Bluetooth GPS Receiver

G33, BT1.8MR

User's Manual

Contents

Caution

Read before you start to use

➢ Global position system (GPS) is obtained by American Ministry of National Defense, and they got the full responsibility about the preciseness and the maintenance. Any changes may cause the capacity and preciseness of GPS differed.

➢ If you use this device inside of buildings, tunnels, or any huge objects beside you, the GPS signals might be cut-off or disturbed. Please do not consider that the receiver is malfunction.

➢ The receiver operating temperature is located between -10 ~70 .For safety and lifetime of Li-ion battery usage, do not place this device over two hours with overheated environment.

0　Quick Start

0.1 Inside the Package

Thank you for purchasing our GPS product, and wish you have the best experience in using. Please open the package, and check if everything in the list exists once you got it. Please tell our salesman if anything missing.

A. Basic package

1. G33 multi-purpose Bluetooth GPS Receiver x 1

2. High capacity rechargeable lithium-ion battery x 1

3. Manual CD-Rom x 1

B. Optional package

In order to support various computers and handheld devices, you may need some accessories inside the package also

1. Car charger x1

2. Travel charger (AC adaptor) x1

0.2 Connect to your PC/PDA

A. Push the power button for 2 seconds, power on the Bluetooth GPS receiver.

B. Put the Bluetooth GPS receiver at proper place (open sky) for good GPS signal reception..

C. Turn on the power of your navigation platform like PC/PDA/ SmartPhone etc…

D. Search for Bluetooth device by your Bluetooth manager on your Host Platform (laptop/PDA/Smartphone). Normally Pin code is not necessary. But some Bluetooth embedded system force to enter pin code (password), please fill [0000] in such case.

E. Connect G33 Bluetooth GPS Receiver and then make sure baud rate set at

9600bps(standard) in your application program.

F. In firstly Use of this Bluetooth GPS Receiver, we strongly recommend you to bring your Bluetooth GPS receiver outdoor or open sky at least 10~15 minutes for sure 3D position fixed and almanac updated.

1. Introduction

G33 Bluetooth GPS Receiver is a total solution of GPS receiver with MediaTek 32 channel all-in-view tracking technology. GPS antenna, Bluetooth transmit/receive system are included. It is designed on the most advantage MediaTek Single Chip Solution (MT3318), got the full-function, and RoHS compliant, industry-level locating capacity and low prices.

You can use this Bluetooth GPS Receiver as vehicles navigator, security system, geographic measurement, investigations or agriculture purpose. G33 Bluetooth GPS Receiver operation requirement is a proper power supply and the open sky-view. This Bluetooth GPS Receiver can communicate with other electronic devices by Bluetooth interface. Built-In Flash Memory can save satellite information and do almanac refresh periodically. This will shorten Time To First Fix (TTFF) effectively.

The Bluetooth GPS Receiver is designed as an ultra low power consumption device, and high position accuracy. It will update the satellite position every second. This Bluetooth GPS Receiver auto-locating feature is capable of automatically determining a navigation solution without intervention. However, acquisition performance could be interfered and do cold start if the receiver were initialized with occurrence of the following events

1) First in use

2) The GPS receiver is not in use for more than 3 months or transportation over distances further than 500 kilometers.

3) Failure of the internal memory battery without system standby power.

4)Change Li-ion battery.

2. Features and Functions

1.) Superior Urban Canyon Performance

   with 32 channel all-in-view tracking sensitivity –158dBm

2.) Act as WARM/HOT start with high capacity Li-ion battery

  Back-up power circuit design will keep flash memory and RTC clocking always.

  Shorten TTFF effectively

3.) Automatically almanac/ ephemeris update in flash memory

  Programmable flash utility to do refresh on satellite orbit data information

4.) Smart power management solution.

  GPS Device will automatically shutdown in case of Bluetooth connecting signal failure detected and time over default setting value.

5.) Compatible with Bluetooth Serial Port Profile (SPP) completely.

6.) Easy to combine with the vehicle, voyage navigation, vehicle management, AVL, personal navigation, tracking system and map applications.

3. Technical Specification

3.1. General

Core Module　Built-in high performance MediaTek Single Chipset Solution (MT3318).

Satellite channel number: all-in-view 32 parallel satellites;

GPS frequency: 1575.42 MHz

Receiver　L1, C/A code.

Antenna type　Passive patch antenna

Tracking sensitivity　-158 dBm

3.2. Acquisition Time

Refresh　1 sec

Cold start　36 sec (average, normally occurred in first use of GPS receiver life)

Warm start　33 sec (average)

Hot start　1sec (average)

Position information update period　1Hz (average)

3.3. Precision/ Accuracy

Position accuracy　< 3m CEP (50%) without SA (horizontal)

Velocity　0.05 m/sec(typical)

3.4. Dynamic condition

Altitude　18,000m Max

Horizontal Velocity　515 m/s Max

Acceleration　4G(G for gravity unit)

3.5. Power management

A) Applied External Voltage　5V DC +/- 5%(via charge cable)

B) Battery　Rechargeable Lithium-ion 3.7V battery, as main power.

3.6. Protocol &Interface

A) Output format

NMEA 0183 V3.01　ASCII (default　GGA　GSV　GSA　RMC　VTG)

Baud rate　9600 bps(standard)

Data bit　8

Parity　None

Stop bit　1

B) NMEA code support
GGA (1sec)
GSV (5sec)
GSA (1sec)
RMC (1sec)
VTG (1sec)

C) Compatible with Bluetooth devices with Serial Port Profile (SPP)
Bluetooth version 1.1 compliant
Bluetooth **Class 2** operation (up to 10 meter range)
Frequency   2.400 to 2.480 GHz
Modulation   FHSS / GFSK
RF channels   79
Input Sensitivity   -80dBm
Output Level   -0.57dBm

3.7. Dimension/Environment Specification
Dimension size   41(W) $\times$ 70.5(L) $\times$ 19.8(H) mm
Weight   < 35g (battery excluded)
Operation temperature   -10°C to + 70°C
Storage temperature   -40°C to + 85°C
Operation humidity   5%R.H. to 95%R.H. no compressed

4. Start to Use

Step 1   Charge the battery in first use

Please fully-charge the battery with at least 4 hours before you use the GPS receiver firstly.

Bluetooth
indicator

Power switch

GPS indicator
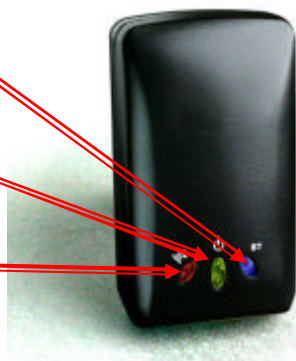
Connect charge cable to the power plug at the
    bottom and start charging

Power Indicator

(1)**Green** LED blinking
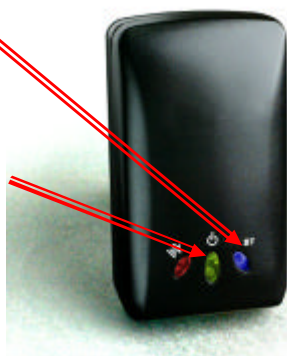
→Power low/charging (see below detail described)

(2**) Green** LED stop to blink &light up

→Charge completed (LED will vanish when cable away)

Step 2   Power on, connect with Bluetooth

Bluetooth indicator

Power ON/OFF switch

Push the power switch 1~2 seconds to Power
on

Bluetooth indicator

(1) Bluetooth host searching

    →3 pulses per second

(2) Bluetooth host connected

    →1 pulse per second

Note: Some PDA needs to restart the Bluetooth function if you need to re-connect.

Step 3   GPS function test

In firstly Use of this Receiver,we strongly recommend to bring your Bluetooth GPS Receiver outdoor and open sky at least 10~15 minutes for almanac update.

GPS Acquisition

Power on the G33 Bluetooth
GPS Receiver
GPS Acquisition Fix Indicator
(1) Red LED lights up continuously
    Inquiring
(2)Red LED blinks (1 pulse/3sec)   Position
fixed

5. Software/Hardware Usage

5.1. Hardware description

1). Bluetooth GPS Receiver device function description is shown as below

Passive antenna inside(face to open sky)

Bluetooth indicator

GPS LED

Power switch/LED

2). LED display description

Symbol	Color	Behavior	Description
Bluetooth Indicator	Blue	Blinking in 3 pulses/sec	Searching for Bluetooth host
		Blinking in 1 pulse/sec	Connected with host& communicating
Power LED	Green	Blinking with 3 sec interval	Battery low
	Green	Blinking with 1 sec interval	Charging
	Green	Light up	Charge completed (LED off when cable away)
GPS Acquisition LED	Red	Light up continuously	Positioning
	Red	Blink in 1pulse/ 3secs	Position fixed

3).Power ON/OFF

Push power switch 1~2 seconds to switch on/off the power.

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5.2. Configuration setup with PC connection

Here is a sample to show you how to connect the Bluetooth GPS Receiver with your PC, software install and basic function test.

1) First, select a PC with Bluetooth interface. Or you can purchase Bluetooth adapter for your PC. Please contact with your PC' s sales about this.

2) Check your Bluetooth manager if there exist any configuration of Bluetooth Serial Port Profile like this
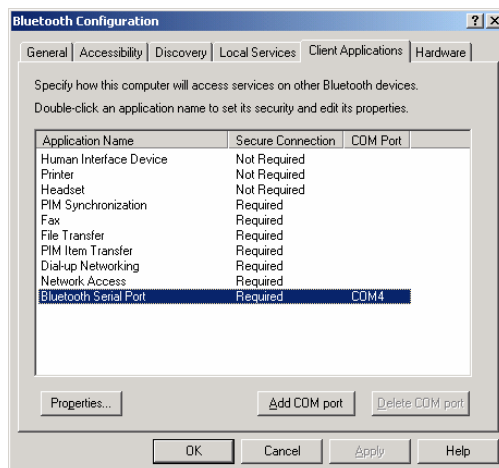
Note this sample is for your reference only. The screen may be various between different models of Bluetooth manager software.

3) If not found, please create a Bluetooth serial port by yourself. The configuration should be like this

Name it as you wish

Please uncheck the secure connection
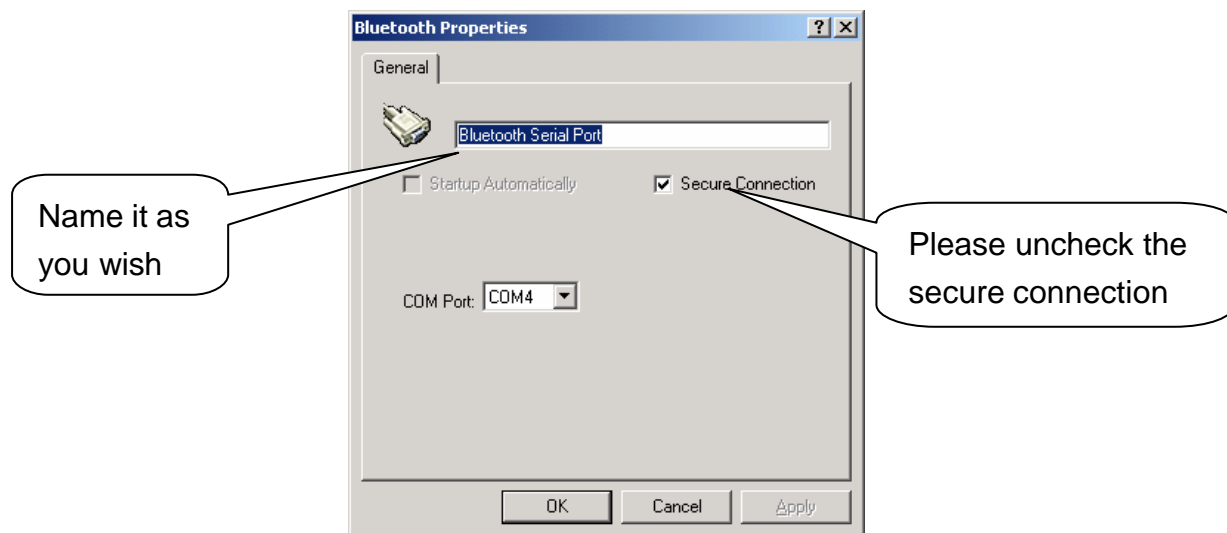
4) If there is already one, please check the content. Some Bluetooth device will enable the secure connection. Please refer to the configuration as above to uncheck it.

5) Power on your GPS Receiver. If the battery is ready, you should see 2 LED light up: the blue LED blink 3 times/sec means Bluetooth is activated and waiting for connection. Another static red LED shows the GPS module is started and is inquiring position information.
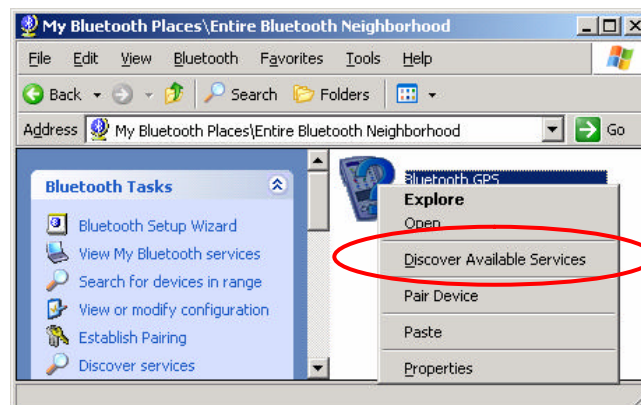
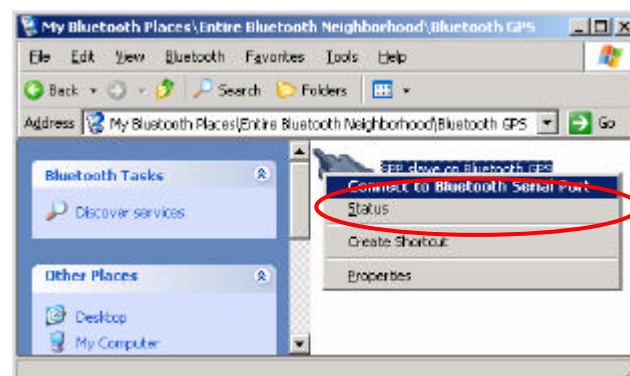6) Open your Bluetooth places   you should see nothing while using firstly.
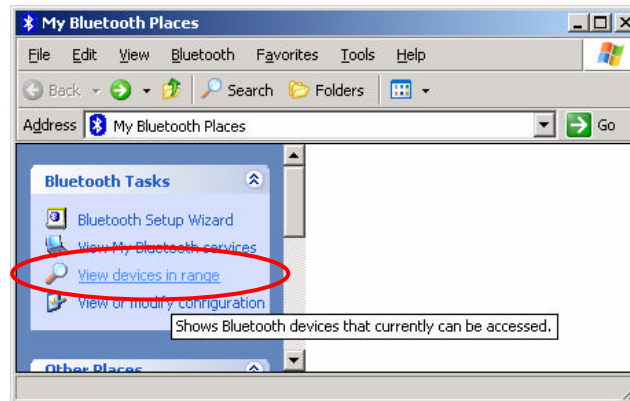
7) Click the [View devices in range] and you should find a [Bluetooth GPS] show as below
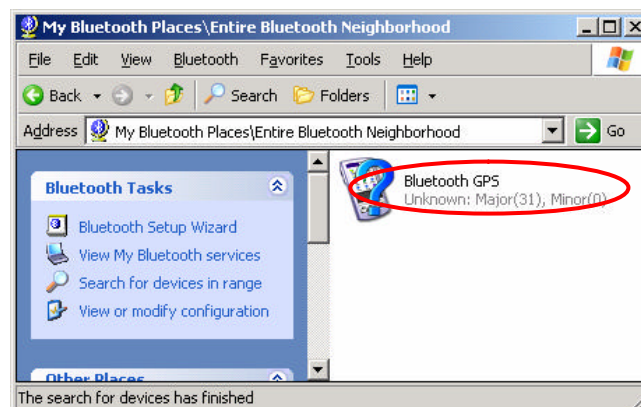
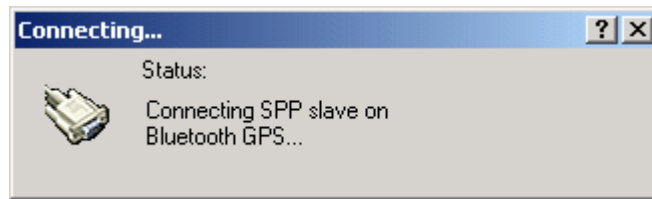8) Right click on the icon, select the [Discover Available Services]

9) You should find the service SPP slave, right click and select [Connect to Bluetooth Serial Port]

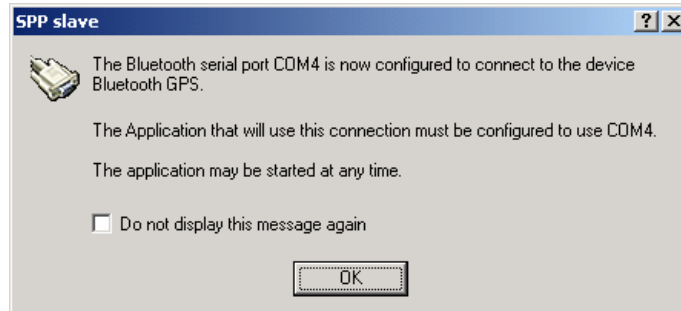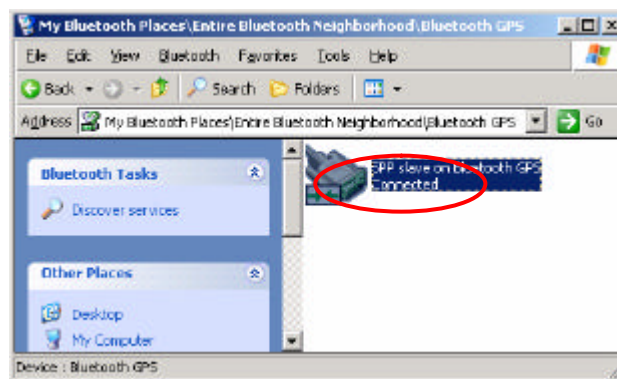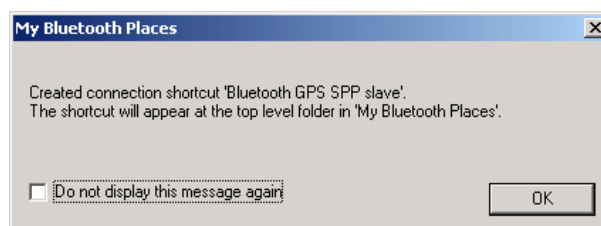Bluetooth GPS Receiver User Manual

10) The follow message will show

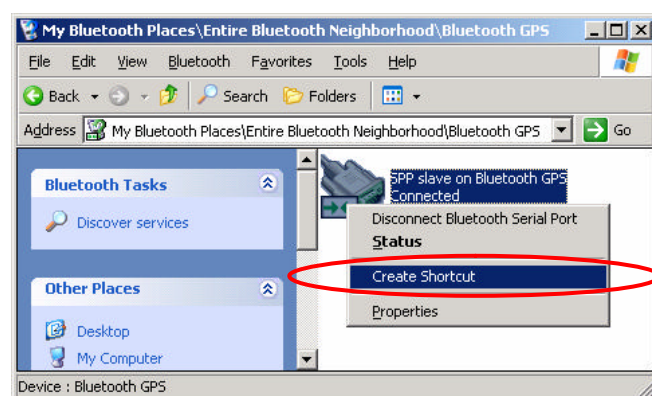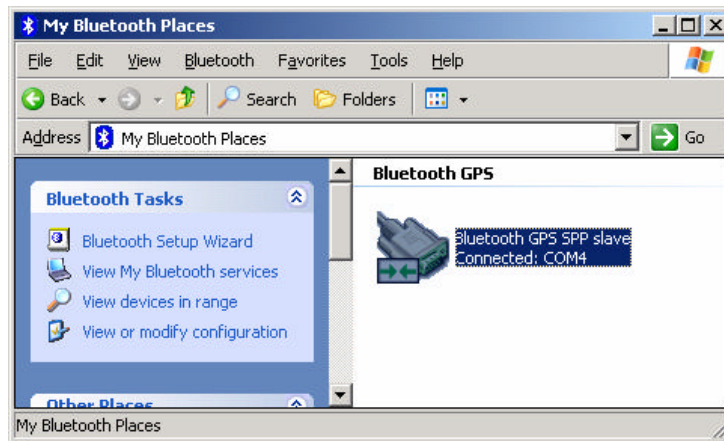11) And the connection successful message

12) Back to the Bluetooth service view, you should see the icon changed to [Connected]

13) If you wish to use the connection more easily next time, you can create a shortcut for this

14) You will see the shortcut you just created


5.3. Configuration setup with Smartphone connection

Following will show how to configure the Bluetooth connection on Smartphone. It may be different from other Smartphone models.

1) Power on your Smartphone and the Bluetooth host.

2) Power on the GPS Receiver. If the battery is ready, you should see 2 LEDs indication the blue for Bluetooth blinks 3 times/sec. It means the Bluetooth module is activated and waiting for connection. The red LED for GPS, means the GPS module is activated and is inquiring GPS signal.

Red LED

Blue LED blinks 3 times/sec
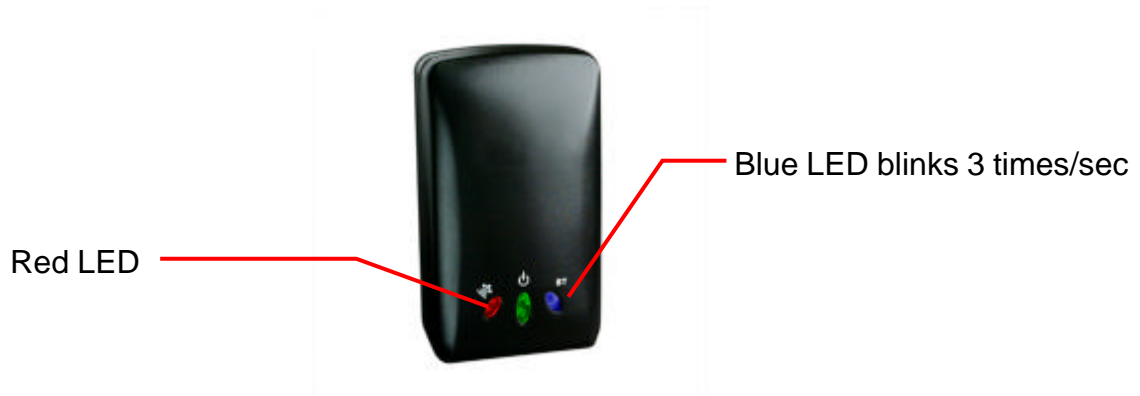
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3) See the screen, click Bluetooth mark at bottom, and [Bluetooth Manager] as below
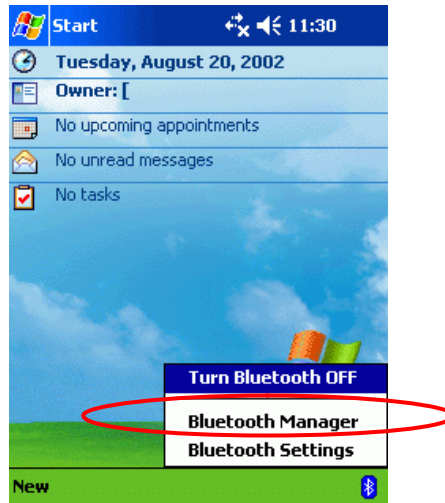
4.) If this is your first time to use Bluetooth GPS, click the Bluetooth mark at the bottom as below

5.) Then the Bluetooth connection wizard show up, select [Explore a Bluetooth device] and click [Next]. In the next page, click the box to search Bluetooth devices. Your PDA will find the Bluetooth GPS and show it in the window. Click the icon to search for service.
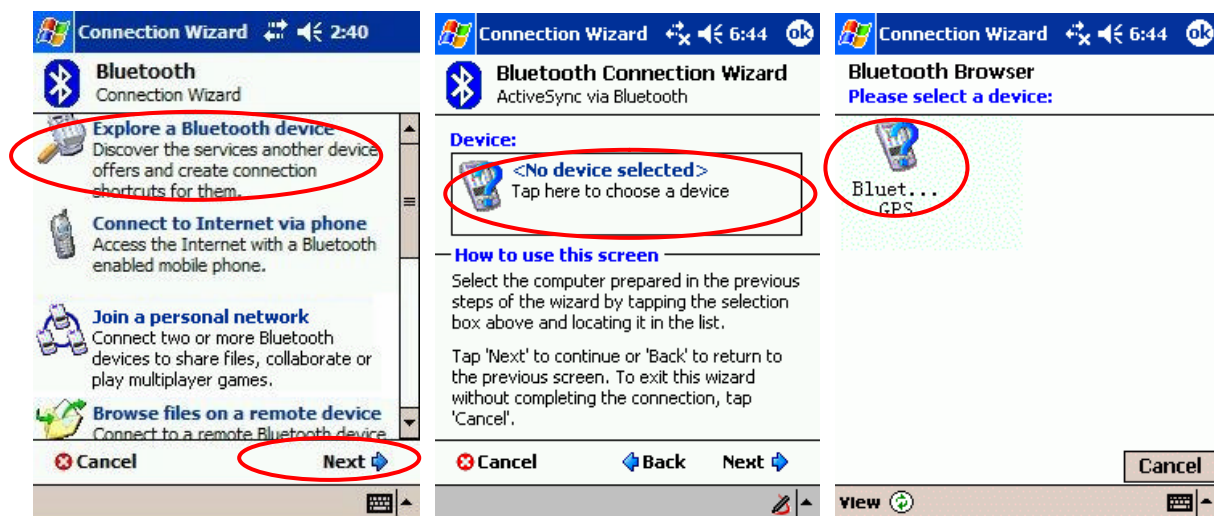
6.) Back to the [Explore a Bluetooth device] as below. Click [Next] to list service on Bluetooth GPS. [SPP slave] should appear in the service list box, click it and click [Next] to finish shortcut creation. Don't forget to uncheck the secure connection box.
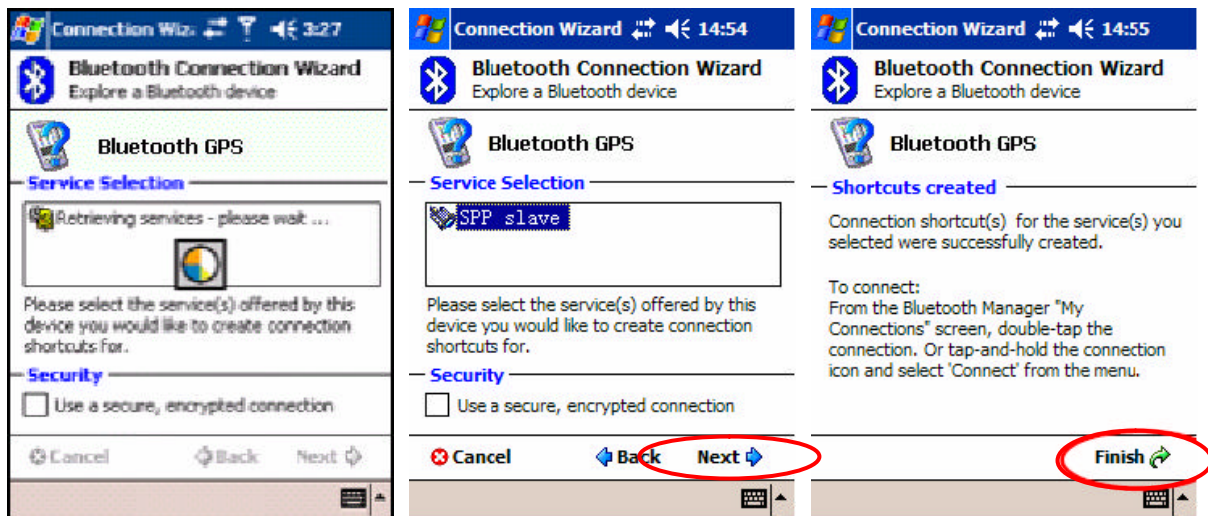
7.) Back to the main screen of [Bluetooth manager] as below. Please double-click the icon to connect the Bluetooth GPS Receiver. If connection successful, a green arrow will show as below at right.
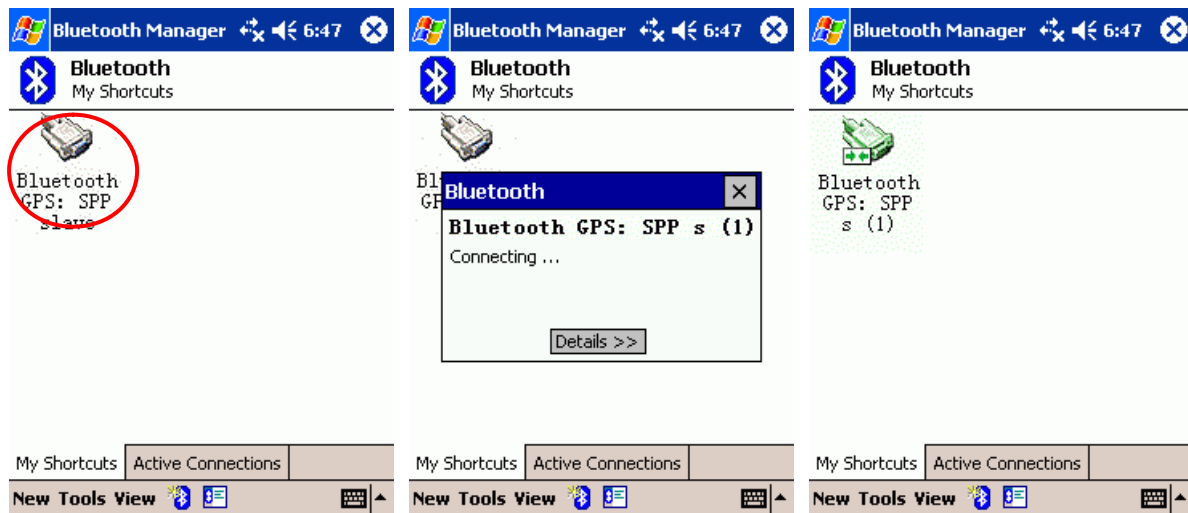

8) You may start to use any map/navigation software and use the GPS function now.

5.4. Software Install/Usage Guide

1) Please make sure your PDA is connected properly with your PC using Microsoft ActiveSync. If you have not install ActiveSync yet, you can install the copy from the bounded CD-Rom, version 4.2. Please connect your PDA with your PC by the cable/ cradle for your PDA, it should be found in your PDA accessory pack.
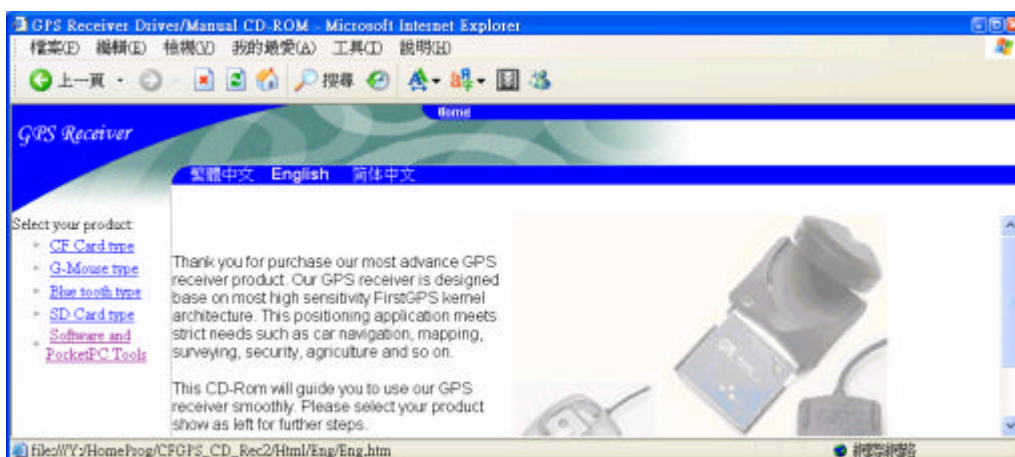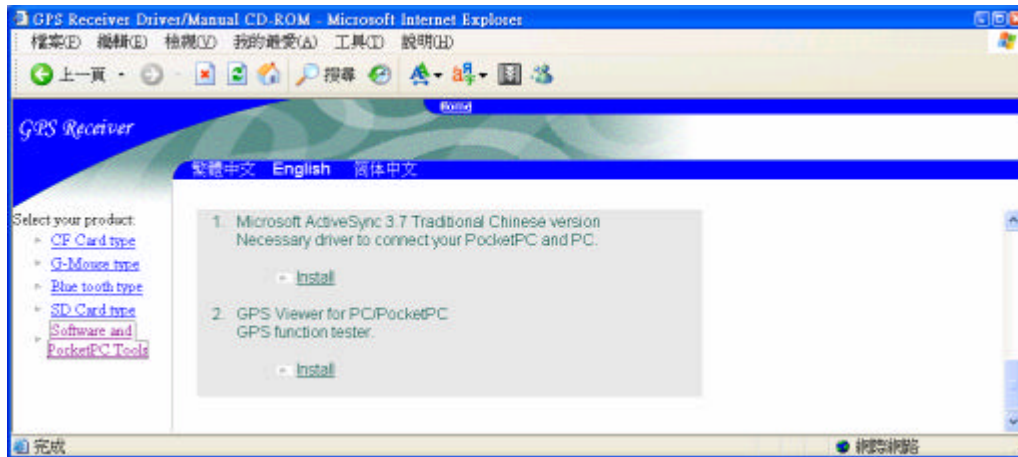
Bluetooth GPS Receiver User Manual
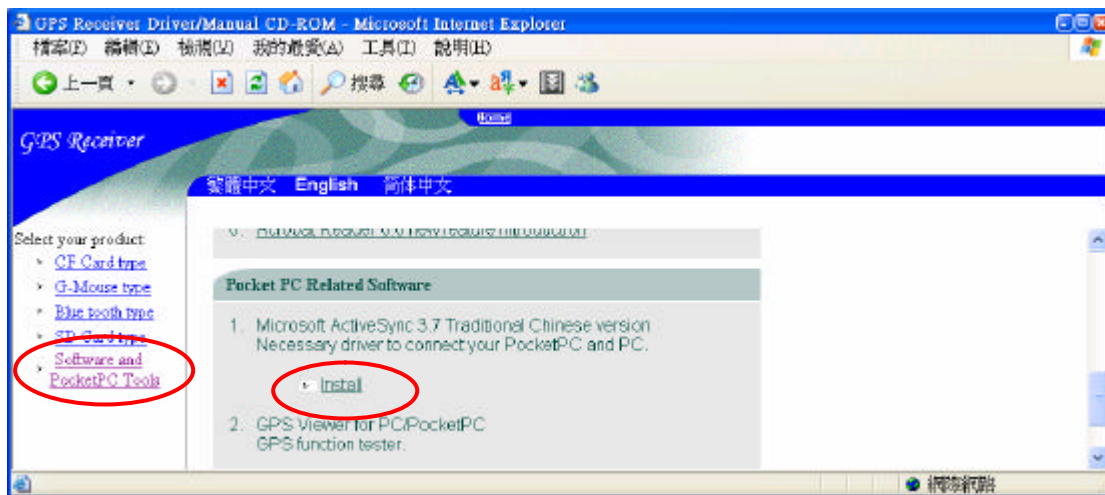
2.) Insert the CD-Rom into your CD drive. If your auto-run function works, you will see the welcome screen as below
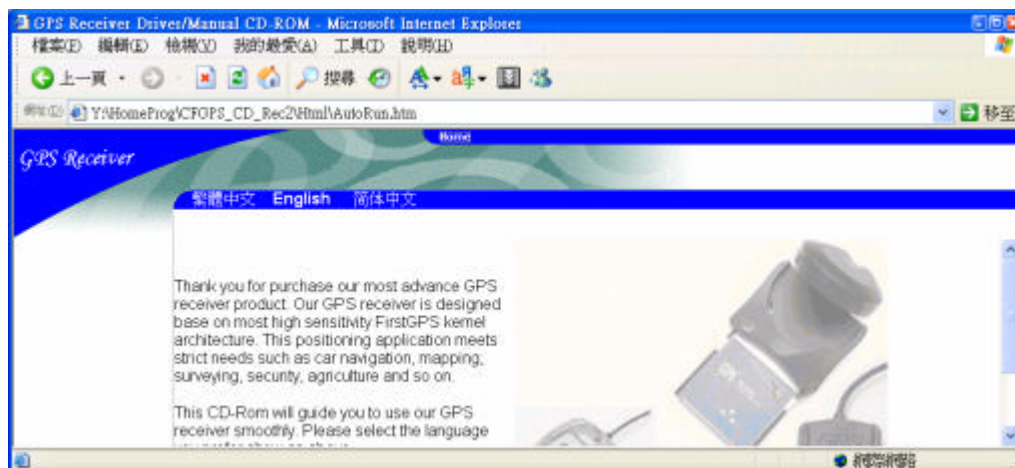
3) Select the language you preferred. We choose the "English" here

4) Click the [Useful tools and PocketPC utility] at the left

6. Warranty

The Bluetooth GPS receiver is warranty for free from defect in material and function for 1 year from the date of purchase. Any failure of this product within the period under normal conditions will be replaced at no charge to the customers.

This warranty does not cover failures due to abuse, misuse, accident, or unauthorized alteration or repairs, inappropriate disassemble.

➢ Since the Bluetooth GPS Receiver got high performance rechargeable lithium-ion battery, we strongly recommend you not to place it under the sunshine for a long time.

➢ The warranty will become invalid if any miss-operation found.

7. Trouble Shooting

7.1 Problem of Setup

| Error/Problem	Cause	Trouble shooting
Can not find the GPS device through Bluetooth interface	Install not correct or battery low	Check if G33 Bluetooth GPS Receiver is installed properly, and confirm the battery level is suitable (green LED blinks or none LED)
Unable the connect through Bluetooth	Configuration incorrect	Please refer section 5.2 to re-install. Or refer to your Smartphone user manual for configuration.
Fail to open COM Port	Bluetooth manager is not configured properly, or the COM port is adopted by another software.	Please check your Bluetooth manager settings, close the software may use COM ports and try again. Or check if there is any password protection.

| Error/Problem	Cause	Trouble shooting
No NMEA code (GPS data flow)	(1) Some PC/PDA will enter the power saving mode if you stop input for a few minutes. Bluetooth interface will be reset in such case. **(2) Wrong baud rate or com port setting**	(1) Disable the power saving mode, try to connect GPS receiver again. **(2) Correct with right baud rate & com port**
Unstable GPS Signal	(1) degrade by anti-sunlight film with receiver placed inside car (2) some cases described in sec7.2	Plug External antenna and place on car roof
Poor GPS signal	(1) G33 Storm effect (2) Atmosphere turbulences (3) SA ON by USA military.	NA

7.2 **Concerning** of Poor GPS Signal

It is possible unable to receive GPS signal or signal low in these places
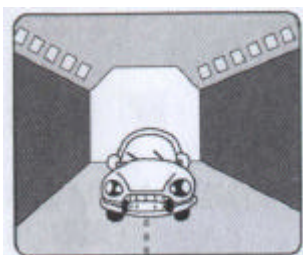
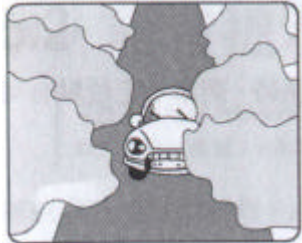➢ Inside the tunnel, GPS signal is blocked.
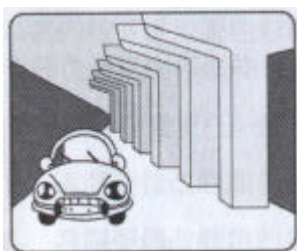
➢ Covers above, GPS signal is blocked.
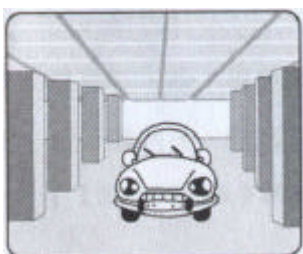
➢ Inside buildings, GPS signal is blocked.

➢ Beside some buildings, GPS signal is disturbed.

➢ Inside forests, or too many covers, GPS signal is disturbed.

■ If you use the Bluetooth GPS Receiver inside the car, some anti-sunlight windscreen film will make the GPS signal degraded or signal blank.

■ GPS satellite is owned by America military , sometimes they will tune-down the accuracy by some reason. In such cases, the GPS position may not fixed exactly.

FCC Caution

1. The 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.
    (2)This device must accept any interference received, including interference that may cause undesired operation.

2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

3. **C**hanges or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

FCC statement in User's Manual (for class B)
"Federal Communications Commission (FCC) 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.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.