

# PYLE®

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## ***PLCMDVR15***

**Mobile DVR Video Surveillance Recording System**

**USER MANUAL**

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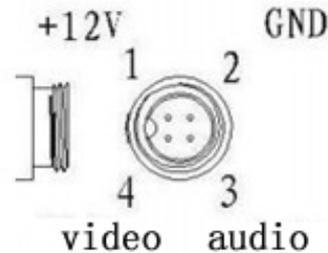
# 1. Notes

## 1.1 Definitions of connectors for aviation interfaces:

- 1 red: +12V positive pole
- 2 black: common GND
- 3 white: audio
- 4 yellow: video

## 1.2 Definitions of power cords:

- Red: DC12V or 24V input
- Black: ground GND
- Yellow: ignition wire GND



## 1.3 Do the following to properly start the machine:

1. Lock the key lock (the lock is the switch of the machine);
2. Connect the red power cord to the battery positive, the black cord to the negative, the yellow cord to the ignition wire of the car key (or ACC); or else, combine the red and yellow cords as positive pole and black as negative.

### Note:

- 1) Make sure the voltage of the battery is between 8V-36V before connection; otherwise, the equipment may be burnt out;
- 2) With the cords connected, pay attention to the insulation between the cords to prevent burning out of the battery due to short circuit of the cords;
- 3) Make the yellow cord is connected to the ignition wire; otherwise, the equipment will not support delayed shutdown and the last video will be lost.
- 4) Note: the installation of on-board machine must use the positive and negative of the battery instead of using bond strap as ground wire because bond strap will produce negative impulse to disturb the normal operation of the host. The power cords for the positive and negative power cord must be over  $\Phi 1.0\text{mm}$  in diameter.

# 2. Production Specification

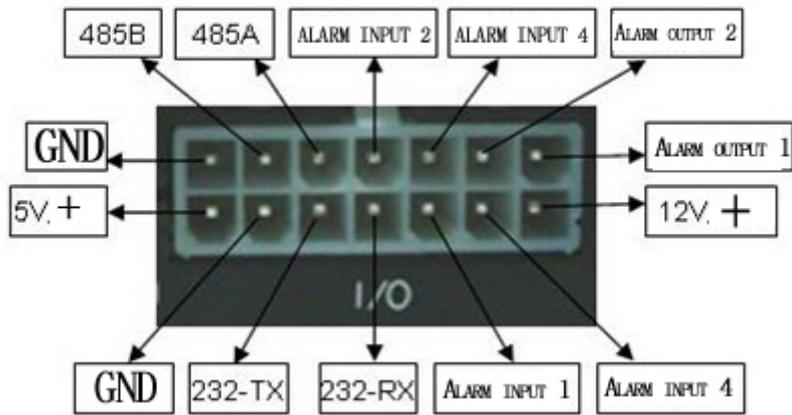
**MDVR** is a cost-effective and functionally expandable equipment designed for video surveillance and remote monitoring in cars, trains and other vehicles. It uses a high-speed processor and an embedded **Linux** platform, in combination with the state-of-the-art **H.264** video compression/decompression technology in the **IT** field. With **SD** card/hard disk as a storage medium, MDVR is capable of 4-channel audio and video recording and driving information recording in formats of **CIF**, **HD1** and **D1**. **MDVR** is characterized by simple appearance, superior vibration-proof performance, flexible and easy installation, powerful functions and high reliability.

## 2.1 Definitions of Front and Back Panels

**Front panel:** PWR for power indication, REC for video indication, SD1 for SD card indication, and IR for infrared receiver.

**Back panel:** POWER for DC12/24 power input, USB for mouse operation, I/O for alarm input and output interface, AV1--AV4 for audio and video input, Video out for video output and Audio out for audio output.

## 3. Instructions for I/O Alarm Input and Output



Alarm input 1 is the left-turn signal (whose function is to magnify Picture 1); alarm input 2 is the right-turn signal (whose function is to magnify Picture 2); alarm input 3 is the reversing signal (whose function is to magnify Picture 4).

## 4. Instructions for Remote Control

### 4.1 Description of Remote Control Buttons



### 4.2 Soft Keyboard Input Description

Characters that can be input into the system include numbers, upper/lower case English letters and Chinese characters. Pinyin input for Chinese characters is available by shifting “pinyin/ABC” on the far right.

## 5. VCR Instructions



The items are capable of the following functions:

- <Video retrieval>: search the stored video files in the hard disk/SD card and playback these files;
- <Video setting>: set the audio and video parameters, operating modes, etc;
- <Features setting>: set alarm, PTZ, time, network, etc.;
- <System information>: display the serial number, version number, MAC address and other system information;
- <Vehicle information>: set vehicle license plate number, timer startup/shutdown, WIFI, etc.;
- <Settings display>: set the monitor screen and video data, including the display of information, region, color, volume, etc.;
- <Password management>: set the password of the machine;
- <Esc>: Esc the menu interface and return directly to the monitoring interface.

### 5.1 User Login

With the power cords connected, press <MENU> on the remote control to enter directly into the login screen (the equipment is shipped with no password)

## 5.2 Preview Interface

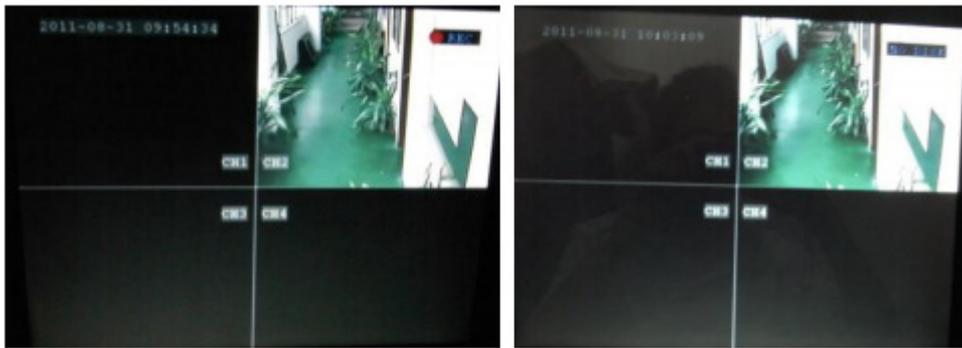


Figure 1 Monitor screens of recording with a card and prompt for no card, respectively

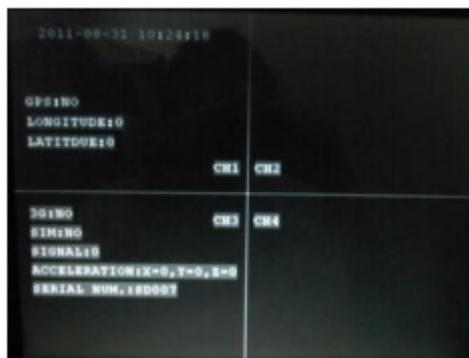


Figure 2 Monitor display of “INFO”

The preview interface will display information about the working status of the equipment and of the channels. The information is shown in the following manner:

[2011-8-31 09:54:34] shows the system time

[CHx] is channel name

[● REC] recording is in progress

[NO DISK ] no ongoing recording

[GPS : NO .... ] The “INFO” key on the remote control is pressed to quickly display system information, such as GPS state.

## 5.3 Video Retrieval



Figure 3 Diagrams of video retrieval

- The video retrieval interface provides retrieval, playback and backup of the video files stored in the disk.
- Available retrieval methods include fast and accurate time orientation, browsing of recording status in a given time period, and browsing of specific video files.

### 5.3.1 Instructions for Detailed Files and Backup

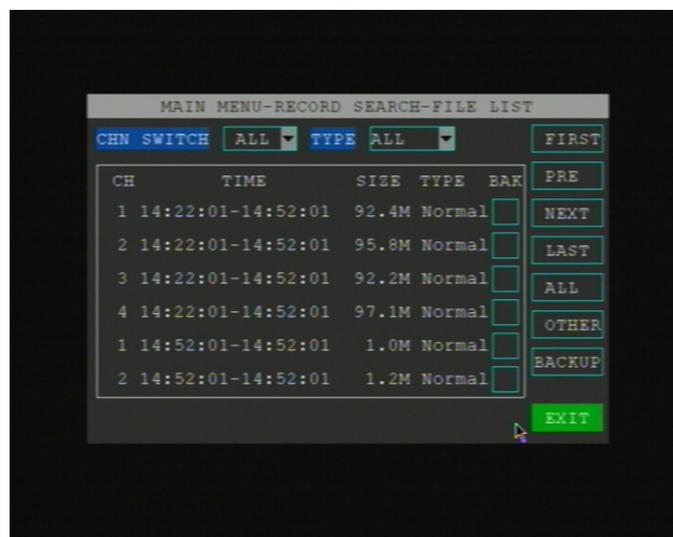


Figure 4 Interface of detailed files

Detailed files are arranged based on channel order or video chronological order for easy retrieval.

### 5.3.2 Playback Description

1. Two modes are available: single-channel playback and multi-channel synchronous playback.

2. Play mode control provided, including: normal play, single-frame play, play in slow motion, fast forwarding and rewinding. Volume adjustable.

## 5.4 Video Setting

### 5.4.1 Frame Rate Dynamic Configuration



Figure 5 Video setting screen

1. The video setting interface provides setting for video mode, as well as the setting of audio and video parameters for each channel.
2. Specific items include the video switch, resolution, bit rate, frame rate and picture quality of each channel and the recording switch.

#### Video package time and video mode are as follows:

1. <Channel> / <Video switch>: on/off, recording on the current channel (or not).
2. <Resolution>: D1/HD1/CIF, optional.
3. <Bit rate>: high/medium/low.
  - D1 resolution corresponds to 512Kbps (low), 768Kbps (medium), or 1024Kbps (high).
  - HD1 resolution corresponds to 512Kbps (low), 768Kbps (medium), or 1024Kbps (high).
  - CIF resolution corresponds to 384Kbps (low), 512Kbps (medium), or 768Kbps (high).
4. <Frame rate>: 1~25/30 optional; the bigger the frame rate, the smoother the playback will go and the bigger space will be taken up in the disk.
5. <Picture quality>: 1 to 6 optional; the smaller the value, the better the picture quality will be.
6. <Recording channel>/<Recording switch>: on/off, the video is recorded (or not) (audio and video in sync).
7. <Package time>/<Video package time>: 15/30/45/60m, optional, set for the duration of

the video file when videoing.

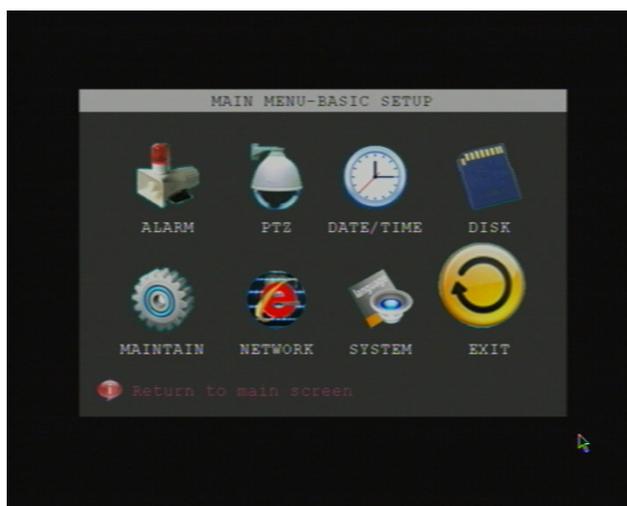
8. <Video mode>: videoing upon startup or timer videoing, optional.

- Videoing upon startup (default): to start video recording upon startup.
- Timer videoing: the button <configuration of time section for videoing> will pop up for configuration of the time section.
- Click the button <configuration of time section for videoing> to pop up the time section setting interface.

## 5.4.2 Small Bit Stream Configuration

Small bit stream now supports two resolutions of CIF and QCIF, with the bit rate, frame rate and picture quality dynamically adjustable. Small bit stream mainly works in the case of 3G remote.

## 5.5 Features Setting

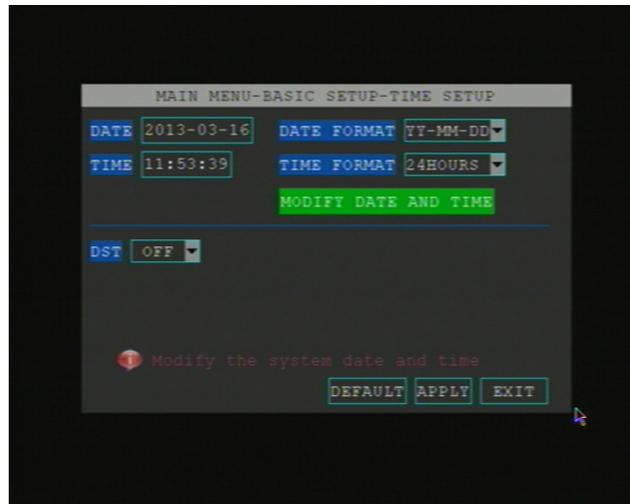


The items are capable of the following functions:

- <Alarm setting>: set various alarm input switches and parameters, actions with alarm, alarm output parameters, Email setting, camera blocking alarm setting, motion detection setting, etc.;
- <PTZ setting>: set PTZ parameters;
- <Time setting>: set date, time, daylight saving time;
- <Disk management>: display the status of the disk and enable formatting of hard disk and SD card;
- <Equipment maintenance>: automatic restart of the equipment, system upgrades, restoration to the factory settings, etc.;
- <Network setting>: network setting, mobile phone access setting, etc.;
- <System setting>: set the camera mode, the channel polling time, the system language, etc.;

- <Esc>: Esc from the features setting interface and return to the main menu interface.

### 5.5.1 Time Setting



1. The time setting interface is for the setting of the system time. It includes the following specific items:

- <System date>: set the year, month, day.
- <Date format>: MM/DD/YY or YY-MM-DD.
- <Current time>: set the hour, minute, second.
- <Time format>: 12-hour or 24-hour clock.

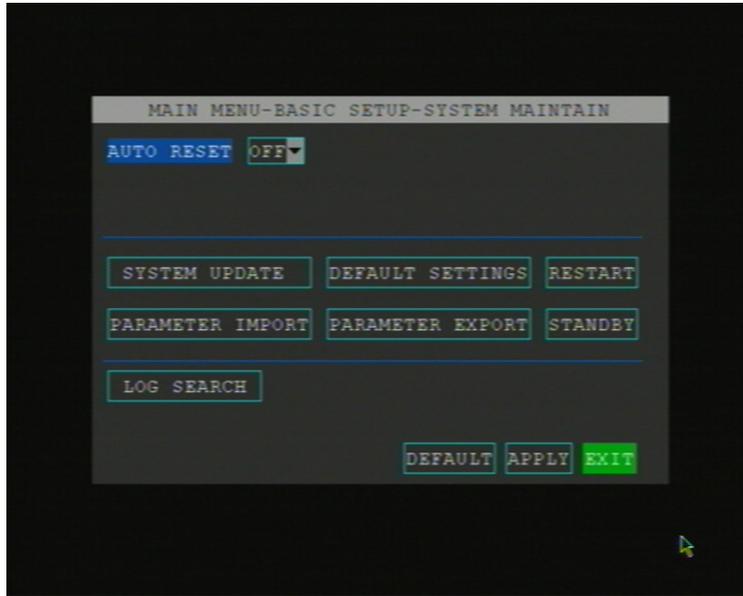
### 5.5.2 Storage Device Management



1. Display the use state, capacity, available space and available video length of the storage device.
2. The earliest video files will be covered when the storage device is about to be fully occupied.

3. Formatting of the storage device (SD card/hard disk).
4. Formatting of the backup device (SD card/USB disk).
5. Customer setup of the normal videoing days to be covered to keep the alarm videos for possible maximum days.

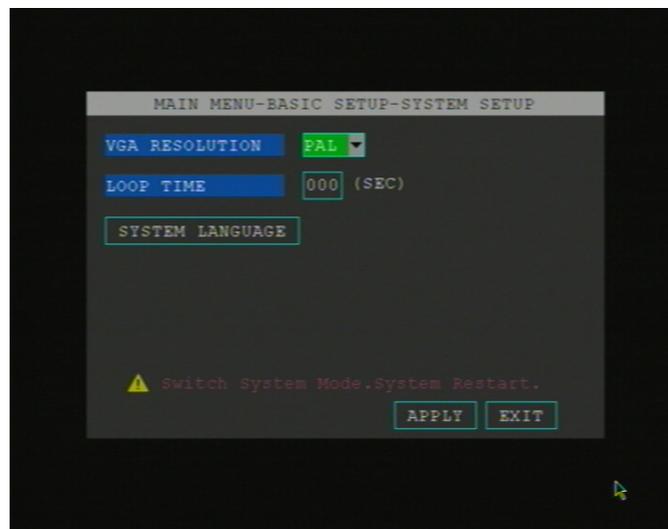
### 5.5.3 Instructions for Equipment Maintenance and System Upgrade



#### Description:

1. Copy the file to be upgraded under the directory of updatedvr in the USB disk/SD card.
2. Insert the USB disk/SD card into the equipment.
3. Click the <system upgrade> button on the System Maintenance interface.
4. The system will scan the specific file under the directory of updatedvr in the USB disk/SD card and upgrade it once it is found.

### 5.5.4 System Setting

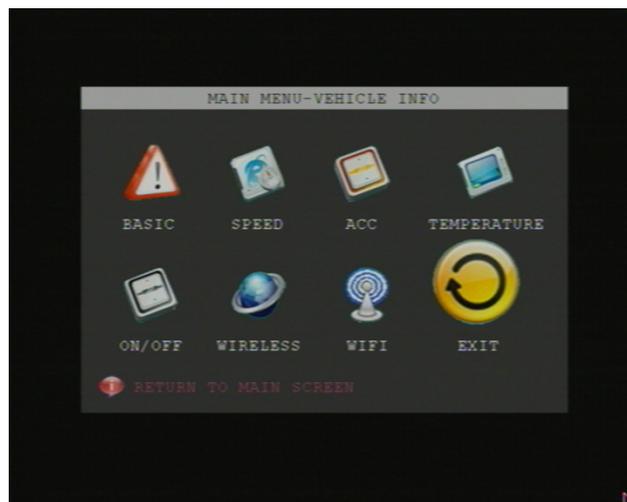


1. Camera mode: modified as required by the camera mode (<PAL> is the default mode in the system);
2. Channel polling time: set the channel polling time;
3. Set the system language (see the figure below).

**Note:** When the modified system setting is saved, the system will automatically restart.

## 5.6 System Information

## 5.7 Vehicle Information



The items are capable of the following functions:

<Basic information>: set the number of the equipment, the license plate number of the vehicle, etc.;

<Speed setting>: set the speed;

<Acceleration setting>: set the acceleration;

<Temperature setting>: set the temperature;

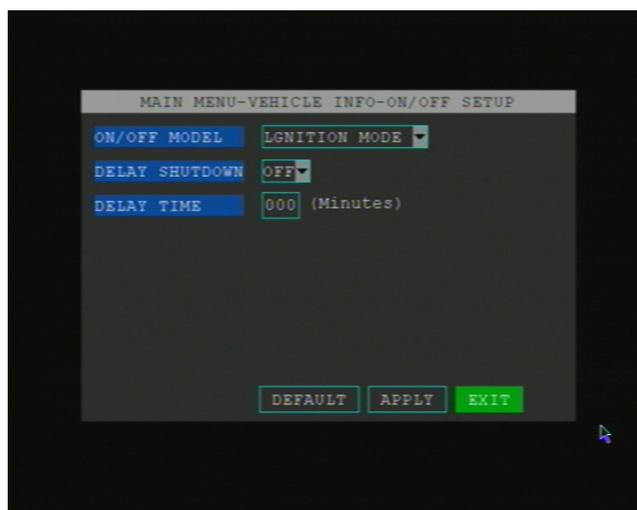
<Startup/shutdown setting>: automatic/timer/delayed startup or shutdown of the equipment;

<Wireless setting>: set wireless 3G;

<WIFI setting>: set WIFI;

<GPS setting>: select a baud rate and speed alarm for the GPS module.

## 5.7.1 Startup/Shutdown Setting



### Description:

1. Startup/shutdown mode: ignition mode, timing mode and startup/shutdown mode are shifted by pressing the ENTER key. Ignition mode is the default mode in the system (it means that the VCR will start when the car is started; timing mode means the VCR will start at the time specified by the user.)
2. Delayed shutdown setting: with the ignition mode selected, the user may decide whether to set delayed shutdown or not. If delayed shutdown is selected, the delay time should be specified. Then, the VCR will continue to work for the delay time specified by the user after the car is shut down. To set the delayed time, first press the ENTER key and then press the numeric keys. The range is between 1 and 300 minutes (Note: This feature takes effect after restart of the equipment).
3. Timer startup/shutdown: when selecting the timer mode, the user needs to set the definite time for startup/shutdown. After the setting is saved, MDVR will be started up and shut down at the specified time. (Note: This feature takes effect after restart of the equipment).

## 5.8 Display Setting



1. Channel name: the name of the channel can be modified;
2. Location of the name: set the location where the name is displayed in the preview interface;
3. Color setting: set the color and contrast of channel monitor screen;
4. Preview switch: set the display of real-time preview, on for display and off for non-display;
5. Preview time: set whether to display the time in preview or not;
6. Recording time superposition: set whether the recording time is superimposed or not.

## 5.9 Password Management

### Description:

Whether to use password or not: password enable switch. When the password switch is set on, the user needs to set six-digit passwords respectively for the administrator and an ordinary user.

## 6. 3G Networking and Platform Application

### 6.1 3G Networking Description

- 1) Before applying this function, confirm with the supplier the 3G machine is from Unicom, Telecom or China Mobile (different 3G machines may match with different modules).
- 2) Plug in 3G card (SIM card) and make sure there is a usage fee.
- 3) Check if the 3G antenna is properly connected.
- 4) Settings that need to be confirmed for this equipment:

Main page - video setting – small bit stream configuration: the bit stream switch of the

channel where remote 3G view is required must be on. The user may debug the resolution (CIF or QCIF) and frame rate of the channel according to the scene.

Main page - vehicle management - wireless setting: wireless Internet access needs to be set on. The user may decide the type of the wireless network between Telecom and Unicom.

Main page - vehicle management - basic setting: confirm with supplier whether the vehicle number (e.g., 04017) matches with the server allocated.

Main page - features setting - network setting -CMS configuration: confirm with the supplier whether the central IP address is correct and whether the central port number is correctly set.

5) Check if the equipment is successfully dialed up.

Main page - vehicle management - wireless setting: check the wireless status to make sure whether there is legal IP displayed. If the IP address is unfilled, it means unsuccessful dial up. If, for example, the IP address is 172.45.144.251, it indicates successful dial-up.

**Attachments:****MDVR Specification**

Item	Equipment parameter	Performance indicator
System	Operation language	English/Chinese/Traditional Chinese/other
	Equipment parameters	Graphical menu interface (OSD menu)
	Password security	Two-level management of user password and administrator password
Video	Video input	4-channel composite video input
	Video output	Single-channel composite video output
	Video display	Single-picture and quad-picture display
	Video standard	PAL mode, NTSC mode
	Image compression	H.264 Main profile, compressed resource: 75 frames D1/s (300 frames, CIF/s)
Audio	Audio input	4-channel audio input
	Audio output	Single-channel audio output
	Recording manner	Synchronous recording of audio and video
Image processing and storage	Image format	CIF/HD1/D1, optional
	Video streaming standard	ISO14496-10
	Video bit rate	CIF: 384Kbps (low), 512Kbps (medium), 768Kbps (high). HD1: 512Kbps (low), 768Kbps (medium), 1024Kbps (high). D1: 512Kbps (low), 768Kbps (medium), 1024Kbps (high).
	Audio bit rate	8KB/s
	Data storage	Support 64GB SD card/2T hard disk
Alarm	Alarm input	4 alarm inputs, low-level alarm for less than 4V, high-level alarm for more than 4V
	Alarm output	2 alarm outputs, high-level output at 12V and 5V
Communication interfaces	RS485 interface	Support 1 RS485 interface
	RS232 interface	Support 1 RS232 interface
Acceleration sensor	Sensor interface	Built-in acceleration sensor G-Sensor

Software kit	Playback analysis	Play back the video file on PC and analyze the vehicle information in the file
Software upgrade	Upgrade file	This equipment supports SD

*Table 1: MDVR Specification*

**MDVR basic electric parameters:**

Item	Equipment parameter	Performance indicator
Power input	8-36V	Input voltage between +8V and +36V; when the voltage is lower than 8V or higher than 36V for a long period of time, the equipment will shut down automatically and enter into protected mode
Power output	12V	Output voltage 12V (+/-0.2V); maximum current 2A
Car key signal	≤4V	Car key on
	≥5V	Car key off
Video input resistance	75Ω	Video input resistance at each channel should be 75Ω
Video output voltage	2Vp-p	For output of a 2Vp-p CVBS analog signal, the displayed input resistance shall be 75Ω.
I/O interfaces	0-4V	Low-level alarm
	Over 4V	high-level alarm
SD card interface	SD card	1. Compatible with common brands in the market; support 64GB 2. SD card storage file; support recording and system upgrade.
Working temperature	-40□-80□	Referring to the ambient temperature with good ventilation