

RadioMaster 2311-RM-RP4TD

RadioMaster RP4TD ELRS Diversity FPV Receiver User Manual

Model: 2311-RM-RP4TD | Brand: RadioMaster

INTRODUCTION

The RadioMaster RP4TD ELRS Diversity FPV Receiver is a high-performance 2.4GHz ExpressLRS Nano receiver designed for FPV drones, tiny whoops, and fixed-wing RC planes. Featuring true diversity with dual antennas and dual SX1281 RF chips, it offers enhanced signal stability and range. This manual provides essential information for the proper setup, operation, and maintenance of your RP4TD receiver.

PRODUCT SPECIFICATIONS

Specification	Detail
Item	RP4TD ExpressLRS 2.4GHz Diversity Receiver
Type	ISM
MCU	ESP32
RF Chip	SX1281 x 2
Antenna	65mm 2.4GHz T Antenna x 2
Frequency Range	2.4GHz
Maximum Refresh Rate	500Hz / F1000Hz
Telemetry RF Power	Max 2x 100mW
Working Voltage	DC 4.5-12.0V
Weight	1.4g (without antenna)
Dimension	23.7*16.3*4.0mm
Firmware Version	ExpressLRS V3.3.0 pre-installed

Specification	Detail
FW Target	RadioMaster RP4TD 2400 RX
Bus Interface	CRSF
Extend Interface	UART

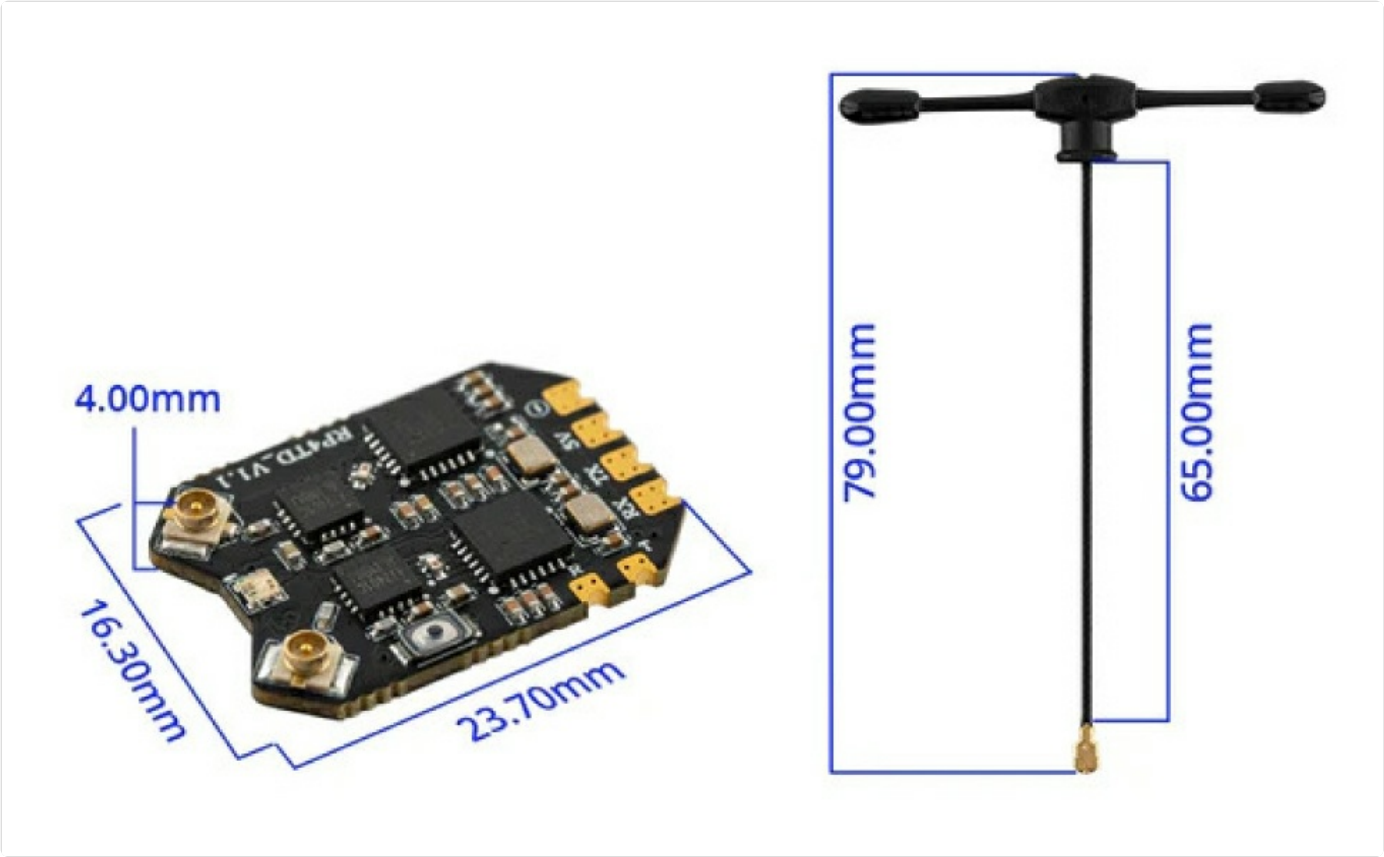


Image: Detailed dimensions of the RP4TD receiver board (23.7mm x 16.3mm x 4.0mm) and the 65mm UFL T antenna (79.00mm total length, 65.00mm cable length).



Image: The RP4TD receiver board placed on a digital scale, indicating a weight of 1.37 grams, highlighting its lightweight design.

PACKAGE CONTENTS

Verify that all items are present in the package:

- 1 x RP4TD ExpressLRS 2.4GHz Diversity Receiver
- 1 x CRSF wire
- 3 x Heat-Shrinkable Tube
- 2 x 65mm 2.4GHz T Antenna (Pre-installed on receiver)

- 1 x User Manual (this document)



Image: The complete package contents, showing the RP4TD receiver with its dual T antennas, the included CRSF wire, and three pieces of heat-shrinkable tubing.

SETUP

1. Wiring and Connection

The RP4TD receiver uses the CRSF protocol for communication. Connect the receiver to your flight controller using the provided CRSF wire according to the pinout diagram below. Ensure correct polarity for power connections (5V and GND).

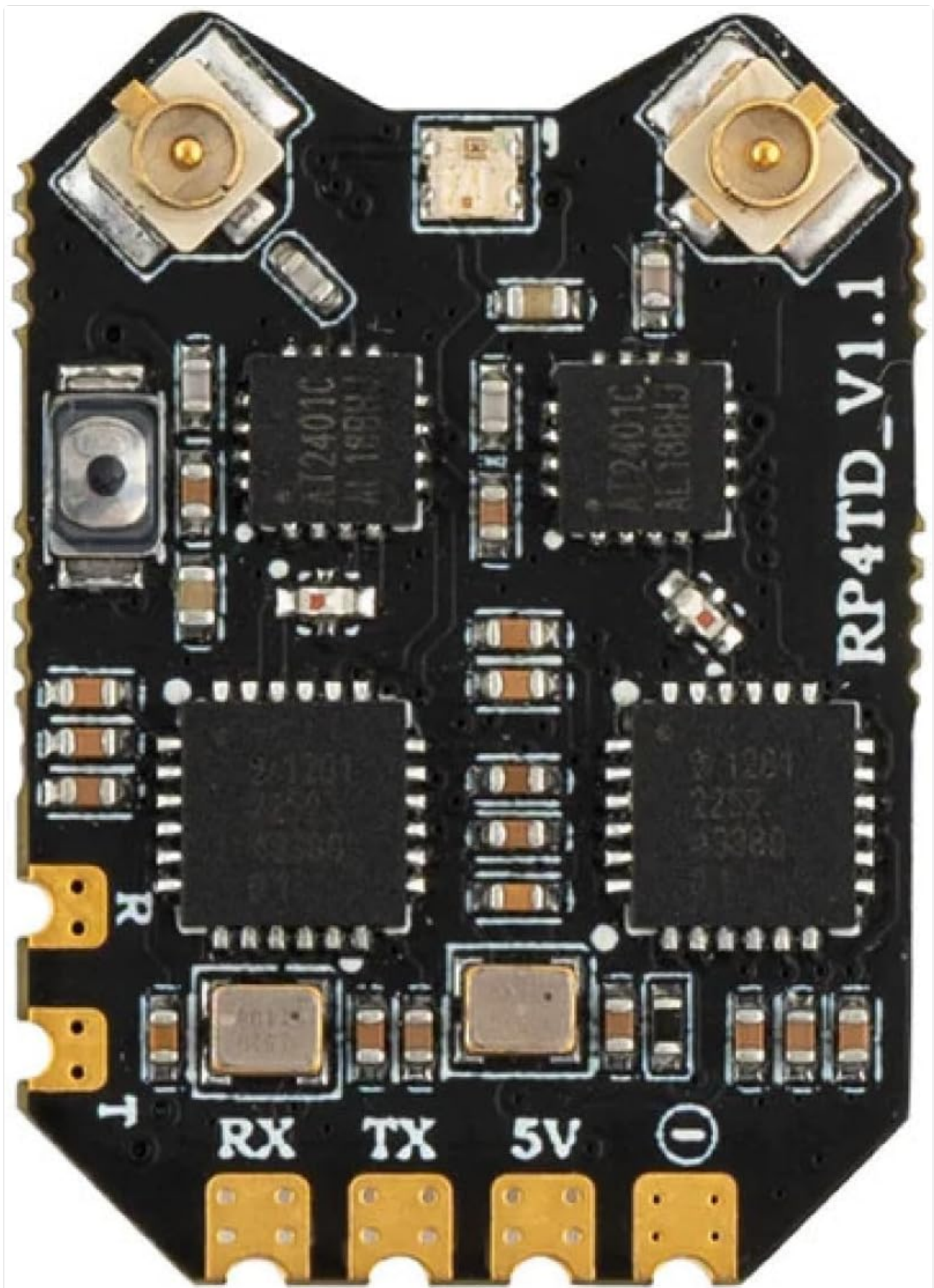


Image: Close-up top view of the RP4TD receiver board, clearly showing the solder pads labeled RX, TX, 5V, and GND for connection to a flight controller. The board also features two UFL connectors for the antennas and a bind button.

- **5V:** Connect to a 5V power source on your flight controller.
- **GND:** Connect to a ground pad on your flight controller.
- **TX (Receiver):** Connect to an RX pad (UART input) on your flight controller.
- **RX (Receiver):** Connect to a TX pad (UART output) on your flight controller.

For optimal performance, ensure the antennas are mounted away from carbon fiber frames and other conductive materials. The 65mm T antennas should be positioned to provide the best possible signal reception in all orientations of your aircraft.

2. Firmware and Binding

The RP4TD receiver comes pre-installed with ExpressLRS V3.3.0 firmware. To bind the receiver to your ExpressLRS transmitter module or built-in ELRS transmitter, follow these steps:

1. Power on your flight controller with the RP4TD receiver connected. The LED on the receiver will flash slowly.
2. Rapidly power cycle the receiver three times. This means turning the power on and off quickly three times. After the third power cycle, the LED should begin to flash rapidly, indicating it is in binding mode.
3. On your ExpressLRS transmitter, initiate the binding process. Refer to your transmitter's manual for specific instructions on how to enter binding mode.
4. Once the receiver successfully binds, the LED on the RP4TD will turn solid, indicating a successful connection.

Alternatively, the RP4TD features a bind button. To use the bind button:

1. Power on the receiver.
2. Press and hold the bind button on the receiver for approximately 3 seconds until the LED starts flashing rapidly.
3. Release the button and proceed to initiate binding on your ExpressLRS transmitter.

For firmware updates or custom builds, the FW Target for this receiver is "RadioMaster RP4TD 2400 RX". You can use the ExpressLRS Configurator for flashing new firmware.

OPERATING THE RECEIVER

Once bound, the RP4TD receiver will automatically connect to your transmitter upon power-up. The solid LED on the receiver indicates a stable connection. The dual SX1281 RF chips and dual antennas provide true diversity, constantly selecting the best signal path for reliable communication.

- **Signal Quality:** The receiver provides telemetry data including Link Quality (LQ) and Received Signal Strength Indicator (RSSI) back to your transmitter. Monitor these values to ensure optimal signal health during flight.
- **Telemetry Power:** With a maximum telemetry RF power of 2x 100mW, the RP4TD offers robust telemetry range, allowing you to receive critical flight data from your aircraft.
- **Gemini Mode:** The receiver is compatible with Gemini mode, offering advanced redundancy and signal robustness when paired with compatible ExpressLRS transmitters.



Image: The RadioMaster RP4TD receiver fully assembled with its two 65mm UFL T antennas, showcasing its compact design and dual antenna setup for diversity reception.

MAINTENANCE

The RP4TD receiver is designed for durability, but proper care ensures longevity:

- **Physical Protection:** Use the provided heat-shrinkable tubing to protect the receiver board from dust, moisture, and short circuits, especially in harsh environments.
- **Antenna Care:** While the antennas are upgraded for durability, avoid sharp bends or excessive force that could damage the UFL connectors or antenna elements.
- **Cleaning:** If necessary, gently clean the board with isopropyl alcohol and a soft brush. Ensure the receiver is powered off and completely dry before re-applying power.
- **Heat Dissipation:** The optimized PCB design aids in heat dissipation. Ensure adequate airflow around the receiver, especially when enclosed, to prevent overheating.

Receiver Not Binding

- **Power Cycle Count:** Ensure you are performing exactly three rapid power cycles to enter binding mode. The LED should flash rapidly after the third cycle.
- **Bind Button:** If power cycling is difficult, use the bind button method as described in the Setup section.
- **Firmware Mismatch:** Verify that your transmitter module and receiver are running compatible ExpressLRS firmware versions. It is recommended to use the same major and minor version (e.g., ELRS V3.x.x).
- **Binding Phrase:** Ensure your transmitter and receiver share the same binding phrase if one is configured.
- **Proximity:** Keep the receiver and transmitter close during the binding process (within 1 meter).

No Signal / Intermittent Connection

- **Antenna Connection:** Check that both UFL antennas are securely connected to the receiver. A loose connection can severely degrade performance.
- **Antenna Placement:** Ensure antennas are not obstructed by carbon fiber, batteries, or other electronics. Optimal placement is crucial for diversity performance.
- **Power Supply:** Verify that the receiver is receiving stable power within its operating voltage range (DC 4.5-12.0V).
- **Interference:** Keep the receiver away from noisy components like ESCs, motors, and VTXs.
- **Range Test:** Perform a range test in a safe environment to confirm proper operation before flying.

Telemetry Issues

- **UART Configuration:** Ensure the UART on your flight controller is correctly configured for CRSF protocol and telemetry passthrough.
- **Wiring:** Double-check the TX/RX wiring between the receiver and flight controller.
- **Transmitter Settings:** Confirm that telemetry is enabled and configured correctly on your ExpressLRS transmitter.

WARRANTY AND SUPPORT

For warranty claims or technical support, please contact your original point of purchase or visit the official RadioMaster website for the latest support resources and contact information. Keep your proof of purchase for warranty validation.

Online Resources:

- [RadioMaster Official Website](#)
- [ExpressLRS Project Website](#) (for firmware and community support)

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

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Email

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

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