RADIOMASTER Ranger Micro

RadioMaster Ranger Micro 2.4GHz ELRS Module User Manual

Model: Ranger Micro

1. Introduction

The RadioMaster Ranger Micro 2.4GHz ELRS Module is an advanced external module designed to enhance compatible radio transmitters with ExpressLRS (ELRS) technology. This module provides a robust and high-performance radio link for remote control applications, offering features such as high efficiency cooling, adjustable power output, and fast packet rates. It is compatible with radio transmitters featuring a JR style micro module bay, including models like the RadioMaster TX16S, TX16S MkII, TX12, and TX12 MkII.
This manual provides essential information for the proper installation, operation, and maintenance of your Ranger Micro ELRS Module.

Figure 1: Front view of the RadioMaster Ranger Micro ELRS Module with its T-antenna attached.

2. Safety Information

Please refer to this instruction manual before using the RadioMaster Ranger Micro ELRS Module. Failure to follow safety guidelines may result in damage to the product or personal injury.

- Always ensure the module is correctly installed and secured in the radio transmitter's module bay.
- Connect the antenna securely before powering on the module. Operating without an antenna can damage the module.
- Do not expose the module to moisture, extreme temperatures, or direct sunlight for extended periods.
- Use only approved power sources and cables.
- Keep the module away from children.
- If the module exhibits unusual behavior, discontinue use immediately and consult the troubleshooting section or contact support.

3. What's in the Box

Upon opening the package, verify that all components are present and in good condition:

- 1 x RadioMaster Ranger Micro ELRS Module

- 1 x T-shape Antenna

Figure 2: The Ranger Micro module and its T-antenna, shown with individual dimensions.

4. Setup Guide

4.1 Physical Installation

1. Ensure your radio transmitter is powered off.
2. Locate the JR style micro module bay on the back of your compatible radio (e.g., TX16S, TX12 MKII).
3. Carefully slide the Ranger Micro ELRS Module into the module bay until it clicks securely into place. The module is designed to fit snugly.
4. Screw the provided T-shape antenna onto the antenna connector on the top of the Ranger Micro module. Ensure it is finger-tight.

Figure 3: Side view of the Ranger Micro module, illustrating the JR style micro module bay clips for secure attachment.

4.2 Initial Power-Up and Binding

1. Power on your radio transmitter.
2. Navigate to the external module settings in your radio's firmware (e.g., EdgeTX, OpenTX).
3. Select 'External RF' and choose 'CRSF' as the protocol.
4. Access the ELRS LUA script (usually found under 'Tools' or 'System' menu) to configure the module.
5. To bind the module with an ELRS receiver, select the 'Bind' option within the ELRS LUA script. Ensure your receiver is also in binding mode.
6. Confirm successful binding through the receiver's LED indicator or the LUA script's status display.

The Ranger Micro module also features a USB-C port for firmware updates and an XT30 port for external power if required by specific setups or higher power outputs.

Figure 4: Close-up view of the USB-C port and XT30 power input located on the bottom of the Ranger Micro module.

5. Operating the Ranger Micro ELRS Module

The Ranger Micro ELRS Module offers advanced features for reliable and high-performance control.

5.1 Key Features

- **High Efficiency Cooling System:** The module is equipped with an active cooling system to maintain optimal operating temperatures, especially during high power output.
- **Adjustable Power Output:** Supports up to 1W (1000mW) power output, configurable via the ELRS LUA script on your radio. Adjust power according to your range requirements and local regulations.
- **Maximum F-1000Hz Packet Rate:** Provides extremely low latency communication for precise control.
- **WiFi and Bluetooth Support:** Enables convenient wireless firmware updates and configuration via WiFi, and potential future connectivity options via Bluetooth.

Figure 5: The Ranger Micro ELRS Module with visual indicators for its high efficiency cooling system, 1000Hz packet rate, 1W power output, and WiFi & Bluetooth support.

5.2 Cooling System

The integrated high-efficiency cooling system ensures stable performance even when operating at higher power levels. Ensure the vents on the module are not obstructed to allow for proper airflow.

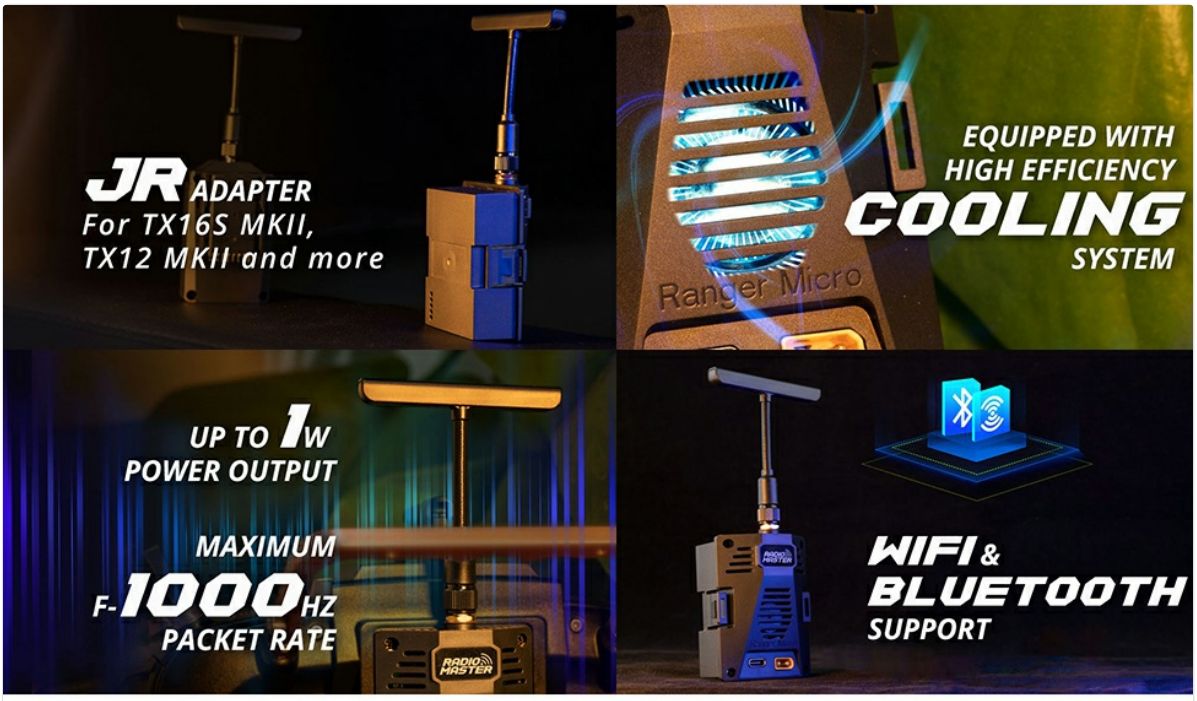


Figure 6: A close-up view of the internal cooling fan, part of the module's high-efficiency cooling system.

6. Maintenance

To ensure the longevity and optimal performance of your Ranger Micro ELRS Module, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the module. Avoid using liquid cleaners or solvents. Ensure

no dust or debris accumulates in the cooling vents.

- **Antenna Care:** Always handle the antenna carefully. Avoid bending or stressing the antenna connector. When not in use, consider removing the antenna or storing the radio in a protective case.
- **Storage:** Store the module in a cool, dry place away from direct sunlight and extreme temperatures.
- **Firmware Updates:** Regularly check for firmware updates for both the ELRS module and your radio transmitter. Updates often include performance improvements and bug fixes. Use the WiFi functionality for convenient updates.

7. Troubleshooting

If you encounter issues with your Ranger Micro ELRS Module, refer to the following common problems and solutions:

- **Module Not Powering On:**
  - Ensure the module is fully seated in the JR module bay.
  - Verify your radio transmitter is powered on and its internal module is disabled (if applicable).
  - Check the radio's external module settings to ensure it's configured for CRSF protocol.
- **Binding Failure:**
  - Confirm both the module and receiver are running compatible ELRS firmware versions.
  - Ensure the receiver is in binding mode.
  - Try moving the receiver closer to the transmitter during the binding process.
  - Verify the binding phrase (if used) matches between the module and receiver.
- **Poor Range or Signal Loss:**
  - Check that the T-shape antenna is securely attached to the module.
  - Ensure the antenna is oriented correctly for optimal signal propagation.
  - Increase the power output setting of the ELRS module via the LUA script.
  - Inspect the antenna for any damage.
  - Ensure there are no major obstructions between the transmitter and receiver.
- **Module Overheating:**
  - Ensure the cooling vents on the module are clear and not obstructed.
  - Reduce the power output setting if operating in a confined space or high ambient temperatures.

For further assistance, consult the official ExpressLRS documentation or contact RadioMaster customer support.

8. Specifications

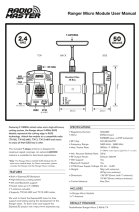
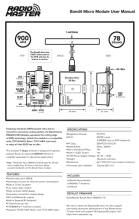
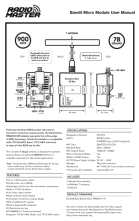
Feature	Detail
Product Dimensions	3 x 2 x 1 inches (approx. 76 x 51 x 25 mm)
Item Weight	0.64 ounces (approx. 18 grams)
Brand	RADIOMASTER
Color	Black
Number of Channels	11
UPC	749614673803
Compatibility	JR style micro module bays (e.g., TX16S, TX12 MKII)
RF Protocol	ExpressLRS (ELRS) 2.4GHz
Max Power Output	1W (1000mW)
Max Packet Rate	F-1000Hz
Connectivity	WiFi, Bluetooth, USB-C, XT30
Cooling System	High Efficiency Active Cooling

Figure 7: Side view of the Ranger Micro module, illustrating its overall dimensions including the T-antenna.

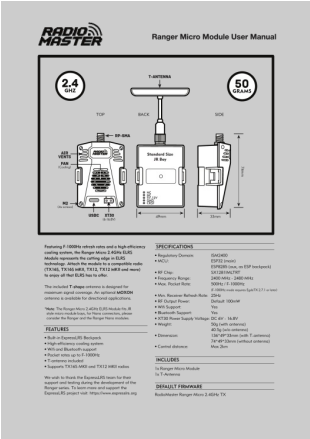
9. Warranty and Support

RadioMaster products are manufactured to high quality standards. For warranty information, please refer to the documentation included with your purchase or visit the official RadioMaster website. If you require technical support or have questions regarding your Ranger Micro ELRS Module, please contact RadioMaster customer service through their official channels.
Please retain your proof of purchase for warranty claims.

Related Documents - Ranger Micro

	RadioMaster Ranger Micro 2.4GHz ELRS Module User Manual User manual for the RadioMaster Ranger Micro 2.4GHz ELRS Module, detailing its features, specifications, and compatibility with various radio transmitters for advanced ELRS connectivity.
	RadioMaster Bandit Micro 900MHz ELRS Module User Manual User manual for the RadioMaster Bandit Micro 900MHz ELRS Module, detailing features, specifications, and usage for RC transmitters.
	RadioMaster Bandit Micro 900MHz ELRS Module User Manual User manual for the RadioMaster Bandit Micro 900MHz ELRS Module, detailing its features, specifications, and usage for RC transmitters. It offers high packet rates, low power consumption, and an innovative cooling system, compatible with standard JR style micro module bays.
	RadioMaster TX16S MKII Quick Start Guide Concise guide to setting up and using the RadioMaster TX16S MKII multi-protocol radio system, covering safety, features, specifications, and compliance.
	RadioMaster TX16S MKII Quick Start Guide A quick start guide for the RadioMaster TX16S MKII multi-protocol radio system, covering introduction, safety precautions, firmware downloads, model and protocol selection, specifications, and FCC information.
	RadioMaster TX16S MKII Quick Start Guide A concise guide to the RadioMaster TX16S MKII multi-protocol radio system, covering setup, safety, specifications, and features. Includes information on firmware, battery requirements, and protocol selection.

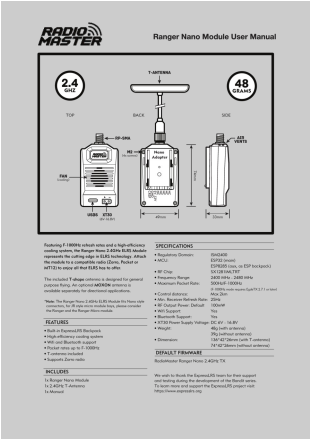
Documents - RADIOMASTER – Ranger Micro


Ranger Micro Module User Manual

[RadioMaster Ranger Micro 2.4GHz ELRS Module User Manual]

User manual for the RadioMaster Ranger Micro 2.4GHz ELRS Module, detailing its features, specifications, and compatibility with various radio transmitters for advanced ELRS connectivity.

lang:en score:41 filesize: 367.37 K page_count: 2 document date: 2025-01-14


Ranger Nano Module User Manual

[RadioMaster Ranger Nano 2.4GHz ELRS Module User Manual]

User manual for the RadioMaster Ranger Nano 2.4GHz ELRS Module, detailing its features, specifications, and usage with compatible radios like Zorro, Pocket, and MT12. Highlights include high-efficiency cooling, F-1000Hz refresh rates, and built-in ExpressLRS.

lang:en score:33 filesize: 353.25 K page_count: 2 document date: 2025-01-14