

Leadtek GPS LR9553D
Bluetooth Data Logger & Receiver

Product ID: Leadtek GPS LR9553D

Leadtek GPS LR9553D Bluetooth Data logger & Receiver

Version A

June 2007

Headquarters of Leadtek Research Inc.

18F, 166 Chien-Yi Rd., Chung Ho City, Taipei County 23511, Taiwan

TEL: +886(0)2 8226 5800

FAX: +886(0)2 8226 3087

<http://www.leadtek.com>

E-mail: service_gps@leadtek.com

©2007 Leadtek Research Inc. All rights reserved.

TABLE OF CONTENTS

| | |
|--|----|
| 1. Introduction..... | 3 |
| 2. Features..... | 4 |
| 3. Hardware | 5 |
| 4. Package Contents..... | 6 |
| 5. Install Leadtek Navigator (PC) | 7 |
| 6. Test Leadtek GPS LR9553D..... | 11 |
| 7. Install the USB Driver | 16 |
| 8. Appendix A: Limited Warranty..... | 19 |
| 9. Appendix B: Specifications | 20 |
| 10. Appendix C: Safety Information | 23 |
| 11. Appendix D: GPS FAQ..... | 24 |

1. Introduction

Thank you for purchasing Leadtek GPS LR9553D. Leadtek LR9553D, based on cutting edge SiRFStar III technology, is a high performance, low power, 20-channel GPS data logger and receiver with wireless capability. As such it is a highly compatible Bluetooth solution with extraordinary configurability and sensitivity. Not to forget its appealing ergonomics—sleek, round and lightweight. The innovative switch-mode design not only makes for easy activation but also enables more power saving when LR9553D is used as a pure data logger which records your tracking data from the received GPS signals. It provides users enough space to store their tracking data including the altitude, GPS position, date and time- up to 240 hrs in the continuous mode. It is not necessary to export the data until the memory is full. LR9553D also comes equipped with mini USB interface both for easy charging and for users to be able to export their recorded points to Google earth and Google Maps without a hitch. If using with your digital camera and the convenient application software*, you can easily integrate your valuable photos with the GPS data you have recorded and make them your forever sweet memories.

*The application software enclosed in the Leadtek GPS LR9553D CD-ROM is a very complete and easy-to-use tool for you to integrate your photos and the GPS data. Please register on line now!

2. Features

- 20-channel all-in-view tracking
- Cold/Warm/Hot Start: 42/35/1 sec. respectively
- Reacquisition time: 0.1 sec.
- Built-in rechargeable and power-saving battery
- Operation time: 10~12 hours, in continuous mode
- Built-in high WAAS for accurate navigation
- Neck strap eyelet design, easy to carry
- Data logging up to 240 hours
- 3-mode slide switch: Off/Navi & Log/ Log only
- Interface: BT/USB

3. Hardware

- 1.USB connector (Charging & GPS data downloading)
- 2.LED indicator

| LED 1 (GPS)-Green | | | |
|------------------------|------------------------------|-----------------|--------------------------|
| State | Always on | Quick blinking | Slowly blinking |
| Description | Memory full to stop | 3D fixed | GPS signal acquisition |
| LED 2 (Bluetooth)-Blue | | | |
| State | Quick blinking | Slowly blinking | No |
| Description | BT on, but not connected yet | BT connected | BT off |
| LED 3 (Power)-Red | | | |
| State | Always on | Quick blinking | No |
| Description | Battery is charging | Low power | Battery is fully charged |

4. Package Contents

- Leadtek GPS LR9553D Bluetooth data logger and receiver x 1
- Leadtek Navigator & Locr PC client CD ROM x 1
- Warranty Card x 1
- Quick Guide x 1
- Neck eyelet strap x 1
- USB cable x 1
- Car charger x 1
- Travel charger (optional) x 1

5. Install Leadtek Navigator (PC)

Step 1

Before installing Leadtek Navigator, make sure that you have installed Microsoft ActiveSync to your PC. Insert the software CD-ROM into the CD-ROM drive.

The following screen should appear automatically. If not, run "install.exe".

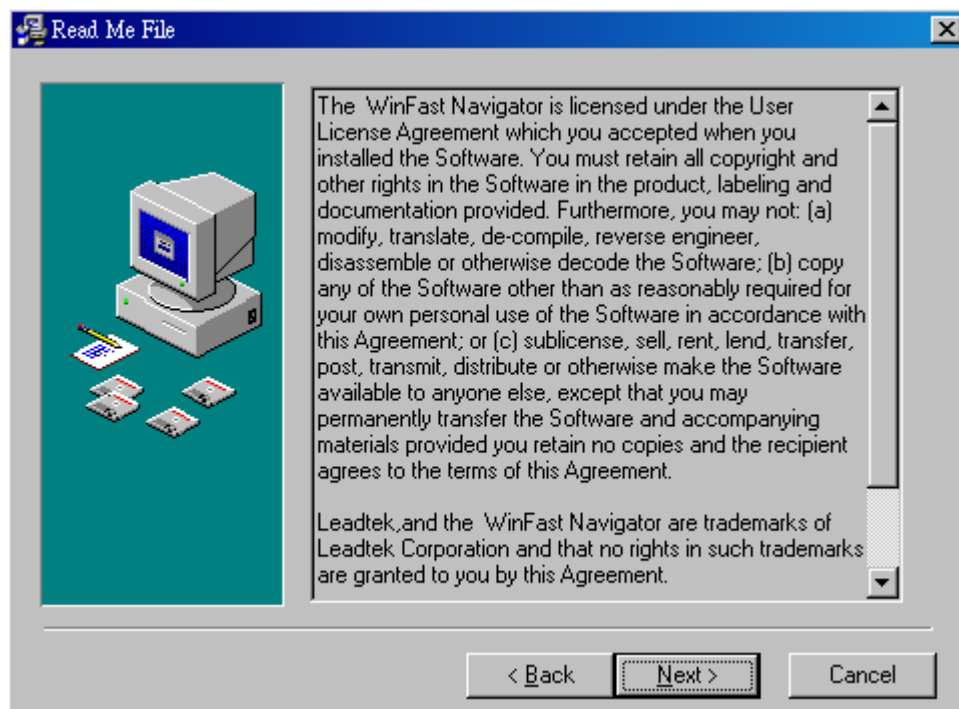
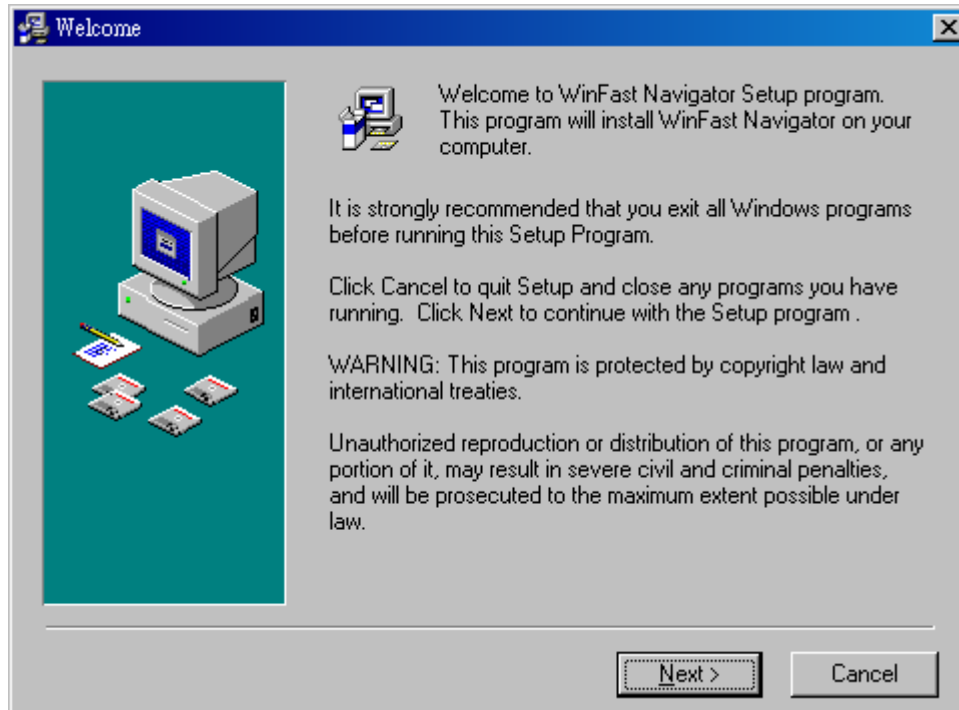
Click "Leadtek Navigator" to initialize installation.



Step 2

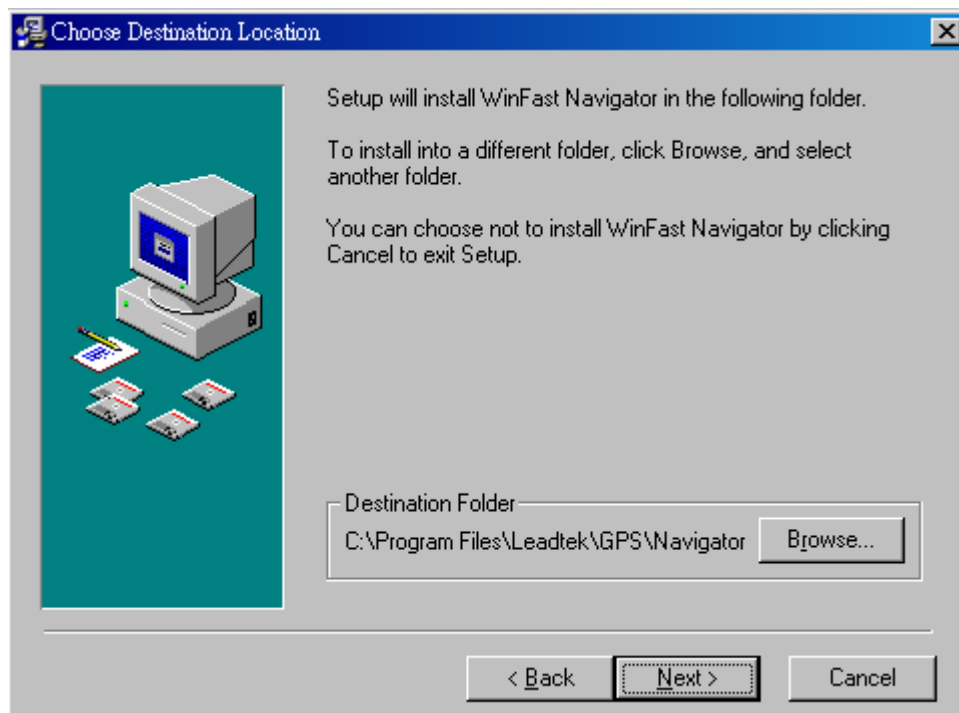
The installation dialog box and the copyright statement appear.

Click "Next".



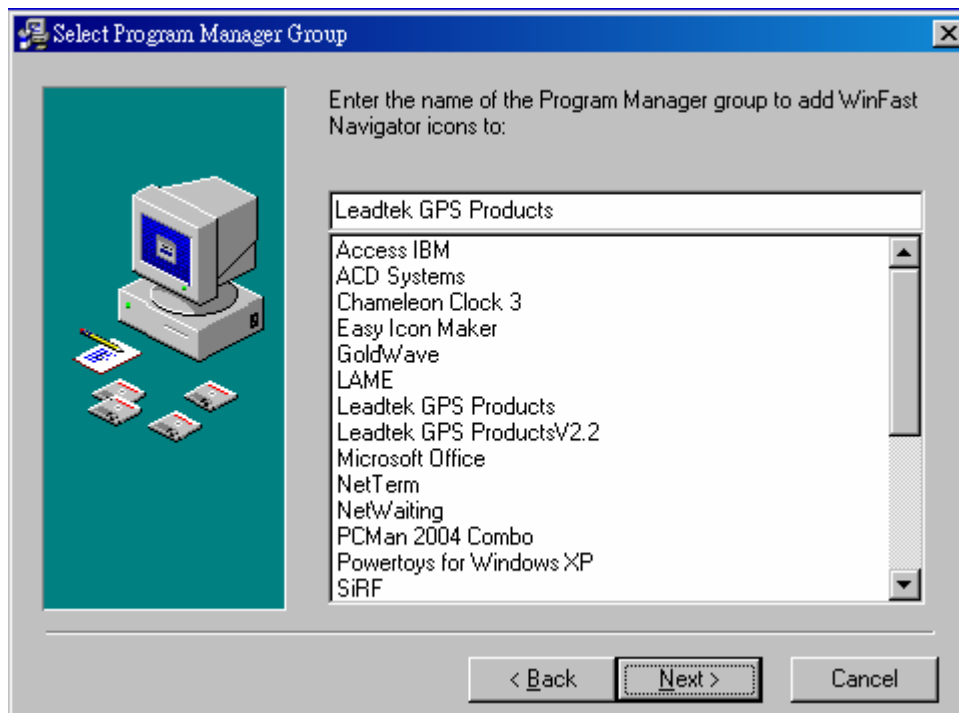
Step 3

The dialog box of Destination Location appears, showing the default destination folder. To change it, click Browse to select a different folder for installation. If you do not wish to change the destination folder, click "Next".



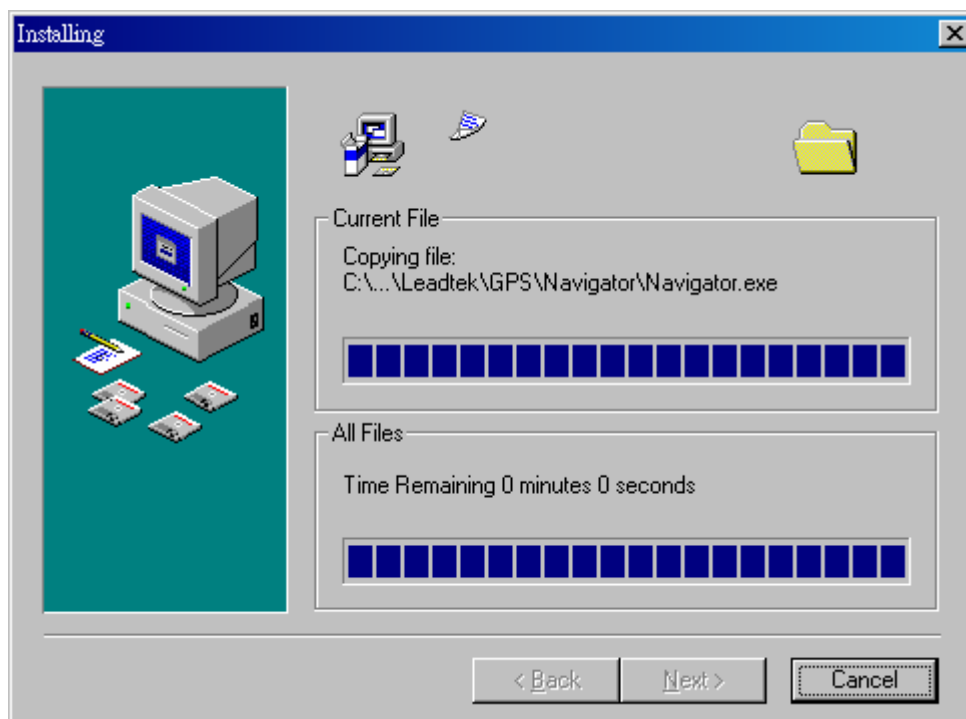
Step 4

Select "Leadtek GPS Products", and then click "Next".



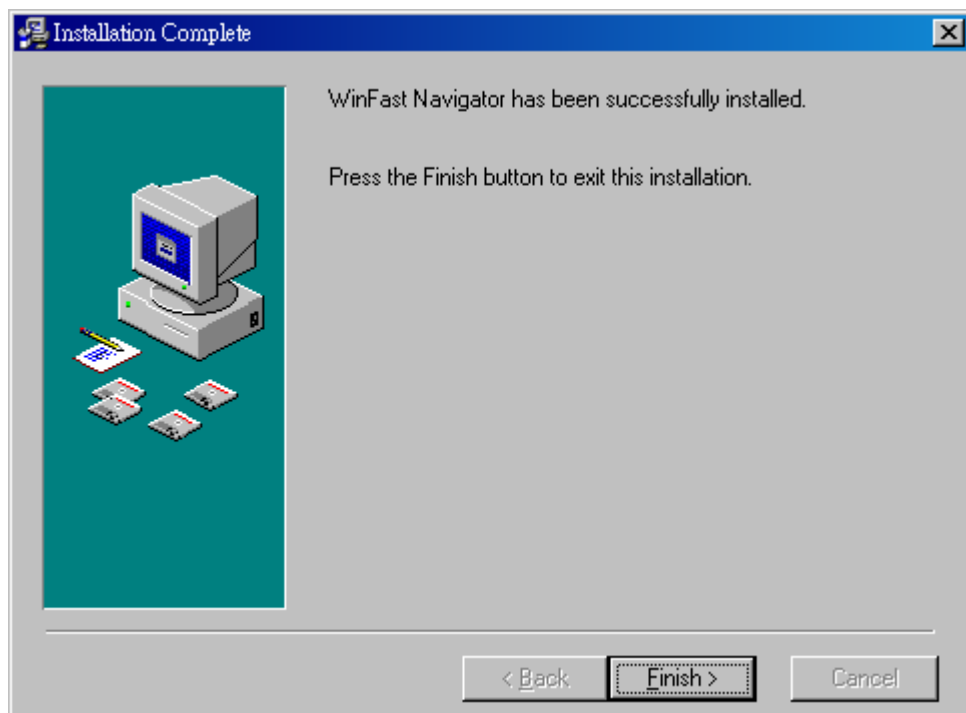
Step 5

Installation is in progress.



Step 6

Once the installation is complete, check your PC screen to see if additional steps are required to complete the installation. Click "Finish".

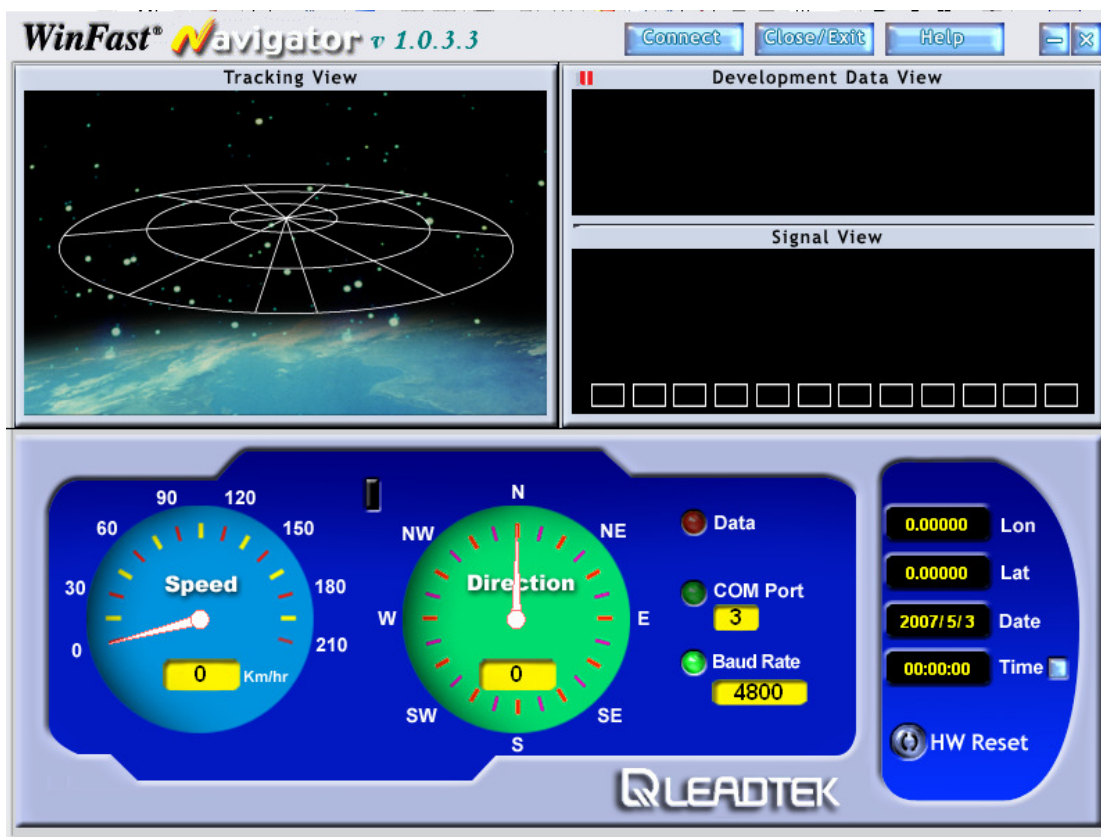


6. Test Leadtek GPS LR9553D

Step 1

Before testing Leadtek GPS 9553D, make sure that you have charged for 3 hours till the red light is off and installed "Leadtek Navigator" to your computer. Turn on LR9553D, and use the USB cable to connect your computer and LR9553D. Once connected, follow the instruction as below for testing.


1. Open WinFast Navigator and you will see the screen showing :



2. Software manual :

(1) Tool bar:

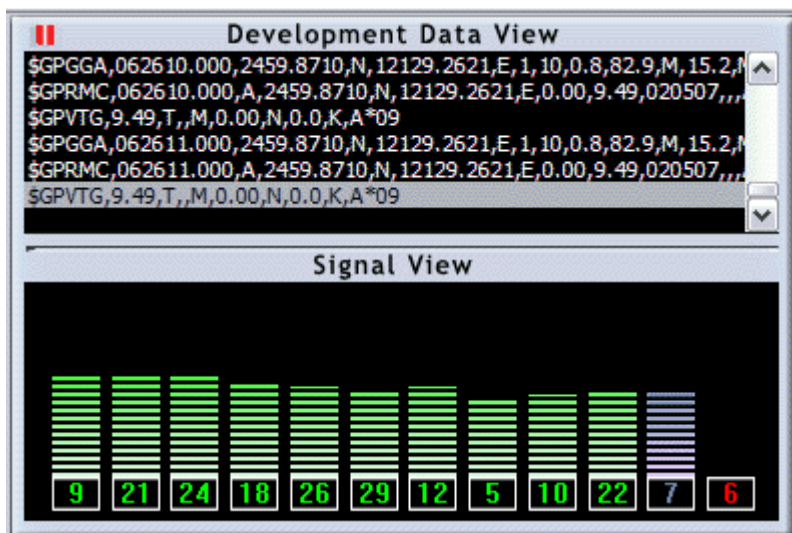


| | | |
|---|-----------------------|--|
|  | <p>Connect</p> | <p>After pressing “Connect”, please choose appropriate Com Port and Baud rate. If there remains no response for 5 seconds, the window will pop up again. Please choose the right Com Port and Baud rate again.</p> |
|---|-----------------------|--|

| | | |
|--|-------------------|-----------------------------|
| | Close/Exit | Close WinFast Navigator. |
| | Help | Software manual. |
| | Minimize | Minimize WinFast Navigator. |
| | Close/Exit | Close WinFast Navigator. |

(2) GPS information and signals

When the device and the computer are correctly connected, the received GPS data will be shown on the window of “Development Data View”. The strength of GPS signals will be displayed on the window of “Signal View”.



| | |
|---|--|
| Development Data View | |
| The received data shown on this window are the standard NMEA format via RS232 transmission. | |
| Signal View | |
| | <p>a. The strength of GPS signals will be presented in bar chart. From the color of the bars, the validity can be ensured. The green color represents that the data are stable enough to be used for positioning and the purple color means the reception is not stabilized yet. When it shows in red color, no GPS signals can be acquired.</p> |




b This number represents for the code of the satellite, and the color display can be referred to part a.

3. Connection information


This part explains the status of the speed and direction while navigating and the connection between the device and the computer.



| | |
|--|---|
| | <p>Speed</p> <p>It shows the current speed of the navigating object, in kilometers/hour.</p> |
| | <p>Direction</p> <p>It shows the current direction of the navigating object.</p> |
| | <p>Positioning LED</p> <p>The red light means the positioning is not completed yet, and the output data are those before being positioned. The green light means it is positioned, and the navigation is on going.</p> |

| | |
|--|---|
|  Data | <p>Data transmission display When there is data flow, it will blink.</p> |
|  COM Port 6 | <p>COM Port Used It shows the number of the Com Port Used.</p> |
|  Baud Rate 9600 | <p>Baud Rate It shows the transmission rate.</p> |

4. Positioning information

| | |
|---|--|
| <p>Lon The longitude at that the user is.</p> |  |
| <p>Lat The latitude at which the user is.</p> | |
| <p>Date & Time The date and time will be shown in GMT (Greenwich Mean Time) which is calculated by the satellites. If you want to change the time which you are located in, just press the square button beside "Time" to adjust the time.</p> | |
| <p>HW Reset To reset the default value, such as cold start, warm start, hot start, factory and so on.</p> | |

Step 2

Turn on the power switch, you can choose the mode of navigation and log both or the mode of log only for more operation time.

Step 3

When the memory is full, the green light will be constantly on and the data logging will be ceased. You should now download the data to your computer and then the data logging will

continue. If the red light is quickly blinking while logging, which means the power is low, you should immediately charge for the continuous data logging.

7. Install the USB Driver

<Note> Install the USB driver before connecting the USB cable.

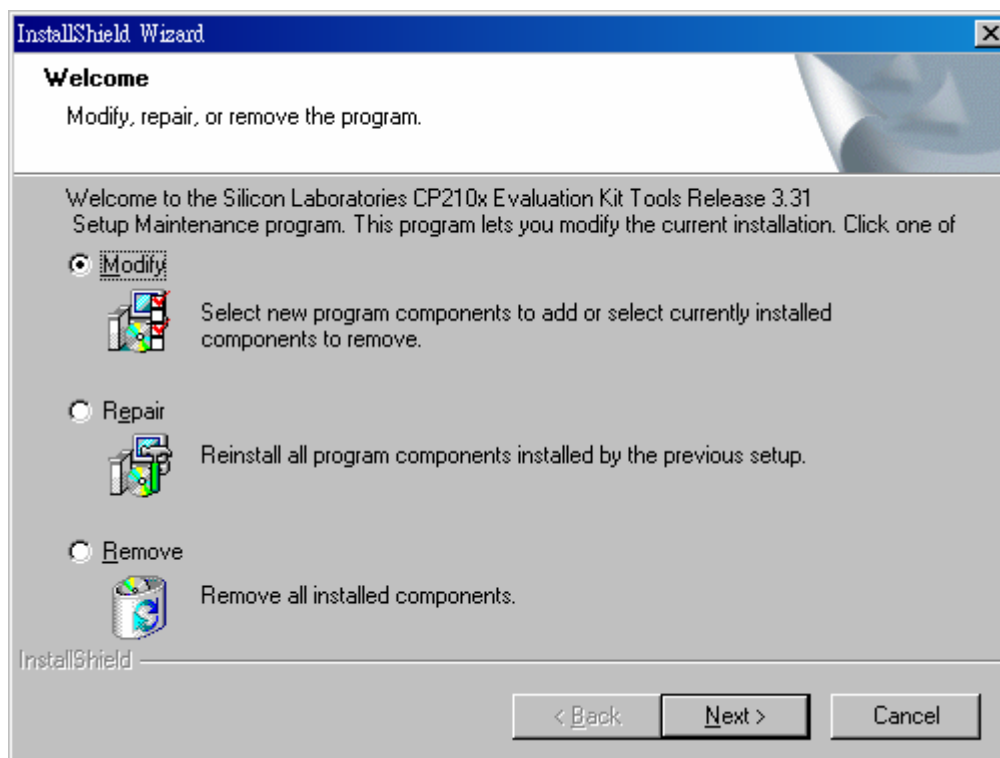
Step 1

Insert the CD-ROM into the CD-ROM drive. Click "USB Driver" to proceed.



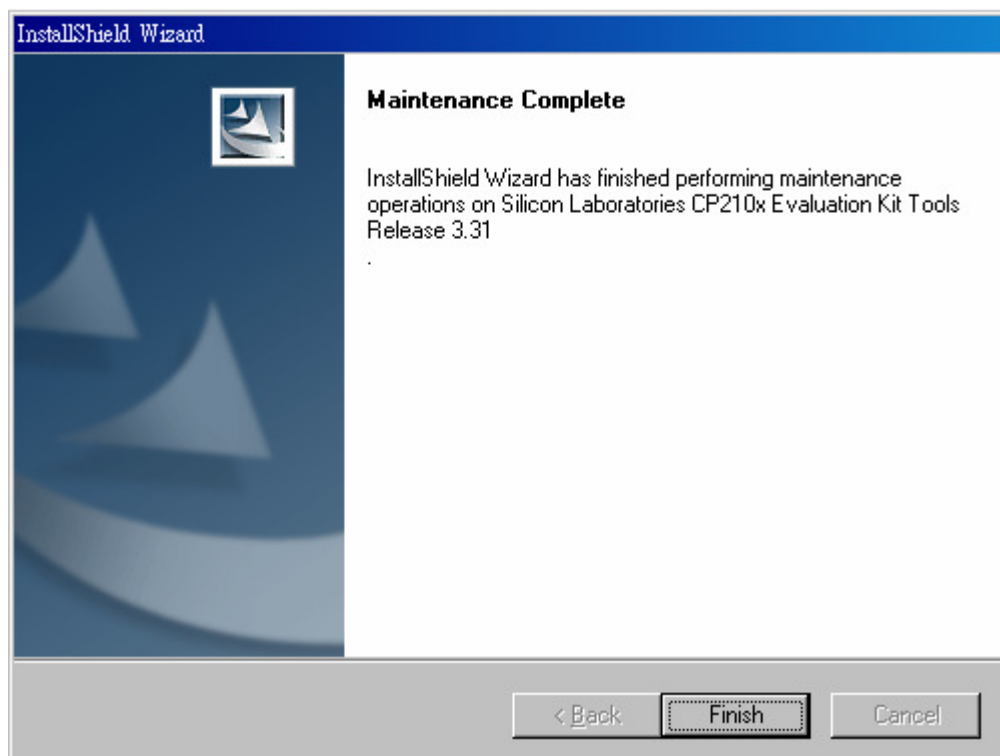
Step 2

The screen will display the following options. Click to select the option you desire. Click Next to continue.



Step 3

Click "Finish" to finish the installation.



Step 4

Reboot the computer and then connect the USB cable.

8. Appendix A: Limited Warranty

Leadtek warrants to the original purchaser of this product that it shall be free of defects resulting from workmanship or components for a period of one (1) year from the date of sale (The region of Europe is exceptional, see the warranty card enclosed for the validity). Defects covered by this Warranty shall be corrected either by repair or, at Leadtek's discretion, by replacement. In the event of replacement, the replace unit will be warranted for the remainder of the original one (1) year period or thirty (30) days, whichever is longer.

There are no other oral or written warranties, expressed or implied, including but not limited to those of merchantability or fitness for a particular purpose. This Limited Warranty is nontransferable and does not apply if the product has been damaged by negligence, accident, abuse, misuse, unauthorized use, or shipment to the Manufacturer or service by someone other than the Leadtek. Transportation charges to Leadtek are not covered by this Limited Warranty. To be eligible for warranty service, a defective product must be sent to and received by Leadtek within fifteen (15) months of the date of sale, together with proof of purchase. Leadtek does not warrant that this product will meet your requirements; it is your sole responsibility to determine the suitability of this product for your purposes. Leadtek does not warrant the compatibility of this product with your computer, related peripherals, or software. Leadtek's sole obligation and liability under this warranty is limited to the repair or replacement of a defective product. The manufacturer shall not, in any event, be liable to the purchaser or any third party for any incidental or consequential damages or liability in tort relating to this product or resulting from its use or possession.

9. Appendix B: Specifications

Technical Performance

| Feature | Item | Description |
|--|--------------------|---|
| Chipset | GSW3 | SiRFStarIII LP technology |
| General | Frequency | L1, 1575.42 MHz |
| | C/A code | 1.023 MHz chip rate |
| | Channels | 20 |
| Accuracy | Position | 10 meters, 2-D RMS |
| | | 5 meters 2-D RMS, WAAS corrected |
| | | <5meters, 2-D RMS, DGPS corrected |
| | Velocity | 0.1 meters/second |
| | Time | 1 microsecond synchronized to GPS time |
| Datum | Default | WGS-84 |
| Time to First Fix (TTFF) (Open Sky & Stationary Requirements) | Reacquisition | 0.1 sec., average |
| | Hot start | 1 sec., average typical TTFF |
| | Warm start | 35 sec., average typical TTFF |
| | Cold start | 42 sec., average typical TTFF |
| Data Log | Switch mode | ON/OFF; Navi & Log; Log only |
| | Flash Memory | 4MB |
| | Recording Interval | Every 15 sec. (User can configure settings) |
| | Waypoints | 60,000 points (Position, Date, Time & Altitude) |
| | Duration | 240 hrs (continuous usage) |
| Dynamic Conditions | Altitude | 18,000 meters (60,000 feet) max. |
| | Velocity | 515 meters/second (1000 knots) max. |
| | Acceleration | 4g, max. |
| Power | Main power input | 5±5%(10%)V DC input |
| | Power consumption | ≈300 mW (continuous mode) |

Interface Specifications

| Items | Description |
|--------------------|------------------------------------|
| Mini-USB connector | Power Recharge & GPS data download |

Bluetooth

| | |
|----------------------------------|-------------------------------|
| Frequency | 2.4GHz ISM Band |
| Compliant | Bluetooth Specification v 1.2 |
| Compliant Profile | Series Port Profile (SPP) |
| Bluetooth Operation Range | 10 M |

Electrical

| | |
|--------------------------|----------------------------------|
| Main power input | 5±5%(10%)V DC input |
| Power consumption | 0.4W@3.3VDC (Full Power) |
| Backup Power | 1.5±10%V DC input |
| Operation Time | 12 hours (750mAh Li-Ion battery) |

Battery Electrical

| | |
|-----------------------|-------------------|
| Battery Cell | Li-ion (750mA) |
| Output Voltage | 2.3V~4.2V ±0.025V |

LED

| | | | |
|-------------------------------|------------------------------|-----------------|--------------------------|
| LED 1 (GPS)-Green | | | |
| State | Always on | Quick blinking | Slowly blinking |
| Description | Memory full to stop | 3D fixed | GPS signal acquisition |
| LED 2 (Bluetooth)-Blue | | | |
| State | Quick blinking | Slowly blinking | No |
| Description | BT on, but not connected yet | BT connected | BT off |
| LED 3 (Power)-Red | | | |
| State | Always on | Quick blinking | No |
| Description | Battery is charging | Low power | Battery is fully charged |

Environmental Characteristics

| Items | Description |
|-----------------------------|--------------------------|
| Operating temperature range | -10 deg. C to +50deg. C |
| Storage temperature range | -20 deg. C to +65 deg. C |

Physical Characteristics

| Items | Description |
|--------|---------------------------------------|
| Length | 60.2 mm (2.37 in) |
| Width | 33.0 mm (1.30 in) |
| Height | 17.8 mm (0.70 in) |
| Weight | 48 g (including rechargeable battery) |

10. Appendix C: Safety Information

GPS is operated by the US government, which is solely responsible for the system's accuracy and maintenance. Although Leadtek GPS LR9553D is a high precision electronic NAVAID, it may still become unsafe under the circumstances of misuse or inaccurate reading. Hence there is a certain degree of risks involving the use of these products. In order to reduce the risks, please read carefully all the documentation regarding technical specifications before using Leadtek GPS LR9553D. When in use, compare carefully the GPS results with all navigation information available, including that from other NAVAID, naked eye view, routes, etc. For safety reasons, it is necessary to solve all the problems before continuing to navigate.

Please DO NOT shake or clash this device, and please be aware that the dust-proof and water-proof are NOT guaranteed. The rechargeable battery is built inside, so please DO NOT detach it from the device arbitrarily. Meanwhile, please DO NOT use this device under the circumstances as below:

1. In extremely hot, humid or cold environment, for example, under the direct sun or in rain
2. Near the strong magnetic field
3. In dusty weather

11. Appendix D: GPS FAQ

Q. Do I have to pay extra charges for receiving GPS signals?

A. No. Like listening to the radio, you only need to buy hardware (PC+GPS or PDA+GPS) to access the service. There is no extra charge.

Q. I bought a GPS device in Taiwan. Can I use it abroad?

A. Yes. GPS signals cover 98% of Earth's surface (except the North and South Poles), so you can use it around the world.

Q. What datum does GPS devices use?

A. It uses WGS 84.

Q. What causes time lapses in navigation? My vehicle has arrived at a specific location, but why did not the vehicle indicator in the navigation system reach there at the same time?

A. There are several possible causes:

1. Poor reception of GPS signals;
2. The processing speed of CPU, RAM and memory card on the PDA;
3. Time lapses are inevitable because GPS is updated once a second.

Q. What kind of navigation software can I use?

A. Generally you can use any navigation software featuring NMEA1083 as the data output format.

Q. My device has been successfully connected, but why can't I see GPS signals in Navigator, and why does GPS fail to position?

A. This may be caused by errors in COM port settings. The automatic GPS scan function of general electronic maps may lead to failure in GPS positioning. We suggest that you set the options manually.

Q. After using Navigator for positioning, why can't I find the GPS antenna on the electronic map?

A. Navigator is an application developed by Leadtek to test GPS navigation. After launching Navigator, if you press x or go to the map without disconnecting the program, it will occupy the GPS antenna's COM port. In that case, the map is unable to find the device. To solve this problem, disconnect Navigator before exiting the program.

Q. Why can't I use GPS at home or near the window?

A. GPS is for outdoor navigation only, so your device cannot receive GPS signals at home. Especially because it usually takes longer to navigate when you use GPS for the first time, make sure that you are in an outdoor place with good signal reception.

Q. When do I need to run Cold Start?

A. We suggest that you run Cold Start in the following situations: (1) it has been two weeks since your previous navigation; (2) the location you want to position is more than 500 km away from that of your previous navigation.

Q. What is the pin code for the Bluetooth GPS?

A. 0000.

Q. Do I need any driver to use Bluetooth GPS?

A. No, you don't.

Q. Could you tell me the specifications of your GPS product, such as size, chip version, initial booting time and so on?

A. If you can't find the information you want in this Installation Guide, please visit our website for more details: www.leadtek.com

Product ID: Leadtek GPS LR9553D

Leadtek GPS LR9553D Bluetooth Data Logger & Receiver

Installation Guide

Version A

June 2007

Headquarters

18F, 166 Chien-Yi Rd., Chung Ho City, Taipei County 23511, Taiwan

TEL: +886(0)2 8226 5800

FAX: +886(0)2 8226 3087

<http://www.leadtek.com>

E-mail: service_gps@leadtek.com

Leadtek Research Inc.

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B 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 not expressly approved by the party responsible for compliance could void the user's authority to operate the 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.

RF exposure warning ·

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.