LILYGO RM-T-BeamSUPREME

LILYGO T-BeamSUPREME ESP32-S3 UBLOX M10S GPS LoRa Development Board User Manual

Model: RM-T-BeamSUPREME

1. INTRODUCTION

The LILYGO T-BeamSUPREME is a versatile development board designed for long-range communication and GPS tracking. It integrates an ESP32-S3FN8 dual-core LX7 microprocessor, a LoRa SX1262 module for 915MHz communication, and a UBLOX M10S GPS module for precise positioning. The board also features a 1.3-inch SH1106 OLED display for information output. This manual provides essential instructions for setting up, operating, and maintaining your LILYGO T-BeamSUPREME development board.
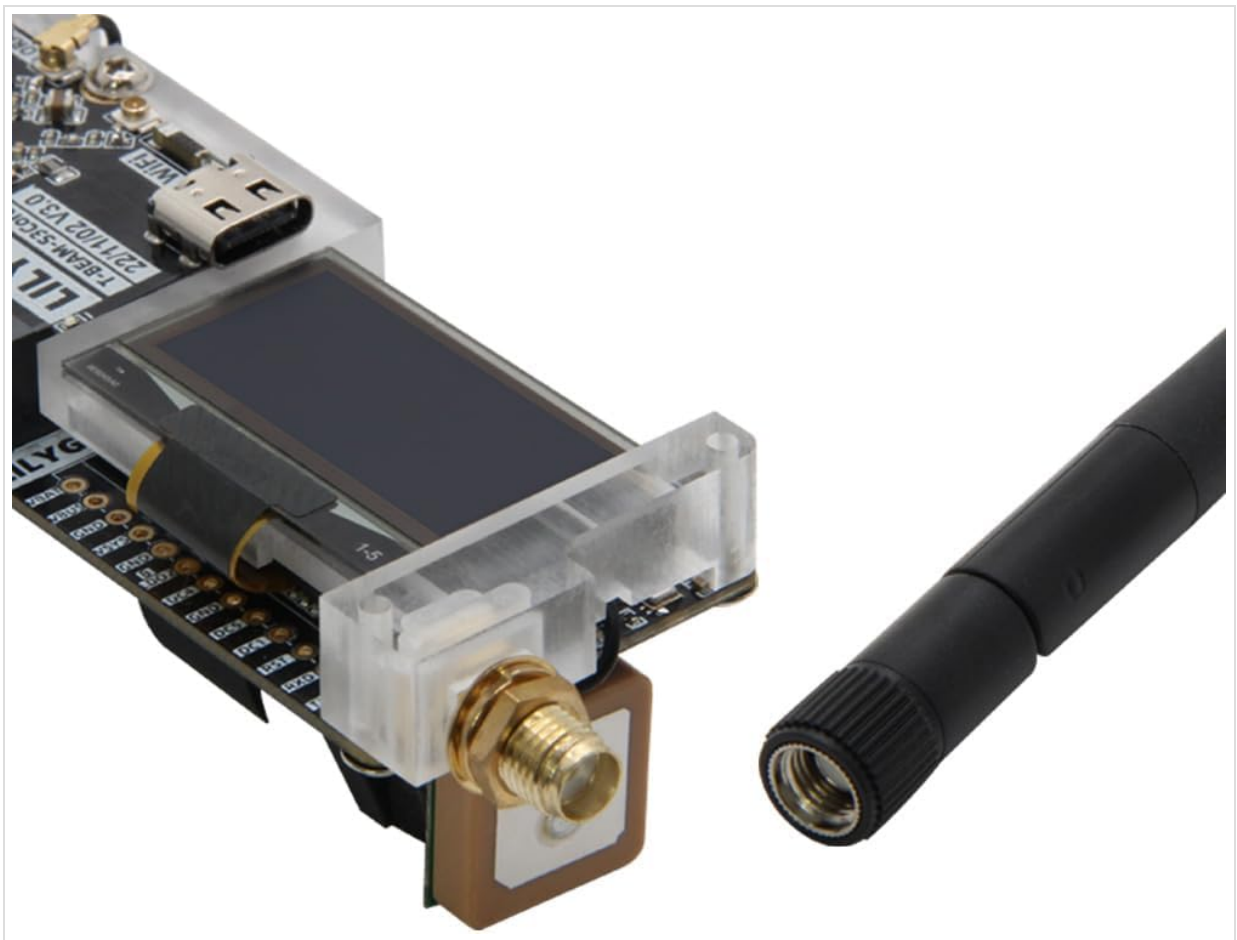
Key Features:

- **MCU:** ESP32-S3FN8 Dual-core LX7 microprocessor
- **LoRa Module:** SX1262 (915MHz)
- **GPS Module:** UBLOX M10S
- **Display:** 1.3-inch SH1106 OLED
- Pre-burning LILYGO factory firmware

2. SETUP

Before using your LILYGO T-BeamSUPREME, ensure all necessary components are properly connected and the firmware is loaded.

2.1 Physical Assembly

Carefully connect the antenna to the LoRa module's SMA connector. Ensure a secure connection to optimize signal transmission and reception.

Figure 1: Close-up view of the LILYGO T-BeamSUPREME showing the antenna connection point. Ensure the antenna is securely fastened to the SMA connector.

2.2 Firmware Installation

The LILYGO T-BeamSUPREME comes with LILYGO factory firmware pre-burned. If you need to update or change the firmware, follow the instructions provided by LILYGO or the Meshtastic project.
For detailed instructions on flashing Meshtastic firmware, refer to the official Meshtastic documentation or the following video:

Video 1: How to Install Meshtastic to LILYGO T-Echo. This video demonstrates the firmware installation process, which is similar for the T-BeamSUPREME.

2.3 Case Assembly (Optional)

If you are using a protective case, follow the manufacturer's instructions for assembly. Ensure all components fit correctly and connections are not strained.

Video 2: N30 Protective Case for ESP32 LoRa V3 Board Antenna Battery. This video shows the assembly of a protective case, which can provide guidance for similar cases for the T-BeamSUPREME.

3. OPERATING INSTRUCTIONS

The LILYGO T-BeamSUPREME is designed for various applications, including mesh networking and GPS tracking. This section covers basic operation.

3.1 Powering On/Off

Connect a compatible battery or USB-C power source to the board. The OLED display should light up, indicating the device is powered on. To power off, disconnect the power source.

3.2 Meshtastic Application Usage

For mesh communication, install the Meshtastic application on your smartphone (Android/iOS). Connect your T-

BeamSUPREME via Bluetooth to the app to send/receive messages, view device status, and manage channels.

Video 3: How to Install Meshtastic to LILYGO T-Echo. This video also demonstrates basic Meshtastic app usage for sending messages and viewing devices, applicable to the T-BeamSUPREME.

3.3 GPS Functionality

The integrated UBLOX M10S GPS module provides location data. This data can be viewed on the OLED display or through the Meshtastic app, depending on the firmware configuration.

4. MAINTENANCE

To ensure the longevity and optimal performance of your LILYGO T-BeamSUPREME, follow these maintenance guidelines:

- Keep the device dry and away from moisture.
- Avoid exposing the device to extreme temperatures.
- Handle the board with care to prevent physical damage.
- Regularly check for firmware updates to benefit from new features and bug fixes.

5. TROUBLESHOOTING

If you encounter issues with your LILYGO T-BeamSUPREME, consider the following troubleshooting steps:

- **Device not powering on:** Check battery connection and charge level. Ensure the USB-C cable is functional if powering via USB.
- **No LoRa communication:** Verify antenna connection. Ensure both devices are on the same frequency band and have compatible firmware.
- **GPS not acquiring signal:** Ensure the device has a clear view of the sky. Allow sufficient time for initial satellite acquisition.
- **Bluetooth connectivity issues:** Restart both the T-BeamSUPREME and your smartphone. Ensure the Meshtastic app has necessary permissions.
- **Firmware issues:** Re-flash the firmware following the official instructions.

6. SPECIFICATIONS

Detailed technical specifications for the LILYGO T-BeamSUPREME (RM-T-BeamSUPREME):

Feature	Detail
Brand	LILYGO
Series	T-BeamSUPREME
Item Model Number	RM-T-BeamSUPREME
MCU	ESP32-S3FN8 Dual-core LX7 microprocessor
LoRa Module	SX1262 (915MHz)
GPS Module	UBLOX M10S
Display	1.3-inch SH1106 OLED
RAM	LPDDR4
Wireless Type	Radio Frequency (LoRa), Wi-Fi
Operating System	Linux (compatible)

Processor Brand	Espressif
Number of Processors	2

7. WARRANTY AND SUPPORT

For any questions, suggestions, or technical support regarding your LILYGO T-BeamSUPREME, please feel free to contact LILYGO directly. You can also visit the official LILYGO Store on Amazon for more information and products.

LILYGO Store: Visit the LILYGO Store

GitHub Repository: For source code and further development information, visit github.com/Xinyuan-LilyGO/LilyGo-LoRa-Series.