GPS
Vehicle and personal location tracker

User manual

Contents

1. Product overview

Welcome to purchasing our product!

The vehicle and personal location tracker has the advantages of low power, 15 days standby without charging, small size, easy to use and supports two-way communication. It is specially applies for elderly/kid tracking, personnel management, assert tracking, vehicle positioning, etc.

Tracker has built-in terminals of GPS (global positioning system) module and GSM communication module, which used for getting location data and send it to authorized phone number via SMS, and tracking through free maps Google Earth or Google Map; If your mobile phone is smart phone and opened with GPRS service, it is more convenient to see location of the tracker on smart phone by setting the SMS location format to be Google Link. At the same time, the GPRS data can be sent to the Internet server, which can realize the checking, monitoring and managing of the tracker on computer.

The tracker supports three working modes: personal mode, smart mode, vehicle mode.

◆ Please use personal mode if you want to tracking up to 15 hours standby time in an empty environment

◆ Please use smart mode if you want to track less than 14 hours or in crowded environment (with many building around)

◆ Please use vehicle mode when it working in the car, connect MINI USB cable with tracker and the car so it can track long time and keep in mind that it is better to hide it on a place with good GPS signal (example: under the windshield)

The tracker supports the following features:

◆Easy authorized phone number setup by calling

◆Real time tracking

◆Two-way communication

◆Remote monitoring

◆SOS emergency calling

◆Tracking regularly by GPRS

◆GPRS data logger

◆Auto APN setting

◆3 kinds of tracking mode

◆Geo-fence

◆Time-zone setting

◆Low battery alarm

◆LED indication for battery level

◆Auto power on/off

2. Safety instruction

Read these simple guidelines. Not following them may damage to the tracker, put you in danger or break the law.

Switch on safely	Do not switch the tracker on when mobile phone use is prohibited or when it may cause interference or danger.
Switch off in hospitals	Follow any restrictions. Switch the tracker off near medical equipment.
Switch off in aircraft	Follow any restrictions. Wireless trackers can cause interference in aircraft.
Switch off when refueling	Do not use the tracker when at a refueling point. Do not use near fuels or chemicals.
Switch off near blasting	Follow any restrictions. Do not use the tracker when blasting is in progress.
Qualified service	Only qualified personnel can repair the tracker.
Water resistance	The tracker is not fully water resistant. Keep it dry. Use waterproof-case if necessary.

3. Specification and parameters

Items	Specification
Charging Voltage	DC 4.5-5.5V/1000 mA (Mini USB)
Internal Battery	Rechargeable and replaceable 1000 mAh battery(3.7V)
Dimension	86 mm X 44 mm X 22 mm
Weight	65g (with battery)
Operating Temperature	-20 ～ +55 °C
Humidity	5% to 95% Non-condensing
GSM Module	Quad Band GSM 850/900/1800/1900 MHz
GPS Chipset	Newest Ublox chipset
GPS Sensitivity	-160 Db

| GPS Frequency	L1, 1575.42 MHz
C/A Code	1.023 MHz chip rate
Channels	50 Channels
Position Accuracy	<10 M, 2D RMS
Velocity Accuracy	0.1 M/S
Time Accuracy	Satellite time: 1 microsecond time synchronization
Update Time	Average 0.1 second
Hot Start up	Average 1 second
Warm Start up	Average 3 second
Cold Start up	Average 27 second
Max. Altitude	18,000m (Max. 60,000 ft)
Max. Speed	500 m/s (Max. 1000 knots)
Max. Acceleration	less than 4g
Operation time	15 days of Standby time in personal mode; 15 hours in vehicle mode
LED	3 lights for showing states of power, GPS, GSM
Button	2 buttons: 1 SOS button, 1 battery status button

4. Getting started

This section will describe how to set the tracker.

4.1 Hardware and accessories
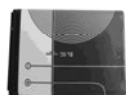
Terminal   Lithium battery   AC adapter   USB cable   CD

4.2 View

Front view   Side view   Back view

4.3 Function key and port

Power LED

Battery checking button
and Hang rope hole

GPS LED

GSM LED

Power switch

Speaker

SOS button

Microphone

Mini USB port
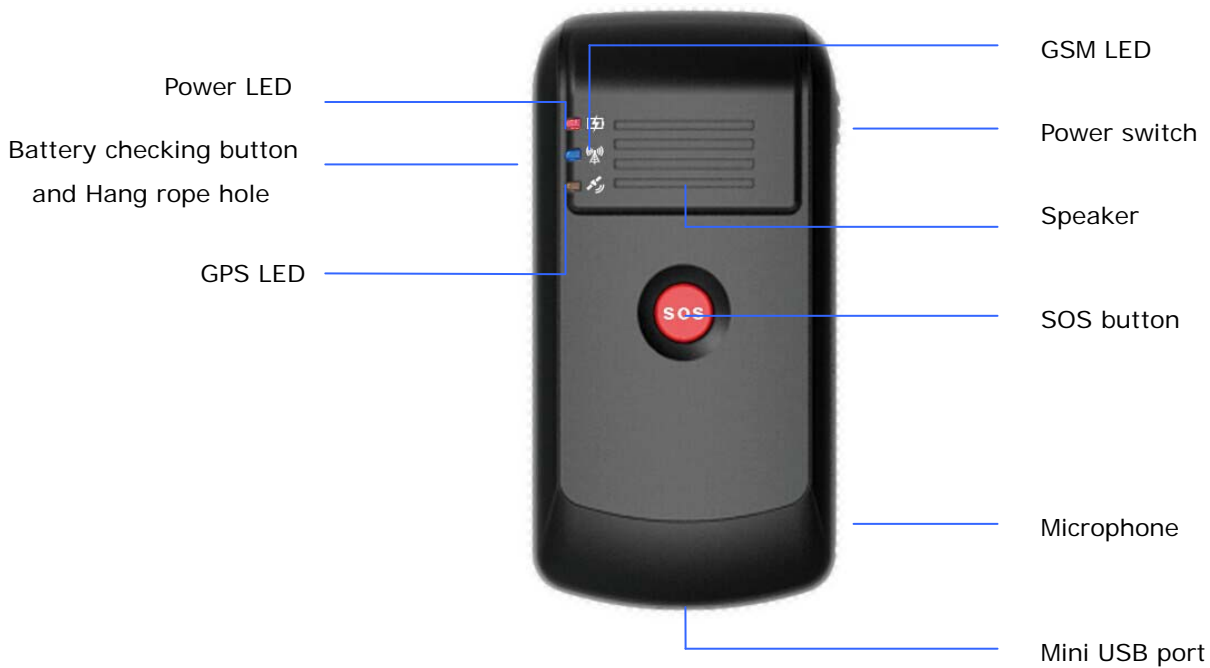
Red – Power indication	
Always On	Power charging
Always OFF	Power charging completed or no connection
Blue – GSM indication	
0.3S On and 0.3S Off	GSM module is initializing or calling in
Always On	GSM module cannot be registered
1S On and 3S Off	GSM module is registered
0.1S On and 3 S Off	GSM module is registered network and GPRS

	function works well
Always Off	GSM in power save mode
Yellow – GPS indication	
0.3S On and 0.3S Off	GPS module is initializing or waiting for the SOS button press to confirm the calling in number as the authorization number
Always On	While Pressing Button
1S On and 3S Off	GPS module is working but hasn't fixed position
0.1S On and 3S Off	GPS module is working and fixed position
Always Off	GPS module is not working
Buzzer	
Getting 2 times beep sound	Press for 3 seconds on SOS button or press for 5 seconds on battery checking button
Getting 5 times beep sound	Low battery
Vibration motor (built-in)	
Vibration motor is shaking twice	Press for 3 seconds on SOS button or press for 5 seconds on battery checking button or low battery
Switch	
Power switch	Turn on /off tracker
Buttons	
SOS Button	Press SOS button for 3 seconds so tracker will send an emergency message to the authorized number and dial the authorized number
Battery Checking Button	Press this button and if all the lights are on, means tracker has full battery; or if there only one(just the yellow light) is on, said the tracker's power less than 15%(low battery)
Others	
Mini USB port	Charging, software upgrade and setup parameter by computer
Hang rope hole	Wear a hang rope

4.4 First use

Please read this manual before using the tracker.

4.4.1 Ensure that your tracker has a working SIM card installed.

- Tracker supports Micro SIM card and standard SIM card (please according actual situation to
  judge).

- Check the SIM card has not run out of credit money (Test the SIM card in a phone to make
  sure it can send and receive SMS).

- Check the lock code of the SIM card is turned off.

- If you require the function of sending an SMS location report to the authorized phone
  number when it makes a call to the tracker, please make sure the SIM card installed
  supports displaying caller ID.

4.4.2 Use AC adapter charge for at least 3 hours or charge via USB port with computer.

- During charging, please turn the tracker off (otherwise it will make the charging time
  longer). During charging, the Red Led is always on and after recharged, Red Led is al
  ways off.

4.4.3 Slide up the power switch to ON (switch on) and set the parameter. If set the parameter
  via SMS, please make sure the GSM is registered before sending SMS. And then positioning
  in an empty environment, please do it every time after turn the tracker on. (Advantages:　1.
  renew machine for time, it is advantageous to the LBS location; 2. more power saving).

5. Change password

SMS Command: $SMS,******;W001,######;!
Description: change user's password
Explain:
 ******: user password, the range of 6 digits, default password is 000000.
 （**Note**: please switch to English input method when you editing command by phone; Device
will only accept commands from a user with the correct password. Command will be ignored
if with wrong password.）
######: new password, the range of 6 digits.
Example:
$SMS,000000;W001,123456;!

Read password：

$SMS,000000;R001;!

Clear password：

$SMS,000000;C001;!

6. Authorized number

6.1 Set the authorized number by SMS

SMS Command: $SMS,000000;W010,NO.,Phone Number,ABC;!

Description: Set authorized number and related functions.

Explain:

NO.: authorized number's serial number, range of: 1~3.

Phone Number: authorized number, range of: 0~19 characters.

A: switch for Geo-fence function, range of: 0~1(0 means disable this function, 1 means enable this function), default is 0.

B: switch for monitoring function, range of: 0~1(0 means disable this function, 1 means enable this function), default is 0.

C: switch for SOS emergency calling, range of: 0~1(0 means disable this function, 1 means enable this function), default is 0.

For example:

Set the 1st authorized number is 13800000000 and just enable monitoring function.

$SMS,000000;W010,1,13800000000,010;!

Read authorized No.1 and it's related authority：

$SMS,000000;R010,1;!

Clear authorized No.1 and it's related authority：

$SMS,000000;C010,1;!

Read all authorized number：

$SMS,000000;R010;!

Clear all authorized number：

$SMS,000000;C010;!

6.2 Easy authorized phone no. setup by calling

Tracker only supports three authorized numbers. We can set the authorized number by phone call if authorized number is not full (Disable all functions).

Set as follows:

Any non-authorization number calls to the tracker over than 10 seconds, the tracker will cut off the line automatically and the Yellow Led will blink for 30 seconds. During this 30 second blinking, press SOS button less than 3 seconds, and then it set this call in number as a new

authorization number and send SMS to that number to confirm the setting OK.

6.3 Monitoring function

If enable this function, when the authorization number call in to the device, it will connect to the call and shut down the speaker, then the background voice of the device will be listened. (Note: Please make sure the SIM card installed supports displaying caller ID.)

6.4 Two-way communication

If you turn the monitoring function off when set authorized number, use this authorized number call to tracker, bell will ring, at this time, press the SOS button (less than 3s) to answer the phone call, so you can speak each other.
Press SOS button also can make a phone call to authorized number (see "SOS emergency calling").

6.5 Real time tracking

The tracker will reply a location message by SMS if any authorized number makes a phone call to it.

7. SOS emergency calling

Press SOS button for 3 seconds or longer, the device will send SOS alarm to all authorization numbers by SMS. If the authorization number was set with the SOS emergency calling function, the device will make a call to authorized numbers one by one and it will stop to make a call if call is answered.

8. Tracking regularly by GPRS

SMS Command:

$SMS,000000;W002,APN,Username,Password;W003,IP,Port;W004,ID;W005,X;W009,Y;!

Description: Enable this function.

Explain:

APN: server access port's name, range of: 0~29 characters.

Username: access port' user name, range of: 0~29 characters.

Password: access port's password, range of: 0~29 characters.

IP: server' IP address, range of: 0~29 characters.

Port: server's port, range of: 0~65535.

ID: tracker ID, range of: 0~15 characters.

X: GPRS upload interval, range of: 0~65535, default is 0, unit is 30 seconds.

（example: if X is 2 means 2*30 and interval as 60 seconds）

Y: GPRS upload mode, range of: 0~2, default is 0.

（0 means disable GPRS function, 1 means TCP connect, 2 means UDP connect）

Example:

$SMS,000000;W002, cmnet,,;W003,192.168.1.1,8088;W005,1;W009,1;!

Read tracking regulary by GPRS:

$SMS,000000;R002;R003;R005;R009;!

Clear tracking regulary by GPRS:

$SMS,000000;C002;C003;C005;C009;!

9. GPRS data logger

Tracker has build in 8M bytes memory for GPRS data save, when GPRS interval tracking can not upload to server, data will automatically stored in the memory. After that, once the GPRS connected, tracker will send the data to server again.

(Note: real time data will be sending first, the priority of the stored data is low.)

10. Auto APN setting

The APN list can be configured before delivery (default is China APN). When insert SIM card, tracker will automatically acquire APN in the APN list. If user already set APN, then the tracker will not acquire APN automatically.

11. Three kinds of tracking mode

SMS Command: $SMS,000000;W016,X;!

Description: there are three kinds of mode: personal mode, smart mode, vehicle mode.

Explain:

X: tracker's work mode. Range of: 0~2 (0 means personal mode, 1 means smart mode, 2 means vehicle mode). Default: 1.

◆ **Personal mode**: When there are new data or alarms, GPS turns on the positioning function   automatically. No matter the positioning succeeds or fails, GPS turns off the positioning function automatically, and upload new data or send out alert message.

◆ **Smart mode**:   GPS always turn on when device is move; otherwise only when there are new data or alarms, GPS turns on the positioning function automatically. No matter the positioning succeeds or fails, GPS turns off the positioning function automatically, and upload new data or send out alert message.

◆ **Vehicle mode**: GPS always turn on whether tracker move or not.

Example:

$SMS,000000;W016,1;!

Read device mode:

$SMS,000000;W016,1;!

Clear device mode:

$SMS,000000;W016,1;!

12. Geo-fence

SMS Command: $SMS,000000;W018,NO.,name,lat,lng,radius;!

Description: tracker will get the newest position automatically to be fence center if there is no available GPS position. Turn geo-fence alarm on, when the tracker moves in/out the preset geo-fence, it will send a SMS alarm to the authorized phone number (enable the Geo-fence function when you set the authorized number), and if GPRS is connected, tracker will send this alarm data to server via GPRS.

Explain:

NO.: the serial number for geo-fence must be 1 to 5.

name: name of geo-fence, range of: 0-9 characters.

lat: center latitude, range of: -90.00000000~90.00000000, unit: degrees.

lng: center longitude, range of:-180.00000000~180.00000000, unit: degrees.

Radius: geo-fence radius, range of: 0.0~1.79E+308, unit: meters.

（Note: according to Preset longitude and latitude as the center of the circle, with the preset radius, we can define a circle.）

Example:

$SMS,000000;W018,1,school,22.12345,114.12345,100;!

$SMS,000000;W018,1,home,,,100;!

Read Geo-fence：

$SMS,000000;R018,1;!

Clear Geo-fence：

$SMS,000000;C018,1;!

Clear all Geo-fence：

$SMS,000000;C018;!

13. Time zone setting

SMS Command：$SMS,000000;W020,X;!

Description: Set the SMS time zone

Explain:

X: time zone's value, range of:-720~780, default: 0, unit：minutes.

(Example: 1 hour = 60 minutes, time zone+ 8 = 480 minutes)

For example:

$SMS,000000;W020,480;!

Read time zone：

$SMS,000000;R020;!

Clear time zone：

$SMS,000000;C020;!

14.　Low battery alarm

When the battery level is lower than 15%, it will send SMS to all authorization numbers or send alarm data to server.

15.　LED indication for battery level

We can judge the battery level by LED indication when pressing the battery checking button. If there are three lights on (means the power level range is 50%~100%), or two lights on (means the power level range is 15%~49%), or just one light on (means the power level range is 0%~14%).

16.　Power on/off automatically

Tracker will be off automatically if the power level is 0%; during charging, tracker will automatically be switch on when power level is higher than 15%, and send a 'Power ON' warming message to each authorized number.

17.　Timer Switch

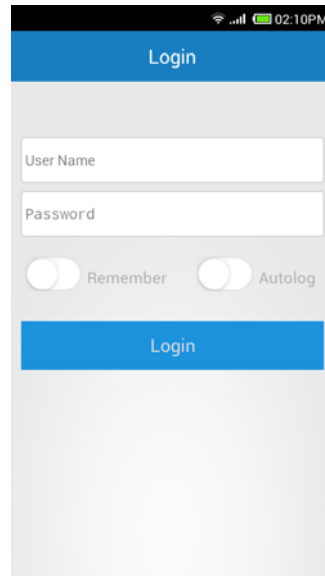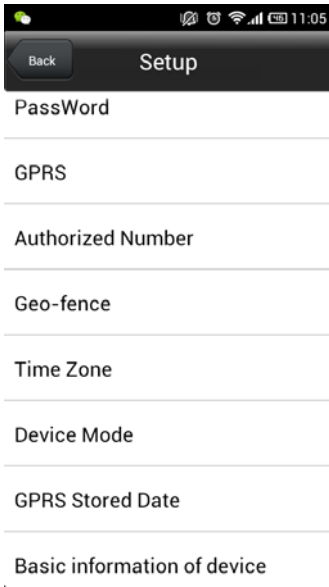SMS Command: $SMS,000000;W038,on time,off time;!

Description: set the timer switch

Explain:

on time: timing boot time, range of:00:00~23:59,default: 00:00.

off time: timing shutdown time, range of:00:00~23:59,default: 00:00.

For example: $SMS,000000;W038,08:00,20:00;! This command means to boot up at 08:00 and shutdown at 20:00.
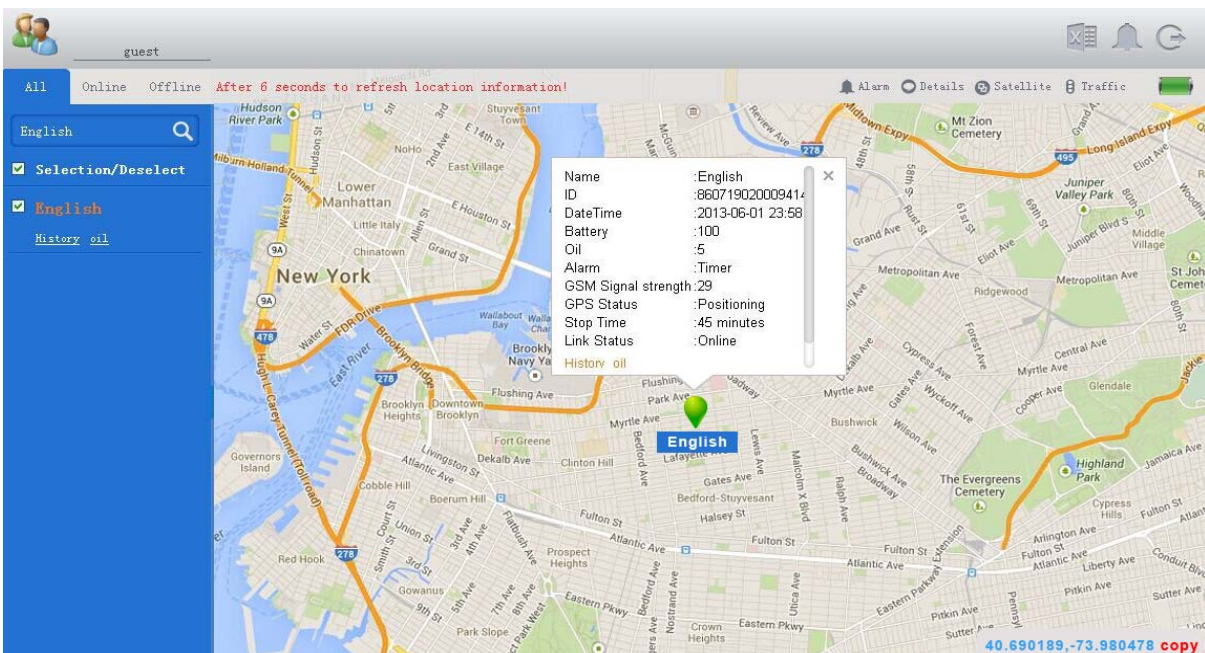
18.　APP for smart phone

b) Software of tracking by smart phone
Support android & iOS system

19.   GPS tracking and monitoring platform

UserName: Guest

Password: 666666

Website: **http://hk.gpstotrack.com/gps**

20. Problems & Diagnostics

Cannot Switch On	
Possibility	**Solution**
Power switch operation's problem	Slide to the ON side
Low battery	Charging for 2.5 – 3 hours

Not Sending SMS	
Possibility	**Solution**
Blue LED always On	Make sure tracker can receive the strong GSM signal Check SIM card installation, insert again if necessary Replace a new SIM if necessary
GSM connection congested	Wait for SMS. Some GSM networks slow down during peak time or when they have equipment problems.
Wrong password and SMS format	Double check password or SMS format, password and format must be right
Not enough SIM balance	Replace SIM or Check balance value
Low battery	Charging tracker

Yellow Led 1S On and 1S Off	
Possibility	**Solution**
Tracker's position has been covered	Place the tracker to open area w/o any tall building, tree and heavy raining. Those can be as shielding to the GPS signal
GPS signal is weak	Place the GPS internal antenna face to the sky
Low battery	Charging tracker

No GPRS connection	
Possibility	**Solution**
SIM cannot support GPRS	Enable SIM's GPRS function
GPRS function is disabled	Enable the GPRS function
Incorrect IP and Port	Double check IP and Port, then restart the tracker
GSM signal is weak	Move the tracker to a place with strong GSM signal