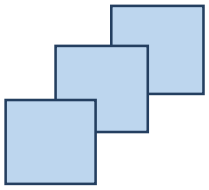
FIFOTRACK GPRS PROTOCOL/ COMMAND LIST



Model: S50

Version: V1.8

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Document History

Version	Revision Date	Author	Detail
V1.8	Jun 21, 2021	Vito Hu	Add alm-code 44, 45, 46, 47
V1.7	Apr 6, 2021	Vito Hu	Modify data format of latitude/longitude field in *B20* Add *B15* Add HDOP in *gprs.status* field
V1.6	Nov 9,2020	Vito Hu	Add *S09*, *B80*, *B81* Add GPRS heartbeat *A10* format, *C11* format Modify *B34*
V1.5	Feb 24, 2020	Vito Hu	Add *spd-ltm* field in *B20* command Add *spd-src* field for over speed alarm (alm-code: *18*) Add alm-code *42*
V1.4	Oct 23, 2019	Vito Hu	Add *B18* command
V1.3	Sep 27, 2019	Vito Hu	Add *S11*, *C07* command Add *buz-tip* for *B21* command Modify *B34* command
V1.2	July 3, 2019	Vito Hu	Delete *parking_tmr* field in *B03* command Delete *parking_roam_tmr* field in *B04* command
V1.1	Jun 11, 2019	Vito Hu	Initial Version

Contents

1 GPRS Command Format

GPRS uplink (i.e.: Data is sent from tracker to platform) command format:

$$<pack-len>,<ID>,<work-no>,<cmd-code>,<cmd-para>*<checksum>\r\n

GPRS downlink (i.e.: Data is sent form platform to tracker) command format:

##<pack-len>,<ID>,<work-no>,<cmd-code>,<cmd-para>*<checksum>\r\n

Remarks:

- Comma (,) is used to separate data fields, and it is necessary. There is no space before or after comma.
- pack-len: Package Length, decimal string format, the field of *pack-len* is {,*<ID>,<work-no>,<cmd-code>,<cmd-para>*}, be careful, comma(,) in front of *ID* included.
- ID: Tracker ID, default IMEI.
- work-no: working number, hexadecimal string format, cyclic accumulation from 1 to 0xFFFF.
- cmd-code: Command code, or specification of data type.
- cmd-para: parameter or description of *cmd-code*, which is described in the following chapters.
- checksum: checksum of package, 2 bytes hexadecimal string format, XOR of {*<pack-len>,<ID>,<work-no>,<cmd-code>,<cmd-para>*}.
- \r\n: End of package, i.e. <CR><LF>.
- Without specification, multi-byte binary data in *cmd-para* uses big endian format, i.e. Most Significant Byte first.

2 SMS Command Format

Sending SMS (from mobile to tracker) command format:

<password>,<cmd-code>,<cmd-para>

Reply SMS (from tracker to mobile) data format:

<cmd-code>,<proc-result>

01 password: SMS password, 6 digits, default “000000”.

02 cmd-code: command code, the same as *cmd-code* filed in GPRS command.

03 cmd-para: command parameter, the same as *cmd-para* filed in GPRS command.

04 proc-result: command process result

OK – Succeed.

05 SMS command with invalid password, or with incorrect format, no reply will be sent.

3 Serial port (COM) Command Format

Setting command format:

#<cmd-code>,<cmd-para><CR><LF>

Reply data format

#<cmd-code>,<proc-result><CR><LF>

cmd-code, cmd-para: the same as corresponding fileds of GPRS/SMS command.

proc-result: COM command procession result

OK – Succeed.

UNSUPPORT – Command not supported.

FAILED –Procession failed.

4 Command Writing Specification

- Comma (,) is used to separate multi-filed, there is no space before and after comma.
- For command with multi parameters, filed(s) can be empty, the corresponding parameter is set to default.
- The following chapters describe *cmd-code* and *cmd-para*.
- The “Retrieve” row in the following chapters describes the corresponding query command.

5 GPRS Data Format

5.1 A01 -- GPS Position/Alarm Data Format

$$<pack-len>,<ID>,<work-no>,A01,<alm-code|alm-para>,<date-time>,<fix_flag>,<latitude>,<longitude>,<speed>,<course>,<altitude>,<odometer>,<runtime>,<status>,<input-st>,<output-st>,MCC|MNC|LAC|CI,bat-ad|ext-ad|ad1…adN,<rfid_data>,<digital-sensor>*<checksum>\r\n

Descriptions of position/alarm data:

Example: $$263,863835029419947,29,A01,,170705072751,A,22.621798,114.036116,57,0,126,1627,404,A012007A,02,0,460|0|24A4|F82,A33|13C|0,% ^SUKSAWADDEE$SAITHARN$MISS^^?;6007643100500157891=150619800909=?+ 24 2 0004552 00100 ?,*62	
Filed	pack-len
Description	decimal string format, the field of *pack-len* is {,*<ID>,<work-no>,A01,<alm-code|alm-para>,<date-time>,<fix_flag>,<latitude>,<longitude>,<speed>,<course>,<altitude>,<odometer>,<runtime>,<status>,<input-st>,<output-st>,MCC|MNC|LAC|CI,bat-ad|ext-ad|ad1…adN,<rfid_data>,<digital-sensor>*}, be careful, comma(,) in front of *ID* included.
Example	263
Filed	ID
Description	Tracker ID, default IMEI, ASCII string
Example	863835029419947
Filed	work-no
Description	working number, hexadecimal string format, cyclic accumulation from 1 to 0xFFFF
Example	29, indicates that the value of *work-no* is 0x0029
Filed	alm-code|alm-para
Description	Alarm code and alarm parameter, refer to Appendix A; For normal position data, this field is empty.
Example	Empty, the package is a normal position one.
Filed	date-time
Description	UTC-0 date & time, in format: YYMMDDHHmmss 01 YY: year, value(year – 2000), 2 characters 02 MM: month, value range 1--12, 2 characters 03 DD: day, value range 1--31, 2 characters 04 HH: hour, value range 0--23, 2 characters 05 mm: minute, value range 0-59, 2 characters

	06 ss: second, value range 0--59, 2 characters
Example	170705072751, which means 2017-07-05 07:27:51
Filed	fix_flag
Description	GPS Status flag, A--valid, V--invalid
Example	A, means that GPS signal is valid
Filed	latitude
Description	Latitude, negative in southern hemisphere, decimal string format
Example	22.621798
Filed	longitude
Description	Longitude, negative in western hemisphere, decimal string format
Example	114.036116
Filed	speed
Description	Unit km/h, decimal string format
Example	57, means 57km/h
Filed	course
Description	Running direction, unit degree, clockwise angle, decimal string format
Example	0
Filed	altitude
Description	Altitude, unit meter, decimal string format
Example	126, means 126m
Filed	odometer
Description	Unit meter, decimal string format
Example	1627, means odometer 1627 m
Filed	runtime
Description	Service time, unit second, decimal string format
Example	404, means 404 s
Filed	status
Description	Alarm status or vehicle status, hexadecimal string format, as the following table:

bit	definition	description
0	GPS antenna cut	Clear when antenna re-connect
1	Ext-power low voltage	Clear when voltage normal
2	Ext-power lost	Clear when ext-power re-connect
3--7	CSQ	GSM signal strength, range [0,31]
8	Fatigue Driving	Clear when fatigue relieve
9	Parking Overtime	Clear when auto starts running
10	Idling Running	Clear when auto starts running or ACC OFF
11-15	Reserve	

	17--26	Reserve	GPS HDOP, unit 0.1
	27	Reserve	
	28—31	satellite number	satellite number, range [0,12], update from GPS module data
Example	A012007A: Ext-power low voltage, satellite number 10, GSM signal strength 15, HDOP 0.9		
Filed	input-st		
Description	state of input, hexadecimal string format: bit[0] – Reserved for future bit[1] – input2 status; bit[2]~bit[6] -- Reserved bit[7] – Vehicle battery protection for low voltage		
Example	02, means input2 is active		
Filed	output-st		
Description	state of output, hexadecimal string format: bit[0] – output1 status; bit[1]~bit[7] -- Reserved for each bit, 1- output exports high level, 0- output exports low level		
Example	0, means ALL output exports low level		
Filed	MCC|MNC|LAC|CI		
Description	Mobil base station information. '|' is used to separate each data. MCC, MNC: decimal string format LAC, CI: hexadecimal string format		
Example	460|0|24A4|F82 : Value of MCC is 460; Value of MNC is 0; Value of LAC is 0x24A4; Value of CI is 0xF82;		
Filed	bat-ad|ext-ad|ad1…adN		
Description	Sample data of AD input, value range[0,0x1000], hexadecimal string format; Using "|" to separate each data; bat-ad: Sample value of internal battery voltage ext-ad: Sample value of ext-power voltage Formula (Convert hex to decimal first)- bat=(X*3.3*2)/4096, unit: V ext= (X*3.3*48)/4096, unit: V ad1 … adN: Sample value of AD1 … ADN input, for S50, one analog input supported		
Example	A33|13C|0: Sample value of battery is 0x0A30, which corresponds to 4.20V; Sample value of ext-power is 0x013C, which corresponds to 12.22V;		

	Sample value of AD1 is 0x0000;
Filed	rfid_data
Description	Data of magnetic card; Tracker picks all TRACKs, and attaches here TRACK #1: Start with '%', while end with '?' TRACK #2: Start with ';', while end with '?' TRACK #3: Start with '+'; while end with '?' There is no other character between TRACKs
Example	% ^SUKSAWADDEE$SAITHARN$MISS^^?;6007643100500157891=150619800909=? + 24 2 0004552 00100 ?
Filed	digital-sensor
Description	Digital sensor data, for tracker supports multiple sensors, there will be multiple data here, using "|" to separate neighboring ones. S50 doesn't support digital temperature sensor, as a result, *digital-sensor* field is empty.
Example	Empty
Field	checksum
Description	checksum of package, 2 bytes hexadecimal string format, XOR of {*<pack-len>,<ID>,<work-no>,A01,<alm-code|alm-para>,<date-time>,<fix_flag>,<latitude>,<longitude>,<speed>,<course>,<altitude>,<odometer>,<runtime>,<status>,<input-st>,<output-st>,MCC|MNC|LAC|CI,bat-ad|ext-ad|ad1…adN,<rfid_data>,<digital-sensor>*}.
Example	62 The XOR checksum is 0x62
Field	\r\n
Description	End of package, i.e. <CR><LF>
Example	\r\n

5.2 A10 – GPRS Heartbeat Data Format

$$<pack-len>,<ID>,<work-no>,A10,<status>,<bat-ad|ext-ad>*<checksum>\r\n

Descriptions of position/alarm data:

<table>
<tr><td colspan="2">Example:
$$33,863835029419947,36,A10,2,190|46C*60\r\n</td></tr>
<tr><td>Field</td><td>pack-len</td></tr>
<tr><td>Description</td><td>decimal string format, the field of <u>pack-len</u> is {,<ID>,<work-no>,A10,<status>,<bat-ad|ext-ad>}, be careful, comma(,) in front of <u>ID</u> included.</td></tr>
<tr><td>Example</td><td>33</td></tr>
<tr><td>Field</td><td>ID</td></tr>
<tr><td>Description</td><td>Tracker ID, default IMEI, ASCII string</td></tr>
<tr><td>Example</td><td>863835029419947</td></tr>
<tr><td>Field</td><td>work-no</td></tr>
<tr><td>Description</td><td>working number, hexadecimal string format, cyclic accumulation from 1 to 0xFFFF</td></tr>
<tr><td>Example</td><td>36, indicates that the value of <u>work-no</u> is 0x0036</td></tr>
<tr><td>Field</td><td>A10</td></tr>
<tr><td>Description</td><td>Data type specification, which is used to define GPRS heartbeat package format.</td></tr>
<tr><td>Example</td><td></td></tr>
<tr><td>Field</td><td>status</td></tr>
<tr><td>Description</td><td>Alarm status or vehicle status, hexadecimal string format, as the following table:
<table>
<tr><td>bit</td><td>definition</td><td>description</td></tr>
<tr><td>0</td><td>GPS antenna cut</td><td>Clear when antenna re-connect</td></tr>
<tr><td>1</td><td>Ext-power low voltage</td><td>Clear when voltage normal</td></tr>
<tr><td>2</td><td>Ext-power lost</td><td>Clear when ext-power re-connect</td></tr>
</table></td></tr>
<tr><td>Example</td><td>2, responses to $(0010)_B$, means Ext-power low voltage</td></tr>
<tr><td>Field</td><td>bat-ad|ext-ad</td></tr>
<tr><td>Description</td><td>Voltage of internal battery and external power, using “|” to separate each data;
bat-ad: Voltage of internal battery, unit 0.01V
ext-ad: Voltage of ext-power voltage, unit 0.01V</td></tr>
<tr><td>Example</td><td>190|46C:
Voltage of battery is 0x01A0, i.e. 4.00V
Voltage of ext-power is 0x054D, i.e. 11.32V;</td></tr>
<tr><td>Field</td><td>checksum</td></tr>
<tr><td>Description</td><td>Checksum of package, 2 bytes hexadecimal string format, XOR of {<u><pack-len>,<ID>,<work-no>,A10,<status>,<bat-ad|ext-ad></u>}.</td></tr>
</table>

Example	60 The XOR checksum is 0x60
Field	\r\n
Description	End of package, i.e. <CR><LF>
Example	\r\n

5.3 C11 – Received-SMS Uploading Package Format

$$<pack-len>,<ID>,<work-no>,C11,<datetime>,<phone-num>,<sms-content>*<checksum>\r\n

Descriptions of position/alarm data:

Example: $$63,863835029419947,6BD,C11,201109085404,+8615817213914,000000,C06*34\r\n	
Field	pack-len
Description	decimal string format, the field of *pack-len* is {,<ID>,<work-no>,C11,<datetime>,<phone-num>,<sms-content>}, be careful, comma(,) in front of *ID* included.
Example	63
Field	ID
Description	Tracker ID, default IMEI, ASCII string
Example	863835029419947
Field	work-no
Description	working number, hexadecimal string format, cyclic accumulation from 1 to 0xFFFF
Example	6BD, indicates that the value of *work-no* is 0x06BD
Field	C11
Description	Data type specification, which is used to define received SMS content package format.
Example	
Field	datetime
Description	UTC-0 date & time, in format: YYMMDDHHmmss 01 YY: year, value(year – 2000), 2 characters 02 MM: month, value range 1--12, 2 characters 03 DD: day, value range 1--31, 2 characters 04 HH: hour, value range 0--23, 2 characters 05 mm: minute, value range 0-59, 2 characters 06 ss: second, value range 0--59, 2 characters
Example	201109085404, 2020-11-9 08:54:04 @UTC-0
Field	phone-num
Description	Sender's number of the received SMS
Example	+8615817213914: Sender's number is "+8615817213914"
Field	Sms-content
Description	Content of the received SMS, ASCII or UNICODE
Example	000000,C06: SMS content is "000000,C06"
Field	checksum
Description	Checksum of package, 2 bytes hexadecimal string format, XOR of {*<pack-len>,<ID>,<work-no>,C11,<datetime>,<phone-num>,<sms-content>*}.
Example	34 The XOR checksum is 0x34

Field	\r\n
Description	End of package, i.e. <CR><LF>
Example	\r\n

6 Command List

B00 – Setting GPRS Parameters	
Source	GPRS/COM/SMS
Description	B00,<svr_type>,<net_addr>,<net_port> 01 svr_type: server selection, 1--main server, 2--backup server; When the connection to main server cannot be reached, tracker will automatically connect to the backup server. This avoids data losses. 02 net_addr: server IP or domain. 03 net_port: server port.
Reply	B00,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B00,1, 47.88.35.165,10502 01 Set main server: IP-47.88.35.165, port-10502.
Retrieve	C04,B00,<svr_type> 01 svr_type: server selection, the same as *svr_type* field in setting command.

B01 – Setting GPRS APN Parameters	
Source	GPRS/COM/SMS
Description	B01,<apn_name>,<apn_usr>,<apn_pwd> 01 apn_name: APN name. 02 apn_usr: APN user name. 03 apn_pwd: APN password. 04 Leave *apn_usr*, *apn_pwd* field empty, if no APN username and APN password exist. 05 Contact to local ISP for APN detail.
Reply	B01,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B01,cmnet 01 Set APN name to “cmnet”, APN login username and password empty.
Retrieve	C04,B01

B02 – Setting GPRS Link Protocol	
Source	GPRS/COM/SMS
Description	B02,<link_type> 01 link_type: Link protocol, value “TCP” or “UDP”. 02 default TCP protocol.
Reply	B02,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B02,TCP 01 Set link protocol to TCP.
Retrieve	C04,B02

B03 – Setting Tracking Time Interval	
Source	GPRS/COM/SMS
Description	B03,<basic_tmr>,<accoff_tmr> 01 basic_tme: normal time interval, unit s. 02 accoff_tmr: time interval when ACC OFF, unit s, default 0s. 03 When *accoff_tmr* is set to 0, tracker uploads position data every *basic_tmr* seconds
Reply	B03,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B03,30 01 Set timing tracking interval to 30s, tracker uploads position data every 30s.
Retrieve	C04,B03

B04 – Setting Roaming Tracking Time Interval	
Source	GPRS/COM/SMS
Description	B04,<roam_tmr>,<accoff_roam_tmr> 01 roam_tmr: roaming time interval, unit s, default 0s. 02 accoff_roam_tmr: roaming time interval when ACC OFF, unit s, default 0s. 03 When *accoff_roam_tmr* is set to 0, tracker uploads position data every *roam_tmr* seconds under roaming status
Reply	B04,<err_code> 01 err_code: procession error code. OK – Succeed.

	UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B04,3600 01 Set timing tracking interval to 3600s while roaming.
Retrieve	C04,B04

B05 – Setting Distance Tracking Interval

Source	GPRS/COM/SMS
Description	B05,<basic_dst> 01 basic_dst: Distance tracking interval, unit meter. 02 Distance tracking is independent from timing tracking.
Reply	B05,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B05,100 01 Set distance tracking to 100m.
Retrieve	C04,B05

B07 – Setting the Direction Change Upload

Source	GPRS/COM/SMS
Description	B07,<course> 01 course: direction change angle, unit degree, range 0--359, default 20. 02 When *course* is set to 0, direction change upload is disabled. 03 When driving direction change exceeds the setting value, tracker will upload a position data for supplement.
Reply	B07,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B07,30 01 Set direction change angle to 30^{o}.
Retrieve	C04,B07

B08 – Setting Speeding Alarm

Source	GPRS/COM/SMS

Description	B08,<speeding>,<buzzer_on> 01 speeding: speed, unit km/h, default 0. 02 buzzer_on: 0~Disable buzzer for speeding alarm; 1~Enable buzzer, when speeding, buzzer on, till speed returns below the setting value. Default, speeding buzzer is enabled. 03 When *speeding* is set to 0, speeding alarm is disabled. 04 Use magnetic card reader's internal buzzer.
Reply	B08,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B08,90 01 Set speed limit to 90km/h, buzzer will be on when speeding.
Retrieve	C04,B08

B10 – Setting SMS Password

Source	GPRS/COM/SMS
Description	B10,<sms_pwd> 01 sms_pwd: SMS password, 6 digits, default "000000".
Reply	B10,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B10,472627 01 Set SMS password to "472627". B10,47262A 01 Invalid command, because SMS password needs to be a 6 digits string.
Retrieve	C04,B10

B11 – Setting SOS Number

Source	GPRS/COM/SMS
Description	B11,<sos_num1>,<sos_num2>,<sos_num3> 01 sos_num1, 2, 3: SOS numbers to be set; 3 numbers can be set at most. 02 Refer to *B23* for the function of SOS number(s).
Reply	B11,<err_code> 01 err_code: procession error code. OK – Succeed.

	UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B11,15698210011,,15698210200 01 Set *sos_num1* to 15698210011, *sos_num2* to empty, *sos_num3* to 15698210200.
Retrieve	C04,B11

B12 – Output Control

Source	GPRS/COM/SMS
Description	B12,<index>,<action>,<safe_speed> 01 index: out port selection, value 1, 2, 3… etc.. 02 action: Output control, 0~output low level, 1~output high level. 03 safe_speed: speed limit, unit km/h, range 1~300; when this parameter is set to 0, or this filed is empty, output control takes effect immediately; Other value, set the speed limit for output control. When the driving speed is lower than the speed limit, the output control takes effect.
Reply	B12,<err_code> 01 err_code: error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED –Processing failed.
Example	B12,1,1,20 01 Set OUT1 to output high level when speed less than 20km/h.
Retrieve	UNSUPPORT

B13 – Pulse Output Control

Source	GPRS/COM/SMS
Description	B13,<index>,<on_time>,<off_time>,<pls_cnt> 01 index: out port specification, value 1, 2, 3… etc.. 02 on_time: Duration of high level, unit ms. 03 off_time: Duration of low level, unit ms. 04 pls_cnt: Pulse number.
Reply	B13,<err_code> 01 err_code: error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED –Processing failed.
Example	B13,1,1000,1000,10 01 Set OUT1 to output 10 pulse, whose high level duration 1000ms, low level duration 1000ms.
Retrieve	UNSUPPORT

B14 – Setting SMS Time Zone	
Source	GPRS/COM/SMS
Description	B14,<tzone> 01 tzone: time zone, range [-12, 12]. 02 Default value of *tzone* is 0. 03 When SMS time zone is set, all tracking/alarm SMS use *tzone* for date & time. 04 GPRS data uploading uses UTC-0 time zone.
Reply	B14,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B14,-8
Retrieve	C04,B14

B15 – Setting Sleep Mode	
Source	GPRS/COM/SMS
Description	B15,<gsm-slp-mode>,<gps-slp-mode> 01 gsm-slp-mode: sleep mode of GSM module, 0~normal mode (default), tracker can receive incoming phone or SMS; 1~deep sleep, GSM module power off. 02 gps-slp-mode: sleep mode of GPS module, 0~normal mode (default), GPS module power off when entering sleep mode; 1~No sleep, GPS module works always 03 When GPRS interval larger than 10mins, tracker enters sleep mode
Reply	B15,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	
Retrieve	C04,B15

B16 – Setting Initial Mileage and Initial Runtime	
Source	GPRS/COM/SMS
Description	B16,<init_mile>,<init_runtime> 01 init_mile: initial mileage, unit meter, default 0m, range [0, 4294967296] 02 init_runtime: initial runtime, unit s, default 0s, range [0, 4294967296]
Reply	B16,<err_code> 01 err_code: error code.

	OK – Succeed. UNSUPPORT – Command not supported. FAILED –Processing failed.
Example	B16 01 Set both initial mileage and runtime to 0
Retrieve	C04,B16 01 The retrieved value is current mileage and current runtime, not the setting ones.

B17 – Clear Blind Data

Source	GPRS/COM/SMS
Description	B17,<data_type> 01 data_type: blind data type. 1 – GPRS Blind. 2 – SMS blind. 3 – Both GPRS and SMS blind.
Reply	B17,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B17,3 01 Clear both GPRS and SMS blind data.
Retrieve	UNSUPPORT

B18 – Setting Smart IO Working Mode

Source	GPRS/COM/SMS
Description	B18,<input>,<valid_mode> 01 input: in-port selection, set to 1 for S50 02 valid_mode: valid trigger mode 0--low level valid 1--high level valid. 2--AD port (default) 03 This command is supported for AD1 port
Reply	B18,<err_code> 01 err_code: error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED –Processing failed.
Example	B18,1,1
Retrieve	C04,B18,<input>

	01 input: in-port selection, the same as *input* field in setting command.

B20 – Setting Geo-fence

Source	GPRS/COM/SMS
Description	B20,<index>,<flag>,<spd-ltm>,<p-num>,<lat1><lon1><lat2><lon2><…><latN><lonN> 01 index: fence index, value 1~128, i.e.: 128 geo-fence can be set at most. 02 flag: alarm flag flag=1: Trigger alarm when exit fence. flag=2: Trigger alarm when enter fence. flag=3: Trigger alarm both enter and exit fence. 03 spd-ltm: Speed limit when entering fence, unit km/h. When *spd-ltm==0*, disable speed judgment for which inside the fence 04 p-num: Number of end points of polygon, range [3,20]; maximally, tracker supports 20 points for each polygon 05 lat, lon: hexadecimal string format, latitude and longitude of each end point, unit 0.000001° , the number of latitude and longitude pair is defined by *p-num*. Each *lat* or *lon* occupies 8 characters, i.e., one point occupies 16 characters. There is no delimiter between *lat* and *lon*. 06 When command contains *index* field only, delete the geo-fence specified by *index*; When *index* is empty or *index==0*, delete all geo-fence 07 When detecting enter or exit geo-fence, GPRS alarm data, which contains *index* field in *alm-para*, will be uploaded to server, refer to *Appendix A* for detail
Reply	B20,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B20,1 01 Delete 1# geo-fence B20,12,3,10,4,00c6ac82009a0b1500c6ac3c009a0b9600c6a8ae009a0b8600c6a93a009a0b1a 01 Setting #12 polygon fence, alarm when entering and exiting, speed limit 10km/h inside the fence, 4 points as below: 00c6ac82,009a0b15 (13.020290° ,10.095381°) 00c6ac3c,009a0b96 (13.020220° ,10.095510°) 00c6a8ae,009a0b86 (13.019310° ,10.095494°) 00c6a93a,009a0b1a (13.019450° ,10.095386°)
Retrieve	UNSUPPORT

B21 – Setting Fatigue Driving	
Source	GPRS/COM/SMS
Description	B21,<drowsy_time>,<rest_time>,<buz-tip> 01 drowsy_time: Fatigue driving time, unit s, default 14400s. 02 rest_time: Minimum rest time after fatigue driving, unit s, default 1200s. 03 buz-tip: 0 (default)—Disable buzzer function for fatigue driving; 1—Enable buzzer function, under fatigue driving, buzzer sounds(1s on, 1s off) to remind driver, till vehicle stops(GPS speed 0km/h); Using *F01* command to select external buzzer, which needs to connect buzzer to OUT1, or internal buzzer, which is built in magnet reader. 04 When *drowsy_time* is set to 0, fatigue driving alarm is disabled. 05 The field *rest_time* can be empty, while the default value is used. 06 When *drowsy_time* and *rest_time* are empty, both values are set to default.
Reply	B21,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B21 01 Set fatigue driving time to the default value 14400s, and minimum rest time to the default value 1200s, NO buzzer reminding for fatigue driving.
Retrieve	C04,B21

B22 – Setting Maximum Parking Time	
Source	GPRS/COM/SMS
Description	B22,<time> 01 time: Maximum parking time, unit s, default 0s, i.e. parking overtime alarm is disabled. 02 When parking time exceeds preset value, a parking overtime alarm triggered. 03 When auto speed is 0, it is regarded as parking.
Reply	B22,<err_code> 01 err_code: error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED –Processing failed.
Example	B22,1200 01 Set maximum parking time to 1200s.
Retrieve	C04,B22

B23 – Setting Alarm Action	
Source	GPRS/COM/SMS
Description	B23,<alm-code>,<GPRS><SMS><two-way-call><monitor-call><photo><AN-idx> 01 alm-code: Alarm type, refer to *Appendix –A*. 02 GPRS: Disable/enable GPRS uploading. 03 SMS: Disable/enable SMS to SOS number. 04 two-way-call: Disable/enable SOS number dialing under two-way conversation. 05 monitor-call: Disable/enable SOS number dialing under monitor mode. 06 photo: Disable/enable photographing, with resolution setting by *D07* command. 07 AN-idx: Complicated action, value 1~6, which corresponds to *AN-idx* field in *B24* command; AN is composed of a serial command sets, performing user define operations; Refer to *B24* command for detail. 08 When both *two-way-call* and *monitor-call* are set, *monitor-call* is valid, while *two-way-call* ignored. 09 *two-way-call* or *monitor-call* is valid when SOS number set, refer to *B11* command for SOS number(s) setting. 10 **For S50, *two-way-call*, *monitor-call*, *photo* options are not supported, as a result, set these fields to 0 in actual command**
Reply	B23,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B23,2,110102 01 Set action when SOS triggered: a Sending GPRS alarm data to platform. b Sending alarm SMS with *C01* format to SOS number. c Dial SOS numbers under monitor mode. d Perform operations which is defined by *B24*
Retrieve	C04,B23,<alm-code> 01 alm-code: Alarm type, refer to *Appendix –A*. The same as *alm-code* field in setting command.

B24 – Setting Complicated Alarm Action	
Source	GPRS/COM/SMS
Description	B24,<AN-idx>,'#oper-1',<delay_t>,'#oper-2',…. 01 The command defines complicated alarm action, "AN" for short; AN is used associated with *B23* setting. When both *AN-idx* field in *B23* command, and AN detail in *B24* are set, operation can be performed then. 02 AN-idx: AN index, value 1~6, corresponds to 1~6 operation sets; It can be selected by *AN-idx* field in *B23* command.

	03 #oper-[1,2…]: Operation instruction, composed of a serial command(s). Maximum length of 64 bytes. 04 delay_t: Delay time between adjoining operation, unit second. It means, tracker performs operations defined by *opera-1*, delay *delay_t* seconds, then perform *opera-2* 05 The writing rule of *B24*: a Single quotes in front of and behind *oper-x* are needed, which is used to define operation start b *oper-x* is composed of commands sets, it is written in "Serial port (COM) Command Format". For example, '#B12,1,1' c *delay_t* is written in digital directly, there is no single quote in front or behind 06 The operation flow of AN action a Tracker detects alarm occurring. b Tracker checks whether *AN-idx* is selected in *B23*, and whether AN detail is set in *B24*. c When both *B23* and *B24* are set, tracker performs operation defined by *B24*.
Reply	B24,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B23,2,100003 B24,3,'#B12,1,1',3,'#B12,1,0' 01 Tracker will upload GPRS package, and perform AN3 when SOS detected. 02 When SOS detected, tracker uploads GPRS alarm package, set OUT1 high level, delay 3s, and then set OUT1 low level.
Retrieve	C04,B24,<AN-idx > 01 AN-idx: AN index, the same as *AN-idx* field in setting command

B25 – Setting SMS Timing Tracking

Source	GPRS/COM/SMS
Description	B25,<sms_interval>,<sos_list> 01 sms_interval: SMS Tracking interval, unit: s, default: 0s; when *sms_interval==0*, disable SMS timing tracking 02 The format of timing SMS is the same as *C01* reply 03 sos_list: SOS number list, value 1, 2, 3 or the combination of them. Tracking SMS will be sent to the SOS number(s) defined by *sos_list*; When *sos_list* is empty, tracking SMS will be sent to #1 number by default; 04 After setting SMS timing tracking, it is suggested to set SOS number(s) using *B11* command, to set time-zone using *B14* command.
Reply	B25,<err_code> 01 err_code: error code. OK – Succeed.

	UNSUPPORT – Command not supported. FAILED –Processing failed.
Example	B25,120,23 01 Enable SMS timing tracking, and set interval to 120s, tracking SMS will be sent to #2 and #3 SOS numbers
Retrieve	C04,B25

B26 – Setting Alarm SMS Head String

Source	GPRS/COM/SMS
Description	B26,<alm-code>,<sms_string> 01 alm-code: Alarm type, refer to *Appendix –A*. 02 sms_string: SMS head string, 16 bytes length at most. 03 Refer to *Appendix-A* for default string.
Reply	B26,<err_code> 01 err_code: error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED –Processing failed.
Example	B26,2,HELP 01 Set SMS head string of SOS to “HELP”.
Retrieve	C04,B26,<alm-code> 01 alm-code: Alarm type, refer to *Appendix –A*. The same as *alm-code* field in setting command.

B27 – Setting Parameters of Harsh Acceleration Alarm

Source	GPRS/COM/SMS
Description	B27,<speed_var>,<time_lmt> 01 speed_var: maximum acceleration speed, unit km/h, default 0. 02 time_lmt: hard acceleration detection time, unit s, default 0. 03 Refer to *Appendix –A* for *alm-code* of harsh accelerate
Reply	B27,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B27,40,2 01 Set hard acceleration parameters: 40km/h speed variation within 2s.
Retrieve	C04,B27

B28 – Setting Parameters of Harsh Braking Alarm	
Source	GPRS/COM/SMS
Description	B28,<speed_var>,<time_lmt> 01 speed_var: maximum decrease speed, unit km/h, default 0. 02 time_lmt: hard braking detection time, unit s, default 0. 03 When driving speed decrease beyond *speed_var*, tracker triggers hard braking alarm. 04 Refer to *Appendix –A* for *alm-code* of harsh brake
Reply	B28,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	Refer to example in *B27*
Retrieve	C04,B28

B31 – Setting SOS Number Attribute	
Source	GPRS/COM/SMS
Description	B31,<sos-num>,<two-way-call>,<monitor>,<pos-sms> 01 Set SOS number attribute, refer to *B11* command for SOS number setting. 02 sos-num: SOS index, value 1, 2, 3, which corresponds to SOS number set by *B11* command. 03 two-way-call: attribute of two-way conversation. 04 monitor: attribute of monitor-mode conversation. 05 pos-sms: attribute of position SMS. 06 Description of attribute: two-way-call: tracker picks up incoming phone-call in two-way conversation mode. monitor: tracker picks up incoming phone-call in monitor mode. pos-sms: Tracker sends position SMS after incoming phone-call ends. Refer to *C01* command for SMS format. 07 When both *two-way-call* and *monitor* are set, *monitor* is valid, i.e.: tracker picks up phone-call in monitor mode. 08 When the command string has only *sos-num* field, default attribute is set to corresponding SOS number. 09 Default attribute of SOS number: *two-way-call* and *pos-sms*. 10 **For S50, *two-way-call*, *monitor* are not supported, please set the fields to 0 in actual command string**
Reply	B31,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported.

	FAILED – Procession failed.
Example	B31,1,111 01 Set attribute of the first SOS number: tracker automatically picks up incoming phone-call under monitor mode, reply a position SMS.
Retrieve	C04,B31,<sos-num> 01 sos-num: SOS index, value 1, 2, 3. The same as *sos-num* field in setting command.

B33 – Setting Maximum Idle Time

Source	GPRS/COM/SMS
Description	B33,<idle_time> 01 idle_time: maximum idle time, unit: s, default 0s. This parameter should be greater than 120s. 02 idle definition: ACC ON, but no speed, which means engine running under idle mode. 03 When idle mode detected, tracker starts idle time counter, and triggers Idling Alarm (*alm_code==35*), if counter exceeds *idle_time*
Reply	B33,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B33,600 01 Set maximum idle time to 600s
Retrieve	C04,B33

B34 – Setting Voltage Range for AD Port

Source	GPRS/COM/SMS
Description	B34,<index>,<min_volt>,<max_volt>,<filter-option> 01 index: AD port index, value 1, which corresponds to AD1 02 min_volt: AD port voltage when external input is 0%, unit V 03 max_volt： AD port voltage when external input is 100%, unit V 04 filter-option: filter option for AD sample data *filter-option*==0 (default): When external power exists, sample AD data and upload real-time; When external power disconnected, keeping the last sample value, and upload to server *filter-option*==1: When ACC ON, sample AD data and upload real-time; When ACC OFF (maybe external power exists), keeping the last sample value, and upload to server *filter-option*==2: upload AD sample data real-time, ignoring ACC and external power status 05 Default value for AD input

	port	**min_volt/V**	**max_volt/V**	**filter-option**	**Description**
	AD1	0	5	0	Updating sample data when external power ON
Reply	B34,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.				
Example	B34,1,0,5 01 Setting voltage range of AD1 to [0,5]V, getting sample data when external power exist, keeping sample data when external power disconnected				
Retrieve	C04,B34,<index>				

B80 – Setting Fuel Theft/Filling Alarm

Source	GPRS/COM/SMS
Description	B80,<ad-idx>,<theft-percentage>,<filling -percentage>,<use-acc> 01 The command is used for AD fuel sensor, such as AS10; Besides, it is valid on regular tank only at present. 02 ad-idx: AD channel which connects to fuel sensor, value 1; If *ad-idx==0*, disable fuel theft/filling function. 03 theft-percentage: Fuel theft percentage, unit %, tracker will send alarm when the fuel level decrement exceeds the setting value. If *theft-percentage==0* or field empty, disable fuel theft alarm. 04 filling-percentage: Fuel filling percentage, unit %, tracker will send alarm when the fuel level increment exceeds the setting value. If *filling-percentage==0* or filed empty, disable fuel filling alarm. 05 use-acc: Whether tracker connects to ACC or not. To get better calculation result, it is suggested to connect IN2 to ACC. If *use-acc* field empty, by default, it is regarded that ACC connected.
Reply	B80,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B80,1,5 01 Enable fuel theft alarm calculated based on AD1; When fuel level decrement exceed 5%, tracker sends theft alarm 02 Disable fuel filling alarm 03 IN2 connects to ACC
Retrieve	C04,B80

B81 – Setting Fuel Level Alarm	
Source	GPRS/COM/SMS
Description	B81,<ad-idx>,<low-percentage>,<high-percentage> 01 The command is used for AD fuel sensor, such as AS10; Besides, it is valid on regular tank only at present. 02 ad-idx: AD channel which connects to fuel sensor, value 1; If *ad-idx==0*, disable fuel level detection. 03 low-percentage: Percentage of low fuel level, unit %, tracker will send alarm when the fuel level is lower than the setting value. If *low-percentage==0* or field empty, disable low fuel level detection. 04 high-percentage: Percentage of high fuel level, unit %, tracker will send alarm when the fuel level is higher than the setting value. If *high-percentage==0* or filed empty, disable high fuel level detection.
Reply	B81,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B81,1,15,80 01 Enable low and high fuel level detection calculated based on AD1 02 When fuel level is lower than 15%, tracker sends alarm 03 When fuel level is higher than 80%, tracker sends alarm
Retrieve	C04,B81

B90 – Reset Tracker or Module	
Source	GPRS/COM/SMS
Description	B90,< select > 01 select: option =1: Reset tracker. =2: Reset GPS module. =3: Reset GSM module.
Reply	B90,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B90,1 01 Reset tracker.
Retrieve	UNSUPPORT

B91 – Setting Parameters to Default	
Source	GPRS/COM/SMS
Description	B91 01 After command is set, all system parameters (except SMS password) are set to default.
Reply	B91,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B91
Retrieve	UNSUPPORT

B94 – Turn on/off LED	
Source	GPRS/COM/SMS
Description	B94,<led-on> 01 led-on: 1--turn on LED, 0--turn off LED. 02 Default, *led-on*=1.
Reply	B94,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	B94 01 Set LED to default: turn on.
Retrieve	C04,B94

B98 – Setting Lower Power Parameters	
Source	GPRS/COM/SMS

<table>
<tr><td>Description</td><td>B98,<low_pwr_v>,<low_recovery_v>,<control>
01 The command is used to set the parameters of low external power alarm
02 low_pwr_v: Low power alarm voltage, unit V; When external power input is lower than low_pwr_v, tracker sends “Low Ext-Power” alarm, and cuts off power supply if control==1, in order to protect auto battery.
03 low_recovery_v: External power recovery voltage, unit V; When external power input is higher than low_recovery_v, it is regards that external power is normal; tracker clears “Low Ext-Power” flag, and restore external power supply if control==1.
04 control: 1—cut off external power supply when external input is lower than low_pwr_v, and restore supply when external input higher than low_recovery_v, it is used to protect auto battery; 0(default)—Disable auto battery protection.
05 It is suggested to set parameters which (low_recovery_v – low_pwr_v) >= 0.5V
06 Default settings for 12V or 24V auto battery, as below table:
<table>
<tr><th></th><th>low_pwr_v</th><th>low_recovery_v</th></tr>
<tr><td>12V Auto Battery</td><td>11.5V</td><td>12.5V</td></tr>
<tr><td>24V Auto Battery</td><td>23.5V</td><td>24.5V</td></tr>
</table>
</td></tr>
<tr><td>Reply</td><td>B98,<err_code>
01 err_code: procession error code.
OK – Succeed.
UNSUPPORT – Command not supported.
FAILED – Procession failed.</td></tr>
<tr><td>Example</td><td>B98,11.5,12.5
01 Setting low external threshold to 11.5V, and recovery voltage to 12.5V, auto battery protection is disabled, tracker is always powered from external supply.

B98,0,0,1
01 Setting adaptive low external parameters, tracker judges voltage automatically, and cuts off when low external input.</td></tr>
<tr><td>Retrieve</td><td>C04,B98</td></tr>
</table>

B99 – OTA using FTP Server

<table>
<tr><td>Source</td><td>GPRS/COM/SMS</td></tr>
<tr><td>Description</td><td>B99,<file_name>,<option>,<ftp_address>,<ftp_port>,<ftp_loginid>,<ftp_loginpwd>,<apn>,<apn_name>,<apn_pwd>
01 file_name: file name for OTA, should be “xxx.bin” format
02 option: option for OTA, when the field empty, using default setting
<table>
<tr><th>option</th><th>Description</th></tr>
<tr><td>0(default)</td><td>Normal OTA, tracker check whether file_name match current version or not</td></tr>
<tr><td>1</td><td>Mandatory OTA, tracker doesn’t check file_name</td></tr>
</table>
03 ftp_address: FTP server address, default 47.88.17.17
04 ftp_port: FTP server port, default 21</td></tr>
</table>

	05 ftp_loginid, ftp_loginpwd: FTP login user-name and password, when fields empty, using default account on 47.88.17.17 06 apn, apn_name, apn_pwd: APN setting for FTP connection, default, tracker using the same setting as *B01* command 07 After *B99* command received, tracker matches *file_name* to current firmware version, and starts OTA according to result 08 During OTA operation, tracker will disconnect from tracking server, stop timing uploading/photographing. 09 The timeout for FTP OTA is 15mins, when exceed, tracker will restart automatically, and connect to tracking server 10 External power connection is needed during OTA operation, it is used for tracking reboot after OTA finished
Reply	B99,<err_str> 01 err_str: Error code, string format "Invalid BIN file" - *file_name* doesn't match current firmware version "No ext-pwr, Please Connect in 15mins" – External power disconnect "The Same Version" – file_name has the same version to current firmware version "OK" – OTA start
Example	B99,S50-V1.02.bin 01 Start OTA, tracker will connect to 47.88.17.17:21, using default FTP account for file download
Retrieve	

F01 – Enable/Disable Buzzer

Source	GPRS/COM/SMS
Description	F01,<en>,<acc-on-tmr>,<login-keep-acc-off>,<buz-type> 01 en: 0~Disable buzzer function; 1~Enable (default) 02 acc-on-tmr: Time period from ACC ON to swiping authorized card, unit minute, default 10min; During this period, buzzer will be on, until authorized card swiped, or ACC OFF, or timeout. 03 login-keep-acc-off: Time period from swiping authorized/unauthorized card to ACC ON, unit minute, default 0min; During this period, tracker keeps card's information; If ACC ON in *login-keep-acc-off* minutes, tracker uploads "Login" or "Illegal Login" using swiped card data, otherwise, buzzer on, and card re-swiping is needed. 04 buz-type: 0(default)~Internal buzzer integrated with reader; 1~External buzzer 04 When *buz-type==1*, tracker uses OUT1 to control buzzer. External buzzer is needed under this setting. **Notes: According to DLT rule, just use F01 default parameters, NO NEED to set it.**
Reply	F01,<err_code> 01 err_code: procession error code. OK – Succeed.

	UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	F01,0 01 Disable buzzer function F01,1,2,3 01 Enable buzzer function, set *acc-on-tmr* to 2mins, and *login-keep-acc-off* to 3mins F01,1 01 Enable buzzer function, set *acc-on-tmr* to default 10mins, and *login-keep-acc-off* to 10mins
Retrieve	C04,F01

F02 – Set Authorized Card Type

Source	GPRS/COM/SMS
Description	F02,<start_digit_1>,< start_digit_2>,< start_digit_3>,….,<start_digit_16> 01 start_digit_1/2/3…16: authorized card type, 2/4 digitals, maximally, 16 types are supported. 02 When all *start_digit_1*/ *start_digit_2*/ *start_digit_3…start_digit_16* are empty, delete authorized card type, all valid cards are regarded as authorized ones, and "Login" or "Log Out" event will be generated when card swipped. 03 Refer to Appendix A for *alm-code* of "Login"/"Log Out"/" Illegal Login"
Reply	F02,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	F02,14,24 01 Set two types of authorized card, whose TRACK#3 data start with "14" or "24". When authorized cards swiped, tracker will generate "Login"(*alm-code==37*) or "Log Out"(*alm-code==38*) information to server, for other cards, tracker will generate "Illegal Login"(*alm-code==39*) information.
Retrieve	C04,F02

F06 – Setting Time Limit for DLT License Uploading

Source	GPRS/COM/SMS
Description	F06,<enable>,<keeping-tmr> 01 enable: 0~Disable(default); 1~Enable 02 keeping-tmr: Time limit for DLT license uploading, unit s, default 0s; When DLT card swiped, tracker uploads GPRS package with license ID during *keeping-tmr* seconds,

	and clear license field in GPRS package when *keep-tmr* timeout
Reply	F06,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	
Retrieve	C04,F06

C01 – Retrieve Position Information

Source	COM/SMS/GPRS
Description	C01 01 After command is set, tracker sends a position message. 02 When alarm detected, tracker sends alarm SMS with *C01* format automatically, to all SOS number(s). 03 When command is sent via GPRS, tracker replies normal position data.
Reply	When command is sent via GPRS, the replied data is normal position package. When command is sent via SMS/COM <string_head>,yyyy-MM-dd hh:mm:ss, <spd>KM/h,<gprs_st>,<gps_fix>,EXPW:<PST> http://maps.google.com/maps?q=<latitude>,<longitude>&t=m a string_head: SMS head string, for normal position data, *string_head* is empty, for alarm data, refer to Appendix-A for default string. b yyyy-MM-dd hh:mm:ss: current date & time, which is effected by B14 command setting. c spd: current speed, unit km/h. d gprs_st: GPRS link status, value: “Connected” or “Disconnected”. e gps_fix: GPS signal status, ‘A’-fixed, ‘V’-not fixed. f PST: Status of ext-power input, “ON” -- ext-power is connected, “OFF” -- ext-power is disconnected. g latitude, longitude: Latitude and longitude of last position point.
Example	C01
Retrieve	UNSUPPORT

C02 – Retrieve Firmware/Hardware Version, SN, IMEI

Source	GPRS/COM/SMS
Description	C02
Reply	Uploading data format: C02,<IMEI>,<SN>,<fw_ver>,<hw_ver> 01 IMEI: IMEI of tracker.

	02 SN: Serial number of tracker. 03 fw_ver: Firmware version. 04 hw_ver: Hardware version.
Example	C02
Retrieve	UNSUPPORT

C03 – Retrieve Supply Power Status

Source	GPRS/COM/SMS
Description	C03
Reply	Uploading data format: C03,<extp_v>,<bat_v>,<bat_percentage> 01 extp_v: Voltage of ext-power, unit V. 02 bat_v: Voltage of internal battery. 03 bat_percentage: Percentage of internal battery capacity.
Example	C03
Retrieve	UNSUPPORT

C04 – Retrieve Parameter Setting

Source	GPRS/COM/SMS
Description	C04,<cmd-code>,<query_para> 01 cmd-code: Command code to be retrieved. 02 query_para: Query parameter; refer to chapters above for detail.
Reply	C04,<cmd>,<cmd-para> 01 cmd-code: The same as sending command. 02 cmd-para: Retrieved parameter string, the same format as setting command described in the above chapters.
Example	Refer to chapters above.
Retrieve	UNSUPPORT

C06 – Retrieve Batch Parameters

Source	GPRS/COM/SMS
Description	C06 01 Retrieve batch parameters, which is used to diagnose the offline reason
Reply	C06,<GID>,<ip>:<port>,<TCP/UDP>;APN:<apn>,<apn_user>,<apn_pwd>;EXT:<ext_p>,BAT:<bat_v>;B03:<base_int> ,<accoff_int>;<ACC ON/OFF> 01 GID: Tracker ID of GPRS data, default IMEI 02 ip, port: Server ip/port setting in tracker 03 TCP/UDP: transport protocol

	04: apn, apn-user, apn_pwd: APN setting in tracker 05 ext_p: Voltage of external power supply 06 bat_v: Voltage of internal battery 07 base_int, accoff_int: Uploading time interval setting in tracker. It is the same as B03 setting 08 ACC ON/OFF: String, ACC status, “ACC ON” or “ACC OFF”
Example	Command: C06 Reply:C06,861694033095389,47.88.35.165:10502,TCP;APN:CMNET,,;EXT:12.09V,BAT:4.17V; B03:10,0;ACC OFF
Retrieve	UNSUPPORT

C07 – Retrieve ISP Information via USSD

Source	GPRS/COM/SMS
Description	C07,<ussd-str> 01 Some ISP support USSD function for querying SIM balance or data consumption; Using *C07* command, user can retrieve those information for tracker’s SIM 02 ussd-str: Querying string, which is provided by ISP. *ussd-str* always starts with ‘*’, and ends with ‘#’. Please refer to ISP for detail.
Reply	C07,<ussd-info> 01 ussd-info: Querying information which is replied from ISP
Example	C07,*188#
Retrieve	UNSUPPORT

C08 – Retrieving AD voltage

Source	GPRS/COM/SMS
Description	C08,<rt-data> 01 The command is used to retrieve voltage on AD port. 02 rt-data: 1(default)—Tracker reply real-time voltage; 0—Tracker does smooth filtration, and then replies 03 Different for *rt-data* *rt-data==1*: Voltage is related to sensor itself, when sensor signal is stable, sending C08 command for retrieving, and the result would be true *rt-data==0*: Voltage is related not only to sensor itself, but to working environment (e.g. fuel sensor voltage on running vehicle). Tracker needs at least 1min to sample enough data, does smooth filtration. There could have some error to true voltage. 04 The result of *C08* reply is actual voltage on AD port, which isn’t effected by *B34* command setting
Reply	C08,<AD1>:<ad1-voltage>,<AD2>:<ad2-voltage>….<And>:<and-voltage> 01 adx-voltage: Voltage on ADx, unit V
Example	Command: C08

	Reply: C08,AD1:4.32
Retrieve	UNSUPPORT

S09 – Setting GPRS Heartbeat Interval

Source	GPRS/COM/SMS
Description	S09,<acc-on-interval>,<acc-off-interval> 01 Heartbeat package is independent from normal GPRS position one 02 acc-on-interval, acc-off-interval: Heartbeat interval for ACC ON and ACC OFF, unit: s; default *acc-on-interval==0*, *acc-off-interval==0*, which means heartbeat disabled 03 When *acc-on-interval* or *acc-off-interval* is set to 0, heartbeat disabled for corresponding ACC status 03 Heartbeat data will not be saved to blind buffer; When new heartbeat package generated, old and unsent one will be discarded
Reply	S09,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported. FAILED – Procession failed.
Example	S09,180,300 01 Setting heartbeat interval to 180s for ACC ON, and 300s for ACC OFF S09,0,300 01 Setting heartbeat interval to 300s for ACC OFF, and disable heartbeat for ACC ON S09 01 Disable heartbeat for both ACC ON and ACC OFF
Retrieve	C04,S09

S11 – Setting ACC OFF Delay Package Uploading

Source	GPRS/COM/SMS
Description	S11,<delay-packs-num> 01 delay-packs-num: Uploading package number after ACC OFF 02 B03 setting as below: B03,<basic_tmr>,<accoff_tmr> When *delay-packs-num!=0*, trackers will upload *delay-packs-num* package to server every *basic_tmr* seconds, and then every *accoff_tmr* seconds
Reply	S11,<err_code> 01 err_code: procession error code. OK – Succeed. UNSUPPORT – Command not supported.

	FAILED – Procession failed.
Example	
Retrieve	C04,S11

Appendix A - Alarm Code and Alarm Parameter

The following table describes the relationship of *alm-code* and *alm-para* in GPS Position/Alarm data:

alm-code	alm-para	Description	SMS Head String
1	NULL	Distance tracking	Distance
4	NULL	Input2 active	IN2
5	NULL	Input2 inactive	IN2 Inactive
14	Ext-power voltage, unit V	Ext-power low	Low Ext-Power
15	NULL	Ext-power lost	Ext-Power Cut
16	NULL	Ext-power re-connect	Ext-Power On
17	Battery voltage, unit V	Internal battery low	Low Battery
18	spd-src 01 *spd-src==0*: global over speed, which can be set by *B08* command 02 spd-src!=0: geo-fence index, which can be set by *B20* command	Speeding alarm	Speeding
23	NULL	Harsh accelerate	Harsh Accelerate
24	NULL	Harsh braking	Harsh Braking
27	NULL	Fatigue driving	Fatigue Driving
28	NULL	Fatigue relieve	Fatigue Relieve
29	NULL	Parking overtime	Parking Overtime
33	index 01 Fence index, it is the same as *index* field in *B20* command	Exit geo-fence	Exit Fence
34	index 01 Fence index, it is the same as *index* field in *B20* command	Enter geo-fence	Enter Fence
35	NULL	Idling Alarm	Idling Alarm
37	NULL	Login	Login
38	NULL	Log Out	Log Out
39	NULL	Illegal Login	Illegal Login
42	spd-src|duration|max-spd|avg-spd 01 spd-src: over speeding source spd-src==0: global over speed spd-src!=0: over speed inside fence 02 duration: Duration for over speed, s 03 max-spd: maximum speed during over speed period, km/h 04 avg-spd: Average speed during over speed period, km/h	Speeding Relieve	Speeding Relieve

44	NULL	Fuel Theft Alarm	Fuel Theft
45	NULL	Fuel Filling Alarm	Fuel Filling
46	NULL	Low Fuel Level Alarm	Fuel Level Low
47	NULL	High Fuel Level Alarm	Fuel Level High