TZ-AVL19

---User Manual

Items	Contents
Keywords	Vehicle Terminal, GPRS, RFID, Commands
Abstract	Explain the AVL_19 using method

Content

1. Product Overview

AVL19 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, AVL19 has good sensitivity and stable performance. It can get accurate GPS fix even in remote places.

AVL19 also has the function of RFID card management, which can manage various frequency RFID card, including 125 KHz and 13.56 MHz, UHF and 2.4 GHz、433MHz. It is compatible with tracking and RFID management platform developed by TZONE DIGITAL. It has extensive application value in the field of intelligent wireless management.

1.1. Key Features

➢ GPS

High sensitive SIRFIV Star GPS Chipset module
Locate single waypoint or track continuously
Locate at preset time interval or real time
Live tracking on map
Odometer

➢ GSM

GPRS/SMS connection;
Get messages as SOS, low power, speed alarm, geo-fence alarm, etc.
Send low power notification when battery will die out
Remote control via mobile phone or computer
TCP/UDP protocol Two-
way conversation

➢ I/O

6 digital input, 3 digital output, 2 analog input , 4 serial port and 1 mini USB port
Cut off engine instantly or in on-off mode when someone drives vehicle
Send power disconnection alarm when someone cuts off power line
Turn on or off door-lock
Measure oil, water temperature and air temperature
Detect on/off status such as engine, ACC, doors etc.
Monitor environment voice
Connect serial port devices such as camera

➢ RFID

Support for multiple frequency RFID card including 125 KHz or 13.56 MHz or UHF or 2.4 GHz or 433MHz

Support external various RFID reader as 125 KHz or 13.56 MHz or UHF or 13.56 G reader

Custom communication protocol

➢ Others

Set parameters via mobile phone or configuration software
Built-in motion sensor;
Sleep when no motion
Detect working status periodically like hear-beat rate
32M memory
Rechargeable li-polymer battery
Compatibles with tracking and RFID management platform
SD card storage function (Options)

1.2. Specification

Feature	Characteristics
Dimension	118mm*93mm*31mm
N.W	260g
Exterior Power Supply	DC 9V – 36V
Inner lithium battery	DC 3.7V
Standby time	About 72 hours
Work time	About 12 hours
Exterior GSM antenna	Receive GSM signal better
Exterior GPS antenna	Receive GPS signal better
Operating Temperature Range	-20℃ to +60℃
Humidity	Up to 75% non-condensing
Position accuracy	10 –15 meters
GSM chip	Supports 4 frequency GSM 850/900/1800 /1900MHz
GPS chip	Sirf-Star IV (super-sensitivity and high accuracy)
Button	4 buttons
GPRS Protocol	TCP/UDP
Position Accuracy	10-15 meters

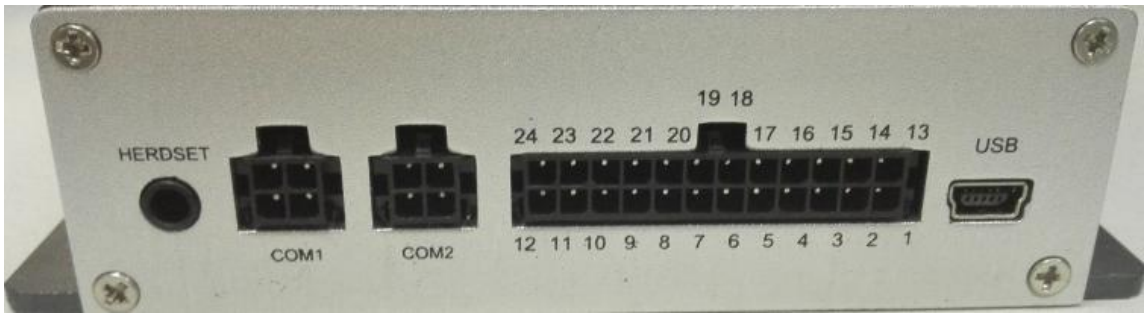
Hot Start	1 second
Warm Start	38 seconds
Cold Start	42 seconds
Exterior GSM antenna	Receive GSM signal better
Exterior GPS antenna	Receive GPS signal better
RFID Antenna socket	Connect Exterior RFID Antenna
LED light	3 LEDs indicates GSM signal, GPS signal, power on and GSM module, charge LEDs
I/O Port	6 digital input(2 positive input, 4 negative input), 3 digital output,2 analog input ,4 serial port and 1 mini USB port
Motion Sensor	Built-in
Flash Memory	32Mb flash (save more than 16,000 points)
Microphone/speaker	High sensitivity

1.3. Outside feature

1.3.1.Socket and Switch

Hardware	Function
A. USB Port	Support "USB Converter" to update firmware
B. I/O Sockets	Expanding function, as below
C. Serial port 1	Connect to the external peripheral
C. Serial port 2	Connect to the external peripheral
D. Headset	Connect the microphone and headset
E. Switch	Turn on /off the unit
F. Serial port 3	Connect to the external peripheral
G. GPS Antenna socket	Connect Exterior GPS Antenna
H. RFID Antenna socket	Connect Exterior RFID Antenna
I. GSM Antenna socket	Connect Exterior GSM Antenna
J. Three LED	GPS Led, Power& tremble Led, GSM Led
K. SIM Card Holder	Hold a SIM card

1.3.2. I/O ports



The function is as below:

NO.	Function	
I/O 01	GND	
I/O 02	GND	Serial Input Port 1
I/O 03	RS232-TX	
I/O 14	VCC(+5V)	
I/O 15	RS232-RX	
I/O 04	VCC(+5V)	
I/O 05	Connect to the temperature sensor	

I/O 06	**Digital input 2**
I/O 07	**Digital input 1**
I/O 08	**Button C**
I/O 09	**Button B**
I/O 10	**Button A**
I/O 11	**SOS Button**
I/O 12	**CAN_L**
I/O 13	**VCC(+12)**
I/O 16	**GND**
I/O 17	**ADB**
I/O 18	**ADA**
I/O 19	**GND**
I/O 20	**GND**
I/O 21	**Digital output 2**
I/O 22	**Digital output 1**
I/O 23	**Digital output 3**
I/O 24	**CAN_H**

Note: The port with no mark is reserved for customization.

1.3.3. LED Indicators

LED	**State**	**Description**
GPS Indicator (Blue LED)	light 0.1s dark 2.9s	GPS Signal Well
	light 1s dark 2s	No GPS Signal
	light 0.5s dark 0.5s	GPS Fault
Tremble Indicator & Power (Red LED)	light 0.1s dark 0.1s	System Initial
	always light	On Tremble & Charging
	always dark	No Tremble& Charging full
GSM Indicator (Green LED)	light 0.1s dark 0.1s	System Initial
	light 0.1s dark 2.9s	GSM Signal Well
	light 1s dark 2s	No GSM Signal
	always dark	No SIM Card Or Bad SIM Card
	light 0.1s dark 0.1s (flash three times)	Call Ring
	always light	In A Call
	light 0.1s dark 0.3s (flash five times)	Send A SMS

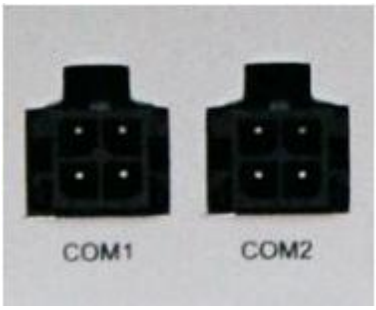
	light 0.1s dark 0.3s (flash five times)	Receive A SMS
	light 0.1s dark 1s	Connect to GPRS

When AVL is in work mode, if GSM signal is in good state, the green LED will flash, similarly, if GPS signal is in good state, the blue LED will flash, if the green LED is not flashing, that indicates the GSM signal is not good, if the blue LED is not flashing, then you should check if there is something upon the GPS antenna top. Further, if you find the three LEDs are dark, maybe the AVL entered into "sleep-mode" or there is no power in the AVL unit.

1.3.4.Connect to the external peripheral by Serial Port

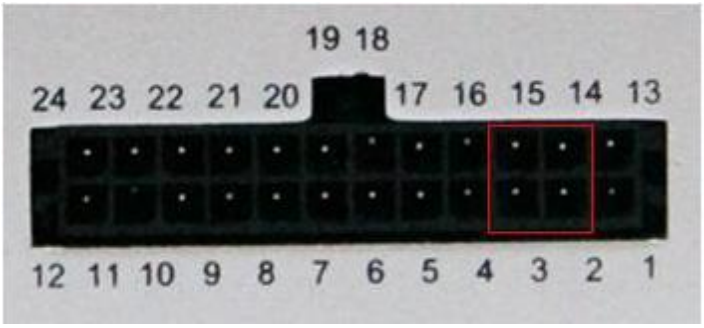
The AVL19 have four Serial ports, they have the same function, depending on the demand, can increase external peripheral function.

Serial port 1 / 2 (Can connect camera or 125KHz or UHF or 13.56MHz or 2.4G RFID Reader or UHF102)



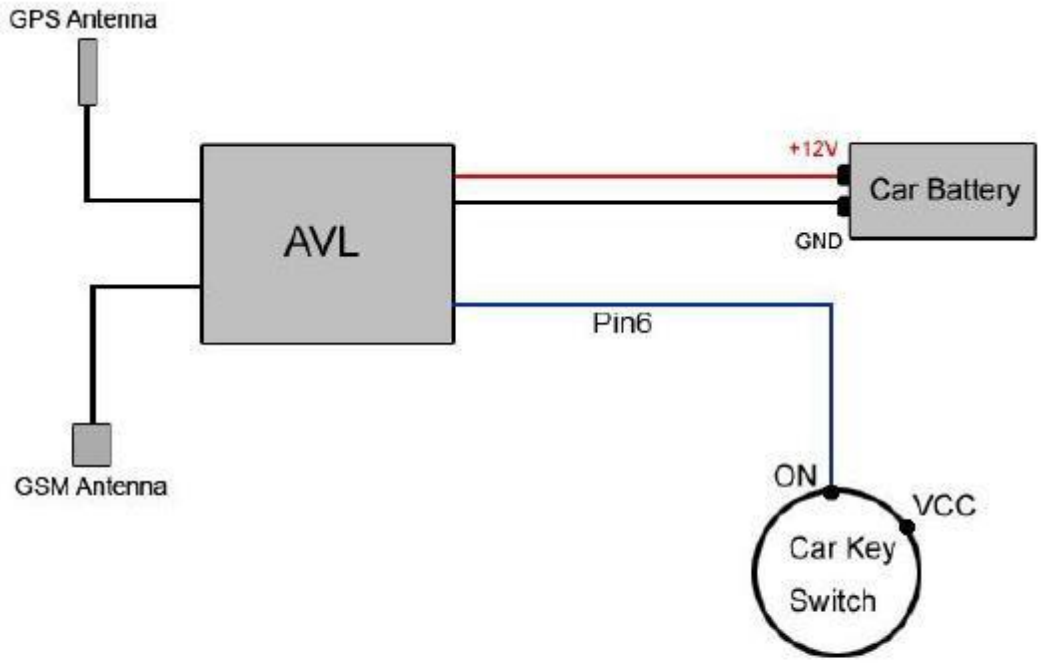
GND	VCC	GND	VCC
RXD	TXD	RXD	TXD
COM1		COM2	

Serial port 3(Port 2/3/14/15) (Can be connected to an external 125KHz RFID Reader)



Serial port 4 (Can be connect to printer)

1.3.5. Detect Car ON/OFF



Connect AVL Pin6 to the Car Key Switch , to the ON point.

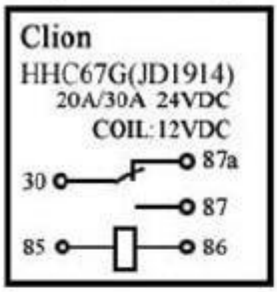
When Car Switch On, AVL will send Alarm to Server, type is 52

When Car Switch Off, AVL will send Alarm to Server, type is 53

When finish this connect, in every GPRS data will have the state of Engine

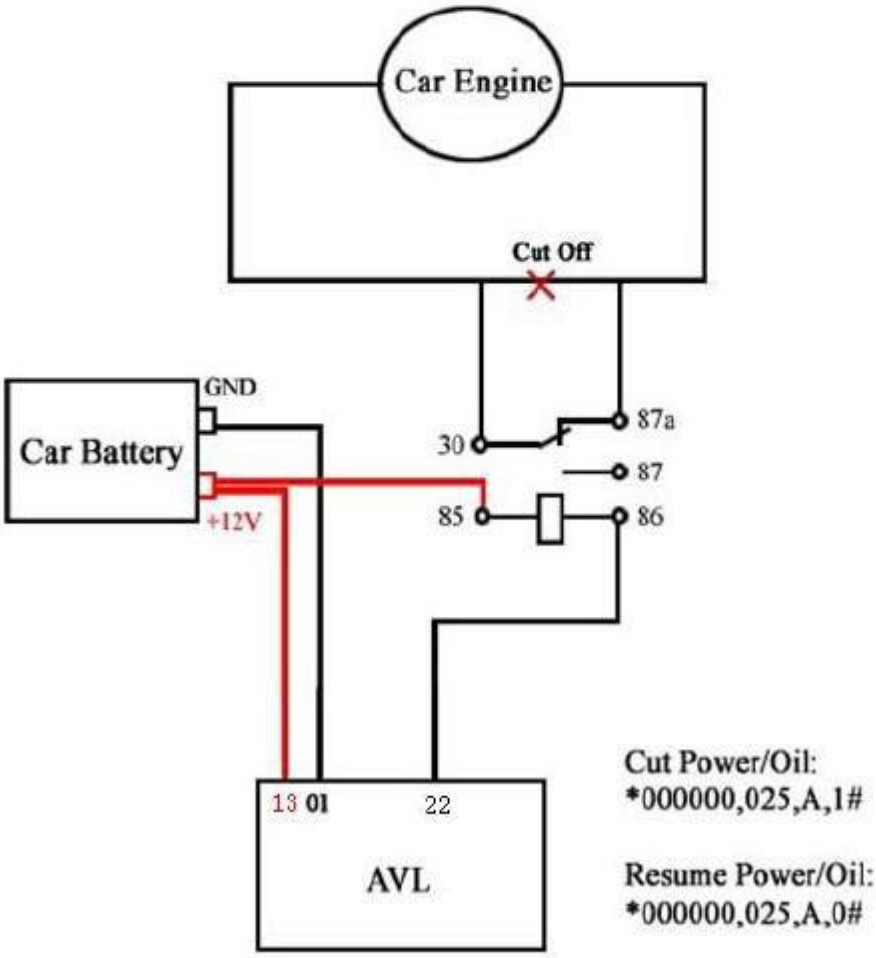
1.3.6. Connect Relay to control the Car Oil/Power (Port 21/22/23)

Diagram Of Relay

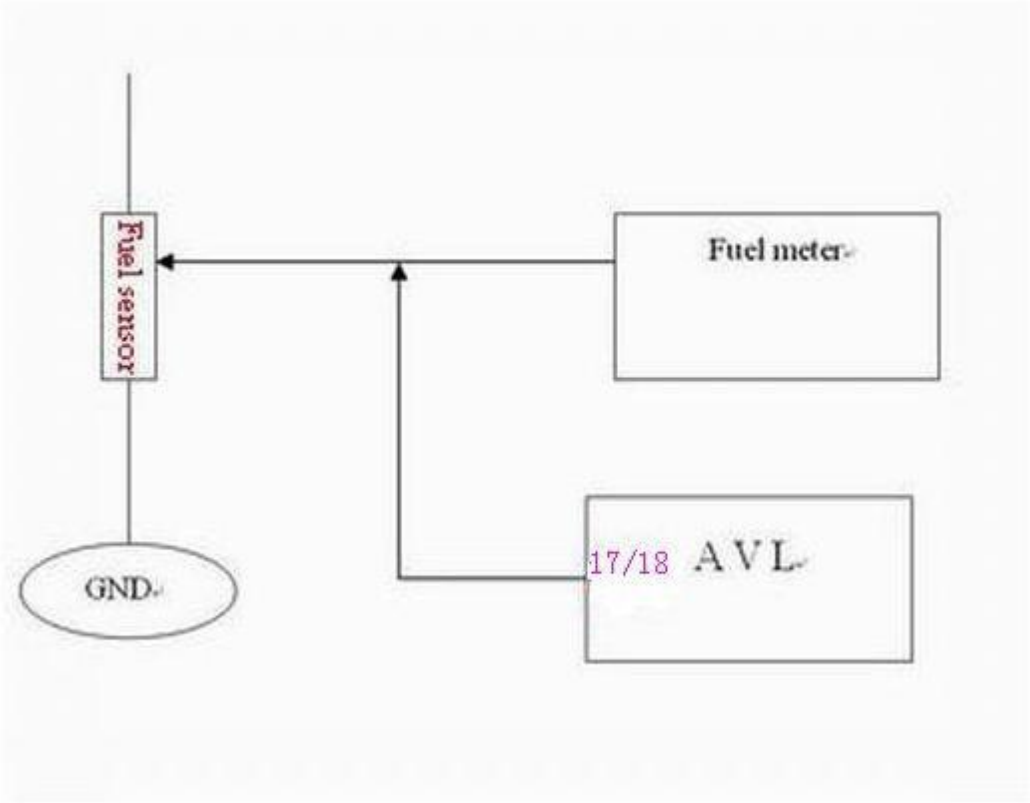


Step:
1.Connect AVL pin 13 to Car Battery +12V
2.Connect AVL pin 01 to GND
3.Cut off the circle of Car Engine
4.Relay port 30 and port 87a connect to Car Engine
5.Relay port 85 connect to Car Battery +12V power
6.Relay port 86 connect to AVL08 pin 22

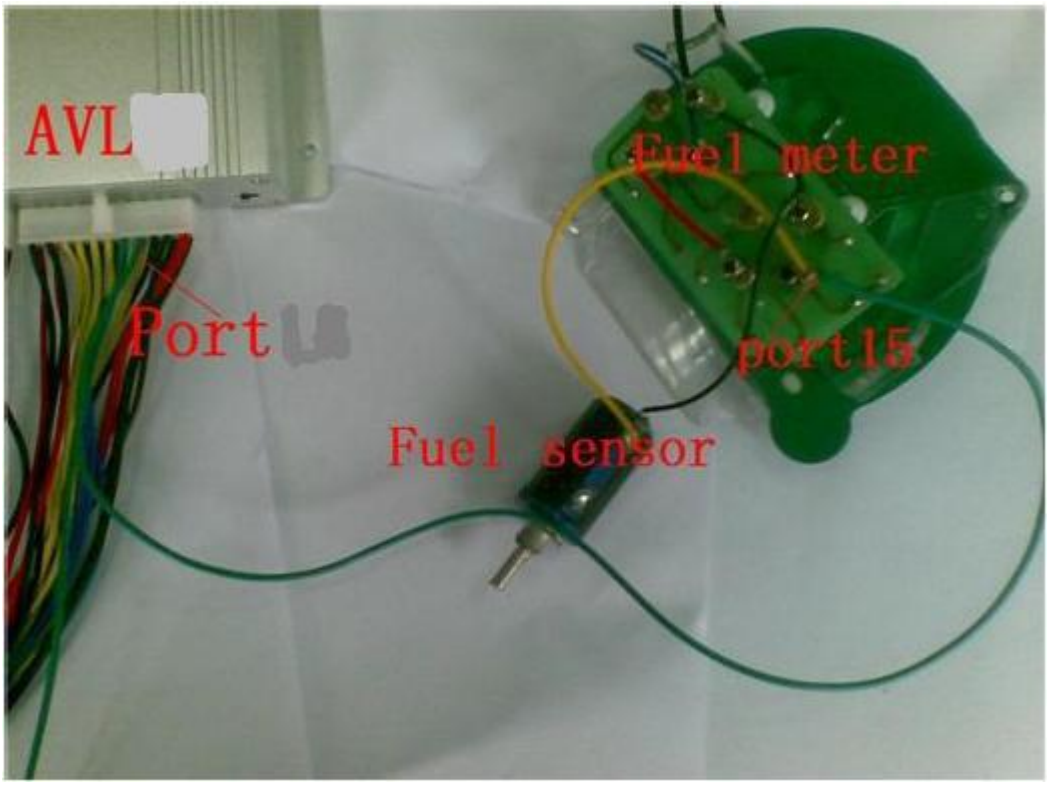
Diagram Of AVL09



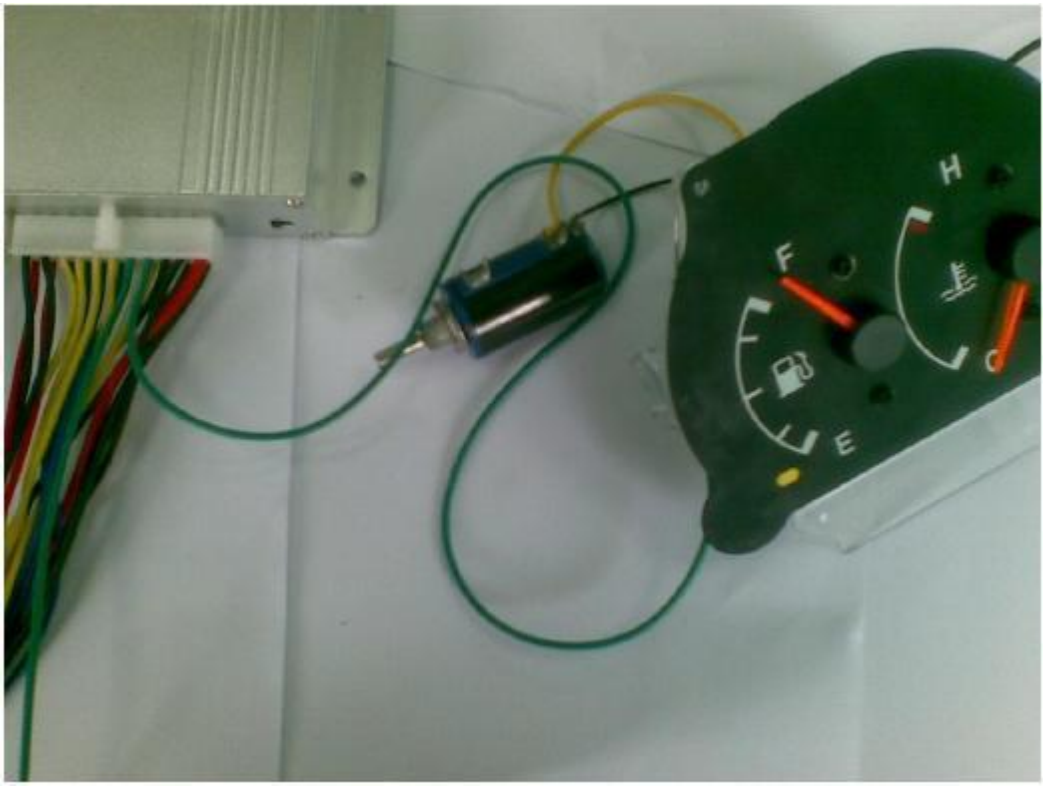
1.3.7. Connect fuel sensor to detect the fuel.(port 17/18)



Our AVL can get the voltage by the AD collection and according to the voltage change to know the fuel level in the tank. As the fuel tank in different car is different, you need to find out the different relation between the voltage and fuel. Our AVL can collect the voltage from 0-18V. It means that if you want to know the fuel leave in the fuel tank, so you should work out the coordinate relation between voltage and fuel in your server. When the GPRS data come to the server, the server works out fuel level in the tank by analyzing the GPRS data.



Picture 1 (How to connection)



Picture 2 (About the fuel meter)

2. How to use the Product

2.1. Prophase to prepare

Step 1: Inset a SIM card.

Make sure the SIM card can communicate with other cards via SMS and call, and before installing the SIM card to the holder, please use a mobile phone to empty the SMS storage of the card

Step 2: Connect GSM Antenna and GPS Antenna to AVL unit.

(GPS antenna)

(GSM antenna)

When you connect the GSM and GPS antenna, please make sure the connection is firm.

Step 3: Connect the AVL to DC12V exterior power.

Please refer to above introduction about I/O ports: Port 1 to negative; Port 12 to positive.

Step 4: Turn on the AVL, observe the three LEDs in the AVL.

Turn on the AVL, you will see the three LEDs flash at the same time.

It enters into initial mode.

After about 1 minute, the device will work normal, then you could look the LEDs of status and refer to introduction in 1.3.3 LED indicators.

When AVL is in work mode, if GSM signal is in good state, the green LED will flash. Similarly, if GPS signal is in good state, the blue LED will flash, if the green led is not flashing, that indicates the GSM signal is not good, if the blue LED is not flashing, then you should check if there is something upon the GPS antenna top. Further, if you find the three LEDs are dark, maybe the AVL has entered into "sleep-mode" or there is no power in the AVL unit.

Notes: GPS signal is very weak or there is no GPS signal in office. So please put the AVL19 to the open air in order to receive the good GPS signal.

2.2. How to use command by SMS

Notes: $$$$$$ is the password, and the default is:

000000

If you want to modify the password, the format of command is:

*$$$$$$,001,@@@@@@@#

Explication: $$$$$$: the old password

@@@@@@: the new password

For example: *000000,001,123456#

After you send the SMS command to device, it will reply to your mobile phone: Receive:’001’OK
*000000,001,123456#

2.2.1.GPRS function

Notes: First of all, make sure the SIM card inserted to the device and have the GPRS function.

Step 1: Set the APN (Access Point Name)

Different network of providers have different APN at every country, if you don't know, please check Item 7. Worldwide APN (Access Point Name) List at the end of this manual.

Format: *$$$$$$,011,APN,Username,Password#

Notes: The username and password could be null.

For example: *000000,011,cmnet,,#

Explication: The China Mobile’s APN is “cmnet”, and the username and password are empty.

After you send the command of SMS to device, it will reply to your mobile phone: Receive:’011’OK

*000000,011,cmnet,,#

Step 2: Set the server’s IP & PORT

Format: *$$$$$$,015,X,IP,PORT#

For example: *000000,015,1,gateway.gotracking.net,54929#

gateway.gotracking.net is the server’s IP, 54929 is the port..

If you want to send GPRS data to ours server test, our server ’s IP domain address is gateway.gotracking.net, port is 54929, but must let us activate IMEI. If client has the his / her own server, please make sure the IP and port be correct.

After you send the command of SMS to device, it will reply to your mobile phone: Receive:’015’OK

*000000,015,1,gateway.gotracking.net,54929#

Step3: Set Time Interval GPRS

Format: *$$$$$$,018,X,Y#

X: the time interval (unit is sec), Y: the times of the data to be sent by GPRS.

For example:*000000,018,60,999#

The device will send GPRS every 1 minute and no time limit.

After you send the command of SMS to device, it will reply to your mobile phone: Receive:’018’OK

*000000,018,60,999#

Step4: Open the GPRS function

Format: *$$$$$$,016,X#

X: close/open the GPRS function,

For example: *000000,016,1#

After you send SMS command to device, it will reply to your mobile phone: Receive:’016’OK

*000000,016,1#

2.2.2. Set the sleep mode

Use commands 046 and 047 to configure AVL19.
Like :
*$$$$$$,046,1,300,30,1100000#

Note: Press SOS button , Trigger Input1 and Input2, Calling, Send SMS, vibration can wake up the machine

2.2.3. Set time interval of SMS position data

Note:

With these commands, the position data will be sent to phone according to your configuration.

Step1: Set the SOS number

Set a mobile phone number for the device to send SMS data.

Format: *$$$$$$,003,0,F,CallNumber,SMS Number#

For example: *000000,003,0,1,008613800755500, 008613800755500##

When setting the SOS number, please include 00 and international number. 86 is the international number for China.

After you send the command of SMS to device, it will reply to your mobile phone: Receive:'003'OK

*000000,003,0,1,008613800755500, 008613800755500#

Step2: Set the interval time for SMS.

Format: *$$$$$$,002,X,Y#

X: Time interval (unit: mins)

Y: the times of the data to be sent by SMS

For example:*000000,002,1,999#

The device will send SMS every 1 minute and no time limit.

After you send the command of SMS to device, it will reply to your mobile phone: Receive:'002'OK

*000000,002,1,999#

2.3.4 Set the data mode

The AVL19 will send out the data by GPRS or SMS, default GPRS. Using Command 119 to set the data mode, like:

**$$$$$$,119,1# as SMS mode.

2.3.5 Set two-way conversation function

Two-way conversation function allows user to call the AVL19 and talk with the driver or monitor the voice on the bus, or the AVL19 can call the user.

1). AVL19 call the user.

*$$$$$$,103,1,123456789#

When press button A, AVL19 will call the “123456789”.

2). User call the AVL19

On default, AVL19 will hang up the calling and send out a SMS.

For using this function, must set the command like 1). And set the Command 008. AVL19 will not hang up.

For example: *000000,008, 1010000#

2.3.6 Other useful commands

Get current location:
*$$$$$$,000#

Get the IMEI and the device version from the device:
*$$$$$$,801#

Reboot the device by SMS:
*$$$$$$,991#

Initialize the device
*$$$$$$,990,099#

3. Alarm type

0x01 SOS button is pressed
0x49 Button A is pressed
0x09 Auto Shutdown Alarm
0x10 Low battery Alarm
0x11 Over Speed Alarm
0x13 Recover From Over Speed
0x14 Deceleration Alarm
0x15 Acceleration Alarm
0x30 Parking Alarm
0x42 Out Geo-fence Alarm

0x43 Into Geo-fence Alarm
0x49 Button A is pressed
0x48 Button B is pressed
0x47 Button C is pressed
0x50 IO-1 Close —digital input 1 closed
0x51 IO-1 Open —digital input 1 opened
0x52 IO-2 Close —digital input 2 closed
0x53 IO-2 Open —digital input 2 opened
0x60 Begin Charge
0x61 End Charge
0x66 Find a new RFID
0x67 end the dispatch
0x77 Angle Alarm
0x88 Heartbeat
0x91 Into Sleep Mode
0x92 Wakeup from Sleep Mode
0xAA Interval GPRS data

4. GPRS protocol

AVL19 GPRS data is hex format. The GPRS commands are the same as SMS commands in this user guide.

Please refer to the document AVL19 GPRS protocol .

5. SMS command list

If you want to know more about the AVL, and design your special AVL, you can refer to the SMS command list.
$$$$$$ is user`s password, and initial password is 000000

NO.	Instruction	*Format*	Note
000	Request one position	*$$$$$$,000#	
001	Modify user password	*$$$$$$,001,@@@@@@#	$$$$$$ is old password @@@@@@ is new Password (default:000000)

002	Set the time intervals of position notice SMS The Position SMS will be sent to the preset SOS phone number.	*$$$$$$,002,X,Y#	X (Max 5 Digital) =0, Stop send position SMS (default) =[1,60000] Time interval (Unit: mins) Y (Max 3 Digital) =[1,999] times send SMS Y=0, Disable this function (default) Y=999, continue sending SMS
003	Set a preset phone & SMS number for SOS button	*$$$$$$,003,P,F,CallNumber, SMS Number#	P= 0, Disable photo function (default) P= 1, Only Camera 1 get picture P= 2, Only Camera 2 get picture P= 3, Both Camera 1 and 2 get picture F = 0, Disable SOS alarm function (default) F =1, Only send an alarm SMS to the preset SMS Number Notice: Call Number and SMS Number (must <25 digits)
004	Set low power alarm When the AVL voltage is lower than the preset value, AVL will send one lower power alarm GPRS data to the Preset Server.	*$$$$$$,004,XXX,YYY#	XXX is the low power alarm voltage, eg.: 3.8v,XXX=380 (default:360) YYY is the auto shut down voltage, eg.: 3.5v, YYY=350 (default:340) For example: *$$$$$$,004,380,350#
005	Set over speed alarm When the speed of the AVL is higher than the preset value	*$$$$$$,005,S,X,Y,Z#	S=1 Enable speed alarm, S=0 Disable speed alarm. (default) X=[10<XXX<250] (The speed preset value) unit is km/h

	over speed alarm GPRS data will be sent to the Preset Server.		Y is the time period over speed [1,999], unit is second Z=[10,360], (The time interval to send speed alarm) unit is second.
006	Set Geo-fence alarm When the AVL leaves preset scope, AVL will send one Geo-fence GPRS data to the Preset Server.	*$$$$$$,006,+lat1,+long1,+lat2,+long2,X,Y# Lat=[-9000.0000,+9000.0000]	Lat=[-9000.0000,+9000.0000] Long=[-18000.0000,+18000.0000] X is for time interval send alarm message. Y=0, Disable alarm. (default) Y=1, Into GEO-fence alarm. Y=2, Out of GEO-fence alarm. Note:Long1>long2&lat1>lat2 Make sure the position of north latitude and east longitude set it (+),otherwise set it (-) Format:+AAAAA.BBBB Make sure set the two positions have the same digit after comma.
008	Extend setting	*$$$$$$,008,ABCDEFG#	A=0, Disable position report function (get position SMS by Calling) A=1, Enable position report function (get position SMS by Calling) (default) B=0, Send the SMS in Text format. (default) B=1, Send the SMS in NMEA format. C=1, AVL do NOT hang up when one call incoming C=0, AVL hang up after 4~5 rings when call incoming (default) D= 0 E=0, ADB Normal AD collect (default) E=1, ADB Oil collect.(The

			average of two minutes to collect) F=0, ADA Normal AD collect (default) F=1, ADA Oil collect.(The average of two minutes to collect) The difference of two method is: Normal AD collect will output the AD value currently AD collect percent will output the value of fuel percent. G=0, disable ACK function (default) G=1, enable ACK function **Note:** the machine once every send GPRS data to the server, the server must respond @ACK,serial number# to the machine, then the machine will continue to send next GPRS data to the server.
009	Change band	*$$$$$$,009,S#	S=0, work in 900/1800 S=1, work in 850/1900 S=2, Automatic selection S=3, not set (default) *note: the default of parameter is S=3, not set the frequency band, if the unit of GSM module support three frequency(900/1800/1900), then you could set the parameter to S=0, if the unit of GSM module support the four frequency(850/900/1800/1900),then you could set the parameter to S=1.

011	Set APN,Username,Password	*$$$$$$,011,APN,Username,Password#	APN : APN string (must < 28 chars) (default: cmnet) User name: Your username (must < 28 chars) Password: Your password (must < 28 chars) * If there is no username or password, then left it blank. For example: *000000,011,CMNET,,## (No username or password)

014	Set DNS	*$$$$$$,014,X,DNS1,DNS2# Disable the DNS	X=0 Disable the DN(default) X=1 Enable the DNS DNS is the domain name
015	Set IP Address & port number	*$$$$$$,015,X,IP/org,PORT#	X=0: IP: xxx.xxx.xxx.xxx PORT : [1,65535] X=1: org: IP domain, such as GATEWAY.GOTRACKING.NET PORT:5491 4
016	Enable/Disable GPRS function	*$$$$$$,016,X#	X=0 Disable GPRS function (default) X=1 Enable GPRS function This is the last step of GPRS
018	Set the time intervals of GPRS Data	*$$$$$$,018,X,Y#	X (Max 3 Digital) =0 stop send time interval GPRS =[10,999] Time interval (Unit: sec) (Default:300) Y (Max 3 Digital) =0, stop send time interval GPRS = [1,999] After send YYY times stop. =999, continue sending GPRS un-stop (default)
019	Set the GPRS mode	*$$$$$$,019,X#	X=0, Use the UDP mode X=1, Use the TCP mode (default)
022	Set the Module	*$$$$$$,022,X,Y#	X=0, Close the GPS module when into sleep X=1, Open the GPS module when into sleep. (default) Y=0, Close the GSM module when into sleep Y=1, Open the GSM module when into sleep (default)
025	Enable/Disable I/O port	*$$$$$$,025,X,Y#	X=A means the output port 1 X=B means the output port 2

			X=C means the output port 3 X=D means the output port 4 Y=0, Out port is low (the oil of circuit is restore) (default) Y=1, Out port is high (the oil of circuit will cut off) For Example: *000000,025,A,1#
028	iButton function	*$$$$$$,028,X,Y#	X:1: enable; 0 :disable(default); Y:I/O output port option 0:disable(default); 1: output port 1; 2: output port 2; 3: output port 3; if read iButton ID when enable Y, output port will enable 3S, can control the iButton lamp or buzzer, etc.
040	Heart Beat Switch	*$$$$$$,040,X#	X=0 Disable the heart beat function (default) X=1 Enable the heart beat function
041	Heart Beat Intervals	*$$$$$$,041,X#	X is the heart beat interval, unit is minute [1<X<9999] (default:720) X=0, Disable this function.
042	Heart Beat Init	*$$$$$$,042,0#	When receive this command, the heart beat will re-count time
046	Set sleep module	*$$$$$$,046,X,Y,Z,ABCDEFG#	X=0 Disable sleep unction (default) X=1 Enable sleep Function Y: the time of freedom, means if there is no duty, [20 – 65535] unit sec, 900 is default. Z: the time of wake up from sleep module when the AVL19 begin motive. [20,600], unit is sec, default 30s. A=1: when no RFID tag means no duty. B=1: when engine has been close means no duty. C,D,E,F,G: obligate

047	Detect the engine	*$$$$$$,047,X,Y#	X=0 Disable sleep unction (default) X=1 Enable sleep Function Y=0, port7 as detection IO Y=1, port6 as detection IO

103	Set Call Number A	*$$$$$$,103,S,Number#	This command set the function for Button A. S=0, If the button trigger, send out one GPRS. S=1, If the button trigger, it will call the number. For example: *000000,103,0,1234#, press button A, it send out GPRS (al arm type 49) *000000,103,1,1234#, press button A, it will call the 1234#.
110	Parking alarm	*$$$$$$,110,X#	X=1 Enable Tremble alarm function, then if the AVL19 is Trembling for 5s continually, it will alarm(0x30), X=0 Disable Tremble alarm function
113	Set Oil sensor	*$$$$$$,113,A,B#	A,B=[0,2000], the real voltage is [0,20V]. A is the corresponding voltage of empty fuel. (default: 0) B is the corresponding voltage of full fuel. (default: 0) Note: Different types of car have different corresponding relation. Please test it by yourself, then set the command. Eg.: *000000,113,100,500# Explication: corresponding voltage of empty fuel is 1V, and the corresponding voltage of full fuel is 5V. If the AVL detects 4V, then fuel percentage is (4-1)/(5-1)=75%.
116	OutA Change switch	*$$$$$$,116,A#	A=1, activate 117 command set. A=0, Don`t activate 117

			command set (default:0)
117	Set OutA Change	*$$$$$$,117,A,B,C,D#	A=[0,999]km/h , the threshold of speed. (default:50) B=[0,60000] ms, the interval of OutA off (default:500) C=[0,60000] ms, the interval of OutA on (default:500) D=[0,99], the times of OutA change (default:3) If the speed is lower than, the OutA will off B seconds, then restore C seconds, repeat it D times. Note: because of the safety, you had better set the parameter like this: *000000,117,60,500,3000,5#
118	Extend 2 setting	*$$$$$$,118,ABCDEFG#	A=0, Take picture 320*240 (default) A=1, Take picture 640*480 B=C=D=E=F=G=0, reserved
119	Alarm data transmission mode	*$$$$$$,119,X#	X=0 GPRS transmission (Default) Y=1 SMS transmission
120	Acceleration and deceleration alarm	*$$$$$$,120,A,B,C#	A=0 Disable this function (Default) A=1 Activate this function. B= [0,2000] Acceleration 0.1m/S’2 C= [0,2000] deceleration 0.1m/S’2

122	Roaming sending GPRS data interval time	*$$$$$$,12,X,Y,Z#	X=0 Disable this function (Default) X=1 Activate this function. Y=[0,999] Roaming time interval (Unit: sec) Z : Network ID If the machine in roaming, in accordance with Y send data, if the machine is not roaming, according to the instruction to send data
130	Set COM 1 working module	*$$$$$$,130,X#	0: camera(default) 1: Tzone 2.4GHz card Reader 2: 13.56MHz card Reader 3: UHF card Reader 4: people counting device 5: people counting

			6: RD03 9: UHF102 Device (ChengXinDevice) Note: Only one of COM1 or COM2 can be used for people counting. If COM1 is used, COM2 will disable. If want to use COM2, must close COM1 people counting function.
131	Set COM2 working module	*$$$$$$,131,X#	0: camera (default) 1: Tzone 2.4GHz card Reader 2: 13.56MHz card Reader 3: UHF card Reader 4: people counting device 5: people counting Device (ChengXinDevice) 6:RD03 9:UHF102
132	Set COM3 working module	*$$$$$$,132,X#	0: 125K card Reader (default)
133	Set COM4 working module	*$$$$$$,133,X#	0: printer (default)
134	UART port selecting	*$$$$$$,134,X#	0: COM3 is simulate port, COM4 is hardware port； 1: COM3 is hardware port, COM4 is simulate port (default); Determined according to the hardware
135	When swiping 125KHz card, immediately report	*$$$$$$,135,X#	0: forbid(default) 1: activate the function
136	Set the RF function built-in	*$$$$$$,136,X#	0: close RF function built-in 1: open RF function built-in (default)

138	Choose tag type	*$$$$$$,138,X#	X: 0: Tag01/Tag02(default) 1: Tag03 2: Tag04 3: Tag201(the data from TAG201 has 12 bytes) 4: Tag201(the triggered data has 12 bytes, and the heart-beat data has 7 bytes) 5: TT01 6: 2.4G Lock 7: Tag06 or Tag06B
139	Clear the people counting	*$$$$$$,139,1#	Clear the people counting for people counting device (ChengXinDevice)

140	Set functions for RD03	*$$$$$$,140,X,ID#	X=0: AVL19 send the all the tag ID it receives to the server. X=1:AVL19 will send the Tag201 which has been triggered by the RD03 that user set ID before. ID: The ID of trigger, 4bits of HEX. For example: A125(HEX)
141	Set the receive rate for the Tag module (Only for TAG06/TAGB06）	*$$$$$$,141,X#	X=0, 1K X=1, 2K X=2, 10K X=3, 38.4K(default) X=4, 100K

142	Set Tag06/Tag06B temperature and humidity over limit local alarm function	*$$$$$$,142,X,Y,Temp_H,Temp_L,RH_H,RH_L#	X=0, Disable this function (Default) Tag itself can preset (by factory) Temp_H, Temp_L, RH_H, RH_L: X=2: Alarm according to the preset of tag. Alarm when temperature over Temp_H, below the Temp_L; humidity over tag RH_H, below tag RH_L until recovery. Or you can set Temp_H, Temp_L, RH_H, RH_L with this command: X=1, Alarm when temperature over Temp_H, below the Temp_L; humidity over RH_H, below RH_L until recovery. X=3, Alarm when temperature higher than Temp_H, stop alarm when temperature lower than Temp_L; alarm when humidity higher than RH_H, stop alarm when humidity lower than RH_L. X=4, Alarm when temperature lower than Temp_L, stop alarm when higher than Temp_H; alarm when humidity lower than RH_L, stop alarm when higher than RH_H. Y: select OUTPUT port (connect to buzzer); 1: output port 1(default); 2: output port 2; 3: output port 3; Temp_H: high-temperature threshold (-55~125,unit:℃, default: 100); Temp_L: low-temperature threshold(-55~125,unit:℃, default: 0) RH_H: high-humidity threshold(0~100,nit:%,default: 80) RH_L: low-humidity threshold(0~100,unit:%,default: 0)

143	Set the battery low voltage local alarm function	*$$$$$$,143,X,Y,Z#	X=0,Disable this function (Default) X=1, Activate this function, Y: Select OUTPUT port (connect to buzzer); 1: output port 1(default); 2: output port 2; 3: output port 3; Z: Battery low voltage limit, unit:10mv, [350-430],default:380;
144	Add one tag ID	*$$$$$$,144,ID#	ID(8 digital): if enable this function, only record the tag of the 144 command , can add up to 20 tag.
145	Delete one tag ID	*$$$$$$,145,ID#	
146	Delete all tag ID	*$$$$$$,146,1#	
147	Query has added the tag ID	*$$$$$$,147,1#	
148	Choose RF modules have not received the data of the restart time	*$$$$$$,148,X#	X:[1,1440],default:60,unit:min
200	Camera 1 Time taking pictures	*$$$$$$,200,X,Y#	X= [1,999]/Min Picture Interval (default:10) Y= [0,999]/Times The number of photographs (default:0)
201	Set IO picture state	*$$$$$$,201,A,B,C,D#	A=0 ,Disable this function (Default) A=1,digital input 1 trigger(port 7) A=2,digital input 2 trigger(port 6) A=3,digital input 1 and input 2 trigger B=1, take picture when the input connected B=2, take picture when the input the connection break off B=3,take picture for both connected and connection break off C=1, camera 1 take picture C=2, camera 2 take picture C=3, camera 1 and 2 take picture D=[1,3],Number of pictures

202	Control picture data sending packet number	*$$$$$$,202, X#	X=[1,6],[Default:4]picture data sending packet number
203	Camera 2 Time taking pictures	*$$$$$$,203,X,Y#	X= [1,999]/Min Picture Interval (default:10) Y= [0,999]/Times The number of photographs (default:0)

204	Set the format of GPRS data that appear at the log	*$$$$$$,204, X#	X=0: ASCII(default)； X=1: HEX X=2: HEX+ASCII
210	Take picture	*$$$$$$,210,X#	X=1, camera 1 take picture X=2, camera 2 take picture X=3, camera 1 and 2 take picture
400	Angle Alarm	*$$$$$$,400,X,Y#	X=0, Disable this function (Default) X=1, Active this function. X=2, Input 3 (Port 7) is high-frequency alarm when the open angle X=3, Input 4 (Port 6) is high-frequency alarm when the open angle Y= [1,360] Angle range
500	Clear data flash	*$$$$$$,500#	Clear stored in the flash memory inside the machine
600	Reboot time	*$$$$$$,600,X,Y#	X=0,Disable this function X=1, Active this function. (Default) Y= [10,9999]/ Minutes, Reboot time interval
800	Set the lat and the lon just for testing	*$$$$$$,800,X,lat,lat_sta,lon, lon_sta#	X:0-disable this fun,1-enable; lat:latitude; lat_sta: N or S; lon:longitude; lon_sta: E or W; Note: the format must be the data format of GPS module
801	Reading the IMEI number and version	*$$$$$$,801#	This command is to ask AVL reply the IMEI number and the firmware of version.
990	Initialization Tracker	*$$$$$$,990,099#	It will set all parameter to factory default value (Excluding the
991	Reboot by SMS command	*$$$$$$,991#	It will reboot the AVL19 by this SMS command.

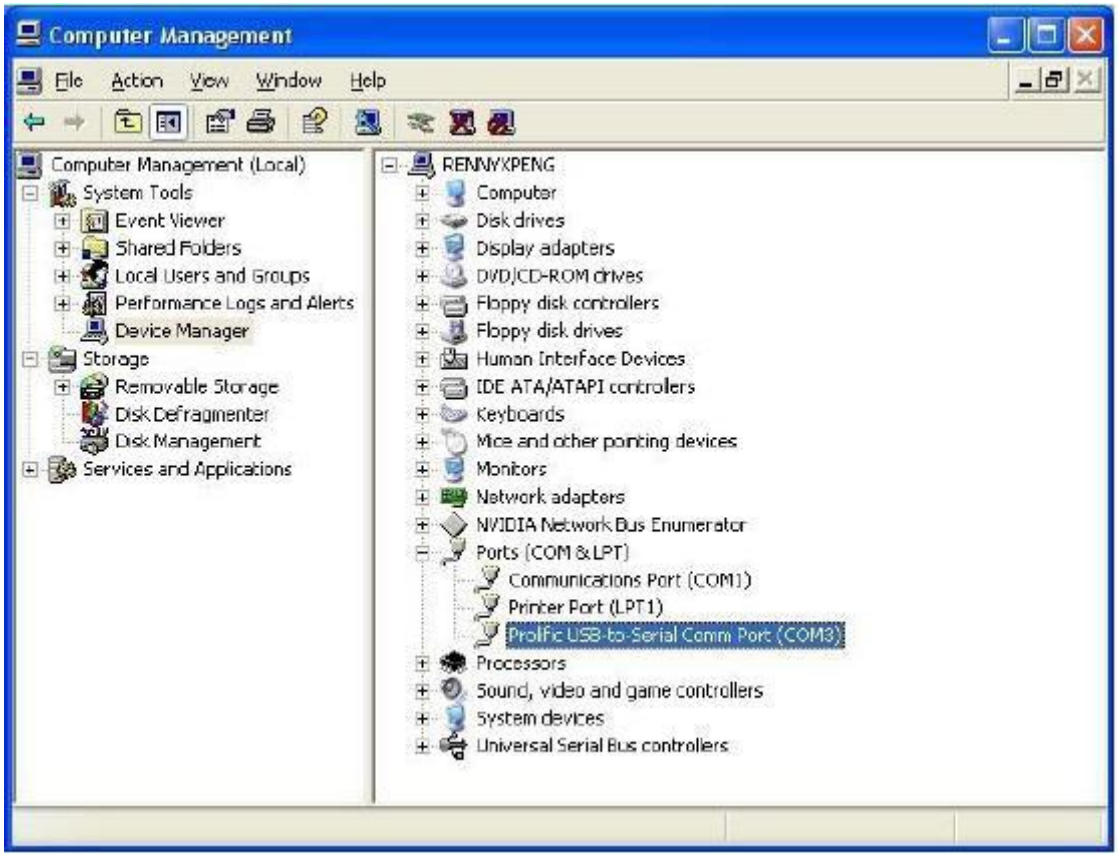
OTA	.OTA	@P$$$$$$,A#	A=0: update the Program and the configuration: A=1: only update the Program; A=2: only update the configuration;

6. Update the firmware of the AVL

1) Install USB cable driver

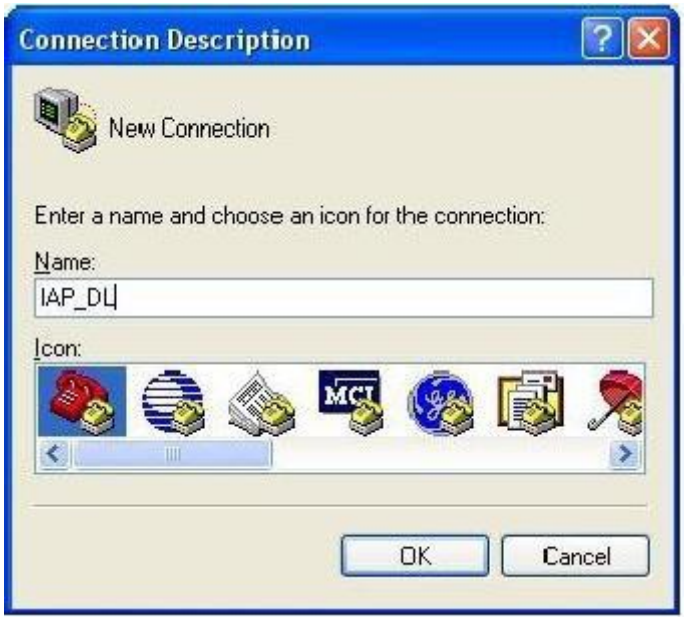
A. At the first, Install the Driver for "USB Converter"

B. Connect the AVL unit to PC through USB cable, View the com port that the cable used



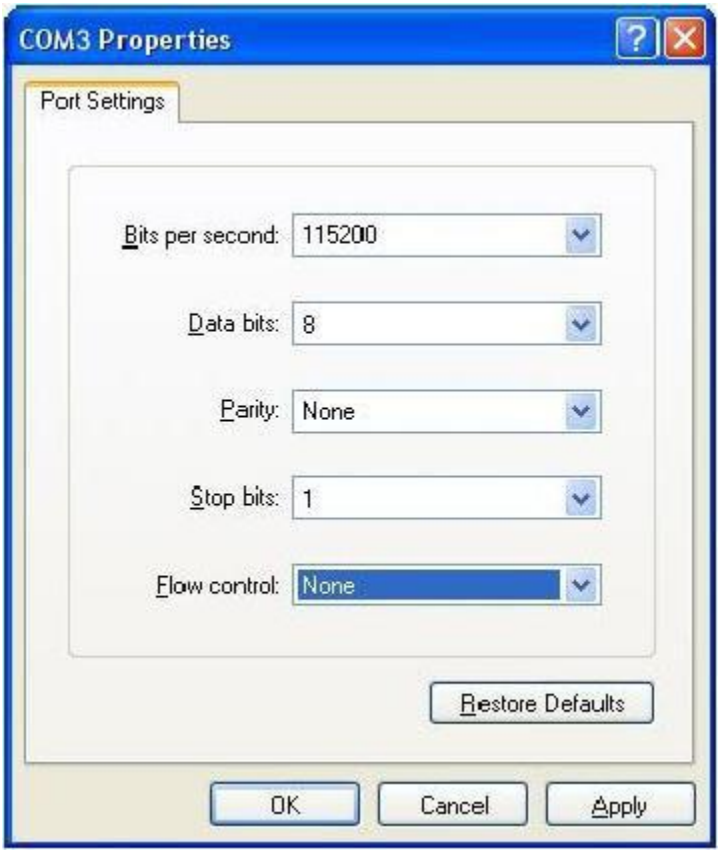
2) Turn on AVL device

3) Build a New Hyper terminal connect, fill the name, example as IAP_DL

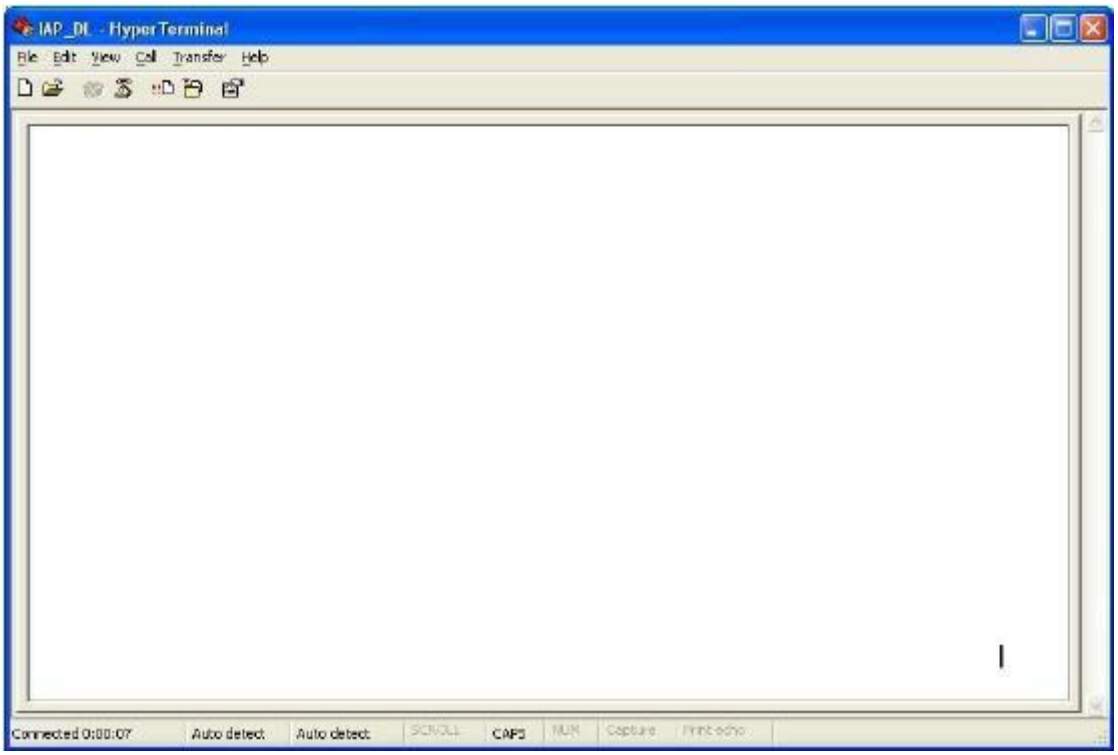


4) Choose the Com Port that the USB Cable used

5) Set up all the option as shown in the following picture

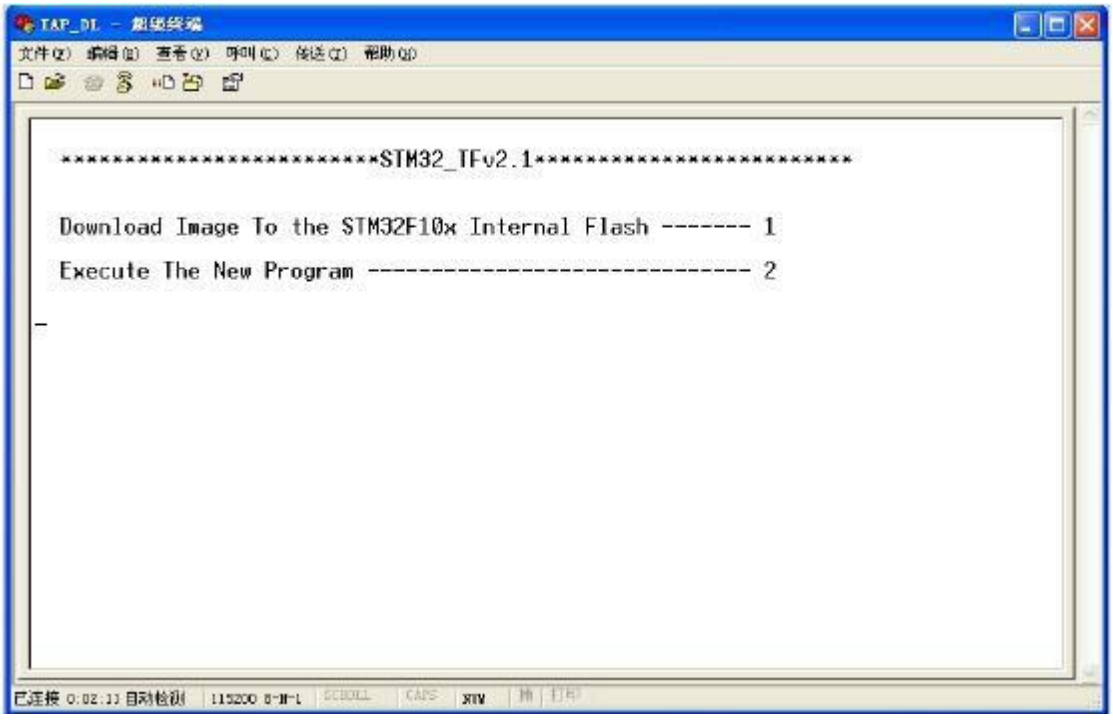


6) Into Configure Mode

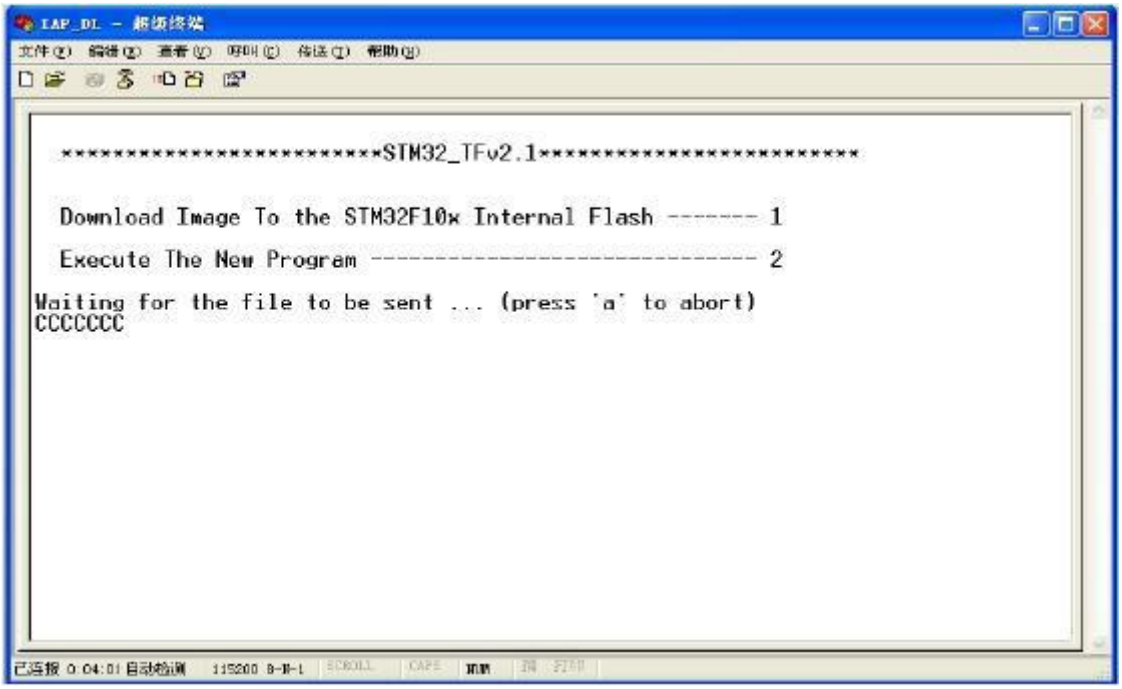


7) Turn Off AVL device

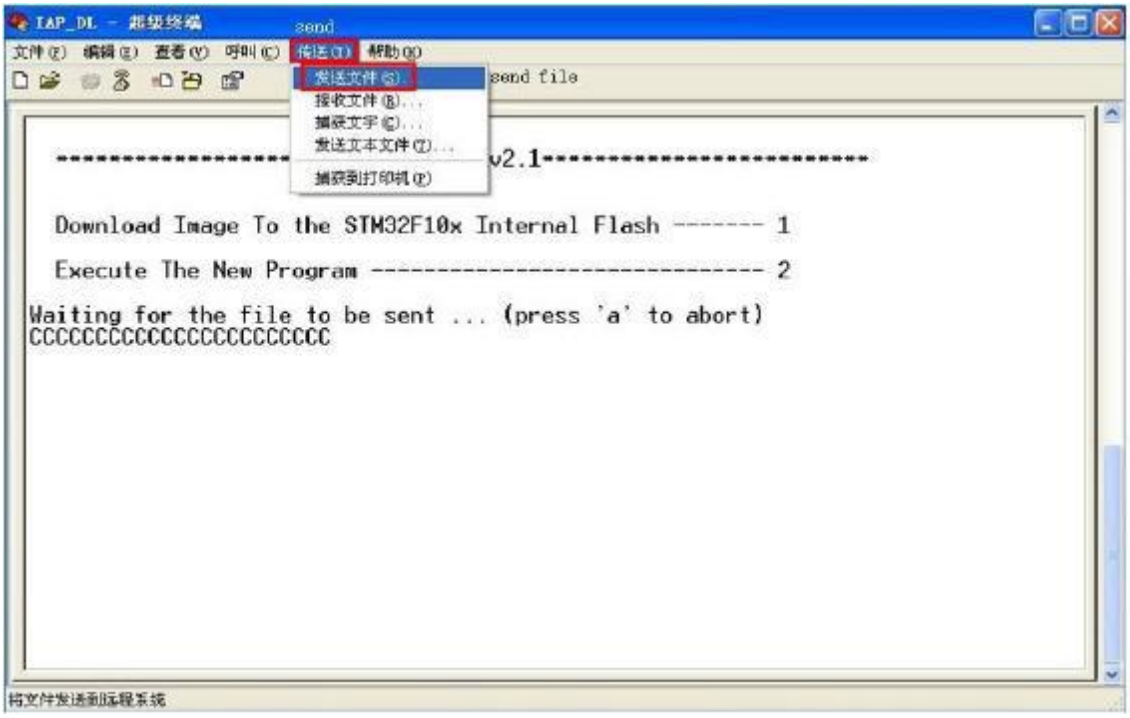
① Keep the SOS button is pressed and Turn on Power. All indicators of the device will keep light at same time, (all of the device's indicator will be keep light for a moment) Hyper terminal will display the interface like the picture follow



② Press Keypad 1, Hyper terminal will display(waiting for the file to be sent ...CCCCC).



③ Then choose Send file (Send-> Send File)at soon as possible, because the update mode will keep for 92 seconds, if out of this time update will not be processed successfully.

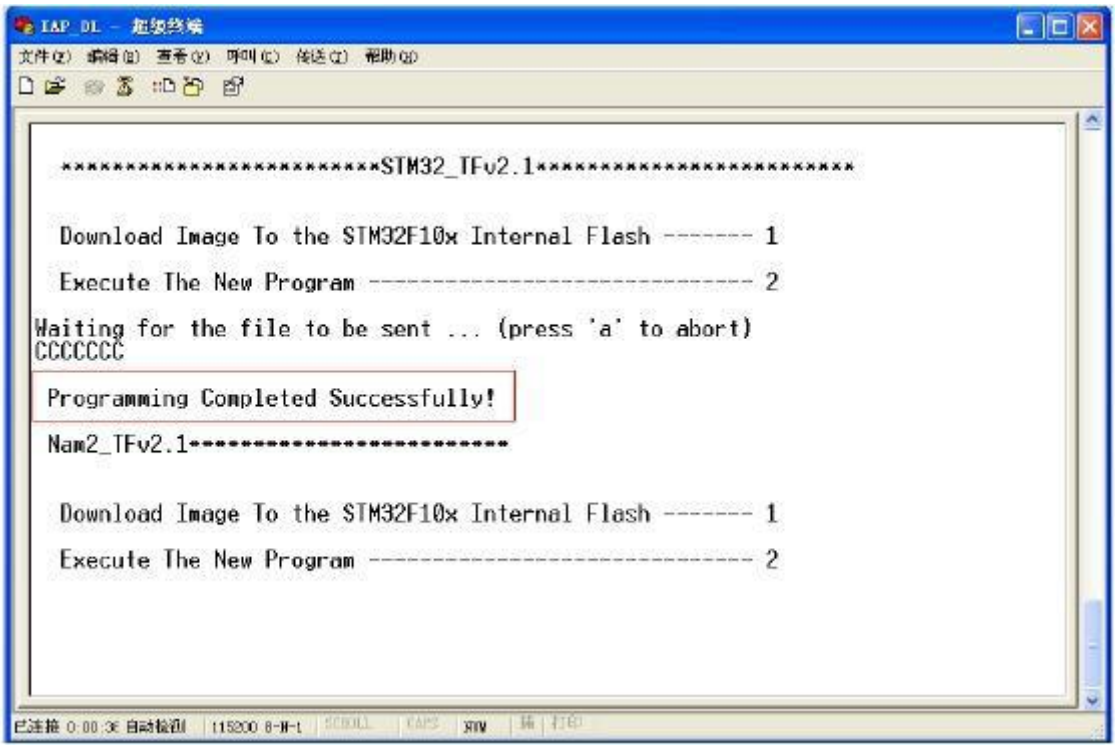


8) Choose the firmware that you want to Update；

Protocol Choose: Ymodem

9) Press Send button, will display a New Windows that show the update process.

10) When finish Update, will appear "Programming Completed Successfully!", GSM and GPS light is always on, press Keypad 2 or press the Button C end the upgrade mode, GPS and GSM light will turn off.



11) Turn On AVL19 again.(at this times the firmware will load the parameter to the unit). Then the firmware updates finished.

7. Worldwide APN (Access Point Name) List

Country	Mobile operator	Access point name
Argentina	Personal	gprs.personal.com
Argentina	Unifon	internet.gprs.unifon.com.ar
Australia	Telstra	telstra.internet
Australia	Optus	internet
Australia	Three	3netaccess
Australia	Vodafone	internet
Austria	Max Online	gprsinternet
Austria	One	wap.one.at
Belgium	Orange	orangeinternet
Belgium	Mobistar	web.pro.be
Belgium	Proximus	internet.proximus.be
Bermuda	AT&T	proxy
Bermuda	Mobility	net.bm
Brazil	Claro	claro.com.br
Brazil	Oi	gprs.oi.com.br
Brazil	TIM	tim.br
Bulgaria	Mobiltel (Mtel)	inet-gprs.mtel.bg
Canada	Fido	internet.fido.ca
Canada	Rogers AT&T	internet.com
Chile	Entel PCS	imovil.entelpcs.cl bam.entelpcs.cl
Chile	Telefonica GSM	web.tmovil.cl
China	China Mobile	cmnet
Croatia	VIPNET	gprs.vipnet.hr
Czech Republic	Eurotel	internet
Czech Republic	Oskar	internet
Czech Republic	Oskar prepaid cards	ointernet
Czech Republic	T-Mobile	internet.t-mobile.cz

Denmark	TDCmobil	internet
Denmark	Orange	web.orange.dk
Eygpt	Vodafone	internet.vodafone.net
Dominican Republic	Orange Dominicana	orangenet.com.do
Finland	Telia Mobile	internet
Finland	DNA	internet
Finland	Sonera	internet
Finland	Radiolinja	internet
Finland	Saunalahti	saunalahti
France	Orange	orange.fr
France	SFR	websfr
France	Bouygues Telecom	eBouygTel.com
Germany	D2 Vodafone	web.vodafone.de
Germany	E-Plus	internet.eplus.de
Germany	O2	internet
Germany	Quam	quam.de
Germany	T-Mobile D1	internet.t-d1.de
Greece	Vodafone	internet.vodafone.gr
Greece	Telestet	gint.b-online.gr
Greece	Cosmote	internet
Hungary	Vodafone (Prepaid "Optimized")	vitamax.internet.vodafone.net
Hungary	Vodafone (Prepaid "Standard")	vitamax.snet.vodafone.net
Hungary	Vodafone (Postpaid "Optimized")	internet.vodafone.net
Hungary	Vodafone (Postpaid "Standard")	standardnet.vodafone.net
Hong Kong	CSL	internet
Hong Kong	Orange	web.orangehk.com
Hong Kong	New World	internet
Hong Kong	People	internet
Hong Kong	SmarTone	internet

Hong Kong	Sunday	internet
India	Orange, Hutch	www
Iceland	Siminn	gprs.simi.is
India	BPL Mobile	bplgprs.com
India	Airtel	airtelgprs.com
Indonesia	Telkomsel	internet
Ireland	O2	internet
Ireland	Vodafone	live.vodafone.com
Israel	Cellcom	internetg
Israel	Orange	internet
Italy	TIM	uni.tim.it ibox.tim.it
Italy	Vodafone Omnitel	web.omnitel.it
Italy	Wind	internet.wind
Latvia	Latvia Mobile Telefone	internet.lmt.lv
Luxembourg	LUXGSM	web.pt.lu
Luxembourg	Tango	internet
Malaysia	Celcom	celcom.net.my
Mexico	Movistar	internet.movistar.mx
Mexico	Telcel	internet.itelcel.com
Montenegro	Monet	gprs.monetcg.com
Netherlands	T-Mobile	internet
Netherlands	KPM Mobile	internet
Netherlands	Orange	internet
Netherlands	O2	internet
Netherlands	Vodafone (normal)	web.vodafone.nl
Netherlands	Vodafone (business)	office.vodafone.nl
New Zealand	Vodafone NZ	www.vodafone.net.nz
Norway	Netcom	internet.netcom.no

Norway	Telenor	internet
Pakistan	UFone	ufone.internet
Paraguay	Personal	internet
Paraguay	Tigo	internet.tigo.py
Philippines	Smart	internet
Philippines	Globe	internet.globe.com.ph
Poland	Era	erainternet
Poland	Idea	www.idea.pl
Poland	PlusGSM	www.plusgsm.pl
Portugal	Optimus	internet
Portugal	TMN	internet
Portugal	Vodafone (Telcel)	internet.vodafone.pt
Romania	Connex	internet.connex.ro
Romania	Orange	internet
Russia	BeeLine	internet.beeline.ru
Russia	Megafon	internet.nw
Russia	MTS	internet.mts.ru
Russia	PrimTel	internet.primtel.ru
Saudi Arabia	Saudi Telecom	Jawalnet.com.sa
Serbia-Montenegro	Mobtel Srbija	internet
Serbia-Montenegro	Telekom Srbija	gprsinternet
Singapore	M1	sunsurf
Singapore	Singtel	internet
Singapore	Starhub	shwapint
Slovakia	Eurotel	internet
Slovakia	Orange	internet
South Africa	MTN	internet
Spain	Amena	amenawap

Spain	Telefonica (Movistar)	movistar.es
Spain	Vodafone	airtelnet
Sweden	Telia	online.telia.se
Sweden	Vodafone SE	internet.vodafone.net
Switzerland	Swisscom	gprs.swisscom.ch
Switzerland	Orange CH	internet
Switzerland	sunrise	internet
Switzerland	UMC	www.umc.ua
Taiwan	Chunghwa Telecom	internet
Taiwan	Far EasTone	fetnet01
Taiwan	KG Telecom	internet
Taiwan	Taiwan Cellular	internet
Thailand	AIS	internet
Thailand	DTAC	www.dtac.co.th
Turkey	Avea	internet
Turkey	Aycell	aycell
Turkey	Telsim	telsim
Turkey	Turkcell	internet
UK	Jersey Telecom	pepper
UK	O2	mobile.o2.co.uk
UK	T-Mobile	general.t-mobile.co.uk
UK	Vodafone UK	internet
UK	Orange	orangeinternet
Ukraine	Kyivstar GSM	www.kyivstar.net
Ukraine	UMC	www.umc.ua
USA	T-Mobile	internet2.voicestream.com
USA	AT&T	proxy
USA	Cingular	isp.cingular
Venezuela	Digital TIM	gprsweb.digitel.ve