# GSM/GPRS/GPS Vehicle Tracker GPS106A/B User Manual



# **Preface**

Thank you for purchasing the tracker. This manual shows how to operate the device smoothly and correctly. Make sure to read this manual carefully before using this product. Please note that specification and information are subject to changes without prior notice in this manual. Any change will be integrated in the latest release. The manufacturer assumes no responsibility for any errors or omissions in this document.

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# **1. Function Introduction**

1.1 This tracker is a new product based on the GSM / GPRS network and GPS satellite positioning system, which set multiple functions of security, positioning, monitoring surveillance, emergency alarms and tracking in its entirety. It can track and monitor remote target by SMS or internet.

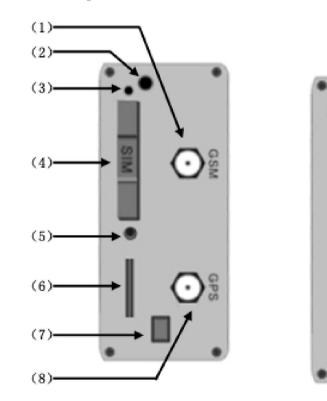
# 1.2 Features

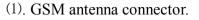
- 1.2.1 Support both GPS / GSM station positioning ways.
- 1.2.2 Support SMS/GPRS/Internet Network data transmission (GPRS/Internet instructions in CD enclosed).
- 1.2.3 Support GPRS on-line and GPRS re-connected automatically if GPRS drops
- 1.2.4 Compatible with the original vehicle anti-theft alarm, can be synchronized with the events alarm and disarm from original car alarm system.
- 1.2.5 Support SMS / GPRS dual-mode switching
- 1.2.6 Support configure by remote terminal.
- 1.2.7 Support for point-to-point, point to group, group-to-group monitoring.
- 1.2.8 Set multiple functions of security, positioning, monitoring surveillance, emergency alarms and tracking in its entirety.

# 2. Applications

Used widely for positioning and tracking vehicle and other moving objects.

# 3. Hardware Description





(7). Backup battery switch

(9)

·(10)

(11)

►(12)

- (2). J4 Monitor microphone jack.
- (3). LED indicator
- (4). SIM card slot
- (5). SIM card slot Pop-up switch
- (6).SD card slot

- (8). GPS antenna connector
- (9). Remote control receiver antenna (model B)
- (10). J1 12PIN harness port
- (11). J2 Camera port
  - (12). J3 Shock sensor port

# 4. Accessories

No.	Picture	Name	Note
1		GPS Antenna	3 meters
2		GSM Antenna	3 meters
3		Microphone	1.5 meters
4		Harness	12PIN
5		Relay	12V/40A or 24V/40A, depends on the vehicle
6		Shock sensor	Optional for Model A and B
7		Siren	Optional for Model A and B
8		Remote Control	Optional for Model B

9	Camera	Optional for Model A and B
10	Fuel sensor	Optional for Model A and B and different type depends on vehicles

# 5. Specifications

Specifications	
85*71*26mm	
170g	
GSM/GPRS	
850/900/1800/1900Mhz	
Simcom900B	
Sincompoor	
SIRF3 chip	
-159dBm	
5m	
Cold status 45s	
Warm status 35s	
Hot status 1s	
12 V -24V	
Chargeable changeable 3.7V 800mAh Li-ion battery	
-40°C to +85°C	
-20°C to +65°C	
5%95% non-condensing	

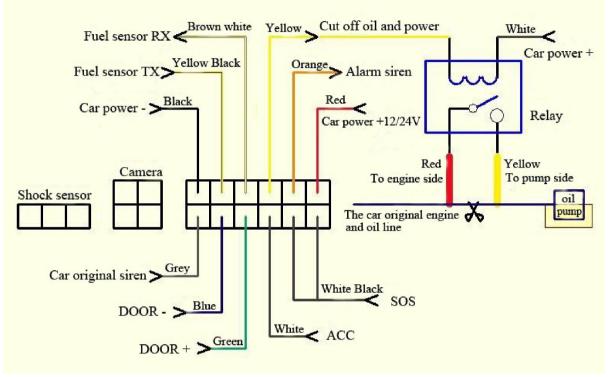
# 6. Operating Instructions

# 6.1 Terminal Installation

6.1.1 Please ask the qualified engineers to install.

6.1.2 Do not install it in an environment which is more than GSM performance and please pay attention to fix the antennas in a position with good signals.

- 6.1.3 Pay attention to make installation location preventing water and dust.
- 6.1.4 Find the 12 PIN harness and insert it into the corresponding holes of the products, and connect the wires with the original car circuit showing below:



#### Wiring diagram

- 6.1.5 Note: The orange wire can be connected to the original car siren; it can also be connected to the separately siren you buy with the tracker. (Siren is Option)
- 6.1.6 The tracker is compatible with the original vehicle anti-theft device, in order to realize the feature, the gray line connects to the original car siren, and then the tracker device can synchronize the alarm and disarm with the original vehicle anti-theft device.
- **6.1.7** Knowing about the type of the door trigger is positive or negative. Please connect the green wire to the door control circuit if it is positive, and connect blue wire if it is negative.
- 6.1.8 Insert the shock sensor plug into the sensor port. (Shock sensor is Optional)
- 6.1.9 Insert the camera plug into the camera port. (Camera is optional)
- 6.1.10 Fuel sensor wiring: Check the wiring instructions on the communication module of the fuel sensor. (Fuel sensor is optional)
- 6.1.11 Insert the external monitor Microphone into the monitor jack.
- 6.1.12 connected the GPS and GSM antenna to the right connector, and find an appropriate place to fix the antennas to make sure good reception.

# 6.2 SIM card installation

- 6.2.1 Use a tweezers or a sharp thing to touch the SIM CARD popup switch, the SIM CARD slot will pop up, take out the SIM card slot to load the SIM card, and then put the SIM card slot back to its original position after confirm the SIM card in the right place.
- 6.2.2 Please make sure that the SIM card is able to execute the function of incoming calls display, no calls can be diverted and the PIN code is locked. The SMS format must be TXT format, and can't recognize the PDU format.

#### 6.3 Turn on the tracker device

6.3.1 Connect the positive and negative wire, red and black ones, with 12V or 24V car power system, wait for 1 minute after connecting power to wait tracker works normal, and then turn on the backup battery switch.

#### 6.4 GSM/GPS LED Indicator

- 6.4.1 Red LED indicator on: No GSM network signals.
- 6.4.2 Red LED indicator flashes fast (one time each second): GSM Network signal is normally, and tracker works under GSM mode.
- 6.4.3 Red LED indicator flashes slowly (one time each three second): Tracker works under GPRS mode.
- 6.4.4 Green LED flashes slowly: GPS signal is normal.
- 6.4.5 Green LED indicator off: No GPS signals.
- 6.4.6 The red and green indicator flashes three times alternately: it means tracker has been detected the SD card.

#### 6.5 Initialization

Send SMS "begin+password" to the unit, it will reply "begin OK" and initialize all the settings to default factory settings. (default password: 123456)

For example: Send SMS "begin123456", it will reply "begin ok". (No quotation marks ""when sending all the SMS)

# 6.6 Change Password

6.6.1 Send SMS "password+old password+space+new password" to the unit to change the password.

For example: send SMS "password123456 888888" to the unit. If succeeded, "Password ok" will reply to your cell phone.

- 6.6.2 Keep the new password in mind, the machine will not work properly if lost the password.
- 6.6.3 Note: The new password must be 6 digits of the Arabic numerals, or the device will not recognize.
- 6.6.4 Please don't type "+" character in all commands, space means press the space keyboard on cell phone.

# 6.7 Authorization

There are 5 numbers to be allowed to authorize in the tracker at most.

- 6.7.1 Call and track the tracker device for 10 times from cell phone in success, it will make the cell phone number as the authorized number automatically, and reply "add master ok".
- 6.7.2 Authorization: Send SMS "admin+password+space+cell phone number" to set up an authorized number, the other authorized numbers should be set by the first authorized number, if the number is successfully authorized, the unit will reply" admin ok" by SMS.
- 6.7.3 Delete authorization: Send SMS" noadmin+password+space+authorized number" to delete the authorized number.
- 6.7.4 If you want to track the target tracker device when it enters into another country, you must add the country code before the cell phone number, for example, send SMS" admin123456 008613322221111" to the device. Note: 13322221111 will be set up as the authorized number.

# 6.8 Real time polling

- 6.8.1 Any number call the tracker device, it will reply a SMS including the position of latitude and longitude if authorized number has not been set yet. If authorized number has been set successfully, the device won't reply SMS including the positioning of latitude and longitude when the unauthorized number dials up it.
- 6.8.2 Dialing the tracker device from the authorized number, it will hang up your calling and respond to a real-time latitude and longitude information as following:



# 6.9 Auto track

6.9.1 Send SMS command "fix030s005n+password" to the tracker device, it will report the Geo-info at 30s intervals for 5 times. (s:second, m:minute, h:hour). This command must be in 3 digits and the maximum value is 255.

6.9.2 Unlimited times track: Send SMS "fix030s\*\*\* n+password" to the device.

6.9.3 Cancel: Send SMS "nofix+password" to the tracker device to cancel the "auto track". Note: the interval must be not less than 20s.

6.9.4 When the GPS signal is not good, the latitude and longitude you received is the last position before going into GPS blind areas, if any bias with the location, pay attention to the time stamp in the message.

# 6.10 Location base station (LBS)

When the tracker device doesn't received valid GPS signals, tracker will positioning by GSM base station, the messages includes the GPS coordinates of the last position, but the LAC in message is the current new position, you can also send command "address+password" to tracker to get the newest absolute address and GPS coordinates as well; tracker will automatically switch to track by GSM base station in GPRS mode, and actualized on the map of web server with LBS mark. And there may be some inaccuracy with actual location by LBS tracking; the bias depends on GSM reception.

# 6.11 Absolute address with street name

- 6.11.1 You must set up the APN of your local GSM network for the SIM card in tracker first before using this function, if there is user name and password for GPRS login, Please refer to 6.31 and 6.32 to configure the APN, user name and password for GPRS login.
- 6.11.2 After configure the APN, send "address+password" to device, it will reply SMS including real street/address name. For example: No.8, Nantou Guankou 2nd Rd. Nanshan district, Shenzhen, Guangdong, china.

# 6.12 Monitor

In this mode, the user can dial up the tracker device to monitor the voice (please refer to 6.13 for instruction).

# 6.13 Modes switch between "track" & "monitor"

- 6.13.1 The default mode is "track" (track mode).
- 6.13.2 Send SMS command "monitor+password" to tracker device, it will reply " monitor ok!" and switch to monitor mode, and then call the number in device to monitor the voice.
- 6.13. 3 Send SMS command "tracker+password" to tracker device, It will reply "tracker ok" and restore to track mode.

# 6.14 Storage

- 6.14.1 Auto Storage: When the tracker device lost GSM signals or fall offline from GPRS, tracker will store the tracking position and alerts automatically in the SD card upon the pre-set condition, when GSM signals get back, all the event alerts will be auto-sent to the authorized numbers or monitoring platform (server), but the stored tracking data should be loaded to the monitoring platform via SMS command.
- 6.14.2 Storage upon times: Send SMS: "save030s005n+password" to the tracker unit, it

will reply "save ok", and will store the lat, long locations every 30 seconds for 5 times. (S: second, m: minute; h: hour).

- 6.14.3 Multi-Storage: Send sms:"save030s\*\*\*n+password" to tracker device, it will reply "save ok".
- 6.14.4 Storage Clearance: send SMS: "clear+password" to tracker device, it will reply "clear ok".
- 6.14.5 Storage Volume: It depends on the capacity of the SD card inserted in the tracker device; the stored data can be copied to computer through card reader.

#### 6.15 Data Load

- 6.15.1 Current date Load: Send SMS: "load+ password" to tracker device, it will reply: "load ok" if the device is working well under GPRS mode; if not, it will reply "load fail! Please check gprs" that means device does not work under GPRS mode.
- 6.15.2 Specified date Load: Send SMS: "load+ password+ space+ year month date" to tracker device, it will reply: "load ok" and load the tracking data to the monitoring platform upon the valid time you choose. For Example: send SMS: "load123456 20110425" to the tracker device, means to load the tracking data of 25th April 2011 to monitoring platform.

#### 6.16. Alarms

#### 6.16.1 Low battery alarm

When the voltage of the tracker device is near 3.6V, it will send SMS "low battery+lat./long information" to the authorized numbers for two times.

#### 6.16.2 Power off alarm

When the external power of tracker be cut off or the voltage is 0V, it will send SMS "power alarm+lat./long." to the authorized numbers in 3 minutes interval.

#### 6.16.3 SOS

Press the SOS button for 3 seconds, the tracker device will send SMS "help me!+lat./long." to all the authorized numbers in 3 minutes interval. It will stop sending such a SMS when any authorized number reply SMS "help me" to the tracker.

# 6.16.4 Geo-fence

Set up a geo-fence for the tracker device to restrict its movements within a district. The unit will send SMS to the authorized numbers when it goes out of this district.

Set up: When the tracker stays immobile in a place for 3-10 minutes, the user can send SMS "stockade+password+space+latitude,longitude;latitude,longitude" to

tracker to set the restricted district. In case of breach, it will send SMS "stockade!+latitude/longitude." to the authorized numbers. Note: The first latitude & longitude is coordinate of the top left corner of the Geo-fence, while the second latitude & longitude is the coordinate of the bottom right corner, it will alarm SMS in 3 minutes interval.

Cancel: Send SMS "nostockade+password" to deactivate this function.

#### 6.16.5 Movement alarm

Set up: when the tracker stays immobile in a place for 3-10 minutes, the user can send SMS "move+password" to the tracker device. It will reply "move ok!". In case of such a movement (the default distance is 200 meters), it will send SMS "Move+latitude/longitude to the authorized numbers with 3 minutes interval.

Cancel: Send SMS "nomove+password" to deactivate the movement alarm.

#### 6.16.6 Over Speed Alarm

Set up: Send SMS "speed+password+space+080" to the tracker. (Suppose the speed is 80km/h), and it will reply "speed ok!" When the tracker moves exceeding 80km/h, the tracker will send SMS "speed+080!+latitude/longitude" to the authorized numbers with 3 minutes interval.

Cancel: Send SMS "nospeed+password" to deactivate the over speed alarm. Note: It is recommended to set speed not less than 30km/h for over speed alarm. Because if speed is too low; the alarm may be not so accurate because of static drift of GPS signal.

#### 6.17 Cut off the Oil and Power System

Send SMS command "stop+password" to the tracker device, it will reply "Stop engine Succeed" to your cell phone from the tracker device, and stop your car engine as well, at the same time. It will remain the immobile state until receiving the next SMS command of resuming the oil and power once receiving SMS command to cut off the oil and power system.

#### 6.18 Resume the Oil and Power System

Send SMS command "resume+password" to the unit, It will reply "Resume engine Succeed" and resume your car engine as well, at the same time. It will remain this state until receiving the next SMS command to cut off the oil and power system once receiving SMS command to resume the oil and gas system.

#### 6.19 Fuel alarm

If the tracker device detects the fuel decrease by 8% in three minutes, then it will send oil leak or theft alarm "oil: xx%+latitude/longitude" to authorized numbers in 3 minutes interval. Siren beeps 30 seconds.

Cancel fuel alarm: Send SMS command "nooil+password" to tracker.

# 6.20 Arm

6.20.1 Set up arm by SMS

Send SMS command "arm+password" to the tracker device in the vehicle. It will reply "Tracker is activated" in both armed and disarmed state, and the SMS command will make the tracker device enter into armed state if the unit currently disarmed.

User must stop the engine, (that is ACC is lower voltage).Sending SMS "arm+password" when close the door and left. You will set up arm status fail if the engine is turned on (the ACC is high voltage), it will reply "set up fail! pls turn off ACC"

6.20.2 Set up arm by Remote Control (Optional for Model B)

Press "A" button on the remote control, the car enters into armed state and the siren will beep one time, no SMS reply.

# 6.21 Disarm

6.21.1 Disarm by SMS

Send SMS command "disarm+password" to the tracker device in the vehicle, It will reply "Tracker is deactivated" in both armed and disarmed state, and the SMS command will make the tracker device enter into disarmed state if the unit currently armed.

It won't alarm if the door is open and sensor is vibrated and the engine is started when deactivated this arm function.

6.21.2 Disarm by Remote Control (Option for Model B)

Press "B" button on the remote control, the car enters into disarm state, and the siren will beep two times, no SMS reply.

# 6.22 Function of Remote Control (Option for model B)

ARM	Press "A" button for 0.5 second, the siren will beep one time.
DISARM	Press "B" button for 0.5 second, the siren will beep two times.
Silent mode	Press "A+B" together for 0.5 second when it is in disarm state, the siren
	will beep three times.
Quit silent mod	de Press "A+B" together for 0.5 second again when it is in disarm state,
	the siren will beep four times.
Deterrence	Press "A" button for 3 seconds, siren will sound for 10 seconds, press
	"A" or "B" button to quit

#### 6.23. Alarms under Arm State

#### 6.23.1 Door alarm

The tracker will send SMS "Door alarm+lat/long" to the authorized numbers in 3 minutes interval when the door of the car opens in arm status; Siren will sound for 30 seconds, send disarm command "disarm+password" to stop it.

#### 6.23.2 Shock Sensor Alarm

The tracker will send SMS "Sensor alarm+lat/long" to the authorized numbers in 3 minutes interval when the sensor is triggered in arm status; Siren will sound for 15 seconds if shock sensor alarm is triggered one time in 15 seconds and sound for 30 seconds if it is triggered two times in 15 seconds, send disarm command "disarm+password" to stop it.

# 6.23.3 ACC Alarm

The tracker will send SMS "ACC alarm+lat/long" to the authorized numbers in 3 minutes interval when the engine of the car is turned on, that is the key is rotated to ACC.ON position to start the car in arm state; Siren will sound for 30 seconds, send disarm command "disarm+password" to stop it.

#### 6.23.4 Photograph

When the tracker terminal device detects DOOR/ACC / SOS / alarm, the tracker device will be automatically ready for photograph when sending the alarm and then shoot camera to upload the photo to the monitoring platform(web server), The photo can be also requested by click menu "request photo" on the platform.

# 6.24. Silent Mode

6.24.1 Set up silent mode by SMS

Send SMS "silent+password" to tracker device, it will reply "silent ok!". It means tracker device enters into silent mode, no action from siren after alarm is triggered, but tracker will send alarm SMS to authorized numbers.

Quit silent mode Send SMS "loud+password" to tracker device, it will reply "loud ok!". It means tracker quit from silent mode, siren will sound after alarm is triggered, and tracker will also send SMS alarm to authorized numbers.

6.24.2 Set up Silent Mode by Remote Control (Option for model B)

Silent mode Press "A+B" together in disarm state for 0.5 second, the siren will beep three time, no action from siren after alarm is triggered, but tracker will send alarm SMS to authorized numbers.

Quite silent mode Press "A+B" together in disarm state for 0.5 second again, siren will beep four times. Siren will sound after alarm is triggered. And tracker will also send SMS alarm to authorized numbers.

# 6.25 Alarms in GSM Blind Area

When vehicle enters GSM blind areas, the siren will sound in Non quite mode if DOOR/SHOCK SENSOR/ACC, OIL alarms are triggered, and these alarms will be stored and send to authorized numbers or web server after GSM signal recover.

#### 6.26 Check the Vehicle State

Send SMS command "check+password" to the tracker device in the vehicle, It will reply the status of external power, battery, GPS, ACC, door, GSM reception and oil consumption to the authorized numbers.

For example: Send SMS "check123456" to the tracker device in the vehicle, it will reply following SMS after executed the command.

Power: ON/OFF Battery: 100% GPS: OK/NO GPS ACC: OFF/NO Door: OFF/NO GSM Signal: (1-32) the higher digit it shows; the stronger of GSM reception it receives. Oil: 100.00%

# 6.27 Reset by SMS

Send SMS "reset+password" to tracker device to reset the GSM module and GPS module of the tracker device, it will reply "reset ok".

# 6.28 Check IMEI

Send SMS command "imei+password" to the unit. E.g. Send SMS command "imei123456" to the tracker device, an IMEI number in 15 digits will reply to your cell phone.

# 6.29 Set Terminal Local Time

- 6.29.1 Send SMS command "time+space+zone123456+space+time" to the tracker unit, If succeed, It will reply "time OK".
- 6.29.2 For example: Send SMS "time zone123456 8", 8 is Chinese time zone, If your country time zone is minus, send SMS "time zone123456 -8".

# 6.30 GPRS Setting

User must send SMS via cell phone to set up APN, IP and port before starting tracking by GPRS.

# 6.31 Setting up APN

- 6.31.1 APN standards for Access Point Name and differs from country to country. For more information about your local APN, please inquire with your local GPRS network operator.
- 6.31.2 Send SMS command "APN123456+Space+your local APN" to tracker via a cell phone and if succeeded, the tracker will reply "APN OK".
- 6.31.3 E.g. Send SMS command "APN123456 CMNET". If succeeded, "APN OK" is returned by the tracker in SMS. Notes: 123456 refer to password of tracker and CMNET is the APN of one of china GPRS Network Operator (China mobile).

# 6.32 GPRS User Name and password Setup

- 6.32.1 In most countries, the user name and password involving GPRS login are not compulsorily necessary, therefore, the entry can be skipped. For those countries requiring user name and password, please configure as following:
- 6.32.2 Send SMS "up+123456+space+user+space+password"If succeeded, "user, password ok!" is returned by the tracker in SMS.
- 6.32.3 For example, send SMS "up123456 jonnes 666666" to the tracker, and if succeeded, the tracker returns "user, password OK"Note: 123456 is tracker device password, jonnes is the user name for GPRS login, 6666666 is the password for GPRS login.

# 6.33 IP and Port Setup

- 6.33.1. Send SMS as below via a cell phone: "adminip+123456+Space+IP Address+Space+Port Number". If succeeded, "adminip ok" is returned by the device in SMS.
- 6.33.2 E.g. Send SMS command "adminip123456 202.104.150.75 9000" to the tracker device, If succeeded, "adminip ok" is returned by the device in SMS. (123456 is default password, 202.104.150.75 is IP, 9000 is port).

# 6.34 Modes Switch between "SMS" and "GPRS"

- 6.34.1 The default mode is "SMS"
- 6.34.2 Send SMS "GPRS+password" to the unit, and it will reply "GPRS ok!" it means tracker device has switched to "GPRS" mode.
- 6.34.3 Send SMS "SMS+password" to the unit, it will reply "SMS ok!" and restore to "SMS" mode.
- 6.35 User manual of web based and PC installation monitor software includes in the CD in

the package box. [Software Platform User Manual]

# 7. Cautions

Please comply with the instructions to extend the unit life:

1. Keep the unit dry. Any liquid, i.e. rain, moisture, may destroy or damage the inside circuitry.

- 2. Don't use & store the unit in dusty places.
- 3. Don't put the unit in overheated or overcooled places.
- 4. Handle carefully. Don't vibrate or shake it violently.
- 5. Clear the unit with a piece of dry cloth. Don't clean in chemicals, detergent.
- 6. Don't paint the unit, this may cause some foreign materials left in between the parts.
- 7. Don't disassemble or refit the unit.

8. Please read the user manual carefully before installation and operation, learn something more about the voltage range. Otherwise, it won't work properly or destroy the product.

# 8. Faults & the Solutions

Faults	Solution
Startup Fail	Please check out the power wiring in correct place.
Call Fail	Check the GSM antenna connected. Check whether the SIM card in place. Check whether the normal power supply voltage.
Hang up Fail	In existence of an authorized number, an unauthorized number dials up the unit. Please initialize the unit and re-set up the authorized numbers.
Monitor Fail	Check if the authorized number is setup
Location report in digits of zeros.	Check out if the GPS external antenna well.

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