

Inside your life !



BBDB-FF02E User Manual

Ver.1.0

FHD/FHD 2Ch. Dashcam



Record of Revision

Revision	Date	Description of Changes	Drafter
1.0	Aug.09, 2016	Initial release	JH Hong

I. Product Summary

1. Product SPEC	4
2. Name of parts	5
3. Basic function	7

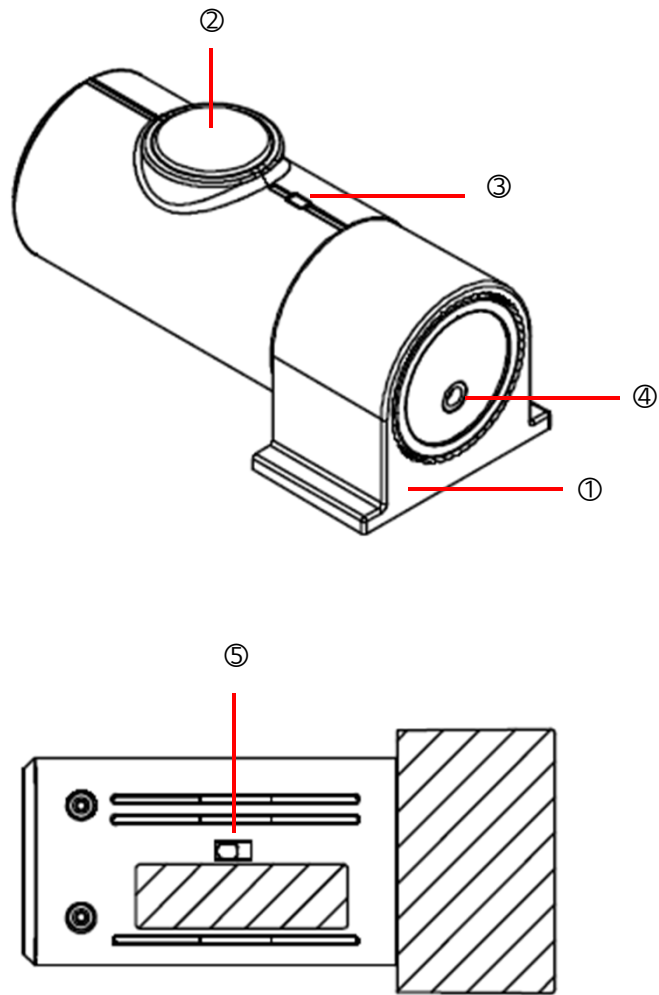


Specifications

Resolution/ Number of frames	Front : FHD	1920 x 1080(30 fps)
	Rear : FHD	1920 x 1080(30 fps)
Camera	Image sensor	Front : 1/2.8" 2.0MP CMOS Rear : 1/2.7" 2.0MP CMOS
	Angle of view	Front : 136° / Rear : 120° (Diagonal)
Display	LCD	3.5" TFT LCD with TSP (480 x 320)
	Status LED	Power/Record(Red/Blue), Security(White)
Video / Audio	Video/Audio codec	Video : H.264, Audio : PCM
	MIC	Internal(Condenser MIC)
	Speaker	Internal(8 ohm, 1W)
Others	SD memory	Micro SD 32GB(~64GB)
	Operating voltage	DC +12 ~ +24V
	Operation temperature	-20 ~ +70℃
	Standby current	Max. 100uA
	Shock sensor	3 axis G-sensor
	GPS	External GPS(Optional)



Name	Function
1. External GPS antenna connection terminal	Connects to external GPS antenna.
2. Rear camera connection terminal	Connects to rear camera.
3. Power cable connection terminal	Connects to power cable.
4. Stand fixation screw	Fixates the product by tightening set screw so that the product doesn't shake.
5. Stand	Used to attach the product to car's front windshield.
6. Security LED	LED flickers in different interval depending on driving/parking/event.
7. Lens	Video signal from product's front is entered here.
8. Speaker	You can listen to voice guide.
9. Force record button	Push to record in need of forced recording.
10. Power button	Push when the device is powered on to shut the power off.
11. Micro SD card slot	Insert micro SD card.
12. LCD screen	Check dashcam setting and play video.
13. LED status	Displays operation status.
14. Embedded microphone	This microphone records sound.



Name	Function
1. Stand	Attaches rear camera to the vehicle.
2. Camera lens	Video signal from rear camera is entered here.
3. LED	Provided for parking status and supplemental effect.
4. Main body connection terminal	It's a MINI USB port that connects to the main body.
5. Mirror Switch	Mirror switch changes left/right of rear camera. Connect to main body after setting it, or set it when the main body is turned off.

► Basic Function

Operation	Condition	LED Status		Comment
		Red	Green	
Bootup	Bootup	Light	Light	Each lights up then shuts off immediately
	Incorrect SD card recognition	Flicker	OFF	Red LED flicker
	Incorrect camera recognition	OFF	Flicker	Green LED flicker
Constant mode	Constant	OFF	Light	Records in 80MB interval during driving (1CH ~80 sec, 2CH ~40 sec)
	Event	Flicker	Light	Records in 40MB interval during impact (1CH ~40 sec, 2CH ~20 sec)
Manual recording	Button	Flicker	Light	Records in 40MB interval when manual recording button is pressed
Parking recording	Event (Motion/Impact)	OFF	OFF	Records in 40MB interval when motion is detected while parked
Rear camera	Left/right reverse	-		User can select using rear camera left/right button

※ LCD automatically shuts off during parking mode.

※ Use left/right button of rear camera while power is shut off.

► High Temperature Cut off

High temperature cut off is operated when the temperature inside the car is increased in order to prevent device malfunction and protect dashcam. Once the system shuts off due to high temperature, it needs to be rebooted for operation.

Situation		Condition
Constant mode	LCD Shutoff	When the temperature inside your car is raised above LCD cutoff standard temperature, the device will display "LCD will shut off to protect the device against high temperature" and shut off LCD screen. (Device will not turn on even if you touch LCD screen.) Device will become operational once temperature is dropped below standard temperature.
	System Shutoff	When the temperature inside your car is raised above system cutoff standard temperature, the device will display "system will shut off to protect the device against high temperature" and shut off the system.
Parking recording	System Shutoff	The device must be rebooted to operate.

► Security LED Operation Status

Situation		Security LED Status	Comment
Constant mode	Constant	Front White LED flicker	Left/right motion flicker
	Event	Front White LED OFF	-
Parking recording	Recording	Front White LED flicker	Left/right motion flicker
	Event	Front White LED complete flicker	1 sec interval

► MAIN MENU

- 1) Initial screen
This screen is displayed on LCD after bootup.



2) Operation status display screen

No	Function	Operation Status
①	MENU	This MAIN MENU allows you to play video and change settings.
②	GPS	Indicates GPS connection status. (Activated when connected to GPS)
③	Time/Date	Displays time and date of the product.
④	Car Speed	Displays speed of driving car. (Activated when connected to GPS)
⑤	Voltage	Displays voltage input to the product.

► MAIN MENU

3) Change channel

Touch the upper right corner of the screen to change the screen being displayed.



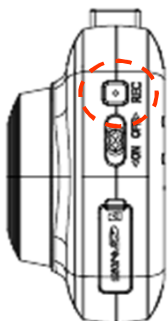
How to change channel – Touch the upper right portion of displayed screen to change screen.

Front (full screen)+Rear (upper right 1/4) → Rear (full screen) → Front (full screen) →

Front (full screen) + Rear (upper right 1/4)

※ Touch areas other than upper right screen to turn LCD ON/OFF.

4) Manual recording



When you press manual recording button, the recording will take place in the same manner as event occurrence, LED status will flicker red LED, and make “ding dong” sound.

Even during operation of motion event or impact event, manual recording takes priority.
(Not supported during parking mode.)

► MAIN MENU

- 1) Select channel
You can select screen displayed on LCD, ADAS, and MENU.



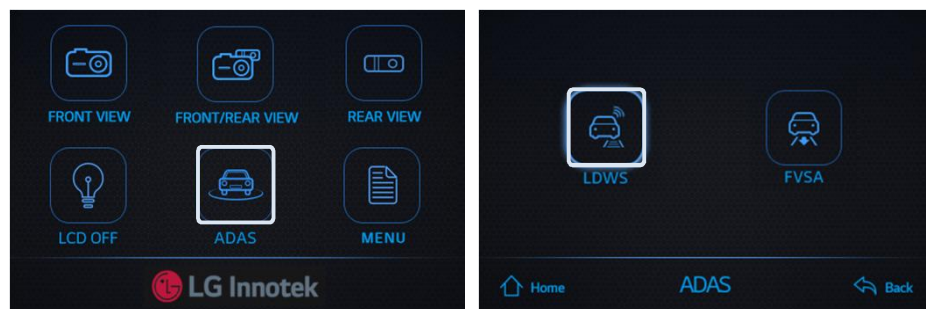
2) Operation status display screen

No	Function	Operation Status
①	Front Video	Only displays front video on LCD screen.
②	Front/Rear Video	Displays both front/rear video on LCD screen.
③	Rear Video	Displays rear video on LCD screen at the same time.
④	LCD OFF	Turns OFF the LCD screen.
⑤	ADAS	Allows you to turn ADAS function ON/OFF and change the setting.
⑥	MENU	Allows you to see recorded video and change setting for many items.

► ADAS (Advanced Driver Assistance System)

1) Lane departure warning system

MAIN MENU > ADAS > LDWS



- This function detects lane departure of the vehicle while driving and alarms the driver with sound.

***Only available when external GPS connected**

2) Lane departure warning system MENU



- Operation speed: User can set function to operate while driving in 60Km, 80Km, or 100Km speed.
- Alarm sound: User can select to turn alarm sound on or off during lane departure. (When set to OFF, driver will only see the alarm on the LCD screen.)
- Car: Select the type of your car to allow more accurate lane departure detection.

► ADAS (Advanced Driver Assistance System)

3) Condition for error/absence in lane departure warning system function

Under following conditions, lane departure warning system may experience general error/absence in operation.

- If the dashcam is installed in abnormal location, it may not operate properly.
- Device may not function properly during heavy rain/snow.
- Device may not function properly when the windshield wiper is in constant operation.
- If an item above the dashboard is severely reflected on front windshield, the device may not function properly.
- Device may not function properly if there is no lane or the lane cannot clearly be distinguished visually.
- When you depart the lane multiple times within 3 second period, the alarm does not sound continuously.
- Faulty alarm may sound in zigzag road.
- Alarm may not sound when changing lane too slowly.
- Alarm may not sound when changing lane on a road with severed lane such as crossroad.
- Device may not function properly when changing lane on a road with many letters on the floor.

4) Choose vehicle type

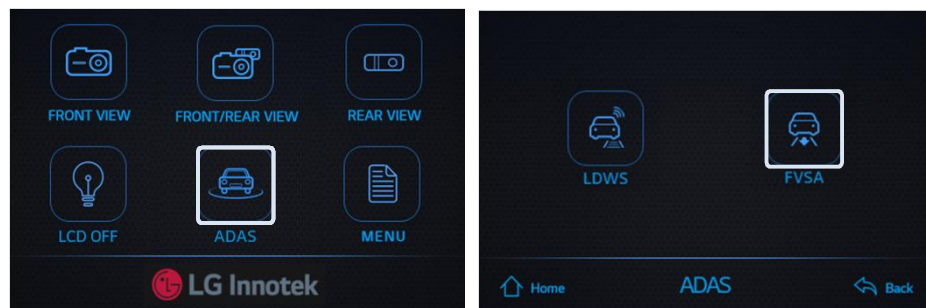
ADAS equipped in this dashcam operates based on video information obtained from dashcam camera sensor.

Because the installation location generally changes depending on the car type, this function provides better performance by applying calibration data.

Therefore, it is recommended that you choose the appropriate vehicle type.

► ADAS (Advanced Driver Assistance System)

5) Front vehicle start alarm
MAIN MENU > ADAS > FVSA



- When your car stops, the device detects the stop within 3 seconds, and when the distance between your car and the car in front becomes far, the device lets the driver know of front car's departure with alarm sound and GUI.

* Only operates when connected to GPS.

6) Front vehicle start alarm MENU



- ON/OFF : You can select to use or not use the front car departure notice.

► ADAS (Advanced Driver Assistance System)

7) Condition for error/absence in front car departure notice function

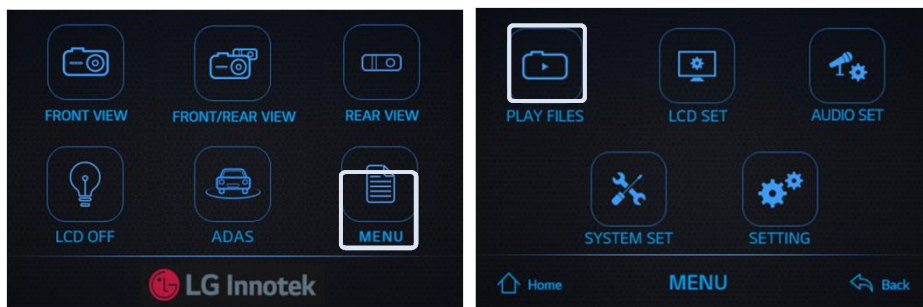
Under following conditions, front car departure notice may experience general error/absence in operation

- If the dashcam is installed in abnormal location, it may not operate properly.
- Device may not function properly during heavy rain/snow.
- Device may not function properly when the windshield wiper is in constant operation.
- If an item above the dashboard is severely reflected on front windshield, the device may not function properly
- Driving at night or inside dark tunnel may affect the sensor depending on the level of illumination.
- When strong light such as electronic display or flickering light enters the video, the device may not function properly.
- When you stop more than 3m from the car in front, the device may not function properly.
- When you stop in abnormal position or severely away from the driving lane, the device may not function properly.
- When driving in reverse after parking, the alarm may sound.
- Device may not function properly if the vehicle exhibits severe vibration due to aging.
- When the vehicle shakes due to strong external impact or vibration after stopping, the device may function erroneously.

► Play files

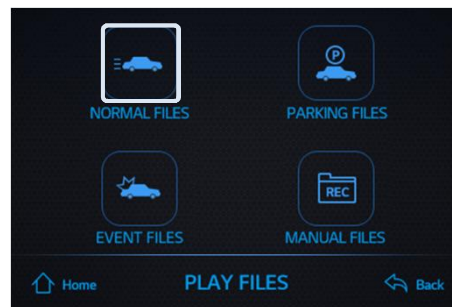
1) Screen contents

MAIN MENU > MENU > PLAY FILES



- Check Video consists of “normal files, parking files, event files, manual files” and recorded videos may be displayed on the LCD screen.

2) Play files



- Normal files: Contains the list of video files recorded while driving is stored.
- Parking files : Contains the list of video files recorded when the device detected moving car, people, or impact.
- Event files: Contains files that were recorded when the device detected impact while driving or parked.
- Manual files : Contains files that were recorded by pushing forced recording button on upper left front area of the product.

* Default storage ratio

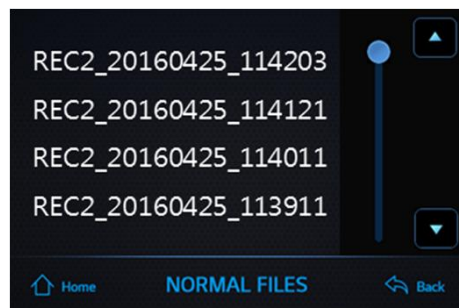
Item	Ratio
Normal recording	50%
Parking recording	30%
Event recording	10%
Manual recording	5%

*Driving recording file is stored at 80Mbyte, while event and forced recording files are stores in 40Mbyte size.

► Play files

3) Recorded file list

Select recording mode to see recorded file list.



* Video file naming method

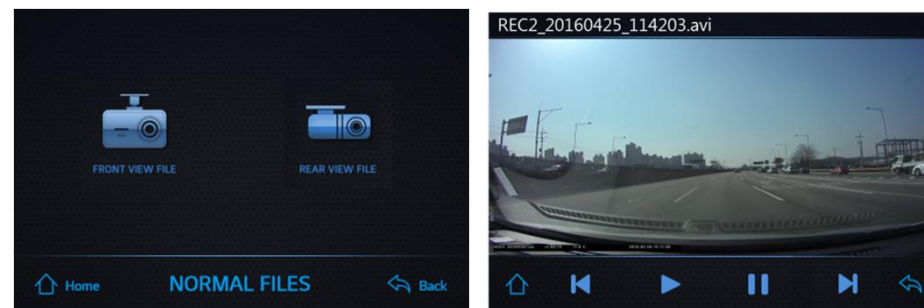
File name	REC2_20160302_161506.avi			
	REC	2	20160302	161506
Comment	Recorded video category	Camera channel 1:Front 2:Front+Rear	Video storage date	Video storage time






- Recorded video file name category

File name	Comment
REC	Driving mode constant recording file
EVT	Driving mode event recording file
MOT	Parking mode motion event recording file
IMP	Parking mode event recording file
MAN	Manual forced recording file

4) Play files

Select camera channel you wish to play.



- Select the camera you wish you play between front / rear.
- Use below buttons during video play to select following functions.
"Home / Previous file/ Play / Pause / Next file / Back"
- "Home ": Select if you wish to view real-time video while playing file.
- "Previous file ": Select if you wish to play file that's been recorded before the one you're currently playing.
- "Play ": Select when the video is paused to play again.
- "Pause ": Select if you wish to pause the play.
- "Next file ": Select if you wish to play file that's been recorded after the one you're currently playing.

► LCD Setting

1) Screen contents

MAIN MENU > MENU > LCD SET



- LCD setting consists of "1MIN TURN OFF, 3MIN TURN OFF, 5MIN TURN OFF, ALWAYS ON" and it allows user to set the time the LCD screen turns off.

2) LCD setting MENU contents

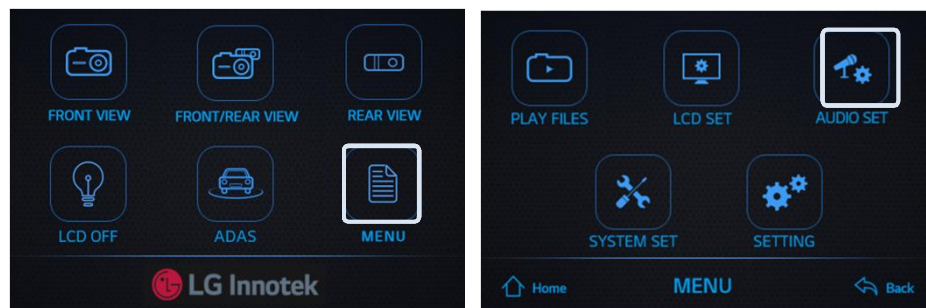


- "1MIN TURN OFF" : LCD screen will turn off after 1 minute.
- "3MIN TURN OFF" : LCD screen will turn off after 3 minute.
- "5MIN TURN OFF" : LCD screen will turn off after 5 minute.
- "ALWAYS ON" : Screen will always be on while driving.
- The device is set to default setting of "1MIN TURN OFF".

► Audio Setting

1) Screen contents

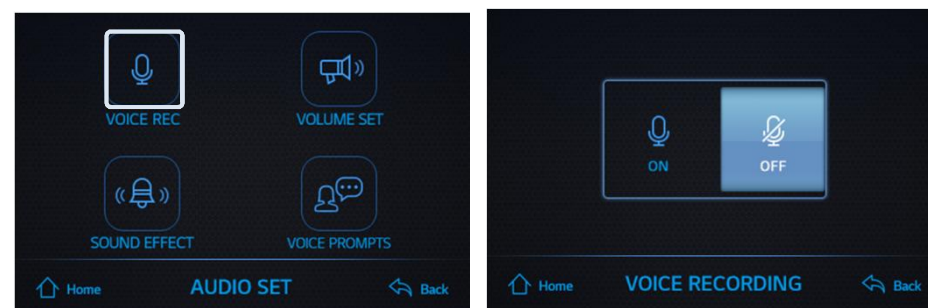
MAIN MENU > MENU > AUDIO SET



- Audio setting consists of "VOICE REC, VOLUME SET, SOUND EFFECT, VOICE PROMPTS" and it allows the user to set audio-related items.

2) Audio setting MENU contents (Sound recording)

MAIN MENU > MENU > Audio SET > VOICE REC

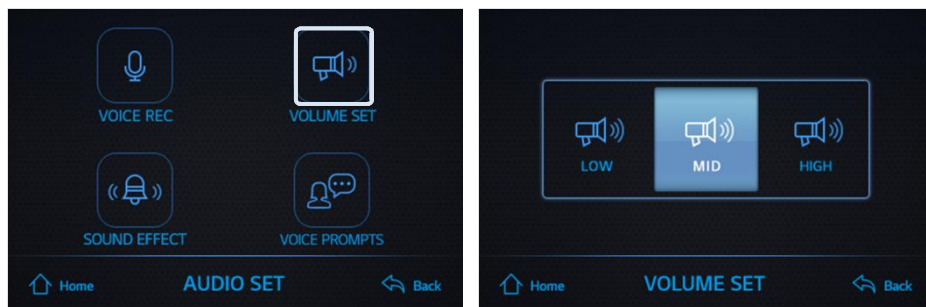


- "VOICE REC" : The device will use built-in microphone to record sound when recording video. You can select "ON, OFF".
"ON" will record sound when recording video,
"OFF" only records video and not the sound.

► Audio Setting

3) Audio setting MENU contents (adjust volume)

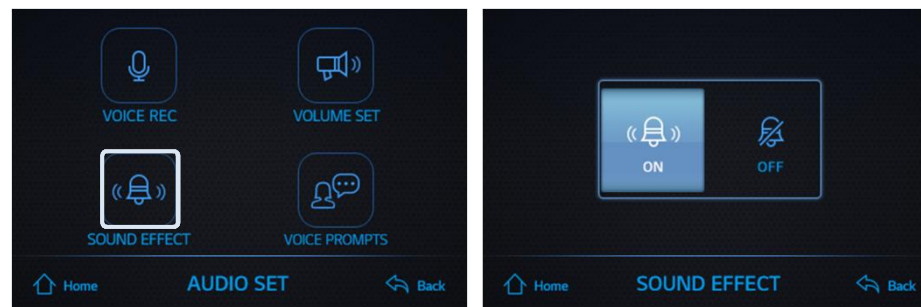
MAIN MENU > MENU > AUDIO SET > VOLUME SET



- You can select "LOW/MID/HIGH" to adjust volume.

4) Audio setting MENU contents (Sound effect setting)

MAIN MENU > MENU > AUDIO SET > SOUND EFFECT



- You can select between "Sound Effect ON, Sound Effect OFF" for sound effect setting.
"ON" will play sound effect when the user touches the screen.
"OFF" will not play sound effect when the user touches the screen.

► Audio Setting

5) Audio setting MENU contents (voice guide)

MAIN MENU > MENU > Audio SET > VOICE PROMPTS

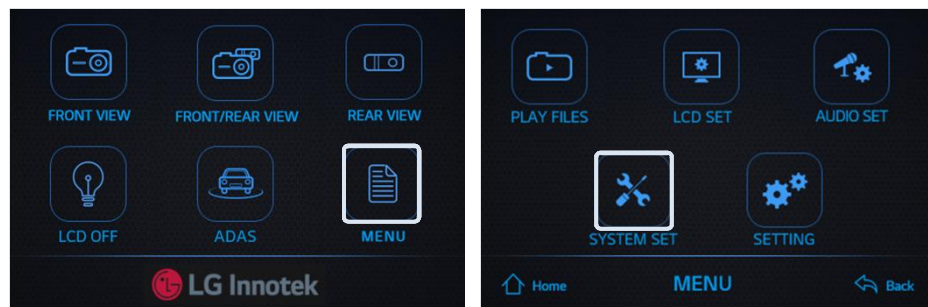


- User can select from "ON, OFF" for voice prompts setting.
"ON" will provide voice guide at the beginning and end of recording.
"OFF" will not provide voice guide at the beginning and end of recording.

► System set

1) Screen contents

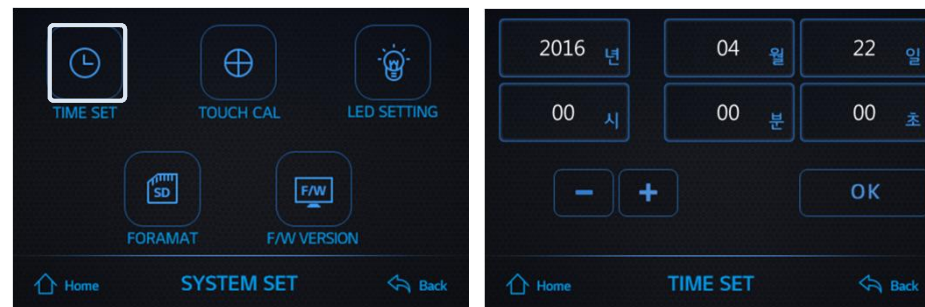
MENU > MENU > SYSTEM SET



- System set consists of "TIME SET, TOUCH CAL, LED SETTING, FORMAT SD Card, and F/W Version."

2) Time setting

MAIN MENU > MENU > SYSTEM SET > TIME SET

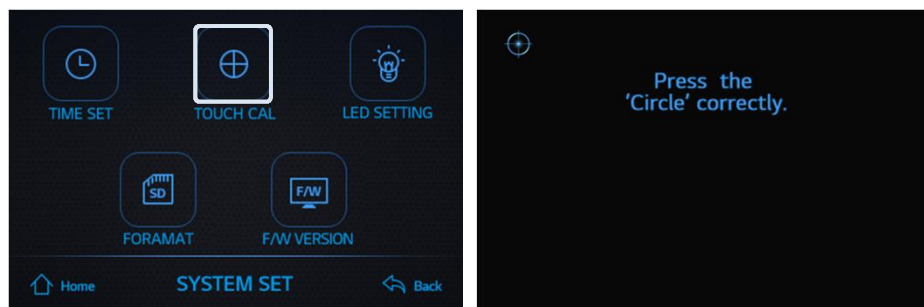


- Time set allows user to manually adjust time if current time and time displayed on the device are different.
- Use "+, -" to adjust year/month/day/hour/minute/second.
- When connected to GPS, satellite reception will automatically set accurate time and date, so a user does not need to set the time.

► System set

3) Adjust Touch

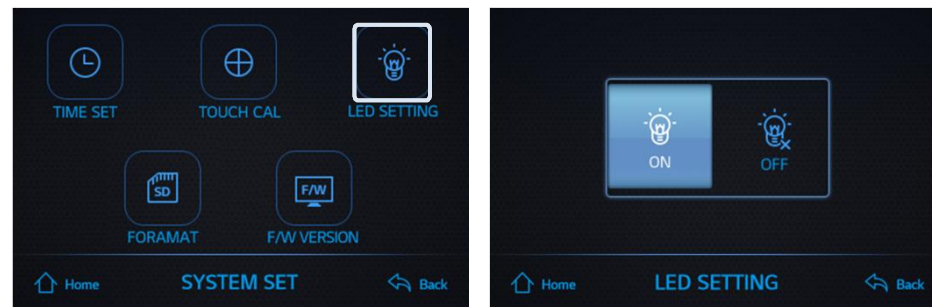
MAIN MENU > MENU > SYSTEM SET > TOUCH CAL



- Use Adjust Touch function if the touch function doesn't work well or deviates from the area of touch.
- Press Adjust Touch and a plus sign will appear on the screen as shown above to the right.
- Touch all in sequence and check to apply the adjusted value. Select "OK" to apply the adjusted value or "Cancel" to apply the value prior to adjustment.

4) Security LED Mode

MAIN MENU > MENU > SYSTEM SET > LED SETTING

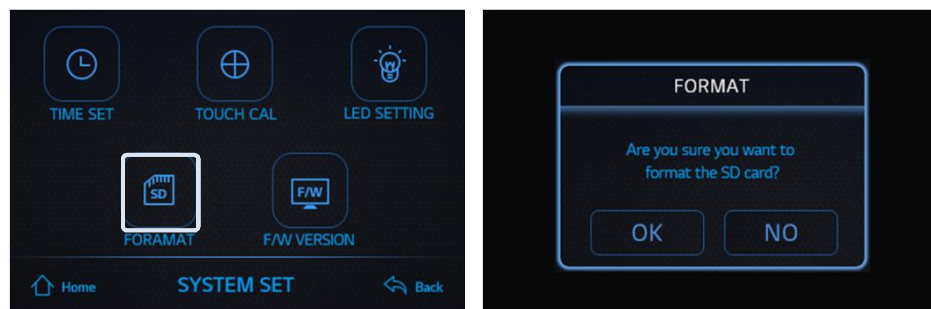


- LED Setting is used to turn on or off the LED status in front of the dashcam.
- Select ON / OFF to turn on or off.

► System set

5) Format SD Card

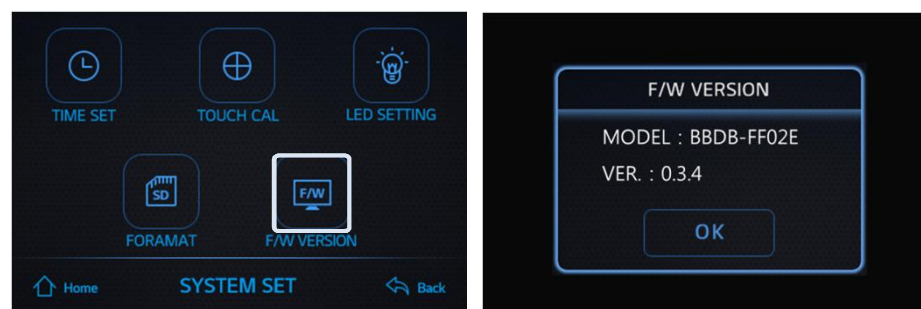
MAIN MENU > MENU > SYSTEM SET > FORMAT



- Format function deletes all stored video files and initialize micro SD card.
However, setting values set to the device will not be deleted.
- (Caution) Before proceeding to format SD card, store important files in other storage devices in advance.
- When you press Format SD Card, device will ask if you want to proceed. Press "OK" to delete all data stored in SD card, Press "Cancel" if you don't want to format SD card.

6) F/W Version

MAIN MENU > MENU > SYSTEM SET > F/W VERSION

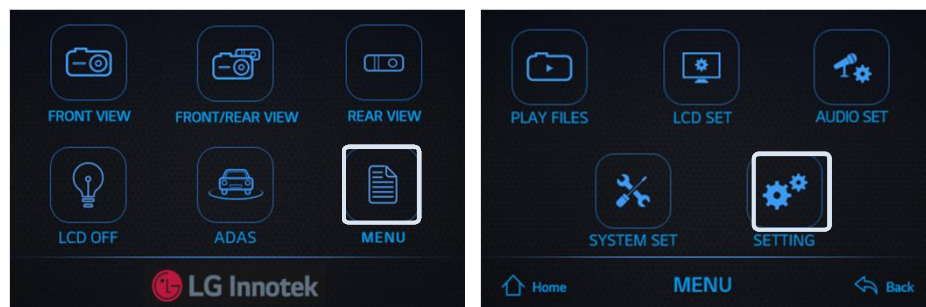


- You can check the firmware (F/W) version of the product.

► Setting

1) Screen content

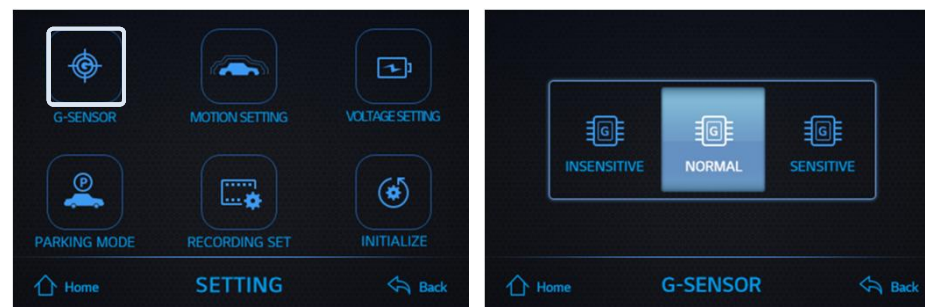
MAIN MENU > MENU > SETTING



- Setting consists of "G-sensor, MOTION SETTING, VOLTAGE SETTING, PARKING MODE, RECORDING SET, and INITIALIZE."

2) G sensor

MAIN MENU > MENU > Setting > G-SENSOR

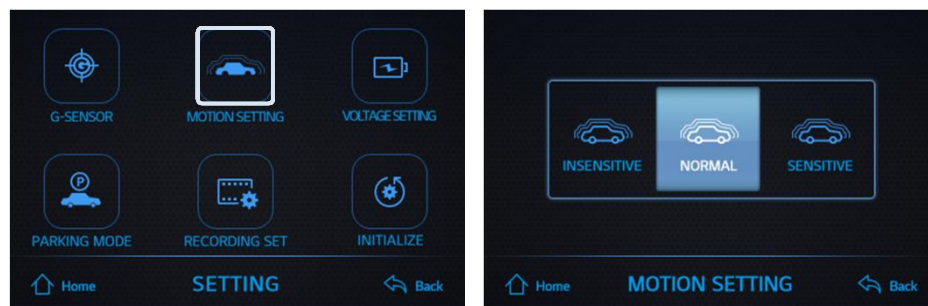


- G-sensor automatically records video when impact above set sensitivity is detected.
It records video if impact to the car is detected while driving or parked. When vehicle gets in collision accident, the sensor detects the impact and automatically begins recording following "ding dong" sound. (Minute impacts are not recorded.)
- Use "SENSITIVE" to detect smaller impact, and use "INSENSITIVE" to lower impact detection sensitivity.

► Setting

3) Motion Sensitivity

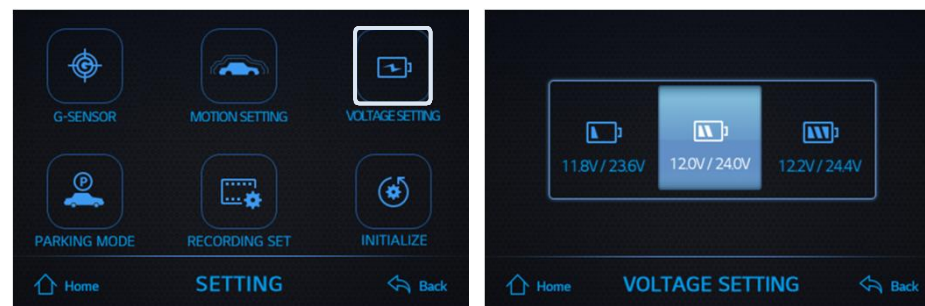
MAIN MENU > MENU > SETTING > MOTION SETTING



- MOTION SETTING is only for during parking mode, and it automatically records and saves file when motion is detected while parked.
- You can set the sensor's sensitivity to "INSENSITIVE, NORMAL, SENSITIVE"
(Even if it's set to sensitive, motion detection function is not supported if a car is parked in dark area with no light source.)

4) Low Voltage Cutoff

MAIN MENU > MENU > SETTING > VOLTAGE SETTING

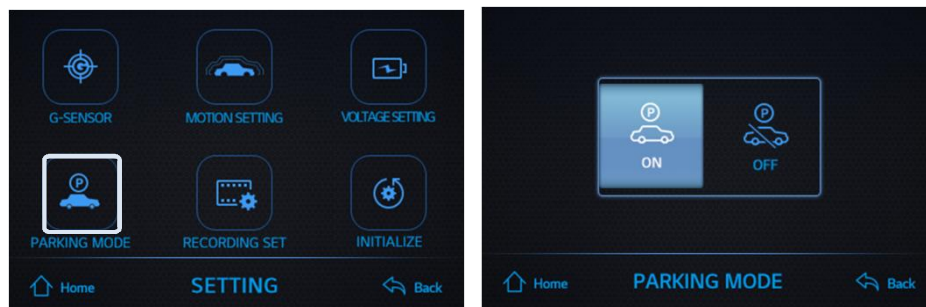


- When vehicle voltage drops below 11.5V (23V for large vehicles), the driver cannot start the engine.
In order to prevent such mishap, low voltage cutoff function automatically stops the dashcam operation when the dashcam operation causes vehicle battery voltage to drop below the set value.
- SETTING options for lower voltage vehicles are "11.8V / 12.0V / 12.2V" (23.2V / 24.0V / 24.4V for large vehicles).
- Default setting value is "12.0V/24.0V".

► Setting

5) Parking Mode

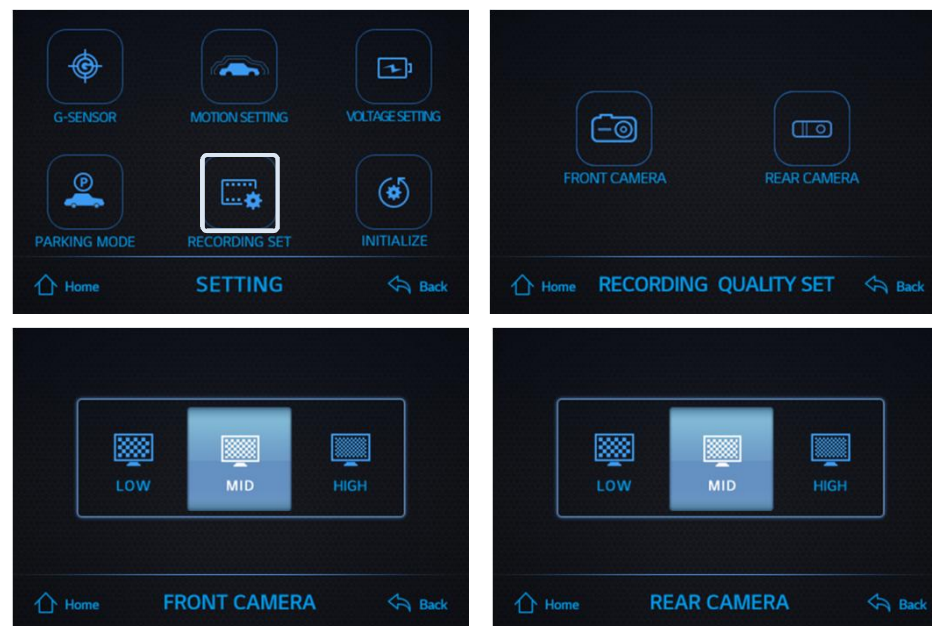
MAIN MENU > MENU > SETTING > PARKING MODE



- Parking mode allows user to choose if the dashcam operates when the vehicle engine is off.
- Parking mode can only be operated when the device is connected to vehicle's continuous power.
(Connection to cigar jack cable or to any terminal intended only for driving recording cannot use parking mode function.)
- If you do not want the dashcam to operate while the car is parked, choose "OFF"

6) Recording Resolution Setting

MAIN MENU > MENU > SETTING > RECORDING SET

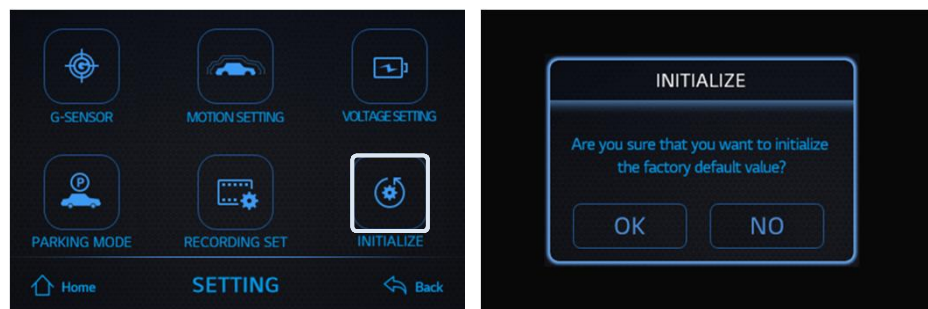


- Recording set adjusts the resolution of videos recorded from front / rear cameras.
- Touch Recording set menu, and touch Front / Rear Camera to set the resolution to "LOW/MID/HIGH".
- Resolution set may change the recording time of each file.

► Setting

7) Initialize Setting

MAIN MENU > MENU > SETTING > INITIALIZE



- "INITIALIZE" will initialize all functions and settings to the factory default setting.
(But, stored video files will not be initialized.)
- When user touches "INITIALIZE", the device will ask if the user wants to proceed.
Touch "No" if you don't wish to initialize setting, and touch "OK" to restart the system and initialize all setting values.

► F/W(Firmware) Upgrade

1) F/W(Firmware) upgrade

- ① Download newest appropriate firmware to your PC.
 - Firmware file can be downloaded from <http://www.lginnotek.com> product support.
- ② Insert SD card to your PC, save the newest firmware file, and eject SD card from the PC.
- ③ Turn off the dashcam power, insert SD card, and turn the device ON.
- ④ Dashcam LCD screen will display "upgrading firmware."
- ⑤ After upgrade, the device will provide voice comment "system will now restart."

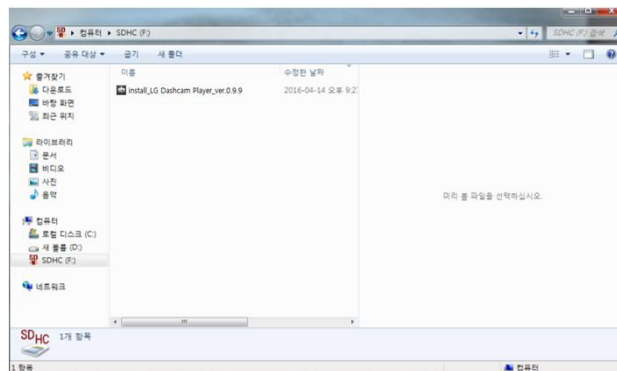
※ Do not turn off power or remove SD card during F/W upgrade.

► Install PC Viewer Program

You can use PC Viewer to view the videos stored in the dashcam and change setting.

After purchasing the product, copy Viewer – the dashcam PC viewer program- from micro SD card to your PC and install.

- 1) Insert micro SD card in micro SD card adapter and connect to the computer.
- 2) Select removable disc that recognized micro SD card
- 3) Copy Viewer file to your computer.



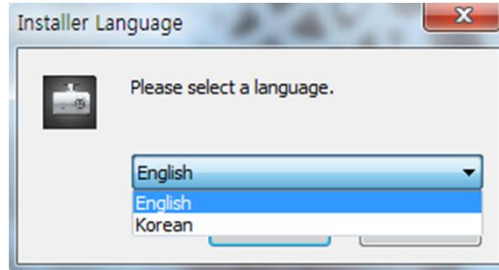
- 4) Run Dashcam Viewer file to install PC Viewer.
- 5) Start Dashcam Viewer installation wizard. (install_ALIVE PC Viewer_ver.0.9.9)

Caution

- PC Viewer is stored in the product's micro SD card, and it can also be downloaded from LG Innotek website.
- LG Innotek website : <http://www.lginnotek.com>
- Path : Homepage → Customer Support / Product Support → Blackbox → Check Product Model Name

► Install PC Viewer Program

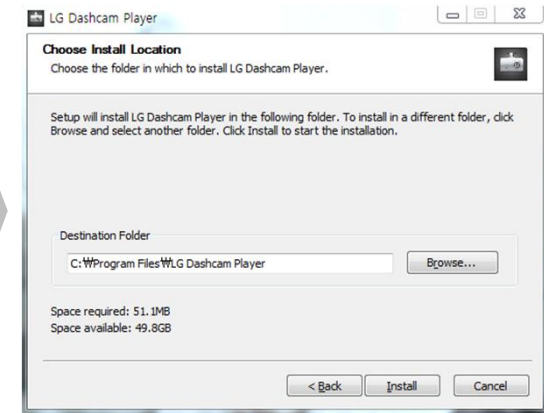
PC Viewer installation sequence



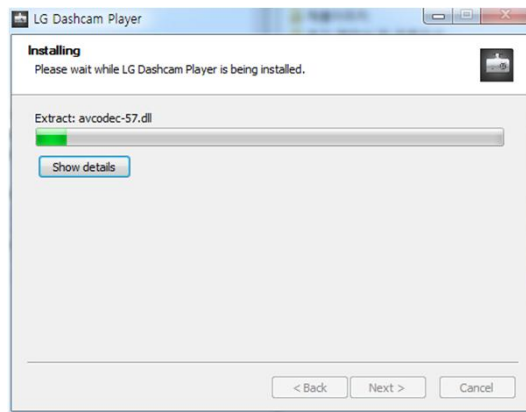
1. Select a language



2. Next > Click



3. Installation folder, Install > Click

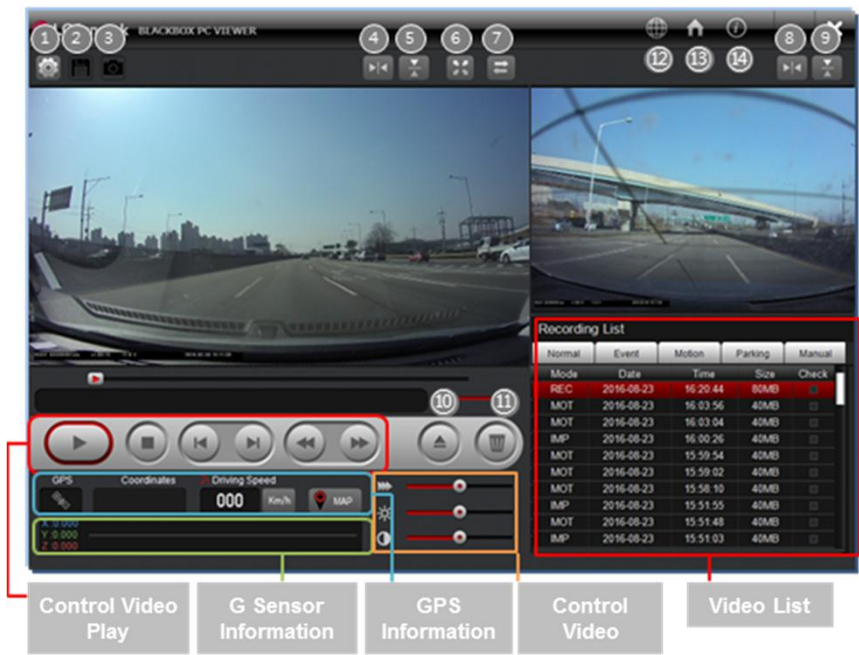


4. Wait until installation is complete



5. After installation is complete Finish > Click

► PC Viewer Main Function

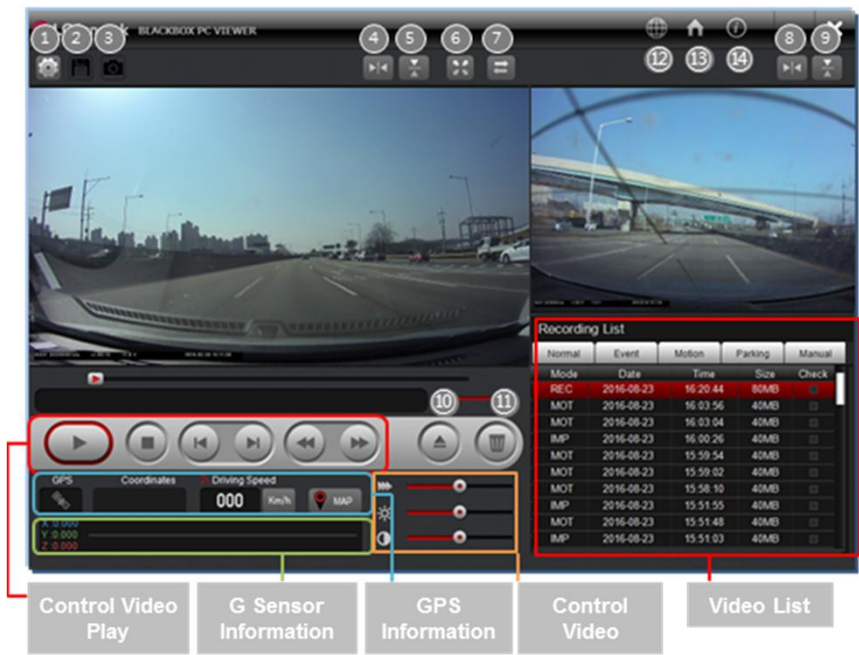


1) Main Function

NO	Icon	Function	NO	Icon	Function
①		Setting	⑧		Rear Video Horizontal Flip
②		Backup Recorded Video	⑨		Rear Video Vertical Flip
③		Snapshot	⑩		Open Drive
④		Front Video Horizontal Flip	⑪		Delete File
⑤		Front Video Vertical Flip	⑫		Select Language
⑥		Full Screen	⑬		Visit Website
⑦		Switch Front/Rear Video	⑭		PC Viewer Version

- Front/Rear video is only available for files created with rear camera installed.
- Double click on front/rear video screen to change size. Double click again to return to initial screen size.

► PC Viewer Main Function

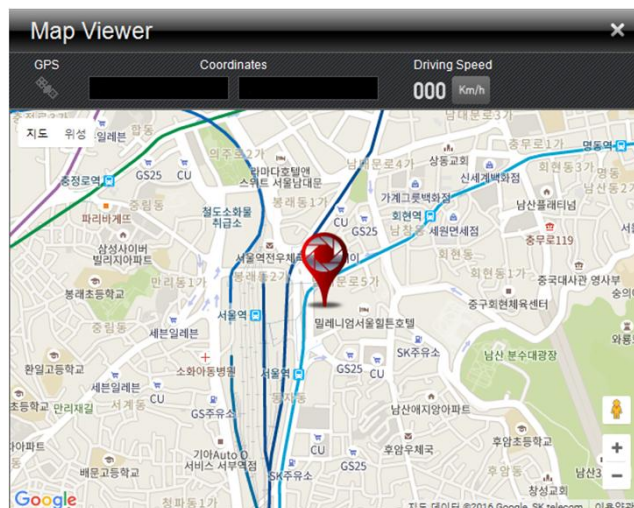


2) Video Play Control

Icon	Function
	Play file / pause
	Stop playing file
	1sec back / 1 sec forward
	Previous file / next file

- 3) GPS information : Displays GPS reception data
- 4) G-Sensor information : Displays G-Sensor data
- 5) Video control: Adjusts video playing speed, brightness, contrast
- 4) Video list: Indicates the list of videos recorded under selected mode

► Show Map



Connect GPS module (sold separately) to the dashcam to record GPS data while recording video, and to indicate location on the map while playing recorded video on PC Viewer.

※ Map information can only be accessed if a video file is saved on device connected to external GPS, and when the PC is connected to the internet.

► Setting



Imports and displays setting contents in micro SD card. Change setting value and click Save to save the setting in micro SD card.