SPEEDY BEE ER4

Speedybee RadioMaster ER4 ELRS PWM Receiver Instruction Manual

1. Introduction

The Speedybee RadioMaster ER4 2.4GHz ELRS PWM Receiver is designed for remote control applications, offering high performance and reliability. This receiver is based on the ExpressLRS system, known for its flexible configuration, fast response speed, and ultra-long range capabilities. Its compact and lightweight design makes it suitable for various models, including small aircraft, ship models, and car models.
This manual provides essential information for the proper installation, operation, and maintenance of your ER4 receiver.

2. Product Overview

The ER4 receiver features 4 PWM channels, allowing it to drive up to four servos simultaneously. It incorporates advanced features such as automatic voltage telemetry for both external battery voltage and built-in receiver voltage. The receiver also supports Wi-Fi updates and WEBUI configuration for easy firmware management and settings adjustments.

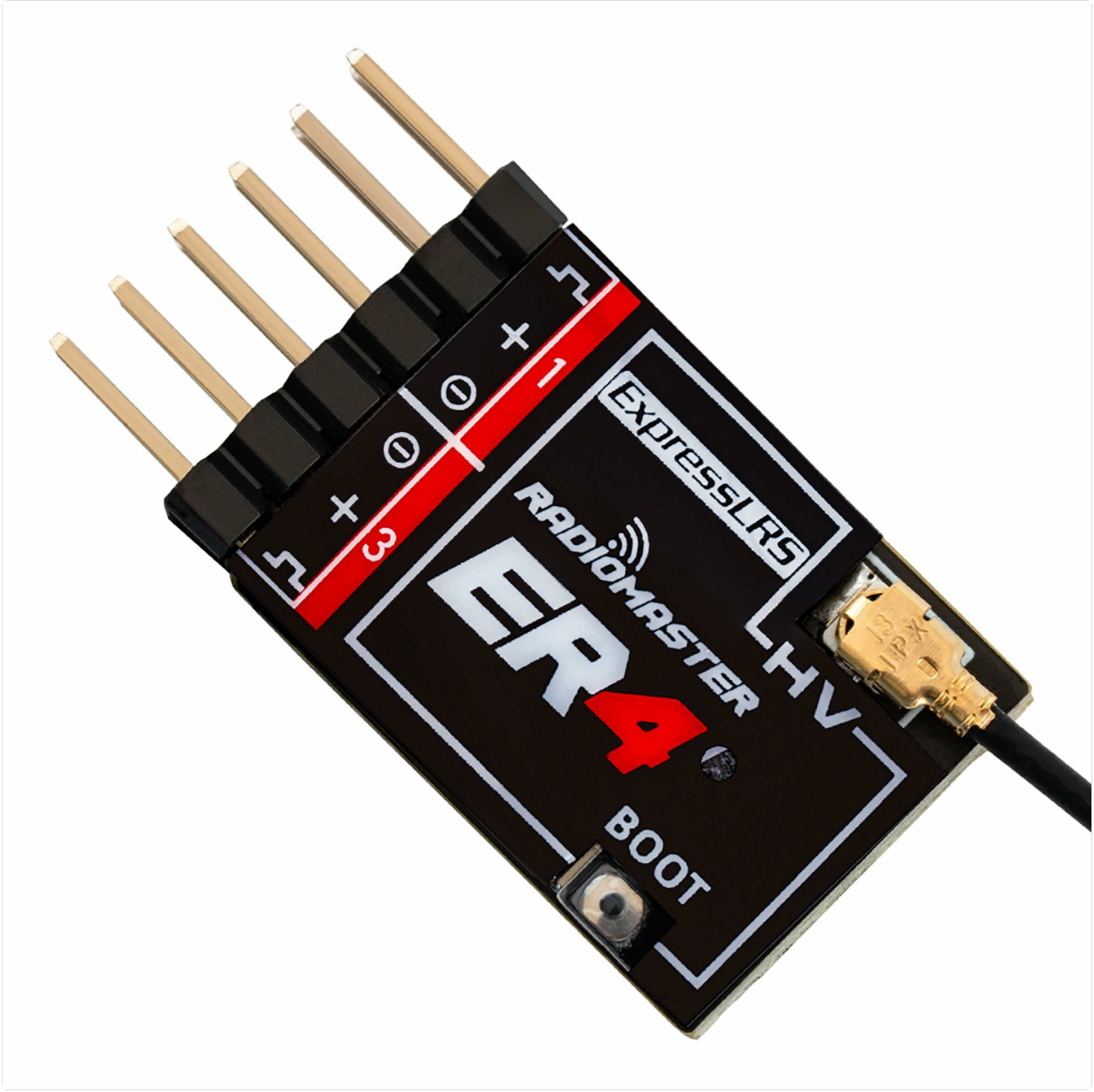

Figure 2.1: Speedybee RadioMaster ER4 ELRS PWM Receiver with antenna and servo pins.

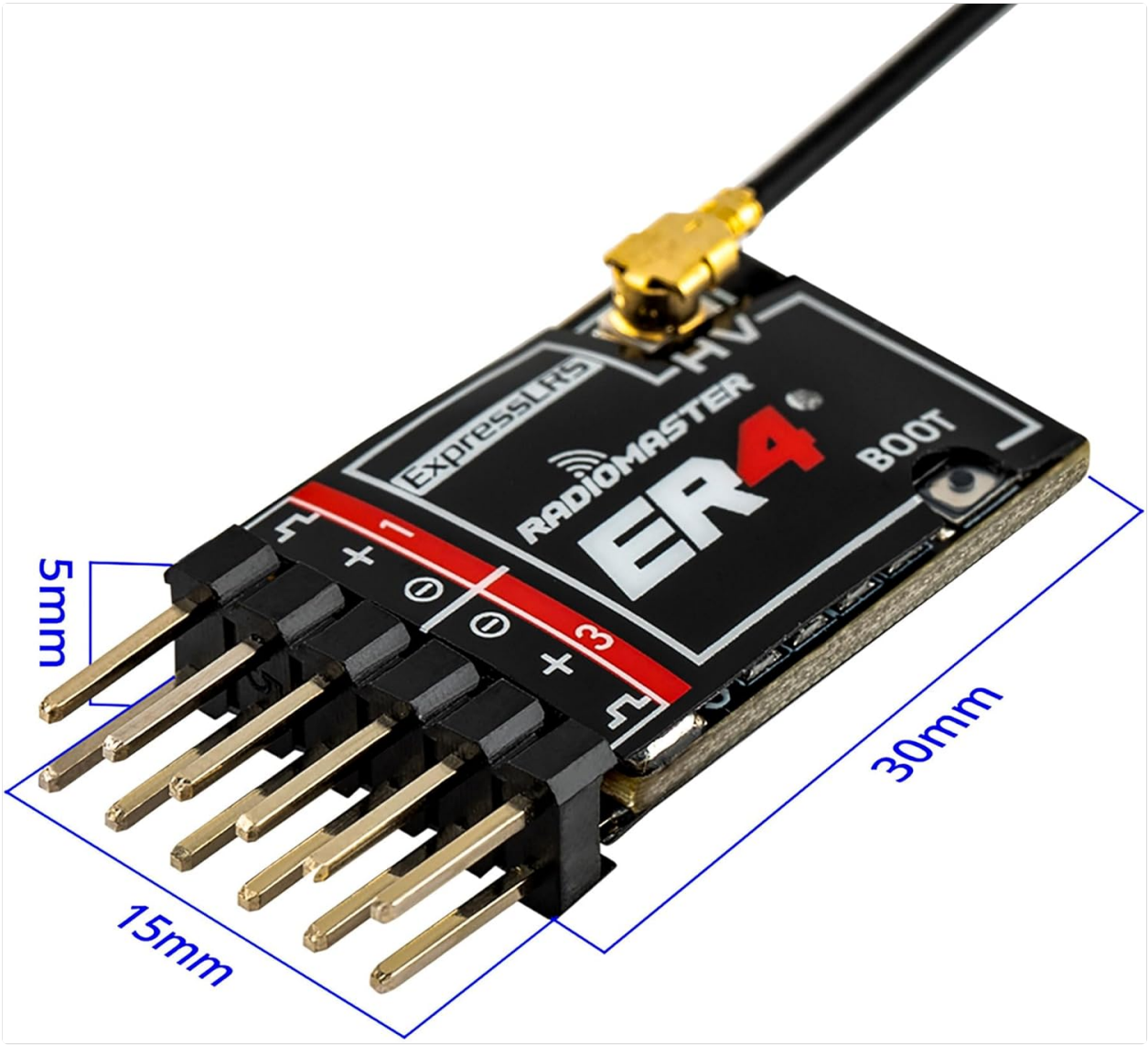

Figure 2.2: Dimensions of the ER4 ELRS PWM Receiver, showing its compact size (30mm length, 15mm width, 5mm height).

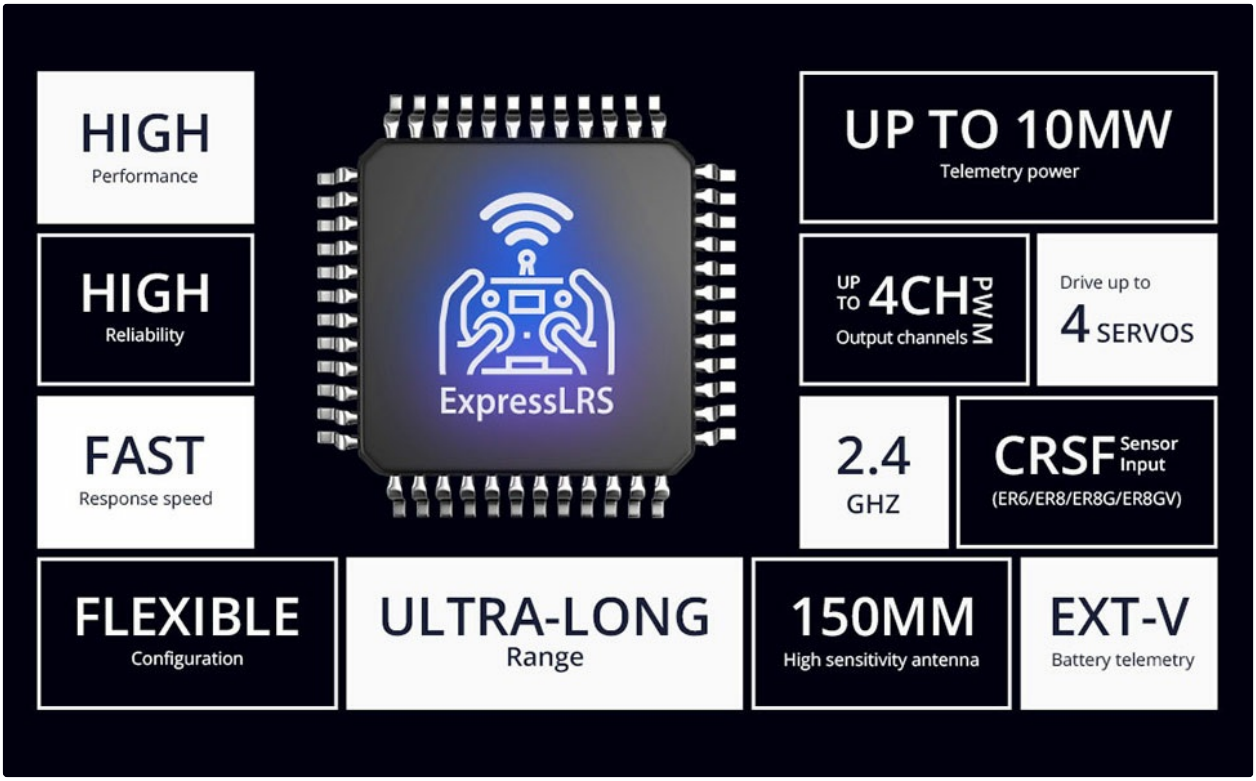

Figure 2.3: Overview of ExpressLRS system features, highlighting high performance, reliability, fast response, flexible configuration, ultra-long range, 2.4 GHz frequency, up to 100mW telemetry power, up to 8 output channels (for ER8), and

battery telemetry.

Figure 2.4: Detailed view of the optimized PCB design, featuring a high-quality 2.54mm connector with 2μm gold plating for strong corrosion resistance.

3. Setup

3.1 Components

The ER4 receiver package includes:

- ER4 ELRS PWM Receiver
- 15 cm high sensitivity antenna
- Heat-shrink tubes
- Voltage telemetry wire

3.2 Wiring and Connection

Connect the receiver to your model's flight controller or servos using the provided 2.54 mm connectors. The ER4 supports 4 PWM channels. If more than one servo is connected to a single channel, a Y-cable may be required.

Figure 3.1: The ER4 receiver connected to servos, illustrating its 4 PWM channel support. Note that using multiple servos on one channel may require a Y-cable.

3.3 Binding

The ER4 receiver utilizes the ExpressLRS system for binding. Refer to your ExpressLRS transmitter module's instructions for the specific binding procedure. Typically, this involves putting both the transmitter and receiver into binding mode. The ER4 supports bind phrases for simplified setup.

4. Operating

4.1 Servo Control

Once bound, the ER4 receiver will output PWM signals to the connected servos based on the commands from your ExpressLRS transmitter. Ensure that the servo connections correspond to the desired control channels on your transmitter.

4.2 Voltage Telemetry

The ER4 receiver supports automatic voltage telemetry. This allows you to monitor either the external battery voltage (if connected via the dedicated telemetry wire) or the built-in receiver voltage directly from your compatible ExpressLRS transmitter. Connect the included voltage telemetry wire to the appropriate port on the receiver and the battery for external voltage monitoring.

5. Maintenance

5.1 Firmware Updates

The ER4 receiver supports Wi-Fi updates. This allows for convenient firmware upgrades to ensure optimal performance and access to new features. Connect the receiver to a power source, then access its Wi-Fi hotspot from a computer or mobile device to perform updates via a web interface (WEBUI configuration).

5.2 General Care

Keep the receiver clean and free from dust and moisture. Avoid exposing it to extreme temperatures or physical shock. Ensure the antenna is securely connected and positioned for optimal signal reception.

6. Troubleshooting

If you encounter issues with your ER4 receiver, consider the following:

- **No Signal/Binding Issues:** Ensure both the transmitter and receiver are powered on and in binding mode. Verify that the bind phrase is correctly set on your transmitter. Check for proper antenna connection.
- **Intermittent Connection:** Check antenna placement and ensure it is not obstructed by carbon fiber or metal components. Verify the range and power settings on your transmitter.
- **Incorrect Servo Movement:** Confirm that servos are connected to the correct PWM channels. Calibrate your transmitter and check channel assignments.
- **Telemetry Data Missing:** Ensure the voltage telemetry wire is correctly connected to both the receiver and the battery (if using external voltage monitoring). Verify telemetry settings on your transmitter.
- **Firmware Update Failure:** Ensure a stable Wi-Fi connection during updates. Re-attempt the update process.

For further assistance, refer to the official ExpressLRS documentation or contact Speedybee customer support.

7. Specifications

Feature	Specification
Model Name	ER4 2.4GHz ELRS PWM Receiver
Brand	SPEEDY BEE
Wireless Type	Radio Frequency
Connectivity Technology	Wi-Fi
Processor	ARMv7
RAM	LPDDR4
Operating System	FreeRTOS
Item Weight	0.317 ounces
Product Dimensions (LxWxH)	1.46 x 0.75 x 0.51 inches
Included Components	ELRS Receiver, Antenna, Telemetry Wire, Heat-shrink tubes

8. Official Product Video

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Video 8.1: An official product video showcasing the RadioMaster ER Series ELRS PWM Receivers, including the ER4 model. This video provides a visual overview of the receiver's features and design.

9. Warranty and Support

For warranty information and technical support, please refer to the official Speedybee website or contact your retailer. Keep your proof of purchase for any warranty claims.