

BT GPS Receiver

G66 *plus* touch GPS



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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 $-10^{\circ}\text{C}\sim 70^{\circ}\text{C}$. 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. G66 PLUS multi-purpose BT GPS Receiver x 1
2. Car charger x1
3. USB to mini USB Cable x1
4. 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. AC Adaptor x1

0.2 Connect to your PC/PDA

- A.** Touch the power sensitive switch “” for 1 seconds, power on the BT GPS receiver.
- B.** Put the BT GPS receiver at proper place (open sky) for good GPS signal reception.
- C.** Turn on the power of your navigation platform like PDA/Smartphone etc...
- D.** Search for BT device by your BT manager on your Host Platform (laptop/PDA/Smart phone). Normally Pin code is not necessary. But some BT embedded system force to enter pin code (password), please fill [0000] in such case.
- E.** Connect G66 PLUS BT GPS Receiver and then make sure baud rate set at 38400bps(standard) in your application program.

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

1. Introduction

G66 PLUS BT GPS Receiver is a total solution of GPS receiver with **MediaTek 66 channel** all-in-view tracking technology. GPS antenna, BT transmit/receive system are included. It is designed on the most advantage **MediaTek Chip Solution**, got the full-function, and RoHS compliant, industry-level locating capacity and low prices.

You can use this BT GPS Receiver as vehicles navigator, security system, geographic measurement, investigations or agriculture purpose. G66 PLUS BT GPS Receiver operation requirement is a proper power supply and the open sky-view. This BT GPS Receiver can communicate with other electronic devices by BT interface. Built-In Flash Memory can save satellite information and do almanac refresh periodically. This will shorten Time To First Fix (TTFF) effectively.

The BT GPS Receiver is designed as an ultra low power consumption device, and high position accuracy. It will update the satellite position 5 pulse per second. This BT 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) **While execute “Reset” function.**

2. Features and Functions

- 1.) Superior Urban Canyon Performance
With **66 channel** all-in-view tracking sensitivity **-162dBm**
- 2.) Support AGPS function, update EPO via USB or Bluetooth **【Please refer to AGPS user guide】**
- 3.) 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
- 4.) Automatically almanac/ ephemeris update in flash memory
Programmable flash utility to do refresh on satellite orbit data information
- 5.) Smart power management solution.
GPS Device will automatically shutdown in case of BT connecting signal failure detected and time over default setting value.

- 6.) Compatible with BT Serial Port Profile (SPP) completely.
- 7.) 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 Chipset Solution.

Satellite channel number: all-in-view **66** parallel satellites;

GPS frequency: 1575.42 MHz

Receiver : L1, C/A code.

Antenna type : Built in low noise active antenna

Tracking sensitivity : -162 dBm

3.2. Acquisition Time

Refresh : 1 sec

Cold start : 35 sec (average, normally occurred in first use of GPS receiver life)

Warm start : 34 sec (average)

Hot start : 1sec (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 USB charge cable)

B) Internal Battery : Rechargeable Lithium-ion battery, as main power.

3.6. Protocol &Interface

A) Output format

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

Baud rate : 38400 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 BT devices with Serial Port Profile (SPP)

- BT version 1.2 compliant
- BT 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 : 4dBm

3.7. Dimension/Environment Specification :

Dimension size : 49.7(W) × 78.5(L) × 6.8(H) mm

Weight : < 30g (include battery)

Operation temperature : -10°C to + 70°C

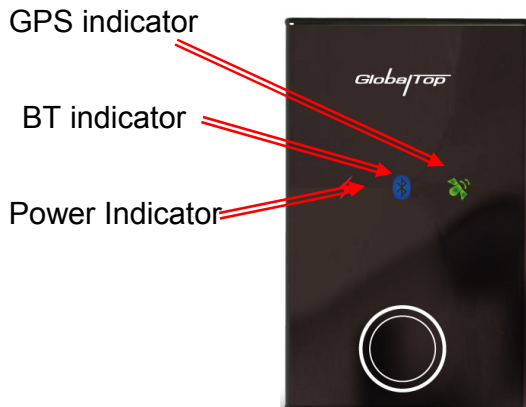
Storage temperature : -40°C to + 85°C

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 2 hours before you use the GPS receiver firstly.

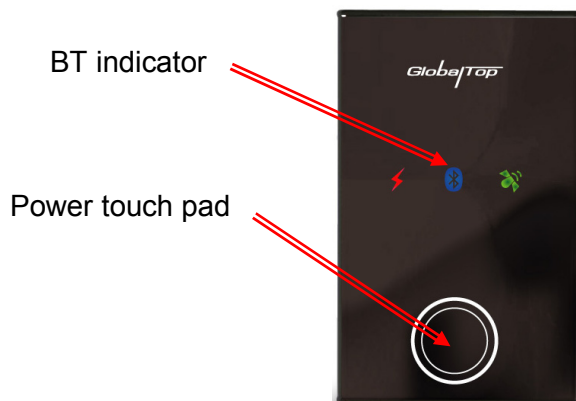


Connect charge cable to the power plug at the bottom and start charging

Power Indicator :

- (1) **Red** LED continuously light on
→Power in charging
- (2) **Red** LED continuously light off
→Charge completed

Step 2 : Power on, connect with BT



Touch the power on pad 1 seconds to Power on BT indicator :

- (1) BT host searching :
→3 pulses per second
- (2) BT host connected :
→1 pulse per second

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

Step 3 : GPS function test

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



Power on the G66 PLUS BT GPS Receiver

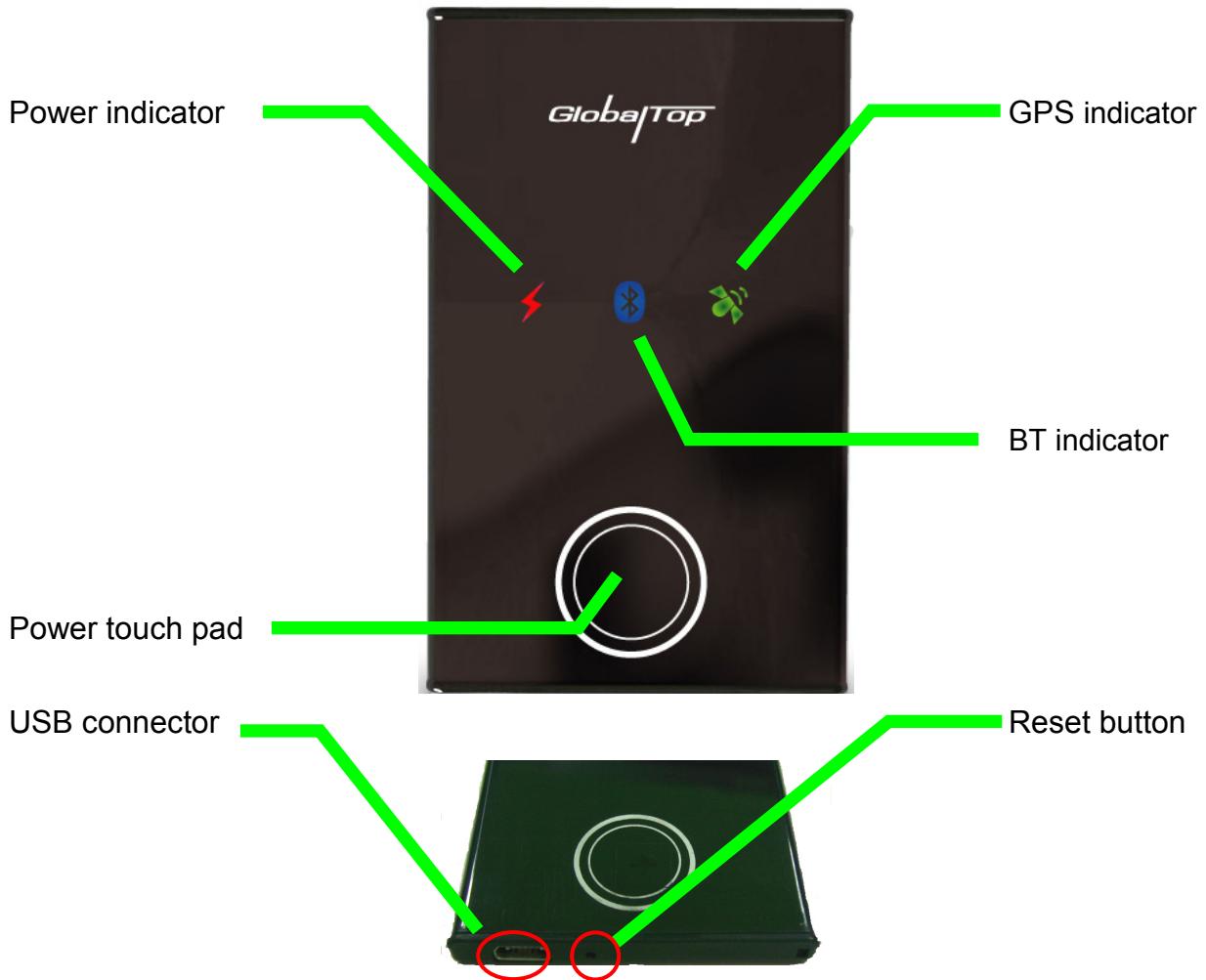
GPS Acquisition /Fix Indicator

- (1) **Green** LED lights up continuously
: Inquiring
- (2) **Green** LED blinks (1 pulse/3sec): Position fixed

5. Software/Hardware Usage

5.1. Hardware description

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



2). LED display description

Symbol	Color	Behavior	Description
BT Indicator	<u>Blue</u>	Blinking in 3 pulses/sec	Searching for BT host
		Blinking in 1 pulse/sec	Connected with host& communicating
Power LED	<u>Red</u>	Blinking with 1 sec interval for 1 minute and then shutdown the receiver	Battery low
	<u>Red</u>	Light up continuously	Charging
	<u>Red</u>	Switch off	Charge completed
GPS Acquisition LED	<u>Green</u>	Light up continuously	Tracking
	<u>Green</u>	Blink in 1pulse/ 3secs	Position fixed

3) Power On/Off

Actions	Description
Power on	Press and hold Power touch pad (1/3sec) to turn on the power
Power off	Press and hold Power touch pad(3sec) to turn off the power

4) Power saving mode

- * When GPS receiver has been not connecting with the BT host over 5 minutes, device will shutdown G66 PLUS unit automatically for saving battery power.
- * You need to re-power on G66 PLUS while back in use

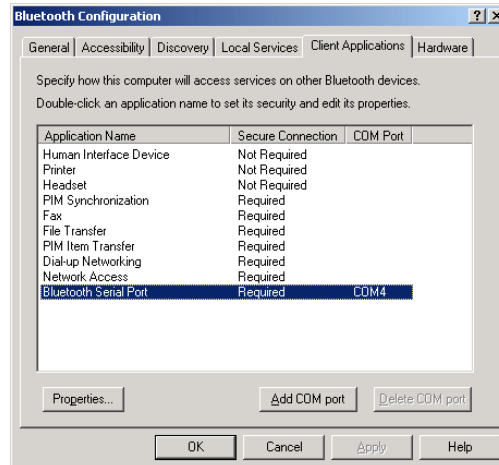
5) Reset function

- * Press the reset button in case of GPS unable to fix as well. Device will automatically do system initialization (cold start) and recommend you to do this outdoor and open sky.

5.2. Configuration setup with PC connection

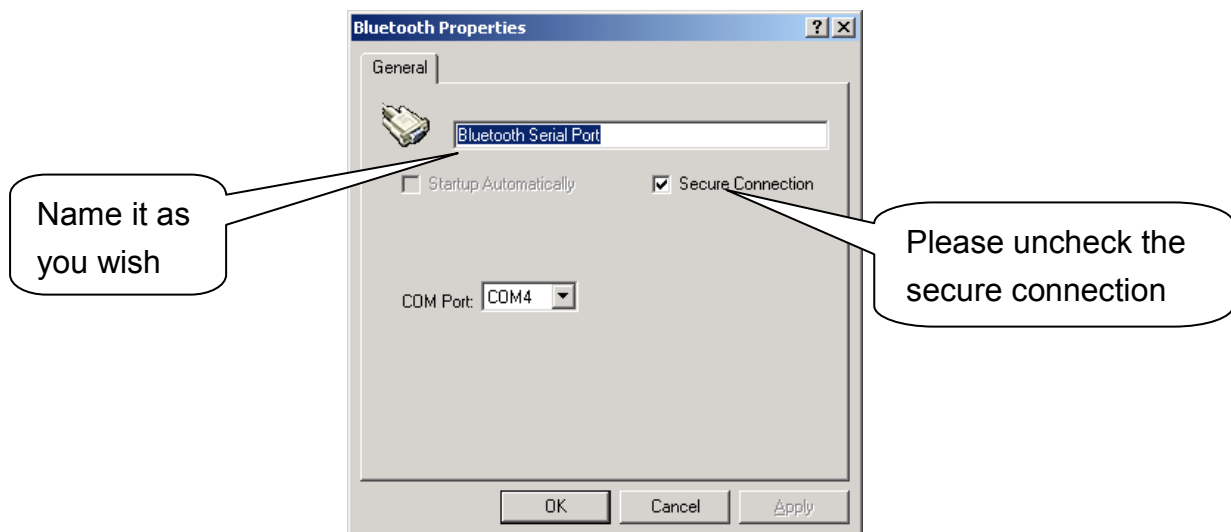
Here is a sample to show you how to connect the BT GPS Receiver with your PC, software install and basic function test.

- 1) First, select a PC with BT interface. Or you can purchase BT adapter for your PC. Please contact with your PC's sales about this.
- 2) Check your BT manager if there exist any configuration of BT Serial Port Profile like this :



Note : this sample is for your reference only. The screen may be various between different models of BT manager software.

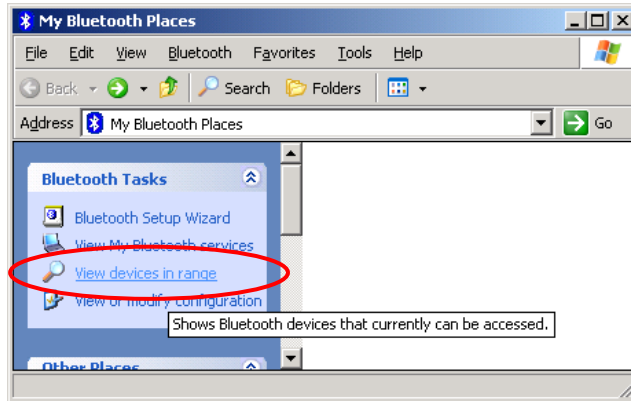
- 3) If not found, please create a BT serial port by yourself. The configuration should be like this :



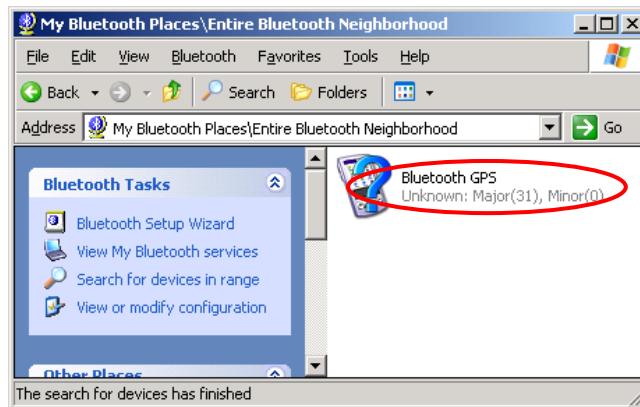
- 4) If there is already one, please check the content. Some BT device will enable the secure connection. Please refer to the configuration as above to uncheck it.
- 5) Power on your GPS Receiver. If the battery is ready, you should see 2 LED light up: the blue LED blink 3 times/sec means BT is activated and waiting for connection. Another static Green LED shows the GPS module is started and is inquiring position information.

BT GPS Receiver User Manual

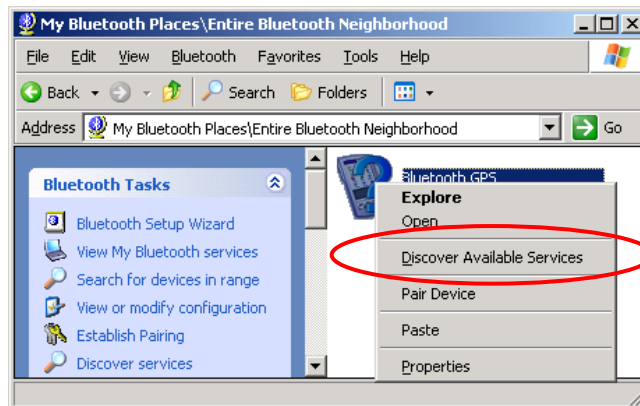
6) Open your BT places ; you should see nothing while using firstly.



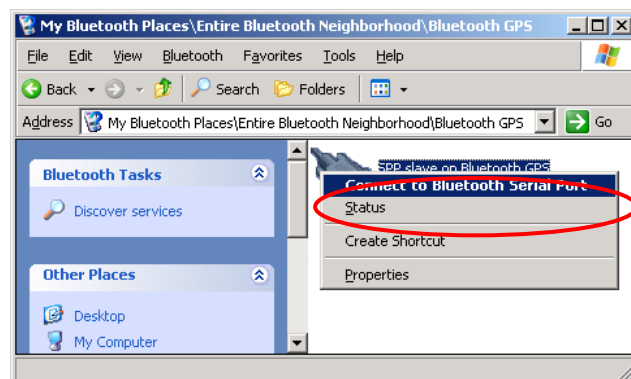
7) Click the [View devices in range] and you should find a [BT GPS] show as below :



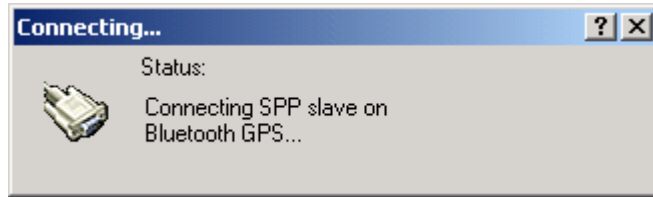
8) Right click on the icon, select the [Discover Available Services] :



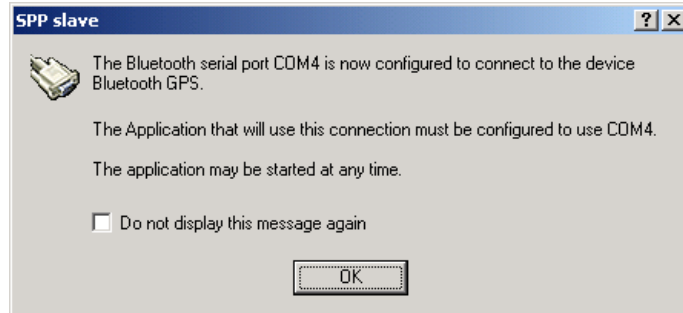
9) You should find the service SPP slave, right click and select [Connect to BT Serial Port] :



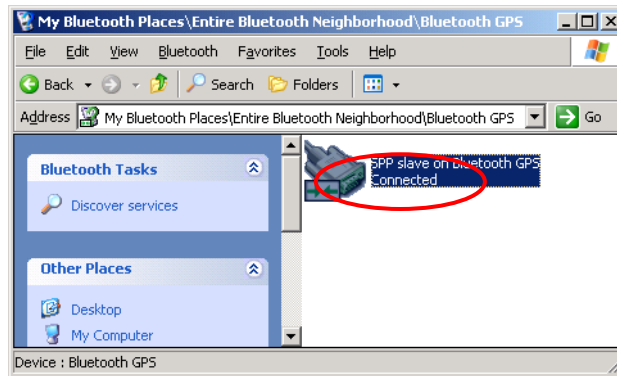
10) The follow message will show :



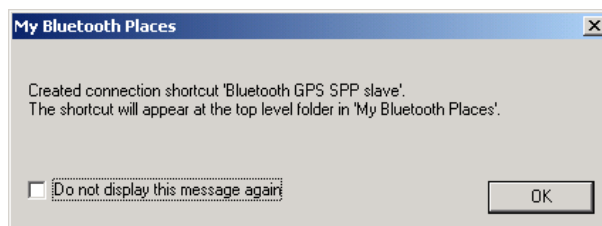
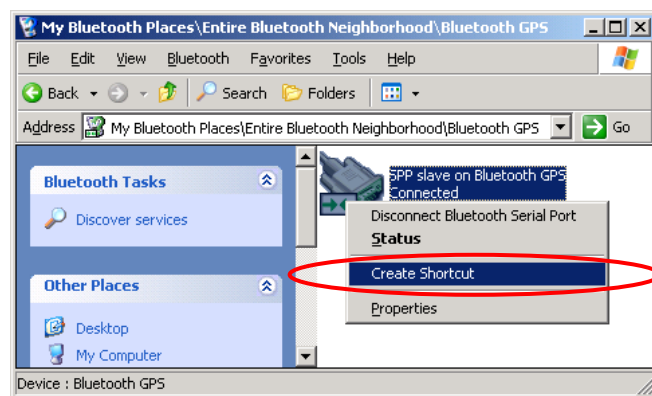
11) And the connection successful message :



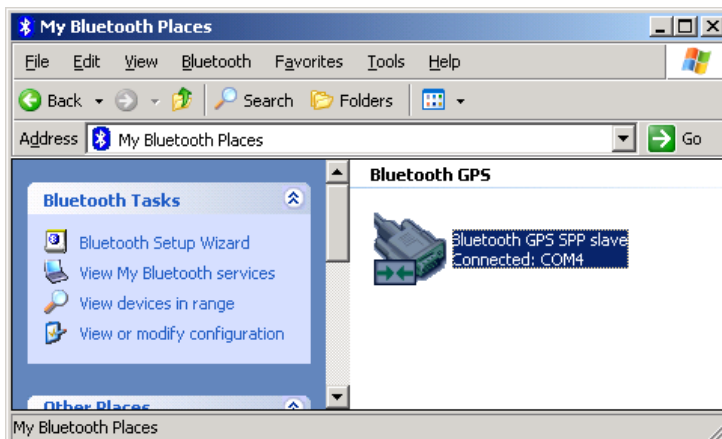
12) Back to the BT service view, you should see the icon changed to [Connected] :



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 :



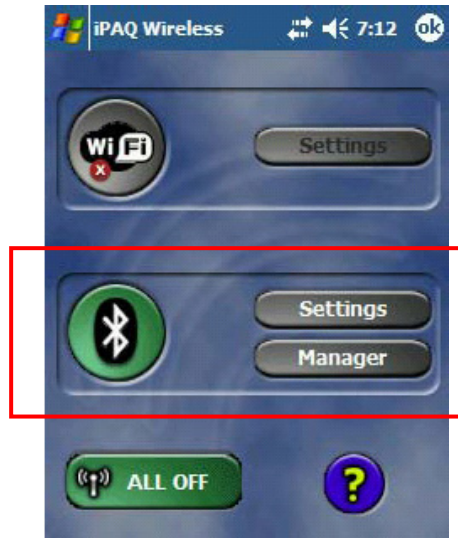
5.3. Configuration setup with PDA connection

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

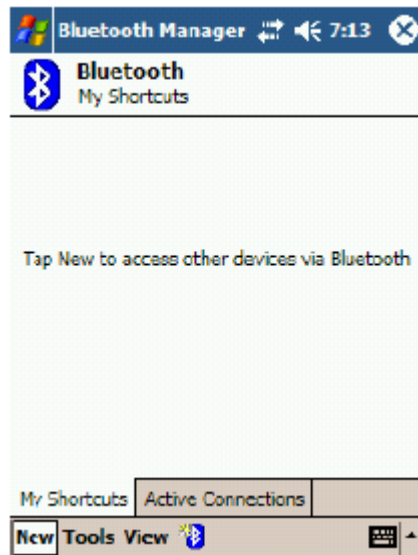
- 1) Power on your PDA and the BT host.
- 2) Power on the GPS Receiver. If the battery is ready, you should see 2 LEDs indication : the blue for BT blinks 3 times/sec. It means the BT module is activated and waiting for connection. The green LED for GPS, means the GPS module is activated and is inquiring GPS signal.



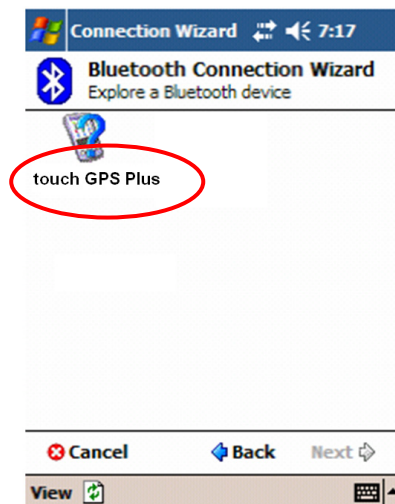
3.) See the screen, click BT mark at bottom, and [BT Manager] as below :



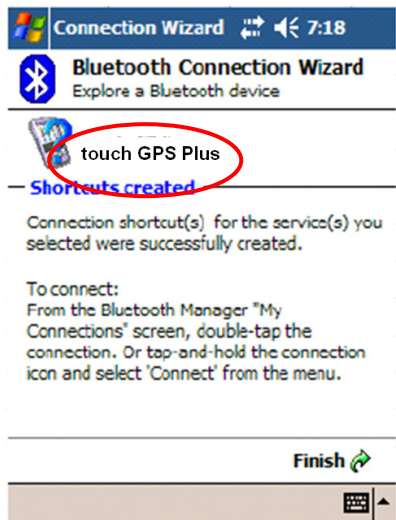
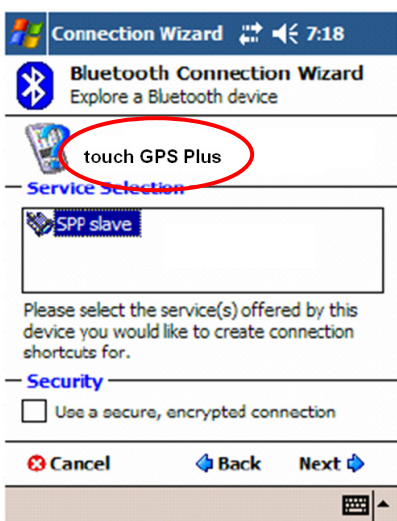
4.) If this is your first time to use BT GPS, click the BT mark at the bottom as below :



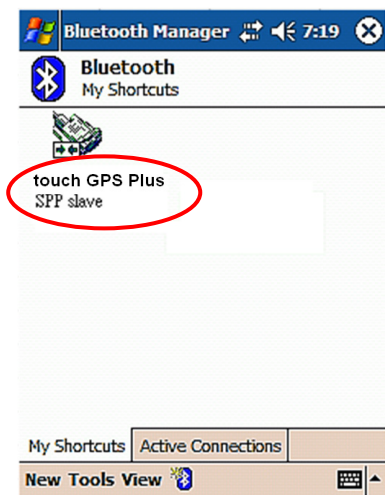
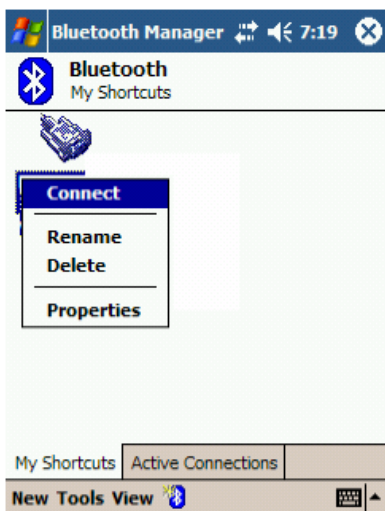
5.) Then the BT connection wizard show up, select [Explore a BT device] and click [Next]. In the next page, click the box to search BT devices. Your PDA will find the BT GPS and show it in the window. Click the icon to search for service.



6.) Back to the [Explore a BT device] as below. Click [Next] to list service on BT 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 [BT manager] as below. Please click the icon to connect the BT 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.

6. Warranty

The BT 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 BT 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.

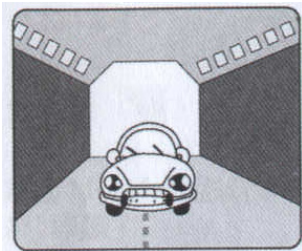
7. Trouble Shooting

7.1 Problem of Setup

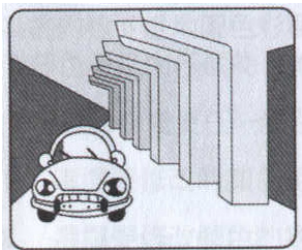
Error/Problem	Cause	Trouble shooting
Can not find the GPS device through BT interface	Install not correct or battery low	Check if G66 PLUS BT GPS Receiver is installed properly, and confirm the battery level is suitable (green LED blinks or none LED)
Unable the connect through BT	Configuration incorrect	Please refer section 5.2 to re-install. Or refer to your Smartphone user manual for configuration.
Fail to open COM Port	BT manager is not configured properly, or the COM port is adopted by another software.	Please check your BT manager settings, close the software may use COM ports and try again. Or check if there is any password protection.
No NMEA code (GPS data flow)	(1) Some PC/PDA will enter the power saving mode if you stop input for a few minutes. BT 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
Poor GPS signal	(1) Storm effect (2) Atmosphere turbulences (3) SA ON by USA military.	NA

7.2 Concerning of Poor GPS Signal

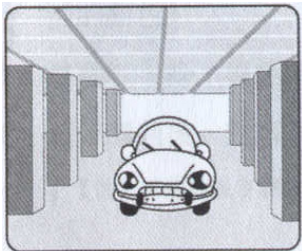
It is possible unable to receive GPS signal or signal low in these places :



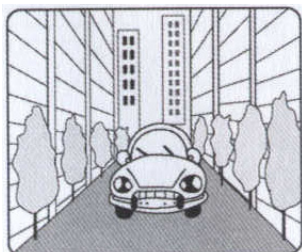
➤ Inside the tunnel, GPS signal is blocked.



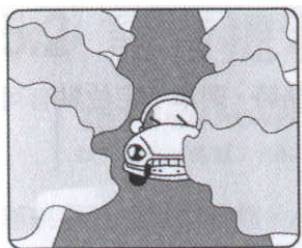
➤ Covers above, GPS signal is blocked.



➤ 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 BT 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.