

**GS-301**

**Bluetooth**

**GPS receiver**

**User Guide**



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## 1. Introduction

The *GS-301 Bluetooth GPS Receiver* is a total solution GPS receiver with Bluetooth, UART interface and built-in rechargeable battery for high sensitivity to tracking signal. GS-301 design is based on Panasonic module with low power consumption.

This positioning application meets strict needs such as car navigation, mapping, surveying, security, agriculture and so on. Only clear view of sky and certain power supply are necessary to the unit, GS-301 contacts to other device through Bluetooth device, and built-in recharge battery to save satellite information such as the status of satellite signal, the last location, date and time of last use.

With low power consumption, the GS-301 tracks up to 12 satellites at a time, re-acquires satellite signals in 100 ms and updates position data every second, Trickle-Power allows the unit operates a fraction of the time and Push-to Fix permits user to have a quick position fix even though the receiver usually stays off.

## 2. Packing

Great appreciate on your purchase of the GS-301 Bluetooth GPS Receiver. We hope it will be useful to you for a long time. Before you begin, make sure that your package includes the following item. If any of these items are missing, please contact your dealer or distributor.

● GS-301 Bluetooth GPS receiver	1 Set
● User Manual CD	1 Set
● GS-301 Quick guide	1 Set
● Warranty card	1 Set



### 3. Features:

- Builds on Panasonic module.
- 12 parallel satellite-tracking channels for fast acquisition and reacquisition.
- Build – in auto switch antenna, reduce internal interference.
- High speed signal acquisition using 1920 time/frequency search channels.
- Support NMEA0183 V3.0 data protocol
- Compatible with Bluetooth Serial Port Profile (SPP) completely
- Low power consumption with Lithium-Polymer (750mA) inside, make GS-301 continual work up to 8 Hr.
- Built-in rechargeable battery for memory and RTC backup and for fast Time to First Fix(TTFF)
- 4 colors LED to show the status of device.
- Active antenna connector for better satellites signal reception
- Enhanced algorithms provide superior navigation performance in urban, canyon and foliage environments.
- For Car Navigation, Marine navigation, Fleet Management, AVL and Location-Based Services, Auto Pilot, Personal Navigation or touring devices, Tracking devices/systems and Mapping devices application.

### 4. Specification

#### 4.1. Specification

- Chipset : Panasonic Module
- Channels : 12 parallel satellite0tracking channels.
- Frequency : 1575.42 MHZ.
- Receiver : L1,C/A code.
- Update rate: 1 Hz

#### 4.2. Acquisition Time (averaged)

- Reacquisition : 0.1 sec.
- Snap start : < 3 seconds (at <25 minutes off period)
- Cold start : <45 seconds.
- Warm start : < 35 seconds.
- Hot start : <8 second.
- Update rate : 1 second continuously.

#### 4.3. Position accuracy:

- Non DGPS (Differential GPS)

Position 5-25 m CEP without SA

Velocity 0.1 m/sec, without SA  
 Time 1 sec sync GPS Time

#### 4.4. Dynamic Conditions:

- Velocity 300Km / H MAX
- Acceleration 5m/s, MAX

#### 4.5. Power Supply

- External Voltage : 5VDC +/- 10%
- Batteries:

Main Power : Built-in rechargeable Lithium-Polymer (750mA) for system power.

Backup Power : Rechargeable Lithium-ion battery for memory & RTC backup.

- Working period(In Battery full power status):  
 > 8 hours on Continue mode.

#### 4.5. Output and Interface

- Output

Output protocol

Baud Rate : 4800 bps

Data bit : 8

Parity : No

Stop bit : 1

Format NMEA0183 V3.0 : GPGGA(1 time/1 sec),GPGSA(1 time/1 sec),GPGSV(1 time/5 sec), GPRMC(1 time/1 sec),

Datum : WGS84.

- Input/ Output Interface:

Compatible Bluetooth Serial Port Profile (SPP), Version 1.1 and class 2(up to 10 meter range).

- Internal Antenna interface:

Build-in patch antenna with auto switch function

Noise figure: 1.6 dB (typical)

Gain: 29 dBi (typical)

Lowest signal: -175 Dbw

- External Antenna interface:

3.0 V input MCX type active antenna connector.

#### 4.7. Physical

- Size : 74 x 45 x 23 mm
- Weight : < 55 g
- Operating Temperature : -10  $^{\circ}$ C to + 60  $^{\circ}$ C
- Storage Temperature : -20  $^{\circ}$ C to + 85  $^{\circ}$ C
- Operating humidity : 5% to 95% No condensing.

#### 4.8. Other Functions

6. Bluetooth frequency : 2.4~2.48GHZ

7. Bluetooth Input Sensitivity : -80dbm.
8. Low sensitivity of receiving satellite signal : -175dBW.
9. LED Functions : Indicate Bluetooth status, GPS status, Battery Status and Battery charging status.

## 5. Getting Start

### Step 1. Battery Charging

Please charge battery till LED off for the first time.

**Power cable plug in** Power cable connect to DC Jack



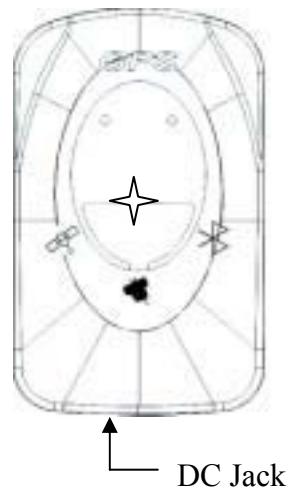
**Charging battery**

Note :

**Power Low**-----Red LED Flash

**Charging**-----Orange LED On

**Full of power**-----LED Off

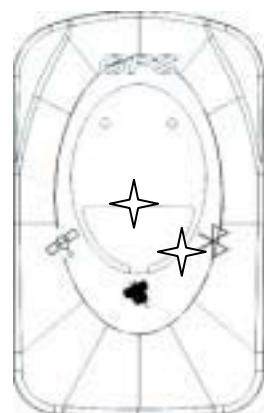


### Step 2. Power on

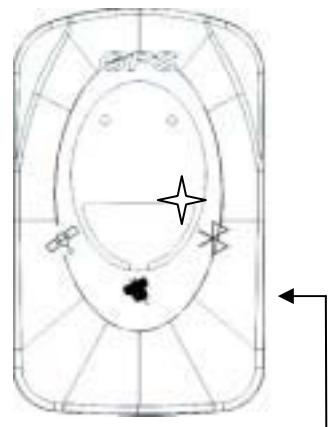
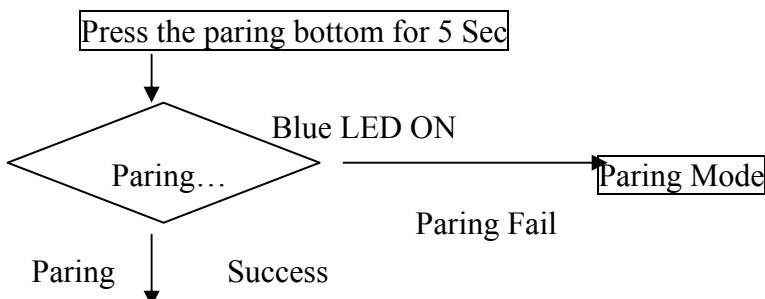
Bluetooth entry Standby Mode —

**Power on**-----Red LED On

**Standby Mode**-----Blue LED Flash (2 times / sec)



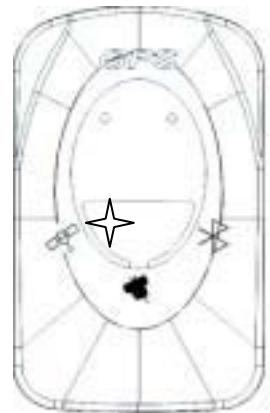
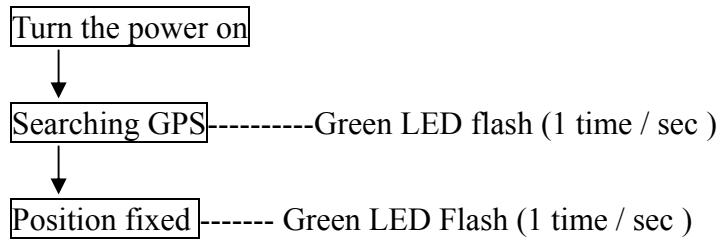
### Step 3 . Entry Paring Mode



Press PARING button  
for 5 second entry  
paring mode

**Step 4 GPS Status ---**

Put Bluetooth GPS in clear view of sky without any obstruction for better satellite Acquiring



## 6. Hardware

I. Dimension : 74 (L) x 45 (W) x 23 (H) mm



II. LED Status:

SYMBOL	STATUS		DESCRIPTION
Bluetooth (Blue)	Flash	LED On	Paring Mode
		1 time / 2 sec	Standby Mode
		2 time / 1 sec	Transferring Data
Battery (Orange)	LED on		Charging Status
	LED Off		Without charging
Power (Red)	LED Off		Power Off
	LED On		Power on
	Flash 1 time / 2 sec		Power Low
GPS (Green)	Flash 1 time / sec		Acquiring Satellites
	Flash 1 time / sec		Position Fixed

### III. External Antenna (MCX connector)

As using GS-301 Bluetooth GPS Receiver inside of car, truck or bus, it might receive weak signals through limited view to the sky. Replace the foldable antenna with the active one to get better satellite signals. Wing shields with heavy tinted or likewise may interfere with signal receiving. An active antenna then becomes essential.

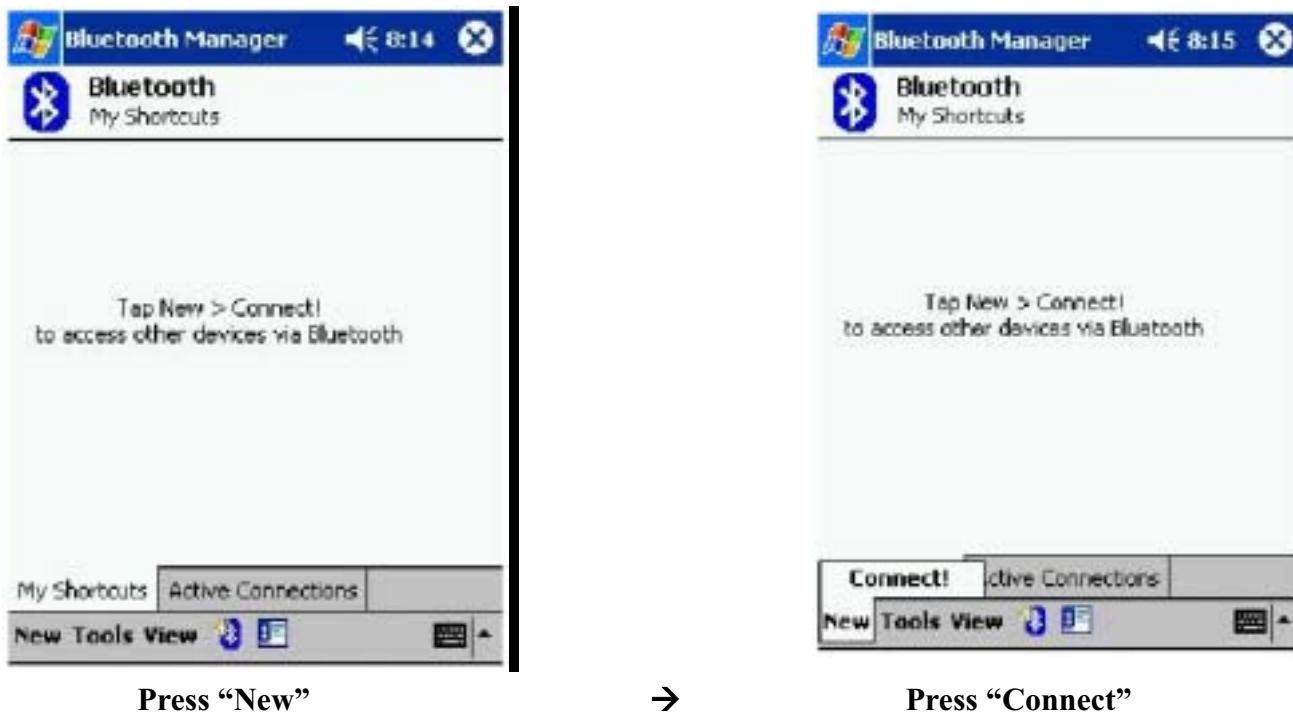


## 7. Bluetooth Connection

The following is the steps of software installation to setup on PDA, DELL AXIM with Bluetooth Manager. For other PDA, the steps may be a little different.

(Bluetooth Manager is one of popular program used for Bluetooth device)

### 7.1 Open “Bluetooth device Manager” on your pocket pc.



### 7.2 Search Bluetooth device

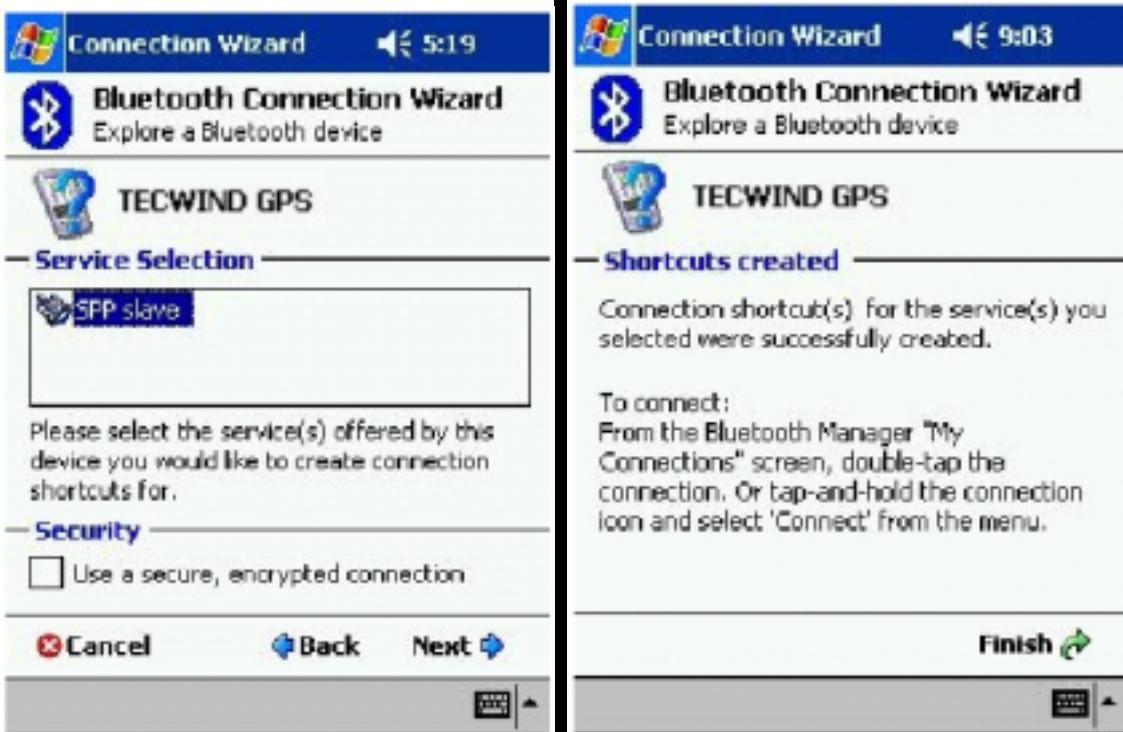


Select “Explore a Bluetooth device” → Press “Next”

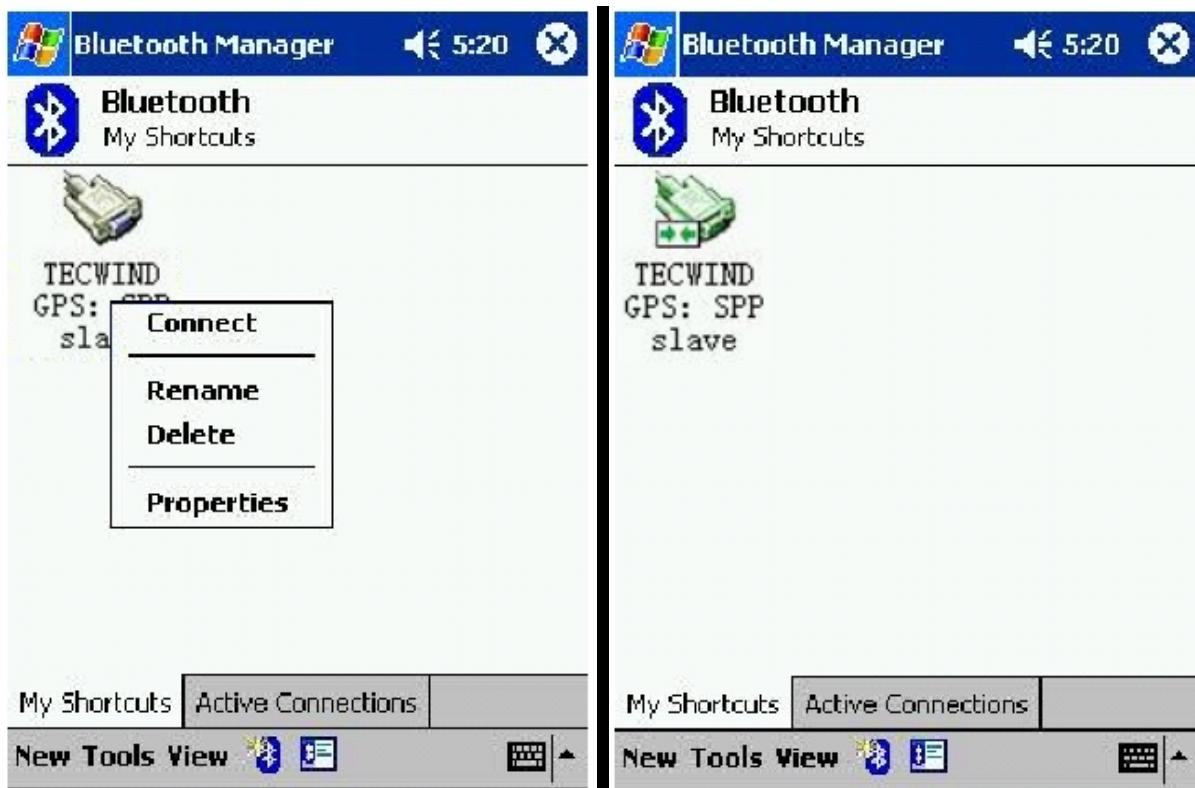
3. Found the Bluetooth device and enter passkey



4. Connect to SPP Slave



## 5. Finish Bluetooth Manager Setup



Tap and Hold “TECWIND GPS:SPP slave” → Press “Connect” → Bluetooth Connected

- A. After the procedure on paring, we can use navigation software or Function test software Now
- B. If your PDA or PC were using Widcomm software for Bluetooth Manager, you could “direct linking” after entry Navigation software.

PS1: Direct Linking is a special technology that after the first pairing, you can connect navigation or map software directly. It's not necessary recall Bluetooth Manager again to link Bluetooth.

PS2. Some PDA or PC does not support “DIRECT LINKING” please process the step 3 manually.

## 8. FQA

Problems	Reasons	Methods
No position output but timer is counting	Weak or no GPS signal can be received at the place of GS-301	Connect an external antenna, which locate as a open space to your GS-301
	At outdoor space but GPS signal is blocked by building or car roof.	Go outdoor and try again, or connect an external antenna to improve the poor GPS signal.
Execute fail	Bluetooth function unstable	Power On/Off GS-301. Re-Start PDA or PC and reference sec 7.1 re-install software.
Can not turn on the COM port	Install GS-301 incompletely or operate the devices is being used with same COM port	Install GS-301 completely or stop other device that is being used.
Can not find out GS-301	Poor connection	Re-Start PDA or PC and reference sec.7.1 re-install software
No Signal	No action for few minutes may cause Pocket PC entry power save mode. It will close the COM port at the same time.	Close the application and execute it again to reopen the COM port.
	Weak or no GPS signal when using GS-301 indoor.	Connect an external antenna to your GS-301.

## 9. Warranty

The GS-301 is warranted to be free from defects in material and functions for one year and from the date of purchase. Any failure of this product within this period under normal conditions will be replaced at no charge to the customers.