seeed studio T1000-E

SenseCAP Card Tracker T1000-E User Manual

Model: T1000-E | Brand: seeed studio

1. Introduction

The SenseCAP Card Tracker T1000-E is a versatile, compact device designed for Meshtastic communication. Featuring nRF52840 and LR1110 chips, it supports LoRa (863-928 MHz ISM bands), Bluetooth 5.0, Thread, and Zigbee, ensuring broad compatibility. Integrated with a Mediatek AG3335 GPS chip, it provides high-precision positioning services. This manual provides detailed instructions for setup, operation, maintenance, and troubleshooting to ensure optimal performance of your device.

Front view of the SenseCAP Card Tracker T1000-E, showcasing its compact design.

The T1000-E is IP65-rated, making it suitable for outdoor use and resistant to water splashes.

2. Getting Started

2.1 What's in the Box

Upon unboxing your SenseCAP Card Tracker T1000-E, please ensure all the following items are present:

- SenseCAP Card Tracker T1000-E Device
- USB Charging Cable (4-pin magnetic)
- User Manual (this document)

The SenseCAP Card Tracker T1000-E, its magnetic USB charging cable, and the user manual.

2.2 Initial Power On

To power on your T1000-E device, press the button once and hold for approximately 5 seconds. The device will emit an ascending melody, and the LED will light up for 0.5 seconds, indicating successful power-on.

Official video demonstrating the initial power-on sequence of the T1000-E, including the button press, ascending melody, and LED indicator.

3. Operating Instructions

3.1 Status Indicators

The LED on the T1000-E provides visual feedback on its operational status:

- **Randomly Flashing LED:** Indicates that the T1000-E is operating normally.
- **LED Lights Up for 0.5s, then Off for 0.5s (in a loop):**Indicates the device is charging.
- **LED Stays On Continuously:** Indicates the device is in DFU (Device Firmware Update) mode.

3.2 Receiving Messages

In firmware version 2.4.2, the T1000-E does not make a sound when receiving messages by default. To enable audible notifications, you need to configure this manually via the Meshtastic app:

1. Go to the "Settings" section in the Meshtastic app.
2. Click on "External Notification".

3. Enable all desired notification settings, such as "Alert when receiving a message".
4. Ensure the correct GPIO pins are configured for the buzzer (Pin 25) and LED (Pin 24) if applicable.
5. Click "Save". The device will reboot, and the buzzer will play an ascending melody with a brief LED flash upon successful configuration.

Once configured, when a message is received, the buzzer will play an ascending melody, and the LED will flash once.

Official video demonstrating how to configure external notifications for message reception on the T1000-E via the Meshtastic app.

3.3 Sending Messages

When sending a message from the Meshtastic app, there is no direct hardware indication on the T1000-E itself. You can confirm whether the message was sent successfully by checking the notifications within the chat interface of the Meshtastic app.

3.4 GPS Functionality

The T1000-E can broadcast its node and location information. To trigger this, double-press the button on the device. The information can be reviewed from the serial port if connected to a computer.
To toggle the GPS function on or off, triple-press the button on the device.

4. Maintenance

4.1 Charging

To charge your T1000-E, connect the 4-pin magnetic charging cable to the device. The LED will light up for 0.5 seconds and then turn off for 0.5 seconds in a repeating cycle, indicating that the device is charging.

4.2 Firmware Update

Updating the firmware on your T1000-E is crucial for new features and bug fixes. Meshtastic uses the littlefs library to store configuration, logs, and other data in the internal flash. Updating the firmware does not erase this additional data, which can cause issues if the format or location of data changes between releases. Therefore, it is recommended to perform a factory reset before updating the firmware.
To enter DFU (Device Firmware Update) mode for flashing firmware:

1. Connect the T1000-E to your computer using the 4-pin magnetic charging cable. Ensure the data cable is securely connected, as a loose connection can affect the flashing process.
2. Press and hold the button on the device.
3. While holding the button, connect the charging cable magnetically twice in quick succession (interval between presses should be around 500ms).
4. Release the button. The LED will stay on continuously, indicating that the device is in DFU mode. Your computer should display a USB drive named "T1000-E", allowing you to copy the firmware onto it.

After the firmware transfer is complete, the device will automatically restart and boot with the new firmware.

4.3 Resetting the Device

If you need to reset your T1000-E, you can use the charging cable:

1. Press and hold the button on the device.

2. While holding the button, connect the magnetic charging cable once.
3. Release the button. The previously flashing LED will turn off. Wait for the buzzer to sound, and the LED will light up briefly. This indicates that the device has restarted successfully and will then enter charging mode.

5. Troubleshooting

5.1 Bluetooth Connection Issues After Firmware Update

If you find that the Bluetooth connection is not working after a firmware update, follow these steps:

1. Go to the Bluetooth list in your phone's settings.
2. Remove (forget) the corresponding Bluetooth name for your T1000-E.
3. Return to the Meshtastic app and attempt to reconnect. You may need to re-pair the device.

5.2 General Connectivity and Range

The T1000-E is designed for long-range, low-power communication. Factors affecting range include line-of-sight, obstacles, and environmental interference. For optimal performance, consider placement in areas with clear line-of-sight to other Meshtastic nodes.

5.3 Battery Life

The T1000-E offers solid battery life due to its nRF52840 chipset. To conserve power when not actively using the device, it is recommended to power it off. Simply press and hold the button for about 5 seconds until the buzzer plays a descending melody, indicating the device has been turned off.

6. Product Specifications

6.1 Technical Details

Feature	Detail
Brand	seeed studio
Model	T1000-E
Connectivity Technology	Bluetooth, RF
Supported Application	Meshtastic
Material	Plastic
Item Weight	2.08 ounces
Package Dimensions	3.5 x 2.28 x 0.94 inches
Manufacturer	seeed studio

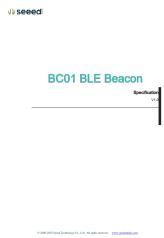
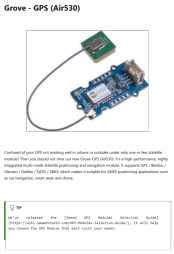
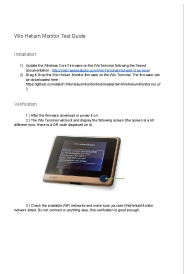
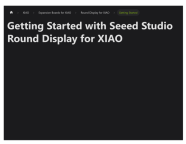
Country of Origin	China
Date First Available	September 29, 2024

Physical dimensions of the T1000-E, highlighting its credit card size and slim profile.

7. Warranty and Support

The SenseCAP Card Tracker T1000-E is manufactured by seeed studio. For specific warranty information, technical support, or further inquiries, please refer to the official seeed studio website or contact their customer service directly. Keep your purchase receipt for warranty claims.

Related Documents - T1000-E

	[BC01 BLE Beacon Specification and Deployment Guide] This document provides detailed specifications, features, and deployment guidelines for the Seeed Studio BC01 BLE Beacon, including installation instructions for magnet adsorption and adhesive mounting, along with FCC certification information.
	[SenseCAP Indicator User Manual - Seeed Studio] Comprehensive user manual for the Seeed Studio SenseCAP Indicator, an open-source IoT development platform featuring a 4-inch touch screen, ESP32 and RP2040 MCUs, and Wi-Fi/BLE/LoRa connectivity. Includes setup, features, specifications, and development tutorials.
	[SenseCAP Indicator User Manual - Seeed Studio] Comprehensive user manual for the Seeed Studio SenseCAP Indicator, a 4-inch touch screen IoT development platform powered by ESP32-S3 and RP2040, featuring Wi-Fi, BLE, LoRa, and air quality monitoring capabilities.
	[Grove - GPS (Air530) Module: High-Performance GNSS Positioning] Explore the Seeed Studio Grove - GPS (Air530) module, a highly integrated GNSS receiver supporting GPS, Beidou, Glonass, and more. Ideal for car navigation, smart wearables, and drone applications. Includes setup guides for Arduino and Raspberry Pi.
	[Wio Helium Monitor Test Guide - Seeed Studio] A guide for installing and verifying the Wio Helium Monitor by Seeed Studio, covering firmware updates and network setup.
	[Getting Started with Seeed Studio Round Display for XIAO] A comprehensive guide to setting up and using the Seeed Studio Round Display for XIAO, covering hardware preparation, software installation, and basic usage for this 1.28-inch touch screen expansion board.