



TripNav™

TN-206 User's Guide v1.1

Bluetooth GPS Receiver



This unit has to be charged for 24 hours before first use.

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1 General guidelines

Accuracy

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 caused by obstructions such as tall buildings, heavy foliage, large cliffs and other obstructions where GPS satellite signal are blocked and poor satellites geometry conditions result.

Accessories

The accessories supplied with TN-206 are specifically designed for TN-206. Use of other accessories may severely degrade performance or even damage the receiver, and will void the warranty.

Battery

The TN-206 contains a lithium-ion battery inside. Leaving the TN-206 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. It is ideal to keep the TN-206 in a place with a temperature between +15°C (+59°F) and +25°C (+77°F). A TN-206 with a hot or cold battery may temporarily not work, even when the battery is fully charged. The performance of the lithium-ion battery is particularly limited in temperatures below 0°C (+32°C). Temperature extremities will affect the ability of your battery to charge: allow the TN-206 to adjust to operating temperature before using.

Recharge the TN-206 with the charger supplied only. Do not leave the TN-206 connected to the charger for more than 24 hours. Excessive charging may shorten battery life. If left unused, a fully charged battery will discharge itself over time.

GPS Satellite Signal

A longer than normal time-to-first-fix of position may occur during your first use of the TN-206. Operating the TN-206 (unit's logo plate) requires a clear and unobstructed view of sky with antenna facade pointing upward to the sky. Tall buildings and other obstructions to the sky may block satellite signals and delays.

Driving and safety

Rayming Corporation will not accept any responsibility whatsoever for accidents resulting from failure to observe common sense precautions. Your personal judgement, traffic regulations, and common sense must always take precedence over any directions produced by TripNav or the mapping software

WARNING: Make sure that the GPS receiver is secure and does not interfere with driving visibility and safety.

It is your responsibility as the vehicle operator to securely place the GPS unit and antenna so that they will not interfere with driving and prevent operations of any safety device (such as the Airbag) in your vehicle. Do not mount the devices in a place where the driver or passengers may receive injury during vehicle operation or collision. For your safety, take care to route all cables away from shifters, pedals, accessory controls and mechanisms.

WARNING: Drive safely and use common sense.

It is your responsibility as the vehicle operator to drive safely, observe all traffic rules and above all use your own personal judgment while driving. If you feel that a route suggested by the navigation software instructs you to perform an unsafe or illegal maneuver, places you in an unsafe situation, or routes you into an area which you consider unsafe, do not follow the instructions.

WARNING: Keep your eyes on the road.

It is your responsibility as the vehicle operator to keep your eyes on the road and be an alert driver at all times, especially when the vehicle is moving. The vehicle's operator should not be distracted by the navigation equipment or software. Should there be a distraction with the ability to drive responsibly, please turn off the device. Should you want to look at the display for a prolonged time, park the car safely, while following all traffic regulations before looking at the display.

WARNING: To reduce the risk of fire or shock hazard, do not expose this product to rain or moisture. Do not remove covers or open housings, there are no user serviceable parts inside. Refer servicing to qualified personnel only.

Interference

TN-206 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.

Passkey

When you are being asked for a passkey while connecting TN-206 to a Bluetooth-enabled device, enter "2003" for the passkey.

Software

NMEA compatible GPS software is required to be installed on your host device to work with the TN-206. Rayming Corporation does not provide support for GPS software.

Service

Only qualified service personnel may disassemble or repair the TN-206.

2 Getting started



Congratulations on the purchase of your TripNav TN-206 Bluetooth GPS Receiver! With TN-206, you can take advantage of your device's Bluetooth capability to wirelessly add GPS positioning technology.

Read this User's Guide thoroughly and follow the instructions. This User's Guide explains in detail on how your TN-206 operates and functions.

Finding and installing software

Before you begin to use your TN-206, you must install a NMEA compatible GPS software on your host device (Pocket PC, Personal Digital Assistant, laptop, etc.) Depending on the operating system on your host device, a variety of NMEA compatible GPS software are available in today's market.

Getting to know your TN-206

Getting started



Antenna Facade

Your TN-206 is integrated with a highly sensitive 1.6 GHz GPS antenna and a 2.4 GHz Bluetooth antenna internally that provides satellite signal reception for position fix as well as data communication between TN-206 and your Bluetooth host device. The antenna facade area is the top surface of your TN-206. Keep this surface clean and obtain a clear view to the sky while operating TN-206. Do not let this frontage surface be covered even partially by any object during operation, especially objects that contains metal or electromagnetic wave absorption materials like aluminum foil and metal-coated plastic bag, water or liquid, and carbon paper.

Power Switch

The meaning of the symbols is shown below:

 Power OFF

 Power ON

Power Jack

The power jack lets you connect to the DC power charger to recharge the internal battery. Use only the included DC adapter to do so.

External Antenna Port

Your TN-206 is equipped with a Radio Frequency (RF) connector port (MMCX type) for connecting with an optional external active antenna when operating under certain conditions, such as inside a vehicle or where satellite signals are blocked from the internal antenna facade.

LED Indicators

There are three LED indicators on your TN-206, and they show the current status of Bluetooth connection, GPS signal, and battery.



Bluetooth Status LED (Blue)

Blinking - Bluetooth radio is on and ready to transmit.



GPS Status LED (Green)

Blinking - GPS position is fixed.

Steady light - GPS position is NOT fixed.



Battery Status LED (YELLOW/RED)

None - Running on battery power, and battery has adequate power supply.

Constant Red - Running on battery power, which is critically low. Recharge as soon as possible.

Constant Yellow - Connected to power charger, and battery is charging.



External active antenna (optional)

The external active antenna is an optional accessory. Connect the external active antenna to your TN-206's external antenna port to start to receive GPS signals from the external active antenna. The external active antenna is embedded with a magnet in the bottom for easy mounting on metal surfaces. Please be cautious not to put it near to materials that are sensitive to magnetic field such as floppy diskettes. Use only the external antenna supplied by Rayming. Use of other active antenna will severely degrade positioning performance or can possibly damage the receiver.



Charging the battery

Before you can use your TN-206, the battery must be fully charged. Connect the power charger (included) to the power jack, then plug into an electrical outlet. As your TN-206 is charging, the Battery Status LED will show a yellow light.

When the battery is fully charged, the Battery Status LED will turn off. Remove the plug from the power jack on the TN-206 and unplug the charger from the electrical outlet.

3 Using your TN-206



Before you start to use your TN-206, make sure that you have charged the battery and installed a NMEA compatible GPS software



onto your Bluetooth host device.

Step 1 - Getting a signal



First you need to get GPS signal from the satellites. See *GPS Satellite Signal* and *Accuracy* in *General guidelines* for the conditions to get the signal.

- ① You can use either the Antenna Facade or the External Active Antenna to acquire GPS signal from the satellites.

Turn on your TN-206 by switching the Power Switch to the ON (|) position, and observe that the GPS Status LED is steady. Allow several minutes for the first position fix or if the TN-206 has been moved while turned off. It may take some time for the signal to be fixed. After the GPS signal is fixed, the GPS Status LED will blink green (GPS position is fixed, and signals are being received.)

Make sure that the GPS Status LED is blinking green before proceeding to the next step.

Step 2 - Connect to Bluetooth-enabled device

-  After getting and fixing the GPS signal, now you can establish a communication link between your TN-206 and the Bluetooth-enabled device.

From your Bluetooth-enabled device, perform a Bluetooth device discovery. Please refer to the user documentation for your Bluetooth-enabled device for instructions.

-  Enter "2003" when asked for a passkey for the device.

Step 3 - Using GPS software

-  Start your GPS software on your Bluetooth-enabled device.

Make sure that the software is set for the COM port that your Bluetooth-enabled device will use for serial communication and it is pointing to TN-206 as its GPS receiver.

Now you should be ready to use your GPS software as directed by the user documentation that came with the software. More configurations may apply.

4 Troubleshooting

In this chapter there are some Frequently Asked Questions (FAQ) where you may find the answer to your question.

All requests for technical service and support should be made directly to the manufacturer or service provider in accordance with their terms and conditions. Rayming Corporation will provide on-line technical notes on most hardware and software products for your reference. Rayming Corporation makes no guarantees of product reliability or compatibility. All compatibility-related questions must be directed towards the product manufacturer or software provider.

See *Contact information* for how to reach Rayming.

I cannot get a fixed GPS signal/the GPS Status LED displays steady green ...

In order to get a fixed GPS signal, the antenna that you use for your TN-206 must have a clear view to the sky. You may use either the internal built-in antenna or the external active antenna. Tall buildings and other obstructions to the sky may block the satellite signal. Strong local radio signals may interfere with GPS signals. You may have to move away from cellular base stations or other similar sources of radio signals.

I cannot get a Bluetooth connection to my host device ...

First ensure that the Bluetooth Status LED on your TN-206 is blinking, and your host device is Bluetooth-enabled. Then consult the user documentation for your host device for instructions on how to make a Bluetooth connection to a Bluetooth device.

I cannot turn on my TN-206/all LEDs are off

Your battery may need to be recharged. See instructions in Chapter 2 in this User's Guide for how to do so. If you cannot recharge your battery, the battery may need to be replaced.

What is the passkey for making a Bluetooth connection with TN-206 ...

The passkey is "2003."

My GPS software is not working with TN-206 ...

First ensure that your GPS software is NMEA compatible. Then make sure that the communication link between your TN-206 and your Bluetooth-enabled host device is established. Make sure that the software is set for the COM port that your Bluetooth-enabled device will use for serial communication and it is pointing to TN-206 as its GPS receiver. Please consult the user documentation for your software for instructions.

5 Specifications

General Characteristics:

Device Size:

Dimensions: 50 x 90 x 16 mm

Weight: 61 g (650 mA version)

Chipset: Sirf Star IIe/LP

Frequency: L1, 1.575.42 MHz

C/A: 1.023 MHz chip rate

Channels: 12 Channels all-in-view tracking

DGPS Source:

Default: none

Programmable: WAAS/EGNOS

Antenna Type: Built-in Ceramic patch antenna
(External antenna optional)

Accuracy (without DGPS):

Position: 10 m, RMS, 25 m CEP without SA

Velocity: 0.1 m/sec without SA

Time: 1 microsecond synchronized to GPS time

Acquisition Rate (Open sky, stationary):

Reacquisition: 0.1 sec, average

Cold Start: < 80 sec, average

Warm Start: < 45 sec, average

Hot Start: < 10 sec, average

Dynamic Conditions:

Altitude: < 18,000 m

Velocity: < 515 m/sec

Acceleration: < 4 g

Interface:

Connection: Communication with host platform via Bluetooth Serial Profile

Protocol:

Default: NMEA-0183 (V2.20)

38,400 bps baud rate

Programmable: Additional NMEA (VTG, GLL), Sirf Binary

Power:

Source: Built-in rechargeable lithium ion battery with 5V DC input charging circuit (650 mA)
Optional 900 mA version available

Operation Time:

Default: 8 hours minimum after full charge, continuous mode

Environmental:

Operating Temperature: -4°F to 150°F
(-20°C to 60°C)

Relative Humidity: 5% to 95%, non-condensing

Possible Applications:

Vehicle tracking

Marine navigation

Aviation

Topography

Street-level applications:

- In-car navigation
- Door-to-door routing
- Points of interest

6 Contact information

It's important that you document the following before email or calling for assistance:

- Which step, or function, were you attempting when the problem occurred?
- What was the error message displayed?
- What operating system are you using?
- Which model of GPS receiver do you have?
- Which model of PC/PPC/PDA are you using?
- Which mapping software are you using and what version?

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Limited Product Warranty

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In the event of a product defect during the first 30 days of the warranty period, return product and the sales receipt as proof of purchase date to place of original purchase. If a defect is discovered after 30 days from date of purchase, please contact Rayming Corporation's Technical Support for a Return Merchandise Authorization (RMA) number for return to manufacturer.

Rayming Corporation will, at its option, unless otherwise provided by law:

- a.) Correct the defect by product repair without charge for parts and labor;
- b.) Replace the product with one of the same or similar design; or
- c.) Refund the purchase price. All replaced parts and products, and products, on which a refund is made, become the property of Rayming Corporation. New or reconditioned parts may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period.

This warranty does not cover:

- a.) Damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow the instructions, improper installation or maintenance, alteration, lighting or other incidence of excess voltage or current;
- b.) Any repairs other than those provided by Rayming Corporation;
- c.) Consumables such as fuses or batteries;
- d.) Cosmetic damage;
- e.) Transportation, shipping or insurance costs;
- f.) Costs of product removal, installation, set-up, service adjustment or re-installation.

This warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state.

Additional products bundled in this package not manufactured by Rayming Corporation will hold separate warranties as expressed by the individual manufacturer of that product(s). Product specifications, functions and features are subject to change without notice.

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