RadioMaster ER8GV

ExpressLRS 2.4 GHz receiver with 8 PWM outputs and vario

User Manual



Read the entire manual carefully before installation and first use, and keep it for future reference.

Importer: Rotorama, s.r.o. · www.rotorama.com

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1. Safety Instructions

- The receiver is intended for radio-controlled models. Carry out installation and setup only with the drive battery disconnected or with the propeller removed – the motor may start unexpectedly during wiring and binding.
- Power the receiver only with a voltage in the range of **DC 3.5–8.4 V**. A higher voltage will damage the receiver.
- The voltage at the EXT-V input (external battery measurement) must not exceed **35 V**, otherwise the receiver will be damaged.
- Connect power from the ESC/BEC or from the receiver battery only to channels **CH1 to CH5**, never to CH6.
- Observe the correct polarity of all connectors (−, +, signal). Reverse polarity can destroy the receiver and the connected servos.
- Do not cut or bend the antennas and do not route them along wires, metal or carbon parts. A damaged antenna significantly reduces the range.
- Before every flight, check the function of all control surfaces and the failsafe setting, and perform a range check.
- Protect the receiver from moisture, dust, impacts and vibration. Do not use it if it is mechanically damaged.
- This product is not a toy. Keep it out of the reach of children – small parts may be swallowed.

2. Product Description

2.1 Introduction

The Radiomaster ER8GV receiver has been specially designed for glider pilots who require a compact and slim receiver with a built-in vario function. It can drive up to 8 servos and has built-in receiver voltage telemetry and flight battery telemetry with the ability to automatically detect which voltage input to use. The ER8GV features dual antennas with telemetry power up to 100 mW. The ER8GV can work with 1S Li-Po receiver batteries.

2.2 Specifications

Parameter	Value
Size	60 × 13.5 × 13 mm
Weight	12 g
Power supply	DC 3.5–8.4 V
Antennas	2× 20 cm (high sensitivity)
Wireless protocol	ExpressLRS 2.4 GHz (pre-installed)
Output channels	8× PWM
Serial output	CRSF / SBUS
Telemetry power	max. 100 mW (adjustable in ELRS Lua)
Vario	built-in high-precision air pressure sensor
External battery voltage detection range	DC 4.0–35 V

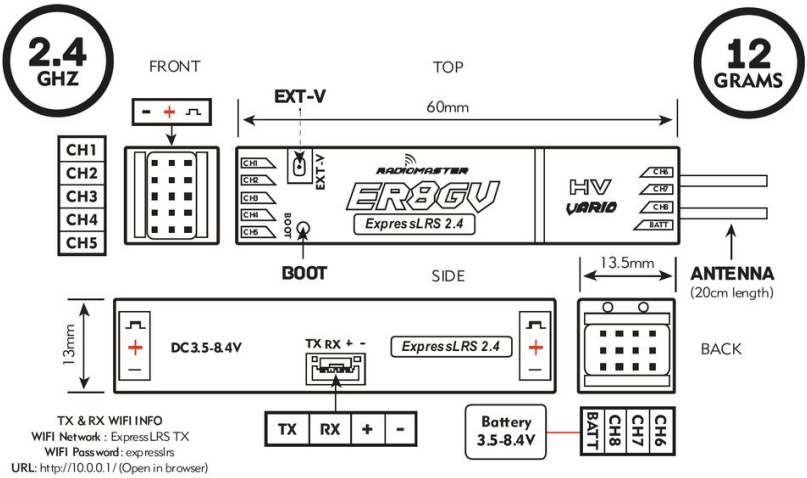
2.3 Package Contents

According to the manufacturer, the package contains:

- 1× ER8GV receiver
- 2× heat-shrink tube
- 1× voltage telemetry wire (Type-A)
- 1× CRSF wire
- 1× ELRS-RX-SBUS wire
- 1× user card

Batteries, servos, the radio transmitter and the ExpressLRS transmitter module are not included.

2.4 Receiver Overview



Front, top, side and back view

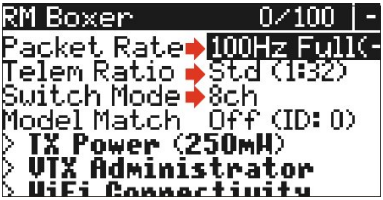
- **CH1–CH5** (front) – servo outputs, 3 pins: − (negative), + (power), signal. The receiver is also powered through these channels.
- **CH6, CH7, CH8 and BATT** (back, next to the antennas) – CH6–CH8 servo outputs and the **BATT** input for the receiver battery (3.5–8.4 V).
- **EXT-V** – solder pad on the top of the PCB for measuring the voltage of the external (flight) battery.
- **BOOT** – button for resetting the receiver and entering bind mode.
- **TX RX + −** (side) – 4-pin port for the CRSF / SBUS serial connection.
- **Antennas** – two antennas, 20 cm long.
- **Wi-Fi info** shown in the drawing: network *ExpressLRS TX*, password *expresslrs*, web interface at http://10.0.0.1/ (open in browser).

3. Connection and Setup

3.1 Recommended ELRS Lua Settings

The recommended ELRS Lua settings on the remote-control end are:

Item	Standard servos	Performance servos
Packet Rate	100Hz Full	333Hz Full
Telem Ratio	Std (1:32) – default	Std (1:128)
Switch Mode	8ch	8ch



Recommended settings in ELRS Lua

3.2 Powering the Receiver

Power the receiver from an ESC (with BEC) or from a receiver battery in the range of DC 3.5–8.4 V. Power from an ESC or receiver battery must **only be applied to channels CH1 to CH5**, or to the BATT input.

Channel CH6 on the receiver must not be used as the power input channel. It may only be used as a servo output.

3.3 External Battery Voltage Measurement (EXT-V)

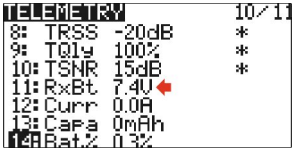
- The EXT-V of the ER8GV is accessed via the **EXT-V solder pad** on the PCB. A single wire must be soldered to this pad and connected to the positive wire of the battery or ESC.
- The external battery voltage sense wire is connected to the positive pole of the battery (soldered to the positive lead of the ESC). Make sure that the external voltage is not connected on its own without the receiver being powered from the BEC.
- If no EXT-V power source is found, the ER8GV defaults to reading the voltage on the receiver pins. Only one voltage input can be used at any given time.

The maximum input voltage for EXT-V is 35 V. Do not exceed 35 V or the receiver will be damaged.

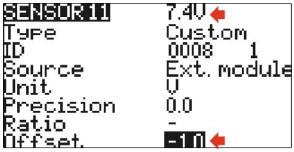
3.4 Voltage Telemetry Calibration

Calibration of the telemetry voltage will be required on your radio. Navigate to the *TELEMETRY* page on your radio and locate the **RxBt** sensor. Edit the sensor settings and adjust the *Offset* until the displayed reading matches the actual voltage of the battery in the model. If there is a large difference, adjustment of the *Ratio* may also be required.

※ For best results, calibrate the voltage on your radio using a fully charged battery of the correct cell count intended for use in the model.



TELEMETRY page – RxBt sensor



Sensor settings – Offset

3.5 Channel 5 and Arming

CH5 is required by ExpressLRS to set the Arm state of the RF module in your radio. It is recommended to assign CH5 to a switch, such as your throttle cut switch, as this provides benefits such as dynamic power.

Using the ExpressLRS Lua or the Wi-Fi WebUI, you can assign different channels to the CH5 output of your receiver. In the example, channel CH9 is assigned to the CH5 output.

CH1 : CH1
CH2 : CH2
CH3 : CH3
CH4 : CH4
CH5 : CH9
CH6 : CH6
CH7 : CH7
CH8 : CH8

Output mapping example – CH5 : CH9

Please visit www.expresslrs.org to learn more about the importance of setting up arming.

4. Binding

4.1 Passphrase Binding

※ Bind phrases are not secret and can be read.

① Open the ExpressLRS Lua and navigate to the *WiFi Connectivity* page. Select *Enable WiFi* and connect to your radio's Wi-Fi (network *ExpressLRS TX*) with a mobile phone, tablet or PC. Open the ExpressLRS web page at http://10.0.0.1/ and choose a unique bind phrase. Select *Save and Reboot*.

② Power on the receiver and wait 60 seconds for the LED to blink rapidly to indicate Wi-Fi mode. Connect your phone, tablet or PC to the receiver's Wi-Fi, open http://10.0.0.1/ and enter the matching bind phrase previously entered on your radio. Select *Save and Reboot*. Once both the radio and the receiver have the same bind phrase set, they will bind automatically.

4.2 Traditional Binding

① The first time you power on your receiver, the LED does a quick double blink, which indicates that the receiver is in bind mode. If this is not the case, hold down the BOOT button for 10 seconds to reset the receiver.

② Power on your transmitter/radio and use the *[Bind]* button in the ExpressLRS Lua script, which sends out a binding pulse.

③ If the receiver LED is solid, it is bound.



[Bind] item in ELRS Lua

4.3 Rebinding and Reset

To bind the receiver a second time or to another radio, power cycle the receiver 3 times. On the third power cycle, the LED will double blink, indicating bind mode. If you cannot enter bind mode with the 3 power cycle method, hold down the BOOT button for 10 seconds to reset the receiver to bind mode, or use the passphrase method.

Warning: all previous settings in the receiver will be erased and need to be re-entered when using the BOOT reset button.

5. Firmware and Further Guides

The receiver comes with ExpressLRS firmware pre-installed. It supports Wi-Fi firmware updates and configuration via the web interface (WebUI). When updating in ExpressLRS Configurator, select:

Device Category	Radiomaster 2.4Ghz
Device	RadioMaster ER8G/ER8GV 2400 PWM RX

※ For operation in EU countries, select the EU regulatory domain (*EU_CE_2400*, LBT) in the firmware configuration. The transmitter and the receiver must use the same domain.

Official documentation: www.expresslrs.org (ExpressLRS) and edgetx.org (EdgeTX).

6. Radio Parameters and Operation

6.1 The Law of the Country of Operation Applies

Directive 2014/53/EU (RED) applies in all Member States of the European Union, but the permitted frequency bands and maximum transmitting power are set by national regulations and may differ from country to country. The information in this chapter describes the situation in the Czech Republic. If you operate the model in another country, you must comply with the regulations of the country in which you operate it.

6.2 Frequency Bands and Transmitted Power

Radio part	Frequency band	Max. transmitted power
ExpressLRS (control and telemetry)	2404–2474 MHz	max. 100 mW (adjustable in ELRS Lua; manufacturer's data)
Wi-Fi (configuration, updates)	2412–2472 MHz	17.48 dBm e.i.r.p. [1]
Bluetooth	2402–2480 MHz	5.26 dBm e.i.r.p. [1]

[1] Measured value according to EU-type examination certificate SHEA1538-EU.

- In the Czech Republic, wideband devices in the 2400–2483.5 MHz band may transmit with a maximum power of **100 mW e.i.r.p.** (CTU general authorisation VO-R/12). The limit includes the antenna gain.
- The user is responsible for setting the transmitting power and the firmware regulatory domain. Outside the Czech Republic, the limits of the respective country apply.
- Do not modify the antennas or the receiver hardware and do not use additional amplifiers.

7. Maintenance and Troubleshooting

- Keep the receiver dry and clean. Regularly check the condition of the antennas, connectors and cables.
- Route the antennas apart from each other and away from wires, metal and carbon parts, ideally in different directions.
- After every change in wiring or settings, check the function of all control surfaces and the failsafe.

Problem	Possible solution
Receiver does not bind	Check that the transmitter and receiver have the same bind phrase and firmware regulatory domain. Enter bind mode (power cycle 3 times, or BOOT for 10 s).
LED blinks rapidly	The receiver has entered Wi-Fi mode (after 60 s without a link). Switch on the radio or connect to the WebUI.
RxBt voltage incorrect	Calibrate Offset / Ratio (chapter 3.4). Check the EXT-V connection.
Arming / dynamic power does not work	Check the assignment of CH5 to a switch (chapter 3.5).
Short range	Check the antennas for damage and routing, and the power setting.

8. Information for the EU and Czech Market

8.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.com

8.2 Product conformity

CE

- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorama.cz.
- **Product identification:** the type designation (ER8GV) is printed on the receiver housing and on its packaging.
- Simplified EU declaration of conformity: Shenzhen RadioMaster Co., Ltd hereby declares that the radio equipment type ER8GV is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at radiomasterrc.com/pages/certificatiion and from the importer.

8.3 Disposal of electrical equipment



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

9. Warranty and rights arising from defective performance

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 8.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.