Communication Protocol V-A 1.7

I Command Format

Command format are as follows:

Format 1:

FACID,<password(Max:16bytes)>,<command>,<data>;

Format 2:

FACID,<password(Max:16bytes)>,<command>,<data>;<command>,<data>;**<and so on>**

Note:

Do NOT input '<' and '>' when writing a command.

The semicolon at the end of command can be omitted.

Use format 2, you can set multiple parameters in one step, this function is very useful.

The yellow part means more <command>,<data>; you can input.

Item	Specification
FACID	5 bytes. It means the header of the command format.
Password	Max 16 bytes. Only the right password can be used in command format. If less than 16 bytes, device will complement on right side automatically.
Command	Please refer to the command list below.
Data	The parameters of command. Each parameter is divided by comma.
;	1 byte, it is the ending character and in ASCII code (0x3B in hex code).

II Command List

Num.	Command	Definition
1	DEFAULT	Default settings
2	RESTART	Restart device
3	PASSWORD	Change password
4	AUTHORIZE	Set authorized numbers
5	LOC	Track by Interval
6	GPRS	Upload GPRS data
7	TIME ZONE	Set time zone
8	SMS	Set SMS format or get latest position-info
9	SDCARD	Set SD card function
10	OV	Over-speed alarm
11	VIB	Vibration alarm
12	MOVE	Movement alarm
13	GEOFENCE	Geo-fence alarm
14	CONFIG	Pet mode
15	GSensor	Hit alarm

III Command Details

1. DEFAULT

Command:	FACID,123456,DEFAULT;
Description:	Set all settings to be default settings.
Note:	Default password is 123456 and same for the following examples.
Example:	FACID,123456,DEFAULT;
Reply:	FACID default ok!

2. RESTART

Command:	FACID,123456,RESTART;
Description:	Restart the device, but doesn't change any settings.
Example:	FACID,123456,RESTART;
Reply:	No replay, device restart itself immediately.

3. PASSWORD

Command:	FACID,123456,PASSWORD,V= ;
Description:	Change the old password "123456" to New password should be 0~9 chars.
Example:	FACID,123456,PASSWORD,V=000000;
Reply:	FACID password ok!

4. AUTHORIZE

Command:	FACID,123456,AUTHORIZE, 1= , 2= , 3= , 4= , 5= ;
Description:	Set the authorized number (0~16 chars). 1= |first authorized number 2= |second authorized number …
Note:	Number means phone number Max five authorized numbers Just want to set two authorized number: FACID,123456,AUTHORIZE,1= , 4= ; Set the second authorized number and delete the first authorized number: FACID,123456,AUTHORIZE,1=,2= ;
Example:	FACID,123456,AUTHORIZE, 1=13811111111,2=13822222222;
Reply:	FACID authorize ok!

5. LOC

Command1:	FACID,123456,LOC,I= , T= , L= ;
Description:	Sent the GPS data to authorized numbers or sever automatically. I= |Interval(0~65535,time interval to send SMS or GPRS, unit is sec.) T= |Times(0~999, number of times to send SMS or GPRS, 999 means infinite) L= |Distance(0~65535, condition to sent GPS data, unit is meter)
Note:	when set L=100 , device will not sent GPS data if the distance from latest location to last location is less than 100 m.
Example:	FACID,123456,LOC,I=60,T=999,L=0;
Reply:	FACID loc ok!

Command2:	FACID,123456,LOC,SHAKE= ;
Descriiption:	Shield vibration alarm SHAKE=1/0 | Disable vibration and enable power saving mode /Enable vibration alarm
Example:	FACID,123456,LOC,SHAKE=1;
Reply:	FACID loc ok!

6. GPRS

Command:	FACID,123456,GPRS,ADDR= ,P ORT= ,NAME= ,PASS= ,APN= , ID= ,MODE= ,HBE= ,HBN= ,HBI= ,HBT= ,HBR= , SaveAll= ;
Description:	Set the parameters relate to GPRS. ADDR= |IP or website of server(0~31 chars) PORT= | port of server(0~65535) NAME= |available APN name(0~31 chars) PASS= |co rrect password(0~31 chars) APN= |access point name(0~31 chars) ID= |identifier(0~19 chars) MODE=1/0 |use UDP/TCP protocol HBE=0/1 |Heartbeat OFF/Heartbeat ON HBN= |Heartbeat text message(0~15 chars) HBI= |Heartbea t time interval in seconds(0~65535) HBT= |total times of heartbeat messages(0~999) HBR= 1/0 |enabl e/disable the restart the GPRS module SaveAll=0/1 |Send the data to server /save to SD card
Example:	FACID,123456,GPRS,ADDR=219.133.34.184,PORT=8000,NAME=Jack,PASS=000000,APN=CMNET,ID=012896005337577,MODE=0,HBE=0,HBN=HI,HBI=50,HBT=100,HBR=1,SaveAll=1
Reply:	FACID Gprs ok!

7. TIME ZONE

Command:	FACID,123456,TIME ZONE,V= ;
Description:	Set time zone of local place. V= |ti me zone(-15~15)
Example:	FACID,123456,TIME ZONE,V=8;
Reply:	FACID time zone ok!

8. SMS

Command1:	FACID,123456,SMS,TEXT/LINK;
Description:	Set format of SMS. TEXT |l ongitude/latitude format LINK |google link format FAST |Tracker reply a SMS with position-info at once
Example:	FACID,123456,SMS,LINK;
Reply:	FACID sms ok!
Command2:	FACID,123456,SMS,FAST;

Description:	Get latest position-info.
Example:	FACID,123456,SMS,FAST;
Reply1:	FACID sms ok!
Reply2:	Device will reply latest GPRS data (see Ⅳ GPRS Data)

9. SDCARD

Command:	FACID,123456,SDCARD,LOG= , READ= ,TEST;
Description:	LOG=1/0 |enable/disable the function that store GPS data to SD card when unable to send GPRS data to sever READ=1/0 | enable/disable the function that send GPS data in SD card to sever when GPRS is reconnected. TEST |test the SD card is right or not
Example1:	FACID,123456,SDCARD,TEST;
Example2:	FACID,123456,SDCARD,LOG=1,READ=1;
Reply:	FACID sdcard ok

10. OV

Command:	FACID,123456,OV,L= ;
Description:	Set the limited speed. L= | limited speed(0~65535), unit is Km/h.
Example:	FACID,123456,OV,L=50;
Reply:	FACID ov ok!

11. VIB

Command:	FACID,123456,VIB,L= ;
Description:	Set the vibration alarm. L= |0~10(0 is to turn off function, 1~10 means the sensitivity of vibration-sensor, 1 is min and 10 is max)
Example:	FACID,123456,VIB,L=5;
Reply:	FACID vib ok!

12. MOVE

Command:	FACID,123456,MOVE,L= ;
Description:	When the tracker moves out of or moves in a preset circle scope, it will send an alarm to authorized numbers or server. L= |the radius of a preset circle scope(0~65535), unit is meter.
Note:	The center of circle scope is the latest point, if there is no latest point, the center is none.
Example:	FACID,123456,MOVE,L=200
Reply:	FACID move ok

13. GEOFENCE

Command:	FACID,123456,GEOFENCE,A1=113.000000e/22.000000n,A2=114.000000e/23.000000n,B1=113.000000e/22.000000n,B2=114.000000e/23.000000n,C1=113.000000e/22.000000n,C2=114.000000e/23.000000n,D1=113.000000e/22.000000n,D2=114.000000e/23.000000n,E1=113.000000e/22.000000n,E2=114.000000e/23.000000n

Description:	When the tracker moves out of or moves in a preset square scope, it will send an alarm to authorized numbers or server. A1= |top left corner of the Geo-fence1 A2= |bottom right corner of the Geo-fence1 B1= |top left corner of the Geo-fence2 B2= |bottom right corner of the Geo-fence2 C1= |top left corner of the Geo-fence3 C2= |bottom right corner of the Geo-fence3 D1= |top left corner of the Geo-fence4 D2= |bottom right corner of the Geo-fence4 E1= |top left corner of the Geo-fence5 E2= |bottom right corner of the Geo-fence5
Example:	FACID,123456,GEOFENCE,A1=113.000000e/22.000000n,A2=114.000000e/23.000000n,B1=113.000000e/22.000000n,B2=114.000000e/23.000000n,C1=113.000000e/22.000000n,C2=114.000000e/23.000000n,D1=113.000000e/22.000000n,D2=114.000000e/23.000000n,E1=113.000000e/22.000000n,E2=114.000000e/23.000000n
Reply:	FACID geofence ok

14. CONFIG

Command:	FACID,123456,config,gpsautosearch= , poweron1= , poweroff1 = ,poweron2= ,poweroff2= ,poweren= ;
Description:	Set working hours when the tracker working in pet mode. gpsautosearch= |set GPS auto-search interval time(60—9999999) Poweron1/2= |Time to power on the device (00:00~23:59). Poweroff1/2= |Time to power off the device (00:00~23:59). Poweren=1/0 |enabl e/disable pet mode.
Example:	FACID,123456,config,gpsautosearch=120,poweron1=15:10,poweroff1=15:55,poweron2=18:10,poweroff2=18:55,poweren=1
Reply:	FACID config ok.

15. GSensor

Command:	FACID,123456,GSensor,L= , hit= ;
Description:	Set sensitivity of G-Sensor. L= | vibration sensitivity of G-Sensor. hit= | hit sensitivity of G-sensor.
Example:	FACID,123456,GSensor,L=40,Hit=40
Reply:	FACID GSensor ok.

Ⅳ GPRS Data

Data format: <Header><GPRMC>,<Flag>,<Alarm>,<State>,<Check Sum>

Note: Data does not include "<" and ">".

For example:

Server receives a GPRS packet from tracker as below:

In ASCII code:

LOGSTX,102110830074542,$GPRMC,114229.000,A,2238.2024,N,11401.9619,E,0.00,0.00,310811,,,A*64,F,LowBattery,imei:012207005553885,03,113.1,Battery=24%,,1,460,01,2531,647E;57

In hex code:

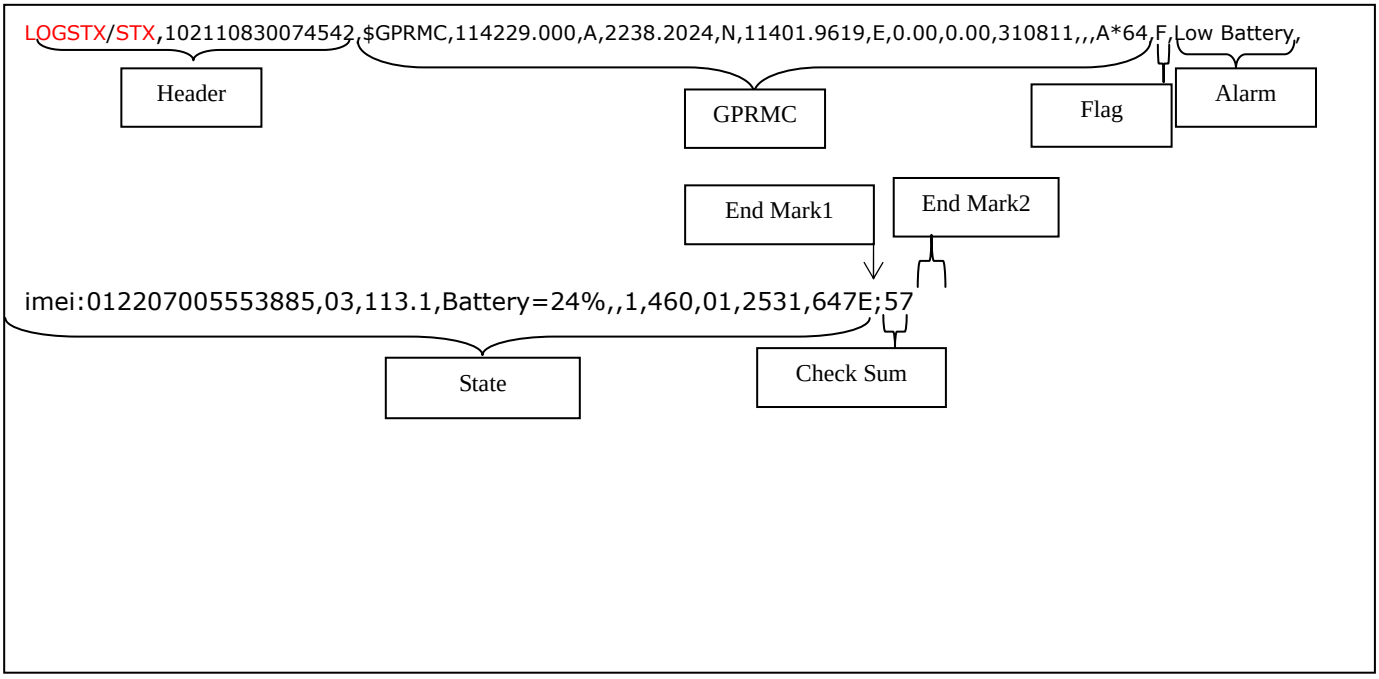
4C 4F 47 53 54 58 2C 31 30 32 31 31 30 38 33 30 30 37 34 35 34 32 2C 24 47 50 52 4D 43 2C 31 31 34 32 32 39 2E 30 30 30 2C 41 2C 32 32 33 38 2E 32 30 32 34 2C 4E 2C 31 31 34 30 31 2E 39 36 31 39 2C 45 2C 30 2E 30 30 2C 30 2E 30 30 2C 33 31 30 38 31 31 2C 2C 2C 41 2A 36 34 2C 46 2C 4C 6F 77 42 61 74 74 65 72 79 2C 69 6D 65 69 3A 30 31 32 32 30 37 30 30 35 35 35 33 38 38 35 2C 30 33 2C 31 31 33 2E 31 2C 42 61 74 74 65 72 79 3D 32 34 25 2C 2C 31 2C 34 36 30 2C 30 31 2C 32 35 33 31 2C 36 34 37 45 3B 35 37 0D 0A

In ASCII code:

STX,102110830074542,$GPRMC,114229.000,A,2238.2024,N,11401.9619,E,0.00,0.00,310811,,,A*64,F,Low Battery,imei:012207005553885,03,113.1,Battery=24%,,1,460,01,2531,647E;57

In hex code:

53 54 58 2C 31 30 32 31 31 30 38 33 30 30 37 34 35 34 32 2C 24 47 50 52 4D 43 2C 31 31 34 32 32 39 2E 30 30 30 2C 41 2C 32 32 33 38 2E 32 30 32 34 2C 4E 2C 31 31 34 30 31 2E 39 36 31 39 2C 45 2C 30 2E 30 30 2C 30 2E 30 30 2C 33 31 30 38 31 31 2C 2C 2C 41 2A 36 34 2C 46 2C 4C 6F 77 42 61 74 74 65 72 79 2C 69 6D 65 69 3A 30 31 32 32 30 37 30 30 35 35 35 33 38 38 35 2C 30 33 2C 31 31 33 2E 31 2C 42 61 74 74 65 72 79 3D 32 34 25 2C 2C 31 2C 34 36 30 2C 30 31 2C 32 35 33 31 2C 36 34 37 45 3B 35 37 0D 0A



(1) Header includes:

<STX>,<ID>

Example: STX, 102110830074542

Note:

Parameter	Description	Example in hex code (Spaces as separator)
STX	Fixed character	53 54 58
LOGSTX	Fixed character	4C 4F 47 53 54 58
ID	Identifier of device, max:16 bytes	31 30 32 31 31 30 38 33 30 30 37 34 35 34 32

(2) GPRMC includes:

$GPRMC,hhmmss.ddd,S,xxmm.dddd,<N|S>,yyymm.dddd,<E|W>,s.s,h.h,ddmmyy,d.d,<E|W>,D*HH

Example: $GPRMC,114229.000,A,2238.2024,N,11401.9619,E,0.00,0.00,310811,,,A*64,

Note:

Parameter	Description	Example in ASCII code

hhmmss.ddd	UTC time
	hh = hours;
	mm = minutes;
	ss = seconds;
	ddd = decimal part of seconds
		11:42:29.000

S	GPS status indicator, A = valid, V = invalid	A=Valid

xxmm.dddd	Latitude:
	xx = degrees;
	mm = minutes;
	dddd = decimal part of minutes
		22 deg. 38.2024 min.

<N|S>	Either character N or character S N = North, S = South	N = North

yyymm.dddd	Longitude:
	yyy = degrees;
	mm = minutes;
	dddd = decimal part of minutes
		114 deg. 01.9619 min.

<E|W>	Either character E or character W E = East, W = West	E = East
s.s	Speed, in unit of knot. (1 knot = 1.852 km)	0.00 Knots
h.h	Heading, in unit of degree	0.00 deg.

Ddmmyy	Date
	dd = date;
	mm = month;
	yy = year
		310811

d.d	Magnetic variation	Normally blank
<E|W>	Either character W or character E W = West ,E=East	Normally blank
D	Mode, either character A or D or E or N	A

*	checksum delimiter	In case there woul d be one more comma (,) prior to *,GPRMC is still to be ended by '*'.
HH	Checksum	57

(3) Flag: GPS status indicator, F = valid, L = invalid.

(4) Alarm includes:

<Alarm>

Example: Help

Alarm table as below:

Alarm name	Description
Move in	Device moves in a preset circle scope.
Move out	Device moves out of a preset circle scope.
Geo in	Device moves in a preset square scope.
Geo out	Device moves out of a preset square scope.
OverSpeed	Device's speed is more than the limited speed.
LowSpeed	Device's speed is less than the limited speed.
Help	SOS button is pressed for 3 seconds.
VIB	Device detects enough strength of vibration.
LowBattery	Device has no enough power.
ChargerON	The charging device is connected.
ChargerOFF	The charging device is disconnected.
Belt Up	Connected to the bracelet
Belt Off	Disconnected from the bracelet
Hit	Suffered a hit

(5) State includes:

<IMEI>,<Num>,<Altitude>,<Battery>,,<Charger Flag>,<MCC>,<MNC>,<LAC>,<Cell ID>

Example: imei:012207005553885,03,113.1,Battery=24%,,1,460,01,2531,647E

Note:

Parameter	Description	Example in ASCII code
IMEI	International Mobile Equipment Identity	imei:012207005553885
Num	Number of valid satellite when getting the latest GPS data	03
Altitude	Value of altitude, unit is m.	113.1

Battery	Percentage of surplus battery	Battery=24%
Charger Flag	No use, always be 1	1
MCC	Mobile Country Code	460
MNC	Mobile Network Code	01
LAC	Location Area Code	2531
Cell ID	Cell ID	647E

(6) <End Mark1> is the end of data, it is fixed:

3B (in hex code)

; (in ASCII code)

(7) <Check Sum> is the sum of all data before in hex code, if the sum is more than 1 byte, use the low byte.

Example:

35 37 (in hex code)

57 (in ASCII code)

(8) <End Mark2> is the end of packet, it is fixed:

OD OA (in hex code)