



SVC1080-LCS VEHICLE JOURNEY RECORDER



USER GUIDE

v1.1

- Thank you for purchasing the SVC1080-LCS Journey Recorder.
- Please ensure that you read and understand this USER GUIDE before installation.
- Please save the USER GUIDE in an easily accessible location.
- You can download the PC or MAC Viewer Software from:
<http://support.smartwitness.com>

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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.

Caution

**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

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 range 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.**

- 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 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



**SVC1080-LCS
Vehicle Recorder**



Power Cable



Key for SD cover (2ea)



Wire Splice clips (5ea)



**3M Adhesive for Windshield mount
(2ea)**



Angle Stopper and screw (2ea)



Quick Start Guide



SD Card

*PC software is located on the SD card in the "software" folder or can be downloaded online at support.smartwitness.com (Mac software also available online)

INTRODUCTION

FRONT

Bracket

Camera Lens

Lock



Angle Lock by screw



Left side

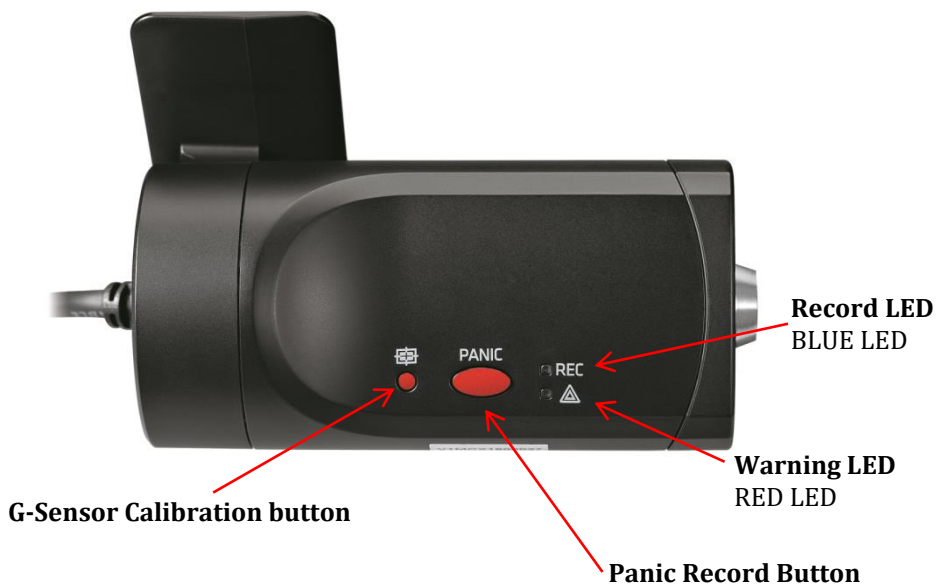


SD
Memory
Card Slot







Right Side

INTRODUCTION

REAR



Power Cable

	Black (Ground)
	Red (Power, IGN+)
	White (External panic button+)
	Blue (External panic button -)
	Green (Alarm out1), Low(0V) to High (5V) 2seconds
	Yellow (Alarm out2), Low(0V) to High (5V) 2seconds

External Panic Button (optional Item)

Cable length: 2m90cm
Button Case Size: 18 x39x10 mm



FUNCTIONS

Automatic Booting

Once the SVC1080-LCS has been wired to your car power source the SVC1080-LCS will be boot up, this will take around 1 minute for the unit to be ready to record.

The default setting for record is the continuous recording at 30fps, 720P resolution. This setting allows for separate event and panic recordings. On this setting the SD card storage may be used up quicker and depending on the settings, overwrite or stop recording when full. To avoid losing valuable data, back up data to a separate storage or PC device after any incidents.

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.

Continuous Record (When Record mode set as “Continuous”)

This is the default mode for recording. In this setting the unit will begin recording after boot up and record the entire time the unit is powered.

The resolution and frame rates can be set as per your requirements. You can change the configuration of the recording using the SVC1080-LCS Software. To do this, please see the ‘Settings’ section on page 15.

Parking mode: If G-Sensor value is not changed during 5 minutes, the record frame rate will be automatically change to 1FPS. When a vehicle starts to move then the parking mode will switch off automatically and start the continuous recording immediately
This “Parking mode” can be set when the record mode set as “Continuous”.

Event Record (When Record mode set as “Event”)

The unit will record when triggered by either an impact or a push of the ‘PANIC’ button. In such events, 15 seconds of pre and post events will be stored separately on the SD card.

NOTE:

When recording at 30fps, (1080P HD) resolution, separate event files (Shock and Panic) will not be stored. If you wish to keep separate event files, change the settings to a lower resolution or frame rate.
For example, 1080P @ 10fps or 720P @ 30fps

FUNCTIONS

G-Sensor Calibration

1. Install the unit and park the vehicle on a flat surface .
2. Turn on the unit and press the blue button one time.
3. Then calibration will be done with “beep” sound.

Built-in power backup (Super Capacitor)

When power to the unit is interrupted, SVC1080-LCS creates the last file using the internal Super Capacitor.

Time and Date

There are no time and date settings as the SVC1080-LCS gets this information from the GPS satellites.

SD Memory Card Format

Please format [initialize] the SD card using the PC viewer software.

Safely Removal SD Card

There are 2 ways to remove the SD card, the first requires the vehicle to be powered down and the second you can safely remove the SD with the vehicle is powered on. Please see below details for both methods.

Power off vehicle and take out SD memory card

Turn off the power and then check the BLUE LED light. Once the LED light is not on, you can now safely remove the SD memory card.

Take out and Insert SD memory card during power on

[SD un-mount] Press and hold the small red button for 3 seconds and release it. When the blue LED goes solid ON, then you can remove the SD card safely.

[SD re-mount] Insert the SD card into the SVC1080-LCS, then press and hold the small red button for 3 seconds. This will cause the SVC1080-LCS to reboot.



LEDs & BUZZER Specification

BLUE LED (RECORD)

The blue LED shows the power is on.

During the continuous recording: blue LED will be on 4seconds and off 1second.

During the event recording: blue LED will be on 0.5 second and off 0.5 second.

During the Parking mode: blue LED will be on 8seconds and off 1second.

RED LED (Warning LED)

The red LED will be turned on when system failure.

Buzzer

A 'Beep' sound will occur when event recording starts (this can be turned off, if required by uncheck "Event Beep" at Settings)

Status	BLUE LED	RED LED	BUZZER
Booting	on	on	off
Upgrade	heartbeat	heartbeat	off
Continuous recording	4sec / 1sec	off	off
Triggered Event recording	0.5sec on/off	off	100msec on
SD fault	off	0.5 sec on/off	off
System fault	on	on	off
SD unmount	on	off	0.1sec on 2 times
SD reset	on	off	0.1sec on 2 times
SD Full	off	2sec / 2sec	off
G-Sensor calibration	-	-	0.1sec on 1 time
Parking Mode	8sec / 1sec	off	off
Power off	off	off	off

INSTALLATION

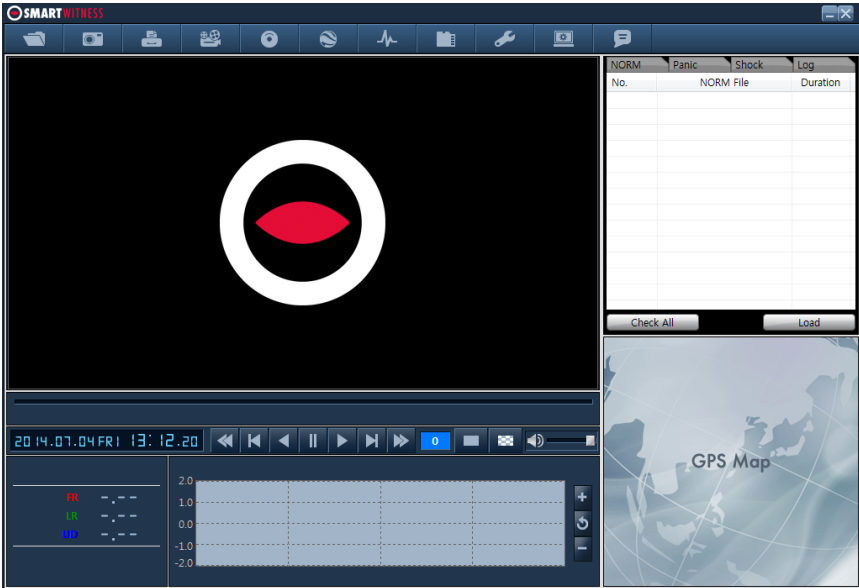
WARNING: SmartWitness installations should be performed by a qualified individual or installation professional only. Working with a vehicle's power system can be dangerous to both you and your vehicle. This installation is intended only to be a guide since vehicle designs and power/input sources can vary significantly from vehicle to vehicle.

If you need to schedule a professional installation service in the USA for your SmartWitness device(s), please visit <http://smartwitness.com/scheduleinstall> and submit the online form.

Please download installation guide here:

<https://smartwitness.com/us/pdf/SVC1080LCS-Install-Guide.pdf>

PC Viewer Software



PC SYSTEM REQUIREMENT

Recommended PC specifications for PC Viewer Software

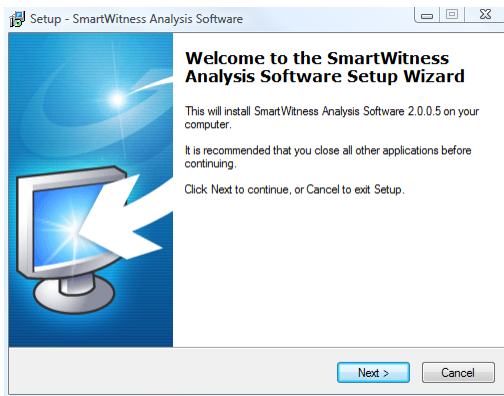
OS	Windows Vista. Windows 7, Windows 8/8.1, 10
CPU	Core 2 Duo 2.5GHz or Higher
RAM	2GB or Higher
Interface	SD Memory Card Reader
HDD Free space	Install : 55MB or Higher Backup : 4GB or Higher
Display	1024 x 768 pixel/True Color or higher

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

SOFTWARE INSTALLATION

The PC Viewer Software is on the provided SD card. (Also available on our website.)

1. Connect the SD card into your PC (if your computer does not have an SD card slot use the USB SD card reader) and open the “My Computer”
2. Right-click the “FHDREC1” drive and select [Open]
3. Double click [SETUP.EXE] in the [pcsw] folder.
4. Select the language and then follow the dialog box prompts.



5. The “SmartWitness SVC1080-LCS” icon will be displayed on your desktop.



NOTE: To Un-install the PC Viewer Software

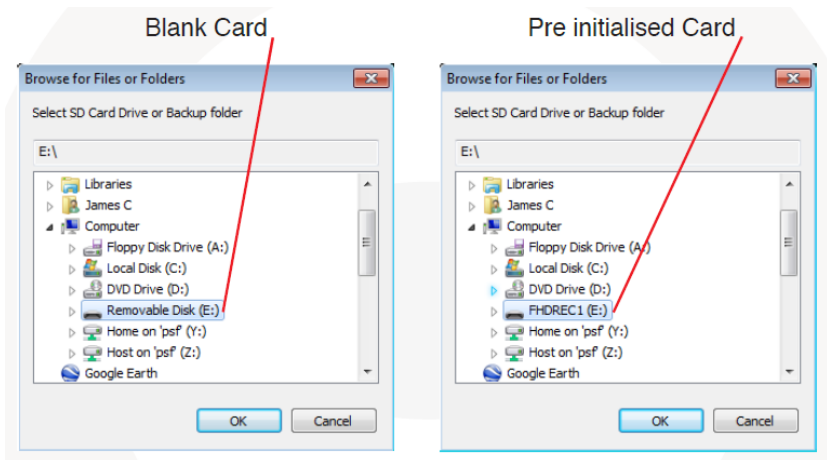
Make sure the program is not running and open the ‘Control Panel’
Select ‘Remove Program’ and remove the PC Viewer Software.

Initialize SD Card

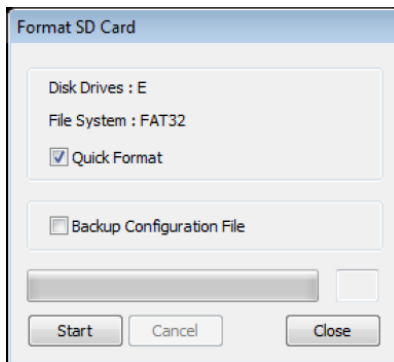


initialize SD Card' Icon

To initialize the SD card, click on the above icon and you will be presented with the following screen to choose the card to initialize. Click 'Ok' when selected.



On the following screen, check the 'Quick Format' button and uncheck the 'Backup Configuration File' and click 'Start' to begin initialisation.



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

Settings



[Settings] icon

This option allows you to adjust the settings on the recorder. Click the above icon to bring up the screen below.

Record Mode

Event (Automatically starts recording by G-sensor or Panic button.)

Continuous (Always recording when powered by DC 12/24V.)

Resolution

VGA (640x480), 720P (1280x720), 1080p HD (1920x1080).

Frame Rate

Adjust the frame rate from 30fps, 15fps, 10fps, 1fps

Password

Enter 4 numbers from 1000 to 9999 as a password

Overwrite Recordings

This function allows the unit to overwrite old files on the SD Card automatically. You can overwrite the continuous, panic or G-Sensor recorded files.

Record Audio

Turn the audio recording on or off.

Settings

Parking Mode

Set Record Mode as Continuous and then you can check the Parking Mode box. If G-Sensor value does not change for 5 minutes, the record frame rate will be automatically change to 1FPS. When a vehicle starts to move then the parking mode will switch off automatically and start the continuous recording immediately

Event Beep

Turn on the event beep to make the unit 'beep' when the G-sensor has been triggered or the Panic button has been pressed.

G-Sensor Sensitivity

The shock sensor sensitivity can be set to 'Simple setting Mode' or 'Custom'. Set to easy allows you to set the sensitivity to 9 (High), 5 (Medium) or 1 (Low). In custom set, you can set 3 different shock sensor values individually.

Auto adjust G-Sensor to Vehicle speed

Once it checked, SVC1080-LCS will automatically decrease the G-Sensor sensitivity at higher vehicle speeds to compensate for the naturally added G-forces that are experienced due to velocity.

GPS Record Time

Select the total log file size.

About 2days (80MB)

About 7days (280MB)

SD Error Beep

Turn on the SD Error beep to make the unit 'beep' when the SD Error occurred.

Alarm Out1

High voltage 5V out when G-sensor or Panic triggered. (Low to High 2 seconds)

Alarm Out2

High voltage 5V out when SD error occurred. (Low to High 2 seconds)

Date/Time

Automatically synchronize with GPS time. However this manual time setting is also available to use the unit at the inside of building.

Vehicle ID

Set a vehicle ID for the unit.

Init SD Card (Initialize SD Card)

All video and GPS data will be deleted and create necessary folders and copy necessary files into the SD card.

Initialize Data

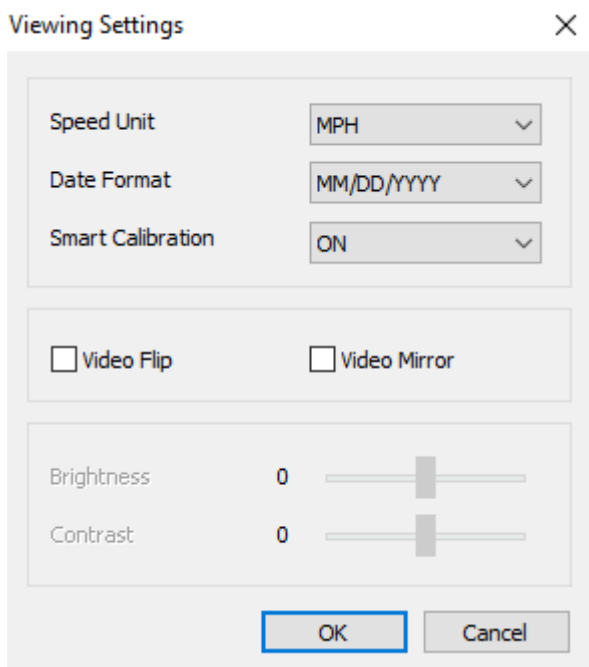
Click this option to delete all recorded files on the SD card. Please backup all data files you wish to keep before doing this.

PC Viewer Software Viewing Settings



Viewing settings

This setting is for the PC Viewer Software itself. To set the Recorder, refer to page 15.



The 'speed' unit & 'date' formats can be changed with this Viewing settings.

Video Flip, Video Mirror, Brightness and Contrast can be set in this Viewing Settings

Auto Calibration: This option is for the G-Sensor graph display.

OFF: Original G-Sensor graph.

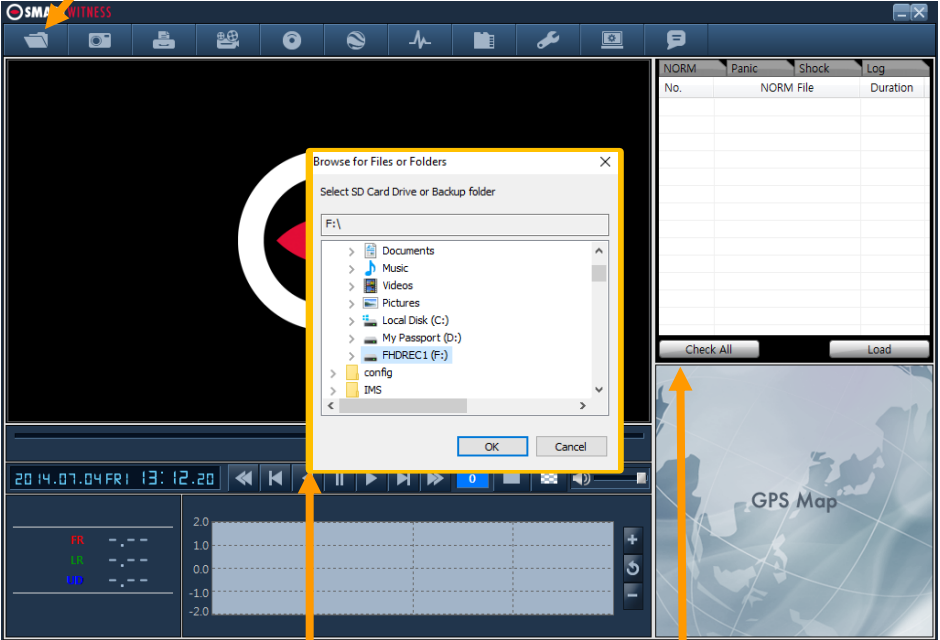
ON: Calibrated G-Sensor graph. Shows the differential value of each axis.

Open the SD card

Insert the SD card into your PC



① Click "Select SD Card" icon



② Select the SD card drive and click "OK"

③ Click "Check All" and then click "Load"

Select tab to load the Panic Events or G-sensor Events or Log files.

NORM	Panic	Shock	Log
No.	NORM File		Duration

PLAYBACK OSD Functions



No	Icon	Description
1	Video Display	Shows video data
2	Date & Time	Displays time and date of video data
3	Driving Info	Shows speed, accelerometer values on the 3-axes and GPS co-ordinates
4	Video Controls	Video playback controls, playback speed options: x1, x2, x4, x8, x16
5	Accelerometer Graph	Displays accelerometer values on graph
6	Display and sound controls	Select display to be continuous or frame by frame and sound level
7	Map	Shows location and route using Google Maps
8	Data File List	Select files to view: Continuous, panic, shock, Photo

LOG FILE PLAYBACK

Select [LOG] 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 can be set from 2 days, to 31days. The log data overwrites the oldest data. Using this log data, you can use the data sorting function which helps to find a specific data like more than 80mph(or 80km), for example.

The screenshot displays the SMARTWITNESS software interface. On the left, a video feed shows a road view. Below it, vehicle data is shown: Date Time: 2014.07.07 15:26:32, Latitude: 37° 24' 48.03" N, Longitude: 127° 08' 12.90" E, Speed: 9 km/h [W], Altitude: 51 m. A central table lists log records:

No.	Date Time	Record
1	2014/07/07 15:26:21	
2	2014/07/07 15:26:54	
3	2014/07/07 15:30:10	

Below the table is a 'Search Log' input field. To the right, a table shows log file details:

No.	LOG File	Duration
<input checked="" type="checkbox"/> 1	2014.07.07 15:23:49	9 Min

Below this are 'Check All' and 'Load' buttons. A 'G-sensor graph' shows a multi-axis waveform. At the bottom, a speedometer shows 9 km/h and a map displays the current location.

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)

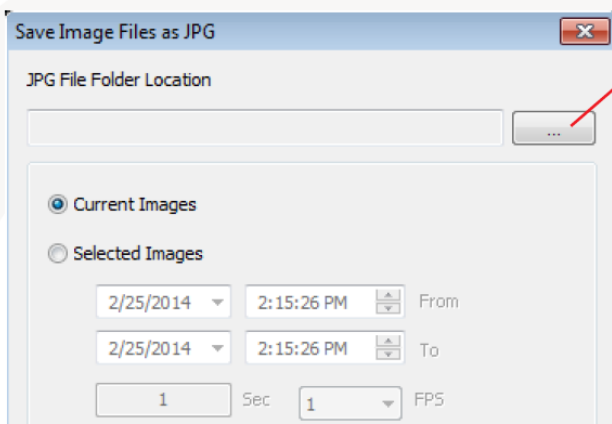
G sensor Z value: Up & Down (like prominence and depression)

Save JPEG and AVI File

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



'Save jpg' Icon

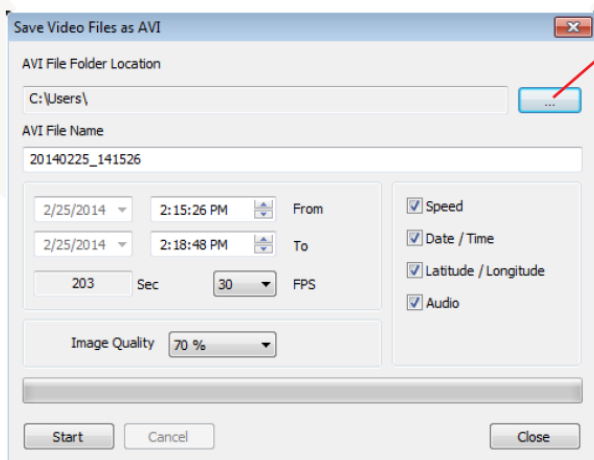


Click the '...' to choose a save location

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



'Save AVI' Icon



Click the '...' to choose a save location

Cloud Transfer Feature

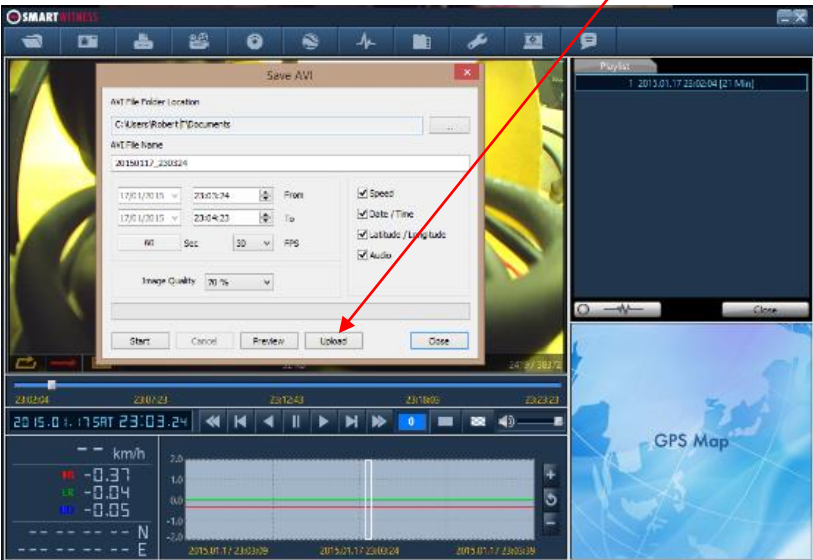
We offer a cloud service, this is used to share or transfer large video files to colleagues, your insurance company or any other person you wish.

SmartWitness supports this FTP server as a free service, so all that is required for customers to do is to create the backup MP4/AVI file and press the "Upload" button.

A form will open which you can enter more information about the video incident and then you can click send to email a link to the recipient(s) to download the video file.

*These recordings are saved on our server for 7 days only, so the video link should be clicked before then

Step 1 Create the backup AVI file and then click upload



You can watch walkthrough video here:

<https://www.youtube.com/watch?v=5OkxDmr5V5k>

Cloud Backup Continued

Step 2 Once upload is complete you will get a message saying complete and then an email will arrive to the recipient email(s) you provided in the form.



The email will contain a link to your uploaded backed up video footage, remember this footage will only be stored on our servers for 7 days from the upload date.

SVC1080LCA [1234567] Evidence upload is completed.
SmartWitness-SVC1080LCA <cloud@smartwitness.com>

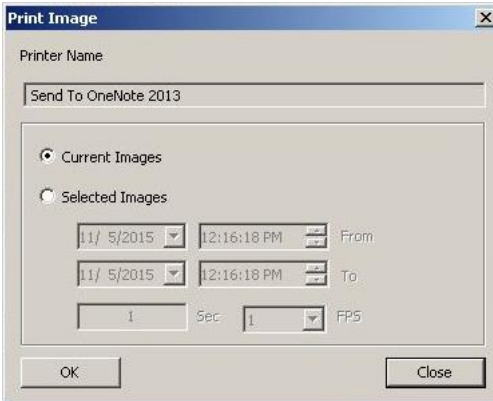
File : http://cloud.smartwitness.com/20140729_170000_1234567_33af85706c.avi
Registration Number : 1234567
www.smartwitness.com

Print Image

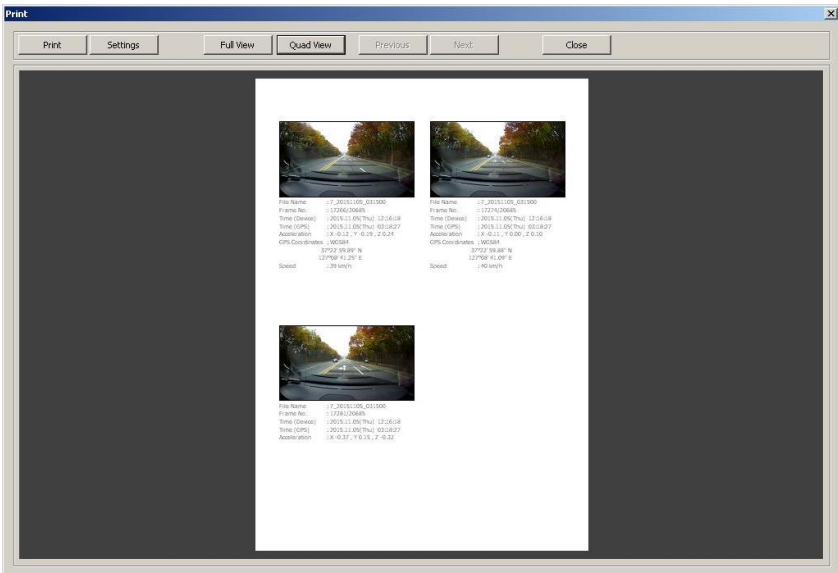
Pause the playback and click “Print Image” icon.



“Print Image” icon



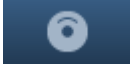
Choose to print the current image or select another image from the same file you are in by searching the time and date.



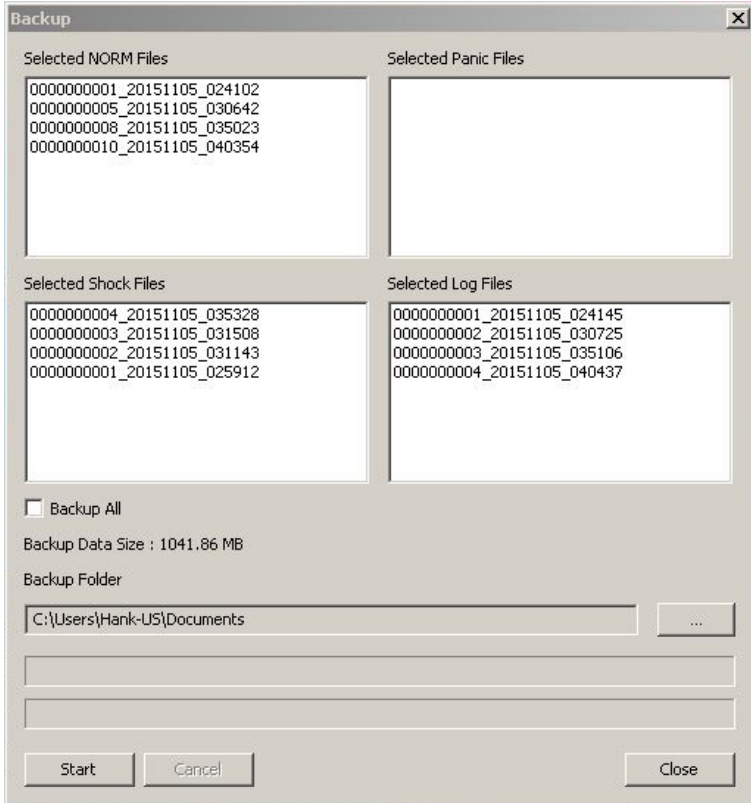
See a preview of the printed image and alter the printer settings to change paper size/orientation etc.

Backing up files

Select “Cont”, “Panic”. “Event”, “Log” tap and select the files first. And then click the Backup icon to backup the files to the PC.



“Backup” icon



To backup the whole data from the SD card to the PC, check the “Backup All” option.

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.

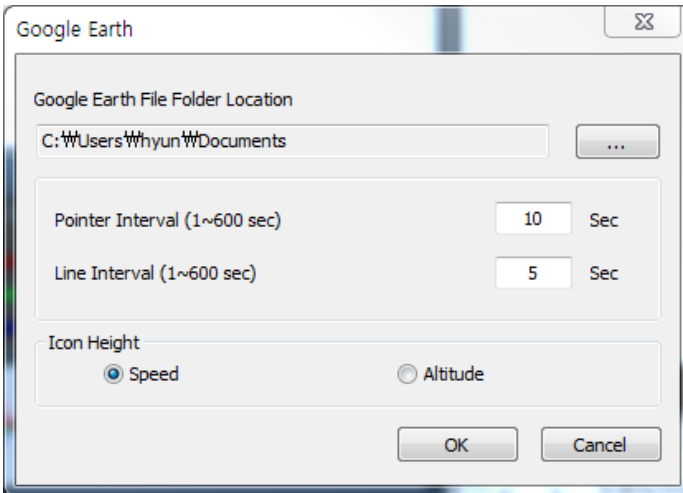
STEP 1. Install Google Earth on your PC. (<http://www.google.com/earth/>)

STEP 2. Check the log file



NORM	Panic	Shock	Log
No.	LOG File		Duration
<input checked="" type="checkbox"/>	1	2014.07.07 15:23:49	9 Min

STEP 3. Click the Google Earth Icon



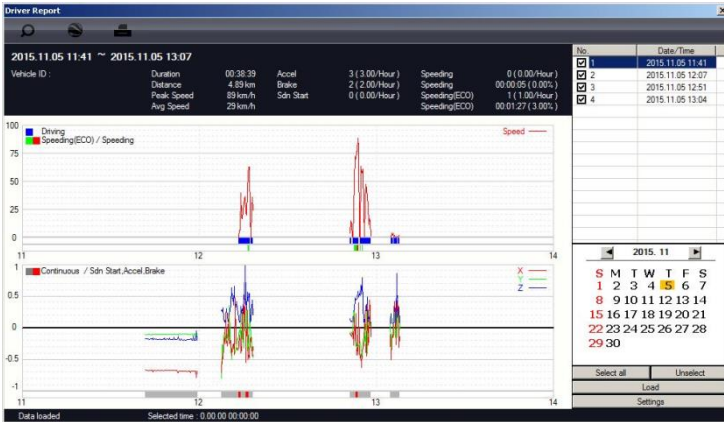
Select the folder location of the KML file.
Click “OK” and the route will then be shown on Google Earth.
We recommend you use Google Earth Version 5.0 or above.

Driver Report

During the viewing, click the “Driver Report” icon to view the below Driver Report Screen.



“Driver Report” icon



From the calendar in the bottom right corner, choose the date you wish to inspect among the dates highlighted in blue. Dates that are not highlighted in blue, do not have the relevant data.

All data from the selected date will be automatically chosen from the selection on the right. You can unselect data that you do not need. When data is selected, click the ‘Load’ button to load the data.

A summary of information can be found on the top of the window including; vehicle ID, user ID, total duration and total distance. In addition you can analyze the number of over-accelerations, over-decelerations, sharp turns, over-speeding, over-RPMs that exceeded the pre-set limit.

Top Graph

The top graph shows the speed (red) and below are three indicator bars that show driving patterns. The first bar shows driving (blue) and idling (grey) and the second bar shows the speed.

White means that the vehicle was within both the permitted speed and eco-speed limit, green means above eco-speed but within permitted speed limit, and red means above the legal speed limit. The last bar shows the state of the engine where white means the engine is off, blue means it is running properly within the pre-set RPM limit, and red means over acceleration, i.e. exceeding the pre-set RPM limit.

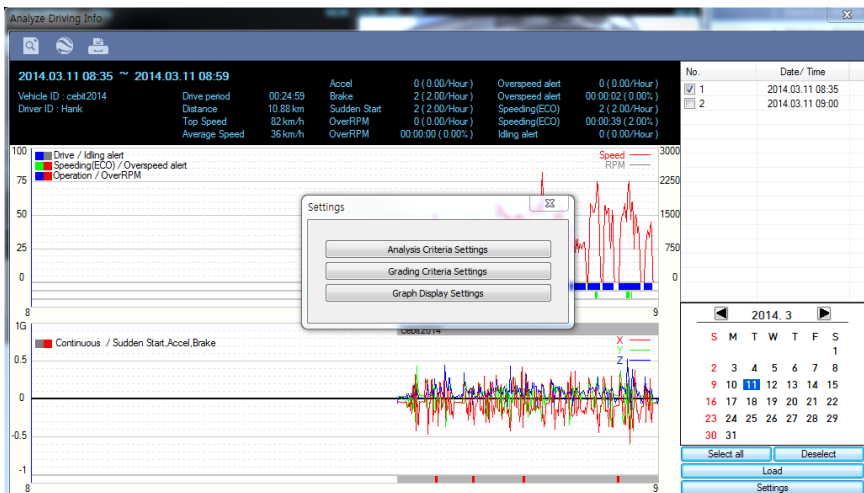
Analysis Criteria Settings

Bottom Graph

The lower graph shows the G-sensors. The x-axis is in red, y-axis in blue, and z-axis is green.

The indicator bar below shows jolts in the G-sensor values, i.e. G-sensor values that exceed the pre-set limit. Grey means normal conditions, red means jolts in the x-axis direction, blue in the y-axis direction, and green in the z-axis direction.

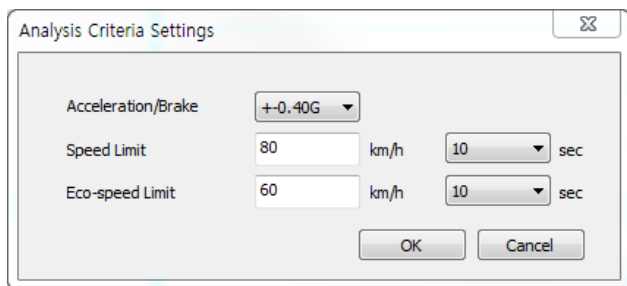
Configurations for this function can be set by clicking the [Setting] button in the right bottom corner. The limits for G-sensor, permitted speeding, excessive RPM, and eco-speeding can be set under the 'Analysis' tab and ranges for the two graphs can be set under the 'Component' tab.



Analysis Criteria Settings

Analysis Criteria Settings

This option allows you to make changes to the analysis criteria settings. To access this menu, go to 'settings' click 'analysis criteria settings' and you will be presented with the following screen.



The screenshot shows a dialog box titled "Analysis Criteria Settings" with a close button in the top right corner. The dialog contains three rows of settings:

- Acceleration/Brake:** A dropdown menu set to "+-0.40G".
- Speed Limit:** A text input field containing "80" followed by "km/h", and a dropdown menu set to "10" followed by "sec".
- Eco-speed Limit:** A text input field containing "60" followed by "km/h", and a dropdown menu set to "10" followed by "sec".

At the bottom of the dialog are two buttons: "OK" and "Cancel".

Acceleration/Brake

This sets the criteria for excessive acceleration and brake. This is measured in G-force, so if acceleration or deceleration exceeds the G-force limit, it will be counted as excessive.

Speed Limit

This option allows you to set the criteria for excessive speeding. You can set the value limits between 0-999km/h. In the example above, the limit has been set to 80km/h for 10 seconds, so therefore if the vehicle goes over this speed for over 10 seconds, it will count as excessive speeding. If you go over that speed but for under 10 seconds, it will not count as excessive speeding.

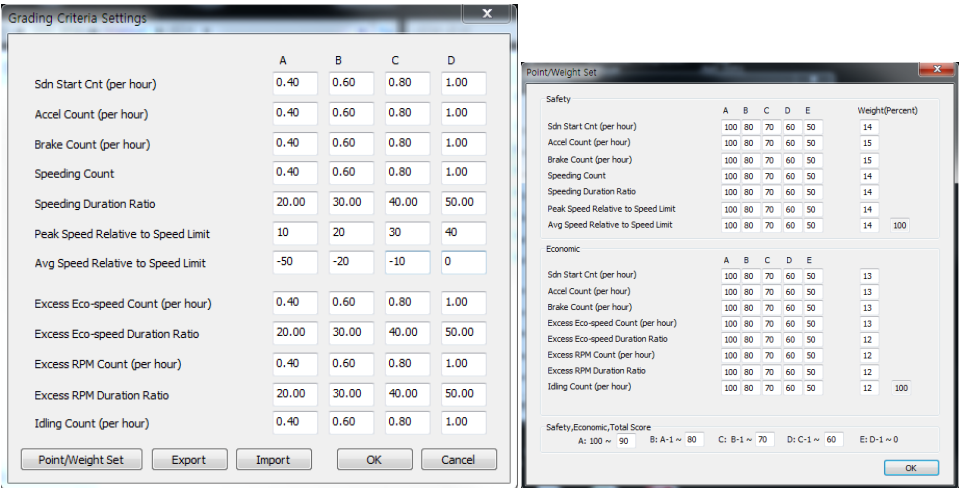
Eco-speed Limit

Set the criteria for eco-speed limit. The eco-speed limit can be set higher or lower than the speed limit and can be set from 0-999 km/h and the time can be set by selecting the drop down menu. In the example, the limit has been set to 60km/h for 10 seconds. If this limit is exceeded, it will count as excessive.

Grading Criteria Settings

The criteria for grading driver's safety and eco-score can be set in these settings. The safety and eco-grading criteria have 7 and 8 separate components respectively. A weighted average of these component scored are used to determine an overall score.

Grading for each criteria is set to 4 levels (A,B,C & D) and if the driver's score is lower then they will receive an F for fail. Each criteria can be given a different weight depending on the importance you place on each one but all weights must add up to 100. To get into this menu, enter the 'Settings' menu, and click the 'Grading Criteria Settings'.



Sudden Start Count

This option sets the grading criteria the amount of sudden starts per hour. The assessment of this criteria is based on the (acceleration/deceleration). For example, if a driver drove for 8 hours in one day and had 4 sudden starts during that time, their score for that criteria will be 0.5 and based on the settings in the image above, they would be graded as B.

This criteria is used in both safety and eco grading, but the weights can be set separately.

Grading Criteria Settings

Acceleration Count

This option sets the grading criteria the amount of times there is a sudden acceleration per hour. The assessment of this criteria is based on the (acceleration/ deceleration). For example, if a driver drove for 8 hours in one day and had 4 sudden accelerations during that time, their score for that criteria will be 0.5 and based on the settings in the image on the previous page, they would be graded as B.

This criteria is used in both safety and eco grading, but the weights can be set separately.

Brake Count

This option sets the grading criteria the amount of times there is a sudden deceleration per hour. The assessment of this criteria is based on the (acceleration/ deceleration). For example, if a driver drove for 8 hours in one day and had 4 sudden decelerations during that time, their score for that criteria will be 0.5 and based on the settings in the image on the previous page, they would be graded as B.

This criteria is used in both safety and eco grading, but the weights can be set separately.

Speeding Count

This option sets the grading criteria the amount of times the driver exceeds the speeding limit for the amount of time set in the 'criteria settings'. The overall value is set as a ratio of the amount of time speeding to the time driving as a percentage. For example, if a driver drove 8 hours in a day but was speeding for 1 hour in total, their score for this criteria would be 12.5% and based on the image on the previous page, they would be graded as A.

This criteria is used in both safety and eco grading, but the weights can be set separately.

Speeding Duration Ratio

This option sets the grading criteria for speeding and is calculated as a ratio of time speeding and is set as a percentage. For example, if a driver drove 8 hours in a day but was exceeding the speed limit for 1 hour, their score for this criteria would be 12.5%, they would be graded as A.

The assessment of this criteria is based on the eco-speed limit option in the 'Analysis Criteria Setting'. This criteria is used for eco grading only.

Grading Criteria Settings

Peak Speed Relative to Speed Limit (kmh/mph)

This option sets the grading criteria for speeding and calculates the peak speed the driver drove, relative to the speed limit. The value can be set from 0-999km/h. The assessment of this criteria is based on the speed limit option in the 'Analysis Criteria Setting'. This criteria is used for safety grading.

Average Speed Relative to Speed Limit (kmh/mph)

This option sets the grading criteria for speeding and calculates the average speed the driver drove, relative to the speed limit. The value can be set from 0-999km/h.

The assessment of this criteria is based on the speed limit option in the 'Analysis Criteria Setting'. This criteria is used for safety grading.

Excess Eco-speed Count

This option sets the grading criteria for eco speeding and is calculated per hour. For example, if a driver drove 8 hours in a day but was exceeding the eco-speed limit 4 times, their score for this criteria would be 0.5, they would be graded as B. The assessment of this criteria is based on the eco-speed limit option in the 'Analysis Criteria Setting'.

This criteria is used for eco grading only.

Excess Eco-speed Duration Ratio

This option sets the grading criteria for eco speeding and is calculated as a ratio of time speeding and is set as a percentage. For example, if a driver drove 8 hours in a day but was exceeding the eco-speed limit for 1 hour, their score for this criteria would be 12.5%, they would be graded as A.

The assessment of this criteria is based on the eco-speed limit option in the 'Analysis Criteria Setting'. This criteria is used for eco grading only.

PLEASE NOTE

Once the grading criteria settings has been adjusted and saved, it can be exported into an 'ini' file and then imported into another version of the software.

This means that you can set each SVC1080-LCS quicker than manually adjusting the settings in each version of the software.

Grading Method

Grades: Each criteria is given a grade of A, B, C or D and anything lower is given a grade of F for fail. Therefore each grade will be assigned a limit that if exceed, the score will go down to the next grade. If the driver exceeds the limit for the D grade, they will be given an F.

Weights: Each criteria can be given a different weight when calculating the safety and eco grades to provide flexibility to the operator in assessment.

Grading & Scores: Each grade is assigned a score; A=100, B=80, C=70, D=60, F=50. With this score, the safety and eco-scores are assessed by a weighted average of the relevant criteria scores.

The total score is an average of the safety and eco scores.

Below is an example of how scores can be calculated for each criteria.

For example, lets say two drivers received the below scores in each criteria. With these set weights, their grades would come out as shown below.

Eco grade	Weight	Driver 1	Driver 2
Sudden Start Count	20	A(100)	C(70)
Acceleration Count	10	A(100)	A(100)
Brake Count	20	C(70)	A(100)
Speeding Count	20	A(100)	C(70)
Speeding Duration Ratio	10	C(70)	A(100)
Peak Speed Relative to Speed Limit	10	A(100)	A(100)
Average Speed Relative to Speed Limit	10	A(100)	A(100)
Excess Eco-speed Count		91	88
Excess Eco-speed Duration Ratio		A	B

[Driver 1]

Eco score = $20 \times 100 / 100 + 10 \times 100 / 100 + 20 \times 70 / 100 + 20 \times 100 / 100 + 10 \times 70 / 100 + 10 \times 100 / 100 + 10 \times 100 / 100 = 91 = \text{Eco grade A}$

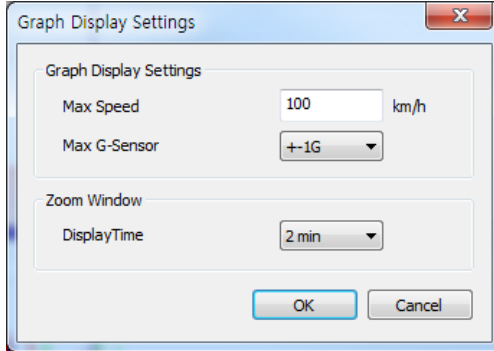
[Driver 2]

Eco score = $20 \times 70 / 100 + 10 \times 100 / 100 + 20 \times 100 / 100 + 20 \times 70 / 100 + 10 \times 100 / 100 + 10 \times 100 / 100 + 10 \times 100 / 100 = 88 = \text{Eco grade B}$

Although both drivers received a C in two different criteria, each score is weighted, and therefore the eco grades differed.

Graph Display Settings

The results of the driver analysis can be shown on a graph. To adjust the graph display, click on the 'Graph Display Settings' option.



Max Speed: Set the graphs upper speed limit (0-999 km/h)

Max G-Sensor: Set the graphs upper G-Sensor limit, by selecting a value from the drop down menu (+-1G, +-2G, +-3G)

Zoom Window Display Time: Set the time scale for the graph to be in zoom mode by selecting a value from the drop down menu (1 min ~ 10 mins).

The graph settings will applied to the following window displays: Manual Mode, Data Search, Driving Data and the Zoom Graph.

Default settings are: Max Speed (100 km/h), Max G-Sensor (+-1G), Max RPM (3000).

SPECIFICATION

Image sensor	1/3" 3 Megapixel CMOS Sensor
Angle of View	170°
Video resolution	1080p HD (1920x1080) 720P (1280x720), VGA (640x480)
Recording Speed	Up to 30 fps
Recording Mode	Continuous , Event (shock sensor, Panic button)
Recording time	See recording table below
Memory	Supports Cards of up to 32GB (Class 10)
GPS/GLONASS	Internal GPS /GLONASS
G-Sensor	Internal 3-axis G-sensor
RTC	Internal battery
Buzzer	Recording start, error
Audio	Internal Microphone
LED	Record,(Blue LED) Warning(Red LED)
Super Capacitor	Enable recording of last file and shut down
PC software	Supplied
Power input	12V to 24V permanent wiring kit
Power consumption	6W
Size (LxØ)	100mm X 50mm
Weight	175g (include 1m cable)
Operation Temp.	-10°C~60°C

APPENDIX - Recording time table

RECORDING TIME TABLE

Resolution	FPS	32GB	16GB	8GB
1080p HD (1920x1080)	30	12 hours	6 hours	3 hours
	15	19 hours	9 hours	5 hours
	10	24 hours	12 hours	6 hours
	5	35 hours	17 hours	9 hours
	1	58 hours	29 hours	15 hours
720p (1280x720)	30	21 hours	11 hours	5 hours
	15	36 hours	18 hours	9 hours
	10	46 hours	23 hours	12 hours
	5	73 hours	36 hours	18 hours
	1	132 hours	66 hours	33 hours
VGA (640x480)	30	51 hours	25 hours	13 hours
	15	92 hours	46 hours	23 hours
	10	126 hours	63 hours	31 hours
	5	199 hours	100 hours	50 hours
	1	372 hours	186 hours	93 hours

This table is a guideline only.

Actual results may vary depending on a variety of factors on the road.

The total recording file number cannot exceed 1,000.

If the unit records more than 1,000 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 1,000.

So the maximum recording time is 167 hours.

1,000 files x 10 minutes = 10,000 minutes = 167 hours

SD Card Maintenance

Over the last few years SD cards have become very popular, as a convenient recording consumable.

However if they are not correctly maintained their lifespan can be reduced, and the file structure could become corrupt, resulting in issues. Maintaining SD cards is quick and easy, and 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 SD and full size SD cards require formatting regularly.

How regularly you format your cards will depend on the size of card and usage, please see the table below for guidelines:

SD Card Size	Manufacturers Recommended Format Frequency	Minimum Format Frequency (Any less than this could cause data loss/corruption or early card failure)		
		<i>Light Usage (1-2 hours a day or low fps / events)</i>	<i>Medium Usage (2-5 hours a day or medium fps / events)</i>	<i>Heavy Usage (5+ hours a day or high fps / events)</i>
4GB	Once a month	Once a year	Once a year	Twice a year
16GB	Once a month	Once a year	Twice a year	Every 3 months
32GB	Once a month	Once a year	Every 3 months	Once a month

Some Smart Witness models have a feature that will detect an SD card that has a problem and alert the user by making a beeping noise. If this happens, format the SD card in the unit by following the instructions provided with the unit.

Cards can also be formatted quickly and easily using a Windows PC Software.

APPENDIX MAC OS Playback Software

Currently we only support MAC OS through our SVC1080 software; you can download this from our website <http://support.smartwitness.com>

This can be used for playback of video footage only on the SVC1080-LCS.

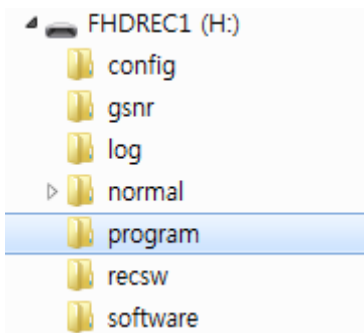
For settings and configuration this needs to be done using our Windows software as shown earlier in the manual.

APPENDIX (Firmware Upgrade)

NOTE: To get the upgrade firmware, please contact your local distributor, you can also check the <http://support.smartwitness.com> website

1. Prepare Firmware

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



Copy “xxxxxxx_x.x.x.bin” file to the SD card [program] folder.

2. Upgrade SVC1080-LCS

Insert the prepared SD card to SVC1080-LCA 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 30 seconds.

Warning: Do not turn off the power during upgrading. If the upgrade fails, the SVC1080-LCA unit should be returned to your local distributor.

Once the upgrading is finished, the unit will automatically turn off and on the power.


If SVC1080-LCA 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 unit.

APPENDIX (Firmware Upgrade continued)

3. Uninstall the old version of Analysis Software from your PC

PC Windows [Start] > [Control panel]

And uninstall  SVC1080-LCA Analysis Software 1.0.2.5


SmartWitness Group.

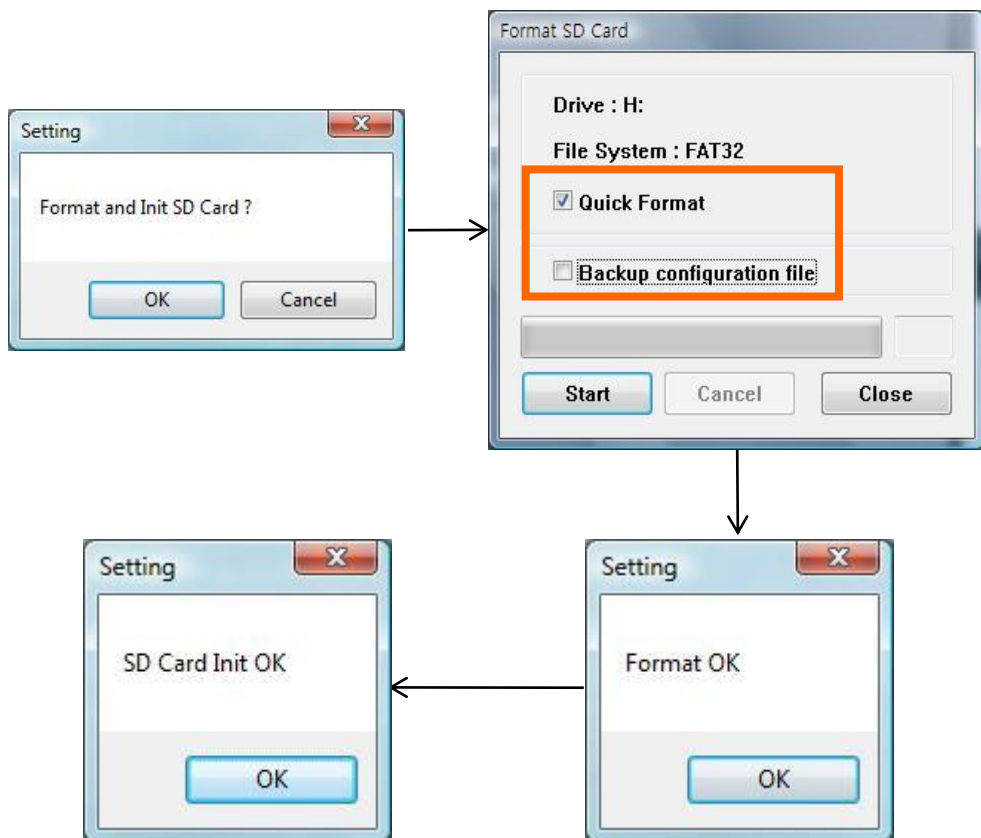
4. Install the new Analysis Software

Run setup.exe and install the new PC Viewer X.X.X.X

NOTE: After installation the new Smart Witness Analysis Software, initialise the SD card. The new software will automatically be copied to [Software] folder on the SD card.

To initialise the SD card.

Run the 'SmartWitness SVC1080-LCA' software and select 



Technical Support & Warranty

TECHNICAL SUPPORT

For Technical Support, please contact your local distributor or submit a ticket at <http://support.smartwitness.com>.

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.



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