Instruction Manual

MOBILEMULE™ 8 CHANNEL MOBILE DVR WITH GPS TRACKING AND LIVE VIDEO OPTIONS

RVS-6400

VEHICLE SAFETY - IT'S ALL WE DO.™
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Before You Start

- Read this manual carefully before installation.
- Do not use this system in a rainy or humid environment.
- If any solid/liquid goes inside the system, cut off the power immediately.
- Do not attempt to repair/disassemble DVR. Please contact our tech team with any problems.
- The initial password is NULL.
- DVR Power Range: DC6V - DC36V
- Unplug from power completely if you are not using system for an extended amount of time.
- Do not install system in an environment with water, moisture, dust, direct sunlight or anywhere near a heat source.
- Install DVR in a well ventilated area / do not block the air vents
## 2 Product Specification

<table>
<thead>
<tr>
<th>Item</th>
<th>Device parameter</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main processor</td>
<td>Hi3520DV300</td>
<td></td>
</tr>
<tr>
<td>Operating system</td>
<td>Embedded Linux OS</td>
<td></td>
</tr>
<tr>
<td>Operating language</td>
<td>Chinese/English</td>
<td></td>
</tr>
<tr>
<td>Operating interface</td>
<td>GUI, support mouse</td>
<td></td>
</tr>
<tr>
<td>Password security</td>
<td>User password/Admin password</td>
<td></td>
</tr>
<tr>
<td>Audio &amp; Video</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video standard</td>
<td>PAL/NTSC</td>
<td></td>
</tr>
<tr>
<td>Video compression</td>
<td>H.264</td>
<td></td>
</tr>
<tr>
<td>Image resolution</td>
<td>1080p/720p/960H/D1/CIF</td>
<td></td>
</tr>
<tr>
<td>Playback quality</td>
<td>1080p/720p/960H/D1/CIF</td>
<td></td>
</tr>
<tr>
<td>Compound mode</td>
<td>A variety of ways</td>
<td></td>
</tr>
<tr>
<td>Image display</td>
<td>Single/split/QUAD display optional</td>
<td></td>
</tr>
<tr>
<td>Audio Compression</td>
<td>G. 711</td>
<td></td>
</tr>
<tr>
<td>Audio recording</td>
<td>Audio &amp; Video synchronized recording</td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td>8-Channel aviation type VIDEO.</td>
<td></td>
</tr>
<tr>
<td>Audio</td>
<td>8-Channel aviation type AUDIO</td>
<td></td>
</tr>
<tr>
<td>Video output</td>
<td>VGA or aircraft</td>
<td></td>
</tr>
<tr>
<td>Recording &amp; Playback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recording mode</td>
<td>Manual/Alarm</td>
<td></td>
</tr>
<tr>
<td>Video bit rate</td>
<td>Full frame 4096Mbps, 6 classes image quality optional</td>
<td></td>
</tr>
<tr>
<td>Audio bit rate</td>
<td>8KB/s</td>
<td></td>
</tr>
<tr>
<td>Storage media</td>
<td>SD card + HDD/SSD storage</td>
<td></td>
</tr>
<tr>
<td>Video inquiry</td>
<td>Inquiry by channel/Recording type</td>
<td></td>
</tr>
<tr>
<td>Local playback</td>
<td>Playback by file</td>
<td></td>
</tr>
<tr>
<td>Firmware upgrading</td>
<td>Upgrading mode</td>
<td>Manual/Automatical/Remote</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td></td>
<td>Upgrading method</td>
<td>USB disk/Wireless network/SD card</td>
</tr>
<tr>
<td>Interface</td>
<td>AV input</td>
<td>4ch aviation interface</td>
</tr>
<tr>
<td></td>
<td>HDD/SSD</td>
<td>1 HDD/SSD (up to 2TB, support hot plug/unplug)</td>
</tr>
<tr>
<td></td>
<td>SD card</td>
<td>1 SDXC High speed card (up to 512GB)</td>
</tr>
<tr>
<td></td>
<td>USB interface</td>
<td>1 USB 2.0 (support U disk/mouse/upgrade)</td>
</tr>
<tr>
<td></td>
<td>Ignition input</td>
<td>1 ACC signal</td>
</tr>
<tr>
<td></td>
<td>UART</td>
<td>1 LVTTTL Level</td>
</tr>
<tr>
<td>LED Indication</td>
<td>PWR/RUN</td>
<td></td>
</tr>
<tr>
<td>Disk lock</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Debug port</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Function extention</td>
<td>GPS/BD</td>
<td>Support detecting antenna Plug in/Unplug/Short circuit</td>
</tr>
<tr>
<td></td>
<td>3G/4G</td>
<td>Supports CDMA/EVDO/GPRS/WCDMA/FDD LTE/TDD LTE (Certain models)</td>
</tr>
<tr>
<td></td>
<td>WIFI</td>
<td>802.11b/g/n, 2.4GHz (Certain models)</td>
</tr>
<tr>
<td>Alarm</td>
<td>8Ch input , 2 alarmoutput (screen ,I/O)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>Power input</td>
<td>8~36V DC</td>
</tr>
<tr>
<td></td>
<td>Power output</td>
<td>5V 300mA</td>
</tr>
</tbody>
</table>
|                    | Power consumption | Standby 3mA  
|                    |                | Maximum consumption 15W @12V1.5A @24V 0.7A |
|                    | Working temperature | -25 --- 80°C/ RH 95Max |
|                    | Storage        | 1080N 1.2G/h/channel  
|                    |                | 720P 1G/h/channel  
|                    |                | 960H 750M/h/channel  |
|                    | Dimension      | 156*187*53.5mm(W x D x H), weight:2.0kg |
3 Front/Back Panel

3.1 Front Panel Interface

<table>
<thead>
<tr>
<th>Interface (LED)</th>
<th>Serial number</th>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>PWR</td>
<td>Power LED, light on when power works normally</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>ARM</td>
<td>Alarm LED, light on when device works abnormally</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>REC</td>
<td>Recording LED, light on when recording</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>HDD</td>
<td>Light on when 2.5 &quot; HDD is working</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>3G</td>
<td>Light on when 3G network connected</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>SD</td>
<td>Light on when SD card exists</td>
</tr>
</tbody>
</table>
3.2 Back panel interface
<table>
<thead>
<tr>
<th>Name</th>
<th>Serial number</th>
<th>Machine silkprint</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power interface</td>
<td>1</td>
<td>PWR_IN</td>
<td>Power input interface, DC6V~DC36V</td>
</tr>
<tr>
<td>Network</td>
<td>2</td>
<td>VGA</td>
<td>VGA connection</td>
</tr>
<tr>
<td>Video and audio input interface</td>
<td>3</td>
<td>AV1</td>
<td>Pin 1 is VDD(+12V), pin 2 is GND, pin 3 is audio input, pin 4 is video input.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>AV2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AV8</td>
<td></td>
</tr>
<tr>
<td>Alarm I/O interface</td>
<td>5</td>
<td>I/O</td>
<td>Input vehicle speed pulse signal, differential input; RS232 and RS485 serial data communication interface; alarm interface; 12V and 5V power output interface</td>
</tr>
<tr>
<td>Antenna</td>
<td>6</td>
<td>WIFI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>GPS</td>
<td>WIFI, GPS, 3G antenna interface</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>3G</td>
<td></td>
</tr>
</tbody>
</table>
3.3 Wiring instruction

3.3.1 AV input cable

![Diagram of AV input cable]

<table>
<thead>
<tr>
<th>Wire</th>
<th>Input</th>
<th>Mark on the cable end</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V power supply</td>
<td>1</td>
<td>12V</td>
</tr>
<tr>
<td>for video camera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground wire</td>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>Audio pickup input wire</td>
<td>3</td>
<td>A-IN</td>
</tr>
<tr>
<td>Video input wire</td>
<td>4</td>
<td>V-IN</td>
</tr>
</tbody>
</table>

Table 3

3.3.2 Power Cable

![Power input cable]
The power cable shown in picture four ends in a 6 pin white plug. This connects to the 6 pin white socket on the back of the DVR. The red (+) and black (ground) connect to the vehicle directly. The yellow cable is connected to ignition. The DVR will start when the vehicle is turned on and have a delayed shut out when the vehicle is turned off.

Notes:

1) Voltage must be between DC 6V-36V

2) Confirm cables are insulated after connected

3) Yellow cable is connected to ignition

4) Red and Black wires are connected to power/ground
3.3.3 Alarm I/O

The device has an interface with 4 alarm inputs and 2 alarm outputs. These alarms can be connected to a variety of triggers. The principle diagram of brake detection is as shown below.

When the brake pedal is pressed, the DVR is able to detect the high level or the low level.
The alarm outputs have a maximum current capability of 200MA. If you want to drive a device with higher current requirement, you must connect external relay. Shown below is the alarm output wiring diagram.

Picture 7: The principle diagram of the brake detection

Picture 8: Alarm principle diagram
3.4 Device Installation Guide

3.4.1 Unpack and check accessories

After unpacking, please check the device for damage or deformation. If there are, please do not install the device and get in touch with the supplier. In the product box there is a packing list. Please cross check this list with the device and its accompanying accessories.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDVR</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Screw for HDD enclosure</td>
<td>4</td>
<td>Size: PWM: 3*12</td>
</tr>
<tr>
<td>Digital LCD monitor</td>
<td>1</td>
<td>optional</td>
</tr>
<tr>
<td>CD</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>GPS antenna</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Wi-fi antenna</td>
<td>1</td>
<td>optional</td>
</tr>
<tr>
<td>3G/4G antenna</td>
<td>1</td>
<td>optional</td>
</tr>
</tbody>
</table>

Table 4: Packing list

Red wire is 12V positive, black is ground, yellow is video, green is audio.

3.4.2 Installation instructions of SD card, HDD enclosure, shell and stand

The SD card can be inserted from the front of the DVR. The SD card should be placed into SD card port.

1. SD card installation instruction
Open the DVR to see both the SIM and SD card slots:
As shown in the figure, loosen the two screws on the left and right sides of the hard disk box with a screwdriver. Remove the hard drive.

Picture 11  Hard Drive figure 1
Take the four screws out of the hard drive

Remove the drive after taking out the screws.
Keyboard Input
System can use numbers, lower/uppercase English letters and Chinese Characters.

DVR Operation Guide
Right click to open login interface:
Input Username/password, click OK to login to the menu.
5.1 User Login

Default Username is admin, with no password.
5.2 Video Preview

5.3 System setting
5.3.1 General Setting

5.3.2 Video Setting
5.3.3 Record settings

5.3.4 Alarm control
Camera Settings

Set CH Trigger/Delay Time/ Distance Grid Line

5.3.5 Motion Detection
5.3.6 Monitor Display

The grid lines are adjustable (dragging the purple points). After adjustment, right click the mouse to save settings.
5.4 Advanced Options

5.4.1 System upgrade

Copy the upgrading file to the root directory of the USB disk. Then re-power on the device, it will automatically upgrade.
5.4.2 Restore Default

![Restore Default interface]

Copy Configuration File
1) Click Backup
2) Disconnect Mouse
3) Connect USB Device
4) Will Display "Congratulations, Action Succeeded!"

Copy Configuration File
1) Click Resume
2) Disconnect Mouse
3) Connect USB Device
4) Will Display "Congratulations, Action Succeeded!"

5.4.3 Display settings

Margin settings: Adjust to your monitor

![Display Settings interface]
5.4.4 Username

5.4.5 Encode Overview
5.5 System Info

**System Info**

- Memory Info
- Version Info
- Return

**Version info**

- KERNEL VERSION: D2017102301
- FILESYSTEM VERSION: D2017102301
- SOFTWARE VERSION: V2017112001
- MCU VERSION:
5.6 File Backup

5.7 Disk Management

Disk need to be formatted in the device when using it for the first time. If the disk was not detected by the device, confirm the device is locked.
5.8 Vehicle settings

5.8.1 Basic Info.

If you want to change the vehicle ID number, please login with password "szmzkj"
5.8.2 G-sensor

![G-sensor interface]

5.8.3 Power Management

![Power Management interface]
5.8.4 Wi-Fi setting

The device can save 6 WiFi ESSID (Access Points). Turn on "WiFi" and save as show below.

![Wi-Fi setting interface]

Then "Scan" it will search, match, connect, and switch automatically. You will see the available WiFi around your area, select the one you want to connect and input the password (PSK) and save it.

5.8.4.1 Network Status

![Network Status interface]
5.8.5 3G /4G Setup

The device will detect the 3G/4G Module Type automatically. Insert the right SIM card which corresponding with the Module Type detected. Putting in the wireless account will automatically connect it. If it does not connect, consult your SIM card carrier or search on Internet to make sure you put the correct parameters (Dial Number, login Name, Password). If you use VPN, please consult your telecom carrier to get the correct parameters.

5.8.5.1 3G /4G Status
5.8.6 Network Settings

We have set it with our server in factory, if you wish to use a different server please set your server’s IP (or Domain), the Port should be same with your server setup.

![Network Settings Screen](image)

5.9 Playback

![Playback Screen](image)
6 FAQ

1) The monitor shows the time but no video, and the picture is black.
   A) Check whether the video signal cable and power cable of camera are properly connected, and camera is working normally.
   B) Check whether the preview switch of display setting is off or not.

2) When the DVR starts up with an SD card, it can’t record.
   A) Please confirm that the SD card has been formatted in the machine
   B) Turn the DVR off and reinsert the SD card.

3) Displayed video picture frozen on monitor.
   A) MDVR may be interfered and system is error. Please turn off MDVR and restart it.

4) DVR stops recording and switches to standby status
   A) Check in SD card is properly inserted.
   B) Check DVR power supply

5) Recorded video won’t play on computer
   A) Confirm correct software.

6) Playing video files are computer has obvious halt.
   A) Please confirm speed of SD card.

7) Recording time is too short.
   A) Excessive file fragments generate due to repeated usage. Please format the SD card completely before reuse.

8) DVR time is incorrect.
   A) You may have set the wrong time or did not press the "confirm" after you modified the time.
   B) Replace battery

9) Video playback has no voice.
   A) Microphone is not connected
   B) The “Audio” option of record setup is set to OFF.
   C) Playback interface is set mute.

10) Mobile Detection does not work.
    A) The moving object is not in detection area.
    B) Sensitivity is set too low.

11) Remote control does not work well.
    A) Control distance is too long
    B) Change battery
    C) Remote control or front panel of DVR is damaged.

12) There is no video output or signal distortion occurs.
    A) Check whether the power cable connecting camera is loose
    B) Check whether the video cable of DVR is loose.
    C) Check whether the camera is damaged.
D) Check whether video source and display device connection
E) Check whether the format selection between PAL and NTSC is wrong.

13) Alarm I/O does not work
   A) Alarm is set wrong.
   B) The connection of alarm is wrong.
   C) The input signal of alarm is wrong.

14) DVR does not delay shutting down under the ignition mode
   A) Delay time is not set.
   B) Video recorder not reset after delay time was set
If you have any questions about this product, contact:

Rear View Safety, Inc.
1797 Atlantic Avenue
Brooklyn, NY 11233
800.764.1028

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