Communication Protocol

V2.22

Content

[<Explanation> 3](#_Toc207154771)

[**<Part 1> Quickly start** 4](#_Toc207154772)

[1. Password management 4](#_Toc207154773)

[2. Reviewing the Terminal Status 4](#_Toc207154774)

[3. Setting up APN 6](#_Toc207154775)

[4. Setting up Server IP 6](#_Toc207154776)

[5. Power OFF the Terminal 7](#_Toc207154777)

[6. Reboot the Terminal 7](#_Toc207154778)

[7. Back to the factory 7](#_Toc207154779)

[**<Part 2>Data packet sent from the Terminal (Terminal 🡪 Server)** 8](#_Toc207154780)

[1. Login packet (Uplink ID:AP00,Response ID:BP00) 8](#_Toc207154781)

[2. Locating packet (Uplink ID:AP01,Response ID:BP01) 9](#_Toc207154782)

[3. Heartbeat packet (Uplink ID:AP03,Response ID:BP03) 10](#_Toc207154783)

[4. Low battery alarm packet (Uplink ID:AP04,Response ID:BP04) 11](#_Toc207154784)

[5. Alarm and Return address Packet (Uplink ID:AP10,Response ID:BP10) 12](#_Toc207154785)

[6. Upload picture (Uplink ID: AP42, Response ID: BP42) 14](#_Toc207154786)

[7. Upload BLE data (Uplink ID: APBL, Response ID: BPBL) 15](#_Toc207154787)

[8. Upload health data packet (Uplink ID:APJK,Response ID:BPJK) 16](#_Toc207154788)

[9. Upload Temperature (Uplink ID:APTP, Response ID:BPTP) 17](#_Toc207154789)

[10. Upload version of firmware (Uplink ID: APVR, Response ID: BPVR) 17](#_Toc207154790)

[11. Upload wearing status (Uplink ID: APWR, Response ID: BPWR) 18](#_Toc207154791)

[12. Check weather data (Uplink ID: APTQ, Response ID: BPTQ) 18](#_Toc207154792)

[**<Part 3>Data packet sent from the server (Server 🡪Terminal)** 19](#_Toc207154793)

[1. Configure Time zone (Downlink ID: BP00) 19](#_Toc207154794)

[2. Configure SOS number (Downlink ID:BP12,Response ID:AP12) 19](#_Toc207154795)

[3. Configure white list (Downlink ID:BP14, Response ID:AP14) 20](#_Toc207154796)

[4. GPRS locating data upload interval (Downlink ID:BP15, Response ID:AP15) 21](#_Toc207154797)

[5. Real-time locating command (Downlink ID:BP16, Response ID:AP16) 22](#_Toc207154798)

[6. Factory reset (Downlink ID:BP17, Response ID:AP17) 22](#_Toc207154799)

[7. Restart the terminal (Downlink ID:BP18, Response ID:AP18) 23](#_Toc207154800)

[8. Configure server (Downlink ID:BP19, Response ID:AP19) 23](#_Toc207154801)

[9. Configure terminal language & timezone (Downlink ID:BP20, Response ID:AP20) 24](#_Toc207154802)

[10. Power off command (Downlink ID:BP31, Response ID:AP31) 24](#_Toc207154803)

[11. Make the terminal make phone call (Downlink ID:BP32, Response ID:AP32) 25](#_Toc207154804)

[12. Working mode (Downlink ID:BP33, Response ID:AP33) 25](#_Toc207154805)

[13. Location working mode (Downlink ID:BP34, Response ID:AP34) 26](#_Toc207154806)

[14. Issue shortcut commands (Downlink ID:BP40, Response ID:AP40) 26](#_Toc207154807)

[15. Take picture (Downlink ID: BP46, Response ID:AP46) 30](#_Toc207154808)

[16. Detect heart rate (Downlink ID:BP50,Response ID:AP50) 31](#_Toc207154809)

[17. Configure phone book (Downlink ID:BP51,Response ID:AP51) 31](#_Toc207154810)

[18. Delete phone book (Downlink ID:BP52,Response ID:AP52) 32](#_Toc207154811)

[19. Switch of whitelist (Downlink ID:BP84,Response ID:AP84) 32](#_Toc207154812)

[20. Health monitoring interval (Downlink ID:BP86,Response ID:AP86) 33](#_Toc207154813)

[21. Find the terminal (Downlink ID:BP88,Response ID:AP88) 33](#_Toc207154814)

[22. Motion detection function switch (Downlink ID:BPMC,Response ID:APMC) 34](#_Toc207154815)

[23. Phone call switch (Downlink ID:BPPH, Response ID:APPH) 34](#_Toc207154816)

[24. GPRS command (Downlink ID:BPSM, Response ID:APSM) 35](#_Toc207154817)

[25. Configure hour system for terminal (Downlink ID:BPTF, Response ID:APTF) 36](#_Toc207154818)

[26. Configure white list (Downlink ID:BPWL, Response ID:APWL) 36](#_Toc207154819)

[27. Detect heart rate (Downlink ID:BPXL, Response ID:APXL) 38](#_Toc207154820)

[28. Detect blood pressure (Downlink ID:BPXY, Response ID:APXY) 38](#_Toc207154821)

[29. Detect blood oxygen (Downlink ID:BPXZ, Response ID:APXZ) 39](#_Toc207154822)

[**<Part 4>Command List** 40](#_Toc207154823)

[1. Password management 41](#_Toc207154824)

[2. White list management 41](#_Toc207154825)

[3. SOS number management 43](#_Toc207154826)

[4. Alarm voice switch 43](#_Toc207154827)

[5. Working mode and GPS interval management 44](#_Toc207154828)

[6. Check location 44](#_Toc207154829)

[7. Reviewing the Terminal Status 45](#_Toc207154830)

[8. Setting up APN 46](#_Toc207154831)

[9. Wi-Fi management 47](#_Toc207154832)

[10. Setting up Server IP 48](#_Toc207154833)

[11. Power OFF the Terminal 48](#_Toc207154834)

[12. Reboot the Terminal 49](#_Toc207154835)

[13. Back to the factory 49](#_Toc207154836)

[14. Mail the Terminal log 49](#_Toc207154837)

# <Explanation>

All data packets in this protocol refer to formats below:

Header character: IW;

Command ID: The Command ID of uplink data packet (Terminal→Server) is AP+ protocol code(two characters), and the downlink Command ID (Server→Terminal) is BP+ protocol code (two characters). The response data packet should use the same protocol code same as the data packet sent by the other party;

Instruction serial number: Some instructions have reserved instruction serial numbers, which are used to number the instructions for verification and record. The number is a 6-digit characters and there are no coding rules specified;

Parameters: Data packet content;

Ending character: #;

All characters related to Chinese, such as addresses, use UNICODE encoding;

All punctuation marks should be half-width character in English.

# **<Part 1> Quickly start**

This chapter will list some SMS and GPRS commands that enable you to check device status, configure connection parameters, and establish a connection with the server you specify.

## Password management

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#PW=Newpassword#  GPRS command format  @PW=Newpassword@ | The command ID is PW;  The password should be six letters or numbers;  The initial password is lfjmm;  The terminal is supposed to reply with ’SET SMS PW ok +New password’. | GPRS command:  @PW=123456@  The GPRS reply is:  IWAPSM,680835,SET SMS PW ok 123456# |

## Reviewing the Terminal Status

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#deviceinfo#  No GPRS command | The command ID is DEVICEINFO;  The terminal is supposed to reply with terminal's information, such as working mode, time interval of GPS tracking, the last time of location, etc. |  |
| **Contents of reply SMS** | **Description** | |
| Firmware C42F-LPTl009-US-P1-V0.3.56.20220707.151958 | The version of terminal firmware. | |
| Protocol V982 | The version of communication protocol implemented to the terminal | |
| IMEI 357653050581714 | IMEI No. assigned to the terminal. | |
| 2022/07/11,12:16:10 | The time of reply the command. | |
| Network 4G[lte signal dbm =-119,level=1] | The current network is 4G, the signal level of 4G is -199dbm.The closer the dbm value is to 0, the better the network signal  The network level is1 (The best signal level is 5). | |
| Heartbeat  [P1 112.74.138.18:5018,true,5] | The server IP for uploading the heartbeat values;  The value "true" means connecting to the tracking server;  The value "5" means heartbeat uploading interval is 5 minutes. | |
| Bat046,3745 charged false, Step0 | Battery level and pedometer value;  The value "046" means the battery level is 46%;  The value "3745" means the voltage value is 3.745v;  The value "0" means the pedometer is 0 steps. | |
| Location [M8,C600s,TWiFi,  20220711120944,BTInfalse] | The value "M8" means the terminal is working in tracking mode 8.  The value "C600s" means location data uploading interval is 600 seconds;  TWiFi means the tracking way of last location is WiFi;  The value"20220711120944"is location time of the last location.It is 2022-07-11 12:09:44;  BTInfalse is undefined for 4G terminal. | |
| PPG[C10m]  or  PPG[C5,P64,H108,L70,T31.00,  TA35.55,20200225230645] | Heart rate detection interval;  C0m means the terminal don't support heart rate detection;  The value "C10" means the heart reat uploading interval is 5 mins;  The value "P64" means the value of heart rate is 64;  The value "H108" means the high blood pressure is 108;  The value "L70" means the low blood pressure is 70;  The value "T31.00" means the wrist temperature is 31.00 degrees Celsius;  The value "TA35.55" means the body temperature is 35.55 degrees Celsius;  The value " 20200225230645" means the heart rate and temperature data detection time is 2020-02-25 23:06:45. | |
| Temp[C0s]  or  Temp[C600s] | Temperature detection interval;  The value "C0s" means the terminal don't support temperature detection;  The value "C600s" means the temperature data uploading interval is 600 seconds; | |

## Setting up APN

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#apn#=reset#  GPRS command format  @apn@=reset@ | The command ID is APN;  Reset the APN configuration to default value;  The terminal is supposed to reply with  ‘Reset APN to default true/false’. |  |
| SMS command format  Password#apn#=MCC,MNC,ApnName,apn,user,password#  GPRS command format  @apn@=MCC,MNC,ApnName,apn,user,password@ | The command ID is APN;  Configure and enable a new APN parameter,or enable an existing APN parameter which is already in the firmware;  The terminal is supposed to reply with ‘apn add success!’;  Repeatedly setting the same APN parameters may cause the terminal to reply with ERROR reminder SMS. | GPRS command:  @apn@=234,50,TM,TM,,@ |
| SMS command format  Password#apn#=current#  No GPRS command | The command ID is APN;  Check the existing APN saved in terminal firmware;  The terminal is supposed to reply with the APN which are matching the current MCCMNC. It won't list all APN parameters;  Every APN parameter start with APN Settings ID such as ‘APNSettings id=23’. |  |

## Setting up Server IP

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#ip#=reset#  GPRS command format  @ip@=reset@ | The command ID is IP;  Reset the server IP as factory settings;  The terminal is supposed to reply with  Reset ip to default true/false |  |
| SMS command format  Password#ip#=IP:PORT#  GPRS command format  @ip@=IP:PORT@ | The command ID is IP;  Set up server IP and port, support domain name;  The terminal is supposed to reply with  ‘Password#ip#= IP:PORT#success/fault!’ | GPRS command:  @ip@=54.252.236.131:4500@ or @ip@=node.traxbean.com:4500@ |
| SMS command format  Password#ip#=current#  No GPRS command | The command ID is IP;  Check the existing server IP saved in terminal firmware;  The terminal is supposed to reply with  Current server Address: IP:PORT. |  |

## Power OFF the Terminal

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#poweroff#  GPRS command format  @poweroff@ | The command ID is POWEROFF;  Power OFF the terminal remotely;  The terminal is supposed to reply with ‘do poweroff ok!’ then execute the command. |  |

## Reboot the Terminal

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#reboot#  GPRS command format  @reboot@ | The command ID is REBOOT;  Restart the terminal remotely;  The terminal is supposed to reply with ‘do reboot OK!’ then execute the command. |  |

## Back to the factory

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#factoryreset#  GPRS command format  @factoryreset@ | The command ID is FACTORYRESET;  Restore the terminal to factory settings remotely;  The terminal is supposed to reply with ‘do factoryreset OK!’ then execute the command. |  |

# **<Part 2>Data packet sent from the Terminal (Terminal 🡪 Server)**

## Login packet (Uplink ID:AP00,Response ID:BP00)

|  |  |
| --- | --- |
| Packet format: IWAP00+IMEI# or IWAP00+IMEI,MCC|MNC|APNname#  or IW AP00+IMEI,ICCID,IMSI# | |
| 1. Sample: IWAP00353456789012345# or IWAP00353456789012345,460|00|CMNET# or IWAP00:IWAP00357653050852602,89962030221137165263,416032113716526# | |
| Direction: | |
| IW: Header character;  AP00: Command word;  460|00|CMNET: MCC|MNC|APN Name;  89962030221137165263: ICCID;  416032113716526: IMSI;  #: Ending character. | |
| Server responds format:  IWBP00,Clock,Timezone# | Server responds sample:  IWBP00*,*20150101125223,8#  20150101125223 is server time service, the format is year month date hour minute second, it’s UTC0 time;  8 is the present time zone of server. Negative numbers represent the western longitude;  The platform should send respond packet to the terminal, otherwise it cannot maintain connection with the terminal. |
| Notice: | New login packet should be sent every time when the terminal tries to connect with server. |

## Locating packet (Uplink ID:AP01,Response ID:BP01)

|  |  |
| --- | --- |
| Packet format: IWAP01+Date+GPS validity flag+Latitude+Longitude+Speed+Location time+Direction angle+Status,LBS data,Wi-Fi data# | |
| Sample: IWAP01080524A2232.9806N11404.9355E000.1061830323.8706000908000102,  460,0,9520,3671,Home|74-DE-2B-44-88-8C|97& Home1|74-DE-2B-44-88-8C|97&Home2  |74-DE-2B-44-88-8C|97& Home3|74-DE-2B-44-88-8C|97# | |
| Direction: | |
| IW: Header character;  AP01: Command ID;  080524: Date. The value is 24th May,2008;  A: GPS validity flag .Set the value to “A” to mark the GPS data is valid data,set the value ”V” to mark invalid GPS location data. The server should analysis LBS and Wi-Fi data only to get location then the flag value is “V” or the Latitude+ Longitude is all in 0 like 0000.0000N00000.0000E;  2232.9806N11404.9355E: 22 degrees north latitude 32.9806 points,114 degrees east longitude 04.9355 points;  000.1: The speed is 000.1 km/h, it’s default as 0 if the GPS data are invalid;  061830: GMT location time. The value is 06:18:30;  323.87: The direction angle is 323.87°;  06000908000102: A set of status data;  060: GSM signal. The unit is DBM.060 means -60 DBM.-60 DBM is good signal,-90 is worse than -60;  009: The number of GPS satellites;  080: Battery level;  0: Reserved bit (The server doesn’t need analysis this data);  01: Fortification state (The server doesn’t need analysis this data);  02: working mode (it shows none setting if fortification and working mode are 00);  460,0,9520,3671: LBS data. The format is MCC,MNC,LAC,CID, The value is decimal;  Home|74-DE-2B-44-88-8C|97: One set of Wi-Fi data, Home is SSID, 74-DE-2B-44-88-8C is MAC address,97 is signal strength, variables are separated by “|”. Wi-Fi data can be multiple sets and are separated by “&”;  #: Ending character. | |
| Server response format:  IWBP01# | Server responds sample:  IWBP01#  The platform should send respond packet to the terminal, otherwise terminal would repeat upload same location data packet. |
| Notice: |  |

## Heartbeat packet (Uplink ID:AP03,Response ID:BP03)

|  |  |
| --- | --- |
| Packet format: IWAP03,GSM siganl+Number of GPS satellites+Battery level+Reserved bit+ Fortification state+Working mode, Pedometer,Rolls frequency# or  IWAP03,GSM siganl+Number of GPS satellites+Battery level+Reserved bit+Fortification  state+Working mode,Pedometer,Rolls frequency,Working mode,Location interval# | |
| Sample: IWAP03,06000908000102,5555,30# or IWAP03,06300706800008,0,00,8,600# | |
| Direction: | |
| IW: Header character;  *AP03*: Command ID;  Terminal can use command to keep connection and handle static drift with platform when it’s motionless;  06000908000102: A set of status data;  060: GSM signal;  009: The number of satellites;  080: Battery level;  0: Reserved bit(The server doesn’t need analysis this data);  01: Fortification state (The server doesn’t need analysis this data);  02 is working mode, The unit is second. (Set the value to 00 means none or not set));  5555: Counting steps/Pedometer. Recount from 0 after reaching 9999 steps (9999 is for an example, here is 2 bytes int and overflow to zero);  30: Rolls frequency;  8: Working mode;  600: Location interval. The unit is second. The terminal will upload location data at this interval;  #: Ending character. | |
| Server response format:  IW*BP03*# | Server responds sample:  IWBP03#  The platform should send respond packet to the terminal. |
| Notice: |  |

## Low battery alarm packet (Uplink ID:AP04,Response ID:BP04)

|  |  |
| --- | --- |
| Packet format: IWAP04,Battery level# | |
| Sample: IWAP04,075# | |
| Direction: | |
| IW: Header character;  *AP04*: Command ID;  075: Battery level. The unit is %;  #: Ending character. | |
| Server response format:  IW*BP04*# | Server responds sample:  IWBP04# |
| Notice: |  |

## Alarm and Return address Packet (Uplink ID:AP10,Response ID:BP10)

|  |  |
| --- | --- |
| Packet format: IWAP10+Date+GPS validity flag+Latitude+Longitude+Speed+Location time+Direction angle+Status,LBS data,Alarm state,Terminal language, Response flag,  Wi-Fi data# | |
| Sample: IWAP10080524A2232.9806N11404.9355E000.1061830323.8706000908000502,  460,0,9520,3671,00,zh-cn,00,HOME|74-DE-2B-44-88-8C|97&HOME1|74-DE-2B-44-88-8C|97 &HOME2|74-DE-2B-44-88-8C|97&HOME3|74-DE-2B-44-88-8C|97# | |
| Direction: | |
| IW: Header character;  *AP10*: Command ID;  080524: Date. The value is 24th May,2008;  A: GPS validity flag. Set the value to “A” to mark the GPS data is valid data,set the value ”V” to mark invalid GPS location data. The server should analysis LBS and Wi-Fi data only to get location then the flag value is “V” or the Latitude+ Longitude is all in 0 like 0000.0000N00000.0000E;  2232.9806N11404.9355E: 22 degrees north latitude 32.9806 points,114 degrees east longitude 04.9355 points;  000.1: The speed is 000.1 km/h, it’s default as 0 if the GPS data are invalid;  061830: GMT location time.The value is 06:18:30 ;  323.87: The direction angle is 323.87°;  06000908000502: A set of status data;  060: GSM signal. The unit is DBM.060 means -60 DBM. -60 DBM is good signal,-90 is worse than -60;  009: The number of GPS satellites;  080: Battery level;  0: Reserved bit (The server doesn’t need analysis this data);  05: Fortification state (The server doesn’t need analysis this data);  02: Working mode (it shows none setting if fortification and working mode are 00);  460,0,9520,3671: LBS data. The format is MCC,MNC,LAC,CID, The value is decimal;  00: Alarm state, the content for values as below;   |  |  |  |  | | --- | --- | --- | --- | | **Value** | **Alarm content** | **Value** | **Alarm content** | | 00 | No alarm | 12 | High Diastolic blood pressure | | 01 | SOS alarm | 13 | Low Diastolic blood pressure | | 02 | Low battery | 14 | Sedentary reminder | | 03 | Take off or remove the Terminal | 15 | Reserve | | 04 | Reserve | 16 | Lock the tamperproof strap | | 05 | Tamperproof strap open or removed | 17 | High Temperature | | 06 | Fall alarm | 18 | Low Temperature | | 07 | Abnormalities in heart rate | 19 | Power OFF | | 08 | High heart rate | 20 | Out of the Geofence | | 09 | Low heart rate | 21 | Enter the Geofence | | 10 | High Systolic blood pressure | 22 | Message be read | | 11 | Low Systolic blood pressure | 12 | High Diastolic blood pressure |   zh-cn: Terminal language;  00: Response flag;  The first bit: Whether the reply address is needed,0:means no need reply,1means need reply;  The second bit: Whether mobile hyperlink is contained in address information,0 means not contained,1 means contained;  HOME|74-DE-2B-44-88-8C|97: One set of Wi-Fi data, Home is SSID, 74-DE-2B-44-88-8C is MAC address,97 is signal strength, variables are separated by “|”. Wi-Fi data can be multiple sets and are separated by “&”;  #: Ending character. | |
| Server response format:  IWBP10#  or  IWBP10+Address# | Server responds sample:  The platform responds BP10 only if return address is not needed. or  IWBP106df157335e0253575c71533a53576d7759279053003100300037003953f7002000200068007400740070003a002f002f007700770077002e006700700073002e0063006f006d002f006d00610070002e0061007300700078003f006c00610074003d00320033002e00310032003300206c006e0067003d003100310033002e003100320033#  Content of return address on platform should be UNICODE of HEX and implied, above example shows:  No1079 Nanhai Road,Nanshan District,Shenzhen city http://www.gps.com/map.aspx?lat=23.123&lng=113.123;  The language and content is according to Terminal language value in AP10 packet.The server check the Response flag to determine  reply hyperlink or not. |
| Notice: |  |

## Upload picture (Uplink ID: AP42, Response ID: BP42)

|  |  |
| --- | --- |
| Packet format: IWAP42, Time of the picture recorded,Quantity of picture packets,The serial number of current picture packet,Packet length,Picture data# | |
| Sample: IWAP42*,*20140818064408,6,1,1024,XXXXXXXXXXXXXXXXXXXXXXXXX# | |
| Direction: | |
| IW: Header character;  *AP42*: Command ID;  20140818064408: Time of the picture recorded. The format is yyyymmddhhmmss;  6: Quantity of picture packets;  1: The serial number of current picture packet. The serial number first packet is 1,that for the second packet is 2,etc...;  1024: Packet length. The size of every picture packet is same.Picture packet length is the actual number of bytes if the last packet is less than 1024;  XXXXXXXXXXXXXXXXXXXXXXXXX:The picture data;  The rule of upload picture packet:  Upload the packet one by one according to the packet order. The server will send a response packet. The Terminal check the value of response packet. Then the Terminal will upload the next packet in turn if the value is 'upload successfully';  The Terminal will repeat to upload the current packet if it can't receive response packet from the server or the value is 'upload failed';  #: Ending character. | |
| Server response format:  IWBP42, Time of the picture recorded,Quantity of picture packets,The serial number of current picture packet,Value of response packet # | Server responds sample:  IWBP42,20140818064408,6,1,1#  20140818064408: yyyyMMddHHmmss Time of the picture recorded;  6: Quantity of picture packets;  1: The serial number of current picture packet;  1: Value of response packet. Set the value to 1 for 'upload successfully' and set value 0 for 'upload failed'. |
| Notice: |  |

## Upload BLE data (Uplink ID: APBL, Response ID: BPBL)

|  |  |
| --- | --- |
| Packet format: IWAPBL,IMEI,Parameters of BLE around,Terminal's own MAC,Time stamp# | |
| Sample: IWAPBL,355932600029362,TraxBean064|BF:0C:B8:3F:2F:37|-30&VG05| F0:49:32:83:F9:9E|-52,28:05:31:16:02:04,1711512576683# | |
| Direction: | |
| IW: Header character;  APBL: Command ID;  TraxBean064|BF:0C:B8:3F:2F:37|-30&VG05|F0:49:32:83:F9:9E|-52,28:05:31:16:02:04,1711512576683;  Parameters of BLE around.TraxBean064 is name of the BLE device which is detected by the terminal.BF:0C:B8:3F:2F:37 is MAC of the BLE device around,-30is BLE Signal strength,The parameters of one set BLE beacon is separated with "|". Bluetooth parameters can have multiple sets with separated by "&". When the terminal uploading Bluetooth names, please remove special characters like "|" or "&". or use self-increasing numbers instead;  28:05:31:16:02:04:Terminal's own MAC;  1711512576683: Time stamp. | |
| Server response format:  IW*BPBL*# | Server response sample:  IWBPBL# or No server response is required. |
| Notice: |  |

## Upload health data packet (Uplink ID:APJK,Response ID:BPJK)

|  |  |
| --- | --- |
| Packet format: IW*APJK*,Datetime,Type,Health data value# | |
| Example: IWAPJK,2021-05-29 13:00:00,1,69|120# or  IWAPJK,2024-03-28 14:21:09,3,36.19# | |
| Direction: | |
| IW: Header character;  *APJK*: Header character;  2021-05-29 13:00:00:Date & Time (with 0 Time zone);  1: Type of health data;  Set the value to 1 for upload Blood pressure;  Set the value to 2 for upload Heart rate;  Set the value to 3 for upload Body temperature;  Set the value to 4 for upload Blood oxygen;  69|120: Health data value,The content follow with the value of type;  When the type value is 1, 69|120 means diastolic pressure (low pressure) is 69, and systolic pressure (high pressure) is 120;  The ‘|’ is a Separator between multiple parameters. If there is only one parameter, no separator is required;  Another sample is WAPJK,2021-05-29100:00,2,80#;  The type value is 2,the value 80 means Heart rate value is 80 Times / Min;  #: Ending character. | |
| Server response format:  IW*BPJK*, Type# | Server responds sample:  IWBPJK,2#  The value 2 represents the value is corresponding to the type in the uploaded data packet. |
| Notice: |  |

## Upload Temperature (Uplink ID:APTP, Response ID:BPTP)

|  |  |
| --- | --- |
| Packet format: IWAPTP, Current body temperature, Wrist temperature # | |
| Sample: IWAPTP,36.0,33.0# | |
| Direction: | |
| IW: Header character;  *APTP*: Command ID;  36.0: Current body temperature;  33.0: Wrist temperature measured by the sensor;  #: Ending character. | |
| Server response format:  IW*BPTP*# | Server response sample:  IWBPTP# |
| Notice: |  |

## Upload version of firmware (Uplink ID: APVR, Response ID: BPVR)

|  |  |
| --- | --- |
| Packet format: IWAPVR,IMEI,Firmware Version# | |
| Sample: IW*APVR*,357653050858997,C42F-l005l005-EU-P1-V0.3.38.20210906.182655# | |
| Direction: | |
| IW: Header character;  *APVR*: Command ID;  357653050858997: IMEI;  C42F-l005l005-EU-P1-V0.3.38.20210906.182655: Firmware Version;  #: Ending character. | |
| Server response format:  No server response. | Server response sample:  No server response is required. |
| Notice: |  |

## Upload wearing status (Uplink ID: APWR, Response ID: BPWR)

|  |  |
| --- | --- |
| Packet format: IWAPWR,IMEI,Wearing status flag,Timestamp# | |
| Sample: IWAPVR,357653050858997,1,xxxxxx# | |
| Direction: | |
| IW: Header character;  *APWR*: Command ID;  357653050858997: IMEI;  1: Wearing status flag. Set the value to 1 for “the device is being worn on the body”. Set the value to 0 for “the device is removed from the body”;  #: Ending character. | |
| Server response format:  No server response. | Server response sample:  No server response is required. |
| Notice: |  |

## Check weather data (Uplink ID: APTQ, Response ID: BPTQ)

The terminal requests local weather data from the server. If you don't need this feature, then the server doesn't need to respond to this packet. To use this feature, the server needs to integrate the local weather data service API and customize the firmware of the terminal to display weather data.

# **<Part 3>Data packet sent from the server (Server 🡪Terminal)**

## Configure Time zone (Downlink ID: BP00)

|  |  |
| --- | --- |
| Command format: IWBP00,Datetime,Timezone# | |
| Sample: IWBP00,20140818064408,8# | |
| Direction: | |
| IW: Header character;  BP00: Command ID;  20140818064408: Date & time. The format is yyyymmddhhmmss;  8: Time zone. The time zone is specified by the server for the terminal;  Please note that the platform responds to the time zone for terminal timing only when the terminal upload AP00. The terminal receives BP00 packet and sets the time based on the time zone. | |
| Terminal response format:  No server response. | Terminal response sample:  No server response is required. |
| Notice: |  |

## Configure SOS number (Downlink ID:BP12,Response ID:AP12)

|  |  |
| --- | --- |
| Command format: IWBP12,IMEI,Command serial number,SOS1,SOS2,SOS3# | |
| Sample: IWBP12,353456789012345,080835,1XXXXXXXX,2XXXXXXXX,3XXXXXXXX# | |
| Direction: | |
| IW: Header character;  BP12: Command ID;  353456789012345: IMEI;  080835: Command serial number;  1XXXXXXXX,2XXXXXXXX,3XXXXXXXX: 3 SOS numbers. If no SOS number is set for a field, the field should be left blank, but the field should still be retained. | |
| Terminal response format:  IW*AP12*, Command serial number,SOS1,SOS2, SOS3# | Terminal response sample:  IWAP12,080835, 1XXXXXXXX,2XXXXXXXX,3XXXXXXXX # 080835: The serial number must be same with that in the received data packet;  1XXXXXXXX,2XXXXXXXX,3XXXXXXXX: The terminal uploads the current main control number for the platform to synchronize data. |
| Notice: |  |

## Configure white list (Downlink ID:BP14, Response ID:AP14)

|  |  |
| --- | --- |
| Command format:IWBP14,IMEI,Command serial number,  1st Contact Name|1st Contact phone number,2nd Contact Name|2nd Contact phone number,  3rd Contact Name|3rd Contact phone number,4th Contact Name|4th Contact phone number,  5th Contact Name|5th Contact phone number,6th Contact Name|6th Contact phone number,  7th Contact Name|7th Contact phone number,8th Contact Name|8th Contact phone number,  9th Contact Name|9th Contact phone number,10th Contact Name|10th Contact phone number# | |
| Sample: IWBP14,353456789012345,080835,AAAA|135xxxxxxxxxx,BBBB|135xxxxxxxxxx, CCCC|135xxxxxxxxxx,DDDD|135xxxxxxxxxx,EEEE|135xxxxxxxxxx, FFFF|135xxxxxxxxxx, GGGG|135xxxxxxxxxx,HHHH|135xxxxxxxxxx,IIII|135xxxxxxxxxx, JJJJ|135xxxxxxxxxx# | |
| Direction: | |
| IW: Header character;  *BP14*: Command ID;  353456789012345: IMEI of the Terminal;  080835: Command serial number. It's random six-digit number. You can assign the values according to your own coding rules;  AAAA|135xxxxxxxxxx: One set of phone number;  AAAA is Contact Name.135xxxxxxxxxx is Contact phone number. Use '|' to separate the name and phone number. The name is encoded as a string in Unicode. Multiple groups are separated by commas. If no Contact Name or phone number is set for a field, the field should be left blank, but the field should still be retained;  #: Ending character. | |
| Terminal response format:  IWAP14,IMEI,Command serial number,1st Contact Name|1st Contact phone number,2nd Contact Name|2nd Contact phone number,3rd Contact Name|3rd Contact phone number,4th Contact Name|4th Contact phone number,5th Contact Name|5th Contact phone number,6th Contact Name|6th Contact phone number,7th Contact Name|7th Contact phone number,8th Contact Name|8th Contact phone number,9th Contact Name|9th Contact phone number,10th Contact Name|10th Contact phone number# | Terminal response sample:  IWAP14,353456789012345,080835,AAAA|135xxxxxxxxxx,BBBB|135xxxxxxxxxx,CCCC|  135xxxxxxxxxx,DDDD|135xxxxxxxxxx,EEEE|135xxxxxxxxxx,FFFF|135xxxxxxxxxx,GGGG|135xxxxxxxxxx,HHHH|135xxxxxxxxxx,IIII|135xxxxxxxxxx, JJJJ|135xxxxxxxxxx#  080835: The serial number of the responded data from the Terminal;  The Terminal reply with current master control number to the platform;  Note: it is recommended that the Terminal respond without phone number;  Example: IWAP14,080835#. |
| Notice: |  |

## GPRS locating data upload interval (Downlink ID:BP15, Response ID:AP15)

|  |  |
| --- | --- |
| Command format: IWBP15,IMEI,Command serial number,Location data uploading interval# | |
| Sample: IWBP15,353456789012345,080835,300# | |
| Direction: | |
| IW: Header character;  *BP15*: Command ID;  353456789012345: IMEI;  080835: Command serial number. It's random six-digit number. You can assign the values according to your own coding rules;  300: Location data uploading interval of the terminal, unit: second;  #: Ending character. | |
| Terminal response format:  IWAP15,Command serial number, Location data uploading interval# | Terminal response sample:  IWAP15,080835,300#  300: Terminal responds the present setting to synchronize data. |
| Notice: |  |

## Real-time locating command (Downlink ID:BP16, Response ID:AP16)

|  |  |
| --- | --- |
| Command format: IWBP16,IMEI,Command serial number# | |
| Sample: IWBP16,353456789012345,080835# | |
| Direction: | |
| IW: Header character;  *BP16*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  #: Ending character.  The device attempts to search for GPS signals for 90 seconds while also searching for nearby Wi-Fi hotspot around.  If it got GPS positioning successfully, use the AP01 data packet to upload GPS location, Wi Fi location, and LBS data.  If GPS positioning is not successfully obtained, only Wi-Fi location and LBS data will be uploaded.  If GPS and Wi-Fi data cannot be searched, only use AP01 to upload LBS data.  Due to the need to wait for GPS search results, the device will not immediately upload the AP01 data packet, resulting in a slight delay. | |
| Terminal response format:  IWAP16,Command serial number# | Terminal response sample:  IWAP16,080835# |
| Notice: |  |

## Factory reset (Downlink ID:BP17, Response ID:AP17)

|  |  |
| --- | --- |
| Command format: IWBP17,IMEI,Command serial number# | |
| Sample: IWBP17,353456789012345,080835# | |
| Direction: | |
| IW: Header character;  *BP17*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  #: Ending character. | |
| Terminal response format:  IWAP17,Command serial number# | Terminal response sample:  IWAP17,080835# |
| Notice: |  |

## Restart the terminal (Downlink ID:BP18, Response ID:AP18)

|  |  |
| --- | --- |
| Command format: IWBP18,IMEI,Command serial number# | |
| Sample: IWBP18,353456789012345,080835# | |
| Direction: | |
| IW: Header character;  *BP18*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  #: Ending character. | |
| Terminal response format:  IWAP18,Command serial number# | Terminal response sample:  IWAP18,080835# |
| Notice: |  |

## Configure server (Downlink ID:BP19, Response ID:AP19)

|  |  |
| --- | --- |
| Command format: IWBP19,IMEI,Command serial number,Domain flag,IP/domain,port# | |
| Sample: IWBP19,353456789012345,080835,0,127.0.0.1,8011# | |
| Direction: | |
| IW: Header character;  BP19: Command ID;  353456789012345: IMEI;  080835: Command serial number;  0: Domain flag. Set the value to 1 for 'domain' and set value to 0 for 'IP' ;  127.0.0.1: IP/domain. This value should be IP address when the Domain flag value is 0.  The value should be a domain when the Domain flag is 1;  8011: port. | |
| Terminal response format:  IWAP19,Command serial number# | Terminal response sample:  IWAP19,080835# |
| Notice: |  |

## Configure terminal language & timezone (Downlink ID:BP20, Response ID:AP20)

|  |  |
| --- | --- |
| Command format: IWBP20,IMEI,Command serial number,Language,Time zone# | |
| Sample: IWBP20,353456789012345,080835,0,8# | |
| Direction: | |
| IW: Header character;  BP20: Command ID;  353456789012345: IMEI;  080835: Command serial number;  0: Language. Set the value to 1 for 'English' and value 0 for 'Chinese';  8: Time zone. | |
| Terminal response format:  IWAP20,Command serial number, Language,Time zone## | Terminal response sample:  IWAP20,080835,0,8# |
| Notice: |  |

## Power off command (Downlink ID:BP31, Response ID:AP31)

|  |  |
| --- | --- |
| Command format: IWBP31,IMEI,Command serial number# | |
| IWBP31,353456789012345,080835# | |
| Direction: | |
| IW: Header character;  *BP31*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  #: Ending character. | |
| Terminal response format:  IWAP31,Command serial number# | Terminal response sample:  IWAP31,080835# |
| Notice: |  |

## Make the terminal make phone call (Downlink ID:BP32, Response ID:AP32)

|  |  |
| --- | --- |
| Command format: IWBP32,IMEI,Command serial number,Phone number# | |
| Sample: IWBP32,353456789012345,080835,133xxxxxxxx# | |
| Direction: | |
| IW: Header character;  BP32: Command ID;  353456789012345: IMEI;  080835: Command serial number;  133xxxxxxxx: Make the terminal make a phone call to dial the specified phone number. | |
| Terminal response format:  IWAP32,Command serial number, Phone number# | Terminal response sample:  IWAP32,080835,133xxxxxxxx # |
| Notice: |  |

## Working mode (Downlink ID:BP33, Response ID:AP33)

|  |  |
| --- | --- |
| Command format: IWBP33,IMEI,Command serial number,Working mode# | |
| Sample: IWBP33,353456789012345,080835,1# | |
| Direction: | |
| IW: Header character;  *BP33*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  1: Working mode of the terminal,The value 1 means normal mode,value 2 means Power-saving mode,value 3 means emergency mode;  #: Ending character. | |
| Terminal response format:  IWAP33,Command serial number, Working mode# | Terminal response sample:  IWAP33,080835,1# |
| Notice: |  |

## Location working mode (Downlink ID:BP34, Response ID:AP34)

|  |  |
| --- | --- |
| Command format: IWBP34,IMEI,Command serial number,Working mode,Location interval,GPS switch# | |
| Sample: IWBP34,355932600011584,080835,5,700,1# | |
| Direction: | |
| IW: Header character;  *BP34*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  5: Working mode of the terminal. Set the value to 5 for “GPS location takes precedence over WiFi location”. The terminal would try to search GPS signal then upload GPS location for success, or upload the last WiFi location for failed;  700: Location interval. The unit is second;  1: GPS switch. Set the value to 1 to open GPS module and value 0 to close GPS module;  #: Ending character. | |
| Terminal response format:  IWAP34,Command serial number, Working mode# | Terminal response sample:  IWAP34,080835,5# |
| Notice: |  |

## Issue shortcut commands (Downlink ID:BP40, Response ID:AP40)

|  |  |  |
| --- | --- | --- |
| Command format: IWBP40,IMEI,Command serial number,Command content# | | |
| Sample:  IWBP40,355932600011733,680835,>\*ble@3600\*<#  IWBP40,355932600011733,680835,>\*returnhome@180\*<#  IWBP40,355932600011733,080835, 5468696E6B726163652069732061206  76F6F6420636F6D70616E792E#  IWBP40,355932600011832,080835,3E2A70686F746F40312A3C# | | |
| Direction: | | |
| IW: Header character;  BP40: Command ID;  353456789012345: IMEI;  080835: Command serial number;  5468696E6B72616365206973206120676F6F6420636F6D70616E792E:Command content. The format is shown in the table below. This string means‘Thinkrace is a good company’ | | |
| Terminal response format:IWAP40,Command serial number, Receive flag# | | Terminal response sample:  IWAP40,080835,1#  Set the value to 1 for “the terminal has received command”; Set the value to 0 for “receive failed”. |
| Notice: | |  |
| **Command** | **Format** | |
| Send text message | The content is a GB2312 encoded string. | |
| Send voice message | The server would build a URL for the voice message like https://www.vip.com/123.mp3;  The server should convert the URL to a GB2312 encoded string of characters as the command content. | |
| Send picture | The server would build a URL for the picture like https://www.vip.com/123.jpg;  The server should convert the URL to a GB2312 encoded string of characters as the command content. | |
| Take picture | >\*photo|Flag\*<  A flag value of 1 indicates ‘take photo’.  The command in GB2312is  IWBP40,355932600011832,080835,3E2A70686F746F40312A3C#  PT880 support this command. | |
| Configure WIFI connection | >\*wifi@SSID|Passoword\*<  The server should convert the string to GB2312 encoding as instruction content and send it to the terminal, which is to set up a connection to the WIFI hotspot for the terminal. After receiving this command, the terminal should automatically open WIFI module and connect the WiFi hotspot with corresponding SSID. Regardless of whether the connection is successful or not, the terminal will not provide feedback on the connection result to the server. | |
| Worker mode switch | >\*workmode@user|Flag\*<  Sample: >\*workmode@user|1\*<  A flag value of 1 indicates open worker mode.Set the value of 0 to close worker mode;  The server converts the string to GB2312 encoding as command content and sends it to the terminal to open worker mode. Worker mode refers to the terminal only displaying several main interfaces such as time, clock in, and message retrieval. | |
| Set Bluetooth data packet upload interval | >\*ble@Interval\*<  Sample: >\*ble@3600\*< to configure interval as 3600 seconds.  The unit of Interval is second;  The server converts the string to GB2312 encoding as command content. This command can open BLE module and set the time interval for the terminal to send Bluetooth data packet (APBL) to the server;  To avoid excessive power consumption, it is recommended not to set too small a value. | |
| Close BLE module | >\*ble@0\*< to close the switch.  The server converts the string to GB2312 encoding as command content;The value of Interval is 0, the Bluetooth module will be turned off, and the terminal will no longer scan the Bluetooth MAC or upload APBL Bluetooth data packets. | |
| Fall alarm switch | >\*fall@Flag\*< A flag value of 1 indicates open,0 indicates close.  >\*fall@0\*< for close the switch. >\*fall@1\*< for open the switch.  Set the Fall alarm flag to 1 to open fall alarm function;Set the flag to 0 to close the fall alarm function;The server converts the string to GB2312 encoding as command content. | |
| Set fall alarm threshold value | >\*fallconfig@Threshold alue\*<  Sample: >\*fallconfig@1000\*<  The server converts the string to GB2312 encoding as command content;  For example, the threshold value is 1000;When the falling trend value is greater than 1000,it is judged as a falling event and triggers a fall alarm. The smaller the value, the more sensitive the detection. | |
| Wearing detection switch | >\*wearconfig@Flag\*<  Sample: >\*wearconfig@1\*<  A flag value of 1 indicates to open wearing status detection function. Set the flag to 0 to close wearing status detection function;  The server converts the string to GB2312 encoding as command content;  When the wearing detection switch is turned OFF,whether the terminal is worn on or taken off, the terminal will open the health sensor to test health data according to the frequency, and it is possible to get health data. | |
| Threshold for air pressure detection | >\*pressconfig@Value\*< The pressure detection threshold used for fall alarm, measured in . A value of 0.2 indicates setting the threshold to 0.2Hpa. If the air pressure changes beyond this threshold, it is considered that a fall behavior has occurred and a fall alarm can be triggered. | |
| Set the length of time to return to the main interface | >\*returnhome@Time\*<  Sample: >\*returnhome@180\*<  The unit is second; For example, the time value is 180;  The server converts the string to GB2312 encoding as command content; The terminal would set the length of time to return from the functional interface to the main interface. | |
| Set the main interface to display worker names | >\*settitle@Name\*< The value of Name is the wearer's name.  After setting, it will be displayed on the watch main interface. Setting a new name will overwrite the old one. | |
| Set SOS button mode | >\*setsosmode@Flag\*< A flag value of 1 indicates ‘Press and hold the SOS button for more than 3 seconds to trigger the SOS alarm’.  >\*setsosmode@3\*< A flag value of 3 indicates ‘Press the SOS button 3 times to trigger the SOS alarm’.  If the set parameter is a value other than 1 or 3, it defaults to 1. | |
| Sedentary reminder | >\*still@Threshold value\*< The unit of Threshold value is seconds.  A value of 300 triggers a sedentary reminder when the static state exceeds 300 seconds.  The minimum value is 300 seconds. If the value is 0, the sedentary reminder function will be turned off. | |
| Network tracking service switch | >\*networkloc@Flag\*< A flag value of 1 indicates to open the switch.  >\*networkloc@Flag\*< A flag value of 0 indicates to close it.  The default state is closed. If this switch is turned on, the device will add the latitude and longitude obtained from the network tracking service to the AP01 packet, as shown below:  IWAP01250723V0000.0000N00000.0000E000.0160150029.4704700008200008,310,26,65533,45912587,AP1|8e:76:3f:9b:54:fc|-70,[23.12312@114.23543]# | |

## Take picture (Downlink ID: BP46, Response ID:AP46)

|  |  |
| --- | --- |
| Command format: IW*BP46*,IMEI,Command serial number,Command content# | |
| Sample: IWBP46,353456789012345,080835,1,[parameters]# | |
| Direction: | |
| IW: Header character;  BP46: Command ID;  353456789012345: IMEI;  080835: Command serial number;  1: Take photo immediately;  [parameters]: Reserve optional parameter field. Expand according to different types of terminal;  #: Ending character. | |
| Terminal response format:  IWAP46,Command serial number,response flag# | Terminal response sample:  The Terminal would execute the command and respond as below, then upload picture with 'AP42' command;  IWAP46,080835,1#  1: Response flag. Set the flag to 1 for 'the packet is uploaded successfully' and flag 0 for 'upload failed'. Set the value 5 for 'the picture is uploading'. |
| Notice: |  |

## Detect heart rate (Downlink ID:BP50,Response ID:AP50)

|  |  |
| --- | --- |
| Command format: IW*BP50*,IMEI,Command serial number# | |
| Sample: IWBP50,353456789012345,080835# | |
| Direction: | |
| IW: Header character;  BP50: Command ID;  353456789012345: IMEI;  080835: Command serial number. | |
| Terminal response format:  IWAP50,Command serial number,response flag# | Terminal response sample:  IWAP50,080835,1#  1: Response flag. Set the flag to 1 for 'terminal has executed command successfully'. The flag 0 for 'executed failed'. |
| Notice: |  |

## Configure phone book (Downlink ID:BP51,Response ID:AP51)

|  |  |
| --- | --- |
| Command format: IWBP51,IMEI,Command serial number,Contact name,Phone number# | |
| Sample: IWBP51,353456789012345,080835, D3590D54,13333333333# | |
| Direction: | |
| IW: Header character;  BP51: Command ID;  353456789012345: IMEI;  080835: Command serial number;  D3590D54: Contact name;  13333333333: Phone number. | |
| Terminal response format:  IWAP51,Command serial number,response flag# | Terminal response sample:  IWAP51,080835,1#  1: Response flag. Set the flag to 1 for 'terminal has executed command successfully. Flag 0 for 'executed failed'.  The server only storage the latest phone data.Tthe terminal storage all previous phone book. |
| Notice: |  |

## Delete phone book (Downlink ID:BP52,Response ID:AP52)

|  |  |
| --- | --- |
| Command format: IWBP52,IMEI,Command serial number,Phone number# | |
| Sample: IWBP52,353456789012345,080835,13333333333# | |
| Direction: | |
| IW: Header character;  BP52: Command ID;  353456789012345: IMEI;  080835: Command serial number;  13333333333: Phone number. | |
| Terminal response format:  IWAP52,Command serial number,response flag# | Terminal response sample:  IWAP52,080835,1#  1: Response flag. Set the flag to 1 for 'the terminal has executed command successfully'. Flag 0 for 'executed failed'.  The server only storage the latest phone data.Tthe terminal storage all previous phone book. |
| Notice: |  |

## Switch of whitelist (Downlink ID:BP84,Response ID:AP84)

|  |  |
| --- | --- |
| Command format: IWBP84,IMEI,Command serial number,Switch flag# | |
| Sample: IWBP84,353456789012345,080835,1# | |
| Direction: | |
| IW: Header character;  BP84: Command ID;  353456789012345: IMEI;  080835: Command serial number;  1: Switch flag.Set the flag to 1 to open whitelist,0 to close whitelist. | |
| Terminal response format:  IWAP84, Command serial number,response flag# | Terminal response sample:  IWAP84,080835,1#  1: Response flag;  Set the flag to 1 for 'the terminal has executed command successfully'; Set the flag 0 for 'executed failed'. |
| Notice: |  |

## Health monitoring interval (Downlink ID:BP86,Response ID:AP86)

|  |  |
| --- | --- |
| Command format: IWBP86,IMEI, Command serial number,Switch flag,Value# | |
| Sample: IWBP86, 353456789012345,080835,1,32# | |
| Direction: | |
| IW: Header character;  BP86: Command ID;  353456789012345:IMEI；  080835 : Command serial number;  1: Switch flag.Set the flag to 1 to open health monitoring function,0 to close the function.  32: Health data detection interval, unit: minute. | |
| Terminal response format:  IWAP86, Command serial number,response flag# | Terminal response sample:  IWAP86,080835,1#  080835: Command serial number;  1: Response flag;  Set the flag to 1 for 'the terminal has executed command successfully'; Set the flag 0 for 'executed failed'. |
| Notice: |  |

## Find the terminal (Downlink ID:BP88,Response ID:AP88)

|  |  |
| --- | --- |
| Command format: IWBP88,IMEI,Command serial number # | |
| Sample: IWBP88, 353456789012345,080835# | |
| Direction: | |
| IW: Header character;  BP88: Command ID;  353456789012345: IMEI;  080835: Command serial number. | |
| Terminal response format:  IWAP88, Command serial number # | Terminal response sample:  IWAP88,080835#  After the terminal responds, it will ring to help the user find the terminal. |
| Notice: |  |

## Motion detection function switch (Downlink ID:BPMC,Response ID:APMC)

|  |  |
| --- | --- |
| Command format: IWBPMC,IMEI, Command serial number,Switch flag# | |
| Sample: IWBPMC,353456789012345,0808351,1# | |
| Direction: | |
| IW: Header character;  BPMC: Command ID;  Set the flag to 1 to open the motion detection function. Set flag to 0 to close it.Set flag to 2 to check the current status of the switch. | |
| Terminal response format:  IWAPMC, Command serial number,response flag# | Terminal response sample:  IWAPMC,080835,1#  1: Response flag;  Set the flag to 1 for 'the terminal has executed command successfully' and flag 0 for 'executed failed'. |
| Notice: |  |

## Phone call switch (Downlink ID:BPPH, Response ID:APPH)

|  |  |
| --- | --- |
| Format: IW*BPPH*,IMEI, Command serial number,Switch flag# | |
| Example: IWBPPH, 353456789012345,080835,1# | |
| Direction: | |
| IW: Header character;  *BPPH*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  1: Switch flag. Set the flag to 1 to switch ON the phone call function and flag 0 to close it. The watch will not make any phone call by press SOS button or choose contact number by the function is switched OFF;  #: Ending character. | |
| Terminal response format:  IWAPPH,Command serial number,response flag# | Terminal response sample:  IWAPPH,080835,true#  1: Response flag;  Set the flag to true for 'the terminal has executed command successfully' and set to false for 'executed failed'. |
| Notice: |  |

## GPRS command (Downlink ID:BPSM, Response ID:APSM)

|  |  |
| --- | --- |
| Format: IW*BPSM*, IMEI,Command serial number,Command content# | |
| Example: IWBPSM,355932600021328,680835,@wifictl@=connect-123-12345678-psk# or  IWBPSM,355932600091487,680835,@setlocation@=8-120@#  or  IWBPSM,355932600011584,680835,@sos=64812855;+85264812855;85264812855@# | |
| Direction: | |
| IW: Header character;  *BPSM*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  @wifictl@=connect-123-12345678-psk or @sos=64812855;+85264812855;85264812855@: Command content. See the annex <command list>;  #: Ending character. | |
| Terminal response format:  IWAPSM,Command serial number,response flag# | Terminal response sample:  IWAPSM,680835,set and connect to Wifi SSID 123, WiFiPassword 12345678, encryptType psk!# or  IWAPSM,680835,set SOS number ok!# or  IWAPSM,680835,set to Location Mode=8, Cycle=120# |
| Notice: |  |

## Configure hour system for terminal (Downlink ID:BPTF, Response ID:APTF)

|  |  |
| --- | --- |
| Command format: IWBPTF,IMEI,Hour system value# | |
| Sample: IWBPTF,353456789012345,2# | |
| Direction: | |
| IW: Header character;  BPTF: Command ID;  2:Hour system value.Set the value to 1 for 24 hours system.Set it to 2 for 12 hours system. | |
| Terminal response format:  IW*APTF*,Response flag# | Terminal response sample:  IWAPTF,1#  1: Response flag;  Set the flag to 1 for 'the terminal has executed command successfully' and set to 0 for 'executed failed'. |
| Notice: |  |

## 

## Configure white list (Downlink ID:BPWL, Response ID:APWL)

|  |  |
| --- | --- |
| Command format:IWBPWL,IMEI,Command serial number,  1st Contact Name|1st Contact phone number|1st IMEI of the bound terminal,  2nd Contact Name|2nd Contact phone number|2nd IMEI of the bound terminal,  3rd Contact Name|3rd Contact phone number|3rd IMEI of the bound terminal,  4th Contact Name|4th Contact phone number|4th IMEI of the bound terminal,  5th Contact Name|5th Contact phone number|5th IMEI of the bound terminal,  6th Contact Name|6th Contact phone number|6th IMEI of the bound terminal,  7th Contact Name|7th Contact phone number|7th IMEI of the bound terminal,  8th Contact Name|8th Contact phone number|8th IMEI of the bound terminal,  9th Contact Name|9th Contact phone number|9th IMEI of the bound terminal,  10th Contact Name|10th Contact phone number|10th IMEI of the bound terminal# | |
| Sample: IWBPWL,353456789012345,080835,  AAAA|135xxxxx|3559xxxx,BBBB|135xxxxx|3559xxxx,CCCC|135xxxxx|3559xxxx,  DDDD|135xxxxx|3559xxxx,EEEE|135xxxxx|3559xxxx,FFFF|135xxxxx|3559xxxx, GGGG|135xxxxx|3559xxxx,HHHHD3598|135xxxxx|3559xxxx,JJJJ|135xxxxx|3559xxxx,  KKKK|135xxxxx|3559xxxx# | |
| Direction: | |
| IW: Header character;  *BPWL*: Command ID;  353456789012345: IMEI;  080835: Command serial number;  AAAA|135xxxxxx|3559xxxx: One set of white list;  AAAA is Contact Name.135xxxxx is Contact phone number. 3559xxxx is IMEI of the bound terminal;  Use '|' to separate the name and phone number. The name is encoded as a string in Unicode. Multiple groups are separated by commas. If no Contact Name or phone number is set for a field, the field should be left blank, but the field should still be retained;  #: Ending character. | |
| Terminal response format:  IWAPWL,IMEI,Command serial number,  1st Contact Name|1st Contact phone number|  1st IMEI of the bound terminal,  2nd Contact Name|2nd Contact phone number|  2nd IMEI of the bound terminal,  3rd Contact Name|3rd Contact phone number|  3rd IMEI of the bound terminal,  4th Contact Name|4th Contact phone number|  4th IMEI of the bound terminal,  5th Contact Name|5th Contact phone number|  5th IMEI of the bound terminal,  6th Contact Name|6th Contact phone number|  6th IMEI of the bound terminal,  7th Contact Name|7th Contact phone number|  7th IMEI of the bound terminal,  8th Contact Name|8th Contact phone number|  8th IMEI of the bound terminal,  9th Contact Name|9th Contact phone number|  9th IMEI of the bound terminal,  10th Contact Name|10th Contact phone number|  10th IMEI of the bound terminal# | Terminal response sample:  IWAPWL,353456789012345,080835,  AAAA|135xxxxx|3559xxxx,  BBBB|135xxxxx|3559xxxx,  CCCC|135xxxxx|3559xxxx,  DDDD|135xxxxx|3559xxxx,  EEEE|135xxxxx|3559xxxx,  FFFF|135xxxxx|3559xxxx, GGGG|135xxxxx|3559xxxx,  HHHHD3598|135xxxxx|3559xxxx,  JJJJ|135xxxxx|3559xxxx,  KKKK|135xxxxx|3559xxxx#  The Terminal reply with current white list to the platform. |
| Notice: |  |

## Detect heart rate (Downlink ID:BPXL, Response ID:APXL)

|  |  |
| --- | --- |
| Command format: IW*BPXL*,IMEI,Command serial number# | |
| Sample: IWBP50,353456789012345,080835# | |
| Direction: | |
| IW: Header character;  BPXL: Command ID;  353456789012345: IMEI;  080835: Command serial number. | |
| Terminal response format:  IWAPXL,Command serial number# | Terminal response format:  IWAPXL,Command serial number# |
| Notice: |  |

## Detect blood pressure (Downlink ID:BPXY, Response ID:APXY)

|  |  |
| --- | --- |
| Command format: IWBPXY,IMEI,Command serial number# | |
| Sample: IWBPXY,353456789012345,080835# | |
| Direction: | |
| IW: Header character;  BPXY: Command ID;  353456789012345: IMEI;  080835: Command serial number. | |
| Terminal response format:  IWAPXY,Command serial number# | Terminal response format:  IWAPXY,Command serial number# |
| Notice: |  |

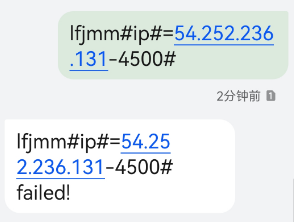
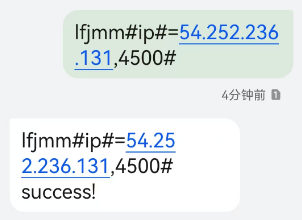
## Detect blood oxygen (Downlink ID:BPXZ, Response ID:APXZ)

|  |  |
| --- | --- |
| Command format: IWBPXZ,IMEI,Command serial number# | |
| Sample: IWBPXY,353456789012345,080835# | |
| Direction: | |
| IW: Header character;  BPXZ: Command ID;  353456789012345: IMEI;  080835: Command serial number. | |
| Terminal response format:  IWAPXZ,Command serial number# | Terminal response format:  IWAPXZ,Command serial number# |
| Notice: |  |

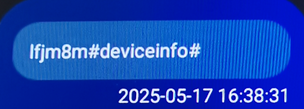
# **<Part 4>Command List**

SMS commands refer to a series of specific commands that a terminal can execute by receiving SMS without connecting the server. These commands are released from the terminal manager by sending SMS (Short Message Service) to the terminal SIM card through their mobile phone. The SIM card of the terminal should support SMS and have enough balance, and the terminal firmware will decode and execute commands.

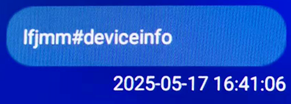
The SMS command format is "password#Command ID#" or "password#Command ID=parameter#". The firmware of the terminal will check the password. For SMS messages with the correct password, the terminal will execute the command and reply with the execution result via SMS.

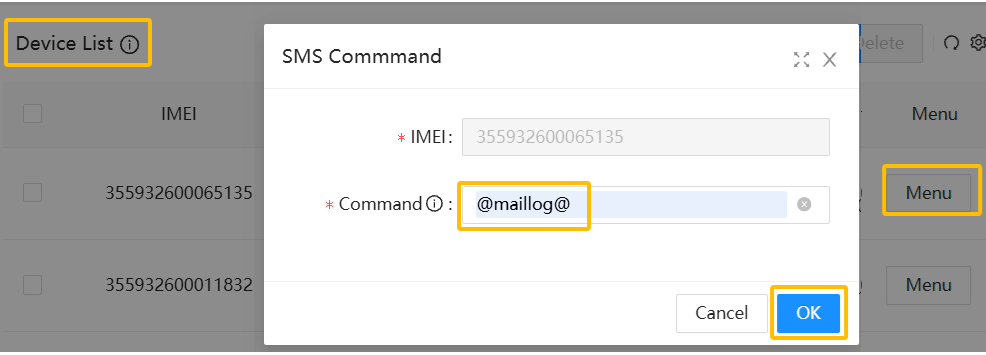
For SMS with incorrect password, the terminal will not execute any instructions. Some terminals will play short ringtones to remind users of password errors, while others will display incorrect instructions on the information interface.



For SMS messages with incorrect command formats, terminals with screens will display the command on the information interface.



GPRS command refer to a series of specific commands that a server sends to a terminal through wireless communication networks such as GPRS/4G/Wi-F. The GPRS commands content format is "@Command ID@" or "@Command ID=parameter@". The comma ',' in the parameter should be replaced by a dash '-'. The parameter should not include ‘@’ or ’#’.The GPRS command does not verify passwords. Pls check 24.GPRS command (Downlink ID:BPSM, Response ID:APSM) for the format of whole command.



## Password management

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#PW=Newpassword#  GPRS command format  @PW=Newpassword@ | The command ID is PW;  The password should be six letters or numbers;  The initial password is lfjmm;  The terminal is supposed to reply with ’SET SMS PW ok +New password’. | GPRS command:  @PW=123456@  The GPRS reply is:  IWAPSM,680835,SET SMS PW ok 123456# |

## White list management

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#WHITE\_LIST\_ ENABLE  =Parameter#  GPRS command format  @WHITE\_LIST\_ENABLE  =Parameter@ | The command ID is WHITE\_LIST\_ENABLE;  Enable or disable the white list function.  The terminal would only answer the incoming call from white list with white list enabled. It would answer all incoming call from any phone number with white list disabled;  Parameter=1 means enable;  Parameter=0 means disable;  The terminal is supposed to reply with  ‘SET WHITE LIST ENABLE result: true/false’. | GPRS command:  @WHITE\_LIST\_ENABLE=1@  The GPRS reply is similar to that of SMS reply:  IWAPSM,680835,SET WHITE LIST ENABLE result : true# |
| SMS command format  Password#WHITE\_LIST= Whitelistname1-Phonenumber1, Whitelistname2-Phonenumber2, Whitelistname3-Phonenumber3#  GPRS command format  @WHITE\_LIST= Whitelistname1 -Phonenumber1, Whitelistname2-Phonenumber2, Whitelistname3-Phonenumber3@ | The command ID is WHITE\_LIST;  Setting white list number and its name; The first white list number will be admin number;  The terminal would only answer the incoming call from white list;  The white list is no more than 10 numbers;  The terminal is supposed to reply with  ’SET SMS WHITE LIST ok+ Quantity of White list’.  The whitelist function also applies to SMS commands. If only the whitelist number is set and the whitelist switch is not turned on(Parameter=1 ), any number can make device calls, but only SMS commands sent by whitelist numbers will take effect. Messages sent from other non-whitelist numbers will be displayed but not executed.  If a whitelist number is set and the whitelist switch is turned on (Parameter=1),the device would only accept phone call and SMS command from whitelist numbers. Other phone numbers cannot be dialed, and the text messages will only be displayed and not executed. |  |
| SMS command format  Password#ADMIN\_NUMBER#  GPRS command format  @ADMIN\_NUMBER@ | The command ID is Admin\_Number;  The terminal would reply admin number command from any phone number;  The terminal is supposed to reply with:  ’Admin phone number is:+The admin number’. |  |

## SOS number management

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#sos=SOSnumber1; SOSnumber2;SOSnumber3#  GPRS command format  @sos=SOSnumber1; SOSnumber2;SOSnumber3@ | The command ID is SOS;  Setting SOS number. The terminal is supposed to reply with ‘Set SOS number ok! ‘;  The terminal would dial all SOS phone numbers in turn, and upload GPRS SOS alert with latest location by pressing the SOS button;  The dialing will be repeated for three times until a call is connected or the SOS button is pressed again to cancel the SOS process. | GPRS command:  @sos=64812855;+8526481  2855;85264812855@  The GPRS reply is similar to that of SMS reply:  IWAPSM,680835,set SOS number ok!# |

## Alarm voice switch

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#ALARM\_VOICE= Parameter#  GPRS command format  @ALARM\_VOICE=  Parameter@ | The command ID is ALARM\_VOICE;  Enable or disable the alarm voice and vibration. The terminal would play alarm voice and vibration for tamper alert with alarm voice enabled;  Parameter=1 means enable;  Parameter=0 means disable;  The terminal is supposed to reply with  ’SET ALARM\_VOICE STATE: true/false’. | GPRS command:  @ALARM\_VOICE=0@ |

## Working mode and GPS interval management

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#setlocation#  =Mode,Parameter#  GPRS command format  @setlocation@  =Mode,Parameter@ | The command ID is SETLOCATION;  Configure the working mode and GPS upload interval;  Mode=8 means GPS location takes precedence over WiFi location;  The terminal would try to search GPS signal for 90 seconds then upload GPS location for success, or upload the last WiFi location for failed;  The parameter for define the upload interval of GPS location. The unit is second;  The terminal is supposed to reply with  ’Set to Location Mode=value, Cycle=value’. | GPRS command:  @setlocation@=8-5@ |

## Check location

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#location#  No GPRS command | The command ID is LOCATION;  The terminal is supposed to reply with  ‘Start location mode value!+IMEI+ location time +battery level+ GPRS signal+network level+Google map link’;  Mode=8 means GPS location takes precedence over WiFi location;  The terminal would try to search GPS signal for 90 seconds then upload GPS location for success;  If the terminal inside the building, it will return the last GPS location storage in CACHE, it may not be accurate. |  |

## Reviewing the Terminal Status

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#deviceinfo#  No GPRS command | The command ID is DEVICEINFO;  The terminal is supposed to reply with terminal's information, such as working mode, time interval of GPS tracking, the last time of location, etc. |  |
| **Contents of reply SMS** | **Description** | |
| Firmware C42F-LPTl009-US-P1-V0.3.56.20220707.151958 | The version of terminal firmware. | |
| Protocol V982 | The version of communication protocol implemented to the terminal | |
| IMEI 357653050581714 | IMEI No. assigned to the terminal. | |
| 2022/07/11,12:16:10 | The time of reply the command. | |
| Network 4G[lte signal dbm =-119,level=1] | The current network is 4G, the signal level of 4G is -199dbm.The closer the dbm value is to 0, the better the network signal  The network level is1 (The best signal level is 5). | |
| Heartbeat  [P1 112.74.138.18:5018,true,5] | The server IP for uploading the heartbeat values;  The value "true" means connecting to the tracking server;  The value "5" means heartbeat uploading interval is 5 minutes. | |
| Bat046,3745 charged false, Step0 | Battery level and pedometer value;  The value "046" means the battery level is 46%;  The value "3745" means the voltage value is 3.745v;  The value "0" means the pedometer is 0 steps. | |
| Location [M8,C600s,TWiFi,  20220711120944,BTInfalse] | The value "M8" means the terminal is working in tracking mode 8.  The value "C600s" means location data uploading interval is 600 seconds;  TWiFi means the tracking way of last location is WiFi;  The value"20220711120944"is location time of the last location.It is 2022-07-11 12:09:44;  BTInfalse is undefined for 4G terminal. | |
| PPG[C10m]  or  PPG[C5,P64,H108,L70,T31.00,  TA35.55,20200225230645] | Heart rate detection interval;  C0m means the terminal don't support heart rate detection;  The value "C10" means the heart reat uploading interval is 5 mins;  The value "P64" means the value of heart rate is 64;  The value "H108" means the high blood pressure is 108;  The value "L70" means the low blood pressure is 70;  The value "T31.00" means the wrist temperature is 31.00 degrees Celsius;  The value "TA35.55" means the body temperature is 35.55 degrees Celsius;  The value " 20200225230645" means the heart rate and temperature data detection time is 2020-02-25 23:06:45. | |
| Temp[C0s]  or  Temp[C600s] | Temperature detection interval;  The value "C0s" means the terminal don't support temperature detection;  The value "C600s" means the temperature data uploading interval is 600 seconds; | |

## Setting up APN

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#apn#=reset#  GPRS command format  @apn@=reset@ | The command ID is APN;  Reset the APN configuration to default value;  The terminal is supposed to reply with  ‘Reset APN to default true/false’. |  |
| SMS command format  Password#apn#=MCC,MNC,ApnName,apn,user,password#  GPRS command format  @apn@=MCC,MNC,ApnName,apn,user,password@ | The command ID is APN;  Configure and enable a new APN parameter,or enable an existing APN parameter which is already in the firmware;  The terminal is supposed to reply with ‘apn add success!’;  Repeatedly setting the same APN parameters may cause the terminal to reply with ERROR reminder SMS. | GPRS command:  @apn@=234,50,TM,TM,,@ |
| SMS command format  Password#apn#=current#  No GPRS command | The command ID is APN;  Check the existing APN saved in terminal firmware;  The terminal is supposed to reply with the APN which are matching the current MCCMNC. It won't list all APN parameters;  Every APN parameter start with APN Settings ID such as ‘APNSettings id=23’. |  |

## Wi-Fi management

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#wifictl#=current  No GPRS command | The command ID is WIFICTL;  Check the current Wi-Fi configuration;  The terminal is supposed to reply with Current Wifi Setting SSID,WifiPassword |  |
| SMS command format  Password#wifictl#=reset  GPRS command format  @wifictl@=reset | The command ID is WIFICTL;  Reset the Wi-Fi configuration to default value;  The terminal is supposed to reply with  ‘Reset Wifi reset successfully /failed’. |  |
| SMS command format  Password#wifictl#=switch,  Value  GPRS command format  @wifict@=switch,Value | The command ID is WIFICTL;  Wi-Fi module switch.Set the Value as 1 to open Wi-Fi module and set 0 to close Wi-Fi.  The terminal is supposed to reply with  ‘Wifi Switch On/OFF’. |  |
| SMS command format  Password#wifictl#=connect,SSID,Password,EncryptType  GPRS command format  @wifictl@=connect,SSID,  Password,EncryptType | The command ID is WIFICTL;  Configure the Wi-Fi connection;  The EncryptType value can be the following: psk,wep,aes,etc.  You need send this command to switch ON the Wi-Fi module first, otherwise the set Wi-Fi may not be effective:  Password#wifictl#=switch,1 | GPRS command:  @wifictl@=connect-X30-666  68888-psk |

## Setting up Server IP

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#ip#=reset#  GPRS command format  @ip@=reset@ | The command ID is IP;  Reset the server IP as factory settings;  The terminal is supposed to reply with  Reset ip to default true/false |  |
| SMS command format  Password#ip#=IP:PORT#  GPRS command format  @ip@=IP:PORT@ | The command ID is IP;  Set up server IP and port, support domain name;  The terminal is supposed to reply with  ‘Password#ip#= IP:PORT#success/fault!’ | GPRS command:  @ip@=54.252.236.131:4500@ or @ip@=node.traxbean.com:4500@ |
| SMS command format  Password#ip#=current#  No GPRS command | The command ID is IP;  Check the existing server IP saved in terminal firmware;  The terminal is supposed to reply with  Current server Address: IP:PORT. |  |

## Power OFF the Terminal

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#poweroff#  GPRS command format  @poweroff@ | The command ID is POWEROFF;  Power OFF the terminal remotely;  The terminal is supposed to reply with ‘do poweroff ok!’ then execute the command. |  |

## Reboot the Terminal

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#reboot#  GPRS command format  @reboot@ | The command ID is REBOOT;  Restart the terminal remotely;  The terminal is supposed to reply with ‘do reboot OK!’ then execute the command. |  |

## Back to the factory

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#factoryreset#  GPRS command format  @factoryreset@ | The command ID is FACTORYRESET;  Restore the terminal to factory settings remotely;  The terminal is supposed to reply with ‘do factoryreset OK!’ then execute the command. | GPRS command:  @factoryreset@ |

## Mail the Terminal log

|  |  |  |
| --- | --- | --- |
| **Command format** | **Description** | **Example** |
| SMS command format  Password#maillog#  GPRS command format  @maillog@ | The command ID is MAILLOG**;**  Send the log of terminal by mail;  The terminal is supposed to reply with ‘mail Android/ic to mailbox…’ then execute the command;  The terminal would reply with ‘mail to mailbox success!’ after all the log be sent. | GPRS command:  @maillog@ |