

THINKWARETM DASH CAM

F50

User Manual



This Dashboard Camera (dash cam) is a specialized onboard device that continuously records video while the vehicle is in use.

Some features may not be available depending on installation, driving conditions, and vehicle type. The video quality might vary for each device as a result of installed firmware.

The device DOES NOT guarantee video recording of all accidents as built-in impact sensor may not be activated due to combination of user settings and the level of impact during the collision.

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Before Using THINKWARE DASH CAM™ F50

- ▶ Under the copyright laws, this manual may not be copied, in whole or in part, without the written consent of THINKWARE.
- ▶ Every effort has been made to ensure this Guide's accuracy. However, we cannot guarantee the accuracy of the contents in this document as there may be technical errors, omissions, and/or future changes.
- ▶ THINKWARE reserves the right to change or modify the product and the content of this manual at any time without prior notice for product improvements.
- ▶ Images contained in this user guide are illustrations for instructional purposes only and may differ from the actual product.
- ▶ Users do not reserve the right to use the product for purposes other than as specified in this user guide. According to the Personal Information Protection Act and other related regulations, the user/owner may be held liable if the video and/or conversation recorded by the device are distributed without their consent. Thus, special attention should be paid in using this product.

- The MicroSD memory card should be tested for errors on a regular basis and as the memory card is a consumable item, it will need to be replaced periodically.
- THINKWARE shall NOT be responsible for any problems and/or damages that may occur from the use of disingenuous, modified, or unauthorized parts and accessories.
- The device and the recorded videos are intended for personal use and the recorded videos should be used for reference only.
- The device does NOT guarantee video recording of all accidents as built-in impact sensor may not be activated due to combination of user settings and the level of impact during the collision.

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna.
- ▶ Increase the separation between the equipment and receiver.
- ▶ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▶ Consult the dealer or an experienced radio/TV technician for help.

FCC CAUTION: Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This Class A digital apparatus complies with Canadian ICES-003.

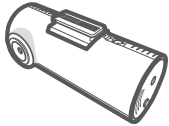
Caution

- ◆ Depending on the make and model of your car, the power may be constantly supplied to the dash cam even with the ignition turned off. Installation of the device to a continuously powered 12V outlet could result in vehicle battery drainage.
- ◆ This device is designed to record video while the vehicle is in operation. The quality of the video might be affected by weather conditions and the road environment such as day or night, presence of street lighting, entering/exiting tunnels, and the surrounding temperature.
- ◆ THINKWARE is NOT responsible for the loss of any recorded video during operation.
- ◆ Although designed to withstand high impact of car collision, THINKWARE does NOT guarantee recording of accidents where the impact may cause the device to be damaged.
- ◆ Keep the windshield and camera lens clean for optimal video quality. Particles and substances on the camera lens or windshield may reduce the quality of the recorded videos.
- ◆ The specified operating temperature of this product is 14°F to 140°F (-10°C to 60°C) and storage temperature is -4°F to 158°F (-20°C to 70°C). Ensure that the device is kept within these temperature ranges; otherwise, the device may not function as designed and at extreme temperatures, permanent physical damage can result which is not covered by warranty.
- ◆ Avoid placing the device under direct sunlight.
- ◆ Avoid using the device in extreme conditions where the Product is exposed to high temperature and/or humidity.
- ◆ Only use genuine accessories and peripherals from THINKWARE or authorized THINKWARE dealer. THINKWARE does not warrant the safety and compatibility from use of peripherals from other manufacturers. Use genuine parts supplied by THINKWARE.
- ◆ Do not apply excessive force when pushing the buttons on the device.
- ◆ Do not clean the Product using chemical cleaner or solvents as it may damage plastic components. Use soft, clean, dry fabric to gently wipe the Product.
- ◆ Do not place or store the device where it can be accessible by children and pets.
- ◆ Do not disassemble the Product as it will void product warranty and may also damage the product.
- ◆ Handle with care. Drop, shock, and mishandling the Product may result in malfunction and/or damage to the device.
- ◆ Do not operate this device while driving.
- ◆ Install this device in a location where it has unobstructed view of the road but does not interfere with the driver's view. Check with your State and Municipal laws before mounting to the windshield.
- ◆ The device and/or installation items have moving parts and may shift in extreme road conditions such as unpaved road. Check frequently to ensure the device is positioned as instructed in this guide.
- ◆ Do not operate or handle power cable with wet hands.
- ◆ Do not use a damaged power cable.
- ◆ Keep the power cable away from heaters or other hot objects.
- ◆ Check that power cable with correct connector is used and the connections are secure and firmly in place.
- ◆ Do not pull, insert, or bend the power cable using excessive force.
- ◆ Do not place heavy objects on the device and the power cable.
- ◆ Do not modify or cut the power cable.
- ◆ THINKWARE does not guarantee that devices or peripherals not authorized by THINKWARE will be compatible with its Product.
- ◆ Do not attempt to insert foreign objects into the device or power cable.
- ◆ Do not spill or spray liquid into the device as it may cause malfunction, fire, or electric shock.
- ◆ This device is intended to be used inside the vehicle only.

1. Getting Started

This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

1-1. In the Package



Main Dash Cam Unit



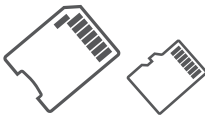
Mount with 3M tape
(1ea)



Car Charger



Adhesive Cable Holder
(5ea)



MicroSD memory card with adapter
(consumable)



Quick Start Guide/Warranty/
User Manual (stored in the MicroSD
card)

1-2. Optional Accessories

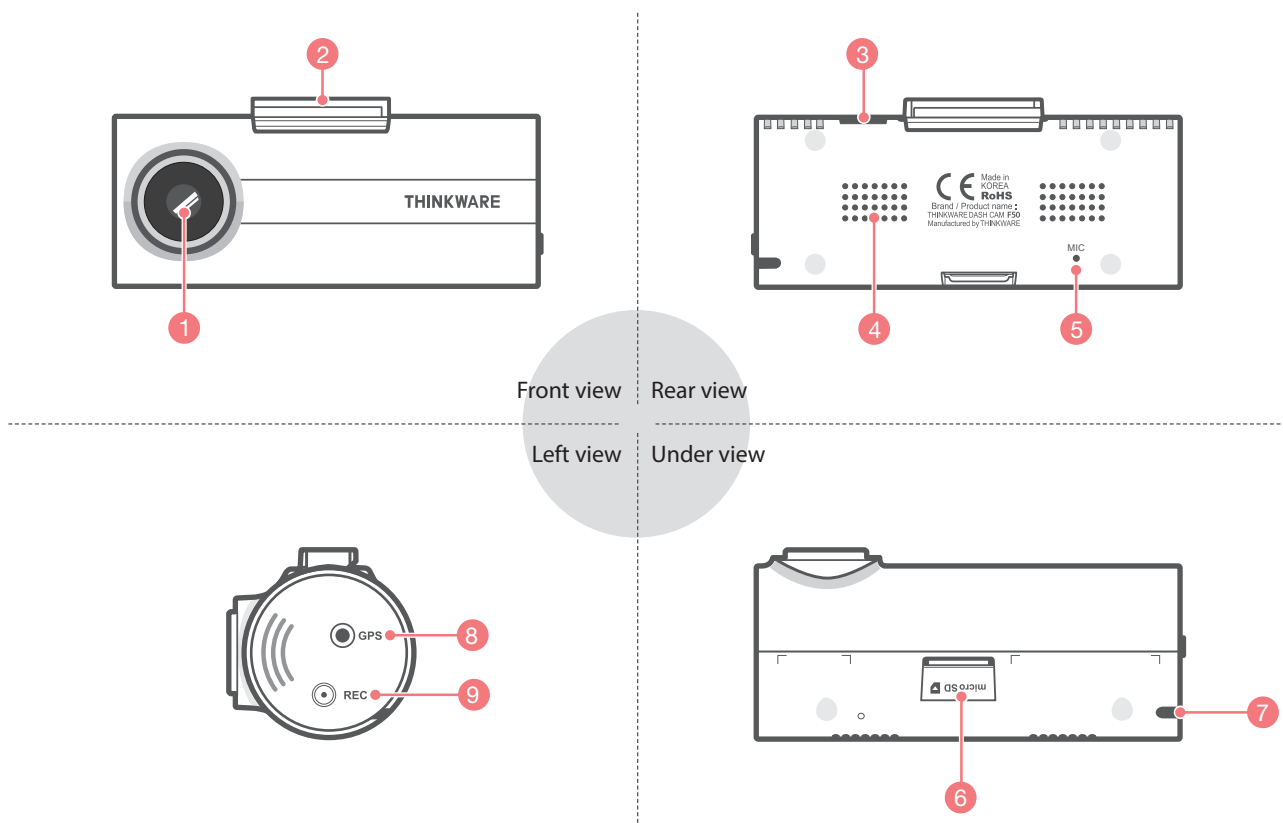


Hardwiring Cable



External GPS Receiver

1-3. Product Overview



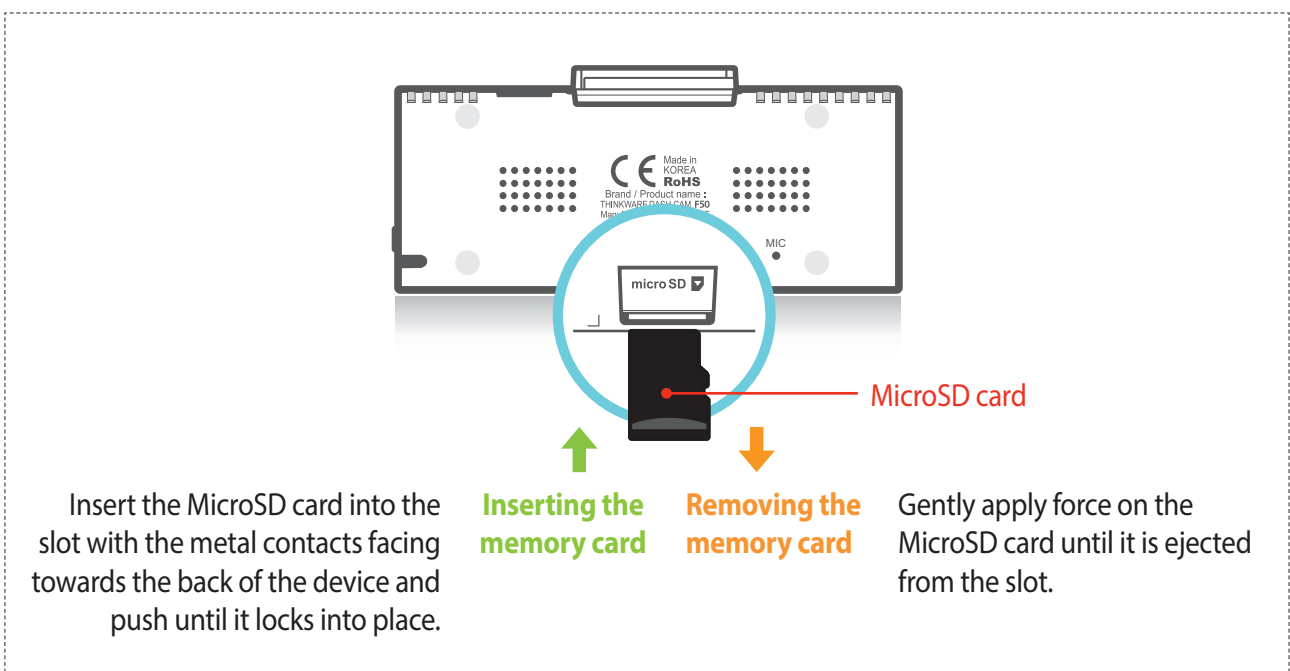
No.	Name	Description
1	Camera Lens	Front facing camera for video recording
2	Mount Connector	Connects to the windshield mount (refer to installation)
3	DC-IN	Connects to power cable
4	Speaker	Outputs voice guidance and alert/notification sounds
5	Microphone	Records audio along with video
6	Memory Card Slot	Location for the MicroSD memory card
7	Operation Status LED	Indicates the device operating status
8	External GPS Antenna	Connect the external GPS antenna (Optional Accessory Required)
9	REC Button	Short Press : Starts manual recording Press and hold for 3 seconds : Audio recording ON/OFF Press and hold for 5 seconds : Memory card format

1-4. Inserting a Memory Card

1-4-1. About Memory Cards

- ▶ MicroSD card must be used with a storage capacity of 8GB Class 10 or higher.
UHS MicroSD card must be used with a storage capacity of 16GB, 32GB, or 64GB.
- ▶ Device only supports MicroSD card with capacity of 8GB Class 10 or higher.

1-4-2. Installing a MicroSD Card



Do not apply excessive force on the MicroSD card or attempt to insert it in the wrong direction as it may cause damage to the MicroSD card and the card slot.

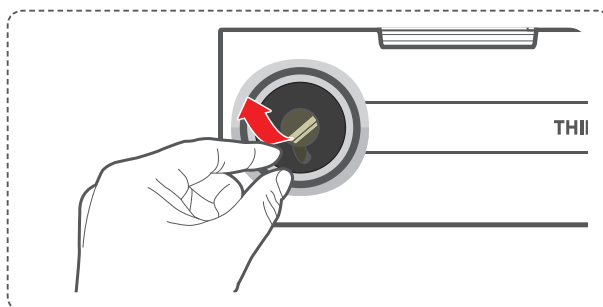
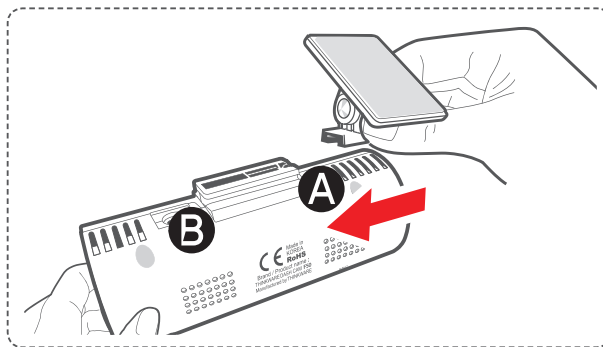
Cautions

- The MicroSD card should be tested for errors on a regular basis and as the memory card is a consumable item, it should be replaced periodically.
- THINKWARE shall NOT be responsible for any problems and/or damages that may occur from not using genuine or authorized parts and accessories. It is strongly recommended that THINKWARE memory cards are used to minimize memory card error.
- Ensure that the device is completely off before removing the MicroSD card to avoid damages to the memory card.
- To prevent loss of important data, frequently copy recorded videos from MicroSD card to another storage device such as personal computer for back up.

1-5. Vehicle Installation

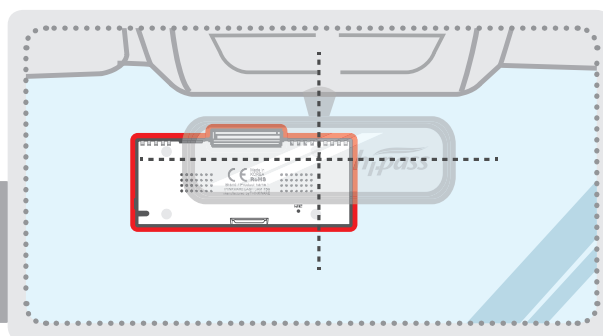
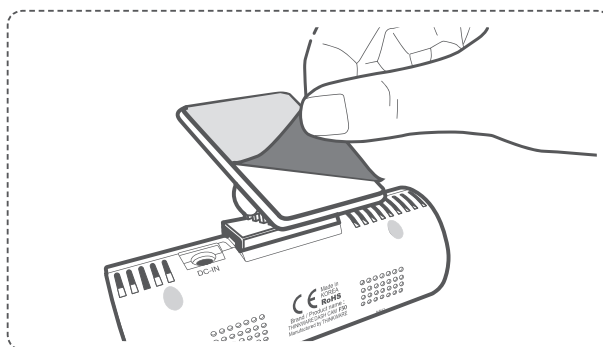
1-5-1. Connecting the Device and the Mount

- ① Align the mount with the connector (A), and slide it towards (B) until it clicks into place.
- ② Remove the protective film from the camera lens.



1-5-2. Installing the Device

- ① Clean the area on the windshield where the dash cam will be installed.
- ② With dash cam main unit still attached to the mount, remove the protective tape from the back of the mount.
- ③ Attach the adhesive side of the mount on the windshield where it has an unobstructed view of the road but does not interfere with the driver's view.

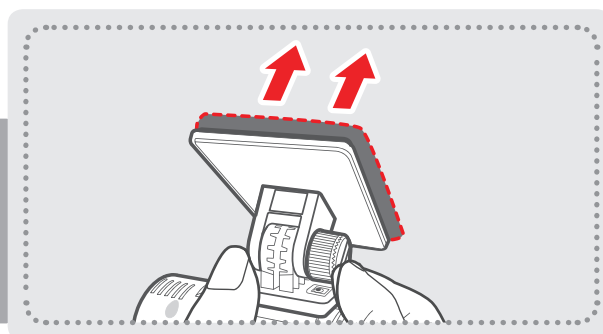


TIP

The camera is located on the right side of the main unit so install the dash cam on the right of center behind the rearview mirror.

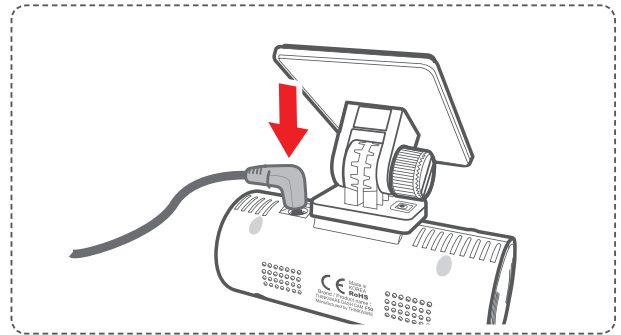
TIP

To ensure that the mount is safely secured, it is recommended that you separate the device from the mount after installation and press the mount towards windshield for 5 minutes to maintain pressure. Allow 24 hours until the adhesive on the mount has set before connecting the dash cam.



1-5-3. Connecting to power

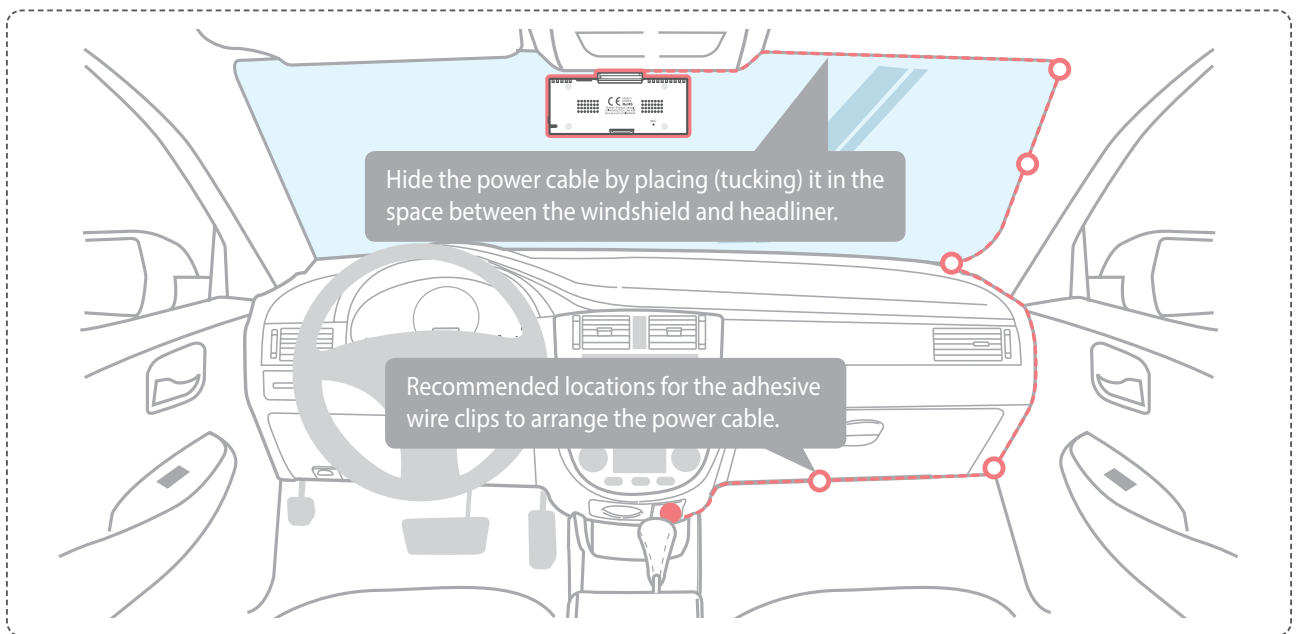
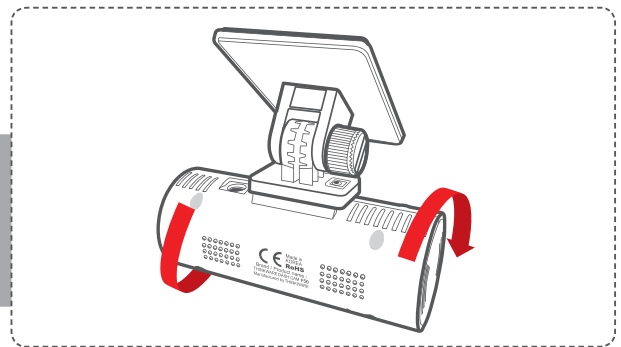
- ① Connect the power cable to DC-IN socket of the device.
- ② Plug the car charger adapter end of the power cable into a 12V DC vehicle power socket.
- ③ Arrange the wire by using the adhesive cable holders as shown below.



- ④ Adjust the camera so that the dash cam is facing forward and is level with the road.

TIP

After installation, run the dash cam to record videos and check the videos using Thinkware Dash Cam Viewer to verify camera position. Adjust the camera angle if necessary.



For more information on the power cable routing instruction, please visit Thinkware homepage. (www.thinkware.com)

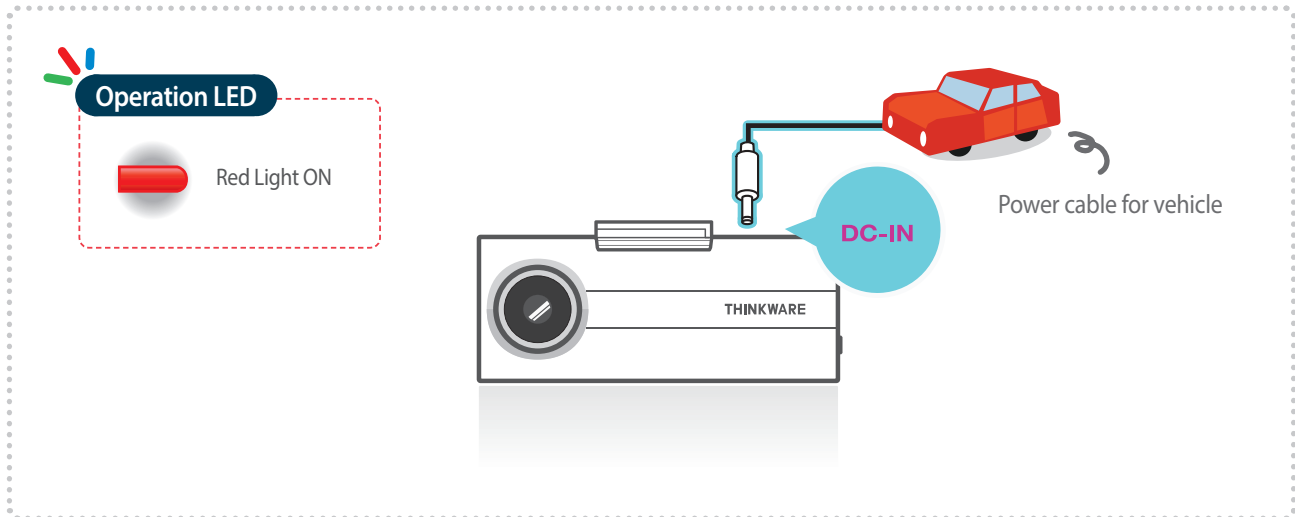
Preventing Vehicle Battery Discharge

- Depending on the make and model of your car, the power may be supplied to the dash cam even with the ignition turned off. This may result in vehicle battery discharge.
- Some vehicles with multiple power sockets might be equipped with at least 1 outlet that does not shut off the power with the ignition. Test each power outlet to ensure you connect to an outlet that shuts off with vehicle ignition.

2. Basic Operations

2-1. Turning the Device Power On/Off

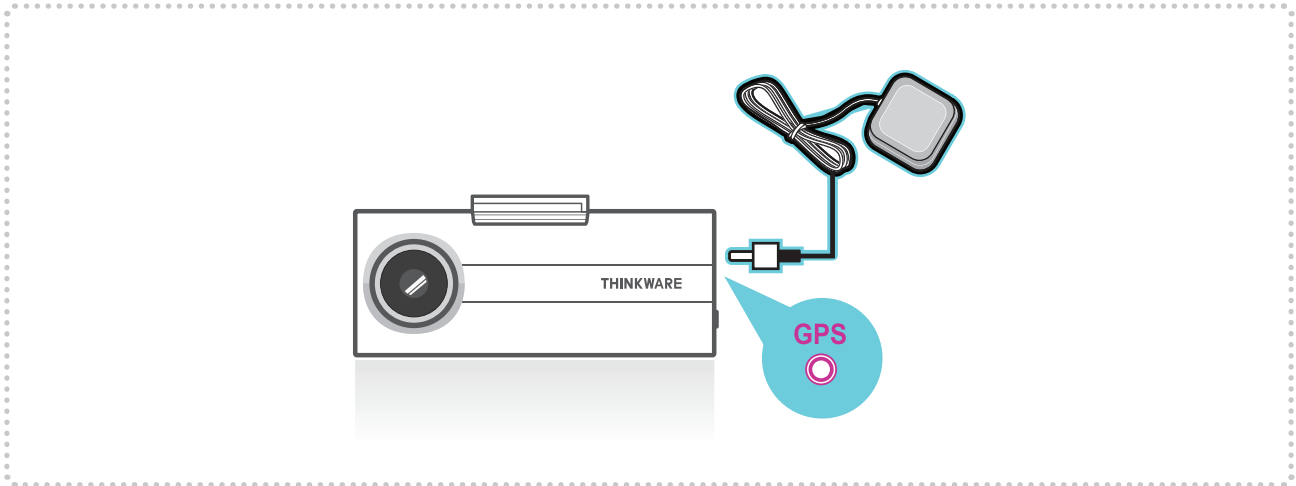
► Once connected to the vehicle, the device will automatically turn on and off with vehicle ignition.



2-2. Road Safety Warning (Optional Accessory)

- ▶ Road Safety Warning : Using GPS and database, safety camera alert will warn the driver when approaching traffic enforcement zones such as red light camera, speed camera, average speed camera, and mobile speed zones.

└ Enable the Road Safety Warning feature in "PC Viewer > Settings > Dash cam Setting > Road Safety Warning"

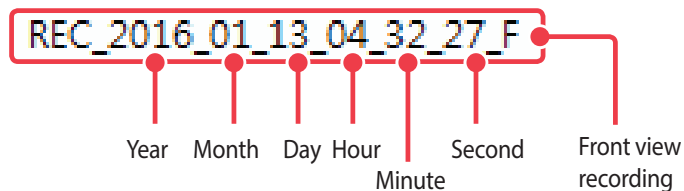


Cautions

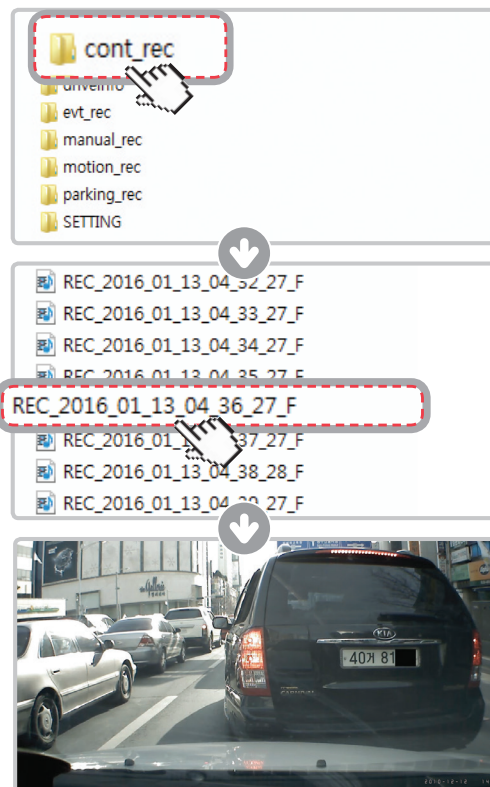
- This feature may not be available in some countries.
- GPS may be affected by weather conditions, satellite signal, and/or surrounding geographical features.
- Coated windshields can interfere with GPS signal which may result in poor or blocked GPS reception.
- Other electronic devices and/or equipment may interfere with GPS signal if placed too close to the dash cam.

2-3. Recorded Files

- ▶ Recorded video files are saved in the folder by date and hour in the MicroSD card.
 - └ Files are created based on the time when the videos are recorded.



- └ As a loop-recording surveillance product, the dash cam will automatically overwrite oldest file in the memory card once the memory is full. However, event recording and manual recording videos are stored in separate locations and will be protected from file overwriting.



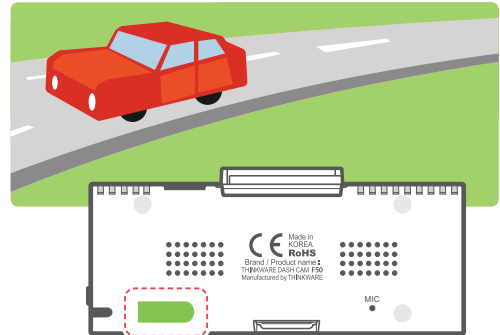
Cautions

- Do not use the MicroSD card as an external storage device.
- Do not tamper with the system files within the in the MicroSD card. This may result in unexpected behavior during operation.

2-4. Recording Videos While Driving

2-4-1. Continuous Recording Mode

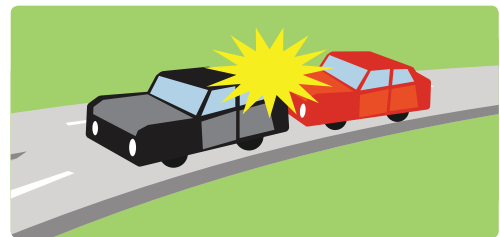
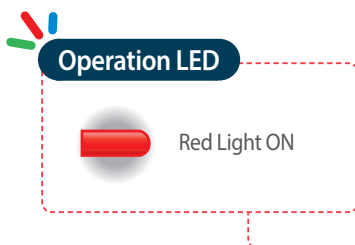
- ▶ Videos are recorded in 1 minute segments and saved as files in the MicroSD card under the folder named "cont_rec".



2-4-2. Incident Recording During Continuous Recording Mode

- ▶ When the dash cam detects an impact, it will immediately store the 10 seconds prior and after the impact. The 20-second impact recording is saved on the MicroSD card under the "evt_rec" folder.
- ▶ Please note that the dash cam will only detect impact as an incident if the level of impact is greater than the sensitivity level of the G-Sensor.

You can change these levels in the user configuration.



Cautions

- Driving over speed bumps, manholes, or uneven roads at high speeds can also be detected as an impact and may trigger incident recording.
- The device can record up to 1 minute of incident recordings in the case of continuous impacts or multiple accidents.
- The duration of incident footage recorded may vary according to the device settings.

2-5. Recording Videos While Parked (Optional Accessory)

This feature is available only when the dash cam has been hardwired directly to the vehicle battery. Separate purchase for the hardwiring cable accessory and professional installation is required.

2-5-1. Parking Motion

- ▶ When the dash cam detects motion while parked, it will immediately store the previous 10 seconds prior to the activation of motion detection start recording video for the next 10 seconds.

The 20-second motion detection recording is then saved on the MicroSD card under the folder named "motion_rec".

Cautions

- The device can record up to 1 minute for continuous impacts in the case of multiple collisions.

2-5-2. Incident recording in parking mode

- ▶ When the dash cam detects impact while parked, it will immediately store the 10 seconds prior and after the impact.

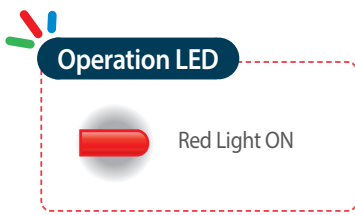
The 20-second impact recording is saved on the MicroSD card under the "parking_rec" folder.



2-6. Manual Recording

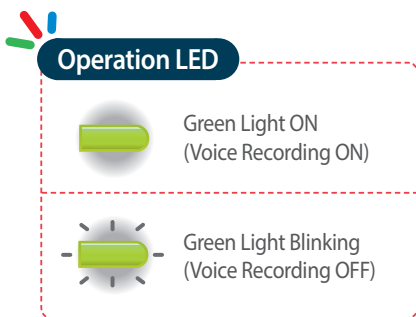
In addition to recording accidents, the dash cam allows the user to initiate manual recording mode to capture scenery and/or places while driving. This feature can also be used to save video as witness where the installed vehicle is not directly involved in an accident. Video files saved during manual recording mode are stored in a separate location on the memory card and will be protected from video overwriting in continuous recording mode.

- ▶ Briefly press the REC button to start recording. The device will record video for 1 minute (10 seconds before and 50 seconds after) as of the time when the button is pressed. The recorded video will be saved under the "manual_rec" folder.



2-7. Voice Recording

- ▶ Press and hold the REC button for more than 3 seconds to turn the voice recording ON/OFF



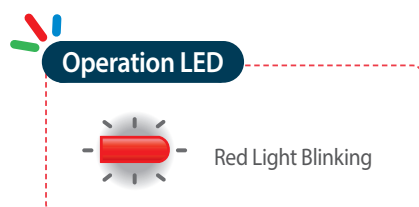
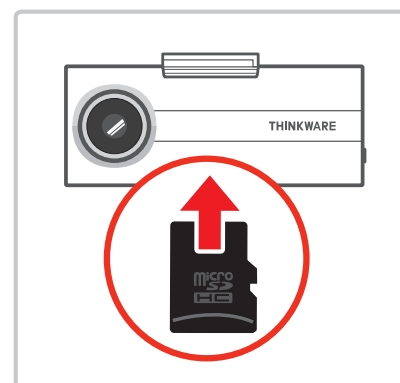
2-8. Formatting MicroSD Card

- ▶ Press and hold REC button for 5 seconds to initiate memory card format



2-9. Upgrading Firmware

- ▶ The system will automatically be updated if the MicroSD card contains the firmware upgrade file.
 - ↳ The device restarts automatically after the upgrade has been completed.
- ▶ Make sure your device is always up to date with latest firmware. Please check back frequently at THINKWARE website (www.thinkware.com) for the latest firmware updates.
- ▶ Do NOT disconnect your device from power while it is being updated. This will result in damage to the dash cam.



3. PC Viewer Software

3-1. Thinkware Dash Cam PC Viewer

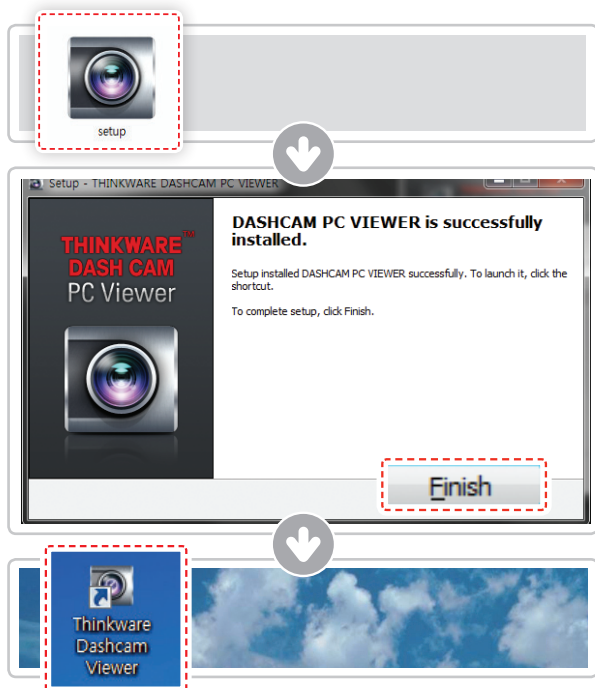
Thinkware Dash Cam Viewer for Windows/MacOS is provided which can be used to watch videos recorded with the dash cam. The video files recorded by the dash cam are in one minute segments and the PC viewer allows the user to watch these segments as a single continuous video.

The setup file for the Thinkware Dash Cam PC Viewer is included in the MicroSD card within the package. Please check THINKWARE homepage(www.thinkware.com) for the latest Dash Cam PC Viewer application.

Insert the MicroSD card into the PC.

3-1-1. Installing Thinkware Dash Cam Viewer

Windows



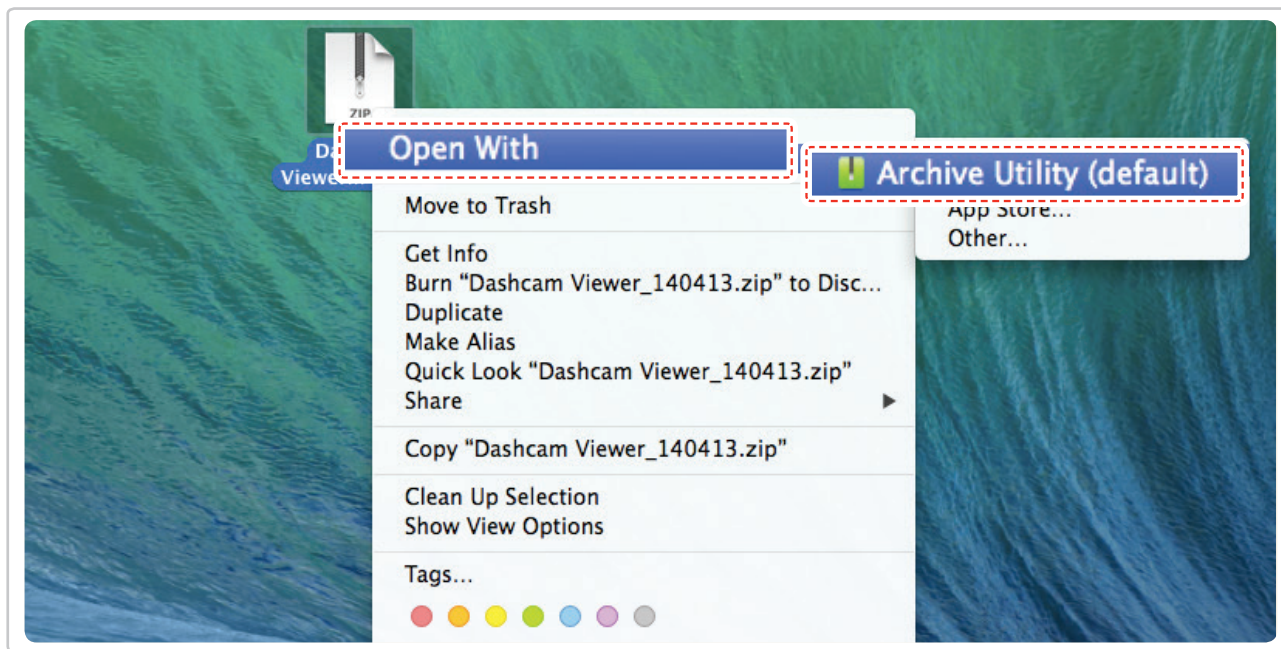
- ① Double-click the Thinkware Dash Cam Viewer setup file saved in the MicroSD card to initiate program installation.
- ② Double-click the application icon once PC Viewer installation completes and the application main screen will then appear.

Cautions

- System requirements :
Windows XP SP3 (32 bit), Windows 7 (32/64 bit),
Windows 8.x (32/64 bit)

MAC

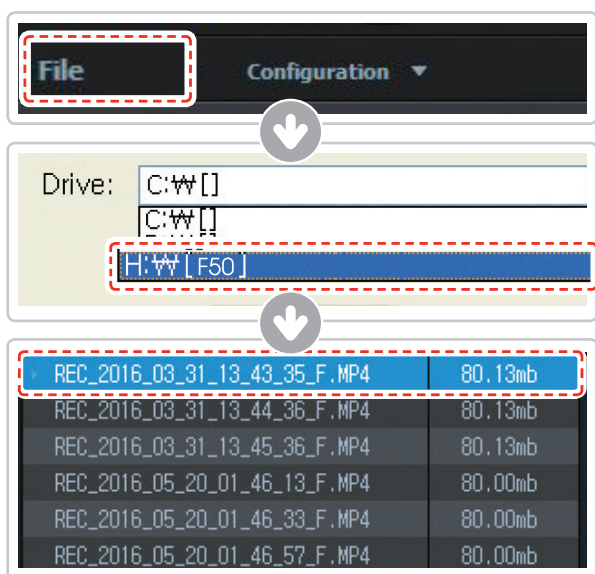
- ① Move the file named "Dashcam Viewer.zip" stored in the MicroSD card to the desktop.
- ② Right click on the mouse and select "Open With" > "Archive Utility" to launch the Thinkware Dash Cam viewer application.



Cautions

- System requirements : MAC OS X 10.8 Mountain Lion or later (OS X 10.9 Mavericks, OS X 10.10 Yosemite)

3-1-2. Select the Device Drive for F50

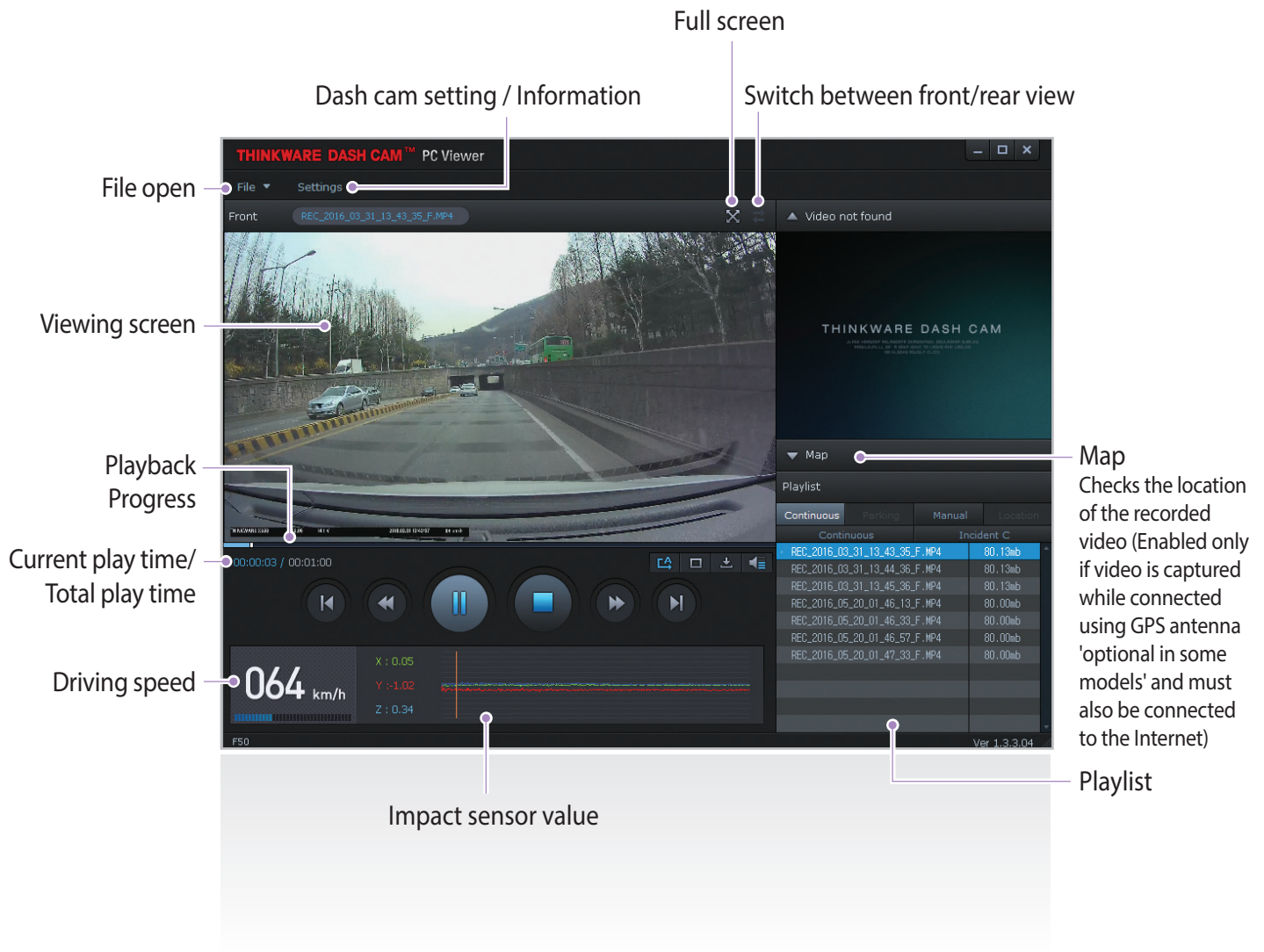


- ① Click **File** from menu and select the drive for the portable storage drive for the connected MicroSD card.
- ② Select any file from the list to load entire video playlist in the memory card.

Cautions

- The MicroSD card will not be recognized by the PC Viewer until it has been used in the dash cam.
- It is recommended that the user record at least one video clip on the MicroSD card with the dash cam unit before accessing the Thinkware Dash Cam PC Viewer.

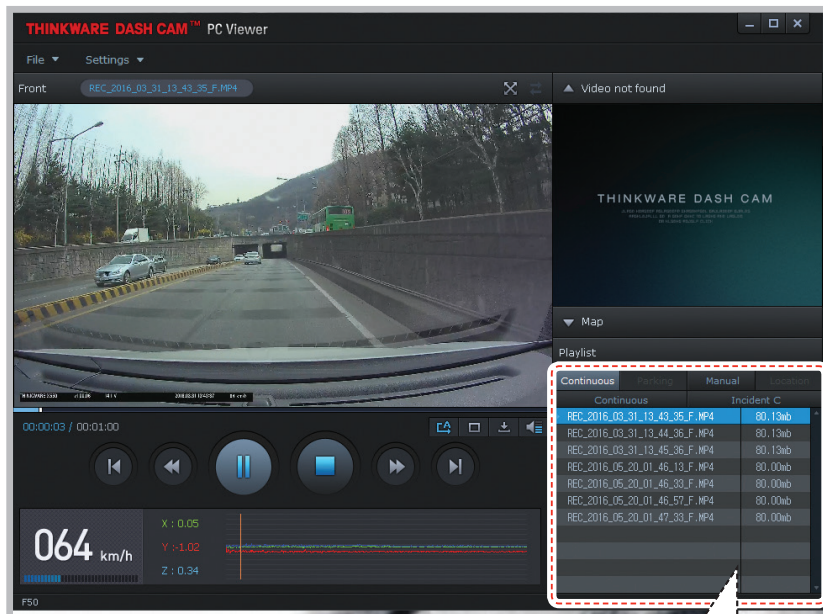
3-1-3. Thinkware Dash Cam Viewer Overview



No.	Name	Description
⏮	Play Previous	Plays the previous file before the current file
⏪	Rewind by 10 Sec	Rewinds the current file being played by 10 seconds (If selected, it continues to rewind by 10 seconds)
▶/⏸	Play/Pause	Plays the recorded file / temporarily pauses playback
■	Stop	Stops the file being played. The playback status resets to the starting point of the video.
⏩	Fast-forward by 10 Sec	Fast-forwards the current file being played by 10 seconds (If selected, it continues to fast-forward by 10 seconds)
⏭	Play Next	Plays the next file after the current file
🔄	Auto Play	Automatically loops the video back to beginning once the end has reached
📏	Zoom	Sets the video expansion ratio (0.5x / 1.0x / 1.5x / 2.0x)
⚙️	Screen Setting	Sets brightness/speed of the video
💾	Save	Saves the video in play
🔊	Volume	Sets the volume of the playback

3-1-4. View Video Playlist

- ▶ Select appropriate folder (Continuous Recording, Incident Recording, Manual Recording, Parking Motion, Parking Incident) to see the playlist for each recording mode.



Continuous	Parking	Manual	Location
Continuous		Incident C	
REC_2016_03_31_13_43_35_F.MP4			80.13mb
REC_2016_03_31_13_44_36_F.MP4			80.13mb
REC_2016_03_31_13_45_36_F.MP4			80.13mb
REC_2016_05_20_01_46_13_F.MP4			80.00mb
REC_2016_05_20_01_46_33_F.MP4			80.00mb
REC_2016_05_20_01_46_57_F.MP4			80.00mb
REC_2016_05_20_01_47_33_F.MP4			80.00mb

Continuous Recording Playlist

Continuous	Parking	Manual	Location
		File name	File size
		MAN_2016_04_18_01_51_34_F.MP4	80.00mb
		MAN_2016_04_18_02_23_05_F.MP4	80.00mb
		MAN_2016_04_25_06_04_53_F.MP4	80.00mb

Manual Recording Playlist

3-2. PC Viewer Settings > Dashcam Setting

▶ Memory Card Settings

└ Memory Partition :

Sets how storage space on the memory card will be allotted for each recording mode (Entire memory card will be formatted when the memory partition setting is changed)

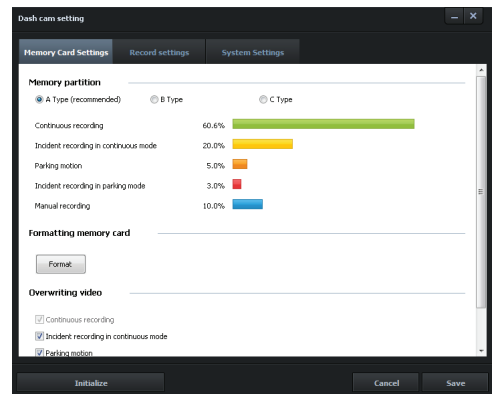
└ Formatting memory card :

Formats the MicroSD card. Formatting will completely erase all video files stored in the memory card

※ It is recommended that you back up data before formatting the memory card. Once you format the memory card, all data will be deleted and cannot be restored. The method for formatting a MicroSD card might vary depending on the computer operating system.

└ Video Overwrite :

Sets the overwriting option which will allow new video files to overwrite oldest video in storage reserved for each mode



▶ Record Settings

└ Impact sensitivity at continuous mode :

Sets the impact sensitivity during continuous recording mode. It is recommended that you set the sensitivity according to vehicle type. High sensitivity setting is recommended for cars with softer ride such as luxury sedans; while low sensitivity setting is recommended for cars such as performance cars, trucks, or SUVs which tends to have stiffer suspension settings.

└ Brightness :

Sets the video recording brightness for front/rear camera

└ Parking Mode :

Monitors vehicle ignition status to automatically convert to parking mode when the vehicle engine is turned off. The dash cam must be hardwired to the vehicle for the use of parking mode.

└ Impact sensitivity at parking mode :

Sets the impact sensitivity during parking recording mode

└ Motion detection :

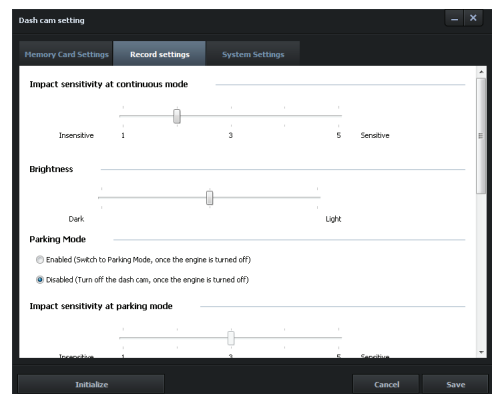
Sets the motion detection sensitivity during parking recording mode

└ Timer setting for stop recording :

Sets the timer for the dash cam to automatically shut down in parking mode to prevent from draining the vehicle battery

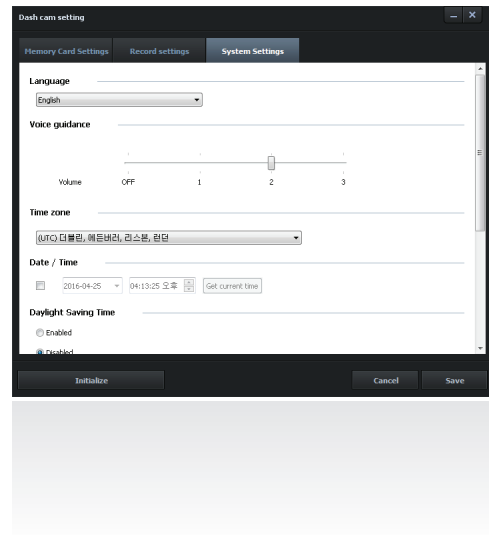
└ Battery voltage setting for stop recording :

Sets the voltage level for the dash cam to automatically shut down in order to prevent from draining the vehicle battery



▶ System Settings

- └ **Language** : Sets dash cam system language
- └ **Voice guidance** : Sets the volume level
- └ **Time zone** : Sets the time zone
- └ **Date/Time** : Sets the date/time
- └ **Daylight Saving Time** : Sets the daylight saving time
- └ **Speed unit** : Sets the unit for the vehicle speed
- └ **Speed Stamp** : Sets vehicle speed information (tracked by GPS) to be shown or hidden directly on video
- └ **Road Safety Warning** : Sets the audible notifications for road safety warnings



3-3. PC Viewer Settings

- ▶ **Dashcaminfo** : Displays dash cam information
- ▶ **language setting** : Sets dash cam system language
- ▶ **Units speed** : Sets the unit for the vehicle speed

4. Device Information

4-1. Specifications

The specifications of this product may change without prior notice for product improvements.

Item	Standard	Note
Model	F50	
Size/weight	78 x 34 x 31.5mm / 42g 3.07 x 1.33 x 1.24inches / 0.09lbs	
Capacity	MicroSD card	8GB(class 10), 16GB, 32GB, 64GB(UHS-I)
Recording mode	Continuous Recording Mode	Records in 1 minute segment
	Incident Recording Mode	10 seconds before/after incident (total 20 seconds)
	Manual Recording Mode	10 seconds before and 50 seconds after (total 1 minute)
	Parking Surveillance Mode	Optional hardwiring cable and installation are required for continuous supply of power when vehicle ignition is off.
	Audio Recording	
Camera	2.12M Pixels, 1/5.78" CMOS	
Viewing angle	Approximately 130° (diagonally)	
Video	FHD (1920 x 1080) / H.264 / PCM MP4	
Frame rate	1 channel (Front view) : up to 30 fps	
Audio	PCM (Pulse code modulation)	
Acceleration sensor	3-axis acceleration sensor (3D, ±3G)	Adjustable impact sensitivity (5 levels)
GPS	External GPS Receiver	Optional accessory that requires separate purchase
Input power source	DC 12/24V	
Current consumption	2.1W (MAX)	
Notification LED	LED 1ea (2 Color)	
Warning sound	Embedded speaker	Voice (buzzer sound) guidance
Operation/Storage Temperature	14°F to 140°F / -10°C to 60°C -4°F to 158°F / -20°C to 70°C	