

GPS1699 Black Box and Radar Warning Device



User Manual

Version 1.1



Radar Detector (Optional)

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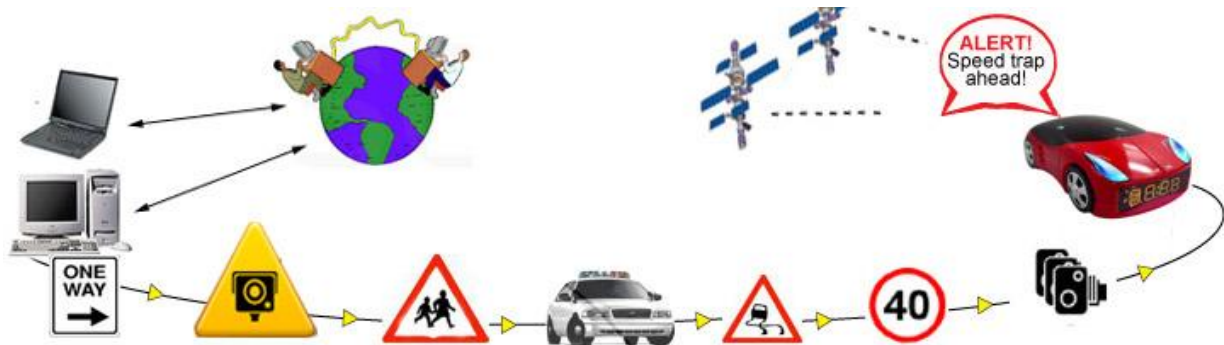
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We market and sell the **GPS 1699** as a road safety enhancement device. It is your responsibility to drive within the speed limits at all times. You should always drive with full care and attention. You should not let any in-car device distract your attention or take your eyes off the road. It is your responsibility to remain aware at all time. If you need to adjust any **GPS 1699's** setting on the move, ask a passenger. Alternatively, stop at the next available safe location and then make any changes.

1.Product Introduction

1.1 Overview

Unlike other in-car recording or radar detector systems, the GPS 1699 is used to record both video and audio data in a continuous loop fashion, and radar detection in any time anywhere. If the vehicle is involved in an accident such as a collision, impact, and sudden acceleration-related incident, this data is marked and stored. One may thereafter analyze the data to find its root cause by playing back the scenes of interest and where acceleration, vehicle speed, direction, and location are available for review.



The all-in-one **GPS 1699** has revolutionized the radar detector category again, which means it delivers the best protection possible against all speed measuring devices, and analyze the data to find its root cause by playing back the scenes of interest and where acceleration, vehicle speed, direction, and location are available for review. We added advanced GPS-powered intelligence, black box technologies, which delivers the best performance, and is the quietest and most user-friendly radar detector ever designed.

The **GPS 1699** is equipped with the latest generation MTK chipset digital processor specially designed for fast and accurate fix on GPS signals. It had been designed to help you drive safety within the confines of today's speed limits, by alerting you quickly and easily to the presence of police speed traps, often located at Accident black spots, electronically indicating potentially dangerous and hazardous situations. The **GPS 1699** will help you to drive safely, when the database has been downloaded, the device will compare your position using its built-in GPS antenna with the position of every known danger locations and give you an audible and visual warning as you approach them.



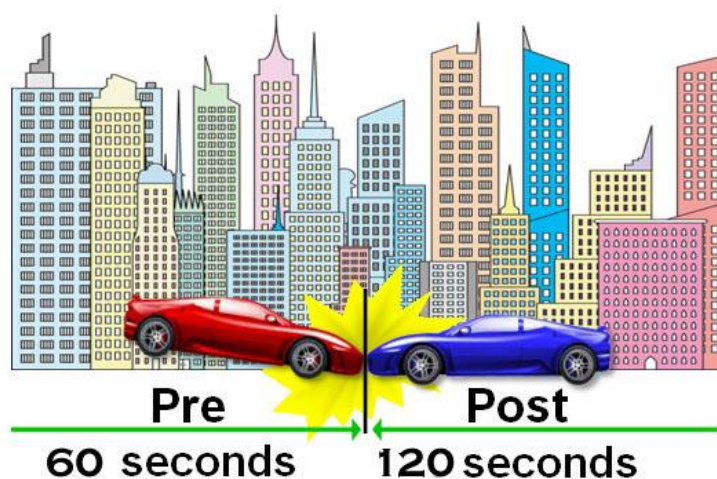
Continuous recording

The GPS 1699's video and audio data from the front and interior views is continuously recorded while power on. When the capacity of the Micro SD Card has been reached, the older files are overwritten by the latest file.

Pre and post event recording

When impact or unusual acceleration or deceleration is detected by the built-in G-Sensor and has exceeded the preset limit or one activates the emergency record button, the recorded video data is locked-in and can be erased only by an authorized party. Event data records 1 minute before and 2 minutes after.

Stored event recording data in Micro SD Card will not be erased unless user cancels the event (in-car), or the files are erased by the person reviewing the Micro SD Card.



Night view recording with Infra-Red Light

The included IR (Infra-Red) Light module with adjustment used this invisible light source to assist in recording nighttime views from the interior facing camera.

Playback of video/audio data

The recorded data can be played back using the provided playback software which is found on the Micro SD Card. The Record resolution is 640x480. Maximum 45 frames per second for 2 channels (Max 45fps @ VGA for each channel)

Data analysis

The recorded data can be easily analyzed for speed, vehicle location and direction of travel including impact by using the DTL Player that is found on conveniently on the supplied Micro SD Card.

1.2 Check the Package Content

- I **GPS 1699** unit - FND display*1
- I **Wireless radar detector -200TX WRD (optional)** unit*1
- I Smart on/off switch cord*1
- I Windshield suction cup mounted with brackets*1
- I Dashboard mounting metal with magnet*1
- I Extension cord for 200TX WRD*1 (optional)
- I The brackets for 200TXWRD *1 (optional)
- I SD card reader *1
- I Power supplier AC240-110 to 12 VDC *1
- I USB download Cable *1
- I User manual*1 (in Electrical file)



1.2.1 Part Numbers

Figure A

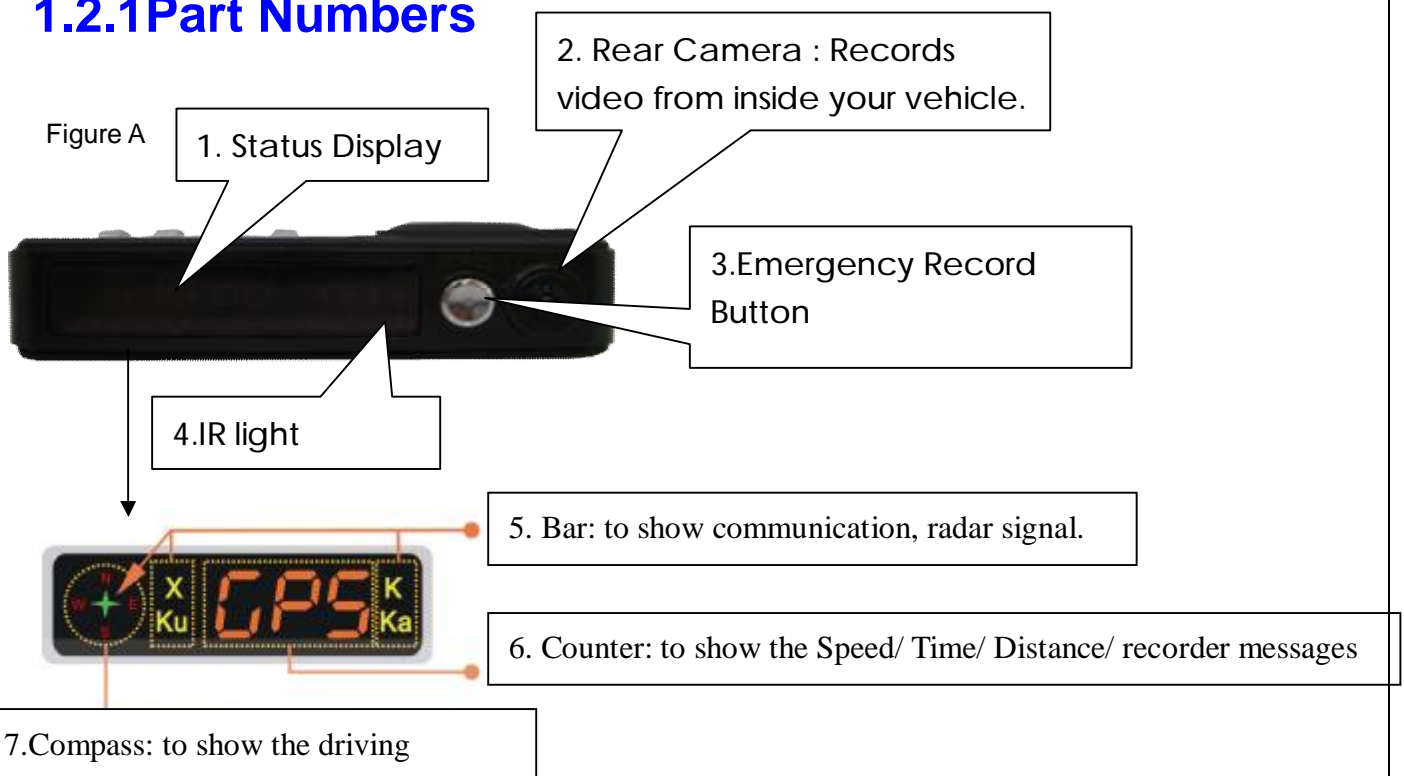


Figure B

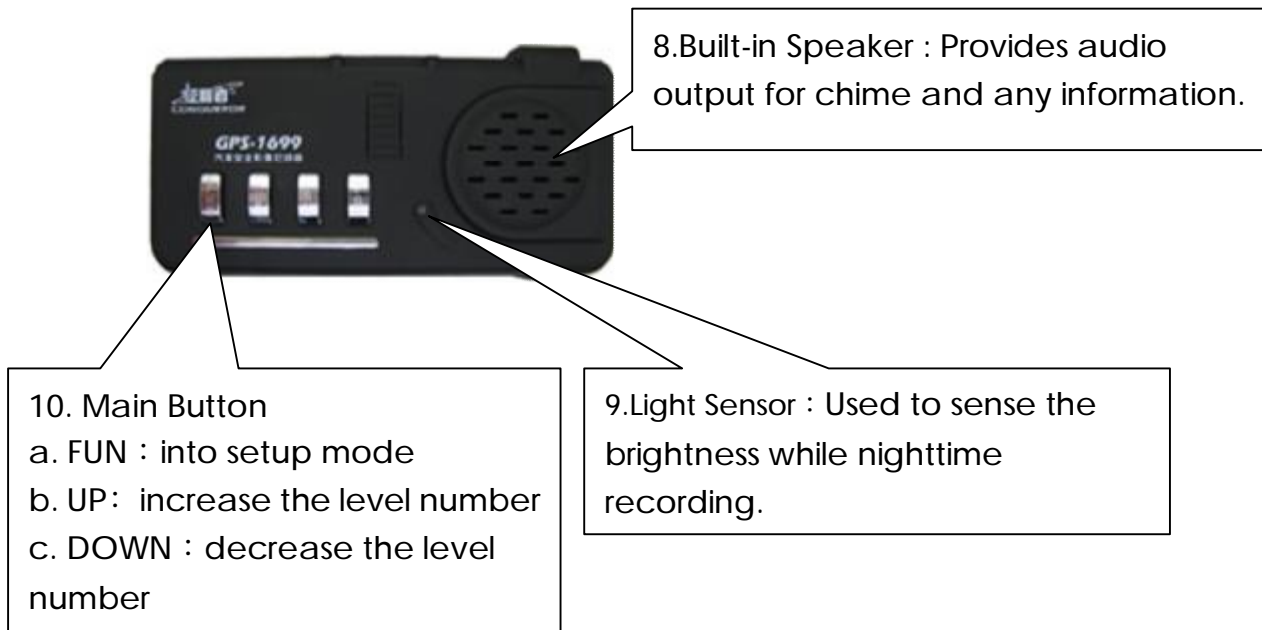


Figure C

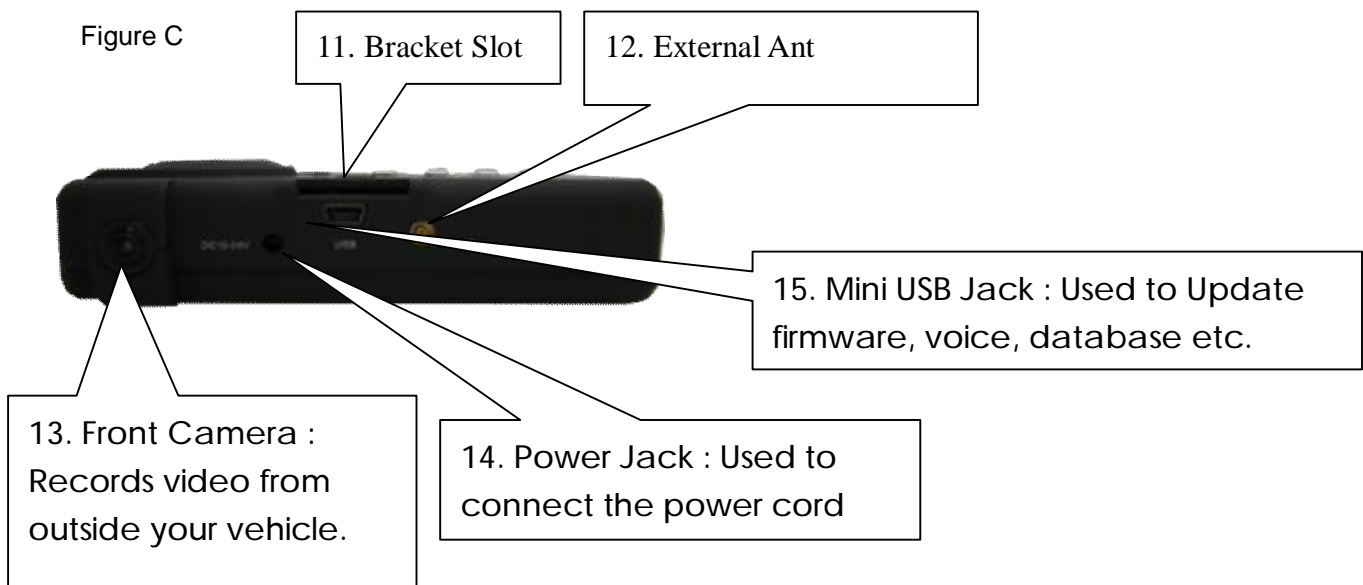


Figure D

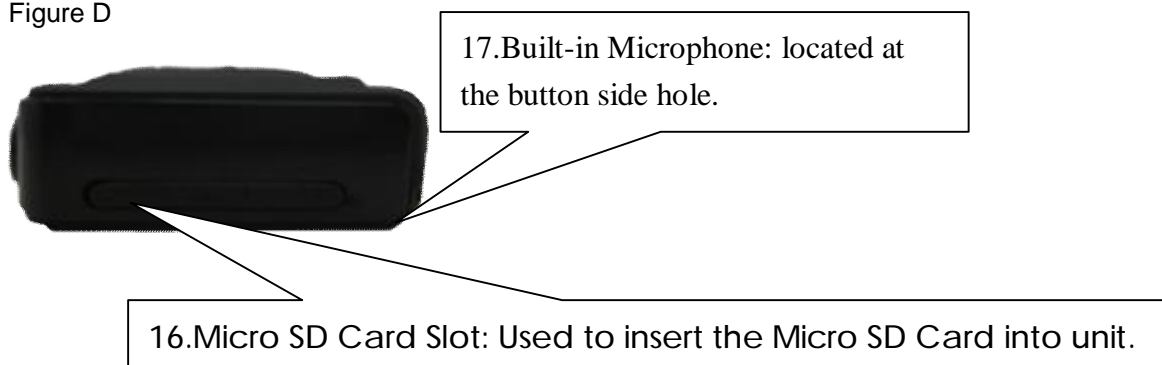
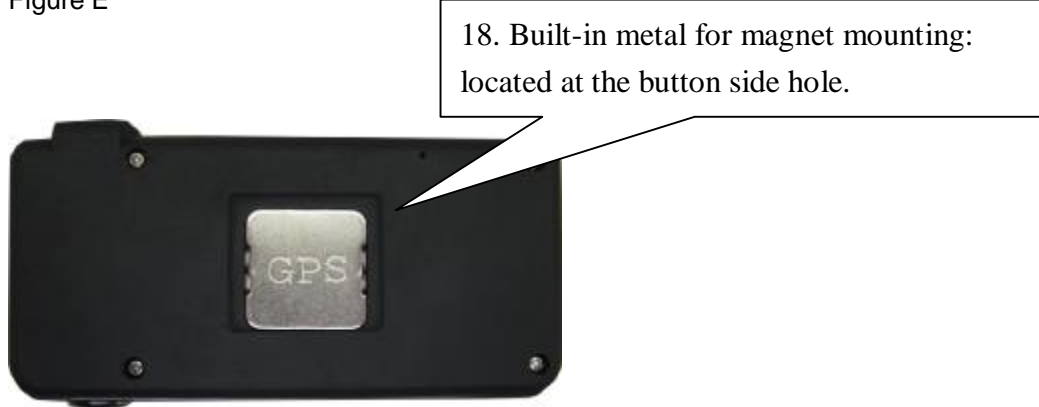


Figure E



1.2.2 Description

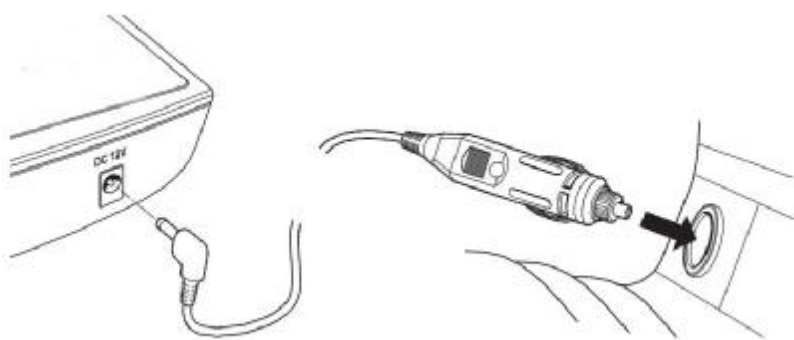
No.	Name	Description
1	Status Display	Used to display the status of the traffic information by using English text or symbols.
2	Rear Camera	Used to record the video from inside your vehicle.
3	Emergency Record Button	Used to perform an emergency recording.
4	IR light module.	Used to sense the brightness while nighttime recording.
5	Bar	Used to show the communication, radar signal..
6	Counter	Used to show the local time, speed, distances.
7	Compass	Used to the direction of driving.
8	Built-in Speaker	Used to issues some information about GPS/Radar/Black box.
9	Main Button	a. FUN : into setup mode (1) Radar alerts mute: (2) Excesses Speed alerts: (3) GPS Speed adjust: (4) Alerts mode: (5) Greetings: (6) Bright setup: (7) Dark setup: (8) Wireless on/off (9) X-band on/off (10) Ku-band on/off

		(11) K-band on/off (12) Ka-band on/off (13) Laser on/off (14) Rear camera on/off b. UP : increase the level number c. DOWN : decrease the level number d. POI : Collect /Delete Pinpoint Data
10	Light Sensor	Used to sense the brightness while nighttime
11	Bracket Slot	Used to mate with the mount bracket.
12	External Ant	Used to connect with the external antenna when GPS device is hardly to connect with satellite signal.
13	Front Camera	Used to record scenes through the windshield.
14	Power Jack	Used to connect the power cord with the unit.
15	Mini USB Jack	Used to Update the firmware, voice, database.
16	MINI Micro SD Card Slot	Used to insert the Micro SD Card into unit.
17	Built-in Microphone	Used to record Audio into unit.
18	Built-in metal	Used to mount on desk for magnet mounting

1.3 Install GPS 1699 in your vehicle

Power Connection

To power the **GPS 1699**, plug the small end of the DC Plug, (DC JACK-type connector) into the jack on the **GPS 1699**'s front side, and plug the lighter plug adapter into your vehicle's lighter socket or accessory socket.



The **GPS 1699** operates on 12 volts DC negative ground only. The lighter plug provided is a standard size and will work in most vehicles. However, some vehicles may require our optional sleeve to ensure a snug fit. If so, simply call or contact with local dealers.

NOTE: depending on your vehicle, the lighter socket power may either be continuously on, or it may be switched on and off with your ignition switch.

Windshield Mount

The **GPS 1699**'s windshield bracket is designed for unobtrusive and hassle-free mounting.



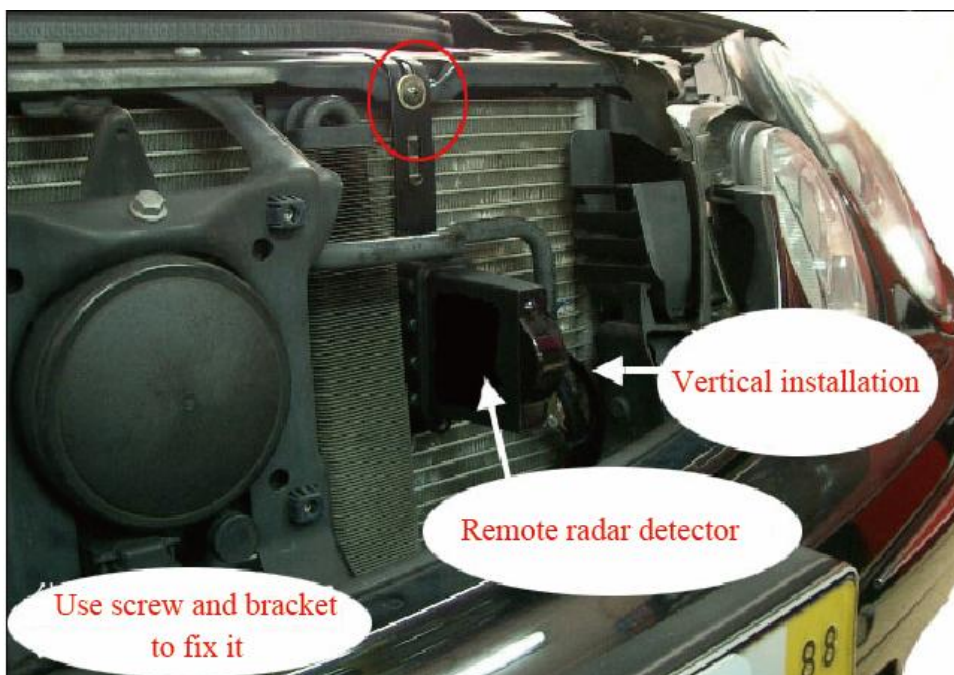
1 Depress the adjustment button on the top of the **GPS 1699** and slide the bracket into the slot until it is locked into the position which best fits the angle of your windshield (there are four settings available). For extremely horizontal or extremely sloped windshields, the bracket can also be bent to the correct angle. However, we suggest that you do not do this when the bracket is connected to the **GPS 1699**.

To ensure that the suction cups adhere to the windshield firmly, be sure to keep both your windshield and the suction cups clean.



2 To adjust the **GPS 1699** on your windshield, use the Easy Mount adjustment button located on the top of the **GPS 1699** , and slide **GPS 1699** forward or backward to obtain a level horizontal position. When installed and adjusted properly, the back top edge of the **GPS 1699** should rest solidly against your windshield.

Remote radar detector Mount



*1 A professional installer must install your new **200TX WRD**. Installation of this system requires experience and expertise in automotive electronics. Car Audio specialists and many car dealers can install **200TX WRD** for you.*

2 Attempting to install this product without expertise in automotive electronics installation can cause personal injury, or damage to your vehicle.

3 If your vehicle is damaged during installation, its safety systems may be compromised, which could cause personal injury or property damage.

*4 Improper installation may void **200TX WRD**'s warranty.*

To get the best performance possible, the mounting location of the front **200TX WRD** is critical. Although radar signals will pass through some types of plastic, it is critical that this receiver be mounted level, and has an unobstructed "view" of the road.

1 Determine the best location for the Receiver. The best location is typically under the bumper, or inside the front grill of the vehicle. For the best performance, install the Receiver horizontally, with a clear "view" of the road.

*2 Using the supplied mounting hardware, mark the hole locations and drill pilot holes in the vehicle if necessary. It's best to check and double-check clearances **BEFORE** drilling the holes.*





3 Mount the Receiver using the supplied hardware. (If right-angle mounting bracket is used, secure Receiver to the right-angle bracket first, then install bracket with Receiver to the vehicle.)

Note:

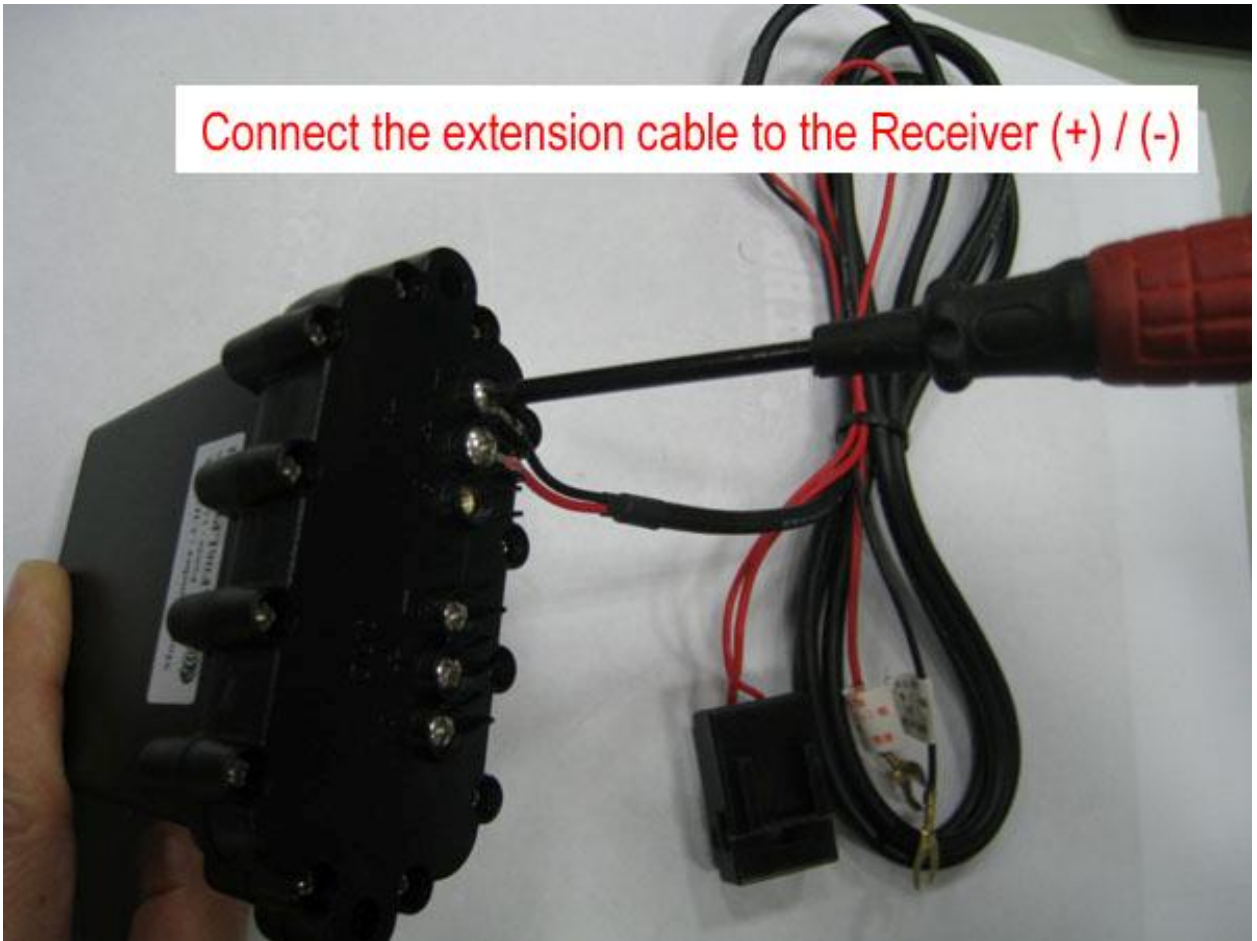
- 1. Do not drill holes in the Receiver itself.**
- 2. Thoroughly investigate location before drilling any holes.**
- 3. Keep all cables away from moving parts, and hot surfaces (radiator, hoses, etc.).**
- 4. DO NOT splice cable.**

1 Connect the extension cable to the Receiver (+) / (-). Another side connects with power battery.

2 Route cable to battery, and secure with zip-ties (included).



Connect the extension cable to the Receiver (+) / (-)



Note:

Make certain that the Display is clearly visible from the driver's position.

After all components are installed correctly:

1 Turn vehicle's engine to the "on" position.

2 Turn the GPS 1699 on by connecting the power cable and push the red button.

3 The GPS 1699 will cycle through a startup sequence.

4 If commutation messages come up, you can see the star icon with twinkle per 3 second /time. If the wireless radar detector is disconnected with GPS 1699 , you cannot see the flash star icon, and issues with a message " The wireless radar detector is disconnected per 3 minutes"



If the star icon is turn on without twinkle, the wireless is disconnected between GPS speed camera locator to remote radar detector (wireless).

Tips before Using the Product

Unit Preparation for video recording

1. Turn off the car engine. Install the unit and connect the unit to source of power such as the supplied cigarette lighter plug. This plug may or may not have power on it with the engine off. Typically one would look for an outlet that follows the status (condition) of the engine, If your cigarette lighter is constantly live it is advised to unplug the unit whilst you are not in the vehicle for long periods of time. Turn on the engine. "AdR Init" sign appears on the LED display window and the video recorder start to initialize. The LED display window will show a XX":XX flash, this indicates that GPS satellites are beginning acquired.

2. In about 25 seconds after power on, the unit completes initializing and it chimes "ding dong". The unit may still show a series of numbers followed by and "XX":XX flash" will appears. This adjusts the unit further for increased accuracy.

3. After the chime, the GPS1699 Recorder starts continuous recording.

Continuous recording while driving

1. GPS1699 informs you of your vehicle's speed, when stopped, it displays the time.

2. When the capacity of the Micro SD Card has been reached, the oldest files are overwritten for continuous recording. The data recorded by either the unit's internal G-Sensor or external manual record button are not overwritten and these data can only be erased by computer to erase in the DATA folder.

3. When you stop the engine or remove the power cable from the cigarette lighter plug, GPS1699 stops

recording.

4. GPS1699 exclusive viewer “DTLplayer .exe” is inside of the Micro SD Card. Insert Micro SD Card into your computer to use this software.

Micro SD Card related information

Warning:

Do Not use this Micro SD Card for any other purpose. To use this Micro SD Card for any other purpose or copy unrelated files can cause a fatal error.

Use only the provided Micro SD Card with the unit to ensure proper operation. Consult your Reseller or the Company website for Micro SD Card compatibility. In case that your computer does not support the SD SDHC2.0 memory card standard, use a separate SDHC2.0 USB reader. It is recommended to periodically format the Micro SD Card to prevent Micro SD Card errors over a long period of time.

1. *After formatting the Micro SD Card set the time zone in GPS1699 configuration.*
2. *If you do not configure the settings, system initialization may take up to 10 minutes and where the time and time zone may not match.*
3. *In case of formatting the Micro SD Card, the existing recorded video files are all deleted, so be sure to perform a backup for any important video files.*

Functions of each part

Forward facing and rear facing/interior view camera

The camera must be horizontal and vertical. When the lens of the camera is obstructed or is dirty, clear images may not be captured. Periodic cleaning is required. To clean the lens, use a soft camera lens cloth to prevent damage.

Emergency record button (Video image removal protection)

In order to record diver detected scenes of interest, press the emergency record (E) button to record. This data records 1 minute before and 2 minutes after. This stores and records 1 minute before and 2 minutes after the driver pressing this event button. These events will not be erased unless the User cancels the capture by pressing the M button or the file is erased using the software. (A remote button is also provided for this function for covert recording) The recording time is determined in prerecording time.

Micro SD Card slot

Before inserting / removing the Micro SD Card, Power must be OFF. (The LED Display must be off.) Make sure you should set the time zone in configuration before starting. To replace the Micro SD Card with a new one;

1. *Format the new Micro SD Card as follows; 2GB, 4GB, 8GB or higher: FAT32, less than 2GB:FAT)*
2. *Copy “Player” folder from used Micro SD Card and paste to new Micro SD Card.*

Emergency Record Protection Cancel Button

Press the button for about 3 seconds until chimes “ding dong”. All the previous event record protection is cancelled to be able to overwrite. When the unit record as Emergency Record, it also can cancel the emergency record protection.

Volume control

Adjust the audio volume level for driver's convenience. When you turn it topside (up), it increases the volume while a button (down) turn decreases the volume

Power connection port

Connect one end of the cigarette lighter plug cable into the matching connector of the power port of the unit. Plug the other end of this cable to the cigarette lighter plug of the vehicle. {Power may be hard wired (permanently wired) into the ACC (accessory) switched power of the vehicle for a more secure installation. REFER THIS TO TRAINED PERSONEL ONLY.} Do not lose the supplied power cord or use other cables. If damaged or lost, contact your Reseller for a replacement.

LED Display window

The LED display shows the current status of GPS 1699 and other features, for further understanding of displayed messages please refer to the table on page 4.

GPS camera locator

GPS 1699 is a Car black box and GPS camera locator combo, and it can be a wireless radar detector, too. The end user is possible to download new database by <http://update.gpscamera.org>

Mobile Camera Warnings:

Mobile cameras can be used anywhere and can potentially record your speed at 1000 metres or more. Warning of a single location within a mobile camera enforcement area is not necessarily sufficient. If the camera moves within the area then the original warning will be ineffective. GPS 1699 is possible to integrated with the wireless radar detector to catch any type microwave for speed gun systems.

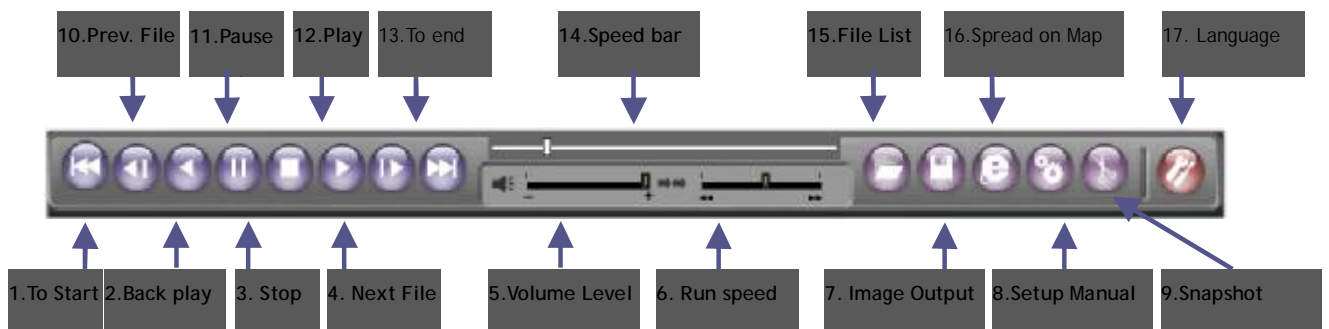
The GPS 1699 will alert you to the start of the mobile enforcement area, before you drive within range of the mobile speed trap. This means you will know that enforcement is possible around the next corner, or along the next straight stretch of road. Therefore, you will not see any distance countdown for mobile speed trap locations.











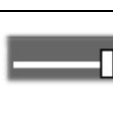
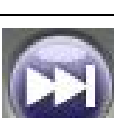



Insert the Micro SD Card into the Micro SD Card reader and connect it to a computer. Double-click IBoxPlayer2.exe in the PLAYER folder. The following window will appears. Double click on 'IBoxPlayer2.exe'. The following window will appear:




No.	Name	Description
1	Forward Camera View	Displays the video images recorded by the forward facing camera.
2	Rear Camera View	Displays the video images recorded by the interior facing camera.
3	Speed Meter	Displays the speed of your vehicle.
4	Google Map	Displays the coordinates (latitude and longitude) of the vehicle. (Requires GPS signal lock)
5	Direction of Travel	Displays the vehicle's direction of travel.
6	Player Control bar	Displays the player conditions.
7	G Force Analyzer	Displays vehicle motion and any impact detected by the G-Sensor with a graph.

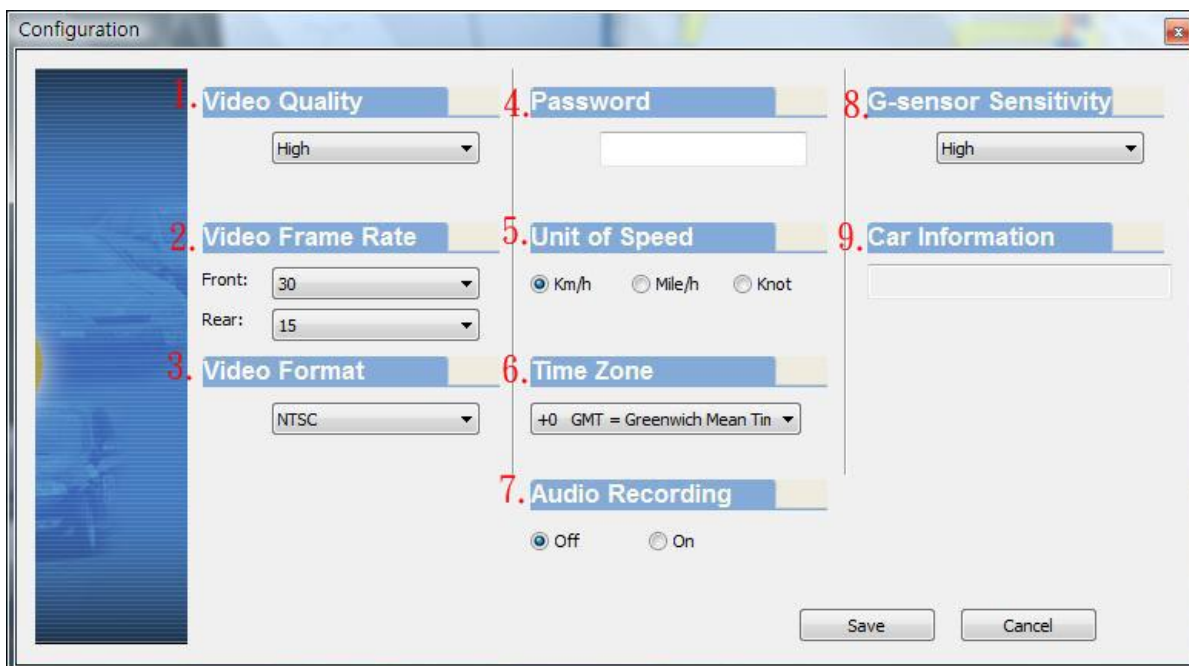
V Control Bar



	Jumps to the first frame		Converts the file into an AVI format, backup the file with *.SD
	Jumps to the previous frame		Links the recorded data with map
	Reverses Playback		Accesses the System Set Up Menu
	Pauses the Playback		Snapshot to catch pictures when the playback is running.
	Stops Playback		Languages, Micro SD card format by program
	Playback, normal speed		Hides/closes the window
	Moves to the next frame		Status bar when the player is executed by playback button
	Moves to the last frame		Adjusts the volume level while playing back the recorded data.
	Opens a file		Adjusts the video playback speed.


System configuration

Insert the Micro SD Card into the Micro SD slot or Micro SD Card reader and connect it to a computer. When the player's main screen appears, click on the System Setup configuration icon () located at the lower right corner. The following window will then appear.



No.	Name	Description
1	Video Quality	Sets the video recording quality. (Default: High)
2	Video Frame Rate	Front : Maximum 30 FPS; Rear : Maximum 15 FPS
3	Video Format	Support with NTSC/ PAL
4	Password Setting	Sets the password for the recorded data.
5	Unit for Speed	Sets the unit of the car speed. (MPH , KPH or KNOT)
6	Time Zone Setting	Sets the time zone for the user. (Ex. Taiwan, Taipei — +8 GMT-08:00)
7	Audio Recording	Enables or Disables the audio record function. (Default: enable)
8	G-Sensor Sensitivity	Sets the sensitivity of G-Sensor. (Default: Heavy)
9	Vehicle ID Number	Sets the license plate number or fleet vehicle ID number associated with the vehicle where the Micro SD Card is installed in.

Playback

1. After clicking the folder icon () on the lower right corner of the viewer, click Change Directory to select the location for the recorded videos typically the first time you do this, the files are located on the Micro SD Card. If saved elsewhere, use this utility to explore your computer to locate the file for playback.

2. When the file list appears, double-click the desired file to play back.

Disk Open				
<input checked="" type="radio"/> Disk Open <input type="radio"/> Playback				
I:\				
Browse...				
ID	RECORD TIME	EVENT TYPE	TIME END	Total Time
<input checked="" type="checkbox"/> 1	2010-03-26 23:21:25	Record Start	2010-03-27 00:10:15	00:48:50
<input checked="" type="checkbox"/> 2	2010-03-27 00:28:19	Record Start	2010-03-27 00:31:09	00:02:50
<input checked="" type="checkbox"/> 3	2010-03-27 00:40:02	Record Start	2010-03-27 00:43:03	00:03:01
<input checked="" type="checkbox"/> 4	2010-03-27 04:51:10	Record Start	2010-03-27 05:18:42	00:27:32
<input checked="" type="checkbox"/> 5	2010-03-27 16:56:49	Record Start	2010-03-27 17:16:18	00:19:29
<input checked="" type="checkbox"/> 6	2010-03-28 04:45:31	Record Start	2010-03-28 05:08:05	00:22:34
<input checked="" type="checkbox"/> 7	2010-03-28 05:08:34	Record End	2010-03-28 05:08:43	00:00:09
<input checked="" type="checkbox"/> 8	2010-03-28 16:09:54	Record Start	2010-03-28 16:17:00	00:07:06
<input checked="" type="checkbox"/> 9	2010-03-28 16:17:00	Push Button By Not ...	2010-03-28 16:18:48	00:01:48
<input checked="" type="checkbox"/> 10	2010-03-28 16:18:48	Record Start	2010-03-28 16:28:57	00:10:09
<input checked="" type="checkbox"/> 11	2010-03-29 03:46:02	Record End	2010-03-29 03:46:34	00:00:32
<input checked="" type="checkbox"/> 12	2010-03-29 03:47:08	Record Start	2010-03-29 04:09:41	00:22:33

W ID: File name of the recorded video images.

W RECORD TIME: Date and time when the images have been recorded.

W EVENT TYPE: Displays the recording type (Continuous recording/event button recording/remote event button recording).

W TIME END: from Record time to time end, and Total time.



Event Type:


Y Continuous recording: No nomenclature applied. Clicking on this shows the recorded file when driving.

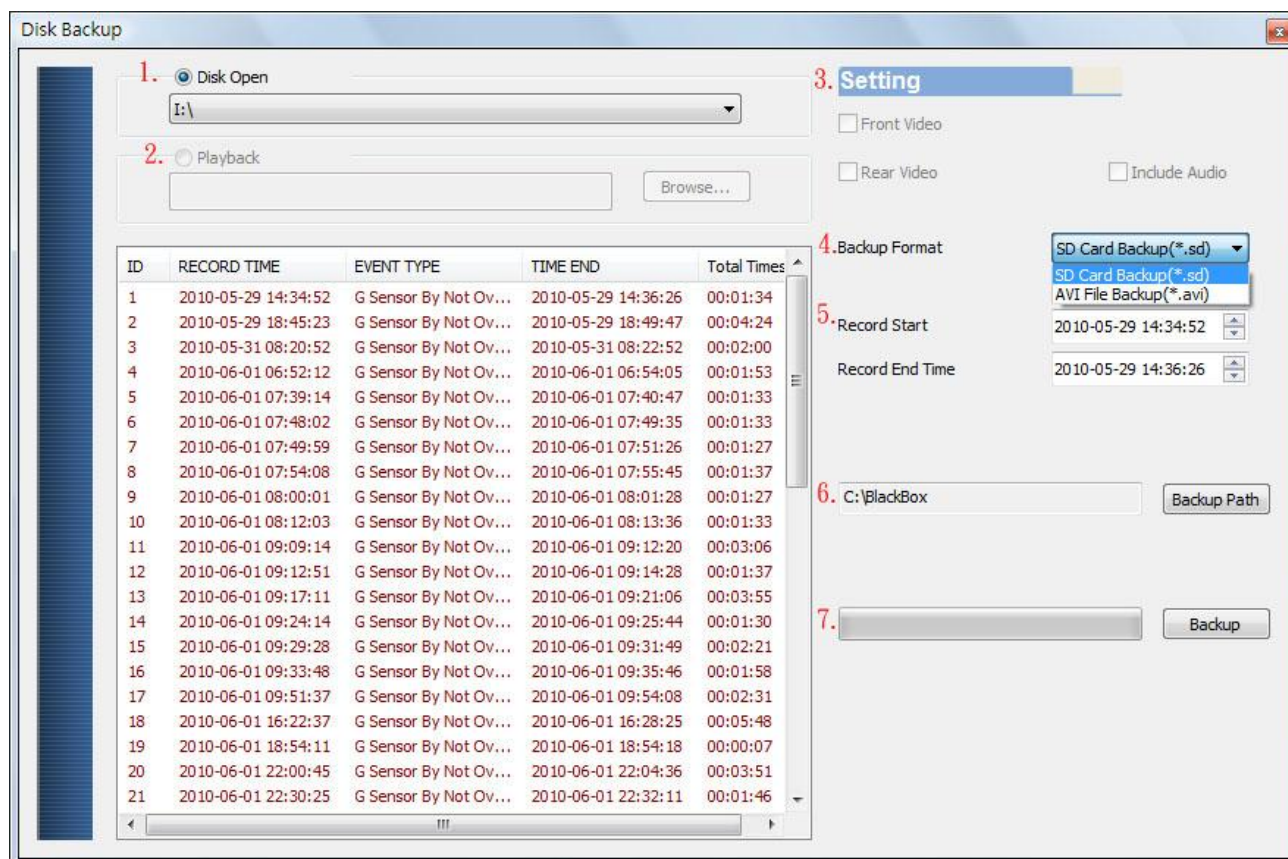
Y Manual Event Recording: Annotated with the word **BUTTON**. This allows you to locate files that were marked by the driver using the push button on the recorder or the remote event pushbutton.

Y G-Sensor (shock sensor) automatic recording: Annotated with G-SENSOR. This data is recorded when any impact, sudden acceleration, or accident is detected.

Converting into AVI file format

One may convert a portion of the recorded data into an AVI file format when one wants to share the recorded data with someone else or email a file.


1. Click the AVI conversion button () at the start of video clip position where you want to convert the images into the AVI file format. The video playback stops and the AVI conversion window appear.



No.	Name	Description
1	Micro Storage card path	To read the SD card address, please click the disk open bar.
2	Playback history	To read the copy video from this path to playback.
3	Setting	It's possible to transfer one channel video, or with audio. Selection of previous/next videos and whether or not to include audio data
4	Back up format	To backup with different format, you select it before execute video output.
5	Backup time	To make sure from A point to B point how long you want to output
6	Backup address	To execute the player, the back box file will product by program which is storage directory. Note : The AVI files cannot be created on a portable disk such as Micro SD Card.
7	Backup button	To execute the backup video or audio, click the backup button.

Interfacing with a GIS/City map

GPS 1699 simultaneously records the GPS data while driving so you can check the driver's route on the map. Click the GIS/MAP

icon () on the lower right corner. The map window appears for the user to see the vehicle location and travel onto a city map.

* To use this function, the system must access the Internet.



Pop-up Display window

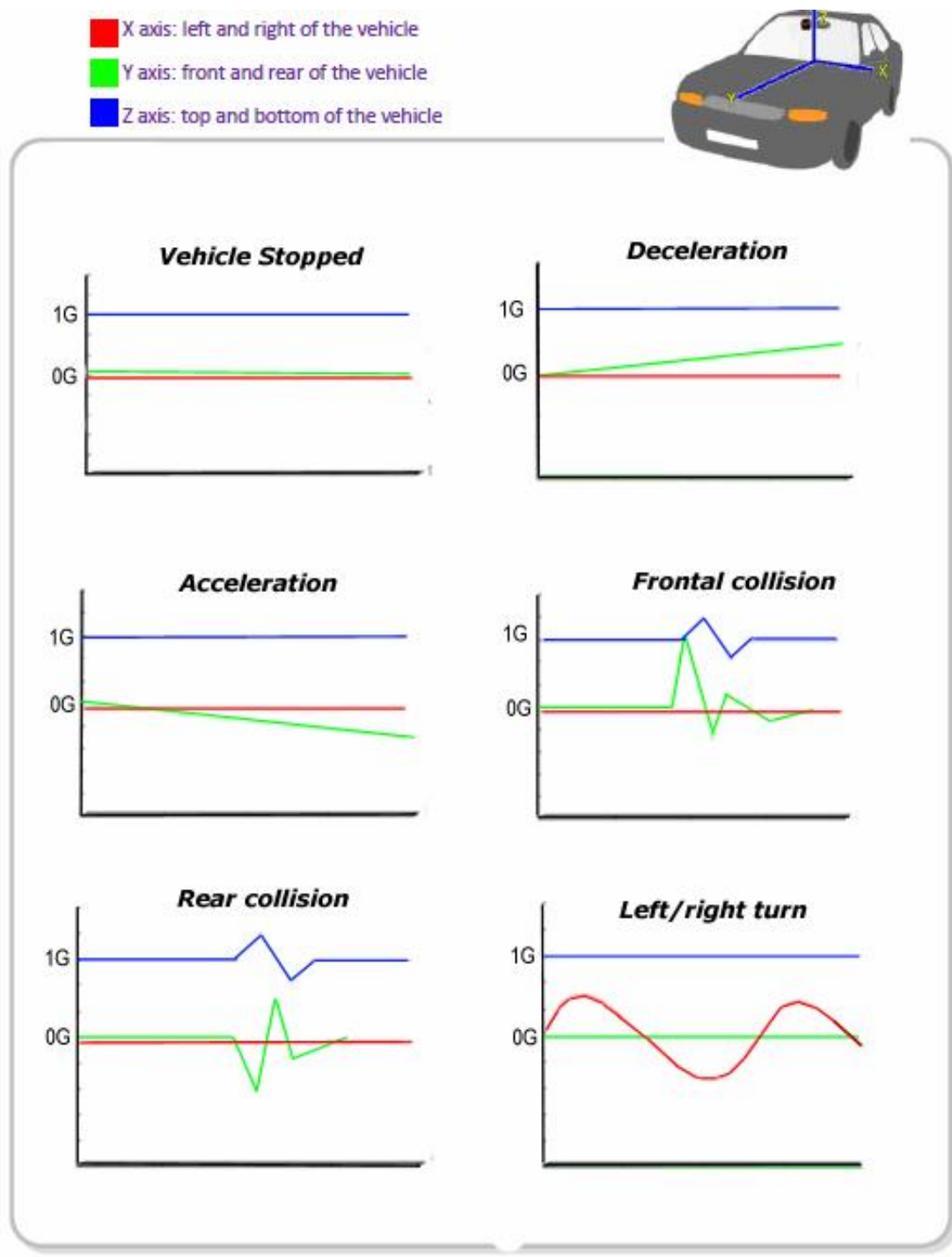
When you double-click the display window, the recorded images are played back at the original size.



Analyzing G-SENSOR data

The G-sensor (Gravity Sensor) furnishes data for X, Y and Z axis and stores it along with the other recorded data on the Micro SD Card. When using the playback software, this information is represented in a graphic format. The resulting graph may be used to

analysis the driving condition and driver's habits. Depending on the type of the vehicle, the amplitude of the curve shown may vary.



1.4 Product Notification- Using Tips

Updating the GPS 1699 with the latest Smart AI database

The **Smart AI** Database is one of the largest shared resources of fixed speed camera locations and other important locations from around the world.



For a full list of all the countries that are covered, or are actively being mapped, please refer to <http://update.gpscamera.org>

The database contains locations for accident black spots, fixed speed cameras, average speed cameras and red light cameras, as well as commonly-used mobile speed trap locations and general points of information.

The **GPS 1699's** memory can store up to 360,000 individual locations. New locations are constantly added to the **Smart AI** database, so it is imperative that you regularly update your **GPS 1699** to ensure you will be warned of the most up to date information available. We recommend updating your database at least once every month.

Switched on for the first time

The **GPS 1699 receives** signals from the network of 24 satellites orbiting the Earth, called the Global Positioning System, and uses the latest Generation chipset GPS technology to work out where you are every second.



When the **GPS 1699 is** searching for satellite lock the display will show "TIME". Once satellite lock is achieved, a voice alert will confirm "Have a nice driving" and your current speed will be displayed.



The first time your **GPS 1699 is** switched on, it may take up to 2 minutes to calculate its current position and lock on to the satellites. This is normal and happens with all GPS-based devices.

If you use the **GPS 1699 regularly**, subsequent satellite lock will be greatly reduced; normally between 5 seconds and 2 minutes.

GPS's Speed

The **GPS 1699** calculates your vehicle's speed using GPS data. The speed reading is continually updated and is extremely accurate when you are driving at a steady speed. As with all GPS speed systems there will be a slight lag during accelerating or decelerating while the GPS data is being refreshed.



You may notice a slight difference between the GPS speed reading and the speed displayed by your vehicle's instruments. This is normal, because car manufacturers always build in a slight tolerance to their displayed speed for safety reasons.

The **GPS 1699** also has a very handy adjustable "Overspeed Alert" feature which warns you whenever you drive above your chosen speed limit setting.

Safety driving Alerts

The **GPS 1699** uses the **Smart AI** database which contains details of dangerous areas and high risk accident locations that have been designated by police and government bodies, often by the placement of safety cameras. When you are approaching a location that is stored in the **Smart AI** database, the **GPS 1699** provides spoken and audible warnings to advise you that you are approaching a hazardous area.

Where they are known and recorded in the database, "Advisory speed limits" are announced during an alert. These advisory announcements are for guidance only. It is your responsibility to always be aware of the prevailing speed limit, including any temporary restrictions, and lower your driving speed to suit local driving conditions.

A spoken voice announcement will identify the **Safety driving Alert's** type at a preset distance before the hazardous location. If your speed is above the known advisory speed limit, you will be given a further announcement "Attention, overspeed." The digital speed display will switch to give a distance countdown to a fixed camera hazard. This distance is shown in meters. One meter is approximately equal to one yard. GPS warnings are directional, meaning you will receive warnings of targeted threats in your direction of travel.

IMPORTANT NOTE

Mobile Camera Warnings:

Mobile cameras can be used anywhere and can potentially record your speed at 1000 meters or more. Warning of a single location within a mobile camera enforcement area is not necessarily sufficient. If the camera moves within the area then the original warning will be ineffective.

The **GPS 1699** will alert you to the start of the mobile enforcement area, before you drive within range of the mobile speed trap. This means you will know that enforcement is possible around the next corner, or along the

next straight stretch of road. Therefore, you will not see any distance countdown for mobile speed trap locations.

1.5 Storing personal locations

Storing personal locations

The **GPS 1699** can store up to 255 Personal Locations. The user can easily store any personal locations. It provides to store the fixed camera, straps camera, dangerous areas and high risk accident locations, etc,

◆ When to press the “POI” button? Ex. POI is a point of interest.

- 1) In front of a fixed camera location or a hazardous area, please press POI button one time within one second to save coordinate in front of location 5 meters before. You can hear a message” P.O.I save completely” as same as your direction of travel when P.O.I save successfully. Come back the same P.O.I stored coordinate location area, you will hear a message” approaching a P.O.I location” when approaching to target.

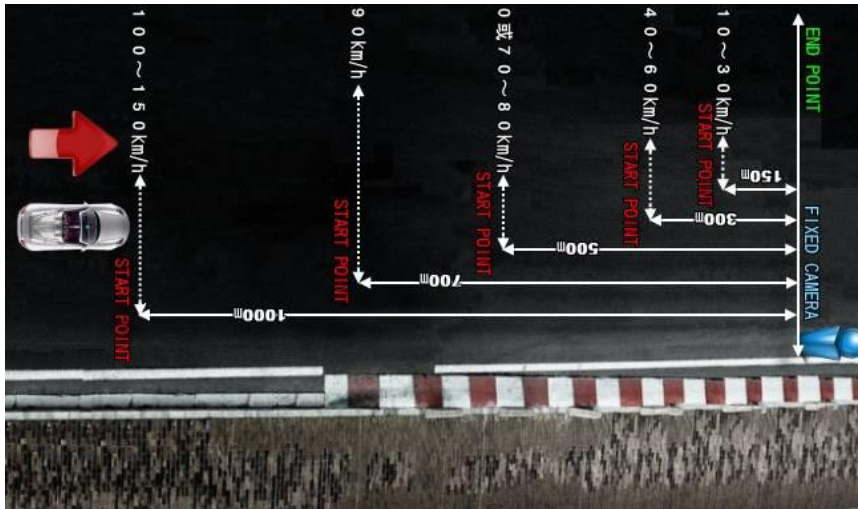


- 2) If there is a fixed camera location or a hazardous area located at reverse your direction of travel. Press POI button twice within one second to save coordinate in back of location 3 meters. Along street driving with several meters as your direction of travel when P.O.I save successfully. You can hear a message “P.O.I the start point with direction, and then a flash distance till the range of alerts distance is fully, another messages “P.O.I saved successfully with the end point direction”.



◆ How to save the P.O.I database?

GPS 1699 has a memory to store the range of alert by the over-speed functions, at first time; you must make a range of warning distances. You can adjust the over speed limit alert from 0 to 160km/h. the warning distance is kept as like as below range table. For example, if you don't use the over-speed alerts function, the default of speed limit is 0km/h with 500 meters. This is a factory default setup, if so, it cannot offer the over speed limit alerts. However, you can press the "POI" button to store POI location. In other words, you can make a decision about P.O.I of the warning ranges as like as below table.



Speed limits	A range of POI distances	A range of alert distances
0 km/hr (default)	500 meters	500 meters
10-30km/h	150 meters	150 meters
40-60km/h	300 meters	300 meters
70-80km/h	500 meters	500 meters
90km/h	700 meters	700 meters
100-160m/h	1000 meters	1000 meters

Note: All collecting methods are used one way alerts of coordinates.

For example, if the P.O.I direction is the north, after collecting coordinates, we can get P.O.I alert message when drive the car approaching to the targets of coordinate from south to north direction. Otherwise, we cannot get P.O.I alert message when drive the car approaching to the targets of coordinate from north to south direction.

◆ How to make a range of alert distances?

Please hold and press the SET function about 3 seconds and press within 1 second twice from the standby mode to over speed alerts functions mode. And select the range of speed limit by Up and Down buttons, choose the best distance ranges from 0 to 160 km/hr. After 4-5 seconds, **GPS 1699** will make a range of alert distance

automatically, approaching the target of fixed camera location or mobile camera location when you press “POI” button one time within one second. **GPS 1699** will store the same direction of travel coordinates.

If the fixed camera location in reverse direction of travel, you can press “POI” button twice within one second, it will store another reverse direction of P.O.I database, too. You don’t waste time to make U turn. It’s an easy way to collect another side fixed camera or mobile database in highway.

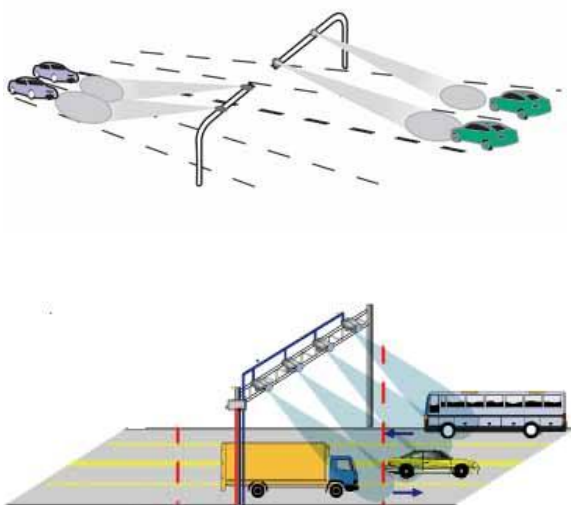
◆How to collect the speed cams information?

The factory default covers all types of safety cameras. It contains the GPS co-ordinates of the dangerous intersections and roads with accident histories where red-light or speed cameras are used. It alerts you to all types of Fixed Speed Cameras, Red Light Cameras and Average Speed Speed Cameras (GATSO, Truvelo, SPECS, Traffiphoto, etc) as well as other known accident black spots and common mobile speed trap sites.

1. One direction of speed cam—one pinpoint coordinate with one way warning



2. Two direction of speed cams—two pinpoints coordinate with two directions warning



◆ How to **report new** speed cams **locations**

The **Smart AI** database is constantly monitored and enhanced with new camera information and directional information. The camera and safety information contained in the **Smart AI** Database is provided free of charge to all users. Please feel free to help us enhance the **Smart AI** database for everyone by reporting new locations or changes to existing locations. Stored fixed camera location or a hazardous area POI and report any information you can via our website <http://cp.gpscamera.org> or email as much information about the camera site to sales@radargps.com Any information sent will only be used to enhance the **Smart AI** database, and not for any other purpose. Our global camera team will verify the details and enhance the **Smart AI** database, allowing every single user around the world to benefit.

1.6 Download Speed cams from the server

◆ How to update database from the server,

Step 1 (To be performed once after initial purchase):

Microsoft Windows Vista (X64) users

When you first connect the **GPS 1699** to your PC, Vista will automatically install the necessary USB driver. Or download the driver [PL-2303 USB-to-Serial \(122KB\)](#). Follow the on screen instructions. If the necessary USB driver is not installed automatically, The USB driver is also available from <http://update.gpscamera.org>. If a manual installation of the necessary USB driver is required, please restart your PC and then follow the instructions shown for **Windows Vista (X86)** users.

Microsoft Windows Vista (X86) users

When you first connect the **GPS 1699** to your PC, Vista will automatically install the necessary USB driver. Or download the driver [PL-2303 USB-to-Serial \(1.96MB\)](#). Follow the on screen instructions.

Microsoft Windows XP / 2000 (X86) Service Pack 2 user

Do not connect the **GPS 1699** to your PC yet. **Install the USB driver BEFORE connecting the GPS 1699 to your PC.**

Before you update your **GPS 1699** or the first time you must first install the necessary USB drivers and Microsoft accessories program available from <http://update.gpscamera.org>

- [PL-2303 USB-to-Serial \(3.02MB\)](#)
- [Microsoft Installer 3.1 \(2.6MB\)](#)
- [Microsoft .Net Framework 2.0 \(23MB\)](#)

If you have connected your **GPS 1699** to your computer before installing the USB driver, you should unplug the **GPS 1699** and restart your computer.

Microsoft Windows XP / 2000 (X86) Service Pack 3 user

Do not connect the **GPS 1699** to your PC yet. **Install the USB driver BEFORE connecting the GPS 1699 to**

your PC.

Before you update your **GPS 1699** for the first time you must first install the necessary USB drivers and Microsoft accessories program available from <http://update.gpscamera.org>

- [PL-2303 USB-to-Serial \(3.02MB\)](#)
- [Microsoft .Net Framework 3.5 \(2.8MB\)](#)

If you have connected your **GPS 1699** to your computer before installing the USB driver, you should unplug the **GPS 1699** and restart your computer.

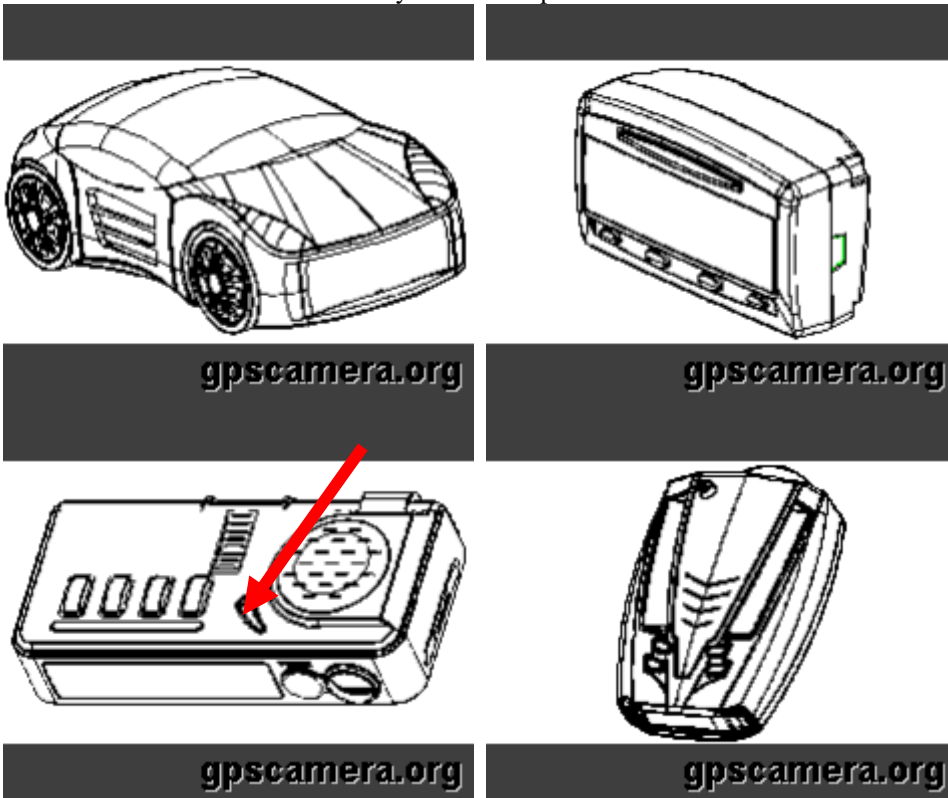
Step 2 (To be performed at monthly intervals):

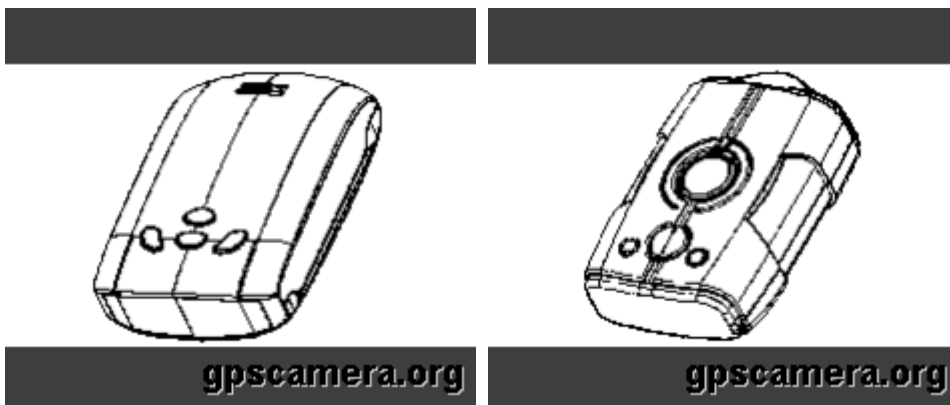
To update the **GPS 1699** with the latest Smart AI database, you should connect the **GPS 1699** to your computer, ensure your computer is connected to the

Internet, then double click the application named the update button icon which is located at web right side on <http://update.gpscamera.org>

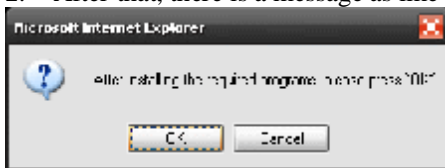
We recommend you copy this address to a memorable place on your PC so you have easy access for future updates.

1. Please **double click** the device you wish to update

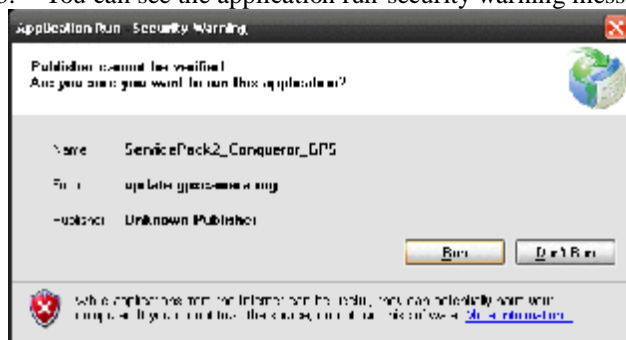




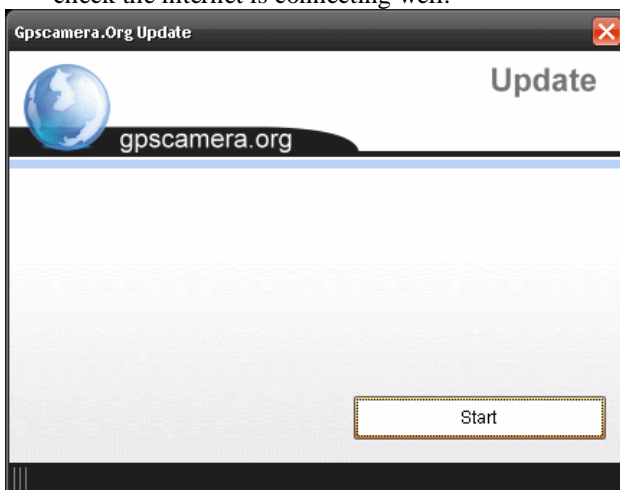
2. After that, there is a message as like as below, and please press Ok button to accept the next steps.



3. You can see the application run-security warning message, please press run button to accept the next steps too.



4. The main update program process, before press start button, you shall connect with device to PC computer, and check the internet is connecting well.



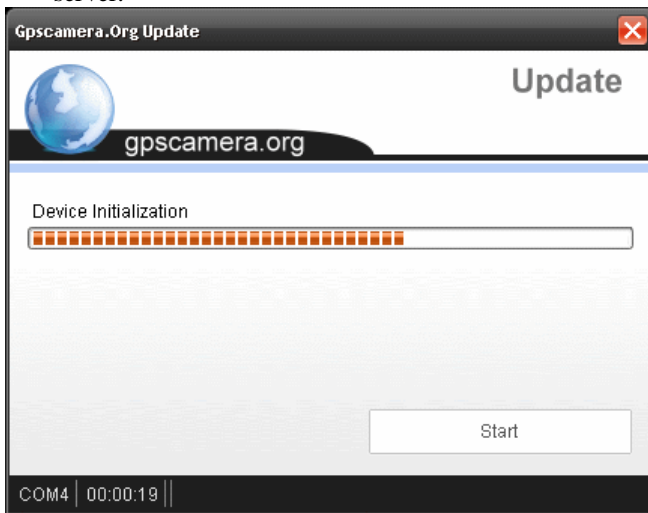
5. Connect the USB download from PC to Speed camera locator.



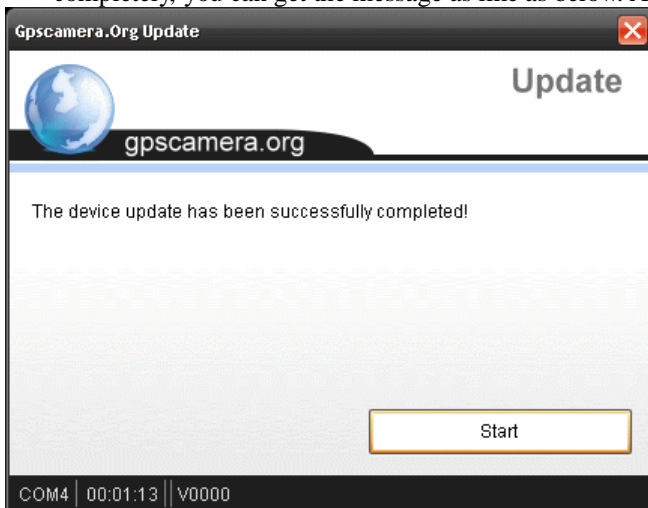
6. The speed camera locator shall be shown the system at download model



7. The program will be checking the hardware, and then download the firmware, voice, database file from the server.



8. Please wait for several minutes, the download speeding is independent on internet condition. If download completely, you can get the message as like as below. And you can remove the USB cable from PC.



1.7 Upload personal locations to the server

- ◆ How to upload the POI of database from **GPS 1699** to the server,

. Store fixed camera location or a hazardous area POI and report any information you can via our website

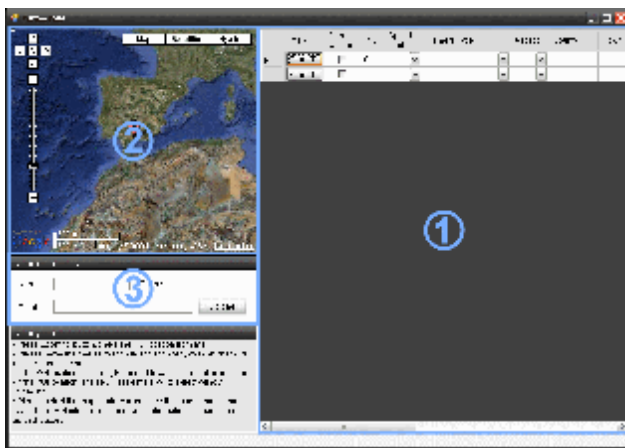
<http://cp.gpscamera.org> .org. or email as much information about the camera site to sales@radarway.com.tw

Any information sent will only be used to enhance the **Smart AI** database, and not for any other purpose. Our global camera team will verify the details and enhance the **Smart AI** database, allowing every single user around the world to benefit.

Please **double click** read button as below, waiting a moment for checking POI of database from GPS 1699.



After uploading database for **GPS 1699**, you can see the POI table.



(1) Fill information in detail as the same database table as below:

ID	Don't Upload	NO	NAME	TYPE	HEADING	SPEED LIMIT	COUNTY	TOWN	ROAD	ADDRESS	REMARK
1699	<input type="checkbox"/>	1	1699	POI	1699	1699	1699	1699	1699	1699	1699
1700	<input type="checkbox"/>	1	1700	POI	1700	1700	1700	1700	1700	1700	1700

Column description in keyword

1. Zoom : **Double click the zoom button, and you can review the POI location from Google map.**
2. Don't Upload : Some POI location, maybe it's only testing pinpoints. You shall mark it without uploading to server.
3. You can edit some information about the speed limit, camera type, heading of POI direction, County, Town, Road etc. and fill the location address in detail according to the real address. You can edit that by the icon to select it. ▾
4. Speed limits: it's from 40 to 160 km/hr (mile).
5. Camera Type: there are several types in column
6. Heading: It's a pinpoint direction of your travel, and provides the warning direction from the

start point.

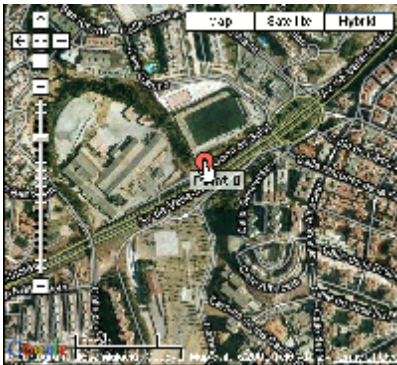
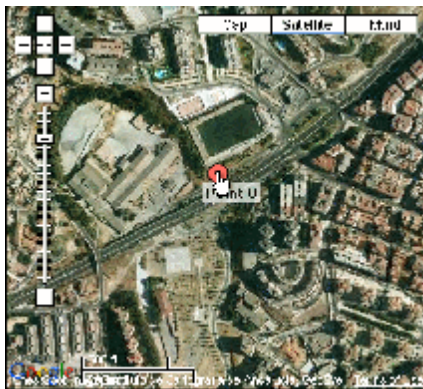
7. Edit : There are three kind of types

Add—Mark POI and add new speed camera

Remove—Mark POI with Speed camera deletion

Revise—Mark POI and modify some information

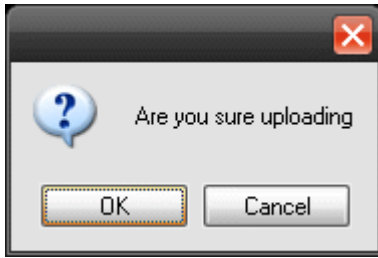
(2)How to check if the pinpoint location is correct? Please check the figure 1 ***Double click the zoom button, and you can review the POI location from Google map. To select which one is best one for you, it offers three type maps which provide Google map.***



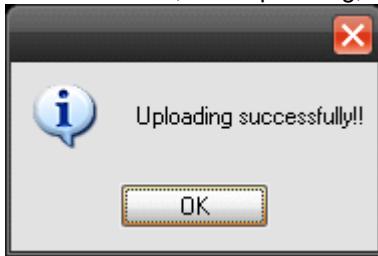
(3)Before uploading database, please fill the user information in detail and then send it out. The A/S server worker may contact with you if necessary. All database will be checked again, and share to other users later.

User informations	
Name	Carina
Phone	09123456789
Email	abc@hotmail.com
<input type="button" value="Upload"/>	

Uploading now, Please click the ok button.



Wait a moment, after uploading, it will show upload successfully.



Note: Macs are not currently supported.

2. Specification

2.1 Specification

Specifications:

Operating Bands

- I X-band 10.525 GHz \pm 25 MHz
- I K-band 24.150 GHz \pm 100 MHz
- I Ku-band 13.450 GHz \pm 100 MHz
- I Ka-narrow band 33.890~34.11GHz
- I Ka-low band 34.190~34.410GHz
- I Ka-widen band 34.700 GHz \pm 1300 MHz
- I Laser 904nm \pm 50 nm

2.2 features views

Features:

- I 360-degree radar and laser detection
- I blistering broad-band protection
- I multi-speed radar performance
- I GPS-powered True lock filter
- I mark location (P.O.I.) features
- I speeding alert
- I crystal-clear voice alerts
- I total distance counter
- I top speed record
- I coordinate location (with voice)
- I low power auto warning
- I indications of satellite signal status, date, time, and battery power

- I camera and safety mode selectable functions
- I intelligent volume control
- I intelligent sensitivity control
- I product ID with a upgrade security code
- I user-selectable preferences
- I high-resolution display
- I auto brightness control
- I Completely immune to the VG-2 and Spectre III "detector-detector"
- I Mute, AutoMute & SmartMute
- I built-in smart GPS antenna
- I simple lighter plug installation
- I every type of fixed speed camera warning
- I GPS NMEA data can be transferred via the USB
- I coordinates database can store around 100, 000 positions at a time
- I the locations can be divided into different data sets

2.3 Program views

Programmable Features

- I power-on indication
- I Auto Volume (On/Off)
- I AutoMute (On/Off)
- I power-on sequence
- I Distance reduce meter
- I over speed alert (On/Off)
- I Units (English/Metric)
- I Voice and Tone mode (optional)
- I Auto Brightness Control
- I Highway, Auto and City
- I GPS speed and car speed indication match
- I POI deletion available
- I Time Zone selection available
- I Radar/Laser Bands
- I Auto Calibration Circuitry
- I Mute, AutoMute and Smart Mute
- I Smart-Shield/ VG-2 Protection
- I Radar Receiver / Detector Type
- I Super-heterodyne, Varactor-Tuned VCO
- I Scanning frequency discriminator
- I Digital Signal Processing (DSP)

2.4 Requirements

Power Requirements: Operating voltage 12V-24V DC

Smart on/off Switch Cord Included

Dimensions: 1.40" H x 3.10" W x 4.6" L

Temperature Range: Operating: -10°C to +60°C (14°F to +140°F)

Storage: -20°C to +70°C (-4°F to +158°F)

Operating Humidity: 5% to 95% (non condensing)

Database capacity: 360,000

PC requirements: Windows 98SE, 2000, ME, XP or Vista operating system

1 x USB port

Internet access

GPS Receiver

- I Chipset: MTK chipset digital processor,
- I Channel: 20
- I Tracking sensitivity: -162dbm
- I Cold start: 40 sec.
- I Warm start: 10 sec.
- I Hot start: 3 sec.

3. Main Manual

3.1 Button

- 1) FUN Button 1 (Function button)
- 2) UP Button 2 (+ and Up)
- 3) DN Button 3 (- and Dn)
- 4) POI Button 4 (POI and Mode)
- 5) Digital compass display
- 6) Digital speed / distance display
- 7) External alert centre (displays radar and laser alerts from radar detection)
- 8) USB download cable socket
- 9) 360° laser eyes
- 10) 12-24V Power cable socket
- 11) Power on/off switch button
- 12) MCX External GPS antenna connector
- 13) Extension performance in front of lens

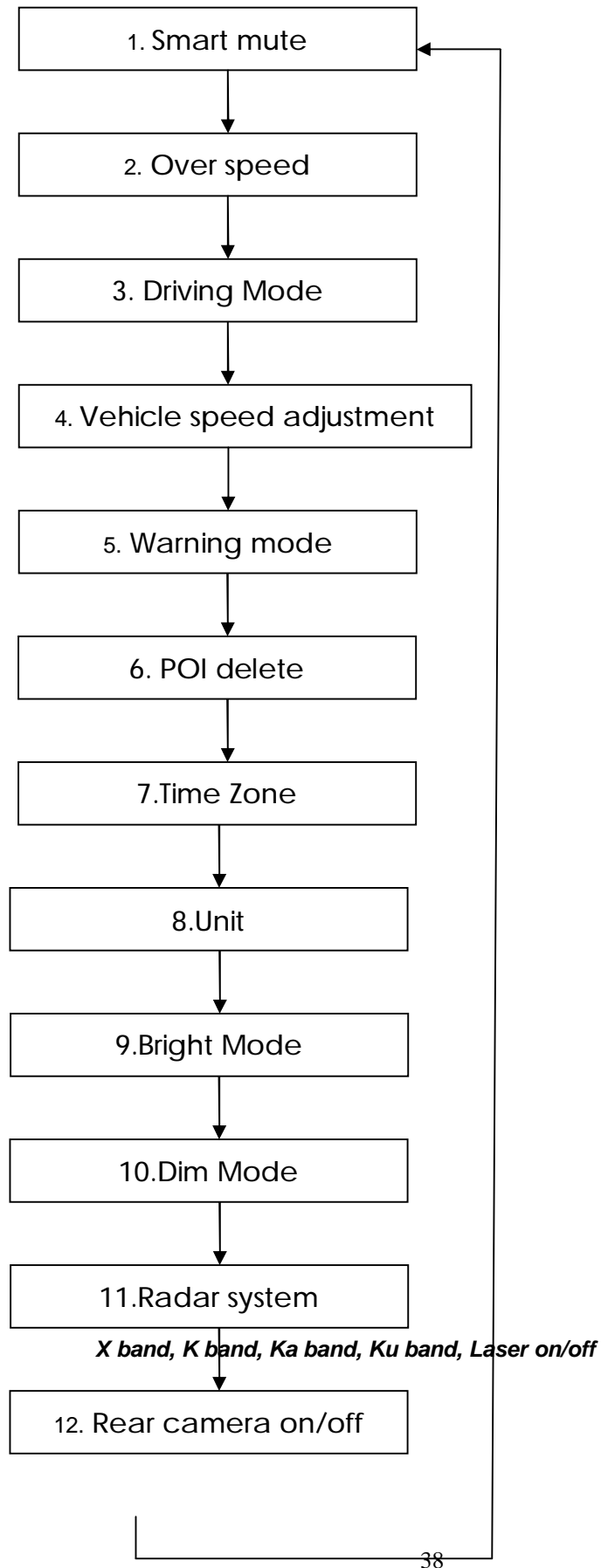
3.2 Button functions

During normal driving mode, the button functions are:

Press and hold FUN Button 1(**Menu**) **about** 2-3 seconds, enter main menu. Press and hold the FUN for

1 second again and it will lead you to the next set up mode.

Recycle model to setup the function



Note:

1. After pressing FUN Button 1(**Menu**) **about** 2-3 seconds to enter the main menu, the button functions change to allow the individual menu item settings to be adjusted. Inside the menu system, the button functions become:
2. Scroll through the menu options by pressing FUN Button 1 repeatedly. You can press the button quickly to access a particular feature - you do not need to wait for voice confirmation of each section.
3. Change the settings of an individual menu item by pressing Buttons 2 (+) or 3 (-).
4. Save any changes to your settings by waiting 4-5 seconds (Save). You will then return to the normal driving mode. You will also exit the menu structure once you have cycled through all the available menu options.

FUN Button 1 (**Menu**) Each press will proceed to the next menu item.

UP Button 2 (+) Up

DN Button 3 (-) Down.

POI Button 4 (**Return**) return to normal driving mode.

LONG KEY: Move to User Set up mode

1. **Smart mute:** In order to reduce 99 % of any microwave interference from auto doors, communication tower signals, etc., we are suggesting the speed limit be the city's minimum speed. In Asia, the downtown maximum speed limit is 40k/h, if you choose the 40 k/h, the cars speeding is under 40k/h, it will be entered in smart automatically muted. You cannot hear any sound when the radar detects any microwave signals. Due to that there has been no over speeding, there is no meaning for any warning, the speed limit is selectable from 0 ~160 k/h. Choose the speed above which you hear radar alerts. Radar alerts are not sounded below this speed, however, radar alerts are displayed visually at all speeds. **Factory default: 50km/hr**
2. **Over Speed:** A warning is given continuously when you are over your selected maximum speed. If the car's speed exceeds your setting speed limit, a warning is given - "your speed is over speed limit". The speed limit is selectable from 0 ~160 k/h. Choose the speed at which an overspeed reminder is played. An overspeed alert will be played in the following instances:
 - 1) If your speed rises above the selected speed.
 - 2) If you are travelling above the selected speed after an event (such as returning to the driving mode after navigating the menu, or at the end of a radar alert), the warning will play as an additional reminder.
 - 3) Regardless of the selected overspeed alert, the warning will also play if you are driving above the prevailing speed limit at a camera site (if known). For example, if the overspeed alert is set to 80, but you drive towards a camera in a 50 zone slightly above the prevailing speed limit, the overspeed alert warning will play.

3. **Driving Mode** It provides selectivity of the speed cams warning and reduces some false alerts when you are driving along the highway without warning the speed limit below 70 km/per hour.
 “All mode”: this is factory default. On All (highway and City) mode, the device warns you when approaching all kinds of Speed cams.
 “LO mode”: City mode. To reduce false alerts when you are driving in downtown without warning of speed cams with the speed limit $> 70\text{km/hr}$. In other words, it alerts with the lower speed limit only.
 “HI mode”: Highway mode. This function allows you to reduce false alerts when you are driving on the highway without warning the speed cams with the speed limit $\leq 70\text{km/per hour}$. In other words, it alerts with the higher speed limit of speed cams only.

4. **Vehicle speed adjustment** : Car’s speed is calculated by tire’s revolution rate. It is not accurate when the car is running at high speed. In order to reduce the driver’s confusion, it functions to adjust GPS’s speed to match the speed at speed meter.

5. **Warning mode**: It offers different tones and sound levels of warning. There are four types of warning mode: speaking voice with tone, speaking voice only, speaking voice with continuous tones (no matter over speed or not), and music only without a voice.
 1. At C0 mode, approaching the speed cams location when the speed exceeds the speed cam’s speed limit, the GPS device will spread out the tone sound “ding_dong” per second after a voice of camera mode. Factory default: C0
 2. At C1 mode, approaching the speed cams location when the speed exceeds the speed cam’s speed limit, the GPS device will spread out a voice of camera mode only without the tone.
 3. When the mode was fixed at C2 mode, approaching the speed cams location, the GPS device will spread out a voice of camera mode and then with continuous tone sound.
 4. When the mode was fixed at C3 mode, approaching the speed cams location, the GPS device will spread out only the music without a camera mode voice.

6. **POI delete** It offers users to delete any previous P.O.I.

3 ways to delete POI

 - ①. When entering a POI area, press and hold the POI button 3 secs to delete that signal POI. The GPS device will spread out a message “POI delete successfully” .
 - ② To login POI delete function, and then press the Up and Down button about 3 seconds to delete a certain number of POI. The GPS device will spread out a message” POI delete

successfully”.

- ③ Press and hold MOD(POI) button over 3 seconds to delete all POI database at one time. The GPS device will spread out a message” POI delete successfully”.

7. **Time Zone** It offers the function to announce the time hourly according to the time zone where you are. In this mode, press up and download to select time zone. Adjust the clock to the correct time zone for your country. Factory default setting = 8= UMT (China Beijing Time).
8. **Unit** It provides the options for the Metric and English systems. Press up or down to select Miles per hour or Kilometres per hour. Changing between units of miles per hour and kilometres per hour will automatically adjust the saved settings for Audible Alert Speed and Overspeed Alert to the nearest suitable value. Factory default setting U0= Kilometres per hour
When the mode was fixed at U1mode, the speed unit is fixed at Mile per hour, the speed master of the GPS device will apply for MPH.
9. **Bright Mode** The LED display should be bright during the day due to the sunlight. Log into Bright Mode and press Up or Down button to change the value. (Range of adjustment: A1 to A12 & P1 to P12) A→A.M. P→P.M Factory default: A6 (6:00a.m.)
10. **Dim Mode** The LED display should be dim during the night. Log into Dim mode and press Up or Down button to change the value. (Range of adjustment: A1 to A12 & P1 to P12) A→A.M. P→P.M Factory default: P6 (6:00p.m.)
11. **Radar system** There are three options of operation setting.

Default at **On 2:**

On 1: The device works as a GPS Radar Detector. Remote Radar Detector transmits the signal to the GPS device by using wireless technology. This mode provides a disconnecting alarm when there is a communication problem between the wireless radar detector and GPS device. You will get a disconnecting alert per 90 seconds.

In On 1 mode, you can press FUN one second to select the band. Press up or down to turn the individual band on or off.

Default at **On 2:** The device works as a GPS Radar Detector. Remote Radar Detector transmits the signal to the GPS device by using wireless technology. At On 2 mode, there is no disconnecting alarm when there is a communication problem between the wireless radar detector and GPS speed camera locator.

In On 2 mode, you can press FUN one second to select the band. Press up or down to turn the individual band on or off.

The mode is **OFF**, you can see the band text light on at all times, meaning all radar detection is off.

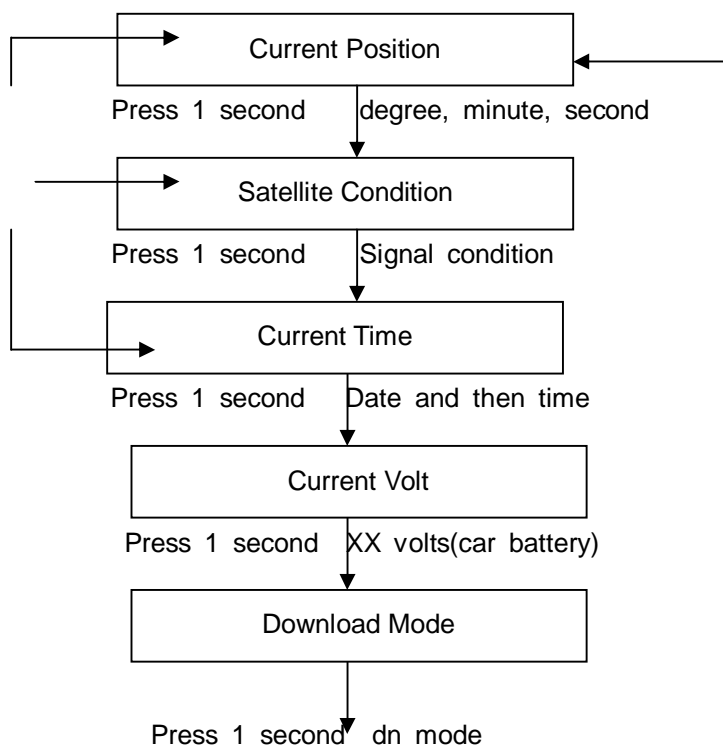
12. Rear Cam on/off

Factory default: on, press up or down to change the setting.

3.3 Modes

During normal information checking mode, the button functions are:

Press and hold FUN Button 1(**Menu**) **about** 1 second, enter information checking mode, it will lead you to check some important information. When you are at the status of information checking mode selection, push the FUN Button 1(**Menu**) key for 1 second again and it will lead you to the next information mode.



When selecting, all functions are programmed to run in a cycle. If there is no following action taken for about 5-6 seconds, it will return to the standby condition.

SHORT KEY: Move to User Set's info checking mode

SHORT KEY: Press Set button within one second to enter info checking mode

1. **Current Position**– checks the current position. It shows the coordinates by NMEA format with Degrees, Minutes and Seconds. A short press will cause the **GPS 1699** to display your current position. When you get lost, it offers the information of your position to get emergency help in accidents anywhere.
2. **Satellite condition**- show you the satellite condition on the display. Sometimes the GPS based model is dysfunctional. It is not necessarily out of order. It could be a poor communication with satellites.
3. **Current time** – display the current day and time
4. **Current volt** – check the car's battery voltage. When the power of battery is under 11.0 volts, a warning is given – “the battery is too low”. GPS based model offers this friendly function to you at anytime and

anywhere.

5. **Download Mode** – the camera sites upgrading .New camera locations might be added anywhere.

Therefore, the GPS supplier collects all types of camera sites' database for users to download and upgrade their new camera sites' datum.

3 POI Key

Store up to 255 GPS locations for personal reminders of your own hazardous locations .As you drive past a location where you would like a future safety reminder, enter Personal Locations from the main menu structure and press POI to store this location in the next available empty memory position. An alert will play when you next drive towards this location in the same direction.

Note:

1. *To delete an existing Personal Location during an alert, press and hold POI again.*
2. *To delete an existing Personal Location remotely, use the + and – buttons to select the Personal Location number, then press and hold UP or down over 3 seconds.*
3. *Resetting the GPS 1699 to factory default values does not affect your stored Personal Locations. All stored Personal Locations will be retained in the memory.*

A. SHORT KEY : store any point of Interest

- I. When the fixed camera is located at the same driving direction, press the P.O.I. key for 1 second and the location data of the fixed camera will be stored automatically.
- II. When the fixed camera is located counter the driving direction, press the P.O.I. key twice within 1 second and the location data of the fixed camera will be stored automatically.

B. LONG KEY : move to mode selection

Press and hold this key for 2-3 seconds and the mode will be moved from camera mode(speed limit mode) to safety mode(speed limit mode).

Warning of the device

Hold and press the MOD button about 3 seconds, log into next mode.

A. Safety driving, speed limit mode. It warns not only the speed cams but also the black spot locations, school zones etc with the speed limit. If you are driving in a zone with speed limit of 50km/hr, and you drive 60km/hr, the device will warn you about over-speeding.

B. Camera, speed limit mode. It only warns speed cams with the speed limit.

If you are driving in a zone with speed limit of 50km/hr, and you drive 60km/hr, the device will warn you about over-speeding.

C. Safety driving mode. It warns not only the speed cams but also the black spot, school zones etc without telling the speed limit. If you are driving toward a fixed camera with speed limit of 50km/hr, and you drive 60km/hr, the device will only tell you that there is a fixed camera ahead. However, it does not warn you about over-speeding.

D. Camera mode: It warns speed cams without telling the speed limit.

If you are driving toward a fixed camera with speed limit of 50km/hr, and you drive 60km/hr, the device will tell you that there is a fixed camera ahead. However, it does not warn you about over-speeding.

[Factory default: Safety driving, speed limit mode](#)

2. Down Key

A. SHORT KEY : volume Down

Press this key; it will turn down the volume level.

Standby model: Press this key; it will turn up the volume level.

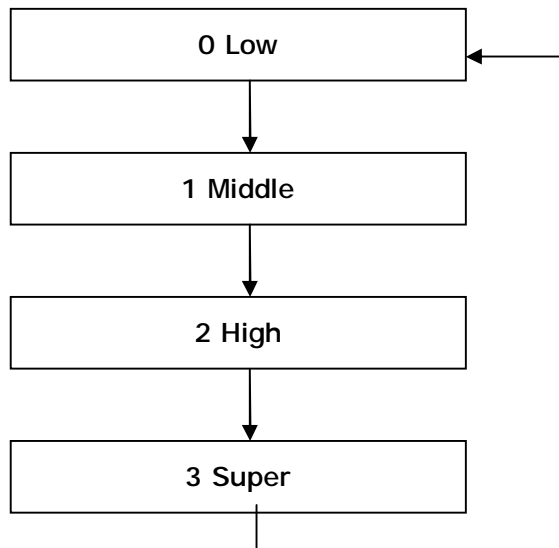
Detection Model: When GPS 1699 detect, Press this key shortly. The radar band and the alert tones will be silenced.

B. LONG KEY :

Press and hold the Down Key for 2-3seconds, it will reduce radar detect sensitivity

Press and hold for 2-3 seconds

Radar sensitivity select



3. Up Key

A. SHORT KEY : Volume Up

Standby model: Press this key; it will turn up the volume level.

Detection Model: When GPS 1699 detect, Press this key shortly. The radar band and the alert tones will be silenced.

B. LONG KEY :

Press and hold the Down Key for 2-3seconds, it will reduce the radar detect sensitivity.

3.4 Factory reset procedure

Resetting the GPS 1699 to factory default values does not affect your stored Personal Locations. All stored Personal Locations will be retained in the memory.

To perform a factory reset, first switch off the power. Press and hold POI button and switch on the power. Keep Release POI button when the display turns on.

For more information or to order any of our products, please visit our website: <http://www.radarway.com.tw>

3.5 Technology issues

How GPS Works

The Global Positioning System (GPS) is used to create an electronic reference frame around the earth.

It consists of 24 satellites that orbit the earth in just under 12 hours. Each satellite transmits a unique signal and follows a strict orbital path. Every GPS antenna stores these orbits inside its memory, so it knows where each satellite is at any given time.

The GPS antenna is able to accurately calculate its current location on the earth's surface as soon as it knows the exact distance to a minimum of 4 different GPS satellites. Distance is calculated by simply timing how long each satellite's radio signal takes to reach the antenna.

What is GPS coordinate format?

GPS coordinates define a single point on an imaginary mathematical model of the earth, or datum. There are a number of different datums in use around the world. Importantly, each datum will give rise to different coordinates for the same physical location. So it is important that we reference the same datum when describing coordinates. The Global Position System (GPS) uses the WGS-84 (World Geodetic System 1984) datum. A coordinate can be written with varying levels of decimalisation.

GPS 1699 offers the Degrees Minutes Seconds information.

Eg 38° 33'42.43" N

121° 26'11.70" W

When navigation of the sea was first pioneered, the earth was divided into 360 imaginary lines of latitude running from Pole to Pole, and 180 imaginary lines of longitude parallel to the equator. Each degree was then subdivided into 60 (minutes), and again into 60 (seconds). Positions are described as being North / South of the equator and West / East of the Prime Meridian, which passes through Greenwich, London.

The Fixed Speed Cameras how to work?

There are many different types of fixed speed or red light camera systems used around the world but, broadly speaking, there are 4 main technologies used by fixed camera systems to measure the speed of passing vehicles.

- Radar Camera systems like GATSOs use radar signals to measure speed.
- Inductive Loop Camera Systems like Redflex, Redspeed and Traffiphot, are linked to inductive (electrical) coils buried under the road surface which calculate speed based on the time taken to travel over them.
- Piezo Strip Camera Systems like Truvelo or DS2 are linked to three sensor strips placed across the road surface which calculate speed by timing how long it takes to drive over the sensors.

Average Speed Camera Systems like SPECs or "GATSO pointtopoint" calculate a vehicle's average speed between fixed two points by recording a vehicle's details at two separate camera locations and working out how long it has taken that vehicle to drive the known distance between the cameras.

GPS 1699 warnings, as you approach potential accident locations where these camera systems are sited, are a very effective safety tool to give advance awareness of upcoming hazardous areas.

For the most comprehensive guides on the internet, or to identify the camera systems being used in your country, please visit the support section of our website where you will find useful speed camera guides and country guides.

The Mobile Radar

Mobile radar camera systems are used in most countries with enforcement programmers.

There are three main categories of mobile radar speed cameras.

- Tripod mounted radar systems like Multanova and Mobile GATSOs
- Hand held radar guns
- Vehicle mounted radar systems

GPS systems can provide reminders when you are approaching an area where a radar system might have been used in the past, but they do not tell you if a radar system is actually being used there now. GPS systems do not "detect" anything - they simply provide a safety alert to remind you that you are approaching a map location.

Radar Detectors are the only product which actually "detect" when mobile radar enforcement is being carried out. There can be a huge difference in performance between different brands of radar detector. The best radar detector for your country may differ from another country because performance can also vary against different types of radar cameras.

The **GPS 1699** offers Radar Detectors function and GPS systems functions, it's a combo unit, but please note that the legality of radar detectors can vary from country to country and it is your responsibility to ensure that you comply with any local legislation.

The Mobile Laser how to work?

Laser guns fire quick pulses of light in a straight line which bounce off your car and return to the gun. The beam of light is very narrow and will spread slightly over a longer distance. The laser gun measures how long it takes for the return beams to arrive back at the gun and because the whole process works at the speed of light, the laser gun can calculate a vehicle's speed in less than one third of a second.

GPS systems can provide reminders when you are approaching an area where a laser gun might have been used in the past, but they do not tell you if laser is actually being used there now. GPS systems do not "detect" anything - they simply provide a safety alert to remind you that you are approaching a map location.

Most radar detectors on the market also contain a laser detector, however please be aware that merely "detecting" a laser hit often only means that your speed has already been recorded.

The **GPS 1699** can join with a range of laser jammers from the leading brand manufacturers, but please note that the legality of laser jammers can vary from country to country and it is your responsibility to ensure that you comply with any local legislation.

3.6 Limited Warranty

Warrant our products against all defects in materials and workmanship for a period of one year from the date of the original purchase, subject to the following terms and conditions.

This warranty is limited to the original owner, and is Non-Transferable. This warranty does not apply if the serial number has been removed or is unreadable or if the product has been subjected to physical abuse, improper installation, modification or internal examination.

To obtain warranty service, the product must be returned, insured and shipping prepaid, to RAYEE Technologies Ltd., at the address shown, in its original packaging or a suitable alternative, together with a written description of the problem, proof of purchase and a return shipping address.

The sole responsibility of RAYEE Technologies Ltd under this warranty is limited to repair or, at discretion, replacement of the product.

RAYEE Technologies disclaims all other warranties, expressed or implied, including warranties of fitness for any particular purpose or merchantability.

RAYEE Technologies Ltd accept no liability for any direct, indirect or consequential claim arising from the use or misuse of this product or from any incident arising from an installation that inhibits the correct operation of an airbag or any other vehicle system.

The use of RAYEE software products is governed by a license agreement. This license contains a limitation of liability. You can review the license conditions at <http://www.radarway.com.tw>

RAYEE Technologies Ltd. declares that this product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

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

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.