

BT Gmouse GPS Receiver User Guide

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*The external active antenna is an optional accessory which not included in the standard package.

**External antenna port is an optional specification.

Warnings

Care and Caution

The Global Positioning System (GPS) is operated by the United States Government which is solely responsible for the accuracy and continued operation of the system. Accuracy of position fixes (longitude, latitude and altitude) can be affected by alterations made to the GPS satellites by the U.S. Government. Accuracy is subject to change in accordance with the U.S. Department of Defense civil GPS user policy and Federal Radionavigation Plan. Positional accuracy and time to fix time can also be affected by poor view of caused by obstructions such as

- tall buildings,
- heavy foliage,
- large cliffs and other obstructions

where GPS satellite signals are blocked and poor satellites geometry conditions result.

Judgment

BT Gmouse receiver is an excellent navigation and location awareness assist tool, but does not substitute the needs of careful steering and good judgment. Never only rely on one single tool or apparatus for positioning and navigation.

Accessories

The accessory supplied with the BT Gmouse receiver is specifically designed for BT Gmouse. Use of other accessory may severely degrade performance or even damage the receiver, and will void the warranty. Make sure using the charger by EMTAC. **DO NOT USE OTHER CHARGER.** Do not try to open or break the receiver. There is no service accessory part inside the receiver. Open the receiver will void the warranty.

Software

Follow the operation guidance as stated and described in the user guide of the GPS application software.

The software supplied in and with the BT Gmouse receiver is solely for personal usage. Making copies only for personal use, but may not copy, modify, reverse engineer or transfer the software unless expressively provided by written agreement. The software is the property of EMTAC and/or its supplier and is protected by international treaty provisions.

Safety

The BT Gmouse uses four AAA-size batteries. Leaving the BT Gmouse in hot or cold conditions, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery used. Always try to keep the BT Gmouse between +15°C (+59°F) and +25°C (+77°F). A BT Gmouse with a hot or cold battery may temporarily not work, even when the battery is new or fully charged.

The performance of Ni-MH AAA 1.2V Battery or 4 X AAA 1.5V Battery is particularly limited in temperatures below 0°C (+32°F).

Batteries must be recycled or disposed of properly. Batteries must not be disposed of in municipal waste.

DO NOT DISPOSE OF THE BT Gmouse RECEIVER IN A FIRE!

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS.

To assure product safety, the battery maker requests following statements in the instruction manual/User Guide of the equipment.

Danger

- ◆ If the alkaline solution of the battery touches the eyes, injury such as loss of eyesight may be caused. Do not rub the eyes, but flush the eyes amply with abundant clean water such as city water and then receive medical treatment without delay.
- ◆ Failure to carefully observe the following procedures and precautions can result in leakage of battery fluid (electrolyte), heat generation, bursting, fire and serious personal injury!
- ◆ Never dispose of Ni-MH batteries in a fire or heat them.
- ◆ Do not connect the (+) positive and (-) negative terminals of Ni-MH batteries together with electrically conductive materials, including lead wires. Do not transport or store batteries with their uncovered terminals or connected with a metal necklace or other electrically conductive material. When carrying or storing batteries, use a special case.
- ◆ Never disassemble battery. Doing so may cause an internal or external short circuit or result in exposed material of battery reacting chemically with the air. It may also cause heat generation, bursting and fire. Also, this is dangerous as it may cause splashing of alkaline fluid.
- ◆ Never modify or reconstruct batteries. Protective devices to prevent danger are built into batteries (single cell or packed cells). If these are damaged, excessive current flow may cause loss of control during charging or discharging of the battery, leakage of battery fluid, heat generation, bursting and fire.
- ◆ Never solder lead wires directly on to batteries.
- ◆ The (+) positive and (-) negative terminals of batteries are predetermined. Do not force the terminals to connect to the charger or the equipment, check if the (+) and (-) terminals are incorrectly positioned.
- ◆ The gas release vent which releases internal gas is located in the (+) positive terminal of the battery. For this reason, never deform this section or cover or obstruct its gas release structure.

- ◆ batteries contain a strong colorless alkaline solution (electrolyte). The alkaline solution is extremely corrosive and will cause skin damage. If any fluid from a battery comes in contact with user's eyes, they should immediately flush their eyes and wash them thoroughly with clean water from the tap or another source and consult a doctor urgently. The strong alkaline solution can damage eyes and lead to permanent loss of eyesight.
- ◆ When batteries are to be incorporated in equipment or housed within a case, avoid air-tight structures, as this may lead to the equipment or the case being damaged or may be harmful to users.

Warning

- ◆ Keep batteries out of reach of babies and little children. If by any chance, the batteries are swallowed, consult the doctor without delay.
- ◆ Do not incinerate, heat, disassemble or remodel the batteries. The insulator and the vent for gas escape and so on will be damaged, and the batteries may leak, heat or explode.
- ◆ If the alkaline solution of the battery is licked, rinse out the mouth and consult the doctor without delay.
- ◆ If the alkaline solution of the batteries adheres to skin or clothes, skin injury may be caused. Wash liquid away immediately with abundant clean water such as city water.
- ◆ Do not connect (+) (-) of the batteries with wire and do not carry or keep metallic necklace, hairpin, etc. together with batteries. The batteries may be short-circuited, causing over-current any they may leak, heat or explode.
- ◆ Do not mix and use "different types or brands of batteries" nor "used and new batteries" together. The difference of characteristics may cause leakage, heat or explosion.
- ◆ These batteries are not designed to recharge. If recharged, the insulator or the inside structure may be damaged, and the batteries may leak, heat or explode.
- ◆ Remove promptly the used batteries from the apparatus. If the used batteries are left in the apparatus, connected for long, gas will be formed in the batteries, which may cause battery leakage, heat or explosion and may cause damage of apparatus.
- ◆ When not using the apparatus for a long period, remove the batteries from the apparatus. Gas formed in the batteries may cause battery leakage or may damage the apparatus.

- ◆ Do not apply water, seawater or other oxidizing reagents to batteries, as this can cause rust and heat generation. If a battery becomes rusted, the gas release vent may no longer operate, and can result in bursting.
- ◆ Do not overcharge batteries by exceeding the predetermined charging period specified by the battery charger's instructions or indicator. If batteries are not fully charged after the battery charger's predetermined charging period has elapsed, stop the charging process. Prolonged charging may cause leakage of battery fluid, heat generation, and bursting. Be sure to handle recharged batteries carefully as they may be not.
- ◆ batteries contain a strong colorless alkaline solution (electrolyte). If the skin or clothing comes in contact with fluid from a battery, thoroughly wash the area immediately with clean water from the tap or another source. Battery fluid can irritate the skin.
- ◆ Do not connect more than 21 batteries in series, as this may cause electrical shocks, leakage of battery fluid and heat generation.
- ◆ Do not remove the outer tube from a battery or damage it. Doing so will expose the battery to the risk of a short circuit, and may cause leakage of battery fluid, heat generation, bursting and fire.
- ◆ If batteries leak fluid, change color, change shape, or change in any other way, do not use them, otherwise they may cause heat generation, bursting and fire.
- ◆ Keep batteries and the equipment using them out of the reach of babies and small children, in order to avoid accidental swallowing of the batteries. In the event the batteries are swallowed, consult a doctor immediately.
- ◆ When the operating time of a battery becomes much shorter than its initial operating time even after recharged, it should be replaced to a new battery as its battery life has ended.

Caution

- ◆ Do not strike or drop batteries.
- ◆ Store batteries out of reach of babies and little children. When charging or using a battery, do not let babies or little children remove the battery from the charger or the equipment being used.
- ◆ Be sure to charge batteries within a temperature range of 0 to 40°C (degrees Celsius)
- ◆ Be sure to use the recommended charging method for batteries, read the battery charger's instruction manual carefully.
- ◆ Do not use or store battery at high temperature, such as in strong direct sunlight, in cars during hot weather, or directly in front of a heater. This may cause leakage of battery fluid. It could also impair performance and shorten operating life of batteries.
- ◆ Be sure to turn off the equipment after use of batteries, otherwise may result in leakage of battery fluid.
- ◆ After removed from equipment, store batteries in a dry place and within the recommended storage temperature range. This will help preserve the batteries' performance and durability and minimize the possibility of leakage of battery fluid or corrosion.(recommends the storage temperature range from -20 to 30°C for a longer service life).
- ◆ To use batteries for the first time after purchase or having not used them for a long period of time, be sure to charge them.
- ◆ After long term storage, there is a possibility that the battery could not be fully charged. In order to fully charge it, please charge and discharge the battery for a few times.
- ◆ Do not use old and new batteries mixed together, or batteries at different charge levels. Do not use the battery mixed together with a dry cell or other batteries of different capacity, type, or brand name. This may cause leakage of battery fluid and heat generation.
- ◆ Do not peel off or damage the outer label of the batteries. The batteries may be short-circuited, they may leak, heat or explode.
- ◆ Do not expose batteries to strong impact by dropping or throwing the batteries. The batteries may leak, heat or explode.
- ◆ Do not deform the batteries. The insulator and the vent for gas escape, etc. may be damaged and the batteries may leak, heat or explode.
- ◆ When using the batteries in complete airtight apparatus, follow the indications of the operating instructions of the apparatus.
- ◆ Do not solder anything directly to the batteries. The insulator and the vent for gas escape, etc. may be damaged by heat and the batteries may leak, heat or explode.

- ◆ Do not use nor keep batteries at places exposed to strong direct sunlight or in cars under burning sun, etc. The batteries may leak, heat or explode.
- ◆ At the storage or disposal of the batteries, insulate the terminal parts with tape or the like. If the batteries are mixed with other batteries or metallic objects, the batteries may be short-circuited, and may leak, heat or explode.
- ◆ Keep the batteries away from water. The batteries may heat
- ◆ The specification or the performance of the batteries may be sometimes not appropriate, depending on applications or apparatus; use correctly the appropriate batteries in accordance with the operating instructions and notices of the apparatus.
- ◆ At the storage of batteries, avoid direct sunlight, high temperature and high humidity places. Leakage may happen. Beside, the performance and the life of the batteries may decrease.
- ◆ These batteries are allowed to be disposed as general incombustible refuse. However if rules for battery disposal exist, such as regulations of local government, dispose of the batteries in accordance with the rules.
- ◆ Do not forget to turn off the switch of the apparatus.
- ◆ To keep the batteries taken out from packages, or to stock the batteries by families, pay attention to avoid contact between batteries and to keep out of short-circuit.
- ◆ If the battery terminals become dirty, clean them with a soft dry cloth prior to use. Dirt on the terminals can result in poor contact with the equipment, loss of power, or inability to charge.

Notice

In order to help you fulfilling any warranty obligations, read comprehensively the "Warnings", "Disclaimer and Limitation of Liability", "Basic Guidelines", "Care and Maintenance", and the whole User Guide.

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Basic Guidelines

SAFETY

Read the User Guide and these basic guidelines comprehensively. Breaching the regulations and rules may be dangerous or illegal. Road safety is the first priority; do not use or operate the BT Gmouse receiver while driving. Keep the BT Gmouse receiver away from high temperatures and fire. Additional detailed information is given in this user guide.(see more details in "Warning" section)

PROPER HANDLING

Operating the GPS receiver requires a clear and unobstructed view of sky with the antenna facade pointing upward to the sky. Do not bend BT Gmouse receiver while connected to charger, bending will damage the connector, resulting in damage to the BT Gmouse or the charger's plug.

FIRST TIME OPERATION

A longer than normal time-to-first-fix of position may result the first time you use the BT Gmouse. Follow this user guide and consult the instructions of the host platform and GPS application software.

INTERFERENCE

GPS receivers may receive interference near cellular base-station and when in close proximity to mobile phone antennas. This interference may affect positioning and time-to-fix performance.

CONNECTOR and JACK

The BT Gmouse has one external antenna (port) connector, and one DC power jack. Caution and care must be exercised when handling these parts. Bending or breaking these parts will severely degrade positioning performance and damage the receiver. This will void your warranty.

ACCESSORIES*

Use only manufacturer approved accessories with the BT Gmouse. No service part inside the BT Gmouse receiver.

SERVICE

Only qualified engineering service personnel must install or repair equipment.

*The external active antenna is an optional accessory which not included in the standard package.

SWITCH OFF

Obey all laws, regulations, rules and restrictions. Switch off the host platform and discontinue operation of the BT Gmouse receiver in hospital ICU, aircraft, gasoline station, near fuel or chemical, near blasting area, or other restricted areas.

NOTICE

Read the "Warnings" section comprehensively before operation.

1. Getting Start

Introduction

Congratulations on purchasing the BT Gmouse. The BT Gmouse offers flexible and various location awareness applications for both consumer and corporate usages including

- Navigation and Positioning
- Find Street and Route
- Travel Route Planning
- Recreation
- Safety and Security
- Fleet Management
- Logistic
- Field-Force Management
- Enterprise Location Service (ELS)
- Location-Based Service (LBS)
- Mobile Location Service (MLS)



Figure 1

Prepare to use you BT Gmouse Receiver

To help you begin to use your BT GPS Receiver ("BT Gmouse"), read this User Guide in the first step. This User Guide explains the detail how BT Gmouse operates, functions, and common features of the BT Gmouse. A short glossary of GPS related terms and abbreviations at the back of the User Guide.

Before you begin using your BT Gmouse, you must complete the application software installation tasks on your host device like PAD, PDA mobile phone, MMS mobile phone, handheld PC, and portable PC hardware. For information about the hardware operation and application software installation, please refer to the documentation that accompanies each product.

For operation detail information, please consult Chapter 3. In order to get more familiar with your BT Gmouse, please first read Chapter 2 before starting to operate BT Gmouse.

GPS signal reception

The Global Positioning System (GPS) is a space-based radio-navigation system. This system consists of 24 satellites, which orbit the Earth at an altitude of approximately 17,500 kilometers, and ground control stations. Each of the 24 satellites, deployed in 6 orbital planes, circles the earth twice a day. The system satellites continuously transmit signals contain the information of time and distance in a precise formation, 24 hours a day in any weather condition, everywhere around the world. By processing the signals received, BT Gmouse provides users with helpful information of position, velocity, and time for navigation and location awareness purposes anywhere anytime on the Earth.

The BT Gmouse offers high position accuracy and fast Time-To-First-Fix (TTFF), which rely on environment circumstances where receiver located as well as initial states of the receiver. During attempting to a position fix, the receiver needs to lock on to at least 3 satellites and, uses the signal can be received as well as the data of latest position stored in the receiver's digital memory in order to compute the location of the device.

Environmental factors that influence the position accuracy and TTFF including such as

- tall buildings,
- narrow street and passageway,
- protection film on glass,
- heavy foliage,
- large cliffs,

and other obstructions where the satellite signals may be blocked, and, poor satellites geometry situation. Initial state of the receiver, means latest status in memory of the receiver, may mainly determine the time of TTFF. Position can be quickly fixed within only 10 seconds from a hot-start state and needs 60 seconds typically from a cold-start state. Or, might need at least 3 to 5 minutes from a completely restart-state, for example, flying a distance over 500 kilometers from initial origin.

BT Gmouse uses the satellite signals to calculate an exact geodetic location through triangulation method, contained in 7 meters CEP accurateness devoid of Selective Availability (SA), which is good enough for general location awareness purposes. The position data is then converted within the receiver to latitude and longitude coordinates, which is usually provided in the geodetic datum on which GPS is based (WGS 84). Position offsets of hundreds of meters or much more can result from using the wrong datum.

In addition to datum used, there are number of positioning errors can occur, limiting accuracy. The major errors including satellites orbiting error, poor satellites geometry, multi-path signals, atmospheric delay and receiver clock timing.

The indication of GPS signal reception is described in section "Indication of BT Gmouse operation" of Chapter 3.

Using optional external active antenna

Your BT Gmouse is optional equipped with an external active antenna port and/or external active antenna(optional accessory) for convenience usage when operating under certain environment situation, such inside vehicle where satellite signals are blocked. Detailed operation is described in Operation chapter. Make sure using the optional external antenna supplied by EMTAC. Use of unqualified antenna will severely degrade positioning performance or even damage the receiver. Read basic guidelines before using external active antenna accessory.

*The external active antenna is an optional accessory which not included in the standard package.

**External antenna port is an optional specification.

CAUTION and WARNING

- Only use the charger supplied in with the BT Gmouse. Use other charger can damage the BT Gmouse and even dangerous at the risk of explosion.
- Do not expose BT Gmouse to high temperatures higher than 60°C (140°F) such in car under direct sunshine. Expose BT Gmouse to high temperatures environment can not only shorten the life of electronic devices and melt or drape certain plastics, but also can damage the battery inside the BT Gmouse and even dangerous at the risk of explosion.
- Do not try to open or break the receiver. There is no service accessory part inside the receiver. Open the receiver will void the warranty.

2. General Information

This chapter describes your BT Gmouse in details.

General features

Your BT Gmouse is an excellent navigation and positioning aid tool when using with mobile terminal devices("host") of Bluetooth enabled, which the host with GPS application software installed. The general features are

- Best mobile GPS receiver for consumer and corporate
- GPS receiver with Bluetooth transceiver built-in
- Provides fully interoperability with Bluetooth integrated mobile devices
- Ultra-low power consumption using four AAA-size batteries.
- Long operation time: 20 hours under continuous mode⁽¹⁾
- LED lights indicate GPS status, Bluetooth connection
- Embedded high sensitivity GPS active antenna and Bluetooth antenna
- External GPS active antenna(optional) for in vehicle and indoors use
- Compatible with all GPS map running on various hardware platforms
- Navigating freely without wire connection to host mobile devices-- true wire-less

In the following sections, each portion details of BT Gmouse are described, see Figure 2 and 3.

Portion details:

- Antenna Façade
- Power Switch
- External Antenna Port
- LED indicators
- Power Jack
- External Active Antenna (optional)

(1) When use four Alkaline AAA-size batteries. 15 hrs operation when use four Ni-MH rechargeable batteries. BT Gmouse can operate when using the power supply from 5V cigarette-lighter in the vehicle by plugging the DC charger into the jack of the BT Gmouse. This will not charge the batteries when using rechargeable batteries.



- A: Antenna Facade
- B: Power Switch
- C: External Antenna Port
- D: LED Indicators
- E: Power Jack

Figure 2

Antennae Facade

Your BT Gmouse integrated with a high sensitive 1.5GHz GPS antenna and 2.4GHz Bluetooth antenna internally, which can offer good satellite signal reception for position fix as well as data communication between BT Gmouse and your Bluetooth host terminal, respectively. The antenna facade area is top surface of the BT Gmouse, as indicated Figure 2 and 3. Keep this surface clean and clear view to the sky while operating BT Gmouse. Do not let this frontage surface area covered fully or partially by any object especially contains metal and/or electromagnetic wave absorption materials such as screwdriver, pen, watch, floppy diskette, CD and metal wires, thin metal foil like aluminum foil and metal-coated plastic bag, water or liquid, and carbon paper. While operation, sometimes even in non-operation state.



Figure 3

Power Switch

The Power Switch is indicated as "B" in Figure 2.

- Symbol: Power-on position of the Power Switch.
- Symbol: Power-off position of the Power Switch.

External Antenna Port

Your BT Gmouse is optional equipped with a RF connector port (MCX type) for connecting with external active antenna(optional accessory) when operating under certain environment situation, such as inside a vehicle and where satellite signals are blocked or obstructed. The external antenna port is indicated as "C" in Figure 2. Make sure using the external antenna(optional accessory) supplied by EMTAC. Use of other active antenna will severely degrade positioning performance or even damage the receiver. Please read basic guidelines before using the external active antenna accessory.

LED Indicators

In Figure 2, two LED lights indicate the operation status of Bluetooth(BLUE), GPS(GREEN) of the BT Gmouse.

Blue LED: indicates Bluetooth pair/connect status

Flashing every 1 second:

BT Gmouse just power-on and waiting for pair/connection.

Flashing every 2 seconds:

BT Gmouse is connected and paired with the host.

Green LED: indicates GPS status

Constant on: When BT Gmouse just power on, attempting to fix a position.

Flashing: BT Gmouse has a position fixed.

Power Jack

BT Gmouse can operate when using the power supply from 5V cigarette-lighter in the vehicle by plugging the DC charger into the jack of the BT Gmouse.

This will not charge the batteries when using rechargeable batteries.

You need to plug the charger's plug into the power jack which indicated as "E" in Figure 2. Make sure using the charger supplied with the BT Gmouse.

DO NOT USE OTHER CHARGER to charge the BT Gmouse.

External active antenna (optional)

The external active antenna is an optional accessory. Just connecting the external active antenna to the external antenna port described in previous section "External Antenna Port". The active antenna is embedded magnet in the bottom for easy mounting on metal surface, be caution not put near to materials are sensitive to magnetic field, such as magnetic storage media like floppy diskette. Figure 4 is the reference photo of the optional external active antenna. Make sure using the external antenna supplied by EMTAC. Use of other active antenna will severely degrade positioning performance or even damage the receiver.



Figure 4

3. Operation Guide

Before using the BT Gmouse, first make sure to prepare following steps are ready for operation.

- The GPS application software is correctly installed in the host platform(s)
- Place the batteries inside the BT Gmouse properly⁽²⁾
- Check the Bluetooth is ON in the host
- Identify the operation environment whether external antenna needed or not

For information about the operation of the host and GPS application software installation procedures, please refer to the documentation that accompanies each product, respectively.

In this Chapter, a step-by-step operation procedure is described.

Step-1 To install the GPS/MAP application software

Step-2 To pair/connect the BT Gmouse with the host

Step-3 To operate the GPS/MAP application software

Step-4 To connect with the external active antenna(optional)

Indication of BT Gmouse operation

Use the Charger of the BT Gmouse

(2)Make sure using new batteries and/or fully charged batteries.

Step 1 To install the GPS/MAP application software

Before operation the BT Gmouse, make sure the GPS/MAP application software is properly and completely installed in the host platform.

To install the GPS/MAP application software, please consult and follow the operation guide described in the user guide of the GPS/MAP application software. Make sure the GPS/MAP application installed completely.

In this User Guide CD-ROM, there is the "BT GPS_Viiew Test Program"(trial version) for testing purpose. Please follow the step-by-step operation guide indicated and described in the BT GPS_VIEW(Trial) Manual file(in .pdf format).

Note:

- (a) The BT GPS_View Test Program is a trial version program and only for testing purpose.
- (b) The BT GPS_View program is only for BT Gmouse used with PocketPC(PPC) PDA with Bluetooth enabled.
- (c) Current version of BT GPS_View supports ARM(StrongARM/X Scale) based PPC.

Step 2 To pair/connect the BT Gmouse with the host

To pair and connect your BT Gmouse with the host platform, please consult and follow the operation guide described in the user guide(operation manual) of the host or PDA.

First, turn on the power of host and BT Gmouse, respectively.

- ▶ Turn on the power of the host and ready.
- ▶ Turn on the power of the BT Gmouse, the power switch is indicated as "B" in Figure 2. (Make sure the battery of the BT Gmouse is fully charged.)

Turn the power switch to  position.

 Symbol: Power-on position of the Power Switch.

 Symbol: Power-off position of the Power Switch.

LED Indicator	Status Indication
BLUE	Flashing every 1 second: BT Gmouse just power-on and waiting for pair/connection. Flashing every 2 seconds: BT Gmouse is connected and paired with the host.
GREEN	Constant on (before a position fixed) (Flashing if has a position fixed)

Status LED Indicators:

Blue Green



Switch to power-on position:

“  ”

Figure 5

NOTE:

Typical examples are given in the .pdf files named "BTpair_" (and/or similar files), in this User Guide CD-ROM. Please follow the step-by-step operation guide indicated and described in the files, respectively. Figure 6 is an example indicates that BT Gmouse already connected with your PDA.

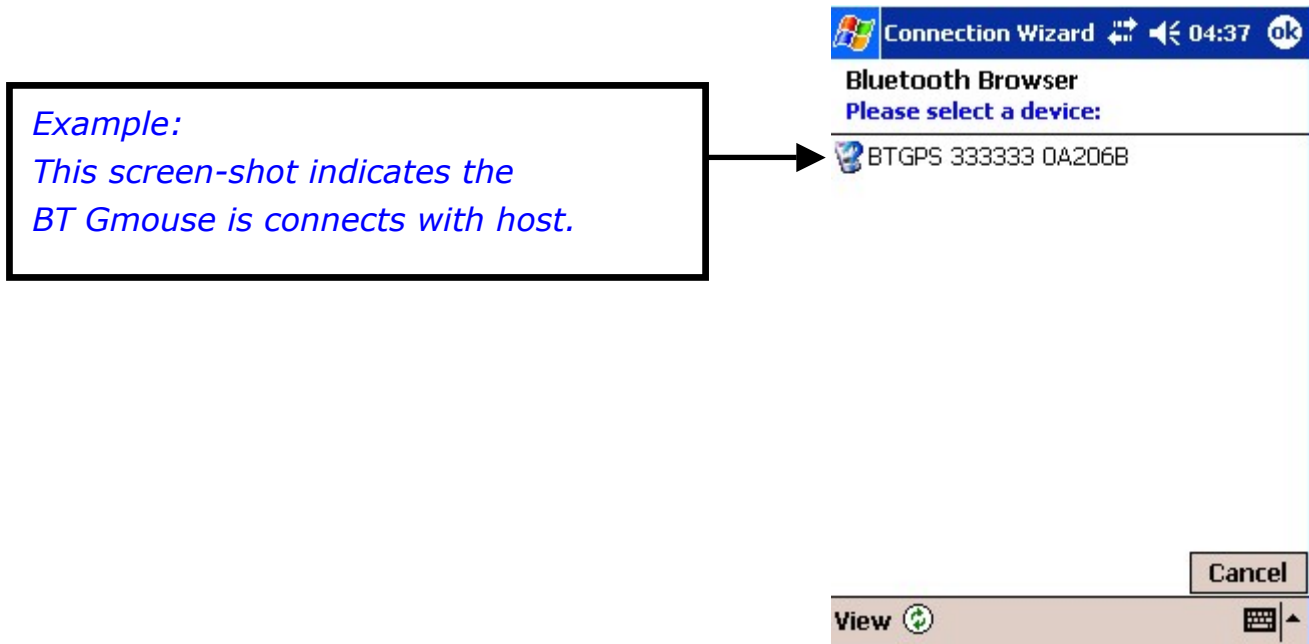


Figure 6

Step-3 To operate the GPS/MAP application software

To open and use the GPS/MAP application, in your PDA:

- Make sure your BT Gmouse is connected with the host via Bluetooth
- Open the GPS/MAP application on the host
- Enter into the GPS/Map application operation

You can easily use all the functions of GPS/MAP application software by following the details operation guidance described in the user guide of the GPS/MAP application software.

Step-4 To connect with external active antenna(optional)

When operating under the condition that satellite signals are obstructed or blocked such as inside vehicle. First, locate the (optional) external antenna port (MCX female) and then plug the connector (MCX male) of external active antenna(optional accessory) into the external antenna port, as indicated in Figure 7. Put the external active antenna on the roof metal surface of the car, or on the front top-surface of the dash board where are not affect driving safety and appropriated. Use only the active antenna(optional) supplied by EMTAC. Use of other antenna will severely degrade positioning performance or even damage the receiver. Read "Basic Guidelines" before using external active antenna accessory.

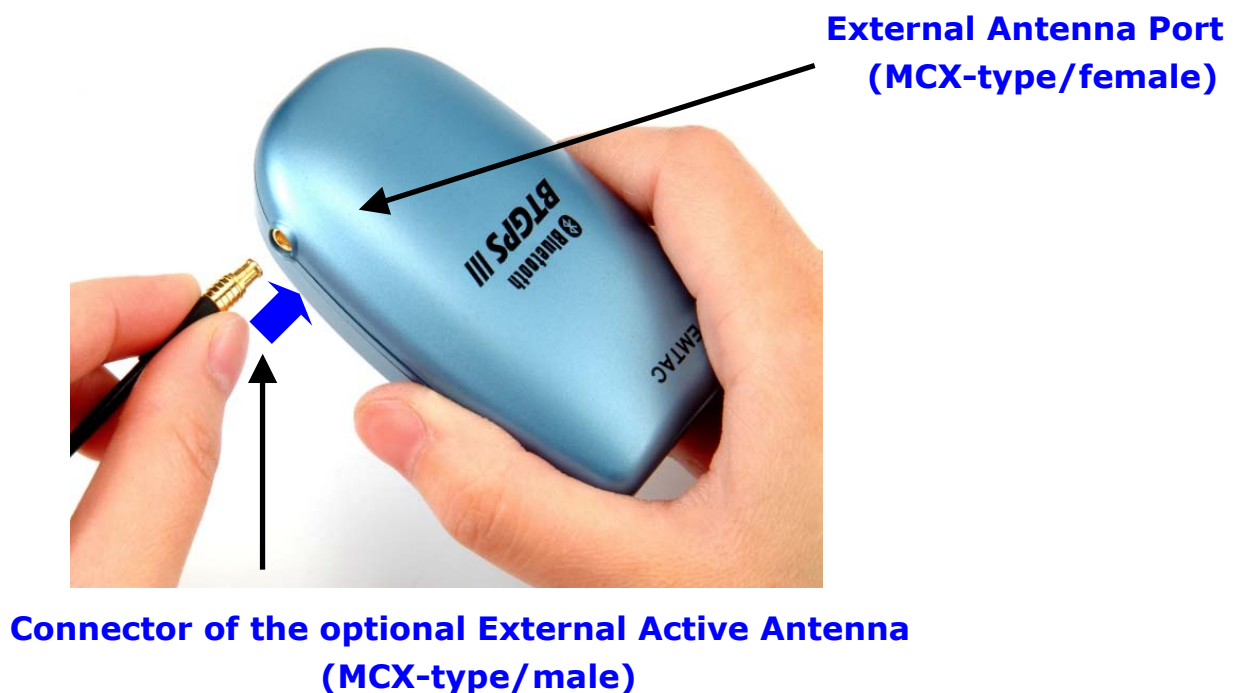


Figure 7

Connect and install the optional external active antenna in position before driving. Do not operate the optional external antenna while steering on the road. The optional active antenna is embedded magnet in its bottom for easy mounting on metal surface, be caution not put near to materials are sensitive to magnetic field, such as magnetic storage media like floppy diskette and mechanical wrist watch.

Indication of BT Gmouse operation status

In Figure 2 and 5, two LEDs indicate the operation status of Bluetooth(BLUE), GPS(GREEN) of the BT Gmouse, described in followings.

Blue LED : indicates Bluetooth pair/connect status

Flashing every 1 second

BT Gmouse just power-on and waiting for pair/connection.

Flashing every 2 seconds

BT Gmouse is connected and paired with the host.

Green LED : indicates GPS status

Constant on: When BT Gmouse just power on, attempting to fix a position.

Flashing: BT Gmouse has a position fixed.

Use the charger of the BT Gmouse

BT Gmouse can operate when using the power supply from 5V cigarette-lighter in the vehicle by plugging the DC charger into the jack of the BT Gmouse.

This will not charge the batteries when using rechargeable batteries.

You need to plug the charger's plug into the power jack which indicated as "E" in Figure 2. Make sure using the charger supplied with the BT Gmouse

Make sure using the charger supplied with the BT Gmouse as illustrated in Figure 8.

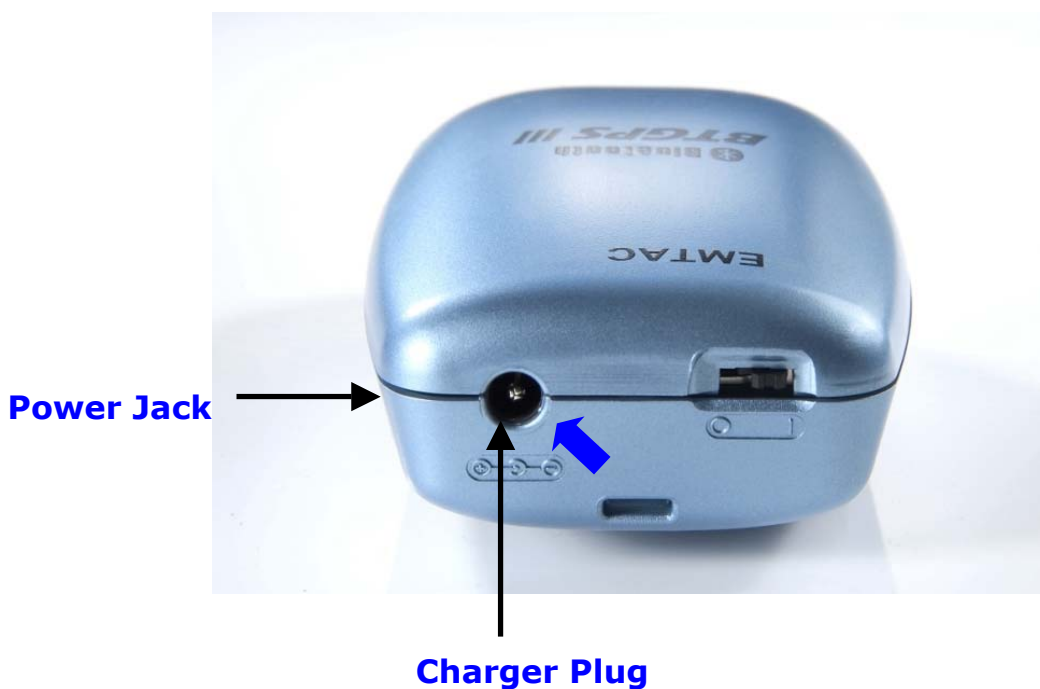


Figure 8

DO NOT USE OTHER CHARGER to charge the BT Gmouse!

4. Troubleshooting

1. I already pairing the BT Gmouse with the PDA, but sometimes just can not connect to the BT Gmouse.

First, delete the 'old BT GPS icon' on your Bluetooth manager software, and re-searching it again.

2. Can I use the BT GPS_View for navigation purpose?

No. The BT GPS_View Test Program is only for evaluation and for testing purpose only, it is NOT designed for navigation.

3. Which GPS/Map application software I can use?

There are a lot of major application software can be operation on Bluetooth enabled PDA, such as Mapopolis, OziExplorerCE, Teletype, TomTom, TUMONZ, ...etc, which compatible with BT Gmouse. Please contact with the Map provider for details.

4. What is the passkey or pin code for the BT Gmouse paring with the PDA?

Please key-in: 0183. This the passkey or the pin code required.

5. It is possible use charger at the same time contain four AAA-size batteries in the BT Gmouse?

Yes. What means you can have a continuous use of the BT Gmouse.

5. Care and Maintenance

Your BT Gmouse is a sophisticated product of superior design as well as craftsmanship, and should be treated with care of usage and maintenance. The suggestions below will help you to fulfill any warranty obligations. When using your BT Gmouse and the optional external active antenna:

- Keep BT Gmouse and all accessories out of small children's reach.
- Keep BT Gmouse dry. Humidity, liquids and precipitation contain minerals that will corrode its connector, jack, plug and electronic circuit boards.
- Use only the supplied and approved accessories. Unauthorized accessories, antenna, modifications or attachments could damage the BT Gmouse and may violate regulations governing radio devices.
- Use other charger may damage the BT Gmouse and even dangerous at the risk of explosion.
- Use dry and clean soft cloth to clean the BT Gmouse. Do not use harsh cleaning solvents, chemicals or strong detergents.
- Do not drop, shake or knock the BT Gmouse. Rough handling can break the connector, jack and internal electronic circuit boards. Dropping the BT Gmouse may break the connector and jack which will cause non-recoverable and malfunction damages.
- Do not expose to rain or high humidity environment, or even pour water on it, which will cause malfunction or non-recoverable damage.
- Do not store BT Gmouse in dusty, dirty areas. Its moving parts, like connector pins and clips, can be damaged.
- Do not store BT Gmouse in hot areas. High temperatures can shorten the life of electronic devices, and melt or drape certain plastics.
- Do not expose to high temperatures higher than 45°C (113°F) such in car under direct sunshine.
- Do not store BT Gmouse in cold areas. When the BT Gmouse warms up to its normal operation temperature, moisture can aggregate inside it, which may severely damage electronic circuit boards inside.
- Do not attempt to open the BT Gmouse. Unauthorized handling may damage the BT Gmouse.
- Do not paint on the BT Gmouse. Paint can clog the connector, jack, and prevent proper normal operation of the BT Gmouse.

Glossary

Almanac data

A set of information that transmitted by each satellite on the orbits and state of every satellite in the GPS constellation. Each GPS satellite contains and transmits the almanac data set for the entire GPS satellite system network. Almanac data allows the GPS receiver to rapidly acquire satellites shortly after it is turned on.

ACTIVE ANTENNA

An antenna that amplifies the GPS signal before it sends it to the receiver.

Altitude

The distance between the current position and the nearest point on WGS 84 reference ellipsoid, usually it is expressed in meters or feet and is positive outside the ellipsoid.

Baud

Bits per second. Also referred to as a baud rate.

Channel

Channel refers to a set of hardware in the receiver that detects locks on and continuously tracks the signal from a single GPS satellite. The more channels available, the greater number of GPS satellite's signals a receiver can simultaneously lock and track. A receiver of 12 channels is the optimized design, considering the current consumption, chip-package size and cost.

CEP - Circular Error Probable

CEP is the radius of a circle, centered at a true location, within which fifty percent of positioning solutions fall. CEP is used to achieve horizontal accuracy.

C/N₀

Carrier-to-Noise density ratio. An indication of satellite signal strength received by the GPS receiver.

COLD START

A condition in which the GPS receiver can arrive at a navigation solution without initial position, time, current Ephemeris, and almanac data.

Constellation

Constellation refers to the specific set of of orbiting GPS satellites system, used in calculating positions or all the satellites visible to a GPS receiver at one time. The pattern created by the relative positioning of a GPS satellite network is designed to achieve a very high probability of global satellite coverage even in the event of satellite outages.

dB

Decibel. A notation of relative unit such as the satellite signal strength received.

DATUM

A math model which depicts a part of the surface of the earth. Latitude and longitude lines on a paper map are referenced to a specific map datum. The map datum selected on a GPS receiver needs to match the datum listed on the corresponding paper map in order for the position readings to match.

Elevation mask

Elevation mask is an adjustable feature of GPS receivers that specifies a satellite must be a certain number of degrees above the horizon before its signals are used for positioning. Satellites at low elevation angles (five degrees or less) have lower signal strengths and are more prone to loss of lock thus causing noisy solutions.

Ellipsoid

A geometric surface which all of whose plane sections are either ellipses or circles.

Ephemeris

Ephemeris is a set of parameters used by a global navigation satellite receiver to predict the location of a satellite and its clock behavior. Each satellite contains and transmits ephemeris data about its own orbit and clock. Ephemeris data is more accurate than the almanac data but is applicable over a short time frame from four to six hours. Ephemeris data is transmitted by the satellite every 30 seconds. The predictions of current satellite position are transmitted to the user in the data message.

Geodetic coordinate

A coordinate system whose elements are latitude, longitude and geodetic height. The latitude is an angle based on the perpendicular to the ellipsoid. Longitude is the angle measured in the XY plane.

GIS (Geographic Information System)

a computer based system that is capable of collecting, managing and analyzing geographic spatial data. This capability includes storing and utilizing maps, displaying the results of data queries and conducting spatial analysis.

Hot Start

Start mode of the GPS receiver when current position, clock offset, approximate GPS time and current ephemeris data are all available.

L1 frequency

1575.42 MHz GPS carrier frequency which contains only encrypted P code, used primarily to calculate signal delays caused by the ionosphere.

Latitude

A north/south measurement of position perpendicular to the earth's polar axis.

Longitude

An east/west measurement of position in relation to the Prime Meridian, an imaginary circle that passes through the north and south poles.

Multipath

Multipath is the reception of a signal both along a direct path and along one or more reflected paths. Multipath signals result in an incorrect pseudorange measurement.

NMEA (NATIONAL MARINE ELECTRONICS ASSOCIATION)

A U.S. standards committee that defines data message structure, contents, and protocols to allow the GPS receiver to communicate with other pieces of electronic equipment aboard ships.

Selective Availability (SA)

Selective Availability is a process whereby the U.S. Department of Defense dithers the satellite clock and/or broadcasts erroneous orbital ephemeris data to create a pseudorange error to prevent adversaries from using the extremely accurate GPS positioning data.

SPREAD SPECTRUM

The received GPS signal is wide bandwidth and low power. The L-band signal is modulated with a pseudo random noise code to spread the signal energy over a

much wider bandwidth than the signal information bandwidth. This provides the ability to receive all satellites unambiguously and to give some resistance to noise and multipath.

TIME TO FIRST FIX (TTFF)

The time it takes to find the satellites is called the Time to First Fix (TTFF). If you have not used your GPS unit for several months, the almanac data for the satellites may be out of date. The unit is capable of recollecting this information on its own, but the process can take several minutes. The time it takes after the user first turns on the GPS receiver, when a GPS receiver has lost memory, or has been moved over 300 miles from its last location.

TRIANGULATION

A method of determining the location of an unknown point, as in GPS navigation, by using the laws of plane trigonometry.

Universal Time Coordinated (UTC)

UTC is the time as maintained by the U.S. Naval Observatory. Because of variations in the Earth's rotation, UTC is sometimes adjusted by an integer second. The accumulation of these adjustments compared to GPS time, which runs continuously, has resulted in an offset between GPS time and UTC. After accounting for leap seconds and using adjustments contained in the navigation message, GPS time can be related to UTC within 20 nanoseconds or better. Greenwich Mean Time (GMT) is still the standard time zone for the prime meridian (zero longitude).

Warm Start

Start mode of the GPS receiver when current position, clock offset and approximate GPA time are input by user or by the application software. Almanac is retained, but ephemeris data is clear.

Wide Area Augmentation System (WAAS)

Developed by the United States government, WAAS is a Satellite-Based Augmentation System (SBAS) that calculates the errors in the GPS signal at several monitoring stations around the country, then transmits error correction messages from geostationary satellites to GPS receivers.

World Geodetic System 1984 (WGS 84)

The primary map datum used by GPS. Secondary datums are computed as differences from the WGS 84 standard. WGS 84 is a set of U.S. Defense Mapping Agency (DMA) parameters for determining global geometric and physical geodetic

relationships. Parameters include a geocentric reference ellipsoid; a coordinate system; and a gravity field model. GPS satellite orbital information in the navigation message is referenced to WGS 84.

Federal Communication 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 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.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this 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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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