

**Operation Manual**  
**Car vision 5110 GPS Full HD**  
**Car DVR**

*The technical specification or the product description can be changed without previous notification.*

### **General Information**

Thank you for choosing Defender Car Vision 5110 GPS Full HD car digital video recorder. Before using the device, read attentively this manual to take all the opportunities of the digital video recorder and to extend its useful life. Keep this manual if any necessity.

This Manual contains the information on technical specifications of the device, control buttons and its software and safety list neglecting or non-observing of which can cause the device damage, malfunction or failure. The Manual contains recommendations on using the car digital video recorder. The mentioned information will allow to avoid errors related to improper operation of the device.

To define the used terms please refer Glossary at the end of the Manual and specialized literature, thematic forums or support service.

### **Operation Guidelines**

The car digital video recorder is designed and designated for mobile usage. The operation guidelines below are meant for helping you to use properly the device without any hazard to safety of any person and to keep it in working condition.

Please read this section attentively and strictly follow its instructions.

### **General Operation**

1. The device should be kept away from areas with extreme temperature change, direct sunlight or from heat-radiating devices. Protect the device from moisture and do not place it in a dusty or smoggy environment. Do not allow any contact with active chemical agents. The allowed temperature of the environment while operating of the device is from -5 to 40 °C without moisture condensation.
2. Protect the device from any impact, do not place heavy objects on it and do not insert in it the devices or objects not matching standard sockets. If the device falls it may cause its damage and its malfunctioning.
3. Charge the device only from compatible chargers (with the output voltage  $5V \pm 5\%$  and the current rate at least 0.5A).
4. Observe laws and obey traffic laws in the country of stay.
5. GPS (Global Positioning System) is developed and controlled by the government of USA that can make any amendments to the system operation. So, for example, during the combat operations in Iraq the civil sector of GPS was off. The manufacturer is not reliable for any amendments and inaccuracies of the GPS module caused by the amendments of the GPS system.

### **Power Adaptor Safety Precautions**

6. While charging the device use only standard type power adapter (included). Usage of non-standard or other type of the power adapter can lead to the damage of drive video recorder and loss of the warranty.
7. If the power adapter is disconnected from the lighter, you should pull the plug, not the cable.
8. Do not connect the car power adapter to other devices except ones of this model.
9. Keep the car adapter out of the reach of children.

### **LCD Screen Safety Precautions**

Liquid crystal display (LCD) is a delicate device requiring delicate handling.

10. To clean the LCD screen use only soft cloth or special wipes.
11. Use only special cleaners for display.
12. Do not touch the screen surface with sharp objects.

13. Do not press on the screen and do not place any objects on it. It can lead to the damage of the screen and loss of the warranty.

14. Do not leave the display under the direct sunlight.

#### **Socket Safety Precautions**

15. Do not apply any force while connecting to the sockets of the external devices. It may damage the contacts. Keep the sockets free from any foreign objects as well as liquid and dust. It can cause the damage of the socket and the device in general.

Before connecting check that the jack socket is connected with the proper side. Otherwise turn the jack socket.

#### **Memory Card Safety Precautions**

16. Insert the memory card only by the proper side. Otherwise turn the memory card. Do not force the memory card if it does not fit the slot, this can cause the damage of both the slot and the memory card.

17. Keep the memory card socket away from any foreign objects, liquid and dust. It can cause the damage of the socket and the device in general.

18. If you fail to insert the card in the socket, check its conformity to the SD/SDHC specification.

19. Do not remove the memory card when the device gains access to its contents (recording, reading, copying and file playing back). It can cause the loss of the data or misoperation of the card.

20. Do not use the memory card under the extreme temperature.

21. Keep the card away from liquid or erosive materials.

#### **Product Specifications:**

22. GPS function

23. Built-in G-sensor

24. Video codec: H.264

25. Still image resolution: 3.0 MP/ 5.0 MP/ 8.0 MP /12.0 MP

26. Video resolution: 1920\*1080P / 30 frames per second, 1440x1080 / 30 frames per second, 1280\*720P / 30 frames per second

27. HDMI support

28. Display: 2" TFT LCD

29. Wide viewing angle camera lens

30. LED highlight for recording in low light conditions

31. Audio codec: MPEG AAC Audio (mp4a)

32. Battery Specifications: 800 mAh, 3.7 V

33. Support of SDHC memory card up to 32 GB (use the card the speed class of which is at **least 6!**)

#### **Package Contents**

- Digital video recorder
- Windshield mount with suction cup

#### **Battery Charge:**

Battery icon on the device screen:



1. If the battery icon shows no battery charge, connect the device to the adapter (included). During the charge the red indicator on the device will flash. The green indicator means the discharge of the battery.
2. Also you can charge the battery via USB port of the computer.

**Warning:** If low battery charge the device will switch to energy saving mode. In this mode the buttons can response with delay or does not response at all. Before using the device check the battery charge.

**Warning:**

Please insert the memory card before using the DVR!

**Micro-SD Memory Card**

Insert the card (not included) into SD slot until its clicking position. The device is ready to be used.

- To remove SD card, slightly press it, it is partially pulled out now and you may remove it.
- If no memory card is in the slot, the message "CARD" will appear in a large white semi-transparent rectangular box on the screen.

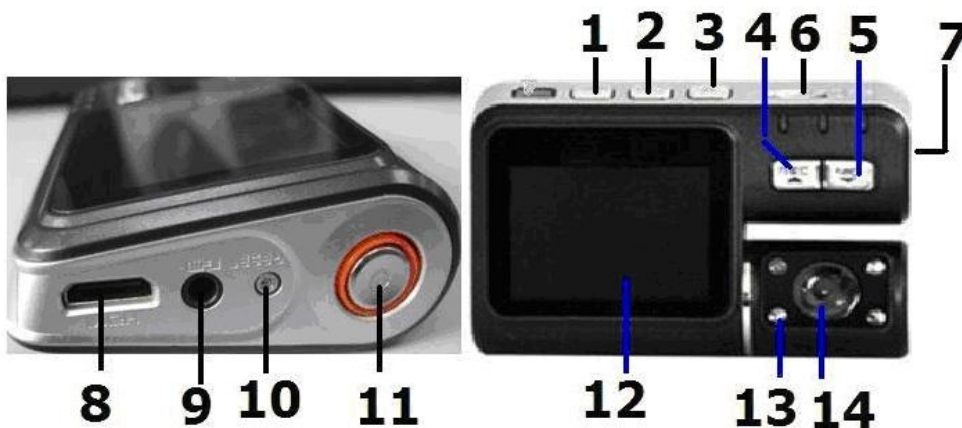
Warning: Check that you insert SD card by the correct side, otherwise you may damage the device and the memory card.

Video Recording Approximate Time:

SD card	1920*1080	1280*720
16G	204 min	408 min
8G	102 min	204 min
4G	51 min	102 min
2G	25 min	50 min
1G	12 min	24 min

Note: the duration of the video to be saved on the memory card depends on the device configuration, recording conditions and the used memory card.

**Assignment and Usage of DVR Buttons and inputs:**



Menu Button M:

Short pressing: to enter menu/ to exit menu / to open the file deletion dialogue


Long pressing: image rotation by 180 °



Playback button:

- Long pressing: to enter the playback mode/ to exit the playback mode
- Short pressing in video mode: to switch to photo mode


- Short pressing in photo mode: to release the shutter
- Short pressing while playback or video recording: to shoot stop frame  
(The video and photo modes are displayed on the screen by the relevant buttons)

 Confirmation button. Using this button you can:


- switch to submenu
- confirm the selected parameter value in menu
- confirm the selected answer in dialogue window
- in playback mode switch to one of the submodes: full-screen mode, video playback mode or slide show mode.
- playback the file
- pause the playback
- view slide show
- stop the slide show
- Short pressing of this button while video recording locks the recording file to protect it from deletion (one more pressing will unlock the file)

 REC recording button:

- Short pressing in video mode: recording/stop recording
- Short pressing in photo mode: to switch to video mode
- Long pressing in photo mode: digital zoom
- In menu mode: scrolling up (or to the left) the menu items
- In dialogue window: to select the answer (or to move to the left)
- In playback mode: backward wind of the playing file, scrolling up (or to the left) the menu items

 Microphone on button MIC:

- Short pressing in video mode: switch the microphone on/off.
- Long pressing in photo mode: digital zoom out
- In menu mode: scrolling down (or to the right) the menu items
- In dialogue window: to select the answer (or to move to the right)
- In playback mode: forward wind of the playing file, scrolling down (or to the right) the menu items

 Micro-SD memory card slot

 Mini USB port

 HDMI port

 GPS input port

 Reboot button

 Power on/off button

- Long pressing: device power on/off
- Short pressing in video and photo modes: to switch between the operation modes of the LED highlight

 Display

 LED highlight

 Camera Lens

### **On / Off.**

To power on press and hold the button for 1 second, to power off - for 3 seconds.

To save the battery you can use the auto power off function from "Setup" → "Auto power off"  Off/1 min/

3min/ 5 min. This function will be activated and will power off the device, if within the set time it is not enable by the processor.

### Language Selection



Power on the device by the button 11 in menu (button 1). Using buttons 4, 5 and 3 open the "SETUP" section, then move by menu items using the button 4 or 5. To set the language select the menu item "Language" and confirm the selection by pressing the button 3. Then select the language by the button 4 or 5 and confirm the selection by the button 3.

### Date /Time Configuration

Open the menu, shift to "SETUP" section, move down the menu by the button 5 and select "Time Configuration" item, confirm the selection by the button 3. Then using the buttons 4 and 5 ("forward"/ "backward") set the time zone, date and time. Each value: time zone, year, month, hour and minutes - must be confirmed by the button 3.

Date and time format:

+04 2012 . 12 . 31 23 : 59

### MENU DESCRIPTION

#### 1. VIDEO configuration



To use the possibilities of this section, press the button 1 in video mode to open the menu, then select "Video" section and confirm by the button 3. This section provides you the following configurations:

1. **Video resolution:** Allows to set the required resolution: 1920x1080P/ 1440x1080P/ 1280x720P confirming the selection by the button 3
2. **Quality:** Allows to set the required image quality: High/ Middle/ Low confirming the selection by the button 3.

#### 2. PHOTO configuration



To use the possibilities of this section, press the button 1 in photo mode to open the menu, then select the "Photo" section and confirm by the button 3. This section provides you the following configurations:

- 📁🕒 **Image Size.** Allows to set the size of the image: 3M (2048x1536), 5M (2592x1944), 8M (3200x2400), 12M (4000x3000).
- 📷🕒 **Quality** Allows to set the required image quality: High/ Middle/ Low.
- 📷🕒 **Auto start.** Allows to release the shutter automatically in 10 seconds after a short pressing of the button 2. Possible description: Off, On.
- 📷🕒 **Burst Mode.** Allows to set the number of the frames that will be shot after short pressing of the button 2: 1 frame, 3 frames.

## 2. RECORDING Configuration



To use the possibilities of this section, press the button 1 to open the menu, then select "Recording" section and confirm by the button 3. This section provides you the following configurations:

- **Light Frequency.** Allows to eliminate the light source twinkling by setting its frequency: 50 Hz, 60 Hz.
- **Recording Mode.** Allows to select the recording mode that best fits the current conditions: Auto, Landscape, Portrait, Sport, Night Scene.
- **ISO.** Allows to select the ISO sensitivity: Auto, 100, 200, 400.
- **Measurement Mode.** Allows to select the approach to measure the object brightness: Central weighted, Average, Spot.
- **White balance.** Allows to reproduce the colour of white objects so as they are white on the frame: Auto, Sunny, Cloudy, Fluorescent, Tungsten.
- **Digital Effect.** Allows to select the digital effect applied to the image: Off, Black and White, Sepia, Negative.
- **Sharpness.** Allows to select the image sharpness: High/ Middle/ Low.
- **Exposure Compensation.** Allows to compensate the errors if automatic exposure measurement: -2.0, -1.7, -1.3, -1.0, -0.7, -0.3, 0, +0.3, +0.7, +1, +1.3, +1.7, +2.0.


## 3. SETUP Configuration




To use the possibilities of this section, press the button 1 to open the menu, then select "Setup" section and confirm by the button 3. This section provides you the following configurations:

1. **TV Standard.** The digital output (HDMI) is used in this model of the device so this setup is not important: PAL, NTSC.
2. **Auto Power Off.** If you activate this function, the device will be powered off to save the battery if within the set time it is not used by any process: Off, 1 min, 3 min, 5 min
3. **Time Configuration.** Allows to set the system time of the device: +<Time Zone> <Year>.<Month>.<Day> <Hour>:<Minutes>.
4. **Screen Clock.** Allows to select whether to display the date and the time on the screen: Off, Date, Time, Date and Time.

**Cycle Recording.** If this function is on, the DVR will record the video by fragments (files) of the set duration: Off, 1 min, 3 min, 5 min. If the memory card is full, the DVR will delete the oldest unprotected file to continue recording. If the cycle recording is on,

the icon with screwed arrow  and the fragment time will be displayed on the screen.

**Motion detection sensor.** If this function is on, the device will automatically start recording every time when the motion in the frame is detected. If within 10 seconds there is no motion in the frame, the recording will be paused until any motion. When the motion detector is on, the icon  is displayed on the screen. Possible description: Off, On.

**Date and Time Stamp.** Allows to select the information to be added on the image:


1. Off
2. Date
3. Time

4. Date and Time
5. Car - date, time, speed, GPS and accelerometer readings
6. License Plate - date, time, GPS readings and license plate of the vehicle set by the "License Plate" option.
5. **License Plate.** Allows to enter the license plate of the vehicle to be added on the image if the relevant option "Date and Time Stamp" is on.
6. **Screen off.** If this function is activated, the screen highlight will be off to save the battery if no user's activity. Off, 1 min, 3 min, 5 min
7. **Microphone.** Allows to switch the microphone off. Possible description: On, Off.
8. **Image Rotation.** Allows to rotate the image by 180 degrees. Possible description: Off, 180 degrees.
9. **G-sensor.** If this function is on, the recording file will be saved to the memory card when the DVR will reach the threshold acceleration. Off, 2g, 2.5g, 3g, 3.5g, 4g, 4.5g, 5g.
10. **G-sensor Calibration.** Allows to calibrate the g-sensor by fixing its readings at rest. Possible description: No, Yes.
11. **Highlight.** Allows to set the mode of the LED highlight: Off, On, Auto.
12. **Button Volume.** Allows to set the volume of the signal of pressing the device buttons: High, Low, Off.
13. **USB Mode.** Allows to select the mode where the device will operate while connecting to the USB port of the computer: Card reader, Web camera. No support of the web camera mode for this model.
14. **Language.** Allows to select the interface language. Русский, English.
15. **Configuration Reset.** Allows to reset all the configuration to factory configuration. Possible description: No, Yes.
16. **Formatting.** Allows to format the memory card. Possible description: No, Yes.  
**Warning:** all the data on the memory card including protected ones will be deleted.
17. **Version.** Allows to see the software version of the device, for example: FW ver:20121025.


#### **4. Menu in Playback Mode (Miniature Mode)**

- **To delete the file.** Allows to delete files. Possible description: Cancel, This File, All Files.
- **To protect the file.** Allows to protect files from deletion. Possible description: To unlock this file, To lock this file, To lock all files, To unlock all files.
- **Auto Playback.** In the video playback mode it allows to playback the files consequently one by one. Possible description: Off, On.

#### **Video mode**

After powering on, the device is in the video mode. To show this mode the video camera icon  is displayed in the left top corner.


To start video recording press the button 4 (REC), to stop the recording press the same button.

While video recording the blue indicator on the device body will flash, animated icon  is displayed instead of the video camera in the left upper corner of the screen, and the duration of the recording is displayed in red in the center of





the bottom line. When the recording is stopped, the blue indicator on the device body will be on and the estimation of the maximally possible duration of the video recording is displayed in white in the center of the bottom line of the screen.

### **Video Recording Using Car Adapter**

Connect the device to the car cigarette lighter via car adapter. If the car cigarette lighter is applied voltage, the device will be on and the video recording will start automatically, the icon  will be displayed on the screen. After the car cigarette lighter is switched off, the device will save the recorded file and be switched off in 10 seconds.

### **GPS Function (Global Positioning System)**


Connect the GPS module to the DVR and power on the DVR. When the signal is stable and enough to determine the device location, the icon  will be displayed on the screen. If no signal, the icon  will be displayed on the screen. Usually if no obstacles for signal receiving (i.e. in the field in clear weather, at night when there are no electromagnetic disturbances in the range where the GPS satellites transmit the signal), after powering on the device needs up to two minutes to switch to the state when it can determine its coordinates.


If while video recording the device can determine its coordinates, it saves them in the log file on the memory card. You can find special software to play the video recorded by the DVR with the simultaneous display of the motion path and the spot on the map where the DVR was at the moment of the displayed frame.

### **LED Highlight On**

In low light conditions you can use the LED highlight. Switching between the modes of the LED highlight in video and photo modes is performed by short pressing the button 11, the icon of the current mode will be displayed on the screen:


 - highlight off,

 - automatic highlight on,/off,


 - highlight on,

**Warning:** Long pressing of the button 11 will power the device off. Be careful.

### **Microphone Off**

To switch the microphone on or off in video mode press the button 5 shortly. If the microphone is off, the icon  will be displayed on the screen.

### **File Locking**

To protect files from deletion press the button 3 shortly while video recording to lock the file. On the screen the icon  of the locked file will be displayed. Press the button again to unlock the file. You can also lock and unlock the files in the playback mode.

### **Playback mode**

While switching to playback mode from video mode the message "VIDEO" is displayed in the left upper corner of the screen and only video records are shown in the file list. While switching to playback mode from photo mode the

message "PHOTO" is displayed in the left upper corner of the screen and only photos are shown in the file list. The playback mode is divided into four submodes: miniature mode, full-screen mode, video playback mode, slide show mode. Press the button 1 shortly in the slide show and full-screen modes to open the file deletion dialogue window.

#### **View of the recorded materials on the TV screen**

To view the recorded materials on the TV screen, connect the DVR to TV via HDMI cable. Power on the DVR. Power on the TV and in its configuration set the input where the DVR is connected as the video signal source.

#### **Reboot Function**

If the device misoperates, reboot it pressing the button 10.

#### **Connecting to PC**

Connect the DVR to the computer via USB cable. To search for video records on the memory card, use the mask "\*.MOV". For photo search use "\*.JPG".

#### **Troubleshooting**

Problem:

a) I can't make photo / video.

Check the spare place on the memory card. Format the memory card.

c) The image is out of focus.

Use clean soft fibreless wipe to clean the camera lens with special optics cleaner and accurately wipe the lenses. We recommend the following [Defender ECO CLN 30591](#), [Defender CLN 30604](#), [Defender CLN 30593](#), [Defender CLN 30607](#).

d) If the device stops operating (does not respond) or misoperates, reboot it.

e) If the device is broken down, disconnect the power supply source, power the device off and refer to the customer care.

f) In the miniature mode the miniature with flowers can be displayed instead of the miniature display of the stop frame.