GPS Vehicle Tracker

User Manual

V6.1

VT300

Contents

1 Product Overview

VT300 is a GPS/GSM/GPRS tracking device specially developed and designed for vehicle real-time tracking and fleet management.

With superior GPS and GPRS modules, VT300 has good sensitivity and stable performance. It can get accurate GPS fix even in remote places.

VT300 has the following functions and features:

- SMS and GPRS TCP/UDP Communication
- Track on Demand
- Show Location Directly on Mobile Phone
- Track by Time Interval
- 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)

2 For Your Safety

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

Proper Connection	When connecting with other device, read carefully its manual so as to carry out correct installation. Do not connect it to other incompatible devices.
Qualified Accessories	Use original parts, qualified batteries and peripheral equipments to avoid damage to VT300.
Safe Driving	Drivers should not operate this product while driving.
Qualified Service	Only qualified personnel can install or repair VT300.
Water Resistance	VT300 is not water resistant. Keep it dry. Install it inside the vehicle
Confidential Phone Number	For safety reason, do not tell other people the mobile phone number of your VT300 without taking precautions of security settings.

3 VT300 Characteristics

Items	Specification

Power Supply	+9V - +36V / 1.5A
Backup Battery	850mAh
Normal power consumption	85mA/h
Dimension	115mm x 60mm x 21mm
Installation Dimension	115mm x 79mm x 21mm
Weight	140g
Operating temperature	-20° to 55° C
Humidity	5% to 95% Non-condensing
Frequency	GSM 900/1800/1900Mhz or GSM 850/900/1800/1900Mhz (optional)
GPS Chipset	latest GPS SIRF-Star III chipset
GPS Sensitivity	-158Db
GPS Frequency	L1, 1575.42 MHz
C/A Code	1.023 MHz chip rate
Channels	20 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	38 sec., average
Cold start	42 sec., average
Altitude Limit	18,000 meters (60,000 feet) max.
Velocity Limit	515 meters/second (1000 knots) max.
LED	1 LED light to show working status.
Button	One SOS button
Interface	One input and one output

4 Getting Started

This section will describe how to set up your VT300.

4.1 Hardware and Accessories

VT300 is supplied in a box which includes:

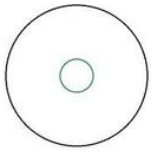
VT300 with Battery


GPS Antenna


GSM Antenna


Screws


Wires with SOS Button


CD

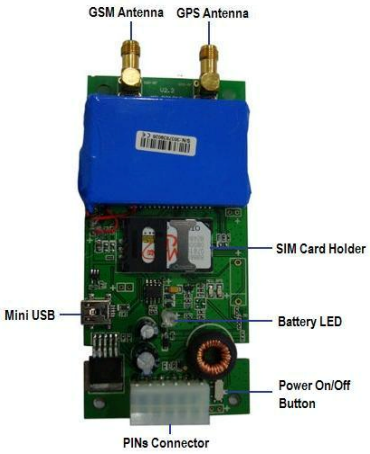
4.2 View

Front View

Side View

Back View

4.3 Functional Parts



Battery LED		
Off		Power is off or charging is complete
Flashing (every 0.1 second)		Low power
On		Charging
Flashing (1 second on and 2 seconds off)		Working
Power On/Off Button		To turn on/off VT300. Note: The switch is on off side as factory default. When the wires are plugged in, VT300 will be switched on automatically as the two yellow cables (SW1 and SW2) are connected together.
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 and configuration on PC. (USB-to-Serial Adaptor is required for firmware update and configuration by computer)
SIM Card		To 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
PINs Connector		
PIN	**Color**	**Function**

DC IN	Red	DC In (power input). Input voltage: 9V~36V. 12V suggested.
GND	Black	GND
IN	White	Input. Negative triggering. Low voltage (0V) when effective and open drain or HIGH voltage (>1V and max. 45V) when ineffective.
OUT1	Blue	Output. 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.
SW1	Yellow	SW1 connected with power switch Note: if you need to connect it to other switch, make sure the voltage should not over 4.5V.
SW2	Yellow	SW2 connected with power switch Note: if you need to connect it to other switch, make sure the voltage should not over 4.5V.

4.4 Connecting and Installation

Read this manual before using your VT300 and check if all parts are included in the packaging box.

4.4.1 Ensure that your VT300 has a working SIM installed.

- Check that the SIM has not run out of credit (test the SIM in a phone to make sure it can send and receive SMS)
- Check that the SIM 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 VT300, please make sure the SIM installed supports displaying caller ID.

Before inserting SIM card, cut off the power for VT300.

Install SIM Card

- Unscrew and remove the front cover of VT300.
- Insert the SIM card by sliding it into the card slot with the chip module facing to the connectors on PCB.
- Put back the front cover and screw it up.

4.4.2 Antenna Connection

Connect the GSM Antenna to VT300.

Connect the GPS Antenna to VT300.

- GPS antenna is used to receive satellite signals in the sky. It should be fixed to face the sky and should not be covered or shielded by any objects containing metal, such as the metallic windshield.

4.4.3 Find a suitable place inside the car for installing VT300. Wiring connections must be firm and reliable and the joints should be wrapped with insulating tape tightly. The unused electrical wire should be properly insulated.

Check if all wirings have been connected correctly and then connect the AVL unit to the motor power.

Check that the Red LED (Battery) is flashing 1 second on and 2 seconds off.

Make a missed phone call the VT300 using a mobile phone to check if the calling can go through and the VT300 replies 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 into 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=[1, 65535] 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.
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: Get the current location of the tracker, send this SMS or make a telephone call directly to the tracker and it will report its longitude and latitude by SMS with format as follows:-

Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 2.6854Km/h, 2008-12-24,01:50

Example:

W000000,000

- Track on Demand - Reply with a Google link

Command: W******,100

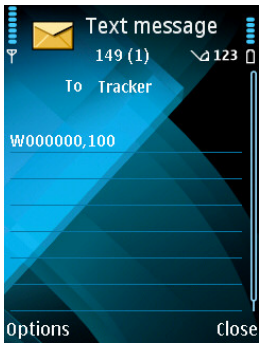
Description: Send this command to the tracker and then you receive an SMS with an http link. Click on the link then the location can be shown directly on Google Map on your mobile phone. For example:

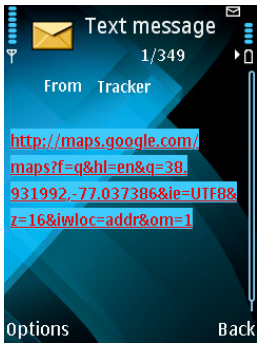
http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329&ie=UTF8&z=16&iwloc=addr&om=1

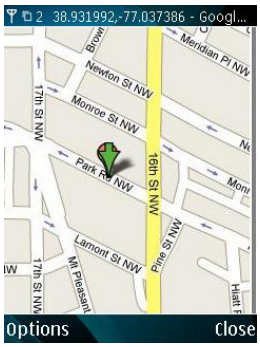
Note: Only smart phones and PDA support this function.

Example:

W000000,100







7.2 Track by Calling

Make a missed call to the tracker and it will report its longitude and latitude by SMS with format as follows:-

Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 2.6854Km/h, 2008-12-24,01:50

7.3 Track by Preset Interval

Command: W******,002,XXX

Description: Set an interval for the tracker to continuously return its location by SMS

Note:

1. XXX is the interval in minute.
2. If 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 in your Internet Explorer

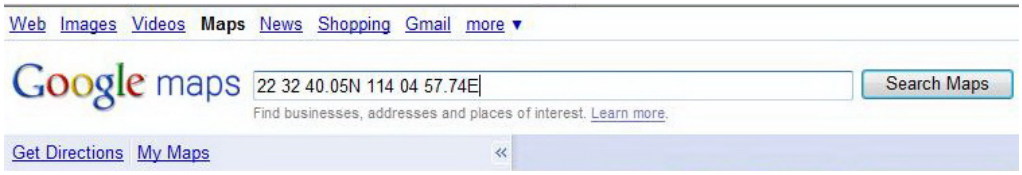
Input the latitude and longitude that you receive from the tracker by SMS and click the search button. Google Earth or Google Maps will display the location for you.

Example:

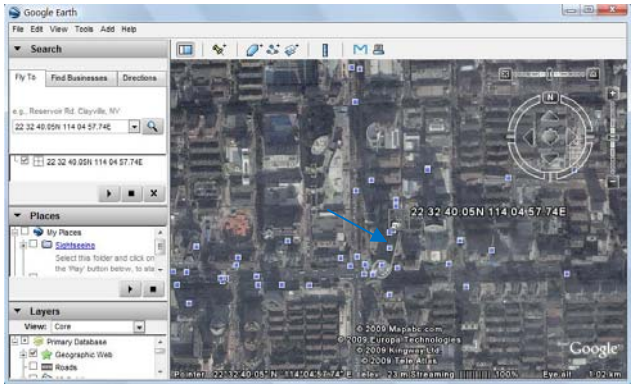
When you receive: Latitude = 22 32 40.05N Longitude = 114 04 57.74E

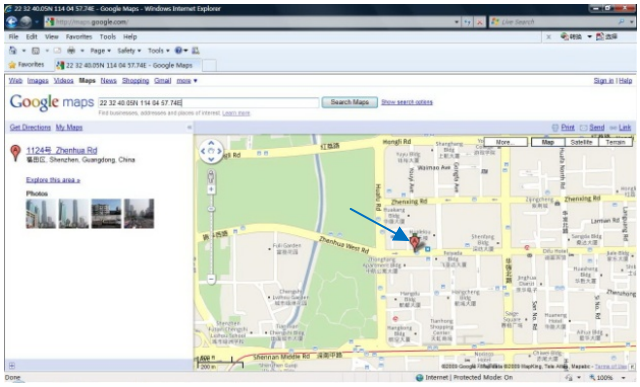
Type as the following picture shows:

(Note: you should input the latitude and longitude as: 22 32 40.05N 114 04 57.74E)



And then you can find the location of your tracker:





Or you can 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: Sets a digital GPRS ID for the tracker.

Note:

GPRS ID must not over 14 digits.

Example:

W000000,010,00001

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’;
3. APN + username + password should not over 39 characters.
Example:
W000000,011,CMNET,abcd,6688
W000000,011,CMNET

7.5.3 Set IP and Port

Command: W******,012,IP,Port
Description: Set IP and Port for tracker for GPRS communication.
Note:
1. IP is your server’s IP or the domain name.
2. Port: [1,65534]
Example:
W000000,012, 220.121.7.89,8500
W000000,012,www.abcd.net,8500

7.5.4 Set DNS Server IP (optional)

Command: W******,009,DNS Server IP
Description: In case the domain name you set by the last command (W******,012,IP, Port) doesn’t work, which means 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: W000000,009,220.23.4.90

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.
In this example, the tracker will send every 600 seconds (10 minutes).
Example: W000000,014,00060
The tracker will send every 600 seconds (10 minutes).

For more information regarding GPRS tracking please refer to <GPRS Communication Protocol>

8. Authorization

Command: W******,003,F,1,T

Description: Authorize phone numbers for the SOS button for receiving location reports and SMS alarms.

Note:

F=0, to turn off this function; (default)

F=1, Sends SMS to the authorized phone number;

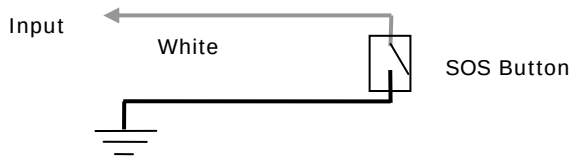
T: Preset phone number. Max.16 digits

Example:

W000000,003,1,1,88888888

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 complete, once the SOS is pressed, an SOS SMS - “SOS Alarm” will be sent to the preauthorized phone number and then a message with longitude and latitude to follow.

9. Low Battery Alarm

Command: W******,004,X

Description: When the tracker’s voltage is lower than the preset value, it will send an SMS alarm to the authorized phone number for SOS.

Note: X is the preset value of voltage.

=0 , to turn off this function	=1, <3.3V	=2 , <3.4V
=3 , <3.5V (default)	=4 , <3.6V	=5 , <3.7V

Example: W000000,004,2

10. Speeding Alarm

Command: W******,005,XX

Description: Turns on speeding alarm. When the tracker speeds higher than the preset value, it will send an SMS to the 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,XX

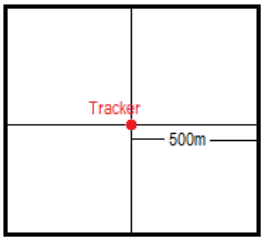
Description: When the tracker moves out of a preset square scope, it will send an SMS alarm to the authorized phone number for SOS.

Note: XX is the preset distance to the tracker's original place.

=00, to turn off this function

=01, 30m	=02, 50m	=03, 100m	=04, 200m
=05, 300m	=06, 500m	=07, 1000m	=08, 2000m

Example: W000000,006,06



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

11.2 Geo-fence Alarm

Command: W******,017,X or W******,117,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. 017 is for alarm when tracker moves out the preset scope;
2. 117 is for alarm when tracker moves in.
3. X is the coordinates which include: Lower-left X,Lower-left Y,Upper-right X,Upper-right Y
4. Lower-left X should be less than Upper-right X;
5. All longitudes and latitudes should be in ASCII format as follows:-
   Longitude: DDDMM.MMMM,E/W. 4 places of decimal. '0' is needed to be stuffed if no value available.
   Latitude: DDMM.MMMM,N/S. 4 places of decimal. '0' is needed to be stuffed if no value available;
6. Send W******,006,00 to turn off Geo-fence function.

Example:

W000000,017,11404.0000,E,2232.0010,N,11505.1234,E,2333.5678,N

W000000,117,11404.0000,E,2232.0010,N,11505.1234,E,2333.5678,N

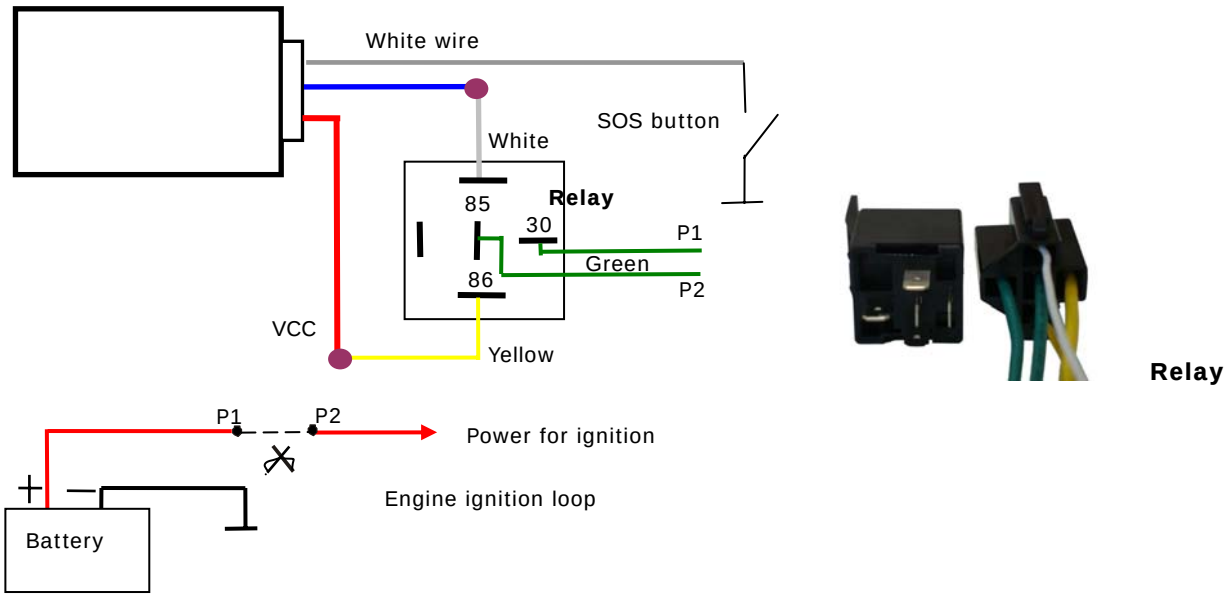
Remarks:

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. Engine Cut

Relay Connection: Connect a replay as below picture shows:



Relay

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 the Output (Out1) is open (Out1 be Low voltage), two green wires will disconnect, the engine is then cut.

12.1 Output Control (Unlimited)

Command: W******,020,1,F

Description: Send this command to control the Output of VT300

Note:

F=0, to close the output (open drain);

F=1, to open the output (low voltage).

Example: W000000,020,1,1

Once the relay is properly installed, send this command to stop the engine.

12.2 Output Control (Limited)

Command: W******,120,F or W******,220,F

Description: Send this command to control the Output of VT300. This command is only workable when the speed is below 10km/h(command 120) or 20km/h(command 220) and meantime GPS is available.

Note:

F=0, to close the output (open drain);

F=1, to open the output (low voltage).

Example:
W000000,120,1
W000000,220,1
Once the relay is properly installed, send this command to VT300. When its speed reaches at 10km/h or 20km/h, it will stop the engine.

13. Veer 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 is to enhance the accuracy when the tracker make a direction change.
Note:
degree=0, to turn off this function.
degree=[1,360], to set degree of direction change.
Example: W000000,036,90
When the tracker turns more than 90 degree, a message will be sent back to the server.

14. Initialization

Command: W******,990,099###
Description: This is to make all settings (except for the password) back to factory default.
Note: Turn on the device, press the SOS button for five times continuously and the red LED will be on, and then send (within 120 seconds) this SMS to the tracker.
is the ending character and is required in the text message.
Example: W000000,990,099###

15. Password Initialization

Command: W888888,999,666
Description: This is to make the password back to factory default in case you forget your password.
Note: Turn on the tracker, press the SOS button for five times continuously and the red LED will be on, and then send this SMS (within 120 seconds) to the tracker to make the password back to factory default (000000).
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 SMS or make a telephone call directly to the tracker and it will report its longitude and latitude by SMS with format as follows:- Latitude = 22 32 36.63N Longitude = 114 04 57.37E, Speed = 2.6854Km/h, 2008-12-24,01:50		
Track on Demand -Google Link	W******,100	W000000,100
Remarks: Send this command to the tracker and then you receive an SMS with an http link. Click on the link then the location can be shown directly on Google Map on your mobile phone. For example: http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329&ie=UTF8&z=16&iwloc=addr&om=1 (Note: Only smart phones and PDA 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.		
Track by Interval	W******,002,XXX	W000000,002,030
Remarks: To set interval for automatic timed report. XXX is the interval in minute. If XXX=000 to turn off tracking by time. In this example, the tracker will send location data back to your mobile phone every 30 minutes.		
Authorization	W******,003,F,1,T	W000000,003,1,1,88888888
Remarks: To authorize phone numbers for the SOS button (input) for receiving location reports and SMS alarms. F=0, to turn off this function (default). F=1, to turn on the function of sending SMS reports/alarms to the authorized phone number. T: Preset phone number. Max.16 digits		
Low Battery Alarm	W******,004,X	W000000,004,2
Remarks: When the tracker's voltage is lower than the preset value, it will send an SMS alarm to the authorized phone number for SOS. X is the preset value of voltage. =0 , to turn off this function / =1, <3.3V / =2 , <3.4V =3 , <3.5V (default) / =4 , <3.6V / =5 , <3.7V		
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.		

Movement Alarm	W******,006,XX	W000000,006,06

Remarks: When the tracker moves out of a preset square scope, it will send an SMS alarm to the authorized phone number for SOS.

XX is the preset distance to the tracker's original place

=00, to turn off this function

=01, 30m	=02, 50m	=03, 100m	=04, 200m
=05, 300m	=06, 500m	=07, 1000m	=08, 2000m

Geo-fence Alarm	W******,017,X W******,117,X	W000000,017,11404.0000,E,2232.0010,N,11505.1234,E,2333.5678,N W000000,117,11404.0000,E,2232.0010,N,11505.1234,E,2333.5678,N

Remarks: 017 is for alarm when tracker moves out the preset scope; 117 is for alarm when tracker moves in.

When the tracker moves in or out, it will send an SMS alarm to the authorized phone number for SOS.

X is the coordinates which include:

Lower-left X,Lower-left Y,Upper-right X,Upper-right Y

For example, 11404.0000,E,2232.0010,N,11505.1234,E,2333.5678,N

Note:

1. Lower-left X should be less than Upper-right X;
2. All longitudes and latitudes should be in ASCII format as follows:-
   Longitude: DDDMM.MMMM,E/W. 4 places of decimal. '0' is needed to be stuffed if no value available.
   Latitude: DDMM.MMMM,N/S. 4 places of decimal. '0' is needed to be stuffed if no value available;
3. Only one alarm can be set in either Movement Alarm or Geo-fence Alarm;
4. Send W******,006,00 to turn off Geo-fence function.

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

Remarks:

A=0, turn off the function of sending SMS location report after a phone call is made to the tracker.

A=1, turn on the function of sending SMS location report after a phone call is made to the tracker.

B=0, location data of NMEA 0183 GPRMC will be interpreted into normal text for easy reading.

For example, *Longitude = 114 degree - 04 minute -57.74 second, Latitude = 22 degree -32 minute -40.05 second*

B=1, location data complies with NMEA 0183 GPRMC protocol.

For example, $GPRMC,161509.000,A,2232.5485,N,11404.6887,E,0.3,153.7,290709,,*03

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 after 4 - 5 rings.

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 to the authorized phone number for SOS when the tracker is turned on.

E, defaulted as 1 (the tracker shuts down automatically when the power voltage is lower than 3V).

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. SMS is to be sent to the authorized phone number for SOS.

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 tracker is cut. **I=1**, turn on the function of sending an SMS alarm to the authorized phone number for SOS when the extra power of the tracker is cut. **J**, reserved and defaulted as '1' **###** is the ending character (ABCDEFGHIJ defaulted as 1000100001)		
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.		
Set APN	W******,011,APN,Username, Password	W000000,011,CMNET,abcd,6688 W000000,011,CMNET
Remarks: If no APN username and password are required, just input APN only; APN defaulted as 'CMNET'; APN + username + password should not over 39 characters.		
Set IP and Port	W******,012,IP,Port	W000000,012, 220.121.7.89,8500 W000000,012,www.abcd.net,8500
Remarks: IP is your server's IP or the domain name. Port: [1,65534]		
Set DNS Server IP	W******,009,DNS Server IP	W000000,009,220.23.4.90
Remarks: In case the domain name you set by the last command (W******,012,IP,Port) doesn't work, which means 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).		
Veer 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 (Unlimited)	W******,020,1,F	W000000,020,1,1

Remarks:

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 (Limited)	W******,120,F W******,220,F	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.

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

Sleep Mode	W******,021,XX###	W000000,021,02###

Remarks: this setting is for power saving.

XX=00 turn off sleep mode	XX=01 Level I	XX=02 Level II

is the ending character

Here is some explanation for the sleep mode. First, assume that the GPS acquisition time is ONE minute.

[1] In Level I

The GPS module will be working for the first three minutes (i.e. 3 times of acquisition time) and then shut down for ONE minute (i.e. equivalent to acquisition time), and then work again for another three minutes……

[2] In Level II

The GPS module will be working for the first two minutes (i.e. twice of acquisition time) and then shut down for ONE minute (i.e. equivalent to acquisition time), and then work again for another two minutes……

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

Remarks: to set power down mode when the tracker is inactive 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 or triggered by buttons.

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.

Correct Time Difference	W******,032,T	W000000,032,480 W000000,032,-120

Remarks: Default time of the tracker is GMT, you can use this comment to correct it to your local time. This command is for SMS tracking only.

T=0, to turn off this function.

T=[1, 65535] 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 Initials	W******,033,1,Char	W000000,033,1,help
Remarks: this command is to set initial characters for SOS message when the SOS button (input) is pressed. Char is the character in SOS message and max 32 characters and defaulted as 'SOS Alarm!'		
Set Prefix (Country Code)	W******,502,*Data#	W000000,502,*+86#
Remarks: be advised caution in this setting. Normally, your country code (for example in China it is +86) will be automatically added and displayed prior to a phone number when sending SMS. In this case, you don't have to do this setting. If the country code is not added, you are required to input the country code, for example, +86, to enable the tracker can send out SMS to your mobile phone. Data: max 10 digits		
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: Turn on the device, press the SOS button for five times continuously and the red LED will be on, and then send (within 120 seconds) this SMS 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, turn on the tracker, press the SOS button for five times continuously and the red LED will be on, and then send this SMS (within 120 seconds) to the tracker to make the password back to factory default (000000).		

Annex 2. Troubleshooting

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 VT300 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 VT300 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 you 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.
VT300 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 VT300 does not support GPRS function	Enable SIM card GPRS function.
GPRS function of VT300 is turned off	Turn on GPRS function of VT300.
Incorrect IP address or PORT	Get the right IP address and PORT and reset to VT300.
GSM signal is weak	Move the unit to a location with good GSM reception.