



## VEHICLE JOURNEY RECORDER

SVC100GPS  
SVC100GPS-LCA  
SVC100GPS-LCA2

**User Guide**

# CONTENTS

GPS Function .....	5
<b>1. Overview .....</b>	<b>6</b>
SVC100GPS .....	7
SVC100GPS-LCA/LCA2 .....	8
SVC100GPS-LCA/LCA2 - Wiring Description .....	9
<b>2. Contents .....</b>	<b>10</b>
<b>3. Software Installation .....</b>	<b>11</b>
<b>4. SD Card Insert .....</b>	<b>12</b>
SD Card Care .....	15
<b>5. Product Installation .....</b>	<b>16</b>
SVC100GPS .....	16
SVC100GPS-LCA/LCA2 .....	16
<b>6. LED Guide .....</b>	<b>17</b>
<b>7. Camera Functions .....</b>	<b>18</b>
Camera Operation .....	19
<b>8. Software User Guide .....</b>	<b>20</b>
PC Viewer Setting .....	20
File Loading .....	21
Playback Screen .....	23
Playback .....	24
Google Maps .....	26
Thumbnail Function .....	27
Save JPG and AVI File .....	28
Print Image .....	29
Reporting .....	30
Backup Event/Log .....	31
Product Information .....	32
Log File Playback .....	33

# CONTINUED...

GPS Log to KML Converter .....	34
Enhanced Driver Report Function .....	35
<b>9. Cloud Upload .....</b>	<b>47</b>
<b>10. Setting the Journey Recorder .....</b>	<b>48</b>
Speed Dependant G-Sensor .....	48
User Defined G-Sensor .....	49
Auto Format Feature .....	50
Alarm Outputs .....	50
<b>11. Specifications .....</b>	<b>52</b>
<b>Appendices</b>	
<b>Appendix 1 - Recording Time Table .....</b>	<b>53</b>
<b>Appendix 2 - Optional Accessory .....</b>	<b>54</b>
<b>Appendix 3 - Firmware Upgrade .....</b>	<b>57</b>



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



DO NOT REMOVE THE COVER  
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL



Connect your vehicle's power cable (Cigarette Jack) to the product after starting the vehicle to avoid damage.



Install the product where it does not block the driver's view of the road. Please refer to the installation section in the user manual for a full guide on where to install product.



Damages caused by production malfunction, loss of data or other damages that may occur while using this product is not the responsibility of the manufacturer. When malfunction occurs, the product may not save all videos and the sensor may not recognise shock impacts.

**WARNING:**  
DO NOT EXPOSE PRODUCT TO RAIN OR MOISTURE

# GPS RECEPTION

## **1. Activate the product in an area without large buildings to improve GPS reception.**

For commercial purposes GPS has an average range error of more than 15 meters and the range error could be more than 100 meters depending on environmental conditions like buildings and roadside trees etc.

## **2. The temperature range for optimum operation of the GPS receiver in your car is -10 ~ 50°C.**

## **3. When using the product for the first time or after a long period (more than three days), it may take a little longer to recognise your current location.**

It may take between five and thirty minutes to get GPS reception.

**GPS reception may be impaired under the following circumstances:**

- 1) If there is an object at the end of the GPS antenna
- 2) If your vehicle has metallic elements on the windshield
- 3) If equipment generating electromagnetic waves that interfere with the GPS signal are installed in the vehicle e.g. other GPS devices including certain types of wireless activated alarms, MP3 and CD players and camera alarms using GPS.
- 4) If you are using a receiver connected by a cable, electrical interference can be avoided by simply changing the location of the receiver (antenna).
- 5) On heavily overcast or cloudy days, if the vehicle is in a covered location such as under a bridge or raised roadway, in a tunnel, an underground roadway or parking area, inside a building or surrounded by high-rise buildings.
- 6) If GPS signal reception is poor, it may take longer to locate your current position when the vehicle is moving than when it is stationary.

# 1. OVERVIEW

The SVC100GPS-LCA/LCA2 is a Vehicle Journey/Accident Recorder with 3 Axis Shock Sensor & GPS for measuring braking, acceleration, driving style and recording location. The unit includes a transparent locking case to prevent tampering with evidence.

This evidence can protect a driver from many of the issues faced on the roads today:

- Cash for Crash / Pre-meditated staged accidents
- False/Exaggerated Whiplash Claims
- Conflicting Reports of Actual Events
- Lack of Witnesses
- Driving Offence Allegations (Speed Cameras, Traffic Signal Violations etc...)

## **Features:**

- Continuously records the driver's view via a 170° high-quality lens
- Continuously records braking/acceleration/collision G-forces
- Approved for installation in commercial vehicles
- Built-in GPS receiver ensures the highest accuracy for vehicle location and speed
- Simple DIY installation
- E-mark, EMC, CE and FCC approved for extra piece of mind
- VOSA and Data Protection Act compliant

**FRONT**



**RIGHT**

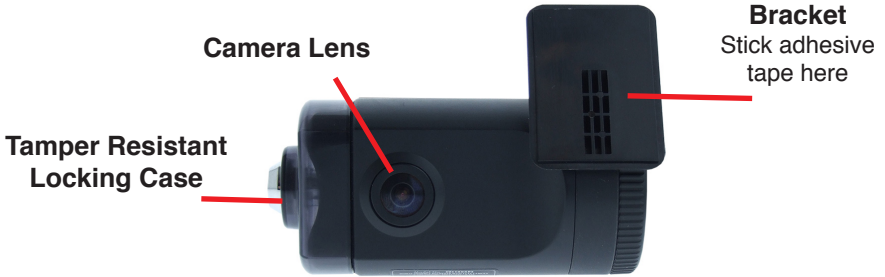
**LEFT**



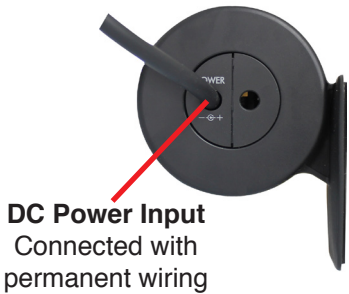
**REAR**



**FRONT**



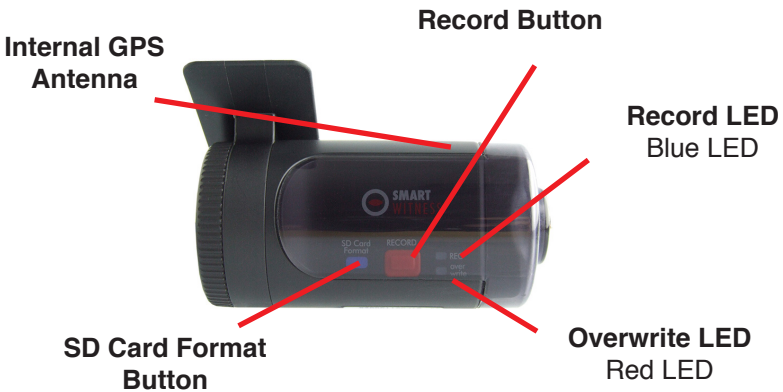
**RIGHT**



**LEFT**



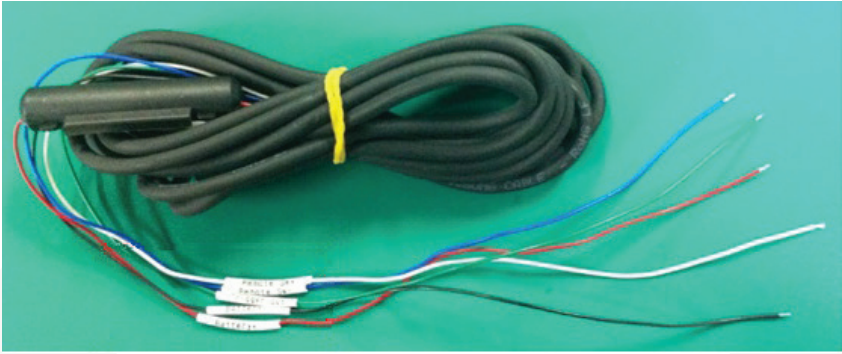
**Rear**

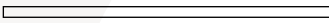








## SVC100GPS-LCA

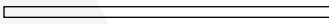




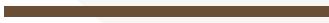
## - Wiring Description



-  Remote SW+
-  Remote SW-
-  Battery -
-  Alarm Out (G-Sensor & Panic)
-  Battery+ (Connect to ignition)

## SVC100GPS-LCA2

## - Wiring Description

-  Remote SW+
-  Remote SW-
-  Battery -
-  Alarm Out (G-Sensor & Panic)
-  Battery+ (Connect to ignition)
-  Alarm Out (SD Card Fault)

For further information, please contact your installer.

If you want to power your camera permanently, please see Appendix 2 on page 54.

## 2. CONTENTS

### SVC100GPS

- SVC100GPS Camera /Recording Unit including bracket
- Wire Splice Clips
- Sticker for Windscreen Mounting (Double-sided Tape x 2)
- Power Cable (Cigarette Jack)
- Spare Mounting Bracket
- USB 2.0 SD Card Reader
- Spare Mounting Bracket
- SD Memory Card\*

\*SD Card size will depend on the model and may not be included.

### SVC100GPS-LCA/LCA2

Item contains all accessories on the left, plus the following:

- Keys for Locking Case
- Transparent Locking Case
- Telematics Cable

**Please note:** The SVC100GPS-LCA2 will have an extra alarm output wire

# 3. SOFTWARE INSTALLATION

## Software Installation (Windows)



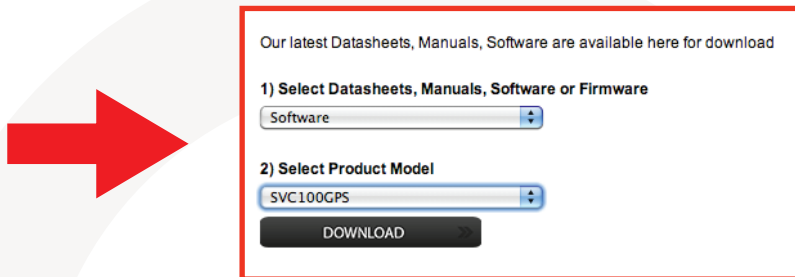
### PC SYSTEM REQUIREMENT

Recommended PC specifications for PC Viewer software

OS	Windows 2000, Windows XP, Windows Vista, Windows 7
CPU	Pentium4 2.6GHZ or higher
RAM	512MB or higher
Interface	SD Memory Card Reader
HDD Free Space	Install 20MB or higher Backup 2GB or higher
Display	1,024 x 768 pixel / High Colour (16 bit) or higher

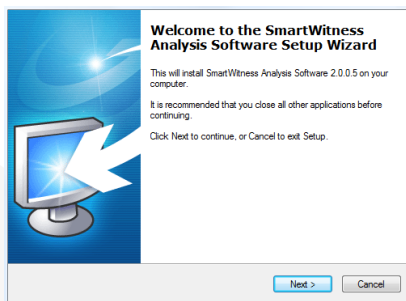
If the PC does not meet the minimum system requirements, the Analysis Software may not function properly.

1. To download the SVC100GPS software, type 'www.smartwitness.com' into your browser and go to the support section.
2. Choose 'Software' and 'SVC100GPS' options from the drop down menu as shown below.



\*Screenshot taken from www.smartwitness.com

3. Click the 'Download' button (file will automatically download to PC).
4. When downloaded, go to the 'Downloads' folder and double click the 'Setup' file.
5. Select the language and then follow the on screen dialog box.



6. The 'PCViewer' icon will now be displayed on your desktop.



**NOTE: To Un-install the PC Viewer**

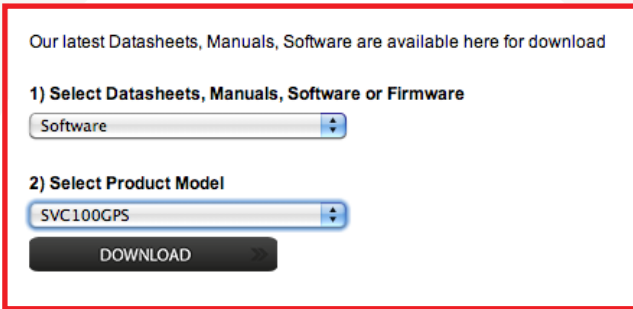
Open the 'Control Panel'  
Select 'Remove Program' and remove PC Viewer SVC100GPS

## 4. SD CARD INSERT

### PLEASE NOTE

If you have been supplied with an SD card, then this will need to be setup using the latest Smart Witness Software.

1. Insert the SD memory card into the computer using the SD card reader.
2. This software can be downloaded from [www.smartwitness.com/article/76/support](http://www.smartwitness.com/article/76/support)
3. Once on the page, select the correct software by using the Drop Down Menu



4. When downloaded, go to the 'Downloads' folder and double click the 'setup' file.
5. Follow the setup - instructions, then the software icon will appear on your desktop.
6. Double click the software icon to load the software. (Below)

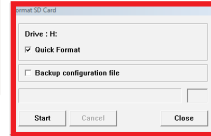


7. Click the 'Tool' button

8. Select the "SD Card Initialize" button from the drop down menu

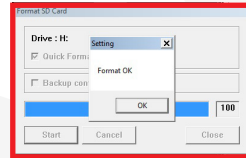
9. You will be presented with another drop down list to select the card to format.

10. Select the "DRIVERREC" from the drop down and tick the "Quick Format" box when prompted.



11. Click "Start" to begin formatting.

12. Once the card has been formatted, you will see the screen on the right. Then, remove the SD Card from the computer.



13. Make sure the unit is turned off before inserting the SD Card.



14. Insert the SD memory card into the SD card slot.

## PLEASE NOTE

The very first time you power up your unit with the SD Card inserted, it is important not to disconnect the power before the 2 minutes are up, as this may damage the unit.

## SD CARD CARE

SD cards are a popular recording consumable. They are very robust and reliable.

However, if they are not correctly maintained their lifespan can be reduced and the file structure could become corrupt. Maintaining SD cards is quick and easy and is carried out by regular formatting.

If you ever experience card failure, missing or corrupt recordings, then this is a sign that the SD card is in need of a format. All makes and models of Micro SD and full size SD cards require formatting regularly.

### **AUTO FORMAT FEATURE**

The Smart Witness SVC100GPS range has a convenient feature that will Auto Format the SD card if it detects a card error. The process takes less than 10 seconds and will delete all data on the card. For this reason we advise you to immediately remove the card from the unit and take a backup of an incident that needs to be kept has occurred.

For full details on how to use this feature, please refer to section 10

### **CARD FAILURE INDICATOR**

If the Auto Format feature cannot fix the card issue the card may be faulty. In this case both LEDs on the unit will be solid for over 20 seconds, indicating a card fault. The card should then be checked for errors using a computer. If the card cannot be repaired or formatted by a computer it is likely that the card will need to be replaced.

### **PLEASE NOTE**

Under no circumstances whatsoever shall Smart Witness be liable for any indirect or consequential loss or for any loss of profits, loss of business, depletion of goodwill, loss of data, loss of opportunity, loss of contract and any similar loss arising from the purchase and use of this product.

# 5. PRODUCT INSTALLATION

## SVC100GPS

### - DIY Fitting

1. Attach the double sided adhesive tape to the unit.
2. Secure the SVC100GPS to the windscreen behind the rear view mirror. Please make sure that the surface is clean and dry before attaching.



**Tip:**  
Hold in position with firm pressure for 30 Seconds

3. Adjust camera view and make sure the lens has an unobstructed view.
4. Arrange the power cord neatly alongside the windshield and door pillar trim. Use the provided wire splice clip.



5. Connect the SVC100GPS to the cigarette lighter socket.



## SVC100GPS-LCA-LCA2

### - Professional Installation Recommended

Please don't attempt to permanently wire this unit unless you are familiar with auto wiring.

Any incorrect installations will not be covered by the warranty.



For a full wiring description, please see section 2.1.



## 6. LED GUIDE



See the table below for an explanation of the LED status changes on the back of the recorder.

No.	BLUE LED	RED LED	Meaning
1	Blink every half second	OFF	Event Recording
2	Blink every 4 seconds	OFF	Continuous Recording
3	Solid	OFF	Pre-Recording (Awaiting Triggers)
4	OFF	Blink every half second	Card Fault
5	SOLID	SOLID	System Booting Up
6	Blink every half second	Blink every half second	Unit Fault
7	SOLID	OFF	SD Card Removal in Safe Mode
8	OFF	OFF	No Power

# 7. CAMERA FUNCTIONS

## Auto Start Function

Connect your vehicle's power cable to the SVC100GPS after starting the vehicle and the SVC100GPS will automatically start.  
(Use the provided power cable.)

### PLEASE NOTE

The unit will not start recording immediately after power on. It takes around 1 minute for the built-in power backup system to charge. Thereafter, the internal flash memory will be ready to record.

## Event Recording

The event recording will be automatically started by the G-sensor. The G-sensor sensitivity can be set by your PC. To set the G-Sensor Sensitivity, please refer to section 10 - Setting the Vehicle Journey Recorder. Each event file contains 15 seconds prior & 5 seconds post event.

## Manual Recording

Press the [RECORD] button to begin recording manually. Each manual file contains 15 seconds prior to activation & 5 seconds post activation.

## Continuous Recording

The continuous recording will be automatically started after the unit is turned on. The SVC100GPS doesn't make a separate event file during the continuous recording. It will mark the Event area by the G-sensor or Record button in the continuous recording file which can be easily searched for during playback.

## Built-in power backup (Super Capacitor)

When power to the unit is interrupted, the SVC100GPS creates the last file using the internal Super Capacitor. This will ensure that no vital information is lost during that time.

## Buzzer

A 'Beep' sound will occur when recording starts (this can be turned off if required).

## Camera Operation

### Event Record

1. Connect your vehicle's power cable to the SVC100GPS after starting the vehicle.
2. Blue LED & Red LED will be slowly blinking simultaneously and then the Blue LED will remain on. The Blue LED light means SVC100GPS is ready for the event recording.
3. The event recording will automatically begin by the G-sensor with one short "Beep" sound.
4. The manual recording will start by pressing the [RECORD] button.

### PLEASE NOTE

#### Multiple impacts coverage

Flash memory captures the video data from the second impact even as the first impact is still occurring. It will start writing immediately after the first recording is finished.

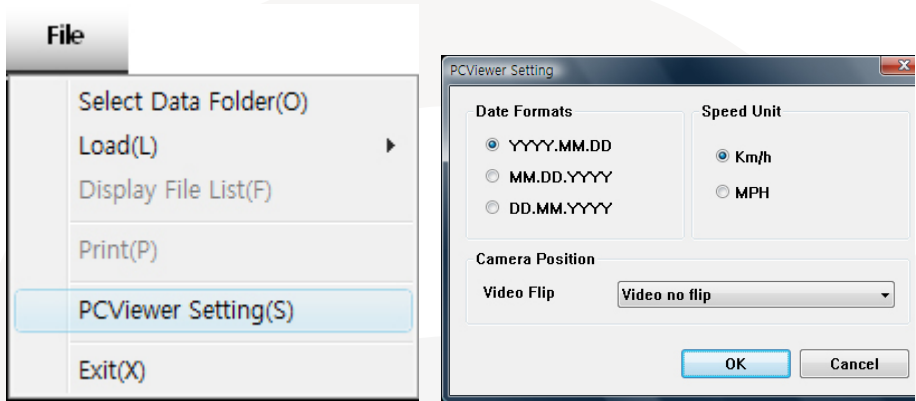
### Normal Record

1. Connect your vehicle's power cable to the SVC100GPS after starting the vehicle.
2. Blue LED & Red LED will be slowly blinking simultaneously and then the Blue LED will remain on and flash every 4 seconds.
3. Blue LED light flashing every 4 seconds means SVC100GPS is recording continuously.
4. The continuous recording (normal recording) will automatically begin just after the power is turned on.

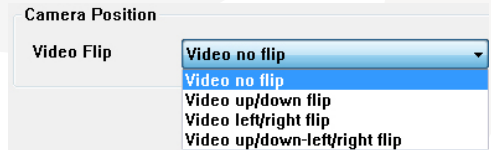
# 8. SOFTWARE USER GUIDE

## PC Viewer Setting

This setting is for the PC Viewer itself. To set the Recorder, refer to Section 10.



The 'Date' formats and 'Speed' unit will be set automatically according to the PC Windows settings, however it can be changed with this PC viewer setting menu:



## File Loading

When Record Method is set as 'Event record'

No.	EVENT File	Type
<input type="checkbox"/> 5	2009.01.07 06:46:00	G-Sensor
<input type="checkbox"/> 6	2009.01.07 06:46:34	G-Sensor
<input type="checkbox"/> 6	2009.01.07 22:51:57	G-Sensor
<input type="checkbox"/> 7	2009.01.07 06:48:07	G-Sensor
<input type="checkbox"/> 10	2009.01.07 22:44:17	G-Sensor
<input type="checkbox"/> 11	2009.01.07 22:45:10	Switch
<input type="checkbox"/> 12	2009.01.07 22:46:48	Switch
<input type="checkbox"/> 13	2009.01.07 22:48:09	Switch
<input type="checkbox"/> 14	2009.01.07 22:50:18	Switch
<input type="checkbox"/> 15	2009.01.07 22:51:11	G-Sensor

Check the event

Check all files Button

Load Button

'G-sensor' means recording was activated by impact

'Switch' means recording was activated by button

When Record Method is set as 'Normal record'

No.	NORMAL File	Duration
<input type="checkbox"/> 2	2009.07.13 13:10:00	10 Min
<input type="checkbox"/> 3	2009.07.13 13:20:00	10 Min
<input type="checkbox"/> 4	2009.07.13 13:30:00	10 Min
<input type="checkbox"/> 5	2009.07.13 13:40:00	4 Min
<input type="checkbox"/> 6	2009.07.14 20:02:38	4 Min
<input type="checkbox"/> 7	2009.07.14 20:07:56	2 Min
<input type="checkbox"/> 8	2009.07.14 20:10:00	10 Min
<input type="checkbox"/> 9	2009.07.14 20:20:00	10 Min
<input type="checkbox"/> 10	2009.07.14 20:30:00	10 Min
<input type="checkbox"/> 11	2009.07.14 20:40:00	10 Min
<input type="checkbox"/> 12	2009.07.14 20:50:00	10 Min
<input type="checkbox"/> 13	2009.07.14 21:00:00	22 Sec
<input type="checkbox"/> 14	2009.07.14 21:14:41	5 Min
<input type="checkbox"/> 15	2009.07.14 21:20:00	2 Min

Check the event


Check all files Button

Load Button

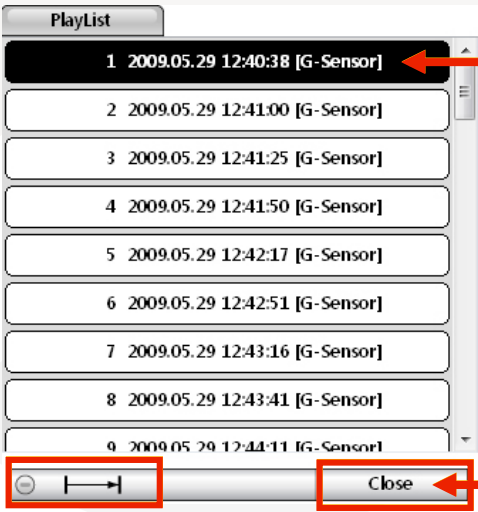
Recording duration: The maximum duration is 10 minutes

5. Check the event or normal recorded file from the list using a mouse or click [All] button. Then click [Load] button.

6. Once you've clicked the "Load Button" the "FileList" tab will change to the "PlayList" tab as shown below.

7. Click the file you wish to playback to play that file. Or click the  button to play all the files continuously.

### When Record Method is set as 'Event record'

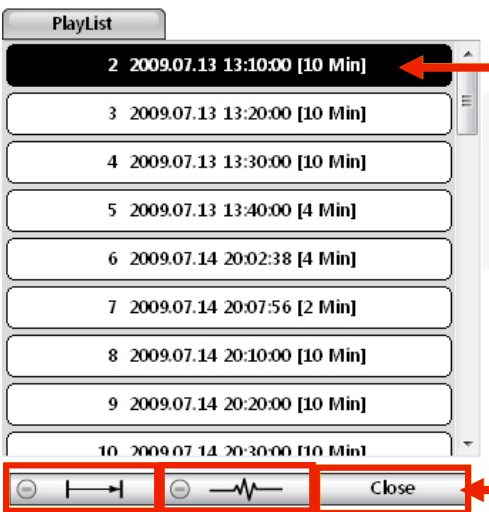


Now playback this file

Check this button for continuous playback

Return to the [FileList]

### When Record Method is set as 'Normal record'



Now playback this file

Check this button for continuous playback

Return to the [FileList]

↑ Event data search in the playback file

# Playback Screen

## When Record Method is set as 'Event Record'

The screenshot displays the SMART WITNESS Vehicle Journey Recorder Analysis Software interface. The main window shows a video playback of a road scene with a FedEx truck. A 'G-Sensor [PRE]' button is highlighted with a red box. A 'Playlist' window is open on the right, showing a list of recorded frames with their timestamps and G-sensor status. A red arrow points to the 'G-Sensor [PRE]' button with the text '[POST]: post-recorded frame [PRE]: pre-recorded frame'. Another red arrow points to the playback controls with the text 'Check it for continuous playback'. A third red arrow points to the frame number '1 / 690' with the text 'Display frame/Total frames number'. A fourth red arrow points to the '29 KB' label with the text 'Frame size'. The interface also shows a speedometer (19 MPH), a G-sensor graph, and a Google Map of the location.

## When Record Method is set as 'Normal Record'

The screenshot displays the SMART WITNESS Vehicle Journey Recorder Analysis Software interface. The main window shows a video playback of a road scene with a car. A 'Normal [GPR]' button is highlighted with a red box. A 'Playlist' window is open on the right, showing a list of recorded frames with their timestamps and G-sensor status. A red arrow points to the 'Normal [GPR]' button with the text 'Event area marking by G-sensor or button (5seconds per each event)'. Another red arrow points to the playback controls with the text 'Playback position indicator'. A third red arrow points to the Google Map with the text 'Google Map location data only available with SVC100GPS model'. The interface also shows a speedometer (39 Km/h), a G-sensor graph, and a Google Map of the location.

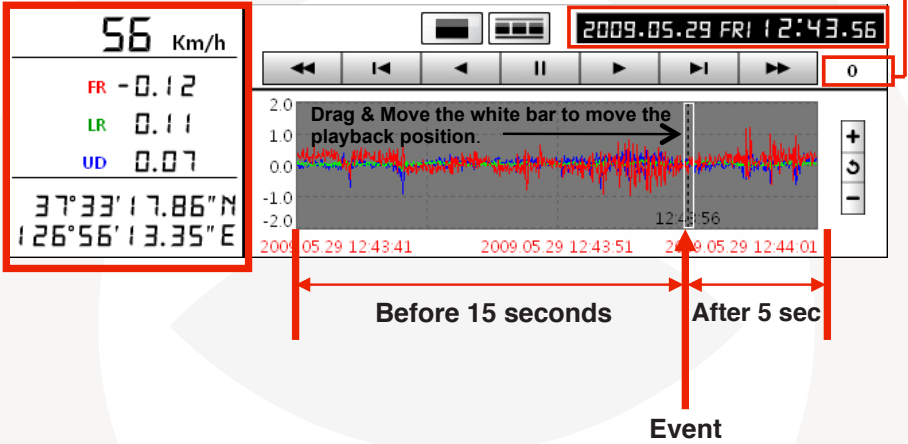
# Playback

7. Click play button for playback.

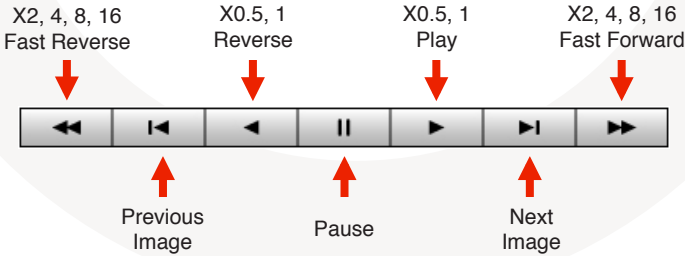
GPS Speed,  
G sensor data & GPS location  
data

Playback Speed

Date & Time



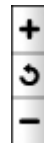
Playback Buttons:



Single View



4x4 Multi-view  
(Thumb-nail  
function)



Zoom In G-sensor graph

Reset Zoom

Zoom Out G-sensor  
graph

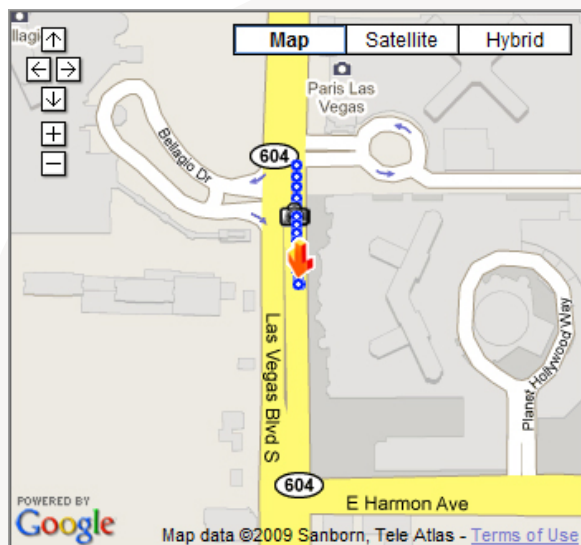


**NOTE: PC keyboard hot buttons**

<b>Function</b>	<b>PC keyboard hot buttons</b>
1024x768 mode	Enter Return to the previous mode: Enter
Full Screen Mode	Alt + Enter Return to the previous mode: Enter
Playback Speed Control	Crtl + F 0.5 => 1
Reverse Playback Speed Control	Crtl + B 0.5 => 1
Pause / Play	Space
Previous Image	→ Direction Button
Next Image	← Direction Button

## Google Maps

The route taken will be displayed on the Google map located at the lower right corner of the software.



⚠ To see the route & position on Google Maps, the GPS data should be recorded with video.

To see Google Maps, the PC should be connected to the Internet.

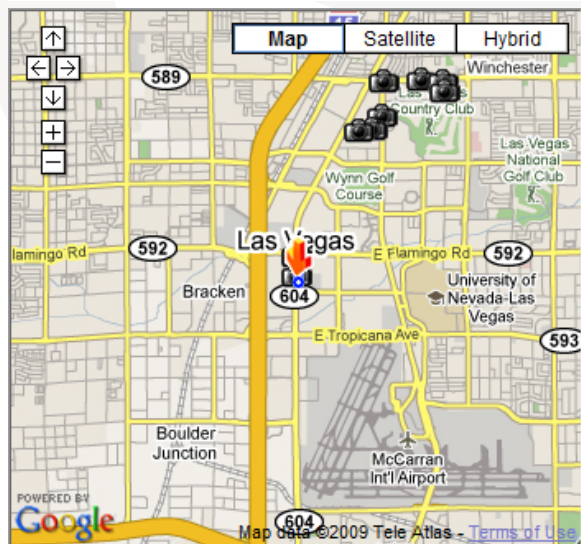
The Playback position will be shown on the map with an arrow. The blue markings show the route taken.

Double click the blue mark to change the video playback position to that point.

The camera icon indicates that there is a recorded file.

The total camera icons shown will be less than 100, even if there are more than 100 events.

When the unit is set to 'Normal' recording mode, there will be no route & camera icon on the map.



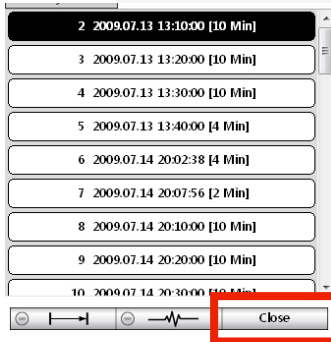
# Thumbnail Function

8. Click the  button for 4x4 multi-view (Thumbnail function)



Click the thumbnail image to change the playback position.  
Click the right mouse button to select single image playback mode.

9. Click [Close] button to quit the playback.



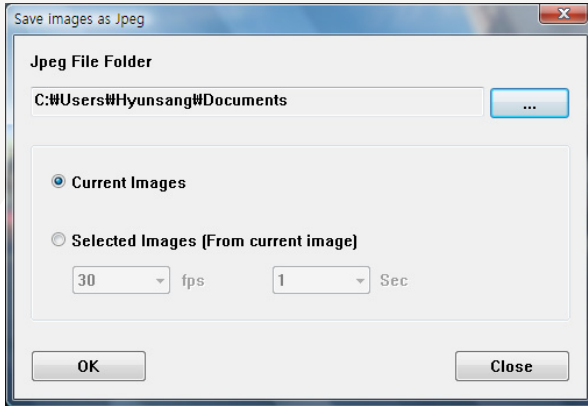
Click [Close] to finish the playback.  
Then the [PlayList] window will be changed to the initial status.

## Save JPEG and AVI File

10. Pause the playback and click 'Save Image' icon to make a JPG file.



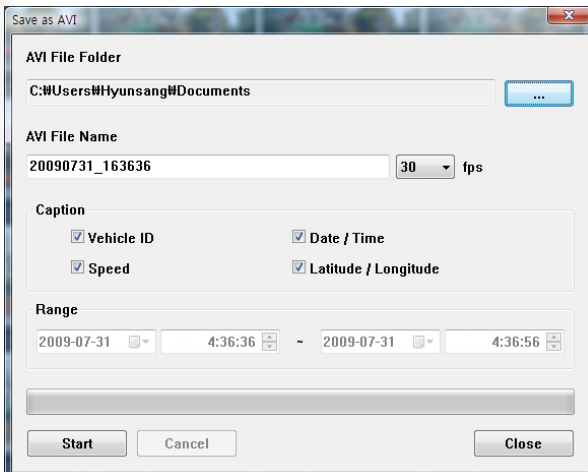
'Save Image' Icon



11. Click 'Save AVI' icon to make an AVI file.



'Save AVI' Icon

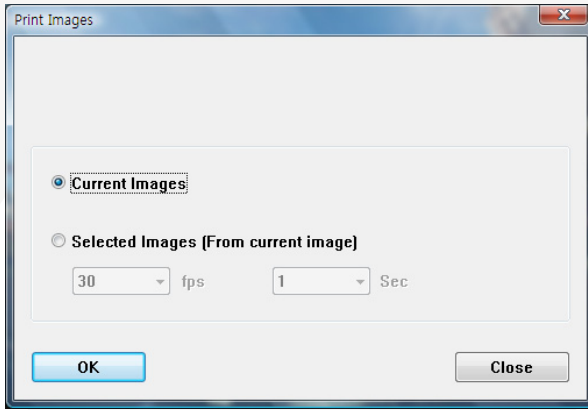


## Print Image

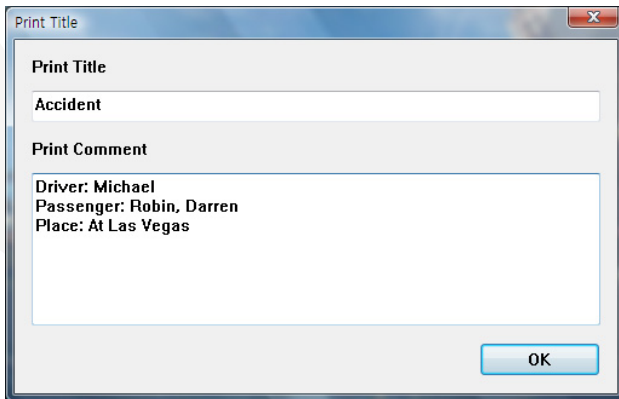
12. Pause the playback and click 'Print Image' icon.



'Print Image' Icon



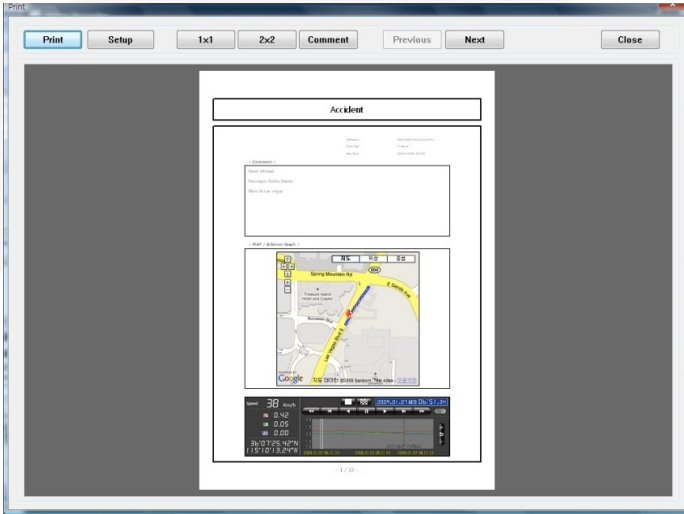
Type in the File Name [Print Title] & any comments [Print Comment] using the Keyboard.



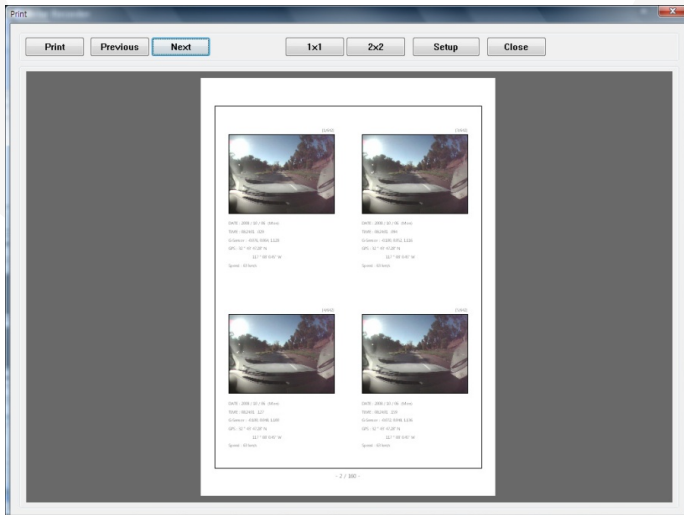
The 'Print Comment' window allows up to 7 lines in total.

# Reporting

13. Click [Print] button in the print preview windows for printing.  
The File Name [Print Title], Comment [Print Comment], G-sensor graph & map will be printed on the first page.



Click [ 2x2 ] and then click [Print] to print 4 images on one page.

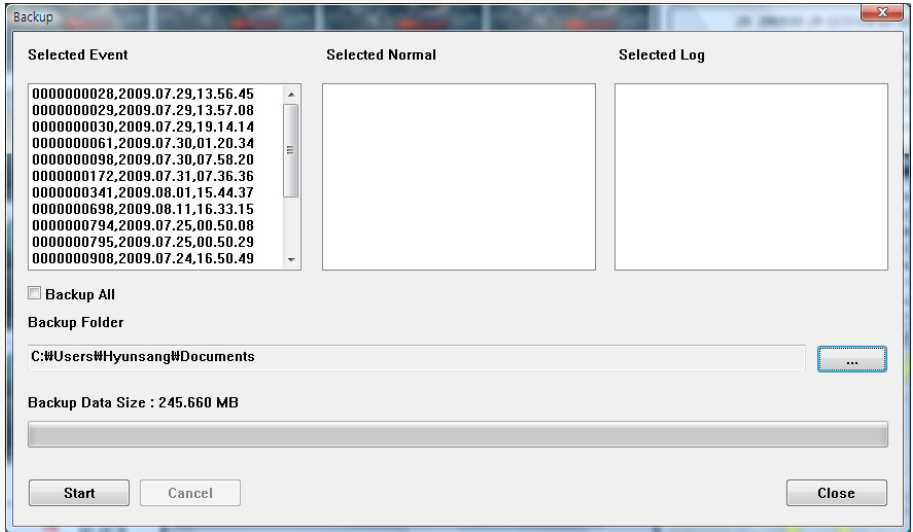


## Backup/Event Log

14. Click [Backup Event/Log files] icon to backup the files to the PC.



'Back Up' Icon



Select [Event data] or [Normal data] and select [Log data] first, before clicking the [Backup Event/Log files] icon. Then selected Event, Normal or Log data lists are on the Backup windows.

To backup the whole data from SD card to the PC, check [Backup All]

## Product Information

15. Click [About] icon to check the product information.



'About' icon





# Log File Playback

16. Select [LOG] windows and then check the log from the log list using mouse or click [Check All] button. Then click [Load] button.

**Log Data:** Log data will be recorded during driving even if there are no events. The total log data size is no more than 60MB. The log data overwrites the oldest data when 60MB is reached. Using this log data, we can use the data sorting function which helps to find specific data, i.e, more than 80mph (or 80km), for example.



GPS speed, G-sensor X value, G-sensor Y value, G-sensor Z value, can be checked first on the small check box at right side of each value. Then input the data for data sorting. If there is recorded video data, [Switch] or [G-Sensor] mark will be displayed on list.

- G-sensor X value:** Front & Back (e.g Quick brake or Quick Start)
- G-sensor Y value:** Left & Right (e.g Quick Turn)
- G-sensor Z value:** Up & Down (e.g. Prominence and Depression)

## GPS Log to KML Converter

To see the whole route on Google Earth, select the log file and click the Google Earth icon, as shown below.

Event		Normal		Log	
No.		LOG File	Duration		
<input type="checkbox"/>	1	2009.05.29 12:40:02	11 Min		
<input checked="" type="checkbox"/>	2	2009.05.29 13:01:21	13 Min		

Buttons: All, **Google Earth Icon**, Load

**STEP 1.** Install Google Earth on your PC.  
(<http://www.google.com/earth/>)

**STEP 2.** Check the log file

**STEP 3.** Click the Google Earth button

The route will then be shown on Google Earth. We recommend you use Google Earth Version 5.0 or above.



## Enhanced Driver Report Function

The SVC100GPS offers an Enhanced Driver Report (EDR) function.

The EDR function uses driving data: Speed, G-Sensor and GPS recorded by the SVC100GPS to analyse and quantify driving information for a set amount of time to highlight driver safety and economy issues.

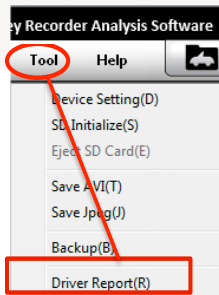
### To use the EDR function:

Make [program] folder at SD root folder as below

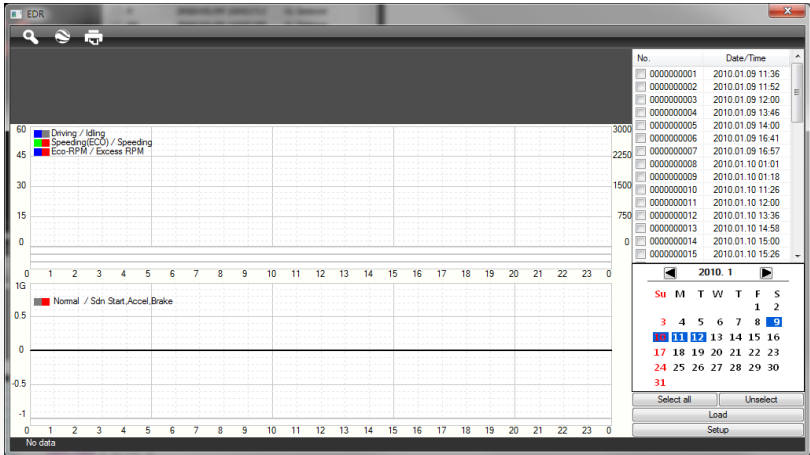
1. Launch the SVC100GPS/-LCA PC Viewer Software.
2. Select the data folder by clicking [file] on the tool bar and selecting the SD Card.



Click the [Tool] button and scroll down and click [Driver Report] function.

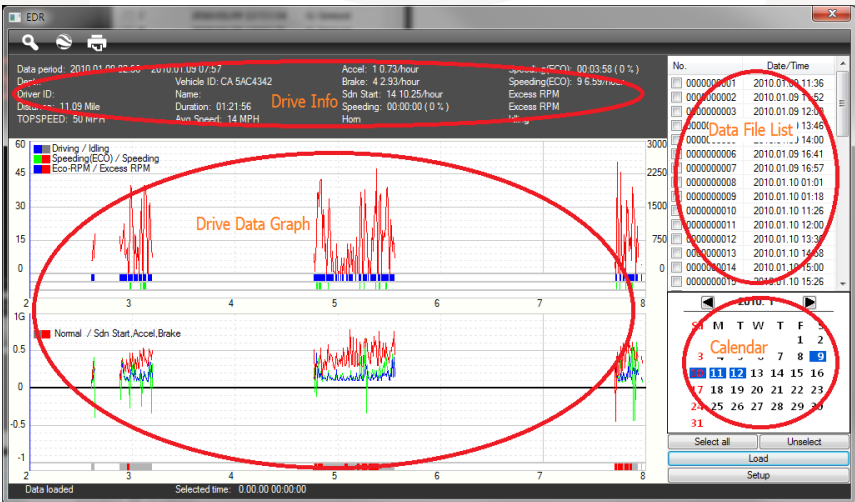


The below screen will pop up showing a list of the data files.



### Data File List and Calendar

All the dates that contain data will be highlighted in blue. Click on the date you wish to view and all the data from that day will be listed on the Data FileList section.



Check the data files from the data file list on the right hand side of the screen. Then click [Load] to view. The graphs will be shown as above.

## A. Data File List Control Buttons

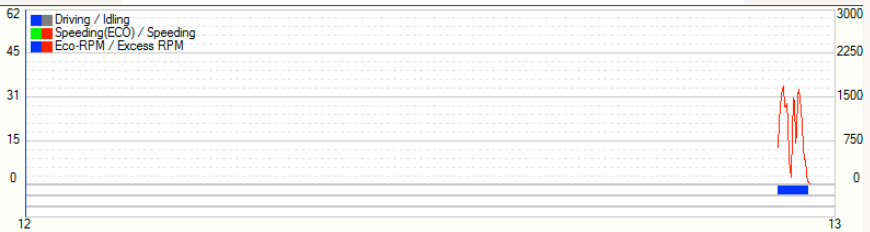
[Select All], [Unselect]: Use the [Select All] button to select all the data in the data list. Similarly, use the [Unselect] button to unselect checked data.

[Load]: This button should be used to load the selected data.

## B. Drive Data Graph

The Drive Data Graph displays Speed and G-Sensor information for the file selected by the user.

### 1) Speed



The axis on the left hand side indicates Speed. The Scale can be configured in the Setup Menu.

The Speed is shown as the red line on the graph.

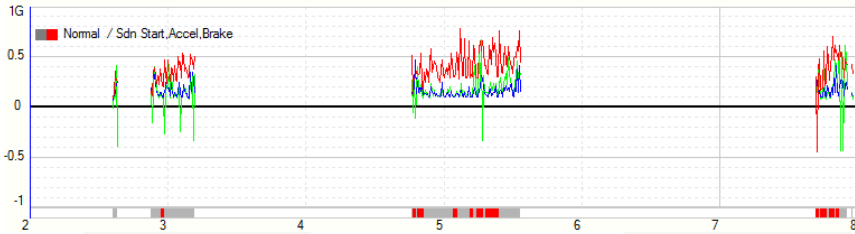
The colour key at the top of the page explains the progress bars on the bottom of the graph.

Driving / Idling – The Blue line shows the driver is on the move and the grey line shows when the driver is stationary [Idling]

Speeding (ECO) / Speeding – The Eco speed limit is determined by what ever speed the driver deems to be Economical. The Green will appear on the graph when the driver is exceeding the eco-speed limit. The Red line will appear when the driver is exceeding the actual speed limit.

Eco RPM / Excess RPM function only available with the SVC400GPS Recorder.

## 2) G-Sensor Graph



The axis on the left hand side of the graph above indicates the acceleration force in gs ( $1g = 9.81m/s^2$ )

The Red line on the graph displays the G-Forces forces from acceleration/deceleration (X axis)

The Green graph line displays the left and right G-Forces (Y axis)

The Blue line on the graph displays the Up/Down G-Forces (Z axis)

The colour key at the top of the graph explains the colours on the progress bar on the bottom. For example, the Grey bar indicates the driver is driving under the G-Force threshold. A Red bar will show when the driver exceeds the G-Force threshold.

Normal / Sdn Start. Accel. Brake: Normal (When the driver is driving under the G-Force threshold. This will be indicated by a Grey bar. A Red bar will appear if a sudden acceleration, deceleration or turn that exceeds the G-Force threshold is made.

## C. Drive Information

The drive information can be found at the top of screen and shows the data analysis of the whole journey selected in the data file list.

Data period: 2010.01.09 02:36 ~ 2010.01.09 07:57	Accel: 1 0.73/hour	Speeding(ECO): 00:03:58 ( 0 % )
Dept.: Vehicle ID: CA 5AC4342	Brake: 4 2.93/hour	Speeding(ECO): 9 6.59/hour
Driver ID: Name:	Sdn Start: 14 10.25/hour	Excess RPM
Distance: 11.09 Mile	Duration: 01:21:56	Excess RPM
TOPSPEED: 50 MPH	Avg Speed: 14 MPH	Idling
	Hom	

## D. Tools



There are 3 tools offered in this function; (From left to right) Zoom, Map and Print Daily Report.

### 1) Zoom

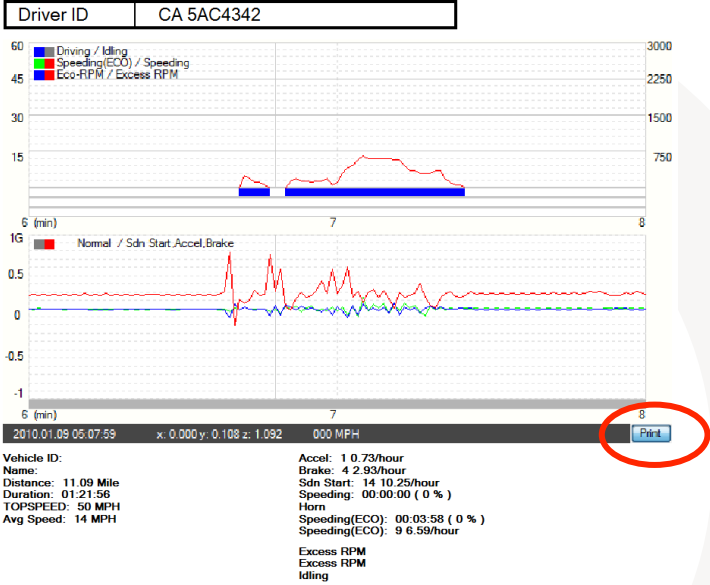


When you click the zoom button on the tool bar of the graph, the screen will pop up as shown above. The user can zoom in on a certain part of the drive data by clicking the point on the graph they wish to see.

The user can use the arrow keys to advance or retreat from the pre-selected point in time.

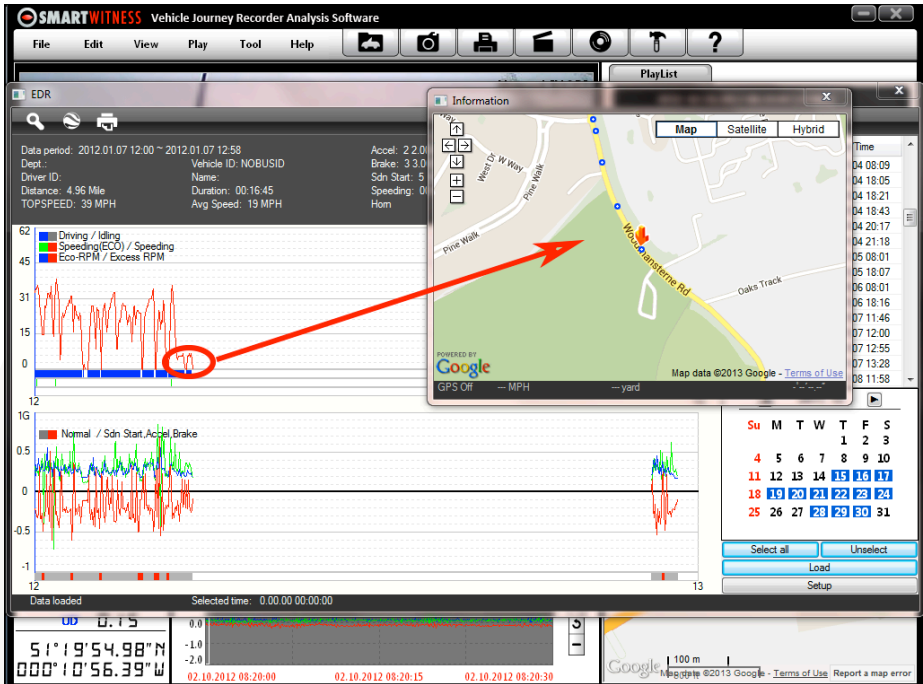
The user can also print out the detailed Zoomed Graph Report by clicking the [Print] button in the bottom right corner (Below).

### Zoom Graph





## 2) Driving Map



Click on the Driving Map button on the tool bar to view the driving map (above).

This will bring up a map showing the whole route of the selected data. When clicking on a certain point on the Drive data graph, an orange arrow will indicate the location at that certain point on the map.

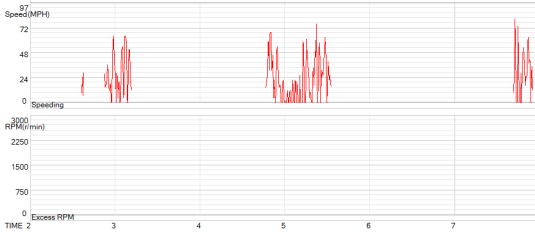
### 3) Daily Report Function



When the Daily Report Button is clicked, a report (below) will print, showing an analysis of the data file selected. The analysis will cover distance travelled, average speeds, G-Forces etc and give an economy score and an overall Driver Score.

#### Daily Drive Report

Recorded time	2010/01/09 02:36 ~ 2010/01/09 07:57		Total
Department	Manager		72
Vehicle ID	CA 5AC4342	Driver Name	
Distance	11.09 Mile	Drive Period	01:21:56
Average of Depot <small>Percentage City</small>	-	Average of Individual <small>Percentage Month</small>	-
			Score C

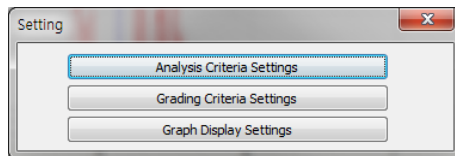


Safety		Sudden Start		10.25		50		E 14		
	Sudden Start	10.25	cnt/h	50	E	14	cnt			
	Acceleration Count	0.73	cnt/h	70	C	1	cnt			
	Brake Count	2.93	cnt/h	50	E	4	cnt			
	Speeding Count	0.00	cnt/h	100	A	0	cnt			
	Speeding Rate	0.00	%	100	A	00:00:00				
	PeakSpeed	50	MPH	100	A					
	AverageSpeed	14	MPH	100	A					
	Horn Count	0.00	-	-	0	cnt				
	<b>Safety Score</b>				81	B				
			Sudden Start		10.25		50		E 14	
		Acceleration Count		0.73		70		C 1		
		Brake Count		2.93		50		E 4		
		Speeding(Eco) Count		6.59		50		E 9		
		Speeding(Eco) Rate		4.00		100		A 00:03:58		
		Excess RPM Count		0.00		-		0		
		Excess RPM Rate		0.00		-		00:00:00		
		Idling Count		0.00		-		0		
<b>Economic Score</b>						64		D		
<b>Total Score</b>						72		C		

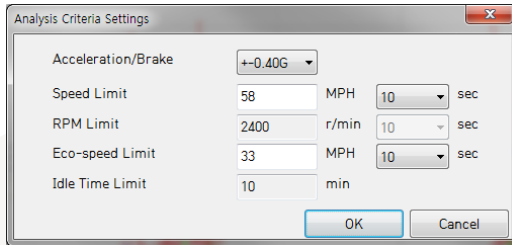
Printed Time 2013.03.12 11:17:05

### F. Set up

To continue the function and display, click the [setup] button on the bottom right corner of the main display screen.



## 1) Analysis Criteria Settings



### Acceleration/Brake

Scroll down to select the limit for the G-Sensor value for acceleration/deceleration. Any force exceeding this limit will be classified as sudden start or stop and the unit will start recording.

### Speed Limit

Set the speed limit and duration of speeding that you wish to use. For example, if you drive over 70mph for more than 10 seconds, it will count as speeding.

### Eco Speed Limit

To make the vehicle more economical (i.e. get more miles from less fuel), the driver can set an economical speed limit. For example, if the driver sets an eco speed limit of 40mph and exceeds that limit, the driver score will decrease.

The user can also change the duration at which they exceed that speed limit for it to count as speeding. For example, if the limit is set at 10 seconds, the driver would need to exceed 40mph for more than this for it to count as speeding.

### RPM Limit

RPM limit function is only available with the SVC400GPS.

## 2) Grading Criteria Settings

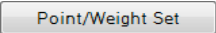
	A	B	C	D
Sdn Start Cnt (per hour)	0.40	0.60	0.80	1.00
Accel Count (per hour)	0.40	0.60	0.80	1.00
Brake Count (per hour)	0.40	0.60	0.80	1.00
Speeding Count	0.40	0.60	0.80	1.00
Speeding Duration Ratio	20.00	30.00	40.00	50.00
Peak Speed Relative to Speed Limit	6	12	18	24
Avg Speed Relative to Speed Limit	-31	-12	-6	0
Horn Count (per hour)	0.40	0.60	0.80	1.00
Excess Eco-speed Count (per hour)	0.40	0.60	0.80	1.00
Excess Eco-speed Duration Ratio	20.00	30.00	40.00	50.00
Excess RPM Count (per hour)	0.40	0.60	0.80	1.00
Excess RPM Duration Ratio	20.00	30.00	40.00	50.00
Idling Count (per hour)	0.40	0.60	0.80	1.00

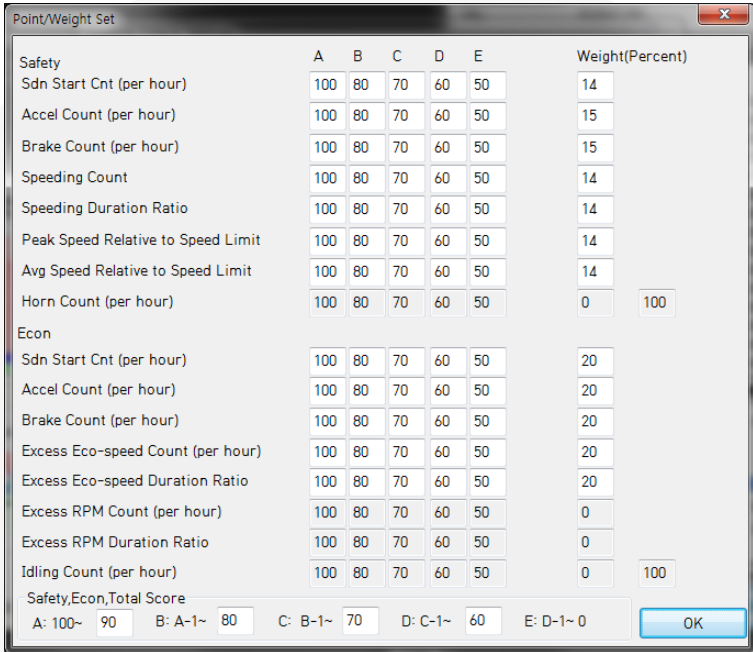
Export Import Point/Weight Set OK Cancel

This sets the grading criteria for each grading category.

The user can set the limit for each parameter which will determine the driver's Score. For example, if the settings are as above and the driver experiences a sudden acceleration for 0.7 times per hour on average, the driver will get a Grade B in that category.

## Point/Weight Settings

The Point/Weight setting can be accessed by clicking on the  button at the bottom right corner of the “Grade Criteria Settings” page.



	A	B	C	D	E	Weight(Percent)			
<b>Safety</b>									
Sdn Start Cnt (per hour)	100	80	70	60	50	14			
Accel Count (per hour)	100	80	70	60	50	15			
Brake Count (per hour)	100	80	70	60	50	15			
Speeding Count	100	80	70	60	50	14			
Speeding Duration Ratio	100	80	70	60	50	14			
Peak Speed Relative to Speed Limit	100	80	70	60	50	14			
Avg Speed Relative to Speed Limit	100	80	70	60	50	14			
Horn Count (per hour)	100	80	70	60	50	0	100		
<b>Econ</b>									
Sdn Start Cnt (per hour)	100	80	70	60	50	20			
Accel Count (per hour)	100	80	70	60	50	20			
Brake Count (per hour)	100	80	70	60	50	20			
Excess Eco-speed Count (per hour)	100	80	70	60	50	20			
Excess Eco-speed Duration Ratio	100	80	70	60	50	20			
Excess RPM Count (per hour)	100	80	70	60	50	0			
Excess RPM Duration Ratio	100	80	70	60	50	0			
Idling Count (per hour)	100	80	70	60	50	0	100		
<b>Safety,Econ_Total Score</b>									
A: 100~	90	B: A-1~	80	C: B-1~	70	D: C-1~	60	E: D-1~	0

Point/weight settings sets out the numerical score and weights for each grade.

For example, if the settings are as above, your B grade for sudden acceleration will be scored as 80 and since the weight is 14%, your eco score will be 14% of this – 11.2 points.

### Calculation of Safety Score, Eco Score and Total Score

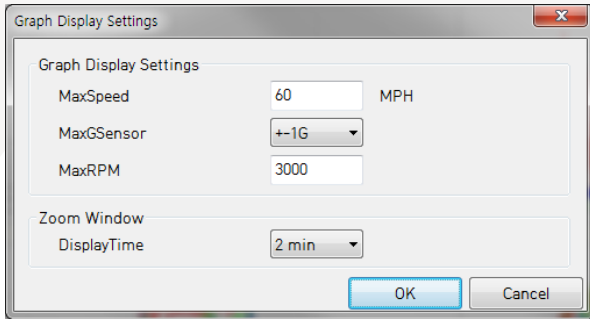
The safety score is calculated by adding up all the weighted points from 7 categories:

Sudden Start count, acceleration count, sudden stop count, speeding count, speeding duration ratio, peak speed relative to the speed limit and average speed relative to the speed limit.

Eco-score is calculated by adding up all the weighted points from 5 categories: Sudden start count, acceleration count, sudden stop count, eco-speeding count and eco-speeding duration ratio.

The total score is the average of the safety score and eco-score.

### 3) Graph Display Setting



**Max Speed:** This sets the maximum value of the graph's speed scale.

**Max G-Sensor:** This sets the maximum value of the graph's G-Sensor scale.

**Max RPM:** This sets the maximum value of the graph's RPM scale. (RPM limit function is only available with the SVC400GPS).

**Zoom Window Display Time:** This sets the time period, in minutes, displayed on the zoom graph.

# 9. Cloud Upload

If you have subscribed to our Cloud Upload Service please refer to the Cloud Upload Service Guide.




## 10. SETTING THE JOURNEY RECORDER

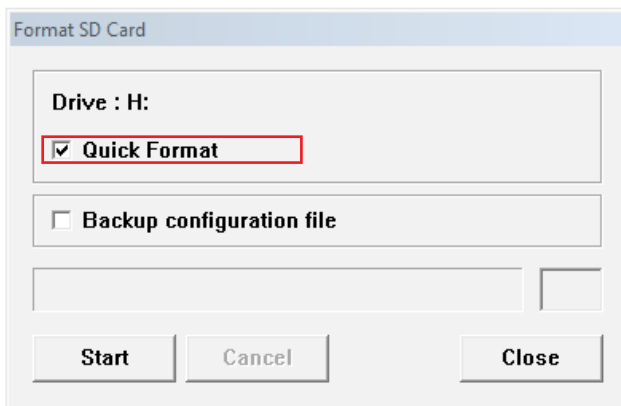
### Speed Dependant G-Sensor

The user can now select the G-Sensor to automatically adjust G-Sensor value relative to vehicle speed.

For example, if the vehicle brakes when at a high speed the G-force will be much greater than if the vehicle was to break at a low speed. Therefore, it is possible that the unit won't record an incident at a lower speed if the G-Sensor value is set to high.

By setting the unit to automatically adjust to the vehicle speed the user can avoid this.

To activate this setting, click the 'Recorder Settings' button  and bring up the below screen.



Then check the 'Auto adjust G-Sensor to Vehicle Speed' box. This option is highlighted with the red box.



## User Defined G-Sensor

The user defined G-Sensor option allows the user to adjust the G-Sensor settings to suit your needs.

For example, vehicles that drive slower will have lower G-Sensor threshold and therefore a custom setting would be more beneficial.

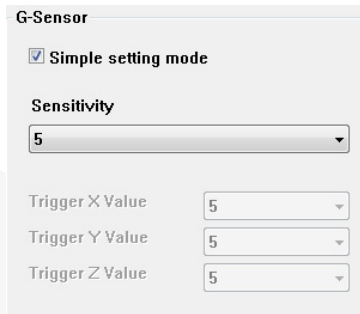
To set the G-Sensor to custom, check the “Custom” option and select the threshold levels (below).



The screenshot shows a 'G-Sensor' settings window with the 'Custom' option selected. It features a table for setting thresholds and hertz values for X, Y, and Z axes.

	X	Y	Z
Threshold (0~2000)	600	600	800
Hertz (1~20)	4	7	2

The user can also use a “Pre-set” G-Sensor option. This allows the user to set the sensitivity level (between 1-9). Setting the sensitivity at 1 will mean that the unit will start recording after a heavy impact or turn. Level 9, will therefore detect a light turn or impact.



The screenshot shows the 'G-Sensor' settings window with 'Simple setting mode' checked. It includes a dropdown menu for 'Sensitivity' and three dropdown menus for 'Trigger X Value', 'Trigger Y Value', and 'Trigger Z Value', all set to 5.

<input checked="" type="checkbox"/> Simple setting mode	
Sensitivity	5
Trigger X Value	5
Trigger Y Value	5
Trigger Z Value	5

The default setting is 5 (medium).

The user can also set the X, Y and Z value sensitivity. To do this, uncheck the “simple setting mode” option and chose the value from the drop down menu as shown above.

## Auto Format Feature

The auto format feature allows the user to set the SD Card to automatically format itself if there is an error on the card.

To enable this function in the settings option, check the “Auto Format” function (Below).

Auto Format

To disable this feature, uncheck the “Auto Format” feature.

## Alarm Outs

## - SVC100GPSLCA/-LCA2

The Software allows the user to set an alarm input and 2 alarm outputs on the units. Please note that the second alarm output is only available on the SVC100GPS-LCA2.

### SVC100GPS-LCA

The Alarm Input can be connected to 3rd party devices like a Panic Button. When triggered, the Alarm Input will mark or start recording on the unit.

The Alarm Output is triggered when either of the following are triggered:

- Alarm Input
- G-Sensor
- Emergency Record button

When this happens the alarm will signal 3rd party devices connected to it, such as a Tracker or Telematics unit.

To turn this feature on, check the “AlarmOut1” option in the settings menu.

Please note that the “AlarmOut2” option will not be clickable for the SVC100GPSLCA.

AlarmOut1

AlarmOut2

## SVC100GPS-LCA2

The SVC100GPSLCA2 alarm input and outputs work exactly the same as the SVC100GPSLCA. However, the SVC100GPSLCA2 has an extra alarm output.

This 2nd Alarm Output will trigger if there is an error with either the SD card (providing auto format is not turned on) or the unit.

To turn this feature on, check both the “AlarmOut1” and “AlarmOut2” options in the settings menu.

AlarmOut1

AlarmOut2

Please make sure that the “Auto Format” function has been disabled before doing this, or the “AlarmOut2” function won’t work.

## 11. SPECIFICATIONS

Image Sensor	1/4" CMOS
DSP	Standard DSP
Angle of View	170°
Video Resolution	640x480, 320x240
Recording Speed	Up to 30fps
Recording Modes	Continuous By Event By Emergency Button
Recording Time	4GB (6 Hours ~ 93 Hours) 16GB (7 Hours ~ 167 Hours) 32GB (15 Hours ~ 500 Hours)
Backup	SD Memory Card
Memory	Supports Cards of up to 32GB
GPS	Internal GPS
G-Sensor	Internal 3-Axis G-Sensor
RTC	Internal Battery
Buzzer	Recording Start, error
LED	2 LEDs (Record, Overwrite)
Super Capacitor	Enable recording of last file and shut down
PC Software	Available from the Smart Witness Website
Power Input	12V to 24V DC (Cigarette Plug for SVC100GPS)
Power Consumption	3.6W (12V x 300mA)
Size (WxH) in mm	80x50
Weight	0.1 KG
Operation Temp	-10°C~50C

# APPENDIX 1

## Recording Time Table

### Recording/Storage Time Table

Resolution	Quality	Size	FPS	2GB	4GB	8GB	16GB	32GB
640x480	HIGH	40KB	1	555 min	1408 min	3115 min	109 hour	225 hour
			5	111 min	282 min	623 min	22 hour	45 hour
			10	55 min	141 min	311 min	11 hour	22 hour
			15	37 min	94 min	208 min	7 hour	15 hour
	LOW	20KB	1	1109 min	2816 min	6229 min	218 hour	445 hour
			5	222 min	563 min	1246 min	44 hour	89 hour
			10	111 min	282 min	623 min	22 hour	45 hour
			15	74 min	188 min	415 min	15 hour	30 hour
320X240	HIGH	15KB	1	1479 min	3755 min	8306 min	290 hour	500 hour
			5	296 min	751 min	1661 min	58 hour	119 hour
			10	148 min	375 min	831 min	29 hour	59 hour
			15	99 min	250 min	554 min	19 hour	40 hour
	LOW	10KB	1	2219 min	5632 min	12459 min	435 hour	500 hour
			5	444 min	1126 min	2492 min	87 hour	178 hour
			10	222 min	563 min	1246 min	44 hour	89 hour
			15	148 min	375 min	831 min	29 hour	59 hour

### PLEASE NOTE

### Limitation of the event file number

The total number of recorded files must be less than 3,000.

If the SVC100GPS records more than 3,000 files, there is a possibility that unit will take longer than 1 minute to boot up.

As a result, the maximum recording time is 500 hours, regardless of SD Card size.

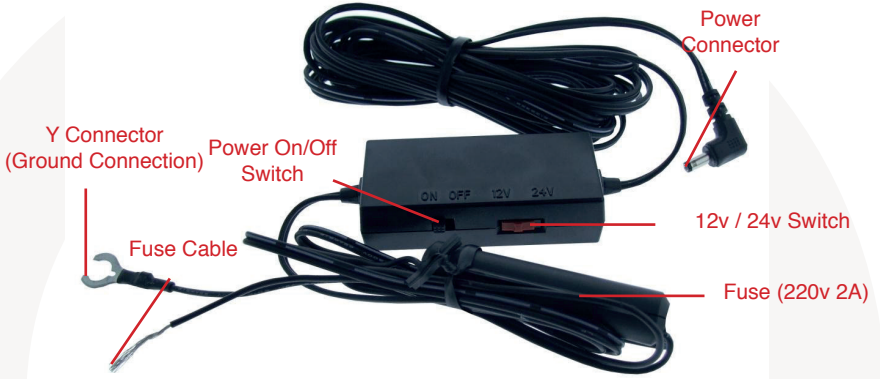
(3,000 files x 10 min = 10,000 min = 500 hours)

## Optional Accessory

## - Power Cable

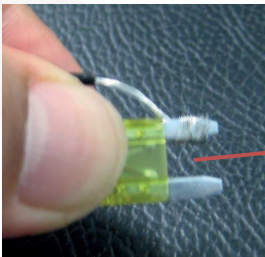
### Model name: SVCSPWK (SVC100GPS Only)

This cable allows the unit to be permanently wired into the vehicle



## Installation

1. Connect the Fuse Cable (+), (the wire with the white dotted line) to the Fuse box in the vehicle. This should be connected to a battery circuit (i.e. Permanent Power).



2. Connect the black Ground cable (highlighted by the Y pin connector) to the chasses of the car or ground point.



3. Connect the power connector to the SVC100GPS recorder.



4. To connect the power connector to the SVC100GPS-LCA/-LCA2, please follow the steps below. Please note, to power these models, you will need a DCS-B and a DCS-P Connector (available from Smart Witness).

A: Cut the power connector cord on the SVCSPWK.



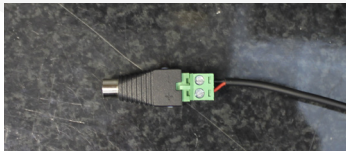
B: Strip back the wire to reveal the Red (+) and Black (-) wires.



C: Connect the wires to the DCS-B and secure using a screw driver. Connect the Red wire to the Positive connection and Black to the negative.



D: Take the SVC100GPS-LCA/LCA2 unit, and connect the Red (+) and Black (-) wires to the DCS-P. (Shown Below). Using a screw driver, connect the Red wire to the Positive connection and Black to the negative.



E: Secure the DCS-B and the DCS-P together, connecting the SVC100GPS-LCA/LCA2 and the SVCSPWK.



4. Finally turn on the Power using On/Off switch located on the unit (See Fig 1)

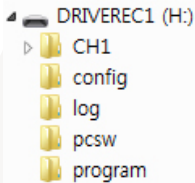


## Firmware Upgrade

First, upgrade the SVC100GPS/-LCA main unit.  
Second, install new PC viewer software on your PC and then initialize the SD card using new PC viewer software.

### 1. Preparing Firmware

Make [program] folder at SD root folder as below



Copy “SVC100\_X.X.X.bin” file in to the SD card [program] folder.  
[NOTE] To get the upgraded firmware, please contact your local distributor.

### 2. Upgrade SVC100GPS Series

Insert the prepared SD card to SVC100GPS Series and turn on the power.

The Blue & Red LED will be quickly blinking together during upgrading.  
There will be a continuous “Beep” sound during upgrading.  
This will take around 2min 30sec.

**Do not turn off the power during upgrading.**  
**If the upgrade has failed, the “SVC100GPS/SVC100GPS-LCA” should be returned to your local distributor.**

Once the upgrading is finished, press RECORD button to check SVC100GPS.

If the SVC100GPS records as normal, turn the power off.

Bring the SD card to your PC and initialize the SD card. To initialize the SD card, please see section 4 - SD Card Insert.

### **3. Uninstall the old version PC Viewer from the PC**

PC Windows [Start] => [Control panel]  
And uninstall [SmartWitness]

### **4. Uninstall the old version Viewer from the Mac**

Drag the Smart Witness file from the applications folder to the recycle bin and empty the bin.

### **5. Install the new PC Viewer**

Please see section 3 - Software Installation for full installation instructions. Alternatively, if you have a Mac, please see the Mac Software User Guide.

#### **PLEASE NOTE**

After installing the new PC Viewer, initialise the SD card.  
Then new software will then be automatically copied to [pcsw] folder on the SD card.

# TECHNICAL SUPPORT & WARRANTY

## Technical Support

For Technical Support, please contact your local distributor.

## Limited Warranty

This product is supplied with a 2 year warranty. The Warranty excludes products that have been misused, (including accidental damage) and damage caused by normal wear and tear. In the unlikely event that you encounter a problem with this product, it should be returned to the place of purchase.



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 **SMARTWITNESS**  
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