

GPRS communicate protocol for GPS tracker

Ver : 2.0

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1. This protocol adopts ASCII code transmission. # is requisitioned in this protocol as control character, so please try your best to avoid # in transmission and use other bits to substitute # if it is inevitable.
2. Excluding role-call command, all the other commands need to reply with confirmation information.

Note for the protocol: All parameter setting commands start with # and will be separated by # where there are several groups of parameters; data in each parameter group is separated by comer (,) and all the commands ended with two ##. If necessary return key could be added in the end of each command to shift to the newline.
3. Either data transmission protocol of this terminal transferred in form of SMS or GPRS, the commands definite functions are in line with data exchange format.
4. With interference free capacity, this terminal could remove off the spared bits contained in control command data package before or after transferring.
5. This terminal has functioned with automatically joining into CM Fetion business (That means when receiving the invitation from fetion friends, the terminal will reply with yes automatically).
6. This terminal has an exclusive 15-digit EMI code as the its ID.
7. Use SMS command to set one piece of SMS that contained several control commands, the terminal will execute these commands in turn after receiving. The command will be separated by *.
8. Added with combined reset button. Press SOS and Power button at the same time, the terminal resets (First press SOS button and then press POWER button, the terminal will switch on).
9. All places involve in longitude and latitude including interfaces will be recorded in the format of degree and munite (.....); all places involve in speed will be record in the format of Km/h.
10. Default server address of this product is www.gps-example.com with 6789 as its port.
11. This default upload interval is colleting positioning information once every 2mins and uploading 1 piece of valid data after getting two pieces of positioning information.

12. All the alarm information including getting in/out of fence alarm, low-power alarm and SOS alarm will return to centre number and auxiliary number. Settings of auxiliary centre are optional with the command 0755138xxxxxxx0000.
13. If SOS alarm is applied, the terminal will upload a piece of alarm information to main and auxiliary centers and GPRS server, and then dial the 3 predetermined numbers within the product in turn.
14. Added with power-on indicator. Press Power button, the watch will switch on and the indicator will light 30s .
15. The terminal will upload the last piece of valid data when it moves from place with signal to non-signal place; the last piece of valid data will not be saved after power-off.
16. The format of degree and minute will be adopted when use 751 command to set electronic fence.
17. The way to hold on the call is completed in the same way of setting 666 commands. After hold-on the terminal will return to location interface.
18. E8 is the default time zone and it could be rearranged according to 896 command.

Parameters setting commands:

1. Set SMS number command: #command code(710)#centre number

(4~20-digit)#password (4-digit)##

SMS setting command is set for the terminal to function well under centre mode offered by the operators. When the user presses SOS button for more than 3s, the terminal will send SMS to the number the user has set.

Examples: #710#1066512000#0000##

The centre number will be set as 1066512000 and password as 0000. After successful setting, the terminal will reply to the phone with CONFIG OK or PASSWORD ER when the password is incorrect.

2. Set dial number command: # command code(711)# user's number1# user's number2#user's number3# user's password (4-digit)##

User's number command is set for terminal owner to bind authorized user's number. 3 numbers could be bound with at most.

When the binding number calls the terminal for 8s without hang-up, the terminal will hold on;

the terminal will reply with location information according to function modes if the calls are hung up by the user in 8s; the terminal will automatically hang up if non-registered numbers call in.

Example: #711#13900139000###0000##

User's number will be set at the first place after the execution of this command. After successful setting, the terminal will reply to the phone with CONFIG OK or PASSWORD ER when the password is incorrect.

3. Set time constant: #command code(721)# local time zone# user's password##

Defaulted time constant is 0 and it will be included in the time data that GPS read each time.

Example: #721#E08#0000##

4. Set timing data upload command: #command code(730)# interval(0-99999)#upload groups(0-99999)#password (4-digit)##

The data group interval is 0, which means cancelling timing upload function. The intervals are counted in second. In consideration of the limit of CPU processing time, the minimum interval is set as 5s. This timing function applies to all function modes, but in SMS mode, only one group of information will be uploaded no matter how many groups of data are there. After successful setting, the terminal will reply to set phone number with CONFIG OK or PASSWORD ER when the password is incorrect.

Example:

In SMS function mode: #730#30#1#0000##

After execution of that command, timing function is put into effect and data will be collected and a group of data information will be uploaded every 30 mins.

In GPRS function mode:

#730#6#10#0000##.After execution of that command, timing function is put into effect and data will be collected and saved every 6s. when there are 10 groups of sample data, they will be packaged and uploaded once(The above setting means uploading 10 groups of data per minute).

5. Set GSM fence command: #command code(740)#password (4-digit)##

After execution of this command, the terminal will read GSM base station information, including the main base station information and nearby base station information. The first 4

digit data will be saved in the terminal. If there are several different 4 digit data need to be saved, open protected status function at the same time. In protected status mode, the terminal will read all the base station data (1~7 pieces) once every 5mins and compared the first 4 digit data with protected data. If the first 4 digit data of all the base station data are not in line with the current data, the terminal will send alarming SMS to or dial the user's number according to the alarm settings. After successful setting, the terminal will reply to the phone with CONFIG OK or PASSWORD ER when the password is incorrect.

Example: #740#0000##

The alarm will ring if the terminal has been 3~5 Km away after the fence has been set.

6. Set GPS fence command: #command code(750)#radius (5- digit)#sampling interval (min)#password (4-digit)##

Take the current spot as reference point.

Execute this command and the terminal enters protected status. In protected mode, the terminal will read GPS data according to the set time and compare these data with protected data. If the user has been out of the protected place, the terminal will send alarming SMS to or dial the user's number. After successful setting, the terminal will reply to the phone with CONFIG OK or PASSWORD ER when the password is incorrect.

Example: #750##500#5#0000##

Executing that command means setting a fence, taking the reference point as the fence centre and 500m as the fence's radius. After successful setting, the terminal will reply to the phone with CONFIG OK. The terminal will reply with OBJECT OUT if the user has been out of the fence.

7. Set GPS fence command: #command code (751)#radius (5-digit) # sampling interval# reference point latitude# reference point longitude# password (4-digit)##

Execute this command the terminal enters protected status. In protected mode, the terminal will read GPS data according to the set time and compare these data with protected data. If the user has been out of protected place, the terminal will send alarming SMS to or dial the user's number. After successful setting, the terminal will reply to the phone with CONFIG OK or PASSWORD ER when the password is incorrect. The terminal will reply with OBJECT OUT if the user has been out of the fence.

Example 1: #750#5000#3#0000##

Take the current GPS location data as reference point and set an electronic fence with 5km as its radius and read and check these data every 3mins. After successful setting, the terminal will reply with CONFIG OK.

Example2: #751#500#3#25.544N#123.9107E#0000##

Execute that command means setting a fence with 500m as its radius and reading and checking these data every 5mins. After successful setting, the terminal will reply with CONFIG OK.

8. Set reading electronic fence command: #command code(752)# password (4digit)##

Execute this command the fence operating data will be read and PASSWORDER will be replied when the password is incorrect.

Example:#open:1#lat:11456.209400#lng:2233.470100#distance:500#time:5#status:2

Where: open:1 electronic fence is open, open:0 electronic fence is closed.

lat:11456.209400, latitude;

lng:2233.470100, longitude;

distance:500, radius of the fence;

time:5, sampling intervals;

status:2 The terminal has received valid satellite data and the fence functions well.

status:1 The fence is open but the terminal does not receive valid satellite data.

status:0 Electronic fence is not set.

9. Cancel fence command: #command code(760)# password (4-digit)##

Execute this command to cancel electronic fence function. After successful setting, the terminal will reply to the phone with CONFIG OK or PASSWORD ER when the password is incorrect.

10. Change user's password command: #command code (770) #user's new password 4-dig# user's old password (4-digit)##

After execution of this command, the terminal will change the password according to user's demand. After successful setting, the terminal will reply to the phone with CONFIG OK or PASSWORD ER when the password is incorrect.

Example: #770#1111#0000##

After execution of this command, user's password is changed into 1111 from 0000.

11. Set upload base station quantity command: #780# uploaded base station quantity(0-1)# password##

After execution of this command, the quantity of base station will be set according to user's demand. The quantity could be 0, which means no base station data is needed. After successful setting, the terminal will reply with CONFIG OK to the phone or PASSWORD ER when the password is incorrect.

12.Set user's name command: #8-01#letters or numbers 4~20dig# password (4-digit)##

After execution of this command, user's name of the terminal will be set according to user's demand in GPRS mode. When user's name is set as 0000, meaning the SIM card number is user's name. After successful setting, the terminal will reply with CONFIG OK to the phone or PASSWORD ER when the password is incorrect.

Example: #801#13900139000#0000##

Execute this command, user's name will be the 11 numbers of the SIM card.

13.Set APN command: #802#APN letter or number 4-20 did# user's name for login letter or number 4-20 dig# password for login letters or numbers 4-20 dig# terminal password 4digit##

Execute this command to set APN according to demand under GPRS mode. When APN is only one dig 0, defaulted APN is CMNET. When both login name and login password are one-dig number 0, that means login name and login password are needed.

14.Set IP port command:#803#fixed IP address# port number# password##

Execute this command, the interjection of the terminal will be set according to user's demand. The default fixed IP address is: 210.1xx.89.132 with 8123 as the port number. The IP address also support direct input mode. The connection needs to be cut off when new IP is set. After successful setting, the terminal will reply with CONFIG OK or PASSWORD ER when the password if incorrect.

Example: #803#210.1xx.89.132#8123#0000##

15. Set time zone function

Command format: 896xxxDnnmm

Remarks:

After successful setting, the terminal will:

- 1) reply with confirmation information: time zone: Eastern/Western XX
- 2) reply all the location information in SMS to SMS function mode while all the time needed to be advanced or backup for XX hours.
- 3) Time shown on the screen needs to be added or backup for XX hours as well.

Example: send 66600000 and you will get the following information:

Lat: +22.55714

Lng: +114.09996

Speed: 0.17KM/H

Direction: 62.58

Date: 2008-06-17

Time: 09:39:45

BS: 27970eb3

FIX: A

ID: 123456789000001

STATE:SMS

So when send 8960000E800, the time needs to added with 8hs and change into 17:39:45

Similarly, when set the command as 8960000W07, the time needs to be subtracted with 7hs and change into 02:39:45

Remarks: 1) when time zone is successfully set, where the location information is needed in SMS to SMS mode, the time needs to be added or backed with XX in value. Time data uploaded in GPRS mode does not need to change just as defined in the software.

2) Once reset or recover to the default setting, the time zone will be default as 08, that's to say the screen will display Beijing Time.

3) Add with time zone to GTAS : Western/Eastern XX.

4) All the settings in this command will not be affected by power on/off until they're demanded to change or reset.

Note: Defaulted time zone is E08.

Control Operation Command:

For the convenience of easy operation for users by cell phone, the operating commands consist of only numbers.

1. Upload base station data by SMS command: 111+password (4-digit)

Execute this command, the terminal will read related base station data and status information about the location according to the settings and upload these information in the following format:

#base station information, 1 base station n# status (1 digit)# password 4-dig#demanded number##

When GPIO2 is high, the status will be '1'; otherwise it will be '0'. PASSWORD ER will be replied when the password is incorrect.

Example: #25738841#1#0000#13900139000##

2. SMS control upload GPS data command:666+password (4 numbers)

After execution of this command, the terminal first equipment 1 enable (GPIO6) and read GPS data according to the settings and then upload the information in the following format. If valid GPS data could be read within 2mins, the terminal will send duplicate data information to the phone or base station information if duplicate data is not available.

Data format:

Lat: latitude direction (+/-) latitude value

Long: longitude direction (+/-) longitude value

Speed: speed KM/H

Direction: direction

Date: date YYYY-MM-DD

Time: time HH: MM: SS (GMT)

BS: base station information

FIX: positioning information (A/V)

ID: IMEI

STATE: information status

(in the format of decimal system)

Remark: please pay attention that a decimal longitude and latitude information must be contained in the bracket of the returned information.

If time zone in test terminal is E08, the terminal needs to wait 1min for the location information uploaded by the centre in text and upload this information to the user. If time

is the terminal will send latitude and longitude information to the user in degree and min format. If time zone of the terminal is not E08, the terminal will back return longitude and latitude information according to the data format.

Data format uploaded by the centre:

word information# status# speed# longitude, latitude##

Example: # Guo Qi Building, Shang Bu South Road, Fu tian District, Shenzhen City#
1#0.0#22.53847,114.09678##

3. SMS control uploading GPS data comamnd:988+password (4 digit)

After execution of this command, the terminal will upload GPS data information in the following format. If valid GPS data could be read within 2mins, the terminal will send duplicate data information to the phone or base station information if spared data is not available. The transmission port if pointed port 89 and http protocol is the uploading data format.

[http:// maps.google.com/location.dll/guess?x=114.0000&y=23.5909](http://maps.google.com/location.dll/guess?x=114.0000&y=23.5909)

After sucessful sending, the termainal need to wait 1min for the location information uploaded by the centre in text and send these information to the user. If time if out the termianl will reply with TIME OUT.

Data format uploaded by the centre: # word information# status# speed# longitude, latitude##

Example: # Guo Qi Building, Shang Bu South Road, Fu tian District, Shenzhen City#
1#0.0#22.53847,114.09678##

4.SMS control GPS data uploading command: 987+password(4-digit)

After execution of this comamnd, the termianl will first and read GPS data according the settings. If GPS functions well in 60s, the termianal will send valid GPS URL to the user, otherwise base station URL. The inquiry phone could inquiry loaction information on the internet.

Note: The returned URL has been coded, the user just need to connect to the internet without knowing what the URL is.

5. Monitoring function: 555+password

After receiving the command 555+password sent by the user, the termianl will dial the

monitoring number. If predetermined number has been set, only predetermined number could monitor. Without predetermined number, any phone could monitor. When carrying out monitor, the screen and voice and other information should not be found by the being monitored one. This command could be achieved in terminals with screens and rings.

6. Upload format for call control

When one of the predetermined number calls in and hold on after the ring ringing for 2~5 times, the terminal will ask the server centre for location information and then send SMS about these information to the inquiry phone. If time is out, the terminal will send longitude and latitude information in degree and format to the user (the format is the same as the 666 command format).

Data format uploaded by the centre: # word information# status# speed# longitude, latitude##

Example: # Guo Qi Building, Shang Bu South Road, Fu tian District, Shenzhen City#
1#0.0#22.53847,114.09678##

Note:

1. Without predetermined number, any phone calls the terminal will be replied with location information.
2. Only predetermined number calls will be replied with location information if predetermined number has been set.

7. SMS control upload format:

The terminal will soon upload GPS location information once the SOS button has been pressed.

SMS will be uploaded as the same way as GPS:

#EMI code (15 numbers)# user's name# status# password# data type# data volume# base station information# longitude, E, latitude, N, speed, direction# date# time##

Example:#135790246811002#13400019277#1#0000#SOS#1#27bc10af#11407.4182,E,223
2.7632,N,0.00,79.50#070709#134147.000##

8. Timing upload mode:

The following format will be adopted when the terminal upload data according to timing setting:

SMS mode: #EMI code (15 numbers)# user's name# status# password# data type# data
voulume# base station information# longitude, E, latitude, N, speed, direction# date# time##
Example:#135790246811002#13400019277#1#0000#SOS#1#27bc10af#11407.4182,E,2232
.7632,N,0.00,79.50#070709#134147.000##

GPRS mode: #EMI code (15 numbers)# user's name# status# password# data type# data
voulume# base station information# longitude, E, latitude, N, speed, direction# date# time##
The terminal only transmits valid GPS information and will not open GPRS if valid GPS
information can not be obtained in certain time and will upload the receiving data in
regulated time if valid information is not enough.

The terminal will automatically upload data with an interval of 6s and

Example:

#135790246811002#13400019277#1#0000#AUT#10#27bc10af#11407.4189,E,2232.7893,
N,0.00,0.66#070709#132022.000#27bc10af#11407.4189,E,2232.7898,N,0.00,0.66#070709
#132028.000#27bc10af#11407.4189,E,2232.7902,N,0.00,0.66#070709#132034.000#27bc1
0af#11407.4190,E,2232.7908,N,0.00,0.66#070709#132040.000#27bc10af#11407.4190,E,22
32.7912,N,0.00,0.66#070709#132046.000#27bc10af#11407.4190,E,2232.7913,N,0.00,0.66
#070709#132052.000#27bc10af#11407.4192,E,2232.7917,N,0.00,0.66#070709#132058.00
0#27bc10af#11407.4197,E,2232.7974,N,0.00,0.66#070709#132104.000#27bc10af#11407.4
205,E,2232.7972,N,0.00,0.66#070709#132110.000#27bc10af#11407.4211,E,2232.7972,N,0
.00,0.66#070709#132116.000##

Note: Data sampling interval is longer than 5s and there will be at least 1 piece of
information.

9. Low-power upload mode:

Test VBAT voltage when it functions well. If the voltage is lower than the set voltage, the
terminal will upload information in the following format. The status is 2 in SMS mode and
GPRS data type is LPD. Information will be uploaded in the same format in SMS mode and
GPRS mode:# EMI code (15numbers)# user's name# status# password# data type# data
volumue# base station information, , # longitude, latitude, speed, direction# date and time##

Example:

#135790246811002#13400019277#1#0000#LPD#1#27bc10af#11407.4182,E,2232.7632,N,0.

00,179.50#070709#134147.000##

Note: Only GSM base station data will be uploaded when valid GPS data can not be obtained as demanded.

10. Connect to GPRS command: #904##

Reply CONFING OK to the phone or PASSWORD ER when the password is wrong.

11. Disconnect to GPRS command: #905##

Reply CONFING OK to the phone or PASSWORD ER when the password is wrong.

12. Reset comamnd: #903## (re-operate the machine)

13. Read parameters command 1: #901## (paarmeters about the user)

Format: #mode# alarm mode# spared time# sampling time# pieces of sampling@apn#apn
user's name# apn password# port##

Example: #3#0#60#6#5@cmnet###210.89.89.132#8123##2009/11/0111: 09 V0.23

Note: This command can also apply to GPRS operation.

1. GPS control switch
2. #918## open AGPS
3. #919## close AGPS
4. #920##