

GS-TRAC[®]
Powered by **GlobalSat**

AVL Tracking System TR-600



V 1.0

Globalsat Technology Corporation

16F., No. 186, Jian-Yi Road, Chung-Ho City, Taipei Hsien 235, Taiwan
Tel: 886.2.8226.3799/ Fax: 886.2.8226.3899
service@globalsat.com.tw
www.globalsat.com.tw

USGlobalSat Incorporated

1308 John Reed Court, City of Industry, CA 91745
Tel: 626.968.4145 / Fax: 626.968.4373
sales@usglobalsat.com
www.usglobalsat.com

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1. Introduction

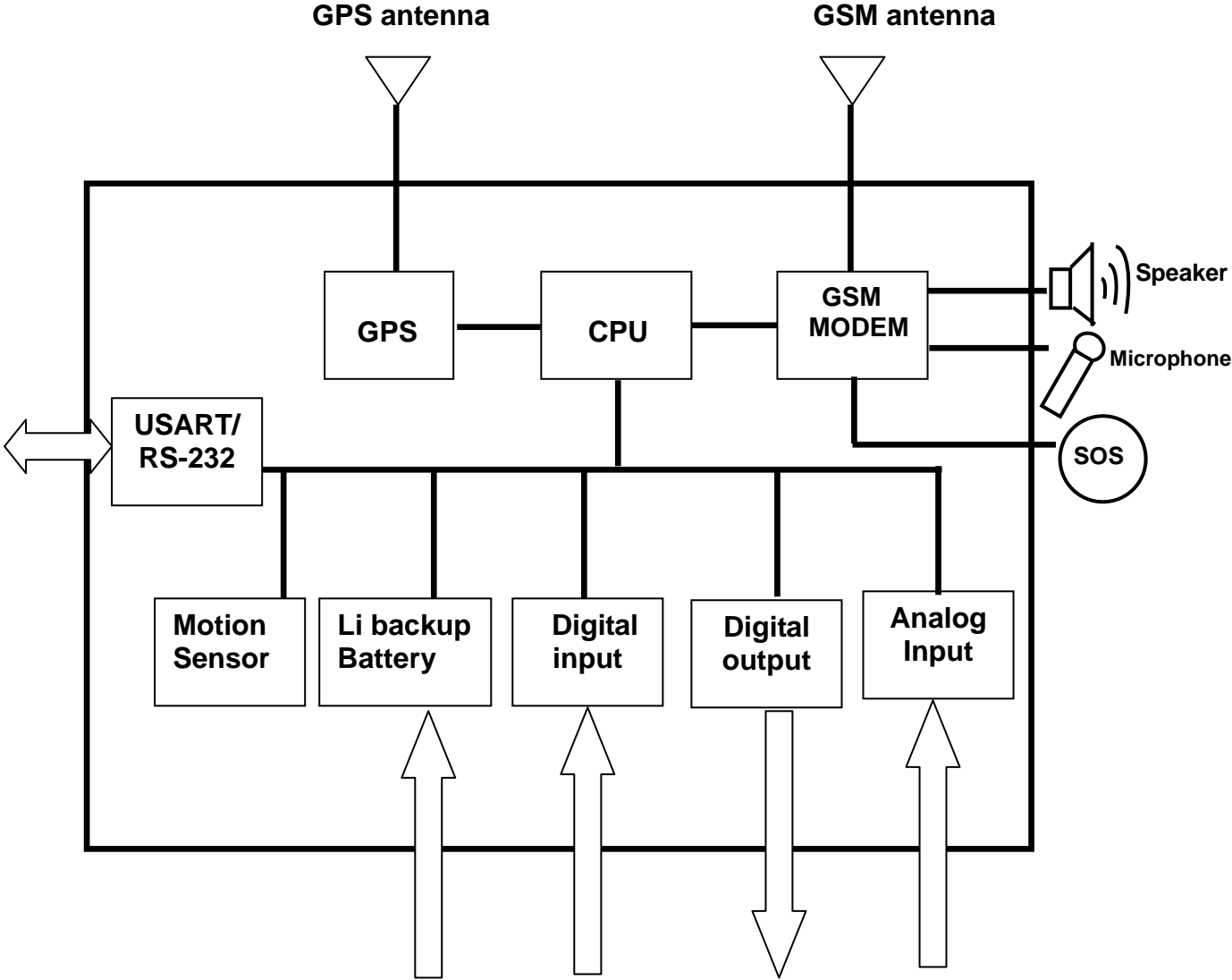
1.1 Introduction

The TR-600 is a multi-functional and economically feasible communication platform for mobile positioning applications. It integrates highly sensitive GPS module and quad-band GSM communication module with a powerful microcontroller that fits into a compact enclosure. The TR-600 has a solid and rigid housing, for simple installation. It provides real-time GPS positions anytime and anywhere with an open view to the sky, and offers precise positioning, and reports vehicle status to the server with necessary information shown on the map. Benefits such as enhanced fleet management, improved vehicle safety, emergency response, are all accomplished through the implementation of the TR-600 system.

1.2 Features

- Build in Quad-band 850/900/1800/1900 MHz GSM system
- Build in high sensitivity GPS system
- Supports AT command via SMS/ TCP/UDP
- Remote control via SMS/GPRS command
- Real-time GPS position feedback and vehicle status monitoring
- Built-in in digital outputs (3), digital inputs (3), an ACC input, 1 analog input, and 1 serial port
- Power supply for Li-ion battery and lead-acid battery
- Supports multi geo-fence function
- OTA (Over the air) firmware updates
- Data logger for 50,000 points
- Ignition/ Power Low/ Power Lost / Speed Limit detection alarm
- 3 LED indicators for GSM, GPS, power status
- External panic button for emergency SOS (Optional)

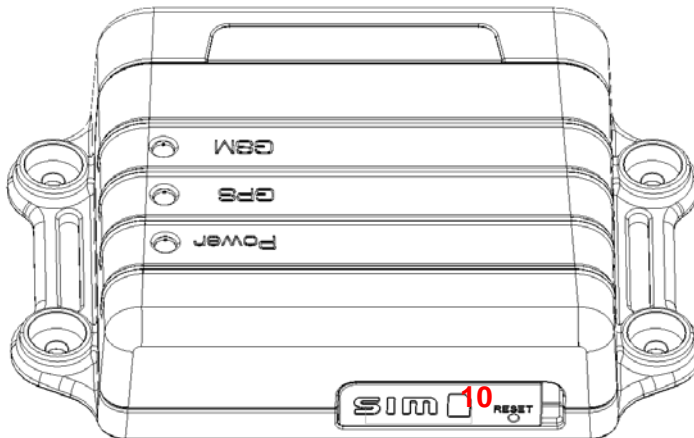
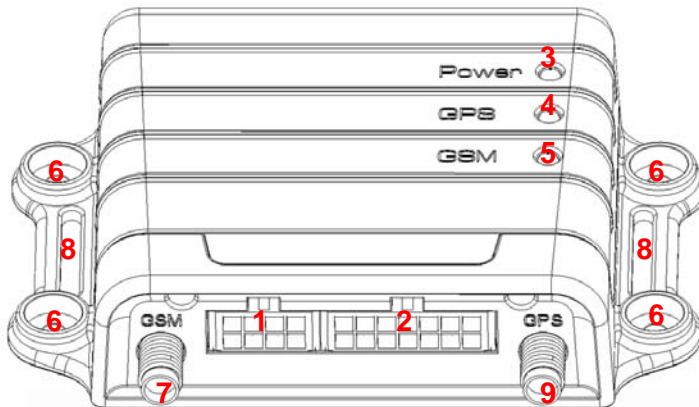
1.3 Hardware Architecture



1.4 Hardware specification

Item	Description	
Dimension	98 mm X 65 mm X 22 mm	
CPU	High performance line ARM-base 32-bit MCU	
GPS receiver	SiRF Star III high performance GPS chipset	
Temperature	Operation	-30°C ~ + 80°C
	Storage	-40°C ~ + 85°C
GPS Antenna	SMA Type connector Active antenna (3.3~3.8V)	
GSM Antenna	SMA Type connector	
Communication	Telit (GE865) Quad-band GSM 850/900/1800/1900 MHz	
Protocol	Voice/SMS/GPRS (TCP/UDP)	
Built-in Memory	32 Mb	
GPS logging capacity	50,000 points	
Emergency Input	Negative trigger	1
Ignition (ACC) Input	Positive trigger	1
Digital Input Port	Negative trigger	2
	Positive trigger	1
Digital Output Port	Negative trigger	3 (300 mA)
Analog Input Port	Analog Input	1(0~28V)
Serial Port	115200 bps	
Backup battery (Option)	Internal 800 mAh Lion battery Support external Lead-acid battery (12V/24V)	
Hands-free Kit (Option)	Support external speaker and microphone	
Sensor	Motion sensor	

1.5 Appearance



1	Peripheral interface port
2	I/O port
3	Power Status LED
4	GPS LED
5	GSM LED
6	For fixing device with screws
7	GSM antenna connector
8	For fixing device with belt
9	GPS antenna connector
10	SIM card holder

1.6 LED indicator

Power Status LED (Red)

LED	Permanently On
State	Main power on, device on

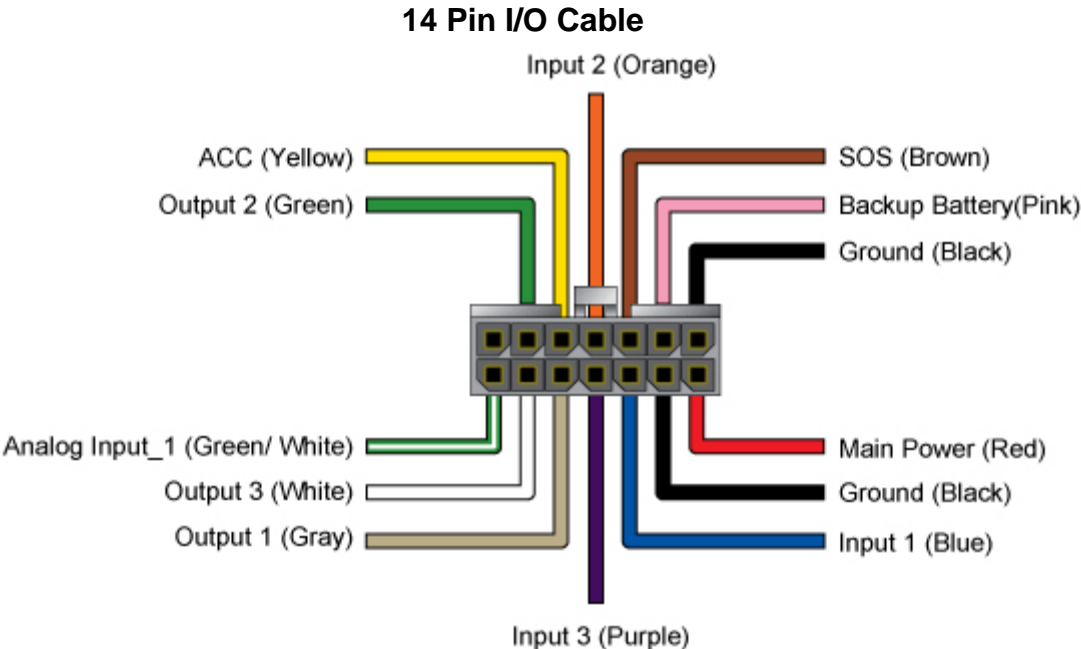
GPS LED (Yellow)

LED	Permanently off	Fast blinking (Once every 1 second)	Slow blinking (Once every 3 seconds)
State	GPS off	GPS not fix	GPS fix

GSM LED (Green)

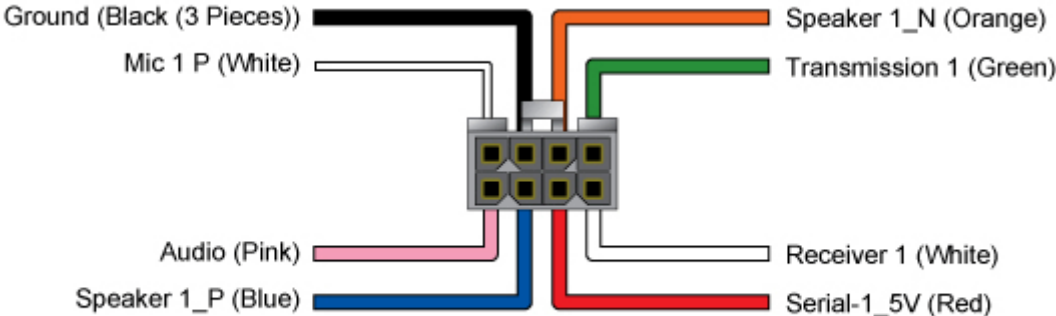
LED	Permanently off	Fast blinking (Once every 1 second)	Slow blinking (Once every 3 seconds)
State	GSM off	<ol style="list-style-type: none"> 1. TR-600 is searching GSM network 2. SIM card is registering to GSM network 	TR-600 is registered full service

1.7 Cable description



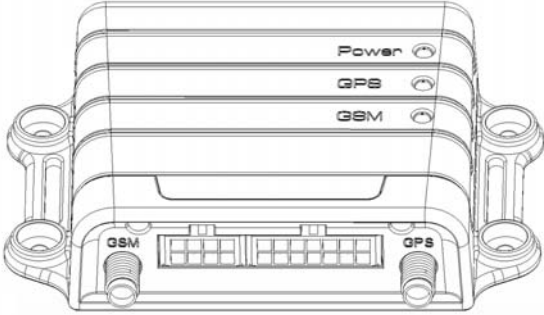
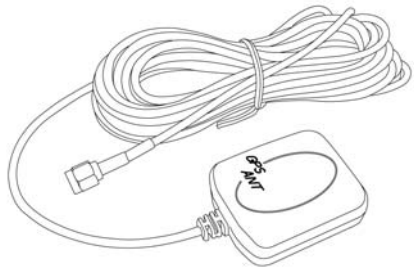
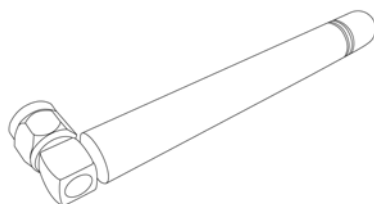
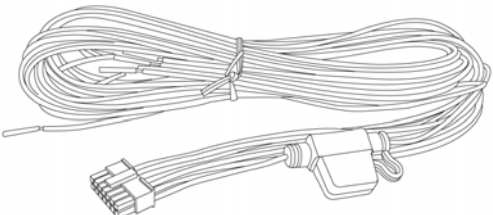

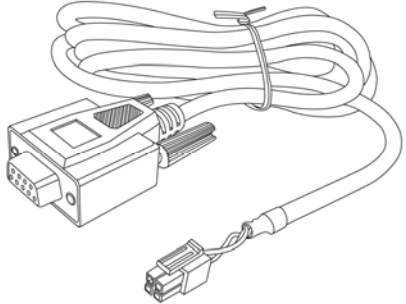
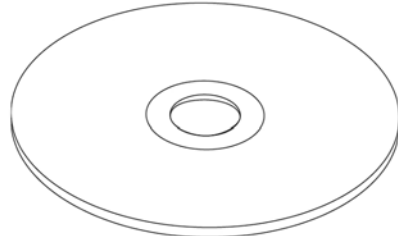
Wire Color	Description
Green/ White	Analog Input_1
White	Digital Output 3 (Negative Trigger)
Gray	Digital Output 1 (Negative Trigger)
Purple	Digital Input 3 (Positive Trigger)
Blue	Digital Input 1 (Negative Trigger)
Black	Ground
Red	Main Power
X	
Green	Digital Output 2 (Negative Trigger)
Yellow	ACC (Positive Trigger)
Orange	Digital Input 2 (Negative Trigger)
Brown	SOS (Negative Trigger)
Pink	12V/24V Backup Battery
Black	Ground

8 Pin Cable



Wire Color	Description
Pink	Audio_5V
Blue	Speaker 1(Positive)
Red	Serial-1_5V
White	Receiver 1
White	Microphone 1 P
Black (3 Pieces)	Ground
Orange	Speaker 1(Negative)
Green	Transmission 1

1.8 Accessories

 <p>Main Unit</p>	 <p>GPS Antenna</p>
 <p>GSM Antenna</p>	 <p>14 Pin I/O Cable</p>
 <p>8 Pin Cable</p>	 <p>RS-232 Cable (Option)</p>
 <p>CD (User manual, driver)</p>	

2 Operation

For first time users, please follow the steps below to complete the pre-installation.

2.1 Install the SIM card



With the copper contacts face-up, align the notch on the SIM card with the notch on the SIM slot and insert the SIM card. If SIM is inserted correctly, you will not be able to see the copper contacts after inserting the card. To eject SIM card, simply, use your finger nail and apply slight pressure.

Note: Make sure to disable the SIM PIN entry function on the SIM card before inserting your SIM card

Note: Before installing or taking out the SIM card, please power off the TR-600.

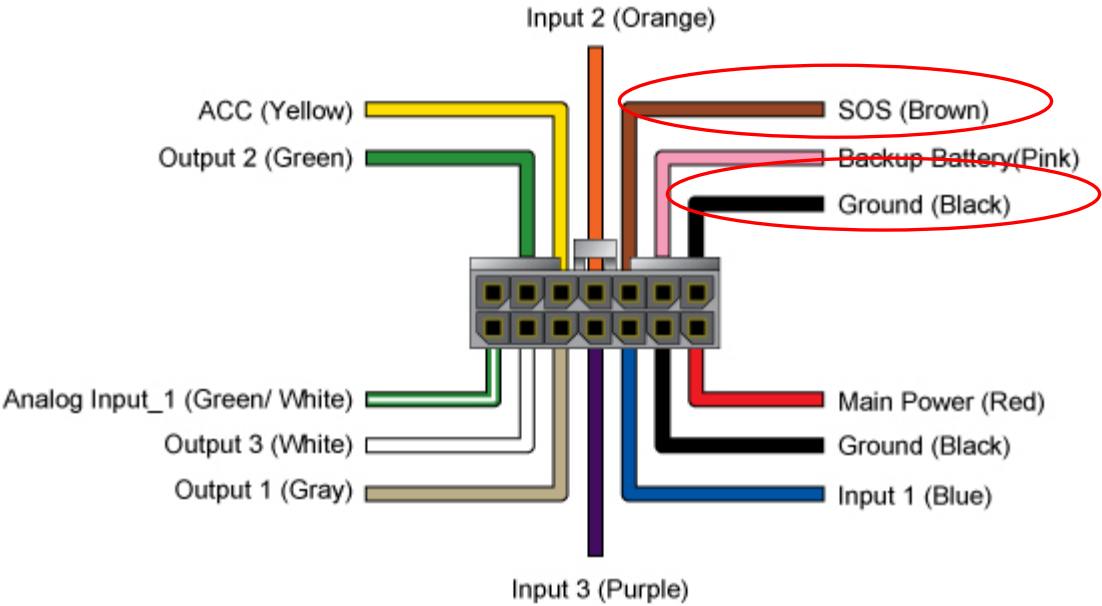
2.2 Install the GPS and GSM antenna



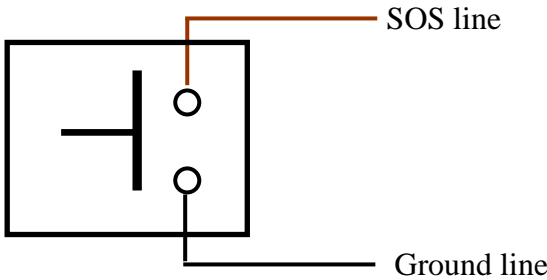
Install the GSM antenna to the GSM antenna port on the left side of the back of the device and install the GPS antenna to the GPS antenna port on the right side of the back of the device making sure both antennas tightly screwed in place. Please refer to the photo above.

2.3 Installing the Emergency button

There is a line of the 14 pin IO cable for connecting push button for emergency help.



One end of the button must be connected to the SOS line and the other end must be connected to the ground line.



3 Free Web Service

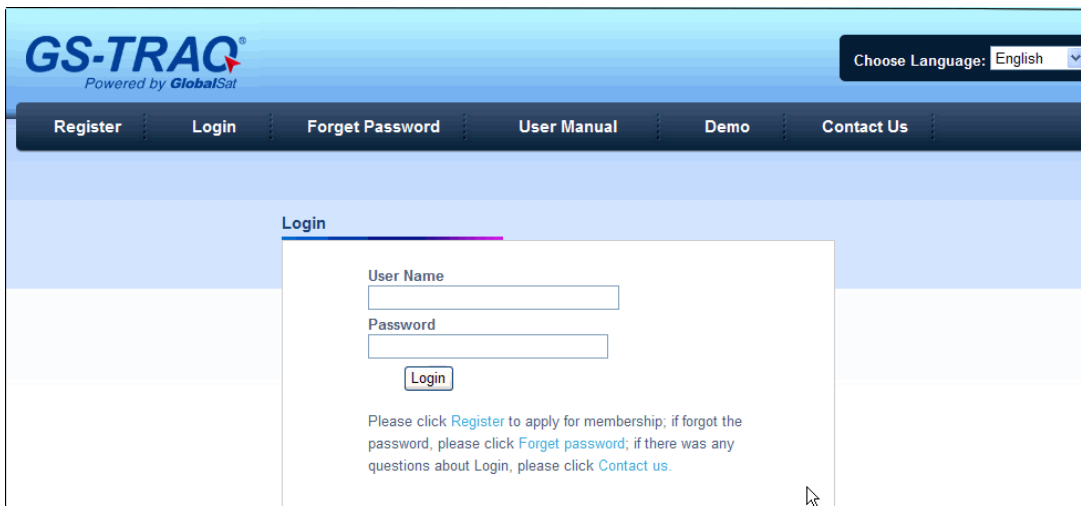
3.1 Preparation for Internet Use

- Be certain your SIM card has an appropriate data plan whether it is a pre paid plan or a month-to-month plan and verify with your telecommunications operator that your data plan has GPRS activated. Or, you may verify GPRS connectivity by inserting your SIM card into a mobile phone, and then test the GPRS by using the mobile phones web browser.
- Contact your telecommunications operator concerning GPRS settings.
- Contact your telecommunications operator to **disable voicemail, call waiting, and call forwarding** to the SIM card.
- The tracker IMEI and serial number information can be found on the bottom of the TR-600.

3.2 Account creation

On your web browser please go to <http://traq.gstraq.com/>

Next, click the blue **Register** link.



The screenshot shows the GS-TRAQ website interface. At the top left is the logo "GS-TRAQ Powered by GlobalSat". At the top right is a language selection dropdown menu set to "English". Below the logo is a navigation bar with links: Register, Login, Forget Password, User Manual, Demo, and Contact Us. The main content area is titled "Login" and contains a form with two input fields: "User Name" and "Password". Below the fields is a "Login" button. At the bottom of the form, there is a text block: "Please click Register to apply for membership; if forgot the password, please click Forget password; if there was any questions about Login, please click Contact us."

Read **Agreement**, check **I Agree**, and click **Next** button.

Agreement

Agreement

Please read and agree to these terms of use before you continue using this service. Globalsat may, at its sole discretion, modify these terms and conditions at any time, and you must in such case agree to be bound by such modifications or discontinue using the service.

1. USAGE
You agree that the Service is provided on an AS IS basis. Globalsat disclaims all responsibility and liability for the availability, timeliness, security or reliability of the Service. Globalsat also reserves the right to modify, suspend or discontinue the Service with or without notice at any time and without any liability to you.

You agree that you will use the Service in compliance with all applicable laws, rules and regulations. You agree that you will use Globalsat Website Service for non-commercial purposes only. You shall not: (i) prevent others from using the Service; (ii) use the Service for any fraudulent or inappropriate purpose. Violation of any of the foregoing may result in immediate termination of this Agreement, and may subject you to other legal consequences. Globalsat reserves the right, but shall have no obligation, to investigate your use of the Service in order to determine whether a violation of the Agreement has occurred or to comply with any applicable law.

2. RIGHTS
You acknowledge that Globalsat owns all rights in and to the Service, including without limitation all intellectual property rights. Accordingly, you agree that you will not copy, reproduce, alter, modify, or create derivative works from the Service.

Globalsat will keep your data privately with your permission, as we understand that privacy is of importance to you. However, you do agree that Globalsat may monitor or disclose your data in order to comply with applicable laws, rules and regulations. Globalsat reserves the right to use anonymous data from the Service to develop our

I Agree

Click the **Next** button.

Select your **Time Zone**, enter **Device IMEI** and **Serial No.**, select your **Country code**, enter **Device Phone Number**, **Device Name**, and click the **Next** button.

Enter the required device information.

Device Type:
 TR-600

Time Zone:
Asia/Taipei(GMT+8) ▼

Device IMEI:

Device Serial No.:

Country Code:
African(+236) ▼ (Please select your country code.)

Device Phone Number:
 (Please enter local number. Example:09716532xxx)

Device Name:
 (Please enter device name. Example: Tracker ...)

Create your login profile by entering **User Name**, **Password**, and **Email**, and click the **Next** button.

Step3.

Enter the login user information.

User Name:

Password:

Confirm Password:

E- Mail:

Please print this page or write down your **User Name, Password** and click “**Click to start Setup**” button.

Step3.

The user account is created successfully!

Please print this page or write down your user name and password

User Name:joshua
Password: savior
E- Mail: heaven@gmail.com

Select your country and telecommunications operator. Selecting your telecommunications operator will bring out the concerning GPRS parameters. If you do not find your telecommunications operator in the pull-down menu or the information in the pull-down menu is incorrect, please click the **User Define**. And then please contact your telecommunications operator about the GPRS parameter. Click the **Auto Send SMS** button.

Step4. Enter the GPRS setting parameter.

Please contact your telecom operator about the GPRS parameter and fill in it.

Attention:

1. Because system service providers change without notice, there may be errors in pull-down menu and thus errors can cause incorrect setting. We suggest you to contact your system service provider about GPRS parameters before set-up. Otherwise, incorrect parameters will make TR device can not connect to GPRS to send back data. If your system service provider is not in pull-down menu, or the info in pull-down menu is incorrect, please press "User Define" in right hand side to set up GPRS paramet manually.
2. Some system service providers sell pre-paid/value pre-loaded SIM cards, and their parameter settings may be different with monthly-plan SIM card. As a result, please contact your system service providers before set-up.
3. You can put the SIM card into your cellular phone; open web browser to connect internet, in order to ensure GPRS parameters are correct and the function of GPRS is on.

Please choose the country ==> choose operator.

Country :	=== Choose Country ===	<input type="button" value="User Define"/>
Your telecom operator:	= Choose telecom operator =	
GPRS APN:	<input type="text"/>	
GPRS User Name: :	<input type="text"/>	
GPRS Password: :	<input type="text"/>	

Website provides 3 pieces of free SMS for setting the GPRS parameters of TR Device.

After receiving the setup SMS, TR device will use the setup GPRS setting and connect to the web side.

If you fail to set up at the first time and would like to re-set up, please login Web Server; click "setup" tab, and then go to "Send setup SMS" to do it again.

You could send the free SMS by clicking button.

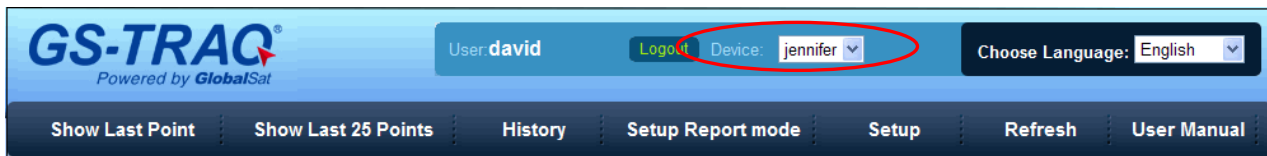
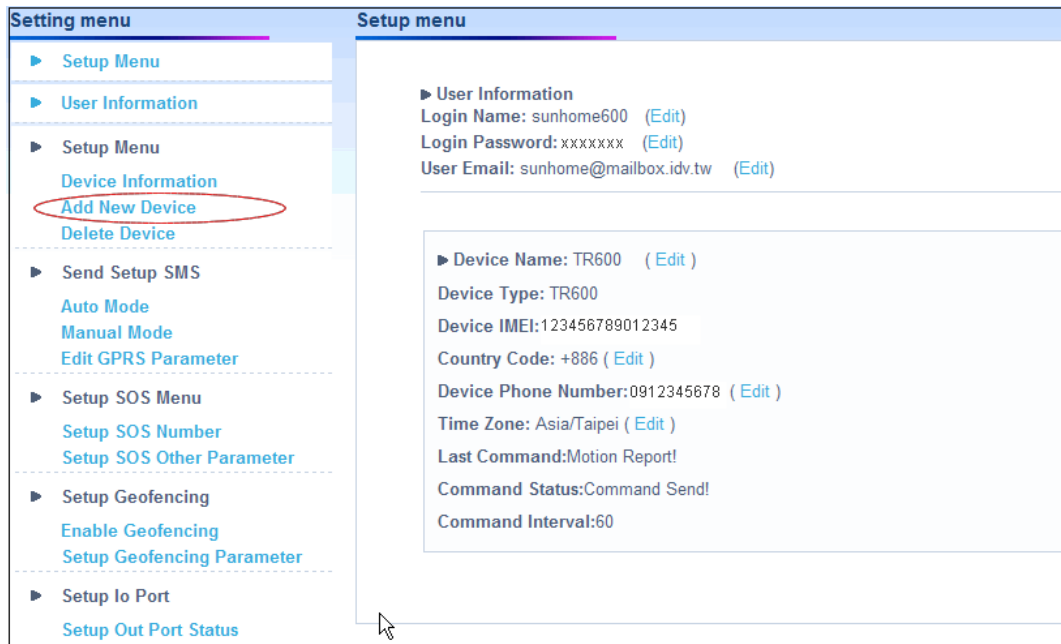
Click the **Send** button.

3.3 Account creation

Perform the following: **Setup** → **Add New Device**

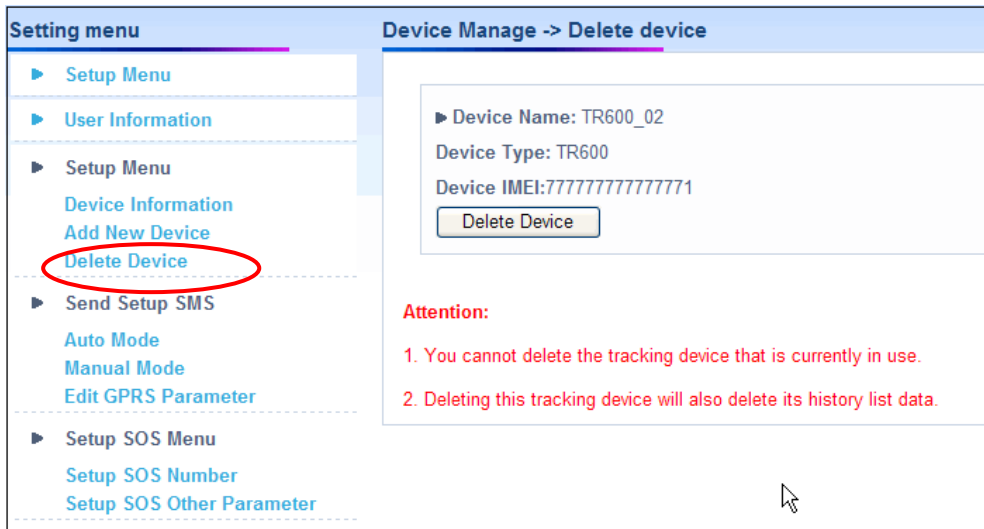
Then refer to **3.2 Create Account** to enter the information of the device.

After adding the required information and sending out the SMS, you could switch to a different device by selecting the **Device** pull-down menu on the upper right corner of the webpage.



3.4 Delete device from your account

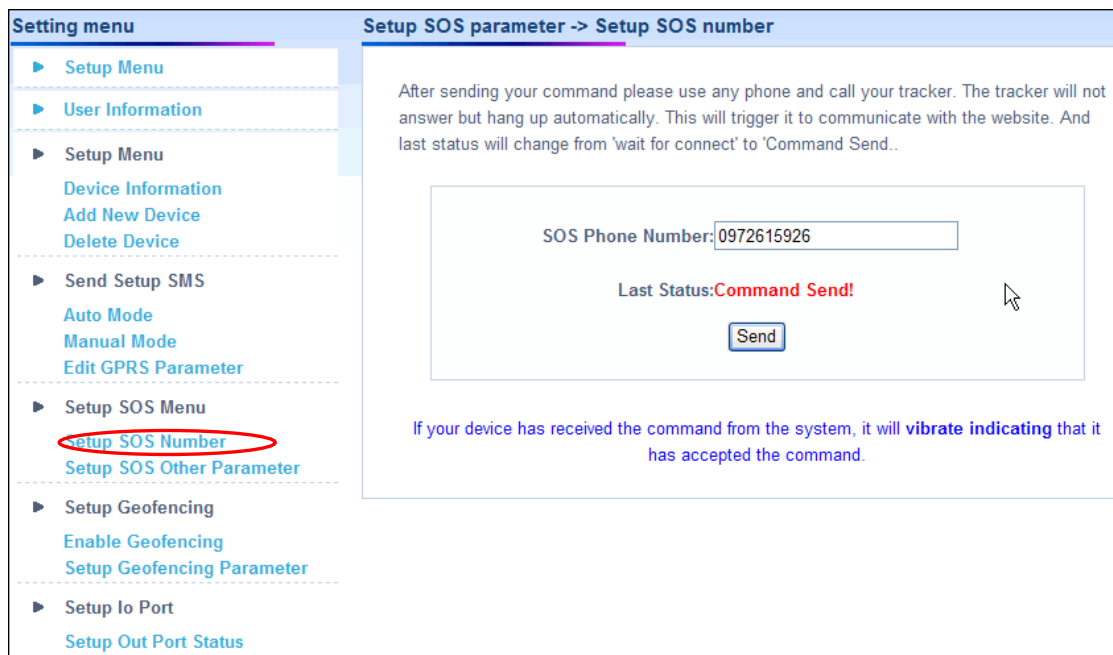
Perform the following: Go to **Setup** → **Delete Device** select the device you would like to delete. And then click the **Delete Device** button.



3.5 Setting up the SOS Parameters

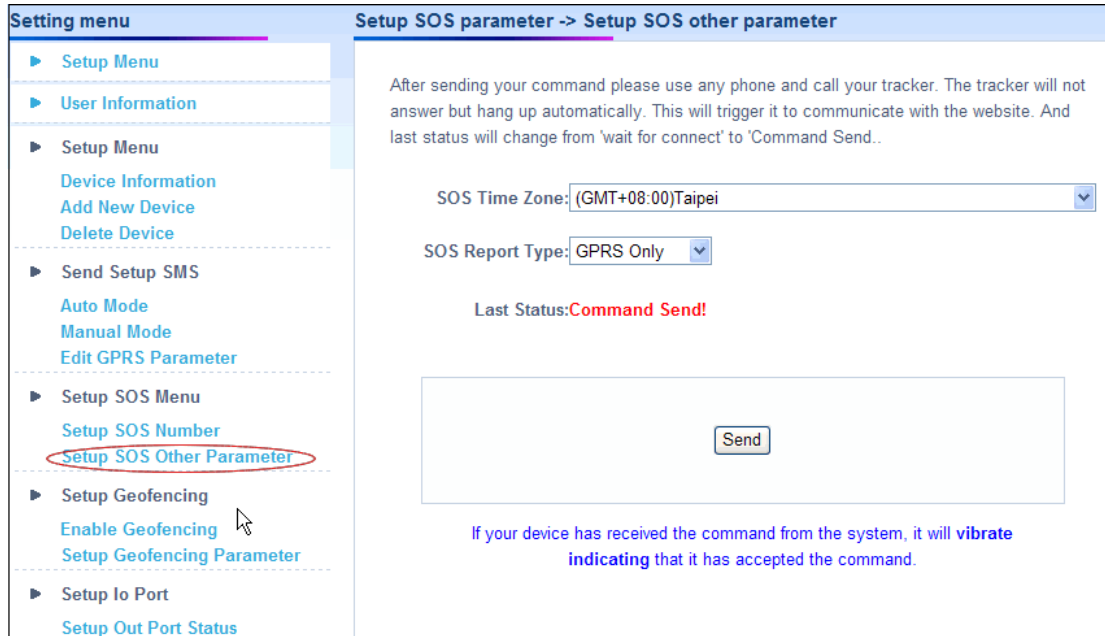
SOS Phone Number

1. Perform the following: **Setup → Setup SOS Number**
2. Enter destination phone number to receive emergency SMS'.
3. Click the **Send** button.
4. Next, go to the **Setup SOS Other Parameter**



SOS Time Zone

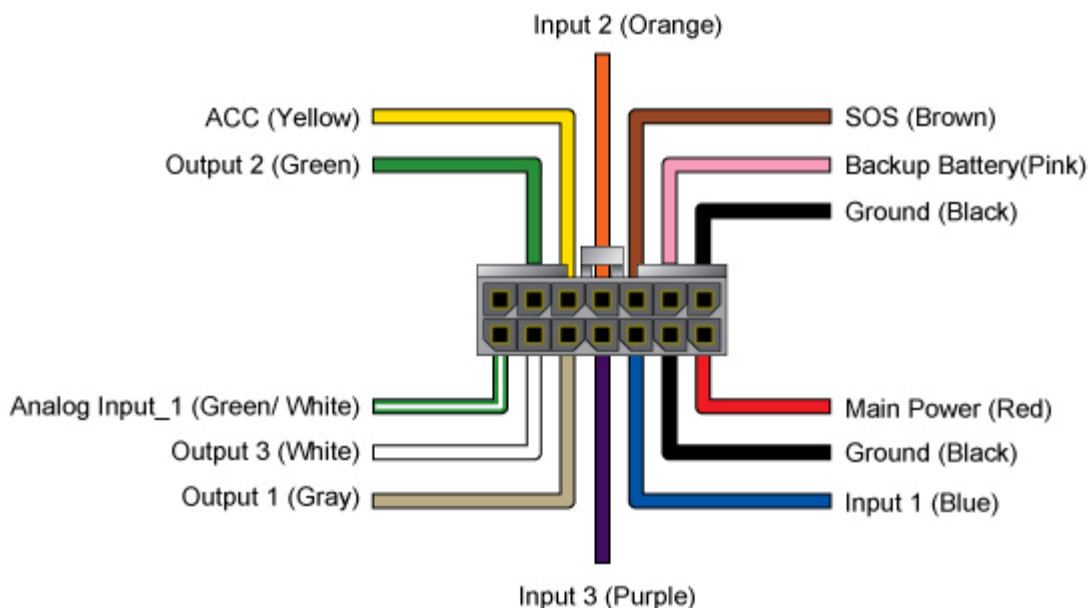
1. Select your time zone for the SOS Time Zone and select your SOS Report Type
2. Click the **Send** button.
3. Then copy the SMS and send it to the phone number of the SIM card in your TR-600 via mobile phone.



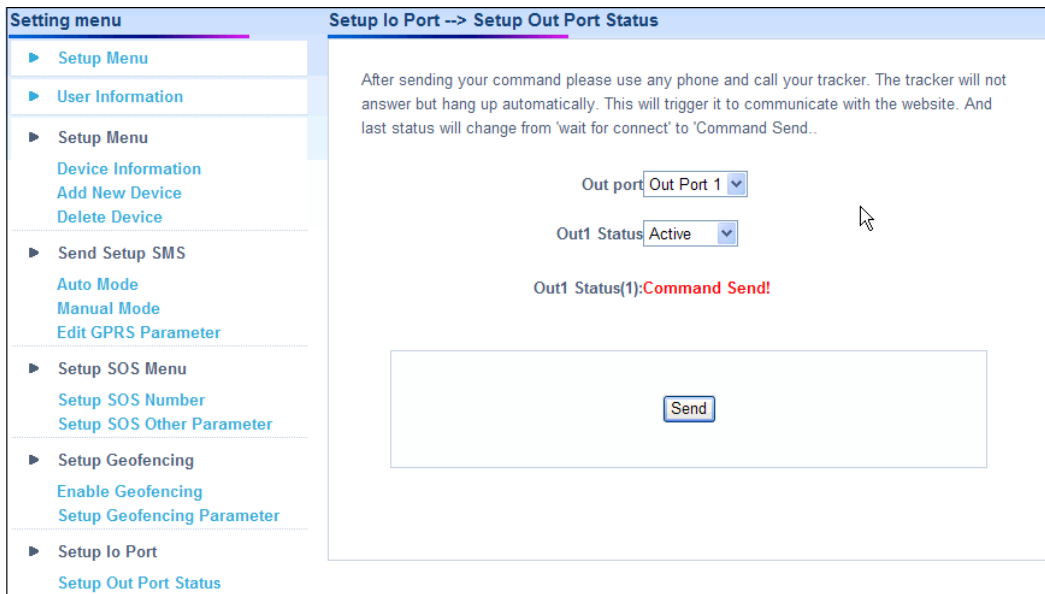
Note: .The content of the SOS report includes GPS fix date and time. The GPS date and time will be according to the setting of SOS Time Zone.

3.6 Set up Digital Output

There are 3 digital outputs of TR-600. Below please find the corresponding positions. You could activate or deactivate on the GS-TRAQ website..



1. Perform the following: **Setup → Setup Out Port Status**
2. Select digital output port in the pull-down menu of **Out port**.
3. Select **Active** to activate that digital output or Disactive, to deactivate that digital output in the pull-down menu of **Out Status**.
4. Click the **Send** button.
5. Then please copy the SMS and send it to the phone number of TR-600 via mobile phone



Setting menu Setup Io Port -> Setup Out Port Status

▶ Setup Menu

▶ User Information

▶ Setup Menu

 Device Information

 Add New Device

 Delete Device

▶ Send Setup SMS

 Auto Mode

 Manual Mode

 Edit GPRS Parameter

▶ Setup SOS Menu

 Setup SOS Number

 Setup SOS Other Parameter

▶ Setup Geofencing

 Enable Geofencing

 Setup Geofencing Parameter

▶ Setup Io Port

 Setup Out Port Status

After sending your command please use any phone and call your tracker. The tracker will not answer but hang up automatically. This will trigger it to communicate with the website. And last status will change from 'wait for connect' to 'Command Send..

Out port: Out Port 1

Out1 Status: Active

Out1 Status(1):Command Send!

Send

3.7 TR-600 Motion report

1. Select **Setup Report Mode** on the menu bar.
2. Select **Motion Report** in the pull-down menu of **Report Command**
3. Enter the value for **Report Interval (Static)** (Range 30~65535 seconds) and **Report Interval (Moving)**. (Range 10~65535 seconds)
4. Click the **Send** button.
5. Then please copy the SMS and send it to the phone number of TR-600 via mobile phone

Setup Report mode

Device Name: TR600

Type Of Device: TR600

Device Phone Number:0920333333

Last Command:Motion Report

Last Status:**Command Send!**

Report Command

Report Interval(Static) Secs
(The report interval must be set between 30-31536000 sec.)

Report Interval(Moving) Secs
(The report interval must be set between 10-31536000 sec.)

After sending your command there are two methods of TR device taking command when TR device is on Motion Report mode.

1.Please use your mobile phone and send the following SMS:**GSC,012345678901234,N1*1d!** to your device phone number:0920333333
 When tracker receives this SMS, it will connect back to the website; and the command is sent out at the same time.

2. Wait till next report; command is sent out while TR device connects to the website.

3.8 Stop TR-600 Motion report

Stop Motion Reporting

1. Select **Setup Report Mode** on the menu bar.
2. Select **Stop Report** in the pull-down menu of **Report Command**
3. Click the **Send** button. The TR-600 will stop the motion report.
4. Copy the SMS and send it to the phone number of TR-600 via mobile phone.

Setup Report mode

Device Name: TR600

Type Of Device: TR600

Device Phone Number:0920333333

Last Command:Motion Report

Last Status:**Command Send!**

Report Command

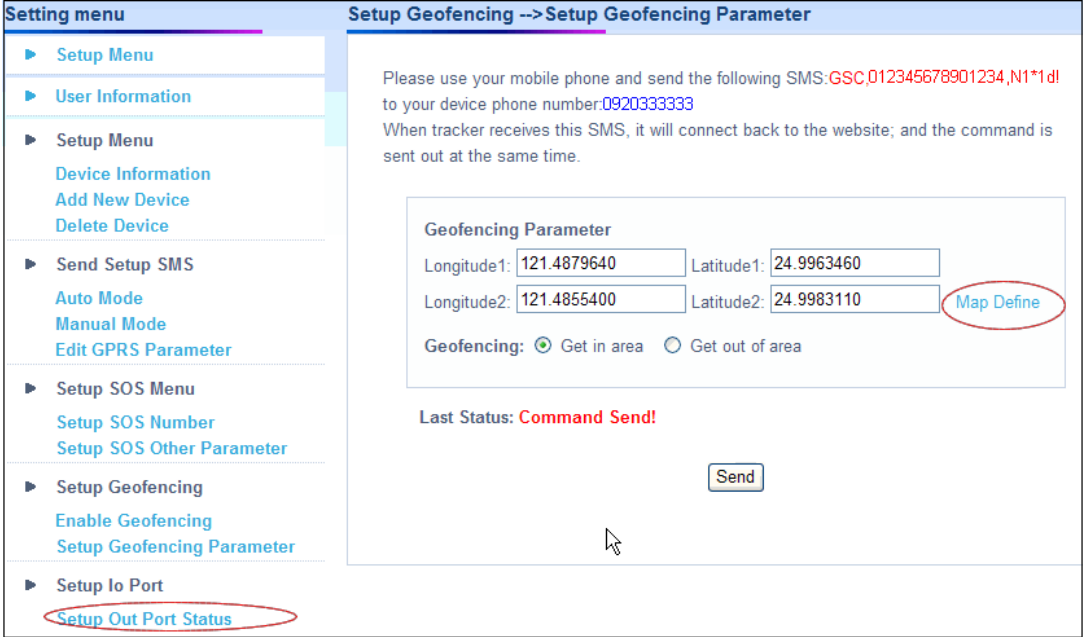
After sending your command there are one methods of TR device taking command when TR device is on Stop mode.

1.Please use your mobile phone and send the following SMS:**GSC,012345678901234,N1*1d!** to your device phone number:0920333333
 When tracker receives this SMS, it will connect back to the website; and the command is sent out at the same time.

3.9 TR-600 Geo-fence Function

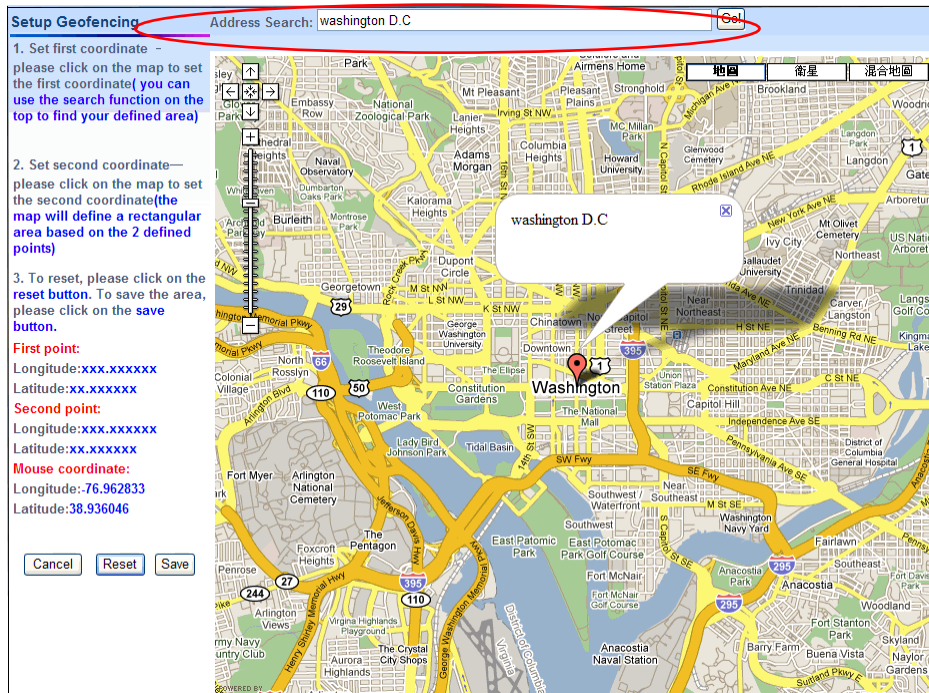
Setup Geo-fence area

- 1. Select **Setup** on the menu bar.
- 2. Select **Setup Geo-fencing Parameter**.
- 3. Click on **Map Define**

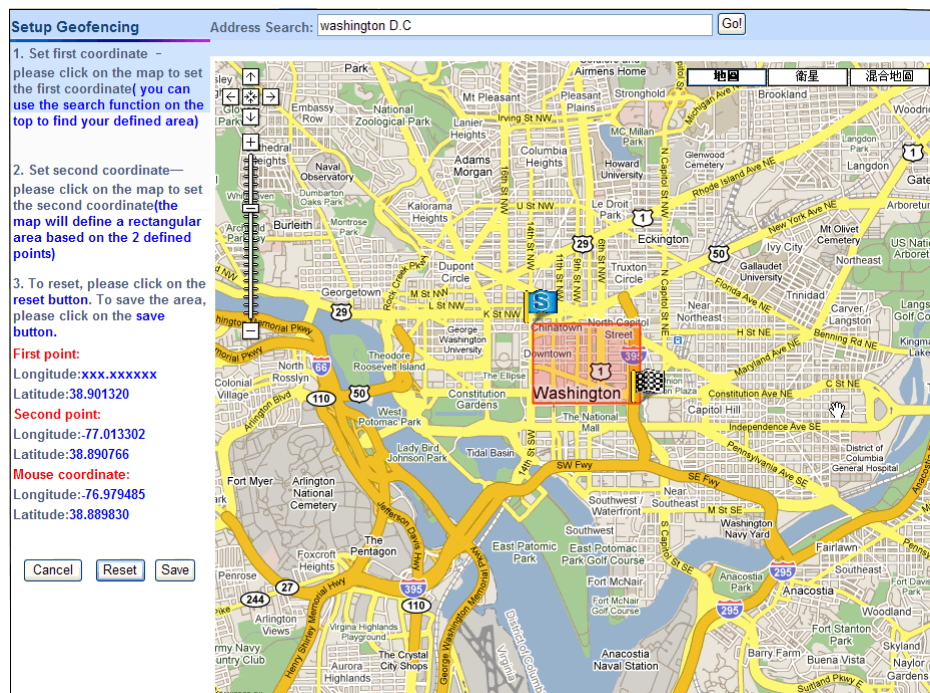


The screenshot shows a web interface with a left sidebar and a main content area. The sidebar is titled "Setting menu" and contains several expandable sections: "Setup Menu", "User Information", "Setup Menu" (with sub-items: Device Information, Add New Device, Delete Device), "Send Setup SMS" (with sub-items: Auto Mode, Manual Mode, Edit GPRS Parameter), "Setup SOS Menu" (with sub-items: Setup SOS Number, Setup SOS Other Parameter), "Setup Geofencing" (with sub-items: Enable Geofencing, Setup Geofencing Parameter), and "Setup Io Port" (with sub-item: Setup Out Port Status, which is circled in red). The main content area is titled "Setup Geofencing --> Setup Geofencing Parameter". It contains a text block with instructions: "Please use your mobile phone and send the following SMS: GSC,012345678901234,N1*d! to your device phone number:0920333333. When tracker receives this SMS, it will connect back to the website; and the command is sent out at the same time." Below this is a "Geofencing Parameter" form with four input fields: Longitude1 (121.4879640), Latitude1 (24.9963460), Longitude2 (121.4855400), and Latitude2 (24.9983110). A "Map Define" button is circled in red next to the Latitude2 field. Below the form are radio buttons for "Geofencing": "Get in area" (selected) and "Get out of area". At the bottom, it says "Last Status: Command Send!" and has a "Send" button.

- You can then enter a specific address or city or landmark in the **Address Search** field and then click the **Go** button. The map will move to the entered location. For example, the map will show as below after entering Washington D.C.



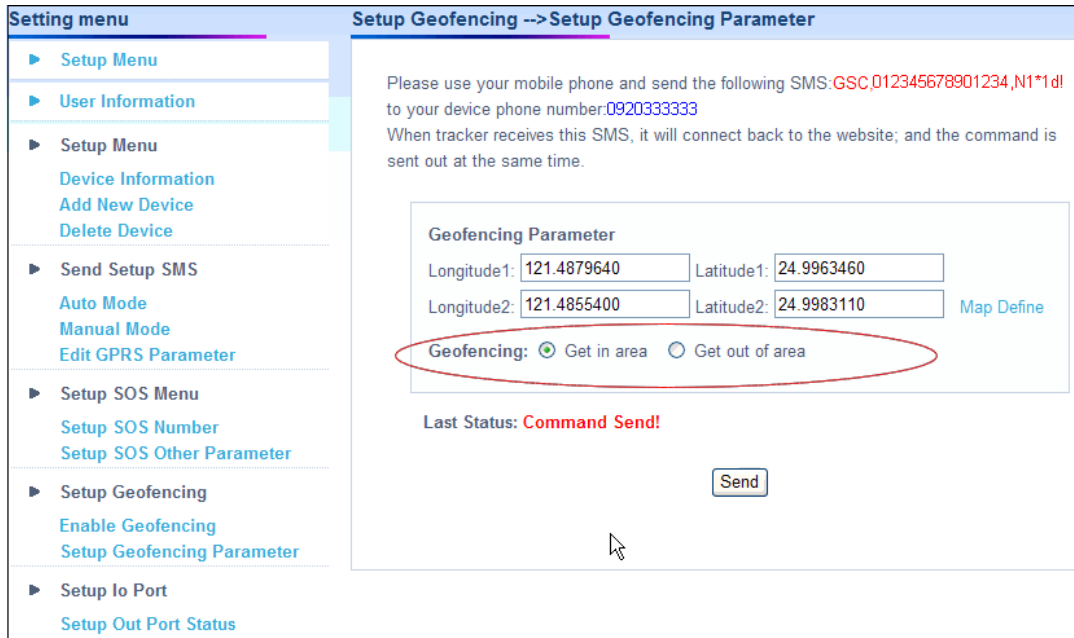
- Move the cursor and click on the two points of the map to form a geo-fence area like the screenshot below.



- Click the **Save** button to save the area. If you want to reset the area, click on the **Reset**

button to reset the area.

7. After clicking the **Save** button, select if you want to receive the geo-fence alarm report when the TR-600 travels in the geo-fence area or travels out of the geo-fence area.
8. Click the **Send** button to send out the setting.



Setting menu | **Setup Geofencing --> Setup Geofencing Parameter**

Please use your mobile phone and send the following SMS:GSC,012345678901234,N1*1dI to your device phone number:0920333333
When tracker receives this SMS, it will connect back to the website; and the command is sent out at the same time.

Geofencing Parameter

Longitude1: Latitude1:
 Longitude2: Latitude2: [Map Define](#)

Geofencing: Get in area Get out of area

Last Status: **Command Send!**

9. Copy the SMS and send it to the phone number of TR-600 via mobile phone. It will make the TR-600 connect to the website to get the settings.

The steps above are for setting geo-fence area. You have to enable the geo-fence function by following the steps below.

Enable Geo-fence function

1. Select **Setup** → **Enable Geo-fencing**
2. Click **Enable**
3. Enter the mobile phone number for receiving the geo-fence alarm report in the field of **Geo-fencing Phone Number**.

Setup Geofencing -->Enable Geofencing

Please use your mobile phone and send the following SMS: **GSC_012345678901234,N1*1d!** to your device phone number**0920333333**
When tracker receives this SMS, it will connect back to the website; and the command is sent out at the same time.

Geofencing Enable Disable

Report Phone Number:

Last Status:**Command Send!**

4. Click the **Send** button to send out the setting.
5. Please copy the SMS and send it to the phone number of TR-600 via your mobile phone. It will make the TR-600 connect to the website to retrieve the geo-fence command.