

GC-101

GPS/GSM Micro Tracker

Title GC-101

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Thank you for purchasing the **SAN JOSE NAVIGATION** GC-101. This preliminary manual is to introduce the GC-101 with the complete technical data and the instructions showing how to operate the device smoothly and correctly. If you have any questions, please do not hesitate to contact us.

Please note that specification and information are subject to change 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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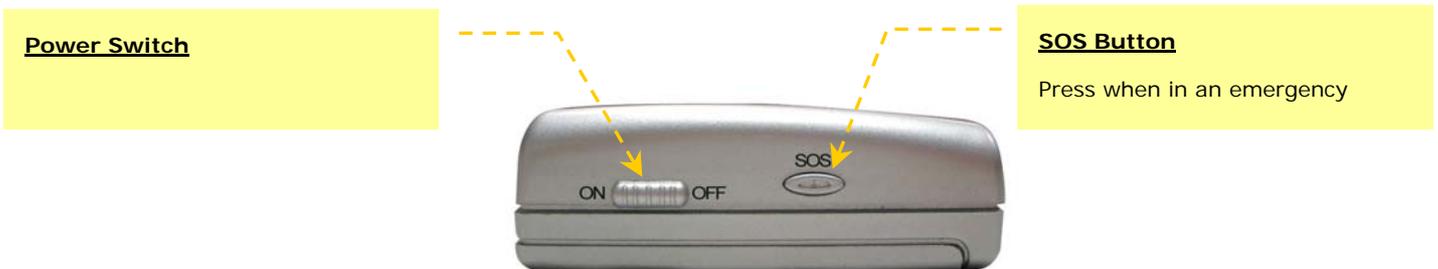
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1 Hardware Description

1.1 Front face



1.2 Side Face



1.3 Bottom Face



Power Input
Use the chargers provided by Sanav to charge the battery.



Wall Charger



Cigar Charger

1.4 Charging

 <p>When power is ON When GC-101 is charged with power switched on and GPS is fixed, you shall see a faint green light here. That means it is charging.</p>	 <p>When power is OFF When GC-101 is charged with power switched off, you shall see a clear green light here. That means it is charging.</p>
--	--

1.5 Rear Face (Battery Cap)



A hand is shown holding the silver battery cap. A red arrow points downwards from the top of the cap, indicating the direction to press it.	The silver battery cap is shown on the left, and the blue battery is shown on the right, having been removed from the device's back cover.	The silver battery cap is shown on the left and right, with the blue battery removed. A red SIM card is being inserted into the slot on the back cover.
<p>Use your thumb to press the battery cap and then slide downward to open it.</p>	<p>Open the cap and move put away the battery.</p>	<p>Put in the SIM card in the correct orientation.</p>

2 Specifications

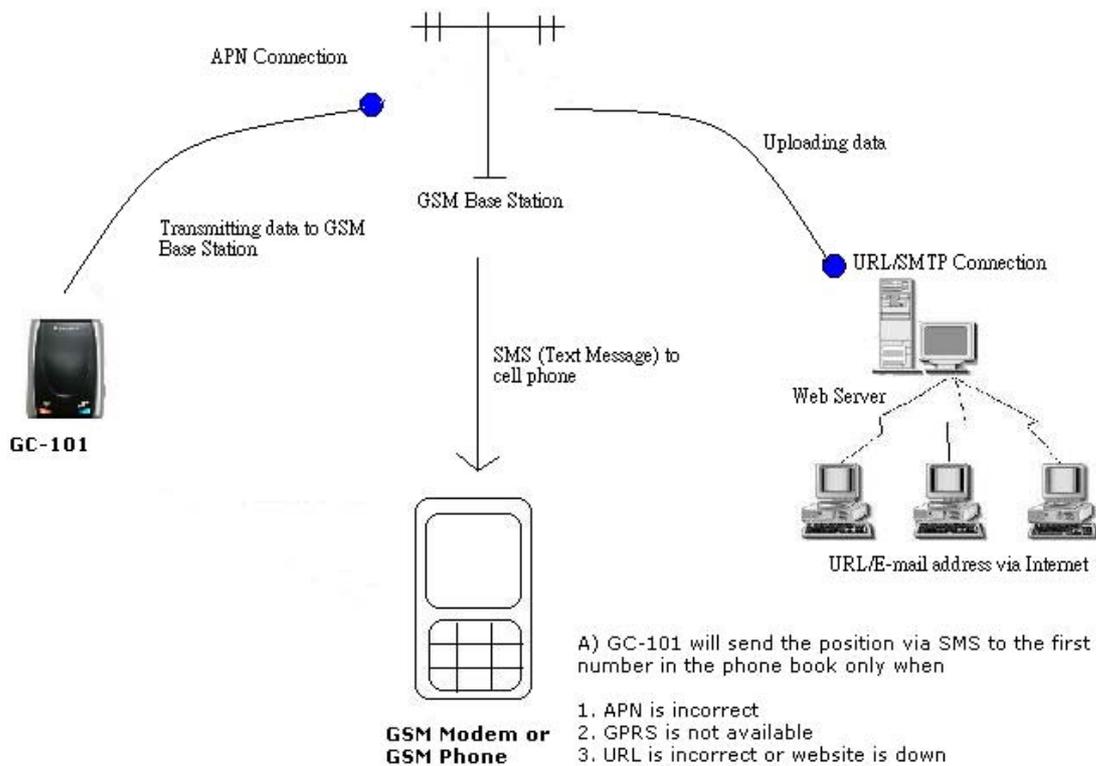
GPS Receiver		
General		
GPS frequency	L1,1575.42MHz	
C/A code	1.023MHz chip rate	
Datum	WGS-84	
Sensitivity	-159 db	
Channels	20 channel all-in-view tracking	
Acquisition Time		
Reacquisition	<0.1 sec	
Cold	<42 sec TTFF (Time To First Fix)	
Warm	<38 sec TTFF	
Hot	<1 sec TTFF	
GSM Transceiver		
Frequency	Tri-band 900/1800/1900 MHz Compliant to GSM Phase 2/2+	
GPRS Transmission	GPRS multi-slot class 10 GPRS mobile station class B	
General		
Antenna	Internal GSM antenna and active GPS patch antenna	
External Power Supply	5.0 ~ 8.0V DC input charging current 500mA	
Battery Power Supply	3.7 V DC	
Rechargeable Li-ion Batteries	Standard: 1100mA Optional: 1800mA	
Battery Life	22 hours after full charged when sending one report every 60 minutes	
Device Size	64.66mm(L) x 43.19mm(W) x22.81mm (H)	
Device Weight	85g	
Environmental	Operation Temperature	0 ~ +40°C
	Storage Temperature	0 ~ +40°C

3 Function Overview

3.1 General

GC-101 is using the GPRS service to upload the RMC sentences containing latitude, longitude, speed and time to an assigned web server. It is specially designed for the intensive tracking applications, such as fleet management and life security.

Note1 : When GPRS network is not available, SMS will be sent instead in the HTTP/SMS mode.



A) GC-101 will send the position via SMS to the first number in the phone book only when

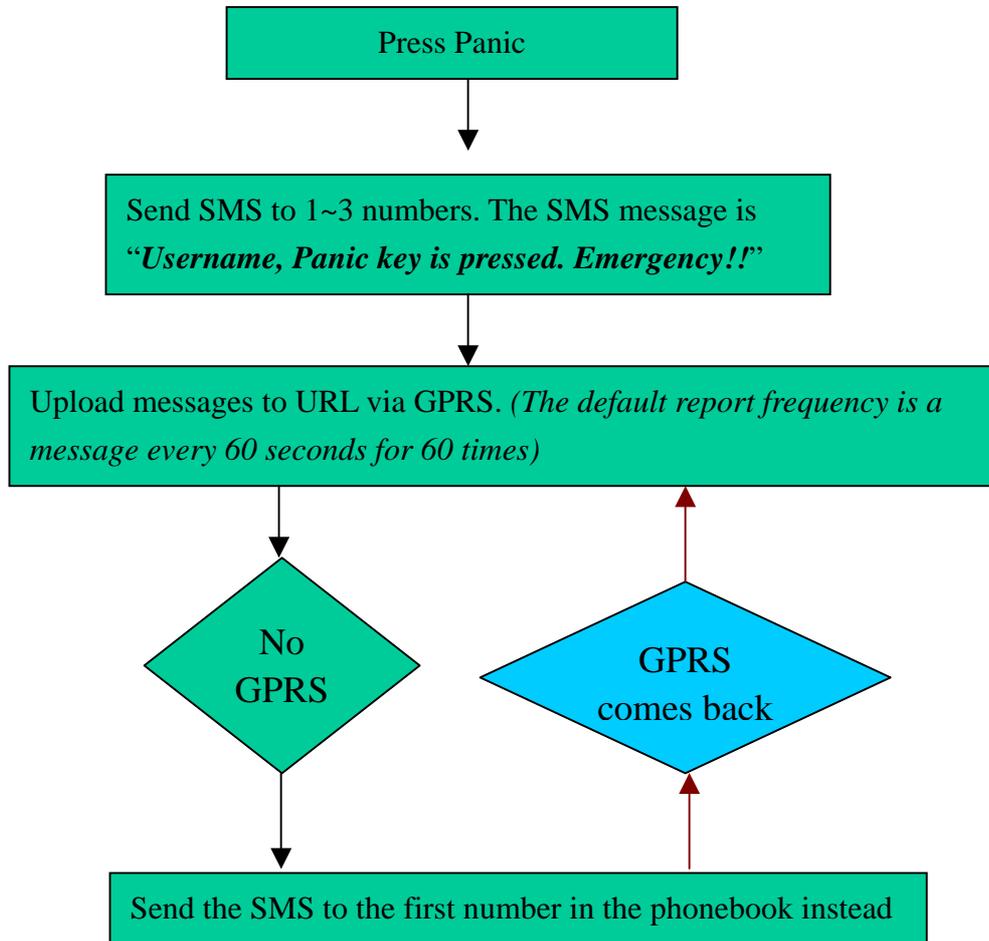
1. APN is incorrect
2. GPRS is not available
3. URL is incorrect or website is down
4. GC-101 is in SMS-only mode

B) GC-101 will send the confirmation SMS to the caller's GSM modem after any setup is done.

3.2 Features

● Panic

The diagram below shows the action after Panic button is pressed under HTTP/SMS mode.



● Auto Report

You can set up auto report function to receive a regular report, and note that the default setup is off, Please refer to chapter 5.9 for detailed information.

3.2 Applications :

- ⊕ Fleet Management
- ⊕ Vehicle Security and Recovery
- ⊕ Asset tracking
- ⊕ Yacht watching
- ⊕ Covert Tracking

4. Easy Start

All the settings are done by SMS. Please use your cellular phone to send the following SMS to GC-101 to start experiencing it.

1. Request for the imei code of GC-101.

If the command has been transferred successfully, GC-101 will send an imei code to your cell phone otherwise a failure message will be sent instead.

```
#username,0000,Imei*
```

2. Set up APN (Access Point Name) that is provided by your GSM provider.

If you are not sure about your APN, please refer to the APN table in the CD or contact your local mobile phone service. After sending the SMS command, GC-101 will response a message to your cell phone to see if the GC-101 does receive the command.

Please note that the GC-101 is not able to determine the validity of the APN.

```
#username,0000,3,your APN,user,password*
```

3. Set up the phone book.

When either APN or URL is incorrect or GPRS/URL is not available, the GC-101 will not be able to upload the data to the website.

In any case mentioned above, the GC-101 will send a SMS instead containing GPS position to the 1st predefined number.

```
#username,0000,5,cellular phone number*
```

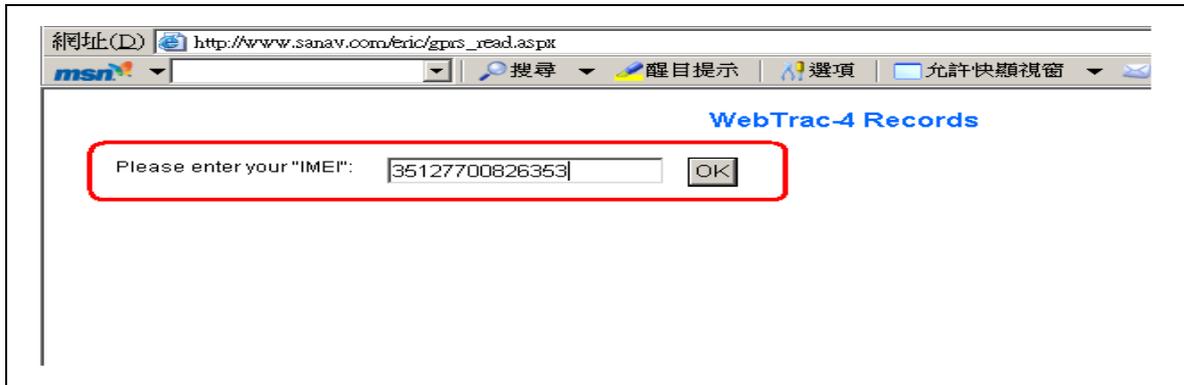
4. Set up Auto Report.

After sending the SMS command shown below with success, the GC-101 will start sending data to Sanav's Website at the interval of 60 seconds and total of 5 reports. However, if either GPRS is not available or APN is incorrect or URL is down, the GC-101 will send the data via SMS to the 1st predefined number in the phone book.

```
#username , 0000 , 6 , 60 , 5 *
```

5. If you do not have the SMS containing the position, please surf to following website and key in your imei code as the 4.1 shown to check out the GPS data.

http://www.sanav.com/eric-gga/gprs_read.aspx



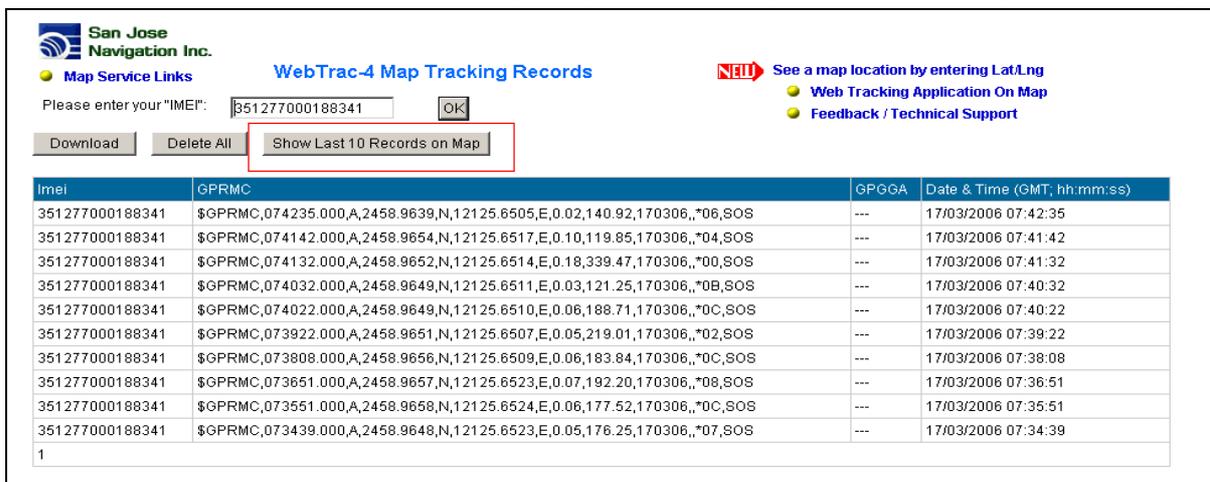
4.1

6. Click on OK and you shall read the RMC data. If you have the message of "invalid imei code", please kindly contact us.



4.2

7. You also can click on the "Show Last 10 Records on Map" and you shall see the position from the Google Map and Google Earth.



5 Setup

GC-101 currently provides 13 commands for setup. You can setup the GC-101 by following the instructions shown in this chapter via SMS from a cellular phone. Key the specific SMS message in your cellular phone as the instruction and send it to the SIM number of GC-101. The setup messages are showed in the following sections.

Note1: The default settings are shown as below.

- a. Default GC-101 ID is "username", and please read Chapter 5.1 in order to change the ID.
- b. Default password is "0000", and please read Chapter 5.2 in order to change the password.
- c. There's no number in the default contact, and please read Chapter 5.5 in order to add the phone number.
- d. Default setting of Auto Report is deactivated, and please read Chapter 5.6 in order to setup the auto regular report.
- e. Default setting of APN is only suitable for Taiwan GSM network and please read Chapter 5.3 in order to change the APN.
- f. Default setting of IP/domain is <http://www.sanav.com/eric-gga/gprs.aspx> and please read Chapter 5.4 in order to change the IP/domain.
- g. Please be aware of the upper and lower cases when you send the SMS command to GC-101.

Note2: Before doing any setup, please ensure GC-101 is connected with the GSM network. The red LED must lights on. And please note that GC-101 must not be under Panic mode.

Note3: While you are keying in any setup message, note that NO space is allowed between the characters in the SMS. Characters can be letters, commas or any signs.

Note4: Any setup message must be started with a "#" sign and ended up with a "*" sign.

Note5: Only when the password, username and setup message are correct, the GC-101 will update information according to user's definition. If the command is not valid, a failure report is going to be sent to the commander cell phone.

5.1 Change Username

You can change the ID of GC-101 by following the format below. No space is allowed between the characters. For example, if you send the SMS message shown in the example below to the GC-101, you will change the ID from “username” to “ason”

Setup format : # 「username」, 「Password」, 「Function Code」, 「New username」 *

Example : #username,0000,1,ason*

The table 5.1.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	Default ID of GC-101
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
1	Mode 1 defines the ID setup
Ason	<ul style="list-style-type: none"> ◇ New ID defined by the owner. ◇ At the maximum of 8 letters.
*	End sign.

Table 5.1.1

The table 5.1.2 shows each confirmation message reply after setup

Situation	Message Reply
Setup Succeeds	[username] + GC-101 username is updated.
Setup Fail	[username] + GC-101 username setup fail!
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, changing username is not allowed.

Table 5.1.2

5.2 Change Password

Use this SMS message example seen below to change the password of GC-101. For example, by following the example below, you will change the default password, "0000" to a new password, "1111".

Setup format : # 「username」, 「Password」, 「Function Code」, 「new Password」, 「new Password」 *

Example : #username,0000,2,1111,1111 *

The table 5.2.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
2	Mode 2 defines to change the password
1111	New password
1111	Reconfirm the password
*	End sign.

Table 5.2.1

The table 5.2.2 shows each confirmation message reply after setup

Situation	Message Reply
Setup Succeeds	[username] + GC101 Password is updated.
Setup Fail	[username] + Password setup Fail!
Incorrect password	[username] + Password setup Fail!
Incorrect username or SMS format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, changing password is not allowed.

Table 5.2.2

5.3 Set up the GPRS APN (Access Point Name)

For uploading the data to a web server, you must have a set of GPRS APN from your GSM network. Various GSM network provides different GPRS APN settings. Please check the referential tables for APN in the Chapter 8 before setup. If you could not find the name of your GSM service provider, please ask your GMS service provider about the APN settings. If the username and password of APN are indefinite or showed in blank, just leave the parameters blank (no space). You can follow the Setup Format below to setup the APN that is provided by your GSM network.

Setup format : # 「username」, 「Password」, 「Function Code」, 「access point name」, 「user」, 「password」 *

Example : #username,0000,3,internet,user,password*

The table 5.3.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
3	Mode 3 defines the APN
Internet	Name of APN
User	Username of APN
Password	Password of APN
*	End sign.

Table 5.3.1

The table 5.3.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + GC101 GPRS APN is updated.
Setup Fail	[username] + GC-101 GPRS APN setup Fail!
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, GPRS APN setup is not allowed.

Table5.3.2

5.4 Set up a host name (URL) to transmit data

This command (SMS) instructs the GC-101 to access an URL or fixed IP for data transmission. If you send the SMS according to the example seen below to GC-101, the URL "http://www.sanav.com/eric-gga/gprs.aspx " will be assigned to receive the data sent from the GC-101. Please note that the question mark "?" or any symbol is not allowed to be keyed in behind the URL. The GC-101 will add the necessary symbol(s) on automatically.

Setup format : # 「username」, 「Password」, 「Function Code」, 「Fixed IP or URL」 *

Example : #username,0000 · 4,http://www.sanav.com/eric-gga/gprs.aspx *

The table 5.4.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
4	Mode 4 defines to trasmit data to a specific website
http://www,sanav.com/eric-gga/gprs.aspx	Default domain name, Sign "?" is not allowed to write in the area.
*	End sign.

Table 5.4.1

The table 5.4.2 is showing each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + GC-101 IP/Domain is updated.
Setup Fail	[username] + IP/Domain setup Fail!
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, IP/Domain setup is not allowed.

Table 5.4.2

5.5 Set up the phone number list

Use this SMS message to predefine the cellular numbers (Max. of 5 numbers) by following the format below.

Setup format: # 「username」, 「Password」, 「Function Code」, 「PH-01」, 「PH-02」, 「PH-03」 *

Example : #username,0000,5,+886123456789,+492234567890,+866323456789*

Note that both adding and not adding the “+” sign in front of the cellular phone number(s) are both acceptable, while the “+” sign should precede the national code.

The table 5.5.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
5	Mode 5 defines the changes of the built-in phone number list.
+886123456789	1 st cellular numbers, PH-01
+492234567890	2 nd cellular numbers, PH-02
+866323456789	3 rd cellular numbers, PH-03
*	End sign.

Table 5.5.1

The table 5.5.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + GC-101 phone book is updated.
Setup Fail	[username] + GC-101 phone book setup Fail!
Non-numeric data is input for numbers	[username] + Parameter error
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, phone book setup is not allowed.

Table 5.5.2

Note: The program will overwrite the previous contact list if the users do this setup.

5.6 Set up the Auto Report

Use this command to set up the frequency of Auto Report. If you send the SMS according to the example shown below to GC-101, you will have an Auto Report Message every 300 seconds for 99 messages. Once the loop is done, you can send a SMS message to update/renew, or switching off it in order to renew it.

Note1: You may limit the amount of the Auto reply messages by inputting the digits from 1 to 9998 in the 「times」 field. When you input 9999, the Auto Report Message will not stop unless you define a new Auto Report Setting.

Setup format : # 「username」, 「Password」, 「Function Code」, 「intervals (sec)」, 「total number of report」 *

Example1 : #username,0000,6,300,99*

The table 5.6.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
6	Mode 6 defines to change the intervals and times of sending-back data
300	A constant interval of sending data
99	The amount of messages sent automatically
*	End sign.

Table 5.6.1

The table 5.6.2 shows each confirmation message reply after setup

Situation	Message Reply
Setup Succeeds	[username] + Setup OK.GC-101 Auto Report setting is updated.
Setup Fail	[username] + Auto Report setting Setup Fail!
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, Auto Report setting is not allowed.

Table 5.6.2

5.7 All parameters reset to default

Use this SMS message to reset GC-101 to factory default. You can just send the SMS according to the example seen below.

It will overwrite all the current parameters to default.

Setup format : # 「username」, 「Password」, 「Function Code」 *

Example : #username,0000,9*

The table 5.7.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
9	Mode 9 defines to change all the parameter to default value
*	End sign.

Table 5.7.1

The table 5.7.2 shows each confirm message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + Setup OK. GC-101 resets to default
Setup Fail	[username] + Reset Fail!
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, reset to default is not allowed.

Table 5.7.2

5.8 Acquire the report of current position

You can send the SMS according to the example shown below. It will transmit current data to the web server (URL) at once.

Setup format : # 「username」, 「Password」, 「Function Code」 *

Example : #username,0000,10*

The table 5.8.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
10	Mode 10 defines to transmit current data to the web server at once.
*	End sign.

Table 5.8.1

The table 5.8.2 shows each confirm message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + Polling OK!
Setup Fail	[username] + Polling Fail!
In mail mode, the setup parameters are empty	[username] + Mail address or SMTP server parameter is empty
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error

Table 5.8.2

Note that the message reply shown in Table 5.8.2 will only be sent back to cell phone that sent the SMS to do configuration. The caller's ID of cellular phone must be activated in order to let the GC-101 recognize the caller ID and response accordingly.

5.9 Set up an E-mail address to receive the data

In addition to receiving data from URL, you can also obtain data from a specified E-mail address via GPRS service. After setting up the APN, you can also define an E-mail address to receive data by following the instruction below, please note that, since processing the transformation from APN to E-mail address might cost longer time, so receiving data from URL is still recommended.

Setup format : # 「username」, 「Password」, 「Function Code」, 「Email address」 *

Example : #username,0000,12,mail@sanav.com*

The table 5.9.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
12	Mode 12 defines to setup an E-mail address data to a specific website
mail@sanav.com	The E-mail address that receives the data.
*	End sign.

Table 5.9.1

The table 5.9.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + mail address Setup OK.
Setup Fail	[username] + mail address setup fail.
GC-101 is in Emergency Mode	[username] + in emergency, Mail address setting is not allowed.
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, Mail address setting is not allowed.

Table 5.9.2

5.10 Set up the SMTP server

After setting up the E-mail address, you still have to setup a SMTP server so that the GC-101 can use the SMTP server send E-mails. Setup SMTP by following instruction:

Setup format : # 「username」, 「Password」, 「Function Code」, 「SMTP server」 *

Example : #username,0000,13,sanav.com*

The table 5.10.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
13	Mode 13 defines to setup a SMTP server
Sanav.com	The SMTP server
*	End sign.

Table 5.10.1

The table 5.10.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + SMTP Setup OK.
Setup Fail	[username] + SMTP server updated fail!
	[username] + SMTP server error.
GC-101 is in Emergency Mode	[username] + in emergency, SMTP server setup not allowed.
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error
GC-101 is in Emergency Mode	[username] + in emergency, SMTP server setting is not allowed.

Table 5.10.2

5.11 Set up the router for transmitting data either by URL/IP or E-mail

You can choose the router to transmit the data by URL/IP, E-mail or SMS message,. Please refer to the following table for setup the router.

The table 5.11.1 describes the meaning of each segment in the message above.

Router code	Representation
0	HTTP/SMS Transmission. Device will send via HTTP as default. In the case of losing GPRS, it will send by SMS.
1	Mail/SMS Transmission. Device will send via E-Mail as default. In the case of losing GPRS, it will send by SMS
2	HTTP Transmission only. Device will send via HTTP only and no SMS.
3	E-mail Transmission only. Device will send via E-Mail only and no SMS.
4	SMS Transmission only.
6	TCP/SMS Transmission. Device will send via TCP as default. In the case of losing GPRS, it will send by SMS.
7	TCP Transmission. Device will send via TCP only.
8	UDP/SMS Transmission. Device will send via UDP as default. In the case of losing GPRS, it will send by SMS.
9	UDP Transmission. Device will send via UDP only.

Setup format : # 「username」, 「Password」, 「Function Code」, 「0, 1,2,3 or 4」 *

Example : #username,0000,14,1 *

The table 5.11.2 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
14	Mode 14 defines to setup router.
0/1/2/3/4/6/7/8/9	Please see the definition of the code above
*	End sign.

Table 5.11.2

The table 5.11.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + Device is switching to HTTP/SMS mode
	[username] + Device is switching to Mail/SMS mode
	[username] + Device is switching to HTTP mode
	[username] + Device is switching to Mail mode
	[username] + Device is switching to SMS mode
	[username] + Device is switching to TCP/SMS mode
	[username] + Device is switching to TCP mode
	[username] + Device is switching to UDP/SMS mode
	[username] + Device is switching to UDP mode
Setup Fail	[username] + is switching to HTTP/SMS mode without success!
	[username] + is switching to Mail/SMS mode without success!
	[username] + is switching to HTTP mode without success!
	[username] + is switching to Mail mode without success!
	[username] + is switching to SMS mode without success!
	[username] + is switching to TCP/SMS mode without success!
	[username] + is switching to TCP mode without success!
	[username] + is switching to UDP/SMS mode without success!
	[username] + is switching to UDP mode without success!
GC-101 is in Emergency Mode	[username] + in emergency, switching to HTTP/SMS mode is not allowed.
	[username] + in emergency, switching to Mail/SMS mode is not allowed.
	[username] + in emergency, switching to HTTP mode is not allowed.
	[username] + in emergency, switching to Mail mode is not allowed.
	[username] + in emergency, switching to SMS mode is not allowed.
	[username] + in emergency, switching to TCP/SMS mode is not allowed.
	[username] + in emergency, switching to TCP mode is not allowed.
	[username] + in emergency, switching to UDP/SMS mode is not allowed.
	[username] + in emergency, switching to UDP mode is not allowed.
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error

Table 5.11.2

5.12 Request Imei code

Imei stands for international mobile equipment identification. We offer you a command to acquire the Imei number from GC-101 via SMS. Actually, every GC-101 budget has a different default Imei code. You can send the SMS according to the example shown below to check its imei number so as to register to the web server for tracking.

Setup format : # 「username」, 「Password」, 「Function Code」 *

Example : #username,0000,imei*

The table 5.12.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
imei	Mode imei is to inquire for international mobile equipment identification of GC-101
*	End sign.

Table 5.12.1

The table 5.12.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + ",[imei]"
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error

Table 5.12.2

5.13 Deactivate Panic mode.

In this function, it helps you to deactivate panic mode forcedly. The SMS command is as following:

Setup format : # 「username」, 「Password」, 「Function Code」 *

Example : #username,0000,offpanic*

The table 5.13.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
offpanic	Mode offpanic is to deactivate the panic status of GC-101
*	End sign.

Table 5.13.1

The table 5.13.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + is forced to deactivate panic status.
Setup Fail	[username] + is not in Panic mode
Incorrect password	[username] + Password setup Fail!
Incorrect username or command format	[username] + command error

Table 5.13.2

5.14 Setup Geofence Coordinate:

This command is used to define the geofence coordinate. After setting up the geofence, user can also setup the geofence report frequency according to the instruction shown in next page. Once the Geofence mode has been activated, shorter battery operation time is expected.

Setup format : # 「username」, 「Password」, 「Function Code」, 「Lat.」, 「N/S」, 「Long.」, 「E/W.」, 「Trigger Mode」 *

Example: #username,0000,gf,2458.9741,N,12125.6460,E,500,1*

The table 5.14.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description	
#	Start sign.	
username	<ul style="list-style-type: none"> ✧ Default ID of GC-101. ✧ If you have changed the Username, please use the updated one. 	
0000	<ul style="list-style-type: none"> ✧ Default password. ✧ If you have changed the password, please use the updated one. 	
gf	Mode gf means Geofence setup mode	
2458.9741	Latitude	
N	N = North, S = South	
12125.6460	Longitude	
E	E= East , W= West	
1	0	It will cancel the geofence.
	1	It will trigger the alarm when the tracker is outside of the geofence.
	2	It will trigger the alarm when the tracker is inside of the geofence.
	3	It will trigger the alarm when the tracker is either outside or inside of the geofence.
*	End sign.	

Table 5.14.1

The table 5.14.2 shows each confirmation message reply after setup.

Situation	Message Reply	
Setup Succeeds	0	[username] + Geofence mode has been deactivated.
	1~3	[username] + setup OK. Device is in Geofence mode.
Incorrect parameters	[username] + switching to Geofence mode is not allowed.	
Incorrect username or command format	[username] + command error	
Device is in emergency mode	[username] + in emergency, Geofence setting is not allowed.	

Table 5.14.2

5.15 Geofence Alarm Report:

This command is used to setup the report frequency of geofence alarm.

Setup format : # 「username」, 「Password」, 「Function Code」, 「Interval」, 「Total Reports」 *

Example: #username,0000,17,60,10*

The table 5.15.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
17	Mode 17 defines to setup geofence alarm report
60	Time interval in second (0~30000)
10	Total report. Note that 9999 means infinite reporting. (0~9999)
*	End sign.

Table 5.15.1

The table 5.15.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + Device TCP/UDP is updated.
Setup Fail	[username] + Device TCP/UDP setup fail.
GC-101 is in Emergency Mode	[username] + in emergency, Geofence Alarm setting is not allowed.

Table 5.15.2

5.16 Setup TCP and UDP address

After setting up the TCP or UDP router, user needs to setup the TCP or UDP address or port to listen to the data sent from GC-101.

Setup format : # 「username」, 「Password」, 「Function Code」, 「IP Address」 *

Example : #username,0000,18,202.39.31.179:1337*

The table 5.16.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
18	Mode 18 is to setup the IP address
202.39.31.179:1337	The IP address. The port number (1337) is assigned after the ":" sign.
*	End sign.

Table 5.16.1

The table 5.16.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + Device TCP/UDP is updated.
Setup Fail	[username] + Device TCP/UDP setup fail.
GC-101 is in Emergency Mode	[username] + in emergency, TCP/UDP setting is not allowed.

Table 5.16.2

5.17 Activate/Deactivate Overhearing

This command allows user to activate and also deactivate the overhearing feature. When the overhearing is deactivated, the dial polling will then be allowed. In dialing polling mode, when the device receives a call (with caller ID), it will send the position data according to the preset router.

Setup format : # 「username」, 「Password」, 「Function Code」, 「Microphone mode」 *

Example : #username,0000,8,1*

The table 5.18.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
8	Mode 18 is to setup the IP address
1	1 When Microphone mode is "1", overhearing is activated. This is the default.
	2 When Microphone mode is "2", overhearing is deactivated and dial (voice) polling is allowed.
*	End sign.

Table 5.17.1

The table 5.18.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	[username] + Device is switching to MIC mode
	[username] + Device is switching to voice polling mode
Setup Fail	[username] + Device setup fail.
GC-101 is in Emergency Mode	[username] + in emergency, MIC setting is not allowed.

Table 5.17.2

5.18 Activate/Deactivate Buzzer

This command allows user to activate and deactivate the buzzer feature.

Setup format : # 「username」, 「Password」, 「Function Code」, 「Buzzer Mode」 *

Example : #username,0000,19,0*

The table 5.18.1 describes the meaning of each segment in the message above.

Text Keyed In SMS	Description
#	Start sign.
username	<ul style="list-style-type: none"> ◇ Default ID of GC-101. ◇ If you have changed the Username, please use the updated one.
0000	<ul style="list-style-type: none"> ◇ Default password. ◇ If you have changed the password, please use the updated one.
18	Mode 18 is to setup the IP address
0	0 When Buzzer mode is "0", buzzer is deactivated.
	1 When Buzzer mode is "1", buzzer is activated.
*	End sign.

Table 5.18.1

The table 5.18.2 shows each confirmation message reply after setup.

Situation	Message Reply
Setup Succeeds	1 [username] + Device buzzer is turned on
	0 [username] + Device buzzer is turned off
Setup Fail	[username] + Device setup fail.
GC-101 is in Emergency Mode	[username] + in emergency, buzzer setting is not allowed.

Table 5.18.2

6: Respond messages

This chapter shows you how to read and understand the different response messages sent from GC-101. When GC-101 is in GPRS/SMS mode it will upload the data to the assigned URL first. However, if GPRS service is not available, it will send the SMS to the predefined phone number instead. In the case of GPRS-only mode, GC-101 will only send the data by GPRS no matter there is GPRS service or not. Basically, there're 7 different situations that trigger the GC-101 to response its position ([Auto Report](#), [Polling](#), [Emergency](#), [Low Power](#)) and are shown in the following pages.

Event Table:

This event table helps you to know what event triggers the response.

Event	Descriptions
Auto	When the monitor sends a valid Auto Report command to GC-101, it will send a report including an "Auto" behind each GPRMC sentence.
SOS	When the user presses the Panic button, it will send the report including an "SOS" event behind each GPRMC sentence. No configuration is allowed in SOS mode. The SOS mode will only be released by special commands (Master Reset and Off Panic) and switching it off/on.
LP	When GC-101 detects its battery 's voltage is lower than certain level, it will send a message to the 1 st predefined number. The event is "LP" that means low power. When receive this message, please recharge the device.
POLL	When using the SMS to poll the report, the event will be "poll".
GFIN	Send data when device entering the Geofence area.
GOUT	Send data when device exiting the Geofence area.

6.1 Auto Report

6.1.1. Uploading Auto data to URL when GPS is fixed

When execute the Auto Report according to the settings with a GPS fixed, GC-101 will upload the data to your URL. The data format will be like the following.

Format:

URL?imei=IMEI,RMC=GPRMC,AUTO

Example:

http://www.sanav.com/eric-gga/gprs.aspx?imei=351277000000000&

RMC= GPRMC,095838.000,A,2458.9733,N,12125.6583,E,0.41,79.21,220905,,*30,AUTO

6.1.2. Uploading Auto data to URL when GPS is not fixed

Example:

http://www.sanav.com/eric-gga/gprs.aspx?imei=351277000000000&

RMC= GPRMC,095838.000,V,2458.9733,N,12125.6583,E,0.41,79.21,220905,,*30,AUTO

Field	Descriptions
IMEI	The username of GC-101 that is a unique number.
GPRMC	It is a full sentence of GPRMC including the current/previous Lat/Long, UTC and others.
AUTO	This is the event triggers the response.

!! Note: 1. When in GPRS or e-mail mode and there is no GPRS service, the report will be sent to the 1st predefined number. In the mean while, the "IMEI" will be changed to the "Username" and the "username" is changeable by using SMS command.

2. The "A" is the GPRMC sentence indicates the GPS status, which is GPS fixed. If the GPS is not fixed, letter "V" will substitute the letter "A".

6.2 Emergency Response

When there is GPRS, GC-101 will upload the data to the URL/e-mail. If the GPRS is not available, it will send the SMS instead. Please read Chapter 3.1 for how Panic works.

6.2.1. Uploading Emergency data to URL/e-mail when GPS is fixed

When there is GPS fixed, device will send a position data to URL or IP with the contents like following:

Format:

URL?imei=IMEI,RMC=GPRMC,SOS

Example:

http://www.sanav.com/eric-gga/gprs.aspx?imei=351277000000000&

RMC= GPRMC,095838.000,A,2458.9733,N,12125.6583,E,0.41,79.21,220905,,*30,SOS

6.2.2. Uploading Emergency data to URL/e-mail when GPS is not fixed

When there is GPS fixed, device will send a position data to URL or IP with the contents like following:

Example:

http://www.sanav.com/eric-gga/gprs.aspx?imei=351277000000000&

RMC= GPRMC,095838.000,V,2458.9733,N,12125.6583,E,0.41,79.21,220905,,*30,SOS

Field	Descriptions
IMEI	The username of GC-101 that is configurable.
\$GPRMC	It is a full sentence of \$GPRMC including the current/previous Lat/Long, UTC and others.
SOS	This is the event triggers the response.

!! Note: 1. When in GPRS or e-mail mode and there is no GPRS service, the report will be sent to the 1st predefined number. In the mean while, the "IMEI" will be changed to the "Username" and the "username" is changeable by using SMS command.

2. The "A" is the GPRMC sentence indicates the GPS status, which is GPS fixed. If the GPS is not fixed, letter "V" will substitute the letter "A".

6.3 Polling Response

6.3.1. Uploading Poll data to URL when GPS is fixed

When send an SMS or dial to poll a report with a GPS fixed, GC-101 will upload a data to your URL. The data format will be like the following.

Format:

URL?imei=IMEI,RMC=GPRMC,POLL

Example:

http://www.sanav.com/eric-gga/gprs.aspx?imei=351277000000000&

RMC= GPRMC,095838.000,A,2458.9733,N,12125.6583,E,0.41,79.21,220905,,*30,POLL

6.3.2. Uploading Poll data to URL when GPS is not fixed

When send an SMS or dial to poll a report without a GPS fixed, GC-101 will upload the data to your URL. The data format will be like the following.

Example:

http://www.sanav.com/eric-gga/gprs.aspx?imei=351277000000000&

RMC= GPRMC,095838.000,V,2458.9733,N,12125.6583,E,0.41,79.21,220905,,*30,POLL

Field	Descriptions
IMEI	The IMEI of GC-101 that is a unique number.
GPRMC	It is a full sentence of GPRMC including the current/previous Lat/Long, UTC and others.
POLL	This is the event triggers the response.

!! Note: 1. When in GPRS or e-mail mode and there is no GPRS service, the report will be sent to the 1st predefined number. In the mean while, the "IMEI" will be changed to the "Username" and the "username" is changeable by using SMS command.

2. The "A" is the GPRMC sentence indicates the GPS status, which is GPS fixed. If the GPS is not fixed, letter "V" will substitute the letter "A".

6.4 Geofence Response

After the Geofence coordinate and the alarm report are defined, and the device trigger the alarm by either entering or exiting (according to the user's setting), it will send the position data according to the alarm report frequency.

6.4.1. Uploading Geofence alarm data to URL when GPS is fixed

When there is GPS fixed, device will send a position data to URL or IP with the contents like following:

Format:

URL?imei=IMEI,RMC=GPRMC,GFIN

URL?imei=IMEI,RMC=GPRMC,GOUT

Example:

http://www.sanav.com/eric-gga/gprs.aspx?imei=351277000000000&

RMC= GPRMC,095838.000,A,2458.9733,N,12125.6583,E,0.41,79.21,220905,,*30,GFIN

6.4.2. Uploading Poll data to URL when GPS is not fixed

When there is no GPS fixed, device will send a position data to URL or IP with the contents like following:

Example:

http://www.sanav.com/eric-gga/gprs.aspx?imei=351277000000000&

RMC= GPRMC,095838.000,V,2458.9733,N,12125.6583,E,0.41,79.21,220905,,*30,GOUT

Field	Descriptions	
IMEI	The IMEI of GC-101 that is a unique number.	
GPRMC	It is a full sentence of GPRMC including the current/previous Lat/Long, UTC and others.	
GFIN / GOUT	GFIN	Send data when device entering the Geofence area.
	GOUT	Send data when device exiting the Geofence area.

!! Note: 1. When in GPRS or e-mail mode and there is no GPRS service, the report will be sent to the 1st predefined number.
In the mean while, the "IMEI" will be changed to the "Username" and the "username" is changeable by using SMS command.

2. The **"A"** is the GPRMC sentence indicates the GPS status, which is GPS fixed. If the GPS is not fixed, letter **"V"** will substitute the letter **"A"**.

6.5 NMEA 0183 GPRMC Sentence

\$GPRMC (out) – UTC, position, course, speed, etc.

Example

\$GPRMC	,123456.789	,A	,3444.1234,N	,13521.4567,E	,005.6... ..	,123.52	,020197
Field#	1	2	3 4	5 6	7	8	9
,,	*07	CRLF					
10	11	12					

#.	Description	Range
1.	UTC: Time	
	“12”: hh	00-23
	“34”: mm	00-59
	“56”: ss	00-59
	“.789” :.sss	.000 - .999
2.	Status	A or V
	“A”: Data valid	(Stand-alone or DGPS)
	“V”: Navigation receiver warning	
3-4.	Latitude	
	“34”: degree	00-90
	“44”: minute (integer)	00-59
	“1234”: minute (fraction)	0000-9999
	“N”: North/South	N or S
5-6	Longitude	
	“135”: degree	000-180
	“21”: Minute (integer)	00-59
	“4567”: Minute (fraction)	0000-9999
	“E”: East/West	E or W
7.	Speed (kts)	000.0-999.9
	Note: A null field is output unless speed information is available.	
8.	True Course (degree)	
	“123.52”	000.00-359.99
	Note: A null field is output unless true course information is available.	
9.	UTC: Date	
	“02”: DD	01-31
	“01”: MM	01-12
	“97”: YY	97-40 (1997-2040)
10	Magnetic Deviation (degree)	
	“ ”	SiRF Technology Inc. does not support magnetic declination. W or E “W”: West (MAG = TRUE-DEV) “E”: East (MAG = TRUE+DEV)
12.	Checksum	
	8 bits data between “\$” and “*” (excluding “\$” and “*”) are XORed, and the result is converted to 2 bytes of hexadecimal letters. Only RMC sentences are transmitted with checksum. All other output sentences do not include checksum fields.	

7 Warranty

Warranty Time Period and Repair Coverage

SAN JOSE NAVIGATION, INC. warrants GC-101 to be free from all defects and malfunctions in materials and workmanship for a period of 12 months from the original purchase date from San Jose Navigation or authorized dealers. If the equipment functions improperly during the warranty period, San Jose Navigation will either repair or replace the unit without charge. Such repair service will include necessary adjustments, remanufacture, and replacements. The product should be returned freight-prepaid by the purchaser within valid warranty period. **Notice that you must contact San Jose Navigation for a RMA (Return Material Authorization) number before returning the goods for repair.**

Telephone assistance will also be provided during the warranty period.

Limitations

This warranty is limited only to the repair or replacement of defective parts confirmed by San Jose Navigation to be a result of faulty materials or workmanship. Instruments mechanically or physically damaged due to the following conditions are beyond our warranty:

Neglect, misuse or abuse, such as a incorrect testing, installation, or operation.

Place subject in extreme environments beyond the limits of the specifications.

Subjected to disassembling, soldering, alteration, unauthorized repair, and electrical shock by nature.

Any incidental or consequential losses or damages result from the purchase.

Disaster, accident, using any unauthentic substitutive equipment or loss of any accessory that's not provided by San Jose Navigation.

For damages caused under the above conditions, we'll contact you to discuss replacement options.

SANJOSE NAVIGATION, INC.

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