

# GPRS Communication Protocol Between GPS Tracker and Server

version V2.93

Update by 2021-12-15

| Version | Change Record                                                                                                             | Date                 |
|---------|---------------------------------------------------------------------------------------------------------------------------|----------------------|
| V1.00   | Build file                                                                                                                | 2008-8-21 by George  |
| V1.01   | Add parking overtime with time                                                                                            | 2008-10-23 by George |
| V1.10   | Add DEF alarm bit in alarm info                                                                                           | 2008-12-16 by George |
| V1.20   | Change fatigue drive alarm mode, add clear value for illegal ignition Alarm, add penetrate transmit data for serial 2 - 7 | 2009-3-16 by George  |
| V1.28   | Add ACC status in 0x82 packet                                                                                             | 2009-4-30 by JGShi   |
| V1.41   | Add remote update result upload A5 command.                                                                               | 2009-7-21 by George  |
| V2.00   | Format change and add protocol for new functions in 108                                                                   | 2012.5-15 by liven   |
| V2.01   | Add 8E data description                                                                                                   | 2012.12-19 by Liven  |
| V2.02   | Add command 0x71, 0xA3, 0xD3,0xD4,0xD9,0xDA, 0xDB, 0xDC, Appendix1 Position Data.                                         | 2013.06-15 by Wayne  |
| V2.1    | Add command 0xDD, 0xDE, 0xDF, 0xE0, 0xE1, update Appendix 3 peripheral data.                                              | 2015.06-10 by Lisa   |
| V2.2    | Update Appendix 3, add sub-command 0x0B used for bar code; add sub-command 0x10 used for main voltage.                    | 2015.09-15 by Lisa   |
| V2.3    | Update 0x82 package                                                                                                       | 2016.01.21 by Lisa   |
| ....    | .....                                                                                                                     | .....                |
| V2.54   | Add OBDII data to 0xA3                                                                                                    | 2017-12-15           |
| V2.55   | Update OBDII data                                                                                                         | 2017-12-27           |
|         | Update A3 blind area data to 8E                                                                                           |                      |
|         | Add low speed alarm                                                                                                       | 2018-03-30           |
|         | Update RFID status to 0xA3(sub-cmd 0x16)                                                                                  |                      |

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# I Command Format

Commands format of GPRS Packets are defined as following:

From Server to Device:

```
))<Command(1byte)><L(2 bytes)><ID(4bytes)><Parameter(s)><Checksum>|r
```

From Device to Server:

```
))<Command(1byte)><L(2 bytes)><ID(4bytes)><data><Checksum>|r
```

Note:

1. Do not input '<' and '>' in the command content.
2. All Multi-byte data complies with the following sequence: High byte prior to the low byte (**Big Endian**).
3. The size of one location data packet is about 50 bytes.

| Item           | Specification                                                                                                                                                                                                                                                                                                                    |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ))             | 2bytes. It is header for all correct packets. '))' is ASCII code, in hex code it is 0x29 0x29.                                                                                                                                                                                                                                   |
| Command        | 1 byte. It is in hex code, every packet have one and only command word. For detail, please refer to <a href="#">Part II Command List</a>                                                                                                                                                                                         |
| L              | 2 bytes. It means the length from Length byte (not include length byte) to packet end, include the end byte. It is in hex code.                                                                                                                                                                                                  |
| ID             | 4bytes. It is in hex code. Every device has one and only ID, It is calculate from the device SN.<br>For example: Suppose the device SN is: 29800298<br>Divide into 4 parts: 29 80 02 98<br>Convert to hex: 1D 50 02 62<br>Add 0x80 to 2 <sup>nd</sup> ,3 <sup>rd</sup> part: 1D D0 82 62<br>Then you get the device ID: 1DD08262 |
| Parameter/data | Minimum 0 byte, maximum 200byte, see appendix 1 for data description.                                                                                                                                                                                                                                                            |
| Checksum       | 1 bytes, it is xor checksum, for example:<br>if the packet is: 29 29 B1 00 07 0A 9F 95 38 0C 82 0D<br>0x82= 29 xor 29 xor B1 xor 00 xor 07 xor 0A xor 9F xor 95 xor 38 xor 0C                                                                                                                                                    |
| r              | 1 bytes, it is end byte of package, in hex it is 0D                                                                                                                                                                                                                                                                              |

## III Command Details

### 1. Login – 0xB1

|              |                                                                                                                                                                                                                                                                                                                                    |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xB1><L><ID><reserved><Checksum><\r>                                                                                                                                                                                                                                                                                            |
| Description: | After your device installed properly, device will send this packet to server for login. It will send every 30s, like heart beat. It must be reply, If server does not give reply (see <a href="#">Loginconfirmation</a> ), device will keep send this packet without any other packet; after get reply, other commands start work. |
| Example:     | 29 29 B1 00 07 0A 9F 95 38 0C 82 0D                                                                                                                                                                                                                                                                                                |
| Note:        | In example, the ID is 0A9F9538, change to device SN, it is 10312156. In <content> part 0x0C, we keep it as future use; do not have certain meaning now.                                                                                                                                                                            |

### 2. Login/Server Confirmation – 0x21

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x21><L><receive package check sum><receive package command><reserved><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                   |
| Description: | This command is send from server to device, to confirm some information, like login, some important alarm, and so on.                                                                                                                                                                                                                                                                                                                                                     |
| Example:     | 29 29 21 00 05 82 B1 0C 1B 0D                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Note:        | The example is the confirmation for packet 29 29 B1 00 07 0A 9F 95 38 0C 82 0D, <receive package check sum> is 0x82, <receive package command> is 0xB1, <receive package sub-command(first byte of the content)> part is 0x0C.<br>Example 2(if device need server to give 0x21 ack):<br>29 29 82 00 23 0C 80 80 32 14 10 24 15 10 58 02 23 57 72 11 35 28 35 00 00 00 00 FB 00 00 00 01 00 00 00 00 00 00 25 0D<br>The reply should be:<br>29 29 21 00 05 25 82 14 97 0D. |

### 3. Query date and time from server – 0xB3

|              |                                                                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xB3><L><ID><reserved><Checksum><\r>                                                                                                                 |
| Description: | After first time power on, device will send this packet to server for query date and time.                                                              |
| Example:     | 29 29 B3 00 07 0A 9F 95 38 0C 80 0D                                                                                                                     |
| Note:        | In example, the ID is 0A9F9538, change to device SN, it is 10312156. In <content> part 0x0C, we keep it as future use; do not have certain meaning now. |

#### 4. Server Confirmation date and time– 0x23

|              |                                                                                                                                                                                                                 |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x23><L><date and time><Checksum><\r>                                                                                                                                                                        |
| Description: | This command is send from server to device, to confirm the date and time.                                                                                                                                       |
| Example:     | 29 29 23 00 08 17 07 08 13 25 30 35 0D                                                                                                                                                                          |
| Note:        | Date range:Year,2000-2099; Month 1-12; Day, 1-31;<br>Time range: Hour, 00-23; Min, 00-59; Second, 00-59.<br>Hour/min/second use compressed BCD code<br>For example: 17 07 08 13 25 30 means 2017-07-08 13:25:30 |

#### 5. One time track on demand – 0x30

|              |                                                                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x30><L><ID><Checksum><\r>                                                                                                                             |
| Description: | This command will get current location data when you send, and device only upload location data once. About the device reply, See <a href="#">Reply</a> . |
| Example:     | 29 29 30 00 06 0A 9F 95 38 0E 0D                                                                                                                          |
| Note:        | This command used when you want track manually, you can send this command from software platform to device.                                               |

#### 6. Device restart command– 0x32

|              |                                                                                                             |
|--------------|-------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x32><L><ID><Checksum><\r>                                                                               |
| Description: | This command will restart the device. About the device reply, See <a href="#">Reply</a> 0x85.               |
| Example:     | 29 29 32 00 06 0a 8a 80 01 35 0d                                                                            |
| Note:        | This command used when you want track manually, you can send this command from software platform to device. |

Reboot: 29 29 32 00 06 0a 8a 80 01 35 0d

Reply: 29 29 85 00 28 0a 8a 80 01 17 03 17 15 04 10 02 23 55 61 11 35 22 86 00 00 00 00 fb 00 00 00 7f ff  
5e 00 00 00 0a 00 00 00 00 32 26 0d

#### 7. One time track on demand reply – 0x81

|              |                                                                                                                                                                                                                  |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x81><L><ID><Position data><Checksum><\r>                                                                                                                                                                     |
| Description: | Reply packet for track on demand command; send current position, speed, and status data to server. From device to server. About <Position data> description , please see <a href="#">Appendix 1 Positon data</a> |
| Example:     | 29298100280A9F9538081228160131022394301140372500000330FF0000007FFC0F00001E000000000034290D                                                                                                                       |
| Note:        | The data between <ID> and <Checksum> is Position data.                                                                                                                                                           |

## 8. Tracking by Interval (ACC\_On) – 0x34

|              |                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x34><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                  |
| Description: | This is command for setting device upload by time interval when ACC on. Our device default upload interval is 30s, you can change or set it with this command, the content of <parameter>part is interval, and unit is second, in hex code. After receive this command, device will give <a href="#">Set Reply</a> . And the packet send by interval to server see <a href="#">Position Data Upload</a> . |
| Example:     | 29 29 3400 080A 9F 95 3800 1E1A 0D                                                                                                                                                                                                                                                                                                                                                                        |
| Note:        | In this example, the interval is 001E, In decimal it is 30, so this command will set the device upload with interval 30s.                                                                                                                                                                                                                                                                                 |

## 9. Tracking by Interval (ACC\_Off)– 0x70

|              |                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x70><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                   |
| Description: | This is command for setting device upload by time interval when ACC off. Our device default upload interval is 30s, you can change or set it with this command, the content of <parameter>part is interval, and unit is second, in hex code. After receive this command, device will give <a href="#">Set Reply</a> . And the packet send by interval to server see <a href="#">Position Data Upload</a> . |
| Example:     | 29 29 7000 080A 9F 95 3800 1E5E 0D                                                                                                                                                                                                                                                                                                                                                                         |
| Note:        | In this example, the interval is 001E, In decimal it is 30, so this command will set the device upload with interval 30s.                                                                                                                                                                                                                                                                                  |

## 10. Track by Distance – 0x35

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x35><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                            |
| Description: | This command set device upload when moving a certain distance. In default device have close this function, use this command to change the upload rule to distance interval. The content of <parameter>part is distance interval; the unit of it is meter, in hex code. After receive this command device will send <a href="#">Set Reply</a> , And the packet send by interval to server see <a href="#">Position Data Upload</a> . |
| Example:     | 29 29 3500 080A 9F 95 3800 6461 0D                                                                                                                                                                                                                                                                                                                                                                                                  |
| Note:        | In this example, the interval is 0064, in decimal it is 100, the device will upload with interval 100m.                                                                                                                                                                                                                                                                                                                             |

## 11. Position Data Upload (by Interval, distance) – 0x80

|              |                                                                                                                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x80><L><ID><data><Checksum><\r>                                                                                                                                                                                              |
| Description: | This packet is send from device to server, send by interval set to device. In default, our device will send this packet every 30s after login. About the <data> description, please see <a href="#">Appendix 1Positon data</a> . |
| Example:     | 29 29 8000 280A 81 85 0A 12 03 10 09 57 50 00 52 81 37 00 61 19 08 00 00 02 32 F8 48 FF BB FF FF 00 00 00 1E 00 00 00 00 00 00 ED 0D                                                                                             |
| Note:        | The data between <ID> and <Checksum> is Position data.                                                                                                                                                                           |

## 12. Blind Area Data re-Upload – 0x8E

|              |                                                                                                                                                                                                                                                                                                                      |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x8E><L><ID><data><Checksum><\r>                                                                                                                                                                                                                                                                                  |
| Description: | This packet is for blind area data resend to server, both works for 0x80 and 0xA3 packages,About the <data> description, please see <a href="#">Appendix 1 Positon data</a> and <a href="#">Appendix 3 peripheral data</a> .                                                                                         |
| Example:     | <p>Blind data for 0x80:</p> <p>29 29 8E00 280F 80 81 5A 12 12 18 20 31 16 02 23 18 46 11 40 22 70 00 72 02 62 FB 00 07 7C 7F BF 56 00 00 1E 3C 32 00 00 00 00 85 0D</p> <p>Blind data for 0xA3:</p> <p>29298E002D1580831F1802280722230223557611352270000 00072FB0000007FFF590000000000000000000000005200164FA0 D</p> |
| Note:        | The data between <ID> and <Checksum> is Position data.                                                                                                                                                                                                                                                               |

## 13. Over speed Alarm Set – 0x3F

|              |                                                                                                                                                                                                                                                                      |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x3F><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                             |
| Description: | This packet sent form server to device. It set a speed limit to device, when device speed up to or bigger than the limit, device will give a over speed alarm. About the alarm content, please see the <a href="#">Alarm Info</a> . The unit for <parameter> is km/h |
| Example:     | 29 29 3F00 070A 9F 95 3832Checksum(Xor) 0D                                                                                                                                                                                                                           |
| Note:        | In this command, the <parameter> is 0x32=50, means the speed limit is 50km/h.                                                                                                                                                                                        |

## 14. Movement Alarm Set – 0xC7

|              |                                                                                                                                                                                                                                    |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xC7><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                           |
| Description: | This command is send from server to device, to set a circle area. When device go out of the circle, it will give a move alarm. The unit of <parameter> is 10 meters. The reply for command, please see <a href="#">Set Reply</a> . |
| Example:     | 29 29 C700 070A 9F 95 38 0FF7 0D                                                                                                                                                                                                   |
| Note:        | In this example, the parameter is 0F=15, so the radum is 150 meter.                                                                                                                                                                |

## 15. Stop Engine (Remote Immobilize) – 0x39

|              |                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x39><L><ID><Checksum><\r>                                                                                                                                                                                                                                                                                                                                         |
| Description: | This command send from server to device, when receive this command , device will give output control signal, normally we use it control vehicle oil pump, user's can use it control other part of vehicle by this control output. The reply for this command, please see <a href="#">Set Reply</a> . Command for recover please sees <a href="#">Recover Engine</a> . |
| Example:     | 29 29 3900 06 0A 9F 95 3807 0D                                                                                                                                                                                                                                                                                                                                        |
| Note:        | <b>This command will have physical operations to user's Car, please make two confirmation for this function in software, to make sure operations to car is safe.</b>                                                                                                                                                                                                  |

## 16. Recover Engine (Disable Immobilize) – 0x38

|              |                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x38><L><ID><Checksum><\r>                                                                                                    |
| Description: | This command is undo action for command <a href="#">Stop Engine</a> . Device gives <a href="#">Set Reply</a> after this command. |
| Example:     | 29 29 38 00 06 0A 9F 95 38 06 0D                                                                                                 |
| Note:        | This command will cancel the stop engine status in <a href="#">position data</a> , and write 0x38 in <b>V8</b> part.             |

## 17. Listen in (Voice Monitoring) – 0x3E

|              |                                                                                                                                                                                               |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x3E><L><ID><Parameter><Checksum><\r>                                                                                                                                                      |
| Description: | This command will request device make a one-way telephone to the number in <parameter> part. Parameter part use compressed BCD code. Device gives <a href="#">Set Reply</a> for this command. |
| Example:     | 29 29 3E00 0D0A 9F 95 38 07 55 61 52 45 81 FF51 0D                                                                                                                                            |
| Note:        | For <parameter> part, it use Compressed BCD code to express                                                                                                                                   |

|  |                                                                                                                                                                                                                                                                                                                                     |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | telephone number, if the length of the telephone number is a odd number, need add F in the end, for example: number 13590251897 should express as: 13 59 02 51 89 7F; if the length of the telephone number is a even number, need add FF in the end, for example: number 075561524581 should be expressed as 07 55 61 52 45 81 FF. |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 18. Stop/packing overtime– 0x40

|              |                                                                                                                                                                                                                         |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x40><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                |
| Description: | This command will set stop overtime alarm to device. Parameter part use HEX code. Device gives <a href="#">Set Reply</a> for this command.<br>Unit is minute, Hex data, range is 0-255min(0 means close this function). |
| Example:     | 29 29 4000 070A 9F 95 38 1E61 0D                                                                                                                                                                                        |
| Note:        | For <parameter> part, it use HEX, in the example the value is 1E, means stop overtime value is 30min.                                                                                                                   |

## 19. Cancel Geo-Fencing – 0x47

|              |                                                                                            |
|--------------|--------------------------------------------------------------------------------------------|
| Command:     | ))<0x47><L><ID><Checksum><\r>                                                              |
| Description: | This command sends from server to device. It will delete all the Geo-Fences set in device. |
| Example:     | 29 29 4700 060A 9F 95 3879 0D                                                              |
| Note:        | Device sends <a href="#">Set Reply</a> to server after this command.                       |

## 20. Inquiry GEO Fencing – 0x48

|              |                                                                                       |
|--------------|---------------------------------------------------------------------------------------|
| Command:     | ))<0x48><L><ID><Checksum><\r>                                                         |
| Description: | This command sends from server to device. Device will reply Geo-Fences set in device. |
| Example:     | 29 29 4800 060A 9F 95 3876 0D                                                         |
| Note:        | Device reply 0x9A packet.                                                             |

## 21. Set Geo-Fencing – 0x49(NEW)

|              |                                                                                                                                                                                                                     |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x49><L><ID><Parameter><Checksum><\r>                                                                                                                                                                            |
| Description: | This command will set Geo-Fences to device. Device checks if Geo-Fence alarm triggered. Device give <a href="#">Set Reply</a> to this command.                                                                      |
| Example:     | 29 29 49 00 84 0b 8b 8b 0b05 02 23 55 50 11 35 28 92 02 23 56 05 11 35 30 17 01 80 00 00 00 00 00 00 02 23 55 55 11 35 30 86 02 23 56 03 11 35 32 75 02 80 00 00 00 00 00 00 02 23 54 02 11 35 29 10 02 23 54 94 11 |

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | <p><b>35 31 26 03 80 00 00 00 00 00 00 00 02 23 52 56 11 35 32 10 02 23 54 24 11 35 34 80 04 80 00 00 00 00 00 00 00 02 23 52 28 11 35 28 18 02 23 53 34 11 35 30 18 05 80 00 00 00 00 00 00 00 79 0d</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Note: | <p>In example, it have set <b>5</b> Geo-fences, the meaning of the parameters shows below:</p> <p><b>05</b> //Geo-fences quantities, in this example have 5 Areas.</p> <p><b>02 23 55 50</b> //1<sup>st</sup> Geo-Fence. Latitude for upper left corner<br/>It is 22° 33.995'</p> <p><b>11 35 28 92</b> //1<sup>st</sup> Geo-Fence. Longitude for upper left corner<br/>It is 113° 58.869'</p> <p><b>02 23 56 05</b> //1<sup>st</sup> Geo-Fence. Latitude for lower right corner<br/>It is 22° 32.123'</p> <p><b>11 35 30 86</b> //1<sup>st</sup> Geo-Fence. Longitude for lower right corner<br/>It is 114° 1.584'</p> <p><b>01</b> //Geo-Fence number, 1<sup>st</sup> one start with 01</p> <p><b>80</b> //Alarm type, byte 0-1:<br/>0x00 means in region alarm<br/>0x01 means out region alarm<br/>0x02 means alarm when both in/out alarm<br/>0x03 means forbidden alarm</p> <p>Byte 7:<br/>0x80 means in region alarm, and use extend alarm<br/>0x81 means out region alarm, and use extend alarm<br/>0x82 means in/out region alarm, and use extend alarm</p> <p><b>00 00 00 00</b> //extend alarm byte, reserved.<br/><b>00 00 00</b> //extend alarm byte, reserved.</p> <p><b>02 23 55 55</b> //2<sup>nd</sup> Geo-Fence. Latitude for upper left corner<br/><b>11 35 30 86</b> //2<sup>nd</sup> Geo-Fence. Longitude for upper left corner<br/><b>02 23 56 03</b> //2<sup>nd</sup> Geo-Fence. Latitude for lower right corner<br/><b>11 35 32 75</b> //2<sup>nd</sup> Geo-Fence. Longitude for lower right corner<br/><b>02</b> //Geo-Fence number, 2<sup>nd</sup> one.<br/><b>80</b> //Alarm types. 0x80 means in region alarm and use extend alarm in region.<br/><b>00 00 00 00</b> //extend alarm byte, reserved.<br/><b>00 00 00</b> //extend alarm byte, reserved.</p> <p><b>02 23 54 02</b> //3<sup>rd</sup> Geo-Fence. Latitude for upper left corner<br/><b>11 35 29 10</b> //3<sup>rd</sup> Geo-Fence. Longitude for upper left corner<br/><b>02 23 54 94</b> //3<sup>rd</sup> Geo-Fence. Latitude for lower right corner<br/><b>11 35 31 26</b> //3<sup>rd</sup> Geo-Fence. Longitude for lower right corner<br/><b>03</b> //Geo-Fence number, 3<sup>rd</sup> one.<br/><b>80</b> //Alarm type, 0x80 means in region alarm and use extend alarm in region.<br/><b>00 00 00 00</b> //extend alarm byte, reserved.</p> |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>00 00 00</b> //extend alarm byte, reserved.<br><br><b>02 23 52 56</b> //4 <sup>rd</sup> Geo-Fence. Latitude for upper left corner<br><b>11 35 32 10</b> //4 <sup>rd</sup> Geo-Fence. Longitude for upper left corner<br><b>02 23 54 24</b> //4 <sup>rd</sup> Geo-Fence. Latitude for lower right corner<br><b>11 35 34 80</b> //4 <sup>rd</sup> Geo-Fence. Longitude for lower right corner<br><b>04</b> //Geo-Fence number, 4 <sup>rd</sup> one.<br><b>80</b> //Alarm type, 0x80 means in region alarm and use extend alarm in region.<br><b>00 00 00 00</b> //extend alarm byte, reserved.<br><b>00 00 00</b> //extend alarm byte, reserved.<br><br><b>02 23 52 28</b> //5 <sup>rd</sup> Geo-Fence. Latitude for upper left corner<br><b>11 35 28 18</b> //5 <sup>rd</sup> Geo-Fence. Longitude for upper left corner<br><b>02 23 53 34</b> //5 <sup>rd</sup> Geo-Fence. Latitude for lower right corner<br><b>11 35 30 18</b> //5 <sup>rd</sup> Geo-Fence. Longitude for lower right corner<br><b>05</b> //Geo-Fence number, 5 <sup>rd</sup> one.<br><b>80</b> //Alarm type, 0x80 means in region alarm and use extend alarm in region.<br><b>00 00 00 00</b> //extend alarm byte, reserved.<br><b>00 00 00</b> //extend alarm byte, reserved. |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Device will give 0x85 reply after received for confirm.

29 29 85 00 2e 0b 8b 8b 0b 17 03 31 10 52 09 02 23 55 80 11 35 22 70 00 00 00 00 fb 00 00  
00 9f ff 57 00 01 01 09 00 00 00 00 49 00 06 10 02 00 8d 52 0d

## 22. Send Dispatch Info – 0x3A

|              |                                                                                                                                                                                                              |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x3A><L><ID><info content><Checksum><\r>                                                                                                                                                                  |
| Description: | <p>This command sends from server to device. It used in send GPRS dispatch command to device for setting/query parameters.</p> <p>Device will give <a href="#">Set Reply</a> after receive this command.</p> |
| Example:     | 29293A000C0AA483112A32363923437D0D                                                                                                                                                                           |
| Note:        | means send"*269#C" to device(10360317), the parameter is the ASCII code of "*269#C" in hex.                                                                                                                  |

## 23. Delete Mileage – 0x66

|              |                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x66><L><ID><Checksum><\r>                                                                                             |
| Description: | <p>This command sends from server to device. It will clear the mileage calculated by your device, and restart from 0.</p> |
| Example:     | 29 29 6600 060A 9F 95 3858 0D                                                                                             |
| Note:        | Device will give <a href="#">Set Reply</a> after this command.                                                            |

## 24. Alarm Info – 0x82

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x82><L><ID><Data><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Description: | This command sends from device to server. It is alarm data, this packet need deal with in the first class. This command words is for important and emergency situation.                                                                                                                                                                                                                                                                                                                                                                                    |
| Example:     | <b>29 29 8200 230C 80 80 3214 10 24 15 10 58 02 23 57 72 11 35 28 35 00 00 00 00 FB 00 0000 01 0000 00 00 00 00 25 0D</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Note:        | About the instruction for the <data> the parse shows below:<br><b>14 10 24 15 10 58 02 23 57 72 11 35 28 35 00 00 00 00 FB 00 00</b> this 21 byte data check in section <a href="#">Appendix 1 Position Data</a> please;<br><b>00 01 00</b> this part is alarm status data, please check the instruction in section <a href="#">Appendix 2 Alarm Data</a> ; for this example, it is over speed alarm happens.<br><b>00 00 00 00 00</b> this part is alarm parameters data, please check the instruction in section <a href="#">Appendix 2 Alarm Data</a> ; |

Note:

1. Each alarm after first time trigger, will only send 0x82 alarm once, if still under trigger state, will save the alarm status in 0x80 position package;
2. Need server to give 0x21 confirmation for each alarm.

For example(SOS alarm):

29 29 82 00 23 0C 80 80 32 14 10 24 15 10 58 02 23 57 72 11 35 28 35 00 00 00 00 FB 00 00 00 01 00 00 00 00 00 25 0D

The reply should be:

29 29 21 00 05 258214 97 0D.

## 25. Cancel Alarm – 0x37

|              |                                                                                                                                                                                                                                                       |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x37><L><ID><Checksum><\r>                                                                                                                                                                                                                         |
| Description: | This command is sends from server to device, it will clear the alarm status in device, and the alarm status will clear to 0. And it only be reset when alarm status happens again.<br>Device will reply <a href="#">Set Reply</a> after this command. |
| Example:     | 29 29 3700 060A 9F 95 3809 0D                                                                                                                                                                                                                         |
| Note:        | This command only clear the alarm status happens before, if the alarm status is continuously, like overspeed alarm, if you speed not low down, and you send cancel command, it will keep sending this overspeed alarm.                                |

Note:

This command can only send by manual, please do not send 0x37 command once received 0x82 alarm, in case the alarm is continuous.

## 26. Set GPRS Parameters – 0xC1

|              |                                                                                                                                                                         |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xC1><L><ID><Parameter><Checksum><\r>                                                                                                                                |
| Description: | This command sends from server to device. It will change current APN, APN User, APN Password set in device. Devices reply <a href="#">Set Reply</a> after this command. |
| Example:     | 29 29 C100 170A 9F 95 38 22 43 4D 4E 45 54 2C 67 70 72 73 2C 67 70 72 73 22BF 0D                                                                                        |
| Note:        | The parameter part is in ASCII code, in example:<br><b>22 43 4D 4E 45 54 2C 67 70 72 73 2C 67 70 72 73 22</b><br>Means: "CMNET,gprs,gprs"                               |

## 27. Set Server IP and Port In Device – 0x69

|              |                                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x69><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                          |
| Description: | This command sends from server to device. It will change current server IP and PORT set in device. Device reply <a href="#">Set Reply</a> after this command.                                                                                                     |
| Example:     | 29 29 6900 1C0A 9F 95 38 22 31 32 31 2E 30 33 37 2E 30 35 39 2E 32 31 37 22 2C 37 37 37 3741 0D                                                                                                                                                                   |
| Note:        | Parameter part is in ASCII code. In the example, the <parameter> part: <b>22 31 32 31 2E 30 33 37 2E 30 35 39 2E 32 31 37 22 2C 37 37 37 37</b><br>means: "121.037.059.217",7777<br><b>Remark:</b><br>The IP data head and tail contain a double quotation marks. |

## 28. Set Reply – 0x85

|              |                                                                                                                                                                                                                                                                                            |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x85><L><ID><Data><Checksum><\r>                                                                                                                                                                                                                                                        |
| Description: | This package sends from device to server, for reply most of the commands send from server to device. It will put the command words of packet it reply for in the last byte of <data> part. The detail description of <Data> part please find in <a href="#">Appendix 1 Position Data</a> . |
| Example:     | 29 29 8500 081D D0 8C 22 12 03 12 17 40 26 02 65 45 71 03 12 54 17 00 00 00 00 F8 19 C8 39 FF FF 1D 00 00 1E 00 50 00 00 00 3AF9 0D                                                                                                                                                        |
| Note:        | In this example, the last byte of <Data> part is 0x3A, so it is a reply packet for <a href="#">Send Dispatch Info</a> .                                                                                                                                                                    |

## 29. Illegal Ignition Set -0xC6

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xC6><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Description: | This command sends from server to device. It will define time period when vehicle can't be started, if detect the device started in forbidden time period; device will give an alarm Illegal Ignition. Every device can set 10 time period in device. Device give <a href="#">Set Reply</a> after receive this command.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Example:     | 29 29 C600 130A 9F 95 38 01 0C 01 01 01 14 00 0C 0C 1F 00 17 3B C0 0D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Note:        | <p>In this example, the &lt;parameter&gt; part should be parse like this:</p> <p><b>01</b> // the serial number of time period, from 0x01~0x0A.</p> <p><b>0C 01 01 01 14 00</b>// this is start time. First byte 0x0C is year, system need add 2000 to this part, so the value range of year is 2000~2255, so 0x0C means 2012; second byte 0x01 is for month, value range is 01~0C, in example 0x01 means JAN; the third byte 0x01 is day, value range is 01~1F; the fourth byte 0x01 means week, value range is 1~7, 7 means Sunday; the fifth byte means hour, value range is 0~17h, 0x14 means 20:00; the last byte is min, value range is 0~3B.</p> <p><b>0C 0C 1F 06 17 3B</b>// this is end time, define is the same with start time.</p> <p>When set year month week day set to 0, means device do not check that part, just check time.</p> |

## 30. Device Factory Reset – 0xC3

|              |                                                                                                                                                                                                                                                                                       |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xC3><L><ID><Checksum><\r>                                                                                                                                                                                                                                                         |
| Description: | This command sends from server to device, command will recover all the settings except IP/PORT/APN/APN user/APN password to device include time interval, over speed setting, and mileage and so on to factory set. Device give <a href="#">Set Reply</a> after receive this command. |
| Example:     | 29 29 C300 060A 9F 95 38 FD 0D                                                                                                                                                                                                                                                        |
| Note:        | Attention, this command will clear all the alarm settings and mileage count data, be careful when send this command.                                                                                                                                                                  |

## 31. Set Vehicle Idle Alarm – 0x4B

|              |                                                                                                                                                                                          |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x4B><L><ID><Parameter><Checksum><\r>                                                                                                                                                 |
| Description: | This command sends from server to device, it will set a time during to device, if device detect that the vehicle is engine on and speed<10km/h for the time during set or longer, device |

|          |                                                                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | will send a vehicle Idle alarm. You can find the alarm packet in <a href="#">Alarm Info</a> , and find alarm status instruct in <a href="#">Appendix 2 Alarm data</a> . |
| Example: | 29 29 4B00 070A 9F 95 3814 60 0D                                                                                                                                        |
| Note:    | The parameter unit is minute, in this example, 0x14 means 20 minutes.                                                                                                   |

### 32. Check Device Version – 0x3D

|              |                                                                                                                                                     |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x3D><L><ID><Checksum><\r>                                                                                                                       |
| Description: | This command sends from server to device, to check the firmware version of device. Device will reply <a href="#">0x84</a> to this command.          |
| Example:     | 29 29 3D00 060A 9F 95 3803 0D                                                                                                                       |
| Note:        | This command is for firmware version check only. For some basic mode of tracker like 101A, old version of firmware may do not support this command. |

### 33. Device Reply for Query Parameters– 0x84

|              |                                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x84><L><ID><Data><Checksum><\r>                                                                                                                            |
| Description: | This command is reply for firmware check, send from device to server. <Data> part is firmware version of this device, in ASCII code.                           |
| Example:     | 29 29 8400 310A A2 8A 07 54 33 36 30 2D 31 30 33 41 57 28 47 54 4D 29 56 32 2E 30 31 20 40 20 53 65 70 20 32 33 20 32 30 31 31 20 31 32 3A 34 38 3A 31 38CF 0D |
| Note:        | In this example, the firmware version of this device is : T360-103AW(GTM)V2.01 @ Sept. 23 2011 12:48:18                                                        |

### 34. Get Current Address – 0xA8

|              |                                                                                                                                                                                                                                                                                                                               |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xA8><L><ID><Data><Checksum><\r>                                                                                                                                                                                                                                                                                           |
| Description: | This command is used when customer need to get detail address, like building, street, city. With our 101A and 101E device. Customer can send SMS command: AS1234WHERE1# to device, device sends this command to server to require address from server. About the reply please see <a href="#">Get Current Address Reply</a> . |
| Example:     | 29 29 A800 280A A2 8A 07 12 03 12 17 40 26 02 65 45 71 03 12 54 17 00 00 00 00 F8 19 C8 39 FF FF 1D 00 00 1E 00 50 00 00 00 0095 0D                                                                                                                                                                                           |
| Note:        | The <Data> part is current position data, you can check the instruct about it in <a href="#">Appendix1 Position Data</a> .                                                                                                                                                                                                    |

### 35. Get Current Address Reply – 0x72

|              |                                                                                                                                                                                                                                                                                                             |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x72><L><ID><Data><Checksum><\r>                                                                                                                                                                                                                                                                         |
| Description: | This command is reply for address requirement 0xA8, the address is <Data> part, coding in <b>Unicode</b> . Device will get the <Data> part of address and send SMS to the customers mobile phone who require the address.                                                                                   |
| Example:     | 29 29 <b>7200 5B0A A2 8A 07</b> 00 00 <b>54 00 65 00 6D 00 61 00 20 00 2D 00 20 00 53 00 61 00 64 00 66 00 61 00 2C 00 20 00 53 00 61 00 6C 00 61 00 6D 00 6F 00 75 00 6E 00 2C 00 20 00 4D 00 61 00 72 00 6B 00 61 00 7A 00 20 00 54 00 61 00 6D 00 61 00 2C 00 20 7D 22 54 C8 67 70 57 C3 53 CA</b> 89 0D |
| Note:        | In this example, the address get from server is :<br>Tema – Sadfa, Salamoun, Markaz Tema, 索哈杰埃及                                                                                                                                                                                                             |

### 36. Remote Update Firmware – 0xD2

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | )<0xD2><L><ID>< <b>Data</b> ><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Description: | This command is used for update firmware by GPRS. It is used when device have new function or bugs need be fixed remotely. When received this command device will check and connect to certain update TFTP sever to download the new firmware file then update. Device will give <a href="#">Set Reply</a> after receive this command.                                                                                                                                                                    |
| Example:     | 29 29 D200 2D 0A A2 8A 07 01 31 32 31 2E 30 33 37 2E 30<br>35 39 2E 32 31 37 22 C1 6E 65 77 2E 62 69 6E 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 2F 0D                                                                                                                                                                                                                                                                                                                                             |
| Note:        | The <data> part in the example parsed as below:<br><b>01</b> //Update type, if it is 0x00, then cancel update; when it is 0x01 then force update.<br><b>31 32 31 2E 30 33 37 2E 30 35 39 2E 32 31 37</b> //update server IP: 121.037.059.217; 15 bytes of data in ASCII code.<br><b>22 C1</b> //Update server port:8897 ; data is in hex;<br><b>6E 65 77 2E 62 69 6E 00 00 00 00 00 00 00 00 00 00</b><br><b>00 00 00</b> //file names: new.bin, 21bytes (add 00 when less than 21 bytes), in ascii code. |

### 37. Remote Update Firmware Result – 0xA5

|              |                                                                                                                                                                                                                                                                                            |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xA5><L><ID>< <b>Data </b>                                                                                                                                                                                                                                                              |
| Description: | This command is uploading by device. After firmware update, device will upload this packet to software, to show update successful or not. The flag for successful is in the last byte of <Data> part, when it is 0x00, it means update successful, if it is not 0x00, means update failed. |

|          |                                                                                                                                             |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Example: | 29 29 <b>A500 280A A2 8A 07 12 03 12 17 40 26 02 65 45 71 03 12 54 17 00 00 00 00 F8 19 C8 39 FF FF 1D 00 00 1E 00 50 00 00 00 00 98 0D</b> |
| Note:    | The <Data > part is position data, the last byte of it is 0x00, it is V8 of position data. In this command it means update successful.      |

### 38. Camera Related Command – 0x28/0x65/0x26/0xAB

Please refer to file<<Amwell Take Photo Protocol V1.0>>.

### 39. Temperature alarm set – 0x71

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x71><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Description: | This command is used to configure the temperature abnormal alarm parameter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Example:     | 29 29 <b>7100 0B0A 9F 95 38 Byte1 Byte2 Byte3Byte4 Byte5 Xor 0D</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Note:        | <p><b>1).</b><br/> <b>Byte1:</b> Temperature abnormal alarm enable/disable mark byte. Example, Byte1=0x00 disable, Byte1=0x01 enable.</p> <p><b>Byte2Byte3:</b> Temperature upper limit value, unit 1/10℃. Signed short integer, the MSB used to be a sign bit. Example, <b>Byte2Byte3=0x0123=291</b>, so it means the upper temperature limit is <b>291/10=29.1℃</b>.</p> <p><b>Byte4 Byte5:</b> Temperature drop limit value, unit 1/10℃. Signed short integer, the MSB used to be a sign bit. Example,<b>Byte4Byte5=0x8123=-291</b>, so it means the drop temperature limit is <b>-291/10=-29.1℃</b>.</p> <p><b>2).</b><br/> Device reply by command 0x85, and set data field V8=0x71 to indicate ACK.</p> <p><b>Remark:</b> Only connected temperature sensor will have this function. Default enable.</p> |

### 40. Peripheral data info upload –0xA3

|              |                                                                                                                                                                                                                                                  |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xA3><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                         |
| Description: | This packet will be send from device to server by set interval time to replace the command packet 0x80 when device has connected peripheral unit like fuel tank sensor, temperature sensor etc. Anyway, this packet equal 0x80 packet, but added |

|          |                                                                                                                                                                      |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | peripheral sensor data.                                                                                                                                              |
| Example: | 29 29 A3L0A 9F 95 38 <b>Location_info Peripheral_data</b> Xor 0D                                                                                                     |
| Note:    | <b>1).</b><br><b>Location_info:</b> Please see <a href="#">Appendix 1 Positon data</a> .<br><b>Peripheral_data:</b> see <a href="#">Appendix 3 peripheral data</a> . |

## 41. Fuel level sensor Parameter Set – 0xD3

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xD3><L><ID><Data><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Description: | This command is used to configure the fuel sensor parameter to the device from server.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Example:     | 29 29 D300 0B0A A2 8A 07 <b>Byte1Byte2Byte3 Byte4Byte5</b> Xor 0D                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Note:        | <b>1).</b><br><b>Byte1Byte2:</b> used to indicate the fuel sensor voltage when fuel tank is empty.<br><br><b>Byte3Byte4:</b> used to indicate the fuel sensor voltage when fuel tank is full.<br><br><b>Byte5:</b> used to indicate the fuel sensor type, 0x00 means using vehicle original fuel sensor, 0x01 means using external fuel sensor.<br><br><b>2).</b><br>Device reply by command 0x85, and set data field V8=0xD3 to indicate ACK.<br><b>Remark:</b> Only T360-108 device support. Default enable. |

## 42. Real-time tracking by Interval – 0xD4

|              |                                                                                                                                                                                                                                                                                           |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xD4><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                  |
| Description: | This command is used to configure the real-time tracking parameter.                                                                                                                                                                                                                       |
| Example:     | 29 29 D400 0A0A 9F 95 38 <b>Byte1 Byte2 Byte3 Byte4</b> Xor 0D                                                                                                                                                                                                                            |
| Note:        | <b>1).</b><br><b>Byte1Byte2:</b> used to configure the real-time tracking location info upload times.<br>Example, <b>Byte1Byte2=0x0064=100</b> , means that device will upload location point info by <b>Byte3Byte4 interval</b> and up to 100 times, this command will be lose efficacy. |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Expressly, <b>Byte1Byte2=0x0000</b> means stop the real-time tracking, and <b>Byte3Byte4=0xFFFF</b> means current real-time tracking is always effective until be changed.</p> <p><b>Byte3Byte4:</b> used to configure the real-time tracking interval. Example, <b>Byte3Byte4=0x001E=30</b>, means that the real-time tracking interval is <b>30sec</b>.</p> <p><b>2).</b><br/>Device reply by command 0x85, and set data field V8=0xD4 to indicate ACK.</p> |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 43. Tracking compensation by angle – 0xD9

|              |                                                                                                                                                                                                                                                                                                                          |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xD9><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                 |
| Description: | <p>This command is used to configure the tracking compensation of angle parameter.</p> <p>When vehicle make a turn more than this angle value, device will upload one location info.</p>                                                                                                                                 |
| Example:     | 29 29 D900 D70A 9F 95 38 <b>Byte1</b> Xor 0D                                                                                                                                                                                                                                                                             |
| Note:        | <p><b>1).</b><br/><b>Byte1:</b> The angle value configured, the unit is degree. Example, <b>Byte1=0x1E(30 degree)</b>, means that when vehicle make a turn more than 30degree, device will upload one location info.</p> <p><b>2).</b><br/>Device reply by command 0x85, and set data field V8=0xD9 to indicate ACK.</p> |

### 44. Fatigue driving alarm set – 0xDA

|              |                                                                                                                                                                                                                                                                                                                                            |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xDA><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                   |
| Description: | This command is used to configure the fatigue driving alarm parameter.                                                                                                                                                                                                                                                                     |
| Example:     | 29 29 DA00 0A0A 9F 95 38 <b>Byte1 Byte2 Byte3 Byte4</b> Xor 0D                                                                                                                                                                                                                                                                             |
| Note:        | <p><b>1).</b><br/><b>Byte1 Byte2:</b> Maximum driving time limit, unit minute. Example <b>Byte1Byte2=0x0102 (0x0102=258)</b>, means the max driving time limit is 258minutes.<br/>Specially, when <b>Byte1Byte2=0x0000</b>, means cancel checking this alarm.</p> <p><b>Byte3 Byte4:</b> The minimum driver to need a reset time, unit</p> |

|  |                                                                                                                                                                                                                                   |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>minute.<br/>Example <b>Byte3Byte4=0x0014 (0x0014=20)</b>, means that the minimum driver to need a reset time is 20minutes.</p> <p><b>2).</b><br/>Device reply by command 0x85, and set data field V8=0xDA to indicate ACK.</p> |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### 45. Over Speed alarm and trig-time set – 0xDB

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xDB><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Description: | This command is used to configure the over speed and trig-time limit val.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Example:     | 29 29 DB00 090A 9F 95 38 <b>Byte1 Byte2 Byte3</b> Xor 0D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Note:        | <p><b>1).</b><br/><b>Byte1:</b> Over speed value limit, unit km/h.<br/>Example <b>Byte1=0x64 (0x64=100)</b>, means the speed limit is 100km/h. Specially, <b>Byte1=0x00</b> means cancel over speed alarm checking.</p> <p><b>Byte2 Byte3:</b> Over speed trig-time limit, unit sec.<br/>Example <b>Byte2Byte3=0x000A (0x000A =10)</b>, means that the over speed limit trig-time is 10sec.</p> <p><b>2).</b><br/>Device reply by command 0x85, and set data field V8=0xDB to indicate ACK.<br/>Only T360-108 device support this command.</p> |

#### 46. Device odometer value set – 0xDC

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xDC><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                       |
| Description: | This command is used to set the device odometer value.                                                                                                                                                                                                                                                                                                                                                                                         |
| Example:     | 29 29 DC00 0C0A 9F 95 38 <b>Byte1Byte2Byte3Byte4Byte5Byte6</b> Xor 0D                                                                                                                                                                                                                                                                                                                                                                          |
| Note:        | <p><b>1).</b><br/><b>Byte1 Byte2:</b> Device odometer value setting1, unit Km, unsigned short integer.<br/>Example <b>Byte1Byte2=0x0123=291</b>, means that setting device odometer value to 291Km.</p> <p><b>2).</b><br/><b>Byte3Byte4Byte5Byte6:</b>Device odometer value setting2, unit Km.<br/>Example <b>Byte3Byte4Byte5Byte6=0x000108AC=67756</b>, means that setting device ODO value to 67756km.</p> <p><b>DC command example:</b></p> |

|  |                                                                                                                                         |
|--|-----------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>2929DC000C 0A8A800108AC 000108AC D00D</b><br><b>3).</b><br>Device reply by command 0x85, and set data field V8=0xDC to indicate ACK. |
|--|-----------------------------------------------------------------------------------------------------------------------------------------|

#### 47. Device fuel steal percent set – 0xDD(108/T20)

|              |                                                                                                                                                                                                                                                                                                                                                                 |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xDD><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                        |
| Description: | This command is used to set the device odometer value.                                                                                                                                                                                                                                                                                                          |
| Example:     | 29 29 DD00 070A 9F 95 38 <b>Byte1</b> Xor 0D                                                                                                                                                                                                                                                                                                                    |
| Note:        | <b>1).</b><br><b>Byte1:</b> The device fuel seal percent value setting, unit 1%, unsigned short integer.<br>Example <b>Byte1=0x0F=15%</b> , means when fuel percent is 15% less than the last point, fuel steal happen(condition details depend on device firmware.)<br><b>2).</b><br>Device reply by command 0x85, and set data field V8=0xDD to indicate ACK. |

#### 48. Device lowfuelvalue set – 0xDE(108/T20)

|              |                                                                                                                                                                                                                                                                                                                                 |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xDE><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                        |
| Description: | This command is used to set the device odometer value.                                                                                                                                                                                                                                                                          |
| Example:     | 29 29 DE00 070A 9F 95 38 <b>Byte1</b> Xor 0D                                                                                                                                                                                                                                                                                    |
| Note:        | <b>1).</b><br><b>Byte1:</b> The device fuel lower percent value setting, unit 1%, unsigned short integer.<br>Example <b>Byte1=0x0A=10%</b> , means that when fuel percent is 10% or less, device will send fuel percent lower alarm.<br><b>2).</b><br>Device reply by command 0x85, and set data field V8=0xDE to indicate ACK. |

#### 49. Add RFID card No. To device– 0xDF(T20)

|              |                                                                                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xDE><L><ID><Parameter><Checksum><\r>                                                                                                                                                                       |
| Description: | This command is used to set the device odometer value.                                                                                                                                                         |
| Example:     | 29 29 DF00 000A 9F 95 38 <b>Byte1Byte2-Byte X</b> Xor 0D                                                                                                                                                       |
| Note:        | <b>1).</b><br><b>Byte1:</b> The RFID card amount(HEX, range:1-100).<br><b>2).</b><br><b>Byte2-Byte X:</b> RFID card No.(ASCII,each RFID No. Is 10 byte, if less than 10 byte, add "00" at the end)<br>Example: |

|  |                                                                                                                                                                                                                                                                                                                                           |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>2929DF001B0A9F9538023030303135353231343630303037313834363334 F50D</p> <p><b>02: Two RFID card No. Included;</b><br/> <b>3030303135353231343630303037313834363334:</b><br/> <b>Two No. Are: 0001552146 and 0007184634.</b></p> <p><b>3).</b><br/>         Device reply by command 0x85, and set data field V8=0xDF to indicate ACK.</p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 50. Delete RFID card No. From device– 0xE0(T20)

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xE0><L><ID><Parameter><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Description: | This command is used to set the device odometer value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Example:     | 29 29 E000 000A 9F 95 38Byte1Byte2-Byte Xxor 0D                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Note:        | <p><b>1).</b><br/> <b>Byte1:</b>The RFID card amount(HEX, range:1-100).</p> <p><b>2).</b><br/> <b>Byte2-Byte X:</b>RFID card No.(ASCII,each RFID No. Is 10 byte, if less than 10 byte, add "00" at the end)<br/>         Example:<br/>         2929E000110A9F95380130303031343639363438C00D</p> <p><b>01: Delete one RFID card No.;</b><br/> <b>30303031343639363438:</b><br/> <b>The RFID No. Is 0001469648</b></p> <p><b>3).</b><br/>         Device reply by command 0x85, and set data field V8=0xE0 to indicate ACK.</p> |

## 51. Clean all RFID card No. From device– 0xE1(T20)

|              |                                                                                                                                                                                      |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0xE1><L><ID><Parameter><Checksum><\r>                                                                                                                                             |
| Description: | This command is used to set the device odometer value.                                                                                                                               |
| Example:     | 29 29 E100 060A 9F 95 38Xxor 0D                                                                                                                                                      |
| Note:        | <p><b>1).</b><br/>         Example:<br/>         2929E100060A9F9538AF0D</p> <p><b>3).</b><br/>         Device reply by command 0x85, and set data field V8=0xE1 to indicate ACK.</p> |

## 52. Query RFID card No. From device– 0xE2(T20)

|              |                                                        |
|--------------|--------------------------------------------------------|
| Command:     | ))<0xE1><L><ID><Parameter><Checksum><\r>               |
| Description: | This command is used to set the device odometer value. |
| Example:     | 29 29 E200 060A 9F 95 38Xxor 0D                        |

|       |                                                                                                              |
|-------|--------------------------------------------------------------------------------------------------------------|
| Note: | <b>1).</b><br>Example:<br>2929E200060A9F9538DC0D<br><b>3).</b><br>Device reply by command 0x84 with RFID No. |
|-------|--------------------------------------------------------------------------------------------------------------|

## Appendix 1 Position Data

There have 2 kinds of Position data, one is for normal position data, and another is for alarm data (such as 0x82).

1. **ymdhmswwwjjjssffstlichen1 lichen2 lichen3st1st2st3st4v1v2v3v4v5v6v7v8**

Ex: 12 03 12 17 40 26 02 65 45 71 03 12 54 17 00 00 00 00 FB 19 C8 39 FF FF 1D 00 00 1E 00 50 00 00 00 00

2. **ymdhmswwwjjjssffloadsign(For 82 alarm packet)**

Ex: 12 05 03 05 05 22 02 85 94 79 03 10 95 50 00 80 02 07 84 00 00

From the format, we can see that these 2 kinds of data have same part: **ymdhms wwwjjjssffst**, and different parts: **lichen1 lichen2 lichen3 st1st2st3st4 v1v2v3v4v5v6v7v8** and **load sign**.

Will describe it in 3 parts:

I. instruct for **ymdhmswwwjjjssff**

| Field Name | Length(Byte) | Content                            | Note                                                                                                                                                                                                                                                                                                                                |
|------------|--------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Datetime   | 6            | <b>ymdhms</b><br>12 03 12 17 40 26 | Date range: Year, 2000-2099; Month 1-12; Day, 1-31;<br>Time range: Hour, 00-23; Min, 00-59; Second, 00-59.<br>Hour/min/second use compressed BCD code<br>For example: 12 03 12 17 40 26 means 2012-3-12 17:40:26                                                                                                                    |
| Latitude   | 4            | <b>www</b><br>02 65 45 71          | Latitude range: 00° 00.000' ~89° 59.999' .<br>Use compressed BCD code, But the highest bit is sign bit. "Positive" Means "North Latitude", "negative" means "south latitude"; The Unit for ' is 0.001'<br>For example: South latitude 30° 37.901' express as: 83H, 03H, 79H, 01H<br>02 65 45 71 means: north latitude 26° 54.571' . |
| Longitude  | 4            | <b>jjj</b><br>03 12 54 17          | Longitude range: 000° 00.000' ~179° 59.999' ;<br>Use compressed BCD code, the highest bit is sign bit. "Positive" Means "east longitude", "negative" means "West longitude";<br>The Unit for ' is 0.001'                                                                                                                            |

|           |   |                           |                                                                                                                                                                                            |
|-----------|---|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |   |                           | For example: west longitude 130 ° 45.608' express as: 93H, 04H, 56H, 08H<br><b>03 12 54 17</b> means: 31° 25.417' .                                                                        |
| Speed     | 2 | <b>ss</b><br><b>00 80</b> | Speed express method:<br>Range: 0-9999km/h<br>Use compressed BCD code.<br>00 80=(00H,80H)=80km/h<br>For example: 120km/h<br>express as: 01H, 20H                                           |
| Direction | 2 | <b>ff</b><br><b>02 07</b> | Direction range: 000-359°<br>Use compressed BCD code, true North is 0° , clockwise counting.<br>The unit is degree.<br>For example: 154° express as: 01H, 54H<br><b>02 07</b> means 207° . |

## II. Instruct for **st** **lichen1** **lichen2** **lichen3** **st1** **st2** **st3** **st4** **v1** **v2** **v3** **v4** **v5** **v6** **v7** **v8**

| Field Name                | Length(Byte) | Content                                                                      | Note                                                                               |                                                                                        |                               |
|---------------------------|--------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------|
| GPS/antenna /power status | 1            | <div>st</div> <div>FB</div>                                                  | D7                                                                                 | 0 Not located                                                                          | 1Located                      |
|                           |              |                                                                              | D6                                                                                 | 1 1 GPS antenna normal                                                                 | 1 0 GPS antenna short circuit |
|                           |              |                                                                              | D5                                                                                 | 0 1 GPS antenna open circuit                                                           | 0 0 GPS module error          |
|                           |              |                                                                              | D4                                                                                 | 1 1 main power normal                                                                  | 1 0 main power off            |
|                           |              |                                                                              | D3                                                                                 | 0 1 main power abnormal(too high/low)                                                  | 0 0 main power off(AT09)      |
|                           |              |                                                                              | D2                                                                                 | 0: mileage unit KM                                                                     | 1: mileage unit 0.1km         |
|                           |              |                                                                              | D1                                                                                 | D1D0:                                                                                  |                               |
|                           |              |                                                                              | D0                                                                                 | 00:mileage unit m;<br>01:mileage unit m;<br>10: mileage unit Km;<br>11:mileage unit Km |                               |
|                           |              |                                                                              | In the example FB =1111 1011, means located/gps normal/power normal/mileage is Km. |                                                                                        |                               |
| Mileage                   | 3            | <div>lichen1</div> <div>lichen2</div> <div>lichen3</div> <div>19 C8 39</div> | HEX format 0x00-0xFFFFFFFF (16777215) meters.<br>19 C8 39 means 1689657m           |                                                                                        |                               |

|                    |                                                                |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
|--------------------|----------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----|-----|-----|-----|----|-----------------------|-------------------|-------------------------------|-----------------------------------|----|------------------------------------|--------------------------|------------------------------------------|-----------------------------------|----|--------------------------------------|-----------------------------|---------------------------------------|-----------------------------|----|--------------------------------------|------------------------------|-----------------------------------------------------------|----------------------------------|----|----------------------------------------------------------------|-----------------------------|------------------------------------------|----|--------------------------------------------------------|--------------------------------------|-----------------------|----|---------------------------------------------------------------|--------------------------------------|---------------------------|----|-----------------------------------|-------------------------------------------|--|------------------------------------|
|                    |                                                                |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| Status             | 4                                                              | <div>st1st2s</div> <div>t3st4</div> <div>FF FF 1D 00</div> | <table><tr><td>bit</td><td>St1</td><td>St2</td><td>St3</td><td>St4</td></tr><tr><td>D7</td><td>1 ACC off<br/>0 ACC on</td><td>1 normal<br/>0 SOS</td><td>1 Fatigue driving<br/>0 normal</td><td>1 OUT1 enabled;<br/>0 OUT1 disable</td></tr><tr><td>D6</td><td>1 DEF(1)no alarm<br/>0 alarm happen</td><td>1 normal<br/>0 over speed</td><td>1 need reply 0x21<br/>0 do not need reply</td><td>1 OUT2 enabled;<br/>0 OUT2 disable</td></tr><tr><td>D5</td><td>1 DEF (2) no alarm<br/>0 alarm happen</td><td>1 normal<br/>0 stop overtime</td><td>1 Temperature<br/>abnormal<br/>0 normal</td><td>1 Lock wire cut<br/>0 normal</td></tr><tr><td>D4</td><td>1 DEF (3) no alarm<br/>0 alarm happen</td><td>1 normal<br/>0 out area alarm</td><td rowspan="4">D4-D0: GSM<br/>signal strength.<br/>CSQ(GSM) value:<br/>0~31</td><td>1 LBS location<br/>0 GPS location</td></tr><tr><td>D3</td><td>1 DEF (4)/Lora<br/>connect normal no<br/>alarm<br/>0 alarm happen</td><td>1 normal<br/>0 in area alarm</td><td>1 enable<br/>protection mode<br/>0 disable</td></tr><tr><td>D2</td><td>1 Fuel pump not cut<br/>0 Fuel pump<br/>cut(immobilize).</td><td>1 DEF (5) no alarm<br/>0 alarm happen</td><td>1 unlock<br/>0 lock on</td></tr><tr><td>D1</td><td>1 Detach/light<br/>sensor normal<br/>0 alarm/light<br/>sensor on</td><td>1 no alarm<br/>0 IDLE alarm<br/>happen</td><td>1 on charging<br/>0 normal</td></tr><tr><td>D0</td><td>1 not in sleep<br/>0 in sleep mode</td><td>1 no alarm<br/>0 low-speed<br/>alarm happen</td><td></td><td>1 casing/sim<br/>tamper<br/>0 normal</td></tr></table> <div>FF FF 1D 00 means acc off / no DEF alarm / no immobilize/ not sign in/ no defence/ no alarms/ gprs registerd/no need reply 0x21 command/ UDP mode/ csq=29/no accessories.</div> | bit                                      | St1 | St2 | St3 | St4 | D7 | 1 ACC off<br>0 ACC on | 1 normal<br>0 SOS | 1 Fatigue driving<br>0 normal | 1 OUT1 enabled;<br>0 OUT1 disable | D6 | 1 DEF(1)no alarm<br>0 alarm happen | 1 normal<br>0 over speed | 1 need reply 0x21<br>0 do not need reply | 1 OUT2 enabled;<br>0 OUT2 disable | D5 | 1 DEF (2) no alarm<br>0 alarm happen | 1 normal<br>0 stop overtime | 1 Temperature<br>abnormal<br>0 normal | 1 Lock wire cut<br>0 normal | D4 | 1 DEF (3) no alarm<br>0 alarm happen | 1 normal<br>0 out area alarm | D4-D0: GSM<br>signal strength.<br>CSQ(GSM) value:<br>0~31 | 1 LBS location<br>0 GPS location | D3 | 1 DEF (4)/Lora<br>connect normal no<br>alarm<br>0 alarm happen | 1 normal<br>0 in area alarm | 1 enable<br>protection mode<br>0 disable | D2 | 1 Fuel pump not cut<br>0 Fuel pump<br>cut(immobilize). | 1 DEF (5) no alarm<br>0 alarm happen | 1 unlock<br>0 lock on | D1 | 1 Detach/light<br>sensor normal<br>0 alarm/light<br>sensor on | 1 no alarm<br>0 IDLE alarm<br>happen | 1 on charging<br>0 normal | D0 | 1 not in sleep<br>0 in sleep mode | 1 no alarm<br>0 low-speed<br>alarm happen |  | 1 casing/sim<br>tamper<br>0 normal |
| bit                | St1                                                            | St2                                                        | St3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | St4                                      |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| D7                 | 1 ACC off<br>0 ACC on                                          | 1 normal<br>0 SOS                                          | 1 Fatigue driving<br>0 normal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1 OUT1 enabled;<br>0 OUT1 disable        |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| D6                 | 1 DEF(1)no alarm<br>0 alarm happen                             | 1 normal<br>0 over speed                                   | 1 need reply 0x21<br>0 do not need reply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1 OUT2 enabled;<br>0 OUT2 disable        |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| D5                 | 1 DEF (2) no alarm<br>0 alarm happen                           | 1 normal<br>0 stop overtime                                | 1 Temperature<br>abnormal<br>0 normal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 Lock wire cut<br>0 normal              |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| D4                 | 1 DEF (3) no alarm<br>0 alarm happen                           | 1 normal<br>0 out area alarm                               | D4-D0: GSM<br>signal strength.<br>CSQ(GSM) value:<br>0~31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1 LBS location<br>0 GPS location         |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| D3                 | 1 DEF (4)/Lora<br>connect normal no<br>alarm<br>0 alarm happen | 1 normal<br>0 in area alarm                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1 enable<br>protection mode<br>0 disable |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| D2                 | 1 Fuel pump not cut<br>0 Fuel pump<br>cut(immobilize).         | 1 DEF (5) no alarm<br>0 alarm happen                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1 unlock<br>0 lock on                    |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| D1                 | 1 Detach/light<br>sensor normal<br>0 alarm/light<br>sensor on  | 1 no alarm<br>0 IDLE alarm<br>happen                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1 on charging<br>0 normal                |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| D0                 | 1 not in sleep<br>0 in sleep mode                              | 1 no alarm<br>0 low-speed<br>alarm happen                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1 casing/sim<br>tamper<br>0 normal       |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| V1V2               | 2                                                              | v1v2                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| V3Satellite Number | 1                                                              | v3                                                         | Range: 0-12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| V4                 | 1                                                              | v4                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| V5                 | 1                                                              | v5                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |
| V6                 | 1                                                              | v6                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |     |     |     |     |    |                       |                   |                               |                                   |    |                                    |                          |                                          |                                   |    |                                      |                             |                                       |                             |    |                                      |                              |                                                           |                                  |    |                                                                |                             |                                          |    |                                                        |                                      |                       |    |                                                               |                                      |                           |    |                                   |                                           |  |                                    |

|    |   |          |  |
|----|---|----------|--|
| V7 | 1 | v7       |  |
| V8 | 1 | v8<br>00 |  |

### III. Instruct for **ploadsign**

| Field Name           | Length(Byte) | Content                              | Note                                                                                                         |               |           |
|----------------------|--------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------|-----------|
| GPS status           | 1            | <div><div>p</div><div>80</div></div> | D7                                                                                                           | 0 Not located | 1 Located |
|                      |              |                                      | D6                                                                                                           | Reserved      |           |
|                      |              |                                      | D5                                                                                                           |               |           |
|                      |              |                                      | D4                                                                                                           |               |           |
|                      |              |                                      | D3                                                                                                           |               |           |
|                      |              |                                      | D2                                                                                                           |               |           |
|                      |              |                                      | D1                                                                                                           |               |           |
|                      |              |                                      | D0                                                                                                           |               |           |
|                      |              |                                      | In the example 80 =10000000, means located.                                                                  |               |           |
| AT10 battery percent | 1            | <div>45</div>                        | <b>Hex data;</b><br><b>Battery power percent, range: 0% - 100%</b><br><b>For example:</b><br><b>0x45=69%</b> |               |           |
| Reserved             | 1            |                                      |                                                                                                              |               |           |

## Appendix 2 Alarm Data

In alarm info packet, there have 8 bytes of data to describe the alarm status and alarm parameters. For example: 29 29 **82 00 23 0A A2 CC 39 12 05 03 05 05 22 02 85 94 79 03 10 95 50 00 80 02 07 84 00 00 00 02 00 00 00 00 00 00 75 0D**. The part **00 02 00 00 00 00 00 00** is what we will describe in this part.

About the 8 bytes of data, first 3 bytes for alarm status and 5 bytes for alarm parameters.

### I. Instruct for alarm status **00 02 00**

|    | 1 <sup>st</sup> byte | 2 <sup>nd</sup> byte                               | 3 <sup>rd</sup> byte                                              |
|----|----------------------|----------------------------------------------------|-------------------------------------------------------------------|
| D7 | In area alarm        | Door open alarm (DEF(3) alarm)                     | Idle alarm                                                        |
| D6 | Out area alarm       | Tow away alarm/move alarm(ACC OFF)                 | Fatigue alarm                                                     |
| D5 | <b>Reserved</b>      | G-Sensor alarm (see 4th byte in alarm parameters ) | Parking status                                                    |
| D4 | Low power alarm      | DEF (4) alarm<br>/Lora disconnect                  | Tamper box Alarm/sim card slot tamper (customized)/ <b>Detach</b> |

|    |                        |                      | alarm(light sensor)          |
|----|------------------------|----------------------|------------------------------|
| D3 | DEF(5) alarm           | Power cut alarm      | Harsh turning                |
| D2 | DEF(2) alarm           | Stop over time alarm | Temperature abnormal         |
| D1 | DEF(1) alarm           | Over speed alarm     | GSM Jamming alarm            |
| D0 | Illegal ignition alarm | SOS alarm            | Fuel Sensor Disconnect alarm |

1 means alarm happen; 0 means no alarm. So 00H 02H 00H = 00000000B 00000010B 00000000B means **over speed** alarm; 00H 00H 04H = 00000000B 00000000B 00000100B means **Temperature Abnormal**.

## II. Instruct for alarm parameters **00 00 00 00 00**

|    | 1 <sup>st</sup> byte                         | 2 <sup>nd</sup> byte                                                                 | 3 <sup>rd</sup> byte                        | 4 <sup>th</sup> byte                      | 5 <sup>th</sup> byte                                         |
|----|----------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------|--------------------------------------------------------------|
| D7 | Geo-Fence<br>Number of<br>GEO Fence<br>alarm | Charging alarm<br>(1 alarm)                                                          | Route<br>number of<br>Offset route<br>alarm | Crash alarm                               | High impact<br>(customized)                                  |
| D6 |                                              | 1=Temp high alarm,<br>0=Temp low alarm                                               |                                             | Turnover                                  | Unlock with wrong<br>PWD alarm                               |
| D5 |                                              | Reserved                                                                             |                                             | Harsh<br>Acceleration                     | Low speed alarm<br>(1 alarmed)                               |
| D4 |                                              | Protection alarm                                                                     |                                             | Harsh<br>deceleration                     | Disconnect the load<br>sensor(AT09+ only for<br>KSA version) |
| D3 |                                              | Lock wire cut alarm                                                                  |                                             | Shake alarm                               | Reserved                                                     |
| D2 |                                              | Camera disconnect<br>alarm(AT22)                                                     |                                             | Temp sensor<br>disconnect alarm<br>(AT22) | Refilling alert (LL)                                         |
| D1 |                                              | Charge full Alarm<br>(1 alarm)                                                       |                                             | Fuel stolen<br>alarm                      | Reserved                                                     |
| D0 |                                              | ACC status (0 on ;1 off);<br><b>Or</b><br>AT10 Lock status(0<br>locked on; 1 unlock) |                                             | Low fuel alarm                            | Unauthorized card<br>swipe<br>alarm(AT10D&E)                 |

|                |   |             |                                              |
|----------------|---|-------------|----------------------------------------------|
| Sign up status | 1 | <b>sign</b> | Use compress BCD code, 1=sign in; 0=sign out |
|----------------|---|-------------|----------------------------------------------|

## Appendix 3 peripheral data

Peripheral data structure:

| Field Name          | Length(Byte) | Description                                             |
|---------------------|--------------|---------------------------------------------------------|
| All KLV data length | 2            | The data length of all KLV list, including length byte. |

|               |   |                                                          |
|---------------|---|----------------------------------------------------------|
| KLV data list | N | KLV list, see <b>Peripheral data KLV list</b> as follow. |
|---------------|---|----------------------------------------------------------|

## Peripheral data KLV list:

| K(key)      | L(length) | V(value)                                                                                                                                                                                                                                                                         |
|-------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x01        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x02        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x03        | 11        | RFID action info:<br>Byte1(0:sign off, 1:sign on) + Byte2~Byte11(ascii string, filling 0x00 to the remaining bytes when less than 10 bytes).                                                                                                                                     |
| 0x04        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x05        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x06        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x07        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x08        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x09        | 3         |                                                                                                                                                                                                                                                                                  |
| 0x0A        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x0B        | N         | <b>Bar code value(T20 device)</b><br><b>Example:</b><br><b>0B0C323031353034313031303133</b><br><b>The bar code ID is:201504101013</b>                                                                                                                                            |
| 0x0C        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| <b>0x0D</b> | <b>2</b>  | <b>Temperature value. Bit15: signed mark; Bit0-14:temperature value. The unit is 0.1°C.</b><br><b>For example: 0x000A = 1°C, 0x800A=-1°C.</b>                                                                                                                                    |
| 0x0E        | 1         | Fuel level percent: 0-100%.                                                                                                                                                                                                                                                      |
| 0x0F        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| <b>0x10</b> | <b>2</b>  | <b>Main power voltage value, HEX data.</b><br><b>For example: 10 02 00 EF</b><br><b>voltage value=(0xEF)/10=239/10=23.9</b>                                                                                                                                                      |
| 0x11        | N         | Reserve.                                                                                                                                                                                                                                                                         |
| 0x16        | N+1       | RFID/MIFARE Card:<br>Format:<br>Sign status(1BYTE)+CARD NO.(n BYTE,ASCII)<br>Explain:<br>0x00 sign in start+CARD NO.(n BYTE,ASCII)<br>0x01 sign in status+CARD NO.(n BYTE,ASCII)<br>0x02 sign out+CARD NO.(n BYTE,ASCII)<br><b>0x03 unauthorized RFID+CARD NO.(n BYTE,ASCII)</b> |
| 0x17        | 2         | Fuel level percent(2 byte, accuracy is 0.01%)( <b>Customized for JT fuel sensor</b> )<br>percent(2 byte)<br>For example: <b>170219DD</b><br><b>0x19DD means 66.21%</b>                                                                                                           |

|      |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
|------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------------------------------------------------------------------------------|--|-----|-----------------------------------------------------|--|----|------|------|------------------|------|--------|------|--|--|
| 0x18 | 4                                                                                                 | ACC ON time counting, unit: minute<br>For example:<br>00 00 FF FF= 65535min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 0x19 | 2/4                                                                                               | Fuel value: upload unit 0.1% (0.0% - 99.9%)<br>For example:<br>0x03E7=(999/10)*100%=99.9%<br><br>Duel fuel sensor:<br>19 04 03 A9 0219<br>No.1 fuel value=0x(03 A9)=93.7%<br>No.1 fuel value=0x(02 19)=53.7%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 0x20 | 1                                                                                                 | Battery power percent, range: 0% - 100%<br>For example:<br>0x45=69%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 0x21 | 1+4*n                                                                                             | TPMS data:<br>Tyre ID(1byte)+Pressure value(1byte)+Temp(1byte)+status(1byte)<br><table><tr><td>压力值</td><td colspan="2">P=P0*5.49-100<br/>P 为是实际气压，单位为 KPA,P0 为上传的原始数据<br/>例如：上传数据为 0X20，对应的实际气压为 32*5.49-100=76KPA，气压没有负数。</td></tr><tr><td>温度值</td><td colspan="2">T=T0-50<br/>范围:-50~ 205℃<br/>T 为实际的温度，T0 上传的原始数据，单位为℃</td></tr></table><br><table><tr><td rowspan="4">状态</td><td>漏气报警</td><td>0x80</td></tr><tr><td>电池电压低报警（默认 2.3V）</td><td>0x08</td></tr><tr><td>信号异常报警</td><td>0x04</td></tr><tr><td></td><td></td></tr></table><br>Data sample:<br>2929A300441580831F00000000043900000000000000000000D73B000<br>000FFFF1500000000000000000000000 <b>001C211801124B0002124C0003124D8004114C000500000006000000</b> 8D0D | 压力值 | P=P0*5.49-100<br>P 为是实际气压，单位为 KPA,P0 为上传的原始数据<br>例如：上传数据为 0X20，对应的实际气压为 32*5.49-100=76KPA，气压没有负数。 |  | 温度值 | T=T0-50<br>范围:-50~ 205℃<br>T 为实际的温度，T0 上传的原始数据，单位为℃ |  | 状态 | 漏气报警 | 0x80 | 电池电压低报警（默认 2.3V） | 0x08 | 信号异常报警 | 0x04 |  |  |
| 压力值  | P=P0*5.49-100<br>P 为是实际气压，单位为 KPA,P0 为上传的原始数据<br>例如：上传数据为 0X20，对应的实际气压为 32*5.49-100=76KPA，气压没有负数。 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 温度值  | T=T0-50<br>范围:-50~ 205℃<br>T 为实际的温度，T0 上传的原始数据，单位为℃                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 状态   | 漏气报警                                                                                              | 0x80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
|      | 电池电压低报警（默认 2.3V）                                                                                  | 0x08                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
|      | 信号异常报警                                                                                            | 0x04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
|      |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 0x22 | 3*N                                                                                               | Multiple temp data:<br>Temp ID (1byte) +temp value (2byte)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 0x23 | N+1+1+N                                                                                           | Bluetooth data:<br><br>AT18 BT ID ( N*byte ) +BT ON/OFF (1byte)+ BT connection state(1byte)+connected BT ID(N*byte)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 0x24 | 1                                                                                                 | AD voltage, unit: 0.1V, range: 0-12V<br>For example: <b>24 01 78</b><br>voltage value=(0x78)/10=120/10=12.0V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |
| 0x25 | 4                                                                                                 | One Ultrasonic fuel sensor, unit is 0.1mm<br>For example: 25 04 <b>01 25 01 26</b><br>Smooth Height=0x(0125)=29.3mm<br>Real time height=0x(0126)=29.4mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |                                                                                                   |  |     |                                                     |  |    |      |      |                  |      |        |      |  |  |

|               |   |                                                                                                                                                                                                                                                                   |
|---------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | 8 | Dual Ultrasonic fuel sensor, unit is 0.1mm<br>For example: 25 08 01 25 01 26 01 20 01 21<br><b>A4A:</b><br>Smooth Height=0x(0125)=29.3mm<br>Real time height=0x(0126)=29.4mm<br><b>A4B:</b><br>Smooth Height=0x(0125)=28.8mm<br>Real time height=0x(0126)=28.94mm |
| 0x26          | 4 | LS803 fatigue sensor data: <b>M5 M6 M7 M8</b><br><br>Lower computer: AA 75 55 00 04 <b>M5 M6 M7 M8</b> CRC<br><br><i>Note:</i><br><i>We just transmit the fatigue sensor data, but not handle the content.</i>                                                    |
| 0x27<br>(HEX) | 2 | Battery voltage<br>unit: 0.01V                                                                                                                                                                                                                                    |
|               | 2 | Engine Speed, Unit: RPM                                                                                                                                                                                                                                           |
|               | 1 | OBD Speed, Unit: KM/H                                                                                                                                                                                                                                             |
|               | 1 | Throttle Position=(Upload value*100/255) Unit: 0.01%                                                                                                                                                                                                              |
|               | 1 | Engine Load=(Upload value*100/255) Unit: 0.1%                                                                                                                                                                                                                     |
|               | 1 | Engine Coolant Temp, unit : 1 °C<br>Real Value=upload value-40,                                                                                                                                                                                                   |
|               | 2 | Instantaneous fuel consumption<br>Real value=(upload value)/100, unit :1L/100km                                                                                                                                                                                   |
|               | 2 | AVG fuel consumption<br>Real value=(upload value)/100 , unit: 1L/100km                                                                                                                                                                                            |
|               | 2 | Trip distance, unit: 0.01km                                                                                                                                                                                                                                       |
|               | 4 | Total Mileage, unit: 0.01km                                                                                                                                                                                                                                       |
|               | 2 | Trip Fuel consumption , unit: 0.01L                                                                                                                                                                                                                               |
|               | 2 | Accumulative Fuel consumption, unit: 0.01L                                                                                                                                                                                                                        |
|               | 2 | Remaining fuel, unit: 0.01L(current not support, will improve in future)                                                                                                                                                                                          |
|               | 1 | No. of DTC code                                                                                                                                                                                                                                                   |
|               | 1 | Accelerate alarm Times                                                                                                                                                                                                                                            |
|               | 1 | Decelerate alarm times                                                                                                                                                                                                                                            |
|               | 2 | Trip time, unit: s                                                                                                                                                                                                                                                |
|               | 2 | Trip Idle time, unit: s                                                                                                                                                                                                                                           |
| 0x28<br>(OBD) | N | DTC code                                                                                                                                                                                                                                                          |

|                              |       |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
|------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--|--|------------------------|---|--------|--------------------------------|-------------------|---|--------|-------------------|------------------------------|---|----|------------------------|---------------------------|---|------|---------------------|
| 0x29<br>(OBD)                | 17-25 | ASCII, Vehicle VIN code.<br>For example:<br><b>29113147314A43353434345237323532333637</b><br>VIN code=1G1JC5444R7252367                                                                                                                                                                                                                                                                                                   |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x2A(hum<br>idity)           | 2     | Hex code, unit is 0.1%<br>For example: 2A 02 03B7<br><br>Humidity=0x(03B7)/10=95.1%                                                                                                                                                                                                                                                                                                                                       |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x2B                         | 9     | LBS data<br><table><tr><td>Location Code ID (LAC)</td><td>3</td><td>001037</td><td>Location Code ID(3 digits hex)</td></tr><tr><td>GSM Cell ID (CID)</td><td>3</td><td>005152</td><td>GSM Cell ID (CID)</td></tr><tr><td>Mobile Network Carrier (MNC)</td><td>1</td><td>05</td><td>Mobile Network Carrier</td></tr><tr><td>Mobile country code (MCC)</td><td>2</td><td>0724</td><td>Mobile country code</td></tr></table> |                                |  |  | Location Code ID (LAC) | 3 | 001037 | Location Code ID(3 digits hex) | GSM Cell ID (CID) | 3 | 005152 | GSM Cell ID (CID) | Mobile Network Carrier (MNC) | 1 | 05 | Mobile Network Carrier | Mobile country code (MCC) | 2 | 0724 | Mobile country code |
| Location Code ID (LAC)       | 3     | 001037                                                                                                                                                                                                                                                                                                                                                                                                                    | Location Code ID(3 digits hex) |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| GSM Cell ID (CID)            | 3     | 005152                                                                                                                                                                                                                                                                                                                                                                                                                    | GSM Cell ID (CID)              |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| Mobile Network Carrier (MNC) | 1     | 05                                                                                                                                                                                                                                                                                                                                                                                                                        | Mobile Network Carrier         |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| Mobile country code (MCC)    | 2     | 0724                                                                                                                                                                                                                                                                                                                                                                                                                      | Mobile country code            |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x2C                         | 8     | 8 bit unlock PWD (I-LOCK)                                                                                                                                                                                                                                                                                                                                                                                                 |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x2D                         | 116   | Energy meter data<br><br>Details refer to PMC200 energy meter.                                                                                                                                                                                                                                                                                                                                                            |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x2E                         | 2     | <del>ADC value, upload with voltage. Range: 0-33V</del><br><del>Hex code, unit is 0.1V</del><br><br>ADC value, upload with voltage<br>Hex code, unit is 0.01V<br><br>For example: 2E 02 003B<br>Percent=0x(003B)/100=0.59V                                                                                                                                                                                                |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x2F                         | 2     | ADC2 value, upload with voltage. Range: 0-10V<br>Hex code, unit is 0.01V<br><br>For example: 2F 02 003B<br>Percent=0x(003B)/100=0.59V                                                                                                                                                                                                                                                                                     |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x30                         | 1     | Reufuel value persentage,unit:%<br><br>For example:54=84%                                                                                                                                                                                                                                                                                                                                                                 |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x31                         |       |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |
| 0x3F                         | 31    | Group number & G-Sensor x-y-z value<br>Group number,X1,y1,z1,x2,y2,z2,.....<br><br>For example:<br>29 29 A3 00 54 16 B4 87 59 19 04 13 14 20 16 02 24 24 56 11 41 58 81                                                                                                                                                                                                                                                   |                                |  |  |                        |   |        |                                |                   |   |        |                   |                              |   |    |                        |                           |   |      |                     |

|                                               |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
|-----------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------|--------------|-----------|--------|----------------------|------------------------------|-------|--------------------------------------------------------------|-----------------|--------|-------------|-----------------|-------|--|------|--------|-----------|-----------------------------------------------|-------|-------------------------------------------------------------------------|---------------|---------|--|-----------|--|--|-----|--|--|
|                                               |         | 00 00 00 00 7F 00 00 00 7F FF 16 00 00 00 00 00 00 07 00 00 00 2C 3F 1F 01 0D B4 C0 00 B4 C6 10 B6 C2 00 B5 B6 08 B1 C9 01 B2 C2 02 B9 DC 02 B4 BC 07 AF BE 00 B6 C6 FF 0D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| 0x40                                          | 2       | Fuel temp for DUT-E fuel sensor(customized)<br>Temperature value. Bit15: signed mark; Bit0-14:temperature value. The unit is 0.1°C.<br>For example: 0x000A = 1°C, 0x800A=-1°C.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| 0x41                                          | 10      | SIM ICCID:<br><br>For example:<br>29 29 A3 00 3A 2A AA DC 26 19 12 12 13 26 57 02 24 24 28 11 41 58 91 00 00 01 78 7B 00 00 00 FF FF 18 00 00 00 00 00 00 02 00 00 00 12 2F 02 00 03 <b>41 0A 89 86 04 07 11 19 80 36 41 71</b> C6 0D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| 0x42                                          | 1+N     | <table border="1"> <tr> <td>Salve amount</td><td>1byte</td><td>max 10 salve</td></tr> <tr> <td>Salve ID1</td><td>4bytes</td><td>16000001, no convert</td></tr> <tr> <td>Lock status+lock rope status</td><td>1byte</td><td>D0=1 unlock,D0=0 locked on;<br/>D1=1 rope in,D1=0 rope not in</td></tr> <tr> <td>Battery voltage</td><td>2bytes</td><td>Unit: 0.01V</td></tr> <tr> <td>battery percent</td><td>1byte</td><td></td></tr> <tr> <td>Temp</td><td>2bytes</td><td>0.1degree</td></tr> <tr> <td>Unlock by RFID or GPRS+RFID authorized or not</td><td>1byte</td><td>D0=1 RFID authorized;<br/>D0=0 RFID unauthorized;<br/>D1=1 unlock by GPRS</td></tr> <tr> <td>RFID card No.</td><td>10bytes</td><td></td></tr> <tr> <td>Salve ID2</td><td></td><td></td></tr> <tr> <td>...</td><td></td><td></td></tr> </table> <p><b>Example:</b><br/>42160116000001010FB85F00CE0130303133353233383537<br/>42 -&gt;salve lock data sub-command<br/>22 -&gt;11 bytes, salve lock data length<br/>01 -&gt;salve lock amount, 1 salve<br/>16000001 -&gt;salve lock ID,no convert<br/>02 -&gt;salve Lock on   lock rope In<br/>0FB8 -&gt;salve lock battery voltage, 4.024V<br/>5F -&gt;salve lock battery percent, 95%<br/>00CE -&gt;salve lock temp, 20.6 degree<br/>01 -&gt;salve unlock by authorized RFID<br/>30303133353233383537 -&gt;RFID number:0013523857</p> | Salve amount | 1byte | max 10 salve | Salve ID1 | 4bytes | 16000001, no convert | Lock status+lock rope status | 1byte | D0=1 unlock,D0=0 locked on;<br>D1=1 rope in,D1=0 rope not in | Battery voltage | 2bytes | Unit: 0.01V | battery percent | 1byte |  | Temp | 2bytes | 0.1degree | Unlock by RFID or GPRS+RFID authorized or not | 1byte | D0=1 RFID authorized;<br>D0=0 RFID unauthorized;<br>D1=1 unlock by GPRS | RFID card No. | 10bytes |  | Salve ID2 |  |  | ... |  |  |
| Salve amount                                  | 1byte   | max 10 salve                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| Salve ID1                                     | 4bytes  | 16000001, no convert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| Lock status+lock rope status                  | 1byte   | D0=1 unlock,D0=0 locked on;<br>D1=1 rope in,D1=0 rope not in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| Battery voltage                               | 2bytes  | Unit: 0.01V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| battery percent                               | 1byte   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| Temp                                          | 2bytes  | 0.1degree                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| Unlock by RFID or GPRS+RFID authorized or not | 1byte   | D0=1 RFID authorized;<br>D0=0 RFID unauthorized;<br>D1=1 unlock by GPRS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| RFID card No.                                 | 10bytes |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| Salve ID2                                     |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |
| ...                                           |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |       |              |           |        |                      |                              |       |                                                              |                 |        |             |                 |       |  |      |        |           |                                               |       |                                                                         |               |         |  |           |  |  |     |  |  |

|             |                                     |                                                                                                                             |            |                |                 |
|-------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------|----------------|-----------------|
| <b>0x43</b> | <b>BT Temp&amp; humidity sensor</b> | Connected BT sensor total amount(1byte) + (BT ID/MAC(6 byte) + temp(2 byte)+humidity (2 byte)+ battery percent(1 byte) ) *N |            |                |                 |
|             |                                     | ID/MAC address                                                                                                              | Temp value | Humidity value | Battery percent |
|             |                                     | 6 byte                                                                                                                      | 2 byte     | 2 byte         | 1 byte          |

Temp value: hex format, 2 bytes, unit: 0.01°C

Humidity value:  
hex format, 2 bytes, unit: 0.01%

### KLV structure frame:

**K(1byte)**: the key id of the data part.

**L(1byte)**: the length of the data part of **V**.

**V(nbyte)**: the value of the data part.

**For example**, Temperature sensor KLV: **0x0D0x020x00 0x0A**, means 1°C.

Extend Alarm for BT sensor:

## 53. Bluetooth Alarm Info – 0x86

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command:     | ))<0x86><L><ID><Data><Checksum><\r>                                                                                                                                                                                                                                                                                                                                                                                                       |
| Description: | This command sends from device to server. It is alarm data, this packet need deal with in the first class. This command words is for important and emergency situation.                                                                                                                                                                                                                                                                   |
| Example:     | <b>29 29 86 00 230C 80 80 32 14 10 24 15 10 58 02 23 57 72 11 35 28 35 00 00 00 00 FB 00 0000 01 00 00 00 00 00 25 0D</b>                                                                                                                                                                                                                                                                                                                 |
| Note:        | About the instruction for the <data> the parse shows below:<br><b>14 10 24 15 10 58 02 23 57 72 11 35 28 35 00 00 00 00 FB 00 00</b> this 21 byte data check in section <a href="#">Appendix 1 Position Data</a> please;<br><b>00 01 00 00</b> this part is Bluetooth ID which triggered alarm;<br><b>00 00 00 00</b> this part is alarm parameters data, please check the instruction in section <a href="#">Appendix 4 Alarm Data</a> ; |

### Alarm Info – 0x86 (Bluetooth alarm)

| Name         | Length | Content     | Remark                       |
|--------------|--------|-------------|------------------------------|
| Package head | 2      | 29 29       | Fixed                        |
| Command      | 1      | 86          |                              |
| Length       | 2      | 00 23+0E    |                              |
| Device ID    | 4      | 1D D0 8C 22 | Refer to device ID: 29801234 |

|                                 |   |             |                                                          |
|---------------------------------|---|-------------|----------------------------------------------------------|
| Date & time                     | 6 |             | Refer to Position 2                                      |
| Lat & long                      | 8 |             |                                                          |
| Speed                           | 2 |             |                                                          |
| Direction                       | 2 |             |                                                          |
| Locate/antenna/<br>power status | 1 |             |                                                          |
| Reserved                        | 1 |             |                                                          |
| Reserved                        | 1 |             |                                                          |
| Bluetooth ID                    | 4 | 00 01 00 00 | The Bluetooth which triggered alarm                      |
| Bluetooth alarm                 | 4 | 00 00 00 00 | Refer to <a href="#">Appendix 4 Bluetooth Alarm Data</a> |
| Checksum                        | 1 |             |                                                          |
| Package end                     | 1 |             |                                                          |

## Appendix 4 Bluetooth Alarm Data

|           | Byte 1                                            | Byte 2   | Byte 3   | Byte 4   |
|-----------|---------------------------------------------------|----------|----------|----------|
| <b>D7</b> | 1=BT disconnect alarm<br>0=BT connect normal      | Reserved | Reserved | Reserved |
| <b>D6</b> | 1=BT low battery alarm<br>0=BT low battery normal | Reserved | Reserved | Reserved |
| <b>D5</b> | Reserved                                          | Reserved | Reserved | Reserved |
| <b>D4</b> | Reserved                                          | Reserved | Reserved | Reserved |
| <b>D3</b> | Reserved                                          | Reserved | Reserved | Reserved |
| <b>D2</b> | Reserved                                          | Reserved | Reserved | Reserved |
| <b>D1</b> | Reserved                                          | Reserved | Reserved | Reserved |
| <b>D0</b> | ACC status<br>(0=ACC ON ;1=ACC OFF);              | Reserved | Reserved | Reserved |