PORTMAN

OPERATION MANUAL

GPS&GPRS PERSONAL TRACKING

GT2000NP/GT2500NP

GT2000NP REV 3.1 (GT2000NP gt2k4-d-ptm-5.5.2-2.03.enc gt2000np-d3)

I. BRIEF INTRODUCTION

Personal Tracking System utilizes the GPS and GPRS functions in one unit. You can monitor the vehicle or the people location and set the system remotely. In addition, the unit will send event report if any trigger occurs.

The standard report sent by the unit includes the information: (1) unit's ID, (2) status, (3) time, (4) GPS's latitude and longitude, (5) speed, (6) direction, (7) device's status, (8) event number, and (9) report configuration parameters.

The reporting mode can be categorized as 'normal' mode, and 'power saving' mode. In normal mode, the GPS will always be activated while moving, and it can be shut off the GPS when stop (for power saving purpose). To enable the maximum power saving, user can choose "power saving mode". In this mode, the GPS will be activated only when there is a report to send while moving. The report parameters can be set from the PC setup program. GT2000NP/GT2500NP can be set to go in sleep mode (while not moving), the system will cut the power of GPS module in order to save power. With build-in 3-D acceleration sensor, GT2000NP/GT2500NP can select related reporting modes with respect to it is moving or not.

The device has built-in 4 Geo-fences and one immediate Geo-fence (in circular shapes), it will send the report to the server if the Geofence event is triggered.

The UNIT must be initialized by PC setup program in order to make communication with the remote server /call center. There are three main sections that allow users to program the device, (1) User detail (Device ID, server IP, and port, GPRS APN….) (2) Geo-fence (5 circular Geo-fence) (3) Report (Time, Distance, speed, Low battery, wakeup …)

A unique help report: user can press the Button 3 for 2 seconds after the unit power on. The unit will send the help report to server, power LED flash 5 times at the same time.

Taxi mode on/off: Pressing "II" twice within 2 seconds will put the unit into "Taxi mode". Pressing "II" twice again within 2 seconds will take the unit out of "Taxi mode". When the unit enters "Taxi mode", the top LED will flash 3 times/3sec and unit will vibrate once every minute. When in Taxi mode, the unit will automatically vibrate every one minute. When the unit vibrates at these intervals, the user must press "II" within one minute each time, if not, the unit will automatically send an "SOS" report to the server.

When there is no GPRS service or the server close. The unit will send short message to the preset number. The max number of SMS message (monthly usage) and the monthly renew date can be set from the pc setup program or the remote setup program. Only 1 SMS number can be set. The reports sent via the SMS will be out again via GPRS after a valid GPRS connection is made.

GT2000NP/GT2500NP can be configured by the PC setup program or the Over-the-Air (OTA) commands / or remote program. The unit can communicate with the server via UDP or TCP protocol. The protocol can be selected from the PC-setup program or remote server commands.

Flash memory for recording reports up to 900 reports. It can be read out from the PC setup program via serial port.

On the left side, there are two buttons ('+"button and '-"button) used to change the ring volume. Push '+"button for 2sec. to select Vibration, ring or ring & vibration together modes.

Recharge battery need three hours, after finish recharging, Power LED will change to green.

Call Monitoring: user can send a SMS that included the preset password of the unit. GT2000NP/GT2500NP will send "PASS" SMS ACK back, unit will auto answer the phone in the following 10 minutes.

Using built-in real time clock to identify the report time, when GPS signal is lost. Hence, if the report is received with "LAST KNOWN" message, the time in the report will be the real time clock, but the GPS position will be the last known valid GPS position.

Three LED indicate the status of the SYSTEM, GPRS signal and GPS signal.

SYSTEM LED: to refer the **IV. BUTTON OPERATION**

YELLOW LED: GSM/GPRS indicator. Yellow LED will flash when the device is connected to the server with valid GPRS connection. It will stay continuously on when it is in GSM mode. It will stay off if there is no GSM reception.

GPS indicator (bottom LED): LED is GREEN when the unit has acquired a valid GPS signal, and it will flash when the unit is searching GPS signal.

Note that the GREEN LED's indication will not be valid until the system goes to the working mode, normally 30 seconds after power on.

II. BASIC FUNCTIONS

FUNCTIONS	APPLICATIONS
GPS	GPS receiver will output a complete position, velocity, and time (PVT) solution in the NMEA Version 3.0 protocol
GPRS, SMS	GPRS use standard TCP or UDP communicate protocol. If the GPRS service is failed, the SMS mode will be turned on for emergency use.
Button	Power button Three Buttons for call, Help, SOS….(right side) Two buttons control volume of ring and sound. (left side)
PC-setup	Initialize the unit and program the device, including Network APN, server IP address, user message, report control, and Geo-fence setting, etc … Note that Network APN and server IP details must be set before the installation.
Standard Report	Automatic report for tracking purpose: Fixed time report Fixed distance report Speeding report
History data store	900 report can be saved in unit and read from server and pc-setup

III. PANEL INSTALLATION

(1): Unit with 1700mAh battery

PC-SETUP
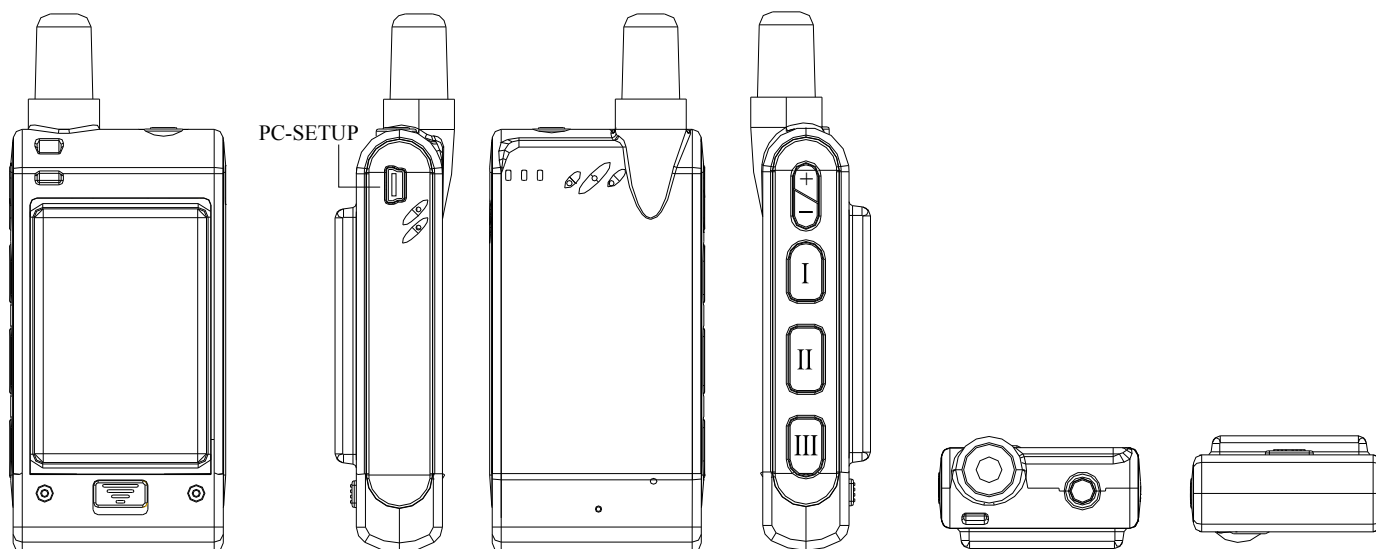
(2): Unit with 1050mAh battery

PC-SETUP
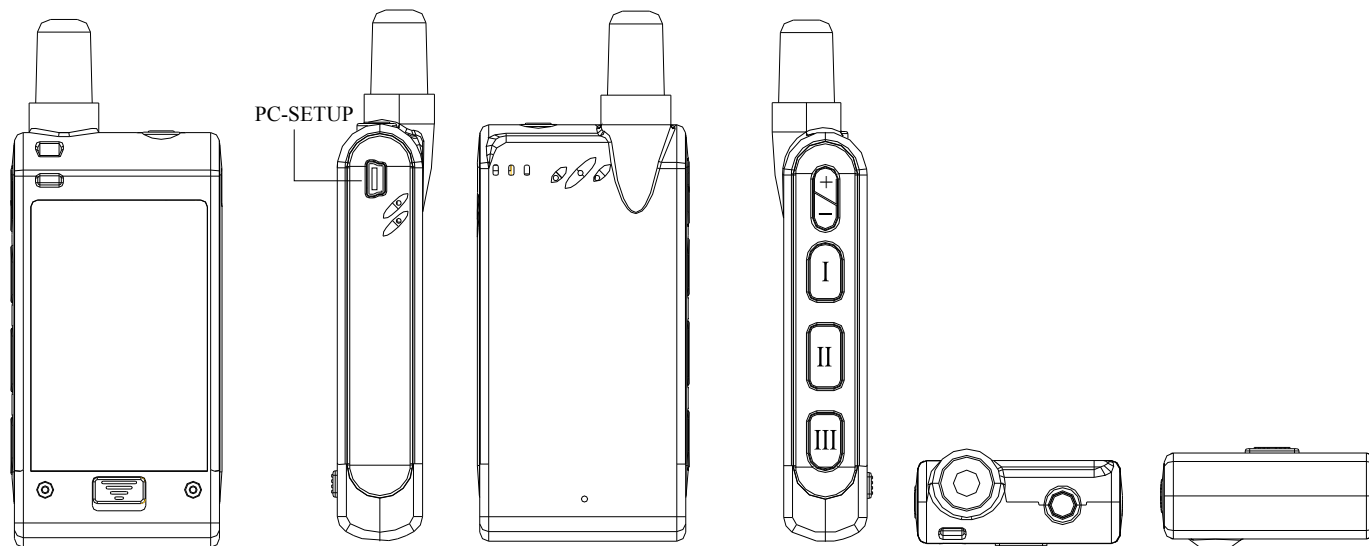
IV. BUTTON OPERATION:

Button	Indication	Functions	Conditions
Press power switch button once	Power LED flash 1time/3sec.	Power ON	Power off
	Power LED normal is green, if low power then change to red		Low power
Press power switch button for 3sec.	Power LED off	Power OFF	Power on
	If charging then power LED is red, if charge ok then power LED change to green.		Charging
Press button1 once	Power LED change to orange	Answer the coming call.	When an incoming call is received

Press button1 once	Power LED flash 2time/3sec. When a self-geo-fence is set, the unit will chirp twice	Self-Geo-fence ON	No incoming call is received and self-Geofence off
	Power LED restore normal	Self-Geofence OFF	No incoming call is received and self-Geofence on
Press button1 for 2sec.	Power LED flash quickly 3 times then restore normal If there is a GPS signal when an "SOS" report is sent, the unit will vibrate once. If there is no GPS signal when an "SOS" report is sent, the unit will vibrate twice. When SOS reports sent, the GPS module powers off and resets again, the GPS signal detected, the unit will be sent "123" report.	Send SOS report	No incoming call is received
Press button2 once	Power LED restore normal	Hang up the call.	When a call come or in communication or Dialing out
Press button2 twice within 2 seconds	When the unit enters "Taxi mode", the Power LED will flash 3 times/3sec and unit will vibrate once every minute.	Put the unit into "Taxi mode". When in Taxi mode, the unit will automatically vibrate every one minute. When the unit vibrates at these intervals, the user must press button2 within one minute each time, if not, the unit will automatically send an "SOS" report to the server.	No incoming call is received and no in "Taxi mode"
	Power LED restore normal	Take the unit out of "Taxi mode".	No incoming call is received and in Taxi mode
Press button2 for 2sec.	Power LED flash 2 times orange and 1 time green if low power then red every 3sec. If there is a GPS signal when an "SOS" report is sent, the unit will vibrate once. If there is no GPS signal when an "SOS" report is sent, the unit will vibrate twice.	Send SOS report and into monitor mode.	No incoming call is received no in monitor mode

	Power LED restore normal	Exit monitor mode	No incoming call is received in monitor mode
Press button3 for 2sec.	Power LED flash quickly 5 times then restore normal. When a "help" report is sent, the unit will chirp three times	Send help report	No incoming call is received
	Power LED change to orange and flash quickly.		When a call come or Dialing out
Press button3 once then press button1 once within 2sec.	Power LED change to orange and flash quickly. When dialing out, the unit will chirp once. If dialing out to a number fails, the unit will chirp twice.	Auto dialing out the first telephone No. of preset by PC-setup.	No incoming call is received
Press button3 once then press button2 once within 2sec.	Power LED change to orange and flash quickly. When dialing out, the unit will chirp once. If dialing out to a number fails, the unit will chirp twice.	Auto dialing out the second telephone No. of preset by PC-setup.	No incoming call is received
Press button3 once then press button3 once within 2sec.	Power LED change to orange and flash quickly. When dialing out, the unit will chirp once. If dialing out to a number fails, the unit will chirp twice.	Auto dialing out the third telephone No. of preset by PC-setup.	No incoming call is received
Press button"-"once	As normal	Ring or sound become low	If speaking, change sound
Press button '+" once	As normal	Ring or sound become high	If speaking, change sound
Press button "-" for 2sec.	As normal	Selection different sounds, there are six kinds of sound.	
Press button '+" for 2sec.	As normal	Change to vibrate, ring or ring + vibrate together modes	

| **Power LED indication priority** |
|---|
| **1   call coming or communication or Dialing out** |
| **2   SOS report** |
| **3   help report** |
| **4   monitor mode** |
| **5   Self-Geofence** |
| **6   Taxi mode** |
| **7   charging** |
| **8   power on/off and low power** |

V. PC SETUP AND SYSTEM INITIATION

PC setup Procedure:

1.) Connect the standard RS232 cable to the DB9 port.

2.) Open the PC setup program.

3.) Select the correct COM port for communication.

4.) Click "OK" to start the program

5.) Power on the device.

   Note that, if the connection fails, please check the cable connection is secured correctly.

A. LOGIN dialog window

Connect UNIT DB9 port to the PC serial port with a standard serial cable. Select the COM port, and click "OK".
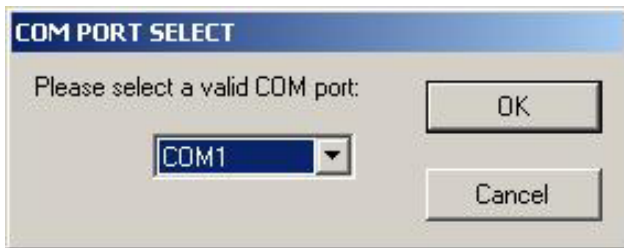
Note that: it is necessary to power on the device soon after starting the PC setup program.

PC setup program will detect the hardware for 60 seconds. If no hardware is detected, it will exit.

During the opening up screen shown as below, user can press "Esc" key to terminate the program.

B. Version No. Checking

The below interface will last until correct UNIT Version No. is checked. (You should run this program before turn on power of UNIT)

C. MAIN INTERFACE

1. [User detail]:

If the SIM card is password protected, user can input the "SIM PIN" window to set password of SIM Card.

Set UNIT ID and UNIT password of for the device.

Set Access Point Name (APN), User Name, Password. The maximum length of the APN, User name and Password is 49 characters.

TCP/UDP address and Port number of alarm center being set, UNIT will send message to these address.

Note that either TCP or UDP should be selected.

Note: the IP address and port must input correctly, otherwise it will cause fail to make a call.

UNIT can save 900 reports (900-1). Click 'Export' button can export them with Excel or Text format.

Set the primary SMS Number of the server. The unit will send reports to the server if GPRS connection is failed.

Setup the max number of the SMS can be sent out from the unit every month. By default, it will be renewed by the first date of every month.

"Initialize" button: clear all data in UNIT.

Request All: read out the whole existing setting from GT2000NP/GT2500NP

Request: read out the setting in the current page.

Apply: transfer the setting to GT2000NP/GT2500NP in the current pages.

Apply All: transfer the whole setting to GT2000NP/GT2500NP.

Load: load the saved configuration files.

Save: save the current configuration setting to a file.

"Exit" button: exit PC-Setup to main program.

2. [Geo-fence]:
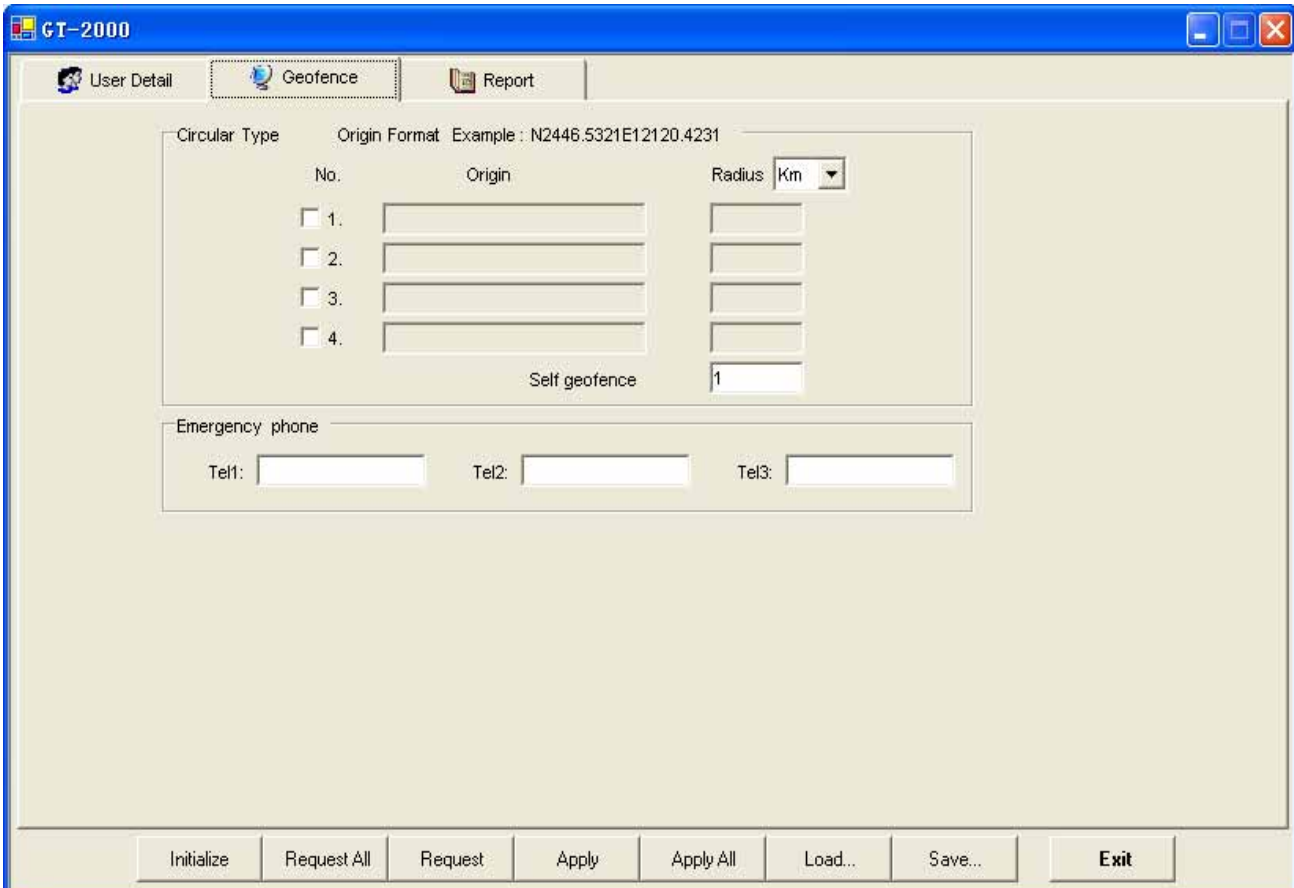
Setup the circular Geofence parameters in this window. The format will be center of the Geofence and the related radius.

Here is the section to set the 3 telephone numbers for speed dialing. Please refer to speed dialing button operation.

3. [Report]:

Report setup can be configured in this section. To activate the function(s), please select "√" in checkbox and fill in data in the textbox. There are 2 modes for the GT2000NP/GT2500NP, first is the Normal mode, and second is the Power saving mode. In normal mode, the GPS will be always activated if GT2000NP/GT2500NP is in moving state. However, if in Power saving mode, GT2000NP/GT2500NP will turn off the GPS power if there is no report to send.

Note: that user can configure the wakeup report if the device is in "stop" (not moving) state.

Normal mode, report will be summarized as:

(1) Fixed time report

Parameters: On/Off, and time.
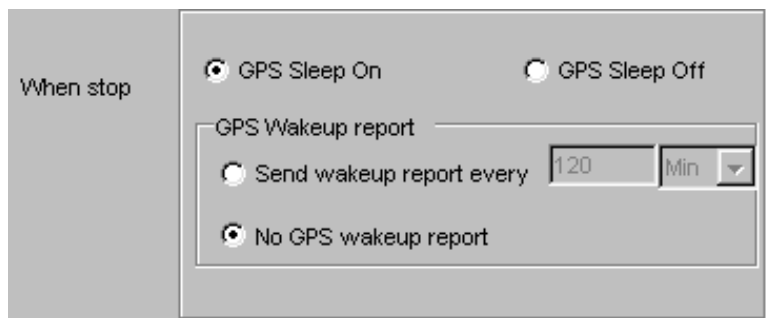
(2) Fixed distance report

Parameters: On/Off, and distance. (min. distance is 0.1 km, max. distance is 100 km).

(3) Speeding report: (min. speed is 0.1 km/Hr, max. speed is 1000 km/Hr).

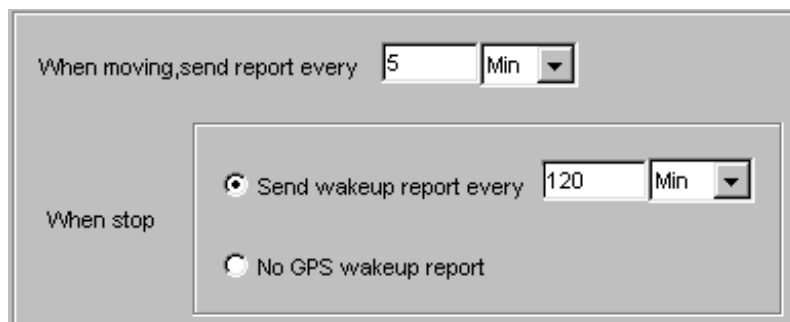Parameters: on/off, and speed

(4) GPS wakeup report:

While the device is in stop status, user can let the GPS go to sleep mode for power saving. If select GPS Sleep ON, user can setup the wakeup report configuration/ or NO GPS wakeup report.

IF select GPS SLEEP OFF, GT2000NP/GT2500NP will follow the report sending rule in "When Moving" section.
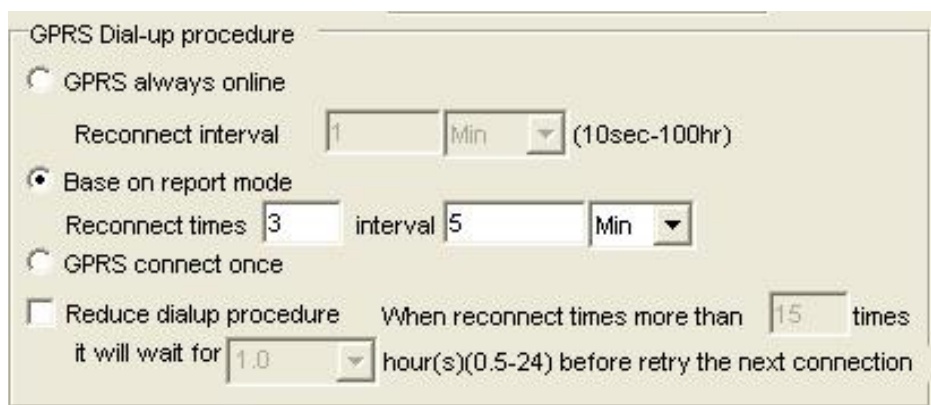
Power saving mode

While in Power saving mode, GT2000NP/GT2500NP will cut off the GPS power if there is no report to send.

Report configuration will be listed as: the fixed time report while moving, and wakeup report / or no GPS wakeup report while stop. In this mode, in order to save power unit will cut power of GPS, only wake up GPS at the time of send report.

GPRS dial-up procedure

1) GPRS always one-line

Parameters: Reconnect interval

While using this mode, when the unit can not searched GPRS signal, system will reconnect GPRS interval a preset value. (e.g.: 1minute)

2) Base on report mode

Parameters: Max. reconnect times, reconnect interval

While using this mode, the unit will connect to the server when there is a report to send. If the first connection is failed, it will retry to connect to the server up to the max. reconnect times. Each retry will be separated by the reconnect "interval".
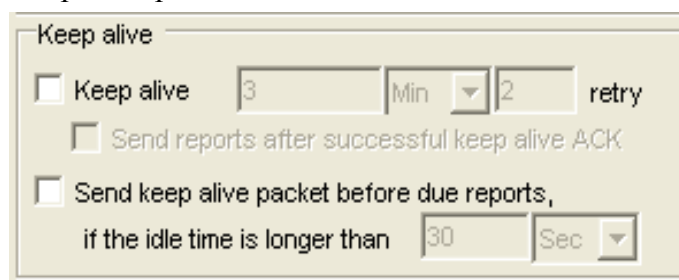
3).GPRS connect once

While using this mode, the unit will connect to the server when there is a report to send (but only try once). If it is not successful, the report will be stored and sent out in the next successful connection. Disconnect GPRS connection when report sending is completed.

Reduce GPRS dialup method

Parameters: On/Off, Max. reconnect times, connect delay

If this method is used, the unit will reduce the GPRS dial-up connection when the dial-up is failed after number of times. User can define the delay time for the unit before try to reconnect to the server. If there is trigger report, the unit will connect to server immediately.

Keep alive procedure

Parameters: On/Off, and interval / retry times. In order to keep connection in GPRS network, the unit can be set to send short keep alive report to the server in order to prevent the disconnection from the mobile service provider.

Send reports after a successful keep alive ACK. Parameters: On/Off .

If you select this function, all the reports will only be sent out after a successful keep alive ACK. (So if your keep alive time is shorter then select this function will be OK.) This function is very useful while using UDP to prevent report lost.

Send a keep alive packet right before a due reports if no data stream within certain time: Parameters: On/Off, and idle time.

Some GSM provider might cut connection, if there is no data within certain time. It might result report lost in this "fake connection" duration. For example, you can set parameters in this region, ex 20 mins. (it means if the unit did not send any data in this 20 mins (including keep alive or normal reports)), then it will send a keep alive packet to check if the GPRS connection is valid or not. If not, it will actively reconnect to GPRS network.

Special command for SMS mode:

If the GT2000NP/GT2500NP is not in the GPRS online status, user can send command &&Y02 or &&Y04 to ask unit to connect to server. This command can be sent from any device via SMS;

&&Y02:

When received this command, system will actively try to connect to server in next 600 seconds.

&&Y04,[connection time],[report interval]:

For example: &&Y04,3600,60

When received this command, system will connect to server in the next 3600 seconds, and send one report out every 60 seconds.
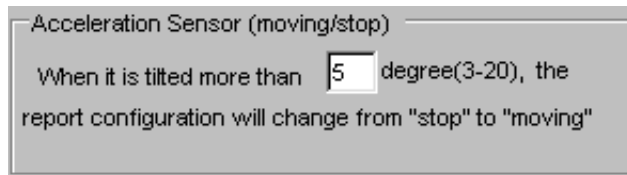
Low battery report:

Low battery warning report (to alert user when the external battery level is low)

Parameters: On/Off, and warning battery level for report. For example, 30 to represent 30% lower level report. The system will ignore the parameter with a value '0' to prevent continuous non-stop reporting. Low battery, unit will cut power of GPS, only call function will be activated.

Acceleration sensor:

Acceleration Sensor (moving/stop)
When it is tilted more than 5 degree(3-20), the report configuration will change from "stop" to "moving"

To determine whether GT2000NP/GT2500NP is moving or not, user can select the sensitivity of the "acceleration sensor". It is distinguished by the tilt angle of the device. If the unit tilted more than the degree set here, GT2000NP/GT2500NP will be in moving mode. Otherwise, it will be in stop mode. The smaller the parameter of degree for the sensor set in pc-setup is, the higher the sensitivity is, otherwise, the result is the opposite.

Acceleration sensor report
☐ Send report when acceleration sensor trigger
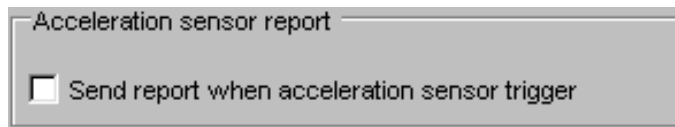
You can select the Acceleration sensor trigger report to be sent or not, while the unit is moved. "Select" (by click), the related reports will be sent. Otherwise the report will be ignored, when the device is moved.

APPENDIX 1

GT2000NP/GT2500NP SPECIFICATIONS

Physical Parameters

Enclosure dimensions (mm)	95(L)*47(W)*20 (H)
Weight	100g

Electrical

DC Supply voltage	3.6V
Recharge voltage	5V 20V
Current (GPRS online)	80mA
Current (GPRS transmission)	120mA
Current (Peak)	300mA
Current (Sleep)	6~12mA (when GPS is in sleep mode)

Battery

	Battery type	Battery capacity	Charge type
Battery	Lithium 3.6V	1700mAh/1050mAh	Built-in charge circuit

GPRS*

Frequency Range (MHz)	900&1800&1900 or 850&1800&1900 models
Channel spacing (Hz)	200
GPRS connectivity	GPRS multi-slot class 10 GPRS mobile station class B
SIM card interface	3V
SMS storage Capacity	40 in ME
Antenna Impedance	50ohms
Antenna Type	Embedded antenna

GPS*

Chipset	SiRF Star III technology
Channels	20
Protocol	NMEA0183
Baud Rate	4800
Signal	L1 1575.42 MHz
Accuracy	<5 meters (50%)
Velocity	0.1 m/sec.
Reacquisition	0.1 sec average
Snap Start	1 sec average
Hot Start:	<8 sec.
Warm Start:	<38 sec.
Cold Start:	<42 sec.
Antenna Type	Embedded Omni-directional antenna

IO Connection

Five Buttons	One Power button, 3 speed dialing buttons, 1 volume adjust button

Communication

	GPRS \SMS\RS232\

Environmental

Operating Temperature	-20°C to +55°C
Storage Temperature	-40°C to +85°C

Accessories

1. Internal battery
2. PC setup cable (Optional)
3. Power charger

VI. Federal Communications Commission (FCC) Statement

1)

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.

2)

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.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

VII 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.

VIII FCC RF Radiation Exposure Statement:

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

2) For body worn operation, this phone has been tested and meets FCC RF exposure guidelines when used with an accessory that contains no metal and that positions the handset a minimum of 1.5 cm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines."