

**RoyalTek**  
**BT GPS Speed Camera Warning Device**

**RCD-3000**

**(Utility Offline version)**

**Users Manual**

**Version 0.1**

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# 1.Product Introduction

## 1.1 Overview



Congratulations on your purchase of the BT GPS Camera warning device.

The Device is equipped with the latest generation SiRF Star III digital processor specially designed for fast and accurate fix on GPS signals. The RCD-3000 will help you to drive safely, when the database has been downloaded, the device will compare your position using its built-in GPS antenna with the position of every known danger locations and give you an audible and visual warning as you approach them.

With the latest in GPS technology, RCD-3000 device also can become a BT GPS Receiver to deliver GPS information. RCD-3000 will enhance your overall navigation experience.

### Product Feature:

- An all-in-one GPS receiver with BT navigation, datalog and Speed camera location alerts and Speed limit alerts
- Records longitude, latitude, UTC time, altitude, and velocity at preset intervals for up to 500,000 points.
- Build in Li-ion battery, operation time over 8hours (average).
- Convenient transferring of logs files or Camera database via mini USB connector.
- Multiple LED lights for power, Bluetooth, and GPS status.

### - READ FIRST -

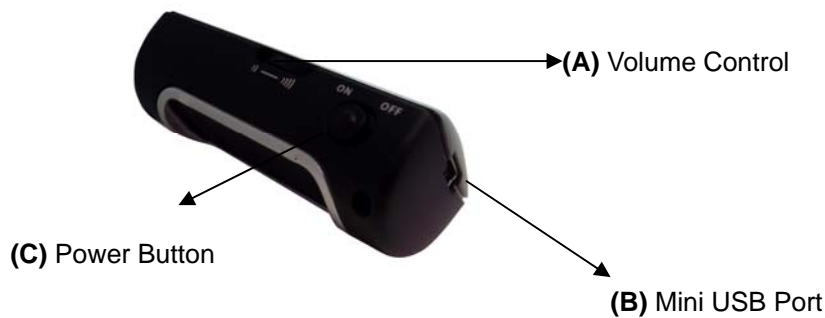
The RCD-3000 comes with a database of cameras pre-loaded. However the road network is constantly being modified. Please note that the database on the device will have been downloaded at the time of production so may not be 100% accurate at the time of purchase. To ensure that your RCD-3000 works affectively we recommend that you download it as soon as possible after purchase.

## 1.2 Check the Package Content

Before using *RCD-3000*, please make sure the package includes the items listed below. Please contact the reseller immediately for any missing/damaged items.

1. RCD-3000 Device
2. USB cable
3. Car Charger
4. CD (user manual, SW utility)
5. Dashboard Pad

### 1.3 Install RCD-3000 in your vehicle



(A) Volume control: Rotate forward and backward to adjust the volume.

(B) Mini USB port: Connect with the USB Cable for data transfer or battery charging purpose.

(C) Power Button: Power ON / Power OFF

- Place the Dashboard Pad on your dashboard as close to the windscreen as possible in clear view of the driver's line of sight.
- Place your RCD-3000 device on the dashboard pad, which is designed to hold it firmly in place.
- The RCD-3000 has built-in Li-ion battery; user also can connect the USB cable to the cigar lighter adapter provided and insert the other end to a USB port. Once you turn on the.

### 1.4 Product Notification- Using Tips

1. Use the supplied dashboard pad, remove the backing from the base, fix it on the dashboard as close to the windscreen as possible in clear view of the driver's line of sight and place your Detector onto the pad
2. Cars that are equipped with heat dissipation films for the windshield and windows will degrade the GPS performance.
3. For the most accurate position fix results and quickest acquisition time, please make sure that your device is not in motion but stationary and in open spaces.



4. Connect to PC or Notebook for "Speed Camera Detector Utility"  
@User can update the Camera database and manage the POI points using the supplied "Speed Camera Detector Utility".  
Refer to the software installation and usage to install the software utility.  
\*POI: point of interest
5. We invite the driver to respect the driving rule and the law. We assume no any responsibility for any damage or injury resulting from the wrong use of the product.

### 1.5 Navigation Function via BT

To make RCD-3000 Receiver work with your devices, a simple pairing step is required for the first time. (Please follow the pairing instruction for Blue Tooth from your PDA or PC manufacturer.) To get RCD-3000 into pairing mode, all you need to do is simply switch on the power switch.



Once RCD-3000 is properly set up and connected to your PDA or PC, please refer to your navigation software guidebook for instruction on navigation operation. RCD-3000 works with all NMEA enabled navigation software.

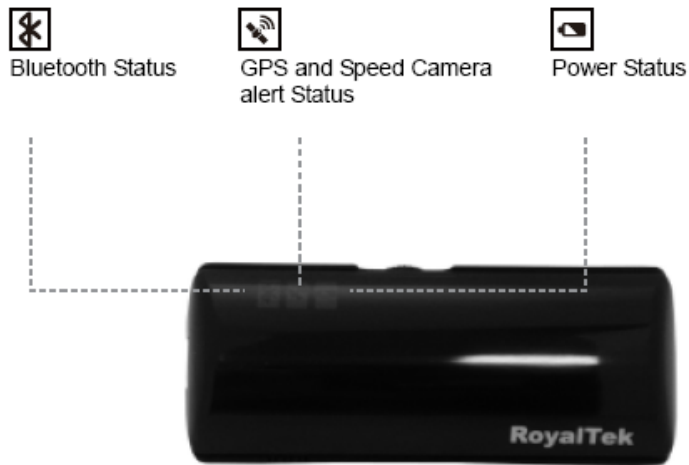
## 2.Specification

### 2.1 Specification

GPS	
GPS Chipset	- Sirf Star III
Frequency	- L1, 1,575.42 MHz
Channel	- 20 parallel
C/A Code	- 1,023 MHz
Fix time (Open SKY,typical)	- Reacquisition: less than 1s - Hot start: less than 1s - Warm start: less than 35s - Cold start: less than 35s
Accuracy	- Position: within 10m for 90% - Velocity: 0.1m/s
Interface Protocol	- Output message: NMEA 0183 ver. 3.0,GGA, GSA, RMC and GSV every 1s, - Baud rate 57,600bps
Dynamics	
Altitude	- 18,000 meter maximum
Velocity	- 514 meter/second maximum
Internal Antenna	
Type	Build in Patch Antenna
Location Log	
Flash Type	64Mb Serial Flash
Log data	UTC Time, Longitude, Latitude, Altitude, Velocity
Log Interval	1secs ~ 60secs, user configurable (Default 15secs)
Records	Over 500,000 points Log duration: Over 180 days (For log interval 15 sec and log 12 hours for a days)
Set Logger Configuration	There are three types setting for intervals. Default setting is <u>UTC Time, Longitude, Latitude</u> (User Configurable) For Type 1: UTC Time, Longitude, Latitude, will be saved. For Type 2: UTC Time, Longitude, Latitude, Altitude, will be saved. For Type 3: UTC Time, Longitude, Latitude, Altitude, Velocity will be saved.
Device Interface	
External Connector port	Mini USB 5 pins - For Power Charging - For SCDB Upload
Button	Power Switch
Volume Control	VR
Lamp Indicator LED	Show Battery Power, Speed Camera alert, GPS status and BT Connection
Bluetooth	
Bluetooth Operating Frequency	2.402~2.48385 GHz Bluetooth 2.0 certified (Class 2)
Power Source	
Replaceable	No
Battery	Li-ion Type, rechargeable
Others	
Operation Time	Over 8 hrs (average)
Temperature	- Operating: -10 ~ +60°C - Storage: -10 ~ +60°C
Dimension	Dimension: 80 x 32.6 x 26.8mm
Weight	≤ 45g

## 2.2 LED Display & Audio Alarm

Front View



	Event		LED Display		Audio Alarm
1	GPS outage		Green LED, Blinking		X
2	GPS fixed		Green LED, Glowing		2 beeps
3	Approach Certified Fix Camera Zone and pre-alert (distance less than* 1500 meter- Notification range)	Not exceed speed	Red LED	Glowing	3 beeps
		Over speed		Blinking	2 beeps in every 3 seconds
4	Approach Certified Fix Camera Zone and pre-alert (distance less than *500 meter- Critical range)	Not exceed speed	Red LED	Glowing	3 beeps
		Over speed		Blinking	Beeps continuously
5	Approach Mobile Camera Zone or User defined POI and pre-alert	Not exceed speed	Orange LED	Glowing	3 beeps
		Over speed		Blinking	2 beeps in every 3 seconds
6	BT Connected		Blue LED Glowing		X
7	BT Searching		Blue LED Blinking		X
8	Low battery		Red LED Glowing		X
9	Power charging		Yellow LED, Glowing		X
10	Full power		X		X

**\*Depending on local SCDB conditions.**

### 3. Software Installation and Usage

#### 3.1 Start to use “Speed Camera Detector Utility”

Check the COM port of RCD-3000 first. Click “Start” → “Control Panel” → “Performance and Maintenance” → “System”, and you will see the System Properties dialog box; click on “Hardware” tab and then the “Device Manager” button. Expand the “Ports (COM & LPT)” item, and the “Prolific USB-to-Serial Comm Port” is the COM port of your RCD-3000.

The user should connect the device first. (Connect device with PC via USB Cable)  
Please select comm. port and press the “connect” button.

When you execute the program, the following Figure 1 is shown.

**Note:** (1) System will download the POI points from device automatically.

Please wait the “Get All Datalogger Head” finished. The following figure 3 is shown.

(2) If user wants to upload SCDB data, please be sure to pre download datalog data in advance.

(3) Datalog data will be deleted after upload SCDB process is done.

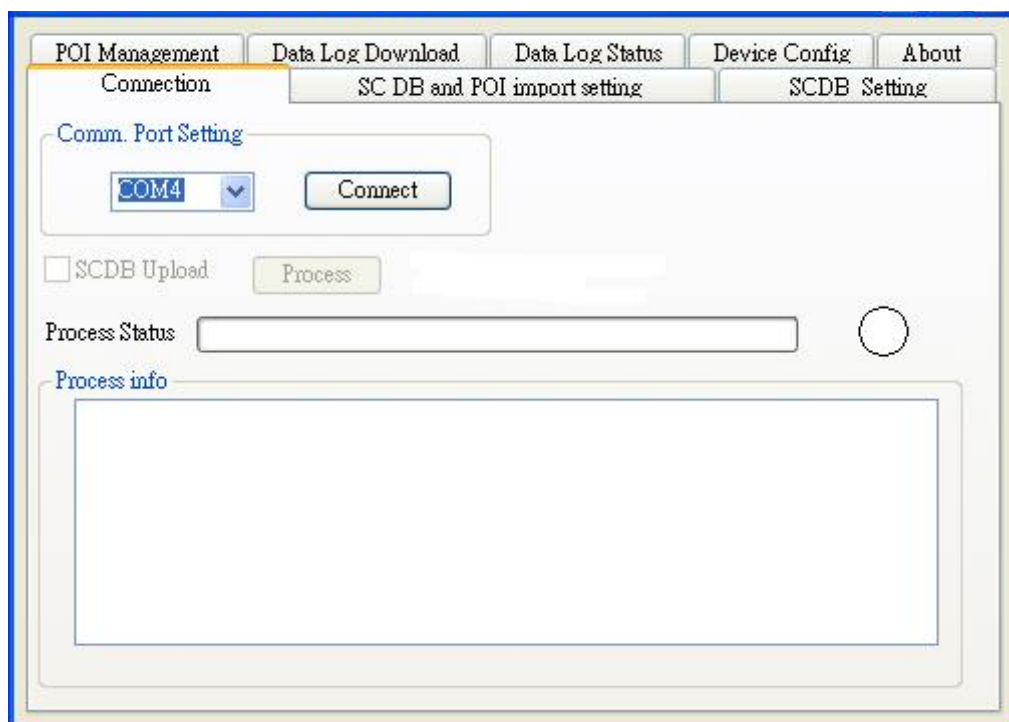


Figure1

Figure2 and Figure3 show when you press the button “Connect”, the utility notifies the user that the device will enter the operation mode, all functions of the device are disabled.



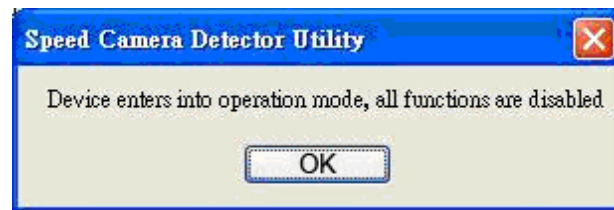


Figure2

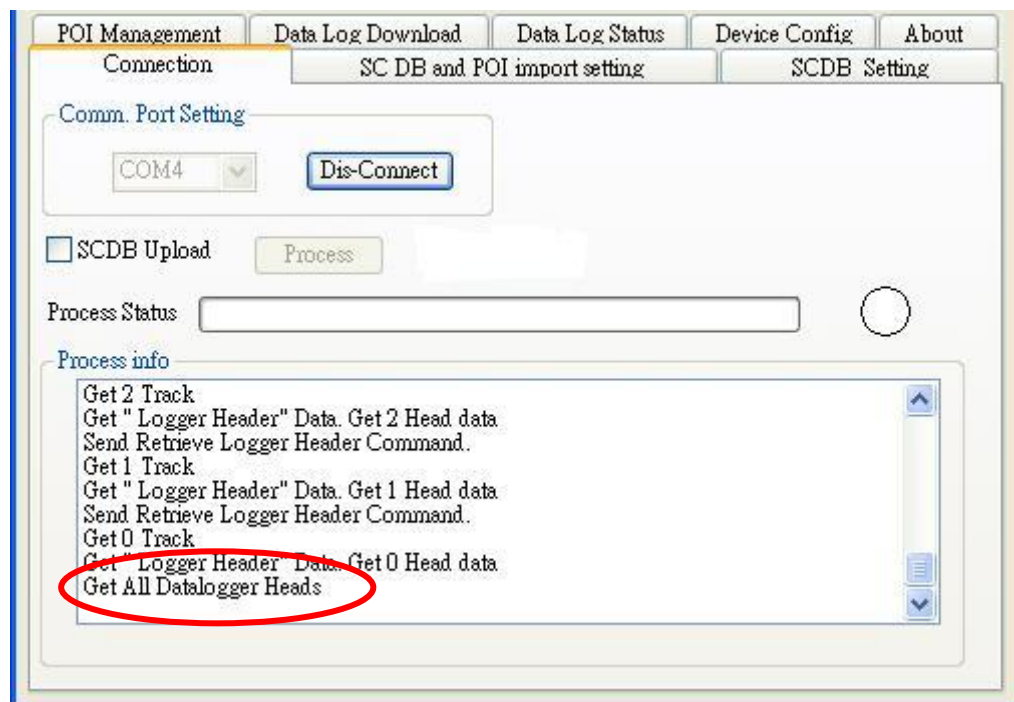


Figure3

Figure 4 is shown **System will download the POI points from device automatically.**  
**POI data will be erased from device after POI load process done.**

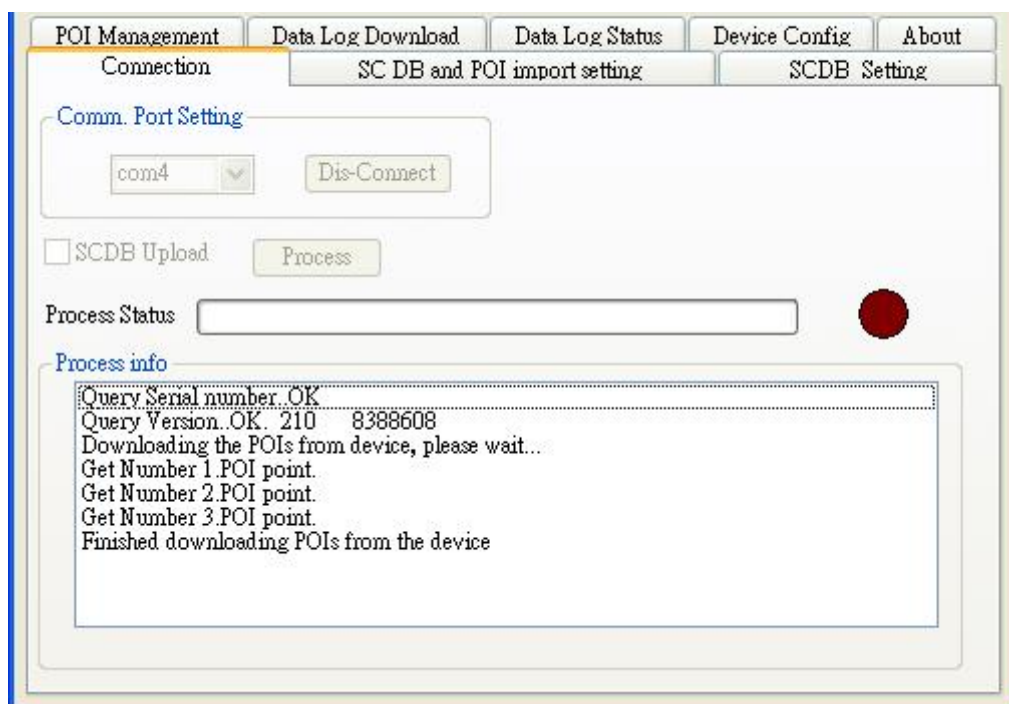


Figure 4

If the figure 5 dialog is shown, it means there is no POI data in the device.



Figure 5

### 3.2 POI Management Procedure

When proceed the POI Management, system will auto create the POI folder for POI data download.

**Note:** POI data are stored in the PC side and named POI.csv and stored in the subdirectory /POI/.

User can load POI data, delete POI data or Save POI data by using the Utility.

**Note:**

◆**Load POI:** User can edit the POI points by click the button "Load POIs".

There are 5 types of status will show on the Utility screen after loading POI action is done.

\***Duplicated with No. X:** means the distance between the current POI point and No. X POI point less than 1km.

\***Out of SCDB range:** means the current POI point is not in the SCDB coverage range.

\***OK:** means the valid POI point.

\***Speed is out of range:** means the POI's speed is over the spec " the speed range is from 0 to 300km/hr"

\***Surpass 255 characters:** means the POI's comments are over the spec.

◆**Delete POI:** User can select the POI by click the checkbox and press the button "Delete POI" to delete the POIs that user selected. If user delete POIs, confirmation message will be shown to user as Figure 8.

◆**Save POI:** When user finishes the POI points edition, user can press the button "Save POI" to save the modification and integrate the POI to speed camera data base. Please refer to Figure 11 (The function "integrate POI with SCDB " will be enabled).

Check the page "**POI management**", and the AP will go to the page "POI management", please refer to Figure 6.

The screenshot shows a web-based interface for POI management. At the top, there are tabs for "Connection", "SC DB and POI import setting", and "SCDB Setting". Under "Connection", the "POI Management" tab is selected. Below this, there are sub-tabs: "Data Log Download", "Data Log Status", "Device Config", and "About". The main area contains a table with the following columns: "No", "Latitude", "Longitude", "Speed", "Comments", and "Status". The table is currently empty. Below the table, there is a "Select All" checkbox, a "Delete POI" button, a "Load POIs" button, and a "Save POIs" button. To the right of these buttons, there is a section titled "Valid POIs" which is currently empty. At the bottom, there are three notes: "Note: Speed range is from 0 to 300 km/hr.", "Note: -1 means the speed of this POI is ignored.", and "Note: User can input 255 words for comments."

Figure 6

Figure 7 shows the Load POI process done.

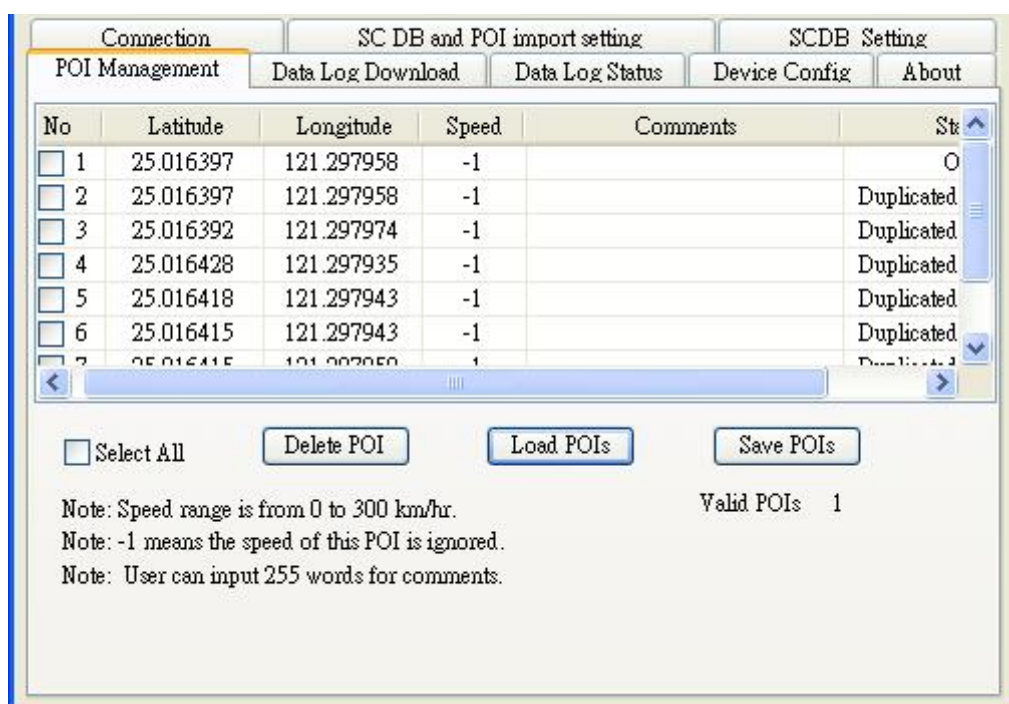


Figure 7

Figure 8 shows the Delete POIs process.

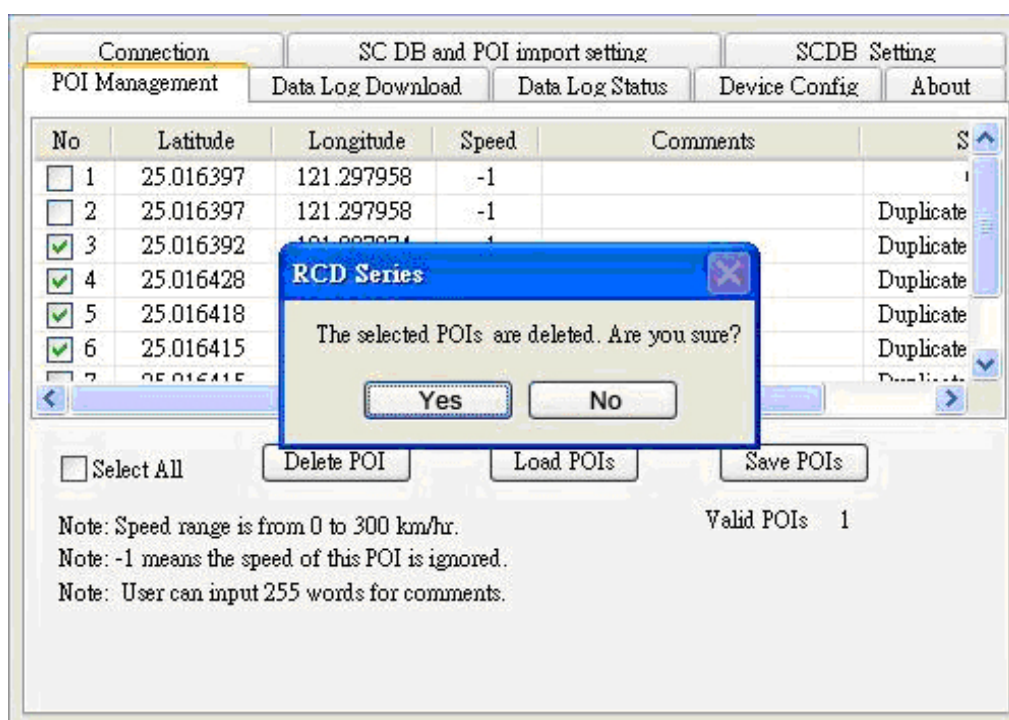


Figure 8

### 3.2.1 POI Management and shown on Map

To display the POIs on Google Map, the Internet connection is needed.

Move the mouse cursor to the required "Latitude" or "Longitude" point column then press the

mouse right key, the message “Go to Google Map” showed as Figure 9

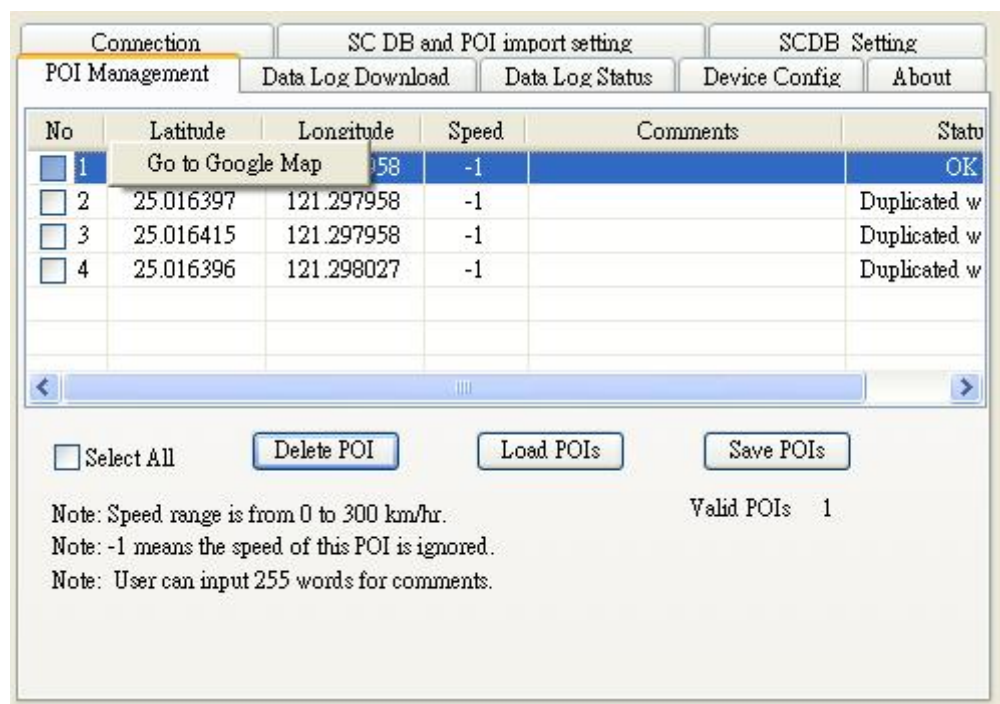



Figure 9

### 3.2.2 POI data modification

User can modify the speed, latitude, and longitude and add comments.

#### 1) Modification of the latitude and longitude:

When user clicks the “Go to Google Map” pop up menu, user can modify latitude and longitude, the utility will show as Figure 10.

User can drag the mark  to set the position of the POI on Google Map window.

After the modification is complete, please press the button “OK” to save the modification.

#### ◆Go to SCDB Coverage:

Show the device’s speed camera database coverage on Google Map

#### ◆Go to POI:

When user clicks the “Go to POI” button, the screen will back to the POI point Map window.





## 2) Modification of the comments and speed:

Check the “comments” or “speed” column of POI then user can add the comments or speed on it, shows as Figure 10

After the modification is complete, please press the button “Save POIs”

Note: Users can add comments for the POI and only 255 words can be added..

Speed range is from 0~300km/hr.

Connection		SC DB and POI import setting		SCDB Setting	
POI Management		Data Log Download	Data Log Status	Device Config	About
No	Latitude	Longitude	Speed	Comments	Statu
<input type="checkbox"/> 1	25.016397	121.297958	-1		OK
<input type="checkbox"/> 2	25.016397	121.297958	-1		Duplicated w
<input type="checkbox"/> 3	25.016415	121.297958	-1		Duplicated w
<input type="checkbox"/> 4	25.016396	121.298027	-1		Duplicated w
<input type="checkbox"/> Select All <input type="button" value="Delete POI"/> <input type="button" value="Load POIs"/> <input type="button" value="Save POIs"/>					

Note: Speed range is from 0 to 300 km/hr.  
 Note: -1 means the speed of this POI is ignored.  
 Note: User can input 255 words for comments.

Valid POIs 1

Figure 8

### 3.3 SCDB and POI import setting

#### ◆SCDB Setting :

There is one type Camera database data. Fixed Speed Camera database data

User can download the Speed Camera database from his computer (local file).

For the Speed camera database file format, please reference the example:

File name: \*.csv

Latitude, Longitude, direction, vmax, Type

46.55886,2.2,35.40,2

#### ◆POI Setting :

**Note:** The function will be enabled after the Save POI action was done by user.

User can integrate the POI data into SCDB database.

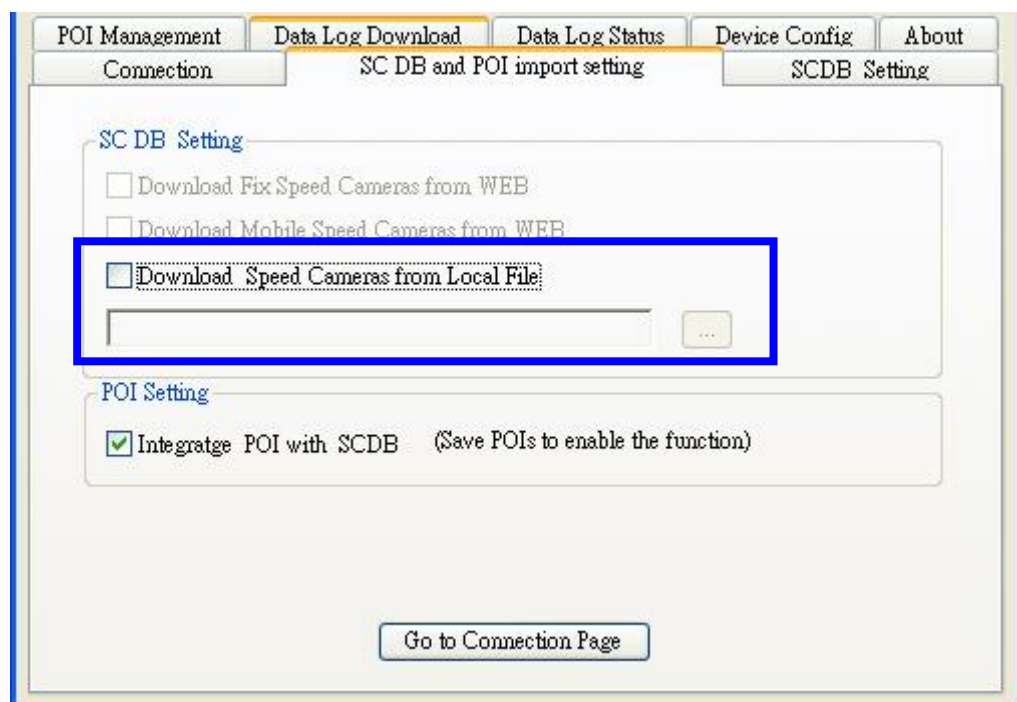


Figure 11

#### **3.3.1 Download SCDB data from Local file**

Currently, users can upload DB data combinations are as follows:

- 1) Only SCDB
- 2) SCDB + POI

##### **4.3.1.1 Download SCDB data from Local file**

If user wants to download SCDB data from user computer (local file), please check the "Download Speed Cameras from Local file." And select the local path. Shows as Figure 12

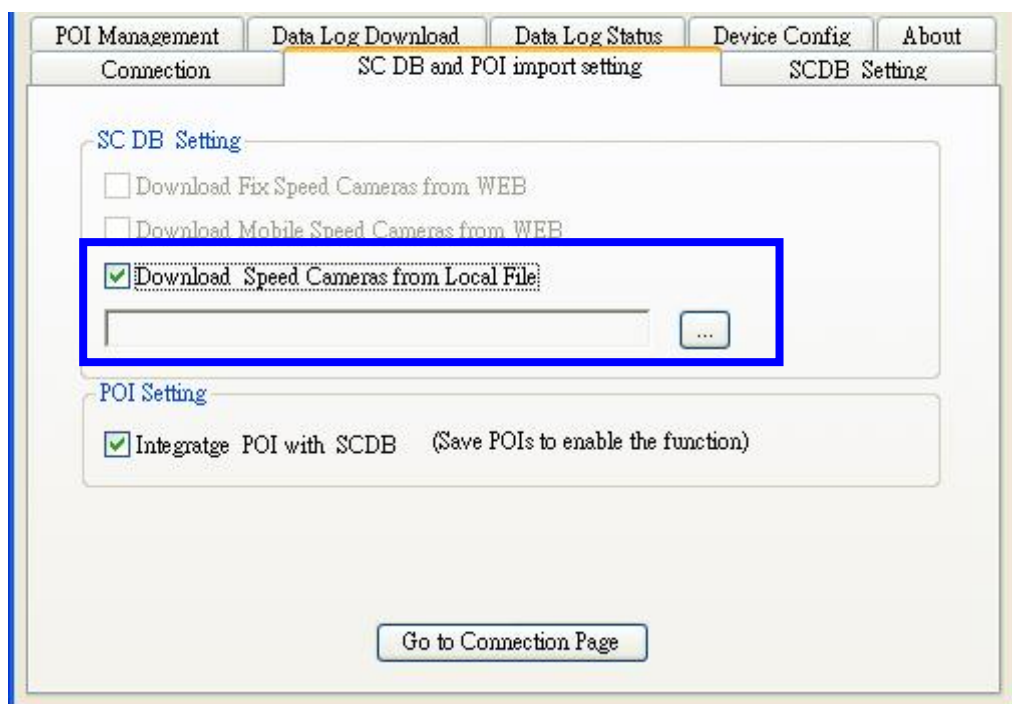


Figure12

Press the button “Go to Connection Page” and the AP will go to the “connection” page. System will show the notification message. Shows as Figure 13 and 14



Figure13

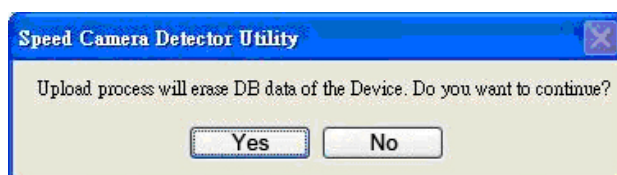


Figure14

Figure 15 shows that the upload proceed.



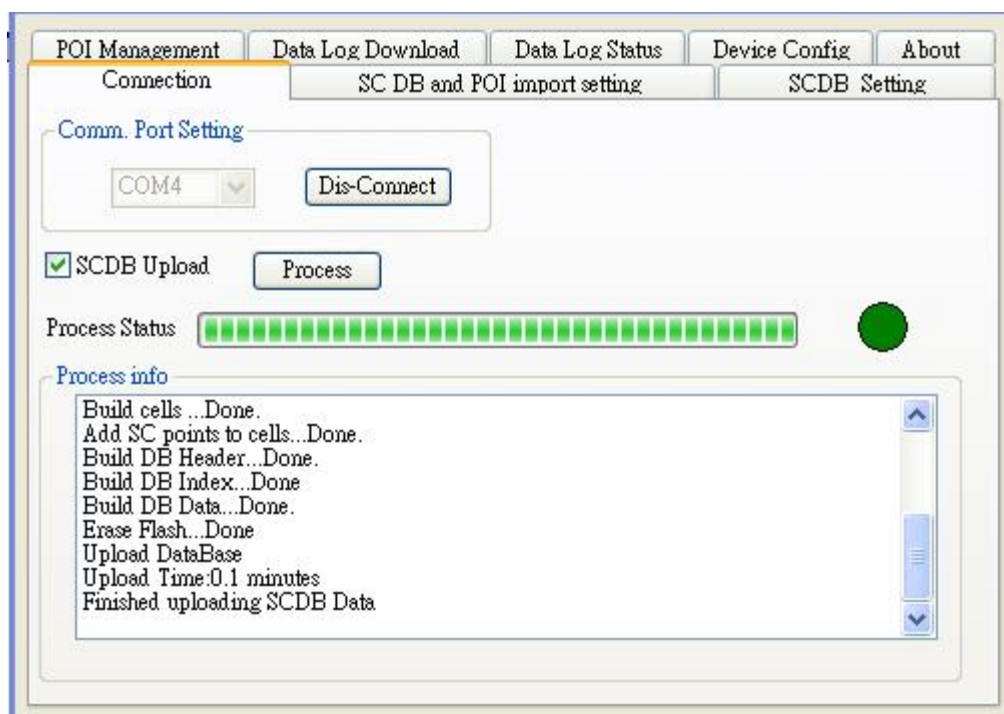


Figure15

Figure 16 shows that the download process is completed. And system will auto alert you to do the action "RESRT and Reconnect the device" after the upload process was completed.

**Please re-connect the device.**

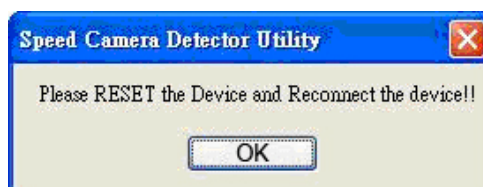


Figure16

### **3.3.2 POI Setting process**

Go to the page "SCDB and POI import setting", user should check the checkbox "SCDB setting" to choose the SCDB at the same time, then press the button "Go to connection Page', .The utility will go to page "Connection" and integrate SCDB automatically.

**Note: (1) Saved POIs:** User press the POI button, then the device will record a POI point, This POI point is called Saved POI.

**(2) If user want to use the RCD-3000 device in another PC, please copy the original PC's POI data (stored in the subfolder /POI/ POI.csv) to the new PC.**

### 3.4 Datalog download and device configure Function

User can download log data by using the Utility.

Figure 17 shows: Change to “Device Config.” menu bar.

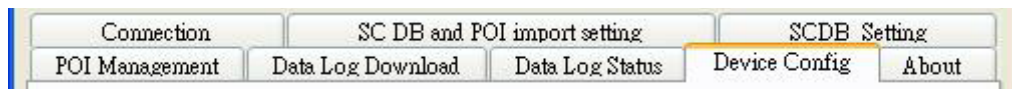


Figure 17

Figure 18 shows: select Folder or set a new folder for saving NMEAData.

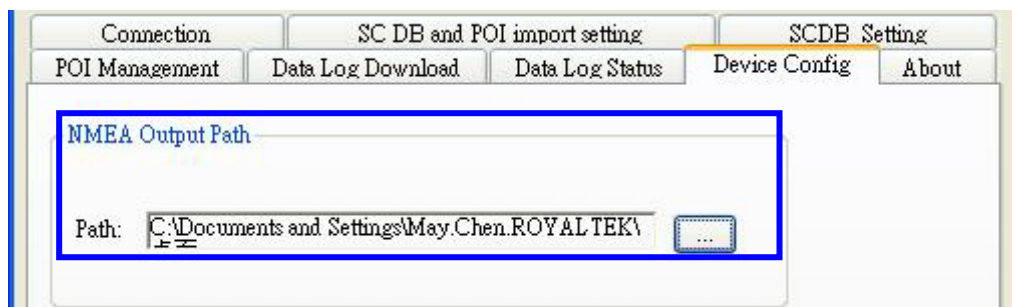


Figure 18

Figure 19 Show: Change page to “Data Log Download” menu bar and the AP will go to the page “Data Log Download”.

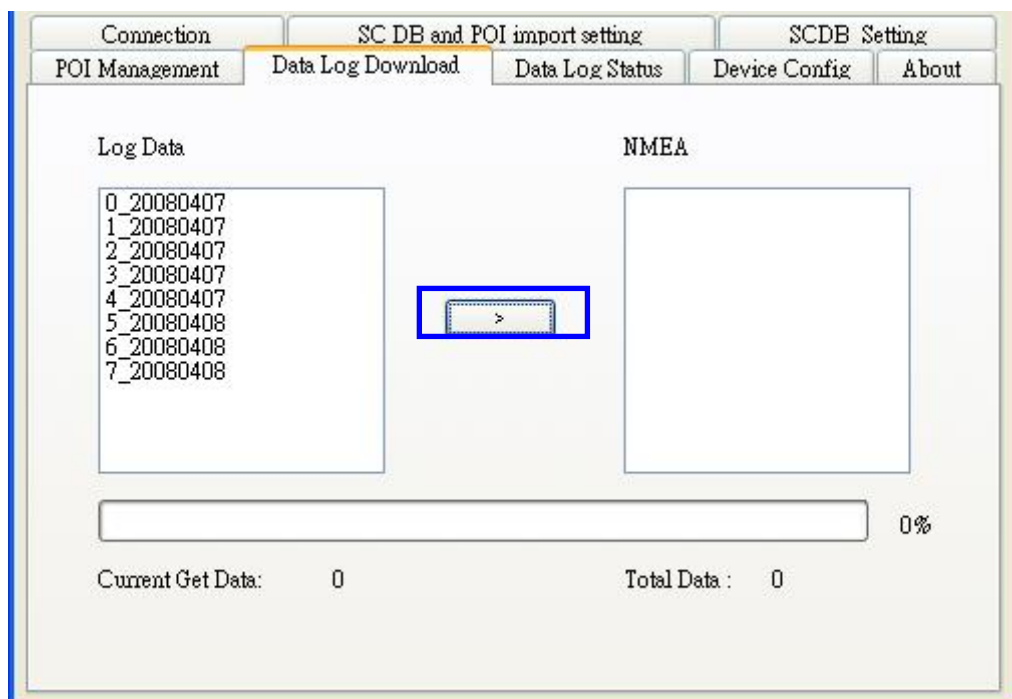


Figure 19

### 3.5 Get and Set RCD-3000 Data Log Status

User can review the RCD-3000 default setting configuration.

Figure 20 shows: Change to “Data Log Status” menu bar

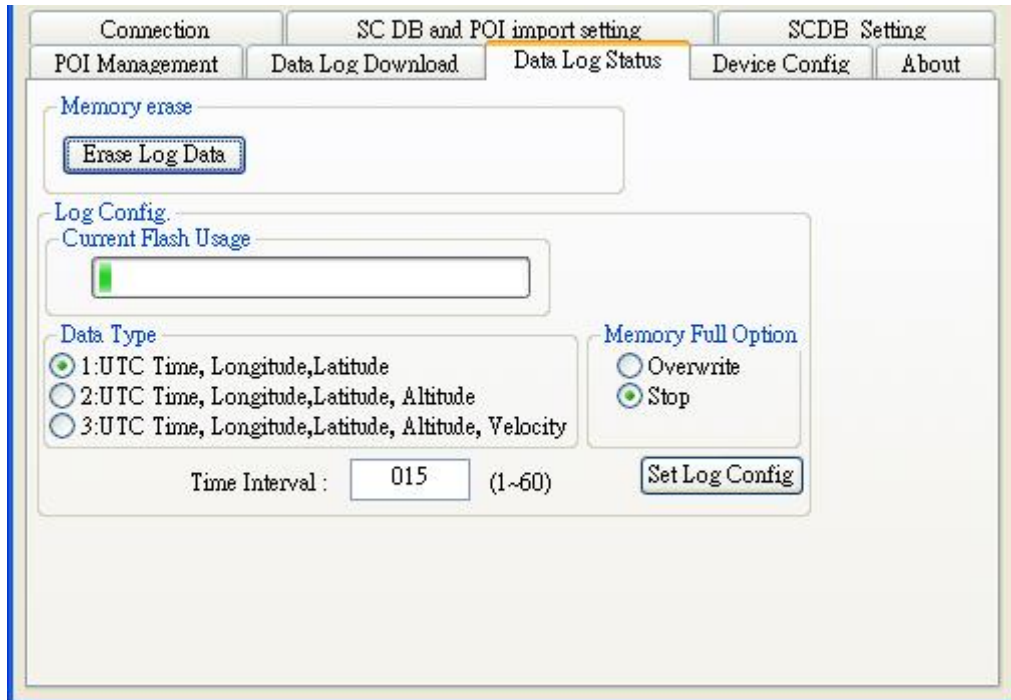


Figure 20

#### ◆Time Interval (user adjustable)

It means the time distance between the record two positions

Default setting is 15secs

1sec ~ 60secs, user adjustable

#### ◆Data Type (user adjustable)

There are 3 options for user to choose these data items to be saved in the RCD-3000.

1: UTC Time, Longitude, Latitude, will be saved.

2: UTC Time, Longitude, Latitude, Altitude, will be saved.

3: UTC Time, Longitude, Latitude, Altitude, Velocity will be saved.

#### ◆Memory Full Option (user adjustable)

The default memory operation setting is “overwrite”.

If the memory is full then the system will erase the oldest sector.

The other memory operation setting is “Stop”.

If the memory is full then the system will stop log function.

#### ◆Current Flash Usage

This bar only shows the rough current flash usage status. You should check the

LED to see if the flash is full.

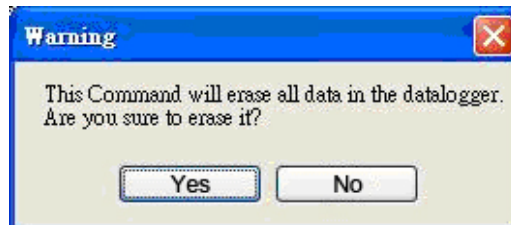
#### ◆Set Log Config.

When user finished the configuration setup, press the “**Set Log Config.**” button to save the setting to the receiver.



#### ◆Memory Erase

User can erase all the log data from the device.



### 3.6 SCDB Setting

Change to “SCDB Setting” menu bar

#### ◆Speed Camera Alert Setting :

User can set the Critical Range value and Notification range of the device.

**Note: Notification range should be bigger than Critical range 200m.**

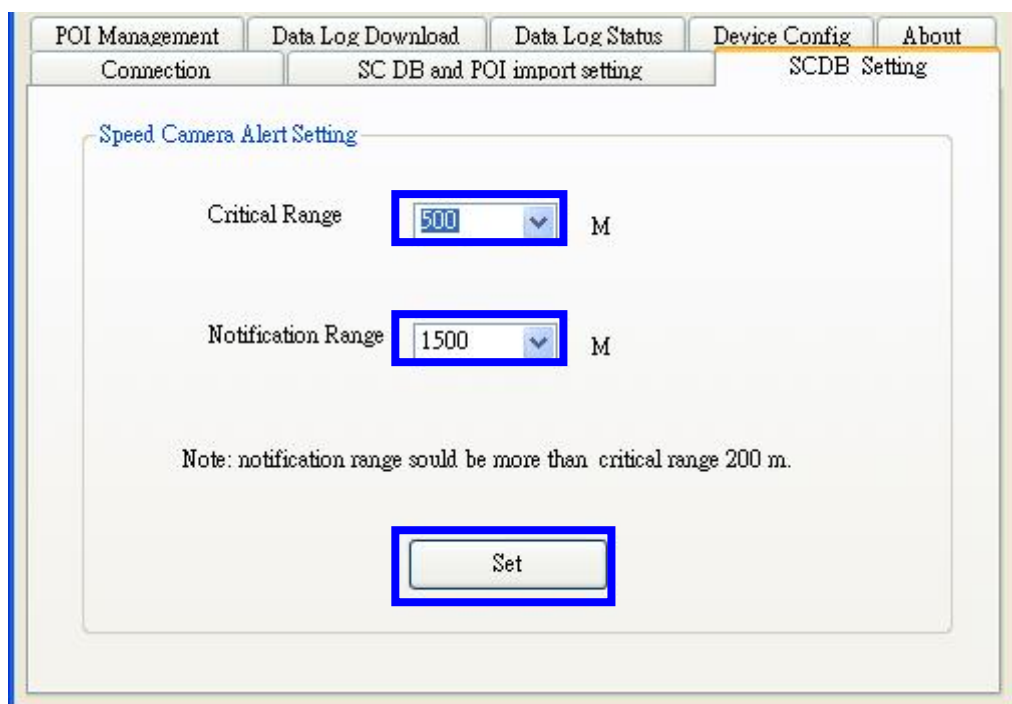


Figure21

### 3.7 Utility Revision information

Change to “About” menu bar

User can get the RoyalTek SCDB Utility version.

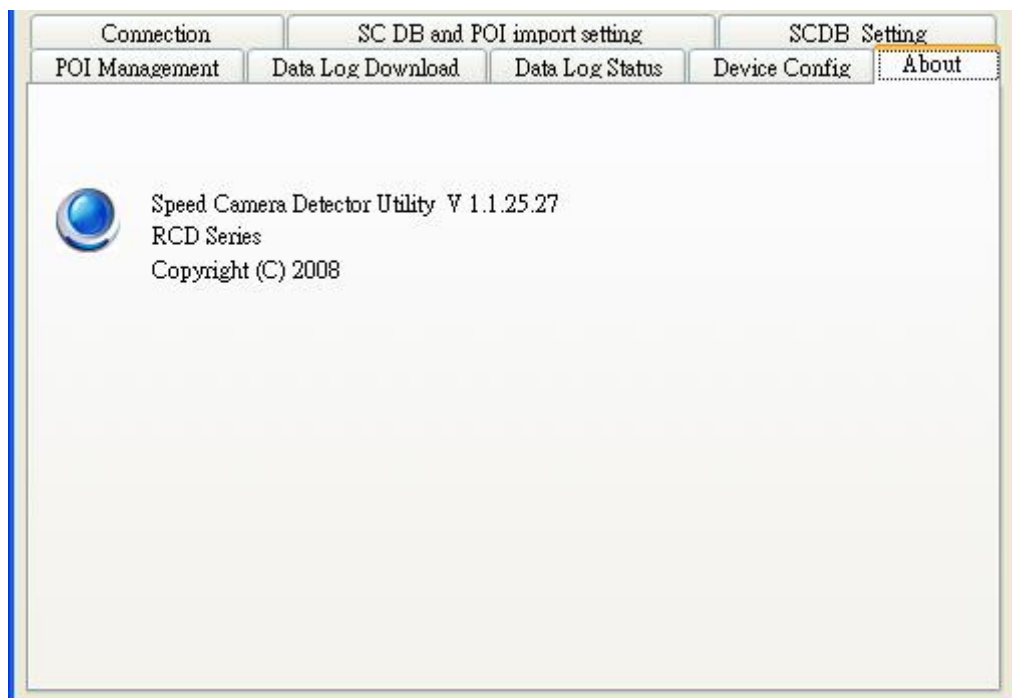


Figure22