

## Communication Protocol V-B 1.8

### 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	Go back to 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	SMS format
9	SDCARD	Write/Read SD card
10	OV	Over-speed alarm
11	VIB	Vibration alarm
12	MOVE	Movement alarm
13	GEOFENCE	Geo-fence 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= [REDACTED];
Description:	Change the old password "123456" to [REDACTED] New password should be 0~9 chars.
Example:	FACID,123456,PASSWORD,V=000000;
Reply:	FACID password ok!

## 4. AUTHORIZE

Command:	FACID,123456,AUTHORIZE, 1= [REDACTED],2= [REDACTED],3= [REDACTED],4= [REDACTED],5= [REDACTED];
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= [REDACTED],4= [REDACTED]; Set the second authorized number and delete the first authorized number: FACID,123456,AUTHORIZE,1=,2= [REDACTED];
Example:	FACID,123456,AUTHORIZE, 1=13811111111,2=13822222222;
Reply:	FACID authorize ok!

## 5. LOC

Command:	FACID,123456,LOC,I= [REDACTED],T= [REDACTED],L= [REDACTED];
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!

## 6. GPRS

Command:	FACID,123456,GPRS,ADDR= ,PORT= ,NAME= ,PASS= ,APN= ,ID= ,MODE= ;
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=  correct password(0~31 chars) APN=  access point name(0~31 chars) ID=  identifier(0~19 chars) MODE=1/0  use UDP/TCP protocol
Example:	FACID,123456,GPRS,ADDR=219.133.34.184,PORT=8000,NAME=,PASS=,APN=cmnet,ID=123456789,MODE=0;
Reply:	FACID Gprs ok!

## 7. TIME ZONE

Command:	FACID,123456,TIME_ZONE,V= ;
Description:	Set time zone of local place. V=  time 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  longitude/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,1=114.000000e/22.600000n,2=113.800000e/22.400000n;
Description:	When the tracker moves out of or moves in a preset square scope, it will send an alarm to authorized numbers or server. 1=  top left corner of the Geo-fence 2=  bottom right corner of the Geo-fence
Example:	FACID,123456,GEOFENCE,1=114.000000e/22.600000n,2=113.800000e/22.400000n;
Reply:	FACID geofence ok

## IV GPRS Data

Data format: <Header>,<GPRMC>,<Flag>,<Alarm>,<State><End Mark1><Check Sum><End Mark2>

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

For example:

Server receives a GPRS packet from tracker as below:

In ASCII code:

```
LOGSTX,012896005313686,$GPRMC,042419.000,A,2238.2247,N,11401.9775,E,0.00,173.00,100413,,,A*6
7,F,Help,100000,10,imei:012896005302895,2/5,129.5,Battery=77%,ADC1=0.96V,ADC2=0.94V,ADC3=2.0
6V,0,31,460,01,2531,636B,00045,52,24,100413042405,Ok,Ok;E5
```

In hex code:

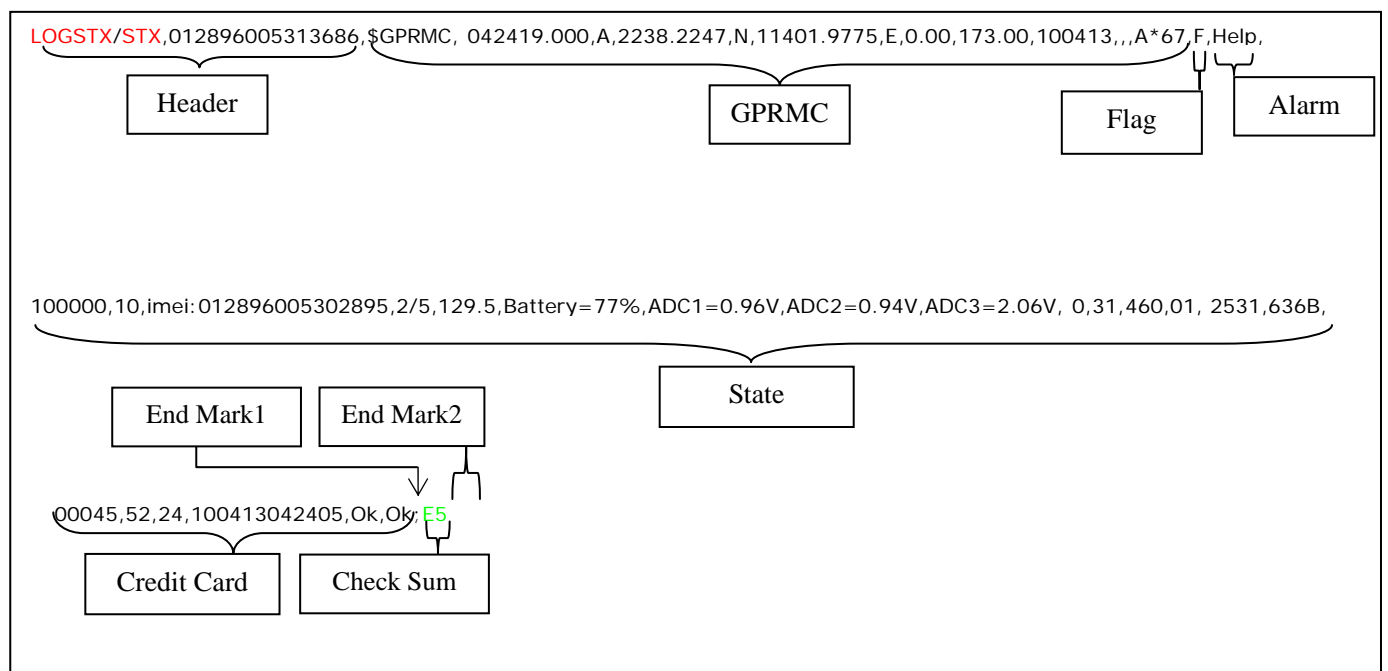
4C 4F 47 53 54 58 2C 30 31 32 38 39 36 30 30 35 33 31 33 36 38 36 2C 24 47 50 52 4D 43 2C 30 34 32 34  
31 39 2E 30 30 30 2C 41 2C 32 32 33 38 2E 32 32 34 37 2C 4E 2C 31 31 34 30 31 2E 39 37 37 35 2C 45 2C  
30 2E 30 30 2C 31 37 33 2E 30 30 2C 31 30 30 34 31 33 2C 2C 2C 41 2A 36 37 2C 46 2C 48 65 6C 70 2C 31  
30 30 30 30 2C 31 30 2C 69 6D 65 69 3A 30 31 32 38 39 36 30 30 35 33 30 32 38 39 35 2C 32 2F 35 2C  
31 32 39 2E 35 2C 42 61 74 74 65 72 79 3D 37 37 25 2C 41 44 43 31 3D 30 2E 39 36 56 2C 41 44 43 32 3D  
30 2E 39 34 56 2C 41 44 43 33 3D 32 2E 30 36 56 2C 30 2C 33 31 2C 34 36 30 2C 30 31 2C 32 35 33 31 2C  
36 33 36 42 2C 30 30 30 34 35 2C 35 32 2C 32 34 2C 31 30 30 34 31 33 30 34 32 34 30 35 2C 4F 6B 2C 4F  
6B 3B 45 35 0D 0A

In ASCII code:

STX,012896005313686,\$GPRMC,042419.000,A,2238.2247,N,11401.9775,E,0.00,173.00,100413,,,A\*67,F,  
Help,100000,10,imei:012896005302895,2/5,129.5,Battery=77%,ADC1=0.96V,ADC2=0.94V,ADC3=2.06V,  
0,31,460,01,2531,636B,00045,52,24,100413042405,Ok,Ok;E5

In hex code:

53 54 58 2C 30 31 32 38 39 36 30 30 35 33 31 33 36 38 36 2C 24 47 50 52 4D 43 2C 30 34 32 34 31 39 2E  
30 30 30 2C 41 2C 32 32 33 38 2E 32 32 34 37 2C 4E 2C 31 31 34 30 31 2E 39 37 37 35 2C 45 2C 30 2E 30  
30 2C 31 37 33 2E 30 30 2C 31 30 30 34 31 33 2C 2C 2C 41 2A 36 37 2C 46 2C 48 65 6C 70 2C 31 30 30 30  
30 30 2C 31 30 2C 69 6D 65 69 3A 30 31 32 38 39 36 30 30 35 33 30 32 38 39 35 2C 32 2F 35 2C 31 32 39  
2E 35 2C 42 61 74 74 65 72 79 3D 37 37 25 2C 41 44 43 31 3D 30 2E 39 36 56 2C 41 44 43 32 3D 30 2E 39  
34 56 2C 41 44 43 33 3D 32 2E 30 36 56 2C 30 2C 33 31 2C 34 36 30 2C 30 31 2C 32 35 33 31 2C 36 33 36  
42 2C 30 30 30 34 35 2C 35 32 2C 32 34 2C 31 30 30 34 31 33 30 34 32 34 30 35 2C 4F 6B 2C 4F 6B 3B 45  
35 0D 0A



(1) Header includes:

<STX>,<ID>

Example: STX, 012896005313686

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	30 31 32 38 39 36 30 30 35 33 31 33 36 38 36

(2) GPRMC includes:

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

Example: \$GPRMC,102345.360,A,2232.7534,N,11404.7425,E,000.0,000.0,140611,,,A\*77

Note:

Parameter	Description	Example in ASCII code
hhmmss.ddd	UTC time hh = hours; mm = minutes; ss = seconds; ddd = decimal part of seconds	10:23:45.360
S	GPS status indicator, A = valid, V = invalid	A=Valid
xxmm.ddd	Latitude: xx = degrees; mm = minutes; ddd = decimal part of minutes	22 deg. 32. 7534 min.
<N S>	Either character N or character S N = North, S = South	N = North
yyymm.ddd	Longitude: yyy = degrees; mm = minutes; ddd = decimal part of minutes	114 deg. 04.7425 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)	000.0 Knots
h.h	Heading, in unit of degree	000.0 deg.
ddmmyy	Date dd = date; mm = month; yy = year	140611
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 would be one more comma (,) prior to *, GPRMC is still to be ended by '*'.
HH	Checksum	77

(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.

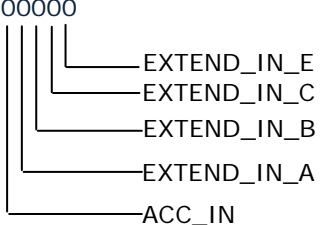
(5) State includes:

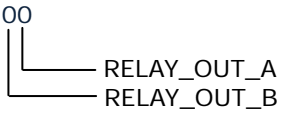
<DIN><DOUT><IMEI>,<A/B>,<Altitude>,<Battery>,<ADC1><ADC2>,<Charger  
Flag>,<GSM>,<MCC>,<MNC>,<LAC>,<Cell ID>

Example:

00000,00,imei:012207005625824,5/9,105.7,Battery=87%,ADC1=2.09V,ADC2=1.  
90V, ADC3=1.50V,0,18,460,00,2798,1388

Note:

Parameter	Description	Example in ASCII code
DIN	Status of digital input: 00000  1: High Level    0: Low Level	00000

DOUT	Status of digital output: 	00
IMEI	International Mobile Equipment Identity	imei:012207005625824
A/B	Number of valid satellite when getting the latest positioning data. A=number of valid Glonass satellite B=number of valid GPS satellite	5/9
Altitude	Value of altitude, unit is m.	105.7
Battery	Percentage of surplus battery	Battery=87%
ADC1	Analog input 1, range is 0.00~3.00, unit is volt	ADC1=2.09V
ADC2	Analog input 2, range is 0.00~3.00, unit is volt	ADC2=1.90V
ADC3	Analog input 3, range is 0.00~3.00, unit is volt	ADC2=1.50V
Charger Flag	The status of charging, 1 means device is charging now.	0
GSM	Strength of GSM signal	18
MCC	Mobile Country Code	460
MNC	Mobile Network Code	00
LAC	Location Area Code	2798
Cell ID	Cell ID	1388

(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: ED (in hex code)

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

0D 0A (in hex code)