Instruction Manual

DUAL CAMERA EXTENDABLE MOBILE DVR
WITH GPS TRACKING AND LIVE REMOTE VIEWING

RVS-6000

VEHICLE SAFETY - IT'S ALL WE DO.™
1. Use 12V/5A DC adapter while testing

2. System uses TF card (range 16GB-256GB) with a speed CLASS 10 or above.

3. 12V output device can only connect to low-power external devices.
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PRODUCT OVERVIEW

The Trong MobileMule™ 2 Channel Mobile DVR features advanced H.264 video compression and decompression, wireless transmission, and GPS tracking.

Features

- Compact design, low power, highly efficient H.264 compression
- 2CH 1080P HD + 2CH 720P HD + 1CH IPC recording, supports 2TB external hard disk & 256GB TF card (2 microSD 128GB)
- Optional 3G/4G functions
- Built-in G-sensor
- Built-in GPS, WIFI functions
- Power delay shut off, optional inside-laid UPS battery
- External ports, incl. 1x RS232, 1x RS485, 6x alarm in & 2x alarm out ports
- Automatic trigger switch
- Control settings with mouse
- Export of video recordings directly via USB port
- Advanced CMS platform
- Intuitive video playback software

Main Functions

<table>
<thead>
<tr>
<th>FUNCTIONS</th>
<th>DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Communications</td>
<td>WiFi/3G/4G network allow multiple features: real-time monitoring, video download, two way communication, parameter configuration, remote upgrade, use of remote control.</td>
</tr>
<tr>
<td>Recording</td>
<td>5 channel HD video event recorder equipped with a wide range of features and settings, designed especially for commercial applications.</td>
</tr>
<tr>
<td></td>
<td>PAL for example: support D1/720p/1080p @25fps.</td>
</tr>
<tr>
<td></td>
<td>Support PAL; NTSC</td>
</tr>
<tr>
<td></td>
<td>OTF overlay info (time, channel, vehicle ID, GPS, speed)</td>
</tr>
<tr>
<td>Storage &amp; Playback</td>
<td>Supports 2x 256GB TF storage &amp; 1x 2TB HDD</td>
</tr>
<tr>
<td></td>
<td>Supports 5CH AV synchronous playback</td>
</tr>
<tr>
<td></td>
<td>Supports PC playback</td>
</tr>
<tr>
<td></td>
<td>Supports remote search and playback</td>
</tr>
<tr>
<td></td>
<td>Supports play, pause, speed control</td>
</tr>
<tr>
<td>Black Box Function</td>
<td>Recording incl. speed, GPS, temperature</td>
</tr>
<tr>
<td></td>
<td>Support 8x triggers (Extended Version)</td>
</tr>
<tr>
<td></td>
<td>Supports local recording with vehicle info display</td>
</tr>
<tr>
<td></td>
<td>Supports real-time upload remotely, and history search and check</td>
</tr>
</tbody>
</table>
### Specifications

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PARAMETER</th>
<th>PERFORMANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td></td>
<td>English / Chinese</td>
</tr>
<tr>
<td>Operation System</td>
<td></td>
<td>Linux</td>
</tr>
<tr>
<td>Interface</td>
<td></td>
<td>Imaging menu operation interface (OTF Menu)</td>
</tr>
<tr>
<td>Password Security</td>
<td></td>
<td>Two levels authority: admin, user</td>
</tr>
<tr>
<td><strong>Video</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Input</td>
<td></td>
<td>4 HD+ 1 IPC video input</td>
</tr>
<tr>
<td>Video Output</td>
<td></td>
<td>1 composite video output</td>
</tr>
<tr>
<td>Video standard</td>
<td></td>
<td>PAL, NTSC</td>
</tr>
<tr>
<td>Video compression</td>
<td></td>
<td>H.264 Main profile, 100 frame / sec</td>
</tr>
<tr>
<td>Video Display</td>
<td></td>
<td>Single/Quad screen video</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio Input</td>
<td></td>
<td>2 audio input</td>
</tr>
<tr>
<td>Audio Output</td>
<td></td>
<td>1 audio output</td>
</tr>
<tr>
<td>Audio Code</td>
<td></td>
<td>G726</td>
</tr>
<tr>
<td>Way of recording</td>
<td></td>
<td>Simultaneous AV recording</td>
</tr>
<tr>
<td>Image format</td>
<td></td>
<td>D1/720P/1080P optional</td>
</tr>
<tr>
<td>Standard of Video Stream</td>
<td></td>
<td>ISO14496-10</td>
</tr>
<tr>
<td><strong>Image Processing &amp; Storage</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video code rate</td>
<td></td>
<td>D1: 2048Kbps ~ 400Kbps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>720p: 2048Kbps ~ 4096Kbps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1080P: 2048Kbps ~ 8192Kbps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 levels of image quality: class 1 the highest and class 8 the lowest.</td>
</tr>
<tr>
<td>Audio Code Rate</td>
<td></td>
<td>40KB/s</td>
</tr>
<tr>
<td>Data Storage</td>
<td></td>
<td>Support 2x 256GB TF storage &amp; 1x 2TB HDD &amp;</td>
</tr>
<tr>
<td><strong>Alarm</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarm input</td>
<td></td>
<td>6x Alarm input</td>
</tr>
<tr>
<td>Alarm output</td>
<td></td>
<td>2x Alarm output, with 12V high electrical level</td>
</tr>
<tr>
<td><strong>Communication Port</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS232 port</td>
<td></td>
<td>1x RS232</td>
</tr>
<tr>
<td>RS485 port</td>
<td></td>
<td>1x RS485</td>
</tr>
<tr>
<td><strong>Extendable Port</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercom</td>
<td></td>
<td>support</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>LED panel</td>
</tr>
<tr>
<td><strong>Wireless Modules</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3G WCDMA</td>
<td></td>
<td>optional</td>
</tr>
<tr>
<td>4G LTE</td>
<td></td>
<td>optional, support TD-LTE/FDD-LTE</td>
</tr>
<tr>
<td>WIFI</td>
<td></td>
<td>Built-in</td>
</tr>
<tr>
<td>GPS</td>
<td></td>
<td>Built-in</td>
</tr>
<tr>
<td><strong>Acceleration sensor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G-sensor</td>
<td></td>
<td>Built-in</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle Network Management System (CMS)</td>
<td></td>
<td>3G/4G video monitoring and GPS tracking etc. PC/ Web/Android platforms, multi-languages.</td>
</tr>
<tr>
<td>Vehicle Analysis Software (VAS)</td>
<td></td>
<td>Video playback and analysis</td>
</tr>
</tbody>
</table>
## Working Parameters

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameter</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Input</strong></td>
<td>+8V ~ +36V</td>
<td>Voltage Input: +8V~+36V</td>
</tr>
<tr>
<td><strong>Power Output</strong></td>
<td>12V</td>
<td>Voltage output 12V (+/-0.2V 0), current for max. 4A</td>
</tr>
<tr>
<td><strong>ACC</strong></td>
<td>≤6V</td>
<td>ACC Off</td>
</tr>
<tr>
<td></td>
<td>≥7.5V</td>
<td>ACC On</td>
</tr>
<tr>
<td><strong>Video Input Impedance</strong></td>
<td>75Ω</td>
<td>Average 75Ω per video channel</td>
</tr>
<tr>
<td><strong>Video Output Voltage</strong></td>
<td>2V p-p</td>
<td>75Ω per each 2V p-p CVBS signal</td>
</tr>
<tr>
<td><strong>I/O Interface</strong></td>
<td>0-4V</td>
<td>Defined as low level alarm</td>
</tr>
<tr>
<td></td>
<td>&gt; 4V</td>
<td>Defined as high level alarm</td>
</tr>
<tr>
<td><strong>TF Card Interface</strong></td>
<td>1x HDD slots 2x TF slots</td>
<td>HDD (Hard Disk) of 2.5” SATA, 2TB max. TF card of current brands, 2 X 256GB max. TF card can be used for recording, upgrade etc.</td>
</tr>
<tr>
<td><strong>Working Temperature</strong></td>
<td>-30°C~+85°C</td>
<td>Store in a ventilated area.</td>
</tr>
</tbody>
</table>
1. PRODUCT OVERVIEW

Dimensions

Vehicle Safety - It’s All We Do.™
2. OPERATION

Note: Remote is only included in RVS-6001-TE version. This version setup with a monitor or via the free Trong app. The RVS-6001-T must be setup with the Trong app, as it cannot be connected to a monitor.

Remote

<table>
<thead>
<tr>
<th>LOGIN</th>
<th>Press LOGIN to enter password of MDVR. Note: password cannot be reset or retrieved, make sure you remember the password.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power button</td>
<td></td>
</tr>
<tr>
<td>0-9 number keys</td>
<td>Switch to single channel view by pressing 1-9. It’s also for volume and lightness setting.</td>
</tr>
<tr>
<td>INFO</td>
<td>A short key to check device running status, includes: 3G/GPS, alarm, disk recording and device version etc.</td>
</tr>
<tr>
<td></td>
<td>Switch 4-8-1 image.</td>
</tr>
<tr>
<td></td>
<td>UP, DOWN, LEFT, RIGHT. It also is used to control fast and slow speed of player. The UP and DOWN also be used to switch 1-4, 5-8 image.</td>
</tr>
<tr>
<td>[OK]</td>
<td>Confirm</td>
</tr>
<tr>
<td>[ ]</td>
<td>Pause/Play when video playback.</td>
</tr>
<tr>
<td>PLAY</td>
<td>Start to play video</td>
</tr>
<tr>
<td>RETURN</td>
<td>Return to the previous menu</td>
</tr>
<tr>
<td>CANCEL</td>
<td>Cancel or backwards</td>
</tr>
<tr>
<td>- + symbols</td>
<td>Space delimiter when editing; Volume adjustment</td>
</tr>
<tr>
<td>F1, F2, F3, F4</td>
<td>N/A</td>
</tr>
</tbody>
</table>

LOGIN

There are two levels for login: ADMIN, USER
MAIN MENU
Settings include “Search, System, Record, Network, Alarm, Info”

SYSTEM
Settings include “Terminal, Password, Time, Power, Parameter, Format”.

Terminal

- Dev ID.: device number, factory appointed, cannot change
- Phone NO: unique ID recognized by server
- Plate NO: car plate number
- Server 1 Protocol: choose T-protocol
Password

- Password: ON/OFF, to enable or disable password login.

Note

Only ADMIN can change password; USER can only view. The password must be 6-digit numbers and cannot be the same. Default password for admin is 111111, user is 000000

Time

- Date Type: incl. YY/MM/DD, M/D/YY, DD/MM/YY. Press OK to choose.
- Date: press number keys to enter
- Time: format “hour/minute/second”. Press number keys to enter
- Time Sync: OFF/GPS/NTP for choice according to need
- Time Out: incl. 60/120/300/600s. The screen will auto back to booting image if no operation of remote controller within the set time.
- NTP: Network Time Protocol, auto adjust time via internet
- DST mode: Daylight Saving Time
Power Management

- Power Mode: Incl. Acc/timed mode, press OK to show the options
  Acc: Power on/off controlled by car key switch
  Timed Mode: power on/off controlled by the set time.
- Delay Off: only effected under ignition mode. After car key is closed, device will continue
  working till set delay time comes an end, after, device is back to standby status.
- Screen Time: No video or image if no operation of remote controller within the set time.
- Power On: time to power on under “timing mode”
- Power Off: time to power off under “timing mode”
- Rec Delay: the time for allowing recording within "delay off time"
- Record: choose which channel for recording for "Rec Delay".

Parameter Management

- Import: to import current parameter settings to TF card, for batch applying
- Export: to export external parameter settings from TF card, for batch applying
- Save setting: Save current setting as future default.
- Factory default: Restore current setting to factory default.
- Recover setting: Restore current setting to saved default.
Disk Format

DISK1 is TF card; DISK2 is hard disk.

IMPORTANT: All data will be wiped off after format.

Auto disk format upon booting: Usually if the inserted disk is brand new, or it's not DVR's recognized FAT32 type, DVR will auto format the disk when it is turned on. This may take up to 10 min depending on hard disk size. Once format is complete, a red dot recording lights will appear on screen. The DVR may not recognize the format complete from computer (PC).

RECORD

Settings incl. “General, Main Rec, Sub Rec, Timed Rec, Storage, OTF”.
**General**

- TV System: incl. PAL/NTSC, press OK to choose
- Record Mode: incl. auto/time/alarm. Press OK to choose. In “auto mode”, recording will auto begin when device is power on. In “time mode”, recording only happens in set time. For “alarm mode”, recording only happens when alarm appears.
- Camera Type: allows max 2x 1080P/4x 1080N/2x 1080P+2x 720P/2x 1080P+2x D1 camera
- Input Resolution: resolution supports 720*576

**Main Rec**

- EN: ON means the channel recording is open; OFF means the channel recording is closed.
- RES: resolution incl. 1080, 720p, D1, HD1 and CIF. For example, in PAL system, 1080 is 1920*1080, 720p is 1280*720, D1 is 704*576, HD1 is 704*288; CIF is 352*288.
- FPS: the frames taken per second. PAL range 1-25fps, NTSC range 1-30fps
- QUA: image quality (grade 1-8). Grade 1 being the best quality
- AUDIO: enable/disable audio recording with video recording
- FLIP: options incl. mirror(left-right), flip(up-down), or mirror/flip mixed mode.
- QuickSet: Quick setting for all channels.
Sub Rec

- RES: resolution incl. D1, HD1 and CIF. For example, in PAL system, D1 is 704*576, HD1 is 704*288; CIF is 352*288.
- FPS: the frames taken per second. PAL range 1-25fps, NTSC range 1-30fps
- QUA: image quality (grade 1-7). Grade 1 is the highest quality
- Timed Record

- Users can set up to 4x period for each individual day
- ALL: Setting for every day

*Note:* Start time cannot be later than the finish time.
Storage

- Alm Pre Rec: the time for recording before alarm is triggered
- Alarm Delay: the time for recording after alarm is aborted
- Alarm file protection: optional 3-45 days, files within protecting period won’t be auto covered.
- Alarm file to server: ways incl. “NO (turn off), CMS, FTP”.
- Usage: choose use of chosen disk incl. “NO (turn off), Record, Mirror, Backup”

OSD

- Enable: ON to enable and OFF to disable info to show on recordings.
- X/Y pixel: not necessary to set, except when output resolution does not match the terminal screen resolution.
SEARCH

Settings incl. “Video, Log, Picture”.

Video Search

- Calendar: green means normal recording, red means alarm recording, blue means no recording on selected date
- Date: date of recordings
- Start time: starting time of recordings
- End time: ending time of recordings
- Video type: incl. All/Alarm
- Disk type: search recordings of selected disk, incl. main/mirror (disk being used for mirror recording)/spare (external storage from USB port)

Move cursor to “Search” and press OK, to enter search result page.
Search Results

Each file includes 4 video channels. If video is lost, recordings are still generated but playback screen is black with only date/time info.

Log Search

To check running status from results based on parameters selected.

Picture Search

To check pictures which are saved into disk based on certain parameter setting. The picture can also be "exported" to an external u-disk.
Network
Settings incl. "Center, LAN, 3G/4G, WIFI ".

Center

- Center 1: parameters for connecting server
- Center 2: parameters for connecting certain server (*reserved)
- Port: port number for connecting server
- Upgrade: parameters for remote upgrading local device.
  - IP: IP address of ftp server
  - Port: port number of ftp server
  - User/Password: login info of ftp server
LAN

- **Type**: way of connection incl. Local/WIFI/Peripheral (external way).
  - Cabled: connection via RJ45 network port
  - WIFI: connection via outer laid WIFI
  - External: connection by using MDVR’s internal net card as router, which depends on module capability.
- **IP**: IP address of MDVR.

For rest parameters pls set accordingly.

3G/4G

- **Enable**: ON/OFF means to enable or disable 3G/4G connection.
- **NetType**: 3G pls choose WCDMA, 4G pls choose FDDLTE-2

For the rest settings pls consult with your SIM card carrier accordingly.
### WIFI

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable</td>
<td>ON/OFF means to enable or disable WIFI connection.</td>
</tr>
<tr>
<td>AuthMode</td>
<td>the authority type, incl. Open/Share/WPA/WAP-PSK to choose accordingly.</td>
</tr>
<tr>
<td>EncType</td>
<td>the encryption type incl. NONE/WEP/TKIP/AES to choose accordingly.</td>
</tr>
<tr>
<td>IP</td>
<td>here the IP should not be in a same segment with the IP at “LAN set”. E.g., if LAN set IP is 192.168.AAA.001, here the “AAA” should be different in this place.</td>
</tr>
</tbody>
</table>

For rest parameters pls set accordingly.

### ALARM

Settings incl. "IO, Speed, G-Sensor, VD Detect, Voltage, Serial, PTZ ".

![Diagram of ALARM settings](image-url)
**IO**

- Enable: incl. “OFF, Emergency, Front Door, Middle Door, Back Door, Driver Door, Other Door, Near Beam, Distant Beam, Right Beam, Left Beam, Braking, Reverse, Fog Lamp, Position Light, Horn, Air Conditioner, Neutral Gear, Retarder, ABS, Heater, Clutch, Door Sensor, Smoke Sensor, Customize”
- Level: the “Electrical level”. User defined whether high or low electrical level treated as alarm. By default, 0~4V is low level, 4~25V is high level
- Delay: the set period ensures only one alarm is processed during the set period, instead of the same alarm be read more than once
- Hold: be treated as an alarm when alarm length surpassing the set period
- Record: enable or disable recording when there’s alarms
- Linkage: means “alarm linkage”. OFF or user defined to an external device like alarm lamp
- Preview: assign a channel for alarm live video with full screen image

**Speed**

- Speed Source: incl. GPS/Vehicle/Mix. **Note:** the “vehicle” needs work together with “Pulse”.
- Pulse: the pulse rotation rate per a kilometer. It works when “vehicle” is set as speed source.
- L-ALM: alarm be triggered when speed surpassing limit value
- L-Warn: alarm be triggered when speed surpassing limit value
- H-Warn: alarm be triggered when speed surpassing limit value
- H-ALM: alarm be triggered when speed surpassing limit value
- Limit: edge value for alarm trigger
- Hold: treated as an alarm when alarm length surpassing the set period.
- Record: choose whether to activate alarm recording or not.
- Linkage: means “alarm linkage”. OFF or user defined to an external device like alarm lamp

**G-Sensor**

G-Sensor alarm is detected by changes from x, y and z axis. Adjust before first use.
- Enable: enable or disable
- Limit: set the edge value for alarm triggering
- Hold: be treated as an alarm when alarm length surpassing the set period.
- Record: choose whether to activate alarm recording or not.
- Linkage: means "alarm linkage". OFF or user defined to an external device like alarm lamp
- Delay: if triggered event is longer than preset time, it's considered as an alarm.
- Adjust: reset X Y Z value to normal reaction.

**Video Detect**

- Enable: the enable or disable video detection.
- Limit: alarm threshold
- Sense: 3 levels to choose about sensitivity
- Record: whether to need recording when alarm appears
- Linkage: connection of external alarm device.
- Delay: if triggered event is longer than preset time, then it's considered as an alarm.

Voltage

- L-V: alarm be triggered if voltage is lower than threshold value
- H-V: alarm be triggered if voltage is higher than threshold value
- Limit: edge value for alarm triggering
- Hold: be treated as an alarm when alarm length surpassing the set period.
- Linkage: means “alarm linkage”. OFF or user defined to an external device like alarm lamp.
- Delay: if triggered event is longer than preset time, then it's considered as an alarm.

Serial

- COM1/COM3: the RS232, usually for short distance transmission with POS, Printer
- COM2/COM4: the RS485, usually for long distance transmission with PTZ camera

Choosing external device accordingly, the Baud will auto set itself; or set manually if external device mismatch the parameters.
INFO

System Info

Press INFO key to show running status or performance.
3. INSTALLATION

Power Cable Connection

For field installation, the anode (red) and cathode (black) should directly connect to car battery. For office testing, the anode (red) and ACC (yellow) can be combined. Lock the DVR to power on.

Server Connection

Note: This setting is for MDVR with WIFI/3G/4G functions.
Step 1: Insert a 3G/4G sim card
Step 2: Go to DVR’s “terminal set”, input a phone number. Note: this ID is a unique number recognized by server.
Step 3: Go to DVR’s “center set”, input phone number, input server IP and port number accordingly.

Serial Port

The DVR features 8x alarm inputs and 2x alarm outputs.

An alarm is detected upon changes from high and low electrical level, which can link to multi vehicle connections, incl. car brake, on/off switch and alarm button. For example, when braking light is triggered, DVR detects a high electrical level signal and output an alarm depending on setting, otherwise it’s detected as low electrical level.

The standard current is 200mA. A relay will be needed if higher power consumption is used for operation.
4. FAQ

1. Why doesn’t the DVR record when powered?

Confirm TF card is in and check status.

Types of disk status: nonexistence, unformatted, normal volume of under usage, normal volume of full usage.

- Nonexistence: no detect of TF card. Please check the computer or change to a different TF card to decide if the problem is from TF card or DVR.
- Unformatted: please try formatting from the DVR menu page and check if TF storage is shown normal after formatting.
- Normal volume of under usage: disk being normal, but storage is not full. Please check recording mode to confirm if recording is enabled.
- Normal volume of full usage: disk being normal with storage is full. Please check if disk cycle cover is open.

2. Why does the DVR frequently reboot?

The common issue: Abruptly turns on/off, recording interrupt, recording not in sequence

Reasons:

- Unstable power supply: this is most possible reason, please test input voltage when this problem appears
- Disk error: 1: try to format disk; 2. change a different or new disk
- Software or hardware problems: please remove the TF card or disk, test if issue still occurs under normal power supply. If problem continues, please send the version to technicians, or return to factory for repair if necessary.
GPS Questions

1. Why there is no GPS location info?
   - Confirm GPS module is connected
   - Check if GPS antenna is installed correctly. It's recommended to put antenna with clear line of sight to the sky, no obstruction for better signals. Though, it's normal that GPS signals may be lost when car is passing thru a tunnel, big trees, or high buildings.

2. Why there is no positioning info when the vehicle is online?
   - Check GPS interval
   - Only GPS signal being normal, there will be positioning info, make sure GPS signal is normal

3G/4G Questions

Why 3G dial up failed?
   - Check module status and 3G setting.
   - Check if the antenna is installed correctly and how strong the 3G signal is.
   - Check SIM card status making sure SIM card is activate, if already activated make sure you have enough money left on SIM if its prepaid.

Server Questions

Why I can't connect to the servers when the DVR is running?
   - Make sure 3G/4G has dialed up successfully.
   - Check if server is configured corrects at local menu, such as IP, port, and ID being unique.
   - Check if there's online vehicle to confirm if server is working normally.
If you have any questions about this product, please contact:

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800.764.1028

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