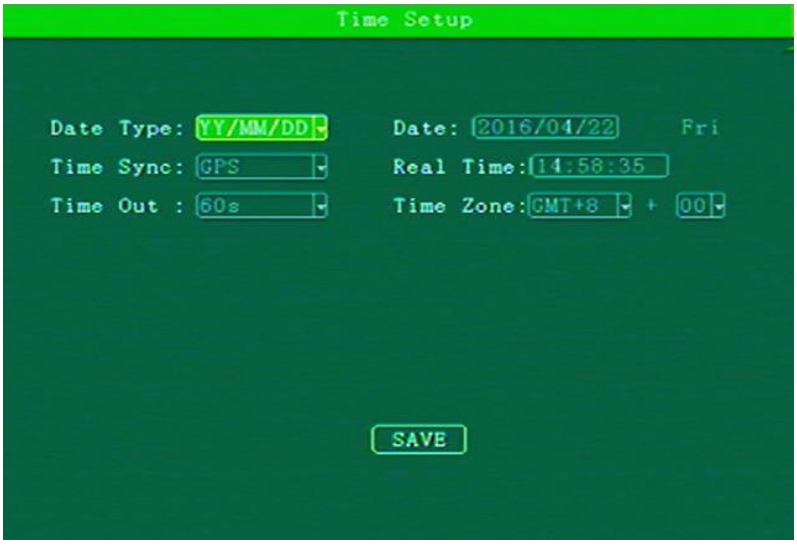
- ON：Use the administrator password, you can set user / administrator password; You do not have this privilege by user password.
- OFF：There is no password. No need to log in. The default is Administrator permissions, can directly enter the main menu.

Note：

If there are multiple devices together, please use a different password and Phone NO for each, to avoid interfering other devices when operating a device, the device can be set in the terminal setting.

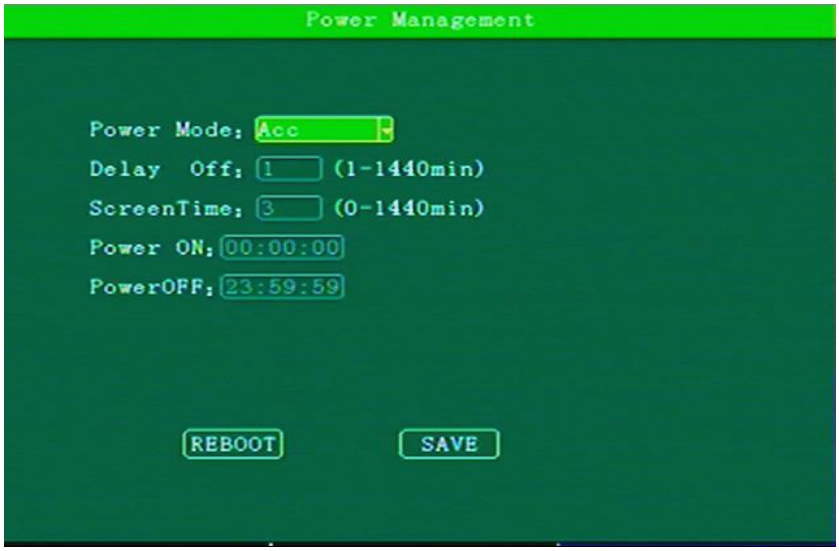
3.3.3.3 System Time

Set the system time.



- **Date Type：** Used to select the date format, that year - month - day, day - month - year month - day - years. Press [ENTER] key to select.
- **Time Zone：** Select the time zone used, press [ENTER] or press the [-] [+] keys to select.
- **Time Sync：** Time calibration mode can be turned off, GPS, NTP, default GPS.
- **Date：** Used to modify the current system date, press enter.
- **Time Out：** Setup Menu Wait Time after more than set the time, automatically log off the current user login, return to the monitoring mode. The default wait time is two minutes, in the range of 1 to 10 minutes, press [ENTER] to select.

3.3.3.4 Power Management

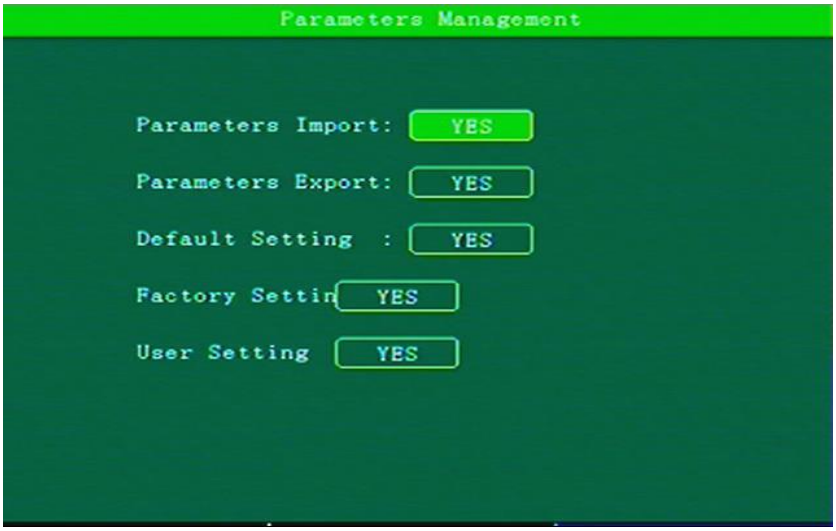


- **Power Mode：** Setting switch mode, press the [ENTER] key to enter.
  - Timed：Realize switch on / off according to the preset switch time.
  - Acc：Based on the car keys signal to switch / off.
- **Delay Of：** Settings range from 1 to 1440 minutes, press the DEL key to clear the existing number, press the number keys to enter a new number.
- **Screen Time：** Shutdown countdown prompt interface will appear after the preset delay time
  Power ON： Set the time of boot.
- **Power OFF：** Set the time of shutdown.

Once set up, you must press the Save button to save the settings.

Note：
Boot time and shutdown time period is a cycle.

3.3.3.5 Parameter Management

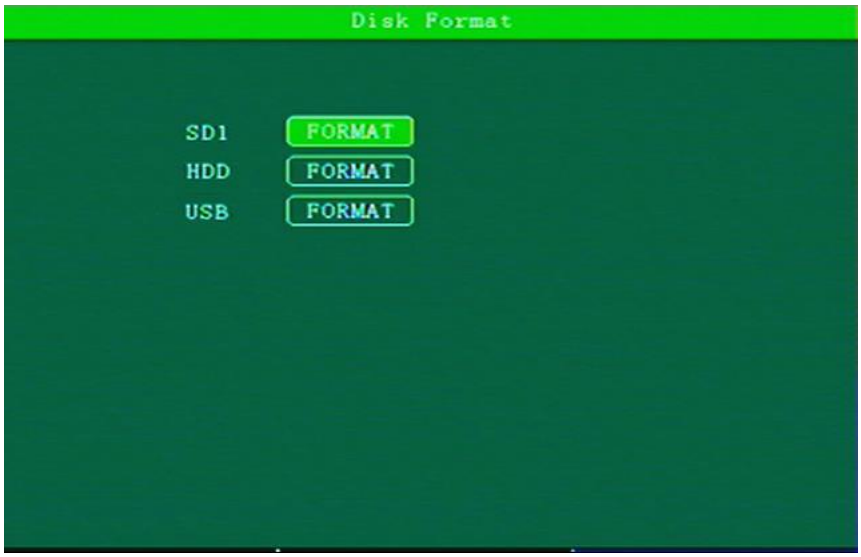


- **Parameters Import**：Import parameters to the device.
- **Parameters Export**：Import all the current parameters of the device to the SD card.
- **Default Setting**：Save the user's current settings to the SD card.
- **Factory Setting**：Back to the factory default state. This will clear all device settings.
- **User Setting**：Restore previously saved settings.

Note：

When installing large numbers of device and settings are same for each one, use the import and export configuration. After setting up a device, just export the configuration file from it. And imported into other devices, so it makes each device configuration same.

3.3.3.6 Format



Format the SD1, HDD and USB , press the [ENTER] key.

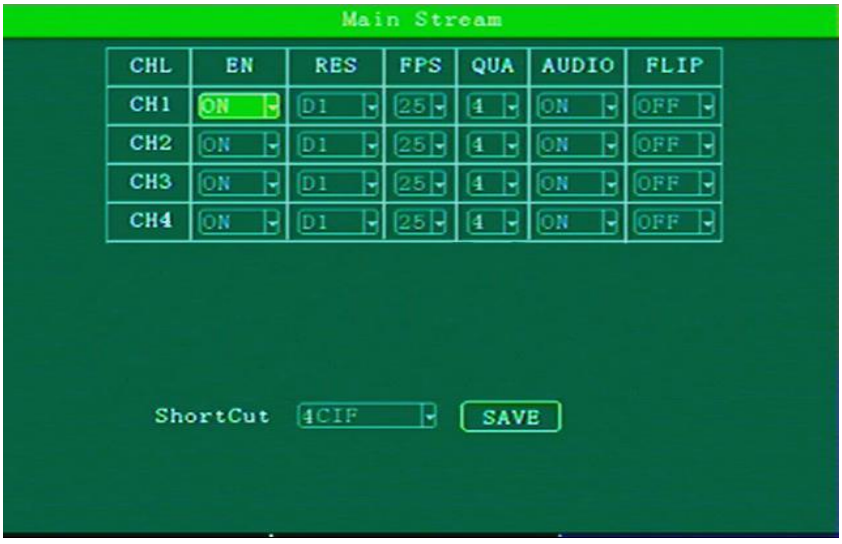
3.3.4 Record Set

This menu is for setting recording parameters, as shown below:

3.3.4.1 Basic Setup

- **Video Type**：PAL/NTSC, press [ENTER] key to select.
- **Record Mode**：Power / timer / alarm recording, press the [ENTER] key to select.
- **Camera Type**：4*1080P / 4*720P / 2*1080P+2*720P, press the [ENTER] key to select.
- **Display Type**：Resolution of the screen, press the [ENTER] key to select.
- **HD Type**：AHD/TVI/CVI, press the [ENTER] key to select.
- **Layout**：Screen display shows the number of divisions, the default four-screen, press the [ENTER] key to select.

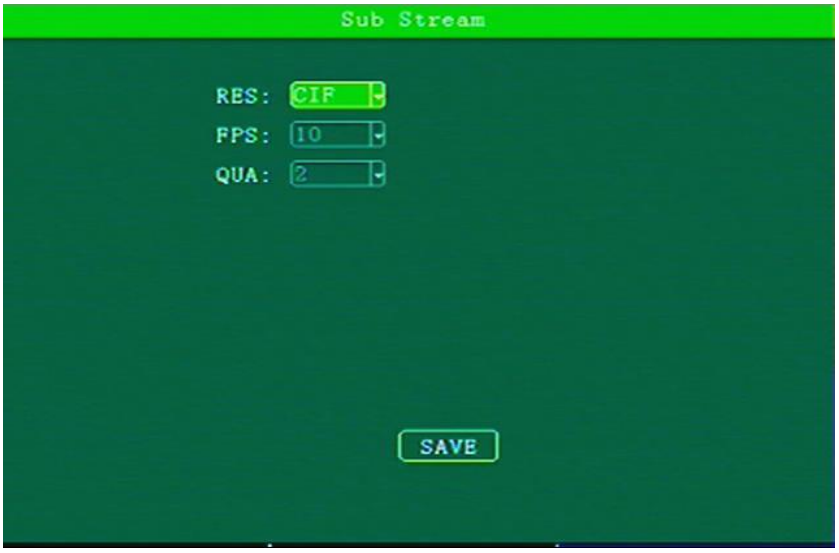
3.3.4.2 Main Stream



1/2/3/4 channel can be set individually, or you can set up quick, that the following shortcut options, while the four-channel set to CIF, HD1, D1,720P, 1080P,press the [ENTER] key to select.

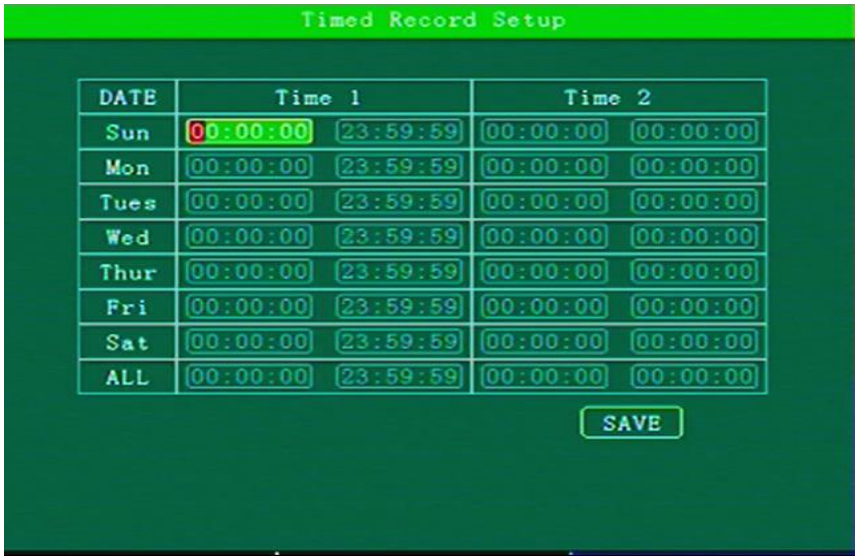
- **RES**：CIF / HD1 / D1 / 720P / 1080P options, press the [ENTER] key to select.
- **FPS**：1-25 frame options, press the [ENTER] key to select.
- **QUA**：0-7 grade quality options, highest 0, press [ENTER] key to select.
- **AUDIO**：Selectively turn on or off, press the [ENTER] key to select.

3.3.4.3 Sub Stream



- **RES**：CIF / HD1 / D1 options, press the [ENTER] key to select.
- **FPS**：1-25 frame options, press the [ENTER] key to select.
- **QUA**：0-7 grade quality options, highest 0, press [ENTER] key to select.

3.3.4.4 Timed Record



1) Only in "timer recording mode" will enable the timing list. When the mode selection switches "timer mode" and the device is in the boot status, it will automatically records when it's the specified time. It will stop recording after the completion of recording tasks.

2) The user can set the recording time in their own way, the time period 1 and period 2 settings do not cross. Each time with the number keys, move the cursor to a certain period of time to enter numbers. Period 1 set is the first time in any day for recording period, period 2 is set in the second time in any day for recording period. 00:00 --- 23:59, set in 24-hour video. After the timer list is set up, press the “Save” button to save the settings and return the video settings interface.

3.3.4.5 Storage Set

- **Pre Record**：0-60 seconds, press Enter.
- **Alarm Delay**：Range of 120 seconds to 3600 seconds, press Enter.
- **Alarm File**：Alarm files transport to Server.YES/NO,press [ENTER] key to select.

Optional storage location SD1, HDD, USB.

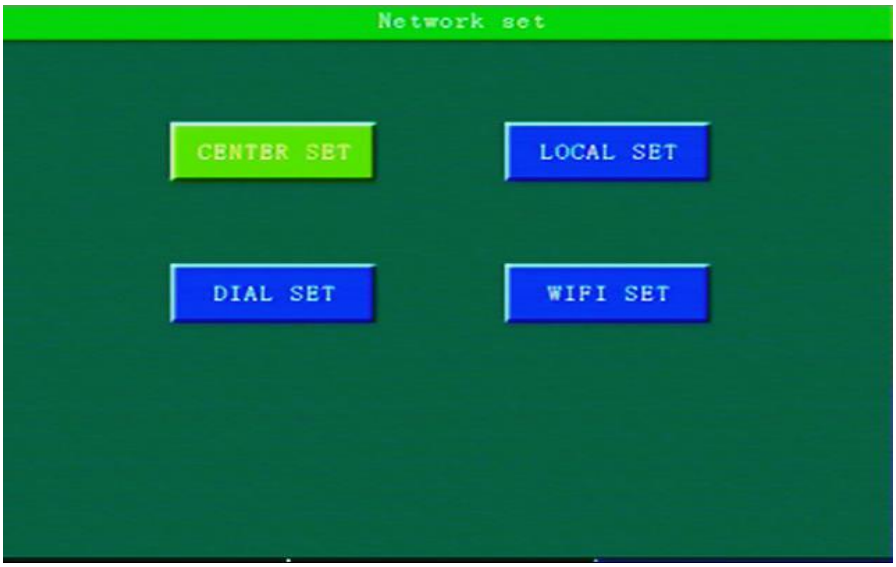
3.3.4.6 OSD Set

Time/Plate/GPS/ALARM：On / off, press the Enter key to select.

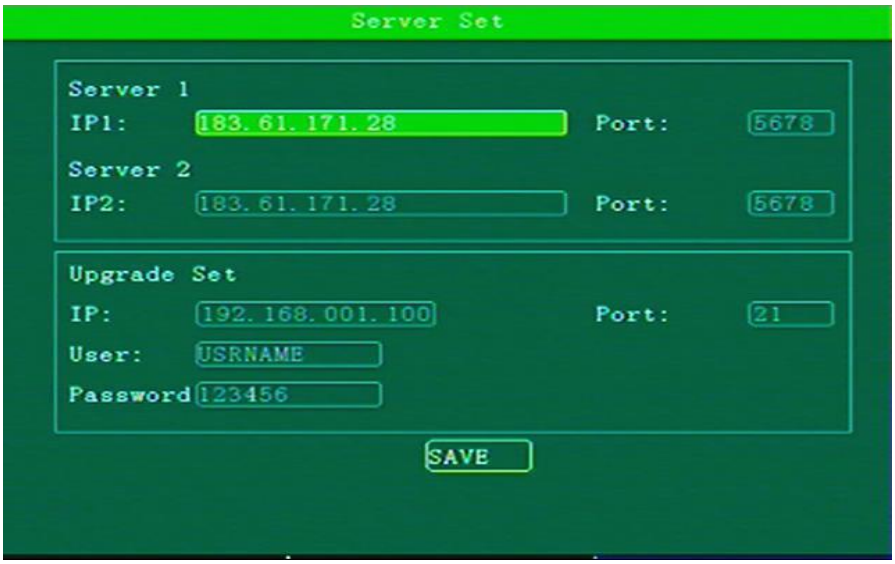
You can also set free superimposed coordinate that position on the screen.

3.3.5 Network Set

Network Settings menu contains settings center, local settings, dial-up settings, WIFI setting.



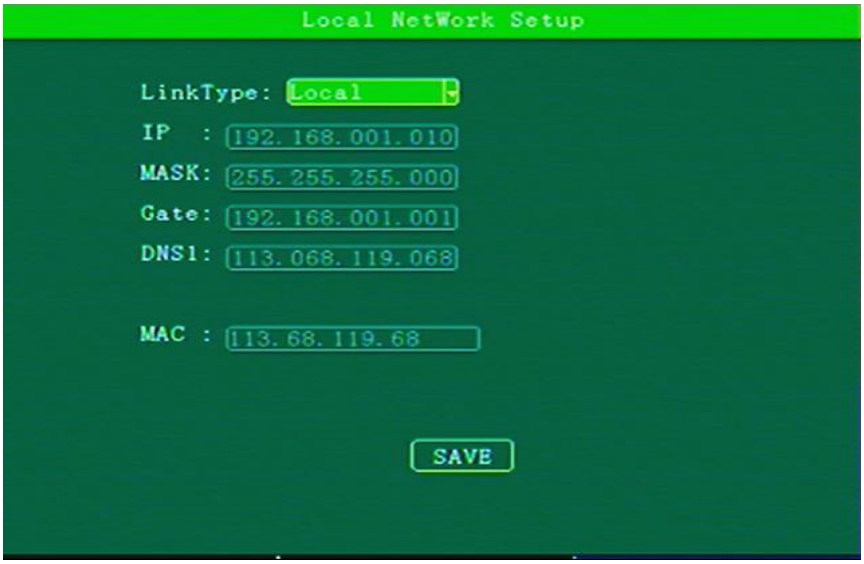
3.3.5.1 Center Set



- **IP：** Devices registered internet, fill in the server IP.
- **Port：** The default is 5678, such as the user build their own server, or modify.

1 is a monitoring center is used by default.

3.3.5.2 Local Network Setup



Setting the DVR IP, mask, gateway, MAC address.

3.3.5.3 3G/4G Setup

- **Enable：** Selectively turn on or off, press the [ENTER] key to select.
- **Net Type：** Setting the type of wireless module, WCDMA,EVDO,TD-SCDMA, TDDLTE, FDDLTE-1, FDDLTE-2, press the [ENTER] key to enter.
- **Center No：** Center number provided by the 3G network operators.
- **APN：** Provided by 3G operators 3G network access point.
- **User Name：** 3G Center user name provided by the 3G network operators.
- **Password：** Corresponding password.

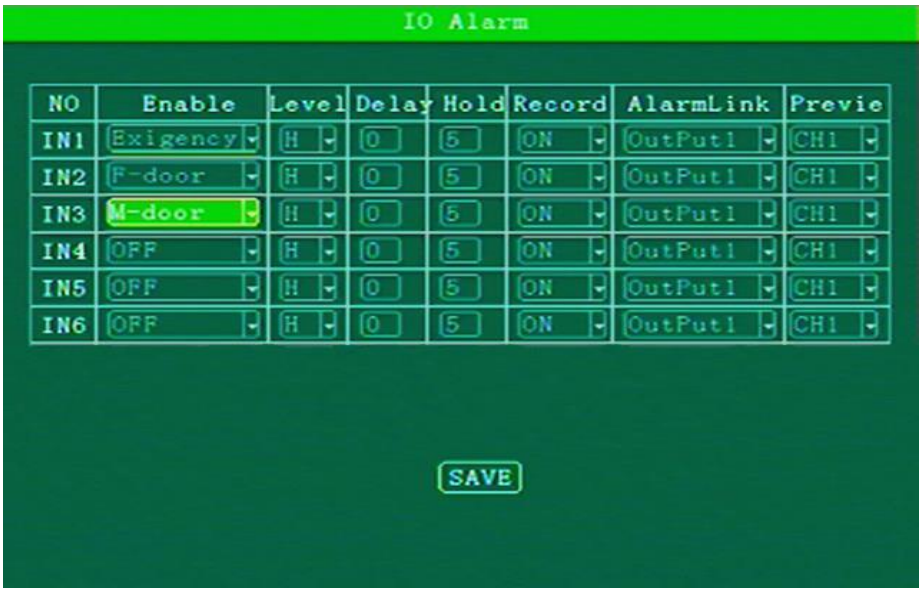
3.3.5.4 WIFI Setting

- **WIFI EN：** Selectively turn on or off, press the [ENTER] key to select.
- **Encrypt：** Turn on/off. It is encrypted, to be consistent with WIFI wireless access point settings, press the [ENTER] key to select.
- **Auth：** Open / Shared / WPA / WPA-PSK, press the [ENTER] key to select.
- **Enc Type：** NONE/WEP/TKIP/AES, press the [ENTER] key to select.
- **WorkModel:** Station/AP.Station for online by WIFI. AP means build a WIFI hot-spot by DVR,press the [ENTER] key to select.
- **DHCP:** ON/OFF, press the [ENTER] key to select.
- **IP：** IP address in WIFI mode, IP must be on the same WIFI network segment.
- **Gate：** Gateway.
- **Mask：** Subnet Mask.
- **SSID：** WIFI SSID。
- **PWD：** Password.

3.3.6 Alarm Setup

The menu contains IO alarm, speed alarm, acceleration, motion detection, alarm voltage, serial port management, PTZ control sub-menu. Press [ENTER] key to select.

3.3.6.1 IO Alarm



It supports up to 6 alarm input simultaneously. Set the alarm input, output and alarm recording parameters:

- **Enable**：Enable or disable. Emergency support, the front door, back door, the door, the driver's door, other doors, beam lights, high beam, turn left at lights, right turn lights, brake, reverse, custom, press [ENTER] key to select.
- **Level**：Set high \ low, press the Enter key to select.
- **Delay**：After IO alarm is triggered, it will delay, press the number keys to enter a specific value.
- **Hold**：Image stabilization level.
- **Record**：The channel is set to start alarm recording. ON or OFF, press the [ENTER] key to select.
- **Alarm Link**：Output 1 / Output 2 / one-touch dial / initiate intercom, support 2 alarm output simultaneously. Press [ENTER] key to select.
- **Preview**：No / CH1 / CH2 / CH3 / CH4, press the [ENTER] key to select.

Note：

Only Preview does not belong to Alarm, and it won't trigger an alarm log and alarm recording.

It will only display the image of the first channel when rear alarm triggered. It is required to connect rear-view camera to the first channel.

3.3.6.2 Speed Setup

错误!未找到引用源。

- **EN**：ON/OFF, press the [ENTER] key to select.
  - **ON**：When the GPS speed or pulse exceeds a set threshold, start alarm recording and alarm log records.
  - **OFF**：When the GPS speed or pulse exceeds the set threshold, the alarm does not start recording, do not record the alarm log;
- **Limit**：If the speed exceeds a set threshold, an alarm is triggered, press enter.
- **Hold Time**：Alarm duration, press DEL key to clear the existing number, press the number keys to enter.
- **Record**：Alarm recording, press the [ENTER] key to select.
- **Alarm Link**：OFF / Output 1 /Output 2, press the [ENTER] key to select.
- **Speed Source**：GPS / vehicle / mixing, press [ENTER] key to select.
- **Pulse**：The default is 0 / sec, the number of pulses generated by the vehicle at a constant speed in each second.

3.3.6.3 Acceleration

错误!未找到引用源。

- **EN**：ON/OFF, press [ENTER] key to select.
- **Limit**：Setting X, Y, Z, collision, rollover value. You can set the range of

0.00g - 9.99g, press the DEL key to clear the existing number, press the number keys to enter.

- **Hold Time**：Alarm duration.
- **Record**：Alarm recording, press the [ENTER] key to select.
- **Alarm Link**：OFF / Output 1 /Output 2, press the [ENTER] key to select.
- **ADJUST**：Device before first use, you need to click on the "ADJUST" button on the screen calibration X / Y / Z / impact / rollover value, press the Enter key to input. Calibration is complete, the current value to zero.

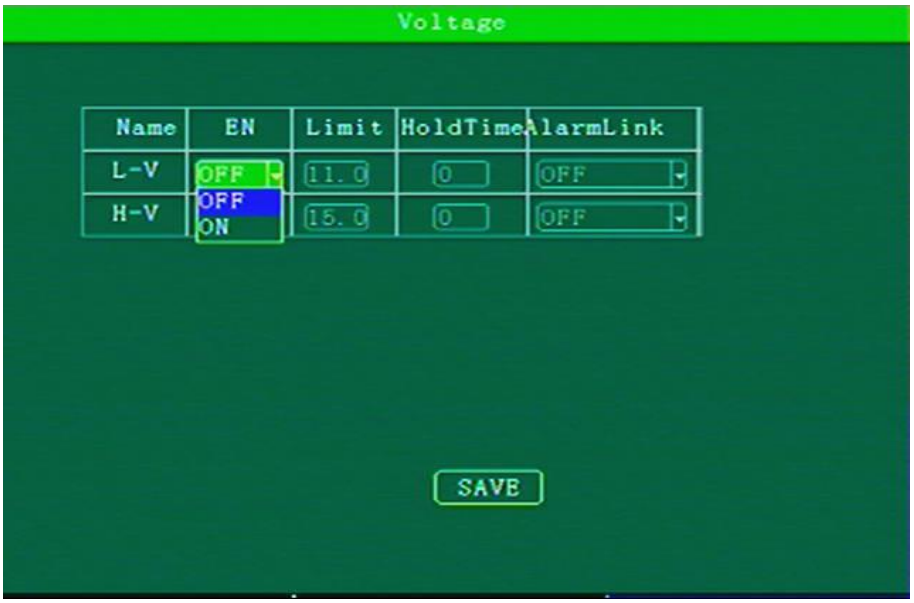
Note：
Setting X, Y, Z is 0.00g; the device will not report alarm.

3.3.6.4 Move Detection

错误!未找到引用源。

- **Enable**：Turn ON / OFF motion detection function, press the [ENTER] key to select.
- **Limit**：Setting the value range of motion detection, press enter.
- **Action**：0-7 a total of eight levels, the highest sensitivity is 0, press [ENTER] key to select.
- **Record**：Alarm recording, press the [ENTER] key to select.
- **Alarm Link**：OFF / Output 1 /Output 2, press the [ENTER] key to select.

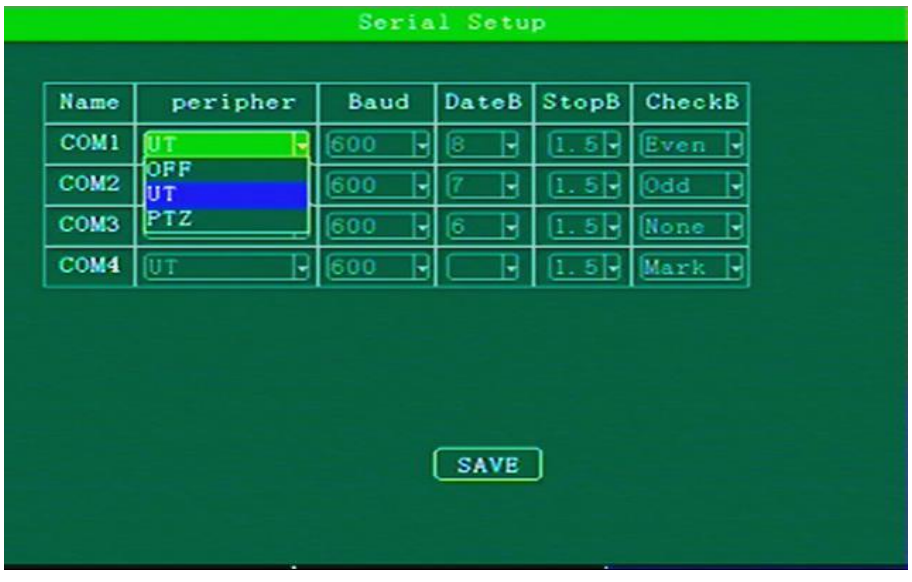
3.3.6.5 Voltage



- **EN**：ON/OFF, press [ENTER] key to select.
- **Limit**：Range alarm value. Minimum voltage and maximum voltage, press Enter.
- **Hold Time**：Alarm duration.
- **Alarm Link**：OFF / Output 1 /Output 2, press the [ENTER] key to select.

3.3.6.6 Serial Setup

Serial port parameters. Shown as below:



- **Peripheral**：PTZ/UT/OFF, press [ENTER] key to select.

Baud rates, data bits, stop bits, parity bit selection to match the current use of the serial port functions, Press [Enter] to select.

3.3.6.7 PTZ Setup

Support for external PTZ device. You need to set the parameters related to the head when PTZ serial connection.

Once set up, you must press the Save button to save the settings.

Note:

PTZ address bits, baud rate, protocol, must be consistent with the real head of the parameters.

The same device can be connected to multiple PTZ. Different channels Control different PTZ according to the different setting parameters

. Before using PTZ, you must set the serial port, the serial port is set to PTZ function.

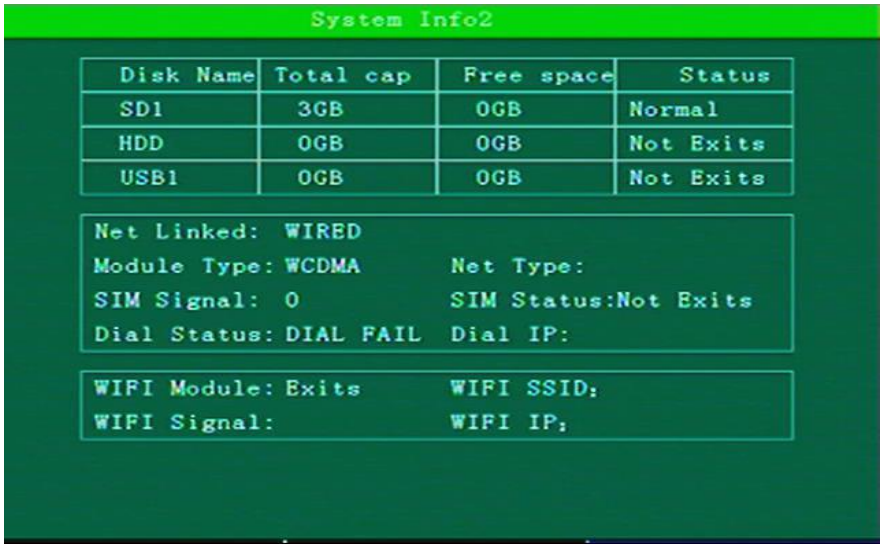
3.3.6.8 VIDEO ALM

Video loss alarm.

Enable, Gap, Delay, Duration, AlarmLink. Press [ENTER] to enter the keypad interface, press the up and down arrow keys to move the cursor, press the [ENTER] key to select the corresponding letters, numbers, and other inputs.

3.3.7 System Information

Check the DVR software-related system information. Shown as below:



- **Boot Ver：** Native application version number.
- **System Ver：** Native file system version number.
- **App Ver：** Native boot program version number.
- **Kernel Ver：** Native kernel version number.
- **MCU Ver：** The machine microcontroller version number.
- **Phone No：** Phone No, Distinguish different devices.
- **Disk Name：** Display SD1, SD2 and USB.
- **Total Cap：** Displays the total capacity of the disk.
- **Free Space：** Display the free space of the disk.

4 Installation

4.1 Installation Environment

M720 can be adapted to any complex car environment. Specific indicators such as:

Environmental performance indicators

Project	Index	Example

High temperature limit	＋60℃	Good ventilation
Low temperature limit	-25℃	
Relative humidity	10%~95%	
Maximum temperature gradient	20℃/小时	
Vibration limit (non-energized state)	No greater than 5mm p-p (5 – 22Hz) 49m/s2 (5.0G) (22 – 500Hz)	With packaging, transportation, handling
Vibration limit (normal operation)	No greater than 1.0mm p-p (5 - 22Hz) 9.8 m/s2(1.0G)(22 – 500Hz)	Equipment installed and fastened well. The main vehicle in the frequency domain vibration energy generally within 0.5Grms.
Shock limit (non-energized state)	Not more than 2000G (19,600m / s2) (Duration 1 ms, half sine wave)	With packaging, without hard disk, transportation, handling drop, equivalent to the height of 1.5 meters, falls on the concrete floor.
Shock limit (normal operation)	Not more than 1000G (9,800m / s2) (duration 2 ms, half-sine)	Install good

4.2 Installation Precautions

Note：

In order to ensure the safe use of M720 and satisfactory performance, extend equipment life, please take full consideration to the following factors during installation:

1) When installing and operating the equipment, comply with all the norms of electronic products, as well as vehicles and other connected equipment.

2) Power & Ground：

a) DVR using a DC power supply, note the polarity when connecting the power supply.

b) DVR input voltage range is 10V ~ 36V, do not supply out of this range. Low voltage will cause car video recorder fail to work, it will damage the DVR main board if the voltage is too high

c) Recommended to connect DVR directly to the vehicle battery power output. Be careful: do not to connect the car generator power output. Because the output of the generator can produce high voltage transients when startup, and damage the car video recorder.

d) After connected the DVR to the camera, start power exceeding 60 W (power consumption will vary depending on the external device to device). The power supply must be able to provide more than 60 W of power (for example, when the vehicle power supply output voltage is 12V, the power cord must be able to withstand more than 5 A current).

e) Even if the device is turned off, the machine is also charged, to avoid short circuits. Disconnect the device and power supply before connecting other external devices,.

f) DVR external output of the unit voltage of 12V, is used only to power the camera, you can only connect to the specified device.

g) Equipment for the level sensor input mode. It's considered to be low when an external voltage is less than 2V, it is considered high at 5V ~ 30V range. It can damage the equipment when more than 30V. When the voltage is greater than 2V less than 5V, illegal value.

h) The device is properly connected to the vehicle ground to line composed of loops.

i) If the equipment will not be used in a long time, kindly disconnect the power to extend the equipment life.

j) You may wear-resistant, heat-resistant, waterproof, anti-oil casing on the power cable, to prevent the long-term vibration and friction in the car to cause short circuit or open circuit.

k) If Power cable close to the vehicle power supply output positive end, you need to install 10 amps fuse box for preventing a short circuit occurs in the power supply line, and burn the vehicle power supply.

3) Humidity：

a) Install the equipment in a dry environment; avoid moisture, drip, sprinkler and other places.

Do not install the equipment in a damp place or fluid dripping wet places.

b) Do not touch the equipment with wet hands, do not stand in water to touch devices, there is risk on electric shock.

4) Installation position:

a) To extend the life of the equipment, install the equipment inside the vehicle corner with weaker vibration, such as the rear of the driver's seat.

b) Equipment should be installed in vehicle ventilated areas: equipment installed on the plane should be kept 6 inches (15 centimeters) away from other objects, in order to facilitate the flow of air and heat; can't be installed in an enclosed space (such as a vehicle trunk) .

c) External wire devices must have enough space and outer flame tube protection to ensure that the wire is not bent or wear due to vibration leakage.

d) Ensure the device far away from the heat source in the vehicle; No Debris piled up near the device, not allowed to place anything on the device

e) The level of equipment can be mounted vertically or laterally (If need to install by the other direction, please consult the factory). Since any other installation angle may damage the device, it is strictly prohibited..

5) Safety equipment:

a) Ensure that passengers and the drivers cannot interfere or damage equipment, cameras, cables and other accessories, do not install the DVR near other vehicle components restricted areas.

b) It may cause damage to the equipment if launch the vehicle, while installing the device components, cameras, accessories, and wire. PLS make sure the vehicle is stopped during installation, to prevent the unit from dropping.

4.3 Unpacking Check

Check whether there is damage of the DVR or other properties after deformation of the box, please stop using it and contact your supplier if yes.

4.4 DVR Installation Instructions

a）The whole installation

The horizontal installation and side installation:

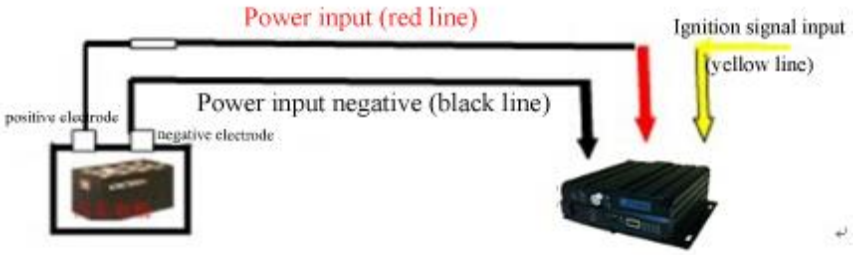
1、Horizontal installation： Place the equipment on the mounting surface, alignment screws to 4 fixing holes and fasten the equipment to the mounting surface

2、Side installation：When subjected to space constraints, you can use side-mounted, just mounted on a vertical wall .

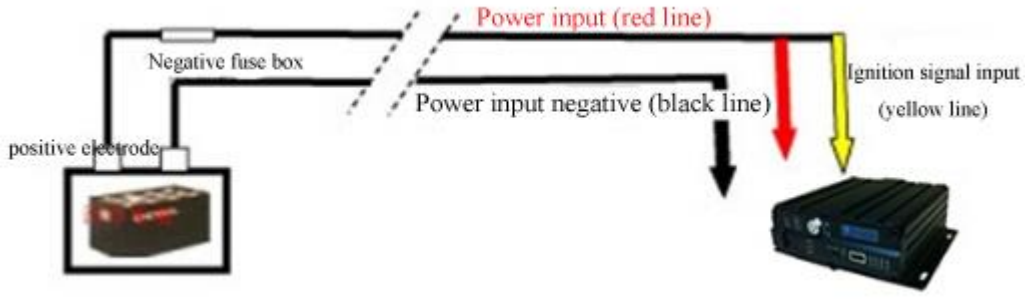
b） **Power cable**

DVR using DC power input, the input voltage of the normal operating range of 10V ~ 36V.

- Use the ignition delay control car video recorder work indicates that the figure is as follows:

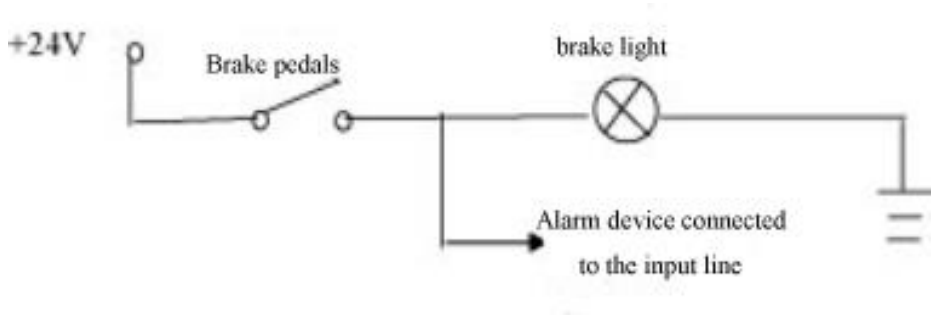


- The total gate connection examples (the total gate control switch video) as shown below:



c） **Alarm input connection**

6 groups of alarm equipment input interface. Alarm input detection level is detected; it can be accessed by various vehicle driving state, such as brakes, steering speaker and so on. Brake detection diagram shown as below, when the brake pedal depressed, the device can detect a high level or the low level. Connections as shown below:



d） **SD card and SIM card**

Unplug the hard disk cartridge. You can see the installation location of the SIM card and SD card.

e） **Bracket**

Integrated in one, to reduce the installation process.

4.5 Equipment Upgrades

a） COPY all the upgrading files to the SD card root directory; upgrading file contains the application, file systems and UBOOT.

b） Insert that SD card(with upgrading file) into the DVR. Then boot.

c） Enter the system menu "System Information" to view the application, file system, boot loader, kernel, single-chip version details;

d） If the version is different with the current version, enter “Device Management” select the “system upgrading”. The device will automatically be upgraded.

e） Do not power off during the upgrading process, do not perform any operation.