ATTACHMENT E.

- **User Manual** -

RoadScan DTW User Guide

March 15, 2010

PLK TECHNOLOGIES

Before using the product……

This product is vehicle assistance system with a built in GPS Receiver. The device senses impact when occurred while the vehicle is moving or stopped and stores the images of before and after the accident or impact. It also stores the acceleration information of the vehicle. (Please, place the GPS antenna at a place where good reception can be made.)
- This product and the user's manual are subject to change without notice for improved performance.
- Please follow warnings, cautions and restrictions within the user manual for the driver's/user's safety and any prevention of property loss.

About the trademark related terms stated within this manual
* Google Map refers to the map service provided by Google™.
* SD CARD refers to.

I. About Product and Use

Please read before use of the product!
[The following instructions are given for the safety of the users and prevention from any property loss.]
1. Do not operate the device during driving.
- Do not stare or operate the device while driving on the road.
- Keep your eyes on the road and make sure you completely stop at a safe place before operation. This will prevent any risks from traffic accidents.

2. Do not randomly disassemble or modify the product.
- Do not disassemble or apply any impact to this product, since it may cause the product to malfunction.
- When the product has been randomly disassembled or modified the free-of-charge repair service will not be available.

3. Place the product in ideal temperature.
- The product is manufactured to operate in ideal temperature.
- When the product is not operated in ideal temperature, this may disable or adversely affect the performance of the product.

4. Do not force to take out the SD card while the product is operating.
- The product may malfunction, if the SD card is removed during operation.

5. Do not apply any shock or insert any foreign substances.
- Do not apply any excessive force or external pressure on the product.
- Do not apply any excessive force to the LCD screen using a sharp material. This may cause
   damage on the screen or a Newton Ring, which may bring the product to malfunction.
- Foreign substances, such as, water, liquids and coins can be a reason for malfunctioning.
Remove the power cable and wipe it clean with a soft, dry cloth.
- Do not use benzene, thinner or acetone on the product, this may cause damage, such as,
discoloration on the surface of the product.

6. Do not use while the engine is turned off for a long period of time.
- Using the product for a long period time, while the engine is turned off, may cause the battery
to discharge.

7. In case of an accident, please secure a witness along with the image of the product.

The user is responsible for any damage and accidents caused by nonconforming to traffic
regulations and improper use of the product or failure to follow instructions for the product.

Caution

Please read. This is for the user's safety. Any incidents regarding the situations below will be the
user's responsibility and no compensation will be made.
- All rights for the software, hardware and so on within this product belongs to PLK
TECHNOLOGIES. Activities, such as, copying, distribution and modification without notice to PLK
TECHNOLOGIES may face penalties under intellectual property protection policies.
- The S/W for this product may change without notice for quality improvement.
- The S/W upgrade of this product can change according to the policies of PLK TECHNOLOGIES,
   and any policy changes will be notified through the company website beforehand.

1. Driving

Please make sure the vehicle has completely stopped at a safe place before operating the product.
Operation during driving may cause accidents.
▶ May cause accidents.
▶ The user is responsible for any damages caused by improper use of the product or failure to
follow instructions for the product.
Attaching the product that may block the sight of the driver or disturb driving may cause

accidents.

▶ Do not install where the airbag may deploy.

Keep away from other electronic devices, which may cause interference with this product.

Adjust the volume so that it does not adversely affect driving.

▶ May cause accidents.

Install the cradle so that it does not drop or move during driving.

▶ The product dropping while driving may cause accidents.

2. GPS

Install the GPS antenna where there is good reception.

① It may take a longer period of time (initial reception period) for receiving the current location when using the product for the first time or not using it for a great period of time (more than 3 days).

② GPS signals can have low reception from climate and interference issues, such as, rain and fog.

③ The ideal temperature for GPS reception is 0~60℃. To prevent any problems, maintain ideal temperature even in cold and hot weathers, such as, winter and summer.

3. LCD

① The LCD of this product is not a touch screen, therefore, the product cannot be operated by touching the screen.

② Keep the LCD away from inflammable material, which may cause the screen to melt.

③ Leaving the product in low temperature for long period of time may cause malfunction.

④ Leaving the product in high temperature for long period of time may cause malfunction.

4. Other

① Do not remove the SD card while in use.

▶ This may cause malfunctioning of the product and bring damage to the SD card and the product.

The following use may cause damage to the card data.

· When applying static or electronic interference to the SD card or the device

· When submerging the SD card in water, or bending, applying excessive force on the SD card

· When operating the PC improperly

· When continuously using the device after the interior battery has fully discharged

  When removing or inserting the SD CARD during operation

Always turn the power off when removing and inserting the SD card.

② Rated voltage is 12~24V.

③ Do not touch the power component of the device with wet hands or expose the interior to water.

▶ May cause damage, fire and electrical shock.

④ Do not use in high temperatures or wet environments.

▶ Install and locate where direct sunlight can be avoided, since it may cause overheating and damage on the device.

⑤ Do not use while the engine is turned off for a long period of time. When the engine is turned off, operations may cause the battery discharge

⑥ Do not excessively force the power cable to bend or put heavy object on the cable.

⑦ Do not block the air vents or openings with objects, such as, towels or clothes.

▶ Internal temperature may rise that can cause fire.

⑧ Do not allow children to operate the product alone.

▶ May cause damage on the product or injury to the child.

▶ Sudden stops may cause collision with the device and bring physical injuries.

List of Components

1) Product Body
2) 8P Power Cable
3) Exterior GPS
4) SD Card
5) SD Card Key
6) SD Card Reader
7) Exterior Storage Switch
8) Product Manual
9) Power board

Component terminologies and functions
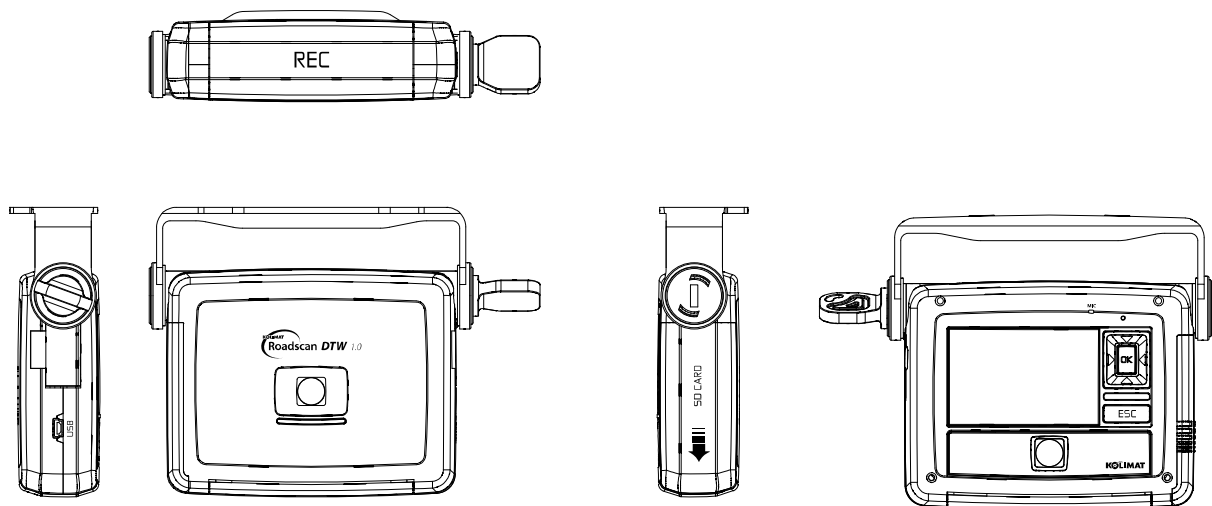
1. Front

   Camera, SD card cover, REC button, product disassembling handle, cradle, cradle anchor bolt, LCD, touch panel, DC power, speaker hole, reset key hole

2. SD Card Cover Interior

   24 Pin Connector, SD Card Slot, AV-OUT Socket

II. Installation and Hardware

1. RoadScan DTW Product Terminologies and Functions
   A. Smart GPS

   Smart GPS(Global Positioning System) receives the current location of the vehicle and time from the satellite and stores the route of the vehicle with the time.

   B. Interior Battery

   The Lithium-Polymer Battery, installed within the device, is an emergency-use power that enables safely storing the accident image when the vehicle power is OFF.

   C. RTC Function

   RTC(Real Time Clock) helps record the precise storing date and time of the image, when the GPS time cannot be received. When the vehicle power is OFF, the interior battery is utilized and can store the date and time for, as long as, 30 days.

   D. 2CH Camera

   2 cameras are installed in the front of and inside the vehicle to store the image. The cameras can be located in the front (1CH), inside (1CH) or front and inside (2CH) according to the user's choice.

   E. Infrared LED(6 items)

   Helps record inside the vehicle disregarding the brightness within the vehicle. Always maintains a bright recording even when the inside of the vehicle is dark. The infrared LED is always turned ON. (There is no OFF option)

   F. Accelorometer

   The 3-axis accelerometer is a sensor that measures and records the impulse value (±2g) of the vehicle when an accident occurs.

   G. 802.11 b/g Wireless LAN

   Wireless LAN is installed so that the recorded images can be transferred to a PC at all times.
   (Contents may change after functions are fixed)

H. Relay Output Guide (Timing, level, operation status, etc)

When a traffic accident occurs, the cable connected to the vehicle turns a 'HI' signal to a 'LOW' signal.

(Contents may be added or removed after the usage of functions are fixed)

2. Installation

A. Installment Notice

i. When installing on the vehicle, make sure the status is on "KEY OFF" during wiring.

Also, perform installation while the product is separated from the power cable.

ii. Install the product where it does not block the driver's sight.

iii. Install the product so that it is parallel with the ground when facing the front.

B. Product Installation

i. Installation Location

The standard installation location is the top or bottom of the vehicle's front window.

Please locate the product where it does not block the front view and cause interference with other objects.

ii. Installation Procedure

Before installing the product, use a dry cloth to wipe the glass surface where the device will be attached.

① Peel the double-sided tape that is attached to the cradle.

② Attach the cradle onto the location where the device should locate.

③ Turn the head bolt counter clockwise using the head bolt key.
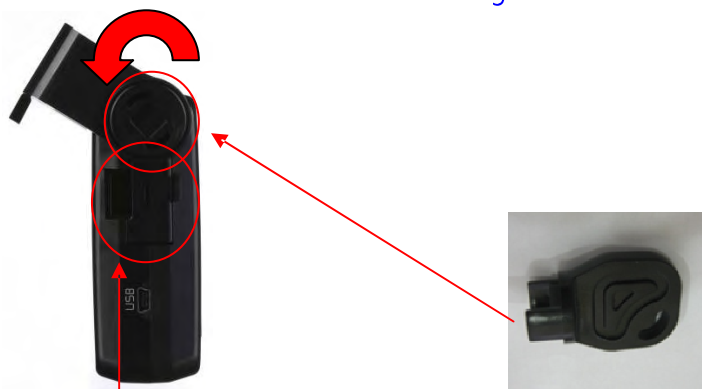
Pull the "Power component hook cover" up front to open the cover

Push in one side of the "8P Power Wire" into the power jack until a 'click' sound occurs. Close the cover afterwards.

④ Push in the other side of the "8P Power Wire" into the power jack of the "Vehicle Power Board", which has finished wiring, until a 'click' sound occurs.
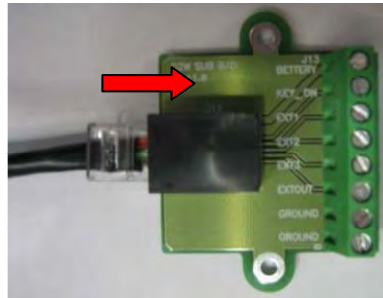
⑤ Turn the vehicle KEY to "KEY ON" and check whether the LCD screen is on.

C. Power wire organizing(SUB PCB Instructions) => Vehicle power board connection instructions

* For wiring, if you do not have sufficient knowledge on circuits within the vehicle, you must ask a technician for assistance.

i. Use a "–¡° driver to turn the bolt on top of the terminal block counter clockwise
Then, push in the stripped wire inside the bottom of the terminal block
Then, use the "–¡° driver to fix the bolt on top of the terminal block clockwise to adjust the wire.

ii. Connection between the terminal block and vehicle wire
      When connecting the vehicle wire, it is normally performed inside the fuse box.
      (When performing wiring on the vehicle side, connect to the back of the fuse)
      ① BATTERY   =>   Vehicle Battery '+'
      ② KEY_ON   =>   Vehicle KEY ON Power(IG)
      ③ EXT1   =>   Vehicle Signal 1(Vehicle output)
      ④ EXT2   =>   Vehicle Signal 2(Vehicle output)
      ⑤ EXT3   =>   Vehicle Signal 3(Vehicle output)
      ⑥ EXTOUT   =>   Vehicle Signal (Vehicle input)
      ⑦ , ⑧GROUND => Vehicle Battery '-'(Connect at the same time)

iii. After removing the cover of the double-sided tape on the back of the vehicle
      power board, attach onto the space around the interior fuse box.
      (If necessary, place screw bolts into the holes of the wing part of the vehicle
      power board)
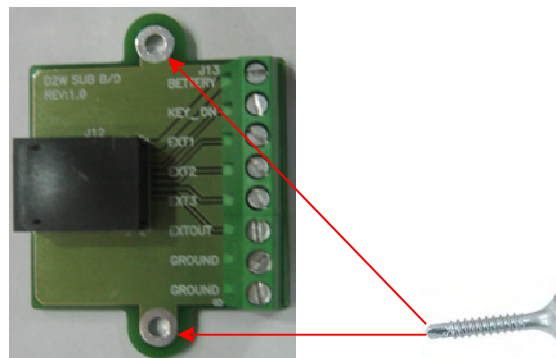
D. Inserting and Removing SD Card

Turn the head bolt counter clockwise using the head bolt key
Push the SD CARD cover down in the (¡é) direction

Insert SD CARD

Push the SD CARD inside the SD CARD slot so that the label shows

until a 'click' sound occurs.

Remove SD CARD

Press the SD CARD until a 'click' sound occurs,

the SD CARD will partially pop out.

Then take the SD CARD out of the slot.

III.   Functions and Operations

1.   RoadScan DTW Function

i.   Basic Operations

Stores the camera images in 6 kinds of events, each event image has a save time of -20 ~ 0 ~ +20 seconds. While the recordings are being stored, the time, acceleration and GPS information also is saved.

ii.   Store Recording

[Normal Event]

When an impact is applied to the vehicle, the Event is fired at an acceleration level set to 0.0~0.9G. The Event frequency can be modified in the Settings menu of the PC manager according to the memory of the SD card. Also, an overwrite function exists for frequencies that has more than set-up.

[Critical Event]

When an impact is applied to the vehicle, the Event is fired at an acceleration level set to 1.0 ~ 2.0G. The Event frequency can be modified in the Settings menu of the PC manager according to the memory of the SD card. Also, an overwrite function exists for frequencies that has more than set-up.

[Button Event]

In emergencies or crucial situations, the image can be recorded and saved by pressing the REC button.

[Trigger 1, 2, 3 Event]

Similar to the Button Event, the image can be saved with 3 other methods.

iii.   Vehicle Operation Recording Function

The route of the vehicle is recorded along with the speed, location and time during the whole vehicle operation period.

[Recording Time]

The whole recording time can be modified according to the memory of the SD card and event recording time.

[Record Speed, Location, Time]

This product stores the speed, location and time, when connected to GPS, and renews every minute.

[Acceleration Data]

This product can confirm the vehicle operation status from using the G-Sensor value. The impulse from vehicle operations, along with, maximum and minimum acceleration can detect driving habits.

[Route]

Google Map is used to easily track daily routes.

Program play function and route tracing function can be utilized for showing the vehicle routes according to each date.

2. Various Indications and Device Operation Guide
    i.   Button Operations

[Direction Key]

Menu movement/Screen transition/PLAYER rewind and fast-forward

[OK]

Menu select/PLAYER pause and play

[ESC]

Move to upper menu/End

[REC]

Event initiation button

ii.   Various Indications

[LCD Display and Operation]

Exterior image.

Interior Image

DTW Information

Image will be added.

DTW Information

Image will be added.

Device Setup

Insert the password using the up and down direction key.

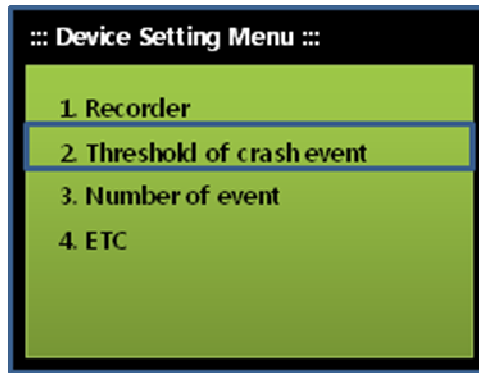If the password is correct, the LCD will show the screen shown below.
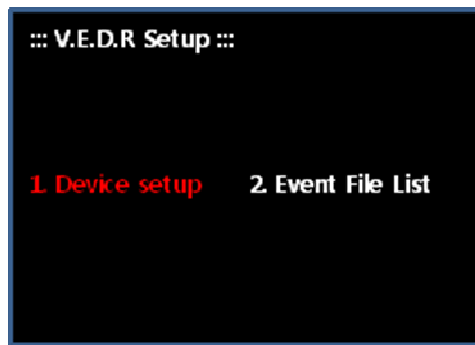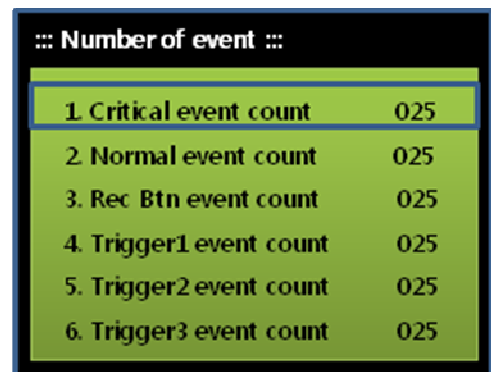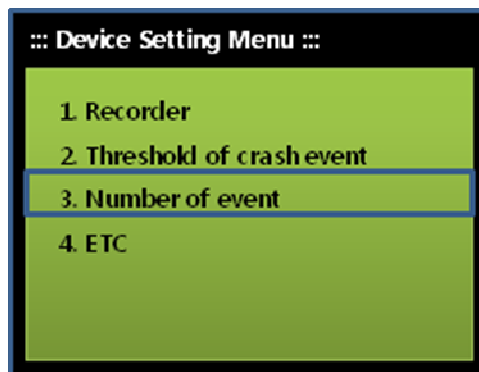

If you select number 1,
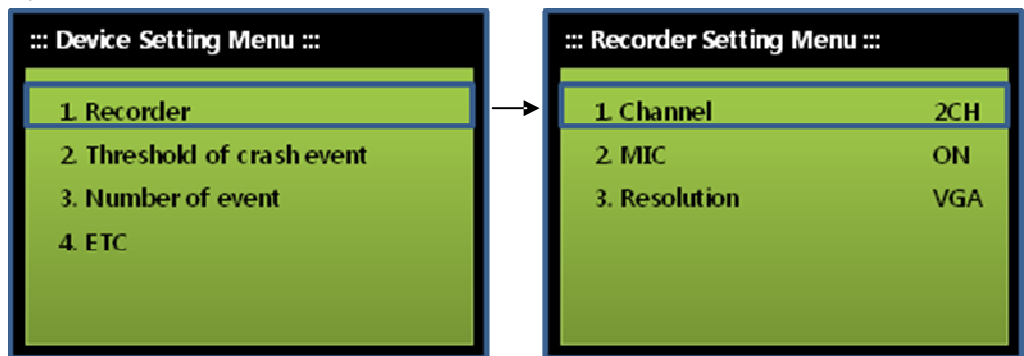
If number 1 is selected from the 'Device Setting Menu' screen, the 'Record Setting Menu' screen shows up. The Setting value can be changed using the left and right direction button and the Esc button takes you to the previous menu.
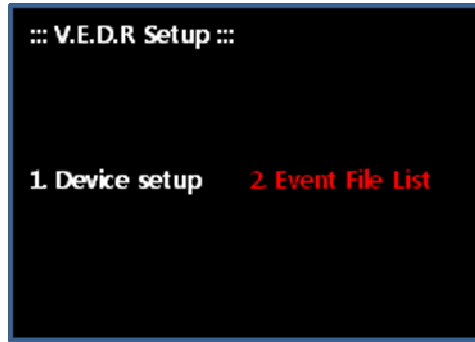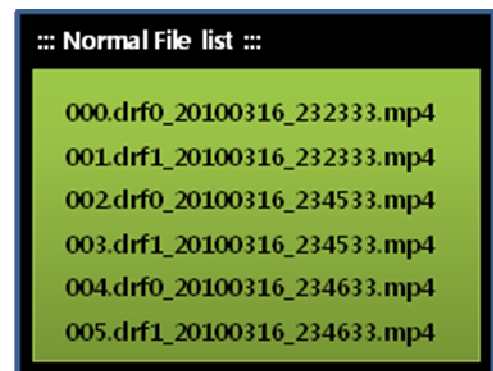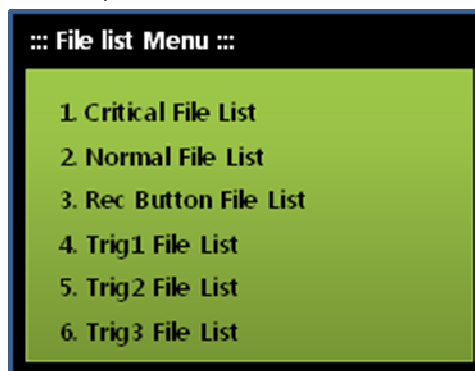
If you select number 2,
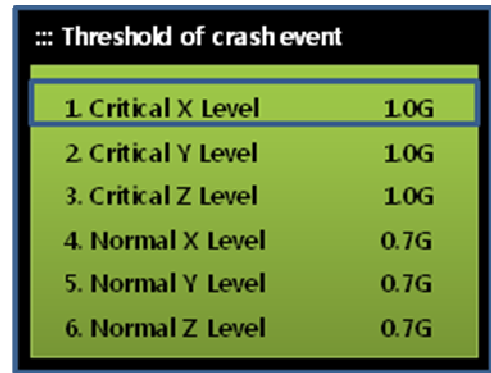
If number 2 is selected from the 'Device Setting Menu' screen, the 'Threshold of crash event' screen shows up. The Setting value can be changed using the left and right direction button and the Esc button takes you to the previous menu.

If you select number 3,

If number 2 is selected from the 'Device Setting Menu' screen, the 'Number of event' screen shows up. The Setting value can be changed using the left and right direction button and the Esc button takes you to the previous menu.

If you select number 4,

,
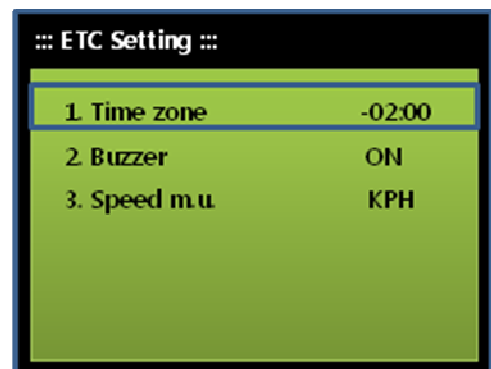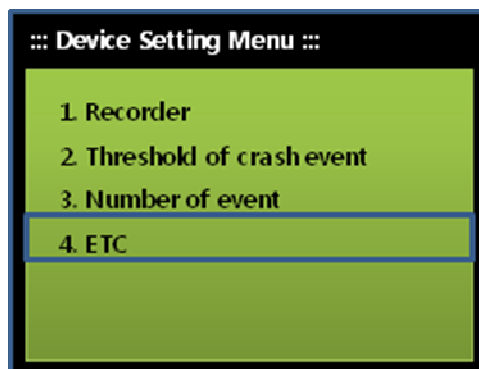
If number 2 is selected from the 'Device Setting Menu' screen, the 'ETC Setting' screen shows up. The Setting value can be changed using the left and right direction button and the Esc button takes you to the previous menu.

::: V.E.D.R Setup :::

1. Device setup   2. Event File List

If you select number 2 from the Setup menu screen, 6 types of occurred file list shows up.

::: File list Menu :::

1. Critical File List
2. Normal File List
3. Rec Button File List
4. Trig1 File List
5. Trig2 File List
6. Trig3 File List

::: Normal File list :::

000.drf0_20100316_232333.mp4
001.drf1_20100316_232333.mp4
002.drf0_20100316_234533.mp4
003.drf1_20100316_234533.mp4
004.drf0_20100316_234633.mp4
005.drf1_20100316_234633.mp4

Select the file name from the 'Normal File list' screen and press the OK button to select the file. Then, the Player will be operated to show the recordings on the LCD.

SECURE SD REMOTION

Insert the password using the up and down direction key.

::: SECURE SD REMOTION :::

Password : [   ]

0
1
2
3
4
5
6
7
8
9

If the password is correct, the LCD will show the screen shown below.

::: DTW SD Card remove :::

TIME   :   2010/03/16 02:32:09
SD   :   [   ]
SD Message :   Remove SD Card please
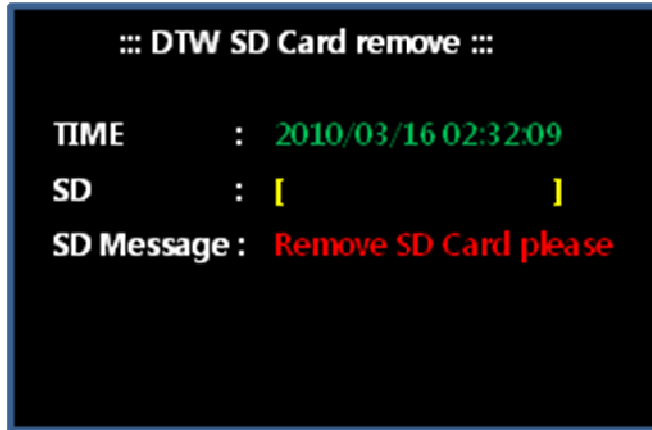
The SD card can be removed from the device when the screen above shows up. When the SD card is removed, a Buzzer sound occurs once and the LED flickers every 0.5 seconds. Also, the device restarts when the SD card is re-inserted.

iii.   USB Connection

IV. Software

A.   Software Installment and Execution

Currently, DTW Manager can be executed without any other Installment. Execute the 'Roadscan DTW Manager.EXE' file that has been distributed.

B.   Program Screen

The Manager Program of this product is classified into two parts and operates as below..

i.   DTW Manager

The status of the Roadscan DTW can be confirmed in situation where the SD card is removed, connected to the PC, playing a downloaded recording, modifying various settings within the product interior, printing reports, controlling USB connection and

operation recording function, etc.

* USB Connection function is currently (March, 2010) not available.

ii.   Wireless LAN Manager
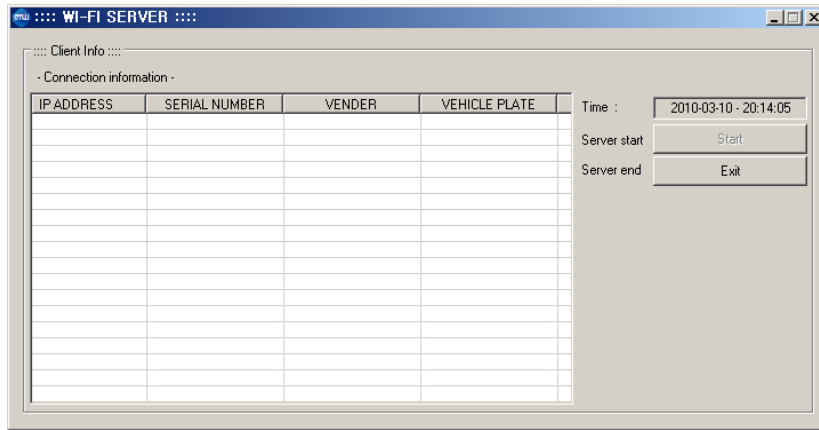
Wireless LAN Manager helps change settings when downloading recorded data to the Roadscan DTW device or Wireless LAN connection is available for operation configurations.

C.   DTW Manager Recording Play Mode

The recording play mode of the DTW Manager, playbacks the recordings and manages the data.

Image 1 RoadScan DTW Manager Initial Screen

i.   Screen Composition

①   Program information button

The version and copyright notice of the DTW Manager is displayed.
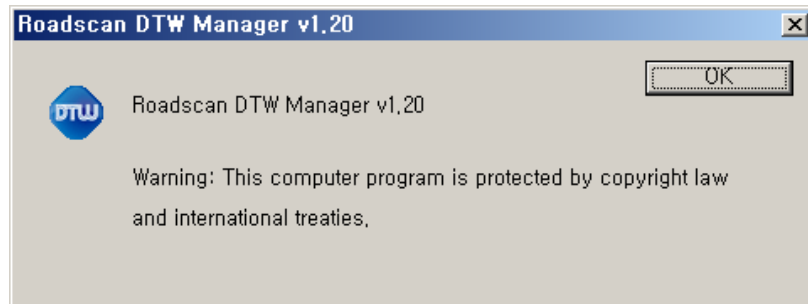
Image 2 Program Information Window

②   Exterior Image Display Window

This window displays the exterior of the vehicle, which is being recorded.

* When the screen is double clicked using the mouse cursor, the exterior and interior image screen changes the positions of the image.

③   Interior Image Display Window

This window displays the interior of the vehicle, which is being recorded..

* When the screen is double clicked using the mouse cursor, the exterior and interior image screen changes the positions of the image.

④   Map Display Window

This window displays the current GPS information, which includes the current recordings, onto Google Map.

* The map may not show when internet is not connected or not logged in to Google Map.

⑤   File List Window

This window lists the files within the SD card, searched files, and loaded files using the open file button.

Each recording type and date can be easily distinguished.
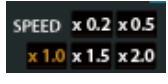
⑥   Speed, Direction and Graph Display Window

The current recording and other related information is displayed.

●   Recording Play Slider

The current state of the playing recording is displayed and the recording can be played from whatever frame the user wishes by clicking on the slider.

● Volume bar

The volume of the playing recording can be adjusted. The volume increases as the button moves to the right.

● Play speed selection button

The recording is played at the speed of corresponding number that the user clicks.

x0.2	The recording is played at a 0.2 speed rate.
x0.5	The recording is played at a 0.5 speed rate.
x1.0	The recording is played at a 1.0 speed rate
x1.5	The recording is played at a 1.5 speed rate
x2.0	The recording is played at a 2.0 speed rate

● Speed and Direction Indicator

The GPS speed and current direction of the vehicle is indicated.

* Images recorded at regions where GPS data cannot be received, the speed and direction may not show properly.

* GPS speed may differ from the actual speed of the vehicle.

● Operation Information Window
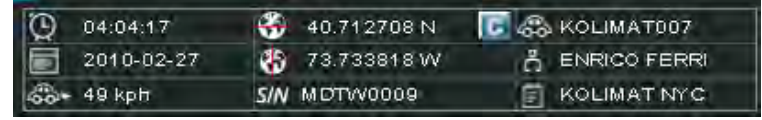
The image data time, location, acceleration and driver's information is displayed. The icons are introduced below.

(Left -> Right)

Clock	Displays the current image frame time
Globe	Displays the current image frame location altitude.
Car	Displays the vehicle number plate of the current image (Only shows after initiated in the Users setting)
Calendar	Displays the recorded date of the current image.
Globe	Displays the current image frame location longitude
Person	Displays the driver's name of the current image. The "Driver Name" shows when the "Serial No." Information from

	the User setup matches the Serial No. saved in the SD card.
Car	Displays the GPS speed of the current image
S/N	Displays the device serial number
Note	Displays the device administration number or other administration items Entries show the items within "Administration No." of the User Setup.
C button	Prints the current frame GPS data into a GPX file format.

* Some information may show only when it is initiated from the User setup.

* GPX file is a format used in Google Earth or other related software.

● Graph Window
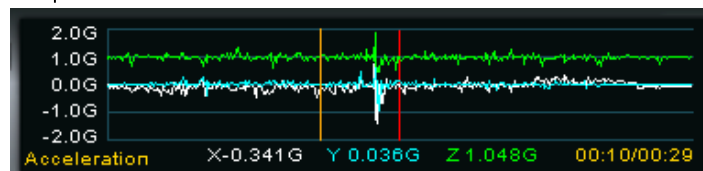
The acceleration graph, play time and recording time of the current image is displayed.

* The display type can be changed using the button from the menu bar

* The display type can be enlarged using the button from the menu bar.

* For more information on the graphs, please refer to "D. Menu button and functions".

⑦ Route Tracing Button

The route is traced and marked as a dot on a map based on to the GPS information of the current image.

 Draw Route Button: Marks the route on the map.

 Delete Route Button: Deletes the marked route on the map.

Route Drawing Screen   Route Deletion Screen

* The route may not properly show, when the GPS data is not regularly received.

* The Draw Route Button may not function properly when DTW Manager is not logged in to Google Map when operated.

D.   Menu Button and Functions

i.   Menu Button Composition

Each menu button is located at the lower part of the DTW Manager initial screen and performs functions as below.
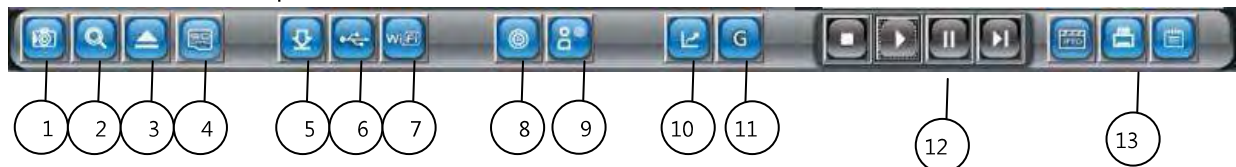
①   Image Play Mode, Operation Recording Mode Conversion

DTW Manager Operation Mode converts to the Image Play Mode and Operation Recording Mode.

When the button is pressed it switches to the Operation Recording Mode, and returns back to Image Play Mode when the button is pressed.
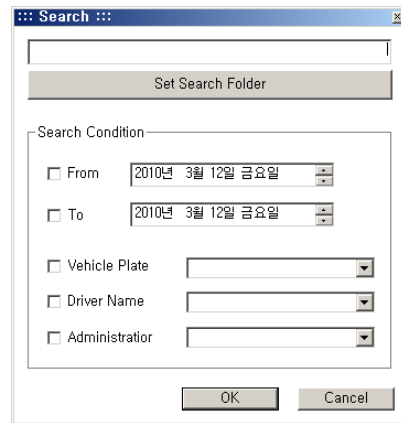

Image Play Mode Screen   Operation Recording Mode Screen

* The route of the vehicle can be marked and deleted, and the speed can

be confirmed based on GPS information from the Operation Recording Mode. For more information, please refer to "H. Playback Operation Recordings"

② Data Search Button

<Image needs to be changed >

Search the saved recording within the PC using the download button.
Designate the folder to search and select certain conditions to load results to the file list window and automate playback.

③ Open File
One or several saved recordings within the PC or SD card can be loaded.
Loaded images automatically playback
* According to DTW product characteristics, the exterior and interior recordings are stored separately. When the interior recording file is loaded, the exterior recording is loaded along with the interior recording file.
* When the exterior recording file is loaded, the DTW Manager will not be able to playback the image data.
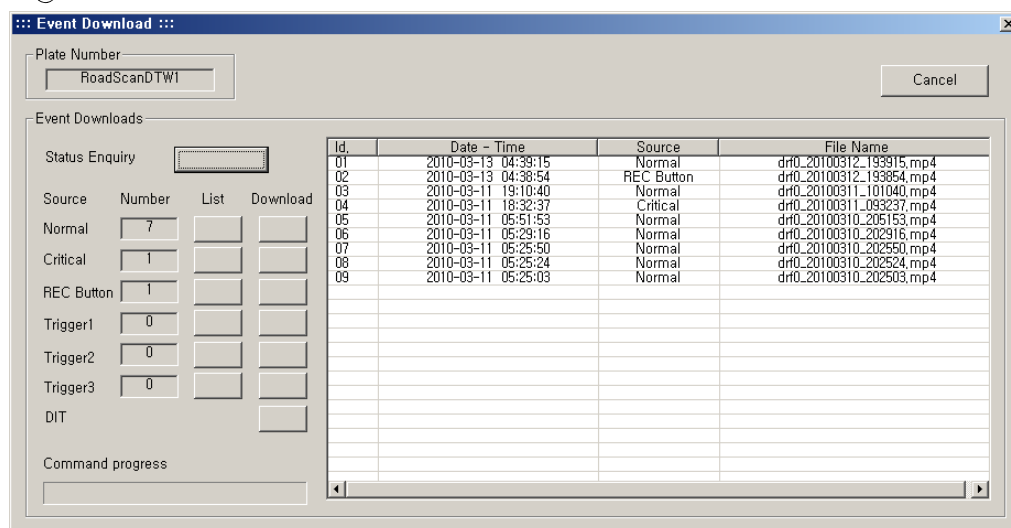
④ Open SD Card
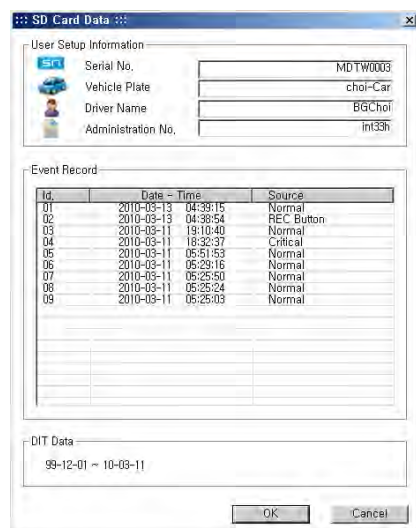
SD Card can be saved in several folders.

When the button is clicked, a screen is shown as below. Pressing the OK button will load all the data stored within the SD card and listed in the file list window. All loaded recordings will playback automatically.

⑤ Download

All data stored in the SD card can be downloaded to the PC.

Status Enquiry button loads all the events at once (excluding DIT) and each item of the list button loads the image of the corresponding event.

When downloading images to the PC, click on the List or Status Enquiry button, check the list of corresponding events and press the Download button of the event that is designated to download.

⑥ USB Connection Operation

* Currently (March, 2010) unavailable. A notice will be posted on the company website when a functional upgrade is made.

⑦ Wireless LAN Settings

 <Program title needs to be changed >

Wireless LAN (Wireless Network Connection) Settings are configured.

* TKIP is supported for wireless encryption protocol.

* For more information on Wireless LAN Settings, please contact the network administrator or local dealer.

⑧ Device Setup

Various values regarding the device can be modified.

- Plate Number: Input administration title. The vehicle number plate is generally used.

- Device Password: Device administration Password. Uses a 4-diget password. (Default password is 1234.)

- SD Card Password: Password used when removing the SD card. Uses a 4-diget password. (Default password is 1234.)

- Event Record Settings: Setups various data related to event saving.

- Source: Displays the type of event

Source	Explanation
Normal	Setting up the level for general impact (acceleration value). Event that may occur from general driving, such as, suddenly using brakes, suddenly turning or crossing uneven roads.
Critical	Event that is analyzed as a significant accident from the change in acceleration values.
REC Button	Event that manually saves images using the REC button.
Trigger 1~3	Event that is initiated by three triggers. * **Additional wiring is required.**

- Number: Displays the number of images for each event.
- Over write: Whenever the number of event excesses the set value for each event, it decides whether to overwrite past images. The check mark indicates overwriting is enabled.

- Normal Event dG setup value: Sets the acceleration value of a Normal Event. As the setup value is close to 0, the impact (acceleration change) becomes more sensitive.

- Critical Event dG setup value: Sets the acceleration value of a Critical Event. As the setup value is close to 1G, the impact (acceleration change) becomes more sensitive to become a Critical Event

- Recording Period: The image storage time of each event. Minimum is 10 seconds and maximum is 40 seconds. (Initial value is 40 seconds)
  * When this item is modified, it automatically shows the maximum memory that the SD card can handle. Also, the SD card becomes formatted so make sure to prepare a backup file beforehand.

- Buzzer: Set the Buzzer to be on or off during operations.

- Mic Volume: Set the volume for recording.

- Time Zone: Set the time zone. (Republic of Korea is GMT+9:00) The time displayed is changed according to the time zone.

- Speed m.u.: Set the speed type as Km/h or Mile/h.

- Channel: Set a valid channel of the product
  - CAM1: For exterior recording
  - CAM2: For exterior and interior recording

- Resolution: Set the recording image resolution. VGA(640x480)>QVGA

- Quality: Set the quality of the recording image. High>Medium>LOW

- Mic: Set the interior microphone ON or OFF.

- LCD Display: Set the first image to show when first operated. (CH1 is exterior, CH2 is interior)

- TV Display: Select the image output that come from the AV OUT socket.

⑨ User Setting
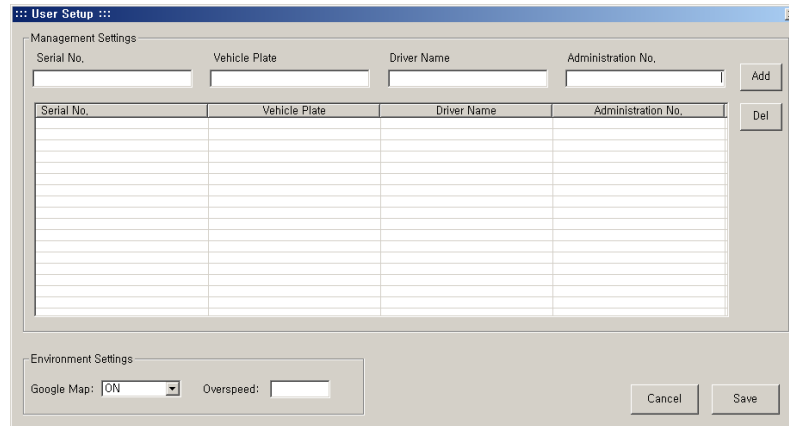
Managing the product can be done according to each Serial Number, so that the administrator or driver can easily manage many devices. When the input is complete, make sure to press the Save button and close the window. This is not a required task; it is for the convenience of managing several devices.

● Add: Add an item

● Del: Delete selected item

● Serial No.: The Serial Number, which can be confirmed through the SD card opening button. (Required)

● Vehicle Plate: Input the vehicle number plate or any content by the administrator.

● Driver Name: Input the driver's name or any content by the administrator.

● Administration No.: Input any content by the administrator. The management number is generally used.

● Google Map: Select whether to use connection to the Google Map server when operating the DTW Manager.

Image 3 Google Map Connection Screen

- ON: Enable Connection
- OFF: Disable Google Map

* Purchasing a Google Map connection Account is required for using Google map. For more information, please contact the manufacturer or local dealer.

- Over speed: Set the speed that shows as over speeding in Operation Recording Mode (DIT Mode). The value must be an integer value. A red borderline is marked on the speed graph window after setting the value and returning to DIT Mode.

⑩ Enlarge Graph View

Enlarge the graph displayed in the graph window of the DTW Manager.

When an event is triggered for the X, Y, Z axis, this even is marked with red. Furthermore, the [G] button changes the format, in the order of acceleration, impact, and speed.

- When the [G] button is clicked, it is converted to the impact display and the button is switched to the [4G] button..

- When the [4G] button is clicked, it is converted to the impact display and the button is switched to the [V] button..

- When the [V] button is clicked, it is converted to the impact display and the button is switched to the [G] button..

⑪ Graph Display Modification

Modifies the type of display for the graph within the graph window

For more information on the graphs, please refer to "⑩Enlarge Graph View"

⑫ Playback Control Button

The selected image can be controlled with the following provided buttons; Play/Stop/Pause/Frame

- Stop [image]

  Stops the playing recording

- Play [image]

  Playback the selected recording

- Pause

  Pauses the current playing recording

- Frame

  Playback the current recording according to each frame

⑬ Make Report Button

As for certain occasions, the selected image can be used to make an image event report.

- JPG Image Capture

  The recording is stopped as the button is pressed. The image of the stopped recording is captured and stored in JPG format.

- Print Current Screen

  The recording is stopped as the button is pressed. The whole DTW Manager screen is printed.

- Make Image Report

  The recording is stopped as the button is pressed. A specific report on the still image is made and printed.

  The event report includes the following.

  - Event type
  - Device management information (Device ID and user data)
  - Date and time of image recording
  - The time where the recording has stopped and the button was pressed.
  - Recording file name
  - Acceleration value, GPS speed and location information
  - Exterior and interior still image

E. DTW Manager Operation Recording Mode

The Operation Recording Mode of the DTW Manager marks the GPS operation records on a map and is purposed to display the route of the vehicle.

* The Operation Recording Mode may not properly operate according to GPS data reception

* The Operation Recording Mode may not properly show map data when it is not logged in to Google Map.

Labels on image: Route draw/delete button, Operation Record, Map Window, Speed, Direction and Graph, Image Window, Menu Button, File List

i. Operation Recording Display Window

The daily travelled distance, operation time and over speed time is displayed when loading the route record (*.dit) file from the SD card or from the load button

ii. Speed, Direction and Graph Display Window

Basically displays the same contents as the Recording Play Mode, however, the interior and exterior image is not displayed and only operation records are displayed. The +, - buttons are used for any progress.

iii. Map Display Window

When the operation record is played, it displays the GPS information on Google Map.

iv. Route Draw/Delete Button

v. Marks the route of the vehicle corresponding to the items that are selected in the Operation Recording Display Window.

vi. File List Window

Specific information on the loaded data is listed.

vii. Menu Button

Similarly used to the Recording Play Mode. Therefore, refer to Recording Play Mode.

F. Wireless LAN Manager

Connection list

Start
Exit
Refresh
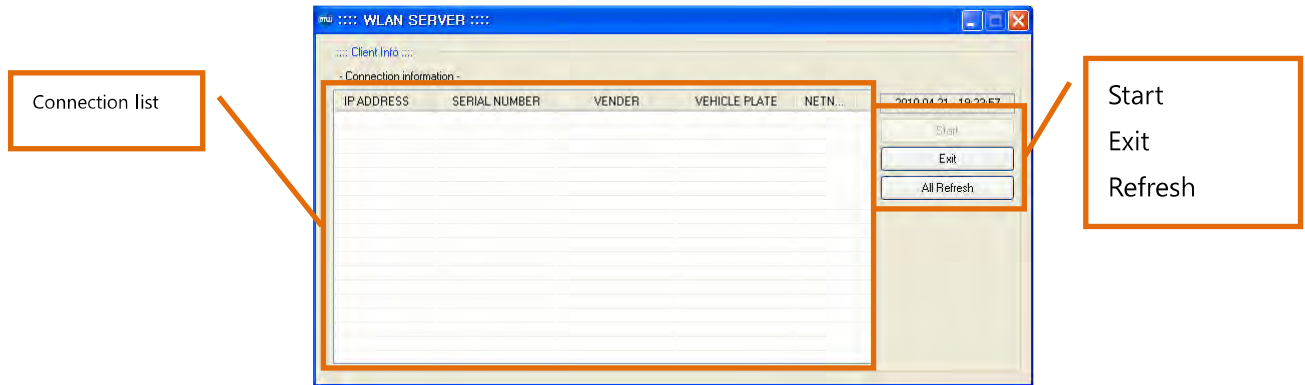
To prevent inconveniencies from inserting and removing the SD card or managing various devices, a server program is provided archive setting modifications and image date through Wireless LAN.

Complete setup for Wireless LAN using the DTW Manager and when the LAN connection is successfully made with the device, the corresponding device will show on the "connection list" along with the IP address and serial number. Double clock to select the device that needs modification in settings or image downloads.

* For more information on Wireless LAN Settings, please contact the network administrator or manager.

i.　Wireless LAN Connection Procedure

①　Run the Wireless LAN Manager from the server PC and click on the Start button.

②　After inserting the SD card into the PC, Run the DTW Manager.

③　Configure Wireless LAN connection settings in the DTW Manager.

● Configure the device IP, Subnet Mask, Gateway according to the current network conditions.

● Input the server IP that is operating Wireless LAN Manager.

● Select the Network ID (SSID) and connection authentication encryption protocol of the Access Point and setup the password.

● Insert the SD card in the device and then turn it on.

● After operating the device, confirm that the LINK STATUS shows ON-LINE in the Wireless LAN information window.

④　When the device operates and the server IP connection is available the device status will display on the Wireless LAN Manager.

⑤　Double click on the device IP address that is designated to perform setup in the Wireless LAN Manager.

⑥　Click on Connect button on the Menu screen and perform connection with the device.

When the connection is complete it transits to Standby state.

⑦ When setup is complete click on the Disconnect button to apply the setups.

 > >
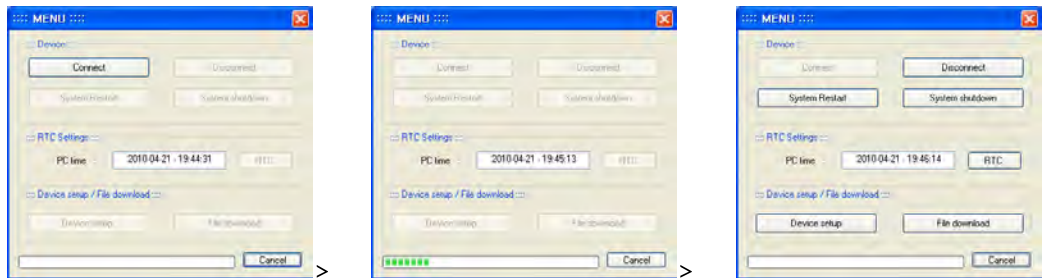
| Connection Standby State | Connection in Progress | Connection Complete, Standby State |

ii. Device Connection Exit Procedure

① Disconnect can only exit the connection between the Server and DTW.

② System Restart executes the connection between the server and DTW, and reboots the DTW.

③ System Shutdown executes the connection between the server and DTW, and exits the DTW (Please turn on the power to operate the DTW).

iii. Set the current time on the device.

In this case, click on the RTC button if necessary to synchronize the current time of the PC and the device time.

① Check the current time and the PC time during the standby state.

② If the PC time and current time do not match, adjust the time from the time setup in MS Windows.

③ If there is no problem with the PC time, click on the RTC button and perform synchronization.

④ When setup is complete, click on the Disconnect button and end the process.

* When the device is first operated, GPS signals are not regularly received and when the interior battery is fully discharged, the device time (RTC) may have become initialized and display year 1999 as the time.

iv. Using Wireless LAN for setup

① Click on the "Device Setup" button during the standby state.

② When a similar screen to the Device Setup of the DTW Manager is displayed, change setup values that need to be changed and click on the SAVE button to complete the setup.
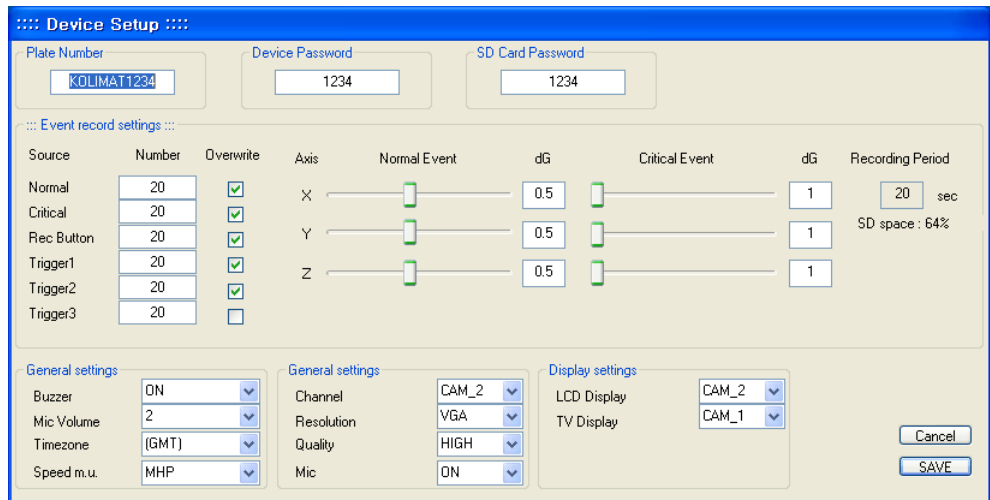
* For more information on setup, please refer to "DTW Manager Device Setup".

③　When setup is complete click on the disconnect button to end the process.

v.　Download using Wireless LAN

①　If you click on "File download" button during the waiting state, a screen similar to the "download" screen of the DTW Manager is displayed.

②　Press the Status Enquiry button to check all saved recording information (Date – Time, Source, File name).
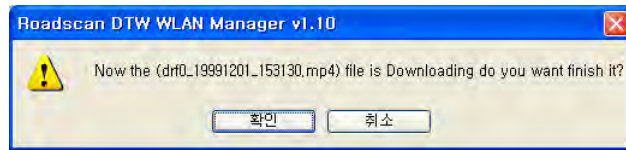
③　To execute file download, click on the list button for each event and check the files from the list window and click on the Download button for downloading recordings.
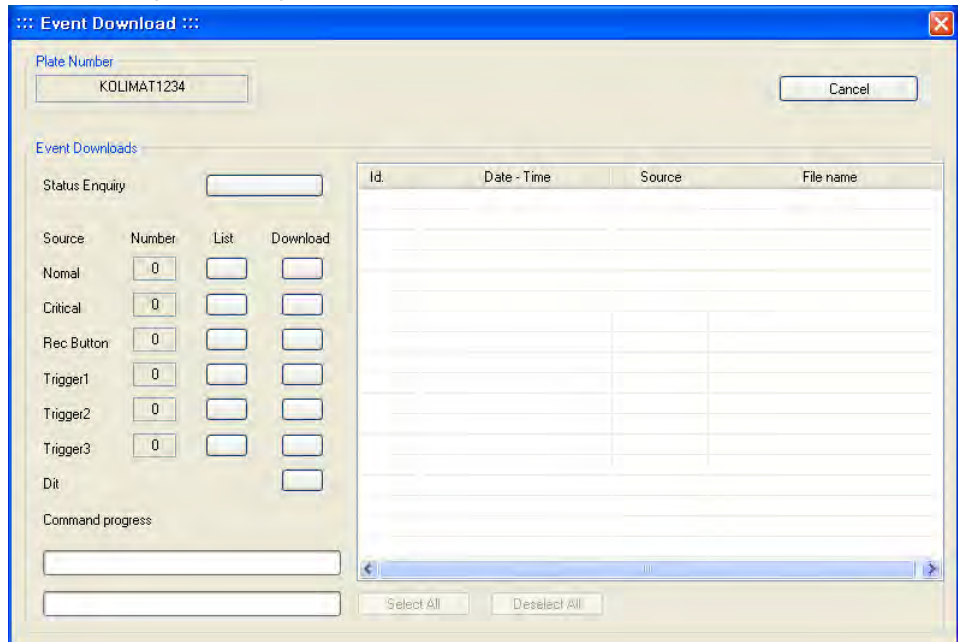
* For more information on downloads, please refer to "Download of DTW Manager".

④ When downloading is complete click on the Cancel button and end the process.
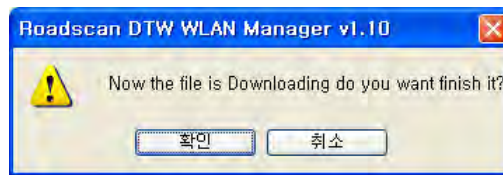
- Additional Functions

- A window shown above will show when the Cancel button is clicked during file download.
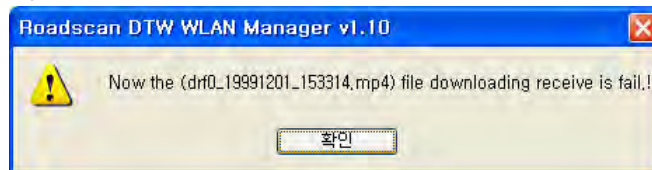 Selecting OK will operate the next file download.
 Selecting Cancel will continue the current file download.

- A window shown above will show when the 'X' button is clicked during file download.
  Selecting OK will execute the file download.
  Selecting Cancel will continue the file download.

- A window shown above will show when the connection between the server and DTW is unstable or disconnected during the file download.
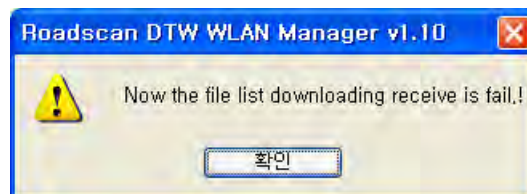
- A window shown above will show when the connection between the server and DTW is unstable or disconnected during the file list download.

G. Image Play and Confirmation

  i. Playing recordings from the SD card

   ① Connect SD card with PC.

   ② Run DTW Manager.

   ③ Log in according to the map display settings

④ Click on the button from the DTW Manager and load the saved recording from the SD card and it will automatically playback.

ii. Playing recordings from selecting the files

① Run DTW Manager.

② Log in according to the map display settings

③ Click on the button from the DTW Manager and load the recording from window searcher and it will automatically playback.

H. Playing operation recording data

① Connect SD card with PC.

② Run DTW Manager.

③ Log in so that Google Map is available.

④ Click on the button and convert to Operation Recording Mode.

⑤ Click on the button from the DTW Manager and load the operation record file from the SD card.
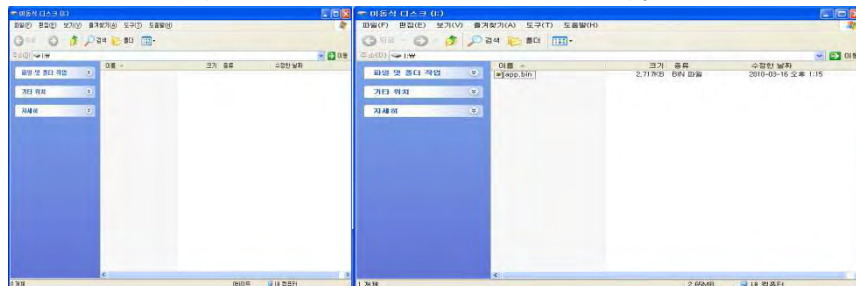
V. Appendix

Product F/W Upgrade Instructions

i. Upgrade Notice

Do not disconnect the power or remove the SD card during update. This may cause damage to the device

ii. Program Download Location

Download the update file from the website and copy it to the SD card.

iii. Process

When the device boots, search for the app.bin file and update will be automatically executed.

Check list before thinking it as a breakdown

During the use of this product, problems or malfunctions may occur. Please thoroughly check if any of the problems correspond to the list below.

This product is a vehicle use multimedia device, which includes an operating system similar to a personal computer. Therefore, any excessive use may cause the system to crash. In this situation, turn the power off for a moment and reboot the device.

Possible solutions are given for a list of problems that may occur. Please follow the following list of actions if applicable.

1. There is no sound
- Please check if the Buzzer item is turned OFF in the device setup of the DTW Manager

3. Cannot read the SD card
- Please check if the SD card is the certified SD card that was included when purchasing the device.
- Please check if the SD card is properly inserted.
- Please check if the SD card has been infected by any viruses.
- Please check if there are any foreign substances on the connection socket of the SD card. This may cause problems in reading the card.
- Please check if there are any errors during system upgrades. This may cause problems for proper execution.

5. SD card cannot save or copy any files.
- Please check if the lock on the left side of the SD card is properly set.

Product Specifications and Operation Environment

    i.   H/W SPEC

        ① Normal Operational Voltage: 12V , 24V

        ② Minimum Operational Voltage: 9V

        ③ Maximum Operational Voltage: 32V

        ④ Maximum Power Consumption: 약 4W

        ⑤ Operational Temperature: -20¡É ~ 60¡É

        ⑥ Storage Temperature: -30¡É ~ 80¡É

        ⑦ Number of frames for Recording: Maximum 30 Frame/second (When using 1CH, it is half of using 2CH)

        ⑧ Recording Extracting File: MPEG

        ⑨ Maximum Recording time : 20 seconds before and after the accident

        ⑩ Minimum Operational Illuminance: 1 lux

        ⑪ Camera Resolution: 0.3 mega pixels

⑫ Size: 123 x 93 x 35 (mm)

⑬ Weight: 220g

ii. S/W Operating Environment

① Operating System : Windows 7, Vista, XP

② Memory : More than 1GB

③ CPU: Intel Pentium 4 or better

④ HDD free space: More than 1GB

Product Warranty

● **Thank you for purchasing a product of PLK TECHNOLOGIES CO., LTD.**

According to customer reward policies PLK TECHNOLOGIES CO., LTD. pursues quality assurance on the product as shown below.

● **Please contact the your agent or dealer if any trouble occurs regarding our product.**

At the time of purchase

Model		Serial No.	
Date of purchase		Seller	
Price		Telephone	

Free-of-charge Service

PLK TECHNOLOGIES CO., LTD. warrants this device against defects in materials and workmanship under normal use for a period of 1 year from the date of retail purchase by the original end-user purchaser.

● Consumable components like the SD card are not included in the Warranty service.

Charged Service

- If it is not a breakdown

  If a breakdown has not occurred, the service repair cost will be billed. Therefore, thoroughly read the manual.

- If the user takes fault for the breakdown

  Caused by the user's improper use (submerge in water, shock).

  Caused by remodeling or disassembling the device

  Caused by repairing performed by someone other than our company or affiliate service engineer

  Caused by using a extra particle that has not been provided by our company

  Any other breakdown caused by the user's improper use or carelessness.

- Other cases

  When Natural calamities (fire, salt and flood damage, etc) occur

  When consumable components (battery, microphone, SD card, Power connection socket, etc) die out

This warranty is only valid within the Republic of Korea and cannot be used in other foreign countries.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum 20 cm between the radiator and your body. This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.