ventra

Ventra VDR-220 2 CH HD Vehicle DVR System

User Manual

Ideal For

- Vehicles
- Motorcycles / Scooter
- Golf Carts
- Fork Lifts / Construction

06 19. V1.3

(Optional - Requires)
EX22-GPSMIC

Safety Precautions

To ensure device working correctly, please test record and play video function before use. Please note that manufacturer, subsidiaries, affiliates, and distributors are not liable for any consequential damages arising from any malfunction of main device accessory. Including the losses cause by memory card that failed to record image or recorded files unable to read on any device.

Before using the product, please ensure that you read the safety precautions below. Always make sure the product is used as intended.

- Only using the power supply as recommended or supplied by Ventra
- All cables MUST be properly fastened and secured to a vehicle or motorcycle to prevent from loosening
- Do not attempt to disassemble, alter or modify the product
- To avoid the risk of injury, do not touch the interior of the product if it has been dropped or otherwise damaged
- Stop using the product immediately if it emits smoke, a strange smell, or otherwise behaves abnormally
- Do not use organic solvents such as alcohol, benzene, or thinner to clean the product
- Do not let the DVR come into contact with liquid or moisture
- Do not allow liquids or foreign objects to enter the DVR
- Do not place the DVR nearby or in direct contact with flame
- Do not handle the power cord with wet hands
- Do not use the equipment in a manner that exceeds the rated capacity of the electrical outlet or wiring accessories
- Do not use the damaged power cords or plugs
- Do not allow direct or metal objects (such as pins or keys) contact with the terminals or plugs
- Avoid using, placing or storing the product in humid or dusty areas

Windshield Mounted Device Notice

1. Please check and comply with ALL local, state and federal laws and or regulations regarding windshield mounted devices. Some state laws prohibit drivers from using suction mounts on their windshield when operating motor vehicles. Other state laws allow the suction mount to be mounted to be located only in specific locations on the windshield. Numerous states have enacted restrictions against placing objects on the windshield in locations that obstruct the driver's vision.

2. **IT IS THE USER'S RESPONSBILITY TO MOUNT VENTRA EQUIPMENT IN COMPLIANCE WITH ALL PPLICABLE LAWS AND ORDINCANCE.**

Audio and Video Recording Notice

3. Certain local, state and federal laws may prohibit recording of audio and or video in vehicles or public area, or without knowledge and or consent, please check and comply with ALL local, state and federal laws and regulations.

4. Certain local, state and federal laws may require signage or display that indicate recording of audio and or video in vehicles or public area. Please check and comply with ALL local, state and federal laws and regulations.

5. **IT IS THE USER'S RESPONSBILITY TO USE VENTRA EQUIPMENT IN COMPLIANCE WITH ALL PPLICABLE LAWS AND ORDINCANCE.**

6. Use of this product other than its intended purpose is strictly prohibited.

7. Disconnect the power of the VDR if not used for an extended period of time

8. Ventra Technologies Inc. does not assume any responsibility for any fines, violation, penalties or damages that may be incurred as a result of the use of the product.

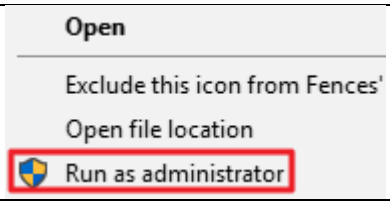
9. Ventra Technologies Inc. is not responsible for any direct, indirect, incidental or consequential damages, arising out of use, misuse or inability to use of our products.

IMPORTANT: FORMAT SD CARD PRIOR TO USE

When you use the Micro SD card for the first time or use a new card, the SD card MUST be formatted prior to use.

***Notice:**

1. Before formatting Micro SD card, please ensure to **UNLOCK** it first.
2. If the card is unlocked but still cannot be formatted, please run the program as Administrator to prevent from this problem.

1	2
	

Format steps：

i. Insert the CD in your PC and open the file

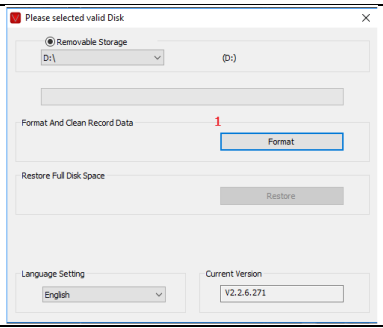
ii. Install the VDR-760 / VDR-220 PC Software

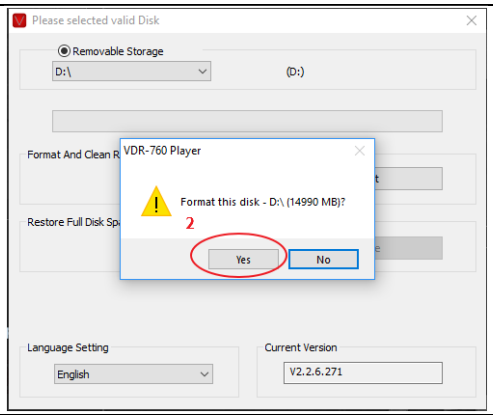
iii. Run program and click on "Format Micro SD Card".

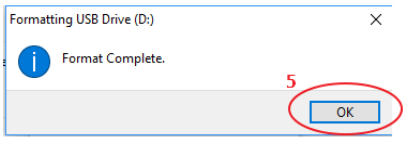
iv. Click on『Format』to start formatting the Micro SD card as following steps:

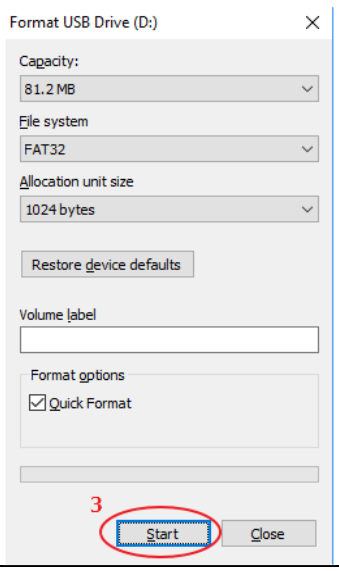
NOTICE: The SD card capacity, regardless of size 32GB, 64GB or 128GB will show 77.5 to 80.5MB

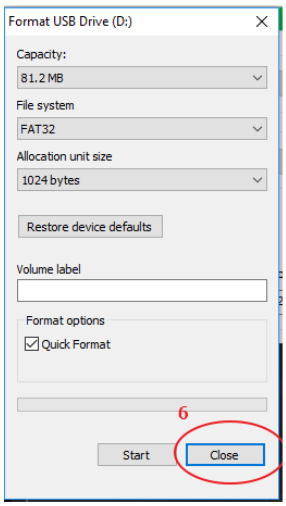
Windows 10

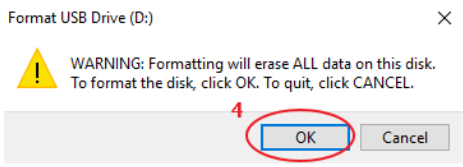


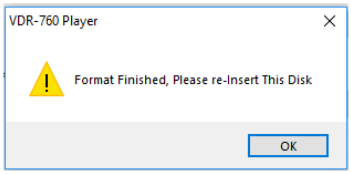






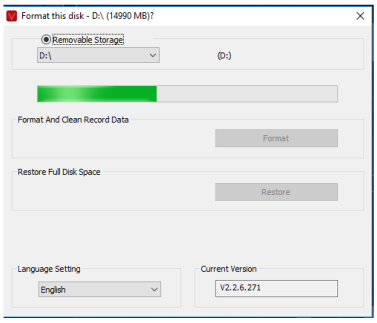






Regardless of SD card capacity (i.e. 16GB, 32GB, 64GB or 128GB

Once its formatted via the Ventra PC player or VDR760, the SD card capacity will show between **77.5MB to 80.5MB** This is due to the system design of the VDR760 and is completely normal



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Note: VDR-760 and VDR-220 utilizes proprietary file format. The SD card **MUST** be Formatted via the VDR 760 desktop software prior to use

https://ventrainc.com/ventra-products-all-in-one-vdr-760/

A. Feature Highlight

1. Kit includes Mini DVR, 2 HD outdoor rated cameras, 15ft camera cables and power cable
2. Record 720P HD Video simultaneously
3. Record HD Video, Audio, G-Sensor and GPS data (GPS and Audio recording requires EX22-GPSMIC)
4. Auto continuous loop recording
5. Normal and Event Recording Files
6. Events: Overspeed, Imact and Panic
7. Pre-Event and Post Event Recording
8. Built-in Supercapacitor for power to ensure video files are saved when system powers off
9. Plug and Play
10. 110 degree wide angle recording/viewing for both cameras
11. Driving Route and Speed history in Ventra software playback with Google Map Integration
12. G-sensor sensitivity adjustable according to vehicle type and road condition
13. Event videos are saved and marked for easy identification
14. Proprietary file format
15. Password protection
16. Assign Company and Vehicle ID
17. Wi-Fi adapter for optional VentraCloud Service

B. Specifications

Camera	
Chipset	1/4” CMOS
Camera Lens	2.0 mm
Resolution / Frames	720P 1280 x 720 @ 30 FPS each
Outdoor Rating	IP66 Outdoor Rated
Camera Angle	H:110 ° / V: 55 ° / D: 130 °
Electronic Shutter	1/60 ~ 100,000
Auto Gain Control	Auto
Back Light Compensation	Auto
White Balance	Auto
TV System	NTSC
Camera Power	DC 5V ~ 12V @ 500mA
Humidity	<90%
Temperature Range – Operating	-4F ~ 140F (-20C ~ +60C)
DVR	
Number of Cameras	2 Cameras
Resolution	2 CH 720P @ 30 FPS each
SD Card Storage	128GB SD Max. Class U1 and faster
G-Sensor	Built-in
WiFi	USB WiFi Adapter Included
Monitor Power	DC 12V
Temperature Range – Operating	-4F ~ 140F (-20C ~ +60C)
Outdoor Rating	IP66 Outdoor Rated
EX22-GPSMIC (Optional)	
LED Indicator	WiFi, Rec, GPS, Power
GPS	Passive GPS built-in
Microphone	Built-in
Outdoor Rating	IP66 Outdoor Rated
Cable	
Connection	Mini DIN (Camera extension cable can be outdoor but in conduit or sleeves

Recording Resolution and Frame Per Second (FPS)

	Camera 1	Camera 2
Resolution / FPS recording in SD card	720P @ 30 FPS	720P @ 30 FPS
Upload to Ventra Cloud Server - Event Only Videos (Optional Fee-Based Service)	720P @ 30 FPS	720P @ 30 FPS

C. Included Components

(a) Dual Channel Mini DVR
(b) 2 x 720P HD outdoor rated camera
(c) SD card* (see model below)
(d) 2 x 15ft camera cable
(e) Power cable
(f) Camera mount bracket
(g) Hard wired power cable
(h) Product CD – Software / User Guide
(i) USB WiFi Adapter

Models	**VDR-220**	**VDR-220BT**	**VDR-220ZT**
SD Card Included	32GB SD Card	64GB SD Card	128GB SD Card

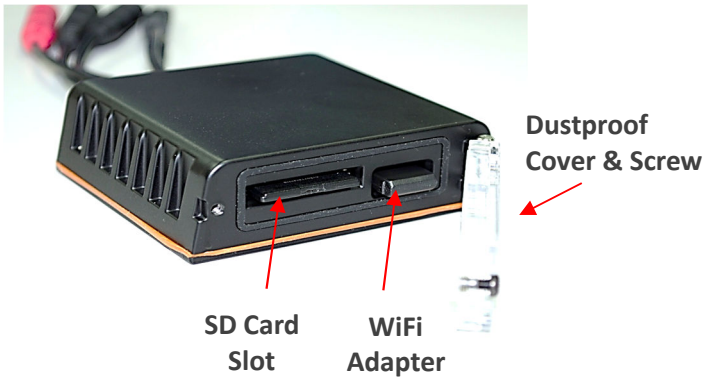
All VDR-220 models are the same except for the SD card included

Recording Time

Models	**VDR-220**	**VDR-220BT**	**VDR-220ZT**
SD Card	32GB SD Card	64GB SD Card	128GB SD Card
Recording Time	6 - 8 Hours	13 - 16 Hours	27 –32 Hours

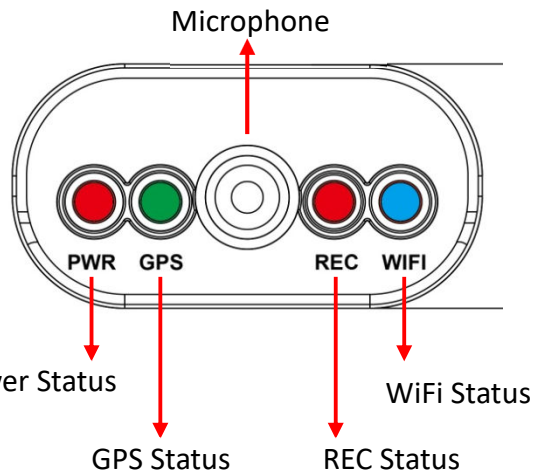
Recording duration is an approximate time provided as reference and may vary

D. Product Diagram



720P HD Outdoor Rated Camera x 2

EX22-GPSMIC
(Optional



E. Product Dimension

Unit：inch

2 CH Mini DVR
with WiFi Connectivity

(2) x 720P HD Weather
Resistant Camera w/ cable

EX22-GPSMIC
GPS Receiver, Microphone and
Status LED Indicator (OPTIONAL)

F. Installation - Power

G. VDR requires 2 wires for power: **Red** (12V DC) and **Black** (Ground) for installation. Use the power cable included with the system.

Do not modified the power cable or video cable.

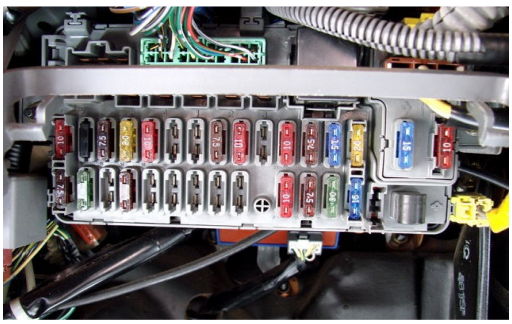
Connect power cable to vehicle fuse:

Red Wire = 12V DC Constant or IGNITION

Black = Ground

(12V Constant means VDR will power on even when vehicle is off. This will continuously draw power from the vehicle battery and may lead to battery drain.)

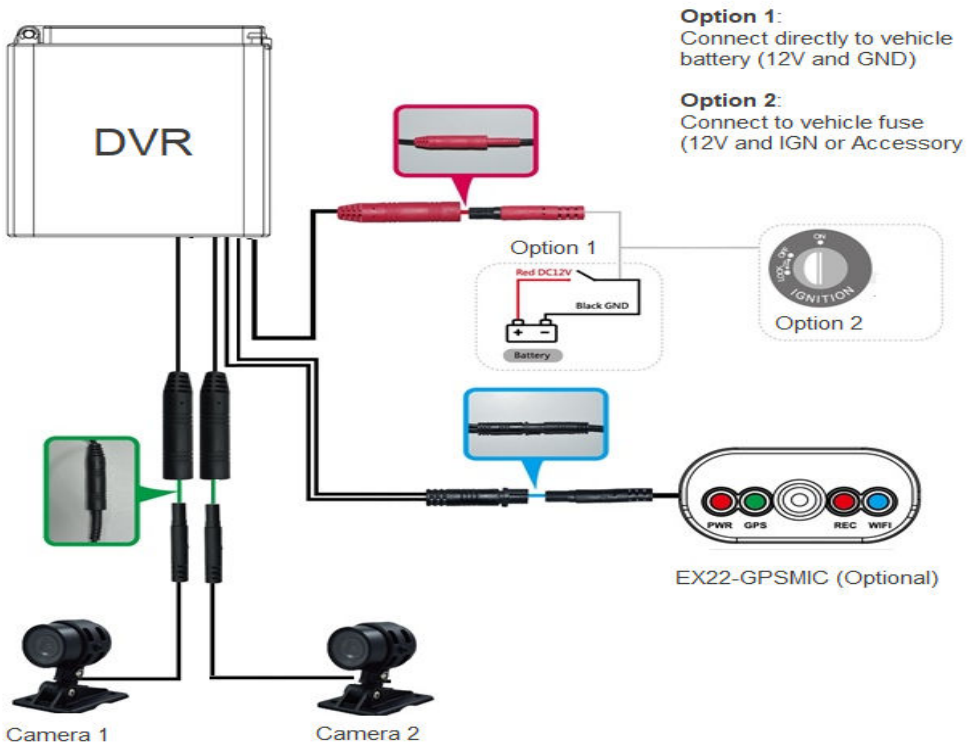
(Ignition connection is VDR only powers on when vehicle is powered on)



Power cable included with VDR

CAUTION: Professional installation is highly recommended.

Installation Diagram



Installing DVR

1. Use「Double-sided adhesive」to mount DVR to a suitable location within the vehicle or the compartment in a motorcycle.

DVR may be mounted vertically or horizontally to a flat surface

Clean the surface before mounting the DVR

NOTE: The DVR is not weather resistant and must be mounted inside a vehicle with air ventilation.

Installing Cameras

2. Identify the mounting location of the camera **BEFORE** running the cable. Once location is determined, **TEST** the camera recording angle first **PRIOR** to installing the cables inside panels and lining.

This will allow easy adjustment of camera angle as needed.

3. The Cameras are outdoor rated and can be mounted inside or outside the vehicle, motorcycle, forklifts or special machinery.

Example:

- 1 Camera is mounted on the dashboard or under the bulkhead to record the road.

  If for motorcycle, can be mounted above the headlight, near the handle bar or side panel

- 1 Camera is mounted on the rear of the vehicle or side mirror of the vehicle (depending on vehicle)

IMPORTANT:
The cable for the camera should be installed in automotive grade plastic conduit to protect from water and moisture

All cables MUST be properly fastened and secured to a vehicle or motorcycle to prevent from loosening.

Camera angle can be adjusted (Rotated) via the O-Ring on each camera

Pre-drilled holes on the base of each camera provides easy installation of screws. **NEVER** mount the camera solely with double sided adhesive. Cameras must be properly mounted and secured.

Installation Continued: EX22-GPSMIC

The optional EX22-GPSMIC is a multi-function device that can added to the system.

It should be mounted in a location with line of sight to the sky for signal acquisition (i.e. dashboard, windshield)

- System Status LED
- **Rec**: (Red) indicates system recording
- **Power**: (Red) indicates power on
- **WiFi Connection**: (Blue) Solid Blue mean WiFi connected. Flashing blue indicates WiFi not connected
- **Microphone**: To record audio
- **GPS**: (Green) Solid Green indicates GPS signal acquired. Flashing Green indicates searching GPS signal

Installation Example On Motorcycle / Scooter

Notices

(a) GPS positioning accuracy may be affected by the installation position, buildings, environment, terrain or weather condition

(b) For video clarity, install device in the wiper washable area

(c) Do NOT remove or insert SD card when DVR is powered on

(d) Tinted window film with metal components may cause GPS signal interference

(e) Before using the memory disk, please format the disk first via the VDR-760 / VDR220 Software. If not, device will automatically erase all data in the memory disk before recording, then recording as default setting

(f) To ensure recording quality, please do not use adapter card with Micro SD memory card. Doing so may lead to bad connection due to shock and vibration

(g) Memory card has life span. To ensure working correctly, please test and format the memory card on VDR-760 / VDR-220 software regularly

(h) After SD card format by VDR software, 8 GB, 16 GB, 32 GB, 64 GB or 128 GB SD card will show **77.5** - **80.5MB** storage space under Windows OS. user have to play video records by VDR-760 Software. The restore SD card also have to use the VDR-760 Software refer to format/restore memory card chapter.

(i) The collision and high frequency vibration may cause physical damage to the memory card magnetic field, resulting in video intermittent or unable to playback.

(j) It is recommended to perform regular inspection of SD card and backup of important data

H. System Recording – Normal and Event

The VDR-220 system is designed to be Easy to Install, Operate and Manage

When the vehicle powers on, VDR will automatically power on and start recording on both cameras

Ventra systems are CONTINUOUS based recording so it will always record when the vehicle and VDR is powered on.

The files are stored on the SD card and will auto loop record when the SD card is full so the oldest recordings are automatically replaced by the newest

Normal Recording: System records continuously when VDR is powered on. Video, G Sensor (shock), Audio and GPS if EX22-GPSMIC is installed

Event Recording: When an event occurs during the Normal recoding stage, the VDR will automatically switch to Event recording state and flag these events for easy identification and access

The event recording video will range between **20** to **50** seconds (**10 ~25 seconds pre event and 10 ~ 25 seconds post event**) before system reverts back to Normal recording mode.

The recordings are NOT interrupted – VDR continuously record and intelligently switches between Normal and Event recording

I. Video Playback

How to read the files from SD card

1. Power off the DVR by turning off the vehicle ignition
2. Gently push the SD into the system to eject the card
3. Remove the SD card from the DVR

4. Insert the SD card into a PC and view the recordings via the Ventra VDR 220 / 760 software

1. **Video playback**

Start the VDR 220 / VDR760 software (Included with each system)

Press button, and choose the drive the SD card is located (i.e. G Drive, E Drive..etc)

Note: Direct X 9.0 above is required for this program

VDR-220 / VDR-760 utilizes the same software and can be downloaded on the webite. Ensure the correct software is used as various Ventra model utilizes different software

https://ventrainc.com/download-ventra/

Video Playback continued

2. Software Interface Main Screen

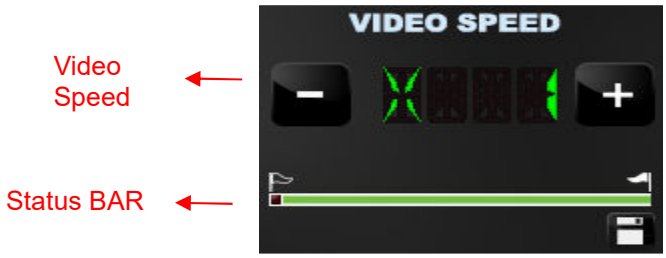
Software Interface Description:

	Pause
	Play
	Stop
	Reverse
	play previous frame
	Play next frame
	Play previous file
	Play next file

	Google Map API Key
	.TS File (uploaded event video to server, may not be applicable to all customers)
	.SD File (Native recorded file on SD card)
	Close the PC Player
	Minimize the PC Player
	Playback
	Calendar
	Backup / Save Video
	Snapshot
	Configuration
	Format
	G-Sensor Graph
	Compass

a. Speed & Volume

b. Video Playback

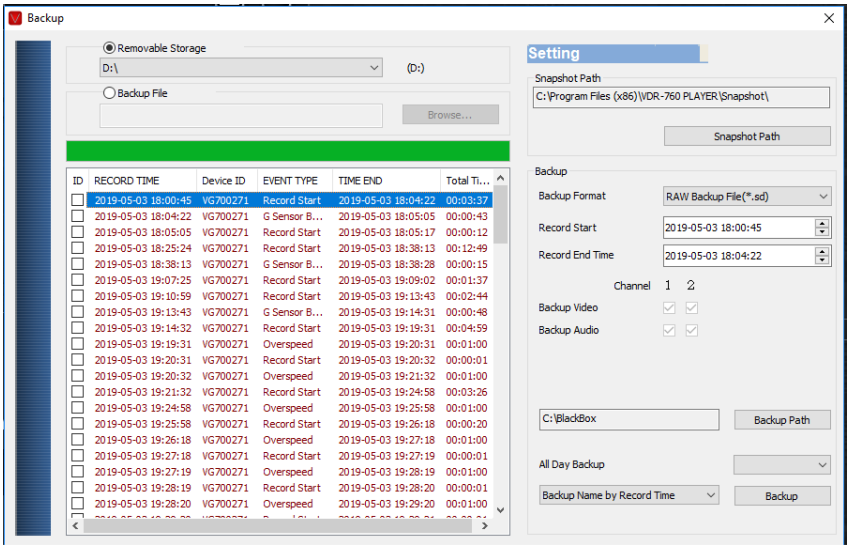


(1) Play BAR: Move the play BAR by mouse
The flag above BAR can be move to backup video files

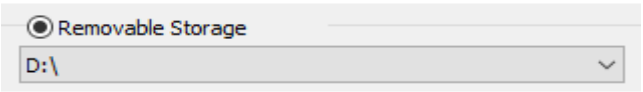
(2)Video speed: Support 2x, 4x, 8x fast forwarding and -2x, -4x, - 8x slow play mode.

■ Disk Backup

Save the recorded files from SD card to PC, click the button and backup window will pop up.



Step 1: select the SD card location



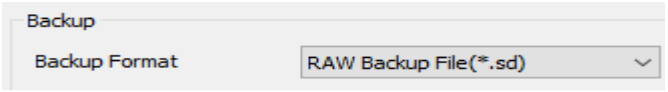
Step 2: select the files to backup

ID	RECORD TIME	Device ID	EVENT TYPE	TIME END	Total Ti...
☐	2019-05-03 18:00:45	VG700271	Record Start	2019-05-03 18:04:22	00:03:37
☐	2019-05-03 18:04:22	VG700271	G Sensor B...	2019-05-03 18:05:05	00:00:43
☐	2019-05-03 18:05:05	VG700271	Record Start	2019-05-03 18:05:17	00:00:12
☐	2019-05-03 18:25:24	VG700271	Record Start	2019-05-03 18:38:13	00:12:49

Step 3. Choose the backup file format

(1) Raw Backup - Ventra File Format (*.sd)

(2)AVI File Backup (*.avi)



Backup format :

(1) Raw Backup -Ventra File Format

	Micro SD Card File type (*.sd)

(2) AVI File Backup (*.avi)

201 -11-19-12-26-52-CHN01.avi 24,794 KB	CH 01 is front camera recording The file name is *.avi.
201 -11-19-12-26-52-CHN02.avi 6,958 KB	CH 02 is in-cab camera recording The file name is *.avi.

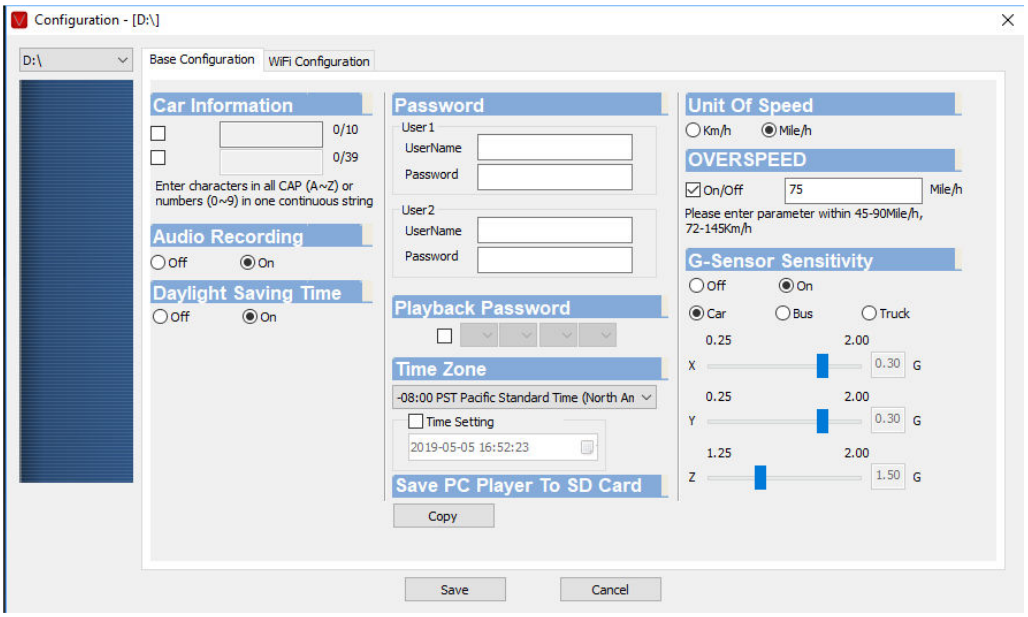
Backup via Raw format, the file will be accessible only via the VDR software with video, route history, speed history and G-SENSOR. If backup via *.avi, the file can be viewed via standard media player and will show date, video and audio.

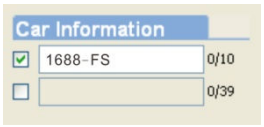
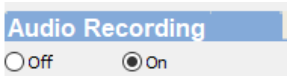
Step 4. Backup Path: Select your backup destination (e.g.: C:\blackbox)

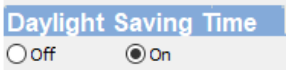
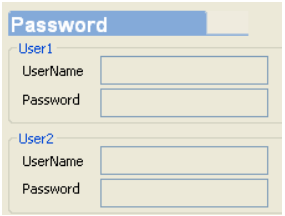
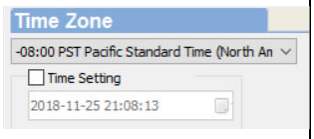
Step 5.Start backup

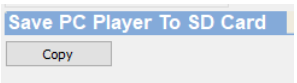
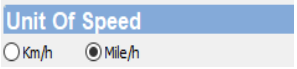
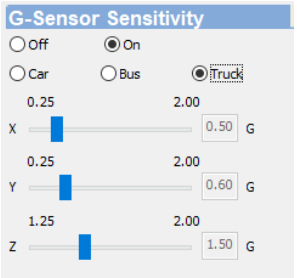
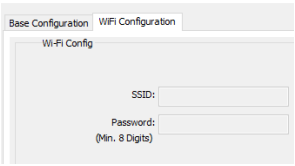
■ Configuration

Insert memory card into adapter card before recording, and then plug in adapter card to PC USB slot. Click and run software to setting recording method, after setting complete, insert the memory card back to device and continue recording.



1.	Car Information		The vehicle or driver ID can set and recorded. Enter characters in all CAP (A ~ Z) or numbers (0 ~ 9) in one continuous string.
2.	Audio Recording		Audio recording. On: Enable audio recording Off: Disable audio recording

3.	Daylight Saving Time		Enable or Disable Daylight Saving Time. If enabled, system will automatically adjust based on calendar
4.	Password		Assign Password to SD card to prevent unauthorized access. Set password to 15 characters max, for example：123456789123456 After setting the password, it is required to enter password to access the playback file, setting, formatting memory card. ★ **Note: Please DO NOT lose password. There is no master password to reset the card.**
5.	Playback Password		Encrypted memory card to prevent unauthorized access the vehicle video recorder. Set password to a four figures number from 0 to 9.
6.	Time zone		Set time zone for the VDR system

7.	Save PC Player To SD Card		Save a copy of PC player to the SD card
8.	Unit of Speed		Km/h: kilometer per hour Mile/h: Mile per hour ★ Note: 1 KM=0.6214 mile, 1 mile=1.6093KM
9.	G-Sensor Sensitivity		G Sensor: On /Off Off: Disable G Sensor Of: Enable G sensor If disabled, VDR will not detect impacts as Event. Sensitivity of G-Sensor to detect impact, collision and condition. May need to adjust based on vehicle type and road conditions
10	Wi-Fi Setting		WiFi Setting is to program how the VDR-760 will connect to a an external hotspot such as smartphone or Access Point SSID: Enter name of Wi-Fi SSID ID (character and number). SSID should NOT contain Hyphen (-) John-WFi or apostrophe (') John's WiFi Password: Enter Wi-Fi password

- Snapshot Tool

  While playing the video file, user can use this function to snapshot the picture and save it into PC.
  Default saving path for snapshot picture will be in /Snapshot folder.
  File format as *.bmp

J. Format memory card

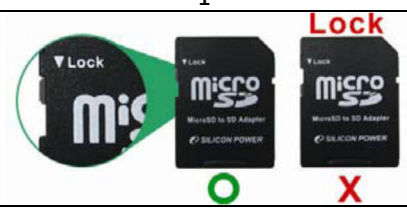
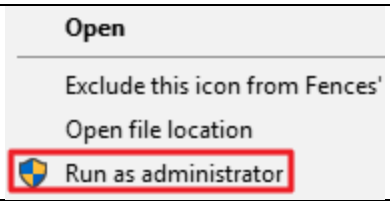
When Should You Format Micro SD CARD?

When you use the Micro SD card for the first time or use a new card, the SD card MUST be formatted prior to use.

VDR system cannot delete a particular video as a security measure. Backup any important video before formatting SD card as format will delete all data on the SD card.

***Notice:**

3. Before formatting Micro SD card, please ensure to unlock it first.
4. If the card is unlocked but still cannot be formatted, please run the program as Administrator to prevent from this problem.

1	2
	

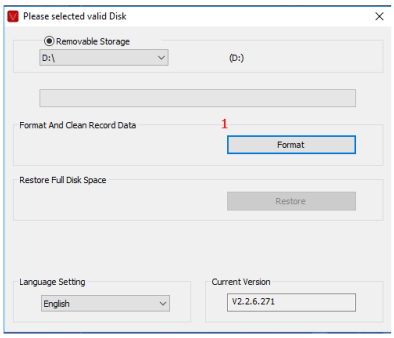
Format steps：

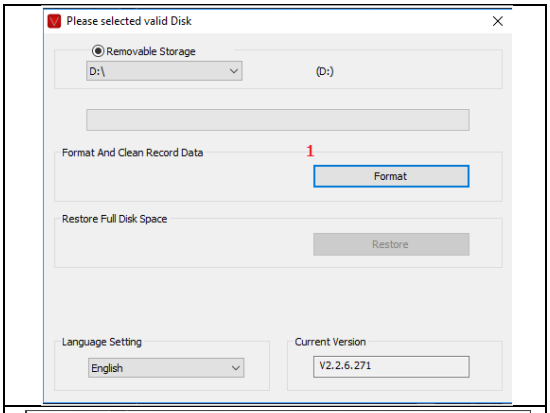
i. Insert the CD in your PC and open the file

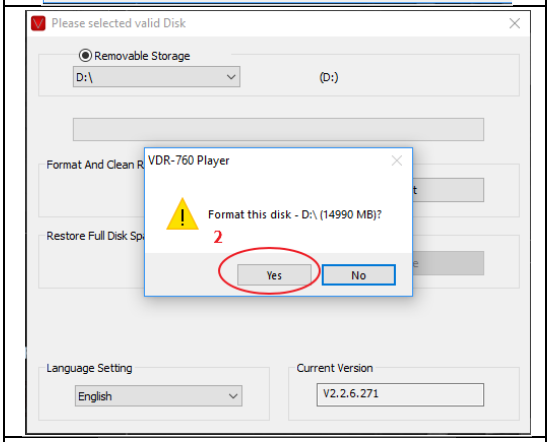
ii. Run program and click on "**Format Micro SD Card**".

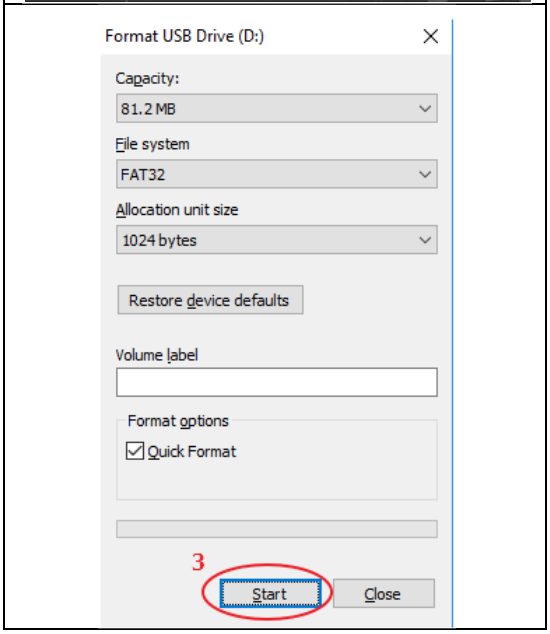
iii. Click on 『**Format**』 to start formatting the Micro SD card as following steps:

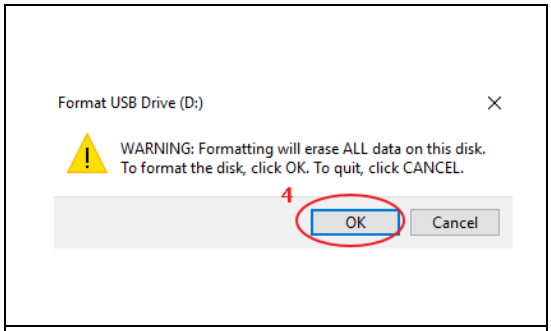
Windows 10

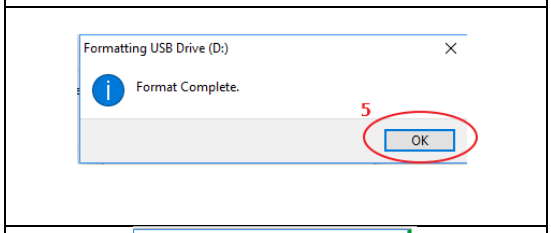


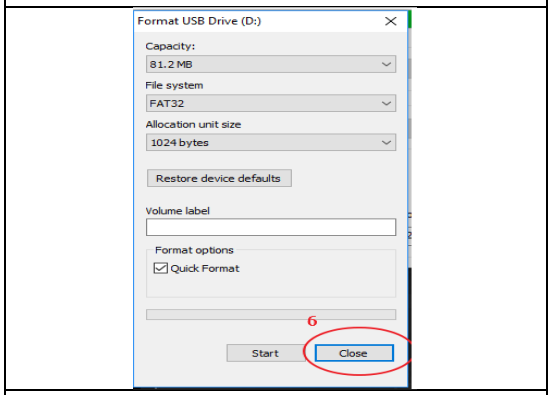

Please selected valid Disk
Removable Storage
D:\
(D:)
Format And Clean Record Data
1
Format
Restore Full Disk Space
Restore
Language Setting
English
Current Version
V2.2.6.271

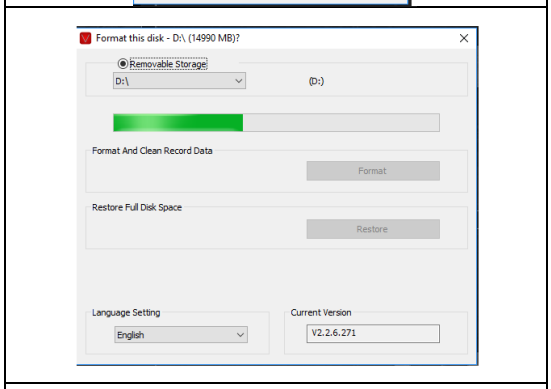

Please selected valid Disk
Removable Storage
D:\
(D:)
VDR-760 Player
Format this disk - D:\ (14990 MB)?
2
Yes
No
Language Setting
English
Current Version
V2.2.6.271

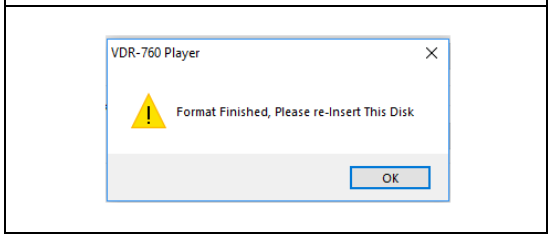

Format USB Drive (D:)
Capacity:
81.2 MB
File system
FAT32
Allocation unit size
1024 bytes
Restore device defaults
Volume label
Format options
Quick Format
3
Start
Close


Format USB Drive (D:)
WARNING: Formatting will erase ALL data on this disk.
To format the disk, click OK. To quit, click CANCEL.
4
OK
Cancel


Formatting USB Drive (D:)
Format Complete.
5
OK


Format USB Drive (D:)
Capacity:
81.2 MB
File system
FAT32
Allocation unit size
1024 bytes
Restore device defaults
Volume label
Format options
Quick Format
6
Start
Close


Format this disk - D:\ (14990 MB)?
Removable Storage
D:\
(D:)
Format And Clean Record Data
Format
Restore Full Disk Space
Restore
Language Setting
English
Current Version
V2.2.6.271


VDR-760 Player
Format Finished, Please re-Insert This Disk
OK

iv. When formatting is completed, please insert the card into the VDR

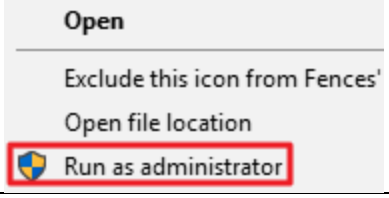
Open the DVR cover by loosening the screw

K. Restore memory card

When you have backed up the recorded files into PC and want to use the Micro SD card for other purposes, the SD card has to be restored to original format to be used correctly.

*Notice:

1. Before formatting Micro SD card, please ensure to unlock it first.
2. If the card is unlocked but still cannot be formatted, please run the program as Administrator to prevent from this problem.

1	2
	

How to restore memory card to default

Steps as below :

Insert the SD card into the card reader (Please make sure the direction is correct)

Connect the card reader with the PC

3、Insert the CD in your PC and open file

4、Find and run program and click on "**Format Micro SD Card"**

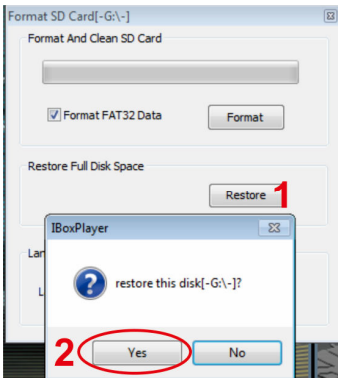
5、Click on『**Restore**』to restore the Micro SD card. Please see the following steps as reference. When finished, the SD card can be used for other purpose

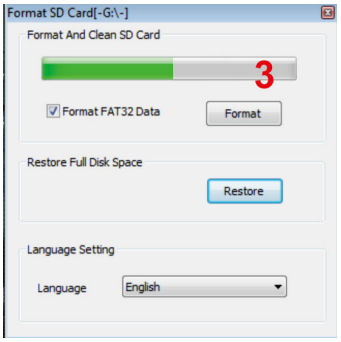
IMPORTANT

Restoring the SD card will permanently DELETE all data from the SD card.

Restoring the SD card to the original format so it can be utilized for non Ventra system recording.

Windows 10





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This warranty does not apply to defects or damages resulting from mishandling, accident, abuse, negligence, lightning, water/liquid, power surges, improper interfacing, operation outside of design limits, misapplication, improper repair, or unauthorized modification.

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