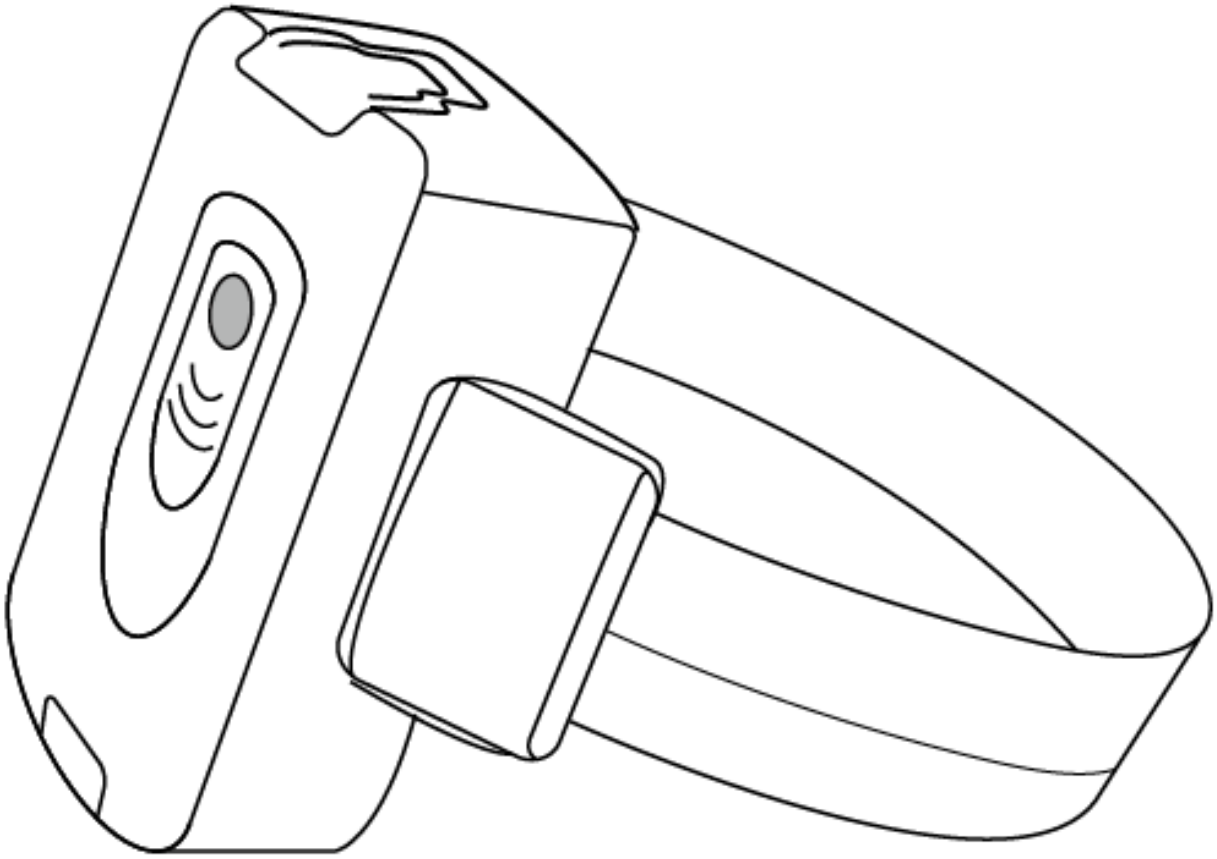


G737 User Manual

V1.0.0

ATTENTION!

Do not disassemble the device. Do not touch before unplugging the power supply if the device is damaged.
All wireless data transferring devices produce interference that may affect other devices which are placed nearby.
The device may be deployed only by qualified individuals.
The device must be firmly fastened in the predefined location.

LEGAL NOTICE

CHANGE LOG

Date	Version	Remark	Person
2024-05-16	1.0		Jesse

Contents

1. SPECIFICATIONS

◆ Main Unit

Item	Parameter
Operating Voltage	3.7VDC, Built-In 2200mAh Lithium Battery
Charging Voltage	4.5VDC to 5.0VDC, 800mA
Power Consumption	Maximum 83mA, Minimum 15mA
Working Temperature	-10 to 60 degrees Celsius
GPS Module	uBlox-8M
4G Module	Quectel (EG91 series)
3 Axis Sensor	On Board
MCU	32 Bit ARM Cortex
Vibrator	Yes
Bluetooth	BLE 4.2
SPI Flash	64Mbits

◆ Charger

Item	Parameter
Input Voltage	100VAC to 240VAC
Output Voltage	5VDC, 1000mA
Working Temperature	0 to 40 degrees Celsius

2. PACKING

Item	Remark
Main Unit*1	With built-in rechargeable battery
Optical fiber strap*1	30cm length
Strap locker*2	To lock strap with Main Unit
Screw	4 to install the locks with Fiber Optic Strap
Charger	1 Wall charger

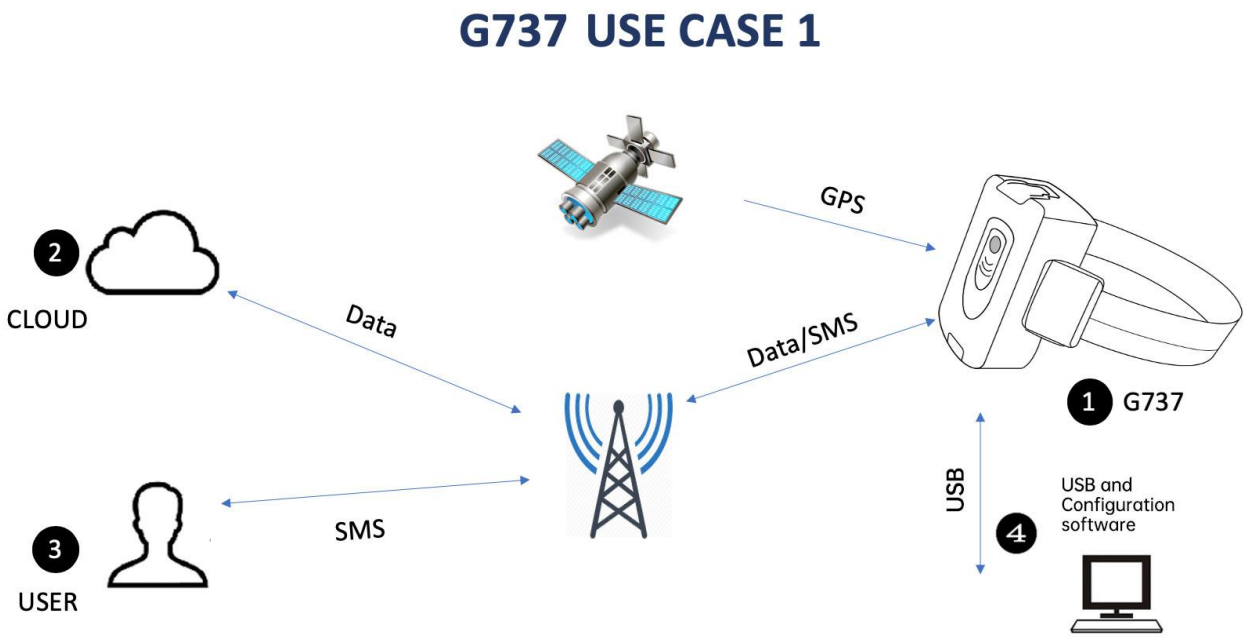
3. FEATURE

- ◆ MILSTD810/SAE J1455
- ◆ Configure Main Unit, Home Beacon and Prison Beacon wirelessly
- ◆ Shift between Duo SIM cards automatically when preset conditions being met
- ◆ Shift among 5 user profiles when preset conditions being met
- ◆ Up to 156 Geo-fences
- ◆ Up to pair 125 Home Beacons and 125 Prison Beacons with Main Unit

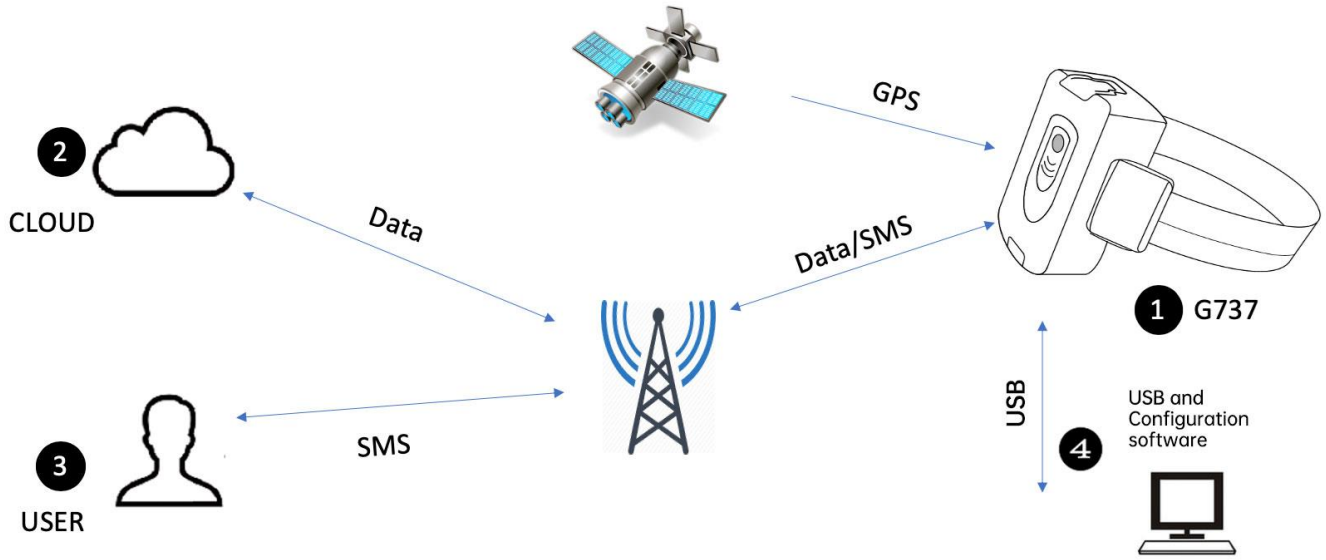
- Body gesture detection and motion detection based on 3 axis acceleration sensors
- Fiber strap status detection and voltage monitoring
- Notification via built-in motor
- Various event report via SMS /Motor vibration mode

Event Name	Status0	Status1
✓ Rest	Rest To Moving	Moving To rest
✓ Geo-Fence		
✓ GPS TFTF		✓
✓ Fiber strap disconnected		✓
✓ SOS		✓
✓ Device low voltage		✓
✓ Device under voltage		✓
✓ iBeacon	Exit	✓ Enter
✓ External Voltage	Disconnected	Connected
✓ SIM card balance notification		
✓ Body Gesture	Stand	✓ Lying Down
✓ Charging	Not Charging	Charging
✓		

4. OVERVIEW



G737 USE CASE 1



1 Main Unit

- It is sensitive with broadcasting message from Beacon to monitor iBeacon Disconnect events
- It is able to report its position periodically and various events via SMS channel and Data channel

2 Server

- SMS server

3 User

- 2 User phone numbers are available to receive position report and event report from Main Unit

4 USB receiver and configuration software

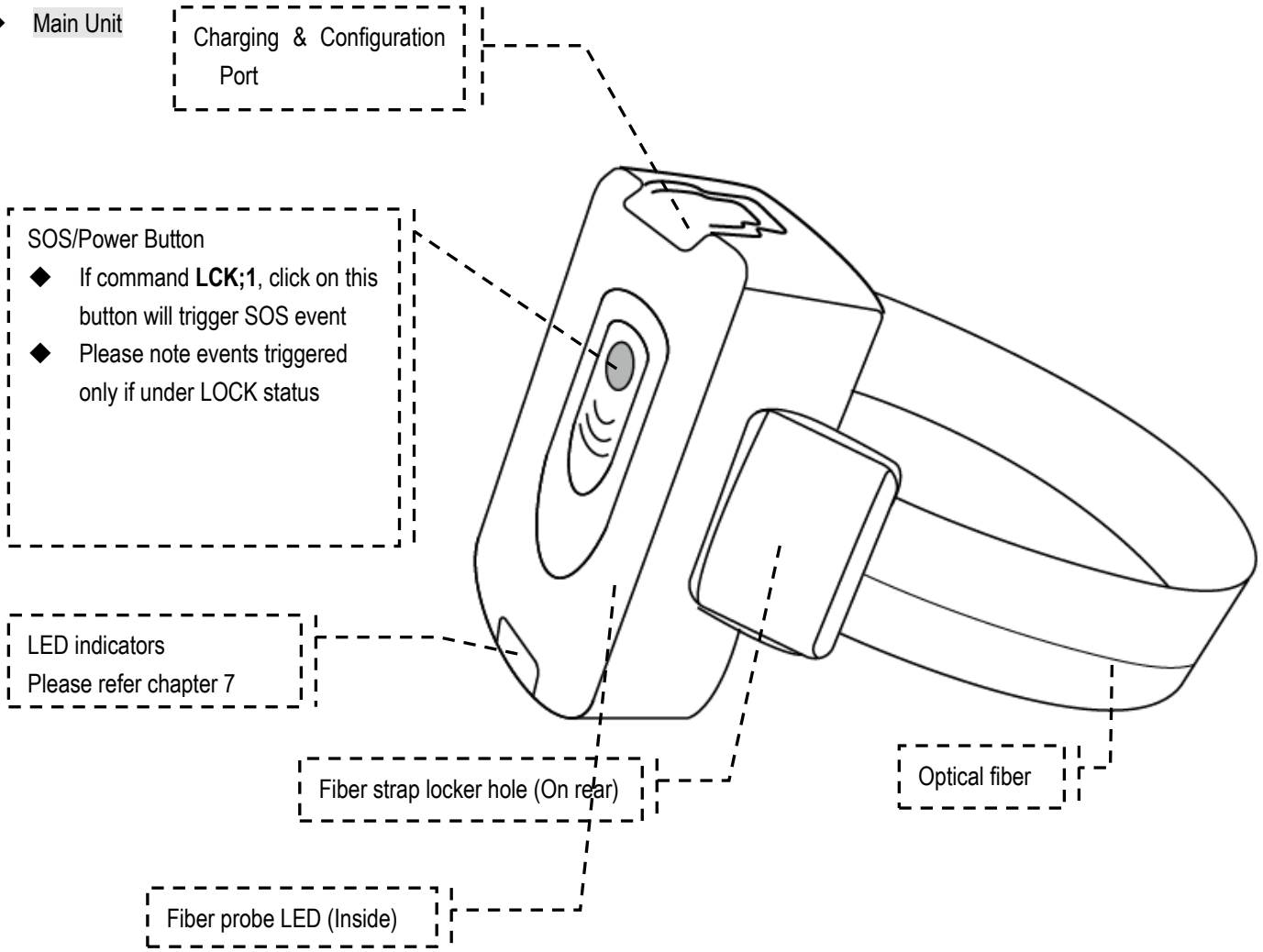
- By using USB receiver and G737 configuration software, it is able to set up and control Main Unit and Beacon over Bluetooth

5 iBeacon

- It is supposed to be fixed and connected with power all the time and it will broadcast ID and status periodically Main Unit

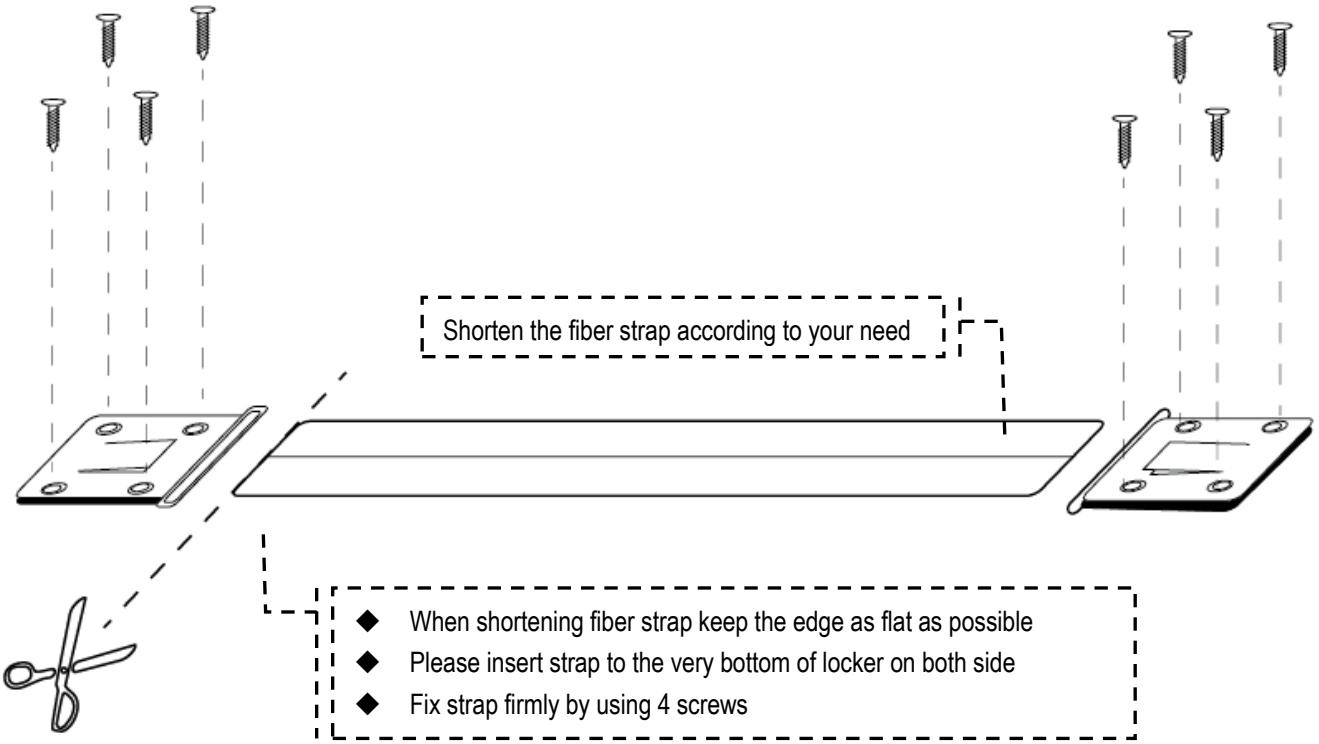
5. INTRODUCTION

- Main Unit

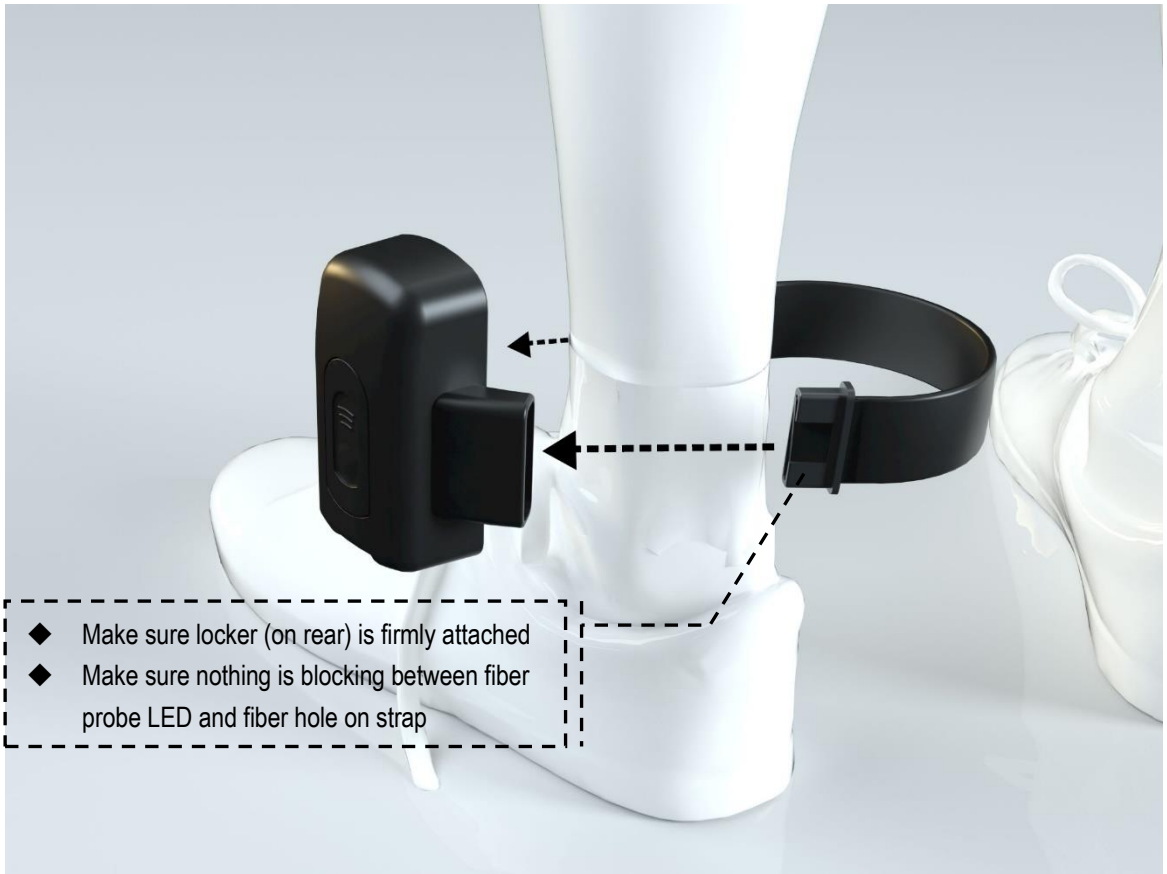


6. INSTALLATION

- Assemble strap

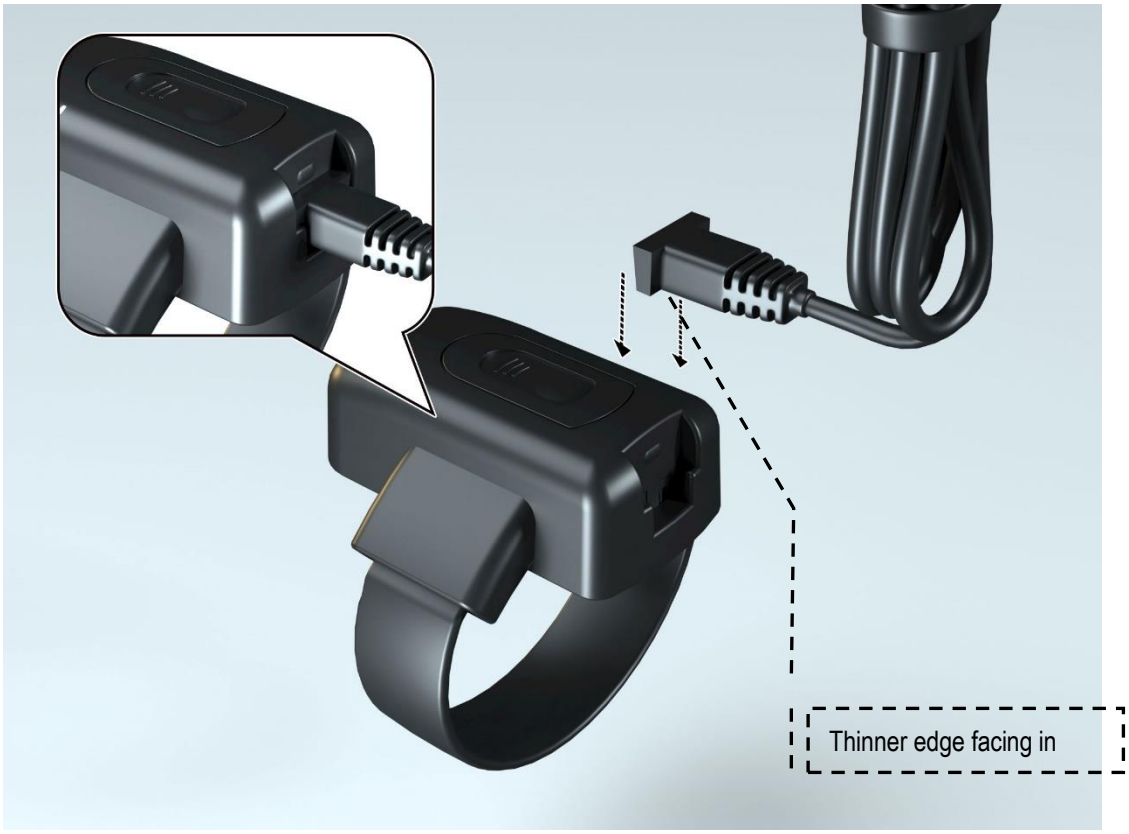


- Attach to Main Unit

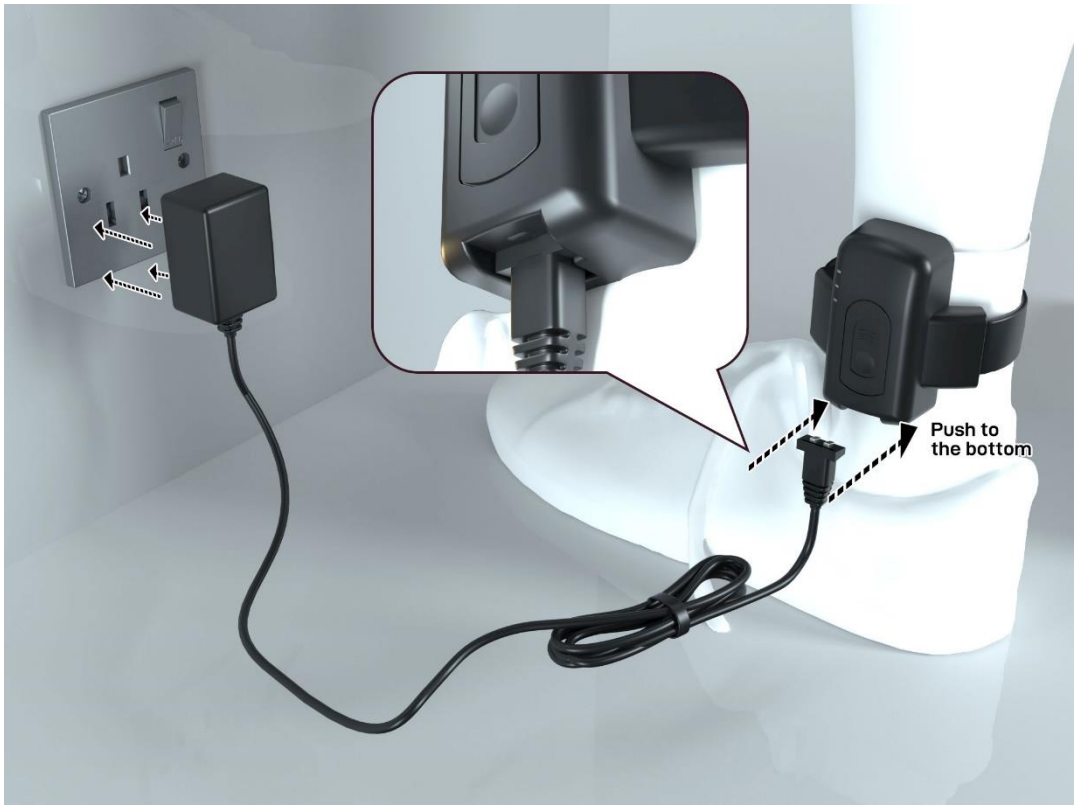


7. CHARGING

- Connect the charger, the thinner edge of the connector should be facing to the device



- Connect the charger to power outlet



- When connected to charger, the device might get warm, it is recommended to leave gap between device and skin and wear socks while charging.

8. LED INDICATOR

- **4G LED: GREEN**

Server socket connected: Flash once quickly every 5 seconds

4G network registered: Flash twice quickly in a row every 5 seconds

4G network unregistered: Flash 3 times quickly in a row every 5 seconds

SIM card error: Flash 4 times quickly in a row every 5 seconds

Serial link communication error: Flash 5 times quickly in a row every 5 seconds

4G module OFF: Never flash

- **GPS LED: YELLOW**

GPS fixed: Flash once quickly every 5 seconds

GPS unfixed: Flash twice quickly in a row every 5 seconds

GPS communication error: Flash 3 times quickly in a row every 5 seconds

4G module OFF: Never flash

- **Power LED: RED**

Under “Lock” status

Battery normal: Flash once quickly every 5 seconds

Battery under voltage: Flash twice quickly in a row every 5 seconds

Battery low voltage: Flash 3 times quickly in a row every 5 seconds

Charging battery: Glowing constantly

Under “Unlock” status

Flash once quickly every 1 second

9. USER COMMAND

◆ Set User Phone Number

There are 2 users phone supported by G6S, they have the same authorization.

User1's command words are ***UNO0, UPW0, USP0***.

User2's command words are ***UNO1, UPW1, USP1***.

Below will take user1 as example:

To set your cell phone number as User1 to control and receive messages from device, please send ***UNO*** command to the device, e.g.:

1234,UNO0;+8613912345678

Or

1234,UNO0;13912345678

Explanations:

1234: Default password.

UNO0: Command control word for setting user number.

+8613912345678: Phone number with country code.

13912345678: Phone number without country code.

Device is supposed to reply a confirmation SMS to you, if the device does not accept the command, it also reply **Command err**.

◆ Modify User Password

Factory default password **1234**

Changing the factory password at the first usage is highly suggested.

New password should be 4 digits that from number "0-9".

To modify password, send ***UPW*** command from your USER phone number, e.g.:

1234,UPW0;5678

Explanations:

1234: Factory Password

UPW0: Command control word for setting new password

5678: New Password

◆ Set position report interval to user phone

Device is able to report its current position periodically according to the setting, default is every 30 minutes. To change it please send ***USP*** command, e.g.:

1234,USP0;0;30S;G;W

Explanations:

1234: User password

USP0: Command control word

0: Interval Mode, related with dynamic report condition

0: Mode0

1: Mode1

30S: Report interval

S: Second, range from 30 to 900.
M: Minute, range from 15 to 59.
H: Hour, range from 1 to 240.

G: Working mode
O: Disable periodically report to USER.
G: GPS location information as first priority, if it is invalid, will be replaced by LBS information.
S: Using LBS information only.
L: Device will voice call USER periodically for voice monitoring purpose.

W: Location information type
T: Text for current location, showing GPS coordinate.
W: Google map hyper link for current location.

10. EVENT SMS SAMPLE

- This table shows some events report sample via SMS
- Please note event name in SMS is definable by command **RNM**

Event Name	Contents	Remark
Rest event	G737 V0.48 LTM 2014-03-26 13:28:14 MCC/MNC/LAC/CID/RSSI 460/0/2503/962C/-70dBm 460/0/2731/40F3/-75dBm ETD:0/rest 4G -67dBm BAT=3.94V #11	
SOS event	G737 V0.48 LTM 2014-03-26 13:45:20 GPS 1.25/53/6/182 N23.164842 E113.428752 SPD:0km/h 0 ETD:5/sos 4G -67dBm BAT=3.93V #19	
Fiber strap event	G737 V0.48 LTM 2014-03-26 13:34:49 GPS 1.86/57/5/182 N23.164730 E113.428768 SPD:0km/h 0	

	ETD:4/FO_CUT 4G -52dBm BAT=3.94V #14	
Tag zone entering	G737 V0.48 LTM 2014-03-26 14:25:23 MCC/MNC/LAC/CID/RSSI 460/0/2503/962C/-73dBm 460/0/2731/40F4/-74dBm ETD:10/TAG in/H;10.11.12.13.14 4G -67dBm BAT=3.91V #32	
Tag zone leaving	G737 V0.48 LTM 2014-03-26 14:25:23 MCC/MNC/LAC/CID/RSSI 460/0/2503/962C/-73dBm 460/0/2731/40F4/-74dBm ETD:10/TAG out/H;10.11.12.13.14 4G -67dBm BAT=3.91V #32	
Main Unit battery low	G737 V0.48 LTM 2014-03-26 14:31:09 MCC/MNC/LAC/CID/RSSI 460/0/2503/962C/-71dBm 460/0/2731/40F3/-78dBm 460/0/2731/40F4/-78dBm ETD:8/bat low/3.80V 4G -67dBm BAT=3.80V #34	
Tag battery low	G737 V0.48 LTM 2014-03-26 14:03:43 GPS 1.34/56/5/78 N23.163938 E113.428334 SPD:0km/h 0 ETD:7/TAG Plow/H;10.11.12.13.14;30 4G -52dBm BAT=3.93V #26	

11. QUICK START GUIDE

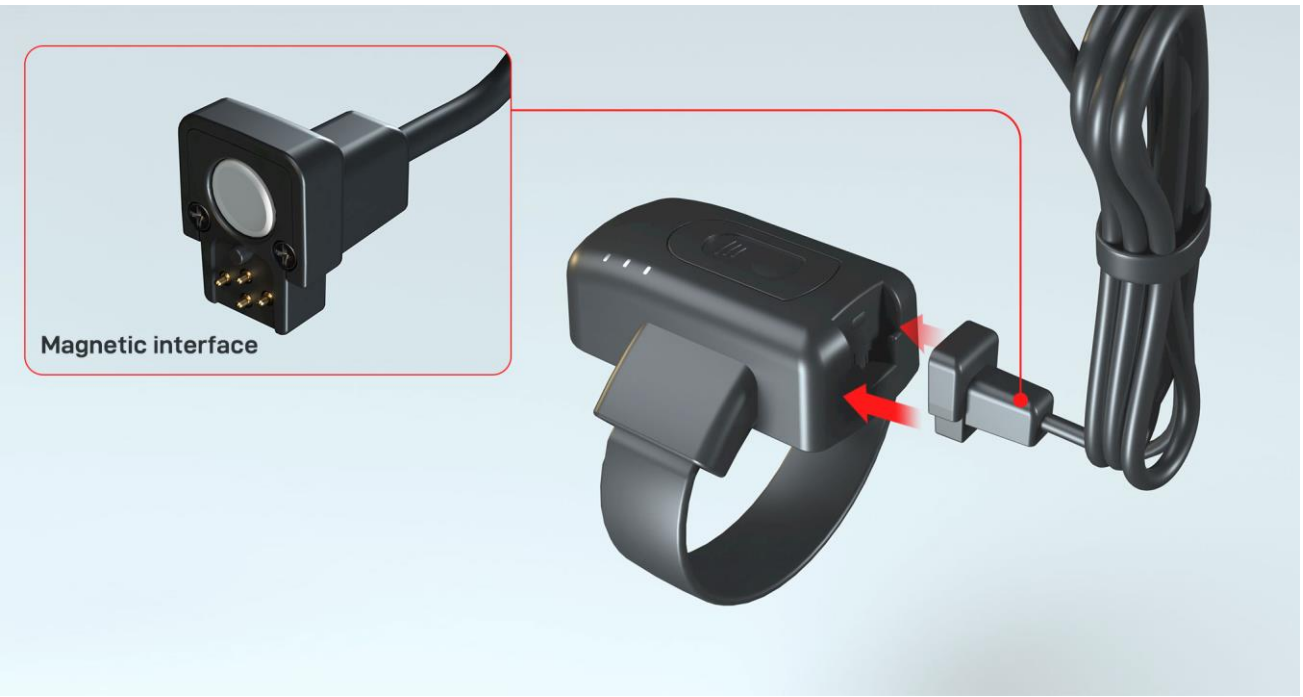
- **Driver Installation**

  COM driver through below link and install the drivers into computer accordingly.

  https://www.dropbox.com/s/xmvxjukykajqo9o/G6S-G79%20stm32_vcp.zip?dl=0

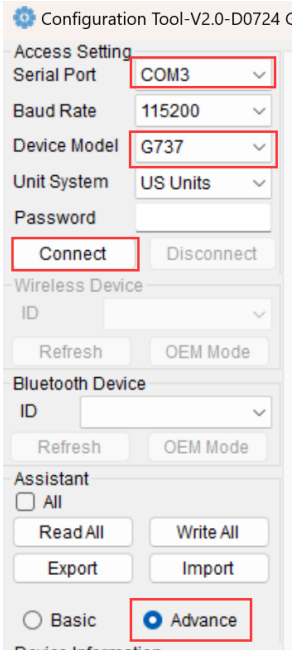
- **Connect to PC**

  To connect the G737 device to computer, just need to use the configuration cable to connect the device with its magnetic interface.

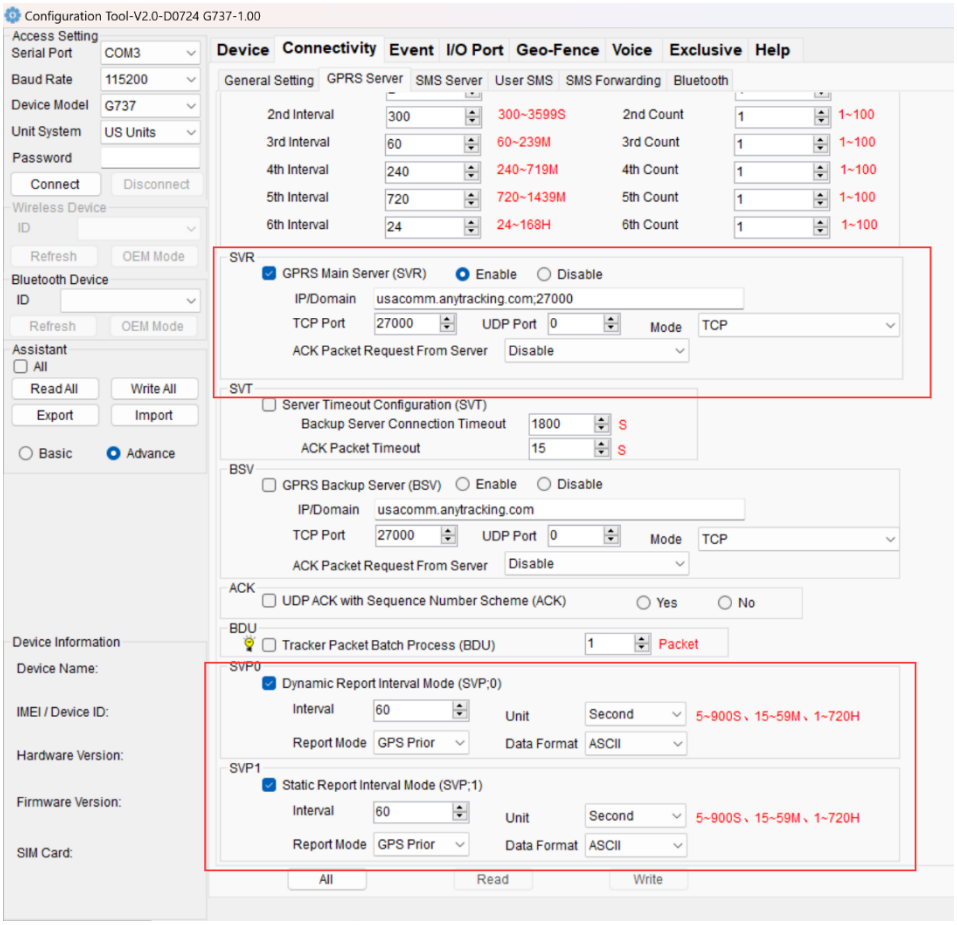


◆ Configuration

Open the configuration tool, select the related com port and model type(G737) then click connection

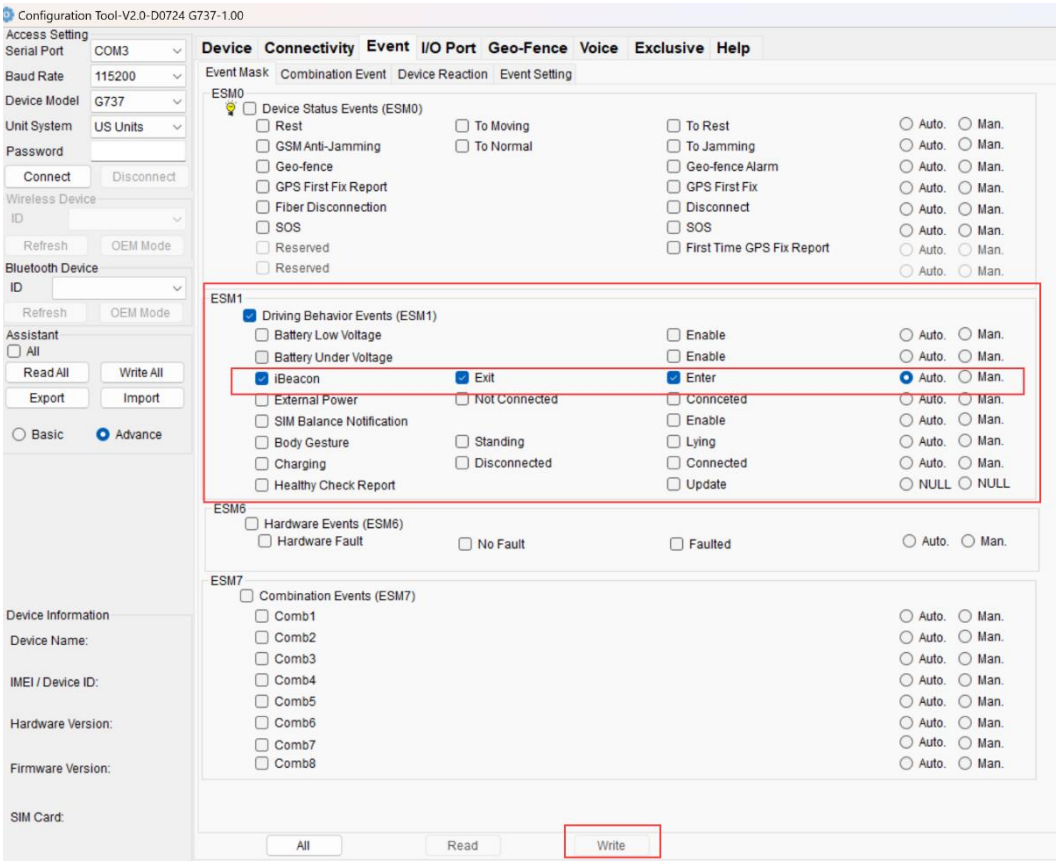


1. Setup server IP and port, upload interval

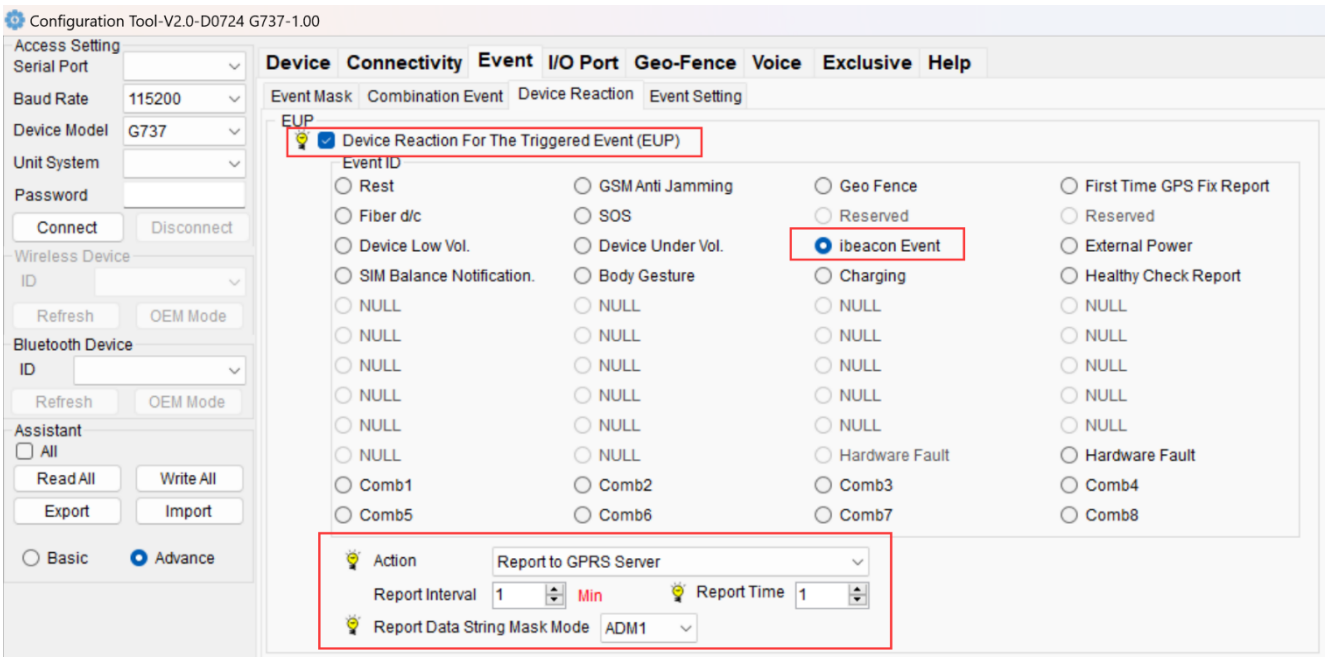


2. Configure Home beacon

Step 1: Enable home beacon entering and leaving event



Step 2: setup reaction for home beacon event



Step 3: setup home beacon working mode (public mode or white list mode)

Function: configure ibeacon working mode, message refresh time.

Format:

IBC;<ibeacon working mode>;<message refresh time>

Definition of parameter:

<Working Mode>:

0: disable ibeacon function, at this time system will not detect ibeacon BS information.

1: Public mode, it will upload all scanned ibeacon information

2: Whitelist mode, only upload the ibeacon information which in whitelist

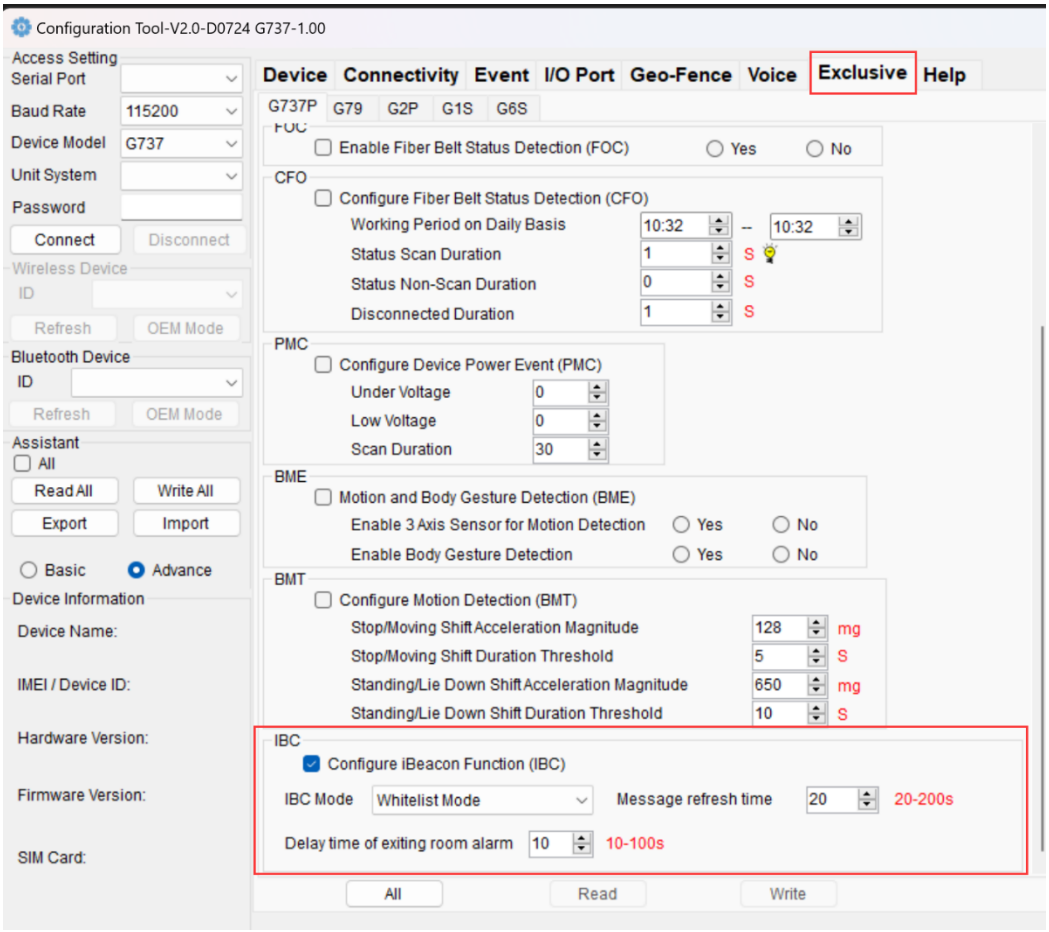
<Message refresh time>: it will start counting time when system detect ibeacon information. If ibeacon not being detected again within the refresh time, then it will erase this ibeacon information in the buffer, and if this ibeacon being detected again then system will restart counting time, range from 5 to 200, unit is second.

<Delay time of exiting room alarm>: after system not detect valid ibeacon information, it will alarm if exceed this delay time and report exiting room/special zone event, range is from 5 to 200, unit is second.

Notice: <Refresh time> parameter of this command, need to match the broadcast information interval period of this ibeacon, this parameter must longer than ibeacon broadcast information interval period, otherwise it may appear issue that entering/exiting room misinformation.

1) IBC;1 // (public mode), ibeacon UUID will be automatically reported

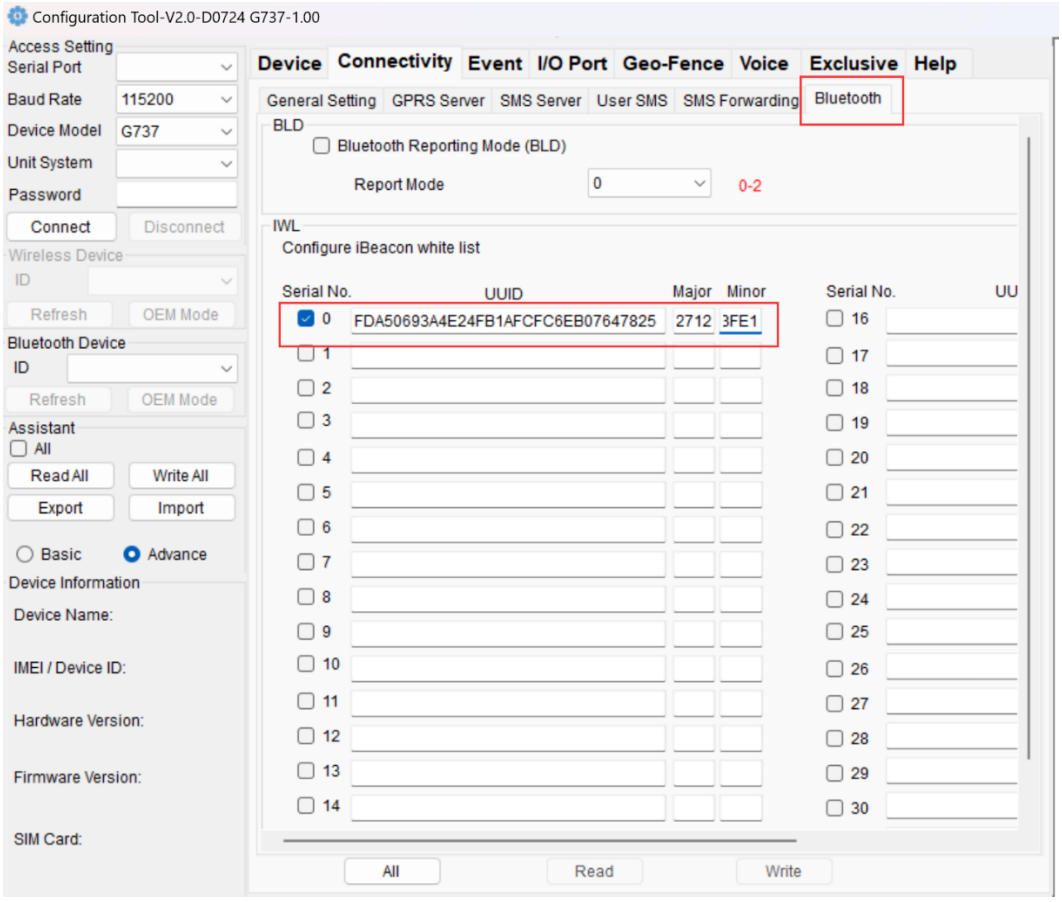
2) IBC;2 // (white list mode), only the UUID in the white list to be reported



Step 4: setup ibeacon whitelist

For example, use this ibeacon as an example, which is shown in the picture above.

IWL0;FDA50693A4E24FB1AFCFC6EB07647825;2712;3FE1



Command format:

IWL[n];<UUID>;<MAJOR>;<MINOR>

Parameter definition:

IWL[n]: n is the Ibeacon base station number configured by the user, the range is 0~31, and can be configured with up to 32 whitelists.

<UUID>: 16-byte hexadecimal digits (32-bit)

<MAJOR>: 2 bytes of hexadecimal digits (4 digits)

<MINOR>: 2 bytes of hexadecimal digits (4 digits)

Ibeacon information, including UUID, MAJOR, MINOR, where MAJOR, MINOR can be changed by APP, UUID followed by the last four digits for MAJOR, MAJOR followed by the last four digits for MINOR).

◆ Configure Low power consumption mode

1. Use the Firmware based on Version 4.06 at least or above.

2. Setup the beacon white list and white list mode, reference to Configure home beacon section

3. Enable bluetooth by command: GPO;1;1;1

4. Enter command: PSS2:7f;00:00-23:59;00:00-23:59;00:00-23:59

5. Enter Command: PSH;1;60;FF;20 (This is common setup, Parameter can be adjusted based on use cases.)

Command word	Format	Reply
PSH	SET: PSH;1;60;FF;20 Query： PSH	 PSH:1;60;FF;20 PSH:1;60;FF;20
Authorization	OEM √ USER √ PUBLIC √	
	Function：set power save mode This command is only available for version 4.06 above PSH;<Enable/Disable>;<Close GSM Delay Time>;<Enable GSM Wake up flag>;<Sleep Time> <Enable/Disable>：1：Enable 0：Disable <Close GSM Delay Time>：When device is matched to Home Tag, set close GSM delay time, unit:second Note: Minimum wake up time at least 10 seconds <Enable GSM Wake up flag>：HEX, bit related to different wake up condition, only when HT disconnected,the GSM GPS can be wake up at same time, otherwise, only wake up GSM bit0: SOS 1: Enable 0：Disable bit1: Power disconnect 1: Enable 0：Disable bit2: Power connect 1: Enable 0：Disable bit3: Fiber disconnect 1: Enable 0：Disable bit4: HT disconnect 1: Enable 0：Disable bit5: Interval report 1: Enable 0：Disable bit6: Low battery 1: Enable 0：Disable bit7: under voltage of battery 1:Enable 0：Disable <Sleep Time> Unit: Second The time is MCU sleep time at EM2 sleep mode , range : 1 to 60 seconds NOTE: Preconditions for PSH command: 1. Use beacon white list mode by command: IBC;2 2. Set up the beacon white list 3. Enable bluetooth by command: GPO;1;1;1 4. Enter command: PSS2:7f;00:00-23:59;00:00-23:59;00:00-23:59 5. Device is connected to the home beacon or Ibeacon	

6. Connect the beacon to power supply and make sure the device is connected to the beacon.

12.FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential in stallation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accorda nce with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that in terference will not occur in a particular installation. If this equipment does cause harmful interference to radio or televisio n reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the int erference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The SAR was tested and it can meet the SAR limit of FCC.

END