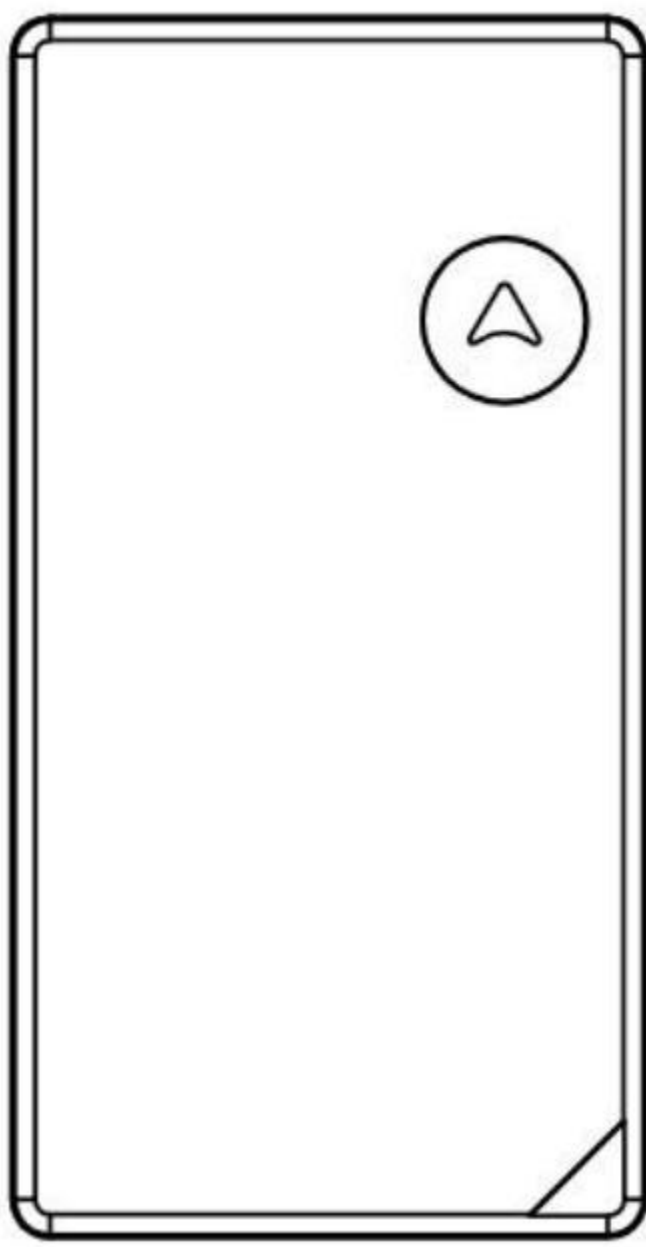


W21L Asset Tracker

User Manual



Long standby Tracker

01/Introduction

1.1. Product Overview

W21L is a ultra-thin wireless GPS positioning tracker, specifically designed for asset tracking. This product features the following key characteristics.

Extended Battery Life:Equipped with a high-capacity 5000mAh battery, it can operate continuously for up to 5 years in GPS mode (one location update per day) or 3 years in GPS mode (one location update per day with SMS wake).

Ultra-Concealable Design:With an ultra-slim profile of just 12mm thickness, the device can be perfectly concealed in vehicles, packages, and various valuable items without detection.

Instant Remote Activation:Supports instant activation via SMS command while in standby mode, enabling real-time tracking at any time to ensure complete asset security.

1.2. Features



GPS/BDS/GLONASS
GALILEO/LBS/



Light alert



Vibrating alert



Low battery alert

1.3. Specification

GNSS Accuracy	< 10m
Positioning Mode	GPS/BDS/GLONASS/GALILEO/LBS
Communication Frequency	Cat-M1: B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B28, B66 Cat-NB1/NB2: B1, B2, B3, B4, B5, B8, B12, B13, B17, B19, B20, B25, B26, B28, B66
Weight	75g
Dimensions (LxWxH)	96mmx50mmx12mm
Standby Current	0.03mA
Battery	Not rechargeable 5000 mAh/3.0V ,zero self-discharge lithium Manganese disposable battery
Work Humidity	20%~80%RH
Operating Temperature	-20℃ ~ +65℃
Sensors	Accelerometer
	Light
Interface	Type-c (For debugging purposes only)
Transmit Protocol	TCP
Led	1*Red/Blue/Green(Work status)
Memory	256KB RAM+1MB Flash

Table 1 Basic characters

02/Appearance

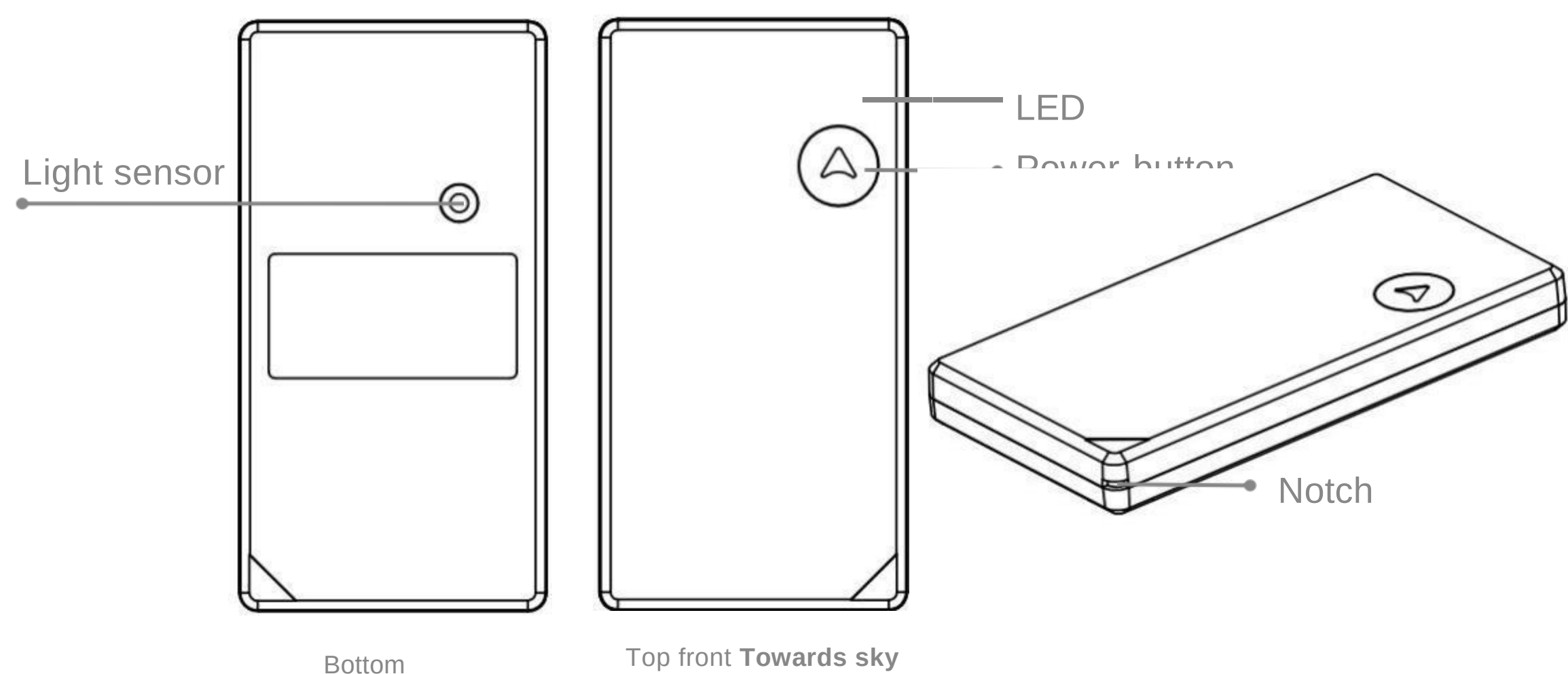


Figure 1 Appearance

03/LED

Light	Status	Definition
Red	Blinking	Searching for network (GPS already positioned)
Blue	Blinking	Searching for GPS signal(Network normal)
Red & Blue	Alternating Blinking	Network searching & GPS searching
Green	Solid on	Network normal & GPS positioned
Green	Blinks for three seconds then turns off	Device powered on from shutdown state
Red & Blue&Green	Alternating Blinking	OTA updating
Red & Blue&Green	The green light flashes for 3 seconds and then turns off. The blue and red lights alternate flashing and repeat this pattern.	The battery needs to be replaced.

Table 2 LED indications

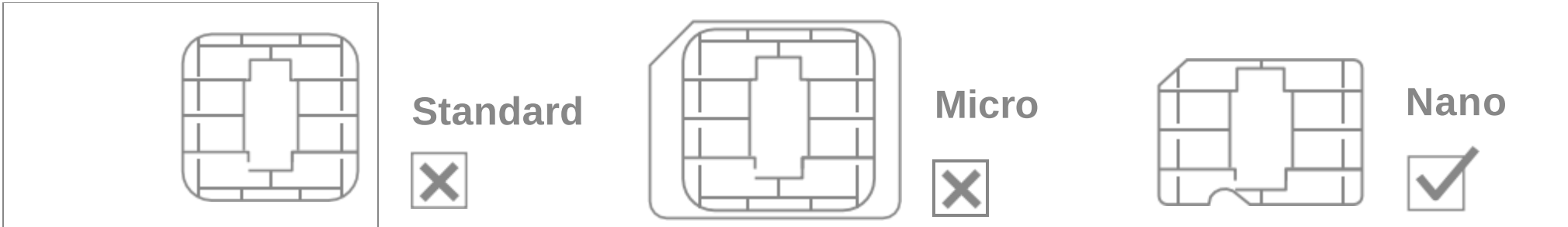
04/Use Instruction

Installation

Place the device in the area that needs to be inspected without any installation.
Warning: Place the device with the button side up to avoid signal interference.

4.1. SIM Card Attachment

Step 1 Prepare a proper SIM card;
The size of the card is as follow



Step 2 Open the case, Open the case from the lower right notch corner of the device. Pull down SIM card slot as the following picture shows, and insert the SIM card in place(please pay attention to the direction of the card).Then pull upwards of the SIM card slot. Close the device case.

(Note: The device must be powered off before removing the SIM; otherwise, the SIM

may be burned.)



Figure 2 Open the case

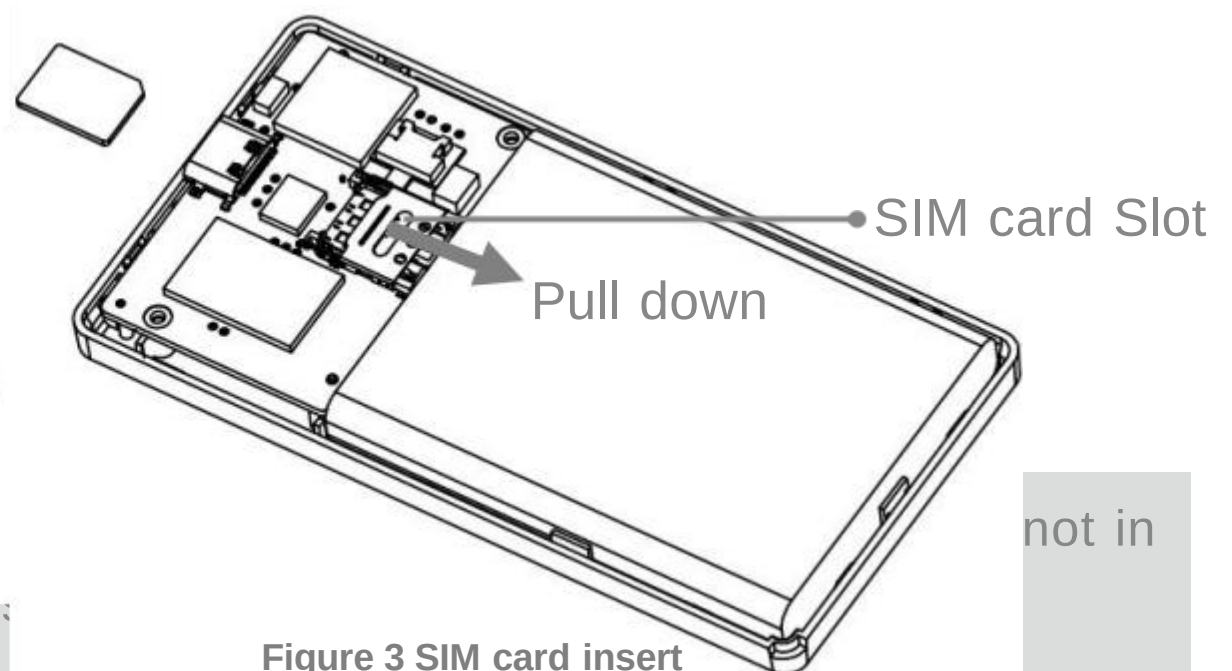


Figure 3 SIM card insert

4.2. Power-On and -Off

Long press the button for 3s to power on the device.

The device does not support manual power-off through buttons; a power off command must be issued remotely. send **POWEROFF#** command to power off the device.

4.3. Not rechargeable

The device is not rechargeable. Once the battery runs out, replace battery to resume operation.

Note: The Type-C port on the device is only for debugging and firmware downloading, not for charging.

4.4. Working Modes

❖ Long standby mode(default)

The device enters sleep mode and wakes up at a certain configured interval to upload location data. In sleep mode, you can send a SMS message to wake up the device in advance, upload location information or switch to other working modes.

Mode,1,[T],[A],[B],[C]#

[T]:upload interval,T=1~1440(minutes)

[A]:A=0,GPS disable; A=1,GPS positioning

[B]:B=0/1

[C]:C=0,LBS disable; C=1,LBS positioning

Example:Mode,1,1440,1,0,1#(default),TheW21L upload location(GPS&LBS) every 24 hours.

❖ Emergency mode

Send command via SMS, APP, or platform to switch to emergency mode,then device will be real time tracking and upload location data, and re-enter long standby mode after working for a period of time.

MODE,2,[T],[T1],[T2],[A],[B],[C]#

[T]:upload interval,T= 10~86400(seconds)

[T1]:working time,T1=T=0~ 1440(minutes),0 means working all the time

[T2]:long standby mode upload interval,T= 1~ 1440(minutes)

[A]:A=0,GPS disable; A=1,GPS positioning

[B]:B=0/1

[C]:C=0,LBS disable; C=1,LBS positioning

Example:MODE,2,30,10,1440,1,0,1#,The W21L upload location(GPS&LBS) every 30 seconds.After working for 10 minutes, switch back to long standby mode and upload location(GPS&LBS) every 24hours.

❖ Journey mode

When the motion sensor detects moving, it will wake up the device, uploads a location data, and then enters sleep status.When device stops moving, the device wakes up again to upload a location data, and then enter to sleep status.In this mode, you can see the starting and ending locations of the device for a certain distance.

This mode need motion sensor, will consume more power.

Mode,3,[T],[A],[B],[C]#

[T]:stop interval,T=1~60(minutes), recommended to set it for 4 minutes

[A]:A=0,GPS disable; A=1,GPS positioning

[B]:B=0/1

[C]:C=0,LBS disable; C=1,LBS positioning

Example:MODE,3,4,1,0,1#, The W21L detects moving and upload a location, then enters sleep status. After the device stops moving for 4 minutes, it upload another location and then enters sleep status.

❖ Tracking mode

When the motion sensor detects the device moving, it will wake up the device, keep it working, and upload the location data in real time. When the device stops moving it will enter to sleep status. This mode displays the device's full journey trajectory.This mode need motion sensor will consume much power.

Mode,4,[T],[T1],[A],[B],[C]#

[T]:upload interval,T=10~86400(seconds)

[T1]:stop interval,T=1~60(minutes), recommended to set it for 4 minutes

[A]:A=0,GPS disable; A=1,GPS positioning

[B]:B=0/1

[C]:C=0,LBS disable; C=1,LBS positioning

Example:MODE,4,30,4,1,0,1#, The W21L detects moving and upload location every 30 seconds. After the device stops moving for 4 minutes, it upload location again and then enters sleep status.

❖ Quick Wake-up

Press the device button to instantly wake the device from any mode. It will upload a location data and then enter to sleep status.

4.5. Alert Functions

❖ Light alert (Disabled by default)

The device will upload a Light alert if it is forcibly removed.

LIGALM,[A],[M]#

[A]:A=ON,light alert enabled;light A=OFF,light alert disabled.

[M]:M=0,Alert is only displayed on the platform; M=1,Alert will be sent via SMS notification and simultaneously displayed on the platform.

Example:LIGALM,OFF# The W21L will not trigger a light alert.LIGALM,ON,0# The W21L will trigger a light alert when detecting light exposure and send instant alerts through the platform.

❖ Vibrating alert (Disabled by default)

The device will upload a vibration alert upon shock detection when stationary.

SENALM,[A],[M]#

[A]:A=ON,light alert enabled;light A=OFF,light alert disabled.

[M]:M=0,Alert is only displayed on the platform; M=1,Alert will be sent via SMS notification and simultaneously displayed on the platform.

Example:SENALM,ON,1# The W21L will trigger a vibration alert and send platform notifications when it detects sudden movement after remaining stationary for 10 minutes.

❖ **Low battery alert**（**Enabled by default**）

The device will upload a low battery alert if it detects its battery lower than 20% .

BATALM,[A],[M]#

[A]:A=ON,battery alert enabled;light A=OFF,battery alert disabled.

[M]:M=0,Alert is only displayed on the platform; M=1,Alert will be sent via SMS notification and simultaneously displayed on the platform.

Example:BATALM,ON,0# The W21L automatically triggers a low-battery alert when battery level falls below 20%, and send instant alerts through the platform.

05/Trouble shooting

Issues	Possible Causes	Solutions
Power-on failure	No SIM.	Insert a SIM.
	The battery is exhausted.	Change the battery.
No positioned		
	The GPS signal is extremely weak.	Try it in an area with strong signals.
	The GPS signal of the device is blocked	The upside of device should be installed with face toward the sky.
Cannot connect platform	The SIM is invalid.	Please contact your network service provider. The SIM card needs to support CAT-M or NB networks.
	The signal is extremely weak.	Try it in an area with strong signals.
	The SIM card maybe attached improperly.	Check the SIM.
	The APN cannot be recognized	Send SMS commands APN, [apnname]# Example:APN,internet#
	The IP address of the platform is set incorrectly	SERVER,[mode],[domainName/IP],[port],0# Example:SERVER, 1,gps.whatsgps.com,6801,0# SERVER,0,47.56.208.182,6801,0#

Usage Statement

This product is portable and is only suitable for fixed asset tracking; it is not suitable for personal use.

FCC Statement

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

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 installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference 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

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.