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Xiangtat ER8GV

Radiomaster ER8GV 8CH PWM CRSF ExpressLRS Dual Antenna Receiver User Manual

Brand: Xiangtat | Model: ER8GV

1. Introduction and Overview

The RadioMaster ER series of PWM receivers are built upon the advanced ExpressLRS system, offering exceptional performance, high reliability, and flexible configuration options. Designed for fast response speeds and ultra-long range, this receiver enhances your remote control experience.
The ER8GV receiver is specifically engineered for glider pilots, featuring a compact and slim design. It supports up to 8 servo channels and includes built-in receiver voltage telemetry and flight battery telemetry. It automatically detects which voltage input to utilize (only one voltage input can be used at any given time). The ER8GV incorporates a dual-antenna setup with telemetry power up to 100mw and can be powered by a 1S Lipo receiver battery. This model also includes a high-precision air pressure sensor (Vario) for altitude sensing.

2. Key Features

- Based on the Revolutionary ExpressLRS System.
- High performance, high reliability, flexible configuration, fast response speed, and ultra-long range.
- Supports 8 PWM Channels.
- Optimized ground-up PCB design for modern servos.
- Automatic voltage telemetry for external battery voltage or built-in receiver voltage.
- Built-in high-precision air pressure sensor (Vario) for the ER8GV model.
- Supports Wi-Fi updates and WEBUI configuration.
- Reserved 4-pin CRSF input port for future optional telemetry sensors.
- High quality 2.54 mm connector.
- Standard 20 cm High Sensitivity Antenna.
- Ideal for fixed-wing aircraft and gliders.

3. Specifications (ER8GV)

Feature	Detail
Item	ER8GV 2.4GHz ELRS PWM Receiver
Power Supply	DC 3.5 - 8.4V
Antenna Type	20cm high sensitivity antenna
Wireless Protocol	ExpressLRS 3.3.0 pre-installed
Output Channel	8CH PWM
Telemetry Power	Maximum 100mw (LUA Adjustable)
Built-in Sensor	High-precision air pressure sensor (Vario)
External Battery Voltage Detection Range	DC 4.0 - 35V
Weight	12 grams
Dimensions	60 x 13.5 x 13mm (2.36 x 0.53 x 0.51 inches)
Firmware Device Category	Radiomaster 2.4Ghz
Firmware Device	ER8G/ER8GV 2400 PWM RX

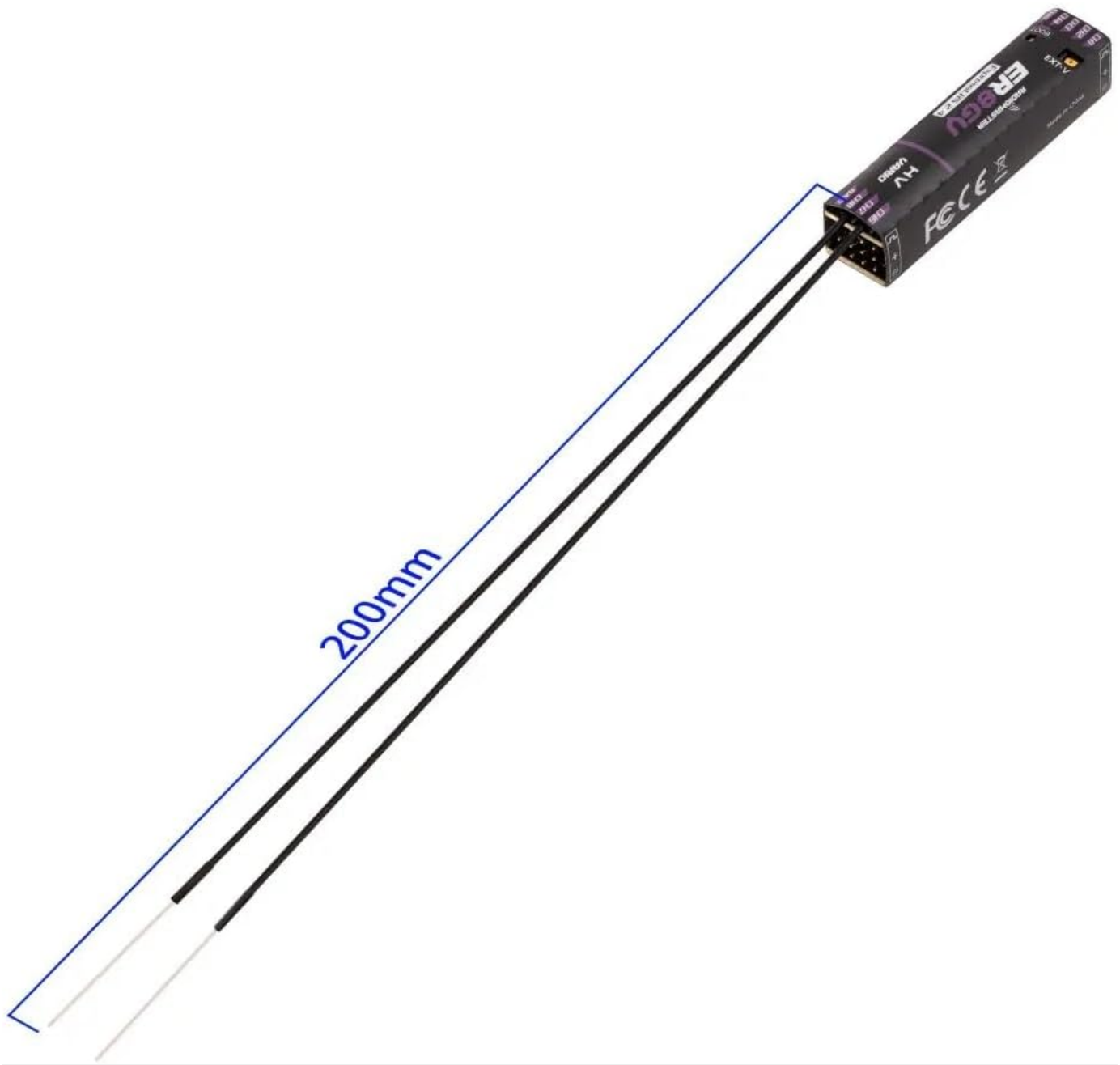


Figure 3.1: ER8GV receiver showing the 200mm antenna length.



Figure 3.2: ER8GV receiver with its physical dimensions.



Figure 3.3: ER8GV receiver weight measurement.

4. Setup and Installation

4.1. Initial Inspection

Upon receiving your ER8GV receiver, carefully inspect the unit for any visible damage. Ensure all included accessories are present as listed in the "Package Contents" section.

4.2. Connecting Servos and Power

Connect your servos to the appropriate PWM channels (CH1-CH8) on the receiver. The receiver can be powered via any servo channel or the dedicated BATT port. Ensure the power supply is within the specified DC 3.5 - 8.4V range. The receiver features an optimized PCB design for use with modern servos.



Figure 4.1: Top view of the ER8GV receiver with channel and power connections.



Figure 4.2: Side view of the ER8GV receiver highlighting power input and serial ports.

4.3. Binding Procedure (ExpressLRS)

To bind the ER8GV receiver to your ExpressLRS transmitter, follow these general steps:

1. Ensure your transmitter is running ExpressLRS firmware and is configured for 2.4GHz.
2. Power on the ER8GV receiver. The LED on the receiver will flash slowly, indicating it's not bound.
3. Rapidly cycle power to the receiver three times (power on, power off, power on, power off, power on). After the third power cycle, the LED should flash rapidly, indicating it's in binding mode.
4. On your ExpressLRS transmitter, initiate the binding process. Refer to your transmitter's manual for specific instructions on how to enter binding mode.
5. Once successfully bound, the receiver's LED will turn solid.

For detailed binding instructions and advanced configuration, please refer to the official ExpressLRS documentation and your transmitter's user manual.

4.4. Firmware Updates and Configuration (Wi-Fi)

The ER8GV supports Wi-Fi updates and WEBUI configuration. This allows for convenient firmware upgrades and parameter adjustments without needing a physical connection to a computer.

1. To activate Wi-Fi mode, power on the receiver and then press and hold the "BOOT" button for approximately 5-10 seconds until the LED behavior changes (e.g., a specific flash pattern).

2. Connect to the receiver's Wi-Fi network from your computer or mobile device. The network name (SSID) will typically be "ExpressLRS_RX" followed by a unique identifier.
3. Open a web browser and navigate to10.0.0.1 (or the IP address specified in the ExpressLRS documentation).
4. From the WEBUI, you can upload new firmware, configure settings, and monitor telemetry data.

Always ensure you are using compatible firmware versions for both your transmitter and receiver to ensure optimal performance and functionality.

5. Operating Instructions

5.1. Telemetry Functionality

The ER8GV receiver provides comprehensive telemetry data back to your ExpressLRS compatible transmitter. This includes:

- **Receiver Voltage Telemetry:** Automatically reports the voltage supplied to the receiver.
- **Flight Battery Telemetry (External):** The receiver can detect and report the voltage of an external flight battery when connected to the dedicated EXT-V port. The system automatically prioritizes the external voltage input if both are connected.
- **Vario (ER8GV only):** The built-in high-precision air pressure sensor provides real-time altitude and vertical speed (variometer) data, crucial for glider pilots.

Ensure your transmitter's LUA scripts or telemetry settings are correctly configured to display and log this information.

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Video 5.1: An overview of the Radiomaster ER series receivers, highlighting features such as ExpressLRS compatibility, PCB design, voltage telemetry, and Vario functionality. It also showcases different models in the series and their intended applications.

5.2. CRSF Input Port

The ER8GV receiver includes a reserved 4-pin CRSF input port. This port allows for the connection of future optional telemetry sensors, expanding the data collection capabilities of your system. Consult ExpressLRS documentation for compatible sensors and configuration details.

6. Maintenance

- **Cleaning:** Keep the receiver clean and free from dust, dirt, and moisture. Use a soft, dry cloth for cleaning. Avoid using solvents or harsh chemicals.
- **Storage:** Store the receiver in a cool, dry place away from direct sunlight and extreme temperatures.
- **Antenna Care:** Ensure the antennas are not bent or damaged. Proper antenna orientation is crucial for optimal signal reception and range. Avoid cutting or modifying the antenna wires.
- **Connections:** Periodically check all connections to ensure they are secure and free from corrosion.

7. Troubleshooting

Problem	Possible Cause	Solution
Receiver not binding	Incorrect binding procedure; incompatible firmware; transmitter not in bind mode.	Review Section 4.3 for binding steps. Ensure transmitter and receiver firmware versions are compatible. Verify transmitter is in bind mode.

Problem	Possible Cause	Solution
No telemetry data	Telemetry not enabled on transmitter; incorrect wiring for external voltage; sensor not connected.	Check transmitter settings to ensure telemetry is enabled. Verify external voltage wire is correctly connected to EXT-V port. Ensure CRSF sensors are properly connected if used.
Poor range or signal loss	Damaged antennas; improper antenna placement; interference.	Inspect antennas for damage and ensure they are correctly oriented (90 degrees apart for diversity). Avoid placing antennas near carbon fiber or large metal objects. Check for local interference sources.
Servos not responding	No power to receiver; receiver not bound; incorrect channel mapping.	Verify power supply to the receiver. Confirm successful binding (solid LED). Check channel mapping on your transmitter.

8. Package Contents

The ER8GV 2.4GHz ELRS PWM Receiver package includes the following items:

- 1 * ER8GV 2.4GHz ELRS PWM Receiver
- 2 * Heat-shrink tube
- 1 * Voltage telemetry wire (Type-A)
- 1 * CRSF wire
- 1 * ELRS-RX-SBUS wire
- 1 * User Card



Figure 8.1: Contents included in the ER8GV receiver package.

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