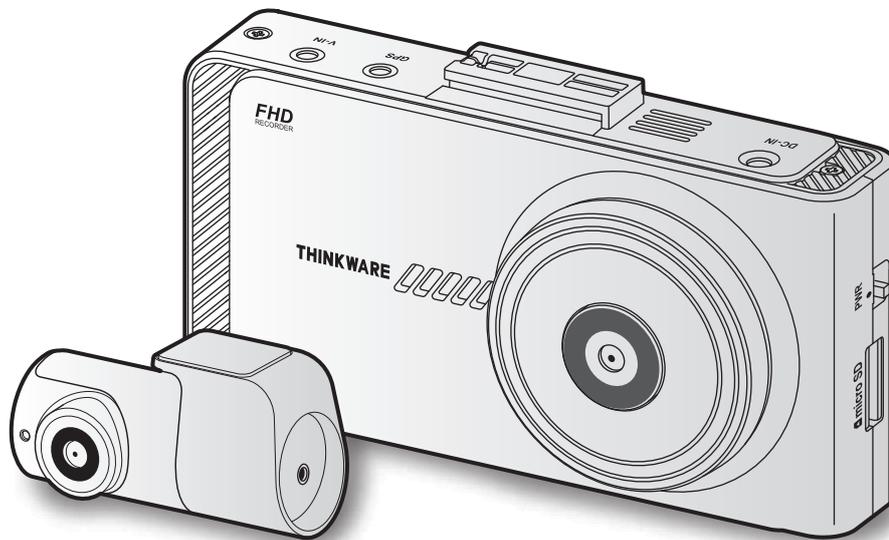Dashboard Camera FHD

THINKWARE

X700

User Guide

This product records videos while the vehicle is operating.
Read and follow the instructions in this guide to properly use and maintain the product.

CE RoHS   FC

Before using the product

About the product

This product records videos while the vehicle is operating. Use this product only for reference when investigating incidents or road accidents. This product is not guaranteed to record or process cloud data for all events. The device may not record accidents with impacts that are too minor to activate the impact sensor or accidents with massive impacts that cause the vehicle's battery voltage to deviate.

Video recording does not begin until the product is completely turned on (booted up). To ensure that all vehicle events are recorded, wait until the product is completely booted up after turning it on, and then begin operating the vehicle.

THINKWARE is not responsible for any loss caused by an accident, nor is it responsible for providing any support regarding the outcome of an accident.

Depending on the vehicle's configuration or operating conditions, such as the installation of remote door lock devices, ECU settings, or TPMS settings, some product features may not be supported, and different firmware versions may influence the product's performance or features.

About the user guide

The information provided in the guide may change when the manufacturer updates its service policy. This user guide is intended for THINKWARE X700 models only, and it may contain technical errors, editorial errors, or missing information.

Copyrights

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Registered trademarks

THINKWARE X700 is a registered trademark of THINKWARE.

Other product logos and service names in this guide are trademarks of the relevant companies.

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.

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.

Information to user : RSS-247

This device complies with Industry Canada's licence-exempt RSSs.

Please be cautioned the changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice: Operation is subject to the following two conditions : (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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

Contents

Safety information

Read the following safety information to properly use the product.

Safety symbols in this guide

⚠️ "Warning" – Indicates a potential hazard which, if not avoided, may result in injury or death.

⚠️ "Caution" – Indicates a potential hazard which, if not avoided, may result in minor injury or property damage.

📝 "Note" – Provides useful information to help users better utilize the product's features.

Safety information for proper use

⚠️
- **Do not operate the product while driving a vehicle.** Distraction while driving may cause accidents and result in injury or death.
- **Install the product in places where the driver's view is not obstructed.** Obstruction of the driver's vision may cause accidents and result in injury or death.

⚠️
- **Do not use damaged power cables.** Doing so may result in electrical fire or electrocution.
- **Disconnect the power cable from the product when it will not be used for an extended period.** Failure to do so may result in electrical fire or battery depletion.
- **Ensure that the product is out of the reach of children and pets.** If the product breaks, it may result in fatal damage.
- **Do not expose product to direct sunlight or intense light.** The lens or internal circuitry may fail otherwise.
- **Avoid excessive humidity and do not allow any water to enter the product.** Electronic components inside the product may fail if exposed to humidity or water.
- **Do not disassemble the product or subject the product to impact.** Doing so may damage the product. Unauthorized disassembly of the product voids the product warranty.
- **Do not apply excessive force when pressing the buttons.** Doing so may damage the buttons.
- **Ensure you are inserting the memory card correctly before inserting it to the product.** The memory card slot or the memory card may be damaged if it is inserted incorrectly.
- **When connecting the power cable to the product, ensure that the connection between the cable plug and the power cable connector on the product is secure.** If the connection is loose, the power cable may become disconnected due to vehicle vibration. Video recording is not available if the power connector is disconnected.

1. Product overview

1.1 Included items

Ensure that all the items are included when you open the product box.

1.1.1 Standard items

Front camera (main unit)
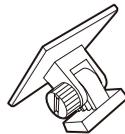
Mount

Car charger

Adhesive cable holder

MicroSD memory card
with adapter
(consumable)

Quick start guide & Warranty
/ CS information / User guide
(stored in the microSD card)

> The standard items may change without prior notice.

1.1.2 Accessories (sold separately)

Hardwiring cable

External GPS receiver

Rear camera

> • GPS reception may be affected by interference from the vehicle's windshield, particularly those treated with anti-UV protective coating, or built-in defroster. It is recommended that an external GPS receiver is used when the GPS signal is weak or when you cannot get a GPS signal.
>
> • To connect the external GPS receiver to the front camera, carefully remove the front camera's GPS port cover with a pry tool or a small flat-head screwdriver to access the port.

1.2   Part names

1.2.1   Front camera (main unit) - front view

GPS connector
Used to connect the external
GPS module (optional)
for additional features.

Fixing bracket connector
Used to connect the fixing bracket.

V-IN input port
Used to connect the
rear camera.

**DC-IN power
connector**
Used to connect the
power cable.

FHD
RECORDER

THINKWARE

Power switch
Used to turn
on or off the product.

Memory card slot
Insert a memory card
to save recordings.

Speaker
Outputs the voice guide and buzzer
sounds to indicate the product's status.

Security LED
Indicates that the video is being recorded.

Front camera lens
Records the front view.

1.2.2 Front camera (main unit) - rear view

Status LED
Indicates the operating status of the product.

Touchscreen
Used for setting the product or viewing the recorded videos.

Microphone
Used for voice recording.

Reset button
Insert the tip of a sharp object to reset the product when an error occurs.
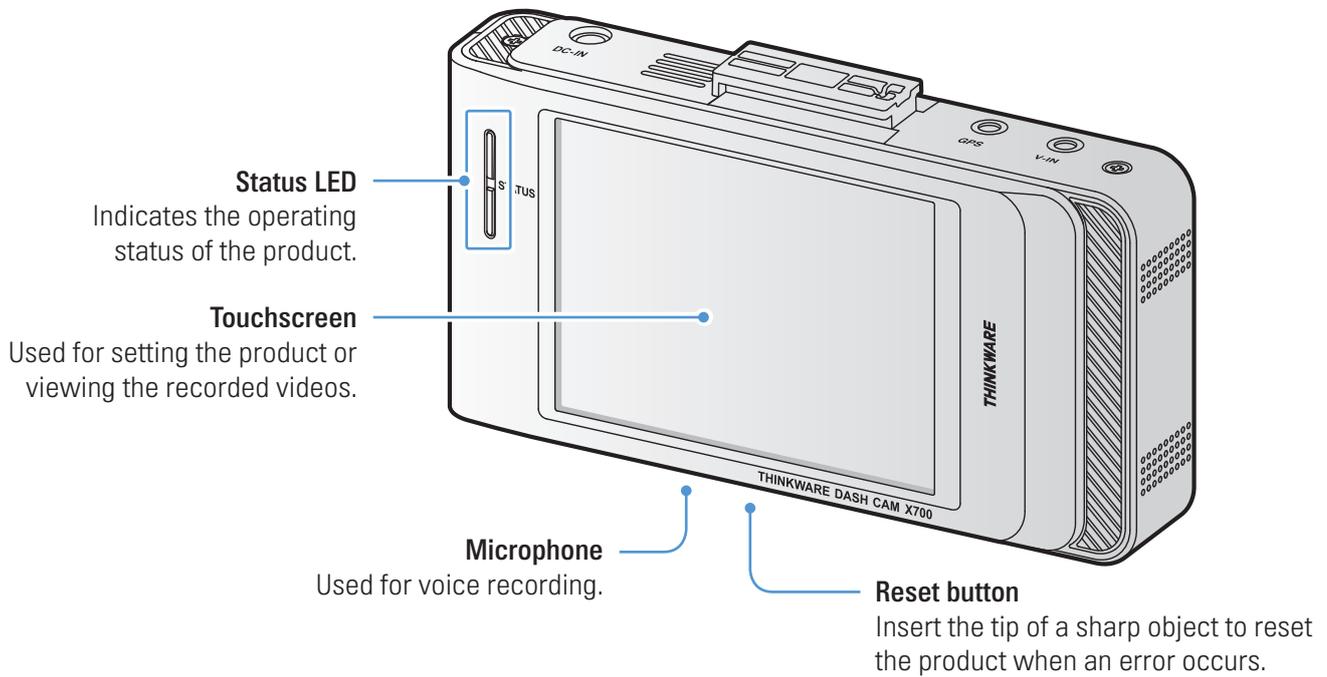
⚠ Gently touch the screen to make inputs on the touchscreen. The screen may be damaged if you apply excessive force to the screen or if you touch the screen with a sharp object.

1.2.3 Rear camera (optional)

Adhesive fixing bracket
Used to fix the rear camera in the vehicle.

Rear camera lens
Records the rear view.

Connection port
Used to connect the rear camera cable.

Security LED
Indicates that the video is being recorded.
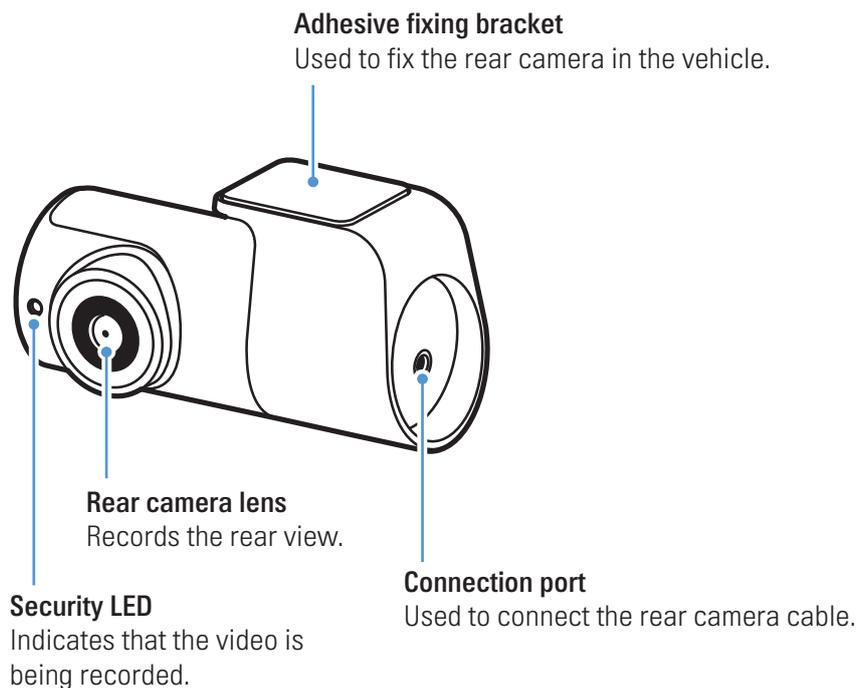
1.3 Removing and inserting the memory card

The memory cards are installed in the product at the factory. Follow the instructions to remove the memory card from the product or to insert the memory card into the product.
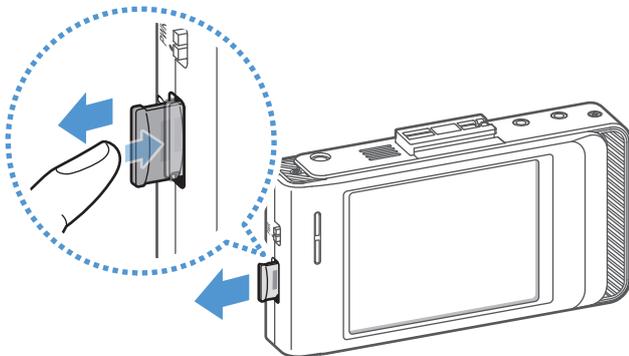
Removing the memory card

Ensure that the product is turned off, and then gently push the bottom of the memory card with your fingernail. The lower part of the memory card will be exposed.

Remove it from the product.
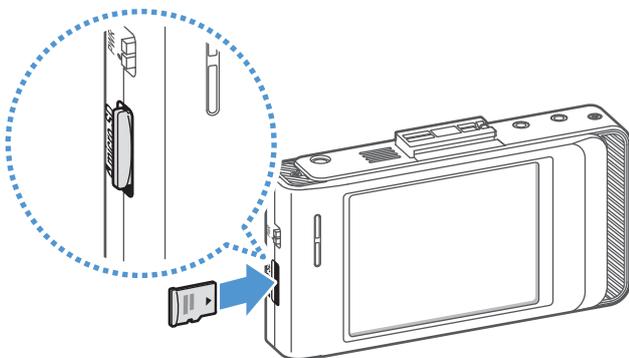
Inserting the memory card

Insert the memory card into the memory card slot, paying attention to the direction of the memory card, and then push the memory card into the slot until you hear a click.

Before inserting the memory card, ensure that the metal contacts on the memory card are facing toward the lens of the product.

⚠ • Ensure that the product is turned off before removing the memory card. The recorded video files may be corrupted or lost if you remove the memory card while the product is on.

• Ensure that the memory card is in the correct direction before inserting it into the product. The memory card slot or the memory card may be damaged if it is inserted incorrectly.

• Use only authentic memory cards from THINKWARE. THINKWARE does not guarantee compatibility and normal operation of third-party memory cards.

📝 To prevent loss of recorded video files, periodically back up the video files on a separate storage device.

2. Installing the product

2.1 Installing the front camera (main unit)

Follow the instructions to properly install the product.

2.1.1 Selecting an installation location
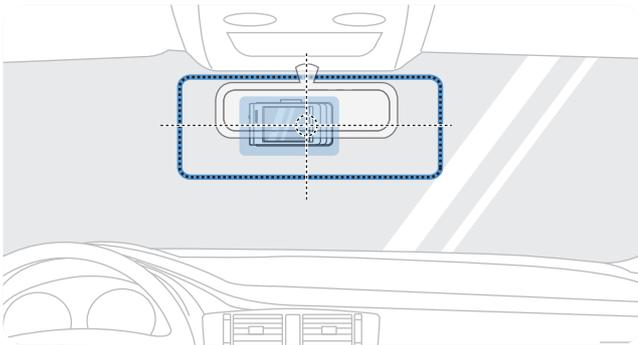
Select an installation location that can record the entire view in front of the vehicle without obstructive the driver's vision. Ensure that the front camera lens is located in the center of the windshield.

20 cm
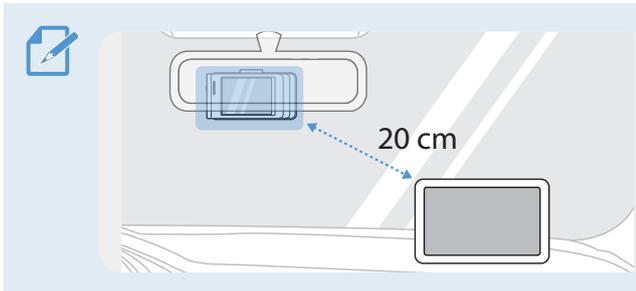
If a GPS navigating device installed on the dashboard is present, its GPS reception may be affected depending on the dashboard camera's installation location.
Adjust the installation location of the GPS navigating device to ensure that the two devices are separated by at least 8 inches.

2.1.2 Securing the product

Follow the instructions to secure the product at the installation location.

1

Align the fixing bracket to the bracket rail on the product, and then slide it until you hear a click (**1**). Then, carefully remove the protective film keeping the lens clean (**2**).

2 After determining the installation location, wipe the installation location on the windshield with dry cloth.

3
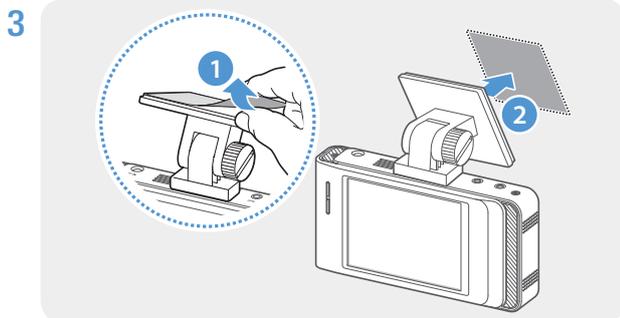
Remove the film from the adhesive tape on the bracket, and then press the tape to the installation location.

4
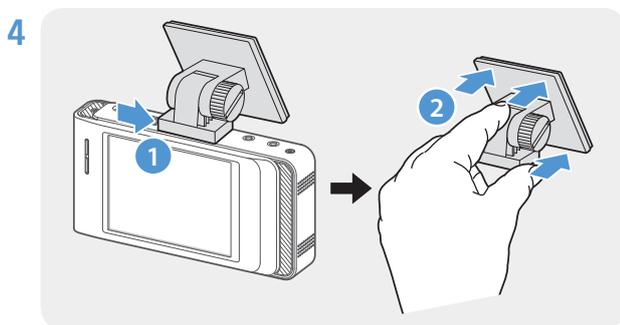
Remove the product from the bracket and push the bracket against the windshield to ensure that the bracket is firmly fixed.

5
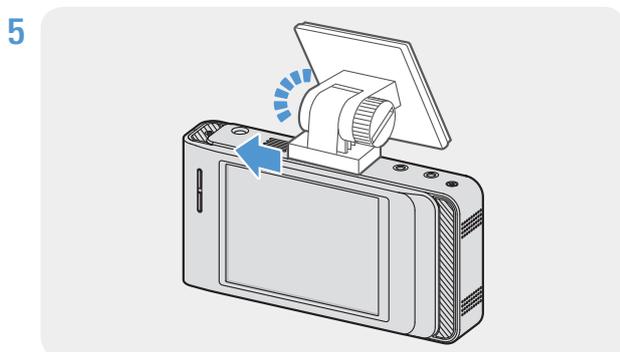
Align the product to the bracket, and then slide it into the locking position until you hear a click.

⚠️ • The product may fall and be damaged during vehicle operation if it is not firmly fixed to the bracket.
• If you need to remove the bracket from the windshield to alter the installation location, be careful not to damage the windshield's film coat.

6
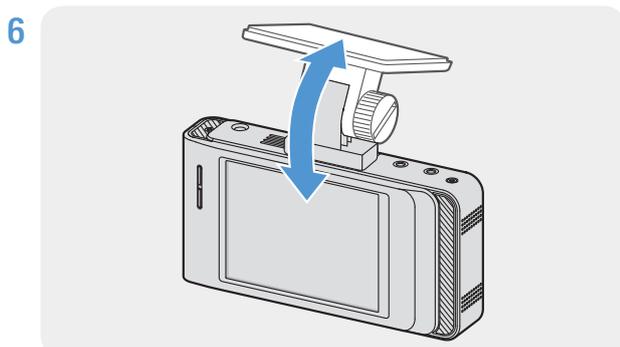
Set the vertical angle of the camera appropriately and temporarily fix it by lightly turning the fixing screw.

The camera angle must be adjusted again after the installation is complete. Do not completely tighten the fixing screw yet.

2.1.3   Connecting the power cable

When the engine and electrical accessories are turned off, connect the car charger.

> ⚠️ The hardwiring cable (optional) must be professionally installed to the vehicle by a trained mechanic.
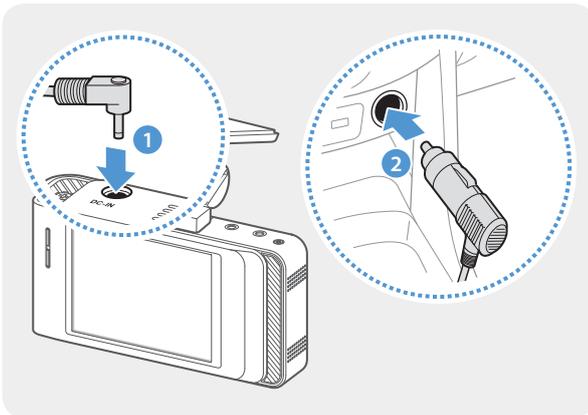
Connect the cigar socket power cable to the product's DC-IN power connector and insert the cigar jack into the vehicle's power socket.

> 📝 The location and specifications of the power socket may differ by vehicle make and model.

> ⚠️ • Use the authentic THINKWARE cigar socket power cable (optional). If you use another manufacturer's cable, the product may be damaged or electrical fire or electrocution may result due to the voltage difference.
>
> • Do not cut or modify the power cable yourself. Doing so may damage the product or the vehicle.
>
> • For safe driving, arrange the cables to prevent the driver's vision from being obstructed or interfering with driving.

2.2 Installing the rear camera (optional)

Refer to the following instructions to properly install the rear camera.

2.2.1 Selecting an installation location
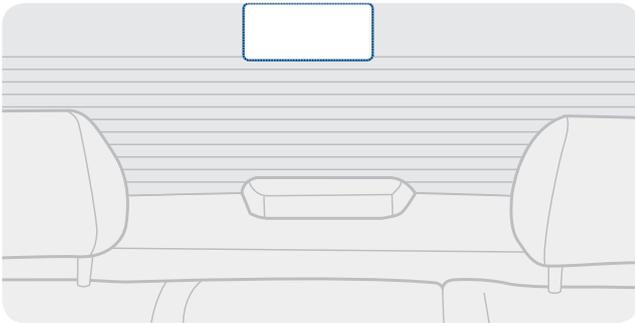
Select the location on the rear windshield where there is no defrost grid wire and the camera can record the entire rear view.

⚠️ • For vehicles with a sunshade attached to the rear windshield, you must select the location where using the sunshade will not interfere with camera operation.

• The adhesive part of the rear camera should not touch the defrost grid.

2.2.2 Securing the rear camera

Refer to the following instructions to secure the product to the installation location.

1 After determining the installation location, wipe the installation surface of the windshield with dry cloth.

📝 Check the installation location before you secure the rear camera to the rear windshield. After securing the rear camera to the windshield, it is hard to remove the camera or change the installation location due to the strong adhesive.
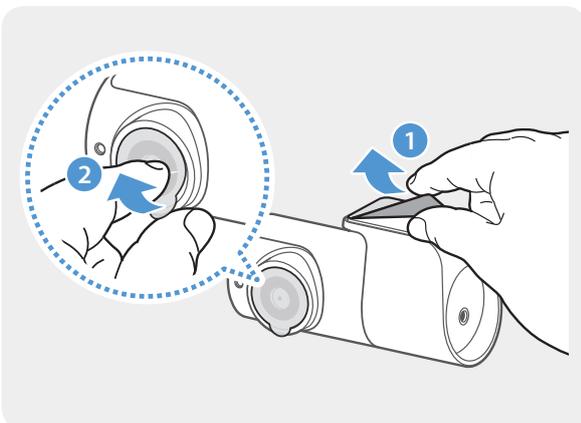
2 Remove the film from the fixing bracket's adhesive tape and the camera lens.

3
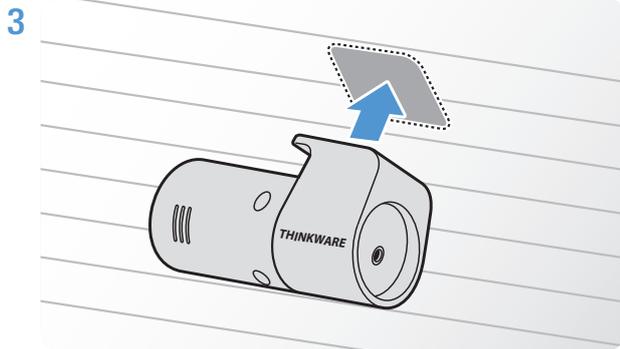
Attach the product with the THINKWARE logo facing indoors and press the adhesive tape firmly to secure the camera.

> If the product is fixed in reverse, the rear view will be recorded upside down.

4
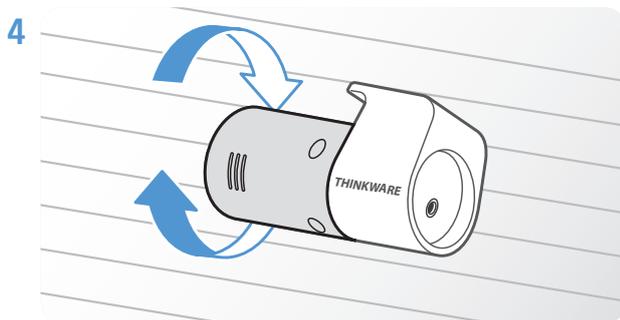
Adjust the camera's vertical angle.

2.2.3 Connecting the rear camera cable

Power off the product and connect the rear camera cable to the front camera (main unit).

1
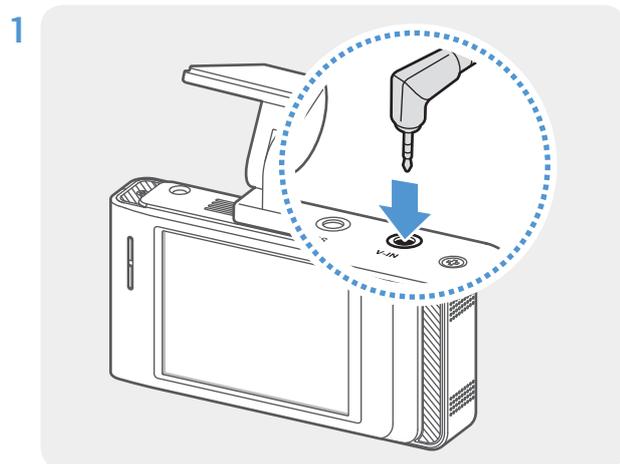
Connect one end of the rear camera cable to the front camera's V-IN connector.

2
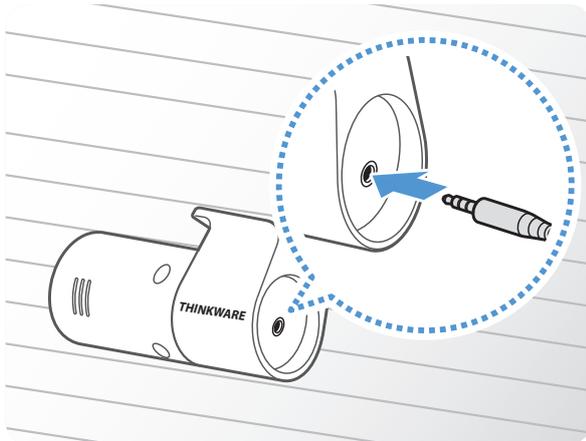
Connect the other end of the rear camera cable to the rear camera's cable connector.

⚠️ For safe driving, arrange the cables to prevent the driver's vision from being obstructed or interfering with driving.

3 Turn on the ACC or starts the engine to check if the product is powered on. After the product is powered on, the Status LED and the voice guide are turned on.

📝 The product is powered on when electric accessories are turned on or the engine starts.

4 Check the camera angle on the LCD display and adjust the angle if necessary.

2.3 Installing the external GPS module (optional)

To activate the ADAS feature or record driving information (the speed and location), follow the instructions and install the external GPS module on the upper part of the front windshield. Install the external GPS module near the product, taking the module's cable length into account.
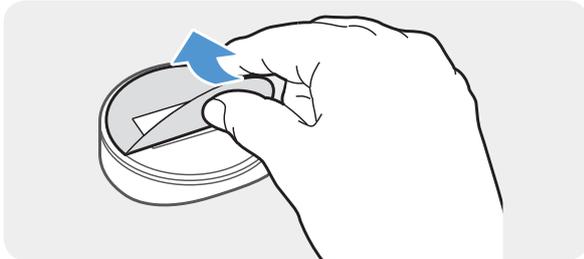
1 Remove the film from the back of the external GPS module.
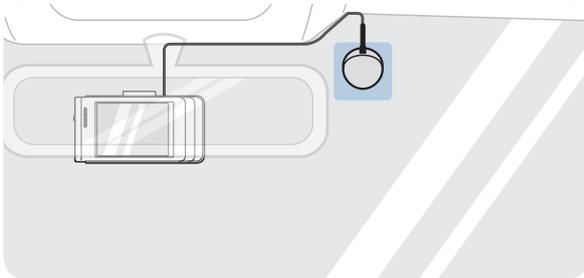
2 Attach the external GPS module's adhesive surface to the upper part of the front windshield and press the adhesive part firmly to secure it.

Before installation, make sure the external GPS module's cable length is sufficient and check the cable routing path.
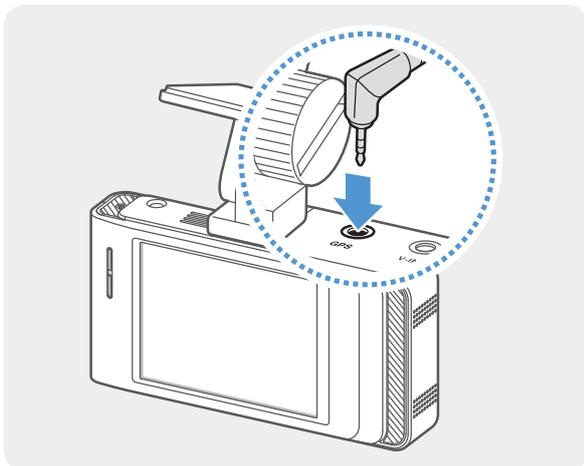
3 Connect the external GPS module to the product's GPS connector.

⚠ Check the GPS connector location again before connecting the module. If you connect the external GPS module to the DC-IN power connector, the pins inside the port may be damaged.

4 Turn on the ACC or starts the engine to check that the product is powered on. After the product is powered on, the Status LED and the voice guide are turned on.

The product is powered on when electric accessories are turned on or the engine starts.

17

3. Using recording features

3.1 Turning the product on or off
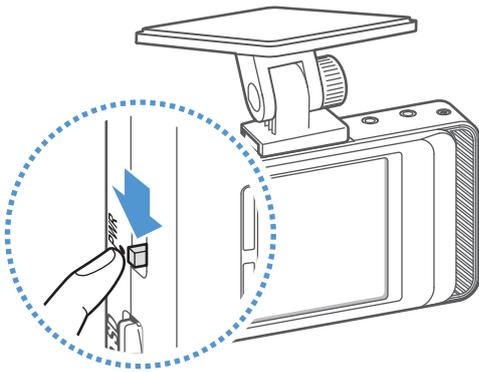
The product is turned on automatically and continuous recording starts when you turn on the ACC or start the engine.

If you want to turn off the product, turn the Power switch up.

To turn the power on again, turn the Power switch down.

> ⚠ Wait until the product is completely booted up after turning it on, and then begin operating the vehicle. The video recording does not begin until the product is completely turned on (booted up).

Continuous recording and parking mode recording

The continuous recording and parking modes are the basic operation modes of the product.

Continuous recording starts when you start driving. While driving, videos are recorded continuously and stored as 1 minute segments.

When you finish driving and turn off the engine, the recording mode switches to parking mode. In parking mode, the product detects impacts to the vehicle and nearby motion and records to the SD card.

> 📝 Parking mode operates only when the hardwiring cable is properly connected.

3.2   Turning the LCD on or off
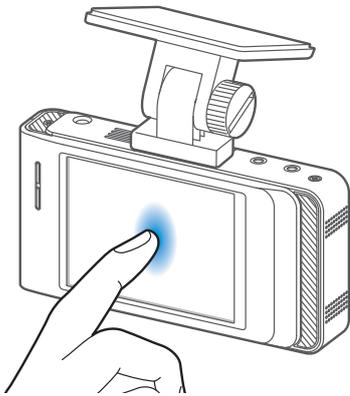
This product allows you to check recorded videos in real time on the LCD display by supporting the Live view feature.

To turn on the display again, gently touch the display.

You can set the time that the LCD will turn off automatically. Tap the Home button (⌂) on the Live view screen ❯ **Settings** ❯ **System settings**, and tap the button next to **LCD Auto-Off**.

LCD Auto-Off option	Operation description
30 sec (default)	The LCD will turn off automatically if you do not operate the product for 30 seconds.
10 min	The LCD will turn off automatically if you do not operate the product for 10 minutes.
OFF	The LCD is always on.

3.3   Learning about the file storage location

Videos are stored in the following folders according to their recording mode. The folder names displayed on the screen and created in the memory card are the same.

On the screen	Continuous	Continuous Incident	Manual Recording	Motion Detection	Parking Incident	Saved Videos
In the memory card	cont_rec	evt_rec	manual_rec	motion_timelapse_rec	parking_rec	saved_videos

⚠ Play videos on the product or a computer only. If you play videos by inserting the memory card in devices such as a smartphone or a tablet PC, the video files may be lost.

📝 A file name is composed of the recording start date and time, and the recording option.

YYYY_MM_DD HH_MM_SS
REC_2018_07_01_10_25_30_F.MP4
REC_2018_07_01_10_25_30_R.MP4

Recording conditions
• F: Front camera
• R: Rear camera

3.4   Using the continuous recording feature

Connect the power cable to the product's DC-IN power connector and then turn on the vehicle's electrical accessories or start the engine. The status LED and the voice guide are turned on, and the continuous recording starts.

During continuous recording, the product operates as follows.

Mode	Operation description	Status LED (STATUS)
Continuous recording	During driving, videos are recorded in 1 minute segments and stored in the **cont_rec** folder.	(light on)
Incident continuous recording*	When an impact to the vehicle is detected, a video is recorded for 20 seconds, from the moment 10 seconds before the detection to the moment 10 seconds after the detection, and stored in the **evt_rec** folder.	(flickers)

* When an impact to the vehicle is detected during continuous recording, incident continuous recording starts with a double beep sound.

> - Wait until the product is completely booted up after turning it on, and then begin operating the vehicle. The video recording does not begin until the product is completely turned on (booted up).
> - When incident continuous recording starts, a double "beep" sounds as a notification. This function saves you time when checking the LED indicators to know the operating status of the product.
> - To use all recording modes, you must insert a memory card into the product.
> - You can record bright and high resolution videos when parking at night by activating the Super night vision feature.

3.5   Recording manually

You can record a scene you want to capture while driving and store it as a separate file. Manually recorded videos are stored in the **Manual record** folder to prevent important data loss due to insufficient storage.

To start manual recording, tap the manual recording button (⏺) on the Live view screen. Then, manual recording will start with the voice guide. During manual recording, the product operates as follows.

Mode	Operation description	Status LED (STATUS)
Manual recording	When you tap the manual recording button (⏺) a video will be recorded for 1 minute, from 10 seconds before to 50 seconds after pressing the button, and stored in the **manual_rec** folder.	(flickers)

To watch a manually recorded video, tap the Home button (⌂) on the Live view screen **> File List > Manual Recording**, and select a video to play.

3.6 Using parking mode

When the product is connected to the vehicle via the hardwiring cable (optional), the operating mode is switched to parking mode with the voice guide after the engine or electrical accessories are turned off.

> • Parking mode operates only when the hardwiring cable is connected. The hardwiring cable (optional) must be professionally installed to the vehicle by a trained mechanic.
>
> • To use all recording modes, you must insert a memory card into the product.
>
> • Depending on the battery charging status of the vehicle, the duration of parking mode may differ. If you want to use parking mode for an extended period, check the battery level to prevent battery depletion.
>
> • You can record bright and high resolution videos while parking at night by activating the Super Night Vision.

If you do not want to use parking mode or you want to change the mode settings, tap the Home button (🏠) on the Live view screen ❯ **Settings** ❯ **Record settings**.

Refer to the following table to set the **Parking Mode** options.

Option		Operation description	Status LED (STATUS)
Motion detection	No motion or impact detected	Monitors movement in the area or impacts to the vehicle. Video will be recorded only when motion or an impact is detected.	🟩 (solid)
	Motion detected	When a moving objects is detected while parking, a video is recorded for 20 seconds, from 10 seconds before detection to 10 seconds after detection, and stored in the **motion_timelapse_rec** folder.	🟩 (flickers)
	Impact detected	When an impact is detected while parking, a video is recorded for 20 seconds, from the moment 10 seconds before detection to 10 seconds after detection, and stored in the **parking_rec** folder.	🟩 (flickers)
Time Lapse	No impact detected	A videos is recorded at a rate of 2 fps for 10 minutes, compressed into a 2-minute long file, and stored in the **motion_timelapse_rec** folder. Since the video file recorded with this option is small, you can record a long video.	🟩 (solid)
	Impact detected	When an impact is detected while parking, a video is recorded for 100 seconds at a rate of 2 fps, from the moment 50 seconds before detection to 50 seconds after detection, and stored in the **parking_rec** folder after being compressed into a 20-second long file. (The buzzer will sound.)	🟩 (flickers)
OFF		The product is powered off when electric accessories and the engine are turned off.	Off

> You cannot use Motion detection and Time Lapse at the same time.

> If parking mode settings are changed, the videos recorded with the previous settings will be deleted. To prevent data loss, back up all parking mode videos before changing parking mode settings.

3.7 Using the Super Night Vision

With the Super Night Vision feature, you can record videos that are much brighter than videos recorded without this feature. This feature is enabled by image signal processing (ISP) and real-time image signal processing to improve the brightness of videos recorded while parking at night.

〈When Super Night Vision is deactivated〉　　　　　〈When Super Night Vision is activated〉

1 To activate this feature, on the Live view screen, tap the Home button ( ) > **Settings** > **Rec. settings**, and then tap the Setting button next to **Super Night Vision**.

2 Switch the button to **ON** or **OFF** to activate or deactivate the feature. The new setting is applied to the system as soon as a change is made.

3.8 About the screen layout

The followings are layout descriptions of the Live view and Home screens.

3.8.1 Live view screen

On the Live view screen, you can view the currently recorded video and operate the product by tapping on the LCD display. When you turn on electrical accessories and start the engine, the Live view screen will be displayed.

> 📝 If the **LCD Auto-Off** setting is set to **OFF**, the screen will be kept on, and the power consumption of the product will increase.

Displays the current recording status.

Move to the Home screen.

Displays the video that the rear camera (optional) is recording.

Turn on or off the voice guidance.

Displays the video that the front camera is recording. Tap the screen to hide or display the Menu buttons.

Activate or deactivate the voice recording feature.

Start manual recording.

● Continuous

80 km/h 12.5V 09/25 AM 10:30

Displays the current driving speed when the external GPS module (optional).

Displays the current date and time.

Displays the current vehicle voltage.

Displays the GPS icon when the external GPS module (optional) is installed.

> 📝 You can open the touch accuracy resetting window by tapping the Live view screen 10 times. Reset the touchscreen accuracy through the touch accuracy resetting window. For more information, refer to "5.4.3 Resetting the touchscreen (Calibrate Touchscreen)".

> ⚠️ Wait until the product is completely booted up after turning it on, and then begin operating the vehicle. The video recording does not begin until the product is completely turned on (booted up).

3.8.2 Home screen

You can move to the Home screen by tapping the Home button (⌂) on the Live view screen.

Displays the GPS icon when the external
GPS module (optional) is installed.

Displays the current
recording status.

Displays the current date and time.

Move to the Live view
screen.

View and play the recorded
videos. (Refer to"3.9 Playing
the videos".)

Configure the system
and features.
(Refer to "5. Settings".)

Product information and the
introduction to the product
features are provided. (Refer
to "6. Accessing the product
information".)

⚠ • Stop your vehicle in a safe location before operating the product.

• While operating the Home screen, the product will stop recording.

• Play videos on the product or the computer only. If you play videos by inserting the memory card in devices such as a smartphone or a tablet PC, the video files may be lost.

3.9 Playing the videos

You can play and watch recorded videos on your product or a computer. Follow the instructions to play the videos.

3.9.1 Playing on the product

1 On the Live view screen, tap the Home button ( ) **>** **File List**. The number of videos categorized by the recording mode will be displayed.

1-minute long continuous videos that are recorded during continuous recording.

Videos that are recorded when impacts are detected during continuous recording.

Selected videos moved to the **Saved Videos** folder to not be overwritten.

Tap to display other video file list.

Videos that are recorded when impacts are detected during parking incident.

Video files that are manually recorded by tapping the manual recording button ( ) on the Live view screen.

Videos that are recorded when impacts are detected during parking incident.

2 When you tap a category, the video file list will appear. Select the video you want to play.

Move to the File list screen. ——— Continuous(8) ——— Move the video to the Archive.

REC_2018_09_25_15_23_12

Displays a list of — REC_2018_09_25_15_22_12
recorded videos.

REC_2018_09_25_15_21_12

01:03

Scroll through the list to
search for a video file.
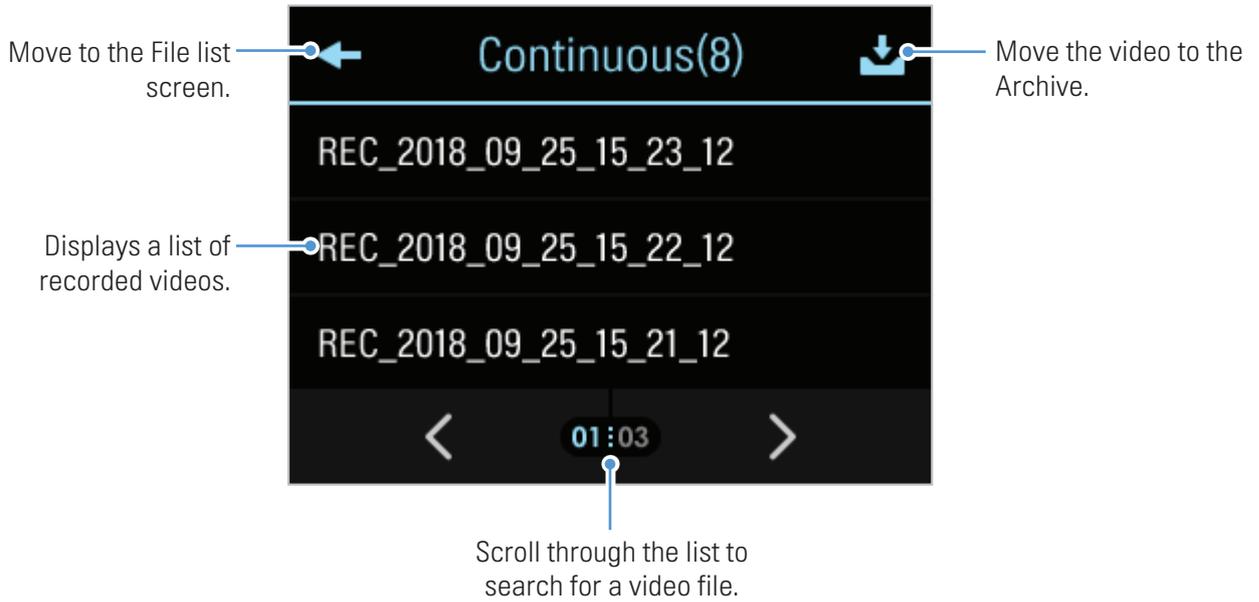
3 Tap a button on the playback screen to control the video player or other functions.

> If you touch the playback area of the LCD display, the screen will be switched to full screen mode. To exit full screen mode, touch the screen again.

Move to the File list screen.

REC_2018_07_11_14_52_27

Switch to the rear camera video view.

Videos are played here. Tap the screen to hide or display the Menu buttons.

Displays the playback status.

00:00:22 00:00:60

Magnify the current video by 3 times.

- : Move in the selected direction
- : Close the magnification screen

Turn the video sound on or off.

Play the previous file.

Play or pause a video.

Move the current video to the Archive.

Play the next file.

> - While you are checking the video file list or playing a video, the product will stop recording.
> - Play videos on the product or a computer only. If you play videos by inserting the memory card in devices such as a smartphone or a tablet PC, the video files may be lost.
> - During playback, vehicle license numbers may not be identified due to the relative speed of a vehicle or lighting conditions.

> - A file name is composed of the recording start date and time, and the recording option.
>
> YYYY_MM_DD HH_MM_SS
> REC_2018_07_01_10_25_30_F.MP4
> REC_2018_07_01_10_25_30_R.MP4
>
> **Recording conditions**
> - F: Front camera
> - R: Rear camera

- If the memory card storage gets shortened while recording, the previously recorded videos are deleted for storage sufficiency. To prevent data loss, back up important videos on additional storage devices.
  - **When the continuous recording storage is insufficient**: The oldest continuous recording file will be deleted and replaced with a new video file.
    Event video files (incident recording and manual recording files) will not be deleted.
  - **When the storage is insufficient (for event video files only)**: Event video files will be deleted chronologically from oldest to most recent.

4. Using Advanced Driver Assistance Systems (ADAS)

ADAS uses the safety camera alert system, a lane departure warning system (LDWS), a forward collision warning system (FCWS), an urban forward collision warning system (uFCWS), and a front vehicle departure warning (FVDW).

To use ADAS, you must install the external GPS module (to provide vehicle location and speed related information). For more information, refer to "2.3 Installing the external GPS module (optional)".

⚠ Use the authentic THINKWARE GPS module. If you use another manufacturer's GPS module, the product may be damaged or electrical fire or electrocution may result due to the voltage difference.

📝 All ADAS Settings are configurable in the dashcam settings. These features will only be activated when the external GPS module is connected.

Identifying the vehicle type

On the Live view screen, tap the Home button (🏠) **> Settings > Road Safety Settings**, and then tap the button next to **Vehicle type** under **ADAS Features** to select a vehicle type among **Sedan / SUV / Truck (Bus)**.

Setting the ADAS settings

To enhance the ADAS accuracy, follow the instructions to calibrate the ADAS settings screen.

1 On the Live view screen, tap the Home button (🏠) **> Settings > Road Safety Settings**, and then tap the View button next to **ADAS settings** under **ADAS Features**.

2

Adjust the product to align the blue line displayed on the ADAS settings screen with the center of the hood and the green line just above the hood.

After positioning the product, drive at 30 km/h for more than 1 minute to finish the alignment.

📝 When you align the ADAS settings screen, adjust the product position within 7 cm of the default installation location (where the camera lens is located at the center of the front windshield).

4.1 The safety camera alert system (optional external GPS module required)

When the vehicle approaches or passes the speed limit zone, the safety camera alert system collects GPS signals and safety camera data. This system also provides road information about bus only lane, parking ticket trap zones, and overloading enforcement zone in real time to assist you while driving.

If the vehicle exceeds the speed limit or gets close to the speed limit zone, the speed limit will be displayed on the screen.

To deactivate the safety camera alert system, tap the Home button (⌂) on the Live view screen ❯ **Settings** ❯ **Road Safety Settings**, and then tap the Setting button next to **Safety Camera Alert** to switch to **OFF**.

> This feature may not be available in some countries.

4.2 The lane departure warning system (LDWS)

When the vehicle departs its lane, the LDWS detects the lane departure via the real-time video image and warns the driver.

The lane guide lines are displayed on the screen when you activate the LDWS.

The voice guide warns you and a left or right lane guide line will display in red when the vehicle enters either lane.

The departed lane is displayed in red.

> The on-screen lane guide lines cannot be aligned. The guide lines may not perfectly match the actual lanes due to the product installation angle, position, or winding roads.

Lane departure warning methods

If the external GPS module is installed, an alarm will sound when the turn signals are not turned on and the vehicle leaves its lane at a GPS speed over 50 km/h.

Setting the LDWS

- To deactivate the LDWS, tap the Home button (⌂) on the Live view screen > **Settings** > **Road Safety Settings**, and then tap the Setting button next to **LDWS (Lane Departure Warning)** to switch to **OFF**. To set the warning sensitivity, select a sensitivity option (**Low / Mid / High**).

- To align the lane guide lines of the LDWS, tap the Home menu button (⌂) on the Live view screen > **Settings** > **Road Safety Settings**, and then tap the Reset button next to **Initialize LDWS** under **ADAS Features**.

- To change the lane departure detection speed, tap the Home button (⌂) on the Live view screen > **Settings** > **Road safety settings,** and then tap the button next to **LDWS speed** under **ADAS Features** to switch the speed (**50/60/80/100 km**, **30/40/50/65 Mph**).

> 📝 If the vehicle is driving on a snow-covered road, in the rain at night, or on a damaged road, the LDWS may not work as it does under normal conditions.

4.3 The forward collision warning system (FCWS)

When the vehicle drives at 40 km/h or above, the FCWS will detect forward collision danger via the real-time video image and warn the driver.

Preliminary forward collision warning: Displayed when a preliminary collision hazard is detected.
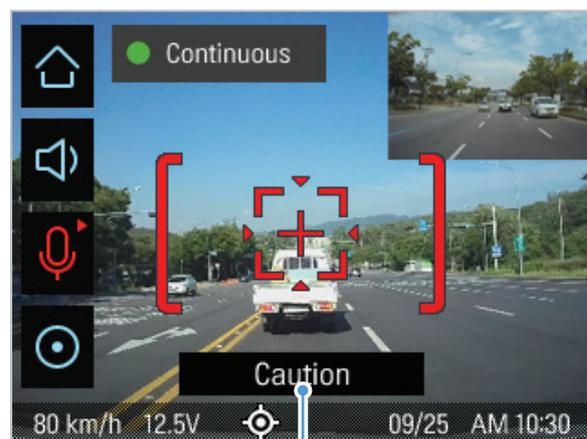
Secondary forward collision warning: Displayed when the distance to the vehicle ahead decreases after a preliminary collision warning.

To deactivate the FCWS or change the warning sensitivity, tap the Home button (⌂) on the Live view screen > **Settings** > **Road Safety Settings,** and then tap the button next to **FCWS (Forward Collision Warning)** to switch the sensitivity option (**Low / Mid / High**) or **OFF** to turn off the warning.

4.4   The urban forward collision warning system (uFCWS)

When the vehicle drives at 30 km/h or lower, the uFCWS will detect forward collision danger via the real-time video image and warn the driver.
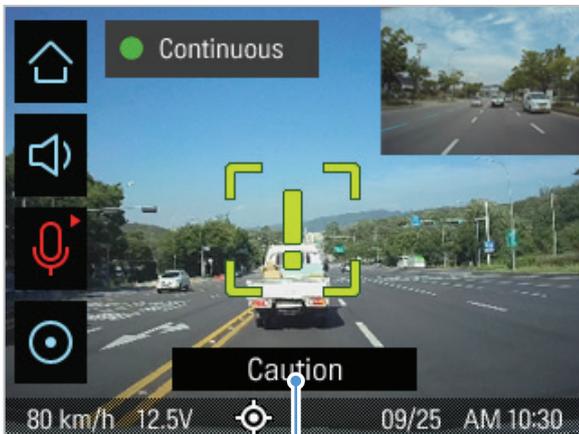
Preliminary low speed forward collision warning:
Displayed when a preliminary low speed collision hazard is detected.

Secondary low speed forward collision warning:
Displayed when the distance to the vehicle ahead decreases after a preliminary low speed collision warning.

To deactivate the uFCWS or change the warning sensitivity, tap the Home button (⌂) on the Live view screen ❯ **Settings** ❯ **Road Safety Settings**, and then tap the button next to **FCWS (Low Speed)** to switch the sensitivity option (**Low** / **Mid** / **High**) or **OFF** to turn off the warning.

4.5   The front vehicle departure warning (FVDW)

The FVDW will detect the departure of the vehicle in front via the real-time video image and notify the driver.

When the vehicle is stopped in traffic, this feature will detect the departure of the vehicle in front and notify the driver.

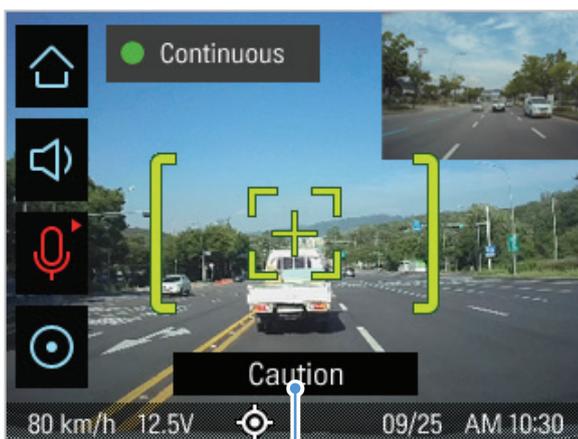An alarm is output 4 seconds after the vehicle ahead has departed.

To deactivate the FVDW, tap the Home button (⌂) on the Live view screen ❯ **Settings** ❯ **Road Safety Settings**, and then tap the button next to **FVDW (Front Vehicle Departure Warning)** to switch the setting to **OFF**.

5. Settings

You can set the product features according to your needs and preferences.

5.1 Setting the camera

You can adjust the brightness of the front and rear view or reverse left and right of the rear view.

5.1.1 Setting the brightness of the camera (brightness camera)

You can set the brightness of the front view recording. Refer to the following instructions to set the brightness.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **Camera Settings**, and then tap the Setting button next to **Brightness-Front**.

2 Switch the button to **Mid**, **Dark**, or **Bright**. The new setting is applied to the system as soon as a change is made.

5.2 Setting recording features

You can set and adjust various features for recording, including the detection sensitivity for recording when the product detects an impact during continuous recording.

5.2.1 Setting the continuous impact detection sensitivity (cont. sensitivity)

You can set the detection sensitivity for recording when an impact is detected while driving. When you set the sensitivity, you must consider the road conditions, traffic situation, or your driving style.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **Rec. Settings** and then tap the Setting button next to **Cont. sensitivity**.

2 Switch the button to **OFF**, **Lowest**, **LOW**, **MID**, or **High**. The new setting is applied to the system as soon as a change is made.

> ⚠ • If the continuous impact detection sensitivity is too high, the product will record a video even when a minor impact caused by the road condition and your driving is detected. This may shorten the memory card's life.
>
> • If the continuous impact detection sensitivity is too low, the product may not record a video when a minor accident occurs.

5.2.2 Setting parking mode

You can set the operating mode of the product while the vehicle is parked. Follow the instructions to set parking mode.

> ⚠️ To use parking mode, you must install the hardwiring cable. If continuous power is not supplied to the product, the product will stop recording when the vehicle engine is turned off.

> 📝 For more information about parking mode, refer to "3.6 Using parking mode"

1 On the Live view screen, tap the Home button (⌂) **> Settings > Rec. Settings** and then tap the Setting button next to **Parking Mode**.

2 Select **Motion detection**, **Time Lapse**, or **OFF**, and then tap the Confirmation button (✓).

3 Tap the Confirmation button (✓) on the confirmation screen. The new setting is applied to the system as soon as a change is made.

5.2.3 Setting the Super Night Vision feature

You can record bright and high resolution videos while parking at night if you activate the Super Night Vision feature. Follow the instructions to select a recording mode to use the Super Night Vision feature.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Rec. Settings**, and then tap the Setting button next to **Super Night Vision**.

2 Switch the button to **ON** or **OFF** to activate or deactivate the feature. The new setting is applied to the system as soon as a change is made.

5.2.4 Setting the parking impact sensitivity (parking sensitivity)

You can set the detection sensitivity for recording when impact is detected while parking. Refer to the following instructions to set the parking impact sensitivity.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Rec. Settings** and then tap the Setting button next to **Parking Sensitivity**.

2 Switch the button to **Lowest**, **Low**, **Mid**, **High**, or **Highest**. The new setting is applied to the system as soon as a change is made.

5.2.5 Setting the motion detection sensitivity (motion sensitivity)

The Motion detection feature records a video when a moving object is detected near your vehicle. Refer to the following instructions to set the motion detection sensitivity.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Rec. Settings** and then tap the Setting button next to **Motion Sensitivity**.

2 Switch the button to **Lowest**, **Low**, **Mid**, **High**, or **highest**. The new setting is applied to the system as soon as a change is made.

5.2.6 Setting the record timer feature (Off Timer)

When you set activate the record timer feature, the product will record a video in parking mode for a preset time. Refer to the following instructions to set the time.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Rec. Settings** and then tap the button next to **Off Timer**.

2 Switch the button to **3 Hrs.**, **6 Hrs.**, **12 Hrs.**, **24 Hrs.**, **48 Hrs.**, or **OFF**. The new setting will take effect immediately.

> ⚠ The vehicle battery will not be charged while the vehicle is parked. If you record in parking mode for an extended period, the vehicle's battery may be depleted and you may not be able to start the vehicle.

5.2.7 Setting the battery protection feature (battery protection)

When the vehicle battery is consumed to a certain level, this feature stops recording to prevent battery depletion. Refer to the following instructions to set the Low Voltage Off feature.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Rec. Settings** and then tap the button next to **Battery Protection**.

2 Switch the button to **ON** or **OFF** to activate or deactivate the feature. If you have switched the button to **OFF**, the caution message will appear. Tap **OK** on the screen to deactivate the feature. The new setting will take effect immediately.

5.2.8 Setting the battery cutoff voltage feature (Off voltage)

You can set the voltage limit to stop recording at when using the Low Voltage Off feature. Refer to the following instructions to set the voltage.

1 On the Live view screen, tap the Home button ( ) > **Settings** > **Rec. Settings** and then tap the Setting button next to **Off Voltage**.

2 Tap **+** or **-** to set the voltage in 0.1 V increment. When the battery's voltage reaches the set value, recording will stop.

For vehicles using a 12 V battery (most passenger vehicles), set the voltage to 11.6 V–12.3 V. For vehicles using the 24 V battery (like most passenger vehicles), set the voltage to 23.2 V–24.6 V.

> If the Off voltage value is too low, the product may consume the battery completely depending on the conditions like the vehicle type or temperature.

5.2.9 Setting the battery protection feature for wintertime (Wt Bty Protection)

You can set the month(s) during the cold season (November–March) to apply the low voltage protection level of the vehicle. Refer to the following instructions to set the month(s).

1 On the Live view screen, tap the Home button ( ) > **Settings** > **Rec. Settings**, and then tap the Setting button next to **Wt Bty Protection**.

2 Select **Nov**, **Dec**, **Jan**, **Feb**, **Mar**, **Jun**, **Jul**, **Aug**, **Sep**, and / or **Oct**. The new setting is applied to the system as soon as a change is made.

> In winter, you must set the vehicle's low voltage protection level higher than other seasons due to battery capacity loss.

5.3 Setting Road Safety Settings (ADAS)

The ADAS features explained in this section may not be available in some countries, and the setting menus may be disabled, or may not be displayed at all.

You can activate or deactivate a safety camera alert system, a lane departure warning system (LDWS), a forward collision warning system (FCWS), an urban forward collision warning system (uFCWS), and a front vehicle departure warning (FVDW).

5.3.1 Setting the safety cameras

When the vehicle approaches or passes the speed limit zone, the safety camera alert system will collect GPS signals and safety camera data. Refer to the following instructions to enable or disable this feature.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **Road Safety Settings**, and then tap the Setting button next to **Safety Cameras** under **Safety Cameras**.

2 You can switch the button to **ON** or **OFF** to activate or deactivate the feature. The new setting is applied to the system as soon as a change is made.

5.3.2 Setting the mobile zone alert

Follow the instructions to turn on or off the mobile zone alert.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **Road Safety Settings**, and then tap the Setting button next to **Mobile Zone Alert** under **Safety Cameras**.

2 Switch the button to **ON** or **OFF** to activate or deactivate the feature. The new setting is applied to the system as soon as a change is made.

5.3.3 Identifying the vehicle type

Refer to the following instructions to identify your vehicle type for using the ADAS feature.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **Road Safety Settings**.

2 Tap the Setting button next to **Vehicle type** under **ADAS Features** and select **Sedan**, **SUV**, or **Truck (Bus)**. The new setting is applied to the system as soon as a change is made.

5.3.4 Initializing the ADAS calibration setting (ADAS Settings)

To enhance the ADAS feature's accuracy, follow the instructions to set the alignment on the ADAS settings screen.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **Road Safety Settings**. Tap the View button next to **ADAS Settings** under **ADAS Features**.

2 Adjust the product position to align the blue line displayed on the ADAS settings screen with the center of the hood and the green line just above the hood.

   After positioning the product, drive at 30 km/h for more than 1 minute to finish the alignment.

5.3.5   Initializing ADAS calibration

You can initialize the ADAS calibration screen. Follow the instructions to initialize ADAS calibration.

1   On the Live view screen, tap the Home button (⌂) > **Settings** > **Road Safety Settings**, and then tap the button next to **Initialize ADAS** under **ADAS Features**.

2   When the confirmation window appears, tap the confirmation button (☑). The ADAS calibration settings will be initialized.

5.3.6   Setting the lane departure warning feature (LDWS)

When the vehicle departs its lane, the LDWS will detect the lane departure via the real-time video image and warn the driver. Refer to the following instructions to set the detection sensitivity or activate or deactivate this feature.

1   On the Live view screen, tap the Home button (⌂) > **Settings** > **Road Safety Settings**, and then tap the button next to **LDWS (Lane Departure Warning)** under **ADAS Features**.

2   Switch the button to **Low**, **Mid**, or **High** to set the detection sensitivity, or **OFF** to deactivate the feature. The new setting is applied to the system as soon as a change is made.

5.3.7   Setting the lane departure detection speed (LDWS speed)

You can change the lane departure detection speed. Refer to the following instructions to set the lane departure detection speed.

1   On the Live view screen, tap the Home button (⌂) > **Settings** > **Road Safety Settings**, and then tap the button next to **LDWS speed** under **ADAS Features**.

2   Switch the button to **50km(30mph)**, **60km(40mph)**, **70km(50mph)**, or **80km(65mph)**. The new setting is applied to the system as soon as a change is made.

5.3.8 Setting the forward collision detection sensitivity (FCWS)

When the vehicle drives at 30 km/h or above, the FCWS will detect forward collision danger via the real-time video image and warn the driver. Refer to the following instructions to set the detection sensitivity or activate or deactivate this feature.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Road Safety Settings**, and then tap the Setting button next to **FCWS (Forward Collision Warning)** under **ADAS Features**.

2 Switch the button to **Low**, **Mid**, or **High** to set the detection sensitivity, or **OFF** to deactivate the feature. The new setting is applied to the system as soon as a change is made.

5.3.9 Setting the low speed forward collision detection sensitivity (Low Speed FCWS)

When the vehicle drives at 30 km/h or lower, the Low Speed FCWS will detect forward collision danger via the realtime video image and warn the driver. Refer to the following instructions to set the detection sensitivity or activate or deactivate this feature.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Road Safety Settings**, and then tap the Setting button next to **Low Speed FCWS** under **ADAS Features**.

2 Switch the button to **Off**, **Low**, **Mid**, or **High** to activate or deactivate the feature. The new setting is applied to the system as soon as a change is made.

5.3.10 Setting front vehicle departure warning (FVDW)

When the vehicle is stopped in traffic, this feature will detect the departure of the vehicle in front and notify the driver. Refer to the following instructions to enable or disable this feature.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Road Safety Settings**, and then tap the Setting button next to **FVDW (Front Vehicle Departure Warning)** under **ADAS Features**.

2 Switch the button to **ON** or **OFF** to activate or deactivate the feature. The new setting is applied to the system as soon as a change is made.

5.3.11 Setting the ADAS Volume

You can adjust the ADAS volume. Refer to the following instructions to set the ADAS volume.

1 On the Live view screen, tap the Home button (⌂) **> Settings > Road Safety Settings**, and then tap the Setting button next to **ADAS Volume** under **ADAS Features**.

2 Switch the button to **1**, **2**, or **3** to decrease or increase the volume, or **OFF** to mute the ADAS volume. The new setting is applied to the system as soon as a change is made.

5.4 Configuring the system settings

This menu allows you to configure the hardware settings that are globally applied to the system during operation.

5.4.1 Setting the display language

You can select a language (Korean, English (US), English (UK), Spanish, French, Chinese (Simplified), Chinese (Traditional), German, Italian, Japanese, and Thai) to display on the screen. Follow the instructions to select a language.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the button next to **Language**.

2 Switch the button to a preferred language to select. The new setting is applied to the system as soon as a change is made.

5.4.2 Adjusting the system volume

You can adjust the voice guidance volume. Follow the instructions to adjust the volume.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the Setting button next to **Volume**.

2 Switch the button to **1**, **2**, **3**, or **OFF** to select a volume level. The new setting is applied to the system as soon as a change is made.

If you select **OFF**, the voice guidance will be disabled.

5.4.3 Resetting the touchscreen (Calibrate Touchscreen)

If the touchscreen accuracy decreases after using the product for an extended period, you can manually align the touchscreen to make it accurate again. Follow the instructions to reset the touchscreen.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the Setting button next to **Calibrate Touchscreen**.

2 Follow the on-screen instructions to proceed with the screen alignment.

3 A confirmation window will appear when the alignment is complete. Tap the Confirmation button (✔) to apply the alignment. Tap the back button (⬅) to cancel the alignment.

5.4.4 Adjusting the screen brightness (LCD Brightness)

You can adjust the screen brightness. Follow the instructions to adjust the screen brightness.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the Setting button next to **LCD Brightness**.

2 Switch the button to **Mid**, **Dark**, or **Bright**. The new setting is applied to the system as soon as a change is made.

5.4.5 Setting the LCD Auto-Off

You can adjust the time until the screen is turned off after operating the product or viewing a recorded video. Follow the instructions to adjust the LCD Auto-Off time.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the Setting button next to **LCD Auto-Off**.

2 Switch the button to **10 min**, **30 sec**, or **OFF**. The new setting is applied to the system as soon as a change is made.

> If you set this feature to **OFF**, the screen will be kept on, and the power consumption of the product will increase.

5.4.6 Setting the security LED

You can decide how the security LED operates. Refer to the following instructions to set the security LED operation.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the Setting button next to **Security LED**.

2 Switch the button to **Up-Down**, **Blink**, **Random**, or **OFF** to select the LED operation. The new setting is applied to the system as soon as a change is made.

5.4.7 Setting the time zone

Follow the instructions to set the time zone.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the Setting button next to **Time Zone**.

2 Set the time zone. The new setting is applied to the system as soon as a change is made.

5.4.8 Setting the date (Set Date)

Follow the instructions to set the date that will be displayed on the screen.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the Setting button next to **Set Date**.

2 Set the year, month, and date. The new setting is applied to the system as soon as a change is made.

5.4.9 Setting the time (Set Time)

Follow the instructions to set the time that will be displayed on the screen.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the Setting button next to **Set Time**.

2 Select AM/PM, set the hour and minutes. The new setting is applied to the system as soon as a change is made.

5.4.10 Setting the daylight saving time

Follow the instructions to set the daylight saving time.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **System Settings**, and then tap the Setting button next to **Daylight Saving**.

2 Switch the button to **OFF** or **ON** to set the daylight saving time. The new setting is applied to the system as soon as a change is made.

5.4.11 Setting the speed unit

Follow the instructions to select the speed unit that will be displayed on the screen.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **System Settings**, and then tap the Setting button next to **Speed Unit**.

2 Switch the button to **km/h** or **mph** to select the speed unit. The new setting is applied to the system as soon as a change is made.

5.4.12 Setting the speed stamp

Follow the instructions to turn on or off the speed stamp feature.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **System Settings**, and then tap the Setting button next to **Speed Stamp**.

2 Switch the button to **OFF** or **ON** to to turn on or off the feature. The new setting is applied to the system as soon as a change is made.

5.4.13 Partitioning the memory card

You can partition the memory card to adjust the storage space for different types of video recordings. Refer to the following instructions to partition the memory card.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the button next to **Partition Settings**.

2 When the partition setting window appears, select partitioning options from **Continuous Recording Priority (Recomm.)** / **Incident Recording Priority** / **Parking Recording Priority** / **Manual Recording Priority** / **Driving Recording Only**.

> ⚠ Do not disconnect the power or remove the memory card from the product during memory partitioning. Doing so may cause serious damage to the data stored in the memory card.

3 A confirmation window will appear when memory partitioning is complete. Tap the confirmation button (☑) to close the window. (The window will disappear after 5 seconds without a user input.)

5.4.14 Formatting the memory card

You can format the memory card that is inserted in the product. Refer to the following instructions to format the memory card.

1 On the Live view screen, tap the Home button (⌂) **> Settings > System Settings**, and then tap the button next to **Format Memory**.

2 Tap the confirmation button (☑) to proceed with memory formatting. All the data stored on the memory will be erased after the formatting. Tap the back button (↩) to cancel memory formatting.

> ⚠ Do not disconnect power or remove the memory card from the product while formatting. Doing so may cause serious damage to the data stored in the memory card.

3 A confirmation window will appear when memory formatting is complete. Tap the confirmation button (☑) to close the window. (The window will disappear after 5 seconds without a user input.)

5.4.15 Configuring the video overwriting function

You can overwrite the oldest video files for new video files in the storage reserved for each mode. Refer to the following instructions to select the video file types to overwrite.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **System Settings**, and then tap the button next to **Overwrite Videos**.

2 Select the video file types to overwrite, and the tap the confirmation button (✓). The new setting is applied to the system as soon as a change is made.

5.4.16 Initializing the system settings (Reset Settings)

You can return all the system settings to factory default settings. Follow the instructions to initialize the system settings.

1 On the Live view screen, tap the Home button (⌂) > **Settings** > **System Settings**, and then tap the Reset button next to **Reset Settings**.

2 Tap the confirmation button (✓) on the confirmation window. All the system settings will be initialized.

3 A confirmation window will appear when the initialization is complete. Tap the confirmation button (✓) to close the window. (The window will disappear after 5 seconds without a user input.)

> ⚠ Do not disconnect power or remove the memory card from the product during the initialization. Doing so may cause serious damage to the data stored in the memory card.

6. Accessing the product information

New users may benefit from the basic product information that can be accessed from the Menu screen.

6.1 Understanding the product features

On the Live view screen, tap the Home button ( ) **> About Device > Functions** to view product features. Brief information about the product's features is displayed on the screen.

6.2 Viewing the product information

On the Live view screen, tap the Home button ( ) **> About Device > Device Info** to view product information. The following product information and the menus for initializing will be played on the screen.

• Product name   • Firmware version   • Safety camera version   • Memory capacity

6.3 Accessing and configuring the GPS

A GPS module is used to include the location data in the recorded videos. On the Live view screen, tap the Home menu button ( ) **> About Device > GPS Info** to view the GPS features. The connection status, time (UTC), vehicle speed, current elevation, and Horizontal Dilution of Precision (HDOP) are displayed on the screen.

Tap the **Reset** button next to **Reset GPS** to initialize the GPS, and allow it to locate the current position.

> **Horizontal Dilution of Precision (HDOP)**
> HDOP is a value that refers to GPS deviation due to satellite positioning.

7. Upgrading the firmware

A firmware upgrade is provided to enhance the product's features, operation or to increase stability. For optimal operation of the product, ensure that you keep the firmware up to date.

Follow the instructions to upgrade the firmware.

1 On your PC, open a web browser and go to http://www.thinkware.com/Support/Download.

2 Select the product and download the latest firmware upgrade file.

3 Unzip the downloaded file.

4 Disconnect power to the product and remove the memory card.

5 Open the memory card on a PC and copy the firmware upgrade file to the root folder of the memory card.

6 While the power is disconnected from the product, insert the memory card into the memory card slot on the product.

7 Connect the power cable to the product, and the turn on the power (ACC ON) or start the engine to turn on the product. The firmware upgrade starts automatically, and the system will restart once the firmware update is completed. If the firmware updated is successfully completed, the touch accuracy resetting window appears.

8 Reset the touchscreen accuracy through the touch accuracy resetting window.

> ⚠ Do not disconnect the power or remove the memory card from the product during the upgrade. Doing so may cause serious damage to the product, or to the data stored in the memory card.

> 📝 You can also update the firmware from the mobile viewer and the PC viewer.

8. Using the PC viewer

You can view and manage the recorded videos and configure various product features on your PC.

8.1 System requirements

The following are the system requirements for running the PC viewer.

• Processor: Intel Core i5, or higher

• Memory: 4 GB or more

• Operating system: Windows 7 or later (64-bit is recommended), macOS X10.8 Mountain Lion or later

• Other: DirectX 9.0 or higher / Microsoft Explorer version 7.0 or higher

> The PC viewer will not operate properly on PC systems running an operating system other than those listed in the system requirements.

8.2 PC viewer for Windows

8.2.1 Installing the PC viewer (for Windows)

> You can download the latest PC viewer software from the THINKWARE website (http://www.thinkware.com/Support/Download).

The PC viewer installation file (setup.exe) is stored in the root folder of the memory card that is provided with the product. Follow the instructions to install the PC viewer on your PC.

1 Insert the memory card into a memory card reader connected to your PC.

2 Run the installation file, and complete the installation according to the instructions given in the installation wizard.
After the installation is complete, there will be a shortcut icon to THINKWARE Dashcam Viewer.

8.2.2 PC viewer screen layout (for Windows)

The following provides brief information about the PC viewer's screen layout.

View or configure the dashcam settings, and set the language for the PC viewer.

Switch between the front and rear videos.

Display the current video in full screen. Tap the Back button (⬚) to return to the previous screen.

Minimize, expand, or close the software.

Visit the THINKWARE website.

Open a file, or save a video with a different name.

Displays the GPS information at the time of recording.

Displays the video file name.

Displays the current video.

Play or control a video.

Displays the progress of video playback.

Displays the current and total running time of the current video.

Indicates the vehicle's driving speed at the time of recording.

Indicates the G sensor value at the time of recording.

Displays the playlist.

8.2.3 Playing recorded videos on the PC viewer (for Windows)

Follow the instructions to play recorded videos.

1 Turn off the product and remove the memory card.

2 Insert the memory card into a memory card reader connected to your PC.

3 Double-click the shortcut to the PC viewer (🖼️) to open the program. The video files in the memory card will be automatically added to the playlist in the bottom-right corner of the PC viewer screen. The playlist section layout is as follows.

Select a folder.
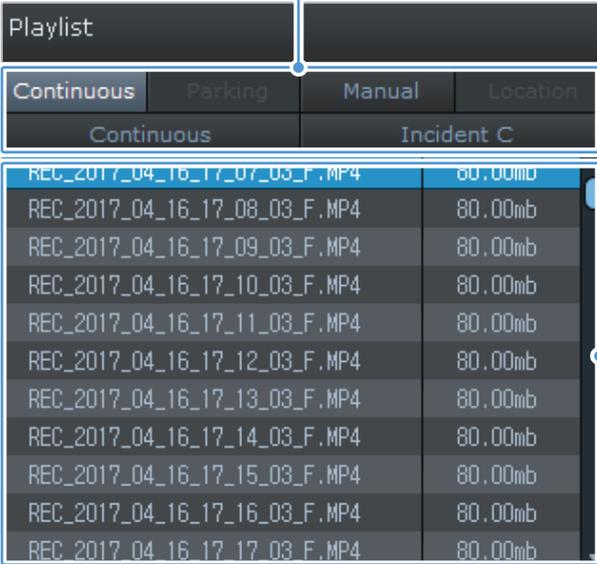
Playlist	
Continuous / Parking	Manual / Location
Continuous	Incident C
REC_2017_04_16_17_07_03_F.MP4	80.00mb
REC_2017_04_16_17_08_03_F.MP4	80.00mb
REC_2017_04_16_17_09_03_F.MP4	80.00mb
REC_2017_04_16_17_10_03_F.MP4	80.00mb
REC_2017_04_16_17_11_03_F.MP4	80.00mb
REC_2017_04_16_17_12_03_F.MP4	80.00mb
REC_2017_04_16_17_13_03_F.MP4	80.00mb
REC_2017_04_16_17_14_03_F.MP4	80.00mb
REC_2017_04_16_17_15_03_F.MP4	80.00mb
REC_2017_04_16_17_16_03_F.MP4	80.00mb
REC_2017_04_16_17_17_03_F.MP4	80.00mb

Displays a list of videos in the selected folder.

4 Double-click a video file after selecting a video folder, or click the Play button (▶) after selecting a video file. The selected video file will be played.

> If the video files on the memory card are not automatically added to the playlist when you run the PC viewer, click **File▼** 〉 **Open**, select the removable storage device for the memory card, and click **Confirm**.

8.2.4 Video control menu overview (for Windows)

The following provides brief information about the PC viewer's video control menu.
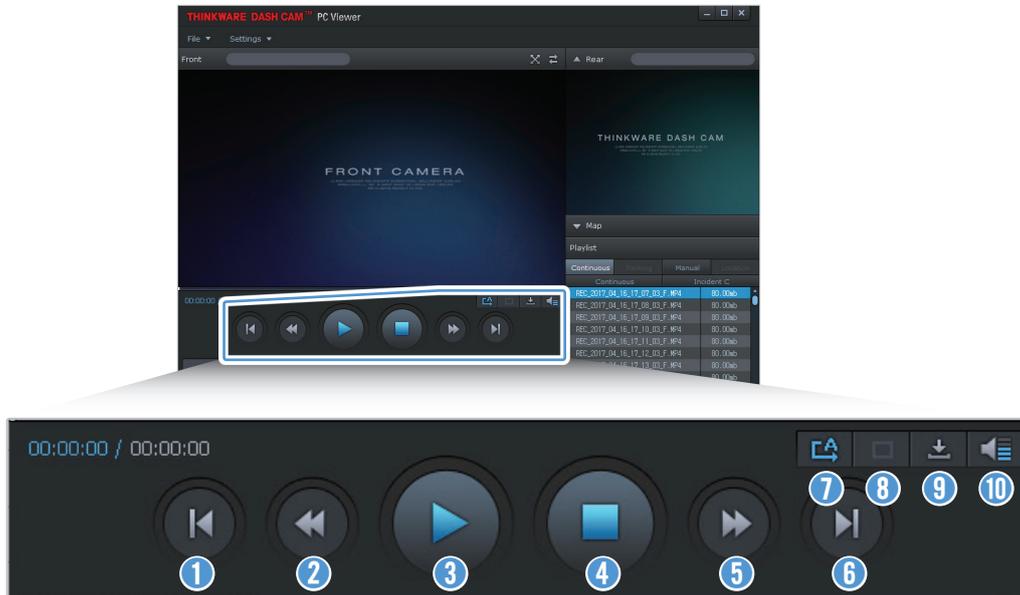
Number	Item	Description
❶	Play the previous file	Play the previous file in the currently selected folder.
❷	Rewind by 10 sec.	Rewind the video by 10 sec.
❸	Play/Pause	Play or pause the selected video file.
❹	Stop	Stop playing the current video. The progress bar will move to the beginning of the video.
❺	Skip forward by 10 sec.	Fast forward the video by 10 sec.
❻	Play the next file	Play the next file in the currently selected folder.
❼	Enable/Disable playing the next file in the playlist	Enables or disables the feature for playing the next file in the playlist.
❽	Enlarge/Reduce image	Enlarge or reduce the size of the current video.
❾	Save	Save the current video on your PC.
❿	Volume	Adjust the volume of the current video.

8.3 PC viewer for Mac

8.3.1 Installing the PC viewer (for Mac)

> You can download the latest PC viewer software from the THINKWARE website (http://www.thinkware.com/
> Support/Download).

The PC viewer installation file is stored in the root folder of the memory card that is provided

with the product. Follow the instructions to install the PC viewer on your PC.

1   Insert the memory card into your PC using a SD card reader or SD card adapter provided.

2   Move the file named "dashcam_viewer_X.X.X.dmg" to the desktop.

3   Double-click the dashcam_viewer_X.X.X.dmg and click Open Dashcam Viewer application.

    The THINKWARE Dashcam Viewer opens.

8.3.2 PC viewer screen layout (for Mac)

The following provides brief information about the PC viewer's screen layout.

Save the current scene.

View or configure the dashcam settings.

Set the speed unit.

Switch between the front and rear videos.

Print the current scene.

Set the language for the PC viewer.

Visit the THINKWARE website.

Displays the current rear video.

Displays the current front video. Right-click this pane to display the current video in full screen.

Play or control a video.

Displays the progress of video playback.

Displays the current and total running time of the current video.

Indicates the G sensor value at the time of recording.

Displays the GPS information at the time of recording.

Open a file, or save a video with a different name.

Indicates the vehicle's driving speed at the time of recording.

Displays the playlist.

8.3.3 Playing recorded videos on the PC viewer (for Mac)

Follow the instructions to play recorded videos.

1 Turn off the product and remove the memory card.

2 Insert the memory card into your Mac using a SD card reader or SD card adapter provided.

3 Open the PC viewer.

4 Click [🔍] and locate the memory card.

The video files in the memory card will be automatically added to the playlist in the bottom-right corner of the PC viewer screen. The playlist section layout is as follows.

Select a folder.

Displays a list of videos in the selected folder.
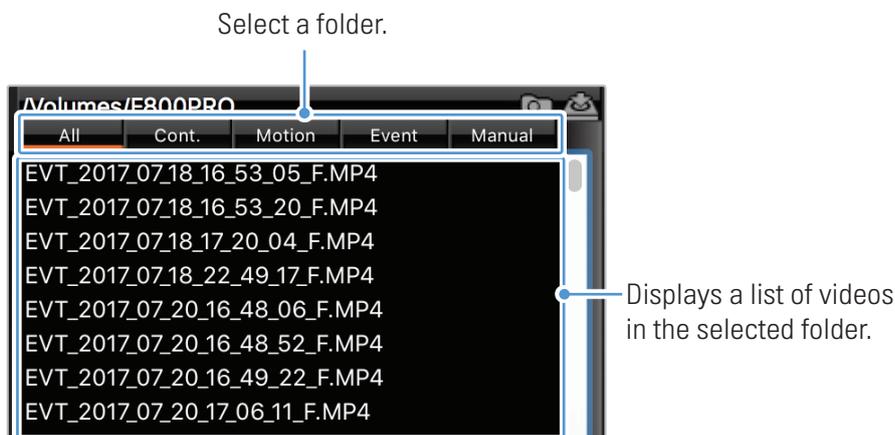
5 Double-click a video file after selecting a video folder, or click the Play button (▶) after selecting a video file. The selected video file will be played.

8.3.4 Video control menu overview (for Mac)

The following provides brief information about the PC viewer's video control menu.
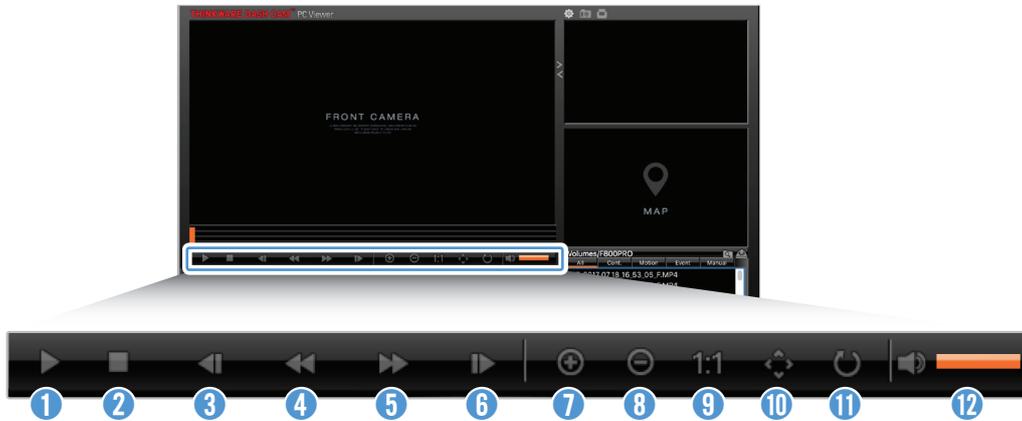
Number	Item	Description
❶	Play/Pause	Play or pause the selected video file.
❷	Stop	Stop playing the current video. The progress bar will move to the beginning of the video.
❸	Play the previous file	Play the previous file in the currently selected folder.
❹	Rewind by 1 frame	Rewind the video by 1 frame.
❺	Skip forward by 1 frame	Fast forward the video by 1 frame.
❻	Play the next file	Play the next file in the currently selected folder.
❼	Zoom in	Zoom into the current video.
❽	Zoom out	Zoom out of the current video.
❾	Restore image size	Restore the size of the current video to the original size.
❿	Display scrollbar	Display the scrollbar when the image is enlarged.
⓫	Reverse image	Reverse the video upside down.
⓬	Volume	Adjust the volume of the current video.

9. Troubleshooting

The following table lists the problems users may encounter while using the product and measures to resolve them. If the problem persists after taking the measures provided in the table, contact the customer service center.

Problems	Solution
Cannot power on the product	• Make sure the power cable (the cigar socket power cable or the hardwiring cable) is connected to the vehicle and the product properly. • Check the vehicle's battery level.
The product does not operate even when touching the display.	Insert a pin into the Reset button pinhole on the side of the product to reset the product. After resetting the product, the Settings screen and Video playback screen will not disappear.
The voice guide and/or buzzer do not sound.	Check if the volume is set to the minimum. For more information about how to adjust the volume, refer to "5.4.2 Adjusting the system volume".
The video is unclear or hardly visible.	• Ensure that the protective film on the camera lens has been removed. The video may look unclear if the protective film is still on the camera lens. • Check the installation location of the front or rear camera, turn on the product, and then adjust the camera's viewing angle while monitoring the LCD display.
The memory card cannot be recognized.	• Ensure that the memory card has been inserted in the correct direction. Before inserting the memory card, ensure that the metal contacts on the memory card are facing toward the lens of the product. • Turn off the power, remove the memory card, and then check to ensure that the contacts in the memory card slot are not damaged. • Ensure that the memory card is an authentic product distributed by THINKWARE. THINKWARE does not guarantee compatibility and normal operation of third-party memory cards.
The recorded video cannot be played on a PC.	The recorded videos are stored as MP4 video files. Ensure that the video player installed on your PC supports the playback of MP4 video files.
GPS signal cannot be received even though the external GPS module is installed.	• Ensure that the external GPS module is properly connected. For more information, refer to "2.3 Installing the external GPS module (optional)". • The GPS signal may not be received in out-of-service areas, or if the product is located between tall buildings. Also, GPS signal reception may not be available during storms or heavy rain. Try again on a clear day at a location that is known to have a good GPS reception. It may take up to 5 minutes until GPS reception is established.

10. Specifications

To see the product specifications, refer to the following table.

Item	Specification	Remarks
Model name	X700	
Dimension / Weight	102 x 54 x 29 mm / 104 g	
Display panel	FHD 2 Channel 2.7 inch LCD	
Memory	microSD Memory card (UHS-I)	16 GB / 32 GB / 64 GB
Recording mode	Continuous Rec	Records videos in 1-minute segments (dual channels are supported for recording the front and rear view)
	Incident Rec	Records 10 seconds before and after the incident (total 20 seconds)
	Manual Rec	Records 10 seconds before and after manually starting the recording (total 60 seconds)
	Parking Rec (parking mode)	Requires the hardwiring cable installation
Camera sensor	2.13M Pixels, 1/2.8" CMOS, 1080p	
Image sensor	IMX291	
Angle of view	142.7° (based on the opposite angle)	
Video	FHD (1920 X 1080) / H.264 / file extension: MP4	
Frame rate	Maximum 30 fps	
Audio	PCM (pulse code modulation)	
Acceleration sensor	3-axis acceleration sensor (3D, ±3G)	5 levels for sensitivity adjustment available
Rear camera	V-IN port	Optional accessory that requires separate purchase
GPS	External GPS module (optional)	Safety driving section alert supported, stereo socket 2.5 Ø / quadrupole
Power input	DC 12 / 24 V supported	
Power consumption	2 CH: 3.5 W / 1 CH: 2.5 W (mean)	Except for the fully charged supercapacitor / the LCD OFF status / GPS
Auxiliary power unit	Supercapacitor	
LED indicators	• Front: Security LED • Rear: Status LED, Rec LED (2 ea)	
Alarm	Built-in speakers	Voice guide (buzzer sounds)
Operating / Storage temperature	-10 – 60 ℃	

Before contacting a service center

Please backup all important data stored in the memory card. The data in the memory card may be deleted during repair. Every product requested for repair is regarded as a device that has had its data backed up. The customer service center does not back up your data. THINKWARE is not responsible for any loss, such as data loss, caused by product repair.

http://www.thinkware.com