

Locator protocol

I- Registration information :

***HQ,YYYYYYYYYY,V1,HHMMSS,S,latitude,D,longitude,G,speed,direction,DDMMYY,vehicle_status, Countries,operator,Base station,Cell ID,cell#**

Confirmation information:

***HQ,YYYYYYYYYY,V4,V1,DDMMYYHHMMSS#**

Among them: * command header

HQ Manufacturer name.

, delimiter

YYYYYYYYYY device serial number.

CMD: Confirmed central command.

hhmmss: The time value in the confirmed command

HHMMSS: Device time, standard time, 0 time zone.

S: Data valid bit (**A/V**), **A**: Indicates that the GPS data is valid positioning data, and **V**: indicates that the GPS data is invalid positioning data.

latitude: Latitude, format **DDFF.FFFF**, **DD**: degree of latitude (00 ~ 90), **FF.FFFF**: minutes of latitude (00.0000 ~ 59.9999), Retain four decimal places.

D: Latitude sign (**N**: north, **S**: south).

longitude: Longitude, format **DDFF.FFFF**, **DDD**: degrees of longitude (000 ~ 180),

FF.FFFF: minutes of longitude (00.0000 ~ 59.9999), Four decimal places are reserved. **G**: Longitude sign (**E**: east longitude, **W**: west longitude).

speed: Speed, Range 000.00 ~ 999.99 Section, two decimal places.

This information field may be empty i.e. **longitude,G,,direction,,** Indicates a speed of 0.

direction: Azimuth, 0 degrees due north, 1 degree resolution, clockwise.

This information field may be empty like **longitude,G,speed,, MMDDYY,,** Indicates that the angle is 0.

DDMMYY: Day/month/year

vehicle status: Status, a total of four bytes, indicating the status of equipment components and alarm status, etc... ASCII characters are used to represent the hexadecimal value, and the following is the specific meaning of each bit of each byte in this variable. bit indicates that negative logic is used, i.e., bit=0 is valid. As shown in the table below:

The last field of ASCII information is power information

Countries,operator,Base station,Cell ID: Base station data (negligible)

Cell: Power, range 1-6, 6=100%, 5=80%, 4=60%, 3=40%, 2=20%, 1=5% (platforms parsing percentages by data)

Example:

***HQ,4105000037,V1,080526,V,2234.0612,N,11351.7667,E,000.00,243,160519,FFFFFF9FF,460,00,ff64,0,6#**

Confirm response: ***HQ,4105000037,V4,V1,20190516080537#**

II- GPS information transmission protocol coding format:

Serial No.	00	01	02	03	04	05	06	07	08	09	0A	0B
Details	\$	0x1030731001					0x050316			0x220902		
Meaning	Recording head	Device Serial No.					Times			Date		

Serial No.	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18
Details	0x22128745				0x00	0x113466574C					0x014028		
Meaning	latitude value				battery level	Longitude values, N, E, AV					Speed, direction		
Serial No.	19~1C		1D-1E		1F	20	21~24		25	26	27		
Details	0Xffffbfff		0xff				0x00001234		0x01CC		0x01		
Meaning	vehicle_status		Usr_alarm_flag		GSM code (1~31)	Beidou and GPS signals	GPS Mileage in KM		country code		Carrier number		

Serial No.	28	29	2A	2B	2C 2D	2E
Details	0x8763		0x5B9C		0x0123	0x00
Meaning	BTS number		Cell ID		Mains voltage	record number

Description: "\$" (0x24): Record header for the center to identify the record start position;

Time: **0x050316, 5:3:16** Standard Time, equivalent to 13:3:16 BST;

Date: **0x220902, September 22, 2002**

Latitude value: 0x22128745, 22 degrees 12.8745

Power: 1-6 range, 6=100%, 5=80%, 4=60%, 3=40%, 2=20%, 1=5% (the platform parses percentages according to data)

Longitude value: 0x113466574C, 113 degrees 46.6574, last byte (serial number 0x15)

Meaning:

bit7654, last bit of longitude

bit3, 1: east longitude, 0: west longitude

bit2, 1: north latitude, 0: south latitude

bit1, 1: A, 0: V

bit0, undefined

Speed, direction: 0x014028: speed 014 knots (in nautical miles), direction 028 (360 degrees clockwise from due north)

vehicle_status, Usr_alarm_flag: vehicle status and user-defined alarm status in binary representation. Meaning is the same as SMS (ASCII representation).

Usr_alarm_flag: ignorable

Country code, operator number, BTS number, cell ID: can be ignored.

Record_number: Binary record number, automatically add 1 for each record sent.

Example:

2441050000370810041605192234061206113517667C000243FFFD9FEFF0015000000000001CC00FF6
4000000000A

III- Base station protocols

*HQ, YYYYYYYYYY, NBR, HHMMSS, MCC, MNC, TA, NUM, LAC, CID, RXLEV
, LAC, CID, RXLEV..., DDMMYY, vehicle_status, cell#

Confirmation information:

*HQ, YYYYYYYYYY, V4, NBR, DDMMYYHHMMSS#

HQ: manufacturer
YYYYYYYYYY: ID
HHMMSS: Time
MCC Country code MCC (3 digits)
MNC Network number MNC (3 digits)
NUM Number of base stations, up to 6
TA GSM time delay
LAC Location Area Code LAC (5 bits)
CID Base station number CID (5 digits)
RXLEV Signal strength
DDMMYY Date
vehicle_status (see <General Data Definition>)
Cell:Power, same as V1

Example:

*HQ, 7893267560, NBR, 081606, 460, 0, 1, 4, 9338, 3692, 150, 9338, 3691, 145, 9338, 3690, 140,
9338, 3692, 139, 220513, FFFFBFF, cell#
Platform Response: *HQ, 7893267560, NBR, V1, 081606#

IV. vehicle_status: status

1. Personal

bitmap	first byte		second byte		third byte		fourth byte	
0	0		0		0		0	
1	0		0		0		0	SOS alarm
2	0		0		0		0	
3	0		0		0		0	
4	0		0		1		0	
5	0		0		0		0	
6	0		0		0		0	
7	0		0	Low battery alarm	0		0	

Platform clear alarm command:

*HQ, YYYYYYYYYY, R7, HHMMSS #
example: *HQ, 000000, R7, 130305#

When the device receives the command, it will clear all the alarms, but will not send the return message, the monitoring system can additionally send a single monitoring command to confirm whether the alarms have been cleared.

Example: *HQ,4105000037,R7,081006#

V. Command List

Serial No.	Name	GPRS commands	Reply	Explanation
1	fortify	*HQ,4209556607,S6,180305,2#	*HQ,4209556607,V4,S6,031738,2# *HQ,4209155934,V4,S6,030231,DONE,030232,V,0000.0000,N,00000.0000,E,000.00,000,220519,FFFFFF9FF,460,00,ff64,0,6#	Defensive state is the condition of vibration alarm, disarming state produces vibration, there is no vibration alarm, after the command is issued, the device responds and then immediately sends back a GPS data or heartbeat packet (data in the state can be).
2	disarm	*HQ,4209556607,S6,180305,3#	*HQ,4209556607,V4,S6,031738,3# *HQ,4209155934,V4,S6,030312,DONE,030310,V,0000.0000,N,00000.0000,E,000.00,000,220519,FFFFFFBFF,460,00,ff64,0,6#	
3	Pass oil	*HQ,4209556607,S20,095517,1,0#	*HQ,4209556607,V4,S20,031738,1,0# *HQ,4209155934,V4,S20,OK,030816,030817,V,0000.0000,N,00000.0000,E,000.00,00,220519,FFFFFFBFF,460,00,ff64,0,6#	This function is limited to the wiring of the vehicle equipment, after the command is issued, the device will answer and then immediately return a GPS data or heartbeat packet (data in the state can be).
4	Cut off oil	*HQ,4209556607,S20,095517,1,1#	*HQ,4209556607,V4,S20,031738,1,1# *HQ,4209155934,V4,S20,DONE,030746,030745,V,0000.0000,N,00000.0000,E,000.00,000,220519,FFFFFFBFF,460,00,ff64,0,6#	
5	Upload frequency	*HQ,4209556607,S71,031738,22,20#	*HQ,4209556607,V4,S71,031738,22,20#	Unit: second, range 10S-43200S, default 20S, tracking mode within 600S (including 600S), 601S timer mode
6	tracking mode Car default	*HQ,4209556607,S71,085902,16,A,5#	*HQ,4209556607,V4,S71,031738,16, A, 5#	The device is judged by the acceleration sensor, there is a vibration to wake up the device to work, no vibration into sleep (continuous vibration of 3S), the
7	Power saving standby mode	*HQ,4209556607,S71,085902,16,C,5#	*HQ,4209556607,V4,S71,092918,16,C,5#	The device is always in hibernation mode and is woken up for work by a roll call command (5 minutes of hibernation) independent of the acceleration sensor.
8	Dismantle/ SOS on	*HQ,4209556607,S71,085902,09,3#	*HQ,4209556607,V4,S71,085902,09,3#	
9	Dismantlin g/SOS Off	*HQ,4209556607,S71,085902,09,0#	*HQ,4209556607,V4,S71,085902,09,0#	

10	Remote Reboot	*HQ,4210535622,R1,031924#	*HQ,4210535622,R1,031924#	
11	factory restore	*HQ,4210535622,S71,031847,13,format#	*HQ,4210535622,V4,S71,031847,13#	IP and domain name cannot be restored
12	roll call command	*HQ,4210535622,S71,085902,16,F,10#	*HQ,4210535622,V4,S71,085902,16,F,10#	

Note: Heartbeat packet / base station data to *HQ beginning # end, GPS data packet to 24 (\$) beginning, the length of a fixed 47-byte.

This agreement integrates all the products of the agreement, such as the use of the data cannot be ignored!