RADIOMASTER ER8

RadioMaster ER8 2.4GHz PWM ExpressLRS 8 Channel Receiver Instruction Manual

Model: ER8

1. Introduction

This manual provides detailed instructions for the proper setup, operation, and maintenance of your RadioMaster ER8 2.4GHz PWM ExpressLRS 8 Channel Receiver. Designed for RC fixed-wing aircraft, the ER8 receiver offers high performance, reliability, and flexible configuration options based on the ExpressLRS system. Please read this manual thoroughly before using the product to ensure safe and optimal performance.

2. Product Overview

The RadioMaster ER8 receiver is a state-of-the-art 2.4GHz ExpressLRS receiver specifically engineered for fixed-wing aircraft. It features 8 PWM output channels, allowing direct connection to servos and other components. Key attributes include high performance, robust reliability, fast response speed, and ultra-long range capabilities. The receiver supports telemetry and offers convenient configuration via WiFi.

Image 2.1: Front view of the RadioMaster ER8 receiver, showing the 8 PWM output channels and the ExpressLRS 2.4 branding.

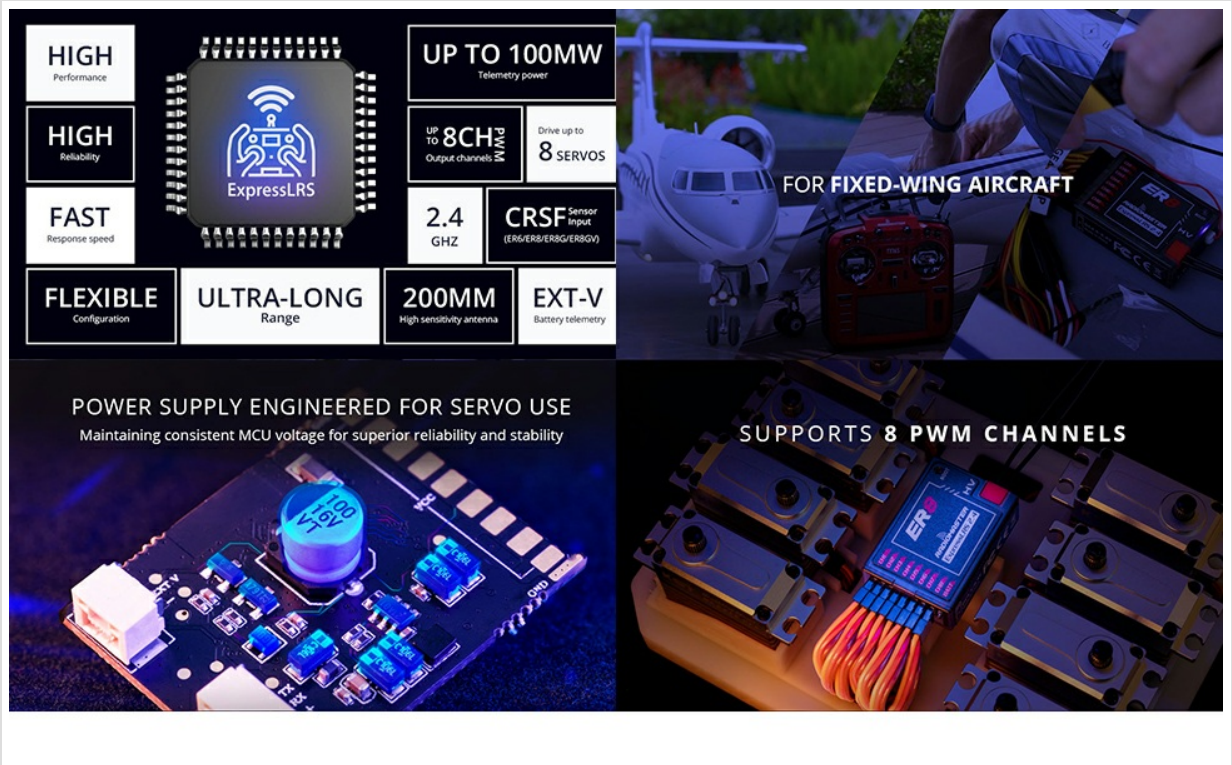


Image 2.2: Overview of key features including high performance, reliability, fast response, flexible configuration, ultra-long range, 200mm high sensitivity antenna, up to 100mW telemetry power, 8 PWM output channels, CRSF sensor input, and external battery voltage telemetry.

3. Specifications

Feature	Description
Item	ER8 2.4GHz ELRS PWM Receiver
Power Supply	DC 4.5 - 8.4V
Antenna Type	20cm high sensitivity antenna
Wireless Protocol	ExpressLRS 3.3.0 pre-installed
Output Channels	8CH PWM
Telemetry Power	Maximum 100mW (LUA Adjustable)
Battery Voltage Detection Range	DC 4.0 - 35V
Bus Interface	CRSF
Weight	16.5 grams
Dimensions	43mm x 30mm x 15mm

Image 3.1: The RadioMaster ER8 receiver with its dimensions clearly marked: 43mm length, 30mm width, and 15mm height.

Image 3.2: The RadioMaster ER8 receiver on a digital scale, displaying a weight of 16.50 grams.

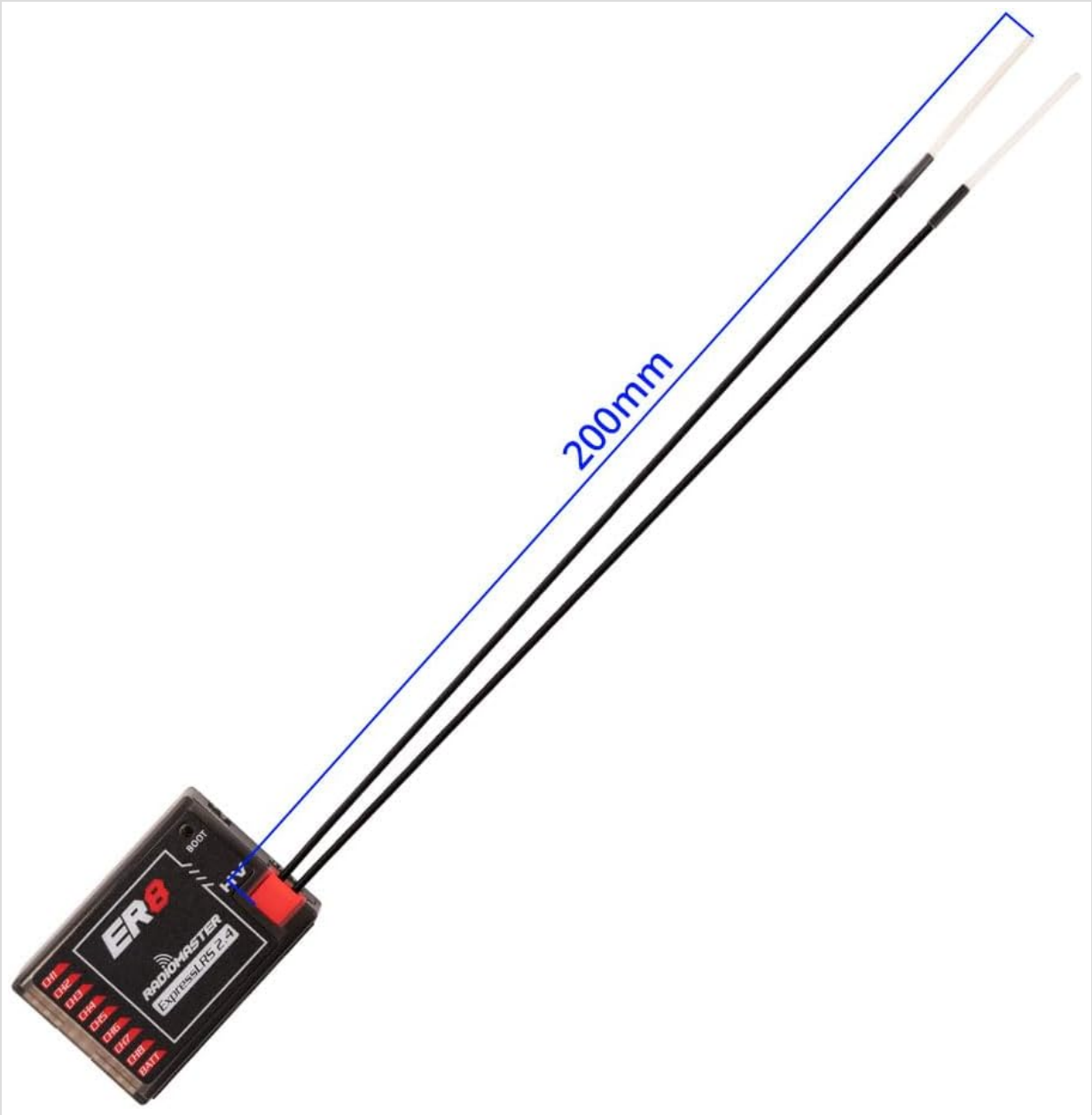


Image 3.3: The RadioMaster ER8 receiver with its dual 200mm high-sensitivity antennas extended, illustrating their length.

4. Package Contents

Upon opening your RadioMaster ER8 receiver package, you should find the following items:

- 1 x ER8 2.4GHz ELRS PWM Receiver
- 1 x Voltage telemetry wire (Type-B)
- 1 x CRSF wire
- 1 x ELRS-RX-SBUS wire
- 1 x User Card (Quick Start Guide)

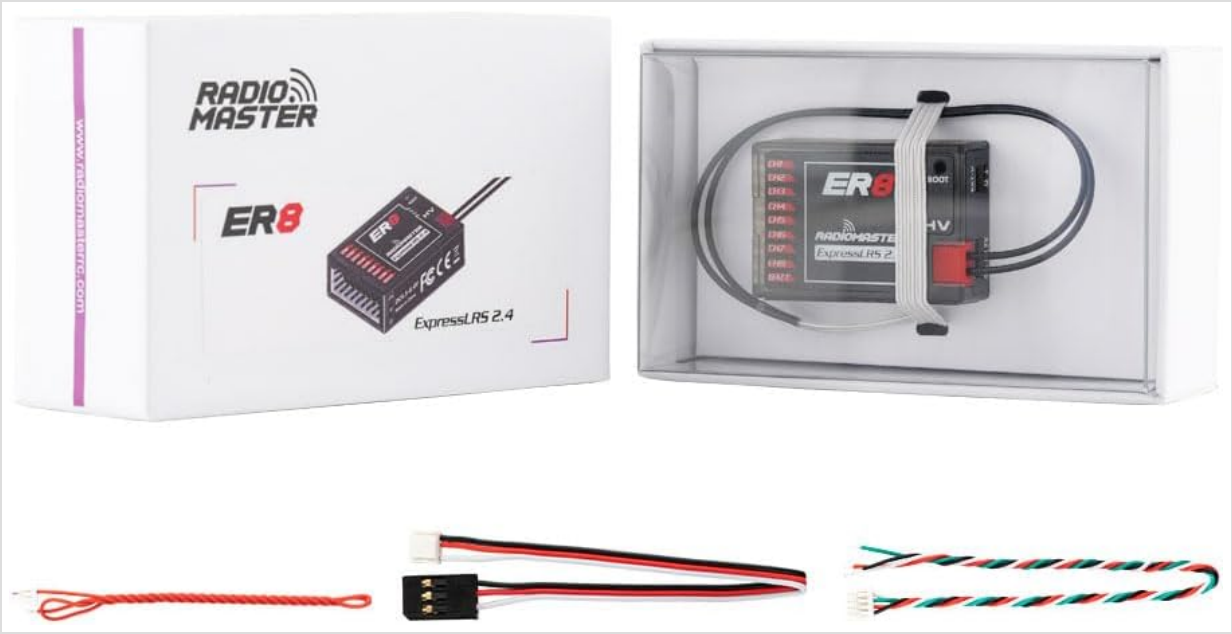


Image 4.1: The RadioMaster ER8 receiver shown with its retail packaging and all included accessories: voltage telemetry wire, CRSF wire, and ELRS-RX-SBUS wire.

5. Setup

5.1. Binding the Receiver

The ER8 receiver comes with ExpressLRS 3.3.0 pre-installed. To bind the receiver to your ExpressLRS compatible transmitter, follow these general steps:

1. Ensure your transmitter's ExpressLRS module is powered on and set to bind mode.
2. Power on the ER8 receiver. The LED on the receiver will flash slowly.
3. Quickly power cycle the receiver three times (power on, wait for LED flash, power off, repeat). On the third power-up, the LED should flash rapidly, indicating it is in bind mode.
4. Once the receiver is in bind mode, initiate the binding process from your transmitter.
5. A successful bind is indicated by a solid LED on the receiver.

For detailed binding procedures specific to your ExpressLRS firmware version and transmitter, refer to the official ExpressLRS documentation.

5.2. Wiring Connections

The ER8 receiver provides 8 PWM output channels, a CRSF bus interface, and an external voltage telemetry input.

- **PWM Channels (CH1-CH8):** Connect your servos, ESCs, or other PWM-controlled devices to the corresponding channels. Ensure correct polarity (Signal, Positive, Negative).
- **CRSF Interface (+ RX TX):** This 4-pin port is used for future optional telemetry sensors or other CRSF-compatible devices. Connect the included CRSF wire if needed.
- **External Voltage Telemetry (EXT-V):** Use the included Type-B voltage telemetry wire to connect to your aircraft's main battery for external voltage monitoring. The detection range is DC 4.0 - 35V.
- **Antenna:** The receiver comes with two 20cm high-sensitivity antennas. Ensure they are mounted in a way that provides optimal signal reception, typically at 90-degree angles to each other, away from carbon fiber or metal obstructions.

Image 5.1: Side view of the ER8 receiver showing the EXT-V port for external voltage telemetry and the + RX TX port for CRSF bus interface connections.

Image 5.2: Close-up of the ER8 receiver's antenna connection points and the 'BOOT' button, which is used for firmware updates and binding.

5.3. Firmware Updates and WiFi Configuration

The ER8 receiver supports WiFi updates and WebUI configuration. This allows for easy firmware upgrades and adjustment of receiver settings without physical connection to a computer.

1. To activate WiFi mode, power on the receiver and then quickly press the BOOT button twice. The LED will indicate WiFi mode (refer to ExpressLRS documentation for specific LED patterns).
2. Connect to the receiver's WiFi network from your computer or smartphone.
3. Open a web browser and navigate to the ExpressLRS WebUI (usually10.0.0.1).
4. From the WebUI, you can update firmware, configure output settings, and monitor telemetry data.

Image 5.3: This image highlights the ER8 receiver's support for voltage telemetry (both built-in and external) and its capability for WiFi updates and WebUI configuration, showing a laptop connected to the receiver's WiFi.

6. Operating Instructions

Once the ER8 receiver is successfully bound and wired, it is ready for operation. Always perform pre-flight checks to ensure all control surfaces respond correctly and telemetry data is being received by your transmitter.

- **Power On Sequence:** Power on your transmitter first, then power on your aircraft with the ER8 receiver.
- **Control Check:** Verify that all servos connected to the PWM channels respond accurately to your transmitter inputs.
- **Telemetry Monitoring:** Check your transmitter for telemetry data, including receiver voltage and any external voltage connected via the EXT-V port.
- **Range Testing:** Before flying, perform a range test according to your transmitter's instructions to ensure reliable signal strength.

Your browser does not support the video tag.

Video 6.1: An official product video from Hobbyporter RC showcasing the RadioMaster ER Series Receivers, including the ER8. This video provides a visual overview of the receiver's features and applications in RC aircraft.

7. Maintenance

Proper maintenance ensures the longevity and reliable performance of your ER8 receiver.

- **Physical Inspection:** Regularly inspect the receiver for any signs of physical damage, loose connections, or corrosion.
- **Antenna Care:** Ensure antennas are not kinked, cut, or damaged. Proper antenna placement is crucial for signal integrity.
- **Environmental Protection:** Protect the receiver from moisture, dust, and extreme temperatures. While

the case offers some protection, it is not fully waterproof.

- **Firmware Updates:** Keep the receiver firmware updated to the latest stable version to benefit from performance improvements and bug fixes.

8. Troubleshooting

If you encounter issues with your ER8 receiver, consider the following troubleshooting steps:

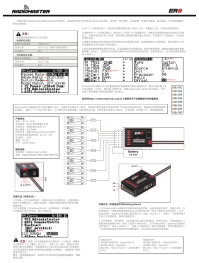
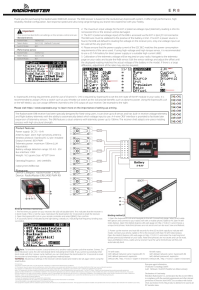
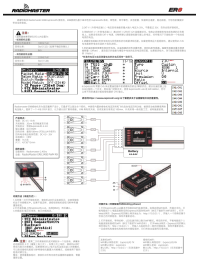
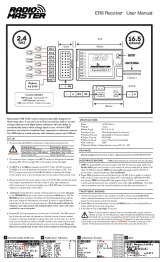
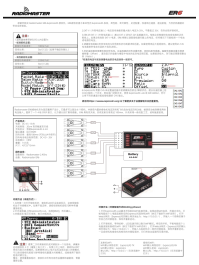
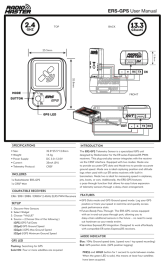
- **No Bind/Loss of Connection:**
  - Verify the binding procedure was followed correctly (power cycle three times for bind mode).
  - Ensure your transmitter's ExpressLRS module is powered on and operating on the correct frequency.
  - Check for firmware compatibility between the receiver and transmitter module. Update if necessary.
  - Inspect antenna connections and placement.
- **Intermittent Signal/Reduced Range:**
  - Check antenna orientation and ensure they are clear of obstructions (carbon fiber, metal).
  - Verify telemetry power settings (LUA adjustable, max 100mW).
  - Ensure no other 2.4GHz devices are causing interference.
- **No Servo Response:**
  - Confirm correct wiring polarity for servos.
  - Check power supply to the receiver and servos (DC 4.5 - 8.4V).
  - Ensure the receiver is successfully bound and receiving a signal.
- **No Telemetry Data:**
  - Verify the EXT-V wire is correctly connected for external voltage.
  - Check transmitter settings for telemetry display.
  - Ensure CRSF bus is correctly configured if using external sensors.

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

9. Warranty and Support

RadioMaster products are manufactured to high standards. For warranty information and technical support, please refer to the official RadioMaster website or contact your authorized dealer. Keep your proof of purchase for warranty claims.
For the latest firmware and detailed ExpressLRS information, visit the officialExpressLRS website.

Related Documents - ER8

	[RadioMaster ER8 ELRS Receiver User Manual and Setup Guide] Comprehensive guide for the RadioMaster ER8 ELRS receiver, covering setup, binding, telemetry, and product features for fixed-wing aircraft.
	[Radiomaster ER8 ELRS Receiver: Features, Setup, and Binding Guide] Comprehensive guide to the Radiomaster ER8 ELRS receiver, covering its features, important settings, traditional and passphrase binding methods, telemetry, and FCC compliance. Designed for fixed-wing aircraft.
	[Radiomaster ER8 ExpressLRS Receiver User Manual] Comprehensive user manual for the Radiomaster ER8 ExpressLRS 2.4GHz PWM receiver. Learn about its features, specifications, setup, and binding procedures for optimal performance in your RC aircraft.
	[RadioMaster ER8 Receiver User Manual] User manual for the RadioMaster ER8 2.4GHz ELRS PWM Receiver, detailing specifications, setup, firmware, and binding procedures for RC aircraft.
	[Radiomaster ER6 ExpressLRS Receiver User Manual and Guide] Comprehensive guide to the Radiomaster ER6 2.4GHz ELRS PWM receiver, covering setup, features, important notes, and binding methods for fixed-wing aircraft.
	[RadioMaster ERS-GPS Telemetry Sensor User Manual] User manual for the RadioMaster ERS-GPS Telemetry Sensor, detailing specifications, setup, features, and operation for ExpressLRS PWM receivers.