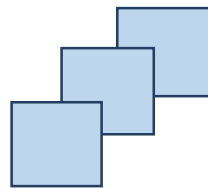


# FIFOTRACK GPRS PROTOCOL




Model: A00

Version: V1.1

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## Document History

Version	Revision Date	Author	Detail
V1.1	Oct 23, 2015	Vito Hu	Initial Version

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# 1 GPRS Package 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 Applied Models

The document describes the format of position/alarm GPRS data, and it is applied for the following models:

- ⊙ A100
- ⊙ Q1
- ⊙ A200

### 3 A00 – GPS Position/Alarm Data Format

\$\$<pack-len>,<ID>,<work-no>,A00,<alm-code | alm-para>,<date-time>,<fix\_flag>,<latitude>,<longitude>,<speed>,<course>,<altitude>,<odometer>,<fuel\_consume>,<status>,<input-st>,<output-st>,MCC|MNC|LAC|CI,bat-ad|ext-ad|ad1|ad2..adN\*<checksum>\r\n

#### Descriptions of position/alarm data:

Example: \$\$124,866104023181129,9AB,A00,14 12.3,150702103344,A,22.678965,114.908222,75,45,25,1024,768,0101,1,2,460 0 20BB 1072,3DE EEE 267*65\r\n	
Filed	pack-len
Description	decimal string format, the field of <i>pack-len</i> is {,<ID>,<work-no>,A00,<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 ad2.. adN}, be careful, comma(,) in front of <u>ID</u> included.
Example	124
Filed	ID
Description	Terminal ID, default IMEI, ASCII string
Example	866104023181129
Filed	work-no
Description	working number, hexadecimal string format, cyclic accumulation from 1 to 0xFFFF
Example	9AB, indicates that the value of work-no is 0x09AB
Filed	alm-code   alm-para
Description	Alarm code and alarm parameter, refer to Appendix A; For normal position data, this field is empty.
Example	14 12.3: means ext-pwr low alarm, with voltage 12.3V
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	150702103344: means 2015-7-2 10:33:44
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	22.678965																											
Filed	longitude																											
Description	Longitude, negative in western hemisphere, decimal string format																											
Example	114.908222																											
Filed	speed																											
Description	Unit km/h, decimal string format																											
Example	75: means 75km/h																											
Filed	course																											
Description	Running direction, unit degree, clockwise angle, decimal string format																											
Example	45																											
Filed	altitude																											
Description	Altitude, unit meter, decimal string format																											
Example	25, means 25m																											
Filed	odometer																											
Description	Unit meter, decimal string format																											
Example	1024: means odometer 1024m																											
Filed	fuel_consume																											
Description	Fuel consumption data, decimal string format; Using B82 command to enable fuel consumption statistics;																											
Example	768, means fuel consumption data is 768, contact to sales for calculation formula																											
Filed	status																											
Description	Alarm status or vehicle status, hexadecimal string format, as the following table: <table border="1" data-bbox="422 1216 1359 1865"> <thead> <tr> <th>bit</th> <th>definition</th> <th>description</th> </tr> </thead> <tbody> <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> <tr> <td>3--7</td> <td>Reserve</td> <td></td> </tr> <tr> <td>8</td> <td>Fatigue Driving</td> <td>Clear when fatigue relieve</td> </tr> <tr> <td>9</td> <td>Parking Overtime</td> <td>Clear when auto starts running</td> </tr> <tr> <td>10</td> <td>Idling Running</td> <td>Clear when auto starts running or ACC OFF</td> </tr> <tr> <td>11--31</td> <td>Reserve</td> <td></td> </tr> </tbody> </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	Reserve		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--31	Reserve	
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Example	0101, responses to (0000,0001,0000,0001) <sub>B</sub> , means GPS antenna cut, fatigue driving																											
Filed	input-st																											
Description	state of input, hexadecimal string format: bit[0] – input1 status;																											



	bit[1] – input2 status; etc.; for each bit, 1- input state is active, 0- input state is inactive
Example	1, means input1 is active
Filed	output-st
Description	state of output, hexadecimal string format: bit[0] – output1 status; bit[1] – output2 status; etc.; for each bit, 1- output exports high level, 0- output exports low level
Example	2, means output2 exports high 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 20BB 1072: Value of MCC is 460; Value of MNC is 0; Value of LAC is 0x20BB; Value of CI is 0x1072
Filed	bat-ad ext-ad ad1 ad2...adN
Description	Sample data of power AD input, value range[0,0x1000), hexadecimal string format; Use “ ” to separate each data; bat-ad: Sample value of internal battery voltage ext-ad: Sample value of ext-power voltage ad1: Sample value of AD1 ad2: Sample value of AD2 ... and: Sample value of ADN, while N indicates the number of analog input Analog input is not supported for Q1, there is no ad1 ad2...and filed in the package
Example	3DE EEE 267: Sample value of battery is 0x03DE; Sample value of ext-power is 0x0EEE; Sample value of AD1 is 0x0267. Tracker supports 1 analog input.
Filed	checksum
Description	checksum of package, 2 bytes hexadecimal string format, XOR of {<pack-len>,<ID>,<work-no>,A00,<alm-code alm-para>,<date-time>,<fix_flg>,<latit ude>,<longitude>,<speed>,<course>,<altitude>,<odometer>,<runtime>,<status>,<inp ut-st>,<output-st>,MCC MNC LAC CI,bat-ad ext-ad ad1 }
Example	65: the checksum is 0x65
Field	\r\n
Description	End of package, i.e. <CR><LF>
Example	\r\n

## 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
2	NULL	Input1 active	SOS
3	NULL	Input1 inactive	IN1 Inactive
4	NULL	Input2 active	IN2
5	NULL	Input2 inactive	IN2 Inactive
6	NULL	Input3 active	IN3
7	NULL	Input3 inactive	IN3 Inactive
8	NULL	Input4 active	IN4
9	NULL	Input4 inactive	IN4 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	NULL	Speeding alarm	Speeding
20	NULL	GPS antenna cut	GPS Antenna Cut
21	NULL	Vibration Alarm	Vibration Alarm
23	NULL	Harsh accelerate	Harsh Accelerate
24	NULL	Harsh braking	Harsh Braking
25	NULL	Enter sleep	Enter Sleep
26	NULL	Exit sleep	Wake Up
27	NULL	Fatigue driving	Fatigue Driving
28	NULL	Fatigue relieve	Fatigue Relieve
29	NULL	Parking overtime	Parking Overtime
30	NULL	Wireless communication jamming	GSM Jamming
32	NULL	GPS jamming	GPS Jamming
33	Hexadecimal character: bit[7:4]: geo-fence type: 0 - Circle fence 1 - Polygon fence bit[3:0]: index of fence	Exit geo-fence	Exit Fence
34	The same as "Exit Fence"	Enter geo-fence	Enter Fence
35	NULL	Idling Alarm	Idling Alarm