ZULEX TRACKING

ZT-1000

GPRS/SMS PROTOCOL

Document

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I. Command Format

1. GPRS Format

From server to tracker:

@@<package flag><L>,<IMEI>,<command>,<data><*checksum>\r\n

From tracker to server:

$$<package flag><L>,<IMEI>,<command>,<data><*checksum>\r\n

Note:

',' is list separator in ASCII (0x2C);

Do not input '<' and '>' when writing a command;

All multi-byte data complies with the following sequence: High byte prior to low byte;

The size of a GPRS package (including data) is about 160 bytes.

Item	Definition
@@	2 bytes. Header of the package from server to tracker. It is in ASCII(0x40)
$$	2 bytes. Header of the package from tracker to server, It is in ASCII(0x24)
package flag	1 byte. In ASCII from 0x41 to 0x7A
L	Length from its following separator ',' to the ending character '\r\n'. It is decimal string. $$<package flag><L>,<IMEI>,<command>,<data><*checksum>\r\n
IMEI	Tracker's IMEI which is normally 15 digitals.
command	Command code in Hex string. Please refer to the Command List and Command Details below.
data	Min 0 byte and max 160 bytes.
*	1 byte. A separator between data and checksum. It is in ASCII(0x2A)
checksum	2 bytes. Indicating the sum of all data (not including checksum itself and the ending character). It is in HEX String. $$<package flag><L>,<IMEI>,<command>,<data><*checksum>\r\n
\r\n	2 bytes. Ending character in ASCII (0x0d,0x0a)

2. SMS Format

From mobile phone (or SMS modem) to tracker:

Password,<command>,<data>

From tracker to mobile phone (or SMS modem):

IMEI,<command>,< data>

Note:

Password is 4 digitals only and defaulted as 0000

Command is in HEX string. Please refer to the Command List and Command Details below.

II. Command List

Command	Definition	SMS/GPRS	Applicable Model
A00	Track on Demand	SMS	All
A01	Track on Demand - Google Map	SMS	All
A02	Track by Time Interval	SMS	All
A10	Track on Demand	GPRS	All
A11	Set Heartbeat Interval	GPRS	All
A12	Track by Time Interval	SMS/GPRS	All
A13	Heading Change Report	GPRS	All
A14	Track by Distance Interval	SMS/GPRS	All
A21	Set GPRS	SMS/GPRS	All
A22	Set DNS Server IP	SMS/GPRS	All
A23	Set Secondary GPRS Server	SMS/GPRS	All
AAA	Auto Event report	GPRS	All
AFF	Delete GPRS Event in Queue	GPRS	All
B00	Get Authorized Phone Number and SMS Event Flag	SMS/GPRS	All
B01	Authorize Phone Number and SMS Event Flag	SMS/GPRS	All
B02	Add SMS Event Flag to Authorized Phone Number	SMS/GPRS	All
B03	Delete SMS Event Flag from Authorized Phone Number	SMS/GPRS	All
B05	Set Geo-fence Alarm	SMS/GPRS	All
B06	Delete Geo-fence Waypoint	SMS/GPRS	All
B07	Set Speeding Alarm	SMS/GPRS	All
B08	Set Tow Alarm	SMS/GPRS	All
B09	Set Tremble Sensitivity (MVT100/MVT340/MVT380)	SMS/GPRS	MVT100, 340, 380
B20	Set Tremble Sensitivity (MVT600)	SMS/GPRS	MVT600
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B32	Set GPS Sleep Mode	SMS/GPRS	All
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B35	Time Zone Setting(For SMS Report)	SMS/GPRS	All
B36	Time Zone Setting(For GPRS Report)	SMS/GPRS	All
B91	Set SMS Header for Event	SMS/GPRS	All
B92	Set Event Flag for GPRS Report	GPRS	All
B93	Get Event Flag of GPRS Report	GPRS	All
B96	Set Event Flag for Taking Picture	GPRS	MVT600
B97	Get Event Flag of Taking Picture	GPRS	MVT600
C01	Output Control	SMS/GPRS	MVT100, 340, 380, 600
C03	Protocol Control	SMS/GPRS	All
C10	GPRS Message Display	GPRS	All
C11	SMS Message Display	SMS	All
D00	Get Picture	GPRS	MVT600
D01	Get Picture File Name	GPRS	MVT600
D02	Delete Picture	GPRS	MVT600
D03	Take One Picture	GPRS	MVT600
E91	Get Firmware Version and SN	SMS/GPRS	All
F01	Reboot GSM Module	SMS/GPRS	All
F02	Reboot GPS Module	SMS/GPRS	All
F11	Initialization	SMS/GPRS	All
F20	Change Password	SMS	All
FAB	Initialize Password	SMS	All

III. Command Details

1. Track on Demand (SMS) – A00

SMS Set:	A00
SMS Get:	Now,<->yy.dddddd,<->xxx.dddddd,yymmddHHMMSS,Z,N,G,Speed,Heading,HDOP,Altitude,Journey,Runtime,Base ID,State,AD,
Description:	Get the current location report of the tracker. Refer to Annex 1 for more information of data description.
Example	
SMS Tx:	0000,A00
SMS Rx:	353358017784062,Now,22.535888,114.063034,080310161834,A,9,27,30,179,0,15,8890,1346,,0000,,

2. Track on Demand – Google Map (SMS) – A01

SMS Set:	A01
SMS Get:	http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329&ie=UTF8&z=16&iwloc=addr&om=1
Description:	Get the current location report of the tracker and open the http link to Google Map to show the location on a mobile phone. Note: Smart phone with GPRS connection supports this function
Example	
SMS Tx:	0000,A01
SMS Rx:	http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329&ie=UTF8&z=16&iwloc=addr&om=1

3. Track by Time Interval (SMS) – A02

SMS Set:	A02,interval,times
SMS Get:	A02,OK
Description:	interval =0, stop tracking by time interval (default); interval = [1,65535], track by interval in minute; times = 0, track by interval continuously times = [1,255], set how many times(reports) of SMS from the tracker with the defined interval.
Example	
SMS Tx:	0000,A02,10,3
SMS Rx:	353358017784062,A02,OK *In this example, you can receive all 3 SMS with an interval of 10 minutes.* *353358017784062,Interval,22.542976,114.077658,100313092332,A,5,20,6,13,2,276,387,611,,0000,,*

4. Track on Demand (GPRS) – A10

GPRS Set:	A10
GPRS Get:	AAA,34,<->yy.dddddd,<->xxx.dddddd,yymmddHHMMSS,Z,N,G,Speed,Heading,HDOP,Altitude, Journey,Runtime,Base ID,State,AD,
Description:	34 is the GPRS code. Refer to Annex 2 for more information.
Example	
GPRS Tx:	@@Q25,353358017784062,A10*6A\r\n
GRRS Rx:	$$Q128,353358017784062,AAA,34,22.543176,114.078448,100313093738,A,5,22,2,205,5,-14, 0,60,0|0|10133|4110,0000,149|153|173|2707|914,*91\r\n

5. Set Heartbeat Interval (GPRS) – A11

GPRS Set:	A11,interval
GPRS Get:	A11,OK
Description:	interval = 0, cancel heartbeat (default); interval = [1,65535], set interval in minute. Heartbeat is recommended to ensure TCP connection when the time interval of tracking is set too long.
Example	
GPRS Tx:	@@S28,353358017784062,A11,10*FD\r\n
GRRS Rx:	$$S28,353358017784062,A11,OK*FE\r\n *In this example, below message will be received every 10 minutes* *$$a131,353358017784062,AAA,31,22.913458,114.083183,080229123628,A,9,23,21,83,1,18, 1350,127,0|0|10133|4110,0000,169|181|184|2714|919,*4B*

6. Track by Time Interval (GPRS) – A12

SMS/GPRS Set:	A12,interval,times
SMS/GPRS Get:	A12,OK
Description:	interval is in unit of 10 seconds. interval = 0, stop tracking by time interval. Max time interval = 65535*10 seconds times = 0, track by interval continuously; times = [1,65535], set how many times(reports) from the tracker with the specified interval.
Example	
SMS Tx:	0000,A12,6,3
SMS Rx:	353358017784062,A12,OK
GPRS Tx:	@@V29,353358017784062,A12,6,3*36\r\n
GRRS Rx:	$$V28,353358017784062,A12,OK*02\r\n *In this example, below message will be received every minute and total is 3 messages to be*

	received. *$$W129,353358017784062,AAA,35,22.540113,114.076141,100313094354,A,5,22,1,174,4,129,0,435,0|0|10133|4110,0000,166|224|193|2704|916,*BE\r\n*

7. Heading Change Report (GPRS) – A13

GPRS Set:	A13,degree
GPRS Get:	A13,OK
Description:	When the heading direction of the tracker changes over the preset degree, a message with location data will be sent back to the server by GPRS to ensure a continuous smooth trace. degree = 0, cancel heading change report (default); degree = [1,359], set degree of direction change.
Example	
GPRS Tx:	@@X29,353358017784062,A13,120*37\r\n
GRRS Rx:	$$X28,353358017784062,A13,OK*05\r\n *In this example, below data will be received when heading changes over 120 degree* *$$Y129,353358017784062,AAA,32,22.540968,114.077455,100313094534,A,4,22,1,166,3,175,0,534,0|0|10133|4110,0000,141|138|159|2691|904,*D9\r\n*

8. Track by Distance Interval – A14

SMS/GPRS Set:	A14,distance
SMS/GPRS Get:	A14,OK
Description:	distance = 0, stop tracking by distance interval (default); distance = [1, 4294967295], set interval in meter; If Track by Distance Interval and Track by Time Interval are both set, the GPS location report complies with 'First Reach First Report' rule and the interval for next report is immediately re-calculated.
Example	
SMS Tx:	0000,A14,1000
SMS Rx:	353358017784062,A14,OK *In this example, below message will be received once distance changes over 1000 meters.* *353358017784062,Distance,22.547278,114.047723,080310080934,A,7,21,30,88,1,12,8525,563,,0000,,*
GPRS Tx:	@@D30,353358017784062,A14,1000*4A\r\n
GRRS Rx:	$$D28,353358017784062,A14,OK*F2\r\n *In this example, below message will be received once distance changes over 1000 meters.* *$$D131,353358017784062,AAA,33,22.547271,114.047405,080310080929,A,8,21,13,89,1,12,8525,561,0|0|10133|4110,0000,163|185|186|2712|939,*31\r\n*

9. Set GPRS – A21

SMS/GPRS Set:	A21,X,IP,Port,APN,APN username,APN password

SMS/GPRS Get:	A21,OK
Description:	X = 0, close GPRS; X = 1, open TCP; X = 2, open UDP. IP : IP address or domain name, max 32 bytes. Port: max 5 bytes. APN / APN username / APN password: max 32 bytes each; If no username and password required, leave them blank.
Example	
SMS Tx:	0000,A21,1,meitrack.com,8056,CMNET,,
SMS Rx:	353358019687743,A21,OK
GPRS Tx:	@@H53,353358019687743,A21,1,meitrack.com,8056,CMNET,,*AE\r\n
GRRS Rx:	$$H28,353358019687743,A21,OK*FE\r\n

10. Set DNS Server IP – A22

SMS/GPRS Set:	A22,DNS Server IP
SMS/GPRS Get:	A22,OK
Description:	In case the domain name you set by the command A21 doesn't work, which means your server IP is not properly set. You can first use this command to set DNS Server IP (please check with your DNS server provider for the DNS Server IP) and then redo the command A21. DNS Server IP: max 16 bytes
Example	
SMS Tx:	0000,A22,202.1.2.30
SMS Rx:	353358019687743,A22,OK
GPRS Tx:	@@K38,353358019687743,A22,75.127.67.90*07\r\n
GRRS Rx:	$$K28,353358019687743,A22,OK*02\r\n

11. Set Secondary GPRS Server – A23

SMS/GPRS Set:	A23,IP,Port
SMS/GPRS Get:	A23,OK
Description:	IP : max 32 bytes Port: max 5 bytes When the tracker fails to sent data to the first server set by command A21, it will send data to the secondary server to avoid data loss.
Example	
SMS Tx:	0000,A23,meiligao.net,8056
SMS Rx:	353358019687743,A23,OK
GPRS Tx:	@@S43,353358019687743,A23,meiligao.net,8056*61\r\n
GRRS Rx:	$$S28,353358019687743,A23,OK*0B\r\n

12. Auto Event Report – AAA

GPRS Get:	AAA,Code, <->yy.dddddd,<->xxx.dddddd,yymmddHHMMSS,Z,N,G,Speed,Heading,HDOP,Altitude,Journey, Runtime,Base ID,State,AD,
Description:	Unsolicited GPRS event report
Example	
GRRS Rx:	*If the SOS button on the tracker is pressed, the following report will be received.* *$$G127,353358017784062,AAA,1,22.538169,114.075958,100313095653,A,3,21,4,46,5,581,0,* *148,0|0|10133|4172,0000,166|204|205|2709|878,*77\r\n*

13. Delete GPRS Event in Queue Buffer – AFF

GPRS Set:	AFF,sum to delete
GPRS Get:	AFF,sum of balance,Code,<->yy.dddddd,<->xxx.dddddd,yymmddHHMMSS,Z,N,G,Speed, Heading,HDOP,Altitude,Journey,Runtime,Base ID,State,AD,
Description:	sum to delete: HEX string and normally is 1. Sum of balance: HEX string. Total number of events in internal flash memory.
Example	
GPRS Tx:	@@h27,353358017028395,AFF,1*0B\r\n
GRRS Rx:	

14. Get Authorized Phone Number and SMS Event Flag – B00

SMS/GPRS Set:	B00,P
SMS/GPRS Get:	B00,P,Phone No,Event Code Flag
Description:	P: 1 to 3 Phone No: max 16 characters. If Phone No is blank, no phone number is authorized. Event Code Flag: 16+8 bytes, HEX String. See Annex 2 for more details
Example	
SMS Tx:	0000,B00,1
SMS Rx:	353358019687743,B00,1,13612345678,0000000000000F0A00000000
GPRS Tx:	@@H27,353358019687743,B00,1*CA\r\n
GRRS Rx:	$$H64,353358019687743,B00,1,13420980279,00000000201C001F00000060*DB\r\n

15. Authorize Phone Number and SMS Event Flag – B01

SMS/GPRS Set:	B01,P,Phone No,Event Code
SMS/GPRS Get:	B01,OK
Description:	P: 1 to 3 Phone No: max 16 characters. Event Code: If no codes stipulated, then it will apply the default flags to the authorized phone number. See Annex 2 for more details of Event Code and default settings.
Example	
SMS Tx:	0000,B01,1,13612345678,1

SMS Rx:	353358017784062,B01,OK
GPRS Tx:	@@Z41,353358017784062,B01,1,13420980279,1*95\r\n
GRRS Rx:	$$Z28,353358017784062,B01,OK*05\r\n *In this example, once the SOS button is pressed, the following message will be received.* *353358017784062,SOS,22.540768,114.077610,100313100055,A,3,21,1,94,5,255,0,381,,0000,,*

16. Add SMS Event Flag to Authorized Phone Number – B02

SMS/GPRS Set:	B02,P,Event Code
SMS/GPRS Get:	B02,OK
Description:	P : 1 to 3 Event Code: please refer to Annex 2 for more details.
Example	
SMS Tx:	0000,B02,1,17
SMS Rx:	353358017784062,B02,OK
GPRS Tx:	@@]30,353358017784062,B02,1,17*65\r\n
GRRS Rx:	$$]28,353358017784062,B02,OK*09\r\n *In this example, the low battery alarm message will be received when the battery is low.*

17. Delete SMS Event Flag from Authorized Phone Number – B03

SMS/GPRS Set:	B03,P,Event Code
SMS/GPRS Get:	B03,OK
Description:	P : 1 to 3 Event Code: please refer to Annex 2 for more details.
Example	
SMS Tx:	0000,B03,1,17
SMS Rx:	353358017784062,B03,OK
GPRS Tx:	@@F30,353358017784062,B03,1,17*4F\r\n
GRRS Rx:	$$F28,353358017784062,B03,OK*F3\r\n *This is to cancel low battery alarm.*

18. Set Geo-fence Alarm – B05

SMS/GPRS Set:	B05,P,latitude,longitude,radius,in,out
SMS/GPRS Get:	B05,OK
Description:	P: 1 to 8. Max 8 Geo-fence waypoints can be set. Latitude: Latitude in decimal degrees of the waypoint center. Longitude: Longitude in decimal degrees of the waypoint center. Radius: [1, 4294967295] in meters. In = 0, turn off the alarm when the tracker enters the waypoint; In = 1, turn on the alarm when the tracker enters the waypoint.

	Out = 0, turn off the alarm when the tracker exits the waypoint; Out = 1, turn on the alarm when the tracker exits the waypoint.
Example	
SMS Tx:	0000,B05,1,22.91319,114.07988,1000,0,1
SMS Rx:	353358017784062,B05,OK *Once the tracker go outside of the circle (center: 22.91319,114.07988 and radius 1000 meters), the following message will be received.* *353358017784062,ExitGEO,22.918186,114.089823,080229123816,A,10,22,16,32,1,21,6667,850,,0000,,*
GPRS Tx:	@@H55,353358017784062,B05,1,22.91319,114.07988,1000,0,1*31\r\n
GRRS Rx:	$$H28,353358017784062,B05,OK*F7\r\n *Once the tracker go outside of the circle (center: 22.91319,114.07988 and radius 1000 meters), the following message will be received.* *$$J132,353358017784062,AAA,21,22.918046,114.089726,080229123812,A,10,22,12,32,1,21,6667,847,0|0|10133|4110,0000,124|181|183|2714|922,*5A\r\n*

19. Delete Geo-fence Waypoint – B06

SMS/GPRS Set:	B06,P
SMS/GPRS Get:	B06,OK
Description:	P: 1 to 8. Only one waypoint can be deleted by each SMS/GPRS command.
Example	
SMS Tx:	0000,B06,1
SMS Rx:	353358017784062,B06,OK
GPRS Tx:	@@J27,353358017784062,B06,1*C8\r\n
GRRS Rx:	$$J28,353358017784062,B06,OK*FA\r\n *In this example, the first predefined waypoint is deleted.*

20. Set Speeding Alarm – B07

SMS/GPRS Set:	B07,speed
SMS/GPRS Get:	B07,OK
Description:	Speed = 0, cancel speeding alarm (default) Speed = [1,255], set speed limit in Km/h
Example	
SMS Tx:	0000,B07,60

SMS Rx:	353358017784062,B07,OK *In this example, the following message will be received one the tracker's speed is over 60km/h.* *353358017784062,Speeding,22.914891,114.087491,080229203703,A,10,22,55,44,1,24,6635,388,,0000,,*
GPRS Tx:	@@P28,353358017784062,B07,60*05\r\n
GRRS Rx:	$$P28,353358017784062,B07,OK*01\r\n *In this example, the following message will be received one the tracker's speed is over 60km/h.* *$$k134,353358017784062,AAA,19,22.916675,114.088813,080229123718,A,10,22,61,31,1,21,6635,395,460|0|10133|4110,0000,164|185|181|2712|915,*F7\r\n*

21. Set Tow Alarm – B08

SMS/GPRS Set:	B08,time
SMS/GPRS Get:	B08,OK
Description:	time = 0, cancel tow alarm (default); time = [1,255], set period in second.
Example	
SMS Tx:	0000,B08,3
SMS Rx:	353358017028395,B08,OK *In this example, when the tracker moves or trembles for over 3 seconds, the following message will be received.* *353358017784062,Tow,22.914891,114.087491,080229203703,A,10,22,55,44,1,24,6635,388,,0000,,*
GPRS Tx:	@@I27,353358019687743,B08,3*D5\r\n
GRRS Rx:	$$I28,353358019687743,B08,OK*05\r\n In this example, when the tracker moves or tremble for over 3 seconds, the following message will be received. $$K133,353358017784062,AAA,36,22.916675,114.088813,080229123718,A,10,22,61,31,1,21,6635,395,460|0|1013|4110,0000,164|185|181|2712|915,*A2

22. Set Tremble Sensitivity (MVT100/MVT340/MVT380) – B09

SMS/GPRS Set:	B09,Sensitivity
SMS/GPRS Get:	B09,OK
Description:	Sensitivity = [1,65535], set sensitivity grade for tremble sensor
Example	
SMS Tx:	0000,B09,10
SMS Rx:	356896031863880,B09,OK
GPRS Tx:	@@C28,356896031863880,B09,10*01\r\n

GRRS Rx:	$$C28,356896031863880,B09,OK*02\r\n

23. Set Tremble Sensitivity (MVT600) – B20

SMS/GPRS Set:	B20,Sensitivity
SMS/GPRS Get:	B20,OK
Description:	Sensitivity = [1,65535], set sensitivity grade for tremble sensor
Example	
SMS Tx:	0000,B20,10
SMS Rx:	357713000000015,B20,OK
GPRS Tx:	@@B28,357713000000015,B20,10*CF\r\n
GRRS Rx:	$$B28,357713000000015,B20,OK*D0\r\n

24. Set Extended Functions – B31

SMS/GPRS Set:	B31,AB
SMS/GPRS Get:	B31,OK
Description:	A=0, all LED lights work normally (default). A=1, all LED lights are off when the tracker is working. B, reserved.
Example	
SMS Tx:	0000,B31,11
SMS Rx:	353358019687743,B31,OK
GPRS Tx:	@@J28,353358019687743,B31,10*01\r\n
GRRS Rx:	$$J28,353358019687743,B31,OK*02\r\n

25. Set GPS Sleep Mode – B32

SMS/GPRS Set:	B32,level
SMS/GPRS Get:	B32,OK
Description:	level = 0, cancel sleep mode (default) level = 1, GPS module works for 3 minutes and close for 1 minute. level = 2, GPS module works for 1 minute and close 2 minutes.
Example	
SMS Tx:	0000,B32,1
SMS Rx:	353358019687743,B32,OK
GPRS Tx:	@@L27,353358019687743,B32,1*D3\r\n
GRRS Rx:	$$L28,353358019687743,B32,OK*05\r\n

26. Set Power Down Mode – B33

SMS/GPRS Set:	B33,minute
SMS/GPRS Get:	B33,OK
Description:	Set power down mode when the tracker is inactive (stationary) for a period of time. In Power Down mode, GPS stops working and GSM enters sleep and stop sending out message until it is activated by message, incoming calls, and movement or input changes.

	minute = 0, turn off power down mode minute = [1,255], turn on power down after a specified period of being inactive in minute.
Example	
SMS Tx:	0000,B33,3
SMS Rx:	353358019687743,B33,OK *In this example, the tracker will enter power down mode after it is inactive for 3 minutes.*
GPRS Tx:	@@M27,353358019687743,B33,3*D7\r\n
GRRS Rx:	$$M28,353358019687743,B33,OK*07\r\n

27. Set Log Interval – B34

SMS/GPRS Set:	B34,interval
SMS/GPRS Get:	B34,OK
Description:	Set the interval for storing valid GPS data into tracker's flash memory. interval = 0, turn off logging (default); interval = [1,65535], set logging interval in second.
Example	
SMS Tx:	0000,B34,60
SMS Rx:	353358019687743,B34,OK
GPRS Tx:	@@N28,353358019687743,B34,60*0D\r\n
GRRS Rx:	$$N28,353358019687743,B34,OK*09\r\n

28. Time Zone Setting (for SMS Report) – B35

SMS/GPRS Set:	B35,minute
SMS/GPRS Get:	B35,OK
Description:	Default time of the tracker is GMT, you can use this command to correct it to your local time for SMS report. minute = 0, GMT (default); minute = [-32768,32767], set time difference in minute to GMT. Time zone for SMS is separate from GPRS.
Example	
SMS Tx:	0000,B35,-480
SMS Rx:	353358019687743,B35,OK
GPRS Tx:	@@O29,353358019687743,B35,480*46\r\n
GRRS Rx:	$$O28,353358019687743,B35,OK*0B\r\n

29. Time Zone Setting (for GPRS Report) – B36

SMS/GPRS Set:	B36,minute
SMS/GPRS Get:	B36,OK
Description:	minute = 0, GMT (default); minute = [-32768,32767], set time difference in minute to GMT.
Example	

SMS Tx:	0000,B36,-480
SMS Rx:	353358019687743,B36,OK
GPRS Tx:	@@P29,353358019687743,B36,480*48\r\n
GRRS Rx:	$$P28,353358019687743,B36,OK*0D\r\n

30. Set SMS Header for Event – B91

SMS/GPRS Set:	B91,Event Code,Header
SMS/GPRS Get:	B91,OK
Description:	Header: max 16 bytes. Please refer to Annex 2 for more details
Example	
SMS Tx:	0000,B91,1,SOS
SMS Rx:	353358019687743,B91,OK
GPRS Tx:	@@R31,353358019687743,B91,1,SOS*FA\r\n
GRRS Rx:	$$R28,353358019687743,B91,OK*10\r\n *After the SOS button(input1) is pressed, it shows 'SOS' in the beginning of the alarm message.*

31. Set Event Flag for GPRS Report – B92

GPRS Set:	B92,Event Code Flag
GPRS Get:	B92,OK
Description:	Set one or more event flag to the GPRS report. Please refer to Annex 2 for more details of the Event Code. Default authorized codes are stipulated in Annex 2. GPRS Event Flag: 16 hex string for max. 64 events (64 bits event flag). MSB (bit63) = 1 means the 64th event is enabled in GPRS report. MSB (bit63) = 0 means the 64th event is disabled in GPRS report. LSB (bit0) = 1 means the 1st event (SOS) is enabled in GPRS report. LSB (bit0) = 0 means the 1st event (SOS) is disabled in GPRS report.
Example	
GPRS Tx:	@@q42,353358019687743,B92,1234567890ABCDEF*6C\r\n
GRRS Rx:	$$q28,353358019687743,B92,OK*30\r\n

32. Get Event Flag of GPRS Report – B93

GPRS Set:	B93
GPRS Get:	B93,Event Code Flag
Description:	Read the preset event code of GPRS report.
Example	
GPRS Tx:	@@V25,353358019687743,B93*85\r\n
GRRS Rx:	$$V42,353358019687743,B93,00000007E01C001F*BF\r\n

33. Set Event Flag for Taking Picture –B96

GPRS Set:	B96,Event Code Flag

GPRS Get:	B96,OK
Description:	Set one or more events to take picture. Once each event is activated, the camera takes picture and stores it in SD card memory. In default mode, once the SOS button is pressed, the tracker will automatically take picture and store it in SD card memory. Please refer to Annex 2 for more details of the Event Code. Use command D00/D01 to get pictures.
Example	
GPRS Tx:	@@A42,356895034353592,B96,0000000000000001*9D\r\n
GRRS Rx:	$$A28,356895034353592,B96,OK*02\r\n

34. Get Event Flag of Taking Picture –B97

GPRS Set:	B97
GPRS Get:	B97,Event Flag
Description:	To know which event(s) have been enabled the function of taking pictures.
Example	
GPRS Tx:	@@C25,356895034353592,B97*74\r\n
GRRS Rx:	$$C42,356895034353592,B97,0000000000000001*68\r\n

35. Output Control – C01

SMS/GPRS Set:	C01, speed,ABCDE
SMS/GPRS Get:	C01,OK
Description:	Speed = 0, no speed limit Speed = [1,255], in km/h, set conditional speed limit for output control. When speed is below the set speed, output is activated. A=0, close output (OUT1) -open drain A=1, open output (OUT1) -connect to GND A=2, remain previous status. B=0, close output (OUT2) -open drain B=1, open output (OUT2) -connect to GND B=2, remain previous status. C=0, close output (OUT3) -open drain C=1, open output (OUT3) -connect to GND C=2, remain previous status. D=0, close output (OUT4) -open drain D=1, open output (OUT4) -connect to GND D=2, remain previous status. E=0, close output (OUT5) -open drain E=1, open output (OUT5) -connect to GND E=2, remain previous status.
Example	

SMS Tx:	0000,C01,80,12221
SMS Rx:	353358019687743,C01,OK
GPRS Tx:	@@M35,353358019687743,C01,20,101222*55\r\n
GRRS Rx:	$$M28,353358019687743,C01,OK*03\r\n

36. Protocol Control – C03

SMS/GPRS Set:	C03,X
SMS/GPRS Get:	C03,OK
Description:	X = 0, Auto Event Report (default) X = 1, Event report needs server's confirmation by AFF command
Example	
SMS Tx:	0000,C03,0
SMS Rx:	353358019687743,C03,OK
GPRS Tx:	@@f27,353358017784062,C03,0*E1\r\n
GRRS Rx:	$$f28,353358017784062,C03,OK*14\r\n

37. GPRS Message Display – C10

GPRS Set:	C10,Grade,Sender,Type,Txt
GPRS Get:	C10,OK
Description:	Grade: 0=Normal Message, 1=Urgent Message Sender: The sender's name. Must Be ASCII String, Max 16 Bytes Type: Encoding mode. E=ASCII, U=UNICODE2 Txt: Message content. Max 150 Bytes
Example	
GPRS Tx:	@@C47,357713000000015,C10,1,GPRS,E,Test Message*2B\r\n
GRRS Rx:	$$C28,357713000000015,C10,OK*D1\r\n

38. SMS Message Display – C11

SMS Set:	C11, Txt
SMS Get:	C11,OK
Description:	Txt: Message content. Must be ASCII String, Max 150 Bytes
Example	
SMS Tx:	0000,C11,SMS Message\r\n
SMS Rx:	357713000000015,C11,OK\r\n

39. Get Picture – D00

GPRS Set:	D00, File Name,Index1
GPRS Get:	D00, File Name,Total,Index2,Data
Description:	Before getting picture from the tracker, use command D01 to get picture list and picture names. File Name: The file name of the picture you want to get from tracker's SD card memory. Index1: The starting sequence number of the picture package. Min = 0 (one picture will be split into a number of packages)

	Total: Total number of the packages for each picture. Min = 1 Index2: The current sequence number of picture package getting from the tracker. Data: Picture data of each package. Hex code. A full picture is composed when all packages are received in the server.
Example	
GPRS Tx:	@@O48,356895034353592,D00,0215080432_C2E03.jpg,0*E3\r\n
GRRS Rx:	\r\n

40. Get Picture List – D01

GPRS Set:	D01, Index1
GPRS Get:	D01, Total,Index2,File(1)|File(2)|…File(n)|
Description:	File(n): File name of the pictures separated by '|'. Index1: Starting sequence number of the picture list. Min = 0. For example, if Index1 = 0, the file names received will start from the 1st picture list and if Index1 = 4, the file name will start from the 5th picture list. Total: Total number of picture lists. Min =0. Index2: Current sequence number of the picture list from the tracker.
Example	
GPRS Tx:	@@A27,356895034353592,D01,0*C3\r\n
GRRS Rx:	$$A480,356895034353592,D01,3,0,0506162517_C1E03.jpg|0506162517_C1E11.jpg|0506162624_C1E03.jpg|0506162630_C1E11.jpg|0506162720_C1E03.jpg|0506162721_C1E03.jpg|0215080547_C1E03.jpg|0215080547_C1E11.jpg|0215080626_C1E03.jpg|0215080626_C1E11.jpg|0215080827_C1E03.jpg|0215080827_C1E11.jpg|0215080850_C1E03.jpg|0215080850_C1E11.jpg|0507145426_C1E03.jpg|0507145426_C1E11.jpg|0507145512_C2E03.jpg|0507145512_C2E11.jpg|0215080050_C3E03.jpg|0215080050_C3E11.jpg|0215080459_C3E03.jpg|0215080050*49\r\n

41. Delete Picture – D02

GPRS Set:	D02, File(1)|File(2)|…File(n)|
GPRS Get:	D02,OK
Description:	File(n): File name of picture(s) you want to delete. Separated by '|'.
Example	
GPRS Tx:	@@E110,356895034353592,D02,0506162517_C1E03.jpg|0506162517_C1E11.jpg|0506162624_C1E03.jpg|0506162630_C1E11.jpg|*56\r\n
GRRS Rx:	$$F28,356895034353592,D02,OK*FC\r\n

42. Take One Picture – D03

GPRS Set:	D03,Index,File Name,
GPRS Get:	D03, OK
Description:	Index: camera number. Min = 1 and normally Max = 2 File Name: The file name of the picture.
Example	

GPRS Tx:	@@D46,356895034353592,D03,1,camera picture.jpg*EA\r\n
GRRS Rx:	$$D28,356895034353592,D03,OK*FB\r\n

43. Get Firmware Version and SN – E91

SMS/GPRS Set:	E91
SMS/GPRS Get:	E91,Version,SN
Description:	Get current firmware version and S/N details of the tracker.
Example	
SMS Tx:	0000,E91
SMS Rx:	353358019687743,E91,FWV1.00,12345678
GPRS Tx:	@@W25,353358019687743,E91*87\r\n
GRRS Rx:	$$W38,353358019687743,FWV1.00,12345678*26\r\n

44. Reboot GSM Module – F01

SMS/GPRS Set:	F01
SMS/GPRS Get:	F01,OK
Description:	Reboot GSM module
Example	
SMS Tx:	0000,F01
SMS Rx:	353358017784062,F01,OK
GPRS Tx:	@@j25,353358017784062,F01*88\r\n
GRRS Rx:	$$j28,353358017784062,F01,OK*19\r\n

45. Reboot GPS Module – F02

SMS/GPRS Set:	F02
SMS/GPRS Get:	F02,OK
Description:	Reboot GPS Module
Example	
SMS Tx:	0000,F02
SMS Rx:	353358019687743,F02,OK
GPRS Tx:	@@Z25,353358019687743,F02*83\r\n
GRRS Rx:	$$Z28,353358019687743,F02,OK*14\r\n

46. Initialization– F11

SMS/GPRS Set:	F11
SMS/GPRS Get:	F11,OK
Description:	Make all parameters (except for the password) back to factory default.
Example	
SMS Tx:	0000,F11
SMS Rx:	353358019687743,F11,OK
GPRS Tx:	@@[25,353358019687743,F11*84\r\n
GRRS Rx:	$$[28,353358019687743,F11,OK*15\r\n

47. Change Password – F20

SMS Set:	F20,New Password
SMS Get:	F20,OK
Description:	Change SMS password. Password is 4 digits.
Example	
SMS Tx:	0000,F20,1234
SMS Rx:	353358019687743,F20,OK

48. Initialize Password – FAB

SMS Set:	8888,FAB
SMS Get:	FAB,OK
Description:	Make the password back to factory default in case you forget your password. Only authorized phone number(s) can send this command.
Example	
SMS Tx:	8888,FAB
SMS Rx:	353358019687743,FAB,OK

IV. Annex 1: Description of GPRS/SMS Data

Data in each GPRS/SMS message from the tracker includes:

Code(or SMS Header),<->yy.dddddd,<->xxx.dddddd,yymmddHHMMSS,Z,N,G,Speed,Heading,HDOP,Altitude, Journey,Runtime,Base ID,State,AD,RFID/Picture/Fence

Details:

Parameter	Description	Example
Code	Event code. Decimal string Refer to Annex 2 for more details	1
SMS String	Refer to Annex 2 for more details	SOS
<->yy.dddddd	Latitude: in unit of degree. Decimal string '-' is south, none is north yy = degrees; dddddd = decimal part of degree	22.756325 -23.256438
<->xxx.dddddd	Longitude: in unit of degree. Decimal string '-'is west, none is east xxx = degrees; dddddd = decimal part of degree	114.752146 -114.821453
yymmddHHMMSS	yy = year mm = month dd = date HH = hours MM = minutes	091221102631

	SS = seconds Decimal string	
Z	GPS status indicator: A = valid, V = invalid	A = Valid
N	Numbers of satellites available. Decimal string	5
G	GSM signal. Decimal string (0~31)	12
Speed	Km/h. Decimal string	58
Heading	Heading, in unit of degree. Decimal string (0~359)	275
HDOP	Horizontal Dilution of Precision, 0.5-99.9. Decimal string. HDOP Values below 4 are great and above 8 bad HDOP is blank when no GPS fix.	5
Altitude	MSL Altitude, in unit of meter. Decimal string	118
Journey	In unit of meter. Decimal string. The total accumulated journey and max 4294967295 meters.	564870
Runtime	In unit of second. Decimal string The total accumulated runtime and max 4294967295 seconds.	2546321
Base ID	ID of the base station including MCC|MNC|LAC|CI Note: for SMS report, the Base ID is empty. MCC and MNC are decimal string; LAC and CI are Hex string.	460|0|E166|A08B
State	Status of 8 inputs and 8 outputs. HEX String Bit0…Bit7 is output state, Bit0 is Ouput1 state Bit8…Bit15 is input state, Bit8 is Input1 state	0421(HEX String) = 0000 0100 0010 0001
AD	Separated by '|'. HEX String AD1|AD2|AD3|Battery AD|External Power AD Note: for SMS report, AD is empty.	123|456|235|1234|324| 654|1456|222(HEX String)
RFID	IC Card identity code. HEX string Only shown in GPRS Event Code 37	42770680(HEX String)
Picture	Picture file name Only shown in GPRS Event Code 39	0918101221_C2E03
Fence	Fence Number Only shown in Event Code 20 and 21	2

V. Annex 2: Description of Event Code and SMS Header

Event Code	Event	Default SMS Header (max 16 bytes)	Default GPRS Flag	Default SMS Flag	Default Picture Flag
1	**Input 1 Active (SOS pressed)**	SOS	Y	Y (Only for the first authorized phone number)	Y
2	**Input 2 Active**	In2	Y	N	N
3	**Input 3 Active**	In3	Y	N	N
4	**Input 4 Active**	In4	Y	N	N
5	**Input 5 Active**	In5	Y	N	N
9	**Input 1 Inactive(SOS released)**		N	N	N
10	**Input 2 Inactive**		N	N	N
11	**Input 3 Inactive**		N	N	N
12	**Input 4 Inactive**		N	N	N
13	**Input 5 Inactive**		N	N	N
17	**Low Battery**	Low Battery	N	N	N/A
18	**Low External Power**	Low Power	N	N	N/A
19	**Speeding**	Speeding	Y	Y	N
20	**Enter Geo-fence**	Enter GEO	Y	Y	N
21	**Exit Geo-fence**	Exit GEO	Y	Y	N
22	**External Power On**	Power On	N	N	N
23	**External Power Off**	Power Off	N	N	N/A
24	**No GPS Signal**	No Fix	N	N	N/A
25	**Get GPS Signal**	Fix	N	N	N/A
26	**Enter Sleep**	Enter Sleep	N	N	N/A
27	**Exit Sleep**	Exit Sleep	N	N	N/A
28	**GPS Antenna Cut**	Antenna Cut	N	N	N
29	**Device Reboot**	Reboot	N	N	N/A
30	**Impact**	Impact	Y	N	N
31	**Heartbeat Report**	(only for GPRS)	Y	N/A	N/A
32	**Heading Change Report**	Heading Change	Y	N	N/A
33	**Distance Interval Report**	Distance	Y	N	N/A
34	**Current Location Report**	Now	A/A	A/A	N/A
35	**Time Interval Report**	Interval	A/A	A/A	N/A
36	**Tow Alarm**	Tow	Y	N	N
37	**RFID**	(only for GPRS)	Y	N/A	N
39	**Picture**	(only for GPRS)	A/A	N/A	N/A

65	**Press Input 1 (SOS) to Call**	/	N/A	N	N/A
66	**Press Input 2 to Call**	/	N/A	N	N/A
67	**Press Input 3 to Call**	/	N/A	N	N/A
68	**Press Input 4 to Call**	/	N/A	N	N/A
69	**Press Input 5 to Call**	/	N/A	N	N/A
70	**Reject Incoming Call**	/	N/A	Y	N/A
71	**Report Location after Calling in**	/	N/A	Y	N/A
72	**Auto Answer Incoming Call**	/	N/A	N	N/A
73	**Listen-in (voice monitoring)**	/	N/A	N	N/A

Note:

1. Above figures are the factory default settings.
2. **Y** = yes; **N** = no; **N/A** = not applicable or not available; **A/A** = always stay available in all states and cannot be changed.
3. You can use commands to define SMS header, add and delete flag for each function.