Automated Drive Recorder

User Manual

Main Features

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

Continuous recording

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

Pre and post event recording

When impact or unusual acceleration or deceleration is detected by the built-in G-Sensor and has exceeded the preset limit or one activates the emergency record button, the recorded video data is locked-in and is erased only by an authorized party. Event data records 1 minute before and 1 minute after. (User may set pre-event time 1 minute, 2 minutes or 3 minutes). Stored event recording data in SD card will not be erased unless user cancels the event (in-car), or the files are erased by the person reviewing the SD card.

Playback of video/audio data

The recorded data can be played back using the provided playback software which is found on the SD card. The Record resolution is 640x480 and maximum 15 frames per a second.

Data analysis

The recorded data can be easily analyzed for speed, vehicle location and direction of travel; including impact by using the Drive Recorder that is found on conveniently on the supplied SD card.

Contents

Safety Instructions

Take note of the information below and be sure to read the following for correct use and care of the product.

Do not clean the product with water or volatile solvents. This may damage the product, cause a fire or electric shock.	Do not apply excessive shock or never insert foreign materials into the product. This may cause product damage, a fire or electric shock.
Video quality is affected by lighting conditions. GPS is affected by signal receipt. Nighttime or use in tunnels affects system operation	Do not arbitrarily change the product location. This may cause a GPS communication error.
Do not disassemble, repair or modify the product. This voids the warranty and where we take no responsibility for product damage or problems caused by the user.	Any excessive window tinting may cause an unclear or distorted image on playback. First record and then play back the video to see if the recorded video is acceptable.
Do not cover the camera lens with any materials or objects. This may affect recording quality.	Once installed, do not manipulate the product while you're driving a car. This may cause a traffic accident.
Ensure that the capacity of the SD Card is not exceeded. A full SD card will not allow one to record manual alarms or G-sensor based triggers.	Use only the provided cables and specified power input. A cable not supplied by the manufacturer may cause product damage, a fire or electric shock.
Do not obstruct the view of the product through the front windshield. The GPS receiver may not work properly.	Only use factory approved parts. Use the approved power cable. Contact your authorized Reseller for assistance.

Components

Fixed-type Holder

User Manual

SD Card*

Extra Fuse

Body

External Alarm Button

Cigarette Lighter Plug for Power Supply

*Depends on the model ordered, SD card cannot provide.

Technical Specifications

Item	Specification	
Camera Type	1.3 Mega Pixel CMOS sensor	
Video Resolution	VGA (640 x 480) up to 15 frames per second	
Audio	Built-in microphone	
GPS	Built-in GPS module	
Automatic Event Sensor, Alarm input	G-sensor (3-axis), Manual external alarm trigger	
Memory	SD Card (512M to 16GB) *	
Power Input	Body	DC 5V to recording unit
	Cigarette Lighter Plug	DC 12V to 24V input

Part Numbers

No.	Name	Description
1	**Power Connection Port**	Used to connect the power cord with the unit.
2	**Camera**	Used to record scenes through the windshield.
3	**Mounting connection**	Used to mate with the mount.
4	**SD Card Slot**	Used to insert the SD Card into unit.
5	**Event Record Protection Cancel Button**	Used to cancel protection of all the emergency recording data.
6	**Manual Record Button**	Used to perform an emergency recording.
7	**Drive Recorder Status Display**	Used to display the status of Drive Recorder, speed or local time by using English text or symbols.
8	**Built-in Speaker**	Provides audio output for chime and any information.
9	**Volume Control**	Used to adjust the audio volume for chime and information.

SD Card related information

Do Not use this SD Card for any other purpose.
If you use the SD card for any other purpose, any detected unrelated files can cause a fatal error.
Use only the provided SD Card with the unit to ensure proper operation. Consult your Reseller or the Company website for SD Card compatibility. In case that your computer does not support the SD SDHC2.0 memory card standard, use a separate SDHC2.0 USB reader. It is recommended to periodically format the SD Card to prevent SD card errors over a long period of time*.
*Depends on the usage period, please format reguraly by SD formatter. Reguraly format protect error and make use SD card longer.

(!) Caution

- After formatting the SD card set the time zone in System configuration (see page 14).
- If you do not configure the settings, system initialization may take up to 10 minutes and where the time and time zone may not match.
- In case of formatting the SD Card, the existing recorded video files are all deleted so be sure to perform a backup for any important video files

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Memory specifications

* This is an average time. (Recorded at daytime in the downtown area)

Capacities of SD Memory	Maximum Storage Time	Maximum Event Recording Storage Time	Number of Event Generated Recordings according to the Preset Recording Time		
			1min	2min	3min
512MB	30 min	16 min	6	5	4
1GB	60 min	32 min	12	10	8
2GB	120 min	56 min	23	17	14
4GB	240 min	80 min	30	25	20
8GB	490 min	160 min	80	60	40
16GB	1000 min	320 min	120	100	80

* Time varies depending on the amount of motion seen by the camera & lighting conditions
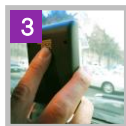
Installation:

1. Mounting the Unit
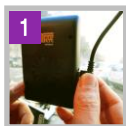

Insert the fixed-type holder into the guide.

Determine the location to attach the mount to the windshield or other surface area.

Clean the mounting surface and remove the red film from tape the mount. Tightly press in place the mount to the windshield.

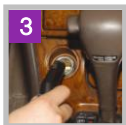* Use isopropyl alcohol to clean the mounting surface of windshield, and leave it to dry.

2. Connecting the power cord

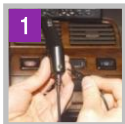Connect the power cord to the cable on the right of the unit. Pull the cable up towards the upper part of the unit.
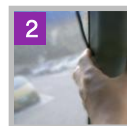
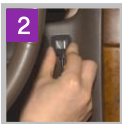Arrange the power cord neatly after inserting it in the chink of the door near the driver or passenger seat.

Insert the power cord into the Cigarette Lighter Plug.

3. Installing the External Remote button

1 Insert the external input cable into the external input connection port on the upper part of the Cigarette Lighter Plug.

2 After removing the adhesive tape attached on the external button, attach the button to the desired position.

* Changing Cigarjack fuse

1 Opens a connection part of the cigar cable, and pick out the fuse.

2 Replace with the new fuse and tighten the connection part.

Tips before Using the Product

Unit Preparation for video recording

1. Take the SD card out of the recorder. Access the Player.exe menu and enter the set up mode, setting time zone, daylight savings time and other settings (as noted in the programming section of the manual). Re-insert the SD card in the recorder. Following the installation instructions. When you connect the unit to power, or turn the engine on, "dR Init" appears on the LED display on the unit, indicating that the video recorder is initializing. The LED display window will show a series of numbers, this indicates that GPS satellites are beginning acquired.

2. In about 25 seconds after power on, longer if one has not set the local time zone on the SD card, the unit completes initializing and a "ding dong" chime is heard along with the words "Hello". The unit may still show a series of numbers followed by and "GPS FINE" will appears. This adjusts the unit further for increased accuracy.

3. After the chime, the Drive Recorder starts continuous recording with GPS data. The unit is recording video and audio as well as vehicle speed, direction and location, when: a) when the vehicle is stopped, the unit shows local time; b) when the vehicle is in motion, it displays the vehicle's speed.

Continous recording while driving

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

2. When the capacity of the SD Card has been reached, the oldest files are overwritten for continuous recording. The data recorded by either the unit's internal G-Sensor or external manual record button are not overwritten. This alarm data must be erased by the User with the SD card inserted in the computer, erasing event data in the DATA folder.

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

Event recording while driving

1. The recorded event data is locked-in and is erased only by an authorized party.

2. When the capacity of the number of event has exceeded the limit, the older data overwritten by the latest file.

3. The capacity of the number of event data is determined by the preset event recording time on the Drive Recorder.

Functions of each part

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

Emergency record button (Video image removal protection)
In order to record driver detected scenes of interest, press the emergency record (E) button to record. This stores and records 1 minute before and 1 minute after the driver pressing this event button. (The User may set pre-event time 1 minute, 2 minutes or 3 minutes). These events will not be erased unless the User cancels the capture by pressing the M button or the file is erased using the software. (A remote button is also provided for this function for covert recording) The recording time is determined in prerecording time.
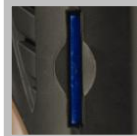
SD Card slot
Before inserting or removing the SD Card, TURN OFF the power of the unit. Make sure you should set the time zone in Drive Recorder configuration before start. To replace the SD card with a new one, format the new SD card as FAT32.
* Copy "Player" folder from used SD card and paste to new SD card.

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

Volume control
Adjust the audio volume level for driver's convenience. When you turn it left (<<), it increases the volume while a right (>>) turn decreases the volume.

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

LED Display window
The LED display Shows the current status of Drive Recorder and other features, for further understanding of displayed messages please refer to the table on page 18.

Using T-eye Player: Playback, SD Card and Initial System Set-Up

Minimum Requirements

Component	Requirement
CPU	Pentium 4 / 1GHz processor or higher
Memory	512 MB of RAM or higher
Operating system	Microsoft Windows XP Home Edition or higher
Graphics	DirectX 8.1b or higher
Hard disk drive space	200 MB or higher

*When it runs on Windows Vista computer for the first time, run the Drive Recorder in administrator mode.

Insert the SD Card into the SD Card reader and connect it to a computer. Double-click TeyePlayer.exe in the PLAYER folder. The following window will appears
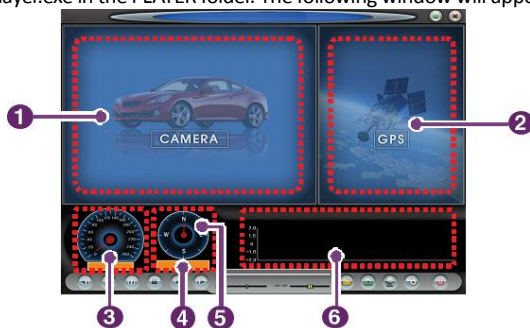
No.	Name	Description
1	**View Display**	Displays the video images recorded by the forward facing camera.
2	**Map Display**	Displays the linked map.
3	**Speedometer**	Displays the speed of your vehicle.
4	**GPS Coordinate**	Displays the coordinates (latitude and longitude) of the vehicle.
5	**Compass**	Displays the vehicle's direction of travel.
6	**Analyzer**	Displays impact detected by the G-Sensor sensor with a graph.

Buttons

Button	Function	Button	Function
	Jumps to the previous frame		Opens a file
	Reverse Playback		Converts the file into an AVI format
	Pauses the Playback		Links the recorded data with map
	Stops Playback		Accesses the System Set Up Menu
	Playback, normal speed		Exit, closes the program
	Jumps to the next frame		Hide/closes the window

Controls

Volume control   **Playback speed control**

* Volume control: It adjusts the volume level while playing back the recorded data.
* Playback speed control: It adjusts the video playback speed.
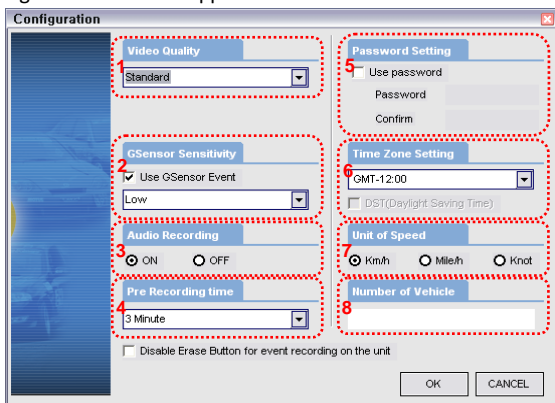
Interfacing with a GIS/City map

Drive Recorder simultaneously records the GPS data while driving so you can check the driver's route on the map. Click the GIS/MAP icon ( ) on the lower right corner. The map window appears for the user to see the vehicle location and travel onto a city map.

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

System configuration

User will be able to see the Drive Recorder screen by double clicking on "Player.exe". Click on the System Setup configuration icon (⚙) located at the lower right corner. The following window will then appear.

No.	Name	Description
1	Video Quality	Sets the video recording quality. **(Default: Standard)**
2	G-Sensor Sensitivity	Sets the sensitivity of G-Sensor. **(Default: Low)** If you do not check "Use G-Sensor" menu, event data (detected by the built-in G-Sensor or activated the emergency record button) will not be locked for reviewing.
3	Audio Recording	Enables or Disables the audio record function.
4	Pre-Event Recording Time	Sets the time to record the previous scenes before the event. (Ex. in case of 3 minutes, T-eye records scenes for previous 3 minutes and next 1 minute for a manual record event.) If you check the "Do not use to delete event button" menu, the Emergency Record Button on the device does not work.
5	Password Setting	Sets any Password to be used to access the recorded data. **(Default: none)**
6	Time Zone Setting	Sets the time zone for the user. **(Ex. USA , New York — GMT-05:00)**
7	Unit for Speed	Sets the unit for speed as Km/h, Mile/h or Knot/h.
8	Vehicle ID Number	Sets the license plate number or fleet vehicle ID number associated with the vehicle where the SD card is to be installed in.

Playback

1. With the Playback interface Open: After clicking the folder icon 🗁 on the lower right corner of the viewer, click <u>Change Directory</u> to select the location for the recorded data. Typically the first time you do this all the files are located on the SD card. If saved elsewhere, use this utility to explore your computer to locate the file for playback.

(Recorded data will be stored in the "data" folder.)

2. When the file list appears, double-click the desired file to play back.
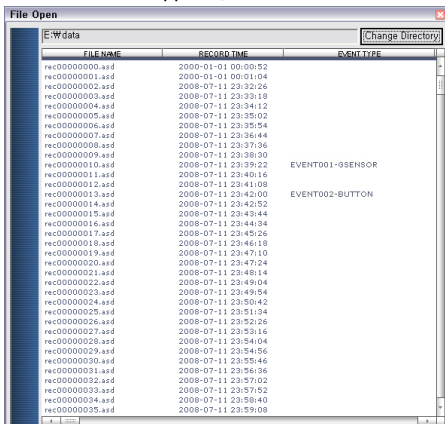
* Click the list name to sort by File Name, Record Time or Event Type.

- ◆ FILE NAME: File name of the recorded video images.
- ◆ RECORD TIME: Date and time when the images have been recorded.
- ◆ EVENT TYPE: Displays the recording type (Continuous recording/event button recording/remote event button recording).
- ◆ Click the list name to sort by File Name, Record Time or Event Type.

| Event Type	Description
Continuous recording	No nomenclature applied. Clicking on this shows the recorded file when driving.
Manual Event Recording (EVENTXX-BUTTON)	Annotated with the word **BUTTON**. This allows you to locate files that were marked by the driver using the push button on the recorder or the remote event pushbutton.
G Sensor (shock sensor) automatic recording (EVENTXX-GSENSOR)	Annotated with **G-SENSOR**. This data is recorded when any impact, sudden acceleration, or accident is detected.

Converting the Authenticated files into AVI file format

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

1. Click the AVI conversion button (🔘) at the start of video clip position where you want to convert the images into the AVI file format. The video playback stops and the AVI conversion window appear.
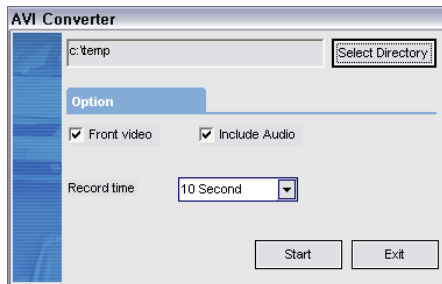
2. Set the following options from the window and click <u>Start</u>.
   1) AVI storage directory
   2) Selection of previous/next video and whether or not to include audio data
   3) AVI recording time
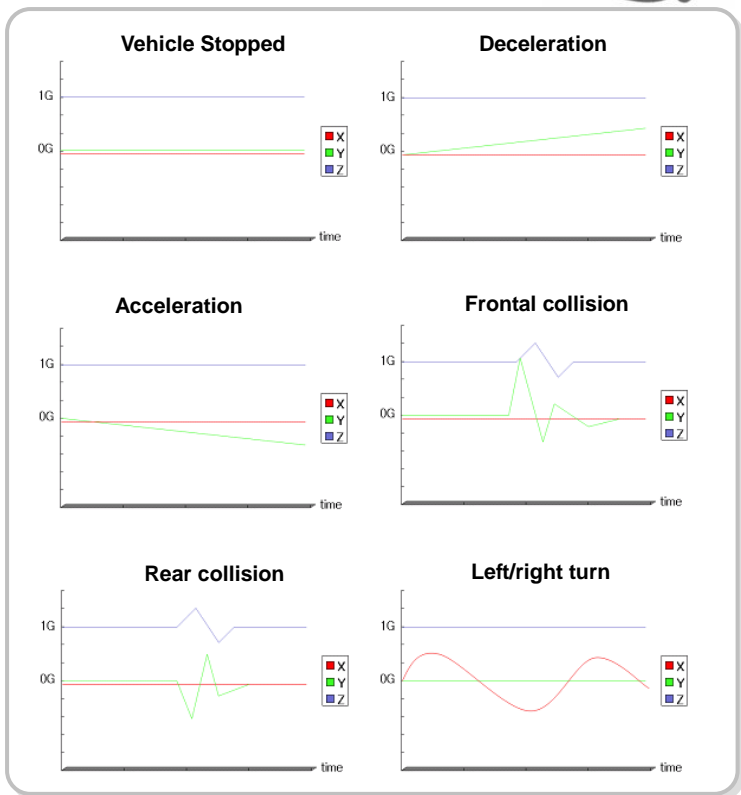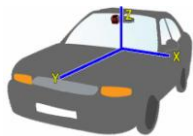
3. The conversion progress appears as follows:
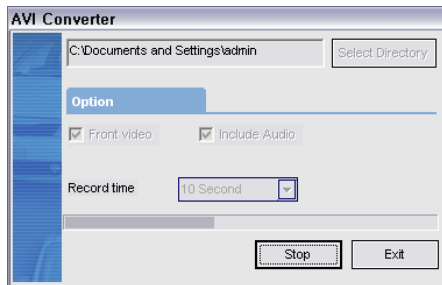
* The AVI files cannot be created on a portable disk such as SD Card or USB memory stick but only on a hard disk first due to speed required for the conversion.

Analyzing G-SENSOR data

The G-sensor (Gravity Sensor) furnishes data for X, Y and Z axis and stores it along with the other recorded data on the SD card. When using the playback software, this information is represented in a graphic format. The resulting graph may be used to analysis the driving condition and driver's habits. Depending on the type of the vehicle, the amplitude of the curve of shown may vary.

* X axis: left and right of the vehicle
* Y axis: front and rear of the vehicle
* Z axis: top and bottom of the vehicle

Displaying Drive Recorder status using the built-in Display

Status	Event	Sound or Status	Display
System Initialization after application of power to the unit.	Initialization after power applied	No sound.	[dr][Init]
	When SD Card is not inserted	Chime is heard ("Ding dong") from the speaker. (Turn off the power, re-insert the SD Card, supply power again.)	[Err][Sd]
	GPS update Error	Resolution: remove power, wait 10 seconds, re-apply power.	[Err0]
	While GPS is updating	GPS data is now being received and is being downloaded.	[dbUP]
G-sensor automatic activation, or User driven Event Button/ Remote Event Button activation.	Event recording	One chime	⌐_⌐⌐
	Number of events recorded (5) by the system and available	Two chimes	[FULL][---5] ~ [---1]
	Event recording is not available as not enough memory is available	Three chimes	[FULL][----]
	Event captured	Chime	

Information and Status Display

You can see information or the corresponding status is displayed.

Status	Event	Sound or Status	Display
DR initialization is completed	Greeting	Chime	HELLO
	Satellite information (Satellite reception quality)	No sound	5-45
	GPS loading	No sound	GPS FINE

Firmware and Playback SW Update

1. After removing the SD Card from the unit, install the SD card slot on the computer.

2. If your computer doesn't have SD card slot, connect first a memory card reader to the USB port on your computer.

3. After downloading the update file, copy it to the update directory on the SD Card. (If update directory folder is not present in the SD Card, create a new folder and change the folder name as 'update'. Then, try to copy it again.)

4. After downloading the Playback SW file, copy it to the player directory on the SD Card.

5. After installing the SD Card on the body and connecting the power, update automatically starts.

> ❗ **Caution**
> Do not remove the cigarette lighter plug or interrupt power to the unit or stop the engine during update.