LIWMKIENTENG E22-900T30D

LIWMKIENTENG E22-900T30D LoRa Module User Manual

Model: E22-900T30D | Brand: LIWMKIENTENG

1. Introduction

This manual provides detailed instructions for the proper installation, operation, and maintenance of the LIWMKIENTENG E22-900T30D LoRa Module. This module is a high-performance, long-range wireless data transmission device operating at 868.125MHz, designed for reliable and low-power communication in various applications. Please read this manual thoroughly before using the product to ensure optimal performance and safety.

2. Product Overview

The E22-900T30D is a LoRa wireless module featuring a UART interface, 30dBm transmit power, and a communication range of up to 10km. It is designed for applications requiring robust, long-distance, and low-power data links. The module comes in a DIP package for easy integration into existing circuit boards.

Figure 2.1: The E22-900T30D LoRa Module. This image displays the compact design of the module, highlighting its E22-900T30D model designation, EBYTE manufacturer label, QR code, and antenna connector.

Key features include:

- **Frequency:** 868.125MHz
- **Transmit Power:** 30dBm
- **Interface:** UART (Universal Asynchronous Receiver-Transmitter)
- **Range:** Up to 10km (line-of-sight)
- **Package:** DIP (Dual In-line Package)
- **Low Power Consumption:** Optimized for battery-powered applications.

Figure 2.2: An assortment of electronic components. This image illustrates various types of electronic parts, including integrated circuits, resistors, capacitors, and LEDs, representing the broader context of electronic design and assembly.

3. Setup

Proper setup is crucial for the reliable operation of your E22-900T30D LoRa module. Follow these steps carefully:

1. **Power Supply Connection:** Connect the module to a stable DC power supply within the specified voltage range (refer to specifications section). Ensure correct polarity to prevent damage.
2. **UART Interface Connection:** Connect the module's UART pins (TXD, RXD, GND) to your host microcontroller or development board. Ensure the baud rate and other UART parameters are correctly configured on both ends.
3. **Antenna Connection:** Attach a suitable 868MHz antenna to the module's antenna connector. Ensure the connection is secure. Using an improper antenna or operating without an antenna can damage the module.
4. **Grounding:** Ensure proper grounding of the module and your host system to minimize noise and ensure stable communication.

Note: Detailed pinout diagrams and recommended circuit designs may be available from the manufacturer's official website. Refer to www.cdebyte.com for additional technical resources.

4. Operating Instructions

Once the module is correctly set up, you can begin transmitting and receiving data. The E22-900T30D communicates via a standard UART interface, allowing easy integration with microcontrollers.

4.1. Configuration Mode

Before operation, the module may need to be configured for specific parameters such as operating frequency, spreading factor, bandwidth, and address. This is typically done by sending specific commands via the UART interface while the module is in a designated configuration mode (often activated by a specific pin state or command sequence).

4.2. Data Transmission

To transmit data:

1. Ensure the module is in data transmission mode.
2. Send the data bytes to be transmitted to the module's RXD pin via your host microcontroller's TXD pin.
3. The module will automatically handle the LoRa modulation and transmission over the air.

4.3. Data Reception

To receive data:

1. Ensure the module is in data reception mode.
2. The module will listen for incoming LoRa packets on the configured frequency.
3. Upon receiving a valid packet, the data will be outputted from the module's TXD pin to your host microcontroller's RXD pin.

Consult the module's specific datasheet for detailed command sets and communication protocols.

5. Maintenance

The E22-900T30D LoRa module is designed for long-term reliability with minimal maintenance. However, following these guidelines can help ensure its longevity:

- **Environmental Conditions:** Operate and store the module within the specified temperature and humidity ranges. Avoid extreme temperatures, direct sunlight, and high moisture environments.
- **Cleaning:** If necessary, gently clean the module with a soft, dry, anti-static cloth. Do not use liquid cleaners or solvents.
- **Handling:** Handle the module with care, especially the antenna connector and pins. Avoid static discharge by using appropriate ESD precautions.
- **Firmware Updates:** Periodically check the manufacturer's website for any available firmware updates that may improve performance or add new features.

6. Troubleshooting

If you encounter issues with your E22-900T30D LoRa module, consider the following troubleshooting steps:

- **No Power/Module Not Responding:**
    - Verify the power supply voltage and current are within specifications.
    - Check all power connections for correct polarity and secure contact.
- **Communication Errors (UART):**
    - Ensure the UART baud rate, data bits, parity, and stop bits are identical on both the module and the host

microcontroller.
    - Check TXD/RXD connections for proper wiring (TXD to RXD, RXD to TXD).
    - Verify ground connections.
- **Poor Wireless Range/No Signal:**
    - Ensure the antenna is securely connected and is the correct type for 868MHz.
    - Check for obstructions between transmitting and receiving modules. LoRa performance is best with line-of-sight.
    - Verify both modules are configured to the same frequency, spreading factor, and bandwidth.
    - Check for sources of interference in the operating environment.
- **Module Overheating:**
    - Ensure the module is not operating beyond its specified power limits.
    - Provide adequate ventilation if operating in an enclosed space.

If problems persist, contact customer support for further assistance.

7. Specifications

Parameter	Value
Model	E22-900T30D
Brand	LIWMKIENTENG (Module Manufacturer: EBYTE)
Frequency Range	868.125MHz
Transmit Power	30dBm (1W)
Communication Interface	UART
Communication Distance	Up to 10km (line-of-sight)
Package Type	DIP
ASIN	B0F4XY6MSM
Date First Available	April 15, 2025

8. Warranty and Support

LIWMKIENTENG is committed to providing high-quality electronic components and excellent customer service.

- **Money-Back Guarantee:** We offer a money-back guarantee, reflecting our confidence in the quality and performance of our products.
- **Exceptional Customer Support:** Our knowledgeable team is available to answer any questions or concerns you may have regarding the E22-900T30D LoRa Module.
- **Manufacturer Support:** For detailed technical specifications, datasheets, and advanced support related to the EBYTE E22 series, please visit the manufacturer's website: www.cdebyte.com.

For warranty claims or technical assistance, please refer to your purchase documentation or contact LIWMKIENTENG customer service directly.