

GPS Tracker - User Manual - Version 6.4

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1. Product Overview

GPS Tracker provides an easy way to track your targets and provides peace of mind by showing you with your mobile phone or PC the location of your targets via SMS or GPRS.

GPS Tracker has the following features:

- Tracking via SMS or GPRS (TCP/UDP)
- Track on demand or by time interval
- Two-way conversation
- SOS alert
- Geo-fencing control
- Movement alarm
- Low battery alert
- Speeding alert
- Alert when GPS Tracker enters/exits GPS blind area
- Alert when GPS Tracker is turned on
- Three buttons for making phone call and/or sending message

2. For Your Safety

Read these simple guidelines. Not following them may be dangerous or illegal.

- **Switch on Safely** - Do not switch on GPS Tracker when wireless phone use is prohibited or when it may cause interference or danger.
- **Switch off in Hospitals** - Follow any restrictions. Switch GPS Tracker off near medical equipment.
- **Switch off in Aircraft** - Follow any restrictions. Wireless devices can cause interference in aircraft.
- **Switch off when refuelling** - Do not use GPS Tracker when at a refuelling point. Do not use near fuels or chemicals.
- **Switch off near blasting** - Follow any restrictions. Do not use GPS Tracker when blasting is in progress.
- **Qualified Service** - Only qualified personnel can repair GPS Tracker.
- **Water Resistance** - GPS Tracker is not water resistant. Keep it dry. Use waterproof bag or IP rated box if necessary.

3. GPS Specification

Item	Specification
Charging Voltage	DC 4.2-5.5V/400mA (Mini USB port)
Internal Battery	Rechargeable and replaceable 1350 mAh battery (3.7V)
Dimension	77 mm × 51 mm × 25 mm
Weight	96g
Operating Temperature	-20° to 55° C
Humidity	5% to 95% Non-condensing
GSM module	GSM 900/1800/1900Mhz or GSM 850/900/1800/1900Mhz
GPS chipset	latest GPS SIRF-Star III chipset
GPS sensitivity	-158Db
GPS frequency	L1, 1575.42 MHz
C/A code	1.023 MHz chip rate
Channels	20 channel all-in-view tracking
Position accuracy	10 meters, 2D RMS
Velocity accuracy	0.1 m/s
Time accuracy	1 us synchronized to GPS time
Default datum	WGS-84
Re-aquisition	0.1 sec., average
Hot start	1 sec., average
Warm start	38 sec., average
Cold start	42 sec., average
Altitude limit	18,000 meters (60,000 feet) max.
Velocity limit	515 meters/second (1000 knots) max.
Acceleration limit	Less than 4g
Jerk limit	20 m/sec
Work time	Up to 60 hours in sleep mode and 18 hours in normal mode
LED	3 LED lights to show power, GPS, GSM and other operation status
Button	3 buttons(SOS/B/C) for making phone calls or sending SMS

4. Getting Started

This section will describe how to set up your GPS Tracker.



4.1 Hardware and Accessories

GPS Tracker includes:

- GPS Tracker main unit with battery
- USB Power Cable
- Car Charger
- Wall Charger
- Hands-free Earpiece with Microphone

4.2 Light, Button and Connector Functionality

Your GPS Tracker has four buttons and three LED lights with three different colours to indicate the status of the unit.

Red LED - indicating power status	
Off	Power is off or charging is complete
Dim	Power attached and battery fully charged
Flashing (every 0.1 second)	Low power
On	Charging
Flashing (on 1 second, off 2 seconds)	Working

Blue LED - indicating GPS status	
On	One button is pressed
Flashing (every 0.1 second)	The unit is being initialized
Flashing (on 0.1 second, off 2.9 seconds)	GPS Tracker has a GPS fix
Flashing (on 1 second, off for 2 seconds)	GPS Tracker has no GPS fix

Green LED - indicating GSM status	
On	Call is coming in / being made
Flashing (every 0.1 second)	The unit is being initialized
Flashing (on 0.1 second, off 2.9 seconds)	GPS Tracker is connected to the GSM network
Flashing (on 1 second, off 2 seconds)	GPS Tracker not connected to the GSM network

Buttons / Switches	
Power Button	To turn GPS Tracker on/off
SOS Button	Press SOS button to make a phone call and/or send an SMS to the pre-programmed phone number. Press it to receive an incoming call. Press it to increase volume during conversation
Call B	Press B button to make a phone call and/or send an SMS to the preprogrammed phone number. Press it to reject a call, cancel calling or complete a conversation.
Call C	Press C button to make a phone call and/or send an SMS to the preprogrammed phone number. Press it to decrease volume during conversation.

Other Connectors	
Mini USB	Used for charging
SIM Card	To insert SIM card here
Earphone Plug	For connecting earphone
Lanyard Loop	For connecting earphone

4.3 First Use

IMPORTANT: Please read this manual before using your GPS Tracker.

Ensure that your GPS Tracker has a working SIM installed.

- Check that the SIM lock code is turned off. The unit will accept any SIM card except 3 Mobile or any operator that requires you only use a 3G handset / unit (currently only 3 Mobile)
- Test the SIM in a phone to make sure it can send and receive SMS
- Take a note of the telephone number associated with the SIM
- Check that the SIM has not run out of credit
- Insert a valid SIM card into the slot in the side of the GPS Tracker observing the correct position to insert.
- **If you require the function of sending an SMS location report to the authorised phone number when it makes a call to the GPS Tracker, please make sure the SIM installed supports displaying caller ID.**

Charge the battery for at least 3 hours in power-off status using the wall charger or car charger. The red light is on during charging and will dim when charging is complete.

Slide the power button to the on side and wait for about 20 seconds. It will then enter standby mode. It is suggested that you are located outside or near a window where the GPS Tracker can receive better GPS when you turn on the device.

Check that the Red LED (power) on GPS Tracker is flashing (on for 1 second and off for 2 seconds).

Check that the Green LED (GSM) is flashing (on for 0.1 second and off for 2.9 seconds).

Check that the Blue LED (GPS) is flashing (on for 0.1 second and off for 2.9 seconds).



5. SMS Command

GPS Tracker will only accept commands from a user with the correct password. Commands with wrong the password are ignored. The default password is 000000.

Ensure that where letters are used in programming messages that you use capital letters and follow the commands detailed.

Before using the GPS we recommend that you change the password. To do this:

Description: Changes user's password.
Command: W*****,001,#####

Notes:

1. ***** is user's password and the default password is 000000. The tracker will only accept commands from a user with the correct password. Commands with wrong password will be ignored.
2. ##### is the new password. Password should be 6 digits.

Example: W000000,001,123456

5.1 Basic Commands

5.1.1 Return the location of the tracker

Description: To find out the location of your GPS Tracker, send an SMS or make a telephone call directly to GPS Tracker and it will report its location by SMS. To locate via SMS:

Command: W<password>,<000>
Example: W000000,000

Shortly after ringing the GPS Tracker or sending the SMS an SMS is received (example):

Latitude = 51 28 08.30N Longitude = 0 27 20.89W, Speed = 2.6854Km/h, 2009-08-01,21:50

This means the tracker is in location 51 28 08.30N 0 27 20.89W, travelling at 2.6854 Km/H on 1st August 2009 at 9:50pm. See Section 7 for more details.

To get GPS Tracker's location by another easier way:

IMPORTANT NOTE: THE CALLER ID ON YOUR PHONE MUST BE SET TO SEND YOUR CALLER ID WHEN YOU MAKE A CALL

- Call GPS Tracker using your mobile phone
- After listening to the ring for 10 - 20 seconds, hang up the phone.
- Then, in about 15 seconds, your mobile phone will receive an SMS with longitude and latitude.

5.1.2 Return Location of Tracker with Google Maps Link

Description: To find out the location of your GPS Tracker and for the GPS to send you a URL link, to link directly to Google Maps:

Command: W<password>,<100>

Example: W000000,100

You will receive an SMS with a link that looks like:

<http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329&ie=UTF8&z=16&iwloc=addr&om=1>

Click on the link to view the Google Map location

5.1.3 Track by Pre-Set Interval

Description: You can set the GPS Tracker to automatically send you timed reports with details of its location according to the time interval you set.

Command: W<password>,002,XXX

Notes: XXX is the interval in minute. If XXX=000 it will stop tracking

Example: W000000,002,005

SMS received: Set Time OK/005

Meaning: GPS Tracker will report its location by SMS every 5 minutes.

5.1.4 Stop automatic timed report

Description: Automatic timed reports will stop once GPS Tracker receives stop command.

Command: W<password>,002,000

Example: W000000,002,000

SMS received: Set Timer OK/000

Meaning: GPS Tracker will stop automatic timed report.

5.1.5 SOS/Call B/Call C

Description: To set up a mobile phone number for the SOS, Call B or Call C button. When the button is pressed, a message will be sent and/or simultaneously a call will be made to the programmed number.

Command: W<password>,003,F,P,<telephone number>

Notes:

- | | |
|---|--|
| F | =0, cancel this function |
| | =1, only send SMS to the preset number |
| | =2, only call the preset number |
| | =3, send SMS and also Call the preset number |
| P | =1, set an authorized number for SOS button |
| | =2, set an authorized number for Call B |
| | =3, set an authorized number for Call C |

When one of the buttons is pressed and a call is made, you can call and talk with the tracker-holder if he/she is using an earpiece.

Press the Call B button to hang up the call or cancel a calling

Example: W000000,003,3,1,123456789
SMS received: Set Tel OK/3,1,123456789
Meaning: When the SOS button is pressed, GPS Tracker will send an SMS to telephone number "123456789" and also make a phone call to it.

When a call is coming in, the green light is on. Press SOS button to receive the incoming call and then talk with the caller by earphone. To complete the conversation, hang up the call by pressing Call B button.

For more detailed SMS commands please go to Chapter 8 - SMS Command List

5.2 GPRS Settings by SMS

NOTE:

TRACKING VIA GPRS IS AN ADVANCED FUNCTION AND YOU SHOULD BE FULLY FAMILIAR WITH THE REQUIREMENTS OF GPRS SETTINGS AND ITS APPLICATION BEFORE ATTEMPTING TO PROGRAMME THE GPS TRACKER.

To tracking via GPRS, you should set the GPS Tracker ID, IP, Port and APN for GPS Tracker. Ensure that your SIM card in GPS Tracker supports GPRS connection prior to setting.

5.2.1 Set ID for GPS Tracker

Command: W<password>,010,ID
Note: Tracker ID must not be over 14 digits.
Example: W000000,010,123456789
SMS received: Set SIM OK/123456789

5.2.2 Set APN

Command: W<password>,011,APN,APN Name,APN Password
Note: If no APN name and password required, input APN only.
Example: W000000,011,CMNET
SMS received: Set APN OK/CMNET

5.2.3 Set IP Address and Port

Command: W<password>,012,IP,PORT
Example: W000000,012,202.116.11.12,8000
SMS received: Set IP OK/202.116.11.12,8000

5.2.4 Set Time Interval for Sending GPRS Packet

Command: W<password>,014,time interval(in unit of 10 seconds)

Example: W000000,014,00003

GPS Tracker will reply with an SMS to confirm this setting and will send a GPRS packet every 30 seconds

5.2.5 Enable GPRS Tracking Function

Command: W<password>,013,X

Notes: X=0, to turn off GPRS tracking function (default)

X=1, to set TCP

X=2, to set UDP

Example: W000000,013,1

GPS Tracker will reply with an SMS to confirm this setting.

6. Tracking on Map

You can use the co-ordinates supplied by the GPS Tracker in 5.1.1 to enter into your own mapping software or use applications such as Google Maps or Google earth:

Option 1: Download Google Earth from <http://earth.google.com/>

Start the Google Earth (For more information about Google Earth please refer to <http://earth.google.com/>)

Option 2: In your web browser open <http://maps.google.co.uk>

In the search box input the latitude and longitude that you receive from the tracker by SMS and click the search button.

For example if your SMS received was:

Latitude = 51 28 08.30N Longitude = 0 27 20.89W, Speed = 2.6854Km/h, 2009-08-01,21:50

In the search box you would enter: 51 28 08.30N 0 27 20.89W

Hit the search icon / button and you can now see the location of your tracker.

7. Troubleshooting

Problem: Unit will not turn on when power switch is at ON position	
Possible Cause:	Resolution:
Power switch was not pushed properly	Power switch was not pushed properly. Check and make sure the power button is pushed to On side.
Battery needs charging	Charge battery for at least 3 hours see Section 4.3

Problem: Unit will not reply with SMS	
Possible Cause:	Resolution:
Green LED is flashing (on 1 second, off 2 seconds)	Ensure GPS Tracker in is coverage area
Green LED is flashing (on 0.1 second, off 2.9 seconds)	SIM may be roamed to another network for 'Emergency Calls Only'. Switch off, remove SIM, re-insert SIM and switch on. Check phone is sending caller ID.
GSM Network is slow	Wait for SMS. Some GSM networks slow down during peak time/ during maintenance.
Unit is sleeping	Cancel sleeping mode - See Section 8
Wrong password in your SMS / SMS format	Write correct password or SMS format
The SIM in GPS Tracker has run out of	Replace or top up the SIM card

Problem: Green LED is Flashing (on 1 second and off 2 seconds)	
Possible Cause:	Resolution:
No GSM signal	Check with a mobile phone to see if there is a signal in the area or try to call the unit to see if you hear a ring tone.
No SIM card	Insert a working SIM card. Check in phone that the SIM can send SMS message.
SIM card has expired	Check in phone that the SIM can send SMS message. Replace SIM card if needed.
SIM has PIN code set	Remove PIN code by inserting SIM in your phone and deleting the code.
SIM is warped or damaged	Inspect SIM, clean the contacts. If re-inserting does not help try another to see if it will work.
Roaming not enabled	If you are in a different country your SIM account must have roaming enabled.
Battery is low	Recharge the unit and the GSM will start working.

Problem: Blue LED is Flashing (on 1 second and off 2 seconds) or the SMS received starts with 'Last...'	
Possible Cause:	Resolution:
Unit does not have clear view of the sky	Move the unit to location where the sky is visible. Tall buildings, trees, heavy rain, can cause problems with the GPS reception.
Bad GPS reception	Place the front side of GPS Tracker towards sky.
Battery is low	Recharge the unit and the GPS will start working.

8. Full SMS Command List

Remarks: ***** is user's password and the default password is 000000.

ENSURE YOU FOLLOW THESE INSTRUCTIONS CAREFULLY TO AVOID INCORRECTLY PROGRAMMING YOUR GPS TRACKER

<u>Description</u>	<u>Command</u>	<u>Remarks</u>
Get current location	W*****,000	Get current location of GPS Tracker
Change user's password	W*****,001,#####	***** is old password ##### is new password
Set interval for automatic timed report	W*****,002,XXX	XXX is the interval in minute. If XXX=000 it will stop tracking
Set preset phone number for SOS button, Call B and Call C	W*****,003,F,P,T	F=0, to turn off this function; (default) F=1, only sending SMS; F=2, only calling preset phone number; F=3, both SMS and calling P=1, set an authorised number for SOS button P=2, set an authorised number for Call B P=3, set an authorised number for Call C T: Preset phone number. Max.16 digits
Set low power alert When GPS Tracker voltage is lower than the preset value, it will send one low power alert to the SOS preset number.	W*****,004,X	X (voltage preset value) =0 , to turn off this function =1, <3.3V send SMS alert =2 , <3.4V send SMS alert =3 , <3.5V send SMS alert (default) =4 , <3.6V send SMS alert =5 , <3.7V send SMS alert
Set over speed alert When GPS Tracker speeds higher than the preset value, it will send an SMS to the SOS preset number.	W*****,005,XX	XX (the preset value of speed) =00 , to turn off this function =[01, 20] (unit: 10Km/h) For example: W000000,005,08, it will send alert when it is over 80Km/h

<p style="text-align: center;">Set Movement alert</p> <p>When GPS Tracker moves out of preset scope, it will send one Geo-fence SMS to the SOS preset number. (Based on current location of GPS)</p>	<p style="text-align: center;">W*****,006,XX</p>	<p>XX (preset distance to original place) =00, to turn off this function =01, 30m =02, 50m =03, 100m =04, 200m =05, 300m =06, 500m =07, 1000m =08, 2000m</p>
<p style="text-align: center;">Geo-Fence Alarm</p> <p>Turns on Geo-fencing alarm. When the tracker moves in/out the preset scope, it will send an SMS alarm to the authorized phone number for SOS.</p>	<p style="text-align: center;">W*****,017,X or W*****,117,X</p>	<ol style="list-style-type: none"> 1. 017 is for alarm when tracker moves <u>out of</u> the preset scope. 2. 117 is for alarm when tracker moves <u>into</u> the preset scope. 3. X is the co-ordinates which include: Lower-left X, Lower-left Y, Upper-right X, Upper-right Y 4. Lower-left X should be less than Upper-right X; 5. All longitudes and latitudes should be in ASCII format as follows:- Longitude: DDDFF.FFFF,E/W. 4 places of decimal. '0' is needed to be used if no value available. Latitude: DDFF.FFFF,N/S. 4 places of decimal. '0' is needed to be used if no value available; 6. Send W*****,006,00 to turn off Geo-fence function. <p>Example: W000000,017,11404.0000,E,2232.0010,N,11505.1234,E,2333.5678,N</p>
<p style="text-align: center;">Sleep Mode</p> <p>Put the GPS Tracker into sleep mode to conserve battery power.</p>	<p style="text-align: center;">W*****,021,XX###</p>	<p>Level 1: The GPS will be working for the first 3 minutes and then shut down for 1 minute and then work again for another 3 minutes etc. Level 2: The GPS will be working for the first 2 minutes and then shut down for 1 minute and then work again for another 2 minutes etc.</p> <p>XX (sleep mode) =00 Sleep mode turned off =01 Level 1 Sleep mode =02 Level 2 Sleep mode</p> <p>Example: W000000,021,02### (### is the ending character)</p>

<p style="text-align: center;">Power Down</p> <p>To power down the GPS Tracker when inactive for a preset length of time.</p>	<p>W*****,026,XX</p>	<p>In Power Down mode, GPS stops working and GSM enters sleep and stops sending out messages until it is activated by message, incoming calls or triggered by buttons.</p> <p>XX=00, to turn off this function XX=01~99, to turn on Power Down after a specified period of being inactive. It is in units of one minute. (In the example below the GPS unit will power down after 10 minutes of inactivity).</p> <p>Example: W000000,026,10</p>
<p style="text-align: center;">Set SMS Characters for SOS and Call Buttons</p> <p>This command is to set initial characters for SOS message when SOS, Call B and Call C Buttons are pressed.</p>	<p>W*****,033,P,Char</p>	<p>P: =1 is for SOS Button =2 is for Call B Button =3 is for Call C Button</p> <p>Char: Up to 32 User Defined characters</p> <p>Defaults: SOS: SOS Alarm! Call B Button: Cry for help! Call C Button: Call the Police!</p>
<p style="text-align: center;">Reboot GSM</p>	<p>W*****,901###</p>	<p>### is the ending character. Example: W000000,901###</p>
<p style="text-align: center;">Reboot GPS</p>	<p>W*****,902###</p>	<p>### is the ending character. Example: W000000,902###</p>
<p style="text-align: center;">Set time zone difference</p>	<p>W*****,032,T</p>	<p>T=0, to turn off this function T=[1, 65535] to set time difference in minute to GMT. Default value is GMT For those ahead of GMT, just input the time difference in minute directly. For example, W000000,032,120 '-' is required for those behind GMT. For example, W000000,032,-120.</p>
<p style="text-align: center;">Reset GPS Tracker back to Factory Settings</p> <p>Turn on the device, press the SOS button for five times continuously and the red LED will be on, and then send (within 120 seconds) this SMS to the tracker to make all settings (except for the password) back to factory default.</p>	<p>W*****,990,099###</p>	<p>### is the ending character. Example: W000000,990,099###</p>

<p style="text-align: center;">Reset Password back to 000000</p> <p>If you forget your password, turn on the tracker, press the SOS button for five times continuously and the red LED will be on, and then send this SMS (within 120 seconds) to the tracker to make the password back to factory default (000000).</p>	<p style="text-align: center;">W888888,999,666</p>	<p>Example: W888888,999,666</p>
<p style="text-align: center;">Extend Settings</p>	<p style="text-align: center;">W*****,008,ABCDEFGF### (default value is: ABCDEFGF=1000100)</p>	<p>A=0, turn off the function of sending an SMS location report to the authorised phone number when it makes a call to GPS Tracker. A=1, turn on the function of sending an SMS location report to the authorised phone number when it makes a call to GPS Tracker. B=0, location data of NMEA 0183 GPRMC will be interpreted into normal text for easy reading. For example: Longitude = 114 degree - 04 cent -57.74 second Latitude = 22 degree -32 cent -40.05 second B=1, location data complies with NMEA 0183 GPRMC protocol. For example: \$GPRMC,072414.000,V,3114.3763,N,12131.3255,E,0.00,0.00,050805,*00 C=0, turn off the function to automatically hang up an incoming call. C=1, turn on the function to automatically hang up an incoming call after 4 - 5 rings. D=0, Turn off the function of sending an SMS when GPS Tracker is turned on. D=1, Turn on the function of sending an SMS to SOS number when GPS Tracker is turned on. E=0, reserved E=1, GPS Tracker shuts down automatically when the power voltage lower than 3V. F=0, Turn off the alert when GPS Tracker enters GPS blind area. F=1, Turn on the alert when GPS Tracker enters GPS blind area. SMS is to be sent to SOS number G=0, 3 LED lights work normally G=1, 3 LED lights stop flashing when GPS Tracker working. ### is the ending character</p>

Presetting by SMS for GPRS tracking (Ensure that your SIM card supports GPRS connection prior to setting)		
Set ID for GPS Tracker	W*****,010,ID	ID Tracker ID must not over 14 digits.
Set APN	W*****,011,APN,APN Name, APN Password	If no APN name and password required, just insert APN only; APN defaulted as 'CMNET'; APN + APN name + password not over 39 characters.
Set IP Address and Port	W*****,012,IP, Port	IP: xxx.xxx.xxx.xxx Port: [1,65534]
Enable GPRS Tracking Function	W*****,013,X	X=0, turn off GPRS tracking (default); X=1, enable TCP X=2, enable UDP
Set Time Interval for sending GPRS Packet	W*****,014,XXXXX	XXXXX should be in five digitals and in unit of 10 seconds. XXXXX=00000, to turn off this function; XXXXX=00001~65535, time interval for sending GPRS packet and in unit of 10 seconds.

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