
SD Video Recorder

User's Manual

Thank you for using our Mobile DVR. This manual is applicable for MDR10x1, MDR10x2, MDR10x5, MDR30x1 and MDR30x5 series. Please read this User's Manual carefully to ensure that you can use the device correctly and safely. The contents of this manual are subject to be changed without notice.

Warning

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



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

CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN

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



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



Important notice:

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

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1.Main Features

Video And Audio

- H.264 High Profile video compression, real time recording(25 fps(PAL) / 30 fps(NTSC) for each channel. Frame rate adjustable for each channel.
- AAC(Advanced Audio Compression) for audio.
- D1 resolution for each channel, which means each channel support 704x576(PAL)/704x480(NTSC).
- Support 4 channel video and 4 channel audio recording;

Power Input

- Support from +8V DC to +32VDC. Applicable for vehicles with +12V or +24V battery.
- When the power input connects in reverse polarity, the auto-protect function can prevent the recorder and battery from damage.
- The recorder provides each camera with stable +12V DC power; DVR can detect the short cut on power circuit.
- Can use ignition to control the power.

Recording mode

- Continuous record.
- Start recording automatically when the DVR is turned on.
- Support schedule recording.
- Support alarm recording.

Speed and Vehicle status recording

- Record vehicle speed and car id with audio and video.
- Support 6 sensors, can be connected to brake, return, right turn, left turn light etc.
- Over-speed alarm.

SD card plug and play

- Support plug and play for SD card when not recording and playing.

Note: If you remove the SD card while recording or playing, it might cause the damage of the file on SD card. While recording or playing, the yellow light on the front panel will be on. So please stop recording or playing until the yellow light is off if you need to remove the SD card.

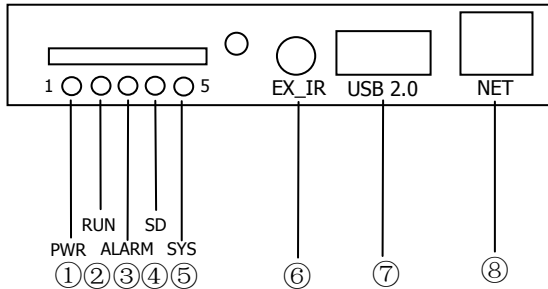
Multiple player supported

You can use the following player to play back the record file.

- VLC media player (version 1.0.0 or above);
- Storm player(Version 2009 or above)
- Winamp (Version 5.531 or above)

2. Overall description

2.1 Front Panel



- ①: Power light.
- ②: Run light.
- ③: Alarm light.
- ④: SD present light.
- ⑤: System light.
- ⑥: External IR connector.
- ⑦: USB 2.0 port.
- ⑧: Lan port.

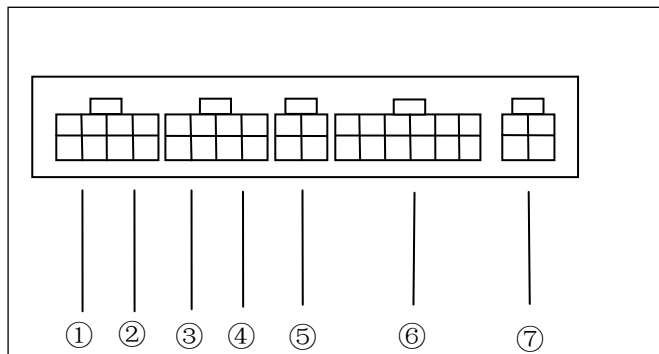
Get to know the status of Mobile DVR by the indication of PWR light and RUN light:

| PWR | RUN | Description |
|----------------------------|----------------------------|---|
| Always On | Blinking | DVR is turned on and running. |
| Blinking with RUN by turns | Blinking with PWR by turns | Ignition is not enabled and DVR is turned off. |
| Blinking together with RUN | Blinking together with PWR | Ignition is not enabled and DVR is running. The DVR will be turned off when it reached the "Ignition Power Off Delay" time. |
| Blinking | Off | The DVR is turned off. It will restart if POWER button is pressed on the remote. |

| Alarm light(yellow) | Description |
|---------------------|--------------------------------------|
| On | Alarm indication, such as overspeed. |
| Off | No alarm. |

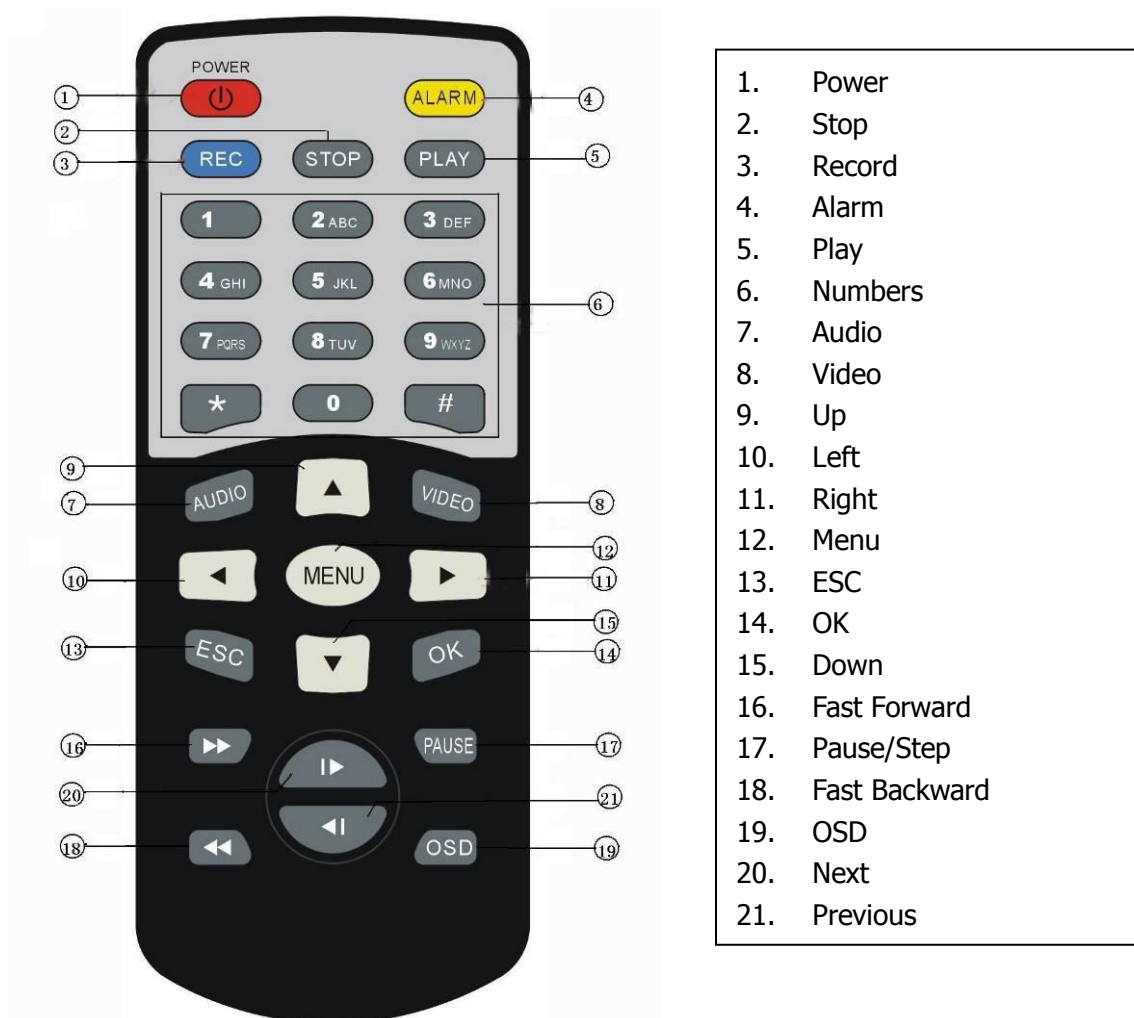
| System light(yellow) | Description |
|-----------------------------|---|
| On | In recording. Don't remove the SD card in this status. Please press "stop" on the remote to stop recording if you need remove the SD card. Removing SD card in this status might cause the damage on the record file. |
| Off | Recorder is not in recording mode. You can remove the SD card. |

2.2 Rear panel



- ①: AV input 1(including audio input 1, video input 1 and power for camera 1)
- ②: AV input 2(including audio input 1, video input 1 and power for camera 2)
- ③: AV input 3(including audio input 1, video input 1 and power for camera 3)
- ④: AV input 4(including audio input 1, video input 1 and power for camera 4)
- ⑤: AV output(including audio output, video output and power)
- ⑥: 1 speed sensor, 3 sensors, 2 RS232 port, 1 RS485 port and one 5V DC output.
- ⑦: Power for the recorder and ACC input.

2.3 Remote



How to use the remote:

- (1) Press <MENU> to enter main menu or sub menu. You can also use <MENU> to select among different value in the submenu. You can also use <MENU> as <OK>;
- (2) Press <Up/Down/Left/Right> button to move between the different menu item;
- (3) Press <OK> to save and exit the current menu. Press <ESC> to cancel and exit the current menu. If you modify something in the menu, recorder will prompt a window to ask you to save or cancel your modification;
- (4) Press <VIDEO> to toggle among different video channel;
- (5) Press <AUDIO> to toggle among different audio channel;
- (6) To delete character in the edit control, you can press <Left>;
- (7) Press <POWER> for a while to turn on/off the recorder;

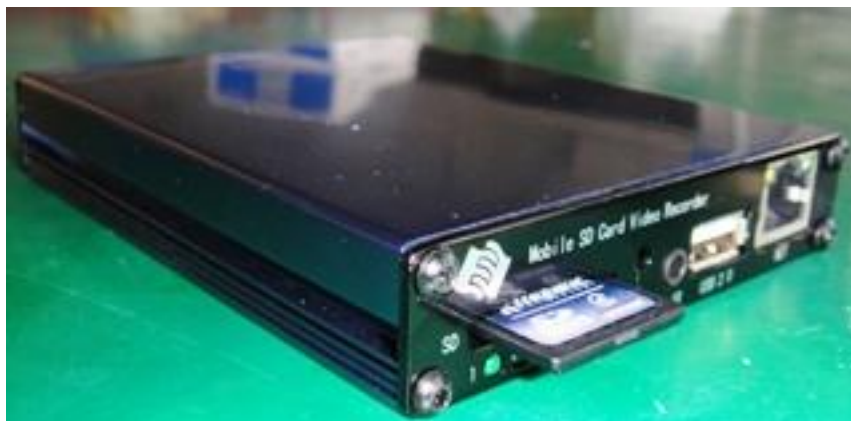
3. Using the recorder

Step 1: Prepare the SD card

Select the SD card and make sure the lock jumper is in off position.



Put the SD card into the recorder.

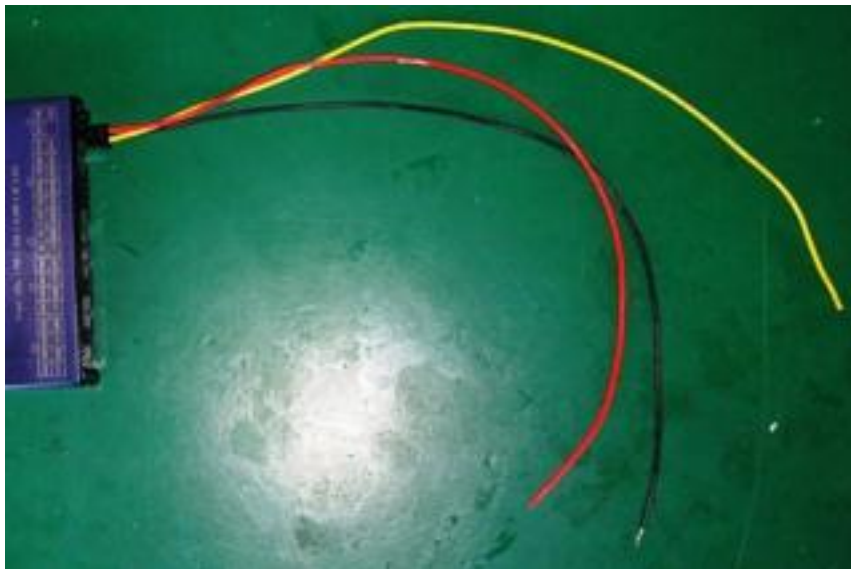


Step 2, Connect camera.



Connect the camera as the picture shows. The yellow connector is for video and the white connector is for audio.

Step 3, Connect to power supply



Connect the red wire to the "+" pole of the battery and black wire to the "-" pole of the battery. The yellow wire is for connecting the ignition signal. If you don't need to use ignition, connect the yellow wire to the "+" pole of the battery. Please note: The fuse is used for protecting the battery from shortcut so you need to connect the fuse near to the battery.

NOTE

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

Step 4, format the SD card

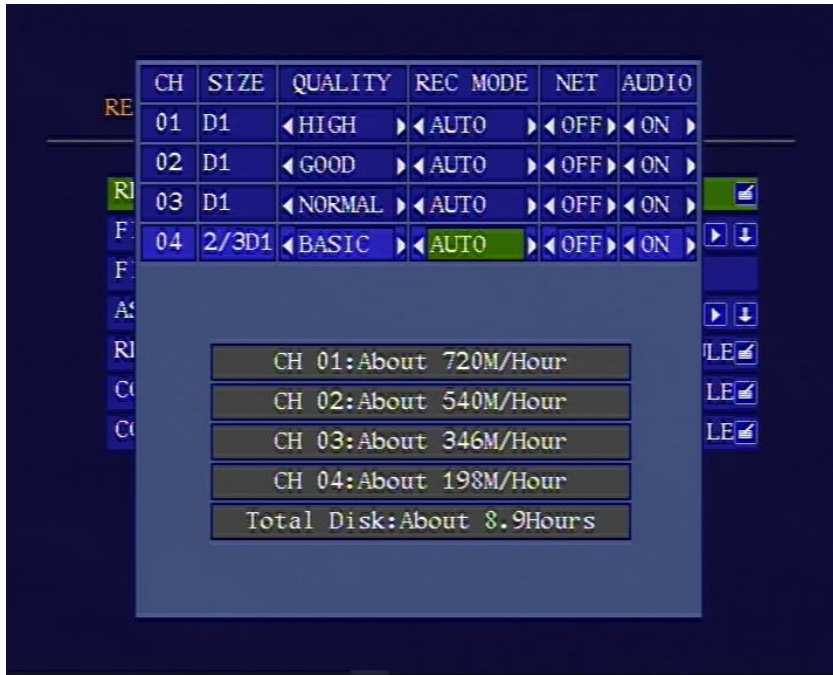
You need to format the SD card before using it. Press <MENU> to enter the main menu and select “FORMAT” in “STORAGE” sub menu.



Choose “YES” to format the SD card. The format process will take some time and you will see the capacity of the SD card after formatting.

Step 5, Choose recording quality

Press <MENU> to enter the main menu and select “RECORD SETTINGS” in the “RECORD” sub menu.



The detailed parameters for each quality list as below:

| Quality | Resolution | Maxiam bit rate (Bit/s) | Minumum bit rate (Bit/s) | Audio Bitrate (Bit/s) | Capacity need |
|---------|------------|-------------------------|--------------------------|-----------------------|---------------|
| BASIC | 2/3 D1 | 350K | 210K | 16K | 119M/hour |
| NORMAL | D1 | 1000K | 600K | 16K | 346M/hour |
| GOOD | D1 | 1200K | 720K | 16K | 540M/hour |
| HIGH | D1 | 1500K | 900K | 16K | 720M/hour |

NOTE: Maxiam write speed for most SD card is about 6000KBit/s, so please select “GOOD” or below if you are recording 4 channel video at same time.

Step 6, start recording

Press < REC > on the remote to start recording. There will be one red dot on each channel indicating the recording. The recorder will record all of the channel by default. If you need to record only one channel, use < UP/DOWN/LEFT/RIGHT > or number key “1”, “2”, “3”, “4” to select one channel and press < REC > to recording.



4. Operations

4.1 Play back the files on SD card

(1) Play back the recent record file. Press the <PLAY> button on the remote, the recorder will play back the file for first channel. You can also use <UP/DOWN/LEFT/RIGHT> or number key “1”, “2”, “3”, “4” to select the channel and press <PLAY> to play the channel you want to play. You can also press <VIDEO> to toggle the full screen of one channel. Press <Next>/<Previous> to select the next or previous file. The play status is indicated by a green triangle on the top right corner of the screen.



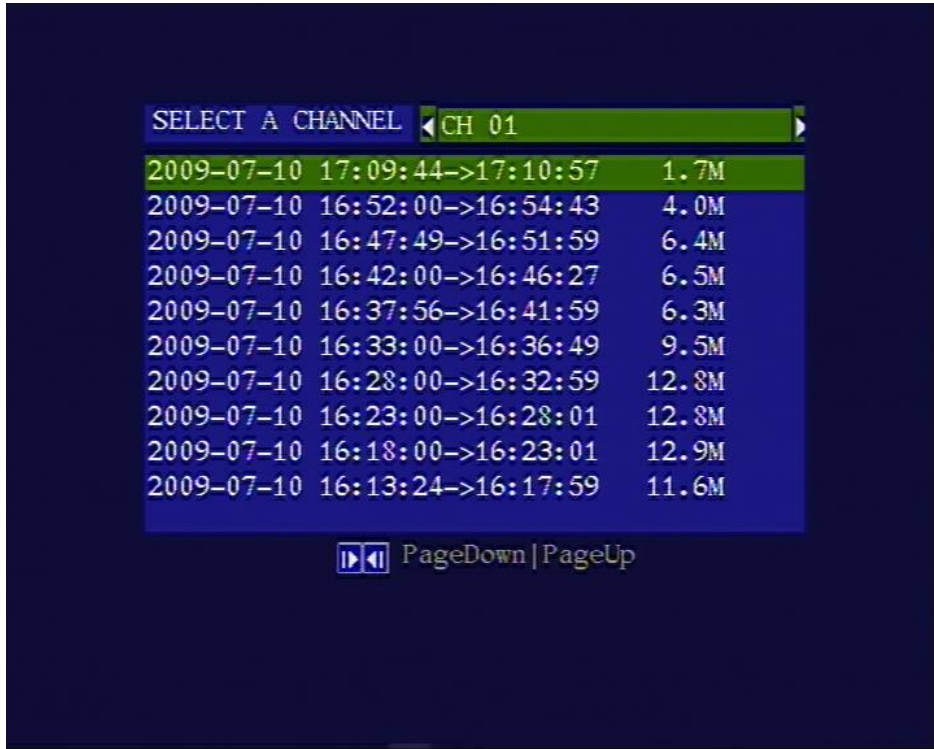
(2) Seek and play back the file at a specific time. Press <MENU> to enter the main menu and select “SEARCH BY TIME” in the “STORAGE” sub menu. Select the time you want to seek and choose <OK>. The recorder will list the record file around the time you set. Then press <PLAY> to play the file.

STORAGE

| | |
|-----------------|------------------------|
| OVERWRITE | ◀ ON ▶ ↓ |
| FORMAT | FORMAT SELECTED DISK ✓ |
| STORAGE DEVICE | ◀ DISK 1 ▶ ↓ |
| TOTAL CAPACITY | 16.1G |
| FREE CAPACITY | 9.2G |
| SEARCH BY TIME | 2009/07/10 17:23:37 ✓ |
| SEARCH BY ALARM | 2009/07/10 17:23:37 ✓ |

STORAGE

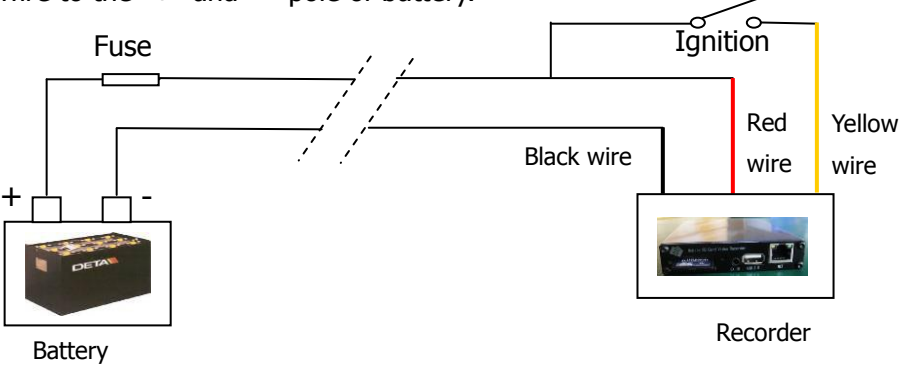
| | |
|-----------------|------------------------|
| OVERWRITE | ◀ ON ▶ ↓ |
| FORMAT | FORMAT SELECTED DISK ✓ |
| STORAGE DE | ▶ ↓ |
| TOTAL CAPA | DATE 2009 07 10 |
| FREE CAPAC | TIME 17 23 37 |
| SEARCH BY | OK CANCEL 3:37 ✓ |
| SEARCH BY ALARM | 2009/07/10 17:23:37 ✓ |



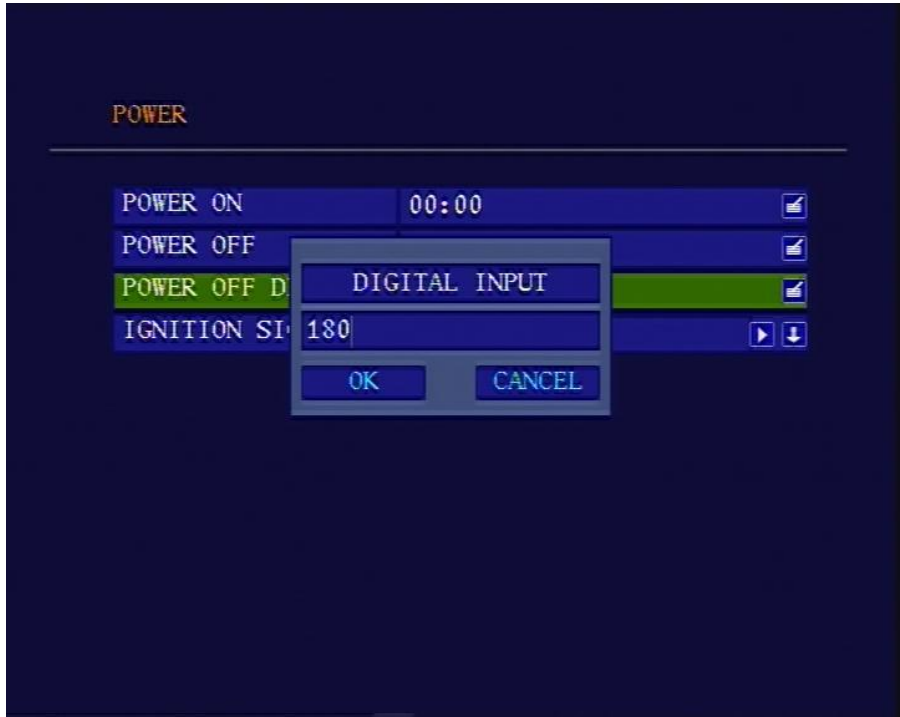
4.2 Manage the power

(1) Use the ignition to control the power

1. Connect the ignition to the yellow wire of the power cable. And connect the red and black wire to the "+" and "-" pole of battery.



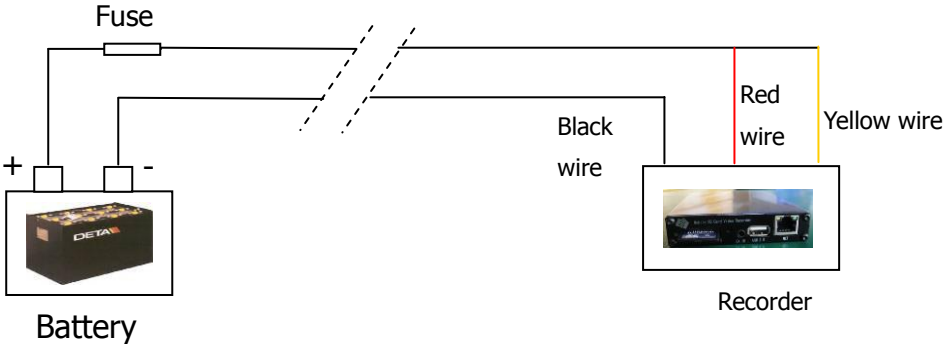
2. Set the power off delay. Select "POWER OFF DELAY" in the "POWER" sub menu. The maxiam duration for the power off delay is 86400 seconds(24 hours). If the power off delay is set to 0, the recorder will turn off immidiately if the ignition is off.

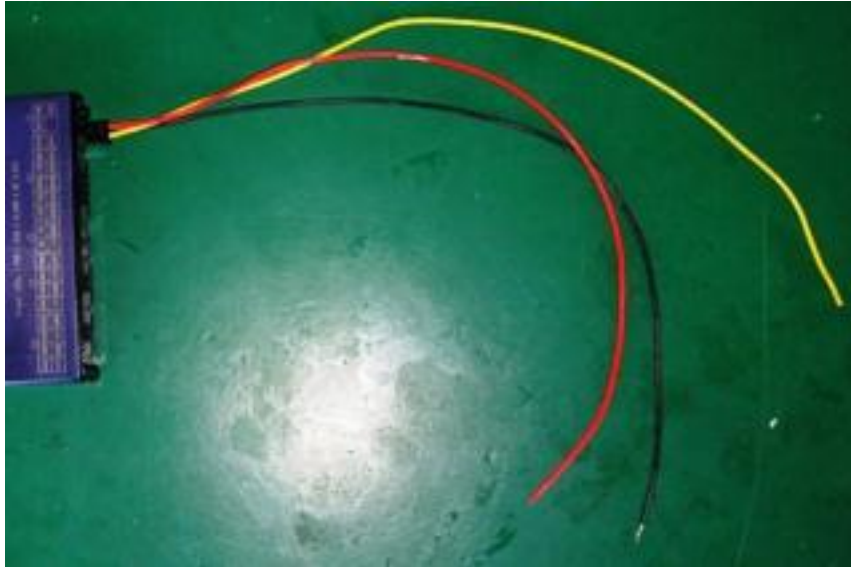


If the vehicle is using low level as ignition, you need to set the ignition signal to low level.

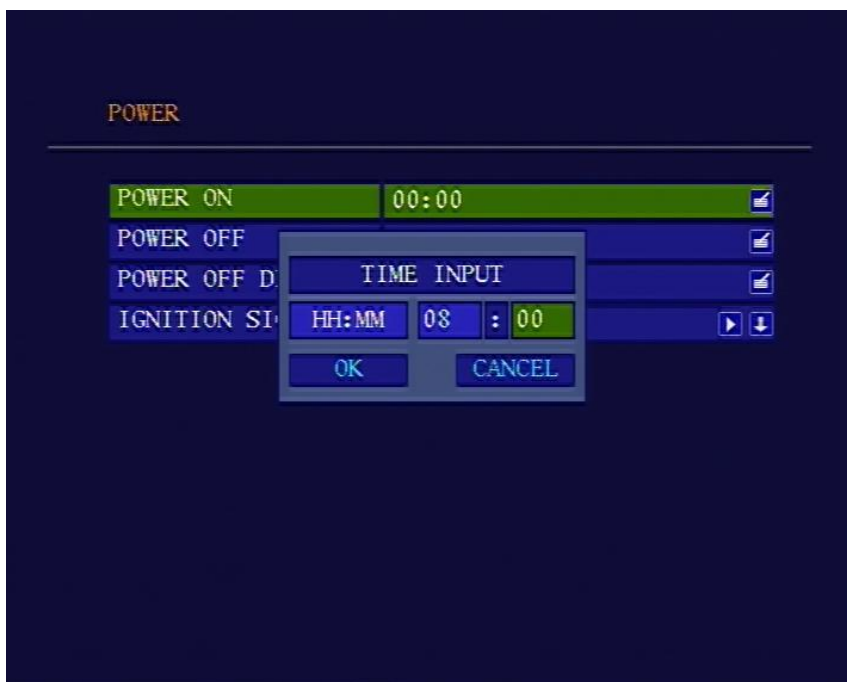
(2) Turn on/off the recorder automatically

1. Connect the DVR to the battery. Please note that you need to connect the yellow wire (ignition wire) to the "+" pole (+12V or +24V) of the battery.



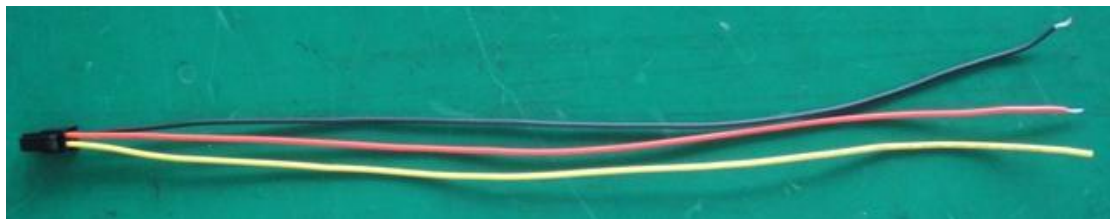


2. Select "POWER ON" and "POWER OFF" in the "Power" sub menu and set the time you want to turn on/off the recorder.
If you don't need to turn on/off the recorder automatically, set the "POWER ON" and "POWER OFF" time to "00: 00" .



5. Appendix, cables

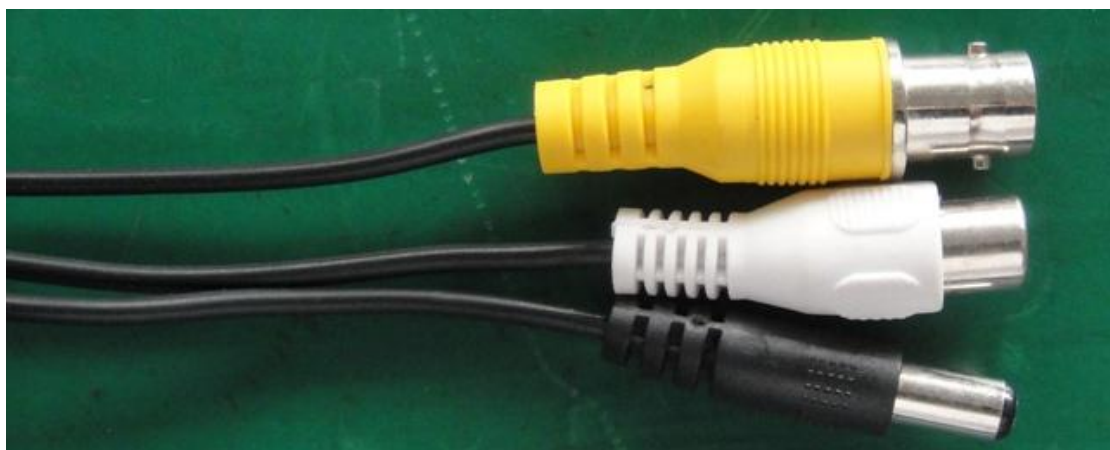
5.1 Power supply



| Mark | Color | Description |
|------|--------|---|
| PWR | RED | “+” of power supply |
| ACC | YELLOW | Ignition signal. Connect this wire to “+” of power supply if you don’t use ignition to control the power. |
| GND | BLACK | “-“ of poer supply |

5.2 AV cables

1) AV cables





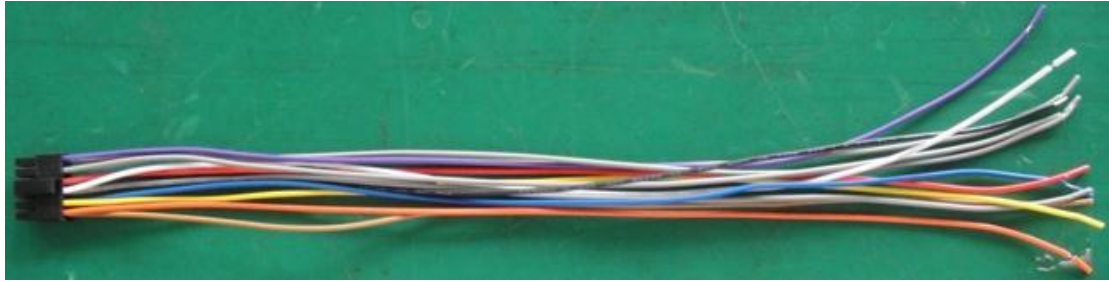
| Mark | Description |
|------|--|
| VIN | Video input |
| AIN | Audio input |
| 12V | Power output for camera(+12 VDC, Maximum current 1A) |
| GND | Ground |

2) Audio output line



| Mark | Description |
|------|--|
| VO | Video out |
| AO | Audio out |
| 12V | Power output for camera(+12 VDC, Maximum current 0.5A) |
| GND | Ground |

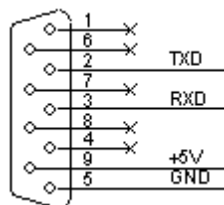
5.3 Signal cables



| | | | | | |
|------|------|------|------|------|-------|
| TXD1 | TXD2 | 485A | 5.0V | SNR2 | SPEED |
| RXD1 | RXD2 | 485B | GND | SNR3 | SNR1 |

| Mark | Description | Color | Description |
|------|-------------|--------|------------------|
| 1 | TXD1 | Orange | TXD, COM1, (GPS) |
| 2 | RXD1 | Brown | RXD, COM1, (GPS) |
| 3 | TXD2 | Yellow | TXD, COM2 |
| 4 | RXD2 | Blue | RXD, COM2 |
| 5 | 485A | White | RS485 A, (PTZ) |
| 6 | 485B | Grey | RX485 B, (PTZ) |
| 7 | 5.0V | Red | +5 VDC |
| 8 | GND | Black | Ground |
| 9 | SNR2 | Grey | Sensor 2 |
| 10 | SNR3 | Grey | Sensor 3 |
| 11 | SPEED | Purple | Speed sensor |
| 12 | SNR1 | Grey | Sensor 1 |

- GPS connector (RS232 COM1)



| PIN | Description |
|-----|----------------------|
| 2 | TXD: Data Transmit |
| 3 | RXD: Data receive |
| 5 | GND: Ground |
| 9 | +5V DC: Power output |

6. Specification

| Item | Parameter | Description |
|------------------------------|--|---|
| System | Language | Chinese Simplified/Chinese Traditional/English/Japanese |
| | Interface | Graphical User Interface |
| | Security | Administrator and user password protected |
| Video | Video Input | 1/2/4 channel video input, 1.0V, p-p, 75 Ω, BNC |
| | Video Output | 1 channel video output, 1.0V, p-p, 75 Ω, BNC |
| | Display | 1/2/4 channel display |
| | Video Standard | PAL (25fps) NTSC (30fps) |
| Audio | Audio Input | 1/2/4 channel audio input, 20K Ω, RCA |
| | Audio Output | 1 channel audio output, 500 Ω, RCA |
| | Output level | 1V ~ 2V, p-p |
| | Recording mode | Audio and video synchronize |
| | Compression | AAC |
| Storage | Video Compression | H.264 High Profile |
| | Resolution | D1 at 100fps (PAL) OR D1 at 120fps (NTSC) |
| | Video bitrate | D1: 200Kbps ~ 2Mbps |
| | Audio bitrate | 8KB/s |
| | Storage | SD card, USB2.0 port (For flash disk or hard drive) |
| Format | AVI | |
| Sensor | Sensors | 1 speed sensor, 1 ignition sensor, 3 common use sensors |
| Communication | COM | Two RS232 connector and one RS485 connector |
| | Network | RJ45, 10M/100M Lan port |
| GPS | supported | |
| Software | Player | |
| 3 rd party player | VLC media player, Storm player, WINAMP | |

| | | |
|---------------------|--|--|
| Firmware update | Via SD card orUSB disk | |
| Power | Power input | DC: +8V ~ +32V |
| | Power output | +12V@1.5A; +5V@1A |
| | Power consumption | Less than 5W ; less than 0.1W in standby mode |
| Working temperature | -10°C ~ +60°C | |
| Size | 9.2CM (Width) ×2.0CM (Height) ×11.5CM (Depth) | |

7. List of Standard Accessories

| Item | Description | Quantity |
|-------------|--------------------|--|
| 1 | SD Video recorder | 1 pc |
| 2 | Mounting bracket | 2 pc |
| 3 | AV input cable | 1 pc for one/two channel SDVR, 2 pcs for four channel SDVR |
| 3 | AV output cable | 1 pc |
| 4 | Signal cables | 1 pc |
| 5 | Remote | 1 pc |
| 7 | Fuse box | 1 pc |
| 8 | 1.5A fuse | 2 pc |
| 9 | Screws | 4 pc |
| 11 | Power cable | 1 pc |