GPS Vehicle Tracker
User Guide V1.1
VT600-3G

Contents

1. Poduct Overview

VT600-3G is a GPS/GPRS based tracking device, specially developed and designed for vehicle real-time tracking and fleet management.

VT600-3G has an inbuilt GPS module to obtain accurate position data. This device utilizes its GSM capability to send position data to a specified mobile phone or server base for tracking and fleet management.

With internal memory, VT600-3G can store GPS coordinates when there is no GPRS connection, or at a specified interval requested by the user.

One optional feature of VT600-3G is that a microphone can be linked and hidden somewhere inside the vehicle for listening to the cabin.

VT600-3G has the following functions and features:

- SMS and GPRS TCP/UDP Communication
- AGPS (with GSM Base Station ID)
- Track on Demand
- Show Location Directly on Mobile Phone
- Track by Time Interval
- Track by Distance
- Listen-in (optional)
- Anti-Jammer (optional)
- GSM Blind Area Memory
- Internal Memory for Logging
- Inbuilt Motion Sensor for Power Saving
- SOS Panic Button
- Movement Alarm
- Geo-fencing Control
- Low Battery Alarm
- Speeding Alarm
- GPS Blind Area Alarm (in/out)
- Power-cut Alarm
- Engine Cut (Stop Engine)
- I/O: 3 digital inputs , 1 outputs and 1 analog inputs of 10 bits resolution

2. For Your Safety

Read these simple guidelines. Not following them may be dangerous or illegal.

Proper Connection	Do not connect any parts of this product to other incompatible devices. When connecting with other devices, read instructions carefully to ensure proper installation.
Qualified Accessories	Use original parts, qualified batteries and peripheral equipments to avoid damage to VT600-3G.
Safe Driving	Drivers should not operate this product while driving.
Qualified Service	Only qualified personnel can install or repair VT600-3G.
Water Resistance	VT600-3G is not water resistant. Keep it dry. Install this device inside the vehicle or use a waterproof bag for protection if necessary.
Confidential Phone Number	For safety reason, do not tell other people the mobile phone number of your VT600-3G without taking precautions of security settings.

3. VT600-3G Characteristics

Items	Specifications
Power Supply	10.6V - 36V / 1.5A
Backup Battery	500mAh
Normal power consumption	55mA/h
Dimension	65 x 61 x 26mm
Weight	90g
Work time	30 hours in power-saving mode and 7.5 hours in normal mode
Operating temperature	-20° to 55° C
Humidity	5% to 95% Non-condensing
Frequency	UMTS/HSDPA:900/2100MHz GSM/GPRS:900/1800Mhz UMTS/HSDPA:850/1900MHz GSM/GPRS:850/900/1800/1900Mhz
GPS Module	latest GPS SIRF-Star IV chipset
GPS Sensitivity	-163Db
GPS Frequency	L1, 1575.42 MHz
C/A Code	1.023 MHz chip rate
Channels	48 channel all-in-view tracking
Position Accuracy	10 meters, 2D RMS
Velocity Accuracy	0.1 m/s
Time Accuracy	1 us synchronized to GPS time
Default datum	WGS-84
Reacquisition	0.1 sec., average
Hot start	1 sec., average
Warm start	35 sec., average
Cold start	35 sec., average
Altitude Limit	18,000 meters (60,000 feet) max
Velocity Limit	515 meters/second (1000 knots) max
LED	2 LED lights to show GPS/GSM status
Flash Memory	4MB
Button	One SOS Button
Interface	3 digital inputs (2 negative and 1 positive triggering) 1 analog inputs 1 outputs.

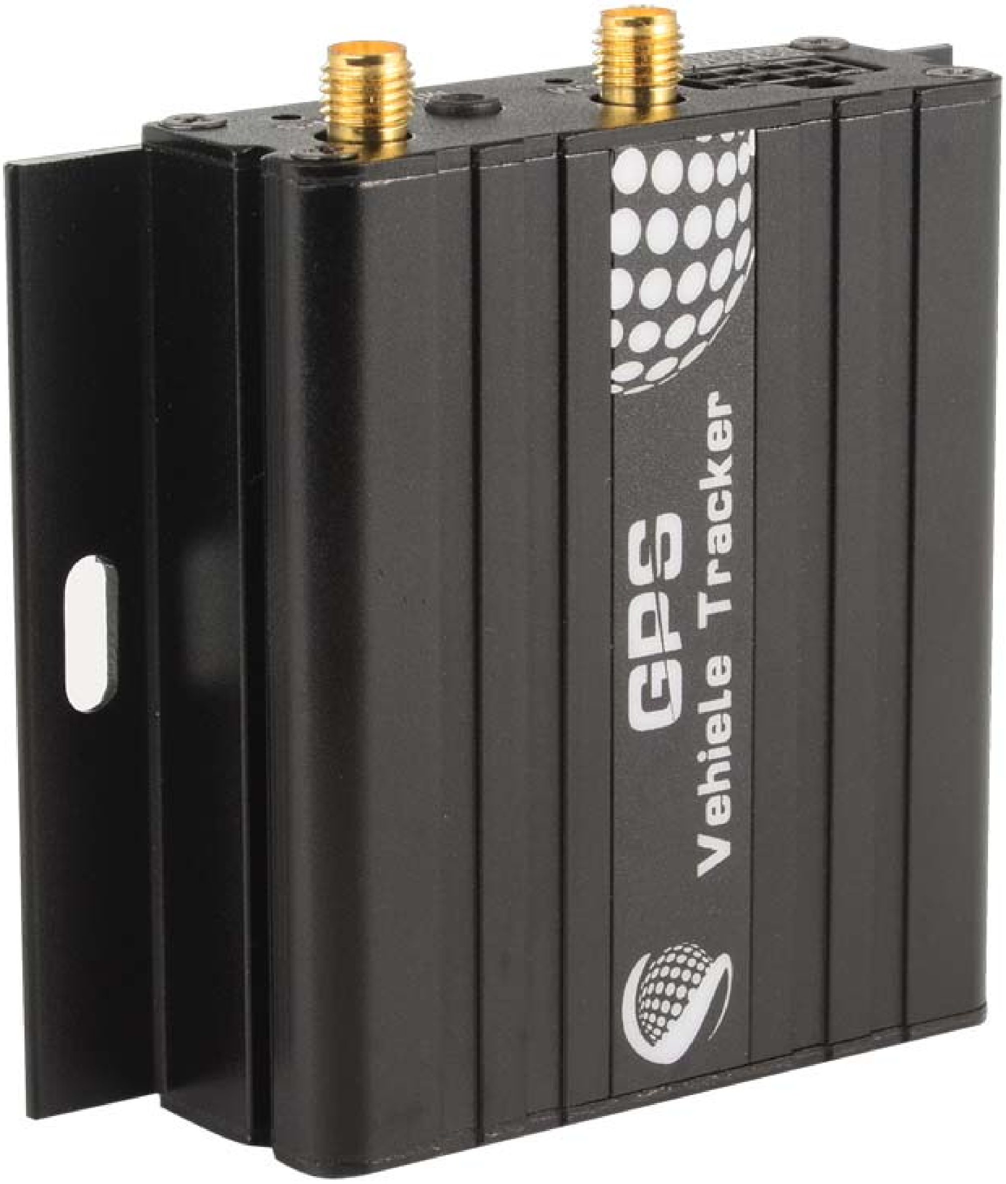
4. Getting Started

This section will describe how to set up your VT600-3G.

4.1 Hardware and Accessories

VT600-3G is supplied in a box which includes:
VT600-3G with battery, GPS antenna, GSM antenna, Wires with SOS button

4.2 View

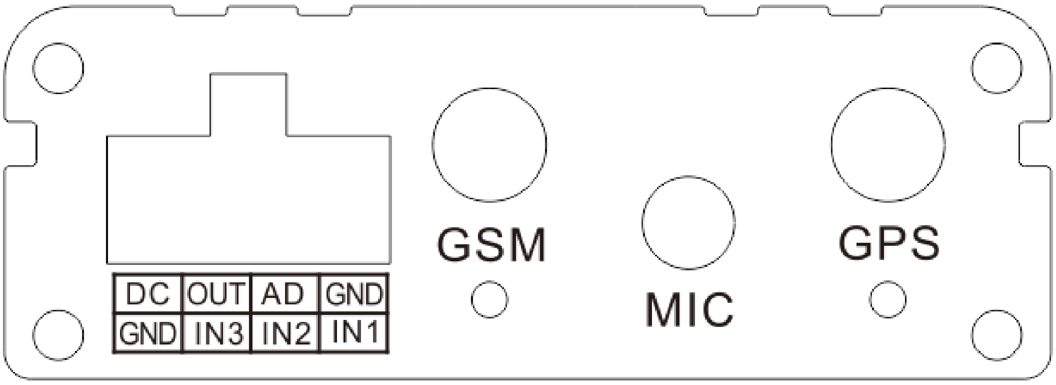


4.3 Functional Parts

GPS LED (Blue)	
On	One button is pressed or input is active
Flashing (every 0.1 second)	The unit is being initialized
Flashing (0.1 second on and 2.9 seconds off)	VT600-3G has a GPS fix
Flashing (1 second on and 2 seconds off)	VT600-3G has no GPS fix
GSM LED (Green)	
On	A call is coming in / a call is being made
Flashing (every 0.1 second)	The unit is being initialized
Flashing (0.1 second on and 2.9 seconds off)	VT600-3G is connected to the GSM network
Flashing (1 second on and 2 seconds off)	VT600-3G is not connected to the GSM network

Power On/Off Button	Press and hold for 3~5 seconds to turn on/off VT600-3G
SOS Button	SOS button is connected with the wires. Press it to send SOS alarm to the preauthorized phone number.
Mini USB	Used for firmware update, configuration on PC and exporting stored data.
SIM Card Holder	Insert SIM card here
GSM Antenna	Connector for GSM antenna
GPS Antenna	Connector for GPS antenna
Screw Holes	There are 4 screw holes on the tracker, 2 along either side that act as fixing points to the vehicle
Microphone (optional)	A microphone to be linked out for listening to the cabin (wiretapping)

PINs Connector



PIN	**Color**	**Function**
Power	Red	DC In (power input). Input voltage: 10.6V~36V. 12V suggested
GND	Black	Ground
In	White	Digital Inputs. In1, In2 are negative triggering; In3 is positive triggering
Out	Yellow	Outputs. Low voltage (0V) when effective and open drain when ineffective Output open drain sink voltage (ineffective): 45V max. Output low voltage sink current (effective): 500mA max.
AD	Blue	10 Bits Resolution Analog Inputs. Input voltage: 0~6V

DC Characteristics of PINs

PIN	**Inactive**	**Active**	**Maximum**
Input 1/2	Open drain or >1V	0V(GND)	45V
Input 3	Open drain or 0V(GND)	>3V	45V
Output 1	Open drain	0V (GND)	45V/500mA
DC IN	/	9-36V	45V
AD 1	/	0-6V	45V

4.4 Connecting and Installation

Read this manual before using your VT600-3G. Check to make sure all parts are included in the packaging box.

4.4.1 Ensure that your VT600-3G has a working SIM card installed.

- Check that the SIM card has not run out of credit (test the SIM card in a phone to make sure it can send and receive SMS)
- Check that the SIM card lock code is turned off
- If you require the function of sending an SMS location report to the authorized phone number when it makes a call to the VT600-3G, please make sure the SIM installed supports displaying caller ID.

Before inserting SIM card, cut off the power for VT600-3G.

Install SIM Card
- Unscrew and remove the front cover of VT600-3G.
- Insert the SIM card by sliding it into the card slot with the chip module facing the connectors on PCB.
- Replace the front cover and screw it in.

4.4.2 Antenna Connection
Connect the GSM Antenna to VT600-3G.
Connect the GPS Antenna to VT600-3G.
- GPS antenna is used to receive satellite signals in the sky. It should be fixed to face the sky, (It is recommended to place this device under the windshield) and should not be covered or shielded by any objects containing metal.

4.4.3 Find a suitable place inside the car for installing VT600-3G. Wiring connections must be firm and reliable. The joints should be wrapped tightly with insulating tape. The unused electrical wire should be properly insulated.

Check to make sure all wirings have been connected correctly. Then connect the AVL unit to the motor power.

Make a missed phone call the VT600-3G using a mobile phone to check if the call can go through. The VT600-3G should reply with an SMS indicating longitude, latitude, speed and date.

5. Change Password

Command: W******,001,######
Description: Change user’s password.
Note:
1. ****** is user’s password and the default password is 000000. The tracker will only accept commands from a user with the correct password. Commands with wrong password will be ignored.
2. ###### is the new password. Password should be 6 digits.

Example:
W000000,001,123456
W123456,001,999999

6. Time Zone

Command: W******,032,T
Description: Correct time to your local time
Note:
1. Default time of the tracker is GMT
2. This correction is applied to location reports by SMS and SMS alarms.

T=0, to turn off this function;
T=[-720,720] to set time difference in minutes to GMT.

For those ahead of GMT, input the time difference in minutes directly.
For example, for GMT+8, W000000,032,480. (8 Hours is 480 minutes)

‘-‘is required for those behind GMT.
For example, W000000,032,-120. (2 hours or 120 minutes behind GMT)
Example:
W000000,032,480
W000000,032,-120

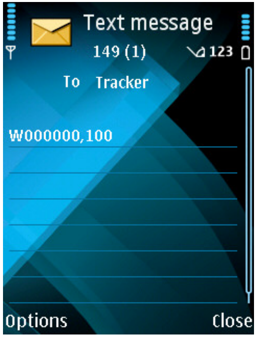
7. Track

7.1 Track by SMS

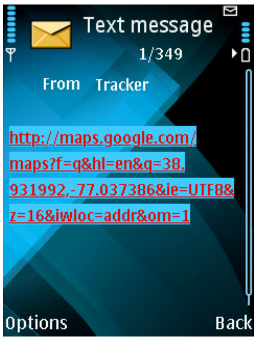
- Track on Demand - Reply with longitude, latitude, speed and date
Command: W******,000
Description: To get the current location of the tracker, send this command as an SMS or make a telephone call directly to

the tracker. After doing so, the device will report its longitude and latitude by SMS with the format as follows:
Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 40.5Km/h, 2011-12-24,01:50
Example:
W000000,000

- Track on Demand - Reply with a link to Google Maps
Command: W******,100
Description: Send this command to the tracker and you will receive an SMS with an http link. Click on the link and the location will be shown directly on your mobile phone using Google maps. For example: *http://maps.google.com/?q=22.540103,114.082329*
Note: Only smart phones and PDAs support this function.
Example:
W000000,100



W000000,100



http://maps.google.com/maps?f=q&hl=en&q=38.931992,-77.037386&ie=UTF8&z=16&iwloc=addr&om=1

38.931992,-77.037386 - Googl...
Brown
Meridian Pl NW
Newton St NW
Monroe St NW
17th St NW
Park Rd NW
16th St NW
Lamont St NW
Pine St NW
Mt Pleasant
Hiatt P
Options
Close

7.2 Track by Calling

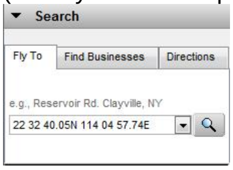
Make a missed call to the tracker and it will report its longitude and latitude by SMS with the following format:
Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 40.5Km/h, 2011-12-24, 01:50

7.3 Track by Preset Interval

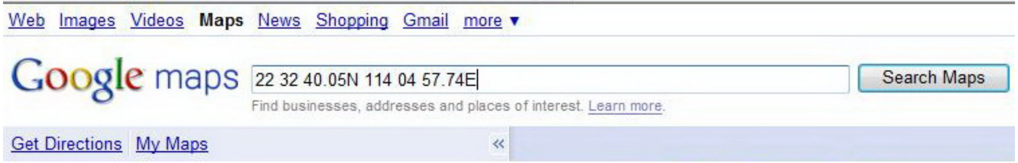
Command: W******,002,XXX
Description: Set an interval for the tracker to continuously report its location by SMS
Note:
1. XXX is the interval in minutes;
2. XXX=000 to turn off tracking by time.
Example:
W000000,002,030
The tracker will send location data back to your mobile phone every 30 minutes.

7.4 Google Earth and Google Map

Download Google Earth from http://earth.google.com/.
Start Google Earth (For more information about Google Earth please refer to http://earth.google.com/ or go to http://maps.google.com)
Input the latitude and longitude that you received from the tracker by SMS and click the search button. Google Earth or Google Maps will display the location for you.
Example:
When you receive: Latitude = 22 32 40.05N Longitude = 114 04 57.74E
Type as the following picture shows:
(Note: you should input the latitude and longitude as: 22 32 40.05N 114 04 57.74E)

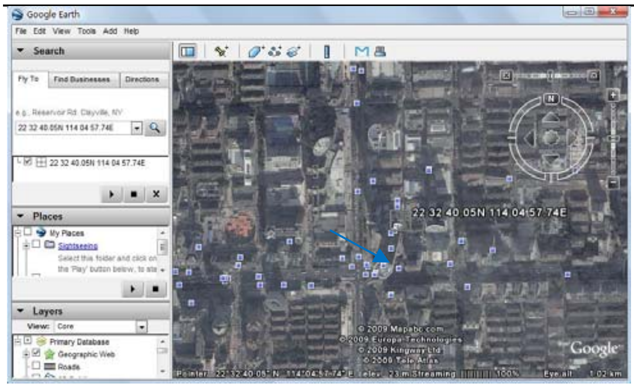


22 32 40.05N 114 04 57.74E

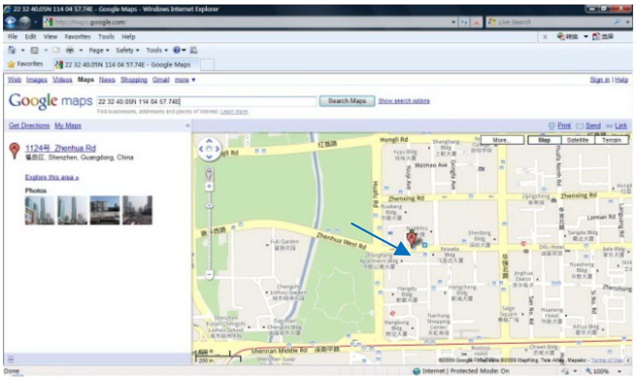


22 32 40.05N 114 04 57.74E

And then you can find the location of your tracker:



22 32 40.05N 114 04 57.74E



22 32 40.05N 114 04 57.74E

You can also use local map software on PDA or car navigation device to input the coordinates.

7.5 Track by GPRS between Server and Tracker

7.5.1 Set Tracker's GPRS ID

Command: W******,010,ID
Description: Set a digital GPRS ID for the tracker.
Note: GPRS ID must not be over 14 digits.
Example:
W000000,010,100112112222

7.5.2 Set APN

Command: W******,011,APN,Username,Password
Description: Set APN details for the tracker
Note:
1. APN username and password are optional. If no APN username and password are required, just input APN only;
2. APN defaulted as 'CMNET';
Example:
W000000,011,CMNET,internet,internet
W000000,011,CMNET

7.5.3 Set IP and Port

Command: W******,012,IP,Port
Description: Set the IP and Port of tracker for GPRS communication.
Note:
1. IP is your server's IP or the domain name.
2. Port: [1,65534]
Example:
W000000,012, 195.87.7.121,8500
W000000,012,www.domain.com,8500

7.5.4 Set DNS Server IP (optional)

Command: W******,009,DNS Server IP
Description: If the domain name you set by the last command (W******,012,IP, Port) doesn't work, your server IP is not properly set. You can first use this command to set DNS Server IP (please check with your DNS server provider for the DNS Server IP) and then redo the command W******,012,IP, Port.
Example: W000000,009,202.105.21.232

7.5.5 Enable GPRS Tracking

Command: W******, 013, X
Description: Enable GPRS tracking function.
Note:
X=0, to turn off GPRS tracking (default);
X=1, to enable GPRS tracking via TCP;
X=2, to enable GPRS tracking via UDP.
Example: W000000,013,1

7.5.6 Set GPRS Interval

Command: W******,014,XXXXX
Description: Set time interval for sending GPRS packets.
Note:

XXXXX should be in five digits and in unit of 10 seconds.
XXXXX=00000, to turn off this function;
XXXXX=00001~65535, time interval for sending GPRS packet and in unit of 10 seconds.
Example: W000000,014,00060
In this example, the tracker will send every 600 seconds (10 minutes).

7.5.7 Set ACC Off Interval

Command: W******,304,XXXXX
Description: Set ACC off interval for sending GPRS packets when ACC off. Input3 is used as the ACC detect input.
Note:
XXXXX should be in five digits and in unit of 10 seconds.
XXXXX=00000, to turn off this function;
XXXXX=00001~65535, time interval for sending GPRS packet and in unit of 10 seconds.

Example: W000000,304,00060
In this example, the tracker will send every 600 seconds (10 minutes) when ACC off.

7.5.8 Set ACC Off Interval Function

Command: W******,305,X
Description: Set ACC off tracking function, Input3 is used as the ACC detect input.
Note:
X=0, to turn off this function;
X=1, turn on this function.
When enable this function, it will track by ACC off interval(304) with ACC off, and track by time interval(014) with ACC on.

Example: W000000,305,1
In this example, it will turn on this function.

For more information regarding GPRS tracking please refer to GPRS Communication Protocol.

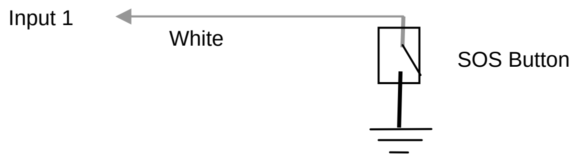
8. Authorization

Command: W******,003,F,P,T
Description: Authorize phone numbers for the SOS/inputs, receiving location reports, SMS alarms or phone calls
Note:
F=0, to turn off this function; (default)
F=1, only sends SMS to the authorized phone number;
F=2, only calls the authorized phone number;
F=3, both SMS and calling.
(Note: VT600-3G doesn’t support two-way conversation. Calling only gives ring and reminder to the authorized phone.)
P=1, set an authorized number for SOS button (Input 1);
P=2, set an authorized number for Input 2;
P=3, set an authorized number for Input 3.
T: Preset phone number. Max.16 digits.
Example:
W000000,003,1,1,88888888

9. Application Examples for Inputs

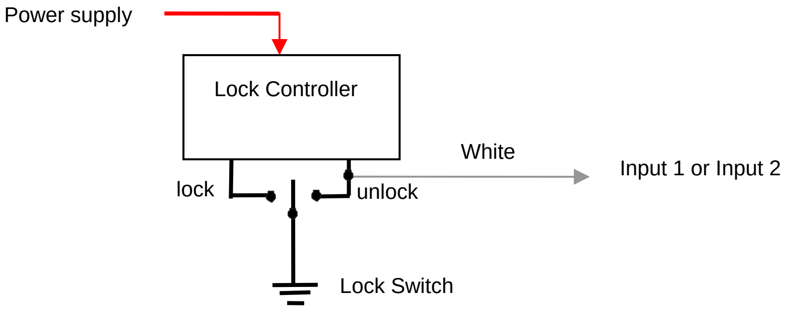
9.1 SOS Button Connection

Connect the SOS button and wires as below picture shows:



Note: input voltage to Input must not over 45V
After above authorization is completed, once the SOS is pressed, an SOS SMS - “SOS Alarm” will be sent to the preauthorized phone number. Then a message with longitude and latitude will follow.
(Note: An SOS button is already connected to VT600-3G in standard packing)

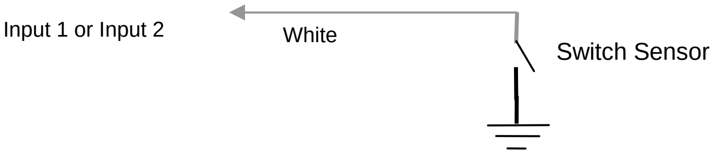
9.2 Detecting Lock Status of Car's Door or Trunk (Car Boot).



When the lock is opened, there will be a negative trigger to Input 1 or Input 2. After this, an SMS alarm will be sent to the authorized phone number, or a GPRS alarm will be sent to the server (please refer to the GPRS Command 0x9999 in **GPRS Communication Protocol**).

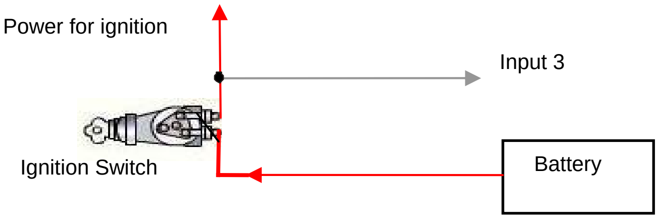
9.3 Connecting with Switch Sensors

The SMS alarm will be sent to the authorized phone number.



9.4 Ignition Detection

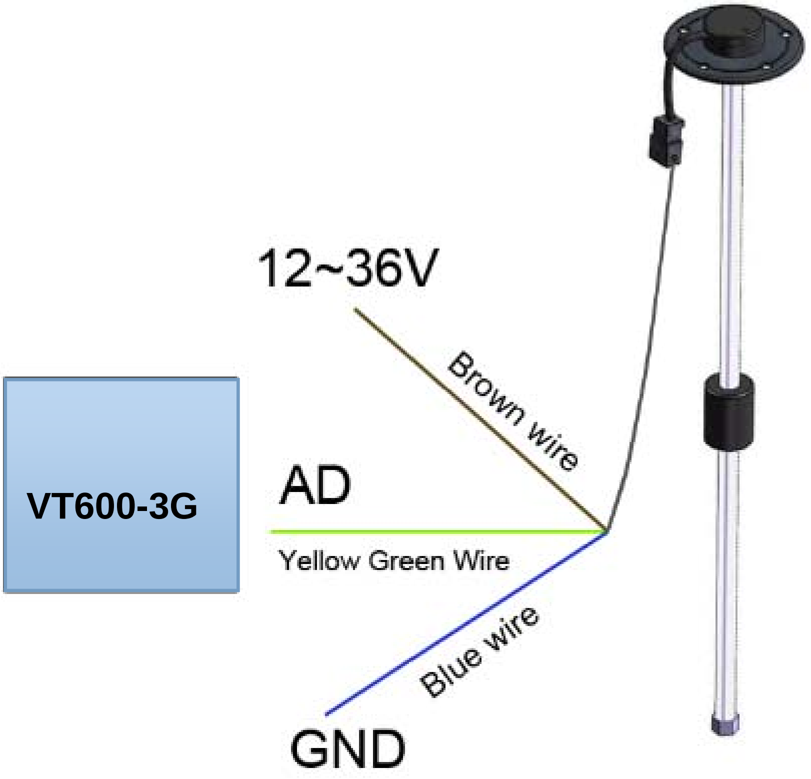
Input 3 (positive triggering) can be used for ignition detection. The detection alarm will be sent to the server via GPRS. Please refer to <GPRS Communication Protocol> Alarm Command 0x9999 for more information.



9.5 Analog Input (AD1)

Input voltage should be 0~6V. Please refer to **GPRS Communication Protocol** for more information for AD data.
For example:
094506.000,A,2232.5412,N,11404.6919,E,0.00,,290709,,*12|1.7|110|0000|00AA,0000
AD is 0x00AA
Voltage Formula: Input Voltage=(AD*6)/1024
0x00AA=>170(decimal)=>(170*6)/1024=0.99609375V(voltage)

Application Example - Fuel Level Sensor



Fuel level sensors supplied by us are voltage-type sensors with output voltage: 0-5V.
The below formula is for calculating the fuel percentage left for this fuel level sensor:

$$\text{Percentage} = \frac{\text{AD value} * 6}{1024 * 5} * 100\%$$

Note: The value must be converted into decimal, for example, 0x0193 is 403 in decimal.

10. Speeding Alarm

Command: W******,005,XX
Description: Turn on speeding alarm. When the tracker speeds higher than the preset value, it will send an SMS alarm to the authorized phone number for SOS.
Note: XX is the preset value of speed and in 2 digits.
=00 , to turn off this function;
=[01, 20] (unit: 10Km/h).
Example: W000000,005,08
When the tracker’s speed is over 80km/h, an SMS alarm will be sent out.

11. Movement/Geo-fence

11.1 Movement Alarm

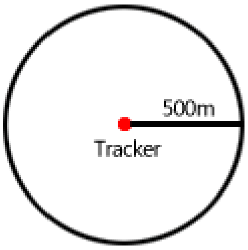
Command: W******,006,X
Description: When the tracker moves out of a preset circle scope, it will send an SMS alarm to the authorized phone number for SOS.
Note:
1. X is the preset radii to the tracker’s original place.
=0, to turn off this function.

=1, 30m	=2, 50m	=3, 100m	=4, 200m

=5, 300m	=6, 500m	=7, 1000m	=8, 2000m

2. Radii: [1, 4294967295] meter(s), suggest to be set above 500 meters.
3. GPRS command is 0x12.

Example: W000000,006,6



When tracker moves out of this circle scope, it will send out an SMS alarm.

11.2 Geo-fence Alarm

Command: W******,302,X

Description: Turns on Geo-fencing alarm. When the tracker moves in/out the preset scope, it will send an SMS alarm to the authorized phone number for SOS.

Note:
1. X is the parameters which include: latitude, longitude, radii, in, out.
2. Latitude and longitude should be in ASCII format as follows:
Latitude is ddd.dddddd, ‘0’ is needed to be stuffed if no value available. ‘-’ should be added for south.
Longitude is dd.dddddd, ‘0’ is needed to be stuffed if no value available. ‘-’ should be added for west.
3. Radii: [1, 4294967295] meter(s), suggested to be set above 100 meters, if set above 8, it is corresponding radii.
4. If In and Out are 0, corresponding function is invalid. If In and Out are 1, valid.
5. Reply as Geo-Fence Alarm.
6. GPRS exiting command is 0x12, entering command is 0x13.
7. Send W******, 302 to turn off Geo-fence function.

Example:
W000000,302,22.000000,-114.123456,3000,1,1

Remarks:
1. Only one alarm can be set in either In or Out;
2. Only one alarm can be set in either Movement Alarm or Geo-fence Alarm.

12. Track by Distance

Command: W******,303,X

Description: Send this command to set distance interval

Note:
1. X= [1, 4294967295], suggested to be set above 300 meters;
2. X=0, turn off.

Example: W000000,303,1000

13. Listening-in (Optional)

Command: W******,030,T

Description: Authorize a phone number to make a silent call to the tracker. The tracker will answer the call automatically and allows the caller to listen to what is happening around the tracker. There is no sound when the tracker is working.

Note:
1. T is phone number, Max. 16 digits;
2. If incoming call is not from authorized phone number, it will be treated as a normal call and would not enter Listening-in status.

Example: W000000,030,138000000

14. Set Sensitivity of Tremble Sensor

Command: W******,035,XX

Description: Send this command to set sensitivity of tremble sensor

Note:
1. XX=[1,255], it will be more sensitive if XX is smaller.

2. Default value is 30.

Example: W000000,035,30

15. Output Control

15.1 Output Control (Immediate)

Command: W******,020,P,F
Description: Send this command to control the Output of VT600-3G
Note:
P=1, Output1;
F=0, to close the output (open drain);
F=1, to open the output (low voltage).
Example: W000000,020,1,1

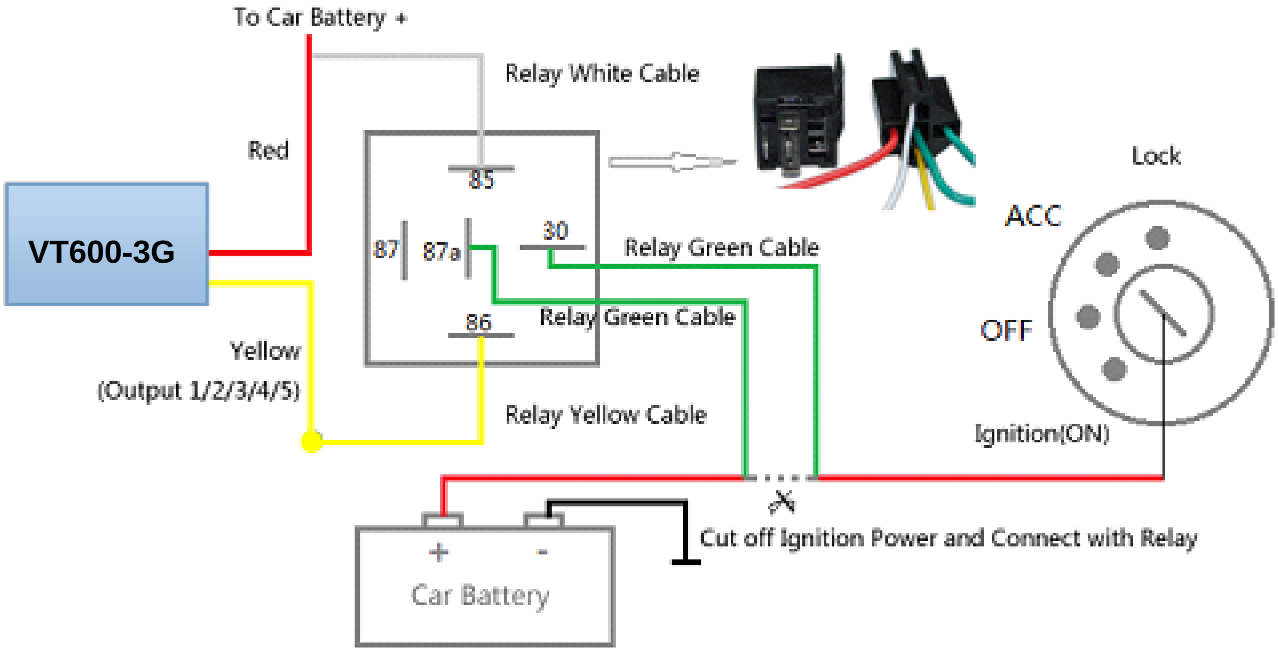
15.2 Output Control (Conditional)

Command: W******,120,A or W******,220,A
Description: Send this command to control the Output of VT600-3G. This command is only workable when the speed is below 10km/h(command 120) or 20km/h(command 220) and GPS is available.
Note:
ABCDE represents Out1 respectively.
If A,
=0, to close the output (open drain);
=1, to open the output (low voltage);
=2, to remain previous status.
Example:
W000000,120,1
W000000,220,1

15.3 Application Examples for Outputs

15.3.1 Engine Cut

Relay Connection: Connect a relay as below picture shows:



Calculate the correct VCC value according to relay's parameter to comply with the following requirements:

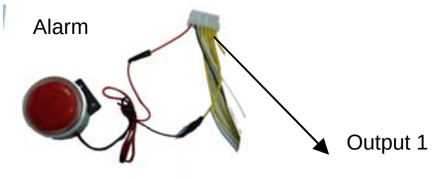
Output open drain sink voltage (ineffective)	45V max
Output Low voltage sink current (effective)	500mA max

Normally two green wires are connected solidly (P1 and P2 are Normal Close[NC] in the relay), when output is open

(Output be low voltage), two green wires will disconnect, the engine is then cut.
Take Output1 as an example:
W000000,020,1,1 (cut engine)
W000000,020,1,0 (cancel engine-cut)

15.3.2 Connecting with Car Alarm

When the Output that connected to the car alarm is open, the alarm will start to work.



16. Heading Change Report

Command: W******,036,degree
Description: When the heading direction of the tracker changes over the preset degree, a message with location data will be sent back to the server by GPRS. This enhances the accuracy when the tracker makes a direction change.
Note:
degree=0, to turn off this function;
degree=[1,180], to set degree of direction change.
Example: W000000,036,45
When the tracker turns more than 45 degree, a message will be sent back to the server.

17. Heartbeat

Command: W******,015,T
Description: Set an interval for heartbeat.
Note:
T is the interval unit of minutes.
T=0, to turn off this function;
T=1~255, set interval for heartbeat.
Example:
W000000,015,10
In this example, the tracker will send heartbeat every 10 minutes.

18. Track Log

18.1 Log by Interval

Command: W******,031,X
Description Set time interval for logging GPS information. Log information is stored within the device memory. When the memory gets full, the newest record will be overwritten on top of the oldest (FIFO - First In, First Out). In this case, only the newest information is stored.
Note:
1. X=0, to turn off this function. X=[1, 65535] to set interval in the unit of SECOND.
2. The logged message is in GPRMC format and includes:
   Date and time
   Longitude
   Latitude
   Speed
   Direction
3. All data, stored within the memory, may be exported to the PC using the USB connector. To do this, the “GPSLog” program has to be used *(please refer to **GPSLog User Guide** and **GPRS Communication Protocol** for more information).*
4. The device has 4MB of internal memory space for storing the track log. The Device is able to store up to 180,000 records within the memory.

Example:
W000000,031,60

The tracker will store GPS data every 60 seconds.

18.2 Auto Log when no GPRS

When there is no GPRS connection, the tracker can store all GPS information triggered by preset tracking interval, alarms, request, or button activation and send this information (FILO - First In, Last Out) to server by GPRS or preauthorized mobile phone by SMS when GPRS connection recovers.
The interval memory can store up to 1500 SMS and 4600 GPRS message.

18.3 Format Buffer

Command: W******, 503
Description: This command clears the data stored in the buffer.
Note: Deleted data can no longer be recovered
Example: W000000,503

19. Power Down

Command: W******,026,XX
Description: This command puts the tracker in power down mode when it is inactive or immobile for a period of time. In Power Down mode, GPS stops working, GSM enters sleep mode and stops sending out messages. The device remains in this mode until it is activated by message, incoming calls, movement, or triggered by the button.
Note:
XX=00, to turn off this function;
XX=01~99, to turn on Power Down after a specified period of being inactive (or stationary). It is in unit of minute.
Example: W000000,026,10
The tracker will enter power down mode after it is inactive (or stationary) for 10 minutes.

20. Get IMEI

Command: W******,601
Description: Get IMEI of the tracker. IMEI is 15 digits
Example: W000000,601

21. Initialization

Command: W******,990,099###
Description: This sets all settings (except for the password) back to factory default.
Note: Send SMS “Default?” to the device. Within 120 seconds, send this SMS command to the tracker.
### is the ending character and is required in the text message.
Example: W000000,990,099###

22. Password Initialization

Command: W888888,999,666
Description: This resets the password back to factory default and can be used in case you forget your password.
Note: Send SMS “Default?” to the device, and then, within 120 seconds, send this SMS command to the tracker to set the password back to factory default (000000).
If you have set an authorized telephone number, when the password has been successfully preset, the telephone will receive W888888,999,666
Example: W888888,999,666

For more details regarding SMS commands, please go to Annex 1 Command List

Annex 1. SMS Command List

Note: ****** is user’s password and the default password is 000000. The tracker will only accept commands from a user with the correct password. Commands with wrong password will be ignored.

Description	SMS Command	Example
Track on Demand	W******,000	W000000,000

Remarks: To get the current location of the tracker, send this command as an SMS or make a telephone call directly to the tracker.

SMS Reply:
Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 40.5Km/h, 2011-12-24,01:50

Track on Demand -Google Link	W******,100	W000000,100

Remarks: Send this command to the tracker and you will receive an SMS with a http link. Click on the link and the location can be shown directly on your mobile phone using Google maps.

SMS Reply:
http://maps.google.com/?q=22.540103,114.082329
(Note: Only smart phones and PDAs support this function.)

Change Password	W******,001,######	W000000,001,123456

Remarks: To change user’s password. ###### is the new password. Password should be 6 digits.

SMS Reply:
Set Password Ok/123456

Track by Interval	W******,002,XXX	W000000,002,030

Remarks: To set interval for automatic timed report.
XXX is the interval in minutes. If XXX=000, turn off tracking by time.
In this example, the tracker will send location data back to your mobile phone every 30 minutes.

SMS Reply:
Set Interval Ok/030

Authorization	W******,003,F,P,T1 (W******,003,F,P,T1,T2)	W000000,003,3,1,88888888 W000000,003,3,1,88888888,99999999

Remarks: To authorize phone numbers for button/Inputs for receiving location reports, SMS alarms or phone calls.
F=0, to turn off this function; (default)
F=1, only sends SMS to the authorized phone number;
F=2, only calls the authorized phone number;
F=3, both SMS and calling.
P=1, set an authorized number for Input 1;
P=2, set an authorized number for Input 2;
T1: Preset phone number. Max.16 digits.
If you need to set different numbers for receiving SMS and phone call, you can use W******,003,F,P,T1,T2, In this case T1 is the phone number for receiving SMS and T2 for receiving phone calls.
Note: VT600-3G doesn’t support two-way conversation. Calling only gives ring and reminder to the authorized phone.

SMS Reply for the commandW000000,003,3,1,88888888**:**
Set Phone Ok/3,1,88888888

Speeding Alarm	W******,005,XX	W000000,005,08

Remarks: When the tracker speeds higher than the preset value, it will send an SMS to the authorized phone number for SOS.
XX is the preset value of speed and in 2 digits.
=00 , to turn off this function;
=[01, 20] (unit: 10Km/h).
In this example, when the tracker’s speed is over 80km/h, an SMS alarm will be sent out.

SMS Reply:
Set Overspeed Ok/08

Movement Alarm	W******,006,X	W000000,006,6

Remarks: When the tracker moves out of a preset circle scope, it will send an SMS alarm to the authorized phone number for SOS.
X is the preset radii to the tracker’s original place.
=0, to turn off this function

=1, 30m	=2, 50m	=3, 100m	=4, 200m
=5, 300m	=6, 500m	=7, 1000m	=8, 2000m

SMS Reply:
Set Movement Alarm Ok/6

Geo-fence Alarm	W******,302,X	W000000,302,22.000000,-114.123456,3000,1,1

Remarks: Turn on Geo-fencing alarm. When the tracker moves in/out the preset scope, it will send an SMS alarm to the authorized phone number for SOS.
Note:
1. X is the parameter that includes: latitude, longitude, radii, in, out.
2. Latitude and longitudes should be in ASCII format as follows:
Latitude is ddd.dddddd, ‘0’ is needed to be stuffed if no value available. ‘-’ should be added for south.
Longitude is dd.dddddd, ‘0’ is needed to be stuffed if no value available. ‘-’ should be added for west.
3. Radii: [1, 4294967295] meter(s), suggest to be set above 100 meters, if set above 8, it is corresponding radii.
4. If In and Out are 0, corresponding function is invalid, if are 1, valid.
5. Reply as Geo-Fence Alarm.
6. GPRS exiting command is 0x12, entering command is 0x13.
7. Send W******, 302 to turn off Geo-fence function.

SMS Reply:
Set Geo Ok

Track by Distance	W******,303,X	W000000,303,1000

Remarks: Send this command to set distance interval
Note:
1. X= [1, 4294967295], suggest to be set above 300 meters;
2. X=0, turn off.

SMS Reply:
Set Distance Ok/1000

Extended Functions	W******,008,ABCDEFGHIJ###	W000000,008,1011100011###

Remarks:
A=0, turn off the function of replying with an SMS position report after a call;
A=1, turn on the function of replying with an SMS position report after a call.

B=0, SMS location data is normal mode;
For example, Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 40.5Km/h, 2011-12-24,01:50
B=1, SMS location data is Google link mode.
For example，*http://maps.google.com/?q=22.540103,114.082329*

C=0, turn off the function to automatically hang up an incoming call;
C=1, turn on the function to automatically hang up an incoming call.

D=0, turn off the function of sending an SMS when the tracker is turned on;
D=1, turn on the function of sending an SMS when the tracker is turned on.

E, reserved and defaulted as 1.

F=0, turn off the SMS alarm when the tracker enters GPS blind area;
F=1, turn on the SMS alarm when the tracker enters GPS blind area.

G=0, all LEDs work normally;
G=1, all LEDs stop flashing when the tracker is working.

H, reserved and defaulted as ‘0’.

I=0, turn off the function of sending SMS alarm when the extra power of the vehicle tracker is cut;
I=1, turn on the function of sending SMS alarm when the extra power of the vehicle tracker is cut.

J, reserved and defaulted as 1. ### is the ending character. (ABCDEFGHIJ defaulted as 1000100001) **SMS Reply:** Set Extern Flag Ok/1011100011		
Presetting by SMS for GPRS tracking (*Ensure that your SIM card supports GPRS connection prior to setting)*		
Set Tracker's GPRS ID	W******,010,ID	W000000,010,00001
Remarks: to set a digital GPRS ID for the tracker. GPRS ID must not over 14 digits. **SMS Reply:** Set ID Ok/00001		
Set APN	W******,011,APN,Username, Password	W000000,011,CMNET W000000,011,CMNET
Remarks: If no APN username and password are required, just input APN only. APN defaulted as 'CMNET'.		
Set IP and Port	W******,012,IP,Port	W000000,012,195.167.7.114,8500 W000000,012,www.domain.com,8500
Remarks: IP is your server's IP or the domain name. Port: [1,65534]		
Set DNS Server IP	W******,009,DNS Server IP	W000000,009,202.105.21.232
Remarks: If the domain name you set by the last command (W******,012,IP, Port) doesn't work, your server IP is not properly set. You can first use this command to set DNS Server IP (please check with your DNS server provider for the DNS Server IP) and then redo the command W******,012,IP,Port.		
Enable GPRS Tracking	W******,013,X	W000000,013,1

Remarks:
X=0, to turn off GPRS tracking (default);
X=1, to enable GPRS tracking via TCP;
X=2, to enable GPRS tracking via UDP.		

Set GPRS Interval	W******,014,XXXXX	W000000,014,00060
Remarks: to set time interval for sending GPRS packets. XXXXX should be in five digits and in unit of 10 seconds. XXXXX=00000, to turn off this function; XXXXX=00001~65535, time interval for sending GPRS packet and in unit of 10 seconds. In this example, the tracker will send every 600 seconds (10 minutes).		
Set Heartbeat Interval	W******,015,data	W000000,015,10
Remarks: to set interval for heartbeat. Data: in unit of minute data=0, to turn off this function; data=1~255, set interval for heartbeat. In this example, the tracker will send heartbeat every 10 minutes.		
Set Sensitivity of Tremble Sensor	W******,035,XX	W000000,035,30
Remarks: Send this command to set sensitivity of tremble sensor Note: 1. XX=[1,255], it will be more sensitive if XX is smaller. 2. Default value is 30. Example: W000000,035,30		
Heading Change Report	W******,036,degree	W000000,036,90
Remarks: when the heading direction of the tracker changes over the preset degree, a message with location data will		

be sent back to the server by GPRS.
degree=0, to turn off this function;
degree=[1,360], to set degree of direction change.

For more information regarding GPRS tracking please refer to GPRS Communication Protocol.

Output Control (Immediate)	W******,020,P,F	W000000,020,1,1

Remarks:

P =1, Output1

F =0, to close the output (open drain)	=1, to open the output (Low voltage)

For example, if you have connected Output1 with a relay, you can send W000000,020,1,1 to stop the engine.

Output Control (Conditional)	W******,120,A W******,220,A	W000000,120,1 W000000,220,1

Remarks: This function is achievable only when the speed is below 10km/h(command 120) or 20km/h(command 220) and meantime GPS is available.
ABCDE represents Out1, Out2, Out3, Out4, and Out5 respectively.
If A or B or C or D or E,

=0, to close the output (open drain)	=1, to open the output (low voltage)	=2, to remain previous status

GPS Sleep Mode	W******,021,X	W000000,021,2

Remarks: this setting is for power saving.

X=0 turn off sleep mode	X=1 Level I	X=2 Level II

Here is some explanation for the sleep mode.
X=1, GPS module working 3 minutes and then power off 1minute…; X=2, GPS module working 2 minutes and then power off 1minute….

Power Down	W******,026,XX	W000000,026,10

Remarks: power down mode when the tracker is inactive (stationary) for a period of time.
In Power Down mode, GPS stops working and GSM enters sleep and stop sending out message until it is activated by message, incoming calls, movement or input changes.
XX=00, to turn off this function.
XX=01~99, to turn on Power Down after a specified period of being inactive. It is in unit of minute.
In this example, the tracker will enter power down mode after it is inactive for 10 minutes.

Listening-in (Voice Monitoring)	W******,030,T	W000000,030,138000000

Remarks: Authorize a phone number to make a silent call to the tracker. The tracker will answer the call automatically and allows the caller to listen to what happens around the tracker. There is no sound when the tracker is working.
Note:
T is phone number, Max. 16 digits;
If incoming call is not from authorized phone number, it will be treated as a normal call and would not enter Listening-in status.

Set Log Interval	W******,031,X	W000000,031,60

Remarks: to set the interval for storing GPS data into tracker's flash memory.
(Note: this interval is not relevant to the interval of SMS/GPRS tracking)
X=0, to turn off this function.
X=[1, 65535] to set interval in second.
In this example of W000000,031,60, the tracker will store location data every 60 seconds.

Format Buffer	W******,503	W000000,503

Remarks: This command clears the data stored in the buffer.
Note: Deleted data can't recover any more.

Time Zone	W******,032,T	W000000,032,480 W000000,032,-120

Remarks: Default time of the tracker is GMT, you can use this command to correct it to your local time. This command is for SMS tracking only.
T=0, to turn off this function;
T= [-720,720] to set time difference in minute to GMT.
For those ahead of GMT, just input the time difference in minute directly. For example, GMT+8, W000000,032,480

'-'is required for those behind GMT. For example, W000000,032,-120.		
Set SMS Header	W******,033,P,String	W000000,033,1,help
Remarks: this command is to set initial characters for SOS message when SOS/IN1, Button B/IN2, Button C/IN3 is pressed. P=1, SOS button/Input1 P=2, Input2 P=3, Input3 String is the character in SOS message and max 32 characters and defaulted as: 1 SOS Alarm! 2 Cry For Help! 3 Call The Police!		
Get Version No. and Serial No.	W******,600	W000000,600
Remarks: to get the version and serial number of tracker's firmware		
Get IMEI	W******,601	W000000,601
Remarks: to get IMEI of the tracker		
Reboot GSM	W******,901###	W000000,901###
Remarks: to reboot the GSM module of the tracker		
Reboot GPS	W******,902###	W000000,902###
Remarks: to reboot the GPS module of the tracker		
Initialization	W******,990,099###	W000000,990,099###
Remarks: Send SMS "Default?" to the device, and then send (within 120 seconds) this SMS command to the tracker to make all settings (except for the password) back to factory default. ### is the ending character.		
Password Initialization	W888888,999,666	W888888,999,666
Remarks: In case you forget your password, Send SMS "Default?" to the device, and then send (within 120 seconds) this SMS command to the tracker to make the password back to factory default (000000).		

Annex 2. Troubleshooting

Problem: Unit will not turn on when pushing the power switch to On side	
Possible Cause:	**Resolution:**
Power switch was not pushed properly	Make sure the power button is pushed to On side
Battery needs charging	Recharge battery for 3 hours
Problem: Unit will not reply with SMS	
Possible Cause:	**Resolution:**
Green LED is flashing (1 second on and 2 seconds off)	Make sure VT600-3G is connected to GSM network
GSM Network is slow	Some GSM networks slow down during peak time or when they have equipment problems
Unit is sleeping or in power down mode	Cancel sleeping mode or power down
Wrong password in your SMS or wrong SMS format	Write correct password or SMS format
The SIM has run out of credit	Replace or top up the SIM card
Problem: Green LED is Flashing (1 second on and 2 seconds off)	
Possible Cause:	**Resolution:**
No GSM signal	Check with a mobile phone to see if there is a signal in the area or try to call the unit to see if you hear a ring tone
No SIM card	Insert a working SIM card. Check in phone that the SIM can send SMS message
SIM card has expired	Check in phone that the SIM can send SMS message. Replace SIM card if needed
SIM has PIN code set	Remove PIN code by inserting SIM in your phone and deleting the code
SIM is warped or damaged	Inspect SIM, clean the contacts. If re-inserting does not help try another to see if it will work

Roaming not enabled	If you are in a different country your SIM account must have roaming enabled
Battery is low	Recharge the unit and the GSM will start working
Problem: Blue LED is Flashing (1 second on and 2 seconds off) or the SMS received starts with 'Last…'	
Possible Cause:	**Resolution:**
Unit does not have clear view of the sky	Move the unit to a location where the sky is visible. Tall buildings, trees, and heavy rain can cause problems with the GPS reception.
Bad GPS reception	Place the front side of VT600-3G towards sky
Battery is low	Recharge the unit and the GPS will start working.
Problem: Unit Fails to Connect to Server via GPRS	
Possible Cause:	**Resolution:**
SIM card in device does not support GPRS function	Enable SIM card GPRS function
GPRS function of VT600-3G is turned off	Turn on GPRS function
Incorrect IP address or PORT	Get the right IP address and PORT and reset
GSM signal is weak	Move the unit to a location with good GSM reception
Problem: Unit will not turn on	
Possible Cause:	**Resolution:**
Wiring was not connected properly	Check and make sure wiring connection is in order
Battery needs charging	Recharge battery
Problem: Unit will not respond to SMS	
Possible Cause:	**Resolution:**
GSM antenna was not installed properly	Make VT600-3G connected to GSM network
GSM Network is slow	Some GSM networks slow down during peak time or when they have equipment problems
Unit is sleeping	Cancel sleeping mode
Wrong password in your SMS or wrong SMS format	Write correct password or SMS format
The SIM in VT600-3G has run out of credit	Replace or top up the SIM card
No SIM card	Insert a working SIM card. Check in phone that the SIM can send SMS message
SIM card has expired	Check in phone that the SIM can send SMS message. Replace SIM card if needed
SIM has PIN code set	Remove PIN code by inserting SIM in your phone and deleting the code
SIM is warped or damaged	Inspect SIM, clean the contacts. If re-inserting does not help try another to see if it will work
Roaming not enabled	If you are in a different country your SIM account must have roaming enabled
Error connecting GSM antenna	Make sure the GSM antenna is connected to the GSM interface
Problem: SMS received starts with 'Last…'	
Possible Cause:	**Resolution:**
Unit does not have clear view of the sky	Move the antenna of the unit to a location where the sky is visible
VT600-3G is in an inner place	Wait for the target to come out
Battery is low	Recharge the unit and the GPS will start working
Error connecting GPS antenna	Make sure the GPS antenna is connected to the GPS interface
Problem: Unit Fails to Connect to Server via GPRS	
Possible Cause:	**Resolution:**
SIM card in VT600-3G does not support GPRS function	Enable SIM card GPRS function
GPRS function of VT600-3G is turned off	Turn on GPRS function of VT600-3G
Incorrect IP address or PORT	Get the right IP address and PORT and reset to VT600-3G

GSM signal is weak	Move the unit to a location with good GSM reception