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MAXON TD-2400MD

MAXON TD-2400MD 2.4 GHz Radio Modem User Manual

1. Product Overview

The MAXON TD-2400MD is a 2.4 GHz data modem designed for reliable and efficient wireless data communication. It offers a low-power, cost-effective solution that adheres to industry standards such as IEEE802.15.4 and ZigBee protocols. This modem supports both RS-232C and TTL serial communication, making it versatile for various applications. Its compact design and robust features ensure stable performance for data transmission.



Figure 1.1: The MAXON TD-2400MD 2.4 GHz Radio Modem with its attached antenna, showcasing its compact form factor and connectivity options.

2. Package Contents

Verify that all items are present in the package:

- TD-2400MD 2.4 GHz Radio Modem
- Antenna

3. Key Features

The TD-2400MD modem incorporates several features designed for reliable and secure data communication:

- **License-Free ISM Band:** Operates in the 2.4 GHz Industrial, Scientific, and Medical (ISM) band, requiring no operating license.
- **500 mW Power Output:** Provides sufficient power for extended range and robust signal transmission.
- **DE-9 Pin Male Connector:** Standard connector for serial data interface.
- **Hardwired AES-128 Encryption Engine:** Ensures secure data transmission with built-in hardware encryption.
- **RF Data Speed 250 Kbps:** Supports a data rate of 250 kilobits per second over the radio frequency link.
- **Serial Data Interface 115.2 Kbps:** Allows for high-speed serial communication with connected devices.
- **Low Power Operation:** Designed for efficiency, based on 5V operation.
- **Industry Standard 8051 8-Bit MCU:** Utilizes a widely adopted microcontroller for reliable performance.
- **LED Status Indicator Lights:** Provides visual feedback on power, carrier detect (CD), transmit (TX), and receive (RX status).
- **Key Scanning for Multi-Key Remote Controller:** Supports integration with multi-key remote control systems.

4. Setup Guide

Follow these steps to set up your TD-2400MD radio modem:

1. **Attach the Antenna:** Carefully screw the provided antenna onto the antenna connector located on the modem. Ensure it is finger-tight to establish a secure connection.
2. **Connect Data Cable:** Connect your device (e.g., computer, microcontroller) to the modem's DE-9 pin male connector using an appropriate serial cable. The modem supports both RS-232C and TTL serial communication. Ensure the correct cable type and pinout are used for your application.
3. **Apply Power:** Connect a 5V DC power supply to the modem. The modem is designed for low-power operation. Once power is applied, the 'POWER' LED indicator should illuminate.



Figure 4.1: Front view of the TD-2400MD modem, highlighting the DE-9 pin male connector for data interface and the LED status indicators.



Figure 4.2: Rear view of the TD-2400MD modem, showing the antenna connector where the external antenna is attached.

5. Operating Instructions

Once the modem is set up, you can begin data communication. The LED indicators provide real-time status information:

- **POWER LED:** Illuminates when the modem receives power.
- **CD (Carrier Detect) LED:** Illuminates when the modem detects a valid radio signal from another compatible device.
- **TX (Transmit) LED:** Flashes when the modem is actively transmitting data over the radio link.
- **RX (Receive) LED:** Flashes when the modem is actively receiving data over the radio link.

The TD-2400MD operates on the 2.4 GHz ISM band and supports IEEE802.15.4 and ZigBee protocols for wireless data exchange. Data transmitted over the air is secured using a hardwired AES-128 encryption engine, providing a robust layer of security for your communications.



Figure 5.1: Top view of the TD-2400MD modem, showing the 'TECNET TD-2400MD' label and the four LED status indicators (POWER, CD, TX, RX).

6. Maintenance and Care

To ensure the longevity and optimal performance of your TD-2400MD modem, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the modem. Avoid using harsh chemicals, solvents, or abrasive cleaners.
- **Environmental Conditions:** Operate the modem within its specified temperature and humidity ranges. Avoid exposing it to extreme temperatures, direct sunlight, or high moisture environments.
- **Connections:** Periodically check all cable connections (antenna, data, power) to ensure they are secure and free from damage.
- **Antenna Care:** Handle the antenna carefully. Do not bend or apply excessive force, as this can damage the connector or the antenna itself.

7. Troubleshooting

If you encounter issues with your TD-2400MD modem, refer to the following troubleshooting steps:

- **No Power (POWER LED Off):**
  - Ensure the 5V DC power supply is correctly connected and functioning.

- Check the power outlet or source.

- **No Carrier Detect (CD LED Off when expected):**
  - Verify that the antenna is securely attached.
  - Ensure the remote modem is powered on and within range.
  - Check for obstructions or sources of interference between the modems.
- **No Data Transmission/Reception (TX/RX LEDs not flashing):**
  - Confirm that the data cable is properly connected to both the modem and your device.
  - Verify the serial communication settings (baud rate, parity, data bits, stop bits) on your connected device match the modem's configuration.
  - Ensure the remote modem is also transmitting/receiving data.
  - Check for any software or driver issues on the connected device.
- **Poor Signal Quality:**
  - Relocate the modem to a position with better line-of-sight to the remote unit.
  - Ensure the antenna is oriented correctly for optimal signal reception.
  - Minimize interference from other 2.4 GHz devices (e.g., Wi-Fi routers, Bluetooth devices).

If these steps do not resolve the issue, please contact MAXON customer support for further assistance.

8. Technical Specifications

Feature	Specification
Model Number	TD-2400MD
Frequency Band	2.4 GHz ISM Band
Power Output	500 mW
RF Data Speed	250 Kbps
Serial Data Interface	115.2 Kbps (RS-232C and TTL selectable)
Encryption	Hardwired AES-128 Engine
Protocols Supported	IEEE802.15.4, ZigBee
Connector Type	DE-9 Pin Male (Serial)
Power Requirement	5V DC
Item Weight	2.5 ounces
UPC	198715332858
Manufacturer	Maxon America

9. Warranty and Support

For information regarding the product warranty, please refer to the documentation provided at the time of purchase

or visit the official MAXON America website. For technical support, troubleshooting beyond the scope of this manual, or service inquiries, please contact MAXON America customer support directly.

You can find more information and contact details by visiting theMAXON Store on Amazon.

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