

GARMIN

GDR 45

Driving Recorder
Quick Start Manual



Package contains

1. GDR 45 Driving Recorder
2. GDR Mount (adhesive mount and replacement adhesive pad included)
3. GDR exclusive car charger

1. Overview of Functions

The GDR 45 driving recorder employs Garmin's unique dual-camera design that supports front and rear image* recording. In addition to its built-in GPS positioning capability, the unit also provides complete tracks and information. The GDR 45 is also integrated with FCWS image recognition technology to detect distances with other vehicles when in motion.



***NOTE:** GBC 30, secondary camera is an optional subscription for rear image recording.

2. Description of Product Appearance and Indicator Lights

GDR 45 Appearance



1. Manual File Protection

Used for manually protecting files. See Collision Warning section for protection rules.

2. Function Key

See Function Settings for details.

3. Image Calibration Key

This function can be used to detect and calibrate the image captured based on what the camera is pointing at, and is compatible with the front collision warning system (FCWS).

4. Snapshot Key

Captures a still image.

5. GBC 30 (Secondary Camera) Connector

6. miniUSB Power Connector

7. Power switch/Camera toggle

When using a single camera, this button functions as the power switch. If a GBC 30 (secondary camera) is attached, the button toggles between viewing screens.

8. microSD Memory Card Slot

Supports SDHC up to 32GB (for SDHC, recommended specs are 8GB, Class 6 or above)

9. Speaker

10. Microphone

11. LED Status Indicator

LED color	Action indicated
Flashing Green	Booting up or updating software
Red	Recording
Flashing Red	Rapid Flashing: Collision sensor activated Slow Flashing: Parking mode activated
Green	Idle (unable to record due to absence of memory card, formatting issue, or other reason)

3. Product Specifications

GDR 45 Specs

Dimensions	(Length) 8.19 cm × (Width) 6.57 cm × (Depth) 4.16 cm
Weight	122g
GPS	Yes
Screen	2.3-inch TFT LCD
Lens	F=2.0
Recording area	Visible diagonal viewing angle of 132 degrees (horizontal viewing angle: 120 degrees)
Photosensitive components	3M, 1/3-inch, CMOS
Frame rate	30 FPS
Video format	AVI (H.264 compression)
Gravity sensor	Yes, with collision sensitivity settings
Battery	Yes
Microphone	Yes
Speaker	Yes

Memory card slot	microSDHC (8GB Class6 memory card or above is recommended)
Recording mode	<p>Continuous recording; when the card is full, old files are overwritten (except for protected files).</p> <ul style="list-style-type: none"> ▪ 1080p (1920 × 1080 pixels) at 30fps; record about 1.5 hours of footage (256MB for each video file) ▪ 720p (1280 × 720 pixels) at 30fps; record about 4.1 hours of footage (256MB for each video file) ▪ WVGA (848 × 480 pixels) at 30fps, record about 9 hours of footage (256MB for each video file) ▪ 720p Dual (1280 × 1440 pixels) at 30fps, record about 2 hours of footage (256MB for each video file)
Operating ambient temperature	0 to 60 degrees Celsius

4. Installation Instructions

I. Installing GDR 45



Step 1:

Affix the adhesive pad to the top side of the mount. Position the mount in the desired location on the inside of the windshield and press the adhesive side of the mount firmly against the glass. Then mount the GDR 45 onto the mount's ball-shaped connector.



Step 2:

Affix the adhesive pad to the top side of the GBC 30's mount.



NOTE: The secondary camera GBC 30 is an optional subscription.



Step 3:

Connect the GBC 30 to the mount.



Step 4:

Attach the GBC 30 mount to the rear window.



NOTE: In order to prevent reduced adhesive strength, do NOT affix the adhesive pad onto the defogger grid. If installing on a five-door hatchback or a vehicle with a very steep rear window, remove the bracket labeled "Garmin" and the ball-shaped connector and reassemble in the reverse in order to fit different angles. If the user wishes to secure the unit with screws, simply attach it to the vehicle's roof by applying screws through the holes located on the top of the bracket.



Step 5:

Connect the cable (labeled "GARMIN DUAL CAM").



Step 6:

Connect the USB cables in the correct order: the one numbered "1" is the USB cable that connects to GBC 30 (labeled "GARMIN DUAL CAM"), while the one numbered "2" is the USB cable that connects to the vehicle's charger.

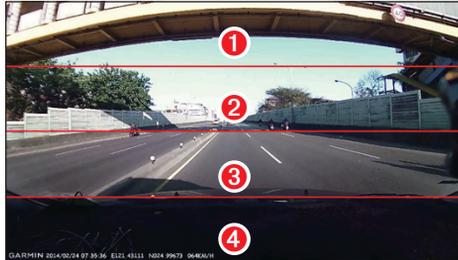


Step 7:

Turn on the unit to begin recording with the front and rear cameras.

II. Image Recognition

Recommended shooting angles for the Driving Recorder



As the main camera of GDR 45 has a horizontal viewing angle of 120 degrees, it is recommended that the unit be installed at the windshield's centerline. In order to be able to capture camera images with a more satisfactory view, divide the viewscreen into four equal areas from top to bottom and align the top edge of the 4th viewing quarter against the vehicle's hood. *This allows recording of the front as well as the left and right sides of the vehicle.



***NOTE:** Due to the variety of shapes and sizes of various automobile makes and models, the shooting angle may differ when mounted on the windshields of different vehicles. If the vehicle's hood cannot be seen on-screen, use the lower edge of the front windshield as the reference line for alignment.

Image Calibration

Once the GDR 45 has been installed and turned on, the user will be prompted to complete an initial image calibration, and the camera will automatically determine the vehicle's center position. During calibration, the unit will automatically recognize the lane that the vehicle is traveling on (indicated by the solid green lines) and extend the two reference lines until they intersect. The point of intersection will be used as the screen's center position.



NOTE: When calibrating, re-position the vehicle so that the lanes can be recognized accurately.

After Calibration Is Complete

Upon completion of calibration, a green crosshair will be shown on the top left of the driving recorder's screen to indicate that the image recognition function has been enabled. Intersection of the two extended lines will be marked on-screen with a green cross.



If the calculated intersection is inaccurate, the driver may also perform a manual calibration by pressing the "Image Calibration" button. Upon confirmation of image calibration, the unit's "FCWS" built-in image recognition system can be activated.

FCWS Warning

The front collision warning system gathers speed information using GPS and is activated whenever the vehicle's speed exceeds 40 km/hr. It also detects its distance from the front vehicle and warns the driver when ap-

proaching too close.

1. When a vehicle enters the detected area, the screen will prompt the user by displaying a white cross and frame.



2. If the system detects that the driver is not maintaining an adequate safe distance with the car in front given the current speed, a red cross and frame will be displayed along with a warning sound to alert the driver.



5. Settings

The settings page provides two options: Driving Recorder Settings and General Settings.



NOTE: Press and hold the up/down buttons to quickly scroll through the options

I. Driving Recorder Settings

1. Recording Modes

Four modes are available: 1080p, 720p, WVGA, and 720p Dual (when connecting secondary camera). Image quality can be adjusted according to preference. When only one camera is present, the default resolution is 1080p; if the secondary camera is attached, the default mode is 720p Dual.

2. Viewing Camera Screens

This option is available after the GBC 30 (optional subscription) is connected. There are three options available: main camera, secondary camera and dual cameras (dual-camera viewing is available only when recording). The user can select which camera image to view or have both displayed at the same time.

3. Mirroring with the Secondary Camera

This option is available after the GBC 30 (optional subscription) is connected. The secondary camera's image capture orientation is set to the opposite of the main camera by default. If it is desirable to display image in the same direction, enable the mirroring function. The default setting is off.

For example: when the secondary camera is mounted onto the rear window, the image of a vehicle on the left side will be displayed on the right side of the screen. Enable the mirroring function if it is necessary to change the orientation. It is recommended that this calibration be redone if GDR 45 is reinstalled at a later time.

4. Collision Sensor Calibration

Once the unit has been mounted to the fixed position, select "Collision Sensor Calibration". The system will automatically record data from 3 axes to enable more accurate estimates. Be sure to perform this function immediately after initial installation.

5. Collision Sensitivity

Four options are available: High Sensitivity, Normal Sensitivity, Low Sensitivity, and Off. Sensitivity can be adjusted according to preference. The unit's default setting is Normal Sensitivity. Files are more likely to be stored by selecting High Sensitivity.

Note that when sensitivity is set to Low, it is possible that a collision might fail to be recorded.

6. FCWS Sensitivity

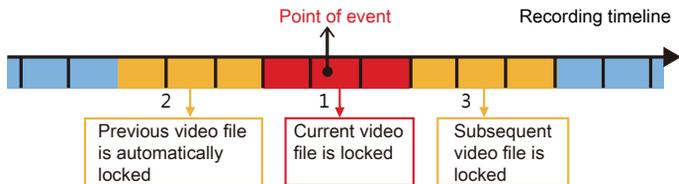
There are four options regarding the sensitivity of FCWS: High Sensitivity, Normal Sensitivity, Low Sensitivity, and Off. Sensitivity can be adjusted according to preference. The unit's default setting is Normal Sensitivity.

The front collision warning system gathers speed information using GPS, and is activated whenever the speed exceeds 40 km/hr. The system also detects its distance from the front vehicle and warns the driver when approaching too close.

7. Collision Warning

The unit has a built-in G-sensor that detects collision accidents and triggers recording. Recorded video files are stored in a protected state. This function is turned on by default. When the collision sensor is on (i.e. when set at High, Normal, or Low sensitivity), the unit will sound three "beeps" whenever a collision is detected.

After the sensor detects a collision, the system will automatically lock down the current file being recorded, as well as the previous file and the file after the collision, therefore ensuring continuity of the accident.



8. File protection cycle

The unit provides 15 storage spaces for protected images. When overwrite is turned on, the system will overwrite from the first file once all storage space has been used up. This function is turned on by default.

9. Audio recording

The unit features a built-in microphone. The user may choose whether to turn audio recording on or off.

10. Exposure Compensation

The camera's exposure value features 7 adjustable settings (Normal, $\pm 1/3$, $\pm 2/3$, and ± 1).

II. Parking Recording Mode

The GDR 45 is able to record images after the engine is switched off. Two recording options are offered:

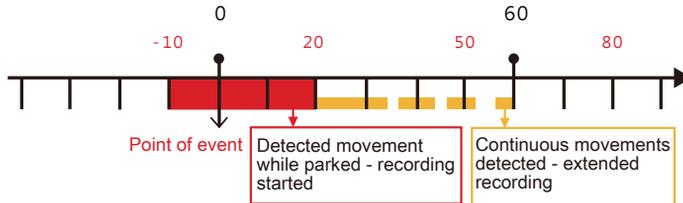
Car Charger

1. Continue recording using built-in battery

User may configure whether the driving recorder should record images using the built-in battery after the external power source is disconnected.

Connecting GDR Dedicated Power Supply Cable (Optional Subscription)

Once connected to an external power supply cable, the GDR will turn on its motion detection mode and begin recording whenever it detects movement in front of the camera or senses collisions. This recording mode stores images up to 10 seconds before an accident and up to 20 seconds after movement is detected. The recording time will be extended for as long as the movement is detected.



1. Automatic Switch

User may configure whether to activate parked recording mode

when the engine is turned off.

2. Stop Voltage

The unit is able to detect the voltage level of the external battery. Ordinary sedans provide five voltage levels between 11.7V and 12.5V that the user can set, and vans provide four selectable voltage levels between 23.4V and 24.6V. The unit will stop movement detection and shutdown automatically once the external battery falls below the defined voltage level.

3. Recording Time Setting

User may set motion-detected recording from any time between 2 hours to continuous, provided that the external battery does not fall below the stop voltage. The unit will stop movement detection and shutdown automatically after the recording exceeds the preset time limit.



NOTE: If the voltage of the vehicle's battery has been detected to be excessively low, Parking Recording Mode will not be enabled to ensure that the vehicle can be started normally and driven safely.

III. General Settings

1. Screen Brightness

There are 10 levels of screen brightness to choose from. The unit comes with a default setting of 50% and may be adjusted

according to preference.



NOTE: The unit will automatically reduce back light level after remaining idle for 1 minute.

2. Volume

There are 10 volume levels to choose from. The unit comes with a default setting of 70% and is adjustable according to preference.

3. Auto Screen Shut-off

The unit will automatically reduce back light after remaining idle for 1 minute.

4. Button Sounds

This function configures whether to provide an audible feedback when a button is pressed.

5. Time Zone Setting

6. System Language

7. Voice Language

The unit gives voice reminders under special circumstances. Available options are English and Chinese.

8. Satellite Status

Displays current GPS reception.

9. Flicker Suppression

Suppresses flickering caused by certain frequencies.

10. File Playback

11. Delete File

Individually deletes specified video and still image files.

12. Format Disk

Use this function to format blank memory cards. Formatting memory cards on a computer is not recommended.

13. Restore Default Factory Settings

User may restore original factory settings using this function.

14. Software Update

Simply select this function to automatically update the driving recorder's internal software. Follow the on-screen instruction prompts to complete the update.



NOTE: Do not disconnect the unit's power source during the update.

15. About

Displays the unit's model number, ID, software version, and GPS firmware.

Connect to PC

Please download the software “Driving Recorder PC Tool” from www.garmin.com.sg/products/application/ for installation



WARNING

Software only supports Windows OS (Windows XP/Vista/7).



1. The Playback Window

The imported files can be displayed by switching between All, By Date, and Protected pages. Recorded videos will show recording date and time as well as protection status.

You may view the gravity detection graph concurrently during video playback to view image status exactly at the moment of collision.



The screenshot displays the Garmin Drive Recorder software interface. On the left, a list of video files is shown with columns for 'File Name', 'Date', and 'Protected'. The files are sorted by date and time, with the most recent file, '11272012 21:08 3a11a VDO_0063', highlighted. The main window features a video player showing a street scene with a yellow car in the distance. Below the video player is a timeline with a playhead at 03:00 and a 'Mark' button at 03:11. At the bottom, there is a 'Gravity' graph area and playback controls including 'Advanced Mode', a volume icon, and navigation buttons (back, forward, stop, play/pause).

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For videos recorded with dual cameras (optional), a sub-window will be added in the playback window showing what is recorded by the second camera (optional). You may click the image switch icon on top of the video to switch images by both cameras.



The screenshot function may capture current playing frame into picture file in JPG format. You may select Setup > Storage Path from the tool bar to change location where screenshot files will be saved.



2. The Map Location Window

The blue path shown in the Map window is the driving path of recording videos being played. Locations marked with red icon are places where the video is displaying. You may use the playback bar to view relative position in the Playback window or click any segment shown in the Map window to review driving log in that segment of road in fast pace.



3. The File Information Window

You may preview recording files here. The PC Tool software retrieve and display recorded coordinates and speed data in the lower right window. The instantaneous speed, location in coordinates, and date are all available for your review.



Product Safety Advisories

1. The working temperature of this device is 0~70 degree Celsius. Under direct sunlight, the temperature in your car may top 80 degree Celsius. Please start using the product only when your car is in the proper temperature range.
2. Please wire the device and insert the memory card before turning it ON. Otherwise, the recording files may be damaged.
3. Certain functions are available only when a secondary GBC 30 (optional) is connected.
4. Though there are many video players available, not all support the decoder required by files generated by the products. Garmin PC Tool video player plays files recorded properly.
5. Please format the memory card before using it for the first time. Do not format it with your PC.
6. Please get memory card with 8GB capacity and Class 6 above from suggestion list.
7. The device stops recording during operations listed below:
 - i. Recording mode
 - ii. Mirroring the secondary camera
 - iii. File deletion

- iv. Memory card formatting
 - v. Reset to factory default
 - vi. Software update setup
 - vii. Video playing
8. Files recorded when out of power or without GPS signal shall bear recording date of 1/1/1980.
 9. DO NOT remove the memory card during recording. This may lead to file damage.

10. The 3M VHB™ back sticker (Bundle with Optional Secondary Camera only) is a super strong industrial adhesive featuring hard-to-break thick tape and no residual adhesive. Its structural adhesiveness weakens after every removal. Please use a new double-sided adhesive for every new installation.

As the adhesiveness in positive direction removal is 4 times stronger than that of 90 degree lateral one, please remove the tape by removing it 90-degrees perpendicular to the windshield surface to avoid damaging the insulation film or painting on the windshield surface.

Some insulation films are weak and easy to break when there is any crack or hole. Please attach your device to region where the insulation film is subject to no crack or hole to avoid damaging it when removing the VHB tape.



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