Communication Protocol of Tamperproof watch

Content

Explanation

All data packages in this protocol refer to formats below:

Head: IW

Protocol number: Uplink(device→server)AP[two digits],Downlink(server→device)BP[two digits],same digits show data packages respond.

Parameter: content of data package

Terminator:#

All information related with Chinese use UNICODE, such as address.

All punctuation marks in the data packages (except the punctuation in issued address) are English half Angle.

<1>Commands sent from end user (device→ server)

1. Login package(uplink number:AP00,responds:BP00)

Example:	
IW*AP00*353456789012345#	
Notice:	
IW: Identifier *AP00*:**Command word** 353456789012345: IMEI number of devices, default as 15 digits #:Terminator	
platform responds:	platform replies: IW*BP00*,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
Notice:	New login package should be sent every time the device connects with server.

2. Locating package, GPS+LBS+Status+Base +WIFI combining package (uplink number:AP01 , responds:BP01)

Example:
IW*AP01*080524A2232.9806N11404.9355E000.1061830323.8706000908000102,460,0,9520,3671,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#
Notice:
IW Identifier AP01: **Command word** 080524: 24th May 2008 A: "A" shows valid data," V" shows invalid data and will get LBS data 2232.9806N11404.9355E000.1: 22 degrees north latitude 32.9806 points , 114 degrees east longitude 04.9355 points , speed is 000.1 km/h , it's default as 0 if the latitude and longitude are invalid, such as 0000.0000N00000.0000E 061830: GMT 06:18:30 323.87:direction angle is 323.87° 06000908000102: 060 is GSM signal,009 is the number of satellites,080 is battery level, 0 is remaining space,01 is fortification state,02 is working mode, (it shows none setting if fortification and working mode are 00) 460,0,9520,3671 : LBS is base data MCC is country code,460 means China,0:MNC,0 is moving,9520:LAC,decimal,3671,CID, decimal If state in GPS package is V or latitude and longitude are " 0000.0000N00000.0000E",it will get LBS data. Home|74-DE-2B-44-88-8C|97 : one set of WIFI information , Home is SSID , 74-DE-2B-44-88-8C is MAC address , 97 is signal strength , variables are separated by "|" ,wifi information can be multiple sets and are separated by "&" .

platform responds:	platform replies: IW*BP01*#
Notice:	This message applies to all end users.

3. Multiple bases locating package (uplink number:AP02 , responds:BP02)

Example :

IW*AP02*,zh_cn,0,7,460,0,9520|3671|13,9520|3672|12,9520|3673|11,9520|3674|10,9520|3675|9,9520|3676|8,9520|3677|7,4,1|D8-24-BD-79-FA-1F|59&2|3C-46-D8-6D-CE-01|81&3|0C-4C-39-1A-7C-65|69&4|70-A8-E3-5D-D7-C0|65#
Notice:
IW Identifier AP02: **Command word** zh_cn: language notice 0:reply notice , the server doesn't reply address when it's 0,and replies address when it's 1. 7: 7 sets of bases 460: MCC is country code 0: MNC operator code 9520|3671|10: LAC|CID|dbm shows a set of base information and the numbers should correspond to the number of bases. 10 : dbm is signal strength, multiple bases signal strength is suggested to be arranged from high to low then downloaded, signal strength are using absolute values: 150 – abs(dbm) 4: sets of wifi 1|D8-24-BD-79-FA-1F|59: ssid|mac address| signal strength , signal strength are using absolute values:150 – abs(signal strength)

platform responds:	platform replies: IW*BP02*# If the bit zone is 1 then responds: IW*BP02*F16D3357025E5753715C3A535753776D2759539031003000370 03900F753# The reply address information from platform is UNICODE HEX String which contains address (No.1079 Nanhai Road Nanshan District,Shenzhen)
Notice:	This message applies to all end users.

4. Alarm and Return address Package(uplink number:AP10 , responds:BP10)

Example :
IW*AP10*080524A2232.9806N11404.9355E000.1061830323.8706000908000502,460,0,9520,3671,00,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#
Notice:
IW : Identifier AP10: **Command word** 080524: 24th May 2008 A: "A" shows valid data," V" shows invalid data and will get LBS data 2232.9806N11404.9355E000.1: 22 degrees north latitude 32.9806 points , 114 degrees east longitude 04.9355 points , speed is 000.1 km/h , it's default as 0 if the latitude and longitude are invalid, such as 0000.0000N00000.0000E 061830: GMT 06:18:30 323.87: direction angle is 323.87° 06000908000102: 060 is GSM signal,009 is the number of satellites,080 is battery level, 0 is remaining space,01 is fortification state,02 is working mode, (it shows none setting if fortification and working mode are 00) 460,0,9520,3671 : LBS is base data MCC is country code,460 means China,0:MNC,0 is moving,9520:LAC,decimal,3671,CID, decimal 00 is alarm state,00 is no alarm (01 : SOS,02 : low battery,03 : pull-out alarm,04:wearing notice) zh-cn: device language 00:The first one 0:whether the reply address is needed,0:no reply,1 reply. The second 0:whether mobile hyperlink is contained in address information,0 not contained,1 contained Home|74-DE-2B-44-88-8C|97 : one set of WIFI information , Home is SSID , 74-DE-2B-44-88-8C is MAC address , 97 is signal strength , variables are separated by "|" ,wifi information can be multiple sets and are separated by "&" .

platform responds:	platform responds BP10,if return address is not needed, there should be space in return package. IW*BP10*6df157335e0253575c71533a53576d77592790530031003000370039 53f70020002000680074007400700003a002f002f007700770077002e006700700073002e0063006f006d002f006d00610070002e00610073007000780 03f006c00610074003d00320033002e003100320033002e0063006f006d003d00320033002e003100320033# 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 automatically judge according to langiage inAP10 package, whether to reply hyperlink according to states of AP10.
Notice:	This message applies to all end users.

5. Heartbeat package(uplink number:AP03 , responds:BP03)

Example :
IW*AP03*,06000908000102,5555,30#
Notice:
IW: Identifier AP03: **Command word** Device can use command to keep connection and handle static drift with platform when it's motionless. 06000908000102: 060 is GSM signal 009 is the number of satellites 080 is battery level 0 is remaining space 01 is fortification state, Here shows by two hexadecimal,00 if no value, the length should be two digits. There're 8 digits in total and each digit is defined as below (unlisted one is unused states,1 shows effective and 0 shows invalid)

Bit0 fortification state<the device is invalid> Bit1 :1 shows the night-light open,0 shows night-light off. 0202 is working mode, (it shows none setting if fortification and working mode are 00) 5555: counting steps. Recount from 0 after reaching 9999 steps (9999 is for an example, here is 2 bytes int and overflow to zero) 30: Rolls frequency	
platform responds:	platform replies: IWBP03#
Notice:	This message applies to all end users.

6. Low battery alarm uploading package (uplink number : AP04 , responds : BP04)

Example :
IW*AP04*075#
Notice:
IW: Identifier AP04 : **Command word** 075 : After the battery level is less than 75%, battery level uploading packages will be sent when less than75%,50% , 25% and 10% to platform.

platform responds:	platform replies: IWBP04#
Notice:	This message applies to all end users.

7. Timing through bases (uplink number : AP53 , responds : BP53)

Example :
IWAP53,460,0,9750,3613#
Notice:

IW：Identifier AP53：**Command word** 460:MCC 0: MNC 9750: LAC 3613: CID	
platform responds:	IWBP53,20160225090909# Return time, format is: yyyyMMddHHmmss
Notice:	This message applies to all end users.

8. HeartRate and blood pressure （uplink number：APHT，responds：BPHT）

Example：
IWAPHT,60,130,85#
Notice:
IW：Identifier APHT：**Command word** 60：Data of heartrate 130：Systolic pressure 85：Diastolic pressure

platform responds:	IWBPHT#
Notice:	This message applies to all end users.

9. Temperature（uplink number：APTP，responds：BPTP）

Example：

IWAPTP,36.0,33,0#	
Notice:	
IW：Identifier APTP: **Command word** 36.0: current temperature 33: reference base temperature test point	
platform responds:	IWBPTP#
Notice:	This message applies to all end users.

<2>Commands sent from server (server →device)

1. GPRS locating data upload intervals (downlink：BP15 , respond：AP15)

Example：	
IW*BP15*,353456789012345,080835,300#	
Notice:	
IW：Identifier BP15：**Command word** 353456789012345: IMEI number and the unique ID of the device 080835：command serial number 300 :locating data uploading intervals of the device, unit: second	
device responds：	IWAP15,080835,300# 080835: command serial number

	300: the device responds the present setting to sync platform.
Notice:	This message applies to all end users.

2. Real-time locating command (long link valid) (downlink : BP16 , respond : AP16)

Example :	
IW*BP16*,353456789012345,080835#	
Notice:	
IW : Identifier BP16 : **Command word** 353456789012345: IMEI number and the unique ID of the device 080835 : command serial number	
device responds :	IWAP16,080835# 080835: command serial number Uplink AP01 locating data after responds.
Notice:	This message applies to all end users.

3. Factory reset (downlink : BP17 , respond : AP17)

Example :	
IW*BP17*,353456789012345,080835#	
Notice:	
IW : Identifier BP17 : **Command word** 353456789012345: IMEI number and the unique ID of the device 080835 : command serial number	
device responds :	IWAP17,080835#

	080835: command serial number
Notice:	This message applies to all end users.

4. Restart the terminal (downlink : BP18 , respond : AP18)

Example :	
IW*BP18*,353456789012345,080835#	
Notice:	
IW : Identifier BP18 : **Command word** 353456789012345: IMEI number and the unique ID of the device 080835 : command serial number	
device responds :	IWAP18,080835# 080835: command serial number The device restart after responds to the command.
Notice:	This message applies to all end users.

5. Power off command (downlink : BP31 , respond : AP31)

Example :	
IW*BP31*,353456789012345,080835#	
Notice:	
IW : Identifier BP31 : **Command word** 353456789012345: IMEI number and the unique ID of the device 080835: command serial number	
device responds :	IWAP31,080835# 080835: command serial number

Notice:	This message applies to all end users.

6. Working Mode (downlink : BP33 , respond : AP33)

Example :	
IW*BP33*,353456789012345,080835,1#	
Notice:	
IW : Identifier BP33 : **Command word** 353456789012345: IMEI number and the unique ID of the device 080835: command serial number 1 : working mode of the device , 1 : normal mode , 2 : Power-saving mode , 3 : emergency mode	
device responds :	IWAP33,080835,1# 080835: command serial number 1 : setting information to sync server
Notice:	This message applies to all end users.

7. GPS Working time (downlink : BP34 , respond : AP34)

Example : singal
IW*BP34*,353456789012345,080835,2,0900@1145,1300@1600#
Notice:
IW : Identifier BP34 : **Command word** 353456789012345: IMEI number and the unique ID of the device 080835 : command serial number

2: shows numbers of intervals, GPS working intervals are cancelled if the number is 0. 0900@1145 , shows a set of GPS working time interval, 0900@1145 GPS is working from 09:00am to 11:45am and using 24 hour system.	
device responds :	IWAP34,080835,2,0900@1145,1300@1600# 080835: command serial number 2,0900@1145,1300@1600 setting information to sync server
Notice:	This message applies to all end users.