LEADTEK

GPS

Global
Positioning
System

User's Technical Manual of

Leadtek GPS EVK

www.leadtek.com

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1. Introduction

Leadtek GPS LR9500 is an evaluation kit designed to demonstrate the performance of Leadtek GPS modules. It supports Leadtek 9540, 9543, 9547, 9548(s), 9805(st), 9101 modules. GPS LR9500 EVK not only helps customers to evaluate our GPS modules performance but also can be used to update new firmware for the GPS modules.

2. Product Features

- Easy Installation and operation of GPS modules
- Testing and programming the GPS modules.
- Support Leadtek 9540, 9543, 9547, 9548(s), 9805(st), 9101 modules.

3. Technical Specifications

Power Input	DC 3.3V
PC Interface	TTL transform to USB
Size (L x W x H) (mm)	87.9 x 53.3 x 11.05 (mm)
Weight	16 (g)

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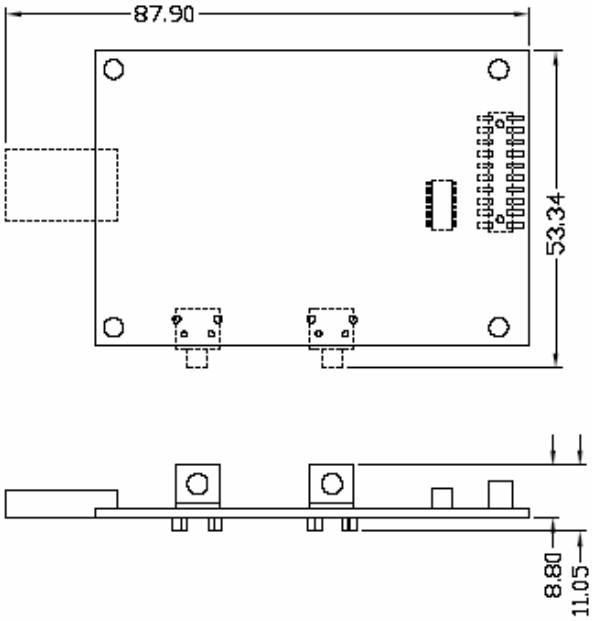
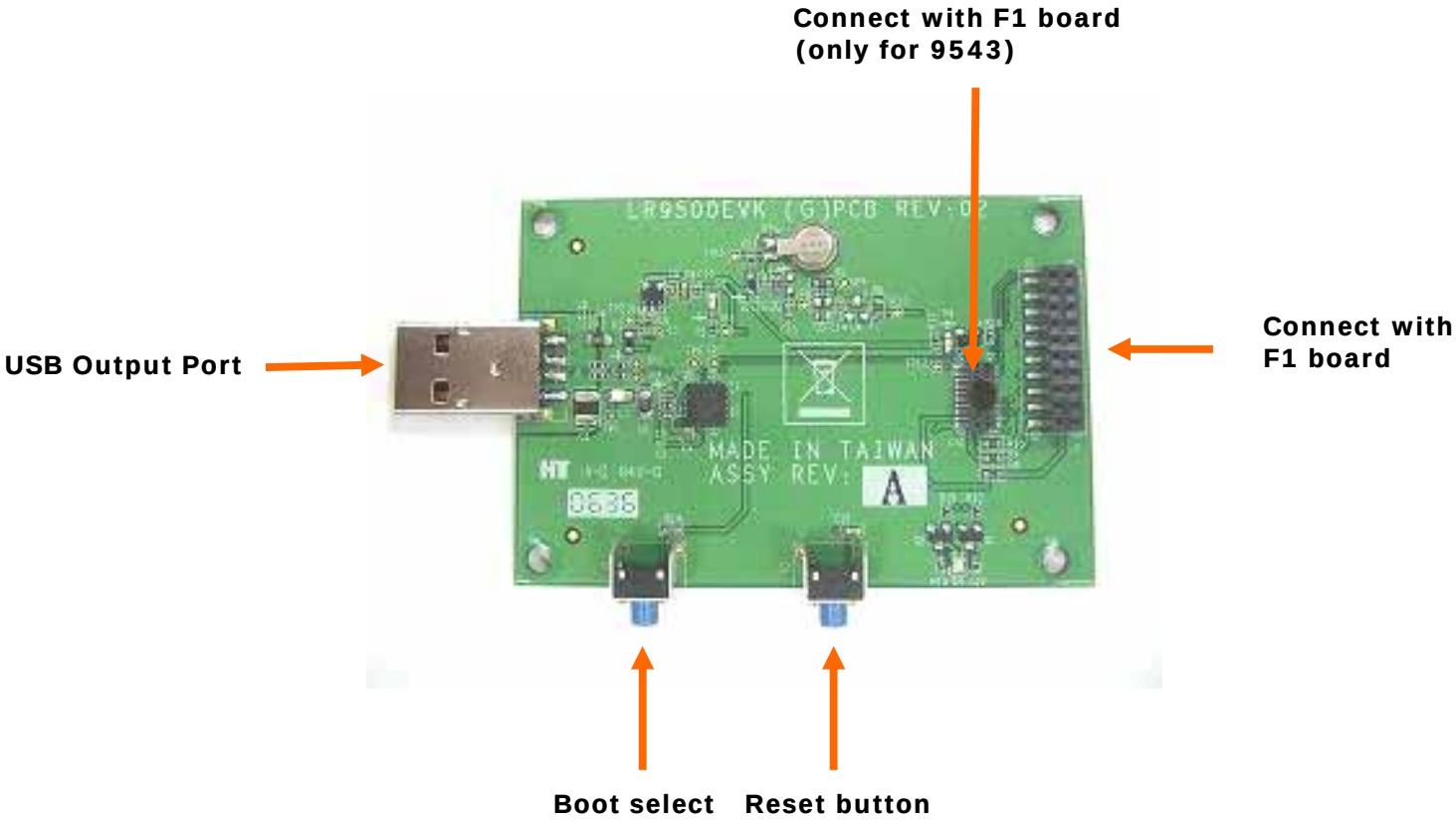
4. Mechanical dimensions



5. Outline and Descriptions



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6. Functional Description

Functional kit	**Description**
Power ON	Power ON by USB connector for GPS 9500 EVK. To inset USB port of PC will turn on power.
GPS Antenna	Connect GPS active antenna with SMA connector.
Power & Status LED	Two colors by LED, which show power and data transmitting status. The green is for power status and the red is for GPS data output status.
Reset Button	Reset GPS module and force a cold start.
Boot Select Button	Please refer to details on technical manual of CD-ROM for download instructions. To download firmware, push reset button once while hold down this button. The GPS module will enter into forced download mode. Perform reset to leave download mode.

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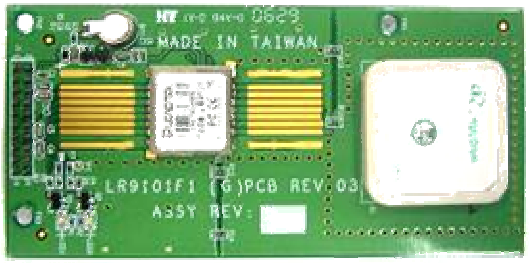
7. The operation of EVK

This chapter will show you how to operate an EVK, let's take LR9101 for example.

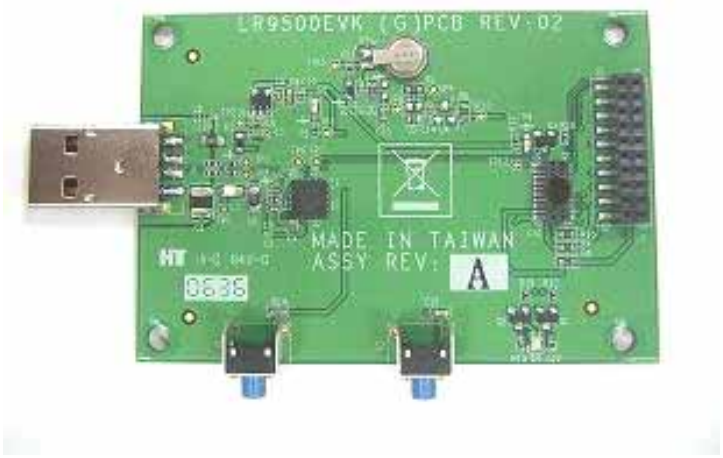
7.1. Step 1: Check devices

1. Module: LR9101 (example)

2. LR9101F1 (G)PCB REV:03



3. LR9500 EVK Board



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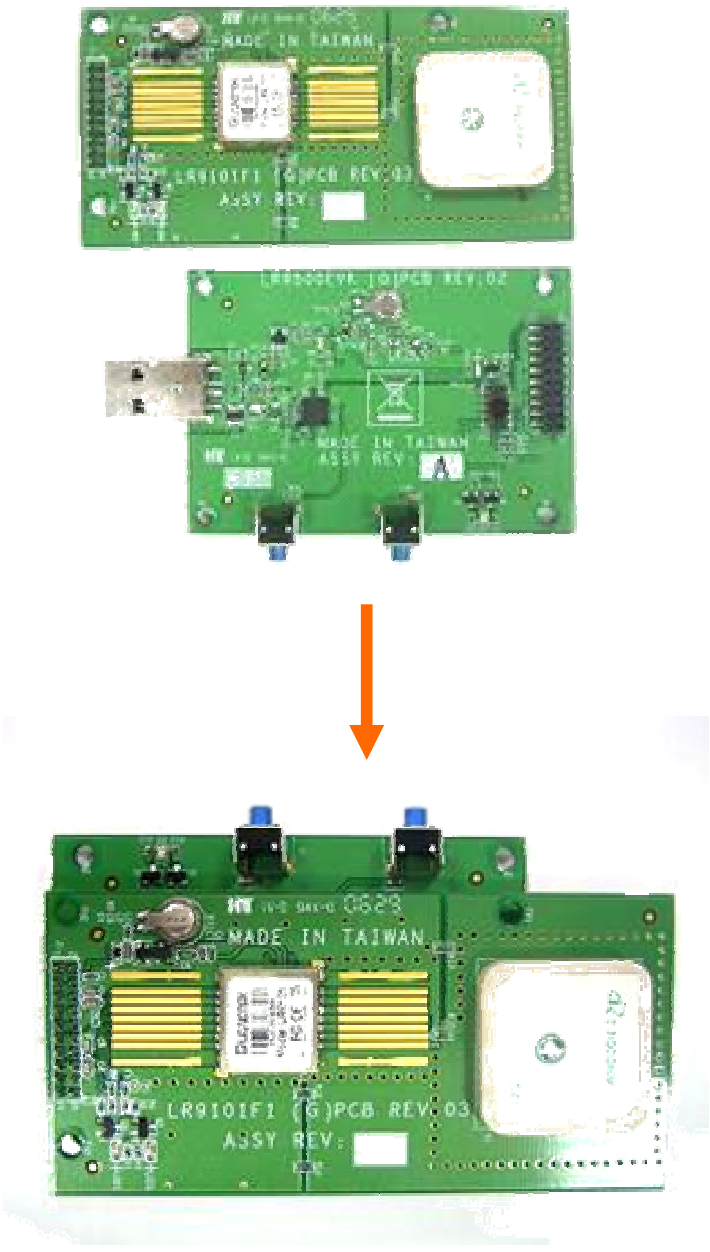
7.2. Step 2: Start to connect

Then connect the LR9101F1 board to LR9500 EVK board



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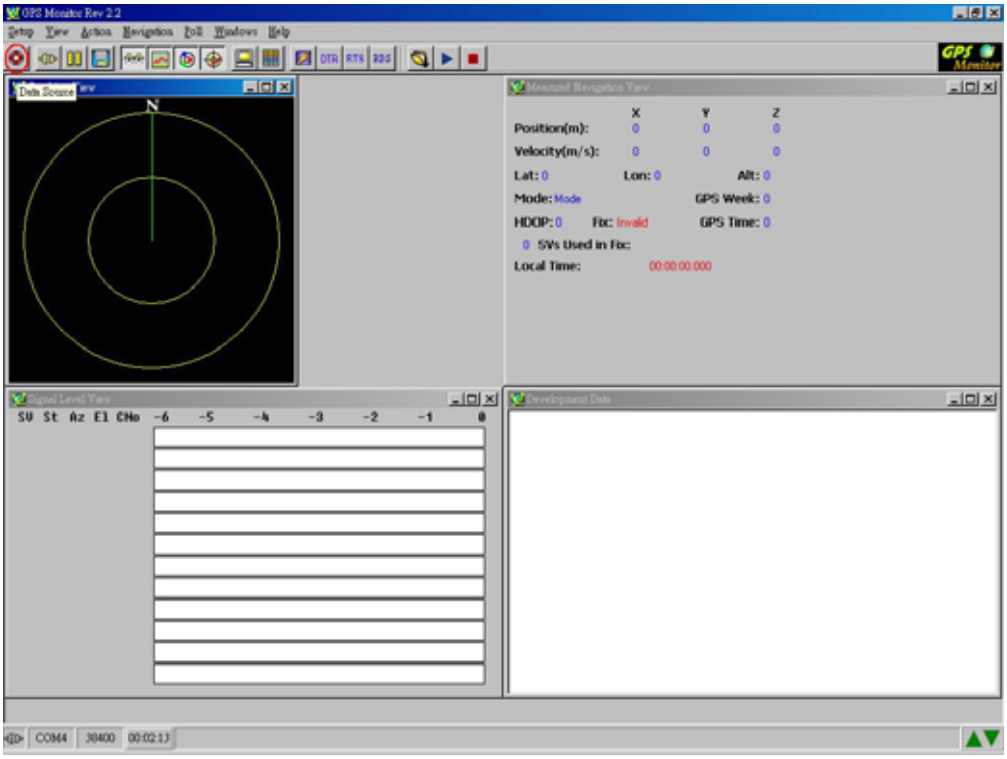
8. Operation of G-Monitor software with GPS EVK

8.1. Normal operation

In GPS monitor main screen, click **data source setup** button indicated in the figure below.



<Note>Go to view menu to choose desirable information windows you like to observe.

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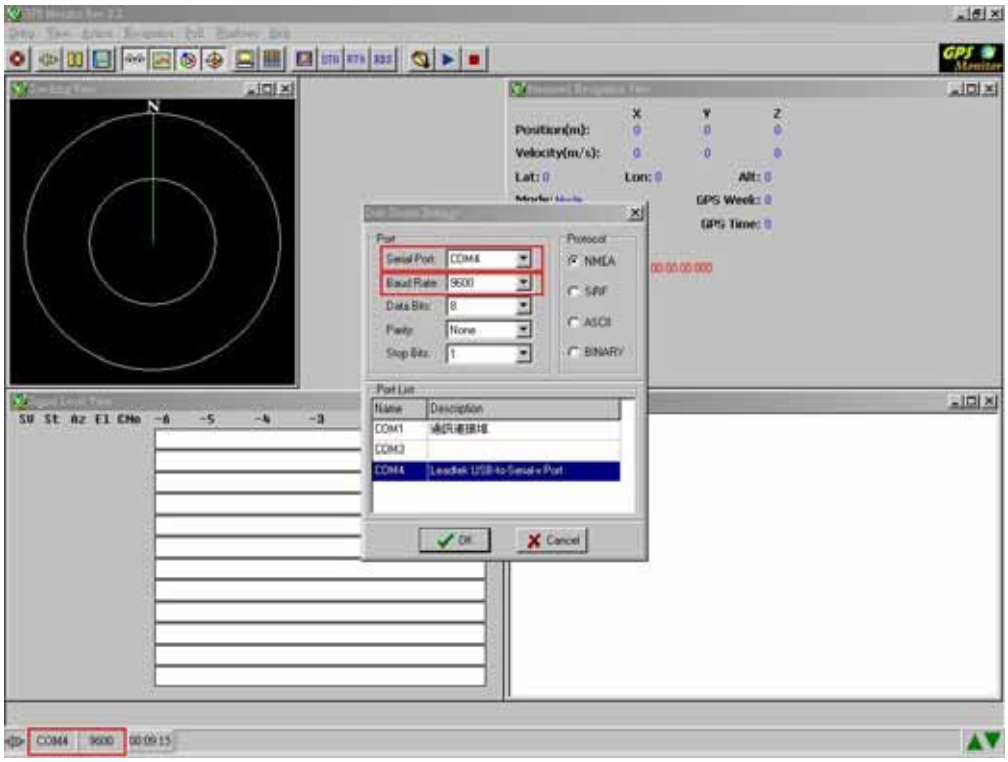
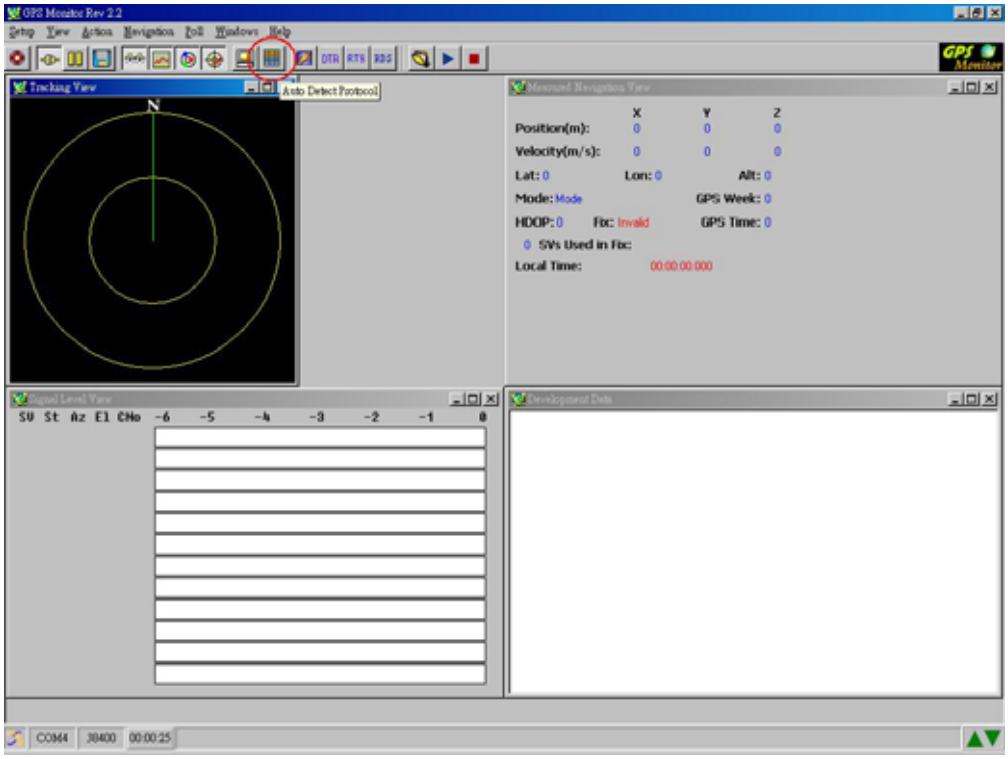
Next, please choose **Com Port** and **Baud Rate** correctly.



Next, please click on **Auto detect protocol and baud rate** button. The GPS software will go on detecting protocol for GPS module.



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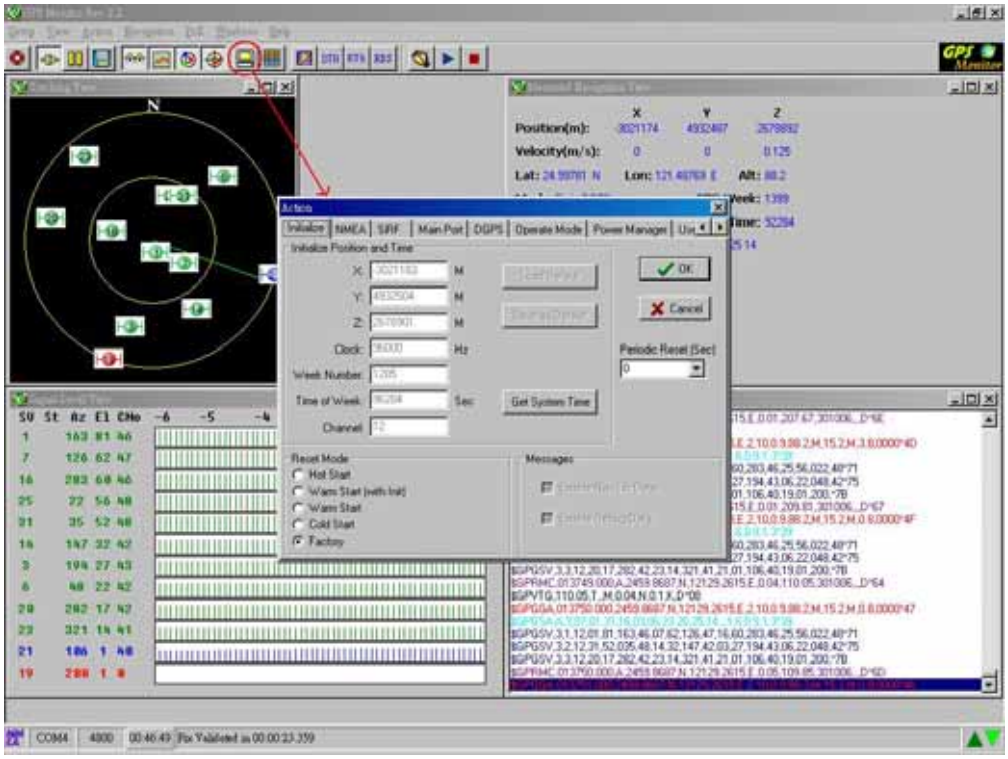
8.2. Cold/Warm/Hot start time measurements

You can use the GPS EVK device and GPS Monitor software to measure hot, warm and cold start time of the GPS module. Please click on **Initialize Data Source** button.



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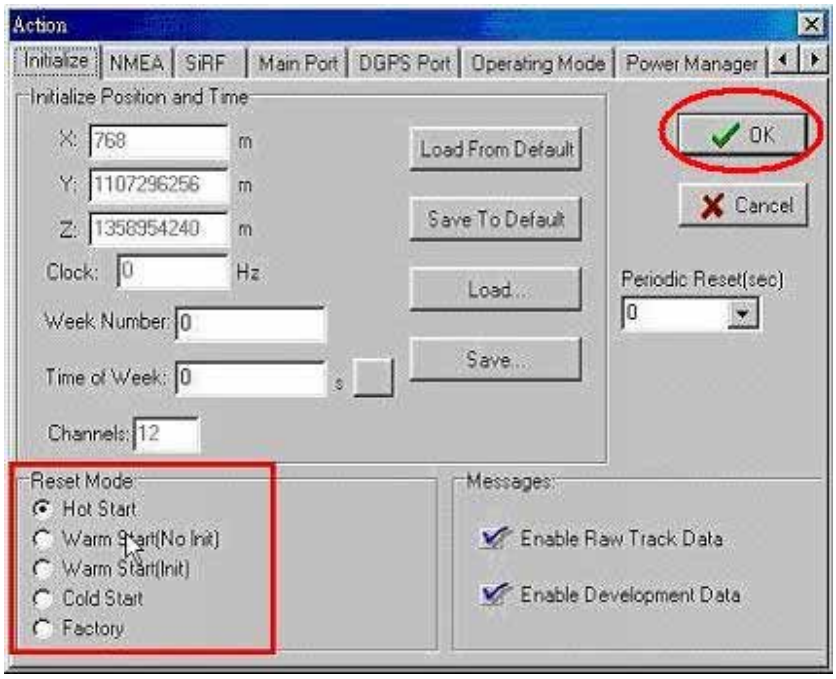
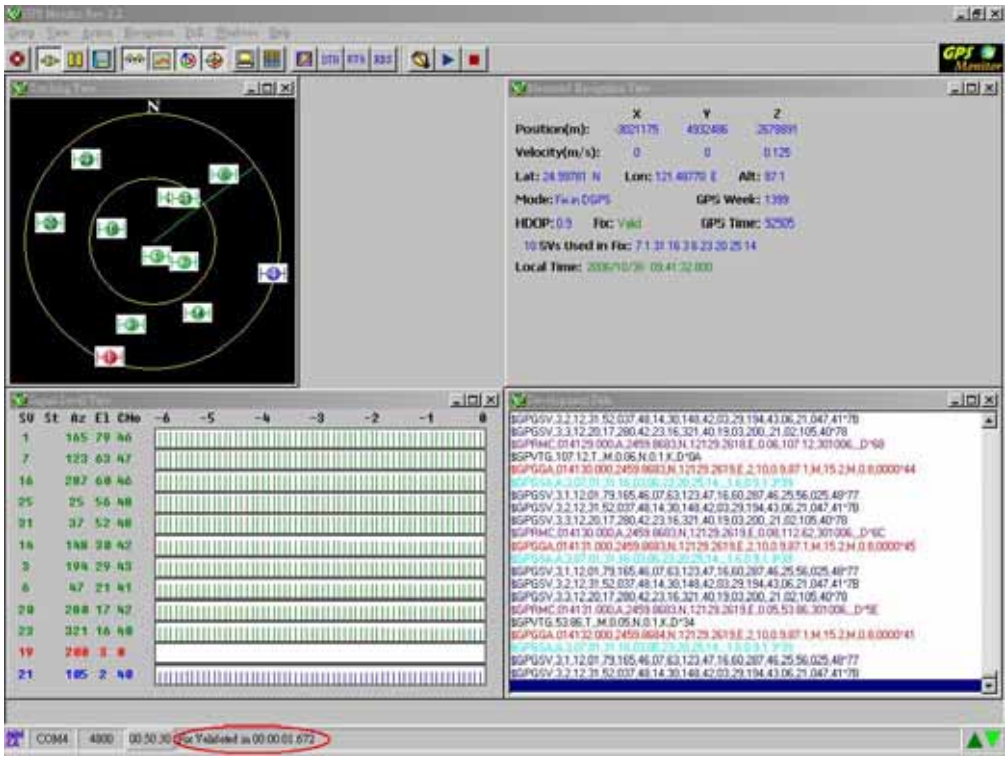
This example shows how to measure hot start time.

Please choose **Hot Start** item and click on **OK** button.



Finally, please wait a moment and you will get time of hot start. The hot start time will show on the left side below.



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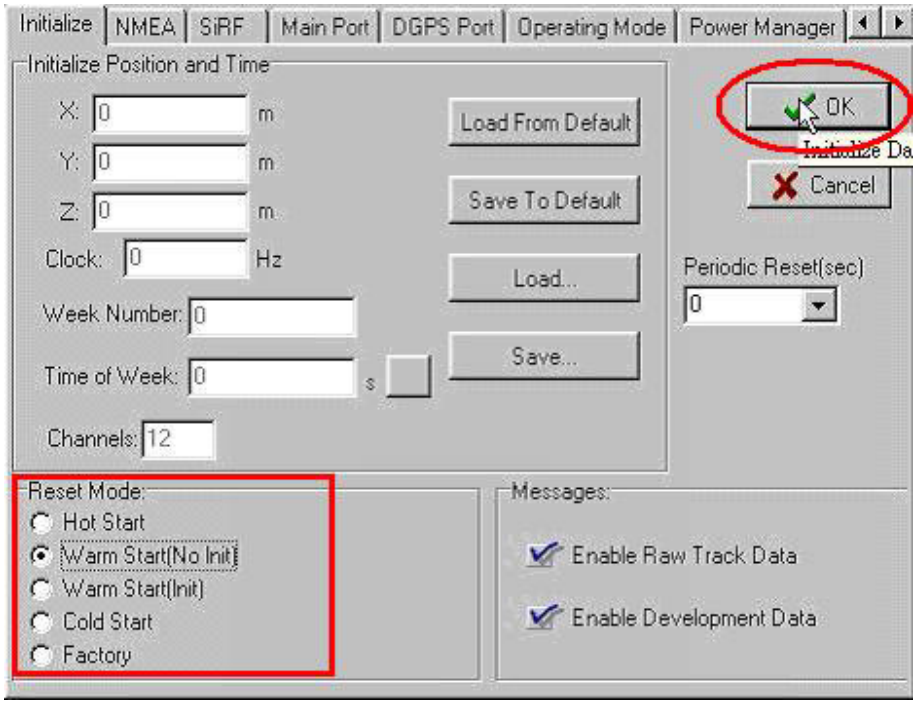
Please repeat above the steps and you will get time of warm and cold start.

<Warm Start>



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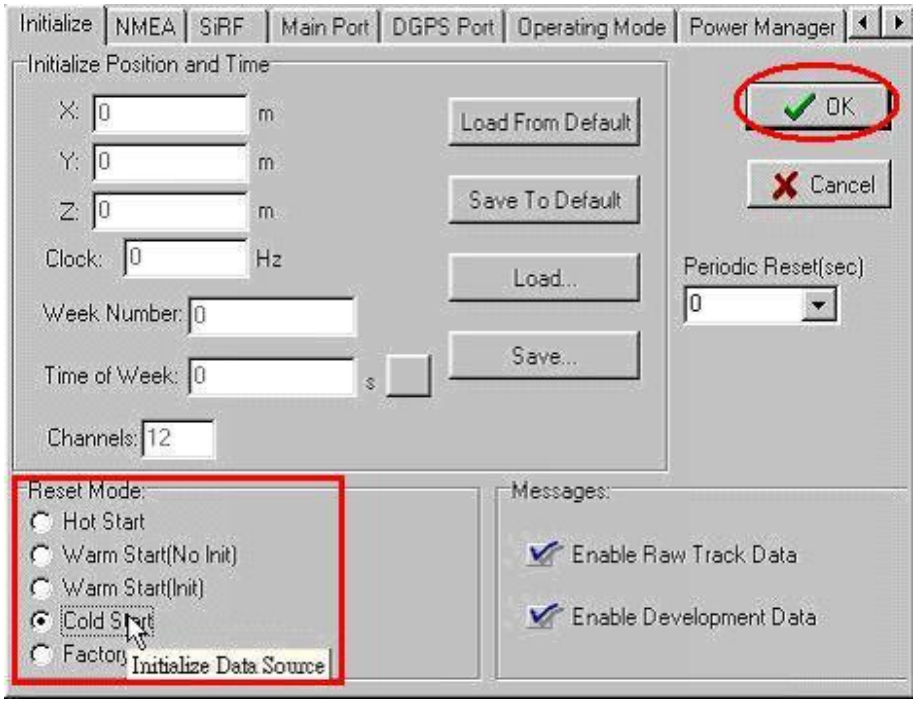
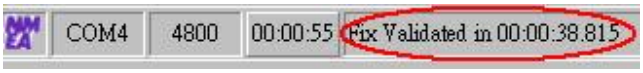
<Cold Start>





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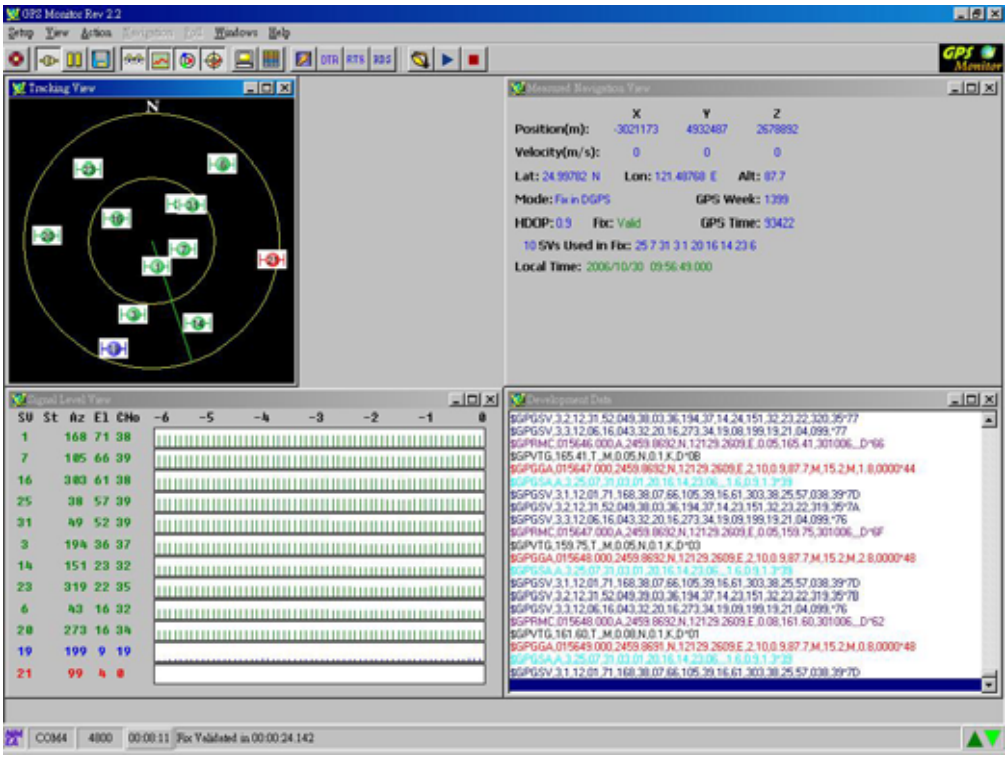
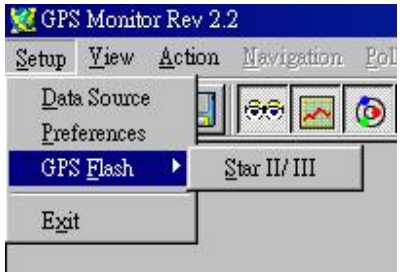
9. Download the firmware to GPS module

<Step 1>Double click the GMonitor desktop icon to run software in order to download firmware.

The Main screen is shown as follows.



<**Step 2**> Choose the **Setup→GPS Flash→Star II/III** option from of main menu.



The following screen shows the download options.

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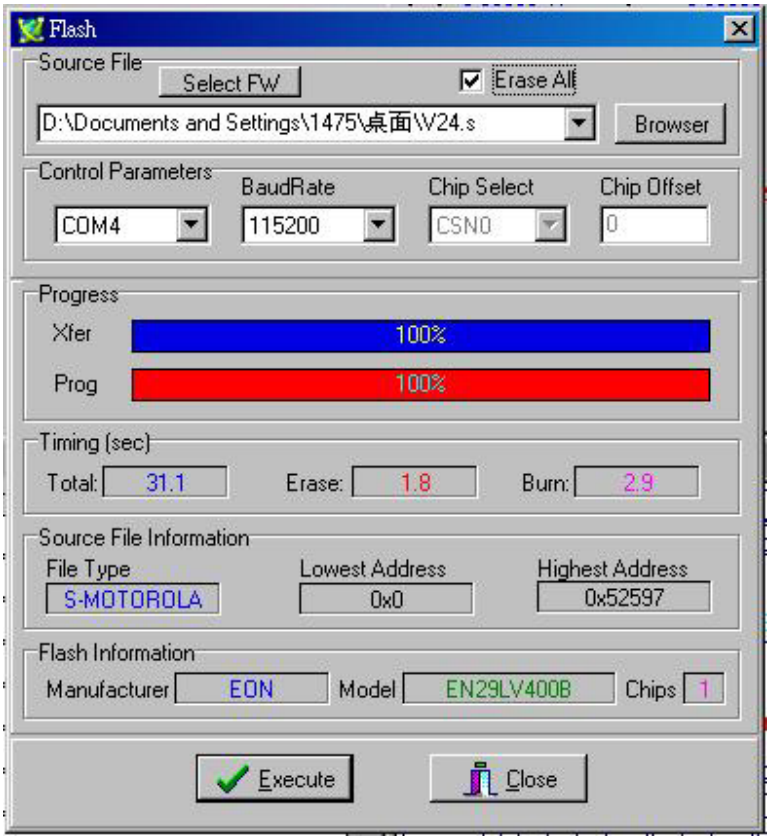

<Note>

If the module is type of **single chip** (ex. 9805ST), please install GMonitor2.102. The file path is in the E:\GPSMonitor\GM2.102.exe. (If E:\ is your CD-ROM)

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<Download Options>

Erase All	*Uncheck this box and program will only clear the portion of the flash memory that the new firmware will occupy.*
	Check this box will clear the entire flash memory space before firmware burn-in.
Force download (for GMonitor2.102)	*Uncheck this box and GMonitor will use only software command in GPS module to download the update firmware. This is called software download method.*
	Check this box and holding the boot select button in EVK while press and release reset button will force GPS module into Force Download mode, which can only break by press reset button again. This is the preferred download method and should be use whenever possible.

To use EVK to download new firmware, perform the following steps.

1. Check "Erase All" and "Force Download" (GMonitor2.102 for single chip) options.
2. Click "Browse" button to locate the new firmware you want to upgrade.
3. Click "Execute button to start download.
4. After download finish, click "Close" to close the download screen.

<Note>

1. To use Software Download method, uncheck "**Force Download**" box and follow the reset of the download operations. For some Leadtek products that do not have boot select and reset switches, software download is the only way to upgrade firmware.
2. When you cannot finish updating firmware by software download, we suggest that you use the force download. This method can only be performed when GPS hardware support the boot select and reset switch. Before executing software to update firmware you have to push reset button once while hold down boot select button and make GPS module enter into download mode.

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10. Install the USB Driver

<Note>Please do not plug in USB serial cable before installation of USB Driver!

■Step 1.

Insert the software CD in your CD-ROM drive. The Autorun program (LEADTEK.exe) will display a setup screen as the figure to the right.

Note: You can also start the setup program by running LEADTEK.exe in the main directory of the CD.

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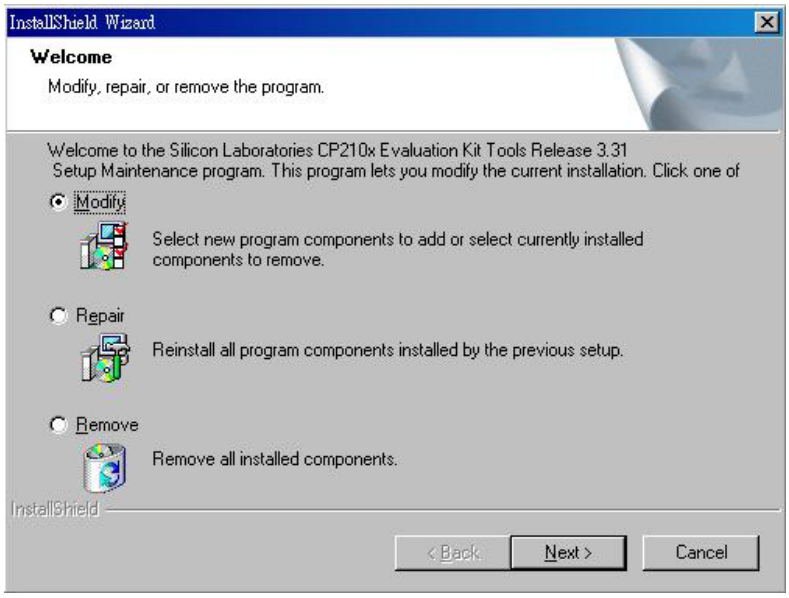
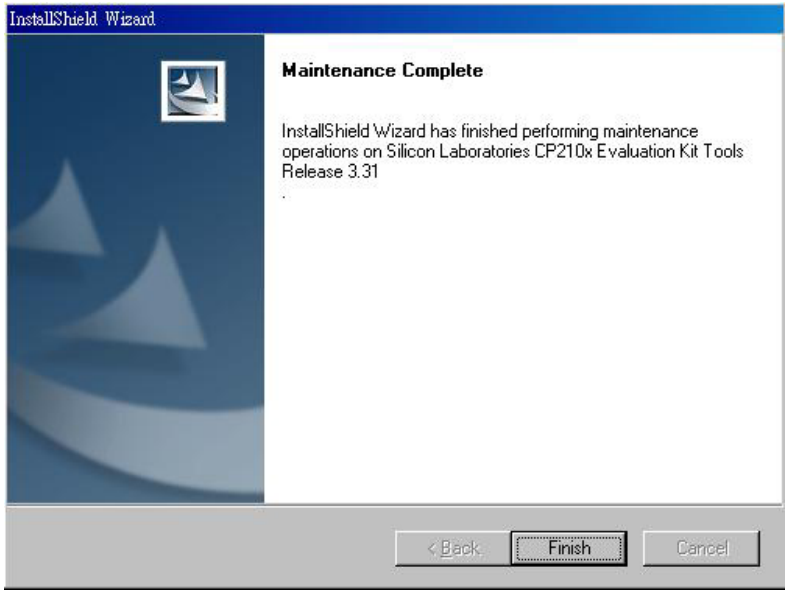
■**Step 2.**

Please click on the **USB Driver** button for installation. You will see the following picture on your screen. Click one of the items you want to operate.



■**Step 3.**

You can begin installing the USB driver by click on the Install button. Then you can also see the following picture on your screen. Click Finish then you complete the installation.



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■**Step 5.**

Perform a reboot of PC and then insert the USB serial cable. GMonitor should now be able to detect a new serial port for the USB serial cable.

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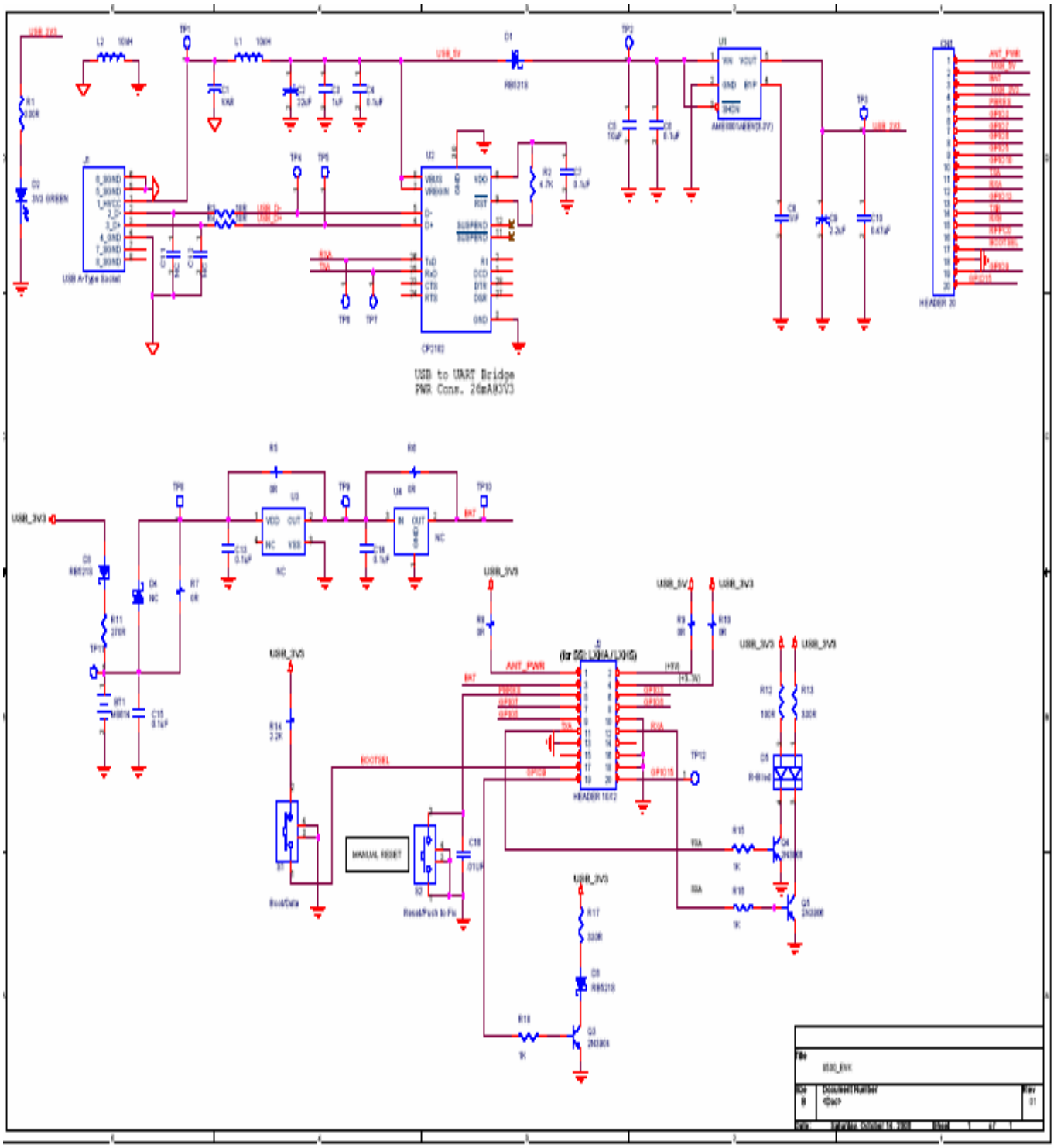
Appendix A GPS EVK schematic



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