ELSROD INOTEC

CAR BLACK BOX

BLACK EYE MAX-II

2CH REAL HD Black Box System

User's manual

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User's caution

It's a product, which is recorded automatically images of car crash or accident, happening events to support and help for analyzing its moments and named Car Black Box mounted HD/HD LCD touch panel.

The images recorded in this product don't carry legal binding force and our company can't accept liability for any legal disputes causing recorded or unrecorded images.

- Pls, install and use our device only in accordance with user's manual properly.
- Our company can't accept liability for any malfunction or accident due to different way of installation with the written in user's manual and unprescribed modification.
- Our viewer program is worked at PC being installed Window XP/ Vista / Window 7.
- S/W and H/W we provided can be made revisions to improve product performance without notice in advance.
- Pls, do not operate this device while driving for your safety.
- Pls, Wire connection with battery power should be done at car speciality store surely and our company is not liable for any problems caused by those connection.
- It informs that sometimes events may be not recorded because of the condition of micro SD card, damages or using environment.

Caution In Use

These are the information for user to operate this device properly and prevent malfunctioning and damages in advance so that user should abide by these information.
And our company can't accept liability for any problems caused by not abide by rules written in user's manual.

- **Pls, install this device using by double-side tape tightly.**

  And use double-side tape after taking out foreign material and moisture on window.

- **When it get wet,**

  Dry it in cool and airy place and don't put it on electric appliance like heater and microwave oven in order to dry it..

- **Prohibition of disassembly**

  Our company don't provide warranty service free of charge on damage or malfunction caused by disassembling product or external shock by carelessness.

- **Caution in installation of rear-view camera.**

  Quality of recorded image may varies according to darkness of window tint film .(Pls, install rear-view camera after cutting out tint film around the camera lens.)

Caution In Use

● **Cause in use of Micro SD memory**

Pls. use only Micro SD card in Box and back up images of events files to PC when accident or car crash happened.

- There is no need to format because Micro SD memory based on SeFS file storage.
- Life time of memory card is limited with 6 month warranty and new images can't be saved at it after long-term use. So in that case, purchase new memory card and use it.

● **Keep device out of direct ray of the sun while parking.**

It may be caused malfunction or defect to put it on enclosed car with direct sunlight long time.

● **LCD TOUCH PANEL**

Don't touch with sharp tool on LCD panel and operate this device followed by voice information service or touch sound. Too many touch on LCD Panel cause the malfunction of touch panel.

● **Do not play images in SD card back by your smart phone**

In case of playing back images in SD card by your smart phone, saved images may be deleted by accident due to collision of system files. Pls, play files back only through viewer program in your PC or LCD monitor at this device.

Function and Feature

1. Real time record

- When starting a car, automatically start recording after booting up this device and when stop the car, automatically stop the recording.

2. Event Record(G-sensor ,Shock sensor, Manual Record)

- By working gravity sensor installed in case of Jackrabbit start or sudden brake and external shock, the event is recorded in SD card automatically before and after event occurred. Event images for parking are recorded by high sensitive shock sensor. And also events can be recorded by manual record button.

3. LCD Protection

- For protecting the LCD, if the inner temperature is higher than 80℃, it will make a sound of "LCD protection is on" or "Normal recording is on" once touching the LCD. (Sound can be changed the beep sound etc.)
- The LCD is turned on by touching it if the temperature is dropped down to 70℃.

4. WIDE TOUCH LCD Support

- It is very convenient to use due to high resolution touch screen, 800*480 with 4.0 inches bases of smart GUI.

5. HD high quality images

- This device provides high quality resolution with 1280 X 720 and optimum view angle with 120° both front and rear day and night.

* The view angle is bigger, the objects looks smaller and more round.

6. Self-format function

- For erasing images from the Micro SD memory, it can be formatted without being moved to a PC.

7. Real time display and confirmation of front/rear view images recorded

- These recorded images can be seen and confirmed through high resolution LCD panel with 4.0 inches in real time.

8. Convenience to set-up of environment

- Set values can be changed by touch screen and make it operated on the spot, not using PC.

9. Video play-back program

- Display recorded images through viewer program by connecting SD card with PC.
  (Possible to check location of vehicles and speed)

10. GPS (Location)

- This device can save vehicle's location and speed together with images by GPS(option) and google map.

11. Front, Rear and function of PIP

- This device can record front and rear view(option) and can display front and rear view (PIP) selectively.

12. Voice service through self-checking system.

- Inform malfunction status like detaching power and SD card and also camera condition by voice information service after self-check

13. Flash light on parking mode at night.

- To maintain clear images under the low light level at night, high sensitive 2 second flash light 5 times each when event occurs.

14. ZOOM

- It is possible to magnify images when playing them back by viewer program or LCD monitor at device.

15. Installation of voltage cut-off system for anti-battery discharge and support of cut-off voltage and timer setting.

- In order to prevent battery discharge due to overuse of battery power, voltage cut-off system is set up. This device will be dead automatically when voltage goes down below discharge voltage, which is set.

16. Support of cut-off high temperature

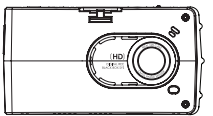
- The power is turned off for protecting the LCD, when the inner temperature becomes higher than 90℃. Automatic recording is started once it is dropped down to 70℃ or lower.

Caution in installation

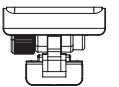
- Pls, check in-box contents.
- Decide the exact location to be installed and then clean the surface of the location on glass by dry towels.
- Pls, check whether this device works normally before wiring works.
- Wiring works should be implemented under the main S/W off and then install outer mounted camera, GPS and insert SD card.
- Before connecting electrical power, pls, check whether micro SD card is inserted properly or not.
- Pls, install this device, not to obstruct driver's field of vision..
- Pls, take out protection film on camera lens after installation.
- Adjust direction of camera lens with looking at real-time images, after connecting electrical power.
- Pls, install rear camera, not to be obstructed by heat wire and tint films in order to keep high image quality.

Product contents

In-Box contents

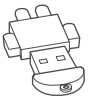


Main body

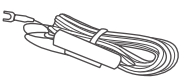


Craddle

Micro SD CARD



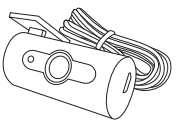
SD card reader



Wires of power / Cigar-Jack

Manual

Optional contents

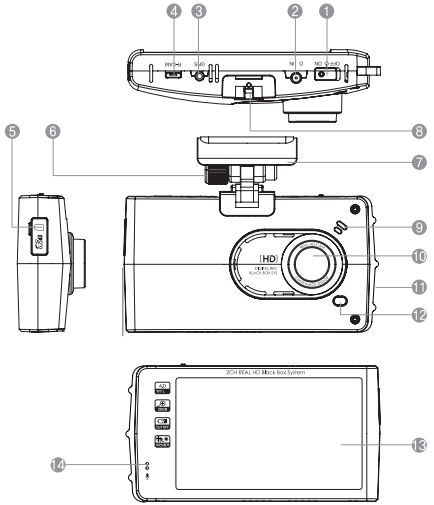


Rear-view camera

Outer mounted GPS

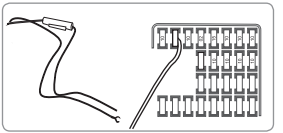
※ Above in-box contents and optional contents can be changed without notice in advance in order to upgrade product performance.

Name of each part and function



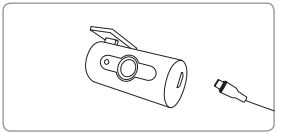
No.	Name	Function
1	On/Off Switch	Main power of Product
2	Power Plug (DC)	Plug for connecting electrical power with device
3	GPS Plug	Plug for connecting main body with outer mounted GPS
4	R-CAM	Plug for connecting main body with rear-view camera
5	Micro SD card slot	Slot for inserting removable micro SD card
6	Screw Lever	Lever to adjust direction in height of its device
7	Cradle	Tool for connecting device with window glass
8	Joint part of Cradle	Connection part between main body and cradle
9	Speaker	To provide voice information
10	Camera lens	Lens for Car Black Box
11	Operating LED	To inform user device's condition (Green,Blue,Red)
12	LED Flashlight	Flashlight for low light levels in case of occurring event at parking mode
13	4.0 inch LCD touch menu	Real time images, images recorded, forced recording, LCD off, parameter setting, taking photos.
14	MIC	Voice recording

How to install

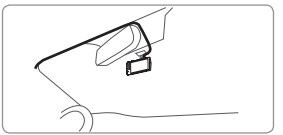


1. Connecting with battery power

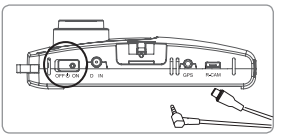
2. Installation of wires of power and rear view camera



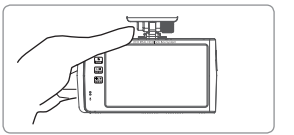
3. Installation of rear view camera



4. Installation of cradle and GPS and connect device with cradle



5. After connecting rear view camera, device and GPS to electrical power, switch it on.



6. Check real-time images

Prevention of battery discharge

	It is a function to make device supporting parking mode, by which of supply electric power to device continuously while turning it off. * Yellow cable (B+) = Continuous power supply in case of turning it off. * Red cable (ACC) = Power supply when starting car. * Black (GND) = Ground
	Open 'fuse box', located at bottom left of driver's seat and check wiring diagram of fuse connection. * B+ is for break light, turn signal and electric seat etc. * ACC is for cigar-jack, outket and audio etc. * This map varies with car models, so that connect wires after checking wiring diagram of fuse box.
	After checking needed fuse, take it out and connect yellow cable (B+) and red cable (ACC) of power supply cable to selected fuse. And then install it again.
	Connect black cable (GND) with steel part of car body Pls, when you connect with black cable and steel part of car body, bolt should be made by conductor and connect with steel part of car body. If not, device doesn't work properly

- It needs to check product condition regularly in order to use safely.
- Battery performance may be depended on outside environment like temperature, so it may does not keep steady performance of funtions which are connected with car battery
- Pls, use fuse of rated capacity. If not, it may cause fire.
- Pls, turn off main power and stop using device when you do long-term parking or find some abnormal occurrence
- Our company is not liable for demages and loss due to consumer's mistake.
- Our company is not liable for damage and loss due to modification and misuse of main power cable we provide.

Operation and Error

List	LED			GUI and speaker
	Green	Blue	Red	
Initial booting	ON	ON	ON	* All LED, which are G,B and R are turned on . * Intro screen => Display "warning message" * Voice information = 'Pls, don't operate device while driving'
Starting record	ON	ON	OFF	* Green and Blue LED are turned on and Red LED is turned off * Display real-time image * Voice information = ' Recording starts'
Not to be inserted when booting Detachment of SD Card during record (system abnormality)	ON	OFF	ON/OFF	* System will be restarted after voice information, "System reboots" when putting SD card in.
Camera module error	ON	ON	ON/OFF	* When removing front camera, it is rebooted after repeating 2 times "Camera (module abnormality) is detected" * When removing rear camera, it is rebooted after repeating 3 times "Camera (module abnormality) is detected"
When you touch the screen during record.	ON	ON	OFF	* "peep" touch sound
When taking still shot	ON	ON	OFF	* "Click" shuttler sound. (It doesn't work when event occurs)
Normal parking record	ON/OFF	ON	ON/OFF	* When starting parking mode(Normal , Shock, Motion) ,B LED goes ON and G,R LED goes in and out.
Parking record for motion : No detection	ON/OFF	ON	ON/OFF	

Operation and Error

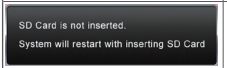
List	LED			GUI and speaker
	Green	Blue	Red	
Parking record for motion : Detection	ON/OFF	ON/OFF	ON/OFF	
Event record while driving (G-sensor)	ON	ON /OFF	OFF	* Device trills when event is occurred
Event record during park (Shock sensor)	ON/OFF	ON/OFF	ON/OFF	* Device trills when event is occurred
Playmode start (Play recorded images back)	ON	OFF	OFF	* It is play mode.
Swiching over to recording mode from play mode	ON	ON	OFF	* Record starts.
Firmware update	ON	ON	ON	* All LED, G, B, R, are on until completing upgrade.
SD Card format	ON	OFF	OFF	* Touch "format" on the format menu. * " It starts to format" voice information * Voice information "It is completed format" when finishing format
Power Off	OFF	OFF	ON/OFF	* RED LED is on and it starts to finish recording at the same time. After device shut down, RED LED will be turned off. (In order to save recorded files safely, take SD Card out after Red LED turns off) * System terminates after 3 seconds recording at the same time as power-off. * LCD screen turns off at the same time as power-off.

※ These information can be changed without advance notice in order to improve performance.

Information _ POP-UP

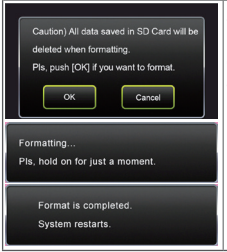
Warning message

It is displayed at the same time as the case on both of booting after power supply and rebooting.



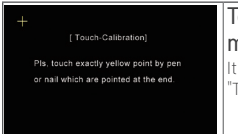
No SD Card message

It is displayed when SD card doesn't inserted at device, and if you put SD card in device, it restarts with rebooting.



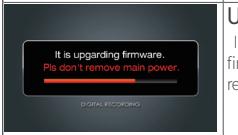
SD card format message

It is displayed until completing SD card format, and it starts to reboot after format completion.



Touch adjustment message

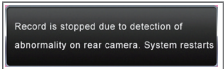
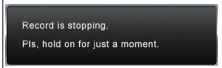
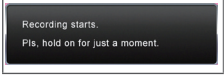
It is displayed when you touch "Touch adjustment".



Upgrade message

It is displyed until completing firmware upgrade, and it starts to reboot after upgrade completion .

Information _ POP-UP

	**Camera error message** It is displayed when detecting abnormality on camera.
	**Recording stop message** It is displayed when starting playmode, selecting image quality for recording and choosing SD format at SD Memory.
	**Recording start message** It is dispalyed when switching from play mode to recording mode and going to recording mode after selection of image quality at menu of recording set.

※ These information can be changed without advance notice in order to improve performance.

1. Power ON

1) 3 seconds for intro image.
2) 'Voice Information'
   Don't operate this device while driving for your safety and "Start to record"
   After above voice information, start real-time image.

2. Real-Time image

: Driving mode

: Parking mode

: GPS connection icon ON

DRV INF	Real time Record	PRK MOT	Parking motion mode
G-S EVT	Event by G-sensor	MOT INF	Parking motion record
IMG CAP	Capture(Taking photo)	PRK SHO	Parking Shock(impact) mode
S-S EVT	Event by shock sensor at parking mode	PRK INF	Real time mode while parking
MAN EVT	Manual event record		

3. Menu Screen

Manual record : Button for manual recording (Manual event record)

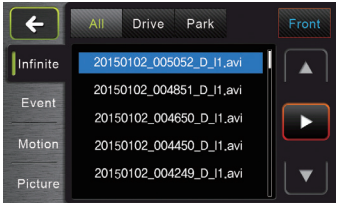
Capture : Click this button when you want to take photos you want. (To be saved photos both of front and rear at PHOTO folder)

Player : Click this button when you want to see images recorded through LCD panel of device.

Screen off : Click this button when you want to turn LCD off.

Settings : Click this button in order to set product parameter.

4. Playback of record images (Infinite:Real time files)



All : All the real time recorded file lists are displayed.

Drive : The real time recorded file lists at only while driving are displayed.

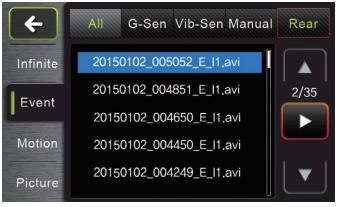
Park : The real time recorded file lists rded in lists at only while parking are displayed.

Front : Channel selection(Front/Rear)

△/▽ : Page up and down

Play button : Click this button to play chosen file back

5. To display recorded images (Event files)



▶ In order to display event file lists, touch “Event”.

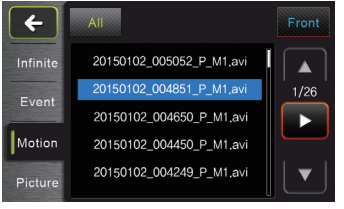
All **All :** Display all the event files

G-Sen **G-sensor :** Display event files recorded by G-sensor

Vib-Sen **Shock sensor :** Display event files recorded by Shock sensor

Manual **Manual :** Display event files by manual record.

6. To display recorded images (Motion record files)

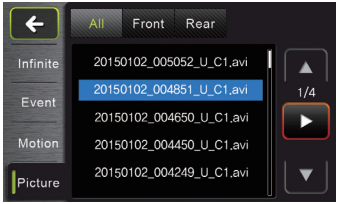


▶ In order to display motion record files, touch “ Motion”.

Play button : Click this button to play chosen file back

: Go back : : Go back to recording mode

7. To display recorded photos [Picture(Photo) files]



▶ In order to display recorded pictures, touch "Picture"

All **All :** Display all photo file lists both of front and rear . (C1:Front/C2:Rear view)

Front **Front :** Display front photo lists

Rear **Rear :** Display rear photo lists

8. Play recorded file back

▶ When you touch the screen during playback, play bar and menu are displayed.

STOP button

"Return" button to go file lists

Go to previous file

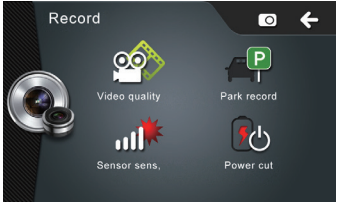
Go to next file

Pause button : If you touch the screen under the freeze-frame, that area is enlarged by 2.5times. And if you touch it again, returning to original size.

9. Setting

▶ If you press “setting” button at menu, setting menu will be popped up.

10. Setting (Record setting)



▶ Touch “Record setting” in order to display its menu .

Video quality : setting of record quality

Parking record : setting of parking mode

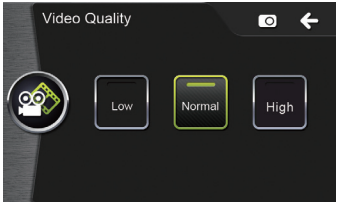
Sensitivity of sensor : setting of G-sensor

Power cut : Setting of cut-off voltage and time

Go back to record mode.

Go back to previous menu.

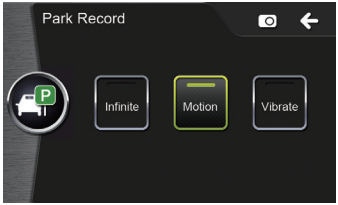
10-1. Record setting (Video quality)



▶ In order to select menu of video quality, touch "Video quality"

Channel		Low quality	Normal quality	High quality
1CH		6Mbps	8Mbps	10Mbps
2CH	Front	4Mbps	5Mbps	6Mbps
	Rear	3Mbps	4Mbps	5Mbps

10-2. Record setting (Parking record)

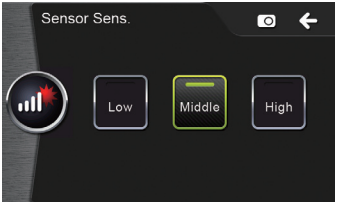


▶ Touch "parking record" on record setting menu in order to display menu of parking record which is recorded at 10fs each channel.

real time(infinite) record : A continuous record at 10fs.
Motion record : record and save only in case of detecting motion.
Vibrate record : Record and save in case of working shocking sensor

Event by impact is recorded, even though under the set of real time and motion record

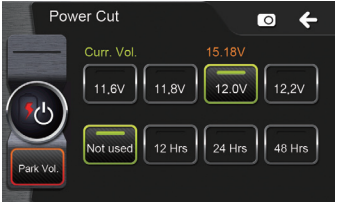
10-3. Record setting (Sensitivity of sensor)



▶ Touch "sensitivity of sensor" on recording setting in order to display menu of sensitivity of sensor

- To set sensitivity of G-sensor under driving mode.
- G-sensor value is set by X+Y+Z

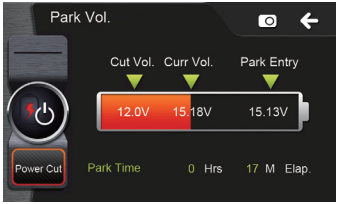
10-4. Record setting (Power cut)



▶ Touch "Power cut" on recording setting in order to display menu of Power cut.

Current voltage : To display current voltage

- In order to prevent battery discharge, Power is cut off automatically ,lasting more than 1 min. under the condition the lower than setting voltage.
- The power of device is cut off after setting time under parking mode



▶ Display of Parking voltage

– If you touch "Parking voltage" at above menu, current voltage and parking voltage at the beginning of parking mode are displayed and inform you consumption of battery during parking.

11. Setting (SD Memory)

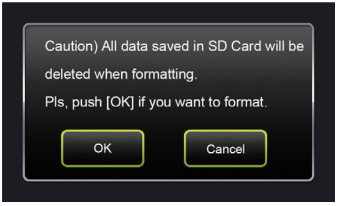
▶ Touch "setting" on menu in order to display 'SD Memory"

SD format : Icon for format of SD memory card.

Format alarm : To set the time to do format of SD card.

SD Info : To display information of SD memory.

11-1. SD Memory (SD Format)

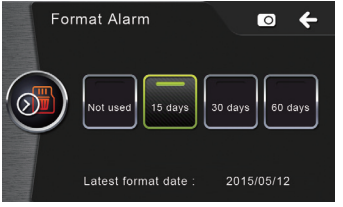


▶ Touch "SD format" on SD Memory in order to display execution screen for SD Format

OK : Button for format of SD Memory. After completing format, it is rebooted automatically.

Cancel : Go back to previous menu.

11-2. SD Memory (Format Alarm)



▶ Touch "Format Alarm" on SD Memory in order to display alarm setting menu.

- After formatting SD memory in device, set the time of alarm, which will inform you of format alarm after elapsed time.
- If you touch "cancel" on SD Format, it goes back to previous screen.
- If you touch " Format" on SD Format, it works automatically and then reboots after completion

11-3. SD Memory (SD Info)

▶ Touch “SD Info” on menu of SD Memory in order to display setting and use amount of memory

12. Setting (System setting)

▶ Touch “system setting” on Setting menu in order to display its menu

Volume : Setting volume level of speaker or MIC.

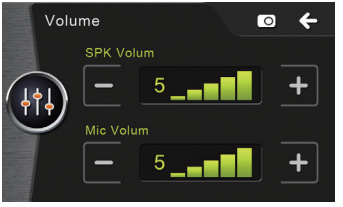
Screen : Setting brightness level, screen off time and wrong coordination of touched location.

PIP : Display ‘PIP’, picture in picture, under 2 channel.

Time : To set Year,Month,Day,Hour, Minute,second.

System Info : Model, SW version, S.N number

12-1. System setting (Volume)

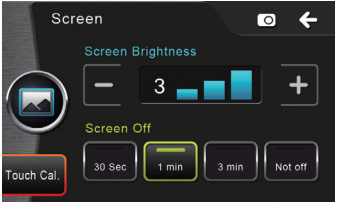


▶ Touch "Volume" on system setting in order to display menu of volume

Speaker : 1~5 stages

MIC : 1~5 stages

12-2. System setting (Screen setting)



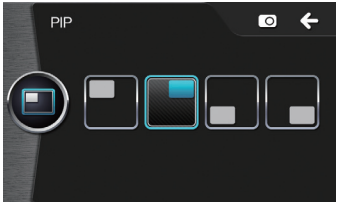
Brightness : 1~3 stages

Screen off : To set screen off time after starting car.

Touch Cal.

Touch adjustment : To adjust touched location followed by guide information .

12-3. System setting (PIP)



▶ Touch “PIP” on system setting in order to display menu of PIP setting

- Select the location of PIP under 2 channel operation, which are left upper end, right top, lower end of left and right lower end.

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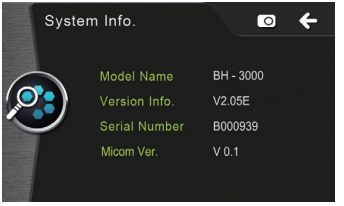
12-4. System setting (Time)

▶ Touch “Time” on system setting in order to display menu of time set

- Input year, month, date, hour, minute and second by using below numeric keypad and then touch “ OK”
- If you input wrong number, touch “Init” to correct it.

[OK] If you touch it, time is set.

12-5. System setting (System Info)

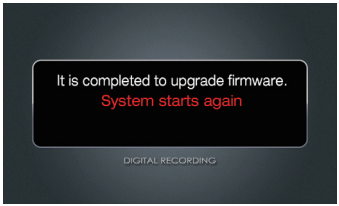


▶ Touch " System Info" on setting in order to display device information

- Model Name
- S/W Version Info.
- Serial Number
- Micom Ver.

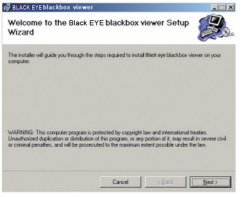
How to upgrade

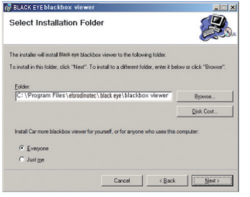
1. Pls, connect "web-site" of our company and then down load "FIRMWARE" file.
   - Web-site : www.elsrodinotec.com
2. Decompress downloaded file.
3. Copy decompressed file and then paste it on upgrade folder of SD CARD.
4. Supply power after input SD card into device.
5. Update is progressed with information screen automatically, and real time recording mode starts safely after rebooting.

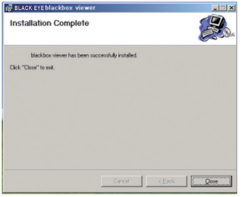


How to install viewer program on PC

- Pls, connect our wet-site,www.elsrodinotec.com, and down load exclusive viewer installation file, name of BE_PC_Player. And the follow the below steps in order to install viewer program.







After completion of installation, you can see the above icon on PC monitor .

Viewer program

① **Main screen** (Front & Rear view or Map)

② **Sub screen** (Front & Rear view or Map)

③ **Driving condition Play status BAR**

④ **Speed meter** (installation of GPS only)

⑤ **G-sensor Info** (Shock sensor Info)

⑥ **Main screen selection button**
(Front, Rear, Map)

⑦ **Playback selection button**
(real time, Event, Motion)

⑧ **Sub screen selection button**
(Rear , Map)

Viewer program

ⓐ Go back to previous file
ⓑ Rewind button (1 second before)
ⓒ Play // Pause
ⓓ Stop
ⓔ Forward button (1 second after)
ⓕ Go to next file
ⓖ Go to next frame
ⓗ Opening file
ⓘ Save file button
ⓙ Control brightness of images
ⓚ Volume button
ⓛ Double speed playback
ⓜ Screen capture
ⓝ PIP location setting button UP/ DOWN
ⓞ PIP location setting button LEFT/ RIGHT converting (rear view)
ⓟ Setting
ⓠ format

Specification

Model	BLACK EYE – MAX Ⅱ
Color	Black
Size (mm)	117(W) X 63(H) X 23(D)
Channel (Front/Rear)	2 channel (Front/Rear view)
Lens angle (Front/Rear)	Front / Rear view : Opposite angle 120°
Illumination	0.5 LUX above
Security LED	HD LED (RED , GREEN , BLUE)
LCD	4.0" (800 X 480) Touch Panel
PIXEL	Front: 2 million pixel , Rear : 2 million pixel
Resolution	Front:1280*720(HD),Rear:1280*720(HD)
Image Format	MPEG4 (H.264)
Frame	1CH : Max 30fps 2CH : Front/Rear Max 30fps
Memory	Micro SD (16GB ~32GB)
Recording method	Over Writing
Audio recording	High sensitive internal MIC(ON/OFF support)
Audio Output	Speaker(to inform operating condition)
GPS	Outer mounted type ,Location/Time/Speed
Time	Internal RTC , (Automation with GPS)
G-sensor/Shock sensor	3 dimensional accelerometer sensor (X,Y,Z) & Shock sensor for parking
Working voltage range	DC 12V ~ DC 24V

Current	350 ~ 450mA
Operating Temp.	-20℃ ~ 65℃
Storage Temp.	-30℃ ~ 85℃
Battery Capa.	ELDC 3.0F/5.4V(To save last image)
Recording Mode	Real time/Event & Forced urgent recording/ Impact record/Motion record.
Real time Record	At every 2 minutes
Event Record	10 sec. before event and 20 sec. after event (30sec.)
Motion Record	10 sec. before motion and 20 sec. after motion(30sec.)
Flash-lighting	Working 2 seconds flash lighting 5times under low sensitive during the car park
SD Format	SD format for device
PC – Viewer	Exclusive PC viewer(Win XP , Vista , Win 7) Media, GOM Player
F/W Upgrade	Support F/W upgrading

※ Above specifications and functions can may be changed without notice in advance in order to upgrade product performance.

Compensation criteria of consumer's damages

Damages	Contents		Under Warranty	Out of Warranty
Malfunction due to pro duct defect	Major defects within 10 days after purchase.		One to one exchange	N/A
	Need to repair at major parts within 1month after purchase.		Exchange or free repairs	
	Reoccur problem with 1 month after exchange.			
	Repairable	Defect occurrence	Free repairs	Pay for repairs
		Recurrence of defect	Exchange (Until 4 times)	
Consumer's fault	Repairable		Pay for repairs	Pay for repairs
	Not repairable		Exchange with pay for repair fee	Follow other criteria of our company
1) Malfunction due to natural disaster like fire, damage from sea wind, earthquake, Gas etc… 2) Malfunction due to repair or modification from unqualified person or repair shop 3) In case of exchange of expendable parts under the natural normal use. 4) Malfunction due to user's fault like impact, disassemble etc…			Pay for repairs	Pay for repairs

Check items before claim

- Don't' use this device for other purpose except to Car Black Box.
- Pls, back up all the data saved at Micro SD card into PC because it might be happened to be deleted recorded data for repairing this device.
- It is considered that user already backed up all the data saved at SD Card in order to repair it before deposited at service center. So, Service center does not back up data recorded at SD Card and our company is not liable for deleted date for repair this device.
- Pls, pack properly not to be exposed on impact and breakage during transport and enclose sender's name, address, telephone number and troubles with product.

● Self-checking method on malfunction

Trouble	Trouble shooting
No main power	Check wiring between main body and cigar-jack
LCD is not touched	Try to reboot
Display wrong time	Reset Correct exact time at Time set in main screen in case that GPS is not installed
GPS is not working	Check connection of GPS
No display of rear images	Check wires of rear camera
Pls, ask customer's center when you have problems and follow the instructions we provide.	

Warranty

Warranty Card				
Product	BLACK EYE-MAX II			
Manufacturer	Elsrodinotec Co.,Ltd			
Seller				
Serial NO.				
Terms	1 year from . . 20			
Buyer	Name		Tel. No.	
	Address			
Seller	Name		Tel. No.	
Customer center	1588-9301, www.elsrodinotec.com			

- BLACK EYE-MAX II comes with 1-year guarantee.
- One-year guarantee is applied to not only in-box contents but also other optional accessories.
  (Micro SD CARD // Built-in battery : 6month)
- This product is guaranteed as written in warranty card.
- Purchased date should be written in warranty card because warranty term is calculated from that date.
- Pls, see the "Compensation criteria" for your references.

ELSROD iNOTEC Co.,Ltd.
www.elsrodinotec.com

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Goyang-si, Gyeonggi-do, Korea