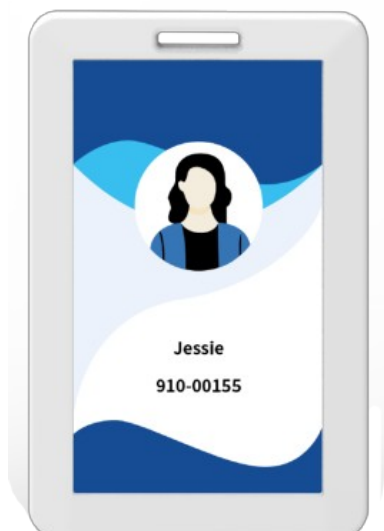




Lansitec LoRaWAN

Badge Tracker & Asset Management Tracker User Manual



Document Number: 990-00114
Rev. 1.0
contact@lansitec.com

For uplink/downlink payload definitions, contact us at contact@lansitec.com to request the Payload Specification.

1. Product Variants

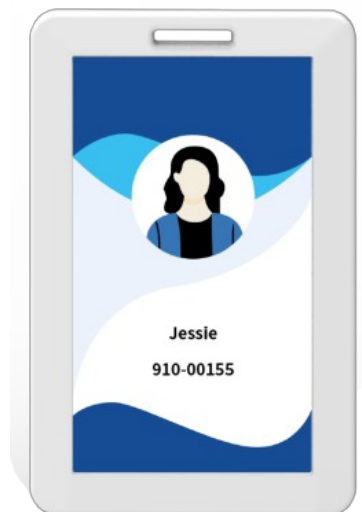
Variant	Intended use	Power
Badge Tracker	Wearable personnel tracking and safety applications	600 mAh rechargeable Li-ion; Micro-USB charging
Asset Management Tracker	Fixed asset and equipment tracking	2 x 4000 mAh Li/SOC12; non-rechargeable

2. Before Installation

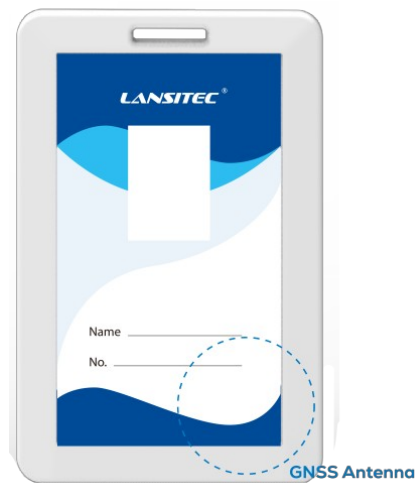
- Verify the ordered LoRaWAN frequency plan matches the deployment region.
- Obtain the device DevEUI/DevAddr from the product label and prepare the corresponding OTAA or ABP credentials.
- Confirm a LoRaWAN gateway and network server are available at the deployment location.
- For BLE indoor positioning, deploy compatible positioning beacons and record their known locations.
- Avoid installing the tracker where metal structures completely shield the LoRaWAN or GNSS antennas.
- For the Asset Management Tracker, confirm the mounting surface and suitable application-specific fasteners before installation.

3. Installation & Fixing

3.1 Badge Tracker



1. Attach the supplied lanyard or approved badge holder so the device can be worn securely.
2. Keep the button and LED area accessible to the user.
3. Do not cover the GNSS antenna area with metal or conductive material.
4. For best outdoor GNSS performance, keep the antenna face oriented toward open sky whenever practical.
5. If a PVC ID sticker is used, apply it without obstructing the button, LEDs or antenna area.



Badge Tracker GNSS antenna location.

3.2 Asset Management Tracker



6. Select a rigid mounting surface with sufficient LoRaWAN coverage and, when GNSS is used, reasonable sky exposure.
7. Use the enclosure side mounting tabs/holes with suitable screws, ties or other application-approved fasteners. Do not overtighten or deform the enclosure.
8. Keep the top face and antenna area away from large metal obstructions when possible.
9. After fixing the device, verify LoRaWAN network status and perform a location test before commissioning.

4. Power On/Off & LED Status

Action / condition	LED behavior
Power on	Press and hold the button for 4 seconds. Red LED flashes four times while green LED is on.
Power off	Press and hold the button for 4 seconds. Red LED flashes four times.
Reboot	LED behavior is the same as power on.
Joining LoRaWAN	Green LED remains on until the join process ends.
Short press - online	Green LED flashes once.
Short press - offline	Red LED flashes once.
Short press - powered off	No LED response.
Badge charging	Red LED flashes while charging; red LED stays on when fully charged.

5. LoRaWAN Commissioning

The tracker supports LoRaWAN Class A with OTAA or ABP activation. DevEUI/AppEUI/AppKey or DevAddr/NwkSKey/AppSKey are stored in the device. After joining the LoRaWAN network, the tracker sends a registration message containing its current configuration.

10. Create the device in the LoRaWAN network server using the correct regional frequency plan.
11. Enter the OTAA or ABP credentials supplied for the device.
12. Power on the tracker and wait for the join process to complete.
13. Short-press the button to verify network status. A green flash indicates online status.
14. Verify the registration/heartbeat data is received by the application platform.

When supported firmware detects repeated missed confirmed heartbeat acknowledgements, the tracker considers the LoRaWAN link disconnected and attempts to rejoin automatically.

Commissioning check: [Lansitec Payload Decoder Calculator](#) can be used to decode supported uplinks received during setup and testing.

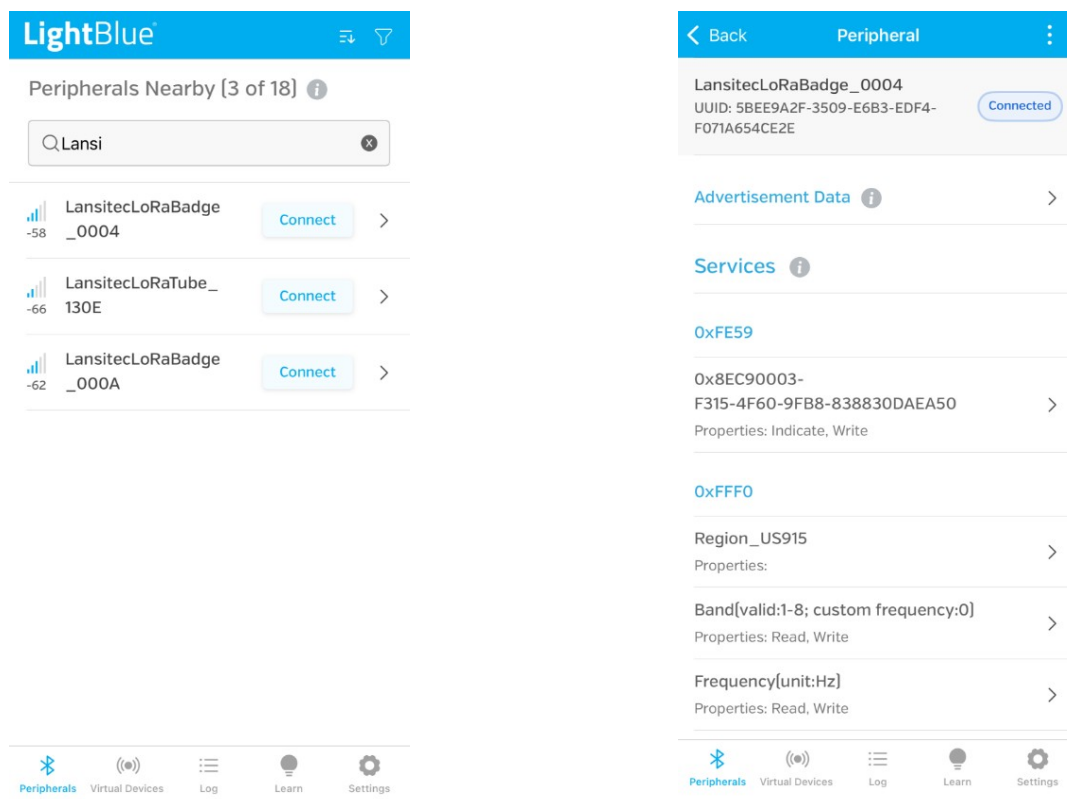
6. Positioning Behavior

15. At the start of a positioning cycle, the tracker scans for compatible BLE positioning beacons for 3 seconds.
16. If compatible beacons are detected, the tracker reports up to the three beacons with the strongest RSSI values and does not start GNSS for that cycle.
17. If no compatible beacon is detected and GNSS is enabled, the tracker starts GNSS positioning.
18. In good outdoor conditions GNSS typically acquires a position in about 25-60 seconds. The GNSS timeout is 3 minutes.

Reporting mode	Use
Periodic	Regular positioning at the configured interval.
Autonomous	Motion-aware positioning intended to reduce power consumption.
On-Demand	Positioning starts after a supported server downlink request.

7. Local Bluetooth Configuration with LightBlue

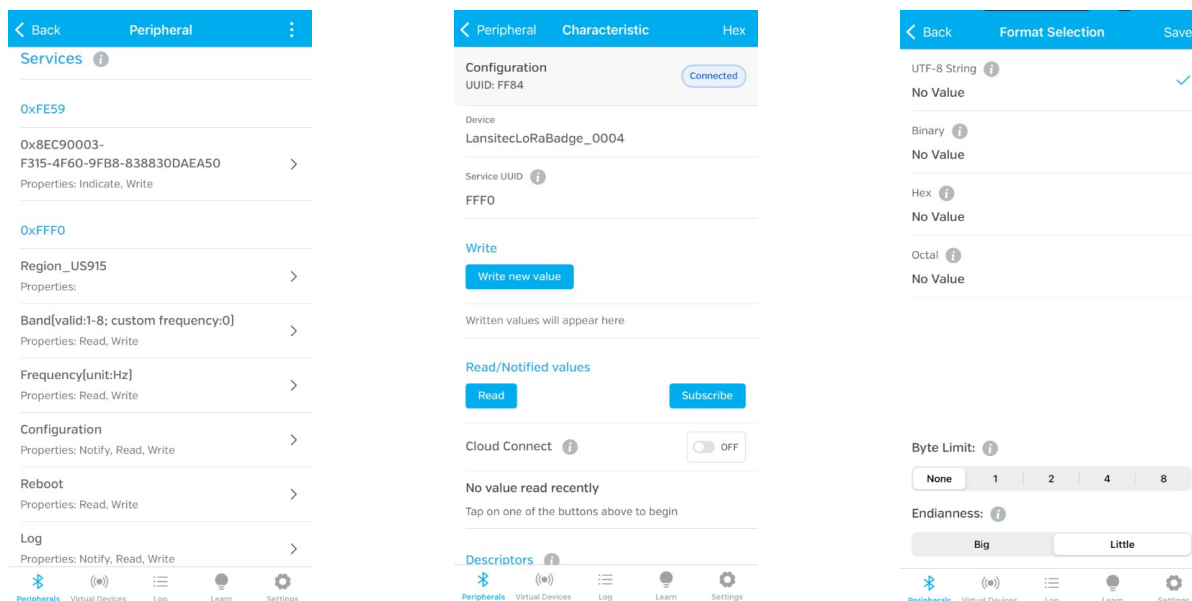
The tracker supports local configuration through Bluetooth using the LightBlue application. Configuration values are entered as hexadecimal or UTF-8 strings according to the characteristic being edited.



19. Install LightBlue from the iOS App Store or Google Play Store.
20. Power on the tracker. In LightBlue, select the device name beginning with "LansitecLoRa..."

21. Enter the device configuration password 116321. Open the configuration service within 3 minutes after power-on; otherwise restart the tracker to reopen the configuration window.
22. Available configuration items include regional band, custom frequency, device Configuration and Reboot. Depending on firmware, additional characteristics such as iBeacon advertising parameters may be visible.

7.1 Writing the Tracker Configuration



23. Open the Configuration characteristic.
24. Select UTF-8 String as the data format.
25. Choose "Write new value", enter the configuration string and confirm the write.
26. Use the Reboot characteristic after changing configuration; some settings do not take effect until restart.

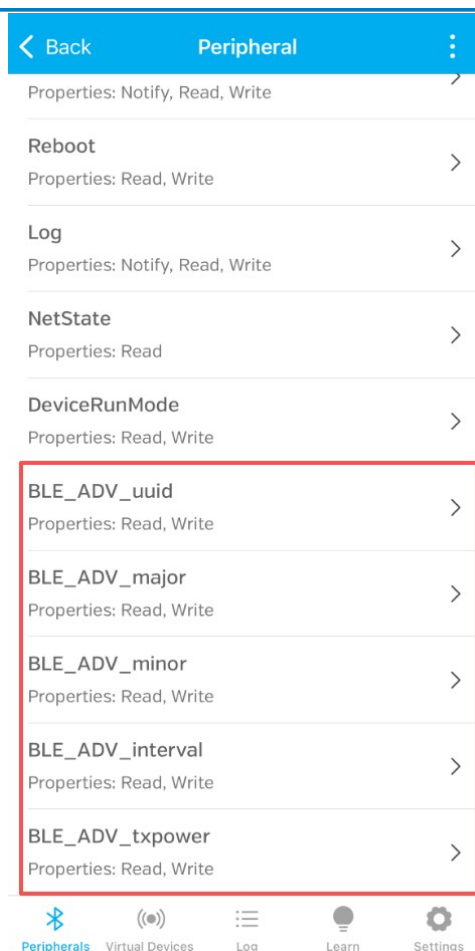
7.2 Frequency Band Configuration

Characteristic	Format
Band(valid: 1-12; custom frequency:0)	UTF-8 String
Frequency(unit:HZ)	UTF-8 String
Configuration	UTF-8 String
Reboot	UTF-8 String

For standard bands, enter a supported band value as indicated by the characteristic. For custom frequency settings, follow the applicable LoRaWAN Regional Parameters and the product firmware rules. Do not deploy a frequency configuration that is not permitted in the operating region.

7.3 iBeacon Broadcast Configuration

The tracker can broadcast iBeacon frames with configurable UUID, Major, Minor, advertising interval and TX power. The default UUID is F2-A5-2D-43-E0-AB-48-9C-B6-4C-4A-83-00-14-67-FD; default Major/Minor values are derived from the last four bytes of the device DevEUI.



8. Badge SOS & Fall Alarm

8.1 SOS

Press the Badge Tracker button three times within 3 seconds to trigger SOS. The tracker sends a confirmed alarm uplink and starts positioning. Green and red LEDs flash to indicate the alarm state. If acknowledgement is not received, the alarm is retransmitted every 10 minutes until acknowledgement or battery depletion. A single button press stops the LED flashing; receiving an acknowledgement stops alarm retransmission.

8.2 Fall Detection

Fall detection uses a configurable threshold. A detected fall triggers a confirmed alarm message, LED indication and positioning. The default threshold is 2 m, represented by configuration value 0x04 with a 0.5 m unit. A value of 0 disables fall detection.

9. Charging & Power

9.1 Badge Tracker

- Rechargeable 600 mAh Li-ion battery.
- Charge through the Micro-USB connector using a suitable 5 V USB power source.
- Red LED flashes while charging and remains on when fully charged.
- Do not use a damaged cable or charge in conditions outside the specified operating environment.

9.2 Asset Management Tracker

- Powered by 2 x 4000 mAh Li/SOCI2 batteries.
- Do not charge this product or its batteries.
- For battery service or replacement, contact us at contact@lansitec.com.

Battery-life planning: [Lansitec Battery Life Live Calculator](#) can be used to compare operating scenarios and reporting intervals.

10. Firmware Update

FOTA over Bluetooth is supported. Use only firmware supplied by Lansitec and follow the release-specific upgrade instructions provided with the firmware package.

11. Troubleshooting

Symptom	Recommended check
No LED response	Confirm the device is powered/charged. Hold the button for 4 seconds to power on.
Red flash after short press	Tracker is not connected to LoRaWAN. Verify gateway coverage, frequency plan and device credentials.
No GNSS fix	Move outdoors, keep the GNSS antenna unobstructed and allow up to the 3-minute timeout.
Only BLE position reports	Compatible BLE beacons are being detected or GNSS is disabled.
Only GNSS reports	No compatible BLE positioning beacon is detected or BLE scanning is disabled.
Configuration changes not applied	Use the Reboot characteristic after writing configuration.
Cannot enter Bluetooth configuration	Restart the tracker and connect within the 3-minute configuration window.

Reference Documents

- Lansitec LoRaWAN Badge Tracker & Asset Management Tracker Datasheet - Document Number 990-00113
- Payload Specification (Document Number 990-00115) - contact us at contact@lansitec.com to request access.
- 930-01232 - LoRaWAN Tracker Positioning Service API Document
- 990-00170 - B-Fixed® Personnel & Asset Tracking Solution

Payload integration information is supplied separately. To request the Payload Specification, contact us at contact@lansitec.com.