

# BT-328

# Bluetooth GPS Receiver

User manual, version 1.0



# 1. Overview



①	Power button
②	AC adapter jack
③	Power status LED
④	GPS status LED
⑤	Bluetooth status LED



**Car charger**



**AC adapter**

## 2. System Specification

<b>Model Name</b>	<b>BT-328</b>
<b>Electrical Characteristics (Receiver)</b>	
<b>Chipset</b>	<b>SiRF GSC2</b>
<b>Frequency</b>	<b>L1, 1575.42 MHz</b>
<b>C/A Code</b>	<b>1.023 MHz chip rate</b>
<b>Channels</b>	<b>12</b>
<b>Tracking Sensitivity</b>	<b>-155 dBm</b>
<b>Accuracy</b>	
<b>Position Horizontal</b>	<b>10m 2D RMS</b>
<b>WAAS enabled</b>	<b>5m 2D RMS</b>
<b>Time</b>	<b>1 micro-second synchronized to GPS time</b>
<b>Velocity</b>	<b>0.1m/sec 95%</b>
<b>Datum</b>	
<b>Datum</b>	<b>WGS-84</b>
<b>Acquisition Rate</b>	
<b>Hot start</b>	<b>8 sec. average (with ephemeris and almanac valid)</b>
<b>Warm start</b>	<b>38 sec. average (with almanac but not ephemeris)</b>
<b>Cold start</b>	<b>42 sec. average (neither almanac nor ephemeris)</b>
<b>Reacquisition</b>	<b>0.1 sec. average (interruption recovery time)</b>
<b>Protocol</b>	
<b>GPS Output Data</b>	<b>NMEA 0183 protocol, and supports command: GGA, GSA, GSV, RMC, VTG, GLL. (VTG and GLL are optional)</b>
<b>Dynamic Condition</b>	
<b>Acceleration Limit</b>	<b>Less than 4g</b>
<b>Altitude Limit</b>	<b>18,000 meters (60,000 feet) max.</b>
<b>Velocity Limit</b>	<b>515 meters/sec. (1,000 knots) max.</b>
<b>Jerk Limit</b>	<b>20 m/sec**3</b>
<b>Power</b>	
<b>Voltage</b>	<b>Built-in rechargeable battery (1300 mAh) and 5V DC input charging circuit</b>
<b>Operation Time</b>	<b>16 hr. After fully recharged, in continuous mode</b>
<b>Physical Characteristics</b>	
<b>Dimension</b>	<b>67.5mm X 45mm X 17mm</b>
<b>Weight</b>	<b>65g</b>
<b>Temperature</b>	
<b>Operating</b>	<b>-20°C ~ 60°C</b>
<b>Humidity</b>	<b>Up to 95% non-condensing</b>

## 3. Bluetooth Specification

	<b>Bluetooth V1.2 Compliant</b>
<b>Supply Voltage</b>	<b>2.8V ~ 3.3V</b>
<b>Frequency Range</b>	<b>2.402 ~2.480 GHz</b>
<b>Receiver Sensitivity</b>	<b>- 80 dBm</b>
<b>Transmit Power</b>	<b>Class 2</b>
<b>Transmitting Range</b>	<b>10 m</b>
<b>Power Consumption</b>	<b>45 mA (Typical)</b>

## 4. Features

- New SiRF GSC2 high performance and low power consumption chipset
- Communication with Host Platform via Bluetooth Serial Profile
- Built-in ceramic patch antenna
- Support NMEA 0183 data protocol
- 3 LED to show the status of GPS/Bluetooth/Battery
- Rechargeable Li-ion battery
- Operation time: 16 hours, in continuous mode
- Auto power-off, if Bluetooth is not connected to any device within 10 minutes
- Bluetooth operation range: 10m

## 5. Introduction

The BT-328 is a GPS receiver with Bluetooth interface and built-in active antenna for high sensitivity to tracking signal. Base on the SiRF start II Low power single chipset and supports all functions (Single Sat updates in reduced visibility, Superior urban canyon performance, Foliage Lock for weak signal tracking, etc.) The BT-328 is well suited to system integrations including PDA, Smart phone, Tablet PC and Notebook PC with Bluetooth devices. It satisfies a wide variety of applications that are purposes in automotive, and outdoor recreation navigation systems.

## 6. Getting Started

### ▶ Turn the device on and off

**Power on:** Press the power button for 1 second until the GPS status LED is on.

**Power off:** Press the power button for 1 second until the GPS status LED is off.

### ▶ AC Adapter jack

The power jack allows you to connect either a DC car charger (included) or AC adapter (included) to recharge the internal battery. Please note that the adapter is rating 5V, 1.2A, positive pole center.

### ▶ LED Function

Power Status LED (Red / Yellow):

Red	Battery power is critically low, please charge it immediately.
Yellow	Battery is charging now.
LED off	Battery is partially full or fully charged.

GPS Status LED (Green):

Blinking	GPS position is fixed.
On	GPS position is not fixed.

Bluetooth Status LED (Blue):

Blinking slowly (flash once in every 3 seconds)	Not connected to any Bluetooth device. (Standby mode)
Blinking quickly (flash once in every second)	Connected to a Bluetooth device. (On-line mode)

### ▶ Power-saving Function

After you have turned on the power of BT-328, and if it was not connected to any Bluetooth device within **10** minutes, BT-328 will turn off the power automatically by itself. If the AC adapter is connected, this function will be disabled.

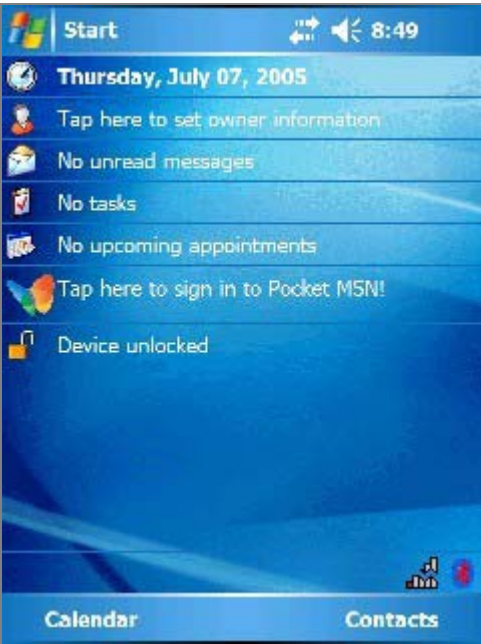
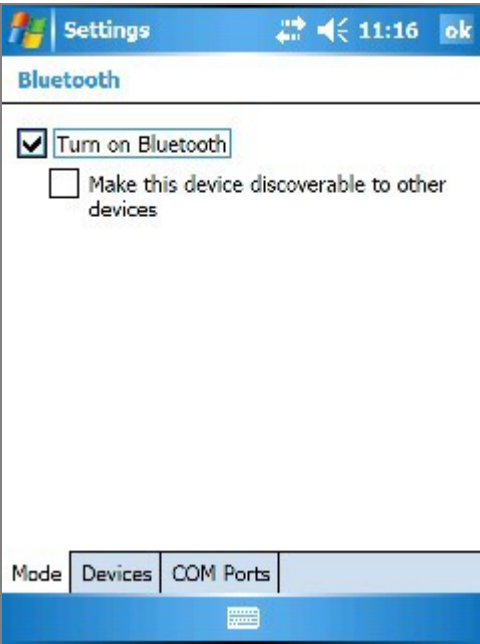
# 7. Usage

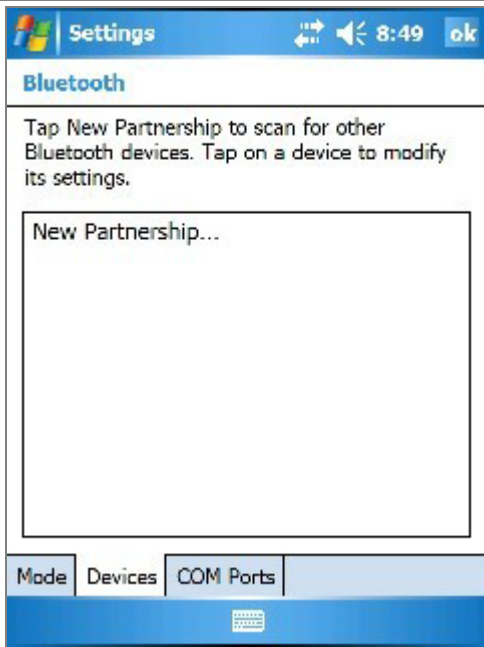
## 7.1 Connect BT-328 to your Bluetooth device

- (1) Press the power button to turn on the BT-328.
- (2) The Bluetooth device could be “a PDA with built-in Bluetooth”, “a PDA with Bluetooth Compact Flash card”, or “a Notebook with Bluetooth device”...etc.
- (3) Please refer to the user manual of your Bluetooth device and enable the it for connecting to BT-328. Some Bluetooth device may need the Bluetooth passkey, the passkey is “0000”.
- (4) Check the number of COM port used by the Bluetooth device.
- (5) Run the suitable mapping/navigation software and select the **correct COM port & Baud rate: 38400**.

**Note:** Most of the application software of Bluetooth device have an auto-detect feature, so you don't have to manually select the Baud rate.

## 7.2 Connect BT-328 to a “Windows Mobile Version 5 Pocket PC”

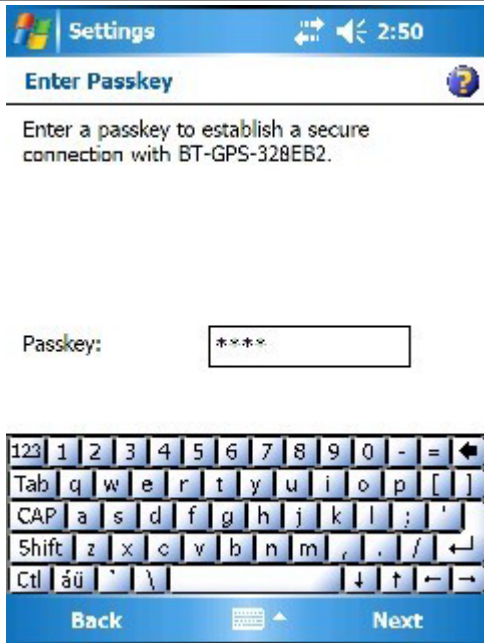
 A screenshot of the Windows Mobile Start screen. The top bar shows the Start button, signal strength, speaker icon, and time 8:49. Below the bar, it displays the date 'Thursday, July 07, 2005' and several status messages: 'Tap here to set owner information', 'No unread messages', 'No tasks', 'No upcoming appointments', 'Tap here to sign in to Pocket MSN!', and 'Device unlocked'. At the bottom, there are icons for 'Calendar' and 'Contacts'.	 A screenshot of the Windows Mobile Settings application, specifically the Bluetooth settings screen. The top bar shows the Settings button, signal strength, speaker icon, time 11:16, and an 'ok' button. The screen title is 'Bluetooth'. There are two checkboxes: 'Turn on Bluetooth' which is checked, and 'Make this device discoverable to other devices' which is unchecked. At the bottom, there are tabs for 'Mode', 'Devices', and 'COM Ports'.
<ol style="list-style-type: none"><li>1. Tap on the Bluetooth button on right lower corner.</li><li>2. Turn on your Bluetooth GPS receiver.</li></ol>	<ol style="list-style-type: none"><li>3. Check “Turn on Bluetooth”.</li></ol>



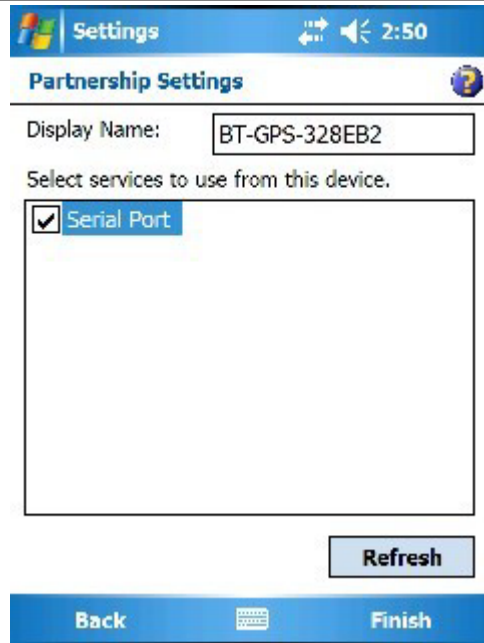
4. Tap the "Devices" tab, and tap "New Partnership..."



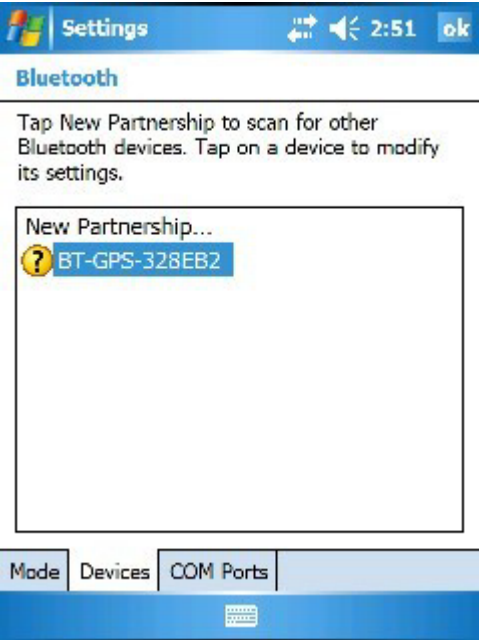
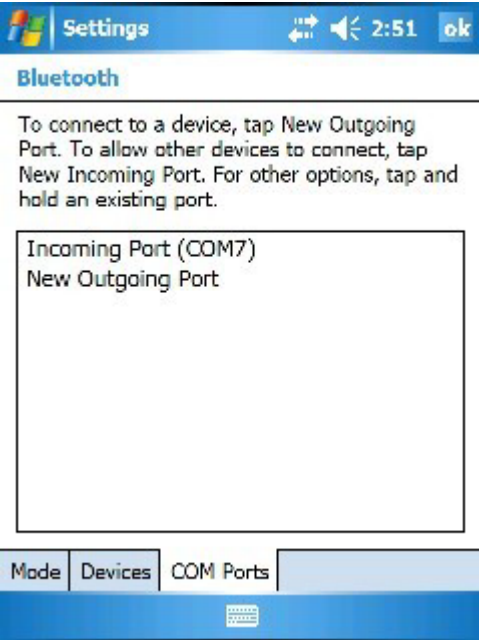

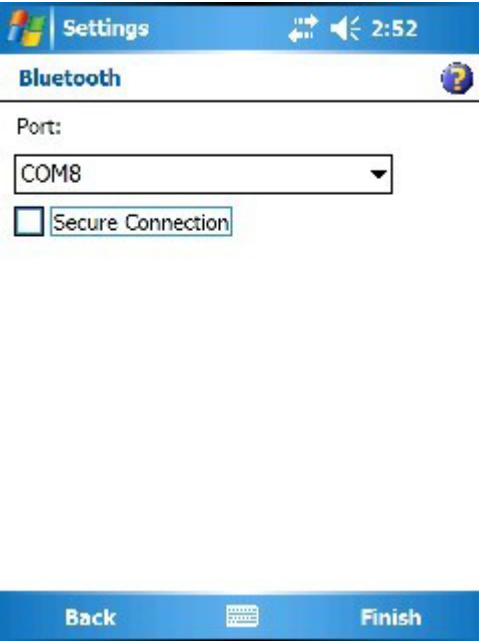
5. It will search for all the Bluetooth devices.  
6. Select a device (for example "BT-GPS-328EB2") and tap Next.



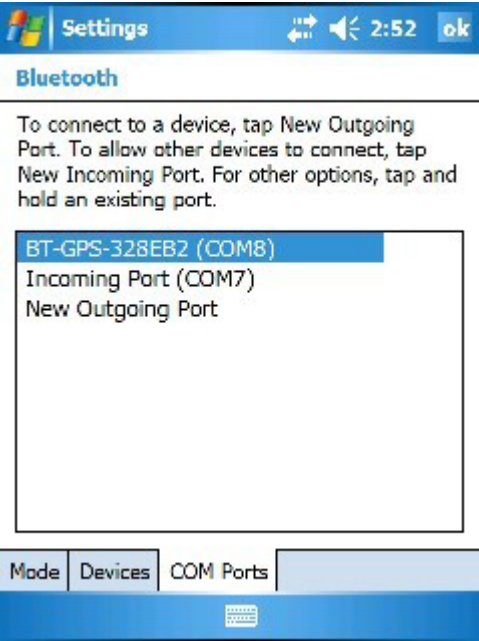
7. Enter Passkey "0000" and tap Next.



8. Check "Serial Port" and tap Finish.

 <p>9. The device will be shown on the list.</p>	 <p>10. Tap the "COM Ports" tab, and select "New Outgoing Port".</p>
 <p>11. Select the device and tap Next.</p>	 <p>12. Uncheck "Secure Connection" and from the drop down box select a COM port number (for example, COM8), and then tap Finish.</p>





**Settings** 2:52 ok

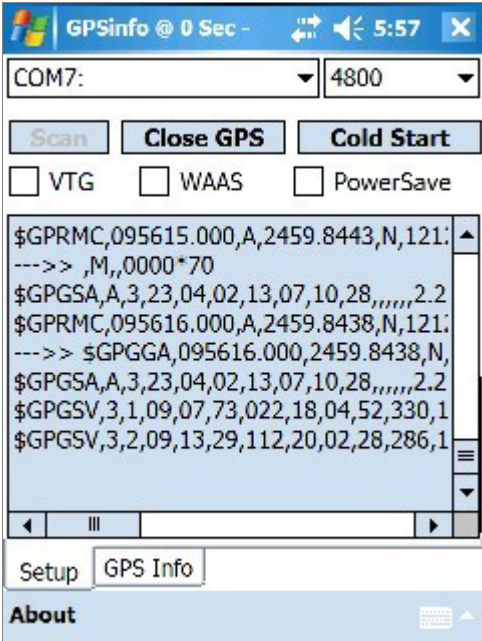
**Bluetooth**

To connect to a device, tap New Outgoing Port. To allow other devices to connect, tap New Incoming Port. For other options, tap and hold an existing port.

**BT-GPS-328EB2 (COM8)**  
Incoming Port (COM7)  
New Outgoing Port

Mode | Devices | **COM Ports**

13. The device with it's COM port number will be shown on the list.



**GPSInfo @ 0 Sec -** 5:57 X

COM7: 4800

Scan Close GPS Cold Start

VTG  WAAS  PowerSave

```
$GPRMC,095615.000,A,2459.8443,N,121:
--->> ,M,,0000*70
$GPGSA,A,3,23,04,02,13,07,10,28,,,,,2.2
$GPRMC,095616.000,A,2459.8438,N,121:
--->> $GPGGA,095616.000,2459.8438,N,
$GPGSA,A,3,23,04,02,13,07,10,28,,,,,2.2
$GPGSV,3,1,09,07,73,022,18,04,52,330,1
$GPGSV,3,2,09,13,29,112,20,02,28,286,1
```

Setup | **GPS Info**

**About**

14. Now you can go to GPSInfo program, set the correct COM port and test the GPS receiver.

## 8. Test the BT-328 Bluetooth GPS Receiver

Please install the GPS Information program. It is included in the CD, file name could be “GPSinfo.exe” or “GPS Information.exe”.

This testing program only supports the Microsoft Windows CE & Pocket PC based PDA platform. Please refer to the GPSinfo User Manual for more detailed guide.

## 9. Troubleshooting

### ▶ **Bluetooth is unable to connect**

- (1) Check if the Bluetooth status LED is flashing normally.
- (2) Check if the battery power is enough. If not, please recharge it.
- (3) Check if the other Bluetooth device is enabled or not.

### ▶ **GPS cannot be positioned**

- (1) Check if the GPS status LED is flashing normally.
- (2) Check if the battery power is enough. If not, please recharge it.
- (3) If GPS cannot be positioned for long, apply GPSinfo software to make it a Cold Start, and move it to an open space for performing the positioning task.

## **Federal Communications Commission (FCC) Statement**

15.21

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)

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.

### **Operation is subject to the following two conditions:**

- 1) this device may not cause interference and
- 2) this device must accept any interference, including interference that may cause undesired operation of the device.

### **FCC RF Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.