TQ GPRS transport protocol

Letters in command can't be lowercase and Spaces.

1.The structure of commands send by center:

    *XX,YYYYYYYYYY,CMD,HHMMSS,PARA1,PARA2,…#

In which:

* : Head of command

XX : Name of maker, Consists of two ASCII characters, such as HQ.

, : separator

YYYYYYYYYY : SN of terminal, is ten characters front of IMEI.

CMD : Command

HHMMSS : Time: hour/minute/second

PARA : Parameters

2.The structure of commands send by terminal:

General information is also the login information if it contains the right position information.

*XX,YYYYYYYYYY,V1,HHMMSS,S,latitude,D,longitude,G,speed,direction,DDMMYY,
vehicle_status#

The reply to center commands.

*XX,YYYYYYYYYY,V4,CMD,hhmmss,HHMMSS,S,latitude,D,longitude,G,speed,directi
on,DDMMYY,vehicle_status#

In which:

* : Head of command

XX : Name of maker

, : Separator

YYYYYYYYYY : SN of terminal

CMD : Confirmed command

Hhmmss : Time value in confirmed command.

HHMMSS : Time

S : Effective mark of data, 'A' stand of effective, 'V' stand of invalid.

Latitude : Latitude, format : DDFF.FFFF, DD : Degree（00～90）, FF.FFFF : minute
(00.0000 ~ 59.9999), keep four decimal places.

D : latitude marks (N:north, S:south)

Longitude : longitude, format : DDDFF.FFFF, DDD : Degree（000～180）, FF.FFFF :
minute
(00.0000 ~ 59.9999), keep four decimal places.

G : longitude marks (E:east, W:west)

Range of 000.00 ~ 999.99 knots, Keep two decimal places.

Speed maybe empty, as longitude,G,,direction, speed is 0.

Direction: Azimuth, north to 0 degrees, resolution 1 degrees, clockwise direction.

Direction maybe empty, as longitude,G,speed,, MMDDYY, azimuth is zero.

DDMMYY:day/month/year
vehicle_status: Vehicle state, four bytes, says the terminal parts state, vehicle parts state and alarm state, etc. Use ASCII character and hexadecimal values. Below are the meaning of each byte, use negative logic, bit=0 is effective. The table below:

Bit sequence	The first byte		The second byte		The third byte		The fourth byte	
0	0	Temperature	0	GPS receiver fault alarm	0	Door open	0	Theft alarm
1	0	Three input error password	1	reserves	0	Vehicle fortification	0	Robbery alarm
2	0	GPRS backed up	1	reserves	0	ACC off	0	overspeed speed
3	0	Vehicles in oil cut-off current state	0	Terminal by backup battery power supply	1	reserves	0	Illegal ignition alarm
4	0	Battery demolition	0	Battery removed	1	reserves	0	Entering alarm
5	0	High level sensor 1 is high	0	GPS antenna disconnect	0	engine	0	GPS antenna disconnect alarm
6	0	High level sensor 2 is high	0	GPS antenna short circuit	0	Custom alarm	0	GPS antenna short circuit alarm
7	0	Low level sensor 1 on	0	Low level sensor 2 on	0	overspeed	0	Out alarm

3.commands send by center

1) Positioning monitoring command D1

*XX,YYYYYYYYYY,D1,HHMMSS,interval,batch#
In which:
Interval: The interval produce upload records, value range of 1 ~ 65535, unit is the second.
Batch: The recording number of transferred batch , ranging from 1 to16, outside the range as1.
batch = 1 as the real-time mode, when produce a record upload it, other value upload multiple records at the same time.
Reply V1 information when received the command.

2) Set the monitoring center SMS number S2
        In which:
mc_address: Monitoring center SMS number.
Send:
*HQ,0000000000,S2,130305,13823714888# ;
Reply :

*HQ,2020916012,V4,S2,130305,050315,A,2212.8745,N,11346.6574,E,14.28,028,220902, FFFFFBFF#

Terminal after receiving the instruction will immediately transmits confirmation information to the

new monitoring center, the original monitoring center number no longer recognized. The monitoring center can not add 86 before the number.

3)Set the slave monitoring center SMS number S28
    Return the following information to master monitoring:

*HQ,2020916012,V4,S28,13823714888,130305,050315,A,2212.8745,N,11346.6574,E,14.28 ,028,220902,FFFFFBFF#

Terminal accepts the number issued commands, but the results will only return to the main center.

Slave monitoring center SMS number can also be used to upgrade main center number.

4) Monitor command R8
*XX,YYYYYYYYYY,R8,HHMMSS,listen_address #
In which:
listen_address: Monitor number terminal calling.
In the monitoring is prohibited terminal return information:
*HQ,2020916012,V4,R8,ERROR,130305,050316,A,2212.8745,N,11346.6574,E,14.28,028, 220902,FFFFFBFF#

Otherwise the terminal receives the command, automatic dial listen_address, center can be mounted a automatic recording device for recording monitoring content.

5) Set monitoring center GPRS server IP address, port number, network congestion alarm S23
IP_addr: GPRS server IP address
Port: GPRS server port number
Redial_Times: Redial times to GPRS server. value range of 5-254, if the value is less than 5, the

value is automatically set to 5, if exceeded 255 the value mod 256.
For example:*HQ,0000000000,S23,130305,165,165,33,250,8800,5# ;
Terminal return:
*HQ,2020916012,V4,S23,165.165.33.250:8800,130305,050316,A,2212.8745,N,11346.6574 ,E,14.28,028,220902,FFFFFBFF#

Note: the IP address separator must be a comma, cannot use the dot, IP address and port number

must separated by comma. If the IP address for all 0, disables the IP settings.

6) Set access point APN S24
M: Effective mode
M=0: Virtual query
M=1 or other: setting the access point APN.
For example:
Center sends:
*HQ,0000000000,S24,130305,0,ABCD.BJ#
Terminal returns:
*HQ,2020916012,V4,S24,CMNET,130305,050316,A,2212.8745,N,11346.6574,E,14.28,028,

For example:
Center sends:
*HQ,0000000000,S24,130305,2,HQit.gd#
Terminal returns:
*HQ,2020916012,V4,S24,HQit.gd,130305,050316,A,2212.8745,N,11346.6574,E,14.28,028,
Received the order in the GPRS online state will hang up the connection and redial according to
the new APN. Note: APN cannot be longer than 32 characters, characters can be " # ".

7) Clear alarm R7
For example:
Center sends:

Terminal received the order will clear all the alarm information, but does not send back information, monitoring system can be appended to send a single monitoring command to confirm
whether have clear alarm.

8) Mileage query command S32
*XX,YYYYYYYYY,S32,HHMMSS,M#
The command queries the mileage data.
M=0 : Mileage counter reset
M=1 or other: mileage enquiry
For example:
Center sends:
*HQ,000,S32,130305,1#
Terminal returns:
*HQ,2020916012,V4,S32,0000130502.35,130305,050316,A,2212.8745,N,11346.6574,E,14.28,02
8,220902,FFFFFBFF#
Upload mileage unit is knots. The maximum value is 9999999999.99.

9) Restore factory settings S25
Center sends:
*HQ,0000000000,S25,130305#
Terminal returns:
*HQ,2020916012,V4,S25,130305,050316,A,2212.8745,N,11346.6574,E,14.28,028,2
20902,FFFFFBFF#

10)Remote fortification command S6
*XX,YYYYYYYYY,S6,HHMMSS,flag1,flag2#
fag1: Fortification and disarming flag 1, '0' express fortification '1' express disarming.
fag2: Fortification and disarming flag 2, '0' express fortification '1' express disarming.
*HQ,7893267561,S6,181014,0,0# Fortification
　　*HQ,7893267561,S6,181114,1,1# disarming

11) set the transmission interval S17

For example:*HQ,0000000000,S17,130305,165,165,33,250,8800,5# ;

12. start cut off fuel and electric S20

* XX, YYYYYYYYY, S20, HHMMSS, C, time1, time2,...Time30 #
C: the ultimate power
C = 0: dynamic cut off fuel and electric.detect the engine instantaneous operation, cut off the circuit 5 seconds when the engine is running , forcing the engine stopped.
C = 1 or other digital: static cut off fuel and electric. Engine is not detected, the power relay a lways suck close that Circuit is disconnected.
Dynamic cut off electric does not consume battery power, the engine must be connected to the signal (charge indicator) .
If you don't want to connect the signal of engine can use the way of static cut off fuel and ele ctric.
When the early warning alert, ban to start engine function way is only use dynamic cut off fu el and electric, so if you want to support a fortification function (handle or fortify the remote control)
must be connected to the engine signals.
Time: the duration of the action, scope 1 ~ 30, units are seconds, outside the range as5
Example:*TH,0000000000,S20,130305,1,3,10,3,5,5,3,5,3,5,3,5# ;
Car receiver first check set_flag after receiving the command , if it not support off the oil, wi ll return information directly
*TH,2020916012,V4,S20,ERROR,130305,050316,A,2212.8745,N,11346.6574,E,14.28,028, 220902,FFFFFBFF#

Restore the cutting of oil set the the time1 on S20 command as the "0" , It will reply :
    *TH,2020916012,V4,S20,OK,130305,050316,A,2212.8745,N,11346.6574,E,14.28,028,220902,F FFFFBFF#

GPRS New Agreement 140108

English Address Request Protocol (terminal requests):
* XX, YYYYYYYYY, VI1, HHMMSS, S, latitude, D, longitude, G, speed, direction, DDMMYY, vehicle_status, net_mcc, net_mnc, net_lac, net_cellid #
English address returned protocol (server sends down):
* HQ, 4106000054, I1_2_EN, 130305,10,1,9, test12345

Chinese Address Request Protocol (terminal requests):
* XX, YYYYYYYYY, V2, HHMMSS, S, latitude, D, longitude, G, speed, direction, DDMMYY, vehicle_status, net_mcc, net_mnc, net_lac, net_cellid #
Chinese address returned protocol (server sends down):
* HQ, 4106000054, I1, 130305,10,1,4, 5e 7f 4e 1c

net_mcc, net_mnc, net_lac, net_cellid # 460,01,43559,344224 #

Standard mode upload data to increase the base station location information:

    Encoding format：

No.	00	01	02	03	04	05	06	07	08	09	0A	0B
Content	$	0x1030731001					0x050316			0x220902		
Meaning	Recording Head	Automotive Machine Serial Number					Time			Date		

No.	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18
Content	0x22128745				0x00	0x113466574C					0x014028		
Meaning	Latitude				battery voltage	Longitude values、N、E、AV					Speed, direction		

No.	19~1C	1D,1E	1F	20	21~24	25	26	27
Content	0Xfffffbff	0xff			0x00001234	0x01CC		0x01
Meaning	vehicle_status	Usr_alarm_flag	GSM signals (1 to 31)	GPS signal	GPS units km mileage	Country code		Operators Number

No.	28	29	2A	2B	2C
Content	0x8763		0x5B9C		0x00
Meaning	Station No.		Cell ID		Record number

GPS Mileage field, four-byte units kilometers
Eg: 0x00001234 indicates 0x1234 = 4660 Kilometers
Mileage Calibration: * HQ, 000, S32, 130305,1234 #
Initial calibration mileage: 0x1234 = 4660 Kilometers

Repay the data in the field is invalid

Base station information
Country code, 460 = 0x01CC
Operator number, 01 = 0x01
Station number, 34569 = 0x8763
Cell ID, 23452 = 0x5B9C

Upload V1 on-line information and data when the device or alarm

*XX,YYYYYYYYYY,V1,HHMMSS,S,latitude,D,longitude,G,speed,direction,DDMMYY,vehicle_status#

Including: * Command head

XX manufacturer names, such as: TH, DC, XY and so on.

Delimiter

YYYYYYYYYY automotive machine serial number.

CMD command center confirmed.

hhmmss time value is recognized in the command

HHMMSS automotive machine time, standard time, an 8-hour time difference with Beijing.

S: the data valid bit (A / V), A indicates that the GPS positioning data is valid data, V data indicates that the GPS positioning data is not valid.

latitude: degrees latitude (00 ~ 90), FF.FFFF:: Latitude, format DDFF.FFFF, DD latitude (00.0000 - 59.9999), retained four decimal places.

D: Latitude flag (N: latitude, S: latitude).

longitude: longitude format DDDFF.FFFF, DDD: degrees longitude (000 ~ 180), FF.FFFF: Longitude (00.0000 - 59.9999), retained four decimal places.

G: longitude mark (E: E, W: W).

speed: speed, range of 000.00 - 999.99, to two decimal places.

The information field may be empty ie longitude, G,, direction,, indicates the speed is zero.

direction: azimuth, true north as 0 degrees, 1 degree resolution, clockwise.

The information field may be empty, such as longitude, G, speed,, MMDDYY,, represents the angle is 0.

DDMMYY: Day / Month / Year

vehicle_status: vehicle condition, a total of four bytes, which means that the state of automotive machine parts, vehicle parts status and alarm status. Hexadecimal values represent ASCII characters, the following is the specific meaning of each bit of each byte of the variable, bit representation using negative logic that bit = 0 is valid. As follows:

Rank		Retention		Automotive machine components status		State vehicle parts		Alarm status
		First Byte		Second Byte		Third Byte		Fourth Byte
0	0	Temple	0	GPS mistake alarm	0	Door open	0	Door open alarm
1	0	Move alarm	0	Shock alarm	0	Armed	0	sos
2	0	Blind record alarm	0	Keep	0	ACC off	0	Speed alarm
3	1	Keep	0		0		0	
4	0		1	Keep	0		1	Keep
5	1	Keep	1	Keep	0		1	Keep
6	1	Retention	1	Keep	1		1	Keep
7	1	Need not	1	Need not	1	Need not	1	Need not

Explain: "$" (0x24):record head,for indentify the start position.

Time:0x050316,means 05:03:16

Date:0x220902, means 2002/09/22

longtitude: 0x22128745, 22° 12.8745

latitude: 0x113466574C, 113° 46.6574, last bytes of (no.0x15):

bit7654, last of longtitude

bit3, 1: E, 0: W

bit2, 1: N, 0: S

bit1, 1: A, 0: V

bit0, no define

Speed,direction:0x014028 speed 014; direction 208