**Oviphone Technology Limited Company: B2315L device LORAWAN protocol**

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#

# Overview

|  |  |  |  |
| --- | --- | --- | --- |
| V1.0 |  | 2025-05-08 | Organize the directory, update the agreement content, and add the use instructions of new equipment |

This agreement is applicable to the Oviphone B2315L LoRaWAN watch. If downlink confirmation (full duplex mode) or other protocols are required, please consult with Oviphone Communication (Oviphone Communication has other customized protocol applications).

This protocol use for Oviphone B2315L LoRaWAN wristband) .

If you need downlink confirmation (full-duplex mode) or other protocols, please check with Oviphone.

With the continuous improvement and enrichment of device functions, this agreement will be constantly updated. Please download the latest version from the server. This document will continue updape, please download the newest version.

The module over there:

Wristband register network method for watches:

wristband register network：Activation by Personalization (ABP)

 Default APPSKEY： 2B7E151628AED2A6ABF7158809CF4F3C

Default NWKSKEY：735F2F22103042BE724197AC1727EA94

If you need special KEY, please contact with Oviphone.

# Equipment instructions

## 2.1 Device functions and instructions for use

 General version:

1. Power on：

Please charge fully before the first use. Charging light effect: Red light flashes during charging, green light stays on during full charge,

Note: Do not check the device signal while charging

Automatic start: when fully charged, unplug the charging cable and start automatically

Manual start: Long press the upper key for 10s and then release, "Welcome" will appear on the interface

Note: The default wearing state is on, and no heart rate report was detected to trigger the fall alarm

1. power off：

Low power shutdown: the screen goes off after the interface displays Byebye

Manual shutdown: Shutdown: Stay on the "About" page of the interface, and you will automatically enter the version page. Then continue to automatically enter the ICCID interface, and finally enter the IMEI interface. Wait for the specific IMEI number to pop up, and then hold down the touch button for 3s. When the screen shows 'Bye', release the button

Charging shutdown: After connecting the charging cable, the red light flashes to enter the charging state

1. SOS function:

Trigger mode: The device does not go into sleep after triggering. Long press the button for 3s, and the red light will be on for a long time after SOS appears on the interface

Cancel mode: In SOS mode, light up the screen and hold down the button for 3s. After the interface displays SOS cancel, the red light goes out

1. signal condition ：

No signal: The interface signal step column graph shows 'X' in the signal grid

There is a signal: the interface signal has a stepped columnar graphic

 Note: The signal of lora device depends on whether the data of the device is reported successfully. If the device fails to report, the signal will become the state of no signal

1. The device is dormant：

 Trigger conditions: The device does not move for 40 minutes, enters the sleep mode, and does not report the location health data

## 2.2 Default reporting logic for the device

General version:

1. Power signal status related reporting

 F9: A location and health report will follow

1. Location-related reporting

 gps/ Bluetooth beacon: the default reporting frequency is 10 minutes, and the default positioning priority is Bluetooth beacon> gps. Bluetooth positioning is preferred, and GPS is switched when positioning is not available

1. Report of alarm related events

 SOS alarm (0x02): triggered by the user. See the previous section for the triggering method

 SOS cancellation (0x02): The user actively triggers the cancellation. See the previous section for the triggering method

 Power-off alarm (0x21): The device shuts down actively or at low power. See the previous section for triggering mode

 Wearing and falling off alarm (0x02): The device determines the wearing according to the healthy sampling reporting frequency, reports the wearing alarm when the heart rate is measured, and reports the falling off alarm when the heart rate is not measured

 Low power alarm (0x21): triggered when the current power level of the device is less than or equal to 0

1. Health-related reporting

 Step count, heart rate, body temperature & wrist temperature, blood pressure (0x32): the default reporting frequency is the same as the location reporting frequency, 10 minutes

1. Equipment information and status report

 Software version and model (0xBB): The computer will report one

1. Downstream feedback

 Downstream feedback (0xC0): The server downstream instruction device reports it after receiving it

## 2.3 Device downlink description

General version:

1. Equipment positioning report frequency is issued (0x17):

The reported frequency is set to the lowest 1 minute. After receiving the downlink command, the device receives the command according to the time period and frequency of the issued command Report the data according to the default reporting frequency outside the time period, such as: 00:00-18:00 10-minute location report Report outside the time period at the default reporting frequency of 10 minutes

1. Text message sent (0x28)：

GB2312 Code, up to 20 bytes (no more than one screen display, the screen can display a maximum of 8 Chinese characters), one Chinese character occupies 2 bytes, one English letter occupies 1 byte

 After receiving a text message, the green light flashes, the bracelet vibrates, and the message is displayed on the interface. If you click the button before the screen goes off, the text message disappears; if you do not click the button before the screen goes off, the text message will remain in the menu

1. Equipment positioning priority distribution (0xCE01):

The default positioning priority is Bluetooth beacon> gps If the positioning priority of the following is: gps> Bluetooth beacon, then the GPS positioning cannot be switched

 Bluetooth beacon, when the positioning is successful, will not switch to the next positioning priority to produce positioning

1. Equipment health sampling frequency issued (0xCE02):

The default health sampling frequency is 2 minutes, and the minimum reporting time is 2 minutes

# Protocol Data Packet Structure

A basic protocol data packet structure is shown in Figure 1:



## 3.1Message ID

 MessageId represents the content as described in Chapter 3.

## 3.2 Payload

The payload below refers to the effective content of the protocol, excluding the head token and checksum. The length of the content is indicated afterwards.

The data formats used in the payload are shown in the following table:

 [U-unsigned; I-signed; X-bitfield; number-bytes occupied]

 In the protocol below, little-endian is used for all data types except for ch, u8, i8, and x8.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Short** | **peTypeType** | **Size(Bytes)** | **Min/max** | **Resolution** | **explain** |
| CH | ASCII/ISO 8859.1 | 1 | - | - | char |
| u8 | Unsigned Char | 1 | 0..255 | 1 | unsigned short |
| i8 | Signed Char | 1 | -128..127 | 1 | short |
| x8 | Bitfield | 1 | - | - | bit |
| u16 | Unsigned Short | 2 | 0..65，535 | 1 | unsigned int |
| i16 | Unsigned Short | 2 | -32,768..32,767 | 1 | int |
| x16 | Bitfield | 2 | - | - | （bit）2 |
| u32 | Unsigned Long | 4 | 0..4,294,967,295 | 1 | unsigned long |
| i32 | Signed Long | 4 | -2,147,483,648..2,147,483,647 | 1 | long |
| u64 | Uint64\_t | 8 | 0..18,446,744,073,709,551,616 | 1 | uint64\_t |
| float | float | 4 | -3.44\*10e38..3.4\*10e38 | - | float |

## 3.3 Checksum

The content to be added to the checksum includes the payload, as shown in Figure 1. The algorithm is as follows, where Buffer[N] represents the data to be accumulated.

Ck\_sum = 0

For(i=0; i<N; i++)

{

ck\_sum = ck\_sum + Buffer[i]

ck\_sum = ck\_sum % 0x100

}

ck\_sum = 0xFF – ck\_sum

Return ck\_sum

Where ck\_sum cannot exceed 0xFF, so after each loop, it must be modulo 0x100 and then taken the remainder.

# messages

## 4.1 Equipment information related

### 4.1.1 Battery Power, Predometer, Signal Level Upload) (0xF9)

payload contents

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Byte offset | Format | Name | Scale | Unit | Decription |
| 1 | U8 | Bat\_type |  |  | Power type: 2 percent |
| 2 | u16 | Bat\_volt |  | -/- | Electricity value |
| 1 | U8 | Signal\_type |  |  | Signal type: 0 percent |
| 2 | I16 | Signal\_strength |  |  | 信号强度 |
| 1 | U8 | step\_type |  |  | 计步类型:0全量记步 |
| 4 | U32 | step |  |  | 步数 |
| 4 | U32 | timestamp | -/- | -/- | utc时间戳 |

Example： BD F9 02 1E00 00 5000 00 94040000 8CAF5667 CD

F9 : MSGID

02： 电量百分比表示

1E00 : 小端（littele Endian），电量 30%

00： 信号强度百分比表示

5000： 小端（littele Endian），信号强度 80%

00： 全量计步

0x00000494：Prodometer 1172步 (step)；

8CAF5667： 时间戳：北京时间2024-12-09 16:51:24 (Timestamp: Beijing time2024-12-09 16:51:24)

### 4.1.2 Device Firmware Version Upload(0xBB)

evice power on, upload the firmware version）

payload contents

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Byte offset | Format | Name | Unit | Decription |
| 1 | UINT8 | Version\_len | / | Software version number and length |
| N | ASCII[n] |  | / | Software version  |

Example：

BD BB 10 43323331304C2E3437302E41412E30 31

 Report the content C2310L.470.AA.01

## 4.2 Positioning related reporting

### 4.2.1GPS/BDS Position Reporting: Location Data Reporting (0x03)

payload contents

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Byte offset | Format | Name | Scale | Unit | Decription |
| 8 | Double | lon |  | -/- | longitude |
| 8 | Double | lat |  | 　 | latitude |
| 1 | U8 | north\_south |  |  | /\*N or S\*/ |
| 1 | U8 | east\_west |  |  | /\*E or W\*/ |
| 1 | U8 | status |  |  | /\*A or V\*/ |
| 4 | U32 | Timestamp  |  |  | 时间戳(Timestamp) |

Example：bd 03 22fb20cb827a5c40 21ea3e00a9953640 4e 45 41 cf084e5f 13

03: MSGID

22fb20cb827a5c40 : 小端（littele Endian），0x405c7a82cb20fb22，数据为double类型，需要转为浮点数，longitude值为：113.9142330000000 （dd.dddd格式）；(Double type, need change the data to Floating point

21ea3e00a9953640 : 小端（littele Endian），0x403695a9003eea21，数据为double类型，需要转为浮点数，longitude值为：23.5846100000000（dd.dddd格式）；(Double type, need change the data to Floating point)

4E : ASCII 编码表述，南、北纬度，范围为/\*N or S\*/，表示为：N（北纬）；

(ASCII code, south and north latitude, the range is /\*N or S\*/,: N (north latitude))

45 : ASCII 编码表述，东、西经度，范围为/\*E or W\*/，表示为：E（东经）；

 (ASCII code, east and west longitude, range is /\*E or W\*/: E (east longitude))

41 : ASCII 编码表述，定位状态，范围为/\*A or V\*/，表示为：A（有效）；

 (ASCII code representation, positioning status, range is /\*A or V\*/, expressed as: A (valid))

cf084e5f : 小端（littele Endian），0x5f4e08cf，Unix时间戳转换后，值为：2020/9/1 16:39:43 ；

Example of GPS parsing (JAVA)：

DBDBDBDB037d9f84ac81815c40e766926b1d8936404e4541749d695f0b

//DBDBDBDB03 7d9f84ac81815c40 e766926b1d893640 4e 45 41 749d695f 0b

public static void main(String[] args){

 //eg:7d9f84ac81815c40 -->405c8181ac849f7d

Double.longBitsToDouble(Long.parseLong("405c8181ac849f7d",16))); //114.02353966666665

//message e766926b1d893640 actual value 4036891d6b9266e7

Double.longBitsToDouble(Long.parseLong("4036891d6b9266e7", 16))) ;//22.535605166666667

HexToStr(data.Substring(“4e”)); //N

HexToStr(data.Substring(“45”));//E

HexToStr(data.Substring(“41”));//AA represents data "OK", V represents a warning

//Message 749d695f actual value 5f699d74

 Date date=new Date();

date.setTime(Long.parseLong(“5f699d74",16)\*1000);

SimpleDateFormatsdf = new SimpleDateFormat("yyyyMMddHHmmss");

System.out.println(sdf.format(date)); //2020-09-22 14:45:08

### 4.2.2 Bluetooth positioning information(LBE Location)（0xD6）

 Payload:

|  |  |  |  |
| --- | --- | --- | --- |
| Format | Name | Scale | Description |
| U8 | Type | 1 | 目前固定为0 (Fix value 0) |
| U8 | Total\_groups | 1 | 总组数, Lora 版本默认1组 |
| Int32 | Utc | 4 | Utc时间戳 (the UTC timestamp of the first group) |
| U8 | Total\_PackCount | 1 | 当前时间的包总数 (the ibeacon’s count of the first group) |
| U16 | Major0 | 2 | Major |
| U16 | Minor0 | 2 | Minor |
| S8 | Rssi0 | 1 | Rssi |
| U16 | MajorN | 2 | Major |
| U16 | MinorN | 2 | Minor |
| S8 | RssiN] | 1 | Rssi |

Example**：**

 BD D6 00 01 8CAF5667 04 234E D888 CC 4527 535C C2 4327 D72A BD 234E F3D6 BC D7

 D6: MSGID

 00: 固定

 01： 共1组

 8CAF5667 时间戳：北京时间2024-12-09 16:51:24 (Timestamp: Beijing time 2024-12-09 16:51:24)

 04 当前有4笔蓝牙定位信息

234E 小端（littele Endian）， major = 20031

D888 小端（littele Endian）， minor = 35032

CC -52 (rssi)

4527 小端（littele Endian）， major = 10053

535C 小端（littele Endian）， minor = 23635

C2 -62 (rssi)

4327 小端（littele Endian）， major = 10051

D72A 小端（littele Endian）， minor = 10967

BD -67 (rssi)

234E 小端（littele Endian）， major = 20003

F3D6 小端（littele Endian）， minor = 55027

BC -68 (rssi)

## 4.3：Alarm related reporting

### 4.3.1Alarm message（MsgId=0x02）

|  |  |  |  |
| --- | --- | --- | --- |
| Size(Bytes) | Format | Name | Drscription |
| 2 | U16 | Upl\_warn | Bitfield see below |
| 4 | U32 | Timestamp | timestamp, little endian |

Bitfield WRN:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 |  |  |  |  |  |  | 8 |  |  |  | 4 |  |  | 1 | 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| bit | Name | Description | 调整后的16进制Hexadecimal | 十进制Decimal |
| 8 | 设备佩戴Wear status | 设备佩戴Wear status | 0100 | 1\*256=256 |
| 7 | SOS 取消 | SOS 取消(SOS cancel) | 0080 | 1\*128=128 |
| 4 | 摘掉设备Takeoff status | 摘掉设备Takeoff status | 0010 | 1\*16=16 |
| 2 | 关机 Power off | 关机Power off | 0004 | 4 |
| 1 | SOS |  | 0002 | 2 |
| 0 | 低电量 Low Power | 低电量Low Power | 0001 | 1 |

 Example**：**

 低电报文（Low battery） BD 020100 8CAF5667 B9

 佩戴报文（Wear status） BD 020001 8CAF5667 B9

 摘掉报文（Takeoff status） BD 021000 8CAF5667 B9

 SOS报警 BD 020200 C9BE5667 FA

取消S0S报警 BD 028000 19C05667 2A

### 4.3.2Alarm data upload (MsgId=0x21) (supplement to 02)

Payload contents

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Byte Offset | Format | Name | Scale | Unit | Drscription |
| 2 | U16 | type |  |  | Alert type |
| 4 | U32 | Upl\_warn | - | - | Bitfield see below(Small end first) |
| 4 | U32 | Timestamp |  |  | Time stamp (time stamp will be added later when you send it) |
|  |  |  |  |  |  |

Alarm type =1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2 | The device is charging and has been turned off (the firmware needs to support the function) |  | 29 | 0004 | 4 |
| 1 | The device is low on power and has been shut down (the firmware needs to support the function) |  | 30 | 0002 | 2 |
| 0 | Device shuts down actively (firmware needs to support the function) |  | 31 | 0001 | 1 |

Example**：**BD21 0100 01000000 49CD5667 4C

## 4.4 Equipment information and status reporting

**--To be updated**

## 4.5 Downstream feedback report

### 4.5.1Download Message Check(0xC1)

payload contents

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Byte offset | Format | Name | Scale | Unit | Decription |
| 1 | U8 | length | -/- |  | token长度 |
| N | n\*U8 | type | -/- |  | N个token |

Example**：**BD C0 01 28 59

## 4.6Health related reports

### 4.6.1 Health data(MSGID=0x32)

payload contents

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Byte offset | Format | Name | Scale | Unit | Decription |
| 1 | U8 | Type |  |  | 00 |
| 4 | U32 | Timestamp |  |  | time stamp  |
| 2 | U16 | contentLength |  |  | The total length of the following content |
| 1 | U8 | ID |  |  | Id (type (5) + reported value length (3))) |
| N | U8 | Val1 |  |  | The reported value of the ID |
|  |  |  |  |  |  |
| 1 | U8 | ID |  |  | Id (type (5) + reported value length (3))) |
| N | U8 | Val1 |  |  | The reported value of Idn |

例：BD 32 00 8CAF5667 0F00 0A0000 1141 3157 3977 1A420E 22 800C BD

32 : MSGID；

00： type fixed

8CAF5667 Time stamp: 16:51:24, December 9, 2024 (Timestamp: Beijing time 2024-12-09 16:51:24)

0F00: The length of the following data is 15

0A: id=0A 0A=00001010 00001 010 （The first 5 are 01, and the following indicates the length of the report is 2 bytes）

The ID code is as follows (the high 5 bits of the id in the protocol are defined)

 01 Step count 02 Heart rate 03 Body temperature 04 Arm temperature 06 Diastolic blood pressure 07 Systolic blood pressure

0000： The number of steps is 0

11： ID = 02 Heart rate length 1 byte

41： Heart rate value 65

31： ID = 06 Diastolic blood pressure length 1 byte

57： Diastolic blood pressure 87

39： ID = 07 Systolic pressure length 1 byte

77： Systolic pressure 119

1A: ID = 03 Body temperature length 2 bytes

6901: Body temperature 0x0169=361 36.1

Keep one decimal point behind the temperature (x 10) and report the value as an integer

22： ID = 4 Arm temperature length 2 bytes

2d01: Wrist temperature 0x012d=301 30.1

### 4.6.2Heart rate, Blood Pressure(0xC2)--Previously used equipment

payload contents

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  Byte offset | Format | Name | Scale | Unit | Decription |
| 2 | U16 | bp\_high | - | - | Systolic Blood:2byte |
| 2 | U16 | bp\_low | - | - | Diastolic Blood：2byte |
| 2 | U16 | Bp\_heart | - | - | Heart rate:2byte |
| 4 | U32 | Timestamp |  |  | Timestamp |

 例：C2 7500 4D00 4800 28F2CD5F

 C2 : MSGID；

 7500 : littele Endian， 0x0075 117 (Systolic Blood Pressure Value 117)

 4D00 : littele Endian， 0x004D，77 (Diastolic Blood Pressure Value 77)

 4800 : littele Endian，0x0048，72 (Heart Rate Value 72)

 28F2CD5F : Timestamp: Beijing time2020-12-07 17:13:12

### 4.6.3 Temperature（MsgId=0xBA）---Previously used equipment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Byte size | Format | Name | Scale | Unit | Decription |
| 1 | U8 | Time stamp logo | Must |  | 00 -with timestamp；01 -without timestamp |
| 4 | Int32 | timestamp | Optional |  | timestamp ID is 01, this field is not required |
| 1 | U8 | Temp. type | Must |  | 1: upload wrist and body temp2:upload wrist, body and environment temp. |
| 2 | S16 | wrist Temp. | Optional |  | One digit after the decimal point is reserved for body surface temperature (×10). The reported value is an integer. It is determined whether there is this field according to the temperature type |
| 2 | S16 | Body Temp. | Optional |  | One digit after the decimal point is reserved for body surface temperature (×10). The reported value is an integer. It is determined whether there is this field according to the temperature type |
| 2 | S16 | environment temperature | Optional | / | One digit after the decimal point is reserved for body surface temperature (×10). The reported value is an integer. It is determined whether there is this field according to the temperature type |

# Setting

## 5.1Downlink

Note: classA mode receives downlink when reporting, and classC mode receives downlink in real time

说明：classA模式上报时接收下行，classC模式实时接收下行

* 1.

### 5.1.1 Send Message to Device (MSGID=0x28)

payload contents

|  |  |  |  |
| --- | --- | --- | --- |
| Byte size | Format | Name | Decription |
| 1 | U8 | type | Message type, if it is downlink information, the fixed value is 03 |
| 4 | Uint32 | seqID | Information id, uniqueness |
| 1 | U8 | CONTENT LEN |  Contect Length |
| N | N | CONTENT | (content, Chinese is GB2312 code, English is ascii code)the maximum support 20 bytes of data |

 Example**：**

 bd 28 03 03 00 00 00 0b 68 65 6c 6c 6f 2c 77 6f 72 6c 64dd

 Type: 03

seqId: 03 00 00 00

CONTENT LEN: 0b (10)

CONTENT : 68 65 6c 6c 6f 2c 77 6f 72 6c 64 ( hello,world)

### 5.1.2 Set periodic positioning (MSGID=0x17)

The platform sets 1~2 time periods to be issued to the terminal, and the terminal uploads data within the specified time period after receiving it

payload contents

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Byte offset**  |  **Format**  |  **Name**  | **Scale**  |  **Unit**  | **Decription** |  |
| 1 | u8 | 　enable | -/- | -/- | Enabled? | Time Slot 1 |
| 1 | U16 | Interval |  |  | Time interval (minutes) |
| 1 | u8 | time\_start\_h | 　 | 　 | -h |
| 1 | u8 | time\_start\_m | 　 | 　 | -m |
| 1 | u8 | time\_end\_h | 　 | 　 | -h |
| 1 | u8 | time\_end\_m | 　 | 　 | -m |
| 1 | u8 | 　enable | -/- | -/- | Enabled? | Time Slot 2 |
| 1 | U16 | Interval |  |  | Time interval (minutes) |
| 1 | u8 | time\_start\_h | 　 | 　 | -h |
| 1 | u8 | time\_start\_m | 　 | 　 | -m |
| 1 | u8 | time\_end\_h | 　 | 　 | -h |
| 1 | u8 | time\_end\_m | 　 | 　 | -m |

 Example**：**

 Bd 17 01 0300 00001300 00000000000000 dd

 0 o'clock to 19 o'clock, positioning once every 3 minutes

### 5.1.3 Setting（0XCE）---See detailed instructions-Important Downside

|  |  |
| --- | --- |
| Message | MSG\_HRD\_DATA |
| Decription | setting，Server => Terminal downlink |
| Firmware | -/- |
| Payload Length | 4+n bytes |
| Message structure | Header | Message ID | Payload | Checksum |
| token | 0xCE | See below | CK\_sum |

payload contents

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Byte offset | Format | Name | Scale | Unit | Decription |
| 0 | u8 | Type | -/- | -/- | Type see below |
| 1 | u8 | Valid | -/- | -/- | Temporary valid, always valid |
| 2 | U16 | Len | -/- | -/- | Length of the following instruction |
| 4 | n |  | -/- | -/- | Main text |
|  |  |  |  |  |  |

Type 01 Positioning 02 health 03 Alarm (not reserved yet) 04 Local storage (not reserved yet)

05Bluetooth radio switch 06Position and health data reporting switch 07 Fall alarm switch 08 Stay alarm switch, expandable at the back

Valid 00 Always valid 01 Effective this time 02 Off

Length Length of the following instruction

Main text:

Type

 01 Positioning function The main text can only be the basic class 01 - gps 02 - wifi 03 - Bluetooth beacon 04 - LBS base station 05 - 125k and later expanded basic class The main text can be a combination of 01 or 010204;

Such as 010203 means using gps wifi Bluetooth beacon;The lora device does not support wifi

 Example: wifi positioning priority ( Bluetooth> gps): BDCE0100030003010033

gps positioning priority (gps> Bluetooth): BDCE0100030001030033

 Type = 02 Frequency of healthy sampling and reporting

Main text first byte 00-all (heart rate, blood pressure, body temperature)

 The second byte is the time interval, and the third byte is the interval unit 00 minutes 01 hours

The third byte indicates that the state is to be maintained indefinitely

Example**：**BD CE 02 00 0300 00 0200 33

02 Health

00 good through

0300 Length 0x03

00 fixed

02 Interval unit 2

00 minute

 33 checksum

The interval time for collecting and reporting health data (heart rate, blood pressure, wrist temperature and body temperature) is 2 minutes

### 5.1.4 Set time zone (MSGID=0xD2)(\* Specific version support)

|  |  |  |  |
| --- | --- | --- | --- |
| Size(Bytes) | Format |  Name  | Decription |
| 1 | S8 |  |  time zone  |

Example**：**

 BD D2 F8 DD

 Set the time zone to -8

# Server time synchronization

**This synchronization time instruction is supported only by specific versions, and the general version will automatically synchronize after entering the network**

## 6.1 Request time calibration data command

|  |  |  |  |
| --- | --- | --- | --- |
| Byte offset  |  Format  |  Name  |  Decription |
| 1 | U8 | HEADER | 0xFF |
| 1 | U8 | 　SeqId | 0x00 |
| 1 | U8 | End | 0xFF |

Example：FF00FF --Equipment reported

## 6.2 Time calibration request data reply format

|  |  |  |  |
| --- | --- | --- | --- |
| Byte offset  |  Format  |  Name  |  Decription |
| 1 | U8 | HEADER | 0xFF  |
| 1 | U8 | SeqId | 0x10 |
| 2 | U16 | years | years |
| 1 | U8 | month | month |
| 1 | U8 | Day | Day |
| 1 | U8 | time | time |
| 1 | U8 | Minute | Minute |
| 1 | U8 | Seconds | Seconds |
| 1 | U8 | End | 0xFF |

Example：FF1007E409020B1B28FF

FF : Header

10 : Seqid

07E4: Year（2020）

09 : Month，（09）

02 : Day，（02）

0B : Hour，（11）

1B : Minitus，（27）

28 : Second，（40）

FF : End

Note: After the device is turned on, it will automatically send the request time synchronization instruction. After receiving the synchronization instruction, it needs to reply the synchronization time data frame to synchronize the device time