



# SVC100 / SVC100GPS VEHICLE JOURNEY RECORDER

# **USER GUIDE**

- Thank you for purchasing this Journey Recorder.
- Please ensure that you read and understand this USER GUIDE and use it before connecting and installing this Recorder.
- Please store the USER GUIDE in an easily accessible location.

# **SAFETY ADVICE**



# **CAUTION**

RISK OF ELECTRIC SHOCK DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Please make sure you follow the safety advice/instructions given in the user guide.



RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Battery for RTC(Real Time Clock) inside



Connect your vehicle's power cable (cigarette jack) to the product after starting the vehicle. The instant over voltage generated when starting up the vehicle may damage the product if it is already connected.

# **⚠** Caution

Install the product where it does not block driver's visibility and where there is no airbag installed. This could cause an accident or might injure passengers in case of accident

### **⚠** Caution

Damages due to production malfunction, loss of data, or other damages occurring while using this product shall not be the responsibility of the manufacturer. Although the product is a device used for recording videos, the product may not save all videos in the case of a malfunction. In the case of an accident, the sensor may not recognize the shock when the impact is light and as a result it may not begin recording automatically.

### **WARNING:**

TO PREVENT FIRE OR ELECTRIC SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

# **GPS Reception**

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

The commercial purpose GPS has the average rage error of more than 15 meters and the range error could be more than 100 meters due to environmental conditions like buildings, roadside trees etc.

- 2. The temperature range for optimum operation of the GPS receiver in your car is -10 ~ 50°C.
- 1. When using the product for the first time or after a long period (more than three days), it may take a little longer to recognize 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 windshields
- 3) If equipment generating electromagnetic waves that interfere with the GPS signal is installed in the vehicle e.g.: Other GPS devices such as a certain type of wireless activated alarms, MP3 and CD players and camera alarms using GPS.
- 4) If you are using a receiver connected by cable, electric 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.

# **CONTENTS**



Smart Witness SVC100 / SVC100GPS Camera/Recording Unit including bracket



Power Cable (cigarette jack)



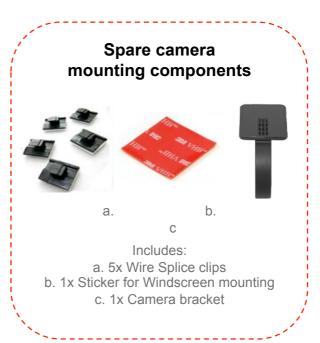
**2GB SD memory card** (The Analysis Software is on the provided SD card)



**USB 2.0 SD Card Reader** 



Wire Splice clips (x5)



THE SHARES

Sticker for Windscreen mounting (double sided tape x1)

# INTRODUCTION





# INTODUCTION

### **BACK**



# **UNIT PARTS**



NOTE: Formatting [initializing] SD memory card can be done using SD Card Format Button. However we recommend that you format [initialize] the SD card using the PC Viewer software on the PC.

# **INSTALLATION**

Park your vehicle on a flat level surface. Turn off the engine before installing the SVC100 / SVC100GPS.

- 1. Insert the SD memory card into the SD card slot.

  Please make sure to disconnect the power cable when inserting or ejecting the SD memory card.
- 2. Attach the SVC100/SVC100GPS using the provided double sided tape. The surface must be clean and dry before you install. We recommended to install the product behind the rear view mirror on the front windshield.









NOTE: Adhesive tape will not stick well with dust or oil, etc. Warm temperatures are best (above 60°) when applying tape.

# **INSTALLATION**

3. Adjust camera view. Make sure the lens has an unobstructed view. Check from outside the vehicle to check the camera angle.



Arrange the power cord neatly alongside the windshield and door pillar trim. Use the provided wire splice clip as seen in the picture on left.

4. SVC100/SVC100GPS unit requires a continuous 12-24V DC power source from the vehicle. Plug in the power. The provided power cord cable route should be from the left side of the SVC100/SVC100GPS towards your power source.



NOTE: When the impact is light like a minor bump in the road, the G-sensor may not recognize the impact and as a result it may not begin recording automatically.

Test and set your own G-sensor level for your vehicle.

# **FUNCTION**

### **Automatic start**

Connect your vehicle's power cable to the SVC100 / SVC100GPS after starting the vehicle. Then SVC100 / SVC100GPS will be automatically started. (Use the provided power cable.)

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 record (when Record Method set as "Event record")**

The event recording will be automatically started by G-sensor.

G-sensor sensitivity can be set with your PC.

Each event file contains 15 seconds prior & 5 seconds post event.

### Manual record (when Record Method set as "Event record")

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

### Continuous record (when Record Method set as "Normal record")

The continuous recording will be automatically started after power on. SVC100/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.

### SD Memory Card Format

Remove the power first. Press the SD CARD FORMAT button and hold. Then connect the power for initialisation. Once complete, all video & log files will be deleted and the configurations will default to the factory settings.

NOTE: PC Viewer software is pre-loaded on the SD card. Please ensure you have installed the software to your PC before you format the card

### **Built-in power backup (Super Capacitor)**

When power to the unit is interrupted, SVC100/SVC100GPS creates the last file using the internal Super Capacitor.

### **BLUE LED (RECORD)**

The blue LED shows the power is on. The blue LED flash during recording.

### RED LED (OVERWRITE)

The red LED will be turned on during overwriting.

### **Buzzer**

A 'Beep' sound will occur when recording starts (this can be turned off if required) and to signal a system error.

# **OPERATION**

### When Record Method set as "Event record"

- 1. Connect your vehicle's power cable to the SVC100/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 SVC100/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.

### 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.

### When Record Method set as "Normal record"

- 1. Connect your vehicle's power cable to the SVC100/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 5 seconds.
- 3. Blue LED light flashing every 5 seconds means SVC100/SVC100GPS is recording continuously.
- 4. The continuous recording (normal recording) will automatically begin just after the power is turned on.
- 5. The manual recording that started by pressing the [RECORD] button or the event recording by G-sensor make a event making in the continuous recording file.

### Take out SD memory card

Turn off the power and then check the BLUE LED light. Once the LED light is off, take out the SD memory card.

### **Insert SD memory card**

Turn off the power and then check the BLUE LED light. Once the LED light is off, insert the SD memory card.

### **System Error Buzzer**

A 'Beep Beep' sound will occur and the BLUE & RED LED lights will blink simultaneously when there is a system error or SD card is not inserted. Check the SD memory card when this occurs.

# **SOFTWARE USER GUIDE**

# SVC100/SVC100GPS PC Viewer Guide



### PC SYSTEM REQUIREMENT

Recommended PC specifications for PC Viewer software

os	Windows 2000, Windows XP Windows Vista
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 Color(16bit) or higher

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

### **SOFTWARE INSTALLATION**

PC Viewer software is on the provided SD card.

- 1. Connect the SD card into your PC (if your computer does not have and SD card slot use the USB SD card reader) and open the "My Computer"
- 2. Right-click the "DRIVEREC1" drive and select [Open]
- 3. Double click [SETUP.EXE] at [pcsw] folder.
- 4. Select the language and then follow the dialog box.



5. The "PCViewer" icon will be displayed on your desktop.



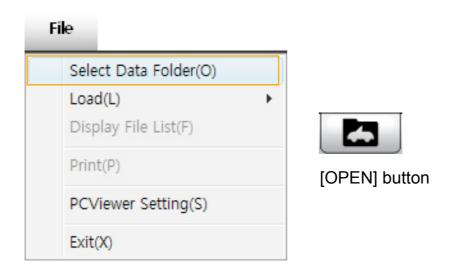
**NOTE: To Un-install the PC Viewer** 

Open the 'Control Panel'

Select 'Remove Program' and remove Smart Witness Analysis Software.

# **Connect SD memory card**

- 1. Connect SD memory card into the SD card reader.
- 2. Run "SmartWitness"
- 3. Select [File] and then click "Select Data Folder" or Click [OPEN] button

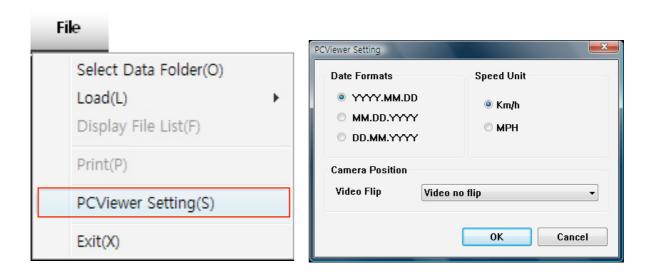


4. Select SD memory card folder at the folder select window.



# **PC Viewer Setting**

This setting is for the PC Viewer itself. To set the Recorder, refer to page 27.



The 'date' formats and 'speed' unit will be set automatically according to the PC Windows setting. However it can be changed with this PC viewer setting menu.

Camera Position

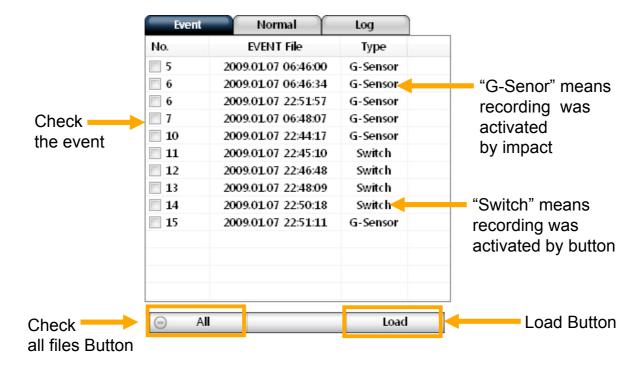
Video no flip

Video Flip

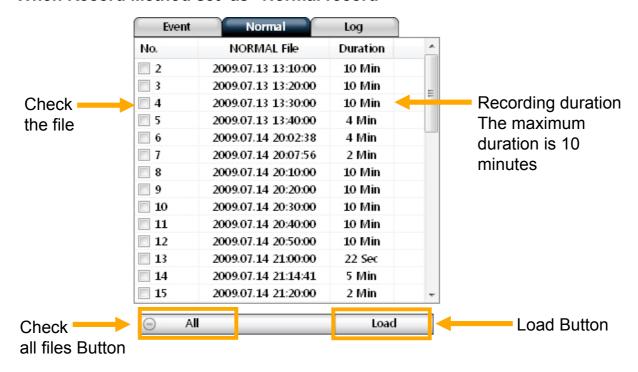


# Select file for playback

### When Record Method set as "Event record"



### When Record Method set as "Normal record"

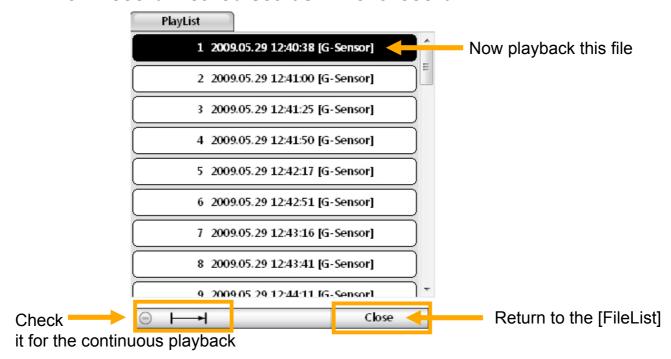


5. Check the event or normal recorded file from the list using mouse or click [All] button. Then click [Load] button.

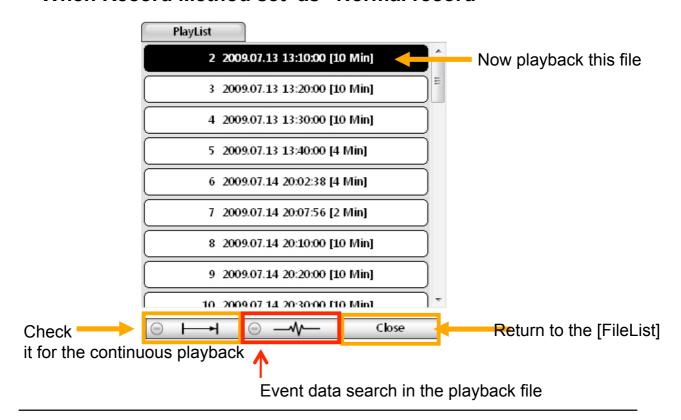
### **FILE LOADING**

6. Click the [Load] button once, the [FileList] tab will be changed to the [PlayList] tab as shown below

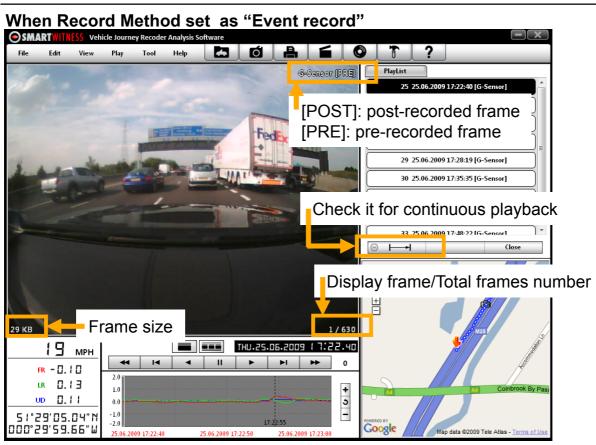
### When Record Method set as "Event record"



### When Record Method set as "Normal record"



### **PLAYBACK SCREEN**

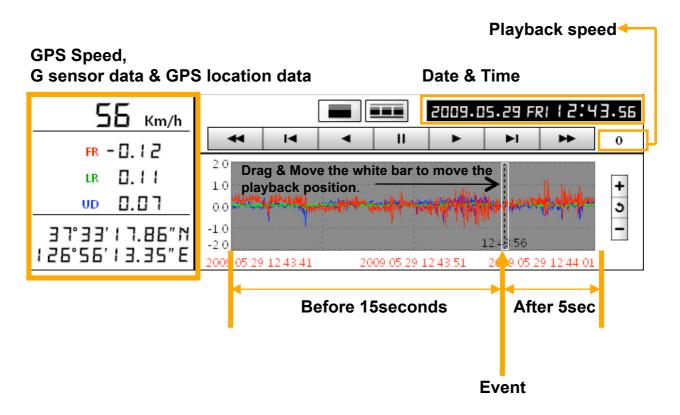


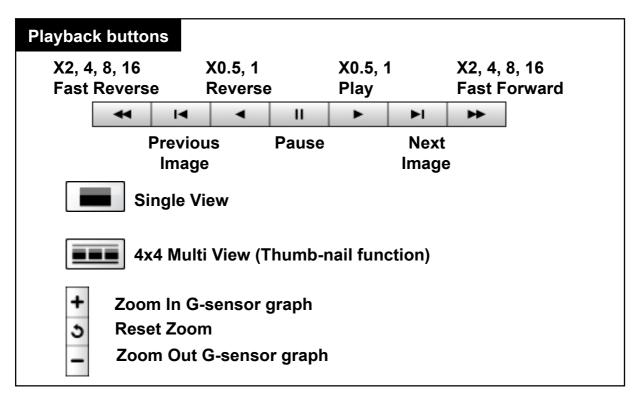




### **PLAYBACK**

7. Click play button for playback.

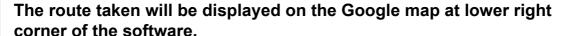




# **NOTE: PC Keyboard hot buttons**

Function	PC keyboard hot buttons
1024x768 mode	Enter Return to the previous mode: Enter
Full screen mode	Alt + Enter Return to the previous mode: Enter
Playback speed control	Ctrl + F 0.5 => 1
Reverse playback speed control	Ctrl + B 0.5 => 1
Pause / Play	Space
Previous Image	→ direction button.
Next Image	← direction button

## Google map (Supported by the SVC100GPS model only)





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.

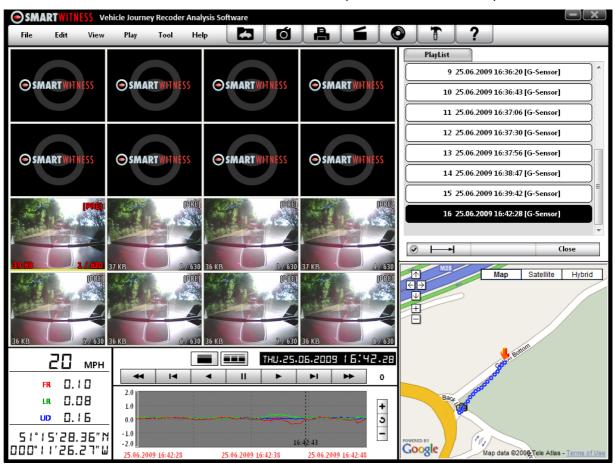
The camera icon indicates that there is a recorded file.

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.

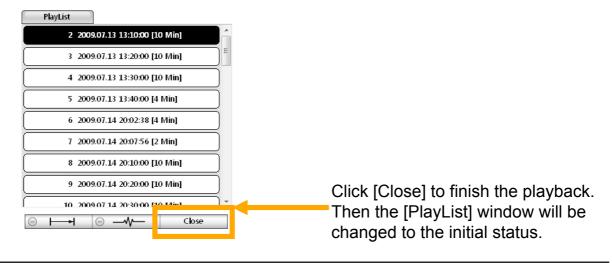
### **Thumbnail Function**

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



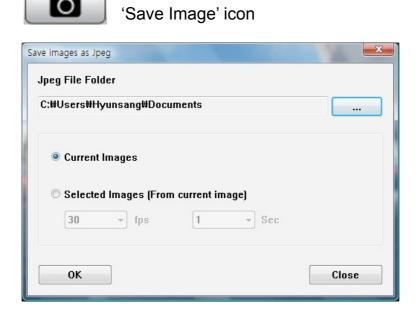
Click the thumbnail image to change the playback position. Click right the mouse button to single image playback mode.

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

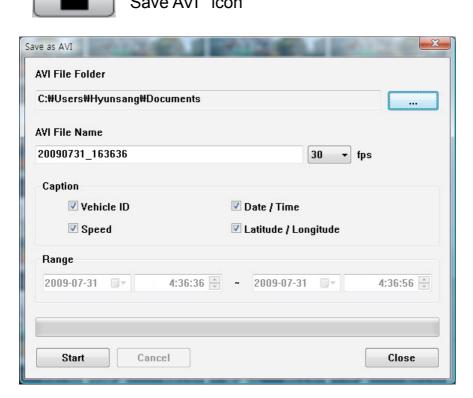


### Save JPG file & AVI file

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

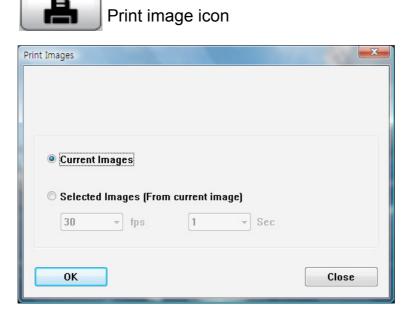


10. Click 'Save AVI' icon to make a AVI file.



# **Print image**

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



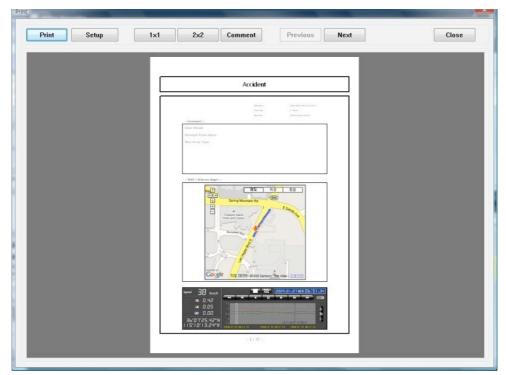
Type in the File Name [Print Title] & any comments [Print Comment] using the Keyboard.



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

# **Make Report**

12. Click [Print] button in the print preview windows for printing. The File Name [Print Title], Comment [Print Comment], G-sensor graph & map (for SVC100GPS Model only) will be printed on the first page.



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

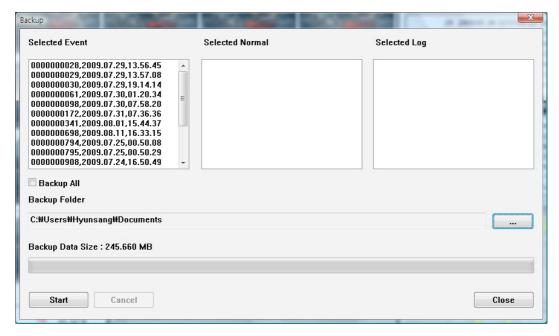


# **Backup Event/Log files**

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



[Backup Event/Log files] icon



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

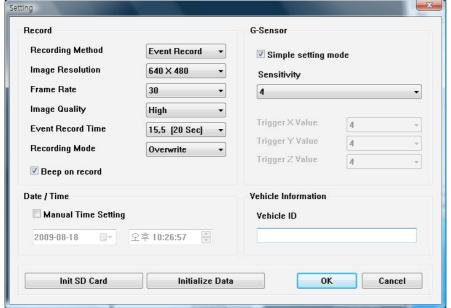
To backup the whole data from SD card to the PC, check [Backup All]

# **Setting the Vehicle Journey Recorder**

14. Click [Recorder Setting] icon for setup.



[Recorder Setting] icon

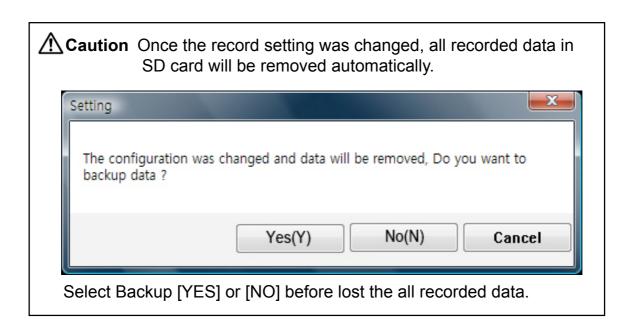


# Caution Backup the SD data first, before clicking initialize SD card button. Once done, the old data cannot be recovered.

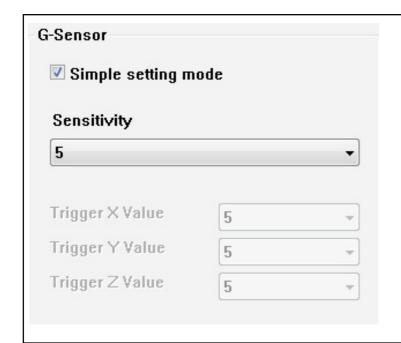
Recording Method	Event Record (Automatically starts Recording by G-sensor event or Record Button) Normal Record (Automatically starts continuous Recording just after Power on)
Image Resolution	640x480(High), 320x240(Low)
Frame Rate	'30' fps means Real Time recording Event Record supports 10, 15, 30 fps Normal Record supports 1, 5, 10, 15 fps
Image Quality	High (Large file size, but good picture quality) Low (Small file size, but low picture quality)
Event Record Time	This menu is for Event Record.  Pre-record/Post-record time can be set here.  There are 3 options (10/10, 12/8, 15/5)
Recording Mode	Overwrite (The image data is overwrites the oldest files when the SD memory is full.) One time (The recording stops automatically when the SD memory is full.)

# **Setting the Vehicle Journey Recorder**

Beep on record	"Beep" sound ON/OFF when Event recording start
G-sensor setting	Check simple setting mode and then change the sensitivity. High sensitivity like 8 or 9 means recording will be started at very low impact.
Date/Time	Automatically synchronize with GPS time. However Manual time setting is also available.
Vehicle ID	Type in your Vehicle ID
Initialize SD card	All date will be deleted and set the configuration of the Journey Recorder will default to the factory settings.
Initialize Data	All date will be deleted.

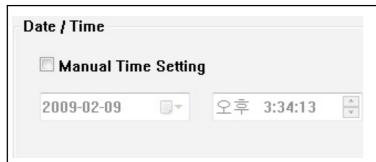


# **Setting the Vehicle Journey Recorder**



### **G-Sensor setting**

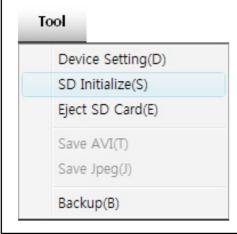
If G-sensor sensitivity
value is too high like 8 or 9,
it becomes too
sensitive, so it will detect
even a light impact or
light turn. If G-sensor
sensitivity value is too
dull, so it might not
detect a notable incident.
So, sensitivity should be set
in consideration of
the vehicle's suspension
and condition and also
the road condition.



[SVC100] doesn't have the GPS time sync. function, so please click the manual time setting, and set your time before installing it in your car.

[SVC100GPS] have the internal GPS supporting the automatic GPS Time Synchronize function. The time recording is done based on UTC at the SVC100GPS and automatically converts to the local time at the PC according to the PC time zone setting when playing back using the PC Viewer.

### NEW SD Memory card initializing should be done using Tool menu



- STEP1. Insert new SD memory card into the PC.
- STEP2. Run "PC Viewer SVC100"
- STEP3. Select [Tool] and then click [SD Initialize]

We recommend the [SD initialize] at least once per month to prevent the SVC100/SV C100GPS from any software errors.

# **Product Information**

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



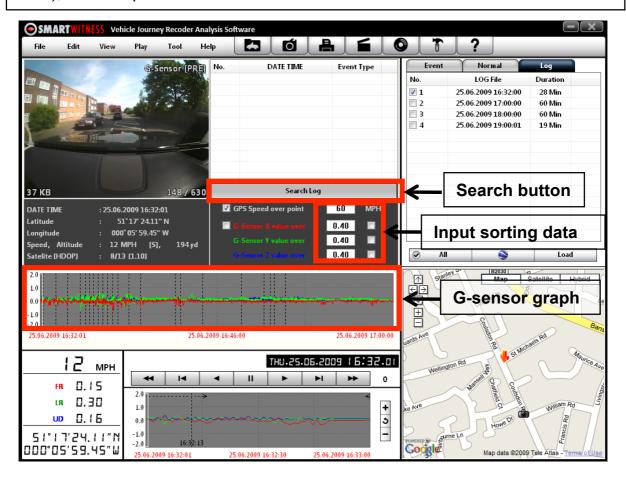
About icon



### 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 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 dat a sorting function which helps to find a specific data like more than 80mph(or 8 0km), 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 data for data sorting.

If there is recorded video data, [Switch] or [G Sensor] mark will be displayed on list.

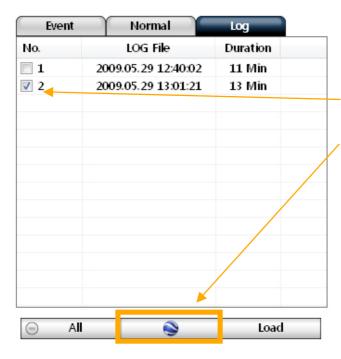
G sensor X value: Front & Back (like Quick brake or Quick Start)

G sensor Y value: Left & Right (like Quick Turn)

G sensor Z value: Up & Down (like prominence and depression)

# **GPS LOG TO KML CONVERTER (for Google Earth)**

To see the whole route on Google Earth, select the log file and click Google Earth button. (SVC100GPS only)



STEP1. Install the Google Earth on your PC.

(http://earth.google.com/)

STEP2. Check the log file

STEP3. Click Google Earth button

The route will then be shown on Google Earth.

We recommend you use Google Earth Version 5.0 or above.



# **SPECIFICATION**

Image sensor	1/4" CMOS		
DSP	Standard DSP		
Angle of View	170°		
Video resolution	640x480, 320x240		
Recording Speed	Up to 25 fps		
Recording Modes	Continuous By impact By emergency button.		
Recording time	2GB (37minutes~ 36hours) 16GB (7hours~167hours)		
Backup	SD Memory Card		
Memory	2GB SD memory card (supports SDHC cards of up to 32GB)		
GPS	Internal GPS (SVC100GPS only)		
G-Sensor	Internal 3-axis G-sensor		
RTC	Internal battery		
Buzzer	Recording start, error		
LED	2 LED (Record, Overwrite)		
Supper Capacitor	Enable recording of last file and shut down		
PC software	Supplied		
Power input	12V to 24V DC (cigarette plug)		
Power consumption	3.6W		
Size (LxØ)/Weight	80mm X 50mm , 100g		
Operation Temp.	-10℃~50℃		

# Recording time table

Resolution	Quality	Size	FPS	2GB	4GB	8GB	16GB
640x480	HIGH	40KB	1	555 min	1408 min	3115 min	109 hours
			5	111 min	282 min	623 min	22 hours
			10	55 min	141 min	311 min	11 hours
			15	37 min	94 min	208 min	7 hours
	LOW	20KB	1	1109 min	2816 min	6229 min	167 hours
			5	222 min	563 min	1246 min	44 hours
			10	111 min	282 min	623 min	22 hours
			15	74 min	188 min	415 min	15 hours
320X240	HIGH	15KB	1	1479 min	3755 min	8306 min	167 hours
			5	296 min	751 min	1661 min	58 hours
			10	148 min	375 min	831 min	29 hours
			15	99 min	250 min	554 min	19 hours
	LOW	10KB	1	2219 min	5632 min	10000 min	167 hours
			5	444 min	1126 min	2492 min	87 hours
			10	222 min	563 min	1246 min	44 hours
			15	148 min	375 min	831 min	29 hours

### NOTE: Limitation of the event file number

The total recording file number will be less than 1000.

If the unit records more than 1000 files, there is a possibility that the booting time will be more than 1 minute. Therefore, the number of files are limited to a maximum of 1000.

So the maximum recording time is 167 hours.

1000 files x 10 minutes = 10000 minutes = 167 hours

# **Technical Support & Warranty**

### **TECHNICAL SUPPORT**

For Technical Support, please contact your local distributor.

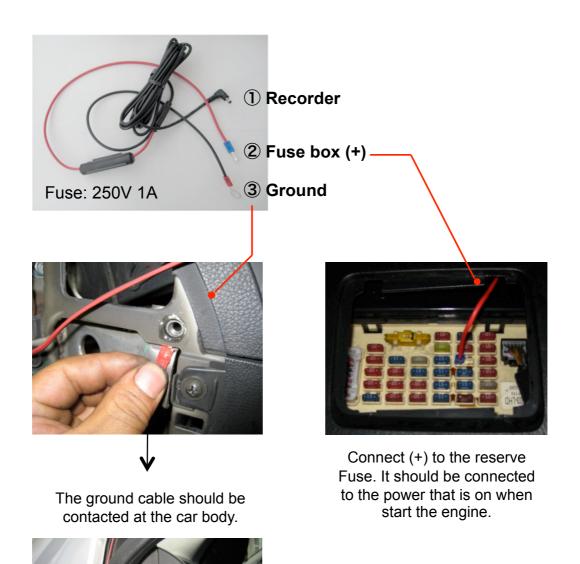
### **LIMITED WARRANTY**

This product is supplied with 1 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.

# **Optional Accessory (Permanent Power Cable)**

### Model name: SVC100PPC

The Permanent Power Supply Cable will allow you to hard wire the SVC100/SVC100GPS unit to the fuse box of your vehicle.

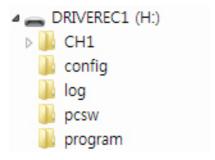


# **APPENDIX (Upgrade)**

NOTE: To get the upgrade firmware, please contact your local distributor.

### 1. Prepare Firmware

Make a [program] folder on the SD root folder as shown below,



Copy "SVC100 X.X.X.bin" file to the SD card [program] folder.

### 2. Upgrade SVC100/SVC100GPS

Insert the prepared SD card to SVC100/SVC100GPS unit and turn on the power.

The Blue & Red LED will quickly blink while the unit is upgrading. It will also 'beep' continuously. Upgrading the unit usually takes about 2 to 3 minutes.

Warning: Do not turn off the power during upgrading. If the upgrade fails, the SVC100/SVC100GPS unit should be returned to your local distributor.

Once the upgrading is finished, turn off the power.

# **APPENDIX (Upgrade)**

### 3. Check SVC100/SVC100GPS

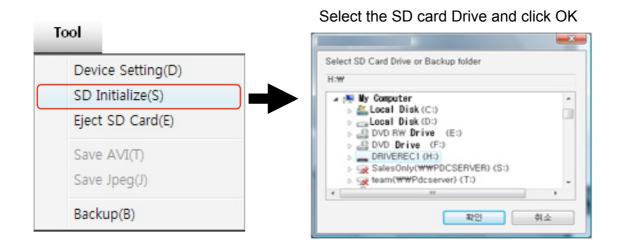
Turn on the SVC100/SVC100GPS and press the [RECORD] button to check the unit is recording properly.

If the SVC100/SVC100GPS records as normal, turn off the power.

Insert the SD card into your PC and initialise it using the software once you have successfully tested the SVC100/SVC100GPS.

### To initialise the SD card.

Run the 'SmartWitness' software and select [Tool] > [SD initialize]



# **APPENDIX (Upgrade SVC100/SVC100GPS)**

### 4. Uninstall the old version of PC Viewer from your PC

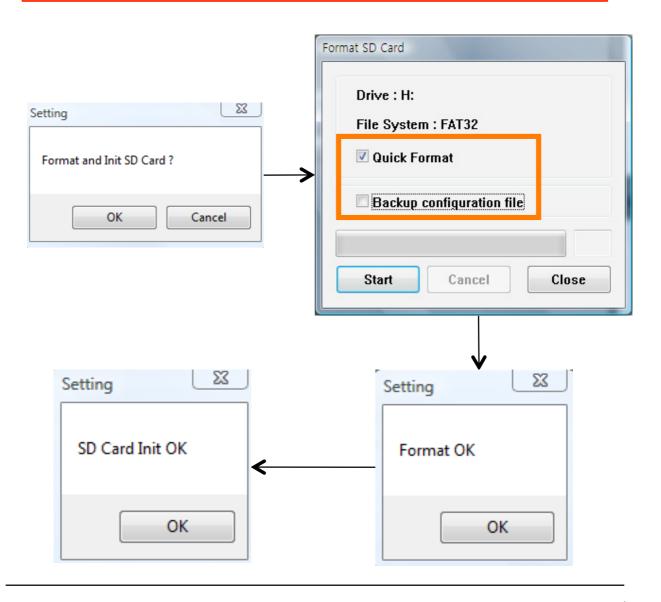
PC Windows [Start] > [Control panel] And uninstall [SmartWitness]

### 5. Install the new PC Viewer

Run setup.exe and install the new SmartWitness X.X.X.X

Click "OK" and check [Quick Format] and un-check [Backup configuration file] as below,

NOTE: After installation the new PC Viewer, initialise the SD card. The new software will automatically be copied to [pcsw] folder on the SD card.



# Manufactured exclusively for:



www.smartwitness.com

Smart Witness is a Division of Xvision

