Opus T8L

RadioMaster T8L ExpressLRS Radio Controller Instruction Manual

Model: T8L | Brand: Opus

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1. Introduction

The RadioMaster T8L ExpressLRS Radio Controller is designed for remote control enthusiasts, offering a compact and powerful solution for controlling various RC models. It features an integrated ExpressLRS 2.4GHz module, high-precision quad-bearing Hall-effect gimbals, and convenient USB-C charging. The controller supports web-based configuration, eliminating the need for a screen on the device itself, and is compatible with simulators for practice.

2. What's in the Box



Figure 1: Package contents of the RadioMaster T8L controller.

- 1x RadioMaster T8L Radio Controller
- 1x USB-C Cable
- 4x Low Tension Gimbal Springs
- 1x User Manual
- **Note: Battery cells are NOT included and must be purchased separately.**

3. Specifications



Figure 2: Detailed specifications of the RadioMaster T8L controller.

Item	T8L Radio Controller
Dimensions	6.5 x 4.7 x 2.8 inches (165 x 120 x 70mm)
Weight	204g (approx. 7.2 ounces)
Frequency	2.400GHz - 2.480GHz
RF Module	2.4GHz ExpressLRS (SX1281)
Transmission Power	Adjustable 10dBm (10mW) - Max 20dBm (100mW)
Battery	3.7V 18650 battery x 2 (Not included)
Charging	Built-in USB-C charging
Firmware	T8L (Special T8L Edition, non-configurable)
Channels	Up to 10 channels (receiver-dependent)
Gimbal	X5 Hall-effect, quad ball-bearing, nano gimbals

4. Setup

4.1 Battery Installation

The T8L requires two 3.7V 18650 battery cells (not included). Carefully open the battery compartment on the back of the controller and insert the batteries, ensuring correct polarity. Close the compartment securely.



Figure 3: Rear view of the T8L controller, highlighting the battery compartment.

4.2 Binding to Receiver

The T8L features a single-button press binding process for any ExpressLRS receiver. Refer to your receiver's manual for specific binding mode instructions. Generally, power on the receiver in binding mode, then press and hold the bind button on the T8L controller until the binding sequence is complete.

4.3 Web-UI Configuration

The T8L utilizes a web-based configuration tool, accessible via a USB-C connection to a computer running Chrome or Edge. This allows for full access to settings without an onboard display. Connect the controller to your computer using the provided USB-C cable and navigate to the ExpressLRS configurator website to customize settings such as channel mapping and power output.

5. Operating Instructions

5.1 Basic Controls

The T8L is equipped with quad-bearing Hall-effect gimbals for precise control. The 5-way trim buttons provide LED and audible feedback for easy adjustments. Familiarize yourself with the stick movements for throttle, yaw, pitch, and roll, as well as the function of the various switches and buttons.



Figure 4: Top view of the T8L controller with controls labeled.

5.2 Flying Your Drone

Ensure your drone is properly armed and ready for flight. Use the gimbals for smooth and controlled movements. The compact and lightweight design of the T8L makes it easy to handle during flight sessions. Always operate your drone in a safe and open environment, away from obstacles and people.

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Video 1: Overview of the RadioMaster T8L ExpressLRS Radio Controller, demonstrating its features and ease of use.

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Video 2: Demonstration of the RadioMaster T8L controlling a Mobula7 Whoop Drone, showcasing its responsiveness and control.

6. Maintenance

6.1 Charging

The T8L features integrated USB-C charging. Connect the controller to a suitable USB power source using the provided USB-C cable. The LED indicators will show the charging status. Ensure the batteries are charged before each flight session for optimal performance.

6.2 Gimbal Calibration

Regular calibration of the gimbals ensures precise control. While the T8L is screenless, calibration can be performed via the web-UI configuration tool. Follow the on-screen prompts in the web interface to calibrate your gimbals. This process typically involves moving the gimbals through their full range of motion.

6.3 Firmware Updates

Firmware updates for the T8L are managed through the USB-C connection and the web-UI. Periodically check the official RadioMaster website for the latest firmware versions and instructions on how to update your controller. Keeping the firmware updated ensures access to new features and performance improvements.

7. Troubleshooting

7.1 Controller Beeps Before Connecting

If your T8L controller emits beeping sounds before establishing a connection with your receiver, it may indicate a calibration issue or a binding problem. First, ensure your receiver is correctly powered and in binding mode if necessary. If the issue persists, recalibrate your gimbals using the web-UI as described in the Maintenance

section. For a visual guide on recalibration, refer to the video below.

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Video 3: A guide on how to recalibrate the RadioMaster T8L controller if it beeps before connecting, ensuring proper functionality.

7.2 Connection Issues

- **Check Binding:** Ensure the controller is correctly bound to your receiver. Re-initiate the binding process if unsure.
- **Power Supply:** Verify that both the controller and the receiver have adequate power.
- **Range:** Ensure you are within the operational range of the ExpressLRS system.
- **Interference:** Minimize potential sources of 2.4GHz interference.

7.3 Unresponsive Controls

- **Recalibrate Gimbals:** Perform a gimbal calibration via the web-UI.
- **Check Connections:** Ensure all internal connections within the controller are secure (if you have opened it for maintenance).
- **Firmware:** Confirm that the controller is running the latest stable firmware.

8. Warranty & Support

For warranty information, technical support, or service inquiries, please refer to the official RadioMaster website or contact your authorized dealer. Keep your proof of purchase for warranty claims. Always follow safety guidelines and product instructions to ensure safe operation and maintain warranty validity.