ALLISCOM

GPS Security System

GX-188

User's Manual

使用手冊

ALLISCOM

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3. The product is dismantled, modified or replaced with parts and components other than those of the original manufacturer by the consumer itself or by a repair shop not authorized by the original manufacturer.
4. The product is damaged due to operations not in compliance with this user's manual or man-made improper use, including, but not limited to the following: soaked in water due to improper placement, corroded, dropped, compressed or exposed to the environment with abnormal temperature or humidity.
5. Consumables inside and outside the body of the product, for instance, battery, earphone, and etc.
6. Paid accessories apart from the body of the product, for instance, paper carton, manual, and etc.

Contact information of Allis Communication

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* Be sure to read this manual carefully before using this product.

Chapter 1 Product Description

This product GX-188 (G2, G3, G4 and G5) is composed of many precise integrated circuits and communication modules. The integrated circuits include MCU, GSM module, GPS module, Bluetooth module, RF remote control module, and etc. The product is a powerful active automobile (motorcycle) safety protection system. With the combination of functions of various wireless modules, it can easily perform such functions as calling, monitoring, anti-theft, tracking, safeguard, SOS and navigation, etc. In terms of alarm, it includes 3-fold trigger mechanisms: human body sensor, external force vibration and passive displacement. Its excellent power design covers 7~40V voltage input as well as UPS backup power system, making it unnecessary to worry about inability to track due to malicious power cutoff. These powerful functions allow you to get a grasp on the condition of your car at any time even if you are not nearby.

For GX-188, X represents the collective name of different models. This manual covers 4 versions: G2, G3, G4 and G5. The customer shall check the model of the product purchased first, and then, refer to the descriptions of different sections for proper use of the product.

1-1 Key features

● Multiple anti-theft function	Human body intrusion detection/vibration anti-theft detection/over-movement detection/driving route tracking/remote power-off upon theft
● Human-centered interface	Chinese/English message send-back interface/self-defined safe monitoring distance/self-defined message security password
● Handsfree profile design	Wireless dialing function/phone speed-dial design/hidden microphone/external loudspeakers/monitoring the conditions inside the car
● Multiple control functions	Remote control of mobile phone message/radio frequency remote control/infrared remote control/LED wire control switch
● Navigation function design	Overspeed alarm function/built-in GPS Bluetooth wireless navigation/built-in RS232 wired navigation
● Intelligent antenna design	Built-in GPS, GSM, Bluetooth, remote control antenna/can externally connect to active GPS antenna
● Precise communication module	Built-in 3-frequency GSM module/support GPRS function/high sensitivity GPS module/Bluetooth V1.2 module
● Excellent power design	Support 7~40V voltage input/automatic power-saving system/low-voltage detection system/UPS power design

1-2 Preparations for installation

1. This system requires the car owner to provide a **SIM** card with GSM system for GX-188 to send messages. You can choose the rate of the communication service provider according to your needs. Certainly, you can choose to use the Easy-pay card so that there is no need to pay the monthly fee.
2. The PIN code of certain SIM cards is locked in factory. The user must unlock its password with mobile phone first and then put the card into GX-188.
3. Open the package, check whether the model of product you purchase and the contents are corresponding; if not, contact the dealer immediately.

1-3 Power supply source

1. This system requires a 7~40V voltage input to turn on GX-188. The battery of ordinary car (motorcycle) is 12V or 24V. If you cannot obtain the power connector by yourself, you may ask the car (motorcycle) repair shop to look for or install it instead. Upon installation, be sure to read carefully the descriptions related to the power supply in this manual.
2. Once the power supply is connected, **be sure not to insert or remove the SIM card when turning on the device** so as to avoid damage of the SIM card or data loss.
3. **Red** power cord stands for the **positive pole** and **black** power cord stands for the **negative pole**. GX-188 is designed with reverse connection protection circuit so that the device will fail to start and the host will not be burnt when the pole connections are reversed.

1-4 Possible status upon abnormal startup

1. In case of a long beep unremittingly after startup, it means that the SIM card is abnormal, and it is possibly due to that the SIM card is not inserted or inserted in the wrong direction.
2. In case of 4 continuous short beeps unremittingly after startup, it means that the GSM module is abnormal. Please pack the product properly and return it to the dealer.
3. In case of 2 continuous short beeps after startup and if the GPS indicator goes out, it means that the GSM module is abnormal. Please pack the product properly and return it to the dealer.
4. In case of 1 continuous short beep after startup, it means that the Bluetooth module of the host is not installed. If it is inconsistent with the model, pack the product properly and return it to the dealer.
5. After startup, GSM shall establish a connection with the base station within 2 minutes. If the GSM indicator cannot illuminate permanently, check whether you are in an electromagnetic wave shielded place, for instance, a basement or a place where the mobile phone cannot receive any signal.
6. After startup, the GPS module shall be able to be positioned within 5 minutes. Otherwise, make sure whether the antenna of GX-188 faces upward and the device is shielded by metal or cement, etc.

1-5 Product appearance (GX-188)

1. Appearance of the front and function names on the backboard

1. GSM LED - Flash while connecting and illuminate permanently after connected 2. GPS LED - Flash during positioning and illuminate permanently after positioned 3. Power LED - Illuminate permanently after being turned on	1. Power switch 2. Remote control study key 3. Power cord 4. Infrared dialer socket 5. Human body sensor socket 6. External GPS antenna 7. Microphone jack 8. Speaker jack 9. SIM card slot 10. RS232 socket 11. Voltage blocker socket 12. LED indicator switch 13. Remote control

2. Appearance of accessories/assemblies and wiring method

3. Table of models and accessories

Serial number	Provision of the package	Luxurious G5	Standard G4	Economic G3	Simple G2
1	External waterproof GPS antenna MMCX	●	●	●	●
2	Firmware update switching cable RS232	●	●	●	
3	Infrared dialer	●	●	●	
4	GSM call speaker	●	●	●	
5	Call microphone	●	●	●	
6	RF remote control set	●	●	●	
7	Bluetooth module	●	●		
8	Human body infrared sensor set	●	●		
9	Relay set (for power-off)	●			
10	Rechargeable battery 1800mA/Made in Japan	●			

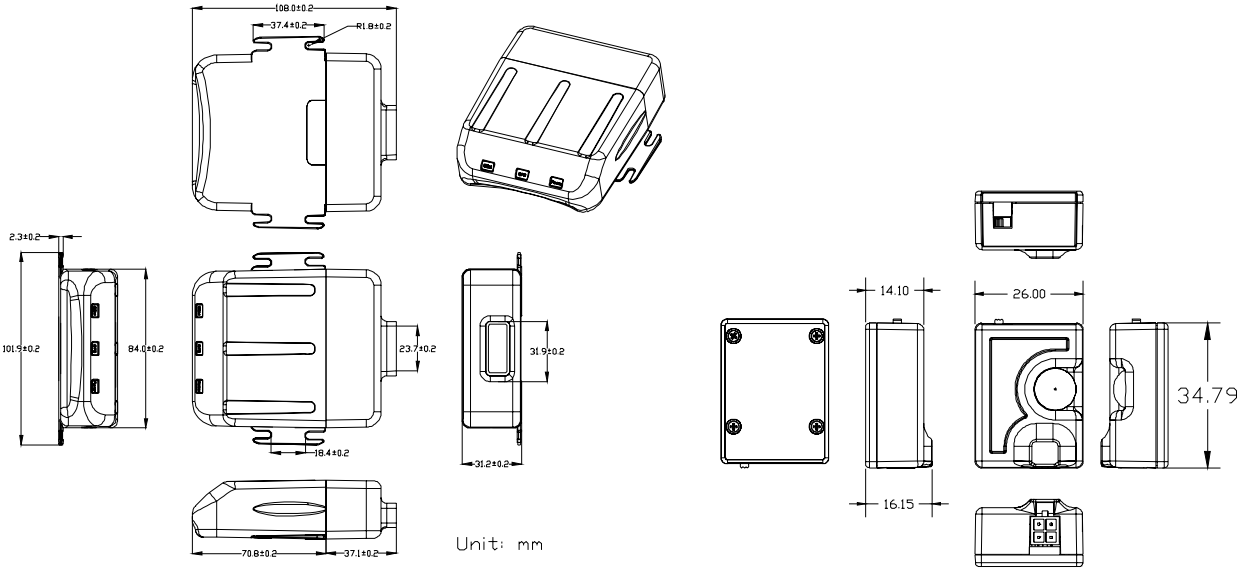
※ Please check carefully that the accessories are complete and corresponding to the model that you purchase.

4. Basic accessories

Basic accessories
LED indicator switch, 3M double sided adhesive tape x 4, wire holder x 6, wire strap x 4, manual, CD-ROM x1

※ Please check carefully that the accessories are complete and corresponding to the model that you purchase.

5. Structure diagram of the host and the receiver



Chapter 2 Hardware installation and introduction

2-1 Considerations for installation

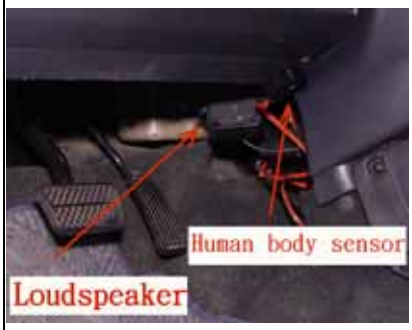
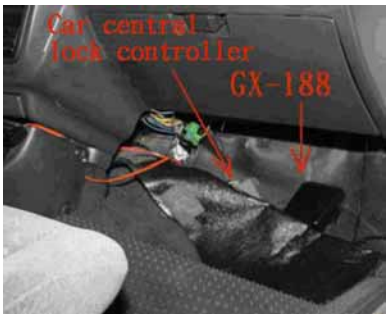
- Please make sure that there is a SIM card→ there is a permanent power input→ the device is started normally (for detailed information, see 1-4) → start setting up
- When the device is turned on using the backup battery, the RF remote control cannot start or be studied, but the remaining actions are normal.
- For anyone who knows little about the structure of the car body, it is strongly recommended that the car repair shop be invited to provide assistance in installation.
- In case of DIY installation, please make sure that the power does not involve the car's original circuit structure. When installing the power-off circuit, it is strongly recommended that a professional car repair shop be invited to provide assistance in installation.

2-2 Hardware installation locations

Since this product is a combination of the safeguard device, anti-theft device, navigation device and telephone, it shall be installed in a secret location as far as possible. Described below are the considerations for the installation of the accessories.

1. It is recommended that the CX-188 host be installed in any location where the host can be hidden, for instance, under the front panel of the driver's seat, on top of the drawer, under the pedal pad or under the seat, etc.
2. It is recommended that the receiving end of the infrared dialer be installed in any location that facilitates reception, for instance, around the hand brake, around the air-conditioning vent, below the seat, or any location where the receiving end can be hidden without affecting the use of infrared dialer.
3. It is recommended that the human body sensor be installed below the driver's seat with the sensing surface facing human body.
4. The LED indicator switch shall be affixed to any secret location allowing for manual manipulation, for instance, inside the drawer, around the steering wheel column, around the air-conditioning vent or inside the door handle compartment, etc.
5. For installation of the voltage blocker, it is necessary to remove the key circuit. Please deliver the special relay for automobile to the car repair shop together with the host and the user's manual. Note that this function may alter the circuit design of the original manufacturer and Allis Communications and its employees will not be held liable in any manner in case of any dispute or liability between the car owner and the original manufacturer after installation.
6. Battery replacement and installation-----the company utilizes the core of Japanese lithium battery, which may be used for 1~2 years, but may suffer sustainable electricity decrease over time. Hence, it is recommended that you replace it with a new battery "**one"** year after the product is used and purchase specially-manufactured battery from Allis Communications upon replacement. Upon disassembling, please remove 9 screws from the panel first, and then gently pull out the host. You can replace the battery after untying the holding strap on the battery.
7. Loudspeaker & microphone. You may fasten it after having a try of the call quality. Fasten it to a secret location as far as possible.
8. Since the external GPS antenna cannot receive GPS signals shielded by metal objects, it shall be installed below plastic shields.
9. The RF remote control antenna is an approximately 1m long electric wire that is extended from the host. After installing the host properly, fasten the electric wire to a high location as far as possible and then measure the remote control distance, which will be generally 15m if it is fastened properly.

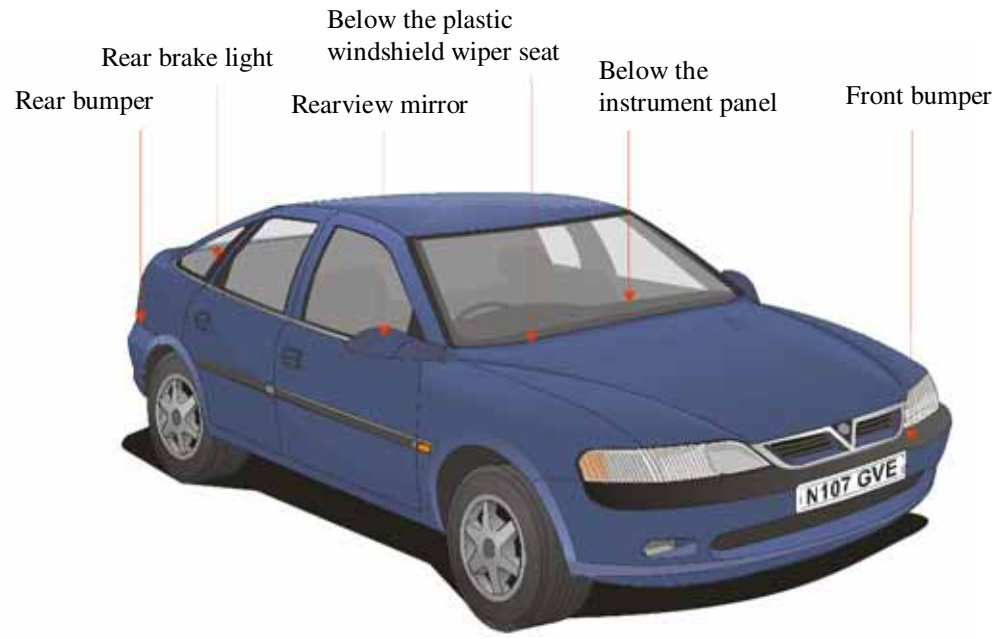
2-3 Illustrations for installation

<table>
<tr><td>  </td><td> 
</td><td>  </td></tr>
<tr><td>All wirings can pass through the wiring collection box for assembly</td><td>Wire strap can be used for fastening</td><td>At the back, double sided adhesive tape is used for holding</td></tr>
<tr><td>  </td><td> 
</td><td> 
</td></tr>
<tr><td>Organizing the wire using wire straps</td><td>Human body sensor and loudspeaker</td><td>The higher the RF remote control antenna extends, the better the quality of signal reception</td></tr>
<tr><td> 
</td><td>  </td><td> 
</td></tr>
<tr><td>Installation locations for the car central lock and GX-188</td><td>The microphone wire passes through A-pillar and B-pillar</td><td>Hidden microphone</td></tr>
<tr><td colspan="3"> 
</td></tr>
<tr><td colspan="3">Completion diagram of installation</td></tr>
</table>

2-4 Installation method for external GPS antenna

In spite of the built-in GPS antenna of GX-188, it is recommended that an external antenna be installed, as there are many dead corners for signal reception inside the car.

1. Recommended locations for installation of the external antenna



		
Assumptive installation location for the external GPS antenna	Loosen the set screw	As long as the antenna can be installed
		
Put the antenna onto the metal bracket and fasten it using wire strap	The antenna is fastened using wire straps on its route	Pass through the door gap and enter the car

2. Considerations for GPS antenna

- The GPS antenna must face upward and be free of metal shielding, for instance, metal vehicle body, insulation paper, and etc., as they may affect signal reception of the GPS antenna.
- When the GPS antenna is located near the engine, avoid places of high temperature. The temperature that the antenna material can withstand is 80°C, while it can be up to 100°C at high temperature locations on the engine. Over temperature can not only cause the antenna to fail, but also affect signal reception of the antenna.

The direction in which the host directly receives GPS signals

Reception direction of the external antenna

3. Navigator installation

- Navigation function can be operated via the built-in Bluetooth module of GX-188
- GPS addresses can be received using a PDA or notebook.

* GX-188 does not include a navigation display. The illustrations below show the PDA navigation.

Chapter 3 Description of operating functions

3-1 Initial setting

With the powerful functions of GX-188, we believe that the user is sure to be able to apply all of the functions in life by using the product in accordance with the instructions of this manual, which will therefore provides convenience, safety and protection.

Methods for setting input via mobile phone include simple and easy-to-input "number" instruction codes (Table 1) and simple and easy-to-remember "alphabet" instruction codes (Table 2). If the model you purchase is above the economic model, you may use the infrared dialer directly to input "number" instruction codes (Table 3) to perform various settings. Described below are the initial setting methods and functions.

1. Language setting

   Please refer to **Item 16** of Table 1, 2 and 3. Since GX-188 is equipped with English and Chinese message interfaces, set your desired language after startup. Setting examples
   Message input: English interface with 1234 16 0
   Message input: Chinese interface with 1234 16 1
   * The default value is Chinese interface.

2. Set the telephone for reporting to the car owner when an alarm is triggered.

   Refer to **Item 6** of the instruction code table of Table 1, Table 2 and Table 6. Note that the storage location needs to be "**01"** and all notices of triggered alarms will send the message to the first set of numbers. After setting, GX-188 will send message back to the preset telephone.

3. Set the emergency SOS contact telephone

   Please refer to **Item 6** of Table 1, 2 and 3 for setting. Note that the storage location needs to be "**02, 03, 04 and 05"**. The telephone numbers preset in the 2nd~5th sets mainly have two functions: First, GX-188 will send the GPS alarm data to the telephone numbers preset in the 2nd~5th sets when the SOS function is initiated; second, it is possible to initiate the call function when long pressing number key 1,2,3,4 and 5 of the infrared dialer, which makes it possible to dial the preset telephone numbers directly.

4. Set the speed-dial telephone numbers

   Please refer to **Item 6** of Table 1, 2 and 3 for setting. Note that the storage location needs to be "**06, 07,08 and 09"** and the telephone numbers preset in the 6th~9th sets are used primarily to dial the call. When you long press number key 3 of the infrared receiver, the device can dial out automatically and immediately.

5. Password setting

   Please refer to **Item 7** of Table 1, 2 and 3 for setting. The password is "1234" initially and will be sent to the first group of telephone number for confirmation after being changed. Considerations: The password shall have at least one number and at most 4 numbers. ※ Shall not be English letters.

3-2 Startup/Shutdown/Navigation/SOS

GX-188 has many operating methods via accessories. In addition to using mobile phone message to sent instruction code control, it is possible to use accessories to turn on/off anti-theft function, turn on the Bluetooth GPS function and send SOS. This section will describe the **remote control**, **wire control LED switch** and part of the **infrared dialer functions**.

1. LED indicator switch and speaker sound

   - When the safeguard mechanism is turned off, the speaker will give off a "beep" sound and the blue indicator illuminates permanently.
   - When the safeguard mechanism is turned on, the speaker will give off "two beeps" and the blue LED indicator goes out.
   - When the Bluetooth GPS is turned on, the speaker will give off "3 beeps" and the blue indicator flashes continuously.
   - When SOS is turned on, the speaker will give off "one beep" sound and the blue indicator will flash once, indicating that the signal is transmitted.

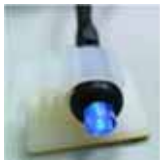
2. Nature of synchronous operation

   The functions of these 3 accessories are operated synchronously and may be switched among each other. If the system is turned on using wire control switch, it can be turned off using the RF remote control or turned on again using the infrared dialer.

3. Bluetooth navigation

   Model G4 and G5 are equipped with Bluetooth module. The user must have a Bluetooth PDA or Bluetooth notebook to connect to the built-in Bluetooth of GX-188.

   ※ The Bluetooth is known as ACC9600 and uses Baud rate of 9600.
   ※ Not featuring password setting, so, please release the security connection when using the product.
   ※ In case that the connection still cannot be established while the blue indicator still flashes, please restart the device and try again.
   ※ Since the device has been tested before shipment, the problem mostly happens against Bluetooth pairing at the navigator end. Please read carefully the user's manual of your navigation equipment (PDA/Smart Phone/NOTEBOOK).

Accessories / Function items	RF remote control 	Infrared dialer 	LED wire control switch 
Turn on the safeguard mechanism	Black key ON	Red key ON	The blue tight goes out to turn on the security mechanism - two beeps.
Turn off the safeguard mechanism	Black key OFF	Red key OFF	Display the blue light to turn off the security mechanism - one beep
Start the Bluetooth navigation	Black key Long press for 3 seconds	Red key Long press for 3 seconds	Long press for 3 seconds, the blue indicator flashes and gives off 3 beeps to start navigation.
Send SOS	Green key Long press for 5 seconds	SOS key Long press for 5 seconds	Long press for 5 seconds, the blue indicator flashes once to send SOS

3-3 Advanced setting

GX-188 has multiple detection functions to adjust the sensitivity parameter. This section will describe the parameter adjustment method.

1. Adjust the speed limit parameter of over speed alarm.

   Please refer to **Item 8** of Table 1, 2 and 3 for setting. GX-188 has built-in overspend alarm functions. When the speed of your car exceeds the set speed limit, the built-in beeper will give off one beep per second until the speed decreases. The preset speed per hour is 120Km/H. When you set this value to 0Km/h, this function is turned off.

2. Modify the time zone of the system

   Please refer to **Item 9** of Table 1, 2 and 3 for setting. The time of GX-188 is mostly to capture the time calculated by GPS, which is counted based on the Greenwich standard time and has a time difference of 8 hours with Taiwan time. Hence, the built-in value is "+8", which shall be changed to "-8" if in the United States. Note that the code of "-" is "#". Below are examples:
   There is a time difference of 6 hours between Baghada and UTC. For messages, input 1234 09 06
   There is a time difference of 6 hours between California in US and UTC. For messages, input 1234 09 #08

3. Set the time interval at which the alarms are sent back continuously

   Please refer to **Item 10** of Table 1, 2 and 3 for setting. After an alarm is triggered and before GX-188 cancels the alarm correctly, GX-188 position information may be sent back continuously at a certain time interval. However, since message fee is charged for each reporting, the user may set the time interval of sending back according to its own preferences.
   * The built-in value is 5 minutes, 59 minutes can be set maximally and 0 minute can be set minimally, When 0 minute is set, message will be sent back once.

4. Adjust the sensitivity of vibration

   Please refer to **Item 11** of Table 1, 2 and 3 for setting. When 0 is set, it means that the vibration alarm function is turned off. Maximally 60 seconds can be set and the default value is 10 seconds. It is recommended that the vibration parameter set be no less than 5 seconds, otherwise, the vibration of the truck passing by very quickly may trigger alarms. For this setting, it is necessary to determine the parametric values according to the user's own preferences.

5. Adjust the sensitivity of the human body sensor

   Please refer to **Item 14** of Table 1, 2 and 3 for setting. This item describes the optional human body sensor accessory of GX-188. Since the pyro-electric human body sensor is with high-sensitivity, there may be false reporting if the transient outdoor temperature change is too large or the sensitivity is adjusted to over-sensitivity. Hence, for different users' habits, different sensitivities may be needed. To this end, this product uses firmware to adjust its sensitivity, the range of which is 1~10. When it is set to 1, the sensitivity is the strongest, as night/day changes may trigger alarms with this setting value. When it is set to 10, the sensitivity status will be sluggish and it is less likely that false reporting may occur. When it is set to 0, the human body sensor component is nearly turned off and no detection function will be triggered in this case.

   * The built-in value of this function is 8 seconds

6. Adjust the distance for movement alarm

Please refer to **Item 15** of Table 1, 2 and 3 for setting. When the anti-theft function is initiated, GX-188 may memorize the present position of the car. If the car is moved for more than 100m before the anti-theft function is cancelled, an alarm will be triggered. The minimum distance for alarm triggering that can be set is 10m and the maximum distance for alarm triggering that can be set is 1000m. When it is set to below 10m, the message will be sent back showing wrong information.
* The built-in value of this function is 100m.

3-4 Other settings

Other settings will provide further descriptions of the setting of the parameters and startup voltage blocker.

1. Check the parameters of all setting systems

Please refer to **Item 20** of Table 1, 2 and 3 for setting. Input message with 1234 66 and the device may send back all parameters set in the content of GX-188, including telephone numbers of the 1st~9th sets, passwords, parameters, and etc. Below is an example: Input message in mobile phone with: 1234 66
Send back telephone numbers, passwords and parameters: "Telephone numbers of 1st~9th sets", "Passwords" and "Parameters"

※ The parameter table below describes the meanings of parameters:

8*5*100*100*1*8*1*10*233									
8	5	8	100	100	1	8	1	10	233
Time zone	Alarm send-back time	Vibration sensitivity	Speed limit	Alarm movement distance	Auto answer function	Initiation time for human body sensor alarm	Language setting	Human body sensor detection	Check code
Need to refer to the time zone code	In unit of minutes	In unit of second	In unit of Km/Hour	In unit of meters	0 represents OFF 1 represents ON	In unit of seconds	0 represents English 1 represents Chinese	In unit of seconds	The sum of all parameters

※ The first code of the parameter table is the time zone code. There will be no problem if you input the correct time zone code via mobile phone message or infrared. However, you need to refer to the table below if you want to make changes directly from the telephone book. If #8 is inputted in the mobile phone, it means 8 hours less than the UTC time (-8). However, if you establish parameters via an ordinary mobile phone, you need to input 4

SIM value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Actual time zone	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11
Input parameters	#12	#11	#10	#09	#08	#07	#06	#05	#04	#03	#02	#1	00	01	02	03	04	05	06	07	08	09	10	11

2. How to re-set

All parameters and telephone numbers inside GX-188 generally are stored in the memory inside the GSM SIM card. To reset all data inside the memory, there are 2 methods for deletion.

A. Take out the GSM card from GX-188 and delete the telephone book of the SIM card using mobile phone.
B. The 11th set of the telephone book is the storage location of all parameters. Please refer to **Item 6** of Table 1, 2 and 3 for setting. Input "0" for the telephone of the 11th set to return to the factory settings. Example: 1234 06 11 0

3. Send SOS via mobile phone message

   Please refer to **Item 21** of Table 1, 2 and 3 for setting. Input message with 1234 95. After the "SOS" signal is sent out, GX-188 will initiate the SOS signal and the telephone numbers of the 2nd~5th sets stored in GX-188 will receive the reception location, time, longitude and latitude of GX-188.

4. Initiate the power-off mechanism

   Please refer to **Item 22** of Table 1, 2 and 3 for setting. Input message with 1234 9999 to start the rely in GX-188. If you have the car repair shop assist you in installation, after receiving this instruction, GX-188 will be triggered when the speed of GPS is 0Km/hour for 10 consecutive seconds! At this moment, the cars will stalls.

5. Turn off power-off mechanism

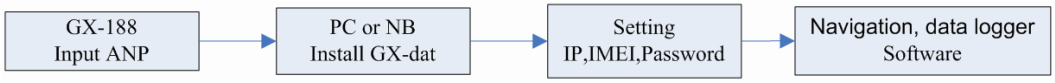
   Please refer to **Item 23** of Table 1, 2 and 3 for setting. Input message with 1234 7777 to release the relay excitation on GX-188.
   There are many methods to release the excitation, including press any key, RF remote control, wire control switch and infrared remote control, in addition to using mobile phone message.

6. Forget the password

   Since the password of GX-188 is stored in the 10th set of the telephone book of the SIM card, please refer to **Item 6 of Table 1, 2 and 3 for setting**. Delete the 10th set of the telephone book. Input 0 to delete and the password will resume its factory setting as 1234.
   Example: 1234 06 10 0

3-5 Turn on GPRS

Please see **Item 17, 18 and 19** of Table 1, 2 and 3 for settings. Item 17 is to set APN; Item 18 is to set IP and PORT and Item 19 is turn on GPRS. The built-in value of transmission is 5 minutes, the longest tracking time can be set to 59 minutes and the shortest one can be set to 1 minute.
The steps of GPRS installation.

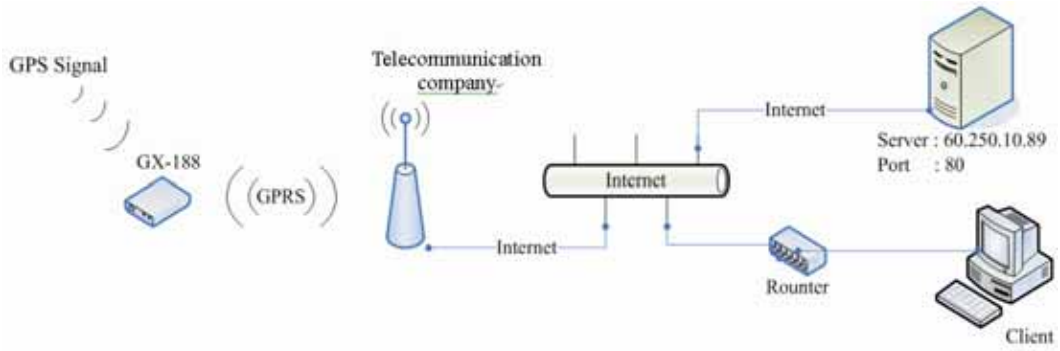


The considerations for settings are as follows:

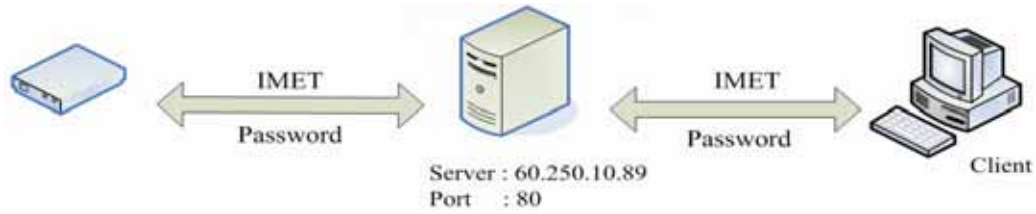
A. Since the APN of the telecommunication company is required to turn on GPRS, it is necessary to confirm the APN (Access Point Name) of the telecommunication company of the SIM card first. One telecommunication company may have multiple sets of APNs, so you need to determine with your telecommunication service provider which set of APN you can use.
B. If you use floating IP or virtual IP, you need to connect to the data transferred by GX-188 via the forwarding server provided by us.
C. If you use fixed IP, you can set the connection using Item 18—Change IP and Port.
D. No matter whether fixed IP or virtual IP is used for connection, the receiver needs to use software GX-Data Logger supplied with the CD-ROM of this product for storage. Once the software is activated, it may store the GPS data transmitted by GPS into TXT files, which are available in 3 formats: one is to store all original data, another is to store the data into files that can be imported by navigation

software PAPAGO, and the other is to store the time records of GPRS connection.

1. Perform address forwarding service via the server



With the server provided by ACC, you can use the dedicated software of us to connect to GX-188 wherever there is the Internet. First, you need to confirm the IMEI code of the APN and GX-188. Each GX-188 may have a unique ID number and password that you set. When you want to contact the server, we take the IMEI code and the message password as the authentication password between the server and the client. Once it is confirmed by both sides, the client can connect to the server, as shown in the Figure below.



2. Set the APN and obtain the IMEI code

   Please see Item 17 of Table 1 and 2. Once the APN code is inputted successfully, the APN and IMEI codes will be returned.
   Example: 1234 17 emome

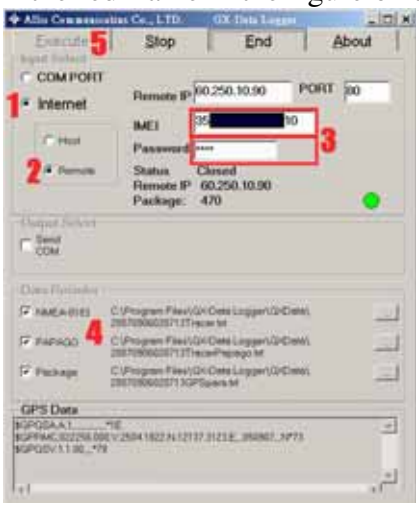
3. Turn on GPRS

   Please see **Item 19** of Table 1, 2 and 3. 1 is to turn on the connection and 0 is to turn off the connection. This function can be initiated only after confirming that all settings are complete. In case that the connection fails, the fail message will be returned to the number of the first set.
   Example: 1234 19 1 is to turn on

4. Software install/setting

   - **The steps of software installation.**
     CD:\GX-Data Logger Package\setup.exe

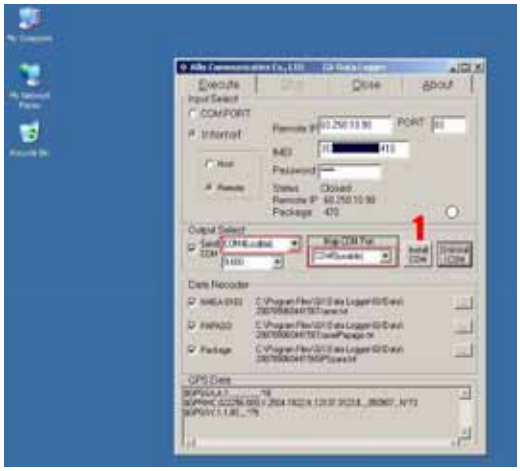
- If the user uses non-fixed IP
  After turn on the GX-Data Logger, please select Internet→Remote, and then input the IMEI & Password and press [Execute] to confirm connection with the server, as shown in the red frame in the figure on the left below.

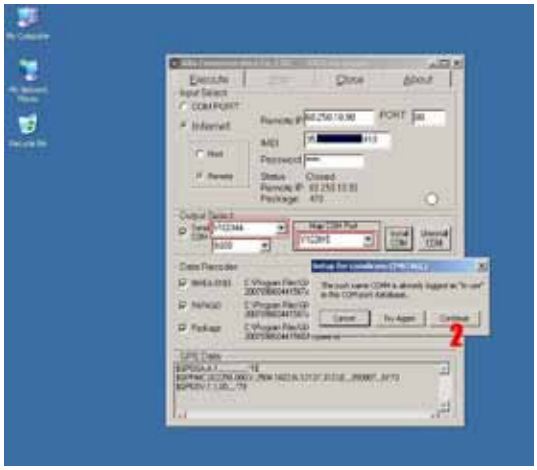


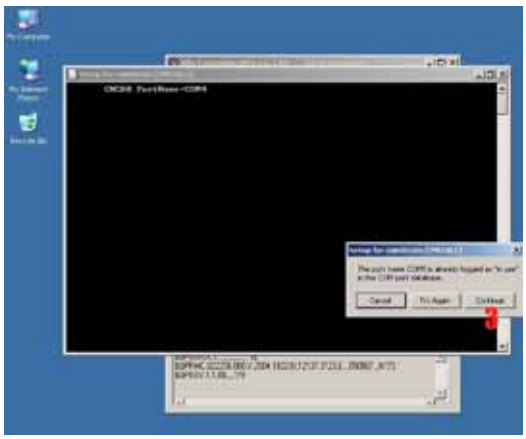
- **If the user uses fixed IP**
  After turn on the GX-Data Logger, please select Internet→Host, and then input the Port set by the user itself to connect GX-188 with the user's own computer.
  *In case that the connection fails, please turn off the firewall, as shown in the figure on the right below:

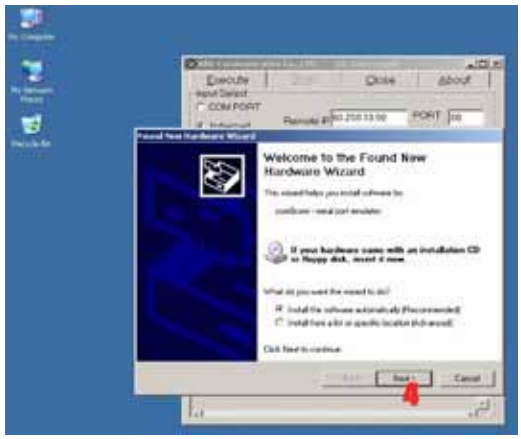
- **Starting the real-time tracking function –**

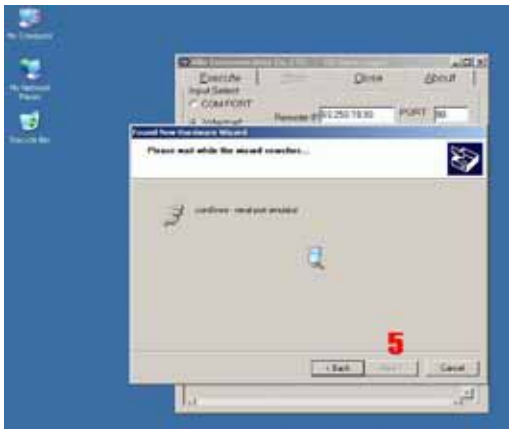
The real-time tracking function have to install two Virtual Com, one is for receiving and the other one is for transmitting. After the set-up procedure is done, then we can use the Navigation software to process the remote tracking.

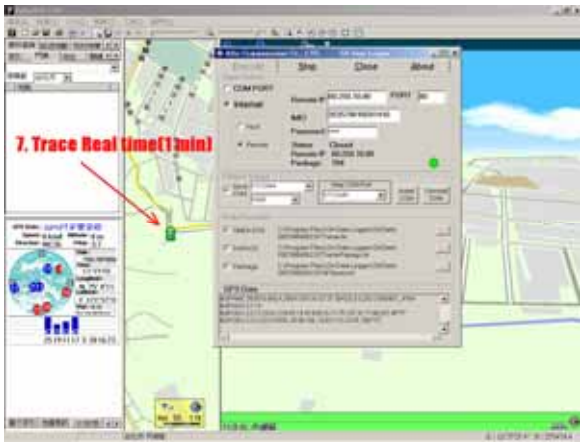












3-6 Examples of message instructions

Example 1 Set the numbers of the phone book.	
Refer to Table 1 (6) Set Phone Book Input password + set the instruction codes of the phone book + position of phone book + phone book number, as shown in the figure below If the password is “1234”, change the number of the first set of phone book to “09123456789”	
	
Send back contents once setting are successful.	
Refer to Table 1 (6) - send back messages successfully. Send back messages once the send-back setting is successful. “Phonebook (position) = new phone number”	
Example 2	
Set the numbers of the phone book. Refer to Table 1 (6) Set Phone Book Input password + the instruction code for turning on power-off function, as shown in the figure below If the password is “1234”, change the number of the first set of phone book to “9999” or “CUT”	
	
Send back contents once setting is successful.	
Refer to Table 1 (22) - send back messages successfully Send back messages once the send-back setting is successful “Power-off function: ON” When the car is positioned and in standstill, the power-off function will be turned on causing the car unable to be operated. The function can be turned off via messages, infrared keys or wire control remote control. For the infrared remote control, it is necessary to input instructions to turn off the power-off function.	

3-7 Content description of alarm messages sent back

Description of message field	
1 Message send-back time	DD/MM/YY,Hr/Min
2 Cause of message reporting	**See table below**
3 GPS positioning status	GPS Valid GPS Invalid
4 Latitude	Latitude
5 Longitude	Longitude
6 Speed	Speed
7 Distance	Distance

GX-188 may send back alarm messages under 8 circumstances, for each of which the cause of alarm triggering will be described in line 2. The table below describes the cause and content of message items sent back.

Content displayed (English/Chinese)	Cause of sending	Recipient
SOS	The user long presses the SOS function key or sends SOS message.	Numbers of the 2nd~5th sets preset in the phone book
Moving	The user turns on the anti-theft function and GX188 detects that the movement of the car exceeds the movement distance of alarm. Now, the anti-theft mechanism is turned on.	Number of the 1st set preset in the phone book
Invader	The pyro-electric human body sensor detects somebody intruding into the car. Now, the anti-theft mechanism is turned off.	Number of the 1st set preset in the phone book
Vibrating	The vibration sensor detects that the vibration of the car body exceeds the time set by the user. Now, the anti-theft mechanism is turned on.	Number of the 1st set preset in the phone book
Low Power	When the external power voltage is lower than 10V, the message will be sent back now as a notice. When anti-theft is initiated, the anti-theft mechanism will be turned on.	Number of the 1st set preset in the phone book
Low Battery	When the external power is cut off, it will be switched off to the backup battery. When the backup battery is lower than 3.7V, the message will be sent back as a notice.	Number of the 1st set preset in the phone book
Reply	The user sends back the message with longitude and latitude. The longitude and latitude will be sent back to the speaker. This function will not turn on the anti-theft mechanism.	The source telephone sending the instruction
Warning	The anti-theft mechanism is turned on. After each alarm send-back time set by the user, the device will send back the longitude and latitude continuously until the anti-theft function is turned off.	Number of the 1st set preset in the phone book

Content description of alarm messages sent back

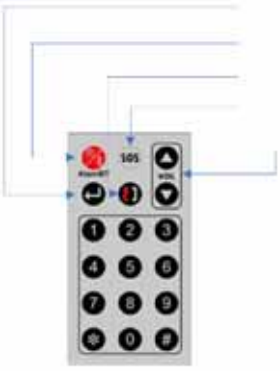
3-8 Examples of alarm messages sent back

<table>
<tr><td colspan="2">Examples of messages sent back</td><td></td><td></td></tr>
<tr><td>The figure on the right shows the message sent back by the SOS instruction.</td><td>01/06/07,16:59
SOS
GPS valid
Latitude:N25.03'31.19"
Longitude:E121.36'35.65"
Speed:0km/h
Distance:0m</td><td>The figure on the right shows the alarm initiation message sent back when GX188 detects that the car has moved for more than 100M.</td><td>01/06/07,16:59
Moving
GPS valid
Latitude:N25.03'31.19"
Longitude:E121.36'35.65"
Speed:0km/h
Distance:0m</td></tr>
<tr><td colspan="4">Note!!
When GPS is never positioned, it means that there is no longitude or latitude that can be sent back. So, the device will send back “no positioning data now”.</td></tr>
<tr><td>The figure on the right shows the message not positioned. It is recommended that the user let GX188 position once in an open space after startup.</td><td colspan="3">SOS
No Valid GPS Signal</td></tr>
</table>

3-9 Operation Instructions of the Infrared Remote Control

Descriptions of the remote control keys

The infrared remote control combines many convenient functions, for instance, SOS, dialing, speed-dialing, turn on/off anti-theft, volume adjustment, and etc. The table below describes the functions of the keys of the remote control.



Corresponding keys		Panel functions	Functions descriptions
1		Anti-theft/ Bluetooth	1. Press once to turn on the anti-theft function. The beeper gives off two beeps and the external LED goes out. 2. With anti-theft turned on, press once to turn off the anti-theft function. The beeper gives off one beep sound and the external LED illuminates. 3. Long press 3 seconds to turn on the Bluetooth function. The beeper gives off 3 short beeps and the external LED will continue to flash.
2	SOS	SOS	Long press 5 seconds. The beeper gives off one beep sound and sends back the SOS message to numbers of 2nd-5th sets.
3		Volume ↑	Decrease the volume during the call. When the volume is maximized, the beeper will give off continuous “beep” sounds.
4		Enter	1. After the instruction is inputted, press enter key to complete the setting and the device will give off one short “toot” sound and sends back the “setting succeeds” message. The device will give off a long “toot” sound when the setting fails. 2. Long press 3 seconds to send back GX188 setting parameters to the user (the number of the 1st set)
5		Dial/hang up	1. After dialing number, press the call key to call out 2. Press it during the call status to hang up the call
6		Volume ↓	Decrease the sound volume during the call. When the sound volume is minimized, the beeper will give off continuous “beep” sounds.
7	1	Key 1	1. Dial key 1 2. Long press 3 seconds to dial the number of the 1st set in the phone book.
8	2	Key 2	1. Dial key 2 2. Long press 3 seconds to dial the number of the 2nd set in the phone book.
9	3	Key 3	1. Dial key 3 2. Long press 3 seconds to dial the number of the 3rd set in the phone book.
10	4	Key 4	1. Dial key 4 2. Long press 3 seconds to dial the number of the 4th set in the phone book.
11	5	Key 5	1. Dial key 5 2. Long press 3 seconds to dial the number of the 5th set in the phone book.
12	6	Key 6	Dial key 6
13	7	Key 7	Dial key 7
14	8	Key 8	Dial key 8
15	9	Key 9	Dial key 9
16	*	Key *	1. Dial key * 2. Set the instruction starting key
17	0	Key 0	Dial key 0
18	#	Key #	Dial key #

Operation instructions of the infrared remote control

3-10 Instruction code table of numbers

Table 1 Instruction code table of numbers

Item	Instruction code	Functions descriptions	Use example (the security password is 1234)	Send back message upon success
(1)	01	Turn on the anti-theft function.	1234 01	Alarm: On
(2)	02	Turn off the anti-theft function	1234 02	Alarm: Off
(3)	03	Send longitude and latitude back to the mobile phone sending the message.	1234 03	STS, Time, Latitude, Longitude Speed, Distance
(4)	04	Initiate the monitoring function, dial back to the mobile phone sending the message (the speaker will not be activated when monitoring)	1234 04	Dial back directly without sending back the message
(5)	05	Initiate the monitoring function, dial back to the designated telephone (mobile phone or indoor telephone) The speaker will not be activated when monitoring	1234 05 021234567	Dial back directly without sending back the message
(6)	06	Set the telephones of 1st~5th sets of the SIM card as the telephone numbers for sending back of alarms (can set 1~5 sets; the storage location is 01~05)	1234 06 01 091234567	Phonebook “1”=092xxxxxxx
(7)	07	Modify the security password (can set 1~4 numbers; the default value is 1234)	1234 07 555	Passkey:555
(8)	08	Overspeed alarm (the default value is 120km/h; the alarm will be OFF when the speed is set to 0km/h)	1234 08 100	Speed limit:100 km/h
(9)	09	Modify the time zone of the locality (the default time zone is Taiwan 08 with UTC as the standard time)	1234 09 #06	Time zone:UTC-06
(10)	10	Set the time interval for sending back alarms (1~59 minutes; the default value is 5 minutes) When it is set to 0, only the first alarm will be sent back	1234 10 20	Alarm time : 20 mins
(11)	11	Set the sensitivity of the vibration switch (1-60 seconds; the default value is 10 seconds) When set to 0, it means that the vibration alarm function is OFF.	1234 11 20	Vibrating’s sensitivity:20 sec
(12)	12	Auto answer the incoming calls	1234 12	Autoanswer: On
(13)	13	Reject all incoming calls	1234 13	Autoanswer Phone: Off
(14)	14	Set the sensitivity of the pyro-electric infrared human body sensor (the default value is 8 seconds; 1-10 seconds can be set). When it is set to 0, the pyro-electric sensor is OFF.	1234 14 10	PIR sensitivity:10 secs
(15)	15	Set the movement distance of alarm (10~1000 meters; the default value is 100 meters) When the movement distance exceeds the set distance, the alarm will start to be sent back	1234 15 300	Alarm Distance:200m
(16)	16	Set language:0 stands for English and 1 stands for Traditional Chinese	1234 16 0	Language: English (the set value is 0) Language: Tradition Chinese (the set value is 1)
(17)	17	Set GPRS APN (Access Point Name) and return the IMEI code of the host	1234 17 internet	GPRS APN: internet IMEI: 000000000000000
(18)	18	Set the IP address and port of the GPRS server Default server IP=60.250.10.89, PORT=80	1234 18 60.250.10.89 80	Server IP: 60.250.10.89 Server Port: 89
(19)	19	Initiate the GPRS connection function. 1 is to turn on the connection, 0 is to turn off the connection.	1234 19 1	GPRS connect: Success/fail GPRS Connect: OFF
(20)	66	Send back parameters set by the system	1234 66	Telephone numbers of 1st~5th sets, 10: password, 11: parameter
(21)	95	Send SOS message (send back the longitude and latitude to telephone numbers 2nd~5th sets inside the phone book)	1234 95	SOS, STS, Time, Latitude, Longitude, Speed, Distance
(22)	9999	Turn on the power-off relay (the normally open contact is short-circuited)	1234 9999	Power Disconnection: On
(23)	7777	Turn off the power-off relay (the normally closed contact is short-circuited)	1234 7777	Power Disconnection: Off

Table 1. Instruction code table of numbers

3-11 Instruction code table of English codenames

Table 2. English code instruction code table

Item	Instruction code	Functions descriptions	Use example (the security password is 1234)	Send back message upon success
(1)	ON	Turn on the anti-theft function.	1234 ON	Alarm: On
(2)	OFF	Turn off the anti-theft function	1234 OFF	Alarm: Off
(3)	POS	Send longitude and latitude back to the mobile phone sending the message.	1234 POS	STS, Time, Latitude, Longitude Speed, Distance
(4)	REC	Initiate the monitoring function, dial back to the mobile phone sending the message (the speaker will not be activated when monitoring)	1234 REC	Dial back directly without sending back the message
(5)	RET	Initiate the monitoring function, dial back to the designated telephone (mobile phone or indoor telephone) The speaker will not be activated when monitoring	1234 RET 021234567	Dial back directly without sending back the message
(6)	BOK	Set the telephones of 1st~5th sets of the SIM card as the telephone numbers for sending back of alarms (can set 1~5 sets; the storage location is 01~05)	1234 BOK 01 091234567	Phonebook “1”=092xxxxxxx
(7)	KEY	Modify the security password (can set 1~4 numbers; the default value is 1234)	1234 KEY 555	Passkey:555
(8)	SPD	Overspeed alarm (the default value is 120km/h; the alarm will be OFF when the speed is set to 0km/h)	1234 SPD 100	Speed limit:100 km/h
(9)	UTC	Modify the time zone of the locality (the default time zone is Taiwan 08 with UTC as the standard time)	1234 UTC 06	Time zone:UTC+06
(10)	ALT	Set the time interval for sending back alarms (1~59 minutes; the default value is 5 minutes) When it is set to 0, only the first alarm will be sent back	1234 ALT 20	Alarm time : 20 mins
(11)	VIB	Set the sensitivity of the vibration switch (1-60 seconds; the default value is 10 seconds) When set to 0, it means that the vibration alarm function is OFF.	1234 VIB 20	Vibrating’s sensitivity:20 sec
(12)	AON	Auto answer the incoming calls	1234 AON	Autoanswer: On
(13)	AOF	Reject all incoming calls	1234 AOF	Autoanswer Phone: Off
(14)	PIR	Set the sensitivity of the pyro-electric infrared human body sensor (the default value is 8 seconds; 1-10 seconds can be set). When it is set to 0, the pyro-electric sensor is OFF.	1234 PIR 10	PIR sensitivity:10 secs
(15)	DIS	Set the movement distance of alarm (10~1000 meters; the default value is 100 meters) When the movement distance exceeds the set distance, the alarm will start to be sent back	1234 DIS 300	Alarm Distance:200m
(16)	LAN	Set language:0 stands for English and 1 stands for Traditional Chinese	1234 LAN 1	Language: English (the set value is 0) Language: Tradition Chinese (the set value is 1)
(17)	17	Set GPRS APN (Access Point Name) and return the IMEI code of the host	1234 17 internet	GPRS APN: internet IMEI: 000000000000000
(18)	18	Set the IP address and port of the GPRS server Default server IP=60.250.10.89, PORT=80	1234 18 60.250.10.89 80	Server IP: 60.250.10.89 Server Port: 89
(19)	19	Initiate the GPRS connection function. 1 is to turn on the connection, 0 is to turn off the connection.	1234 19 1	GPRS connect: Success/fail GPRS Connect: OFF
(20)	STS	Send back parameters set by the system	1234 STS	Telephone numbers of 1st~5th sets, 10: password, 11: parameter
(21)	SOS	Send SOS message (send back the longitude and latitude to telephone numbers 2nd~5th sets inside the phone book)	1234 SOS)	SOS, STS, Time, Latitude, Longitude, Speed, Distance
(22)	CUT	Turn on the power-off relay (Normal Open contact is short-circuited)	1234 CUT	Power Disconnection: On
(23)	REP	Turn off the power-off relay (Normal Close contact is short-circuited)	1234 REP	Power Disconnection: Off

Table 2 Instruction code table of English codenames

3-12 Instruction code table for dialing of remote control

The codes of the remote control are nearly the same as those of Table 1 and 2 except that we use "*" to represent the starting point and the space. Hence, the original anti-theft initiation instruction 1234 01 using message is changed to *1234*01 when infrared dialer is used. Examples of the remaining instructions are given below:

Format:

*	Security password	*	Instruction code	*	Additional parameters

Item	Instruction code	Functions descriptions	Use example (the security password is 1234)	Send back message upon success
(1)	01	Turn on the anti-theft function.	*1234*01	Alarm: On
(2)	02	Turn off the anti-theft function	*1234*02	Alarm: Off
(3)	03	Send longitude and latitude back to the mobile phone sending the message.	*1234*03	STS, Time, Latitude, Longitude Speed, Distance
(6)	06	Set the telephones of 1st~5th sets of the SIM card as the telephone numbers for sending back of alarms (can set 1~5 sets; the storage location is 01~05)	*1234*06*01*0912 34567	Phonebook "1"=092xxxxxxx
(7)	07	Modify the security password (can set 1~4 numbers; the default value is 1234)	*1234*07*555	Passkey:555
(8)	08	Overspeed alarm (the default value is 120km/h; the alarm will be OFF when the speed is set to 0km/h)	*1234*08*100	Speed limit:100 km/h
(9)	09	Modify the time zone of the locality (the default time zone is Taiwan 08 with UTC as the standard time)	*1234*09*06	Time zone:UTC+06
(10)	10	Set the time interval for sending back alarms (1~59 minutes; the default value is 5 minutes). When it is set to 0, only the first alarm will be sent back.	*1234*10*20	Alarm time : 20 mins
(11)	11	Set the sensitivity of the vibration switch (1-60 seconds; the default value is 10 seconds). When set to 0, it means that the vibration alarm function is OFF.	*1234*11*20	Vibrating's sensitivity: 20 sec
(12)	12	Auto answer the incoming calls	*1234*12	Autoanswer: On
(13)	13	Reject all incoming calls	*1234*13	Autoanswer Phone: Off
(14)	14	Set the sensitivity of the pyro-electric infrared human body sensor (the default value is 8 seconds; 1-10 seconds can be set). When it is set to 0, the pyro-electric sensor is OFF.	*1234*14*10	PIR sensitivity:8 sec
(15)	15	Set the movement distance of alarm (10~1000 meters; the default value is 100 meters). When the movement distance exceeds the set distance, the alarm will start to be sent back.	*1234*15*300	Alarm Distance: 200m
(16)	16	Set language:0 stands for English and 1 stands for Traditional Chinese	*1234*16*0	Language: English (the set value is 0) Language: Tradition Chinese (the set value is 1)
(19)	19	Initiate the GPRS connection function. 1 is to turn on the connection, 0 is to turn off the connection.	1234 19 1	GPRS connect: Success/fail GPRS Connect: OFF
(20)	66	Send back parameters set by the system	*1234*66	Telephone numbers of 1st~5th sets, PW: password, Par: parameter
(21)	95	Send SOS message (send back the longitude and latitude to telephone numbers 2nd~5th sets inside the phone book)	*1234*95	SOS, STS, Time, Latitude, Longitude, Speed, Distance
(23)	7777	Turn off the power-off relay (the normally closed contact is short-circuited)	*1234*7777	Power Disconnection: Off

Table 3. Instruction code table of the infrared remote control

- **The instruction codes of the infrared remote control are the same as the instruction codes of messages, but it is impossible to use the infrared remote control to turn on the monitoring and power-off functions. Once the message is set successfully, the device will send back messages to the number 1st set in the phone book.**
- **Once the phone book is set successfully, the device will send back all "setting succeeds" messages to the number 1st set.**

Chapter 4 Power-off System Circuit

GX-188 contains a small Relay, the specification of which is 1A/120V, 2A/24VDC, used primarily to turn on the special relay of the car. Note that installation of this function requires familiarity with the circuit of the automobile and understanding of the functions of relay circuit of Allis Communications.

4-1 Description of circuit of the internal relay

The socket of the panel marking C/E (Cut Engine) of GX-188 provides a group of NC (Normal Close) and NO (Normal Open) functions, allowing you to turn on the dedicated external relay for automobile using the internal relay.
As indicated in Figure 1, the circuit of the internal relay is shown in Figure 2.

Figure 1. Physical diagram of the pins

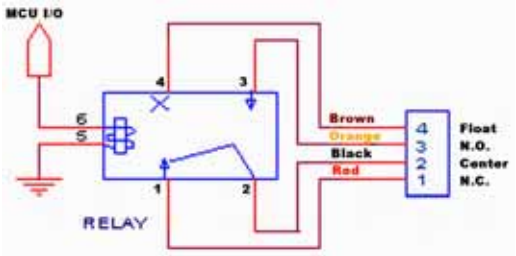


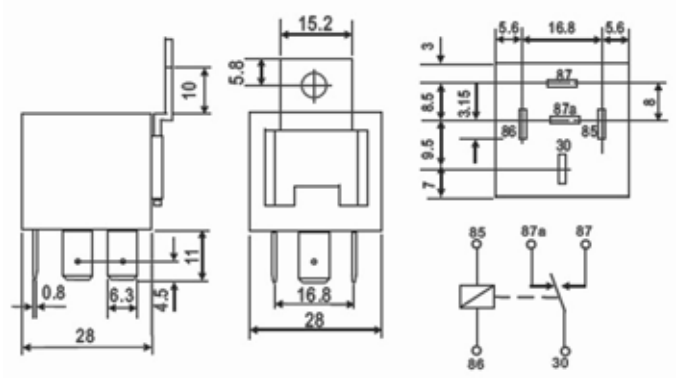
Figure 2. Circuit diagram for internal relay of GX-188

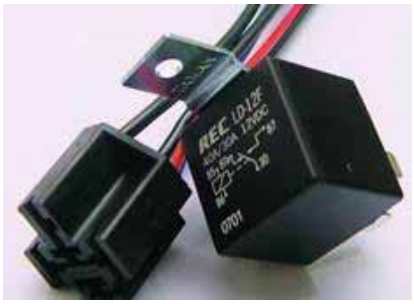
Black	Center
Coffee	Float
Red	Normal Close
Orange	Normal Open

Figure 3. Definition diagram of pins

4-2 Descriptions of external relay

Given the differences in cars and techniques of the repair technicians, Allis Communications only provides the specification and definition diagram of pins of the dedicated relay for automobile to allow the user itself to connect to the GX-188 pins according to its own needs.





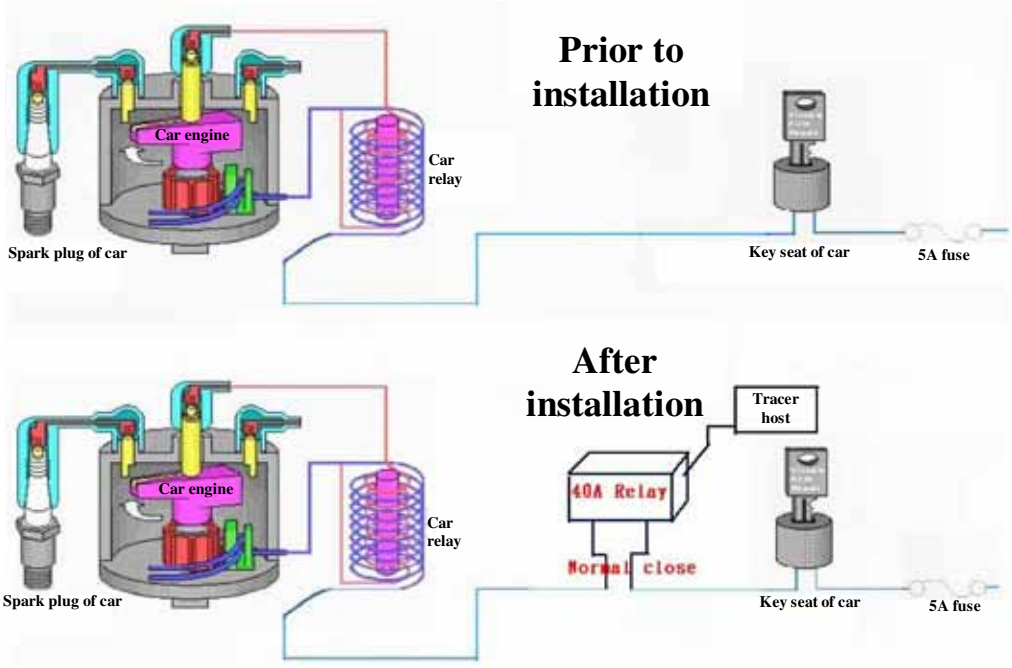
Insulation Resistance	50 M Min. (DC 500V)
Dielectric Strength	500 VAC, 50/60Hz between contact.
	1,000 VAC, 50/60Hz between all elements.
Contact Material	Silver- Cadmium Oxide as standard.
Contact Resistance	100 milliohms max. (initial value)
Shock Resistance	Malfunction: 10G(11ms) ; Destructive: 100G(6ms)
Vibration Resistance	Malfunction: 10 to 55 Hz. at Double Amplitude of 1.5 mm
	Destructive: 10 to 55 Hz. at Double Amplitude of 1.5 mm
Operation Time	10 ms max.
Release Time	10 ms max.
Temperature Range	- 40°C ~ + 85°C
Expected Life	With operation rate 30/min. Mechanical - 1,000,000 operations min. Electrical - 100,000 operations min. at rated load.
Weight	38 grams

Coil Nominal Voltage (VDC)	Resistance Tol.±10% (Ohms)	Nominal Current (mA)	Maximum Pick Up Voltage (V)	Minimum Drop Out Voltage (V)
12	80	150	7.8	1.2
24	320	75	17.0	2.4

1PDT	Resistive (Cos. = 1)	DC 12V	40A/30A
1PST-DM	Resistive (Cos. = 1)	DC 12V	2 x 20A

4-3 Example schematic

The installation method in the table below is for reference only. Prior to installation, the user shall discuss with the professional car repair shop.



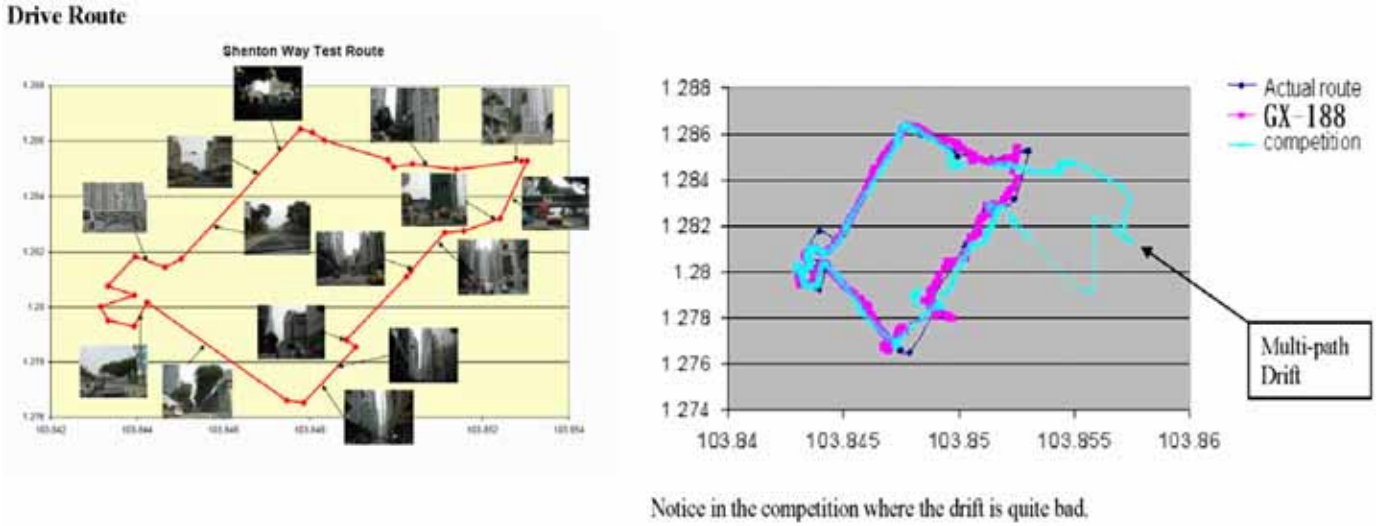
Chapter 5 Hardware specification

5-1 Hardware parameter specification

Power	Power supply	DC7V~40V
	Power consumption	1.2 Watt Standby1, 0.3 Watt sleeping
GPS Module	Chipset	uNav
	Receiver Type	16 channel / L1 frequency, C/A code
	Sensitivity	Tracking-151dBm
		Acquisition -142dBm
	Position Accuracy	3m(typical)
	Start-up Times	Cold start:42S Warm start:12S Hot Start:4 S
	Protocol format	NMEA-0183
	Command sentence	uNav(GSV、RMC、GSA)
GSM Module	Frequency bands	EDSM 900/ DCS1800 / PCS1900
	Transmit power	2W at EDSM900 1W at DCS1800/PCS1900
	SIM Interface	Support SIM Card 3V
	Protocol	Compatible with Bluetooth serial port profile(SPP) format
	Baud Rates	9600Bps
Bluetooth Module	Modulation	GFSK
	Frequency Range	2402~2480MHz
ASK RF Module	Transmit Frequency	433.92MHz
	Sensitivity	-105dBm
I/O	Hands-Free Kit	Microphone + Speaker
	Firmware Upgrade	RS232
Mechanical	Weight (W/O cable)	130 g Max.
	Size	108 X 102 X 31.2 mm
	GPS connector type	MMCX
	Mounting	Double-sided Tapes/ Cable Tie
Environmental	Working Temperature	-20℃ ~ 55 ℃
	Storage Temperature	-20℃ ~ 65 ℃

5-2 GX-188 adopts a GPS receiver with high-sensitivity

The GPS receiver adopted by GX-188 can maintain stable trace routes in urban areas with high drift.



Notice in the competition where the drift is quite bad.

Chapter 6 Considerations:

1. In case of any model equipped with battery, it is recommended that the battery be replaced with new battery purchased from the original manufacturer to ensure safety one year after (but no more than 2 years after). The battery of Allis Communications is warranted for 3 months, during which the battery can be replaced with a new one if it is damaged or unable to store electricity.

2. If GX-188 is put in a place in absence of GSM signals or poor signal reception, you can only use the infrared dialer to set the parameters. However, it will be impossible to send messages displaying the set parameter values.

3. It is possible to turn on the anti-theft mechanism in places where GSM cannot detect GSM signals. After returning to places where GSM can receive signals properly, GX-188 will resume its functions immediately and continue to perform various reporting operations that cannot be performed previously due to poor signals.

4. If you use the package of fixed fee rate, pay attention to whether the monthly fee is paid at any time. If you use the package with pre-paid card, you can use the infrared dialer to inquire the balance.

5. In case that the earphone microphone gives off noises, check whether the contact of the audio source cord is not good or fastening of the wire straps causes poor contact.

6. If the car is not to be used by the owner for a long period of time, note that GX-188 can only be used for appropriately 40~55 days as the storage battery (40AH) maintains 80% of its electricity. Hence, the user shall pay attention to whether the electricity of the storage battery is adequate at any time.

7. Use of this product for any illegal purpose, for instance, illegal monitoring, tracking or intimidation, etc is prohibited.

FCC15.19:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC15.21:
Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.105(b):
NOTE: 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.