

*GPS*  
*Vehicle*  
*Tracker*

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**USER MANUAL**  
**V5.0**

**VT300**

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## 1 Product Overview

VT300 is a GPS/GSM/GPRS tracking device which is specially developed and designed for vehicle real-time tracking and security. 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 features:

*Tracking via SMS or GPRS (TCP/UDP)*

*Current location report*

*Tracking by time interval*

*SOS panic button*

*Geo-fencing control*

*Low battery alert*

*Speeding alert*

*Engine cut*

*Alert when VT300 enters/exits GPS blind area*

*Alert when VT300 is turned on*

*I/O: one input and one output*



## 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 or use waterproof bag if necessary.

*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 Parameters

Item	Specification
Power Supply	+9V - +35V / 1.5A
Backup Battery	850mAh
Dimension	115mm x 60mm x 21mm
Installation Dimension	115mm x 79mm x 21mm
Weight	145g
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 includes:

- *VT300 Main Unit*
- *GPS Antenna*
- *GSM Antenna*
- *Wires*
- *CD including*
  - *User Manual*
  - *Other document or software if required*



### 4.2 Light and Button Functionality

Red Light	Status
Off	Power is off or charging is complete
Flashing ( every 0.1 second)	Low power
On	Charging
Flashing (on for 1 second and off for 2 seconds)	Working



<b>SOS Button</b>	<b>Press it to send SMS alert</b>
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### 4.3 Connecting and Installation

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

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 the AVL unit.

Install SIM Card

- Unscrew and remove the front cover of your AVL.
- 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.



Connect the GSM Antenna to the unit.

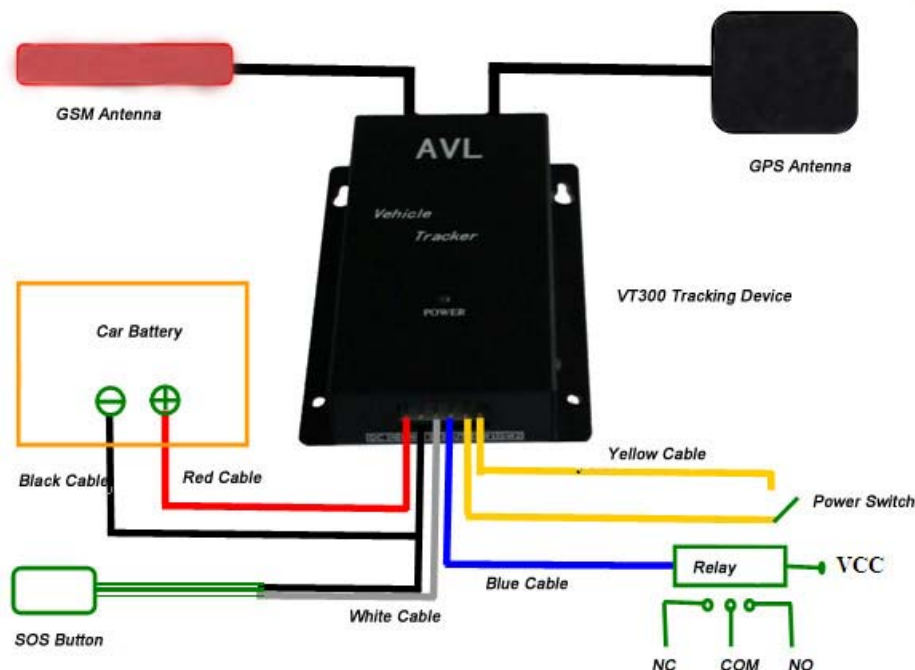
Connect the GPS Antenna to the unit.

- 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.

Find a suitable place inside the car for installing the unit. 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.

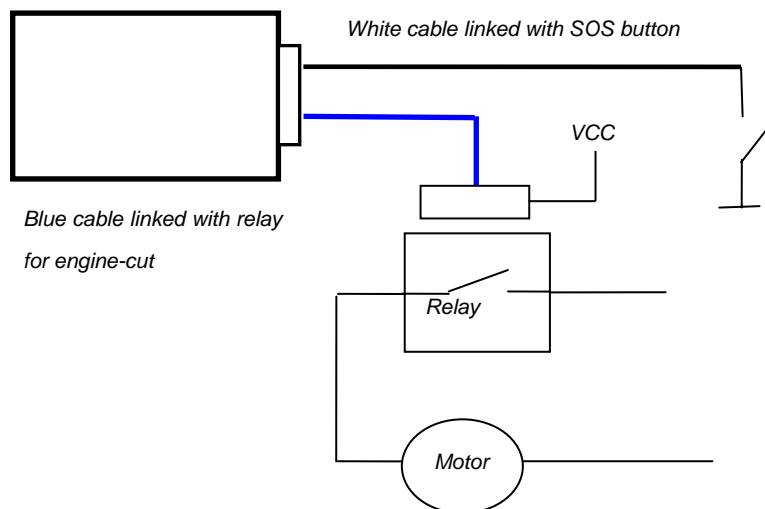
Check if all wirings have been connected correctly and then connect the AVL unit to the motor power.

Installation Guide:



**Descriptions of PINs:**

Pin	Color	Function
1	Red	DC In (power input). Input voltage: 9V~35V. 12V suggested.
2	Black	GND
3	White	Input
4	Blue	Output
5	Yellow	SW1: Connect with power switch
6	Yellow	SW2: Connect with power switch

**An example of Input and Output application:****OUT1 Operation:**

- (1) Connect the relay as above picture shows and calculate the correct VCC value according to the relay parameter to make sure to comply with the following requirements:

Out1 Input Voltage	Must < 50V
Out1 input Current	Must < 500mA

- (2) Send the following SMS to open Output(cut engine):

W<password>,020,1,1

- (3) Send the following SMS to close Output:

W<password>,020,1,0

**IN Operation:**

- (1) Connect with SOS button as above picture shows.

- (2) Send the following SMS to set phone number for SOS alert

W<password>,003,1,1,T

T: the phone number for SOS alert, for example, W000000,003,1,1,123456789

- (3) When SOS button is pressed, an SOS SMS - "SOS Alarm" will be sent to the preset number and then a message with longitude and latitude to follow.

## 5 SMS Command

VT300 will only accept commands from a user with the correct password. Commands with wrong password are ignored. The default password is 000000.

### 5.1 Basic SMS Commands

#### 5.1.1 Position Report

Description: To know the location of your VT300, send an SMS or make a telephone call directly to VT300 and it will report its location by SMS.

Command: W<password>,<000>

Notes: The default password is 000000.

Example:

SMS sent: W000000,000

SMS received:

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

To get VT300's location by another easier way:

- (a) Call VT300 using your mobile phone.
- (b) After listening to the ring for 10 - 20 seconds, hang up the phone.
- (c) Then, in about 15 seconds, your mobile phone will receive an SMS with longitude and latitude.

#### 5.1.2 Set Interval for Automatic Timed Report

Description: Automatic timed reports will be sent to your mobile phone according to the time interval you set.

Command: W<password>,002,XXX

Notes: XXX is the interval in **minute**.

Example:

SMS sent: W000000,002,005

SMS received: Set Time Ok/005

Meaning: VT300 will report its location by SMS every 5 minutes.

#### 5.1.3 Stop Automatic Timed Report

Description: Automatic timed reports will stop once VT300 receives stop command.

Command: W<password>,002,000

Example:

SMS sent: W000000,002,000

SMS received: Set Timer Ok/000

Meaning: VT300 will stop automatic timed report.

***For more detailed SMS commands please go to Chapter 8 - SMS Command List***

### 5.2 GPRS Settings by SMS

Tracking via GPRS, you should set IP, Port and APN for VT300.

Ensure that your SIM card in VT300 supports GPRS connection prior to setting.

### 5.2.1 Set ID for VT300

Command: W<password>,010,ID

Note: Tracker ID must not over 14 digits.

Example: W000000,010,123456789

VT300 will then reply with an SMS ('Set SIM Ok/123456789') to confirm this setting.

### 5.2.2 Set APN by SMS

Command: W<password>,011,APN,APN Name,APN Password

Note: If no APN name and password required, input APN only.

Example: W000000,011,CMNET

VT300 will reply with an SMS (like 'Set APN Ok/CMNET') to confirm this setting.

### 5.2.3 Set IP Address and Port

Command: W<password>,012,IP,PORT

Example: W000000,012,202.116.11.12,8000

VT300 will then reply an SMS ('Set IP Ok /202.116.11.12,8000') to confirm this setting.

### 5.2.4 Set Time Interval for Sending GPRS Packet

Command: W<password>,014,time interval(in unit of 10 seconds)

Example: W000000,014,00003

VT300 will send a GPRS packet every 30 seconds

### 5.2.5 Enable GPRS Tracking Function

Command: W<password>,013,X

X=0, to turn off GPRS function(default);

X=1, to set TCP

X=2, to set UDP

Example: W000000,013,1

VT300 will reply with an SMS to confirm this setting.

***For more information regarding of bulk configuration by USB cable please refer to < GPS Tracker Parameter Editor>.***

***For more information regarding GPRS settings please refer to <GPRS Communication Protocol >.***

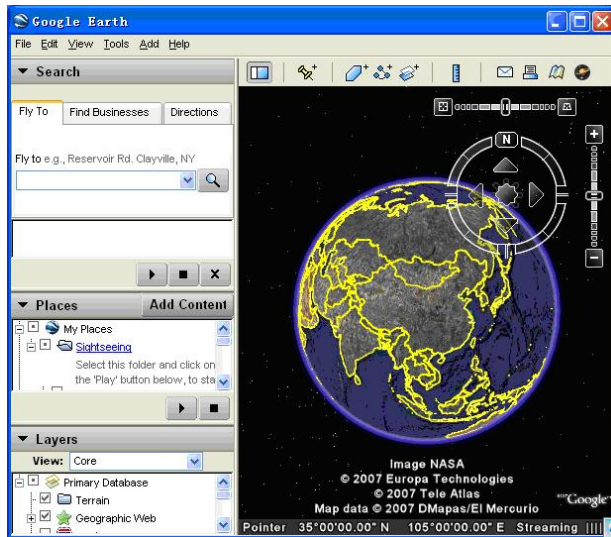
## 6 Tracking on Map

Download Google Earth from <http://earth.google.com/>

Start the Google Earth (For more information about Google Earth please refer to <http://earth.google.com/>)

as the following picture shows:





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

Example:

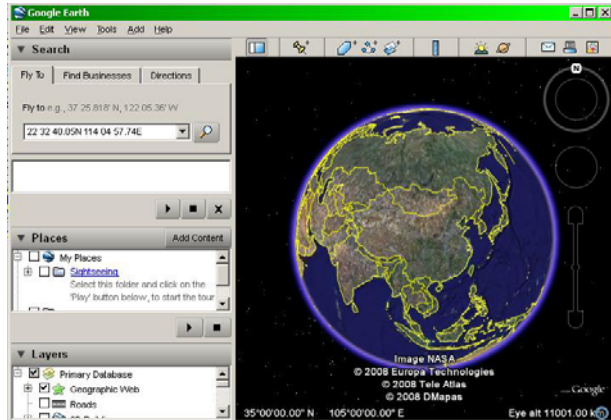
When you receive:

Latitude = 22 32 40.05N

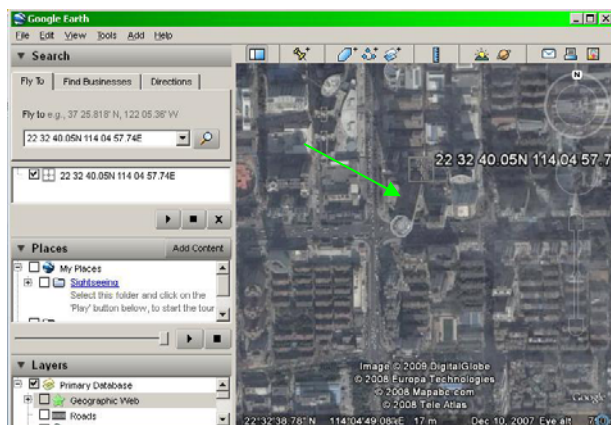
Longitude = 114 04 57.74E

Type as the following picture shows:

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



Now you can find the location of your tracker:



Or you can start the Internet Explorer and connect to <http://maps.google.com> for displaying the location.

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

## 7 Troubleshooting

<b>Problem: Unit will not turn on</b>	
<b>Possible Cause:</b>	<b>Resolution:</b>
Wiring was not connected properly	Check and make sure wiring connection is in order.
Battery needs charging	Recharge battery
<b>Problem: Unit will not respond to SMS</b>	
<b>Possible Cause:</b>	<b>Resolution:</b>
GSM antenna was not installed properly	Make VT300 connected to GSM network.
GSM Network is slow	Wait for SMS. 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.
<b>Problem: SMS received starts with 'Last...'</b>	
<b>Possible Cause:</b>	<b>Resolution:</b>

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.

## 8 Command List

Remarks: \*\*\*\*\* is user's password, and the default password is 000000.

Description	Command	Remarks
<b>Get current location</b>	W*****,000	Get current location of VT300
<b>Change user's password</b>	W*****,001,#####	***** is old password ##### is new password
<b>Set interval for automatic timed report</b>	W*****,002,XXX	XXX is the interval in minute. If XXX=000 it will stop tracking
<b>Set preset phone number for SOS button</b>	W*****,003,F,1,T	F=0, to turn off this function; F=1, to send SMS;  T: Preset phone number. Max. 16 digits
<b>Set low power alert</b>  When VT300 voltage is lower than the preset value, it will send one low power alert to the SOS preset number.	W*****,004,X	X (voltage preset value) =0 , to turn off this function =1, <3.3V send SMS alert =2 , <3.4V send SMS alert =3 , <3.5V send SMS alert (default ) =4 , <3.6V send SMS alert =5 , <3.7V send SMS alert
<b>Set over speed alert</b>  When VT300 speeds higher than the preset value, it will send an SMS to the SOS preset number.	W*****,005,XX	XX (the preset value of speed) =00 , to turn off this function =[01, 20] (unit: 10Km/h) For example, W000000,005,08, it will sent alert when it is over 80Km/h
<b>Set Geo-fence alert</b>  When the VT300 moves out of preset scope, it will send one Geo-fence SMS to the SOS preset number.	W*****,006,XX	XX ( preset distance to original place ) =00, turn off this function =01, 30m =02, 50m =03, 100m =04, 200m =05, 300m =06, 500m =07, 1000m =08, 2000m

Extend Settings	W*****,008,ABCDEFGF###	<p><b>A=0</b>, turn off the function of sending an SMS location report to the authorized phone number when it makes a call to VT300.</p> <p><b>A=1</b>, turn on the function of sending an SMS location report to the authorized phone number when it makes a call to VT300.</p> <p><b>B=0</b>, location data of NMEA 0183 GPRMC will be interpreted into normal text for easy reading.</p> <p>For example:  <i>Longitude = 114 degree - 04 cent -57.74 second</i>  <i>Latitude = 22 degree -32 cent -40.05 second</i></p> <p><b>B=1</b>, location data complies with NMEA 0183 GPRMC protocol.</p> <p>For example:  <i>\$GPRMC,072414.000,V,3114.3763,N,12131.3255,E,0.00,0.00,050805,*00</i></p> <p><b>C=0</b>, turn off the function to automatically hang up an incoming call.</p> <p><b>C=1</b>, turn on the function to automatically hang up an incoming call after 4 - 5 rings.</p> <p><b>D=0</b>, Turn off the function of sending an SMS when VT300 is turned on.</p> <p><b>D=1</b>, Turn on the function of sending an SMS to SOS number when VT300 is turned on.</p> <p><b>E=0</b>, reserved</p> <p><b>E=1</b>, VT300 shuts down automatically when the power voltage lower than 3V.</p> <p><b>F=0</b>, Turn off the alert when VT300 enters GPS blind area.</p> <p><b>F=1</b>, Turn on the alert when VT300 enters GPS blind area. SMS is to be sent to SOS number</p> <p><b>G=0</b>, LED light works normally</p> <p><b>G=1</b>, LED light stops flashing when VT300 working.</p> <p><b>###</b> is the ending character (default value is: ABCDEFG=1000100 )</p>
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<b>Presetting by SMS for GPRS tracking (Ensure that your SIM card supports GPRS connection prior to setting)</b>		
Set ID for VT300	W*****,010,ID	Tracker ID must not over 14 digits.
Set APN	W*****,011,APN,APN Name, APN Password	If no APN name and password required, just insert APN only; APN defaulted as 'CMNET'; APN + APN name + password not over 39 characters.
Set IP Address and Port	W*****,012,IP, Port	IP: xxx.xxx.xxx.xxx Port: [1,65534]
Enable GPRS Tracking Function	W*****,013,X	X=0, turn off GPRS (default); X=1, enable TCP X=2, enable UDP
Set Time Interval for Sending GPRS Packet	W*****,014,XXXXX	XXXXX should be in five digitals and in unit of 10 seconds. XXXXX=00000, to close this function; XXXXX=00001~65535, time interval for sending GPRS packet and in unit of 10 seconds.
<b>For more information regarding GPRS settings please refer to &lt;GPRS Communication Protocol&gt;</b>		
<b>Output Control</b>	W*****,020,1,F	F =0, to close the output =1, to open the output
<b>Output Control (Safe mode)</b> This function is achievable when the speed is below 10km/h and GPS is available.	W*****,120,A	A represents Out1. If A, =0, to close the output =1, to open the output
<b>Set sleep mode</b> for saving power	W*****,021,XX###	XX=00 turn off sleep mode XX=01 sleep mode XX=02 deep sleep mode ### is the ending character
<b>Set time zone difference</b>	W*****,032,T	T=0, to turn off this function T=[1, 65535] to set time difference in minute to GMT. Default value is GMT For those ahead of GMT, just input the time difference in minute directly. For example, W000000,032,120 '-' is required for those behind GMT. For example, W000000,032,-120.
<b>Set character for SOS alert message</b>	W*****,033,1,Char	Char is the character in SOS message and max 32 characters
<b>Get version and serial number</b>	W*****,600	To get version and serial number of current firmware
<b>Get IMEI</b>	W*****,601	To get IMEI